ENERPAC

# INDUSTRIAL TOOLS

Cylinders
Lifting Products
Pumps
Control Valves
System Components
Presses
Pullers
Specialty Tools
Cutters
Bolting Tools
Flange Maintenance
Heavy LIfting Technology
Portable Machining




400+ PAGES FILLED
WITH OVER 2,000 TOOLS

US E330

# Model Number Index


**A**

**A** . . . . . 151-153, 174-176, 217
**A5-A10** . . . . . 206-207
**A12** . . . . . .10
**A13-A28** . . . . . 206-207
**A29-A53** . . . . . .10
**A64-A66** . . . . . .152
**A92** . . . . . .217
**A102** . . . . . .10, 39
**A128-A192** . . . . . 206-207
**A152** . . . . . .10
**A185** . . . . . .206
**A200-A200R** . . . . . .176
**A205-A220** . . . . . .174-175
**A218** . . . . . .206-207
**A242-A305** . . . . . .206-207
**A252** . . . . . .10, 41
**A310, A330** . . . . . .174-175
**A530-A595** . . . . . .206-207
**A604** . . . . . .151
**A607** . . . . . .206-207
**A630** . . . . . .148-149, 151
**A650** . . . . . 206-207
**A92** . . . . . 217
**AD** . . . . . .39
**AH** . . . . . 148-149,151
**AM** . . . . . .152-153
**AMGC** . . . . . .29, 152, 162
**AR** . . . . . .151
**ATM** . . . . . .330-331
**ATP** . . . . . .327
**AW** . . . . . .10

**B**

**B** . . . . . .225, 325
**BC** . . . . . .225
**BFZ** . . . . . .153
**BH** . . . . . .325
**BHP** . . . . . .184-187, 193, 198
**BK** . . . . . .144
**BLJS** . . . . . .367
**BLS** . . . . . 72-73
**BR** . . . . . .325
**BRC** . . . . . 32-33
**BRP** . . . . . 32-33
**BS** . . . . . .391
**BSH** . . . . . .244
**BUS** . . . . . .245
**BW** . . . . . 325
**BZ** . . . . . .219

**C**

**C** . . . . . 150-151
**CATS** . . . . 10, 13, 15, 21, 27, 41
. . . . . 49, 51, 53, 55, 57, 59
**CD** . . . . . .151
**CF** . . . . . 151
**CH** . . . . . 151, 236-237
**CHT** . . . . . .389
**CM** . . . . . .151, 216
**CR** . . . . . .151
**CULP** . . . . . .22
**CUSP** . . . . . .23
**CT** . . . . . .151
**CW** . . . . . .186

**D**

**DDA** . . . . . 276
**DDU** . . . . . 393
**DGR** . . . . . 161
**DLR** . . . . . .382-383
**DSX** . . . . . .274-276

**E**

**E** . . 102-103, 284-285, 294-295
**EAJ** . . . . . .316-317
**EBC** . . . . . .225
**EBE** . . . . . .224
**EBH** . . . . . .222-223
**ECCE** . . . . . .228-229
**ECSE** . . . . . .233
**EDCH** . . . . . .226
**EFBE** . . . . . .227
**EGM** . . . . . .131
**ELB** . . . . . .214
**ELP** . . . . . .214-215
**EP** . . . . . 102-103, 290-291
**EPH** . . . . . .201
**ER** . . . . . .214-215
**ERA** . . . . . .269
**ERH** . . . . . .214
**ERT** . . . . . .269
**ES** . . . . . .214-215
**ETT** . . . . . 82
**ETR** . . . . . 370-371
**EVO** . . . . . 134, 136-137
**EWCE** . . . . . .232
**EWCH** . . . . . .230-231

**F**

**F** . . . . . .150-151
**FC** . . . . . .355
**FF** . . . . . .340-341, 380
**FH** . . . . . .151
**FR** . . . . . .151
**FRL** . . . . . .286
**FS** . . . . . .332
**FSB** . . . . . .332
**FSC** . . . . . 332-333
**FSH** . . . . . .332-333
**FSM** . . . . . 332-337
**FTE** . . . . . .322-323
**FTR** . . . . . 320-321
**FZ** . . . . . .153

**G**

**G** . . . . . 111,158-159
**GA** . . . . . .162-163
**GBJ** . . . . . .67
**GF** . . . . . 156-157
**GeniSYS™ IV** . . . . . 394-395
**GKHC** . . . . . .226
**GMRF** . . . . . .387
**GP** . . . . . 156-157
**GPS** . . . . . .192
**GT** . . . . . .299, 314-315

**H**

**H** . . . . . 148-149, 157, 158-159
**HA** . . . . . .149
**HB** . . . . . .149
**HC** . . . . . .149
**HCG** . . . . . .44-51
**HCL** . . . . . 44-47, 56-59
**HCR** . . . . . 44-47, 52-55
**HCRL** . . . . . 44-47, 60-61
**HF** . . . . . .152
**HLP** . . . . . .280-281
**HM** . . . . . .310-313
**HMT** . . . . . 278-279, 282-283
**HP** . . . . . .19, 35, 37, 357
**HPT** . . . . . .324
**HSK** . . . . . .360-361
**HSL** . . . . . .362-363
**HSQ** . . . . . .283
**HT** . . . . . .325, 392
**HTM** . . . . . .388

**I**

**IP** . . . . . .168-171, 177
**IPK** . . . . . .176
**IPL** . . . . . .176
**IPM** . . . . . .200
**IPR** . . . . . 172-173, 176

**J**

**JBI** . . . . . .10
**JBA** . . . . . .13
**JH** . . . . . .66
**JHA** . . . . . .66
**JS** . . . . . .366-367

**L**

**LAT** . . . . . .304-305
**LGH** . . . . . .195, 196-199
**LGHMS** . . . . . .199
**LGM** . . . . . .194-195
**LH** . . . . . 78-81, 180, 360-361
**LHPP** . . . . . .80
**LHSB** . . . . . .80
**LHST** . . . . . .81
**LMR** . . . . . .386
**LPHT** . . . . . .388
**LPL** . . . . . .24-25
**LSA** . . . . . .389
**LW / LWC** . . . . . .212
**LX** . . . . . .152

**M**

**MCS** . . . . . .290
**MDWS** . . . . . .390
**MG** . . . . . .354
**MITT** . . . . . .396-397
**MHT** . . . . . .388
**MM** . . . . . .380-381
**MP** . . . . . .93
**MPS** . . . . . .191
**MR** . . . . . .386
**MRY** . . . . . .386
**MS** . . . . . 204-207
**MSP** . . . . . .209
**MZ** . . . . . .206-207

**N**

**NC** . . . . . .334-335
**NCB** . . . . . .335
**NSC** . . . . . 336-337
**NSH** . . . . . 336-339
**NSPH** . . . . . .339
**NV** . . . . . .163

**O**

**OM** . . . . . 384

**P**

**P** . . . . . 64, 86-91, 94-95
**P142ALSS** . . . . . 64
**P392AL** . . . . . 87
**P392ALSS** . . . . . 64
**P392FP** . . . . . 92
**PA** . . . . . 120
**PAM** . . . . . .121
**PAMG** . . . . . .122-123
**PARG** . . . . . .122-123
**PATG** . . . . . .122-123
**PC** . . . . . .88, 120
**PEM** . . . . . .118-119
**PER** . . . . . .118-119
**PGT** . . . . . .318-319
**PK** . . . . . .176
**PL** . . . . . 70-71
**PMB** . . . . . .176
**PR** . . . . . 68-69
**PTW** . . . . . .286-289
**PUD** . . . . . 100-101

**R**

**RA** . . . . . .11
**RAC** . . . . . .12-13
**RACH** . . . . . .16-17
**RACL** . . . . . .14-15
**RARH** . . . . . 18-19
**RAR** . . . . . 20-21
**RB** . . . . . .10
**RC** . . . . . 6-9, 64
**RCH** . . . . . 34-35
**RCS** . . . . . 26-27
**RD** . . . . . .38-39
**REB** . . . . . .10
**REP** . . . . . .10
**RFL** . . . . . .122, 125
**RLP** . . . . . .264-271
**RLT** . . . . . .28-29
**RR** . . . . . .40-43
**RRH** . . . . . .36-37
**RSL** . . . . . 262-273
**RSM** . . . . . 26-27
**RSQ** . . . . . 272-273
**RT** . . . . . 30-31
**RTE** . . . . . .243
**RWH** . . . . . .184-186

**S**

**S** . . . . . .240-242
**SB** . . . . . .337
**SBL** . . . . . 364-365
**SBZ** . . . . . .111, 116, 301, 309
**SC** . . . . . 62-63
**SCH** . . . . . .63
**SCJ** . . . . . .74-77
**SCL** . . . . . .63, 65
**SCR** . . . . . .63, 65
**SDA** . . . . . .242
**SFM** . . . . . .154-155
**SFP** . . . . . .132-135
**SG** . . . . . .191-192, 348-351
**SGH** . . . . . 188-189,191
**SGM** . . . . . .188-190, 195, 199
**SHS** . . . . . .368-369
**SHAS** . . . . . 368-369
**SL** . . . . . 364-365
**SLPP** . . . . . 363
**SOH** . . . . . .213
**SP** . . . . . .209, 210-211
**SPD** . . . . . .208-209
**SPMT** . . . . . .372
**SRS** . . . . . 65, 243
**STB** . . . . . .218-219
**STC** . . . . . .234
**STF** . . . . . 333
**STN** . . . . . .334
**STP** . . . . . .209
**STTL** . . . . . .246-247
**SWH** . . . . . .240, 248, 258, 274
**SWi** . . . . . .344-347

**T**

**T** . . . . . .150-151, 160, 393
**TFA** . . . . . 356
**TH** . . . . . .151
**THQ** . . . . . .259, 263, 272, 282
**TM** . . . . . .180
**TQ** . . . . . .296-297
**TR** . . . . . .151
**TSP** . . . . . .243, 260
**TWMPS** . . . . . .269

**V**

**V** . . . . . .64, 163-165
**VA2** . . . . . .121
**VB** . . . . . .179
**VC** . . . . . .142-143, 352-353
**VE** . . . . . .140-141, 143-145
**VLP** . . . . . .178-179
**VM** . . . . . 140-141, 143
**VM33RVK** . . . . . 141
**VS** . . . . . .144
**VUV5** . . . . . 141

**W**

**W** . . . . . .248-257
**WCB** . . . . . .234-235
**WHC** . . . . . 234
**WHR** . . . . . 234
**WMC** . . . . . 235
**WP** . . . . . 385
**WR** . . . . . .217
**WRP** . . . . . .260
**WSL** . . . . . .258-259
**WTE** . . . . . .260

**X**

**XA** . . . . . .124-125
**XC** . . . . . 96-97, 292-293
**XLK1** . . . . . .124
**XLP** . . . . . .178-179
**XSC1** . . . . . .124

**Z**

**Z** . . . . . .151
**ZA4** . . . . . .126-127
**ZA4T** . . . . . .306-309
**ZC** . . . . . 98-99, 110, 11, 237
**ZE** 112-117, 236-237, 302-303
**ZG** . . . . . .128-130
**ZH** . . . . . 110, 117, 301
**ZL** . . . . . .111,116
**ZP** . . . . . .110-111, 116-117
**ZR** . . . . . .110, 116, 301, 309
**ZU4** . . . . . .106-111
**ZU4T** . . . . . .298-301
**ZUTP** . . . . . .328-329
**ZTM** . . . . . .301, 309

**Numeric**

**11** . . . . . 94-95, 160
**41-** . . . . . 95
**43-** . . . . . .95, 160
**45-** . . . . . 95
**67-** . . . . . .353
**72-750** . . . . . .94
**83-** . . . . . 95, 160
**144-** . . . . . .357
**302-** . . . . . .357
**8000** . . . . . .118-119, 131

# Table of Contents

ENERPAC


**Introduction**

The Right Tool . . . . . 2-3

**Cylinders (Hydraulic) . . . . . 4-83**

Introduction . . . . . 4-5
RC-Series TRIO, Single-Acting Cylinders . . . . . 6-9
RC-Series TRIO, Cylinder Accessories . . . . . 10
RA-Series, Aluminum Cylinders Introduction . . . . . 11
RAC-Series, Single-Acting Aluminum Cylinders. . . . . 12-13
RACL-Series, Single-Acting Aluminum Lock-nut Cylinders . . . . . 14-15
RACH-Series, Single-Acting Aluminum Hollow Cylinders 16-17
RARH-Series, D/A Aluminum, Hollow Plunger Cylinders . . 18-19
RAR-Series, Double-Acting Aluminum Cylinders . . . . . 20-21
CULP-Series, Ultra-Flat Cylinders . . . . . 22
CUSP-Series, Ultra-Flat, High Tonnage Cylinders . . . . . 23
LPL-Series, Single-acting Low Height Lock-Nut Cylinders 24-25
RSM/RCS-Series, Single-Acting Low Height Cylinders . 26-27
RLT-Series, Low-Height Telescopic Cylinders. . . . . 28-29
RT-Series, Telescopic Cylinders. . . . . 30-31
BRC-/BRP-Series, Single-Acting Pull Cylinders . . . . . 32-33
RCH-Series, Single-Acting Hollow Plunger Cylinders . . 34-35
RRH-Series, Double-Acting Hollow Plunger Cylinders . 36-37
RD-Series, Double-Acting Precision Cylinders . . . . . 38-39
RR-Series, Double-Acting Cylinders. . . . . 40-43
HTC-Series High-Tonnage Cylinders Intro . . . . . 44-45
High-Tonnage Cylinders Quick Selection Chart, HCG, HCR, HCL, HCRL-Series . . . . . .46-47
HCG-Series, Single-Acting High-Tonnage Cylinders . . . 48-51
HCR-Series, Double-Acting High-Tonnage Cylinders . . 52-55
HCL-Series, S/A, High-Tonnage Lock Nut Cylinders . . . 56-59
HCRL-Series, D/A,High-Tonnage Lock Nut Cylinders . . 60-61
SC-Series, Cylinder-Pump Sets . . . . . 62-63
RC, P, V-Series, Extreme Environment Products . . . . . 64
SC, SL, SR, SW-Series, Portable Hydraulic Toolbox. . . . . 65
JH/JHA-Series, Aluminum & Steel Jacks . . . . . 66
GBJ-Series, Industrial Bottle Jacks . . . . . 67
PR-Series, Pow'R Riser® . . . . . 68-69
PL-Series, Pow'R LOCK™. . . . . 70-71
BLS-Series, Double-Acting Climbing Jacks . . . . . 72-73
SCJ-Series, Self-Locking Cube Jack . . . . . 74-77
LH-Series Skidding Systems . . . . . 78-81
ETT-Series, Turntables . . . . . 82
Custom Hydraulic Cylinders . . . . . 83

**Pumps and Directional Control Valves . . . . . 84-145**

Introduction . . . . . 84-85
P-Series, Lightweight Hand Pumps . . . . . 86-87
P-Series, ULTIMA Steel Hand Pumps . . . . . 88-89
P-Series, Low-Pressure Hand Pumps . . . . . 90-91
P-Series, Lightweight Foot Pump . . . . . 92
MP-Series, Multifluid Hand Pumps . . . . . 93
P- and 11-Series, Ultra-High Pressure Hand Pumps . . 94-95
XC-Series, Cordless Pump. . . . . 96-97
ZC-Series, Cordless Hydraulic Pumps . . . . . 98-99
PU-Series Economy Pumps. . . . . 100-101
E-Series, E-Pulse Electric Pump . . . . . 102-103
Z-Class Electric Pump Intro. . . . . 104-105
ZU-Series, Electric Pumps. . . . . 106-111
ZE-Series, Electric Pumps . . . . . 112-117
8000-Series (PE), Electric Pumps . . . . . 118-119
PA & PAM-Series, Air Hydraulic Pumps . . . . . 120-121
PA-Series, Turbo II Air Pumps . . . . . 122-123
XA-Series Air Pumps. . . . . 124-125
ZA-Series, Air Hydraulic Pumps. . . . . 126-127
ZG-Series Gasoline Powered Pumps . . . . . 128-130
8000-Series (EGM), Gasoline Powered Pumps . . . . . 131
SFP-Series Split Flow Pumps . . . . . 132-135
EVO-Series, Synchronized Lifting Systems . . . . . 136-137
Custom Hydraulic Pumps . . . . . 138

**Pump Mounted Directional Control Valves . . . . . 139-145**

Introduction . . . . . 139
VM, VE-Series, Pump-Mounted Valves. . . . . 140-141
VC-Series, Remote Mounted Valves. . . . . 142
VC, VM, VE Valve Dimensions. . . . . 143
VE-Series, Solenoid Operated Modular Valves . . . . . 144-145

**System Components and Control Valves . . . . . 146-165**

Introduction . . . . . 146-147
High-Pressure Hoses . . . . . 148-149
Hydraulic Couplers . . . . . 150-151
Hydraulic Oil, Manifolds and Fittings . . . . . 152-155
GF and GP-Series, Hydraulic Force and Pressure Gauges. . . . . 156-157
G & H-Series, Hydraulic Pressure Gauges . . . . . 158-159
T-Series, Test System Gauges . . . . . 160
DGR-Series, Digital Hydraulic Gauges . . . . . 161
GA45GC Gauge Adaptor Assembly. . . . . 162
GA, NV, V Gauge Accessories . . . . . 163
V-Series Flow & Pressure Control Valves . . . . . 164-165

**Hydraulic Presses . . . . . 166-181**

Introduction . . . . . 166-167
IP-Series, H-Frame Presses. . . . . 168-171
IPR-Series, Roll Frame Presses . . . . . 172-173
A-Series, C-Clamps and Arbor Presses . . . . . 174-175
Press Accessories. . . . . 176
Press Speed Chart . . . . . 176
Custom Built Presses . . . . . 177
VLP & XLP-Series Presses . . . . . 178-179
TM, LH Tension Meter and Load Cells . . . . . 180
Custom Hydraulic Presses . . . . . 181

**Pullers (Mechanical and Hydraulic) . . . . . 182-201**

Introduction . . . . . 182-183
BHP-Series, Hydraulic Puller Sets . . . . . 184-187
Sync Grip Pullers Introduction . . . . . 188-189
SGM-Series Mechanical Sync Grip Pullers. . . . . 190
MPS-Series Master Puller Sets . . . . . 191
GPS-Series Hydraulic Puller Sets. . . . . 192
BHP-Series Cross Bearing Puller Sets . . . . . 193
LGM-Series, Mechanical Lock-Grip Pullers . . . . . 194-195
LGH-Series, Hydraulic Lock-Grip Pullers . . . . . 196-197
LGH-Series, Hydraulic Master Lock-Grip Pullers . . . 198-199
LGHMS-Series, Hydraulic Master Lock-Grip Pullers . . . . . 199
IPM-Series Internal Mechanical Pullers . . . . . 200
EPH-Series, Posi-Lock® 100-Ton Hydraulic Grip Pullers . . 201

**Specialty Tools (Mechanical and Hydraulic) . . . . 202-219**

Introduction . . . . . 202-203
MS-Series, Maintenance Sets . . . . . 204-207
SP, MSP, STP-Series, 35-Ton Hydraulic Punch . . . . . 208-209
SP-Series, 50-Ton Hydraulic Punch. . . . . 210-211
LW-Series, Vertical Lifting Wedge . . . . . 212
SOH-Series, Hydraulic Machine Lifts . . . . . 213
ER, ES and ELP-Series, Heavy-Duty Load Skates . . . 214-215
CM-Series, Storage Cases. . . . . 216
A, WR-Series, Wedgies & Spread Cylinders . . . . . 217
STB-Series, Pipe Benders . . . . . 218-219

**Cutters . . . . . 220-237**

Introduction . . . . . 220-221
EBH-Series, Hydraulic Bar Cutters. . . . . 222-223
EBE-Series, Electric Bar Cutters . . . . . 224
EBC-Series, Cordless Bar Cutters . . . . . 225
EDCH-Series Decommissioning Cutters. . . . . 226
EFBE-Series, Flat Bar Cutters . . . . . 227
ECCE-Series, Chain Cutters. . . . . 228-229
EWCH-Series, Hydraulic Wire and Cable Cutters . . . 230-231
EWCE-Series, Electric Wire and Cable Cutters . . . . . 232
ECSE-Series, Cutter/Spreader Combination Tools . . . . . 233
WHC, WHR, STC-Series, Hydraulic Cutter Head . . . . . 234
WMC-Series, Self-Contained Hydraulic Cutters . . . . . 235
Pumps/Accessories for EWCH, EBH, EDHC-Series Cutters . . . . . 236-237

**Bolting Tools . . . . . 238-341**

Introduction. . . . . 238-239
S-Series X-Edition, Square Drive Steel Torque Wrenches. . . . . 240-243
TSP, RTEX, SRSX Accessories for S-Series X-Edition Torque Wrenches . . . . . 243
BSH-Series Sockets . . . . . 244
BUS-Series, Back-Up Spanners. . . . . 245
STTL-Series, Safe T™ Torque Lock . . . . . 246-247
W-Series X-Edition, Low Profile Hexagon Torque Wrenches. . . . . 248-249
W-Series Hexagon Cassettes . . . . . 250-257
W-SL-Series, Ultra Slim Cassettes. . . . . 258-259
TSP, WTE, WRP Accessories for W-Series X-Edition Torque Wrenches . . . . . 260
Bolting Application Ideas. . . . . 261
RSL-Series, Low-Profile Cassettes . . . . . 262
RSL Drive Units for Hexagon & Square Drive Cassettes. . . . . 263
RSL-Series Hexagon Cassettes . . . . . 264-268
Accessories for RSL wrenches, ERA, ERT. . . . . 269
RSL-Series, Slimline Hexagon Cassettes (RLP-SL) . . 270-271
RSL-Series, Square Drive Torque Wrenches, RSQ . . 272-273
DSX-Series, Square Drive Torque Wrenches . . . . . 274-275
DSX-Series, Allen® Wrenches (DDA) . . . . . 276
Bolting Applications & Portable Machining. . . . . 277
HMT-Series, Modular Torque Wrenches . . . . . 278
Drive Units for Hexagon & Square Drive Cassettes. . . . . 279
HLP-Series Hexagon Cassettes for HMT Drive Units 280-281
HMT-Series Square Drive Hydraulic Torque Wrenches/HSQ Cassettes) . . . . . 282-283
E-Series Manual Torque Multipliers. . . . . 284-285
PTW-Series Pneumatic Torque Wrenches . . . . . 286-287
PTW-Series Torque Wrench Accessories . . . . . 288-289
MCS-Series, Mobile Calibration System. . . . . 290
Torque Wrench & Pump Selection Chart. . . . . 291
XC-Series, Cordless Torque Wrench Pump. . . . . 292-293
E-Series, E-Pulse Electric Torque Wrench Pump . . . 294-295
TQ700 Series Electric Torque Wrench Pump . . . . . 296-297
ZU4T-Series, Electric Torque Wrench Pumps . . . . . 298-301
ZE-Series, Torque Wrench Pumps . . . . . 302-303
LAT-Series, Air Hydraulic Torque Wrench Pumps . . . 304-305
ZA4T-Series, Air Driven Torque Wrench Pumps . . . . 306-309
HM-Series, Hydramax Topside Bolt Tensioners. . . . . 310-313
GT-Series, Hydraulic Bolt Tensioners . . . . . 314-315
EAJ-Series, Aquajack Subsea Tensioners. . . . . 316-317
PGT-Series, Power Generation Bolt Tensioners. . . . . 318-319
FTR-Series, Foundation Bolt Tensioners. . . . . 320-321
FTE-Series, Foundation Bolt Tensioners. . . . . 322-323
HPT-Series Pump and Accessories . . . . . 324
HT, B, Ultra High-Pressure Hoses and Couplers . . . . . 325
Multi-Stage Tensioners Awareness . . . . . 326
ATP -Series, Ultra-Pressure Air Hydraulic Pump. . . . . 327
ZUTP-Series, Electric Tensioning Pump . . . . . 328-329
ATM-Series, Flange Alignment Tools . . . . . 330-331
FSM, FSH, FSC-Series Hydraulic and Mechanical Industrial Spreaders. . . . . 332-333
NC-Series, Hydraulic Nut Splitters . . . . . 334-335
NSC, NSH-Series Integral & Hydraulic Nut Splitters . 336-337
NSH-Series Hydraulic Nut Splitters (S/A & D/A) . . . . 338-339
FF-Series, Mechanical Flange Face Tool . . . . . 340-341

# Table of Contents


**Flange Maintenance Tools . . . . . 342-357**

Introduction . . . . . 342-343
SWi, Flange Spreading Tools . . . . . 344-345
SWi, Flange Spreading Tools (ATEX) . . . . . 346-347
SG-Series, Flange Spreading Tools . . . . . 348-351
VC-Series, Valve Change-Out Tools . . . . . 352-353
MG-Series Flange Spreading Tools . . . . . 354
FC-Series, Flange Pulling Tool . . . . . 355
TFA-Series, Flange Alignment Tools (Wind Turbine Tower) 356
HP-Series, Hand Pumps and Hoses . . . . . 357

**Heavy Lifting Technology . . . . . 358-377**

Introduction . . . . . 358-359
LH, HSK-Series, Skidding Systems . . . . . 360-361
HSL-Series, Strand Jacks . . . . . 362-363
SL, SBL-Series, Hydraulic Gantries . . . . . 364-365
JS-Series, Jack-Up System . . . . . 366-367
SHS/SHAS-Series, SyncHoist System . . . . . 368-369
ETR-Series, Trolly System . . . . . 370-371
SPMT-Series, Self-propelled Modular Transporter . . . . . 372
Lifting Solutions . . . . . 373-377

**On-Site Machining Tools. . . . . 378-397**

Introduction . . . . . 378-379
FF, MM-I Series, Internal Mount Flange Facing Machines . 380
MM-E Series, External Mount Flange Facing Macines . . . 381
DLR-Series, Clamshell Pipe Cutting
& Beveling Machines . . . . . 382-383
OM-Series, General Orbital Milling Machines . . . . . 384
WP-Series, Wind Power Orbital Milling Machines . . . . . 385
LMR, MR, MRY, GM-Series, Linear Milling Machines 386-387
HTM, LPH, MHT, CHT, LSA-Series, Hot Tapping Machines
& Line Stopping Actuators . . . . . 388-389
MWDS Decommissioning Diamond Wire
& Band Saws . . . . . 390-391
HT, T, DDU-Series, Drilling & Tapping Machines . . . . 392-393
GeniSYS IV Portable 3-Axis CNC Mill . . . . . 394-395
MITT-Series, Isolation and Test Tools . . . . . 396-397

**Yellow Pages (Information Section) . . . . . 398-417**

Warranty Statement, Introduction and Standards . . . 398-399
Safety Instructions . . . . . 400-401
Cylinder & Pump Matching and Selection Chart . . . . . 402
Hydraulic Work Sheet . . . . . 403
Basic Hydraulic System Set-ups . . . . . 404-405
Basic Hydraulics . . . . . 406-407
Conversion Tables . . . . . 408
Cylinder Speed Charts . . . . . 409
Valve Information . . . . . 410
Hexagon Nut and Bolt Sizes . . . . . 411
Bolting Tightening & Tensioning . . . . . 412-415
Bolting Integrity Software . . . . . 416-417
Enerpac Academy . . . . . 418-419
Enerpac Worldwide Locations . . . . . 420


# Section Index




**Cylinders & Lifting Products**
Page 4-83





**Pumps & Directional Control Valves**
Page 84-145





**System Components & Control Valves**
Page 146-165





**Presses**
Page 166-181





**Pullers**
Page 182-201





**Specialty Tools**
Page 202-219





**Cutters**
Page 220-237





**Bolting Tools**
Page 238-341





**Flange Maintenance Tools**
Page 342-357





**Heavy Lifting Equipment**
Page 358-377





**On-Site Machining Tools**
Page 378-397



All information in this catalog can be changed due to product improvements without prior notice.

© Copyright 2021, Enerpac Tool Group. All rights reserved. Any copying or other use of material in this catalog (text, illustrations, drawings, photos) without express written consent is prohibited.

**CUSTOMER-DRIVEN INNOVATION**

**INDUSTRY LEADING TECHNOLOGY**

**CONTINUOUS IMPROVEMENTS**

# ENDLESS INNOVATION
## RESULTS IN THE RIGHT TOOL

We believe it takes advanced technical expertise and ingenuity to develop the industry's most trusted solutions. Our relentless pursuit to deliver the highest standard of excellence means never compromising on quality. Yet, it all starts with a thorough understanding of our customer needs, the environments they work in and the ideas of tomorrow that help get jobs done faster, easier and safer.

## SOLVING CUSTOMER PROBLEMS

One of our core values is to continually innovate and solve customer problems. That all begins with the discovery process. Through the efforts of a dedicated innovation team and several centers of excellence, new ideas are uncovered by listening to our customer's pain points and observing how they perform tasks in their own environments. These inputs lead to the forming of ideas and eventually prototypes that can be tested, refined and transformed into finished products.

## FIND OUR NEWEST PRODUCTS AT ENERPAC.COM/INNOVATION

Continuous improvement means new products are introduced and made available to customers on a regular basis throughout the year. Find the newest Enerpac products at Enerpac.com/Innovation.



# THE RIGHT TOOL
# MAKES ALL THE DIFFERENCE

Backed by a global legacy of ultra-reliable quality and superior precision, Enerpac is pushing the industry forward with a wide range of advanced industrial tools and services that first and foremost ensure our customers operate safely and productively every day. It isn't about being compliant. Or "as good" as the next guy; we outpace the competition by delivering technically superior solutions that are easy to get, safe to use and built to outlast.

## NEVER COMPROMISE

Enerpac combines technical excellence with proven performance – every day, every year, year after year. We believe customers shouldn't have to compromise – they can rest easy knowing that even in the most complex situations, their reputations and productivity are protected by the most trusted industrial tools available.

## SAFETY AND PRODUCTIVITY

Our customers put their physical well-being and reputations on the line each day they go to work; we take the fact that they put their trust in us very seriously. Enerpac team members are obsessively committed to developing solutions that keep the world's workers safe and productive in highly demanding working conditions.

## ON-DEMAND ACCESS

For us, offering the ideal customer experience means working overtime to make sure our customers can be heroes when it matters most by providing on-demand access to a vast catalog of products and services, extensive training and mobilized field teams no matter where they are in the world.

As a global market leader in high-pressure hydraulic tools, controlled force products and solutions for precision positioning of heavy loads, Enerpac products have maintained and moved some of the largest structures on earth. They are the industry standard in aerospace, infrastructure, manufacturing, mining, oil & gas, power generation and much more.

**Enerpac hydraulic cylinders are available in hundreds of different configurations. Whatever the industrial application… lifting, pushing, pulling, bending, holding… whatever the force capacity, stroke length, or size restrictions… single- or double-acting, solid or hollow plunger, you can be sure that Enerpac has the cylinder to suit your high force application.**

**Enerpac jacking cylinders fully comply to ASME B30.1 (except RD-Series).**



**With the 3rd Generation comes a trio of key features**

The next evolution of the legendary Enerpac RC-Series hydraulic cylinder. The driving force of the Enerpac cylinder range, the new **RC-TRIO** is as **versatile** as ever. Featuring a new TRIO Bearing System for **enhanced durability** and a hybrid spring-return system for **faster retraction** and even **greater productivity**.




**NEW RC-SERIES TRIO CYLINDERS**

**New TRIO Bearing System**

- Includes up to 4 high-performance wear bands that offer increased resistance to damage, reducing bearing load and increasing cylinder lifespan
- Hardened composite material wear bands increase bearing surface area for greater side-load resistance - significantly improving cylinder life
- New high-performance Polyethylene seals provide longer life, reducing downtime

**New TRIO Stop Ring**

- Part of the TRIO Bearing System, the TRIO Stop Ring includes an additional wear band of high-strength bronze to absorb greater side load
- Capable of taking full cylinder extension force
- Features durable wiper to help prevent contamination from entering the cylinder during retract cycles

**New TRIO Spring System**

- Hybrid pre-tensioned return springs for up to 3x faster retraction and increased productivity
- High-strength steel wire improves spring life
- Spring retention design improves serviceability while allowing higher pre-load during assembly
- Spring is easily removed without special tools

**Durable Piston Rod**

- High-strength steel plunger for improved life and sideload resistance
- Nickel-plated plunger coating improves corrosion protection
- Internal plunger threads for easy tool fixturing

**Enhanced Ergonomics**

- Standard carry handles on cylinders from 33 up to 55 lbs. Sizes above include certified lifting eyes or optional handles
- Collar threads, plunger threads and base mounting holes enable easy fixturing (on most models)

**Improved Saddle Retention**

- Hardened plunger saddle protects plunger end during all lifting operations
- Easily removable for access to plunger mounting threads
- Tilt and smooth saddles available as accessories (compatible with new range of CATS-Series Tilt Saddles)

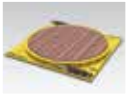
**Enduring Compatibility**

- For full compatibility and peace of mind, the new RC-Series model numbers, external dimensions and threads remain unchanged from prior RC-Series cylinders. Ensuring compatibility with historical versions and systems.




*Note: The cut-away drawing is representative of typical cylinder construction and may not represent all cylinders in this section.*

# Cylinder & Lifting Products Section Overview

| * Capacity (tons) | Stroke Range (in) | Cylinder Type and Functions | Series | | Page |
|---|---|---|---|---|---|
| 5-100 | 0.63-14.25 | General Purpose Cylinders, Single-acting<br>Accessories: Saddles, Base Plates, Mounting Attachments | RC<br>A, CATS<br>JBI, RE |  | 6<br>10 |
| 10-150<br>20-150<br>20-150 | 1.97-9.84 | Aluminum Cylinders<br>Single-Acting, Lock Nut, Hollow Plunger | RAC,<br>RACL<br>RACH |  | 12<br>14<br>16 |
| 30-60<br>20-150 | 1.97-9.84<br>1.97-9.84 | Aluminum Cylinders<br>Double-Acting Hollow Plunger<br>Double-Acting Solid Plunger | RARH<br>RAR |  | 18<br>20 |
| 10-100<br>10-1000 | 0.24<br>0.26-0.69 | Ultra-Flat Cylinders, Single-Acting, Load-Return with Stop-Ring or Tilting Function | CULP<br>CUSP |  | 22<br>23 |
| 60-500<br>5-150 | 1.77-1.97<br>0.25-2.44 | Low-Height Lock Nut Cylinders<br>Low-Height Cylinders, Single-Acting, Spring-Return | LPL<br>RSM/<br>RCS |  | 24<br>26 |
| 4.8-81.7<br>15.4-34.8 | 0.67-1.57<br>10.63-23.62 | Low-Height Telescopic Cylinders<br>Multi-Stage Telescopic Cylinders | RLT<br>RT |  | 28<br>30 |
| 2.5-60 | 5.00-6.00 | Pull Cylinders, Single-Acting, Spring-Return | BRC<br>BRP |  | 32 |
| 12-100<br>30-150 | 0.31-6.13<br>1.50-10.13 | Hollow Plunger Cylinders<br>Single- and Double-Acting | RCH<br>RRH |  | 34<br>36 |
| 4-25<br><br>10-500 | 1.13-10.25<br><br>2.25-48.00 | Precision Production Cylinders, Double-Acting<br>Long Stroke Cylinders, Double-Acting | RD<br>RR |  | 38<br>40 |
| 50-1000 | 1.97-11.81 | High-Tonnage Cylinders<br>Single-Acting and Double-Acting | HCG<br>HCR |  | 48<br>52 |
| 50-1000<br>50-300 | 1.97-11.81<br>5.91-11.81 | High-Tonnage, Lock Nut Cylinders,<br>Single-Acting and Double-Acting | HCL<br>HCRL |  | 56<br>60 |
| 5-50<br>7-100<br>2-110 | 1.50-14.25<br>2.00-6.00<br>0.44-10.13 | Cylinder Pump Sets, Single-Acting<br>Extreme Environment Products<br>Portable Hydraulic Toolbox | SC<br>RC, P, V<br>SCR, SCL, SRS |  | 62<br>64<br>65 |
| | 3.00-6.13<br>2.44-18.11 | Aluminum and Steel Jacks<br>Industrial Bottle Jack | JH, JHA<br>GBJ |  | 66<br>67 |
| 60-200<br>200 | 14-26.5<br>14-24.5 | POW'R-RISER® Lifting Jack<br>Pow'R-LOCK™ Portable Lift System | PR<br>PL |  | 68<br>70 |
| 55-220<br>56-110 | 5.91-6.34<br>81.4-118.3 | Climbing Jacks<br>Self-Locking Cube Jack | BLS<br>SCJ |  | 72<br>74 |
| 400 | 23.5 | Low-Height Skidding Components | LH |  | 78 |
| 225/450 | | Dual Capacity Turntable | ETT |  | 82 |

* All cylinder capacities are nominal values, unless otherwise stated. [Maximum] capacities are theoretical and may vary, depending on cylinder condition and application.

▼ Shown from left to right: **RC2510, RC53, RC1002, RC108, RC5010, and RC156**




- **TRIO Bearing System with hardened composite wear bands for optimal side-load resistance**
- **Strengthened TRIO Stop Ring improves durability and side-load resistance**
- **TRIO Hybrid pre-tensioned spring system provides faster retraction**
- **High-grade polyethylene seals for low wear and long service life**
- **Plunger wiper reduces contamination, extending cylinder life**
- **Collar and plunger threads and base mounting holes enable easy fixturing (on most models)**
- **Certified lifting eyes on cylinder models weighing over 55 lbs. Interchangeable with optional CHM6 carrying handle**
- **Designed for use in all positions**
- **Baked enamel finish for increased corrosion resistance**
- **CR-400 coupler and dust cap included on all models**

# The Industry Standard General Purpose Cylinder



**Saddles**

All **RC** cylinders (except RC50, 101) are equipped with hardened removable grooved saddles. For tilt and flat saddles, see the RC-Series accessory page.

All CATS-Series Tilt Saddles use a nitrocarburization surface treatment for improved corrosion protection.

*Page:* 10



**Base Plates**

To ensure the stability of cylinders for lifting applications, base plates are available for 10, 25 and 50-ton RC cylinders.

*Page:* 10



**Specialty Attachments**

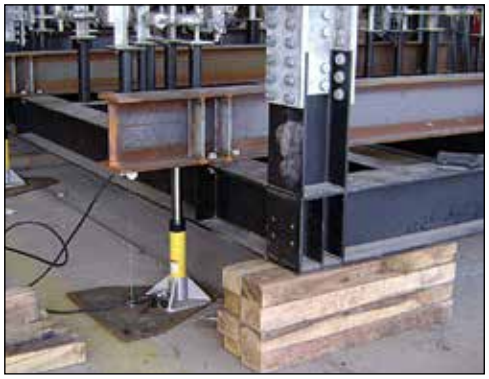
For solving all kinds of application problems, specialty attachments are available for 5, 10 and 25-ton RC cylinders.

*Page:* 206

▼ *To re-stabilize the foundation, the 308-ton silo needed to be lifted, levelled and structurally supported. Twenty-five ton RC-Series hydraulic cylinders were attached to a bracket on the top of each steel pier. Powered by a Z-Class pump, the hydraulic cylinders applied 20 tons of force at each placement to lift the silo two inches.*



▼ *Synchronous lifting set-up for 200-ton petrochemical process module using twelve RC2510 cylinders. To ensure the stability of the cylinders JBI25 base plates are installed.*





**Optional Carrying Handle CHM6**

Certified lifting eyes on cylinder models weighing 55 lbs. and above (RC5010 and heavier models). Interchangeable with optional carrying handle. Order model number **CHM6**.

## ▼ QUICK SELECTION CHART

For complete technical information see next page.

| Cylinder Capacity tons (maximum) | Stroke (in) | Model Number | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height (in) | Weight (lbs) |
|---|---|---|---|---|---|---|
| **5** (4.9) | 0.63 | **RC50** | 0.99 | 0.62 | 1.63 | 2.2 |
| | 1.00 | **RC51** | 0.99 | 0.99 | 4.34 | 2.3 |
| | 3.00 | **RC53** | 0.99 | 2.97 | 6.50 | 3.3 |
| | 5.00 | **RC55*** | 0.99 | 4.95 | 8.50 | 4.1 |
| | 7.00 | **RC57** | 0.99 | 6.93 | 10.75 | 5.3 |
| | 9.13 | **RC59** | 0.99 | 9.04 | 12.75 | 6.1 |
| **10** (11.2) | 1.00 | **RC101** | 2.24 | 2.24 | 3.53 | 4.0 |
| | 2.13 | **RC102*** | 2.24 | 4.76 | 4.78 | 5.1 |
| | 4.13 | **RC104** | 2.24 | 9.23 | 6.75 | 7.2 |
| | 6.13 | **RC106*** | 2.24 | 13.70 | 9.75 | 9.8 |
| | 8.00 | **RC108** | 2.24 | 17.88 | 11.75 | 12.0 |
| | 10.13 | **RC1010*** | 2.24 | 22.64 | 13.75 | 14.0 |
| | 12.00 | **RC1012** | 2.24 | 26.82 | 15.75 | 15.0 |
| | 14.00 | **RC1014** | 2.24 | 31.29 | 17.75 | 18.0 |
| **15** (15.7) | 1.00 | **RC151** | 3.14 | 3.14 | 4.88 | 7.2 |
| | 2.00 | **RC152** | 3.14 | 6.28 | 5.88 | 9.0 |
| | 4.00 | **RC154*** | 3.14 | 12.57 | 7.88 | 11.0 |
| | 6.00 | **RC156*** | 3.14 | 18.85 | 10.69 | 15.0 |
| | 8.00 | **RC158** | 3.14 | 25.13 | 12.69 | 18.0 |
| | 10.00 | **RC1510** | 3.14 | 31.42 | 14.69 | 21.0 |
| | 12.00 | **RC1512** | 3.14 | 37.70 | 16.69 | 24.0 |
| | 14.00 | **RC1514** | 3.14 | 43.98 | 18.69 | 26.0 |
| **25** (25.8) | 1.00 | **RC251** | 5.16 | 5.16 | 5.50 | 13.0 |
| | 2.00 | **RC252*** | 5.16 | 10.32 | 6.50 | 14.0 |
| | 4.00 | **RC254*** | 5.16 | 20.64 | 8.50 | 18.0 |
| | 6.25 | **RC256*** | 5.16 | 32.25 | 10.75 | 22.0 |
| | 8.25 | **RC258** | 5.16 | 42.56 | 12.75 | 27.0 |
| | 10.25 | **RC2510** | 5.16 | 52.88 | 14.75 | 31.0 |
| | 12.25 | **RC2512** | 5.16 | 63.20 | 16.75 | 36.0 |
| | 14.25 | **RC2514*** | 5.16 | 73.52 | 18.75 | 39.0 |
| **30** (32.4) | 8.25 | **RC308** | 6.49 | 53.56 | 15.25 | 40.0 |
| **50** (55.2) | 2.00 | **RC502** | 11.04 | 22.09 | 6.94 | 33.0 |
| | 4.00 | **RC504** | 11.04 | 44.18 | 8.94 | 42.0 |
| | 6.25 | **RC506*** | 11.04 | 69.03 | 11.13 | 51.0 |
| | 10.25 | **RC5010** | 11.04 | 113.21 | 15.13 | 70.0 |
| | 13.25 | **RC5013** | 11.04 | 146.34 | 18.13 | 83.0 |
| **75** (79.5) | 6.13 | **RC756** | 15.90 | 97.49 | 11.25 | 65.0 |
| | 13.13 | **RC7513** | 15.90 | 208.82 | 19.38 | 130.0 |
| **100** (103.1) | 2.00 | **RC1002** | 20.63 | 41.26 | 8.63 | 81.00 |
| | 6.63 | **RC1006** | 20.63 | 136.77 | 14.06 | 130.0 |
| | 10.25 | **RC10010** | 20.63 | 211.45 | 17.69 | 160.0 |

* Available as a set. See note on this page.

## RC-TRIO Series



Capacity:
**5 - 100 tons**

Stroke:
**0.63 - 14.25 inches**

Maximum Operating Pressure:
**10,000 psi**




**Think Safety**

**Manufacturer's rating of load and stroke are maximum safe limits.**

**Good practice encourages using only 80% of these ratings!**

*Page:* 404



**Lightweight Aluminum Cylinders**

If you need a higher cylinder capacity-to-weight-ratio the RAC-Series are the perfect choice.

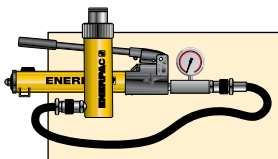
*Page:* 12



**Gauges**

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

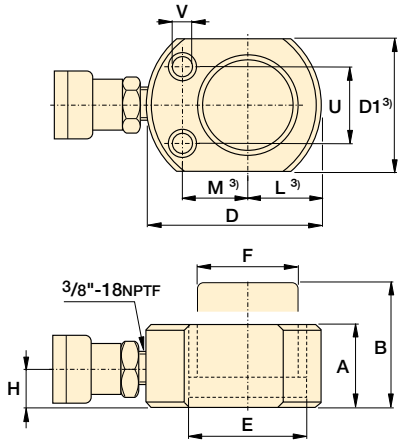
*Page:* 151



**Pump and Cylinder Sets**

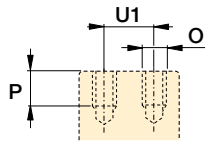
All cylinders marked with an * are available as **sets** (cylinder, gauge, couplers, hose and pump) for your ordering convenience.

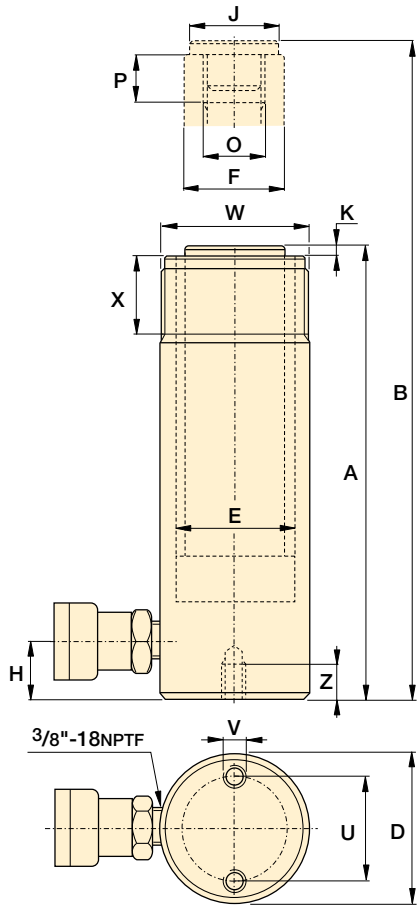
*Page:* 63



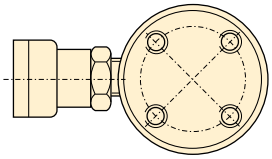

**RC50**

**RC101 only**
(U1 = 0.75 inch)




**RC51 to RC5013 models**



**RC1002 and RC10010 models**

◄ For full features see page 6.

**Speed Chart and Pump Selection Chart**

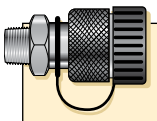
See the Enerpac Cylinder Speed Chart in our "Yellow Pages" to determine your approximate cylinder speed. See Pump Selection Tool on website to choose the most suitable pump for your application.

*Page:* 409

| Cylinder Capacity tons (maximum) | Stroke (in) | Model Number | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) |
|---|---|---|---|---|---|---|---|
| **5** (4.9) | 0.63 | **RC50** [2] | 0.99 | 0.62 | 1.63 | 2.25 | 2.31 [3] |
| | 1.00 | **RC51** | 0.99 | 0.99 | 4.34 | 5.34 | 1.50 |
| | 3.00 | **RC53** | 0.99 | 2.97 | 6.50 | 9.50 | 1.50 |
| | 5.00 | **RC55** [1] | 0.99 | 4.95 | 8.50 | 13.50 | 1.50 |
| | 7.00 | **RC57** | 0.99 | 6.93 | 10.75 | 17.75 | 1.50 |
| | 9.13 | **RC59** | 0.99 | 9.04 | 12.75 | 21.88 | 1.50 |
| **10** (11.2) | 1.00 | **RC101** [4] | 2.24 | 2.24 | 3.53 | 4.53 | 2.25 |
| | 2.13 | **RC102** [1] | 2.24 | 4.76 | 4.78 | 6.91 | 2.25 |
| | 4.13 | **RC104** | 2.24 | 9.23 | 6.75 | 10.88 | 2.25 |
| | 6.13 | **RC106** [1] | 2.24 | 13.70 | 9.75 | 15.88 | 2.25 |
| | 8.00 | **RC108** | 2.24 | 17.88 | 11.75 | 19.75 | 2.25 |
| | 10.13 | **RC1010** [1] | 2.24 | 22.64 | 13.75 | 23.88 | 2.25 |
| | 12.00 | **RC1012** | 2.24 | 26.82 | 15.75 | 27.75 | 2.25 |
| | 14.00 | **RC1014** | 2.24 | 31.29 | 17.75 | 31.75 | 2.25 |
| **15** (15.7) | 1.00 | **RC151** | 3.14 | 3.14 | 4.88 | 5.88 | 2.75 |
| | 2.00 | **RC152** | 3.14 | 6.28 | 5.88 | 7.88 | 2.75 |
| | 4.00 | **RC154** [1] | 3.14 | 12.57 | 7.88 | 11.88 | 2.75 |
| | 6.00 | **RC156*** | 3.14 | 18.85 | 10.69 | 16.69 | 2.75 |
| | 8.00 | **RC158** | 3.14 | 25.13 | 12.69 | 20.69 | 2.75 |
| | 10.00 | **RC1510** | 3.14 | 31.42 | 14.69 | 24.69 | 2.75 |
| | 12.00 | **RC1512** | 3.14 | 37.70 | 16.69 | 28.69 | 2.75 |
| | 14.00 | **RC1514** | 3.14 | 43.98 | 18.69 | 32.69 | 2.75 |
| **25** (25.8) | 1.00 | **RC251** | 5.16 | 5.16 | 5.50 | 6.50 | 3.38 |
| | 2.00 | **RC252** [1] | 5.16 | 10.32 | 6.50 | 8.50 | 3.38 |
| | 4.00 | **RC254** [1] | 5.16 | 20.64 | 8.50 | 12.50 | 3.38 |
| | 6.25 | **RC256** [1] | 5.16 | 32.25 | 10.75 | 17.00 | 3.38 |
| | 8.25 | **RC258** | 5.16 | 42.56 | 12.75 | 21.00 | 3.38 |
| | 10.25 | **RC2510** | 5.16 | 52.88 | 14.75 | 25.00 | 3.38 |
| | 12.25 | **RC2512** | 5.16 | 63.20 | 16.75 | 29.00 | 3.38 |
| | 14.25 | **RC2514** [1] | 5.16 | 73.52 | 18.75 | 33.00 | 3.38 |
| **30** (32.4) | 8.25 | **RC308** | 6.49 | 53.56 | 15.25 | 23.50 | 4.00 |
| **50** (55.2) | 2.00 | **RC502** | 11.04 | 22.09 | 6.94 | 8.94 | 5.00 |
| | 4.00 | **RC504** | 11.04 | 44.18 | 8.94 | 12.94 | 5.00 |
| | 6.25 | **RC506** [1] | 11.04 | 69.03 | 11.13 | 17.38 | 5.00 |
| | 10.25 | **RC5010** | 11.04 | 113.21 | 15.13 | 25.38 | 5.00 |
| | 13.25 | **RC5013** | 11.04 | 146.34 | 18.13 | 31.38 | 5.00 |
| **75** (79.5) | 6.13 | **RC756** | 15.90 | 97.49 | 11.25 | 17.38 | 5.75 |
| | 13.13 | **RC7513** | 15.90 | 208.82 | 19.38 | 32.51 | 5.75 |
| **100** (103.1) | 2.00 | **RC1002** | 20.63 | 41.26 | 8.63 | 10.63 | 7.00 |
| | 6.63 | **RC1006** | 20.63 | 136.77 | 14.06 | 20.69 | 7.00 |
| | 10.25 | **RC10010** | 20.63 | 211.45 | 17.69 | 27.94 | 7.00 |

1) Available as a set. See page 62.
2) RC50 cylinder has non-removable grooved saddle and no collar thread.
3) RC50: D1 = 1.63 inch, L = 0.81 inch, M = 1.00 inch.
4) RC-101 has plunger thread and non-removable saddle.

# Single-Acting, General Purpose Cylinders



**Couplers Included!**
CR400 couplers included on all models. Fits all HC-Series hoses.

Capacity:
**5 - 100 tons**

Stroke:
**0.63 - 14.25 inches**

Maximum Operating Pressure:
**10,000 psi**

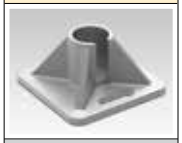
## RC-TRIO Series





| Cylinder Bore Diam. E (in) | Plunger Dia. F (in) | Base to Adv. Port H (in) | Saddle Dia. J (in) | Saddle Protrusion from Plngr. K (in) | Plunger Internal Thread O (in) | Plunger Thread Length P (in) | Base Mounting Holes | | | Collar Thread W (in) | Collar Thread Length X (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Bolt Circle U (in) | Thread V (in) | Thread Depth Z (in) | | | | |
| 1.13 | 1.00 | 0.75 | [2] | [2] | [2] | [2] | 1.13 | 0.22 | — | — | — | 2.2 | **RC50** [2] |
| 1.13 | 1.00 | 0.75 | 1.00 | 0.25 | ¾"-16UN | 0.56 | 1.00 | ¼"-20UNC | 0.56 | 1½"-16UN | 1.13 | 2.3 | **RC51** |
| 1.13 | 1.00 | 0.75 | 1.00 | 0.25 | ¾"-16UN | 0.56 | 1.00 | ¼"-20UNC | 0.56 | 1½"-16UN | 1.13 | 3.3 | **RC53** |
| 1.13 | 1.00 | 0.75 | 1.00 | 0.25 | ¾"-16UN | 0.56 | 1.00 | ¼"-20UNC | 0.56 | 1½"-16UN | 1.13 | 4.1 | **RC55** [1] |
| 1.13 | 1.00 | 0.75 | 1.00 | 0.25 | ¾"-16UN | 0.63 | 1.00 | ¼"-20UNC | 0.56 | 1½"-16UN | 1.13 | 5.3 | **RC57** |
| 1.13 | 1.00 | 0.75 | 1.00 | 0.25 | ¾"-16UN | 0.63 | 1.00 | ¼"-20UNC | 0.56 | 1½"-16UN | 1.13 | 6.1 | **RC59** |
| 1.69 | 1.50 | 0.75 | – | – | #10-24UN | 0.25 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.06 | 4.0 | **RC101** [4] |
| 1.69 | 1.50 | 0.75 | 1.38 | 0.25 | 1"- 8UN | 0.75 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.13 | 5.1 | **RC102** [1] |
| 1.69 | 1.50 | 0.75 | 1.38 | 0.25 | 1"- 8UN | 0.75 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.06 | 7.2 | **RC104** |
| 1.69 | 1.50 | 0.75 | 1.38 | 0.25 | 1"- 8UN | 0.75 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.13 | 9.8 | **RC106** [1] |
| 1.69 | 1.50 | 0.75 | 1.38 | 0.25 | 1"- 8UN | 0.75 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.06 | 12 | **RC108** |
| 1.69 | 1.50 | 0.75 | 1.38 | 0.25 | 1"- 8UN | 0.75 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.13 | 14 | **RC1010** [1] |
| 1.69 | 1.50 | 0.75 | 1.38 | 0.25 | 1"- 8UN | 0.75 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.06 | 15 | **RC1012** |
| 1.69 | 1.50 | 0.75 | 1.38 | 0.25 | 1"- 8UN | 0.75 | 1.56 | 5⁄16"-18UNC | 0.50 | 2¼"-14UN | 1.06 | 18 | **RC1014** |
| 2.00 | 1.63 | 0.75 | 1.50 | 0.38 | 1"- 8UN | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 7.2 | **RC151** |
| 2.00 | 1.63 | 0.75 | 1.50 | 0.38 | 1"- 8UN | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 9 | **RC152** |
| 2.00 | 1.63 | 0.75 | 1.50 | 0.38 | 1"- 8UN | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 11 | **RC154** [1] |
| 2.00 | 1.63 | 1.00 | 1.50 | 0.38 | 1"- 8UN | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 15 | **RC156** [1] |
| 2.00 | 1.63 | 1.00 | 1.50 | 0.38 | 1"- 8UN | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 18 | **RC158** |
| 2.00 | 1.63 | 1.00 | 1.50 | 0.38 | 1"- 8v | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 21 | **RC1510** |
| 2.00 | 1.63 | 1.00 | 1.50 | 0.38 | 1"- 8UN | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 24 | **RC1512** |
| 2.00 | 1.63 | 1.00 | 1.50 | 0.38 | 1"- 8UN | 1.00 | 1.88 | ⅜"-16UNC | 0.50 | 2¾"-16UN | 1.19 | 26 | **RC1514** |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"-16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 13 | **RC251** |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 14 | **RC252** [1] |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 18 | **RC254** [1] |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 22 | **RC256** [1] |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 27 | **RC258** |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 31 | **RC2510** |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 36 | **RC2512** |
| 2.56 | 2.25 | 1.00 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.75 | 3 5⁄16"-12UN | 1.94 | 39 | **RC2514** [1] |
| 2.88 | 2.25 | 1.13 | 2.00 | 0.41 | 1½"- 16UN | 1.00 | 2.31 | ½"-13UNC | 0.63 | 3 5⁄16"-12UN | 1.94 | 40 | **RC308** |
| 3.75 | 3.13 | 1.31 | 2.81 | 0.11 | — | — | 3.75 | ½"-13UNC | 0.75 | 5"-12UN | 2.19 | 33 | **RC502** |
| 3.75 | 3.13 | 1.31 | 2.81 | 0.11 | — | — | 3.75 | ½"-13UNC | 0.75 | 5"-12UN | 2.19 | 42 | **RC504** |
| 3.75 | 3.13 | 1.38 | 2.81 | 0.11 | — | — | 3.75 | ½"-13UNC | 0.75 | 5"-12UN | 2.19 | 51 | **RC506** [1] |
| 3.75 | 3.13 | 1.38 | 2.81 | 0.11 | — | — | 3.75 | ½"-13UNC | 0.75 | 5"-12UN | 2.19 | 70 | **RC5010** |
| 3.75 | 3.13 | 1.38 | 2.81 | 0.11 | — | — | 3.75 | ½"-13UNC | 0.75 | 5"-12UN | 2.19 | 83 | **RC5013** |
| 4.50 | 3.75 | 1.19 | 2.81 | 0.11 | — | — | 4.50 | ⅝"-11UNC | 0.63 | 5¾"-12UN | 1.75 | 65 | **RC756** |
| 4.50 | 3.75 | 1.19 | 2.81 | 0.11 | — | — | 4.50 | ⅝"-11UNC | 0.63 | 5¾"-12UN | 1.75 | 130 | **RC7513** |
| 5.13 | 4.13 | 1.63 | 2.81 | 0.11 | — | — | 5.50 | ¾"-10UNC | 1.00 | 6⅞"-12UN | 1.75 | 81 | **RC1002** |
| 5.13 | 4.13 | 1.63 | 2.81 | 0.11 | — | — | 5.50 | ¾"-10UNC | 1.00 | 6⅞"-12UN | 1.75 | 130 | **RC1006** |
| 5.13 | 4.13 | 1.63 | 2.81 | 0.11 | — | — | 5.50 | ¾"-10UNC | 1.00 | 6⅞"-12UN | 1.75 | 160 | **RC10010** |

## ▼ SELECTION CHART

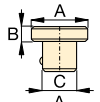
| For Use with Cylinder Capacity (tons) | Saddles | | | Base Plate | Mounting Block | Clevis Eyes | |
|---|---|---|---|---|---|---|---|
| | Flat | Grooved[1] | Tilt | | | Base[4] | Plunger |
| |  |  |  |  |  |  |  |
| 5 | A53F[2] | A53G[2] | – | – | RB5[2], AW51[2], AW53[2] | REB5[2] | REP5[2] |
| 10 | A12[3], A102F[3] | A102G[3] | CATS12[3] | JBI10 | RB10, AW102 | REB10 | REP10[3] |
| 15 | – | A152G | CATS12 | – | RB15 | REB15 | REP10 |
| 25 | A29 [5] | A252G | CATS52 | JBI25 | RB25 | REB25 | REP25 |
| 30 | A29 [5] | A252G | CATS52 | – | RB25 | – | REP25 |
| 50 | – | – | CATS100 | JBI50 | – | – | – |
| 75 | – | – | CATS100 | – | – | – | – |
| 95 | – | – | CATS100 | – | – | – | – |

[1] Standard on 5-30 ton RC-cylinders [2] Except RC50 [3] Except RC101 [4] Mounting screws are included [5] Used with Bender Sets.

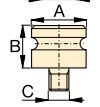
## ▼ DIMENSION CHARTS

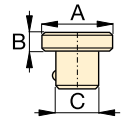
| Model Number | Saddle Dimensions (in) | | |
|---|---|---|---|
| | A | B | C |
| | **Flat** | | |
| A53F | 1.00 | 0.25 | 0.68 |
| A102F | 1.38 | 0.24 | 0.88 |
| A12 | 2.00 | 1.88 | 1"-8UNC |
| A29 | 2.00 | 1.88 | 1½"-16UN |
| | **Grooved** | | |
| A53G | 1.00 | 0.25 | 0.68 |
| A102G | 1.38 | 0.24 | 0.88 |
| A152G | 1.50 | 0.37 | 0.88 |
| A252G | 1.97 | 0.37 | 1.40 |

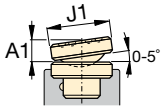
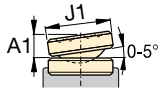
A53F, A102F




A12, A29

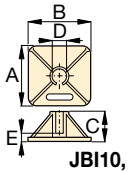


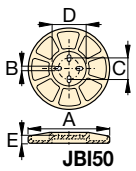

| For Cylinder Capacity (ton) | Tilt Saddle Model Number | Addition to Collapsed Height A1 (in) | Tilt Saddle Diameter J1 (in) | |
|---|---|---|---|---|
| 10 | CATS12 | 0.55 | 1.38 |  |
| 15 | CATS12 | 0.43 | 1.38 | |
| 25 | CATS52 | 0.59 | 1.97 | |
| 30 | CATS52 | 0.59 | 1.97 | |
| 50 | CATS100 | 0.59 | 2.80 |  |
| 75 | CATS100 | 0.59 | 2.80 | |
| 95 | CATS100 | 0.59 | 2.80 | |



| Model Number | Base Plate Dimensions (in) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| JBI10 | 9.00 | 9.00 | 5.34 | 2.29 | 0.81 |
| JBI25 | 11.00 | 11.00 | 5.53 | 3.41 | 1.03 |
| | | | | | |
| JBI50 | 12.00 | 0.60 | 3.75 | 5.19 | 1.25 |

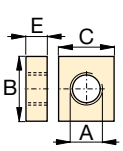



JBI10, -25

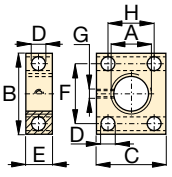



JBI50

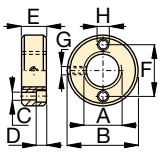
| Model Number | Mounting Block Dimensions (in) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| RB5 | 1½"-16 | 3.50 | 3.00 | – | 1.00 | – | – | – |
| AW51 | 1½"-16 | 2.76 | 2.36 | 0.43 | 0.98 | 2.13 | ¼"-20 | 1.62 |
| AW53 | 1½"-16 | 2.87 | 0.28 | 0.31 | 0.75 | 2.25 | ¼"-20 | 0.41 |
| RB10 | 2¼"-14 | 4.50 | 3.50 | – | 1.00 | – | – | – |
| AW102 | 2¼"-14 | 3.94 | 3.25 | 0.63 | 1.18 | 3.00 | 7/16"-20 | 2.31 |
| RB15 | 2¾"-16 | 4.00 | 4.50 | – | 1.50 | – | – | – |
| RB25 | 3 5/16"-12 | 5.00 | 6.50 | – | 2.00 | – | – | – |



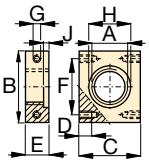

RB5, -10
RB15, -25




AW51

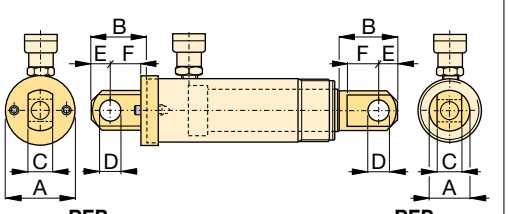



AW53




AW102 (J = 0.19)

| Type | Model Number | Clevis Eye Dimensions (in) | | | | | | Pin to Pin* (in) |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | |
| Base[4] | REB5 | 1.75 | 1.88 | 0.56 | 0.63 | 0.63 | 1.00 | 2.37 |
| | REB10 | 2.50 | 2.63 | 1.00 | 0.88 | 1.00 | 1.38 | 3.07 |
| | REB15 | 3.00 | 2.63 | 1.00 | 0.88 | 1.00 | 1.38 | 3.07 |
| | REB25 | 3.75 | 3.13 | 1.50 | 1.25 | 1.25 | 1.63 | 3.45 |
| Plunger | REP5 | 1.13 | 1.75 | 0.56 | 0.63 | 0.63 | 0.75 | — |
| | REP10 | 1.69 | 2.43 | 1.00 | 0.88 | 1.00 | 1.13 | — |
| | REP25 | 2.25 | 2.81 | 1.50 | 1.25 | 1.25 | 1.38 | — |




REB REP

[4] Mounting screws are included

* Pin to Pin– REB and REP Clevises fitted. Add cylinder collapsed height.

# The Enerpac Lightweight Aluminum Cylinders

▼ Shown: **RAC, RACL, RACH, and RAR**




## RA Series

Capacity:
**10 - 150 tons**

Stroke:
**1.97 - 9.84 inches**

Maximum Operating Pressure:
**10,000 psi**

- **Lightweight, easy to carry and position to allow a higher cylinder capacity-to-weight-ratio**
- **Non-corrosive by design, aluminum has always been a good material for use in many caustic environments**
- **Composite bearings on all moving surfaces guarantee NO metal-to-metal contact, to resist side loads and increase cylinder life**



**Removable Hardened Saddle** protects plunger from being damaged by abrasive surface contact.

**Stop-Ring** on all models absorbs eccentric loading and prevents plunger over-extension.

**Composite Bearing** material to prevent metal-to-metal contact, reducing side-load issues and increasing life.

**Hard-coated Plunger and Base** resist wear and prevent galling.

**7075-T6 Aluminum Alloy Components** for maximum strength and minimum weight.

**Plunger Return Spring** on all single-acting models for prompt cylinder return.

**Composite Bearing** material to prevent metal-to-metal contact, reducing side-load issues and increasing life.

**Steel Base Plate** protects cylinder base from abrasive surfaces and load induced damage.




**Think Safety**

**Manufacturer's rating of load and stroke are maximum safe limits.**

**Good practice encourages using only 80% of these ratings!**

*Page:* 400



**Aluminum vs. Steel**

Aluminum cylinders, while offering the most lightweight solution also have some unique limitations due to material properties. It differs from steel in that it has a lower finite fatigue life. Aluminum cylinders should NOT be used in high-cycle applications such as production.

These cylinders are designed to provide 5000 cycles at their recommended pressure. **This limit should not be exceeded**. In normal lifting and many maintenance applications, this should provide a lifetime of use.



**Steel Base Plate**

The steel base plate protects the cylinder base from damage, it should not be removed.

**The base holes in these aluminum cylinders are designed for securing the steel base plate. They will not withstand the capacity of the cylinder.**

Do not use the base holes in these aluminum cylinders to attach any device to the cylinder.

▼ Shown from left to right: **RAC508, RAC1506, RAC304, and RAC206**




# Lightweight for Maximum Portability



**Saddles**

All RAC cylinders are equipped with bolt-on removable saddles of hardened steel.

13



**Lightweight Hand Pumps**

Enerpac hand pumps **P392** or **P802** make the optimal lightweight set.

*Page:* 86

- **Composite bearings prevent metal-to-metal contact, increasing cylinder life and resistance to side-loads of up to 10%**
- **Hard coat finish on all surfaces resists damage and extends cylinder life**
- **Handles included on all models 30 tons and above**
- **For protection against load-induced damage, a saddle is standard on all models and a steel baseplate is standard on models 20-ton and above. The steel baseplate is optional only on 10- and 15-ton models**
- **Integral stop-ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity**
- **High-strength return spring for rapid cylinder retraction**
- **CR400 coupler and dust cap included on all models**
- **All cylinders meet ASME B-30.1 standards**

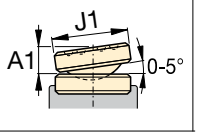
| Cylinder Capacity tons (maximum) | Stroke* (in) | Model Number | Cylinder Effective Area ($in^2$) |
|---|---|---|---|
| **10** (9.9) | 1.97 | **RAC102** | 1.95 |
| | 3.94 | **RAC104** | 1.95 |
| | 5.91 | **RAC106** | 1.95 |
| **15** (15.4) | 1.97 | **RAC152** | 3.03 |
| | 3.94 | **RAC154** | 3.03 |
| | 5.91 | **RAC156** | 3.03 |
| **20** (24.2) | 1.97 | **RAC202** | 4.83 |
| | 3.94 | **RAC204** | 4.83 |
| | 5.91 | **RAC206** | 4.83 |
| | 7.87 | **RAC208** | 4.83 |
| | 9.84 | **RAC2010** | 4.83 |
| **30** (34.2) | 1.97 | **RAC302** | 6.85 |
| | 3.94 | **RAC304** | 6.85 |
| | 5.91 | **RAC306** | 6.85 |
| | 7.87 | **RAC308** | 6.85 |
| | 9.84 | **RAC3010** | 6.85 |
| **50** (54.9) | 1.97 | **RAC502** | 10.99 |
| | 3.94 | **RAC504** | 10.99 |
| | 5.91 | **RAC506** | 10.99 |
| | 7.87 | **RAC508** | 10.99 |
| | 9.84 | **RAC5010** | 10.99 |
| **100** (110.9) | 1.97 | **RAC1002** | 22.19 |
| | 3.94 | **RAC1004** | 22.19 |
| | 5.91 | **RAC1006** | 22.19 |
| | 7.87 | **RAC1008** | 22.19 |
| | 9.84 | **RAC10010** | 22.19 |
| **150** (175.9) | 1.97 | **RAC1502** | 35.18 |
| | 3.94 | **RAC1504** | 35.18 |
| | 5.91 | **RAC1506** | 35.18 |
| | 7.87 | **RAC1508** | 35.18 |
| | 9.84 | **RAC15010** | 35.18 |

* Custom strokes available.



◀ *Enerpac lightweight aluminum RAC506 cylinders are ideal for wet environments such as this tunnel under the river (Holland High-Speed Train Line).*

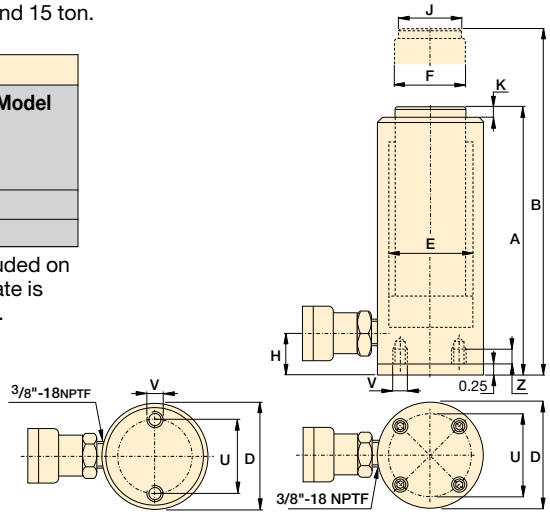
| Optional Tilt Saddle Dimensions (in) | | | | |
|---|---|---|---|---|
| **For Cylinder Model / Capacity** (ton) | **Tilt Saddle Model Number*** | Tilt Saddle Diameter J1 | Addition to Collapsed Height A1 | |
| **RAC20, 30** | **CATS30** | 2.17 | 0.43 | |
| **RAC50** | **CATS50** | 2.80 | 0.55 | |
| **RAC100** | **CATS150** | 3.82 | 0.75 | |
| **RAC150** | **CATS200** | 4.96 | 0.71 | |




* Tilt saddle not available for 10 and 15 ton.

| Optional Steel Base Plate | |
|---|---|
| **Cylinder Model / Capacity** (ton) | **Base Plate Model Number** [1] |
| **RAC10** | **JBA10** |
| **RAC15** | **JBA15** |

[1] Base plate height of 0.25" included on all 20-150 ton models. Base Plate is optional on 10-15 ton cylinders.




**RAC102 to RAC156** **RAC202 to RAC15010**

# RAC Series



Capacity:
**10 -150 tons**

Stroke:
**1.97 - 9.84 inches**

Maximum Operating Pressure:
**10,000 psi**

**Steel Base Plate**

The steel base plate protects the cylinder base from damage, it should not be removed. See warning on page 11.

| | **Oil Capacity** (in³) | **Collapsed Height** A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Bolt Circle U (in) | Thread V (mm) | Thread Depth [1] Z (in) | Wt. (lbs) | **Model Number** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.66 | 6.06 | 7.91 | 2.28 | 1.57 | 1.26 | 0.91 | 0.94 | 0.12 | 1.54 | M6 | 0.47 | 2.7 | **RAC102** |
| | 7.93 | 8.03 | 11.97 | 2.28 | 1.57 | 1.26 | 0.91 | 0.94 | 0.12 | 1.54 | M6 | 0.47 | 3.7 | **RAC104** |
| | 11.59 | 10.00 | 15.91 | 2.28 | 1.57 | 1.26 | 0.91 | 0.94 | 0.12 | 1.54 | M6 | 0.47 | 4.4 | **RAC106** |
| | 6.10 | 6.34 | 8.31 | 2.76 | 1.97 | 1.57 | 0.91 | 1.14 | 0.12 | 1.89 | M6 | 0.47 | 4.2 | **RAC152** |
| | 12.20 | 8.31 | 12.24 | 2.76 | 1.97 | 1.57 | 0.91 | 1.14 | 0.12 | 1.89 | M6 | 0.47 | 5.3 | **RAC154** |
| | 17.69 | 10.28 | 16.18 | 2.76 | 1.97 | 1.57 | 0.91 | 1.14 | 0.12 | 1.89 | M6 | 0.47 | 6.4 | **RAC156** |
| | 9.52 | 6.85 | 8.83 | 3.35 | 2.48 | 1.97 | 1.07 | 1.58 | 0.12 | 2.76 | M6 | 0.47 | 7.9 | **RAC202** |
| | 19.03 | 8.82 | 12.76 | 3.35 | 2.48 | 1.97 | 1.07 | 1.58 | 0.12 | 2.76 | M6 | 0.47 | 9.0 | **RAC204** |
| | 28.55 | 10.79 | 16.70 | 3.35 | 2.48 | 1.97 | 1.07 | 1.58 | 0.12 | 2.76 | M6 | 0.47 | 10.1 | **RAC206** |
| | 38.01 | 12.76 | 20.64 | 3.35 | 2.48 | 1.97 | 1.07 | 1.58 | 0.12 | 2.76 | M6 | 0.47 | 11.2 | **RAC208** |
| | 47.53 | 14.73 | 24.58 | 3.35 | 2.48 | 1.97 | 1.07 | 1.58 | 0.12 | 2.76 | M6 | 0.47 | 12.3 | **RAC2010** |
| | 13.49 | 7.13 | 9.10 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 3.15 | M6 | 0.47 | 9.9 | **RAC302** |
| | 26.99 | 9.09 | 13.04 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 3.15 | M6 | 0.47 | 11.5 | **RAC304** |
| | 40.48 | 11.06 | 16.98 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 3.15 | M6 | 0.47 | 13.0 | **RAC306** |
| | 53.91 | 13.04 | 20.91 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 3.15 | M6 | 0.47 | 14.5 | **RAC308** |
| | 67.40 | 15.01 | 24.85 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 3.15 | M6 | 0.47 | 16.1 | **RAC3010** |
| | 21.65 | 7.32 | 9.90 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 4.33 | M6 | 0.47 | 18.7 | **RAC502** |
| | 43.30 | 9.29 | 13.24 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 4.33 | M6 | 0.47 | 21.6 | **RAC504** |
| | 64.95 | 11.26 | 17.17 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 4.33 | M6 | 0.47 | 24.5 | **RAC506** |
| | 86.49 | 13.24 | 21.11 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 4.33 | M6 | 0.47 | 27.3 | **RAC508** |
| | 108.14 | 15.21 | 25.05 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 4.33 | M6 | 0.47 | 30.2 | **RAC5010** |
| | 43.71 | 8.71 | 10.68 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 5.91 | M10 | 0.47 | 38.1 | **RAC1002** |
| | 87.43 | 10.67 | 14.61 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 5.91 | M10 | 0.47 | 43.2 | **RAC1004** |
| | 131.14 | 12.64 | 18.55 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 5.91 | M10 | 0.47 | 48.3 | **RAC1006** |
| | 174.64 | 14.61 | 22.49 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 5.91 | M10 | 0.47 | 53.4 | **RAC1008** |
| | 218.35 | 16.58 | 26.43 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 5.91 | M10 | 0.47 | 58.4 | **RAC10010** |
| | 69.30 | 9.56 | 11.53 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 7.87 | M10 | 0.47 | 55.8 | **RAC1502** |
| | 138.61 | 11.53 | 15.47 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 7.87 | M10 | 0.47 | 64.6 | **RAC1504** |
| | 207.91 | 13.49 | 19.41 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 7.87 | M10 | 0.47 | 73.4 | **RAC1506** |
| | 276.87 | 15.47 | 23.34 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 7.87 | M10 | 0.47 | 82.2 | **RAC1508** |
| | 346.17 | 17.44 | 27.28 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 7.87 | M10 | 0.47 | 91.1 | **RAC15010** |

▼ Shown from left to right: **RACL1006, RACL504 and RACL506**




- **Aluminum Lock Nut provides mechanical load holding for extended periods**
- **Hardened steel stop-ring increases cylinder life and resistance to side-loads of up to 5%**
- **Hard coat finish on all surfaces resists damage and extends cylinder life**
- **Composite bearings increase cylinder life and side load resistance**
- **Handles included on all models**
- **Steel base plate and saddle for protection against load-induced damage**
- **Integral stop-ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity**
- **High-strength return spring for rapid cylinder retraction**
- **CR400 coupler and dust cap included on all models**
- **All cylinders meet ASME B-30.1 standards**




◀ *The portable Lock Nut cylinder RACL1506 used for extended load support during epoxy injection for bridge reinforcement.*

# To Secure Loads Mechanically



**Saddles**

All RACL cylinders are equipped with bolt-on removable saddles of hardened steel. For tilt saddles see next page.

***Page:*** **15**



**Hoses**

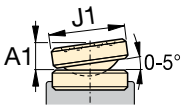
Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

***Page:*** **148**

| Cylinder Capacity ton (maximum) | Stroke* (in) | Model Number | Cylinder Effective Area ($in^2$) |
|---|---|---|---|
| **20** (24.2) | 1.97 | **RACL202** | 4.83 |
| | 3.94 | **RACL204** | 4.83 |
| | 5.91 | **RACL206** | 4.83 |
| | 7.87 | **RACL208** | 4.83 |
| | 9.84 | **RACL2010** | 4.83 |
| **30** (34.2) | 1.97 | **RACL302** | 6.85 |
| | 3.94 | **RACL304** | 6.85 |
| | 5.91 | **RACL306** | 6.85 |
| | 7.87 | **RACL308** | 6.85 |
| | 9.84 | **RACL3010** | 6.85 |
| **50** (54.9) | 1.97 | **RACL502** | 10.99 |
| | 3.94 | **RACL504** | 10.99 |
| | 5.91 | **RACL506** | 10.99 |
| | 7.87 | **RACL508** | 10.99 |
| | 9.84 | **RACL5010** | 10.99 |
| **100** (110.9) | 1.97 | **RACL1002** | 22.19 |
| | 3.94 | **RACL1004** | 22.19 |
| | 5.91 | **RACL1006** | 22.19 |
| | 7.87 | **RACL1008** | 22.19 |
| | 9.84 | **RACL10010** | 22.19 |
| **150** (175.9) | 1.97 | **RACL1502** | 35.18 |
| | 3.94 | **RACL1504** | 35.18 |
| | 5.91 | **RACL1506** | 35.18 |
| | 7.87 | **RACL1508** | 35.18 |
| | 9.84 | **RACL15010** | 35.18 |

* Custom strokes available.

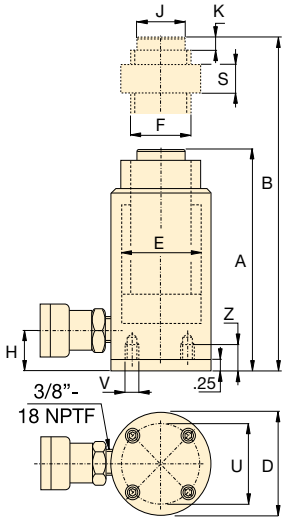
# Single-Acting, Spring-Return, Lock Nut Cylinders

| Optional Tilt Saddle Dimensions (in) | | | | |
|---|---|---|---|---|
| **For Cylinder Model / Capacity** (ton) | **Tilt Saddle Model Number** | Tilt Saddle Diameter J1 | Addition to Collapsed Height A1 |  |
| **RACL20, 30** | **CATS30** | 2.17 | 0.43 | |
| **RACL50** | **CATS50** | 2.80 | 0.55 | |
| **RACL100** | **CATS150** | 3.82 | 0.75 | |
| **RACL150** | **CATS200** | 4.96 | 0.71 | |



| Steel Base Plate Mounting Holes | | | |
|---|---|---|---|
| **Cylinder Model / Capacity** (ton) | Bolt Circle U (in) | Thread V (mm) | Thread Depth [1] Z (in) |
| **RACL20** | 2.76 | M6 | 0.47 |
| **RACL30** | 3.15 | M6 | 0.47 |
| **RACL50** | 4.33 | M6 | 0.47 |
| **RACL100** | 5.91 | M10 | 0.47 |
| **RACL150** | 7.87 | M10 | 0.47 |

[1] Base plate height of 0.25" and (4) four base plate bolts.




## RACL Series



Capacity:
**20 - 150 tons**

Stroke:
**1.97 - 9.84 inches**

Maximum Operating Pressure:
**10,000 psi**

**Steel Base Plate**

The steel base plate protects the cylinder base from damage, it should not be removed. See warning on page 11.

| Oil Capacity (in³) | Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter (Threaded) F (in) | Base to Advance Port H (in) | Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Lock Nut Height S (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.52 | 8.83 | 10.80 | 3.35 | 2.48 | 2.17 | 1.07 | 1.58 | 0.12 | 1.97 | 8.8 | **RACL202** |
| 19.03 | 10.80 | 14.73 | 3.35 | 2.48 | 2.17 | 1.07 | 1.58 | 0.12 | 1.97 | 10.1 | **RACL204** |
| 28.55 | 12.76 | 18.67 | 3.35 | 2.48 | 2.17 | 1.07 | 1.58 | 0.12 | 1.97 | 11.4 | **RACL206** |
| 38.01 | 14.73 | 22.61 | 3.35 | 2.48 | 2.17 | 1.07 | 1.58 | 0.12 | 1.97 | 12.7 | **RACL208** |
| 47.53 | 16.70 | 26.54 | 3.35 | 2.48 | 2.17 | 1.07 | 1.58 | 0.12 | 1.97 | 14.1 | **RACL2010** |
| 13.49 | 9.10 | 11.07 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 1.97 | 11.9 | **RACL302** |
| 26.99 | 11.07 | 15.01 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 1.97 | 13.4 | **RACL304** |
| 40.48 | 13.04 | 18.95 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 1.97 | 14.9 | **RACL306** |
| 53.91 | 15.01 | 22.88 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 1.97 | 16.5 | **RACL308** |
| 67.40 | 16.98 | 26.82 | 3.94 | 2.95 | 2.36 | 1.31 | 1.58 | 0.12 | 1.97 | 18.0 | **RACL3010** |
| 21.65 | 9.29 | 11.27 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 2.95 | 20.5 | **RACL502** |
| 43.30 | 11.26 | 15.21 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 2.95 | 23.4 | **RACL504** |
| 64.95 | 13.23 | 19.14 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 2.95 | 27.8 | **RACL506** |
| 86.49 | 15.20 | 23.08 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 2.95 | 29.1 | **RACL508** |
| 108.14 | 17.17 | 27.02 | 5.12 | 3.74 | 3.15 | 1.19 | 1.97 | 0.12 | 2.95 | 31.9 | **RACL5010** |
| 43.71 | 11.65 | 13.63 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 2.95 | 48.2 | **RACL1002** |
| 87.43 | 13.62 | 17.57 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 2.95 | 53.3 | **RACL1004** |
| 131.14 | 15.59 | 21.50 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 2.95 | 58.4 | **RACL1006** |
| 174.64 | 17.57 | 25.44 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 2.95 | 63.4 | **RACL1008** |
| 218.35 | 19.54 | 29.38 | 7.09 | 5.32 | 4.33 | 1.82 | 3.70 | 0.12 | 2.95 | 68.5 | **RACL10010** |
| 69.30 | 12.72 | 14.68 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 3.15 | 71.0 | **RACL1502** |
| 138.61 | 14.69 | 18.62 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 3.15 | 79.8 | **RACL1504** |
| 207.91 | 16.65 | 22.56 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 3.15 | 88.6 | **RACL1506** |
| 276.87 | 18.62 | 26.49 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 3.15 | 97.4 | **RACL1508** |
| 346.17 | 20.59 | 30.43 | 9.06 | 6.69 | 5.51 | 2.02 | 4.45 | 0.12 | 3.15 | 106.3 | **RACL15010** |

▼ Shown from left to right: **RACH1508, RACH304 and RACH208**




# The Lightweight Solution for Tensioning and Testing



**Saddles**
All RACH-cylinders are equipped with bolt-on removable hardened steel hollow saddles.



**Lightweight Hand Pumps**
Enerpac hand pumps **P392** or **P802** make the optimal lightweight set.

*Page:* **86**

- **Hollow plunger design allows for both pull and push forces**
- **Composite bearings increase cylinder life and side load resistance**
- **Hard coat finish on all surfaces resists damage and extends cylinder life**
- **Handles included on all models**
- **Floating center tube increases seal life**
- **Steel baseplate and saddle for protection against load-induced damage**
- **Integral stop-ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity**
- **High-strength return spring for rapid cylinder retraction**
- **CR400 coupler and dust cap included on all models**
- **All cylinders meet ASME B-30.1 standards**

| Cylinder Capacity tons (maximum) | Stroke* (in) | Model Number | Cylinder Effective Area ($in^2$) |
|---|---|---|---|
| **20** (25.4) | 1.97 | **RACH202** | 5.07 |
| | 3.94 | **RACH204** | 5.07 |
| | 5.91 | **RACH206** | 5.07 |
| | 7.87 | **RACH208** | 5.07 |
| | 9.84 | **RACH2010** | 5.07 |
| **30** (39.6) | 1.97 | **RACH302** | 7.92 |
| | 3.94 | **RACH304** | 7.92 |
| | 5.91 | **RACH306** | 7.92 |
| | 7.87 | **RACH308** | 7.92 |
| | 9.84 | **RACH3010** | 7.92 |
| **60** (65.6) | 1.97 | **RACH602** | 13.13 |
| | 3.94 | **RACH604** | 13.13 |
| | 5.91 | **RACH606** | 13.13 |
| | 7.87 | **RACH608** | 13.13 |
| | 9.84 | **RACH6010** | 13.13 |
| **100** (127.5) | 1.97 | **RACH1002** | 25.51 |
| | 3.94 | **RACH1004** | 25.51 |
| | 5.91 | **RACH1006** | 25.51 |
| | 7.87 | **RACH1008** | 25.51 |
| | 9.84 | **RACH10010** | 25.51 |
| **150** (175.0) | 1.97 | **RACH1502** | 35.00 |
| | 3.94 | **RACH1504** | 35.00 |
| | 5.91 | **RACH1506** | 35.00 |
| | 7.87 | **RACH1508** | 35.00 |
| | 9.84 | **RACH15010** | 35.00 |

* Custom strokes available.




◀ *An RACH306, powered by a P392 hand pump, is used to extract corroded carriage pins from refuse collection vehicles.*

# Single-Acting, Spring-Return, Hollow Plunger Cylinders

**Steel Base Plate**

The steel base plate protects the cylinder base from damage, it should not be removed.

The base holes in these aluminum cylinders are designed for securing the steel base plate.

**They will not withstand the capacity of the cylinder.**

Do not use the base holes in these aluminum cylinders to attach any device to the cylinder.

## RACH Series



Capacity:
**20 - 150 tons**

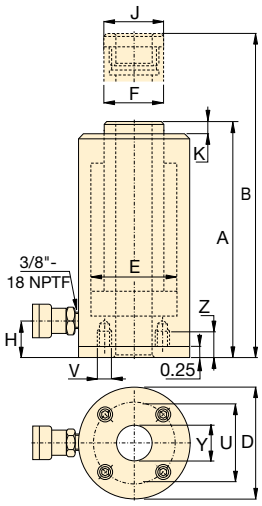
Stroke:
**1.97 - 9.84 inches**

Center Hole Diameter:
**1.06 - 3.11 inches**

Maximum Operating Pressure:
**10,000 psi**

| Steel Base Plate Mounting Holes | | | |
|---|---|---|---|
| **Cylinder Model / Capacity** (ton) | Bolt Circle U (in) | Thread V (mm) | Thread Depth [1] Z (in) |
| **RACH20** | 3.15 | M6 | 0.47 |
| **RACH30** | 4.33 | M6 | 0.47 |
| **RACH60** | 6.30 | M6 | 0.47 |
| **RACH100** | 8.66 | M10 | 0.47 |
| **RACH150** | 9.65 | M10 | 0.47 |

[1] Including Base Plate Height of 0.25 inches. Four (4) baseplate bolts included.




| Oil Capacity (in³) | Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Center Hole Diameter Y (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.98 | 7.41 | 9.38 | 3.93 | 2.95 | 2.17 | 1.14 | 2.17 | 0.40 | 1.06 | 11.5 | **RACH202** |
| 19.96 | 9.89 | 13.83 | 3.93 | 2.95 | 2.17 | 1.14 | 2.17 | 0.40 | 1.06 | 13.5 | **RACH204** |
| 29.94 | 12.41 | 18.32 | 3.93 | 2.95 | 2.17 | 1.14 | 2.17 | 0.40 | 1.06 | 15.6 | **RACH206** |
| 39.87 | 14.89 | 22.76 | 3.93 | 2.95 | 2.17 | 1.14 | 2.17 | 0.40 | 1.06 | 17.7 | **RACH208** |
| 49.90 | 17.41 | 27.25 | 3.93 | 2.95 | 2.17 | 1.14 | 2.17 | 0.40 | 1.06 | 19.8 | **RACH2010** |
| 15.59 | 8.20 | 10.17 | 5.12 | 3.74 | 2.76 | 1.14 | 2.76 | 0.40 | 1.34 | 17.6 | **RACH302** |
| 31.18 | 10.52 | 14.46 | 5.12 | 3.74 | 2.76 | 1.14 | 2.76 | 0.40 | 1.34 | 20.9 | **RACH304** |
| 46.77 | 13.12 | 19.02 | 5.12 | 3.74 | 2.76 | 1.14 | 2.76 | 0.40 | 1.34 | 24.6 | **RACH306** |
| 62.35 | 15.56 | 23.43 | 5.12 | 3.74 | 2.76 | 1.14 | 2.76 | 0.40 | 1.34 | 28.4 | **RACH308** |
| 77.94 | 18.04 | 27.88 | 5.12 | 3.74 | 2.76 | 1.14 | 2.76 | 0.40 | 1.34 | 31.9 | **RACH3010** |
| 25.84 | 9.89 | 11.86 | 7.09 | 5.12 | 3.94 | 2.41 | 3.94 | 0.47 | 2.13 | 35.6 | **RACH602** |
| 51.69 | 12.41 | 16.35 | 7.09 | 5.12 | 3.94 | 2.41 | 3.94 | 0.47 | 2.13 | 42.8 | **RACH604** |
| 77.53 | 14.97 | 20.87 | 7.09 | 5.12 | 3.94 | 2.41 | 3.94 | 0.47 | 2.13 | 50.3 | **RACH606** |
| 103.37 | 17.52 | 25.40 | 7.09 | 5.12 | 3.94 | 2.41 | 3.94 | 0.47 | 2.13 | 57.2 | **RACH608** |
| 129.21 | 20.09 | 29.93 | 7.09 | 5.12 | 3.94 | 2.41 | 3.94 | 0.47 | 2.13 | 65.1 | **RACH6010** |
| 50.21 | 10.16 | 12.13 | 9.84 | 7.28 | 5.71 | 2.41 | 5.71 | 0.55 | 3.11 | 74.6 | **RACH1002** |
| 100.43 | 12.80 | 16.74 | 9.84 | 7.28 | 5.71 | 2.41 | 5.71 | 0.55 | 3.11 | 87.8 | **RACH1004** |
| 150.64 | 15.40 | 21.31 | 9.84 | 7.28 | 5.71 | 2.41 | 5.71 | 0.55 | 3.11 | 101.9 | **RACH1006** |
| 200.85 | 18.08 | 25.95 | 9.84 | 7.28 | 5.71 | 2.41 | 5.71 | 0.55 | 3.11 | 115.7 | **RACH1008** |
| 251.07 | 20.76 | 30.60 | 9.84 | 7.28 | 5.71 | 2.41 | 5.71 | 0.55 | 3.11 | 129.3 | **RACH10010** |
| 66.08 | 11.03 | 13.00 | 10.83 | 8.07 | 5.91 | 2.41 | 5.71 | 0.55 | 3.11 | 107.7 | **RACH1502** |
| 132.17 | 14.18 | 18.12 | 10.83 | 8.07 | 5.91 | 2.41 | 5.71 | 0.55 | 3.11 | 122.8 | **RACH1504** |
| 206.72 | 16.93 | 22.84 | 10.83 | 8.07 | 5.91 | 2.41 | 5.71 | 0.55 | 3.11 | 138.9 | **RACH1506** |
| 275.62 | 19.69 | 27.57 | 10.83 | 8.07 | 5.91 | 2.41 | 5.71 | 0.55 | 3.11 | 154.5 | **RACH1508** |
| 344.53 | 22.45 | 32.29 | 10.83 | 8.07 | 5.91 | 2.41 | 5.71 | 0.55 | 3.11 | 170.2 | **RACH15010** |

▼ Shown from left to right: **RARH6010 and RARH306**




# The Lightweight Solution for Double-Acting Applications

- **Lighter and shorter collapsed height than equivalent RACH single-acting models**
- **Double-acting for rapid retraction, regardless of hose lengths or system losses**
- **Built-in safety valve prevents accidental over pressurization**
- **Hollow plunger design allows for both pull and push forces**
- **Composite bearings increase cylinder life and side load resistance**
- **Hard coat finish on all surfaces resists damage and extends cylinder life**
- **Handles included on all models**
- **Floating center tube increases seal life**
- **Steel baseplate and saddle for protection against load-induced damage**
- **Integral stop-ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity**
- **All cylinders meet ASME B-30.1 standards**



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

***Page:*** **148**



**Gauges**

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

***Page:*** **147**



**4-Way Control Valve**

**P84** and **P464** pumps feature a manual 4-way control valve, designed for use with one double-acting or two single-acting cylinders. For system set-up information:

***Page:*** **164**

| Cylinder Capacity (ton) | Stroke* (in) | Model Number | Maximum Cylinder Capacity @ 10,150 psi (ton) Advance | Maximum Cylinder Capacity @ 10,150 psi (ton) Retract | Cylinder Effective Area ($in^2$) Advance | Cylinder Effective Area ($in^2$) Retract | Oil Capacity ($in^3$) Advance | Oil Capacity ($in^3$) Retract |
|---|---|---|---|---|---|---|---|---|
| 30 | 1.97 | RARH302 | 40.30 | 21.00 | 7.94 | 4.14 | 15.63 | 8.14 |
| | 5.91 | RARH306 | 40.30 | 21.00 | 7.94 | 4.14 | 46.89 | 24.43 |
| | 9.84 | RARH3010 | 40.30 | 21.00 | 7.94 | 4.14 | 78.15 | 40.72 |
| 60 | 1.97 | RARH602 | 66.81 | 29.65 | 13.17 | 5.84 | 25.91 | 11.50 |
| | 5.91 | RARH606 | 66.81 | 29.65 | 13.17 | 5.84 | 77.72 | 34.50 |
| | 9.84 | RARH6010 | 66.81 | 29.65 | 13.17 | 5.84 | 129.54 | 57.49 |
| 100 | 1.97 | RARH1002 | 112.40 | 63.80 | 22.16 | 12.57 | 43.60 | 24.73 |
| | 5.91 | RARH1006 | 112.40 | 63.80 | 22.16 | 12.57 | 130.79 | 74.19 |
| | 9.84 | RARH10010 | 112.40 | 63.80 | 22.16 | 12.57 | 217.99 | 123.66 |
| 150 | 1.97 | RARH1502 | 167.20 | 84.00 | 32.96 | 16.56 | 64.86 | 32.58 |
| | 5.91 | RARH1506 | 167.20 | 84.00 | 32.96 | 16.56 | 194.57 | 97.74 |
| | 9.84 | RARH15010 | 167.20 | 84.00 | 32.96 | 16.56 | 324.28 | 162.89 |

* Intermediate strokes and other tonnages available upon request

# Aluminium Double-Acting Hollow Plunger Cylinders

**Steel Base Plate**

The steel base plate protects the cylinder base from damage, it should not be removed.

The base holes in these aluminum cylinders are designed for securing the steel base plate. **They will not withstand the capacity of the cylinder.**

Do not use the base holes in these aluminum cylinders to attach any device to the cylinder.

## RARH Series



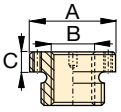
Capacity:
**30 - 150 ton**

Stroke:
**2 - 10 inches**

Center Hole Diameter:
**1.34 - 3.11 inches**

Maximum Operating Pressure:
**10,150 psi**

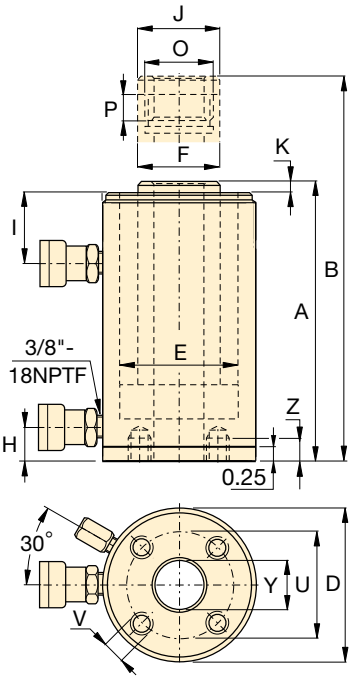
| Optional Threaded Hollow Saddles | | | | | | |
|---|---|---|---|---|---|---|
| Saddle Type | Cylinder Model Number | Saddle Model No. | Saddle Dimensions (in) A | B | C | |
| Threaded Hollow | RARH302, 306, 3010 | HP3015 | 2.49 | 1¼"-7 | 0.38 | |
| | RARH602, 606, 6010 | HP5016 | 3.61 | 1⅝"-5½ | 0.50 | |
| | RARH1002, 1006, 10010 | HP10016 | 4.96 | 2½"-8 UN | 0.51 | |




*Smooth hollow saddles are standard on all RARH-models.*

| Steel Base Plate Mounting Holes | | | |
|---|---|---|---|
| Cylinder Model / Capacity (ton) | Bolt Circle U (in) | Thread V (mm) | Thread Depth [1] Z (in) |
| RARH30 | 4.33 | M6 | 0.47 |
| RARH60 | 6.30 | M6 | 0.47 |
| RARH100 | 7.87 | M10 | 0.47 |
| RARH150 | 9.84 | M10 | 0.47 |

[1] Including Base Plate Height of 0.25 inches. Four (4) base plate bolts included.






**RACH-Series, Single-Acting, Spring-Return**

To be used when a single-acting pump is available and retraction time is not critical.

*Page:* 16

**Pump Selection**

A double-acting cylinder must be powered by a pump with a 4-way valve.

*Page:* 139

| Collap. Height A (in) | Ext. Height B (in) | Outside Diam. D (in) | Cyl. Bore Diam. E (in) | Plngr. Diam. F (in) | Cyl. Base to Advance Port H (in) | Cyl. Top to Return Port I (in) | Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Plunger Internal Thread O (in) | Plunger Thread Length P (in) | Center Hole Diameter Y (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.22 | 10.19 | 5.31 | 3.74 | 2.95 | 0.86 | 2.53 | 2.49 | 0.38 | 1 13/16"-16 UN | 0.91 | 1.34 | 19.6 | RARH302 |
| 12.16 | 18.07 | 5.31 | 3.74 | 2.95 | 0.86 | 2.53 | 2.49 | 0.38 | 1 13/16"-16 UN | 0.91 | 1.34 | 26.2 | RARH306 |
| 16.10 | 25.94 | 5.31 | 3.74 | 2.95 | 0.86 | 2.53 | 2.49 | 0.38 | 1 13/16"-16 UN | 0.91 | 1.34 | 32.8 | RARH3010 |
| 9.68 | 11.65 | 7.09 | 5.12 | 4.33 | 1.88 | 3.28 | 3.61 | 0.50 | 2¾"-16 UN | 0.79 | 2.13 | 37.0 | RARH602 |
| 13.62 | 19.52 | 7.09 | 5.12 | 4.33 | 1.88 | 3.28 | 3.61 | 0.50 | 2¾"-16 UN | 0.79 | 2.13 | 48.8 | RARH606 |
| 17.56 | 27.40 | 7.09 | 5.12 | 4.33 | 1.88 | 3.28 | 3.61 | 0.50 | 2¾"-16 UN | 0.79 | 2.13 | 60.7 | RARH6010 |
| 9.99 | 11.96 | 9.25 | 6.50 | 5.12 | 2.41 | 3.07 | 4.97 | 0.53 | 4"-16 UN | 1.06 | 3.11 | 63.6 | RARH1002 |
| 13.92 | 19.83 | 9.25 | 6.50 | 5.12 | 2.41 | 3.07 | 4.97 | 0.53 | 4"-16 UN | 1.06 | 3.11 | 84.3 | RARH1006 |
| 17.86 | 27.70 | 9.25 | 6.50 | 5.12 | 2.41 | 3.07 | 4.97 | 0.53 | 4"-16 UN | 1.06 | 3.11 | 104.9 | RARH10010 |
| 10.39 | 12.36 | 11.02 | 7.48 | 5.91 | 2.41 | 3.27 | 5.00 | 0.74 | 4¼"-12 UN | 1.57 | 3.11 | 93.3 | RARH1502 |
| 14.33 | 20.24 | 11.02 | 7.48 | 5.91 | 2.41 | 3.27 | 5.00 | 0.74 | 4¼"-12 UN | 1.57 | 3.11 | 123.6 | RARH1506 |
| 18.27 | 28.11 | 11.02 | 7.48 | 5.91 | 2.41 | 3.27 | 5.00 | 0.74 | 4¼"-12 UN | 1.57 | 3.11 | 154.0 | RARH15010 |

▼ Shown from left to right: **RAR506, RAR508, RAR302**




# The Lightweight Solution for Double-Acting Applications



**Saddles**

All RAR-cylinders are equipped with bolt-on removable hardened steel saddles. For tilt saddles see next page.

*Page:* 21



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

*Page:* 148

- **Double-acting for rapid retraction, regardless of hose lengths and system losses**
- **Composite bearings increase cylinder life and side load resistance**
- **Hard coat finish on all surfaces resists damage and extends cylinder life**
- **Handles included on all models**
- **Steel base plate and saddle for protection against load-induced damage**
- **Integral stop-ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity**
- **Built-in safety valve prevents accidental over-pressurization**

| Cylinder Capacity (ton) | Stroke* (in) | Model Number | Maximum Cylinder Capacity (ton) | Cylinder Effective Area ($in^2$) | | Oil Capacity ($in^3$) | |
|---|---|---|---|---|---|---|---|
| | | | Push | Push | Pull | Push | Pull |
| 20 (24.2) | 1.97 | RAR202 | 24.2 | 4.83 | 2.88 | 9.52 | 5.67 |
| | 3.94 | RAR204 | 24.2 | 4.83 | 2.88 | 19.03 | 11.34 |
| | 5.91 | RAR206 | 24.2 | 4.83 | 2.88 | 28.55 | 17.02 |
| | 7.87 | RAR208 | 24.2 | 4.83 | 2.88 | 38.01 | 22.66 |
| | 9.84 | RAR2010 | 24.2 | 4.83 | 2.88 | 47.53 | 28.34 |
| 30 (34.2) | 1.97 | RAR302 | 34.2 | 6.85 | 3.80 | 13.49 | 7.49 |
| | 3.94 | RAR304 | 34.2 | 6.85 | 3.80 | 26.99 | 14.97 |
| | 5.91 | RAR306 | 34.2 | 6.85 | 3.80 | 40.48 | 22.46 |
| | 7.87 | RAR308 | 34.2 | 6.85 | 3.80 | 53.91 | 29.91 |
| | 9.84 | RAR3010 | 34.2 | 6.85 | 3.80 | 67.40 | 37.39 |
| 50 (54.9) | 1.97 | RAR502 | 55 | 10.99 | 3.54 | 21.65 | 6.97 |
| | 3.94 | RAR504 | 55 | 10.99 | 3.54 | 43.30 | 13.95 |
| | 5.91 | RAR506 | 55 | 10.99 | 3.54 | 64.95 | 20.92 |
| | 7.87 | RAR508 | 55 | 10.99 | 3.54 | 86.49 | 27.86 |
| | 9.84 | RAR5010 | 55 | 10.99 | 3.54 | 108.14 | 34.83 |
| 100 (110.9) | 1.97 | RAR1002 | 111 | 22.19 | 12.33 | 43.71 | 24.29 |
| | 3.94 | RAR1004 | 111 | 22.19 | 12.33 | 87.43 | 48.58 |
| | 5.91 | RAR1006 | 111 | 22.19 | 12.33 | 131.14 | 72.87 |
| | 7.87 | RAR1008 | 111 | 22.19 | 12.33 | 174.64 | 97.04 |
| | 9.84 | RAR10010 | 111 | 22.19 | 12.33 | 218.35 | 121.33 |
| 150 (175.9) | 1.97 | RAR1502 | 176 | 35.18 | 20.45 | 69.30 | 40.29 |
| | 3.94 | RAR1504 | 176 | 35.18 | 20.45 | 138.61 | 80.57 |
| | 5.91 | RAR1506 | 176 | 35.18 | 20.45 | 207.91 | 120.86 |
| | 7.87 | RAR1508 | 176 | 35.18 | 20.45 | 276.87 | 160.94 |
| | 9.84 | RAR15010 | 176 | 35.18 | 20.45 | 346.17 | 201.23 |

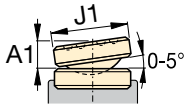
* Custom strokes available.



◀ *An RAR506 was easy to position under a bulldozer for repair of frame member.*

**Optional Tilt Saddle Dimensions** (in)

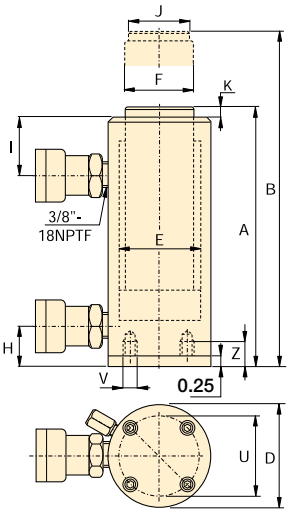
| Cylinder Model / Capacity (ton) | Tilt Saddle Model Number | Tilt Saddle Diameter J1 | Addition to Collapsed Height A1 |
|---|---|---|---|
| RAR20 | CATS20 | 1.65 | 0.39 |
| RAR30 | CATS30 | 2.17 | 0.43 |
| RAR50 | CATS50 | 2.80 | 0.55 |
| RAR100 | CATS101 | 2.80 | 0.39 |
| RAR150 | CATS150 | 4.96 | 0.71 |




**Steel Base Plate Mounting Holes**

| Cylinder Model / Capacity (ton) | Bolt Circle U (in) | Thread V (mm) | Thread Depth [1] Z (in) |
|---|---|---|---|
| RAR20 | 3.66 | M6 | 0.47 |
| RAR30 | 4.13 | M6 | 0.47 |
| RAR50 | 4.33 | M6 | 0.47 |
| RAR100 | 6.10 | M10 | 0.47 |
| RAR150 | 7.87 | M10 | 0.47 |

[1] Including Base Plate Height of 0.25 inches. Four (4) base plate bolts included.




# RAR Series



Capacity:
**20 - 150 tons**

Stroke:
**1.97 - 9.84 inches**

Maximum Operating Pressure:
**10,000 psi**

**Steel Base Plate**

The steel base plate protects the cylinder base from damage, it should not be removed. See warning on page 11.

*Page:* 11

| Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Top to Retract Port I (in) | Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|
| 7.45 | 9.42 | 4.45 | 2.48 | 1.58 | 1.19 | 1.97 | 1.18 | 0.12 | 16.3 | RAR202 |
| 9.42 | 13.35 | 4.45 | 2.48 | 1.58 | 1.19 | 1.97 | 1.18 | 0.12 | 17.6 | RAR204 |
| 11.29 | 17.29 | 4.45 | 2.48 | 1.58 | 1.19 | 1.97 | 1.18 | 0.12 | 19.0 | RAR206 |
| 13.35 | 21.23 | 4.45 | 2.48 | 1.58 | 1.19 | 1.97 | 1.18 | 0.12 | 20.3 | RAR208 |
| 15.32 | 25.17 | 4.45 | 2.48 | 1.58 | 1.19 | 1.97 | 1.18 | 0.12 | 21.6 | RAR2010 |
| 7.92 | 9.89 | 4.92 | 2.95 | 1.97 | 1.19 | 2.17 | 1.58 | 0.12 | 19.0 | RAR302 |
| 9.89 | 13.83 | 4.92 | 2.95 | 1.97 | 1.19 | 2.17 | 1.58 | 0.12 | 20.9 | RAR304 |
| 11.86 | 17.76 | 4.92 | 2.95 | 1.97 | 1.19 | 2.17 | 1.58 | 0.12 | 22.9 | RAR306 |
| 13.83 | 21.70 | 4.92 | 2.95 | 1.97 | 1.19 | 2.17 | 1.58 | 0.12 | 24.9 | RAR308 |
| 15.80 | 25.64 | 4.92 | 2.95 | 1.97 | 1.19 | 2.17 | 1.58 | 0.12 | 26.9 | RAR3010 |
| 7.92 | 9.89 | 5.71 | 3.74 | 2.95 | 1.19 | 2.21 | 1.97 | 0.12 | 24.5 | RAR502 |
| 9.89 | 13.83 | 5.71 | 3.74 | 2.95 | 1.19 | 2.21 | 1.97 | 0.12 | 28.0 | RAR504 |
| 11.86 | 17.76 | 5.71 | 3.74 | 2.95 | 1.19 | 2.21 | 1.97 | 0.12 | 31.5 | RAR506 |
| 13.83 | 21.70 | 5.71 | 3.74 | 2.95 | 1.19 | 2.21 | 1.97 | 0.12 | 35.1 | RAR508 |
| 15.80 | 25.64 | 5.71 | 3.74 | 2.95 | 1.19 | 2.21 | 1.97 | 0.12 | 38.6 | RAR5010 |
| 9.89 | 11.86 | 7.28 | 5.32 | 3.54 | 1.70 | 3.15 | 2.95 | 0.12 | 36.2 | RAR1002 |
| 11.86 | 15.80 | 7.28 | 5.32 | 3.54 | 1.70 | 3.15 | 2.95 | 0.12 | 42.6 | RAR1004 |
| 13.83 | 19.73 | 7.28 | 5.32 | 3.54 | 1.70 | 3.15 | 2.95 | 0.12 | 48.9 | RAR1006 |
| 15.80 | 23.67 | 7.28 | 5.32 | 3.54 | 1.70 | 3.15 | 2.95 | 0.12 | 55.3 | RAR1008 |
| 17.76 | 27.61 | 7.28 | 5.32 | 3.54 | 1.70 | 3.15 | 2.95 | 0.12 | 61.7 | RAR10010 |
| 9.77 | 11.74 | 9.06 | 6.70 | 4.33 | 1.50 | 2.95 | 3.70 | 0.12 | 53.4 | RAR1502 |
| 11.74 | 16.68 | 9.06 | 6.70 | 4.33 | 1.50 | 2.95 | 3.70 | 0.12 | 63.7 | RAR1504 |
| 13.71 | 19.61 | 9.06 | 6.70 | 4.33 | 1.50 | 2.95 | 3.70 | 0.12 | 73.2 | RAR1506 |
| 15.68 | 23.55 | 9.06 | 6.70 | 4.33 | 1.50 | 2.95 | 3.70 | 0.12 | 83.6 | RAR1508 |
| 17.64 | 29.46 | 9.06 | 6.70 | 4.33 | 1.50 | 2.95 | 3.70 | 0.12 | 93.9 | RAR15010 |

▼ **CULP50 Ultra-Flat Cylinder, with Stop-Ring**




## CULP Series

Capacity:
**10 - 100 tons**

Stroke:
**0.24 inches**

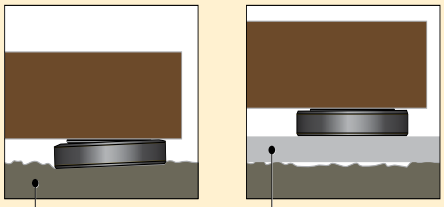
Maximum Operating Pressure:
**10,150 psi**

- **Up to 4% side load of maximum capacity**
- **Stop-ring for maximum stroke limitation**
- **Extremely low collapsed height**
- **Nitrocarburized surface treatment for harsh conditions**

**IMPORTANT!**

**All Ultra-Flat Cylinders require a solid lifting surface for correct support. The use of these flat cylinders on surfaces such as sand, mud or dirt, may result in cylinder damage.**

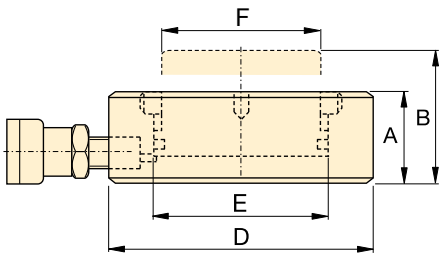
**INCORRECT!** **CORRECT!**




For more safety instructions see our Yellow Pages.

▼ *The Ultra-Flat cylinders are designed for applications where high lifting forces are required in confined spaces starting at 1.10 inch (CUSP200 is shown).*






**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

***Page:*** **148**

| Cylinder Capacity @ 10,150 psi ton (max.) | Stroke (in) | Model Number | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|
| **10** (10.9) | 0.24 | **CULP10** [1] | 2.15 | 0.51 | 1.08 | 1.32 | 2.83 | 1.65 | 1.49 | 2 |
| **20** (22.2) | 0.24 | **CULP20** [1] | 4.38 | 1.04 | 1.26 | 1.50 | 3.54 | 2.36 | 2.16 | 4 |
| **30** (34.8) | 0.24 | **CULP30** [1] | 6.85 | 1.62 | 1.38 | 1.61 | 4.13 | 2.95 | 2.64 | 6 |
| **50** (61.8) | 0.24 | **CULP50** [1] | 12.17 | 2.88 | 1.75 | 1.99 | 5.51 | 3.94 | 3.54 | 11.9 |
| **100** (121.1) | 0.24 | **CULP100** [2] | 23.85 | 5.63 | 2.55 | 2.79 | 7.67 | 5.51 | 4.92 | 25.3 |

[1] Coupler AR630 including dustcap: Use HB7206 hose including AH630 coupler to connect to your pump.
[2] Coupler CR400 including dustcap: Use HC-Series hose including CH604 coupler to connect to your pump.

# CUSP-Series, High-Tonnage, Ultra-Flat Cylinders

▼ **CUSP-Series, Ultra-Flat, High-Tonnage Cylinders, integrated tilting function**




## CUSP Series

Capacity:
**10 - 1000 tons**

Tilted Stroke / Straight Stroke:
**0.24-0.39"/0.26-0.69"**

Integrated:
**Tilting Function**

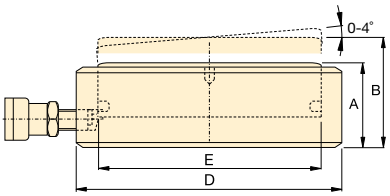
Maximum Operating Pressure:
**10,150 psi**

**IMPORTANT!**
**CUSP Cylinders DO NOT have a stop-ring for stroke limitation!**

**IMPORTANT!**
**All Ultra-Flat Cylinders require a solid lifting surface for correct support. The use of these flat cylinders on surfaces such as sand, mud or dirt, may result in cylinder damage.**

*Page:* 400

- **Up to 4% side load of maximum capacity**
- **Extremely low collapsed height**
- **Integrated tilting function up to 4 degrees to evenly distribute the load**
- **Nitrocarburized surface treatment for harsh conditions**
- **"Red Line" for visual maximum stroke indication**




| Cylinder Capacity @ 10,150 psi ton (max.) | Tilted Stroke (in) | Straight Stroke (in) | Model Number | Tilting +/- (degrees) | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** (10.9) | 0.24 | 0.26 | **CUSP10** [1] | 2 | 2.15 | 0.57 | 1.40 | 1.66 | 2.83 | 1.65 | 2.6 |
| **20** (22.2) | 0.24 | 0.28 | **CUSP20** [1] | 2 | 4.39 | 1.21 | 1.59 | 1.87 | 3.54 | 2.36 | 4.2 |
| **30** (34.8) | 0.24 | 0.29 | **CUSP30** [1] | 2 | 6.85 | 1.97 | 1.67 | 1.96 | 4.13 | 2.95 | 6.0 |
| **50** (61.8) | 0.39 | 0.52 | **CUSP50** [1] | 4 | 12.17 | 6.37 | 2.24 | 2.77 | 5.12 | 3.94 | 12.3 |
| **75** (89.0) | 0.39 | 0.55 | **CUSP75** [1] | 4 | 17.53 | 9.66 | 2.38 | 2.93 | 5.91 | 4.72 | 17.6 |
| **100** (121.1) | 0.39 | 0.58 | **CUSP100** [2] | 4 | 23.85 | 13.81 | 2.50 | 3.08 | 6.69 | 5.51 | 23.8 |
| **150** (178.6) | 0.39 | 0.56 | **CUSP150** [2] | 3 | 35.19 | 19.81 | 2.56 | 3.12 | 7.87 | 6.69 | 33.7 |
| **200** (235.0) | 0.39 | 0.59 | **CUSP200** [2] | 3 | 46.28 | 27.15 | 2.72 | 3.30 | 9.02 | 7.68 | 47.4 |
| **250** (285.6) | 0.39 | 0.61 | **CUSP250** [2] | 3 | 56.28 | 34.34 | 2.85 | 3.46 | 9.92 | 8.46 | 60.2 |
| **300** (355.9) | 0.39 | 0.56 | **CUSP300** [2] | 2 | 70.12 | 38.93 | 2.85 | 3.41 | 11.10 | 9.45 | 75.8 |
| **400** (450.5) | 0.39 | 0.57 | **CUSP400** [2] | 2 | 88.75 | 51.01 | 3.05 | 3.63 | 12.44 | 10.63 | 101.9 |
| **500** (574.8) | 0.39 | 0.60 | **CUSP500** [2] | 2 | 113.24 | 67.77 | 3.25 | 3.85 | 14.02 | 12.01 | 138.2 |
| **600** (672.9) | 0.39 | 0.61 | **CUSP600** [2] | 2 | 132.57 | 81.42 | 3.44 | 4.06 | 15.20 | 12.99 | 172.8 |
| **750** (846.0) | 0.39 | 0.64 | **CUSP750** [2] | 2 | 166.66 | 106.95 | 3.68 | 4.32 | 17.01 | 14.57 | 231.9 |
| **1000**(1142.6) | 0.39 | 0.69 | **CUSP1000**[2] | 2 | 225.09 | 154.20 | 4.06 | 4.74 | 19.76 | 16.93 | 346.1 |

[1] Coupler AR630 including dustcap: Use HB7206 hose including AH630 coupler to connect to your pump.
[2] Coupler CR400 including dustcap: Use HC-Series hose including CH604 coupler to connect to your pump.

▼ LPL-Series, Low-height Lock Nut Cylinders




# The Lowest Power Lifter



**Integrated Tilt Saddles**
All LPL-Series cylinders include integrated tilt saddles with maximum tilt angles up to 5°.

- **Lock nut provides mechanical load holding for a safe work environment**
- **Integrated tilt saddle allows for up to 5 degrees of misalignment**
- **Extreme low-height for use in confined areas**
- **Side-load resistance 5-10% of maximum capacity**
- **Overflow port as stroke limiter to prevent plunger blow-out**
- **Single-acting, load-return**

▼ *Only the extreme low-height LPL-cylinder fits in this confined area to lift the construction. The lock nut provides positive and safe mechanical load holding over a long period of time.*

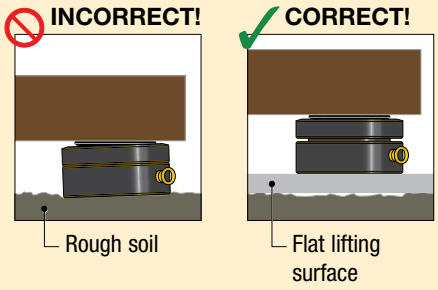



| Cylinder Capacity (ton) | Stroke (in) | Model Number | Maximum Cylinder Cap. at 10,150 psi (ton) | Side-load Resistance of Maximum Capacity | Cylinder Effective Area ($in^2$) |
|---|---|---|---|---|---|
| **60** | 1.97 | **LPL602** | **68** | 10% | 13.42 |
| **100** | 1.97 | **LPL1002** | **113** | 10% | 22.19 |
| **150** | 1.77 | **LPL1602** | **179** | 8% | 35.18 |
| **200** | 1.77 | **LPL2002** | **223** | 8% | 43.95 |
| **250** | 1.77 | **LPL2502** | **286** | 5% | 56.27 |
| **400** | 1.77 | **LPL4002** | **450** | 5% | 88.75 |
| **500** | 1.77 | **LPL5002** | **575** | 5% | 113.25 |

# Single Acting, Low-Height Lock Nut Cylinders

**IMPORTANT!**

**All LPL-Series cylinders require a solid lifting surface for correct support. The use of these cylinders on surfaces such as sand, mud or dirt, may result in cylinder damage.**




For more safety instructions see our 'Learning Center' on www.enerpac.com

## LPL Series



Capacity:
**60 - 500 ton**

Stroke:
**1.77 - 1.97 inches**

Maximum Operating Pressure:
**10,150 psi**



**Longer Stroke Lock Nut Cylinders**

For longer stroke applications HCL-Series Lock Nut Cylinders are the perfect choice.

*Page:* 56



**Split-Flow Pumps**

SFP-Series pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points these pumps are a far better alternative than using separately operated pumps.

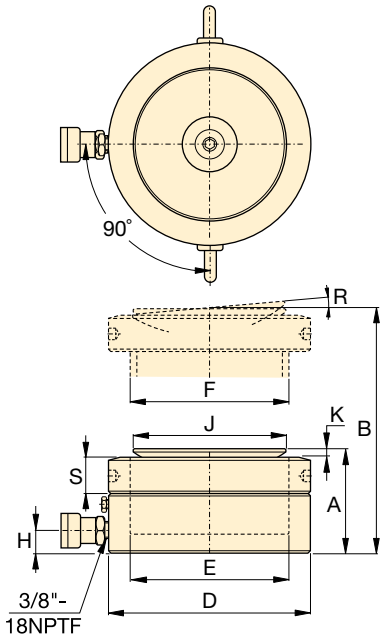
*Page:* 132



**Synchronous Lifting Systems**

Pumps for multiple lift-point capabilities. When increased stroke accuracy is required, use the multi-functional EVO-Series lifting system.

*Page:* 136




| Oil Capacity (in³) | Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (mm) | Base to Advance Port H (in) | Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Saddle Max. Tilt Angle R (degrees) | Lock Nut Height S (in) | Wt. (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26.4 | 4.94 | 6.91 | 5.51 | 4.13 | Tr 105 x 4 | 0.75 | 3.78 | 0.26 | 5° | 1.10 | 33 | **LPL602** |
| 43.7 | 5.39 | 7.36 | 6.81 | 5.31 | Tr 135 x 6 | 0.83 | 4.96 | 0.31 | 5° | 1.22 | 54 | **LPL1002** |
| 62.3 | 5.83 | 7.60 | 8.66 | 6.69 | Tr 170 x 6 | 1.06 | 6.30 | 0.35 | 5° | 1.57 | 94 | **LPL1602** |
| 77.9 | 6.10 | 7.87 | 9.65 | 7.48 | Tr 190 x 6 | 1.18 | 7.09 | 0.39 | 5° | 1.69 | 121 | **LPL2002** |
| 99.7 | 6.24 | 8.01 | 10.83 | 8.46 | Tr 215 x 6 | 1.26 | 7.87 | 0.45 | 5° | 1.69 | 155 | **LPL2502** |
| 157.2 | 7.01 | 8.78 | 13.78 | 10.63 | Tr 270 x 6 | 1.56 | 9.84 | 0.45 | 4° | 2.17 | 284 | **LPL4002** |
| 200.6 | 7.56 | 9.33 | 15.75 | 12.01 | Tr 305 x 6 | 1.91 | 11.42 | 0.39 | 3° | 2.42 | 404 | **LPL5002** |

▼ Shown from left to right: **RSM1000, RSM300, RSM50, RCS1002, RCS302**




## RSM-Series, Flat-Jac® Cylinders

- **Compact, flat design for use where other cylinders will not fit**
- **RSM750, 1000 and 1500 have handles for easy carrying**
- **Mounting holes permit easy fixturing**
- **Baked enamel finish for increased corrosion resistance**
- **CR400 coupler and dust cap included on all models[1)]**
- **Hard chrome plated high-quality steel plungers**
- **Grooved plunger ends require no saddle**
- **Single-acting spring-return**

## RCS-Series, Low-Height Cylinders

- **Lightweight, low profile design for use in confined spaces**
- **Baked enamel finish for increased corrosion resistance**
- **Plunger wiper reduces contamination, extending cylinder life**
- **CR400 coupler and dust cap included on all models**
- **Grooved plunger end with threaded holes for mounting tilt saddles**
- **Integral handle on RCS1002 for easy carrying**
- **Plated steel plungers**
- **Single-acting spring-return**

# Maximum Power to Height Ratio



**Saddles**

All **RCS-Series** cylinders have plunger mounting holes for installation of tilt saddles. See table for selection and dimensional information.

*Page:* **27**

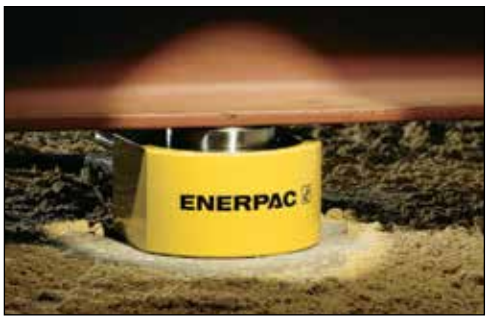


**Low Clearance Lifting**

The **LW16** Lifting Wedge and **SOH-Series** Machine Lifts are the perfect choices for lifting loads that have low clearance.

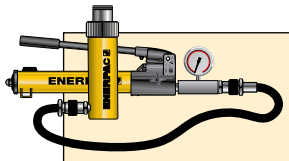
*Page:* **212**

▼ *Only a couple of inches are needed for an RSM-cylinder to lift this large steel construction.*




| Cylinder Capacity (tons) [max.] | Stroke (in) | Model Number | Cyl. Effect. Area ($in^2$) | Oil Cap. ($in^3$) |
|---|---|---|---|---|
| **5** [4.9] | 0.25 | **RSM50** [1)] | 0.99 | 0.25 |
| **10** [11.2] | 0.44 | **RSM100** | 2.24 | 0.98 |
| **20** [22.1] | 0.44 | **RSM200** | 4.43 | 1.94 |
| **30** [32.4] | 0.50 | **RSM300** | 6.49 | 3.25 |
| **50** [48.1] | 0.63 | **RSM500** | 9.62 | 6.01 |
| **75** [79.5] | 0.63 | **RSM750** | 15.90 | 9.94 |
| **100** [98.1] | 0.63 | **RSM1000** | 19.63 | 12.27 |
| **150** [153.4] | 0.63 | **RSM1500** | 30.68 | 19.17 |
| **10** [11.2] | 1.50 | **RCS101*** | 2.24 | 3.35 |
| **20** [22.1] | 1.75 | **RCS201*** | 4.43 | 7.75 |
| **30** [32.4] | 2.44 | **RCS302*** | 6.49 | 15.82 |
| **50** [48.1] | 2.38 | **RCS502*** | 9.62 | 22.85 |
| **100** [98.1] | 2.25 | **RCS1002*** | 19.63 | 44.18 |

[1)] RSM50 is fitted with an AR400 coupler.
* Available as a set. See note on next page.



**Pump and Cylinder Sets**

All cylinders marked with an ** are available as **sets** (cylinder, gauge, couplers, hose and pump) for your ordering convenience.

**Page:** 62

# RSM RCS Series



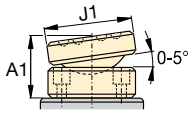
Capacity:
**5 - 150 tons**

Stroke:
**0.25 - 2.44 inches**

Maximum Operating Pressure:
**10,000 psi**

**Optional Tilt Saddle Dimensions** (in)

| For Cylinder Model /Capacity (ton) | Tilt Saddle Model Number | Tilt Saddle Diameter J1 | Addition to Collapsed Height A1 |
|---|---|---|---|
| RCS101 | CATS13 | 1.38 | 0.79 |
| RCS201 | CATS53 | 1.97 | 0.98 |
| RCS302 | CATS53 | 1.97 | 0.98 |
| RCS502 | CATS53 | 1.97 | 0.98 |
| RCS1002 | CATS103 | 2.80 | 1.38 |

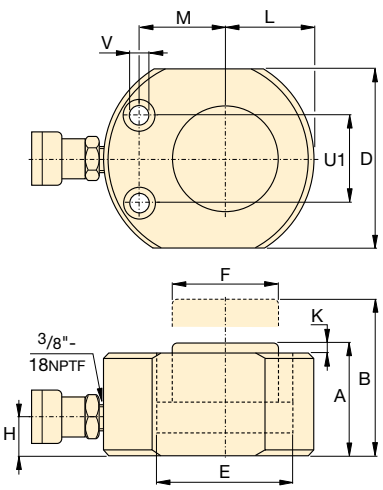




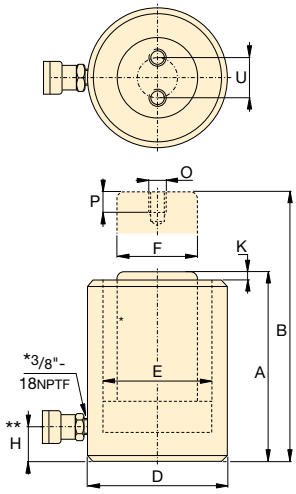

**Portable Hydraulic Tool Box**

Tool box with hand pump, gauge adaptor assembly, hose and choice of RC, RSM or RCS cylinder.

**Page:** 65




**RSM-Series**




**RCS-Series****

** 5° angle position of coupler on RCS101, 201, 302.

**RSM Cylinder Mounting Hole Dimensions** (in)

| Model Number | Hole Pitch U1 | Hole Diam. V | Counter Bore Diam. | Counter Bore Depth |
|---|---|---|---|---|
| RSM50 | 1.12 | 0.20 | 0.312 | 0.17 |
| RSM100 | 1.44 | 0.28 | 0.422 | 0.31 |
| RSM200 | 1.94 | 0.40 | 0.594 | 0.39 |
| RSM300 | 2.06 | 0.40 | 0.625 | 0.44 |
| RSM500 | 2.62 | 0.47 | 0.750 | 0.50 |
| RSM750 | 3.00 | 0.53 | 0.812 | 0.56 |
| RSM1000 | 3.00 | 0.53 | 0.812 | 0.56 |
| RSM1500 | 4.62 | 0.53 | 0.812 | 0.56 |

| Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Collapsed Height** K (in) | Plunger to Base L (in) | Plunger to Mtg. Hole M (in) | Thread O (mm) | Thread Depth P (in) | Bolt Circle U (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.28 | 1.53 | 2.31 x 1.63 | 1.13 | 1.00 | 0.63 | 0.04 | 0.81 | 0.88 | – | – | – | 2.3 | RSM50 [1] |
| 1.69 | 2.13 | 3.25 x 2.19 | 1.69 | 1.50 | 0.75 | 0.04 | 1.09 | 1.34 | – | – | – | 3.1 | RSM100 |
| 2.03 | 2.47 | 4.00 x 3.00 | 2.38 | 2.00 | 0.75 | 0.04 | 1.56 | 1.56 | – | – | – | 6.8 | RSM200 |
| 2.31 | 2.81 | 4.63 x 3.75 | 2.88 | 2.50 | 0.75 | 0.08 | 1.88 | 1.75 | – | – | – | 10 | RSM300 |
| 2.63 | 3.25 | 5.50 x 4.50 | 3.50 | 2.75 | 0.75 | 0.08 | 2.25 | 2.13 | – | – | – | 15 | RSM500 |
| 3.13 | 3.75 | 6.50 x 5.50 | 4.50 | 3.25 | 0.75 | 0.08 | 2.75 | 2.63 | – | – | – | 25 | RSM750 |
| 3.38 | 4.00 | 7.00 x 6.00 | 5.00 | 3.63 | 0.75 | 0.08 | 3.00 | 2.94 | – | – | – | 32 | RSM1000 |
| 3.94 | 4.56 | 8.50 x 7.50 | 6.25 | 4.50 | 0.94 | 0.08 | 3.75 | 3.25 | – | – | – | 58 | RSM1500 |
| 3.47 | 4.97 | 2.75 | 1.69 | 1.50 | 0.69 | 0.20 | – | – | M4 | 0.32 | 1.03 | 6 | RCS101* |
| 3.88 | 5.63 | 3.63 | 2.38 | 2.00 | 0.69 | 0.12 | – | – | M5 | 0.32 | 1.57 | 11 | RCS201* |
| 4.63 | 7.06 | 4.00 | 2.88 | 2.62 | 0.75 | 0.12 | – | – | M5 | 0.32 | 1.57 | 15 | RCS302* |
| 4.81 | 7.19 | 4.88 | 3.50 | 2.75 | 0.94 | 0.08 | – | – | M5 | 0.32 | 1.57 | 22 | RCS502* |
| 5.56 | 7.81 | 6.50 | 5.00 | 3.63 | 1.25 | 0.04 | – | – | M8 | 0.40 | 2.17 | 46 | RCS1002* |

** Collapsed height with tilting saddle

▼ RLT-Series, Low-Height Telescopic Cylinder




# Extended Stroke for Low-Clearance Applications

- **Single-acting, load-return**
- **Nitrocarburization surface treatment for improved load and wear-resistance and corrosion protection**
- **For use in confined spaces: machinery positioning, tool fastening**
- **Mounting bolt holes for easy fixturing**
- **Up to 3% side-load of maximum capacity**
- **Design safety factor complies with ASME B30.1 & EN1494**
- **CR400 coupler for compatibility with standard product**
- **High-alloy steel for maximum strength**

**Internal Mechanics**

**RLT-Series, Low-Height Telescopic Cylinders**

Enerpac compact, low-height telescopic cylinders are available with two or three pistons, and can lift loads up to 1.57 inches in a single movement.

Nitrocarburization surface treatment for improved wear-resistance and corrosion protection for increased safety and longer service life in harsh conditions. The longer stroke length of telescopic cylinders will save you time and simplify projects by moving a load a greater distance and eliminating the use of temporary cribbing.

**Multi-Stage Cylinders**

**1st Stage:** maximum load capacity at lower stroke.

**2nd Stage:** extended stroke with lower capacity than the 1st stage.

**Final Stage:** maximum stroke extension with lowest capacity.



| Cylinder Capacity at Maximum Stroke (ton) | Maximum Stroke (in) | Model Number | Collapsed Height A (in) | Extended Height B (in) | Oil Capacity ($in^3$) |
|---|---|---|---|---|---|
| **4.8** | 0.67 | **RLT40** | 1.77 | 2.44 | 1.29 |
| **4.8** | 0.91 | **RLT41** | 2.13 | 3.03 | 3.09 |
| **12.5** | 0.71 | **RLT110** | 2.15 | 2.85 | 2.90 |
| **12.5** | 1.57 | **RLT111** | 3.50 | 5.08 | 14.71 |
| **26.1** | 1.06 | **RLT230** | 2.95 | 4.02 | 9.15 |
| **26.1** | 1.26 | **RLT231** | 3.78 | 5.04 | 18.50 |
| **34.8** | 1.14 | **RLT311** | 3.50 | 4.65 | 13.64 |
| **55.8** | 1.02 | **RLT501** | 3.78 | 4.80 | 17.29 |
| **81.7** | 1.02 | **RLT741** | 4.49 | 5.51 | 25.97 |

# Low-Height Telescopic Cylinders, Single-Acting



**Assisted-Return Pumps with Venturi Valve Technology**

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4 and ZE-Series pumps feature **Venturi Valve Technology** to facilitate the faster return of single-acting gravity- and spring-return cylinders. See enerpac.com for details.

*Page:* 141



**4-Way Manifold Assembly Complete with Gauges**

Offering ease of portability and convenience with an ergonomic robust design, ready for use. Enerpac's CR400 female couplers on all ports allow the manifold to be quickly connected to up to 4 cylinders. Glycerin-filled, 10,000 psi gauges allow operators to work safely. All protected by the robust protection frame.

| Manifold Type (Used for cylinders) | Model Number |
|---|---|
| 4x Single-acting | **AMGC41** |
| 4x Double-acting | **AMGC42** |

*Page:* 162

## RLT Series



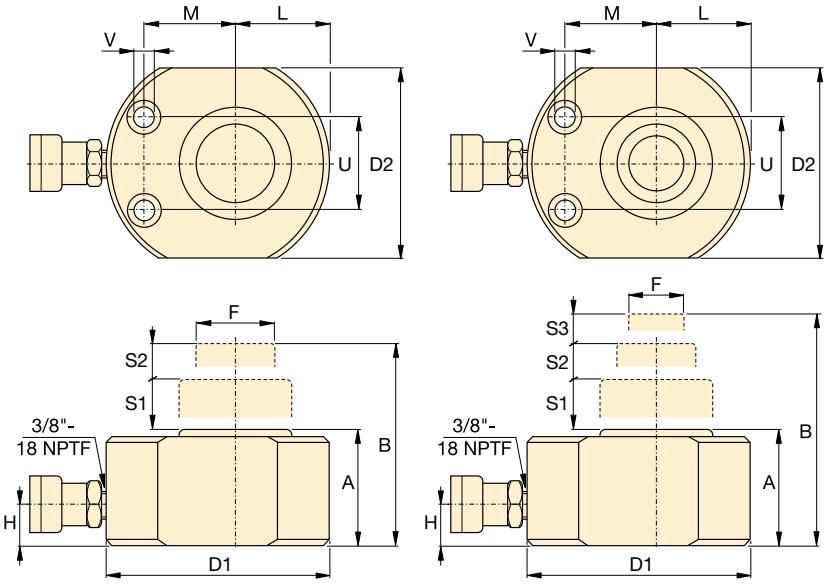
Capacity:
**4.8 - 81.7 tons**

Stroke:
**0.67 - 1.57 inches**

Maximum Operating Pressure:
**10,150 psi**

**WARNING:**

If several telescopic cylinders need to be controlled simultaneously, Enerpac recommends the use of Synchronous Lifting Pumps. Enerpac advises not to use SFP-Series Split-Flow Pumps unless outfitted with stroke sensors for direct feedback to operate several telescopic cylinders at one time due to the volume difference on the different stages.




**RLT-Cylinders**
**Mounting Hole Dimensions** (in)

| Model Number | Bolt Distance U | Hole Diameter V | Counter Bore Diameter | Counter Bore Depth |
|---|---|---|---|---|
| **RLT40** | 1.46 | 0.26 | 0.43 | 0.28 |
| **RLT41** | 1.97 | 0.35 | 0.55 | 0.35 |
| **RLT110** | 1.97 | 0.35 | 0.55 | 0.35 |
| **RLT111** | 2.99 | 0.51 | 0.79 | 0.51 |
| **RLT230** | 2.64 | 0.51 | 0.79 | 0.51 |
| **RLT231** | 2.99 | 0.26 | 0.43 | 0.28 |
| **RLT311** | 2.99 | 0.51 | 0.79 | 0.51 |
| **RLT501** | 2.99 | 0.26 | 0.43 | 0.28 |
| **RLT741** | 4.61 | 0.35 | 0.55 | 0.35 |

| 1st Stage Capacity (ton) | 1st Stage Stroke S1 (in) | 2nd Stage Capacity (ton) | 2nd Stage Stroke S2 (in) | 3rd Stage Capacity (ton) | 3rd Stage Stroke S3 (in) | Outside Diameter D1 x D2 (in) | Plunger Diameter F (in) | Bottom to Advance Port H (in) | Plunger to Base L (in) | Plunger to Mounting Hole M (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **12.5** | 0.43 | **4.8** | 0.24 | – | – | 3.27 x 2.20 | 0.98 | 0.79 | 1.14 | 1.30 | 4.0 | **RLT40** |
| **26.1** | 0.43 | **12.5** | 0.28 | **4.8** | 0.20 | 4.02 x 3.15 | 0.98 | 0.79 | 1.61 | 1.54 | 6.8 | **RLT41** |
| **26.1** | 0.43 | **12.5** | 0.28 | – | – | 4.02 x 3.15 | 1.50 | 0.79 | 1.61 | 1.54 | 6.6 | **RLT110** |
| **81.7** | 0.63 | **34.8** | 0.51 | **12.5** | 0.43 | 6.50 x 5.51 | 1.50 | 0.98 | 2.78 | 2.60 | 28.9 | **RLT111** |
| **55.8** | 0.63 | **26.1** | 0.43 | – | – | 5.51 x 4.49 | 2.24 | 0.79 | 2.28 | 2.20 | 16.8 | **RLT230** |
| **104.4** | 0.63 | **55.8** | 0.39 | **26.1** | 0.24 | 7.01 x 6.38 | 2.24 | 1.14 | 3.50 | 2.76 | 38.1 | **RLT231** |
| **81.7** | 0.63 | **34.8** | 0.51 | – | – | 6.50 x 5.51 | 2.36 | 0.98 | 2.78 | 2.60 | 28.7 | **RLT311** |
| **104.4** | 0.63 | **55.8** | 0.39 | – | – | 7.01 x 6.38 | 3.07 | 1.14 | 3.50 | 2.76 | 38.1 | **RLT501** |
| **158.2** | 0.63 | **81.7** | 0.39 | – | – | 8.50 x 7.72 | 3.74 | 1.38 | 4.25 | 3.07 | 67.0 | **RLT741** |

▼ Shown: **RT3311 Telescopic Cylinder** (shown with plunger extended and retracted)




# Moving a Load a Greater Distance

- **Nitrocarburized surface treatment inside and out provides corrosion protection**
- **3% side-load of full capacity**
- **Double or triple wear bearings support lifting stages**
- **Tilting saddles with 5 degrees of maximum tilt standard on all models**
- **Design Safety factor complies with ASME B30.1 & EN1494**
- **Certified lifting eyes for safe handling and positioning**
- **CR400 coupler for compatibility with standard product**
- **Steel cylinder base for maximum strength**

**RT-Series, Multi-Stage Cylinders**

Enerpac compact, multi-stage telescopic cylinders are available with two or three pistons, and can lift loads up to 24 inches in a single movement.

Nitrocarburized surface treatment inside and out provides unparalleled sideload resistance and corrosion protection for safe use in the harshest conditions. The longer stroke length of telescopic cylinders will save you time and simplify projects by moving a load a greater distance and eliminating the use of temporary cribbing.



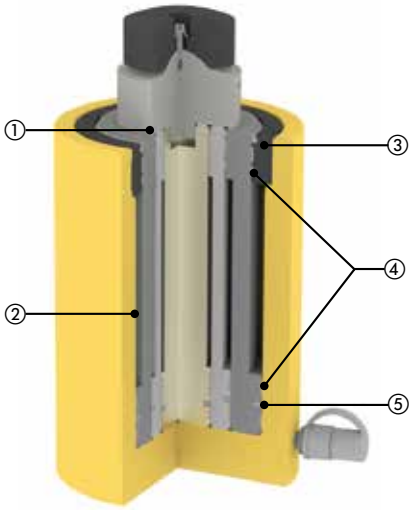
**Integrated Tilt Saddles**

All RT-Series cylinders include integrated tilt saddles with maximum tilt angles up to 5 degree.



**Lifting Eyes**

All models standard with two lifting eyes for easy handling and positioning.




① **Wiper Ring** on each stage to minimize contamination.

② **Nitrocarburized Coating** for maximum corrision protection and surface hardness. Exterior in nitrided and Enerpac yellow epoxy.

③ **Stop-Ring** full load capable to prevent plunger overstroke.

④ **Wear Bearings**. Double or triple wear bearings for maximum sideload capability and wear-resistance.

⑤ **Seals** for maximum compliance and high wear-resistance.

| Model No. | Maximum Stroke (in) | Capacity @ Maximum Stroke (ton) | Oil Capacity ($in^3$) |
|---|---|---|---|
| **RT1510** | 10.63 | 15.4 | 57.61 |
| **RT1817** | 17.13 | 18.7 | 188.69 |
| **RT2111** | 11.81 | 22.2 | 90.74 |
| **RT2119** | 19.69 | 22.2 | 284.43 |
| **RT3311** | 11.81 | 34.8 | 143.96 |
| **RT3323** | 23.62 | 34.8 | 537.99 |

# Multi-Stage Telescopic Cylinders, Single-Acting, Load-Return

**About Telescopic Cylinders**

Telescopic cylinders feature a multi-stage rod built of a series of nested steel tubes of progressively smaller diameter. These long stroke, multi-stage telescopic cylinders are particularly suitable for extended lift heights when clearance is limited.

Enerpac's Telescopic Cylinders are available with two or three pistons, and can lift loads up to 24 inches in a single movement.

Each piston rod is nitrocarburized for superior corrosion protection and enhanced durability.

## RT Series



Capacity:
**15.4 - 34.8 ton**

Stroke:
**10.63 - 23.62 inches**

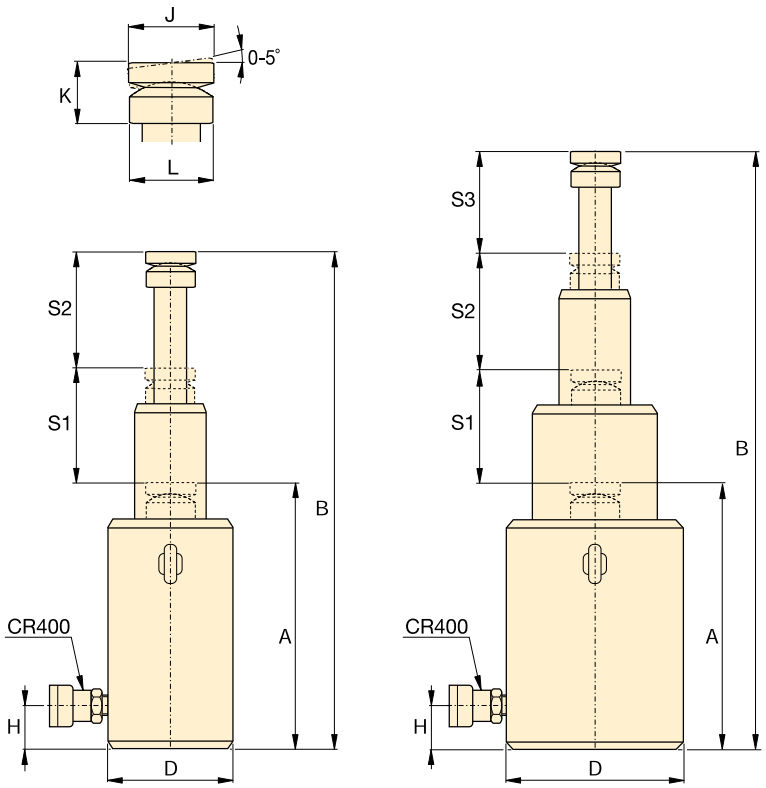
Maximum Operating Pressure:
**10,150 psi**

**Multi-Stage Cylinders**

**1st Stage:** maximum load capacity at lowest maximum stroke

**2nd Stage:** extended stroke but at lower maximum capacity than the 1st stage

**Final Stage:** maximum stroke extension but lowest maximum capacity




▼ *The longer stroke length of telescopic cylinders will save you time and simplify projects by moving a load a greater distance and eliminating the use of temporary cribbing.*



| Stage 1 Capacity (ton) | Stage 1 Stroke S1 (in) | Stage 2 Capacity (ton) | Stage 2 Stroke S2 (in) | Stage 3 Capacity (ton) | Stage 3 Stroke S3 (in) | Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Base to Adv. Port H (in) | Saddle Diam. J (in) | Saddle Protrusion from Plunger K (in) | Saddle Support L (in) | Wt. (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **40** | 5.31 | **15** | 5.31 | **-** | - | 11.14 | 21.77 | 4.33 | 0.79 | 2.36 | 1.93 | 2.36 | 33 | **RT1510** |
| **104** | 5.71 | **45** | 5.71 | **19** | 5.71 | 13.58 | 30.71 | 6.69 | 1.06 | 3.15 | 2.87 | 3.35 | 89 | **RT1817** |
| **56** | 5.91 | **22** | 5.91 | **-** | - | 12.48 | 24.29 | 4.92 | 0.91 | 2.36 | 2.09 | 2.60 | 48 | **RT2111** |
| **139** | 6.69 | **56** | 6.69 | **22** | 6.30 | 15.55 | 35.24 | 7.87 | 1.34 | 3.54 | 3.27 | 3.94 | 148 | **RT2119** |
| **89** | 5.91 | **35** | 5.91 | **-** | - | 13.86 | 25.67 | 6.30 | 0.98 | 3.15 | 2.60 | 3.50 | 88 | **RT3311** |
| **223** | 7.87 | **89** | 7.87 | **34.7** | 7.87 | 18.74 | 42.36 | 9.84 | 1.73 | 4.33 | 4.37 | 4.84 | 273 | **RT3323** |

▼ Shown from left to right: **BRC25, BRC46, BRP306, BRP606, BRP106C**



# The Ultimate in Pulling Power

- **High-strength alloy steel construction**
- **Plunger blow-out protection to prevent over-extension**
- **Hard chrome-plated plunger for long life**
- **Baked enamel finish for increased corrosion resistance**
- **CR400 coupler and dust cap included on all models**
- **Plunger wiper reduces contamination, extending cylinder life**
- **Single-acting spring-return**
- **Replaceable links on BRP-models**



**Gauges**

Minimize the risk of over-loading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

***Page:*** **147**



**Attachments and Accessories**

The BRC25 and BRC46 units have base, collar and plunger threads to affix a range of optional attachments and accessories, such as chains, saddles and extension tubes.

***Page:*** **206**

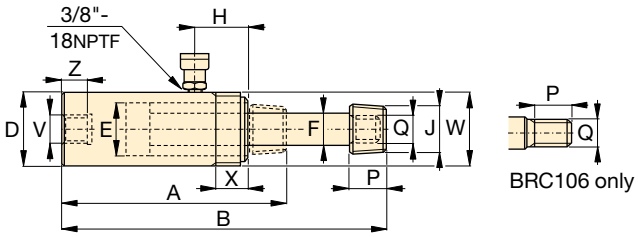
▼ *Ship building, welding and Enerpac pull cylinders go hand in hand.*



▼ *To lift a load bearing mast into place, BRP cylinders were used to tension the supporting cables.*



| BRC Cylinder Mounting Dimensions (in) | | | | |
|---|---|---|---|---|
| **Model Number** | Base Mounting Hole V | Collar Thread W | Collar Thread Length X | Mtg. Thread Length Z |
| **BRC25** | ¾"-14 NPT | 1½"-16 UN | 0.98 | 0.67 |
| **BRC46** | 1¼"-11½" NPT | 2¼"-14 UN | 1.06 | 0.98 |
| **BRC106** | M30 x 2 | M85 x 2 | 1.02 | 0.98 |




**BRC25 to BRC106**

# BRC BRP Series

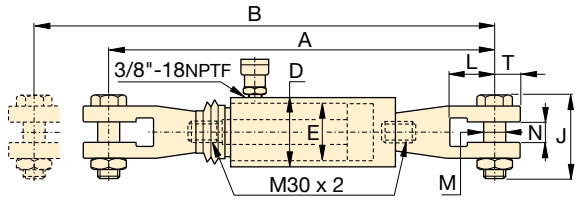


Capacity:
**2.5 - 60 tons**

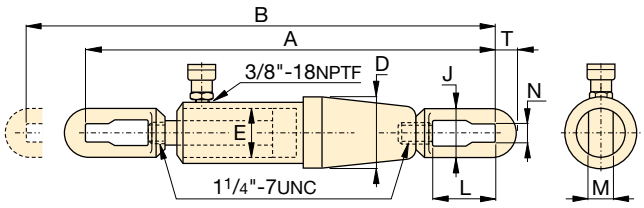
Stroke:
**5.00 - 6.06 inches**

Maximum Operating Pressure:
**10,000 psi**

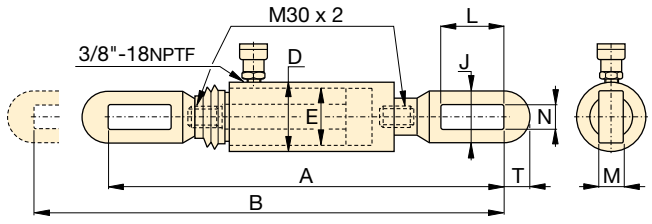
| Cylinder Capacity (tons) [maximum] | Stroke (in) | Model Number | Cyl. Effect. Area ($in^2$) | Oil Cap. ($in^3$) | Collap. Height A (in) | Ext. Height B (in) | Outside Diam. D (in) | Cyl. Bore Diam. E (in) | Plgr. Diam. F (in) | Top to Inlet Port H (in) | Saddle Diameter J (in) | Plunger Thread Length P (in) | Plunger Outside Thread Q | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2.5** [2.7] | 5.00 | **BRC25** | 0.55 | 2.76 | 10.44 | 15.44 | 1.89 | 1.13 | 0.75 | 1.77 | ¾"-14 NPT | 1.13 | 11/16"-24 | 4 |
| **5** [5.6] | 5.50 | **BRC46** | 1.13 | 6.21 | 11.88 | 17.38 | 2.25 | 1.69 | 1.19 | 1.69 | 1¼"-11½" NPT | 1.25 | 1 3/16"-16 | 10 |
| **10** [11.6] | 5.95 | **BRC106** | 2.32 | 13.80 | 11.38 | 17.33 | 3.35 | 2.13 | 1.25 | 1.57 | – | 1.02 | M30x2 | 21 |



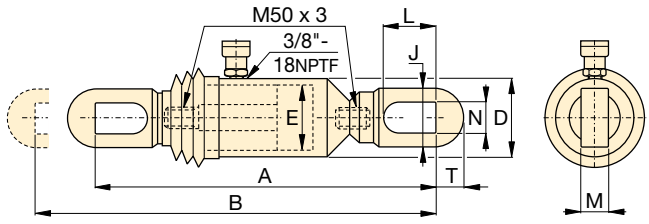

**BRP106C**




**BRP306**




**BRP106L**




**BRP606**

| Cylinder Capacity (tons) [maximum] | Stroke (in) | Model Number | Cyl. Effect. Area ($in^2$) | Oil Capacity ($in^3$) | Collap. Height A (in) | Ext. Height B (in) | Outside Diam. D (in) | Cyl. Bore Diam. E (in) | Link Height J (in) | Link Opening L (in) | Link Thickness M (in) | Link Width N (in) | Slot to Link End T (in) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** [11.6] | 5.91 | **BRP106C** | 2.45 | 14.58 | 23.66 | 29.57 | 3.35 | 2.13 | 4.13 | 3.43 | 1.18 | 1.38 | 1.28 | 34 |
| | 5.91 | **BRP106L** | 2.45 | 14.58 | 22.56 | 28.46 | 3.35 | 2.13 | 2.52 | 4.69 | 0.87 | 1.19 | 1.26 | 29 |
| **30** [35.96] | 6.06 | **BRP306** | 7.19 | 43.63 | 43.71 | 49.71 | 5.39 | 3.50 | 4.49 | 6.10 | 1.38 | 1.57 | 2.17 | 139 |
| **60** [55.8] | 6.02 | **BRP606** | 11.17 | 67.02 | 28.28 | 34.28 | 5.51 | 4.33 | 5.12 | 5.93 | 1.58 | 1.89 | 2.56 | 129 |

Note: BRP106C, BRP106L and BRP606 are fitted with rubber bellows for rod protection.

▼ Shown from left to right: **RCH306, RCH120, RCH1003**

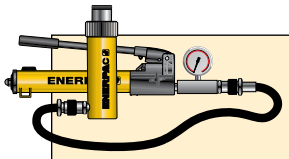



- **Hollow plunger design allows for both pull and push forces**
- **Single-acting spring-return**
- **Nickel-plated, floating center tube on models over 20 tons increases product life**
- **Baked enamel finish for increased corrosion resistance**
- **Collar threads for easy fixturing**
- **RCH120 includes AR630 coupler and has 1/4 NPTF port**
- **RCH121 and RCH1211 have FZ1630 reducer and AR630 coupler, all other models feature CR400 coupler**

▼ *Hollow plunger cylinder RCH1003 used in an application for intermediate boom suspension on a dragline.*



# Versatility in Testing, Maintenance and Tensioning Applications



**Pump and Cylinder Sets**

All cylinders marked with an * are available as **sets** (cylinder, gauge, couplers, hose and pump) for your ordering convenience.

***Page:*** **62**



**Lightweight Aluminum Hollow Plunger Cylinders**

If you need a higher cylinder capacity-to-weight ratio the lightweight **RACH-Series** Aluminum Hollow Plunger Cylinders are the perfect choice.

***Page:*** **16**



**Saddles**

Most **RCH-Series** cylinders are equipped with smooth saddles. See table on next page for optional threaded saddles and all dimensional information.

***Page:*** **35**

| Cylinder Capacity (tons) [maximum] | Stroke (in) | Model Number | Cyl. Effect. Area ($in^2$) | Oil Cap. ($in^3$) |
|---|---|---|---|---|
| 12 [13.8] | 0.31 | **RCH120** | 2.76 | 0.86 |
| | 1.63 | **RCH121*** | 2.76 | 4.49 |
| | 1.63 | **RCH1211** | 2.76 | 4.49 |
| | 3.00 | **RCH123** | 2.76 | 8.29 |
| 20 [23.6] | 2.00 | **RCH202*** | 4.72 | 9.46 |
| | 6.10 | **RCH206** | 4.72 | 28.67 |
| 30 [36.1] | 2.50 | **RCH302*** | 7.22 | 18.05 |
| | 6.13 | **RCH306** | 7.22 | 44.23 |
| 60 [63.6] | 3.00 | **RCH603*** | 12.73 | 38.20 |
| | 6.00 | **RCH606** | 12.73 | 76.41 |
| 100 [103.1] | 3.00 | **RCH1003*** | 20.63 | 61.88 |

* Available as a set. See note on this page.

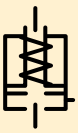


**Hoses**

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

*Page:* 148

# RCH Series





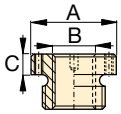
Capacity:
**12 - 100 tons**

Stroke:
**0.31 - 6.13 inches**

Center Hole Diameter:
**0.68 - 3.11 inches**

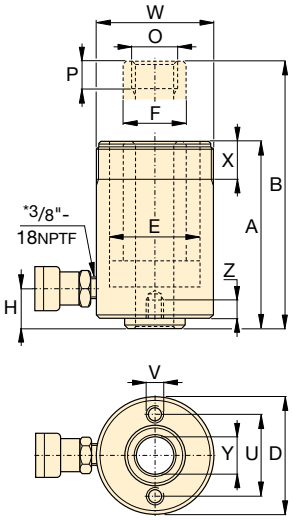
Maximum Operating Pressure:
**10,000 psi**

| Optional Threaded Hollow Saddles | | | | | | |
|---|---|---|---|---|---|---|
| Saddle Type | Cylinder Model No. | Saddle Model No. | Saddle Dimensions (in) A | B | C | |
| Threaded Hollow | RCH202, 206 | HP2015 | 2.11 | 1"-8 | 0.38 | |
| | RCH302, 306 | HP3015 | 2.49 | 1¼"-7 | 0.38 | |
| | RCH603, 606 | HP5016 | 3.61 | 1⅝"-5½" | 0.50 | |
| | RCH1003 | HP10016 | 4.97 | 2½"-8 | 0.51 | |

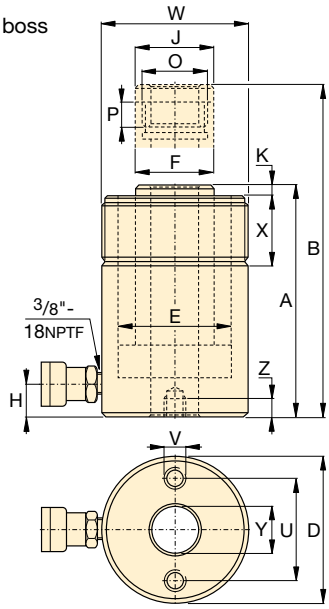



*Smooth hollow saddles are standard on all RCH models (12-ton models are not equipped with saddles).*

RCH121 and RCH1211 have a 1.88" diameter boss that protrudes 0.25" from base.




**RCH120* to RCH123 models**




**RCH202 to RCH1003 models**

| Base Mounting Hole Dimensions (in) | | | |
|---|---|---|---|
| Model Number | Bolt Circle U | Thread V | Thread Depth Z |
| RCH120 | 2.00 | 5/16"-18 UNC | 0.35 |
| RCH121 | – | – | – |
| RCH1211 | – | – | – |
| RCH123 | 2.00 | 5/16"-18 UNC | 0.50 |
| RCH202 | 3.25 | 3/8"-16 UNC | 0.37 |
| RCH206 | 3.25 | 3/8"-16 UNC | 0.37 |
| RCH302 | 3.63 | 3/8"-16 UNC | 0.55 |
| RCH306 | 3.63 | 3/8"-16 UNC | 0.55 |
| RCH603 | 5.13 | ½"-13 UNC | 0.55 |
| RCH606 | 5.13 | ½"-13 UNC | 0.55 |
| RCH1003 | 7.00 | 5/8"-11 UNC | 0.75 |

* 1/4" NPT for RCH120 only

| Collap. Height A (in) | Ext. Height B (in) | Outside Diam. D (in) | Cyl. Bore Diam. E (in) | Plngr. Diam. F (in) | Cyl. Base to Advance Port H (in) | Saddle Diameter J (in) | Saddle Protrusion from Plngr. K (in) | Plunger Internal Thread O (in) | Plunger Thread Length P (in) | Collar Thread W (in) | Collar Thread Length X (in) | Center Hole Diam. Y (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.19 | 2.50 | 2.75 | 2.13 | 1.38 | 0.38 | – | – | ¾"-16 UN | 0.63 | 2¾"-16 | 1.19 | 0.68 | 3.2 | RCH120 |
| 4.75 | 6.38 | 2.75 | 2.13 | 1.38 | 0.98 | – | – | – | – | 2¾"-16 | 1.19 | 0.68 | 6.2 | RCH121* |
| 4.75 | 6.38 | 2.75 | 2.13 | 1.38 | 0.98 | – | – | ¾"-16 UN | 0.63 | 2¾"-16 | 1.19 | 0.77 | 6.2 | RCH1211 |
| 7.25 | 10.25 | 2.75 | 2.13 | 1.38 | 0.98 | – | – | – | – | 2¾"-16 | 1.19 | 0.77 | 9.8 | RCH123 |
| 6.38 | 8.38 | 3.88 | 2.88 | 2.13 | 0.75 | 2.13 | 0.27 | 1 9/16"-16 UN | 0.75 | 3⅞"-12 | 1.50 | 1.06 | 17 | RCH202* |
| 12.05 | 18.11 | 3.88 | 2.88 | 2.13 | 0.75 | 2.13 | 0.27 | 1 9/16"-16 UN | 0.75 | 3⅞"-12 | 1.50 | 1.06 | 31 | RCH206 |
| 7.03 | 9.53 | 4.50 | 3.50 | 2.50 | 0.85 | 2.50 | 0.38 | 1 13/16"-16 UN | 0.88 | 4½"-12 | 1.66 | 1.31 | 24 | RCH302* |
| 13.00 | 19.13 | 4.50 | 3.50 | 2.50 | 1.00 | 2.50 | 0.38 | 1 13/16"-16 UN | 0.88 | 4½"-12 | 1.66 | 1.31 | 48 | RCH306 |
| 9.75 | 12.75 | 6.25 | 4.88 | 3.63 | 1.25 | 3.61 | 0.50 | 2¾"-16 UN | 0.75 | 6¼"-12 | 1.91 | 2.12 | 62 | RCH603* |
| 12.75 | 18.75 | 6.25 | 4.88 | 3.63 | 1.25 | 3.61 | 0.50 | 2¾"-16 UN | 0.75 | 6¼"-12 | 1.91 | 2.12 | 78 | RCH606 |
| 10.00 | 13.00 | 8.38 | 6.50 | 5.00 | 1.50 | 4.97 | 0.50 | 4"-16 UN | 1.00 | 8⅜"-12 | 2.38 | 3.11 | 132 | RCH1003* |

▼ Shown from left to right: **RRH3010, RRH1001, RRH6010**




# Versatility in Testing, Maintenance and Tensioning Applications

- **Relief valves prevent damage in case of over-pressurization**
- **Baked enamel finish for increased corrosion resistance**
- **Collar threads enable easy fixturing (except RRH1001 and RRH1508)**
- **Double-acting operation for fast retraction**
- **Nickel-plated, floating center tube increases product life**
- **Hollow plunger allows for both pull and push forces**
- **CR400 couplers and dust caps included on all models**
- **Plunger wiper reduces contamination, extending cylinder life**

**Pump Selection**

A double-acting cylinder must be powered by a pump with a 4-way valve.

*Page:* 139



**Gauges**

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

*Page:* 147



**Saddles**

All **RRH-Series** cylinders are equipped with smooth saddles. See table on next page for optional threaded saddles and all dimensional information.

*Page:* 36

▼ *Double-acting hollow-plunger cylinders are applied for bridge launching systems.*



| Cylinder Capacity (ton) | Stroke (in) | Model Number | Max. Cylinder Capacity (ton) | | Cylinder Effective Area ($in^2$) | | Oil Capacity ($in^3$) | |
|---|---|---|---|---|---|---|---|---|
| | | | Advance | Retract | Advance | Retract | Advance | Retract |
| 30 | 7.00 | RRH307 | 36 | 24 | 7.22 | 4.71 | 50.55 | 32.99 |
| | 10.13 | RRH3010 | 36 | 24 | 7.22 | 4.71 | 73.12 | 47.71 |
| 60 | 3.50 | RRH603 | 64 | 42 | 12.73 | 8.37 | 44.57 | 29.21 |
| | 6.50 | RRH606 | 64 | 42 | 12.73 | 8.37 | 82.77 | 54.24 |
| | 10.12 | RRH6010 | 64 | 42 | 12.73 | 8.37 | 128.94 | 84.49 |
| 100 | 1.50 | RRH1001 | 103 | 68 | 20.63 | 13.54 | 30.94 | 20.32 |
| | 3.00 | RRH1003 | 103 | 68 | 20.63 | 13.54 | 61.88 | 40.64 |
| | 6.00 | RRH1006 | 103 | 68 | 20.63 | 13.54 | 123.76 | 81.29 |
| | 10.13 | RRH10010 | 103 | 68 | 20.63 | 13.54 | 208.84 | 137.17 |
| 150 | 8.00 | RRH1508 | 158 | 80 | 31.62 | 15.91 | 252.97 | 127.23 |



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

*Page:* 148

# RRH Series



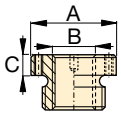
Capacity:
**30 - 150 tons**

Stroke:
**1.50 - 10.13 inches**

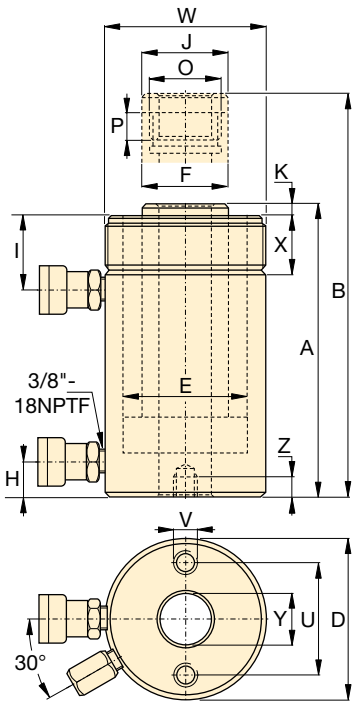
Center Hole Diameter:
**1.31 - 3.13 inches**

Maximum Operating Pressure:
**10,000 psi**

| Optional Threaded Hollow Saddles | | | | | | |
|---|---|---|---|---|---|---|
| Saddle Type | Cylinder Model Number | Saddle Model No. | Saddle Dimensions (in) A | B | C | |
| Threaded Hollow | RRH307, 3010 | HP3015 | 2.49 | 1¼"-7 | 0.38 | |
| | RRH603, 606, 6010 | HP5016 | 3.61 | 1⅝"-5½ | 0.50 | |
| | RRH1001, 1003, RRH1006, 10010 | HP10016 | 4.97 | 2½"-8 | 0.51 | |




*Smooth hollow saddles are standard on all RRH-models.*




| Base Mounting Hole Dimensions (in) | | | |
|---|---|---|---|
| Model Number | Bolt Circle U | Thread V | Thread Depth Z |
| RRH307 | 3.63 | ⅜"- 16 | 0.62 |
| RRH3010 | 3.63 | ⅜"- 16 | 0.62 |
| RRH603 | 5.12 | ½"- 13 | 0.55 |
| RRH606 | 5.12 | ½"- 13 | 0.55 |
| RRH6010 | 5.12 | ½"- 13 | 0.55 |
| RRH1001 | 7.00 | ⅝"- 11 | 0.75 |
| RRH1003 | 7.00 | ⅝"- 11 | 0.75 |
| RRH1006 | 7.00 | ⅝"- 11 | 0.75 |
| RRH10010 | 7.00 | ⅝"- 11 | 0.75 |
| RRH1508 | – | – | – |

| | Collap. Height A (in) | Ext. Height B (in) | Out. Diam. D (in) | Cyl. Bore Diam. E (in) | Plngr. Diam. F (in) | Cyl. Base to Adv. Port H (in) | Cyl. Top to Return Port I (in) | Saddle Diam. J (in) | Saddle Protrusion from Plngr. K (in) | Thread O (in) | Plunger Thread Length P (in) | Collar Thread W (in) | Collar Thread Length X (in) | Center Hole Diam. Y (in) | Wt. (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 13.00 | 20.00 | 4.50 | 3.50 | 2.50 | 1.00 | 2.38 | 2.50 | 0.38 | 1 13/16"-16 | 0.88 | 4½"-12 | 1.66 | 1.31 | 48 | RRH307 |
| | 17.00 | 27.13 | 4.50 | 3.50 | 2.50 | 1.00 | 2.38 | 2.50 | 0.38 | 1 13/16"-16 | 0.88 | 4½"-12 | 1.66 | 1.31 | 60 | RRH3010 |
| | 9.75 | 13.25 | 6.25 | 4.88 | 3.63 | 1.25 | 2.63 | 3.61 | 0.50 | 2¾"-16 | 0.75 | 6¼"-12 | 1.91 | 2.13 | 62 | RRH603 |
| | 12.75 | 19.25 | 6.25 | 4.88 | 3.63 | 1.25 | 2.63 | 3.61 | 0.50 | 2¾"-16 | 0.75 | 6¼"-12 | 1.91 | 2.13 | 78 | RRH606 |
| | 17.25 | 27.38 | 6.25 | 4.88 | 3.63 | 1.25 | 2.63 | 3.61 | 0.50 | 2¾"-16 | 0.75 | 6¼"-12 | 1.91 | 2.13 | 101 | RRH6010 |
| | 6.50 | 8.00 | 8.38 | 6.50 | 5.00 | 1.50 | 1.75 | 4.97 | 0.50 | 4"-16 | 1.00 | – | – | 3.13 | 85 | RRH1001 |
| | 10.00 | 13.00 | 8.38 | 6.50 | 5.00 | 1.50 | 3.38 | 4.97 | 0.50 | 4"-16 | 1.00 | 8⅜"-12 | 2.38 | 3.13 | 135 | RRH1003 |
| | 13.50 | 19.50 | 8.38 | 6.50 | 5.00 | 1.50 | 3.38 | 4.97 | 0.50 | 4"-16 | 1.00 | 8⅜"-12 | 2.38 | 3.13 | 175 | RRH1006 |
| | 18.13 | 28.25 | 8.38 | 6.50 | 5.00 | 1.50 | 3.38 | 4.97 | 0.50 | 4"-16 | 1.00 | 8⅜"-12 | 2.38 | 3.13 | 235 | RRH10010 |
| | 13.75 | 21.75 | 9.75 | 7.50 | 6.00 | 1.50 | 2.38 | 5.00 | 0.19 | 4¼"-12 | 1.00 | – | – | 3.13 | 245 | RRH1508 |

▼ Shown from left to right: **RD2510, RD96, RD256, RD41, RD166**




# High Precision and High Cycle Performance

**Speed Chart**

See the Enerpac Cylinder Speed Chart in our 'Yellow Pages' to determine your approximate cylinder speed.

*Page:* 409

- **Designed for long life, the best choice for production applications**
- **Unique mounting configurations simplify fixturing**
- **Baked enamel finish for increased corrosion resistance**
- **Double-acting operation develops force in both directions, providing maximum versatility**
- **Plunger wiper reduces contamination, extending cylinder life**

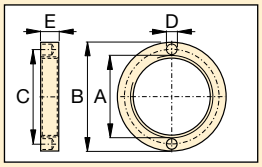
▼ *Clamping application using Enerpac RD cylinders (with clevis eye attachments on both ends) for their high-pressure capability and mounting flexibility.*



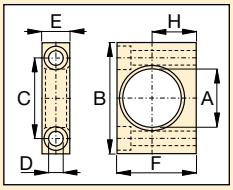
| Cylinder Capacity (tons) | Stroke (in) | Model Number | Max. Cylinder Capacity (tons) | | Cylinder Effective Area ($in^2$) | | Oil Capacity ($in^3$) | | Collap. Height A (in) | Ext. Height B (in) | Body Length C (in) | Outside Diam. D (in) | Cylinder Bore Diam. E (in) | Plunger Diam. F (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Advance | Retract | Advance | Retract | Advance | Retract | | | | | | |
| 4 | 1.13 | **RD41** | 4 | 2 | 0.79 | 0.34 | 0.88 | 0.39 | 7.31 | 8.44 | 6.38 | 2.00 | 1.00 | 0.75 |
| | 3.13 | **RD43** | 4 | 2 | 0.79 | 0.34 | 2.45 | 1.07 | 9.31 | 12.44 | 8.38 | 2.00 | 1.00 | 0.75 |
| | 6.13 | **RD46** | 4 | 2 | 0.79 | 0.34 | 4.81 | 2.10 | 12.31 | 18.44 | 11.38 | 2.00 | 1.00 | 0.75 |
| 9 | 1.13 | **RD91** | 9 | 5 | 1.77 | 0.98 | 1.99 | 1.10 | 8.75 | 9.88 | 7.80 | 2.50 | 1.50 | 1.00 |
| | 3.13 | **RD93** | 9 | 5 | 1.77 | 0.98 | 5.52 | 3.07 | 10.78 | 13.91 | 9.80 | 2.50 | 1.50 | 1.00 |
| | 6.13 | **RD96** | 9 | 5 | 1.77 | 0.98 | 10.82 | 6.01 | 13.78 | 19.91 | 12.80 | 2.50 | 1.50 | 1.00 |
| | 10.13 | **RD910** | 9 | 5 | 1.77 | 0.98 | 17.89 | 9.94 | 17.78 | 27.91 | 16.81 | 2.50 | 1.50 | 1.00 |
| 16 | 6.25 | **RD166** | 16 | 8 | 3.14 | 1.66 | 19.63 | 10.35 | 15.31 | 21.56 | 14.13 | 3.00 | 2.00 | 1.38 |
| | 10.25 | **RD1610** | 16 | 8 | 3.14 | 1.66 | 32.20 | 16.98 | 19.31 | 29.56 | 18.11 | 3.00 | 2.00 | 1.38 |
| 25 | 6.25 | **RD256** | 25 | 11 | 4.91 | 2.15 | 30.68 | 13.42 | 16.69 | 22.94 | 15.63 | 3.63 | 2.50 | 1.88 |
| | 10.25 | **RD2510** | 25 | 11 | 4.91 | 2.15 | 50.31 | 22.01 | 20.69 | 30.94 | 19.61 | 3.63 | 2.50 | 1.88 |

## ▼ RD CYLINDER ATTACHMENTS

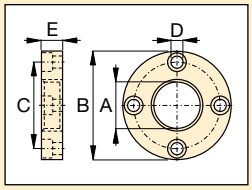


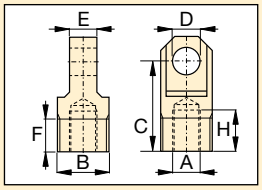

**Retainer Nut**
*For locking foot or flange mountings. Tightens onto cylinder collar threads (included with foot and flange mounting kits)*




**Foot Mounting**
*Mounts onto cylinder collar. Mounting screws not included.*




**Flange Mounting**
*Mounts onto cylinder collar. Mounting screws not included.*




**Clevis Eye**
*Threads onto plunger or into cylinder base*

| Model Number | RD-Cyl: (tons) | Dimensions (in) A | B | C | D | E | F | H |
|---|---|---|---|---|---|---|---|---|
| **Foot Mounting with Retainer Nut** | | | | | | | | |
| **AD141** | **4** | 1.38 | 3.00 | 2.00 | 0.41 | 0.75 | 2.25 | 1.25 |
| **AD171** | **9** | 2.00 | 4.00 | 2.88 | 0.53 | 1.00 | 3.25 | 1.75 |
| **AD181** | **16** | 2.63 | 5.00 | 3.75 | 0.78 | 1.38 | 4.00 | 2.06 |
| **AD191** | **25** | 3.25 | 6.25 | 4.62 | 1.03 | 1.75 | 4.88 | 2.50 |
| **Flange Mounting with Retainer Nut** | | | | | | | | |
| **AD142** | **4** | 1.38 | 3.88 | 3.09 | 0.41 | 0.75 | – | – |
| **AD172** | **9** | 2.00 | 4.75 | 3.88 | 0.41 | 1.00 | – | – |
| **AD182** | **16** | 2.63 | 5.63 | 4.56 | 0.53 | 1.38 | – | – |
| **AD192** | **25** | 3.25 | 6.50 | 5.34 | 0.66 | 1.75 | – | – |
| **Retainer Nut** | | | | | | | | |
| **AD143** | **4** | 1.375-12 UNF | 2.25 | 1.81 | 0.25 | 0.38 | – | – |
| **AD173** | **9** | 2.000-12 UN | 3.00 | 2.50 | 0.27 | 0.50 | – | – |
| **AD183** | **16** | 2.625-16 UN | 3.63 | 3.12 | 0.27 | 0.75 | – | – |
| **AD193** | **25** | 3.250-16 UN | 4.25 | 3.75 | 0.27 | 1.00 | – | – |
| **Clevis Eye** (See chart below for mounting dimensions L, L1 and M) | | | | | | | | |
| **AD150** | **4** | 0.500-20 UNF | 1.125- 20 UN | 2.06 | 0.63 | 0.62 | 0.75 | 0.94 |
| **AD151** | **9** | 0.750-16 UNF | 1.688-18 UNEF | 2.25 | 0.75 | 1.00 | 1.00 | 0.94 |
| **AD152** | **16** | 1.125-12 UNF | 2.188-16 UNS | 3.06 | 1.00 | 1.25 | 1.00 | 1.19 |
| **AD153** | **25** | 1.500-12 UNF | 2.750-16 | 3.06 | 1.25 | 1.50 | 1.00 | 1.06 |

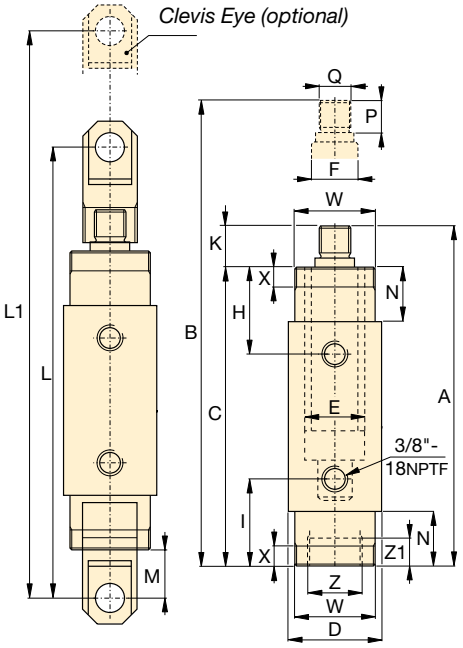
# RD Series



Capacity:
**4 - 25 tons**

Stroke:
**1.13 - 10.25 inches**

Maximum Operating Pressure:
**10,000 psi**




| Top to Ret. Port H (in) | Bottom to Adv. Port I (in) | Plunger Protrusion K (in) | Clevis Eye Mounting Dimensions L (in) | L1 (in) | M (in) | Neck Length N (in) | Plunger Thread Length P (in) | Plunger External Thread Q (in) | Cylinder Mounting Dimensions (in) Collar Thread W | Collar Thread Length X | Int. Base Thread Z | Int. Base Thread Length Z1 | Wt. (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.88 | 1.88 | 0.94 | 10.12 | 11.25 | 1.61 | 1.13 | 0.75 | ½"-20 | 1⅜"-12 | 0.44 | 1⅛"-20 | 0.35 | 4.8 | **RD41** |
| 1.88 | 1.88 | 0.94 | 12.12 | 15.25 | 1.61 | 1.13 | 0.75 | ½"-20 | 1⅜"-12 | 0.44 | 1⅛"-20 | 0.35 | 6.4 | **RD43** |
| 1.88 | 1.88 | 0.94 | 15.12 | 21.25 | 1.61 | 1.13 | 0.75 | ½"-20 | 1⅜"-12 | 0.44 | 1⅛"-20 | 0.35 | 9.0 | **RD46** |
| 2.27 | 2.27 | 0.98 | 11.61 | 12.76 | 1.50 | 1.50 | 0.75 | ¾"-16 | 2"-12 | 0.56 | 1 11/16"-18 | 0.55 | 9.0 | **RD91** |
| 2.27 | 2.27 | 0.98 | 13.66 | 16.79 | 1.50 | 1.50 | 0.75 | ¾"-16 | 2"-12 | 0.56 | 1 11/16"-18 | 0.55 | 11.0 | **RD93** |
| 2.27 | 2.27 | 0.98 | 16.66 | 22.79 | 1.50 | 1.50 | 0.75 | ¾"-16 | 2"-12 | 0.56 | 1 11/16"-18 | 0.55 | 14.0 | **RD96** |
| 2.27 | 2.27 | 0.98 | 20.66 | 30.79 | 1.50 | 1.50 | 0.75 | ¾"-16 | 2"-12 | 0.56 | 1 11/16"-18 | 0.55 | 19.0 | **RD910** |
| 2.90 | 2.90 | 1.19 | 19.32 | 25.57 | 2.05 | 2.13 | 1.00 | 1⅛"-12 | 2⅝"-16 | 0.88 | 2 3/16"-16 | 0.94 | 22.0 | **RD166** |
| 2.90 | 2.90 | 1.19 | 23.32 | 33.57 | 2.05 | 2.13 | 1.00 | 1⅛"-12 | 2⅝"-16 | 0.88 | 2 3/16"16 | 0.94 | 29.0 | **RD1610** |
| 3.50 | 3.50 | 1.06 | 20.86 | 27.11 | 2.09 | 2.75 | 1.00 | 1½"-12 | 3¼"-16 | 1.13 | 2¾"-16 | 1.02 | 36.0 | **RD256** |
| 3.50 | 3.50 | 1.08 | 24.86 | 35.11 | 2.09 | 2.75 | 1.00 | 1½"-12 | 3¼"-16 | 1.13 | 2¾"-16 | 1.02 | 46.0 | **RD2510** |

▼ Shown from left to right: **RR10013, RR1502, RR20013, RR1010, RR7513**




# Most Versatile Performers

**Rugged enough for the toughest job site uses and precision designed for high-cycle industrial uses.**

- **Collar threads, plunger threads and base mounting holes for easy fixturing (on most models)**
- **Baked enamel finish for increased corrosion resistance**
- **Removable hardened saddles protect plunger during lifting and pressing**
- **Built-in safety valve prevents accidental over-pressurization**
- **CR400 couplers included on all models**
- **Plunger wiper reduces contamination, extending cylinder life**



**Saddles**

**RR-Series** cylinders up to 75-ton have plunger thread for installation of **CATS-Series** tilt saddles.

Tilt saddles are secured to the plunger, enabling horizontal and upside-down use.

***Page:*** **41**



**Optimum Performance**

Enerpac's range of *Z-Class* electric pumps, fitted with manual or solenoid operated 4-way valves, offer optimum combinations with RR cylinders.

***Page:*** **104**

▼ *These long stroke RR-cylinders are attached to a sliding and guiding system pulling the arched roof assembly of Athen's Olympic Stadium step-by-step into the final position.*



▼ *RR-cylinders provide power and precision in a special hydraulic press.*



**Pump Selection**

A double-acting cylinder must be powered by a pump with a 4-way valve.

*Page:* 139

## RR Series



Capacity:
**10 - 500 tons**

Stroke:
**2.25 - 48.00 inches**

Maximum Operating Pressure:
**10,000 psi**

### ▼ QUICK SELECTION CHART

For complete technical information see next page.

| Cylinder Capacity (tons) | Stroke (in) | Model Number | Cylinder Effective Area (in²) Push | Cylinder Effective Area (in²) Pull | Oil Capacity (in³) Push | Oil Capacity (in³) Pull | Collap. Height (in) |
|---|---|---|---|---|---|---|---|
| 10 | 10.00 | RR1010* | 2.23 | 0.80 | 22.33 | 8.00 | 16.13 |
| | 12.00 | RR1012* | 2.23 | 0.80 | 26.80 | 9.00 | 18.00 |
| 30 | 8.25 | RR308* | 6.51 | 3.00 | 53.67 | 25.00 | 15.50 |
| | 14.50 | RR3014* | 6.51 | 3.00 | 92.70 | 43.00 | 21.63 |
| 50 | 6.13 | RR506 | 11.06 | 3.40 | 67.77 | 21.00 | 13.06 |
| | 13.13 | RR5013 | 11.06 | 3.40 | 145.17 | 44.00 | 20.06 |
| | 20.13 | RR5020 | 11.06 | 3.40 | 222.56 | 68.00 | 28.88 |
| 75 | 6.13 | RR756 | 15.92 | 4.90 | 97.58 | 29.00 | 13.69 |
| | 13.13 | RR7513 | 15.92 | 4.90 | 209.00 | 64.00 | 20.69 |
| 100 | 6.63 | RR1006 | 20.65 | 9.60 | 136.93 | 63.00 | 14.06 |
| | 13.13 | RR10013 | 20.65 | 9.60 | 271.17 | 126.00 | 20.63 |
| | 18.13 | RR10018 | 20.65 | 9.60 | 374.44 | 174.00 | 27.06 |
| 150 | 2.25 | RR1502 | 30.71 | 14.80 | 69.11 | 33.00 | 7.19 |
| | 6.13 | RR1506 | 30.71 | 14.80 | 188.28 | 91.00 | 15.19 |
| | 13.13 | RR15013 | 30.71 | 14.80 | 403.27 | 194.00 | 22.20 |
| | 32.13 | RR15032 | 30.71 | 14.80 | 986.84 | 475.00 | 43.94 |
| 200 | 6.00 | RR2006 | 44.21 | 22.50 | 265.28 | 135.00 | 16.94 |
| | 13.00 | RR20013 | 44.21 | 22.50 | 574.78 | 293.00 | 23.94 |
| | 18.00 | RR20018 | 44.21 | 22.50 | 795.85 | 396.00 | 30.13 |
| | 24.00 | RR20024 | 44.21 | 22.50 | 1,061 | 528.00 | 36.13 |
| | 36.00 | RR20036 | 44.21 | 22.50 | 1,592 | 792.00 | 48.13 |
| | 48.00 | RR20048 | 44.21 | 22.50 | 2,122 | 1,056 | 60.13 |
| 300 | 6.00 | RR3006 | 70.93 | 38.00 | 425.56 | 228.00 | 19.13 |
| | 12.00 | RR30012 | 70.93 | 38.00 | 851.12 | 456.00 | 25.13 |
| | 18.00 | RR30018 | 70.93 | 38.00 | 1,277 | 684.00 | 31.13 |
| | 24.00 | RR30024 | 70.93 | 38.00 | 1,702 | 912.00 | 37.13 |
| | 36.00 | RR30036 | 70.93 | 38.00 | 2,553 | 1,368 | 49.13 |
| | 48.00 | RR30048 | 70.93 | 38.00 | 3,405 | 1,824 | 61.13 |
| 400 | 6.00 | RR4006 | 95.09 | 51.00 | 570.51 | 306.00 | 21.19 |
| | 12.00 | RR40012 | 95.09 | 51.00 | 1,141 | 612.00 | 27.19 |
| | 18.00 | RR40018 | 95.09 | 51.00 | 1,712 | 918.00 | 33.19 |
| | 24.00 | RR40024 | 95.09 | 51.00 | 2,282 | 1,224 | 39.19 |
| | 36.00 | RR40036 | 95.09 | 51.00 | 3,423 | 1,836 | 51.19 |
| | 48.00 | RR40048 | 95.09 | 51.00 | 4,564 | 2,448 | 63.19 |
| 500 | 6.00 | RR5006 | 113.15 | 63.00 | 678 | 378.00 | 22.75 |
| | 12.00 | RR50012 | 113.15 | 63.00 | 1,358 | 756.00 | 28.75 |
| | 18.00 | RR50018 | 113.15 | 63.00 | 2,037 | 1,134 | 34.75 |
| | 24.00 | RR50024 | 113.15 | 63.00 | 2,716 | 1,512 | 40.75 |
| | 36.00 | RR50036 | 113.15 | 63.00 | 4,074 | 2,264 | 52.75 |
| | 48.00 | RR50048 | 113.15 | 63.00 | 5,431 | 3,024 | 64.75 |

**HCR-Series Cylinders**

If you do not have a high-cycle application, Enerpac **HCR-Series** cylinders may be the right alternative.

*Page:* 52

**Speed Chart**

See the Enerpac Cylinder Speed Chart in our **"Yellow Pages"** to determine your approximate cylinder speed.

*Page:* 409

**Optional Snap-in Saddles**

Optional snap-in saddles for RR-Series double-acting cylinders:

| Saddle Type | Cylinder Model Number | Saddle Model Number |
|---|---|---|
| Flat | RR10 | A102F |
| Tilt | RR10 | CATS12 |
| | RR30 | CATS52 |
| | RR50, RR75 | CATS100 |

**Standard Saddles**

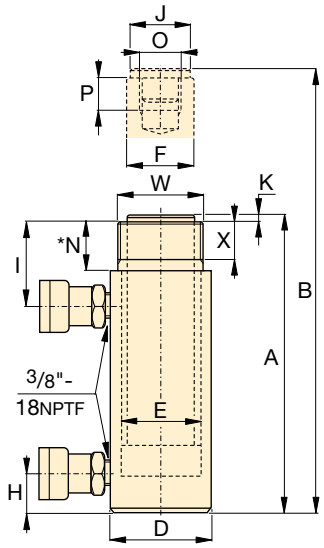
| | | |
|---|---|---|
| Grooved | RR10 | A102G |
| | RR30 | A252G |

For additional information on saddles:

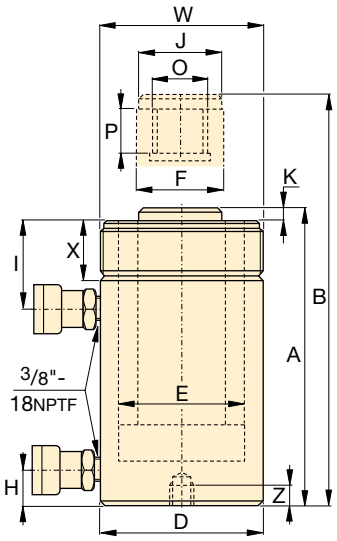
*Page:* 10

Cylinder retract capacity for certain RR cylinders may be less than theoretical values, as a result of reduced relief valve pressure settings:

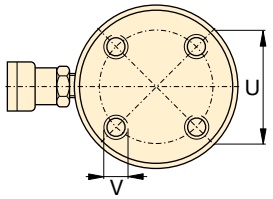
RR308/3014:4000 psi
RR506/5013/5020:6950 psi
RR756/7513:7200 psi




**RR1010 to RR3014 models**




**RR506 to RR50048 models**




**RR1006 to RR30048**

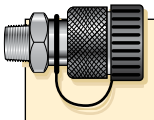
**No mounting holes:**
RR506, 5013
RR756, 7513
RR1502, 15032

◀ **For full features see page 41.**

| Cylinder Capacity (ton) | Stroke (in) | Model Number | Max. Cylinder Capacity (tons) Push | Max. Cylinder Capacity (tons) Pull | Cylinder Effective Area ($in^2$) Push | Cylinder Effective Area ($in^2$) Pull | Oil Capacity ($in^3$) Push | Oil Capacity ($in^3$) Pull | Collap. Height A (in) | Ext. Height B (in) | Outside Diam. D (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 10.00 | **RR1010*** | 11.1 | 4.0 | 2.23 | 0.80 | 22.33 | 8.00 | 16.13 | 26.13 | 2.88 |
| | 12.00 | **RR1012*** | 11.1 | 4.0 | 2.23 | 0.80 | 26.80 | 9.00 | 18.00 | 30.00 | 2.88 |
| **30** | 8.25 | **RR308*** | 32.5 | 6.0 | 6.51 | 3.00 | 53.67 | 25.00 | 15.50 | 23.75 | 4.00 |
| | 14.50 | **RR3014*** | 32.5 | 6.0 | 6.51 | 3.00 | 92.70 | 43.00 | 21.63 | 36.13 | 4.00 |
| **50** | 6.13 | **RR506** | 55.3 | 11.8 | 11.06 | 3.40 | 67.77 | 21.00 | 13.06 | 19.19 | 5.00 |
| | 13.13 | **RR5013** | 55.3 | 11.8 | 11.06 | 3.40 | 145.17 | 44.00 | 20.06 | 33.19 | 5.00 |
| | 20.13 | **RR5020** | 55.3 | 11.8 | 11.06 | 3.40 | 222.56 | 68.00 | 28.88 | 49.00 | 5.00 |
| **75** | 6.13 | **RR756** | 79.6 | 17.6 | 15.92 | 4.90 | 97.58 | 29.00 | 13.69 | 19.81 | 5.75 |
| | 13.13 | **RR7513** | 79.6 | 17.6 | 15.92 | 4.90 | 209.00 | 64.00 | 20.69 | 33.81 | 5.75 |
| **100** | 6.63 | **RR1006** | 103.2 | 48.0 | 20.65 | 9.60 | 136.93 | 63.00 | 14.06 | 20.69 | 7.00 |
| | 13.13 | **RR10013** | 103.2 | 48.0 | 20.65 | 9.60 | 271.17 | 126.00 | 20.63 | 33.75 | 7.00 |
| | 18.13 | **RR10018** | 103.2 | 48.0 | 20.65 | 9.60 | 374.44 | 174.00 | 27.06 | 45.19 | 7.00 |
| **150** | 2.25 | **RR1502** | 153.5 | 74.0 | 30.71 | 14.80 | 69.11 | 33.00 | 7.19 | 9.44 | 8.00 |
| | 6.13 | **RR1506** | 153.5 | 74.0 | 30.71 | 14.80 | 188.28 | 91.00 | 15.19 | 21.31 | 8.00 |
| | 13.13 | **RR15013** | 153.5 | 74.0 | 30.71 | 14.80 | 403.27 | 194.00 | 22.20 | 35.31 | 8.00 |
| | 32.13 | **RR15032** | 153.5 | 74.0 | 30.71 | 14.80 | 986.84 | 475.00 | 43.94 | 76.06 | 8.00 |
| **200** | 6.00 | **RR2006** | 221.0 | 112.5 | 44.21 | 22.50 | 265.28 | 135.00 | 16.94 | 22.94 | 9.75 |
| | 13.00 | **RR20013** | 221.0 | 112.5 | 44.21 | 22.50 | 574.78 | 293.00 | 23.94 | 36.94 | 9.75 |
| | 18.00 | **RR20018** | 221.0 | 112.5 | 44.21 | 22.50 | 795.85 | 396.00 | 30.13 | 48.13 | 9.75 |
| | 24.00 | **RR20024** | 221.0 | 112.5 | 44.21 | 22.50 | 1,061 | 528.00 | 36.13 | 60.13 | 9.75 |
| | 36.00 | **RR20036** | 221.0 | 112.5 | 44.21 | 22.50 | 1,592 | 792.00 | 48.13 | 84.13 | 9.75 |
| | 48.00 | **RR20048** | 221.0 | 112.5 | 44.21 | 22.50 | 2,122 | 1,056 | 60.13 | 108.13 | 9.75 |
| **300** | 6.00 | **RR3006** | 354.6 | 190.0 | 70.93 | 38.00 | 425.56 | 228.00 | 19.13 | 25.13 | 12.25 |
| | 12.00 | **RR30012** | 354.6 | 190.0 | 70.93 | 38.00 | 851.12 | 456.00 | 25.13 | 37.13 | 12.25 |
| | 18.00 | **RR30018** | 354.6 | 190.0 | 70.93 | 38.00 | 1,277 | 684.00 | 31.13 | 49.13 | 12.25 |
| | 24.00 | **RR30024** | 354.6 | 190.0 | 70.93 | 38.00 | 1,702 | 912.00 | 37.13 | 61.13 | 12.25 |
| | 36.00 | **RR30036** | 354.6 | 190.0 | 70.93 | 38.00 | 2,553 | 1368 | 49.13 | 85.13 | 12.25 |
| | 48.00 | **RR30048** | 354.6 | 190.0 | 70.93 | 38.00 | 3,405 | 1824 | 61.13 | 109.13 | 12.25 |
| **400** | 6.00 | **RR4006** | 475.4 | 255.0 | 95.09 | 51.00 | 570.51 | 306.00 | 21.19 | 27.19 | 14.13 |
| | 12.00 | **RR40012** | 475.4 | 255.0 | 95.09 | 51.00 | 1,141 | 612.00 | 27.19 | 39.19 | 14.13 |
| | 18.00 | **RR40018** | 475.4 | 255.0 | 95.09 | 51.00 | 1,712 | 918.00 | 33.19 | 51.19 | 14.13 |
| | 24.00 | **RR40024** | 475.4 | 255.0 | 95.09 | 51.00 | 2,282 | 1224 | 39.19 | 63.19 | 14.13 |
| | 36.00 | **RR40036** | 475.4 | 255.0 | 95.09 | 51.00 | 3,423 | 1836 | 51.19 | 87.19 | 14.13 |
| | 48.00 | **RR40048** | 475.4 | 255.0 | 95.09 | 51.00 | 4,564 | 2448 | 63.19 | 111.19 | 14.13 |
| **500** | 6.00 | **RR5006** | 565.7 | 315.0 | 113.15 | 63.00 | 678.92 | 378.00 | 22.75 | 28.75 | 15.63 |
| | 12.00 | **RR50012** | 565.7 | 315.0 | 113.15 | 63.00 | 1,358 | 756.00 | 28.75 | 40.75 | 15.63 |
| | 18.00 | **RR50018** | 565.7 | 315.0 | 113.15 | 63.00 | 2,037 | 1134 | 34.75 | 52.75 | 15.63 |
| | 24.00 | **RR50024** | 565.7 | 315.0 | 113.15 | 63.00 | 2,716 | 1512 | 40.75 | 64.75 | 15.63 |
| | 36.00 | **RR50036** | 565.7 | 315.0 | 113.15 | 63.00 | 4,074 | 2268 | 52.75 | 88.75 | 15.63 |
| | 48.00 | **RR50048** | 565.7 | 315.0 | 113.15 | 63.00 | 5,431 | 3024 | 64.75 | 112.75 | 15.63 |

*N: For RR1010 and RR1012: N = 1.26 inch; for RR308 and RR3014: N = 2.20 inch.

# Double-Acting Long Stroke Cylinders



**Couplers Included!**
CR400 couplers included on all models. Fits all HC-Series hoses.

Capacity:
**10 - 500 tons**

Stroke:
**2.25 - 48.00 inches**

Maximum Operating Pressure:
**10,000 psi**

**RR Series**



| Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Adv. Port H (in) | Top to Return Port I (in) | Saddle Diameter J (in) | Saddle Protrusion from Plngr. K (in) | Plunger Internal Thread O (in) | Plunger Thread Length P (in) | Base Mounting Holes | | | Collar Thread W (in) | Collar Thread Length X (in) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Bolt Cir. Diam. U (in) | Thread V (in) | Thread Depth Z (in) | | | | |
| 1.69 | 1.38 | 1.44 | 2.25 | 1.38 | 0.24 | 1-8 | 1.00 | – | – | – | 2¼-14 | 1.06 | 28 | **RR1010*** |
| 1.69 | 1.38 | 1.44 | 2.25 | 1.38 | 0.24 | 1-8 | 1.00 | – | – | – | 2¼-14 | 1.06 | 31 | **RR1012*** |
| 2.88 | 2.13 | 1.44 | 3.19 | 2.00 | 0.41 | 1½-16 | 1.00 | – | – | – | 3⁵⁄₁₆-12 | 1.94 | 40 | **RR308*** |
| 2.88 | 2.13 | 1.56 | 3.19 | 2.00 | 0.41 | 1½-16 | 1.00 | – | – | – | 3⁵⁄₁₆-12 | 1.94 | 64 | **RR3014*** |
| 3.75 | 3.13 | 1.13 | 3.00 | 2.81 | 0.11 | 1-12 | 1.00 | – | – | – | 5-12 | 2.00 | 67 | **RR506** |
| 3.75 | 3.13 | 1.13 | 3.00 | 2.81 | 0.11 | 1-12 | 1.00 | – | – | – | 5-12 | 2.00 | 115 | **RR5013** |
| 3.75 | 3.13 | 2.25 | 3.00 | 2.81 | 0.11 | 1-12 | 1.00 | 3.00 | – | – | 5-12 | 2.00 | 150 | **RR5020** |
| 4.50 | 3.75 | 1.19 | 3.00 | 2.81 | 0.25 | 1-12 | 1.50 | – | – | – | 5¾-12 | 1.50 | 92 | **RR756** |
| 4.50 | 3.75 | 1.19 | 3.19 | 2.81 | 0.25 | 1-12 | 1.50 | – | – | – | 5¾-12 | 1.50 | 150 | **RR7513** |
| 5.13 | 3.75 | 1.50 | 2.81 | 3.00 | 0.13 | 1¾-12 | 1.38 | 5.50 | ¾-10 | 1.00 | 6⅞-12 | 2.00 | 135 | **RR1006** |
| 5.13 | 3.75 | 1.50 | 2.81 | 3.00 | 0.13 | 1¾-12 | 1.38 | 5.50 | ¾-10 | 1.00 | 6⅞-12 | 2.00 | 205 | **RR10013** |
| 5.13 | 3.75 | 1.63 | 3.63 | 3.00 | 0.13 | 1¾-12 | 1.38 | 5.50 | ¾-10 | 1.00 | 6⅞-12 | 2.00 | 260 | **RR10018** |
| 6.25 | 4.50 | 0.88 | 2.63 | 3.67 | 0.06 | – | – | – | – | – | – | – | 110 | **RR1502** |
| 6.25 | 4.50 | 1.94 | 3.31 | 4.49 | 0.75 | 3⅜-16 | 1.38 | 6.25 | ¾-16 | 1.00 | 8-12 | 2.36 | 205 | **RR1506** |
| 6.25 | 4.50 | 1.94 | 3.31 | 4.49 | 0.75 | 3⅜-16 | 1.38 | 6.25 | ¾-16 | 1.00 | 8-12 | 2.36 | 275 | **RR15013** |
| 6.25 | 4.50 | 3.31 | 3.31 | 4.49 | 0.75 | 3⅜-16 | 1.38 | – | – | – | 8-12 | 2.36 | 525 | **RR15032** |
| 7.50 | 5.25 | 2.25 | 3.81 | 5.25 | 0.88 | – | – | 5.00 | 1-8 | 1.00 | – | – | 325 | **RR2006** |
| 7.50 | 5.25 | 2.25 | 3.81 | 5.25 | 0.88 | 2½-12 | 2.50 | 5.00 | 1-8 | 1.00 | 9¾-12 | 2.13 | 440 | **RR20013** |
| 7.50 | 5.25 | 3.38 | 4.00 | 5.25 | 0.88 | 2½-12 | 2.50 | 5.00 | 1-8 | 1.00 | 9¾ -12 | 2.13 | 450 | **RR20018** |
| 7.50 | 5.25 | 3.38 | 4.00 | 5.25 | 0.88 | 2½-12 | 2.50 | 5.00 | 1-8 | 1.00 | 9¾ -12 | 2.13 | 616 | **RR20024** |
| 7.50 | 5.25 | 3.38 | 4.00 | 5.25 | 0.88 | 2½ -12 | 2.50 | 5.00 | 1-8 | 1.00 | 9¾ -12 | 2.13 | 845 | **RR20036** |
| 7.50 | 5.25 | 3.38 | 4.00 | 5.25 | 0.88 | 2½-12 | 2.50 | 5.00 | 1-8 | 1.00 | 9¾ - 12 | 2.13 | 1065 | **RR20048** |
| 9.50 | 6.50 | 3.50 | 4.50 | 6.50 | 1.13 | 2½-12 | 3.25 | 6.25 | 1¼-7 | 1.75 | 12¼-12 | 2.31 | 441 | **RR3006** |
| 9.50 | 6.50 | 3.50 | 4.50 | 6.50 | 1.13 | 2½-12 | 3.25 | 6.25 | 1¼-7 | 1.75 | 12¼-12 | 2.31 | 608 | **RR30012** |
| 9.50 | 6.50 | 3.50 | 4.50 | 6.50 | 1.13 | 2½-12 | 3.25 | 6.25 | 1¼-7 | 1.75 | 12¼-12 | 2.31 | 776 | **RR30018** |
| 9.50 | 6.50 | 3.50 | 4.50 | 6.50 | 1.13 | 2½-12 | 3.25 | 6.25 | 1¼-7 | 1.75 | 12¼-12 | 2.31 | 1034 | **RR30024** |
| 9.50 | 6.50 | 3.50 | 4.50 | 6.50 | 1.13 | 2½-12 | 3.25 | 6.25 | 1¼-7 | 1.75 | 12¼-12 | 2.31 | 1385 | **RR30036** |
| 9.50 | 6.50 | 3.50 | 4.50 | 6.50 | 1.13 | 2½-12 | 3.25 | 6.25 | 1¼-7 | 1.75 | 12¼-12 | 2.31 | 1720 | **RR30048** |
| 11.00 | 7.50 | 4.25 | 5.25 | 7.50 | 1.13 | 3-12 | 3.75 | 8.00 | 1½-6 | 2.00 | 14⅛-8 | 2.56 | 670 | **RR4006** |
| 11.00 | 7.50 | 4.25 | 5.25 | 7.50 | 1.13 | 3-12 | 3.75 | 8.00 | 1½-6 | 2.00 | 14⅛-8 | 2.56 | 880 | **RR40012** |
| 11.00 | 7.50 | 4.25 | 5.25 | 7.50 | 1.13 | 3-12 | 3.75 | 8.00 | 1½-6 | 2.00 | 14⅛-8 | 2.56 | 1000 | **RR40018** |
| 11.00 | 7.50 | 4.25 | 5.25 | 7.50 | 1.13 | 3-12 | 3.75 | 8.00 | 1½-6 | 2.00 | 14⅛-8 | 2.56 | 1317 | **RR40024** |
| 11.00 | 7.50 | 4.25 | 5.25 | 7.50 | 1.13 | 3-12 | 3.75 | 8.00 | 1½-6 | 2.00 | 14⅛-8 | 2.56 | 1746 | **RR40036** |
| 11.00 | 7.50 | 4.25 | 5.25 | 7.50 | 1.13 | 3-12 | 3.75 | 8.00 | 1½-6 | 2.00 | 14⅛-8 | 2.56 | 2162 | **RR40048** |
| 12.00 | 8.00 | 4.75 | 6.00 | 8.00 | 1.13 | 3¼-12 | 4.25 | 8.00 | 1¾-5 | 2.12 | 15⅝-8 | 3.13 | 953 | **RR5006** |
| 12.00 | 8.00 | 4.75 | 6.00 | 8.00 | 1.13 | 3¼-12 | 4.25 | 8.00 | 1¾-5 | 2.12 | 15⅝-8 | 3.13 | 1300 | **RR50012** |
| 12.00 | 8.00 | 4.75 | 6.00 | 8.00 | 1.13 | 3¼-12 | 4.25 | 8.00 | 1¾-5 | 2.12 | 15⅝-8 | 3.13 | 1500 | **RR50018** |
| 12.00 | 8.00 | 4.75 | 6.00 | 8.00 | 1.13 | 3¼-12 | 4.25 | 8.00 | 1¾-5 | 2.12 | 15⅝-8 | 3.13 | 1800 | **RR50024** |
| 12.00 | 8.00 | 4.75 | 6.00 | 8.00 | 1.13 | 3¼-12 | 4.25 | 8.00 | 1¾-5 | 2.12 | 15⅝-8 | 3.13 | 2210 | **RR50036** |
| 12.00 | 8.00 | 4.75 | 6.00 | 8.00 | 1.13 | 3¼-12 | 4.25 | 8.00 | 1¾-5 | 2.12 | 15⅝-8 | 3.13 | 2700 | **RR50048** |

▼ HCL1006, HCG2006, HCR506




### Reaching the Summit Edition:

- **Nitrocarburized hardened surfaces offers improved protection against side-load scoring and cyclic wear**
- **Weather protected, inside and out**
- **Low-friction locking rings spin easy, save time and effort [1)]**

### Enclosed polymer bearing system

- **Upper and lower bearings enclose the cylinder plunger for support and are able to be replaced along with seals and other soft parts**
- **State-of-the-art bearing materials reduce wear and avoid bore damage even in high side-load conditions**

### Low-wear, high-pressure seals

- **Improved geometry and material selection increases seal performance even in harsh conditions**
- **Low friction improves retraction times**

### Versatile

- **Over 220 models in five configurations [1)]**
- **Certified lifting eyes, base mounting holes and collar threads are included for secure handling and cylinder mounting [1)]**

[1)] See specific model's technical data for more information.

# Highest Level of Durability

**The Summit Edition**

Innovation is at the heart of the new *Summit Edition* of cylinders, delivering the high quality construction that you expect from Enerpac. The durability ensures your job gets done safely and reliably.

- Plunger support bearing adds support for eccentric loads [2)]
- Nitrocarburization surface treatment for improved wear resistance and corrosion protection
- Replaceable composite bearings surround the seal providing support for eccentric loads
- Low-wear, high-pressure seals provide longer service life

[2)] Eccentric load (or "side-load") is inevitable in heavy lifting. Our unique Summit Edition features provide the ultimate protection against side-load. Increased bearing surface maintains stability, and nitrocarburization treatment prevents scoring on the inside of the cylinder. Side-load poses a real problem.... our new cylinder features are the solution!

▼ *Bridge lifting and launching system. The load is balanced on groups of lock nut cylinders. The hydraulic movements are synchronized using the Enerpac PLC-controlled synchronous lift systems.*



**High-Tonnage Cylinders**

The Enerpac High-Tonnage Cylinders are particularly suitable for (multipoint) lifting applications.

**HCG, HCR, HCL, HCRL-Series Cylinders**

- 50 - 1000-ton lifting capacity
- 1.97 - 11.81 inch lifting stroke
- Designed to withstand up to 10% side-load of maximum capacity

**HCG-Series - Single-Acting**

- Load return
- Stop-ring to prevent plunger blow-out

**HCR-Series - Double-Acting**

- Hydraulic advance and retract for controlled movement

**HCL-Series - Lock Nut, Single-Acting**

- Load return
- Lock nut for mechanical load holding
- Overflow port to prevent plunger blow out

**HCRL-Series - Lock Nut, Double-Acting**

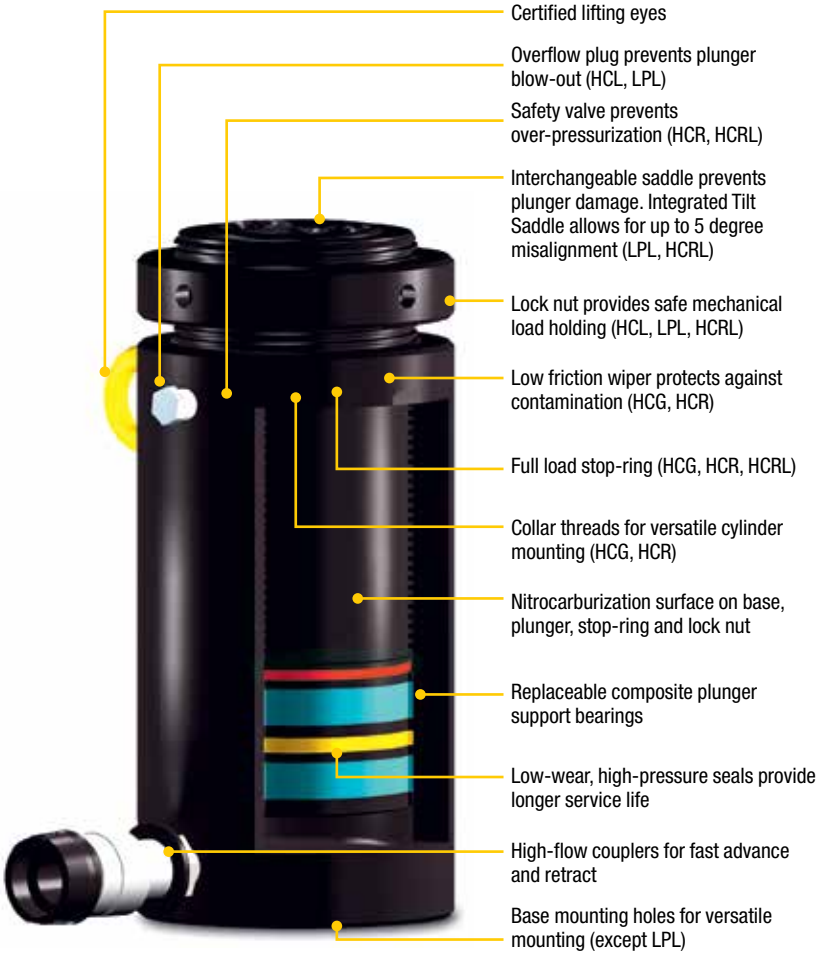
- 50 - 300 ton lifting capacity
- 5.91 - 11.81 inch stroke
- Hydraulic advance and retract
- Integrated tilt saddle
- Lock nut for mechanical load holding

**LPL-Series - Lock Nut, Low-Height, Single-Acting**

- 60 - 500 ton lifting capacity
- 1.77 - 1.97 inch lifting stroke
- Integrated tilt saddle
- Load return
- Lock nut for mechanical load holding
- 5-10% side-load of maximum capacity

In combination with our state-of-the-art power packs, you will have a world class hydraulic system to perform the most challenging lifting jobs in a safe and professional manner.

*Page:* 44




# HCG HCR HCL HCRL Series



Capacity:
**50 - 1000 ton**

Stroke:
**1.97 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**



**Assisted-Return Pumps**

Enerpac HCG, HCL and LPL-Series cylinders are hydraulic advance and load return. To improve productivity and plunger retraction Enerpac offers assisted return on ZU4 and ZE-Series pumps featuring Enerpac Venturi valve technology, specifically to facilitate the faster return of single-acting, load return cylinders. See **enerpac.com** for details.



**Split-Flow Pumps**

SFP-Series pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points, these pumps are a far better alternative than using separately operated pumps.

*Page:* 132



**EVO-Series, Synchronous Lifting Systems**

The EVO-system is the safest system for multi-point lifting, provided synchronized control over lifting stroke with a wide variety of features and functions.

136






| QUICK SELECTION | | | HCG-Series | | HCR-Series | | HCL-Series | | HCRL-Series* | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cylinder Capacity (ton) | Stroke (in) | Maximum Cylinder Capacity at 10,150 psi (ton) | Model Number Single-Acting Page: 48 | Collapsed Height (in) | Model Number Double-Acting Page: 52 | Collapsed Height (in) | Model No. Single-Acting with Lock Nut Page: 56 | Collapsed Height (in) | Model No. Double-Acting with Lock Nut Page: 60 | Collapsed Height (in) |
| 50 | 1.97 | 62 | HCG502 | 7.20 | HCR502 | 7.20 | HCL502 | 6.46 | — | — |
| | 3.94 | | HCG504 | 9.17 | HCR504 | 9.17 | HCL504 | 8.43 | — | — |
| | 5.91 | | HCG506 | 11.14 | HCR506 | 11.14 | HCL506 | 10.39 | HCRL506 | 12.20 |
| | 7.87 | | HCG508 | 13.62 | HCR508 | 13.62 | HCL508 | 12.36 | HCRL508 | 14.84 |
| | 9.84 | | HCG5010 | 15.59 | HCR5010 | 15.59 | HCL5010 | 14.33 | HCRL5010 | 16.81 |
| | 11.81 | | HCG5012 | 17.56 | HCR5012 | 17.56 | HCL5012 | 16.30 | HCRL5012 | 18.77 |
| 100 | 1.97 | 113 | HCG1002 | 7.95 | HCR1002 | 7.95 | HCL1002 | 7.36 | — | — |
| | 3.94 | | HCG1004 | 9.92 | HCR1004 | 9.92 | HCL1004 | 9.33 | — | — |
| | 5.91 | | HCG1006 | 11.89 | HCR1006 | 11.89 | HCL1006 | 11.30 | HCRL1006 | 13.62 |
| | 7.87 | | HCG1008 | 14.92 | HCR1008 | 14.92 | HCL1008 | 13.27 | HCRL1008 | 16.57 |
| | 9.84 | | HCG10010 | 16.89 | HCR10010 | 16.89 | HCL10010 | 15.24 | HCRL10010 | 18.54 |
| | 11.81 | | HCG10012 | 18.86 | HCR10012 | 18.86 | HCL10012 | 17.20 | HCRL10012 | 20.51 |
| 150 | 1.97 | 168 | HCG1502 | 8.66 | HCR1502 | 8.66 | HCL1502 | 8.23 | — | — |
| | 3.94 | | HCG1504 | 10.63 | HCR1504 | 10.63 | HCL1504 | 10.20 | — | — |
| | 5.91 | | HCG1506 | 12.60 | HCR1506 | 12.60 | HCL1506 | 12.17 | HCRL1506 | 14.13 |
| | 7.87 | | HCG1508 | 15.63 | HCR1508 | 15.63 | HCL1508 | 14.13 | HCRL1508 | 17.09 |
| | 9.84 | | HCG15010 | 17.60 | HCR15010 | 17.60 | HCL15010 | 16.10 | HCRL15010 | 19.06 |
| | 11.81 | | HCG15012 | 19.57 | HCR15012 | 19.57 | HCL15012 | 18.07 | HCRL15012 | 21.02 |
| 200 | 1.97 | 223 | HCG2002 | 9.09 | HCR2002 | 9.09 | HCL2002 | 9.37 | — | — |
| | 3.94 | | HCG2004 | 11.06 | HCR2004 | 11.06 | HCL2004 | 11.34 | — | — |
| | 5.91 | | HCG2006 | 13.03 | HCR2006 | 13.03 | HCL2006 | 13.31 | HCRL2006 | 15.70 |
| | 7.87 | | HCG2008 | 16.06 | HCR2008 | 16.06 | HCL2008 | 15.28 | HCRL2008 | 18.46 |
| | 9.84 | | HCG20010 | 18.03 | HCR20010 | 18.03 | HCL20010 | 17.24 | HCRL20010 | 20.43 |
| | 11.81 | | HCG20012 | 20.00 | HCR20012 | 20.00 | HCL20012 | 19.21 | HCRL20012 | 22.40 |
| 250 | 1.97 | 286 | HCG2502 | 9.49 | HCR2502 | 9.49 | HCL2502 | 9.80 | — | — |
| | 3.94 | | HCG2504 | 11.46 | HCR2504 | 11.46 | HCL2504 | 11.77 | — | — |
| | 5.91 | | HCG2506 | 13.43 | HCR2506 | 13.43 | HCL2506 | 13.74 | HCRL2506 | 16.38 |
| | 7.87 | | HCG2508 | 16.97 | HCR2508 | 16.97 | HCL2508 | 15.71 | HCRL2508 | 19.33 |
| | 9.84 | | HCG25010 | 18.94 | HCR25010 | 18.94 | HCL25010 | 17.68 | HCRL25010 | 21.30 |
| | 11.81 | | HCG25012 | 20.91 | HCR25012 | 20.91 | HCL25012 | 19.65 | HCRL25012 | 23.27 |
| 300 | 1.97 | 341 | HCG3002 | 11.65 | HCR3002 | 11.65 | HCL3002 | 10.94 | — | — |
| | 3.94 | | HCG3004 | 13.62 | HCR3004 | 13.62 | HCL3004 | 12.91 | — | — |
| | 5.91 | | HCG3006 | 15.59 | HCR3006 | 15.59 | HCL3006 | 14.88 | HCRL3006 | 16.57 |
| | 7.87 | | HCG3008 | 17.56 | HCR3008 | 17.56 | HCL3008 | 16.85 | HCRL3008 | 19.53 |
| | 9.84 | | HCG30010 | 19.53 | HCR30010 | 19.53 | HCL30010 | 18.82 | HCRL30010 | 21.50 |
| | 11.81 | | HCG30012 | 21.50 | HCR30012 | 21.50 | HCL30012 | 20.79 | HCRL30012 | 23.46 |

* The HCRL-Series Cylinders are available up to 2000-ton and additional stroke lengths available on request.

Capacity:
**50 - 1000 ton**

Stroke:
**1.97 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**

# HCG HCR HCL HCRL Series



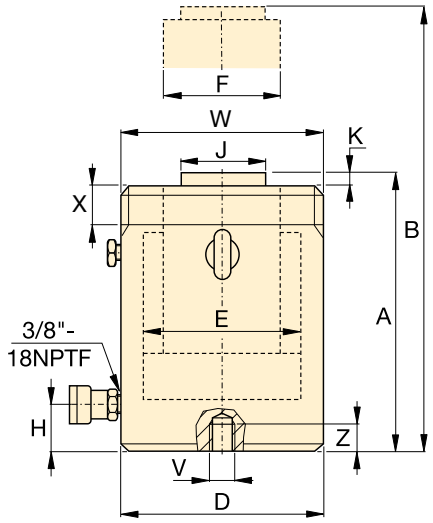


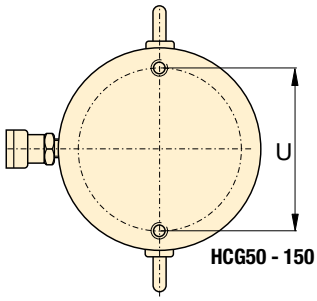




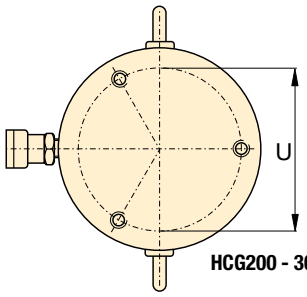
**QUICK SELECTION**

| Cylinder Capacity (ton) | Stroke (in) | Maximum Cylinder Capacity at 10,150 psi (ton) | HCG-Series Model Number Single-Acting Page: 48 | HCG-Series Collapsed Height (in) | HCR-Series Model Number Double-Acting Page: 52 | HCR-Series Collapsed Height (in) | HCL-Series Model Number Single-Acting With Lock Nut Page: 56 | HCL-Series Collapsed Height (in) |
|---|---|---|---|---|---|---|---|---|
| 400 | 1.97 | 450 | HCG4002 | 12.64 | HCR4002 | 12.64 | HCL4002 | 12.48 |
| | 3.94 | | HCG4004 | 14.61 | HCR4004 | 14.61 | HCL4004 | 14.45 |
| | 5.91 | | HCG4006 | 16.57 | HCR4006 | 16.57 | HCL4006 | 16.42 |
| | 7.87 | | HCG4008 | 18.54 | HCR4008 | 18.54 | HCL4008 | 18.39 |
| | 9.84 | | HCG40010 | 20.51 | HCR40010 | 20.51 | HCL40010 | 20.35 |
| | 11.81 | | HCG40012 | 22.48 | HCR40012 | 22.48 | HCL40012 | 22.32 |
| 500 | 1.97 | 575 | HCG5002 | 13.54 | HCR5002 | 13.54 | HCL5002 | 14.06 |
| | 3.94 | | HCG5004 | 15.51 | HCR5004 | 15.51 | HCL5004 | 16.02 |
| | 5.91 | | HCG5006 | 17.48 | HCR5006 | 17.48 | HCL5006 | 17.99 |
| | 7.87 | | HCG5008 | 19.45 | HCR5008 | 19.45 | HCL5008 | 19.96 |
| | 9.84 | | HCG50010 | 21.42 | HCR50010 | 21.42 | HCL50010 | 21.93 |
| | 11.81 | | HCG50012 | 23.39 | HCR50012 | 23.39 | HCL50012 | 23.90 |
| 600 | 1.97 | 673 | HCG6002 | 13.86 | HCR6002 | 13.86 | HCL6002 | 14.96 |
| | 3.94 | | HCG6004 | 15.83 | HCR6004 | 15.83 | HCL6004 | 16.93 |
| | 5.91 | | HCG6006 | 17.80 | HCR6006 | 17.80 | HCL6006 | 18.90 |
| | 7.87 | | HCG6008 | 19.76 | HCR6008 | 19.76 | HCL6008 | 20.87 |
| | 9.84 | | HCG60010 | 21.73 | HCR60010 | 21.73 | HCL60010 | 22.83 |
| | 11.81 | | HCG60012 | 23.70 | HCR60012 | 23.70 | HCL60012 | 24.80 |
| 800 | 1.97 | 916 | HCG8002 | 15.91 | HCR8002 | 15.91 | HCL8002 | 16.93 |
| | 3.94 | | HCG8004 | 17.87 | HCR8004 | 17.87 | HCL8004 | 18.90 |
| | 5.91 | | HCG8006 | 19.84 | HCR8006 | 19.84 | HCL8006 | 20.87 |
| | 7.87 | | HCG8008 | 21.81 | HCR8008 | 21.81 | HCL8008 | 22.83 |
| | 9.84 | | HCG80010 | 23.78 | HCR80010 | 23.78 | HCL80010 | 24.80 |
| | 11.81 | | HCG80012 | 25.75 | HCR80012 | 25.75 | HCL80012 | 26.77 |
| 1000 | 1.97 | 1196 | HCG10002 | 17.40 | HCR10002 | 17.40 | HCL10002 | 19.06 |
| | 3.94 | | HCG10004 | 19.37 | HCR10004 | 19.37 | HCL10004 | 21.02 |
| | 5.91 | | HCG10006 | 21.34 | HCR10006 | 21.34 | HCL10006 | 22.99 |
| | 7.87 | | HCG10008 | 23.31 | HCR10008 | 23.31 | HCL10008 | 24.96 |
| | 9.84 | | HCG100010 | 25.28 | HCR100010 | 25.28 | HCL100010 | 26.93 |
| | 11.81 | | HCG100012 | 27.24 | HCR100012 | 27.24 | HCL100012 | 28.90 |




HCG50 - 150 ton




HCG200 - 300 ton

## HCG-Series, Single-Acting, Load Return Cylinders

- **Hardened surface resists side-loading and cyclic wear**
- **Designed to withstand up to 10% side-load of maximum capacity [1)]**
- **Stop-ring to prevent plunger blow-out**
- **Weather protected, inside and out**
- **Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke**
- **Certified lifting eyes, base mounting holes and collar threads**
- **Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher**

**SELECTION CHART 50 – 300-TON HCG-MODELS**

For 400 – 1000-ton models, see pages 50-51.
For full product features see pages 44-45.

| Cylinder Capacity (ton) | Stroke (in) | Model Number | Maximum Cylinder Capacity at 10,150 psi (ton) | Cylinder Effective Area (in²) | Oil Capacity (in³) | Collapsed Height A (in) |
|---|---|---|---|---|---|---|
| 50 | 1.97 | HCG502 | 62 | 12.17 | 23.96 | 7.20 |
| | 3.94 | HCG504 | | | 47.93 | 9.17 |
| | 5.91 | HCG506 [1)] | | | 71.89 | 11.14 |
| | 7.87 | HCG508 | | | 95.86 | 13.62 |
| | 9.84 | HCG5010 | | | 119.82 | 15.59 |
| | 11.81 | HCG5012 [1)] | | | 143.78 | 17.56 |
| 100 | 1.97 | HCG1002 | 113 | 22.19 | 43.67 | 7.95 |
| | 3.94 | HCG1004 | | | 87.35 | 9.92 |
| | 5.91 | HCG1006 | | | 131.02 | 11.89 |
| | 7.87 | HCG1008 | | | 174.70 | 14.92 |
| | 9.84 | HCG10010 | | | 218.37 | 16.89 |
| | 11.81 | HCG10012 | | | 262.05 | 18.86 |
| 150 | 1.97 | HCG1502 | 168 | 33.14 | 65.24 | 8.66 |
| | 3.94 | HCG1504 | | | 130.48 | 10.63 |
| | 5.91 | HCG1506 | | | 195.73 | 12.60 |
| | 7.87 | HCG1508 | | | 260.97 | 15.63 |
| | 9.84 | HCG15010 | | | 326.21 | 17.60 |
| | 11.81 | HCG15012 | | | 391.45 | 19.57 |
| 200 | 1.97 | HCG2002 | 223 | 43.95 | 86.51 | 9.09 |
| | 3.94 | HCG2004 | | | 173.02 | 11.06 |
| | 5.91 | HCG2006 | | | 259.53 | 13.03 |
| | 7.87 | HCG2008 | | | 346.04 | 16.06 |
| | 9.84 | HCG20010 | | | 432.55 | 18.03 |
| | 11.81 | HCG20012 | | | 519.06 | 20.00 |
| 250 | 1.97 | HCG2502 | 286 | 56.27 | 110.77 | 9.49 |
| | 3.94 | HCG2504 | | | 221.55 | 11.46 |
| | 5.91 | HCG2506 | | | 332.32 | 13.43 |
| | 7.87 | HCG2508 | | | 443.09 | 16.97 |
| | 9.84 | HCG25010 | | | 553.87 | 18.94 |
| | 11.81 | HCG25012 | | | 664.64 | 20.91 |
| 300 | 1.97 | HCG3002 | 341 | 67.23 | 132.34 | 11.65 |
| | 3.94 | HCG3004 | | | 264.68 | 13.62 |
| | 5.91 | HCG3006 | | | 397.02 | 15.59 |
| | 7.87 | HCG3008 | | | 529.36 | 17.56 |
| | 9.84 | HCG30010 | | | 661.71 | 19.53 |
| | 11.81 | HCG30012 | | | 794.05 | 21.50 |

[1)] HCG506 and HCG5012: 7% side-load of maximum capacity.

**Collar Thread*** (in)

| Model / Capacity (ton) | Thread Size W | Thread Length X |
|---|---|---|
| HCG50 | M130 x 2 | 1.18 |
| HCG100 | M175 x 3 | 1.81 |
| HCG150 | M215 x 3 | 2.17 |
| HCG200 | M250 x 3 | 2.48 |
| HCG250 | M280 x 3 | 2.52 |
| HCG300* | M305 x 3 | 2.87 |

* Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "**E002**"to model number. Example: **HCG3006E002**. The collar thread length is designed for the full rated cylinder capacity.

**Base Mounting Holes** (in)

| Model / Capacity (ton) | Bolt Circle U | Thread Size V | Minimum Thread Depth Z | Number of Holes | Angle from Coupler |
|---|---|---|---|---|---|
| HCG50 | 4.13 | M12 x 1,75 | 0.87 | 2 | 90° |
| HCG100 | 5.91 | M12 x 1,75 | 0.87 | 2 | 90° |
| HCG150 | 7.28 | M12 x 1,75 | 0.87 | 2 | 90° |
| HCG200 | 8.46 | M12 x 1,75 | 0.87 | 3 | 60° |
| HCG250 | 9.65 | M12 x 1,75 | 0.87 | 3 | 60° |
| HCG300 | 10.24 | M16 x 2 | 0.98 | 3 | 60° |

# Single-Acting, High-Tonnage Cylinders

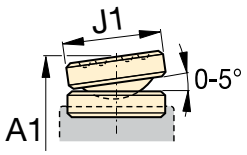
Capacity:
**50 - 300 ton**

Stroke:
**1.97 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**

## HCG Series





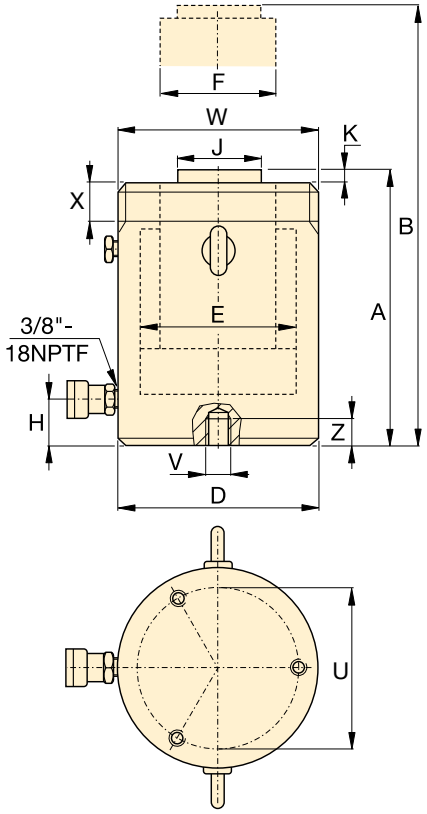

**CATS-Series Tilt Saddle**

| Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Standard Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Weight (lbs) | Model Number | Optional Tilt Saddle | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Saddle Diameter J1 (in) | Collap. Height* A1 (in) | Saddle Model Number |
| 9.17 | 5.12 | 3.94 | 2.76 | 1.50 | 1.97 | 0.12 | 37 | **HCG502** | 2.80 | 7.75 | **CATS50** |
| 13.11 | | | | | | | 45 | **HCG504** | | 9.72 | |
| 17.05 | | | | | | | 53 | **HCG506** [1)] | | 11.69 | |
| 21.50 | | | | | | | 64 | **HCG508** | | 14.17 | |
| 25.43 | | | | | | | 72 | **HCG5010** | | 16.14 | |
| 29.37 | | | | | | | 80 | **HCG5012** [1)] | | 18.11 | |
| 9.92 | 6.89 | 5.31 | 3.74 | 1.50 | 2.95 | 0.12 | 73 | **HCG1002** | 2.80 | 8.35 | **CATS101** |
| 13.86 | | | | | | | 88 | **HCG1004** | | 10.31 | |
| 17.80 | | | | | | | 102 | **HCG1006** | | 12.28 | |
| 22.80 | | | | | | | 128 | **HCG1008** | | 15.31 | |
| 26.73 | | | | | | | 142 | **HCG10010** | | 17.28 | |
| 30.67 | | | | | | | 157 | **HCG10012**[1)] | | 19.25 | |
| 10.63 | 8.46 | 6.50 | 4.72 | 1.61 | 3.70 | 0.12 | 123 | **HCG1502** | 3.82 | 9.41 | **CATS150** |
| 14.57 | | | | | | | 145 | **HCG1504** | | 11.38 | |
| 18.50 | | | | | | | 168 | **HCG1506** | | 13.35 | |
| 23.50 | | | | | | | 207 | **HCG1508** | | 16.38 | |
| 27.44 | | | | | | | 230 | **HCG15010** | | 18.35 | |
| 31.38 | | | | | | | 253 | **HCG15012** | | 20.31 | |
| 11.06 | 9.84 | 7.48 | 5.51 | 1.85 | 4.45 | 0.12 | 178 | **HCG2002** | 4.96 | 9.80 | **CATS200** |
| 15.00 | | | | | | | 209 | **HCG2004** | | 11.77 | |
| 18.94 | | | | | | | 240 | **HCG2006** | | 13.74 | |
| 23.94 | | | | | | | 300 | **HCG2008** | | 16.77 | |
| 27.87 | | | | | | | 331 | **HCG20010** | | 18.74 | |
| 31.81 | | | | | | | 363 | **HCG20012** | | 20.71 | |
| 11.46 | 11.02 | 8.46 | 6.69 | 2.09 | 5.51 | 0.16 | 235 | **HCG2502** | 6.89 | 11.00 | **CATS300** |
| 15.39 | | | | | | | 277 | **HCG2504** | | 13.00 | |
| 19.33 | | | | | | | 318 | **HCG2506** | | 14.96 | |
| 24.84 | | | | | | | 401 | **HCG2508** | | 18.50 | |
| 28.78 | | | | | | | 442 | **HCG25010** | | 20.47 | |
| 32.72 | | | | | | | 484 | **HCG25012** | | 22.44 | |
| 13.62 | 12.01 | 9.25 | 7.87 | 2.28 | 5.51 | 0.16 | 348 | **HCG3002** | 6.89 | 13.19 | **CATS300** |
| 17.56 | | | | | | | 401 | **HCG3004** | | 15.16 | |
| 21.50 | | | | | | | 454 | **HCG3006** | | 17.13 | |
| 25.43 | | | | | | | 507 | **HCG3008** | | 19.00 | |
| 29.37 | | | | | | | 560 | **HCG30010** | | 21.00 | |
| 33.31 | | | | | | | 613 | **HCG30012** | | 23.00 | |

* A1 = Collapsed height including CATS-Series tilt saddle.

## HCG-Series, Single-Acting, Load Return Cylinders

- **Hardened surface resists side-loading and cyclic wear**
- **Designed to withstand up to 10% side-load of maximum capacity**
- **Stop-ring to prevent plunger blow-out**
- **Weather protected, inside and out**
- **Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke**
- **Certified lifting eyes, base mounting holes and collar threads**
- **Optional collar threads on 300 ton models and higher capacities**




**SELECTION CHART 400 – 1000-TON HCG-MODELS**
For 50 – 300-ton models, see pages 48-49.
For full product features see pages 44-45.

| Cylinder Capacity (ton) | Stroke (in) | Model Number | Maximum Cylinder Capacity at 10,150 psi (ton) | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height A (in) |
|---|---|---|---|---|---|---|
| 400 | 1.97 | HCG4002 | 450 | 88.75 | 174.70 | 12.64 |
| | 3.94 | HCG4004 | | | 349.39 | 14.61 |
| | 5.91 | HCG4006 | | | 524.09 | 16.57 |
| | 7.87 | HCG4008 | | | 698.79 | 18.54 |
| | 9.84 | HCG40010 | | | 873.49 | 20.51 |
| | 11.81 | HCG40012 | | | 1,048.18 | 22.48 |
| 500 | 1.97 | HCG5002 | 575 | 113.25 | 222.92 | 13.54 |
| | 3.94 | HCG5004 | | | 445.85 | 15.51 |
| | 5.91 | HCG5006 | | | 668.77 | 17.48 |
| | 7.87 | HCG5008 | | | 891.70 | 19.45 |
| | 9.84 | HCG50010 | | | 1,114.62 | 21.42 |
| | 11.81 | HCG50012 | | | 1,337.55 | 23.39 |
| 600 | 1.97 | HCG6002 | 673 | 132.57 | 260.97 | 13.86 |
| | 3.94 | HCG6004 | | | 521.94 | 15.83 |
| | 5.91 | HCG6006 | | | 782.90 | 17.80 |
| | 7.87 | HCG6008 | | | 1,043.87 | 19.76 |
| | 9.84 | HCG60010 | | | 1,304.84 | 21.73 |
| | 11.81 | HCG60012 | | | 1,565.81 | 23.70 |
| 800 | 1.97 | HCG8002 | 916 | 180.44 | 355.21 | 15.91 |
| | 3.94 | HCG8004 | | | 710.41 | 17.87 |
| | 5.91 | HCG8006 | | | 1,065.62 | 19.84 |
| | 7.87 | HCG8008 | | | 1,420.82 | 21.81 |
| | 9.84 | HCG80010 | | | 1,776.03 | 23.78 |
| | 11.81 | HCG80012 | | | 2,131.24 | 25.75 |
| 1000 | 1.97 | HCG10002 | 1196 | 235.68 | 463.94 | 17.40 |
| | 3.94 | HCG10004 | | | 927.88 | 19.37 |
| | 5.91 | HCG10006 | | | 1,391.83 | 21.34 |
| | 7.87 | HCG10008 | | | 1,855.77 | 23.31 |
| | 9.84 | HCG100010 | | | 2,319.71 | 25.28 |
| | 11.81 | HCG100012 | | | 2,783.65 | 27.24 |

**Collar Thread** (in)

| Model / Capacity (ton) | Thread Size W | Thread Length X |
|---|---|---|
| HCG400 | M350 x 3 | 3.27 |
| HCG500 | M400 x 4 | 3.54 |
| HCG600 | M430 x 4 | 3.94 |
| HCG800 | M505 x 5 | 4.80 |
| HCG1000 | M570 x 5 | 5.39 |

Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "**E002**"to model number. Example: **HCG4006E002**. The collar thread length is designed for the full rated cylinder capacity.

**Base Mounting Holes** (in)

| Model / Capacity (ton) | Bolt Circle U | Thread Size V | Minimum Thread Depth Z | Number of Holes | Angle from Coupler |
|---|---|---|---|---|---|
| HCG400 | 11.81 | M16 x 2 | 0.98 | 3 | 60° |
| HCG500 | 13.39 | M24 x 3 | 1.42 | 3 | 60° |
| HCG600 | 14.57 | M24 x 3 | 1.42 | 3 | 60° |
| HCG800 | 17.32 | M24 x 3 | 1.42 | 3 | 60° |
| HCG1000 | 19.69 | M24 x 3 | 1.42 | 3 | 60° |



▲ *Offshore wind turbine leveling: Enerpac's synchronous lifting system was the solution for leveling support cross pieces on 80 wind turbines.*

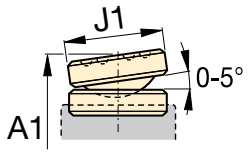
## HCG Series



Capacity:
**400 - 1000 ton**

Stroke:
**1.97 - 11.81 inches**

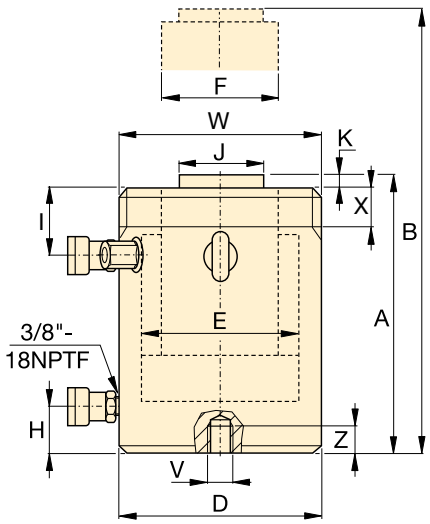
Maximum Operating Pressure:
**10,150 psi**

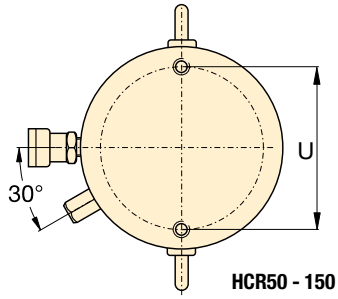



**CATS-Series Tilt Saddle**

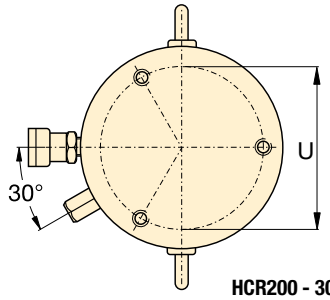
| Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Standard Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Weight (lbs) | Model Number | Optional Tilt Saddle: Saddle Diameter J1 (in) | Optional Tilt Saddle: Collap. Height* A1 (in) | Optional Tilt Saddle: Saddle Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14.61 | 13.78 | 10.63 | 8.66 | 2.91 | 6.26 | 0.16 | 500 | HCG4002 | 8.27 | 14.53 | CATS400 |
| 18.54 | | | | | | | 566 | HCG4004 | | 16.50 | |
| 22.48 | | | | | | | 633 | HCG4006 | | 18.46 | |
| 26.42 | | | | | | | 699 | HCG4008 | | 20.43 | |
| 30.35 | | | | | | | 766 | HCG40010 | | 22.40 | |
| 34.29 | | | | | | | 833 | HCG40012 | | 24.37 | |
| 15.51 | 15.75 | 12.01 | 9.84 | 3.11 | 7.05 | 0.16 | 704 | HCG5002 | 9.06 | 15.43 | CATS500 |
| 19.45 | | | | | | | 792 | HCG5004 | | 17.40 | |
| 23.39 | | | | | | | 880 | HCG5006 | | 19.37 | |
| 27.32 | | | | | | | 968 | HCG5008 | | 21.34 | |
| 31.26 | | | | | | | 1,056 | HCG50010 | | 23.31 | |
| 35.20 | | | | | | | 1,144 | HCG50012 | | 25.28 | |
| 15.83 | 16.93 | 12.99 | 10.63 | 3.35 | 7.64 | 0.16 | 834 | HCG6002 | 9.84 | 15.94 | CATS600 |
| 19.76 | | | | | | | 935 | HCG6004 | | 17.91 | |
| 23.70 | | | | | | | 1,036 | HCG6006 | | 19.88 | |
| 27.64 | | | | | | | 1,137 | HCG6008 | | 21.85 | |
| 31.57 | | | | | | | 1,239 | HCG60010 | | 23.82 | |
| 35.51 | | | | | | | 1,340 | HCG60012 | | 25.79 | |
| 17.87 | 19.88 | 15.16 | 12.60 | 3.94 | 8.82 | 0.16 | 1,336 | HCG8002 | 10.83 | 18.15 | CATG800 |
| 21.81 | | | | | | | 1,479 | HCG8004 | | 20.12 | |
| 25.75 | | | | | | | 1,621 | HCG8006 | | 22.00 | |
| 29.69 | | | | | | | 1,763 | HCG8008 | | 24.00 | |
| 33.62 | | | | | | | 1,905 | HCG80010 | | 26.00 | |
| 37.56 | | | | | | | 2,047 | HCG80012 | | 28.00 | |
| 19.37 | 22.44 | 17.32 | 13.39 | 4.49 | 9.80 | 0.16 | 1,852 | HCG10002 | 11.81 | 20.43 | CATS1000 |
| 23.31 | | | | | | | 2,020 | HCG10004 | | 22.40 | |
| 27.24 | | | | | | | 2,188 | HCG10006 | | 24.37 | |
| 31.18 | | | | | | | 2,355 | HCG10008 | | 26.34 | |
| 35.12 | | | | | | | 2,523 | HCG100010 | | 28.31 | |
| 39.06 | | | | | | | 2,691 | HCG100012 | | 30.28 | |

* A1 = Collapsed height including CATS-Series tilt saddle..




HCR50 - 150 ton




HCR200 - 300 ton

## HCR-Series, Double-Acting Cylinders

- **Fast advance and retract**
- **Designed to withstand up to 10% side-load of maximum capacity [1)]**
- **Hardened surface resists side-loading and cyclic wear**
- **Weather protected, inside and out**
- **Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke**
- **Certified lifting eyes, base mounting holes and collar threads**
- **Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher**

**SELECTION CHART AND DETAILS OF 50 – 300-TON HCR-MODELS**

For 400 – 1000-ton models, see pages 54-55.
For full product features see pages 44-45

| Cylinder Capacity (ton) | Stroke (in) | Model Number | Maximum Cylinder Capacity at 10,150 psi (ton) | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height A (in) |
|---|---|---|---|---|---|---|
| 50 | 1.97 | HCR502 | 62 | 12.17 | 23.96 | 7.20 |
| | 3.94 | HCR504 | | | 47.93 | 9.17 |
| | 5.91 | HCR506 [1)] | | | 71.89 | 11.14 |
| | 7.87 | HCR508 | | | 95.86 | 13.62 |
| | 9.84 | HCR5010 | | | 119.82 | 15.59 |
| | 11.81 | HCR5012 [1)] | | | 143.78 | 17.56 |
| 100 | 1.97 | HCR1002 | 113 | 22.19 | 43.67 | 7.95 |
| | 3.94 | HCR1004 | | | 87.35 | 9.92 |
| | 5.91 | HCR1006 | | | 131.02 | 11.89 |
| | 7.87 | HCR1008 | | | 174.70 | 14.92 |
| | 9.84 | HCR10010 | | | 218.37 | 16.89 |
| | 11.81 | HCR10012 | | | 262.05 | 18.86 |
| 150 | 1.97 | HCR1502 | 168 | 33.14 | 65.24 | 8.66 |
| | 3.94 | HCR1504 | | | 130.48 | 10.63 |
| | 5.91 | HCR1506 | | | 195.73 | 12.60 |
| | 7.87 | HCR1508 | | | 260.97 | 15.63 |
| | 9.84 | HCR15010 | | | 326.21 | 17.60 |
| | 11.81 | HCR15012 | | | 391.45 | 19.57 |
| 200 | 1.97 | HCR2002 | 223 | 43.95 | 86.51 | 9.09 |
| | 3.94 | HCR2004 | | | 173.02 | 11.06 |
| | 5.91 | HCR2006 | | | 259.53 | 13.03 |
| | 7.87 | HCR2008 | | | 346.04 | 16.06 |
| | 9.84 | HCR20010 | | | 432.55 | 18.03 |
| | 11.81 | HCR20012 | | | 519.06 | 20.00 |
| 250 | 1.97 | HCR2502 | 286 | 56.27 | 110.77 | 9.49 |
| | 3.94 | HCR2504 | | | 221.55 | 11.46 |
| | 5.91 | HCR2506 | | | 332.32 | 13.43 |
| | 7.87 | HCR2508 | | | 443.09 | 16.97 |
| | 9.84 | HCR25010 | | | 553.87 | 18.94 |
| | 11.81 | HCR25012 | | | 664.64 | 20.91 |
| 300 | 1.97 | HCR3002 | 341 | 67.23 | 132.34 | 11.65 |
| | 3.94 | HCR3004 | | | 264.68 | 13.62 |
| | 5.91 | HCR3006 | | | 397.02 | 15.59 |
| | 7.87 | HCR3008 | | | 529.36 | 17.56 |
| | 9.84 | HCR30010 | | | 661.71 | 19.53 |
| | 11.81 | HCR30012 | | | 794.05 | 21.50 |

[1)] HCR506 and HCR5012: 7% side-load of maximum capacity.

**Collar Thread*** (in)

| Model / Capacity (ton) | Thread Size W | Thread Length X |
|---|---|---|
| HCR50 | M130 x 2 | 1.18 |
| HCR100 | M175 x 3 | 1.81 |
| HCR150 | M215 x 3 | 2.17 |
| HCR200 | M250 x 3 | 2.48 |
| HCR250 | M280 x 3 | 2.52 |
| HCR300* | M305 x 3 | 2.87 |

* Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "**E002**"to model number. Example: **HCR3006E002**. The collar thread length is designed for the full rated cylinder capacity.

**Base Mounting Holes** (in)

| Model / Capacity (ton) | Bolt Circle U | Thread Size V | Minimum Thread Depth Z | No. of Holes | Angle from Coupler |
|---|---|---|---|---|---|
| HCR50 | 4.13 | M12 x 1,75 | 0.87 | 2 | 90° |
| HCR100 | 5.91 | M12 x 1,75 | 0.87 | 2 | 90° |
| HCR150 | 7.28 | M12 x 1,75 | 0.87 | 2 | 90° |
| HCR200 | 8.46 | M12 x 1,75 | 0.87 | 3 | 60° |
| HCR250 | 9.65 | M12 x 1,75 | 0.87 | 3 | 60° |
| HCR300 | 10.24 | M16 x 2 | 0.98 | 3 | 60° |

# Double-Acting, High-Tonnage Cylinders

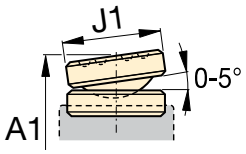
Capacity:
**50 - 300 ton**

Stroke:
**1.97 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**

**HCR Series**





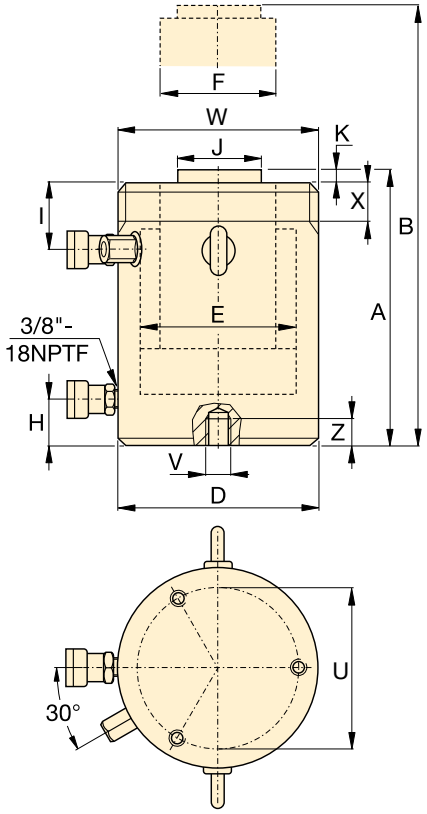

**CATS-Series Tilt Saddle**

| Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Top to Retract Port I (in) | Standard Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Retract Oil Volume ($in^3$) | Weight (lbs) | Model Number | Optional Tilt Saddle: Saddle Diameter J1 (in) | Optional Tilt Saddle: Collap. Height* A1 (in) | Optional Tilt Saddle: Saddle Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.17 | 5.12 | 3.94 | 2.76 | 1.50 | 1.77 | 1.97 | 0.12 | 12.22 | 37 | **HCR502** | 2.80 | 7.75 | **CATS50** |
| 13.11 | | | | | | | | 24.44 | 46 | **HCR504** | | 9.72 | |
| 17.05 | | | | | | | | 36.66 | 54 | **HCR506** [1)] | | 11.69 | |
| 21.50 | | | | | 2.17 | | | 48.89 | 68 | **HCR508** | | 14.17 | |
| 25.43 | | | | | | | | 61.11 | 76 | **HCR5010** | | 16.14 | |
| 29.37 | | | | | | | | 73.33 | 84 | **HCR5012** [1)] | | 18.11 | |
| 9.92 | 6.89 | 5.31 | 3.74 | 1.50 | 2.56 | 2.95 | 0.12 | 22.05 | 74 | **HCR1002** | 2.80 | 8.35 | **CATS101** |
| 13.86 | | | | | | | | 44.09 | 90 | **HCR1004** | | 10.31 | |
| 17.80 | | | | | | | | 66.14 | 105 | **HCR1006** | | 12.28 | |
| 22.80 | | | | | 3.15 | | | 88.19 | 131 | **HCR1008** | | 15.31 | |
| 26.73 | | | | | | | | 110.23 | 146 | **HCR10010** | | 17.28 | |
| 30.67 | | | | | | | | 132.28 | 161 | **HCR10012** | | 19.25 | |
| 10.63 | 8.46 | 6.50 | 4.72 | 1.61 | 2.76 | 3.70 | 0.12 | 30.73 | 124 | **HCR1502** | 3.82 | 9.41 | **CATS150** |
| 14.57 | | | | | | | | 61.47 | 148 | **HCR1504** | | 11.38 | |
| 18.50 | | | | | | | | 92.20 | 172 | **HCR1506** | | 13.35 | |
| 23.50 | | | | | 3.54 | | | 122.94 | 209 | **HCR1508** | | 16.38 | |
| 27.44 | | | | | | | | 153.67 | 233 | **HCR15010** | | 18.35 | |
| 31.38 | | | | | | | | 184.40 | 257 | **HCR15012** | | 20.31 | |
| 11.06 | 9.84 | 7.48 | 5.51 | 1.85 | 3.11 | 4.45 | 0.12 | 39.54 | 179 | **HCR2002** | 4.96 | 9.80 | **CATS200** |
| 15.00 | | | | | | | | 79.08 | 212 | **HCR2004** | | 11.77 | |
| 18.94 | | | | | | | | 118.62 | 244 | **HCR2006** | | 13.74 | |
| 23.94 | | | | | 3.82 | | | 158.16 | 306 | **HCR2008** | | 16.77 | |
| 27.87 | | | | | | | | 197.70 | 338 | **HCR20010** | | 18.74 | |
| 31.81 | | | | | | | | 237.24 | 371 | **HCR20012** | | 20.71 | |
| 11.46 | 11.02 | 8.46 | 6.69 | 2.09 | 3.11 | 5.51 | 0.16 | 41.52 | 236 | **HCR2502** | 6.89 | 11.00 | **CATS300** |
| 15.39 | | | | | | | | 83.04 | 279 | **HCR2504** | | 13.00 | |
| 19.33 | | | | | | | | 124.55 | 322 | **HCR2506** | | 14.96 | |
| 24.84 | | | | | 4.09 | | | 166.07 | 407 | **HCR2508** | | 18.50 | |
| 28.78 | | | | | | | | 207.59 | 457 | **HCR25010** | | 20.47 | |
| 32.72 | | | | | | | | 249.11 | 500 | **HCR25012** | | 22.44 | |
| 13.62 | 12.01 | 9.25 | 7.87 | 2.28 | 3.98 | 5.51 | 0.16 | 36.49 | 350 | **HCR3002** | 6.89 | 13.19 | **CATS300** |
| 17.56 | | | | | | | | 72.97 | 404 | **HCR3004** | | 15.16 | |
| 21.50 | | | | | | | | 109.46 | 458 | **HCR3006** | | 17.13 | |
| 25.43 | | | | | | | | 145.94 | 512 | **HCR3008** | | 19.00 | |
| 29.37 | | | | | | | | 182.43 | 566 | **HCR30010** | | 21.00 | |
| 33.31 | | | | | | | | 218.91 | 620 | **HCR30012** | | 23.00 | |

* A1 = Collapsed height including CATS-Series tilt saddle.

## HCR-Series, Double-Acting Cylinders

- **Fast advance and retract**
- **Designed to withstand up to 10% side-load of maximum capacity**
- **Hardened surface resists side-loading and cyclic wear**
- **Weather protected, inside and out**
- **Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke**
- **Certified lifting eyes, base mounting holes and collar threads**
- **Optional collar threads on 300 ton models and higher capacities**




**SELECTION CHART AND DETAILS OF 400 – 1000-TON HCR-MODELS**
For 50 – 300-ton models, see pages 52-53.
For full product features see pages 44-45.

| Cylinder Capacity (ton) | Stroke (in) | Model Number | Maximum Cylinder Capacity at 10,150 psi (ton) | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height A (in) |
|---|---|---|---|---|---|---|
| 400 | 1.97 | HCR4002 | 450 | 88.75 | 174.70 | 12.64 |
| | 3.94 | HCR4004 | | | 349.39 | 14.61 |
| | 5.91 | HCR4006 | | | 524.09 | 16.57 |
| | 7.87 | HCR4008 | | | 698.79 | 18.54 |
| | 9.84 | HCR40010 | | | 873.49 | 20.51 |
| | 11.81 | HCR40012 | | | 1,048.18 | 22.48 |
| 500 | 1.97 | HCR5002 | 575 | 113.25 | 222.92 | 13.54 |
| | 3.94 | HCR5004 | | | 445.85 | 15.51 |
| | 5.91 | HCR5006 | | | 668.77 | 17.48 |
| | 7.87 | HCR5008 | | | 891.70 | 19.45 |
| | 9.84 | HCR50010 | | | 1,114.62 | 21.42 |
| | 11.81 | HCR50012 | | | 1,337.55 | 23.39 |
| 600 | 1.97 | HCR6002 | 673 | 132.57 | 260.97 | 13.86 |
| | 3.94 | HCR6004 | | | 521.94 | 15.83 |
| | 5.91 | HCR6006 | | | 782.90 | 17.80 |
| | 7.87 | HCR6008 | | | 1,043.87 | 19.76 |
| | 9.84 | HCR60010 | | | 1,304.84 | 21.73 |
| | 11.81 | HCR60012 | | | 1,565.81 | 23.70 |
| 800 | 1.97 | HCR8002 | 916 | 180.44 | 355.21 | 15.91 |
| | 3.94 | HCR8004 | | | 710.41 | 17.87 |
| | 5.91 | HCR8006 | | | 1,065.62 | 19.84 |
| | 7.87 | HCR8008 | | | 1,420.82 | 21.81 |
| | 9.84 | HCR80010 | | | 1,776.03 | 23.78 |
| | 11.81 | HCR80012 | | | 2,131.24 | 25.75 |
| 1000 | 1.97 | HCR10002 | 1196 | 235.68 | 463.94 | 17.40 |
| | 3.94 | HCR10004 | | | 927.88 | 19.37 |
| | 5.91 | HCR10006 | | | 1,391.83 | 21.34 |
| | 7.87 | HCR10008 | | | 1,855.77 | 23.31 |
| | 9.84 | HCR100010 | | | 2,319.71 | 25.28 |
| | 11.81 | HCR100012 | | | 2,783.65 | 27.24 |

**Collar Thread** (in)

| Model / Capacity (ton) | Thread Size W | Thread Length X |
|---|---|---|
| HCR400 | M350 x 3 | 3.27 |
| HCR500 | M400 x 4 | 3.54 |
| HCR600 | M430 x 4 | 3.94 |
| HCR800 | M505 x 5 | 4.80 |
| HCR1000 | M570 x 5 | 5.39 |

Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "**E002**"to model number. Example: **HCR4006E002**. The collar thread length is designed for the full rated cylinder capacity.

**Base Mounting Holes** (in)

| Model / Capacity (ton) | Bolt Circle U | Thread Size V | Min. Thread Depth Z | Number of Holes | Angle from Coupler |
|---|---|---|---|---|---|
| HCR400 | 11.81 | M16 x 2 | 0.98 | 3 | 60° |
| HCR500 | 13.39 | M24 x 3 | 1.42 | 3 | 60° |
| HCR600 | 14.57 | M24 x 3 | 1.42 | 3 | 60° |
| HCR800 | 17.32 | M24 x 3 | 1.42 | 3 | 60° |
| HCR1000 | 19.69 | M24 x 3 | 1.42 | 3 | 60° |



▲ *The superlifting and launch of a 43,000-ton floating oil production system in Malaysia for the Gumusut-Kakap offshore field has set high benchmarks for safety through its use of sophisticated EVO-Series synchronous hydraulics to lift, balance, weigh and smoothly launch massive resource structures.*

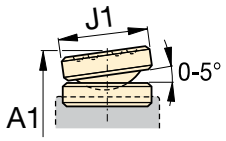
## HCR Series



Capacity:
**400 - 1000 ton**

Stroke:
**1.97 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**



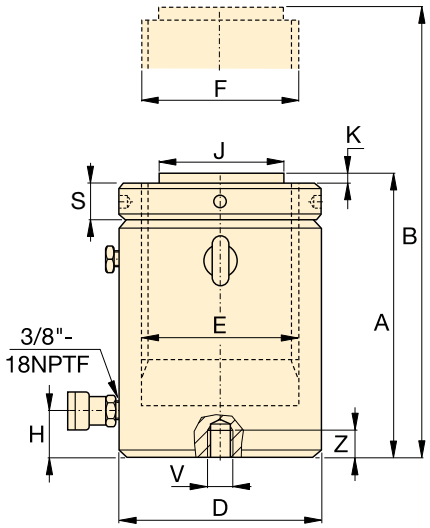

**CATS-Series Tilt Saddle**

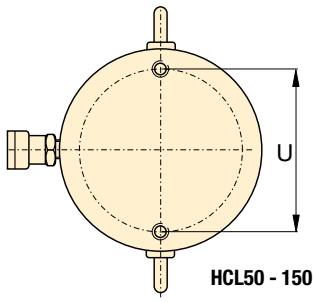
| Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (in) | Base to Advance Port H (in) | Top to Retract Port I (in) | Standard Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Retract Oil Volume ($in^3$) | Weight (lbs) | Model Number | Optional Tilt Saddle: Saddle Diameter J1 (in) | Optional Tilt Saddle: Collap. Height* A1 (in) | Optional Tilt Saddle: Saddle Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14.61 | 13.78 | 10.63 | 8.66 | 2.91 | 4.37 | 6.26 | 0.16 | 58.71 | 501 | **HCR4002** | 8.27 | 14.53 | **CATS400** |
| 18.54 | | | | | | | | 117.42 | 570 | **HCR4004** | | 16.50 | |
| 22.48 | | | | | | | | 176.14 | 638 | **HCR4006** | | 18.46 | |
| 26.42 | | | | | | | | 234.85 | 707 | **HCR4008** | | 20.43 | |
| 30.35 | | | | | | | | 293.56 | 775 | **HCR40010** | | 22.40 | |
| 34.29 | | | | | | | | 352.27 | 843 | **HCR40012** | | 24.37 | |
| 15.51 | 15.75 | 12.01 | 9.84 | 3.11 | 4.76 | 7.05 | 0.16 | 73.15 | 706 | **HCR5002** | 9.06 | 15.43 | **CATS500** |
| 19.45 | | | | | | | | 146.30 | 797 | **HCR5004** | | 17.40 | |
| 23.39 | | | | | | | | 219.45 | 887 | **HCR5006** | | 19.37 | |
| 27.32 | | | | | | | | 292.60 | 977 | **HCR5008** | | 21.34 | |
| 31.26 | | | | | | | | 365.75 | 1,067 | **HCR50010** | | 23.31 | |
| 35.20 | | | | | | | | 438.90 | 1,158 | **HCR50012** | | 25.28 | |
| 15.83 | 16.93 | 12.99 | 10.63 | 3.35 | 4.76 | 7.64 | 0.16 | 86.27 | 836 | **HCR6002** | 9.84 | 15.94 | **CATS600** |
| 19.76 | | | | | | | | 172.54 | 940 | **HCR6004** | | 17.91 | |
| 23.70 | | | | | | | | 258.81 | 1,044 | **HCR6006** | | 19.88 | |
| 27.64 | | | | | | | | 345.08 | 1,148 | **HCR6008** | | 21.85 | |
| 31.57 | | | | | | | | 431.35 | 1,252 | **HCR60010** | | 23.82 | |
| 35.51 | | | | | | | | 517.62 | 1,356 | **HCR60012** | | 25.79 | |
| 17.87 | 19.88 | 15.16 | 12.60 | 3.94 | 5.63 | 8.82 | 0.16 | 109.81 | 1,340 | **HCR8002** | 10.83 | 18.15 | **CATS800** |
| 21.81 | | | | | | | | 219.63 | 1,485 | **HCR8004** | | 20.12 | |
| 25.75 | | | | | | | | 329.44 | 1,631 | **HCR8006** | | 22.00 | |
| 29.69 | | | | | | | | 439.26 | 1,777 | **HCR8008** | | 24.00 | |
| 33.62 | | | | | | | | 549.07 | 1,922 | **HCR80010** | | 26.00 | |
| 37.56 | | | | | | | | 658.89 | 2,068 | **HCR80012** | | 28.00 | |
| 19.37 | 22.44 | 17.32 | 13.39 | 4.49 | 6.02 | 9.80 | 0.16 | 186.92 | 1,858 | **HCR10002** | 11.81 | 20.43 | **CATS1000** |
| 23.31 | | | | | | | | 373.84 | 2,031 | **HCR10004** | | 22.40 | |
| 27.24 | | | | | | | | 560.76 | 2,205 | **HCR10006** | | 24.37 | |
| 31.18 | | | | | | | | 747.68 | 2,379 | **HCR10008** | | 26.34 | |
| 35.12 | | | | | | | | 934.59 | 2,552 | **HCR100010** | | 28.31 | |
| 39.06 | | | | | | | | 1121.51 | 2,726 | **HCR100012** | | 30.28 | |

* A1 = Collapsed height including CATS-Series tilt saddle.

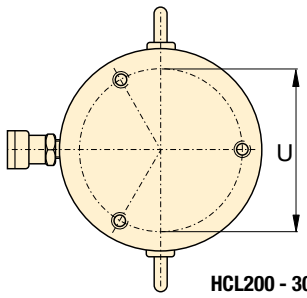
**HCL-Series, Single-Acting, Load-Return Cylinders**

- **Lock nut provides positive and safe mechanical load holding**
- **Low-friction locking rings spin easy, save time and effort**
- **Designed to withstand 10% side-load up to 90% of maximum stroke**
- **Hardened surface resists side-loading and cyclic wear**
- **Overflow port as stroke limiter to prevent plunger blow-out**
- **Weather protected, inside and out**
- **Replaceable bearings enclose the plunger for support throughout the stroke**
- **Certified lifting eyes and base mounting holes**




**HCL50 - 150 ton**




**HCL200 - 300 ton**

| **Base Mounting Holes** (in) | | | | | |
|---|---|---|---|---|---|
| **Model / Capacity** (ton) | Bolt Circle U | Thread Size V | Minimum Thread Depth Z | Number of Holes | Angle from Coupler |
| **HCL50** | 4.13 | M8X1.25 | 0.39 | 2 | 90° |
| **HCL100** | 5.91 | M12X1.75 | 0.67 | 2 | 90° |
| **HCL150** | 7.28 | M12X1.75 | 0.87 | 2 | 90° |
| **HCL200** | 8.46 | M12X1.75 | 0.87 | 3 | 60° |
| **HCL250** | 9.65 | M12X1.75 | 0.87 | 3 | 60° |
| **HCL300** | 10.24 | M16X2 | 0.98 | 3 | 60° |

**SELECTION CHART 50 – 300-TON HCL-MODELS**

For 400 – 1000-ton models, see pages 58-59.
For full product features see pages 44-45.

| **Cylinder Capacity** (ton) | **Stroke** (in) | **Model Number** | **Maximum Cylinder Capacity at 10,150 psi** (ton) | **Cylinder Effective Area** ($in^2$) | **Oil Capacity** ($in^3$) | **Collapsed Height** A (in) |
|---|---|---|---|---|---|---|
| **50** | 1.97 | **HCL502** | 62 | 12.17 | 23.96 | 6.46 |
| | 3.94 | **HCL504** | | | 47.93 | 8.43 |
| | 5.91 | **HCL506** | | | 71.89 | 10.39 |
| | 7.87 | **HCL508** | | | 95.86 | 12.36 |
| | 9.84 | **HCL5010** | | | 119.82 | 14.33 |
| | 11.81 | **HCL5012** | | | 143.78 | 16.30 |
| **100** | 1.97 | **HCL1002** | 113 | 22.19 | 43.67 | 7.36 |
| | 3.94 | **HCL1004** | | | 87.35 | 9.33 |
| | 5.91 | **HCL1006** | | | 131.02 | 11.30 |
| | 7.87 | **HCL1008** | | | 174.70 | 13.27 |
| | 9.84 | **HCL10010** | | | 218.37 | 15.24 |
| | 11.81 | **HCL10012** | | | 262.05 | 17.20 |
| **150** | 1.97 | **HCL1502** | 168 | 33.14 | 65.24 | 8.23 |
| | 3.94 | **HCL1504** | | | 130.48 | 10.20 |
| | 5.91 | **HCL1506** | | | 195.73 | 12.17 |
| | 7.87 | **HCL1508** | | | 260.97 | 14.13 |
| | 9.84 | **HCL15010** | | | 326.21 | 16.10 |
| | 11.81 | **HCL15012** | | | 391.45 | 18.07 |
| **200** | 1.97 | **HCL2002** | 223 | 43.95 | 86.51 | 9.37 |
| | 3.94 | **HCL2004** | | | 173.02 | 11.34 |
| | 5.91 | **HCL2006** | | | 259.53 | 13.31 |
| | 7.87 | **HCL2008** | | | 346.04 | 15.28 |
| | 9.84 | **HCL20010** | | | 432.55 | 17.24 |
| | 11.81 | **HCL20012** | | | 519.06 | 19.21 |
| **250** | 1.97 | **HCL2502** | 286 | 56.27 | 110.77 | 9.80 |
| | 3.94 | **HCL2504** | | | 221.55 | 11.77 |
| | 5.91 | **HCL2506** | | | 332.32 | 13.74 |
| | 7.87 | **HCL2508** | | | 443.09 | 15.71 |
| | 9.84 | **HCL25010** | | | 553.87 | 17.68 |
| | 11.81 | **HCL25012** | | | 664.64 | 19.65 |
| **300** | 1.97 | **HCL3002** | 341 | 67.23 | 132.34 | 10.94 |
| | 3.94 | **HCL3004** | | | 264.68 | 12.91 |
| | 5.91 | **HCL3006** | | | 397.02 | 14.88 |
| | 7.87 | **HCL3008** | | | 529.36 | 16.85 |
| | 9.84 | **HCL30010** | | | 661.71 | 18.82 |
| | 11.81 | **HCL30012** | | | 794.05 | 20.79 |

# Single-Acting, High-Tonnage Lock Nut Cylinders

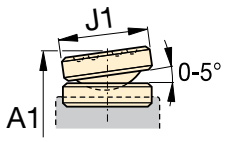
Capacity:
**50 - 300 ton**

Stroke:
**1.97 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**

**HCL Series**





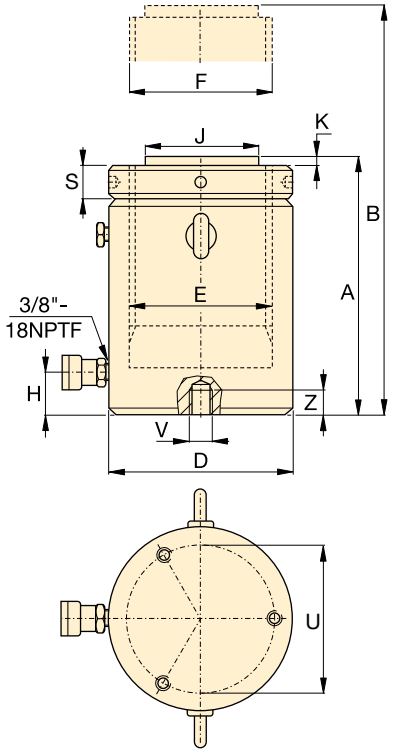

**CATS-Series Tilt Saddle**

| Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (mm) | Base to Advance Port H (in) | Standard Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Lock Nut Height S (in) | Weight (lbs) | Model Number | Optional Tilt Saddle | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Saddle Diameter J1 (in) | Collap. Height* A1 (in) | Saddle Model Number |
| 8.43 | 5.12 | 3.94 | Tr 100 x 4 | 0.94 | 2.80 | 0.08 | 0.98 | 37 | HCL502 | 2.80 | 7.05 | CATS100 |
| 12.36 | | | | | | | | 48 | HCL504 | | 9.02 | |
| 16.30 | | | | | | | | 60 | HCL506 | | 10.98 | |
| 20.24 | | | | | | | | 71 | HCL508 | | 12.95 | |
| 24.17 | | | | | | | | 83 | HCL5010 | | 14.92 | |
| 28.11 | | | | | | | | 94 | HCL5012 | | 16.89 | |
| 9.33 | 6.89 | 5.31 | Tr 135 x 6 | 1.30 | 2.80 | 0.08 | 1.30 | 77 | HCL1002 | 2.80 | 7.95 | CATS100 |
| 13.27 | | | | | | | | 98 | HCL1004 | | 9.92 | |
| 17.20 | | | | | | | | 118 | HCL1006 | | 11.89 | |
| 21.14 | | | | | | | | 139 | HCL1008 | | 13.86 | |
| 25.08 | | | | | | | | 160 | HCL10010 | | 15.83 | |
| 29.02 | | | | | | | | 181 | HCL10012 | | 17.80 | |
| 10.20 | 8.46 | 6.50 | Tr 165 x 6 | 1.61 | 5.12 | 0.08 | 1.57 | 130 | HCL1502 | 4.96 | 8.86 | CATS201 |
| 14.13 | | | | | | | | 161 | HCL1504 | | 10.83 | |
| 18.07 | | | | | | | | 192 | HCL1506 | | 12.80 | |
| 22.01 | | | | | | | | 224 | HCL1508 | | 14.76 | |
| 25.94 | | | | | | | | 255 | HCL15010 | | 16.73 | |
| 29.88 | | | | | | | | 287 | HCL15012 | | 18.70 | |
| 11.34 | 9.84 | 7.48 | Tr 190 x 6 | 1.85 | 5.12 | 0.08 | 1.77 | 188 | HCL2002 | 4.96 | 10.00 | CATS201 |
| 15.28 | | | | | | | | 231 | HCL2004 | | 11.97 | |
| 19.21 | | | | | | | | 273 | HCL2006 | | 13.94 | |
| 23.15 | | | | | | | | 316 | HCL2008 | | 15.91 | |
| 27.09 | | | | | | | | 358 | HCL20010 | | 17.87 | |
| 31.02 | | | | | | | | 401 | HCL20012 | | 19.84 | |
| 11.77 | 11.02 | 8.46 | Tr 215 x 6 | 2.09 | 5.51 | 0.08 | 2.05 | 262 | HCL2502 | 6.89 | 11.34 | CATS300 |
| 15.71 | | | | | | | | 316 | HCL2504 | | 13.31 | |
| 19.65 | | | | | | | | 369 | HCL2506 | | 15.28 | |
| 23.58 | | | | | | | | 422 | HCL2508 | | 17.24 | |
| 27.52 | | | | | | | | 476 | HCL25010 | | 19.21 | |
| 31.46 | | | | | | | | 529 | HCL25012 | | 21.18 | |
| 12.91 | 12.01 | 9.25 | Tr 235 x 6 | 2.28 | 5.51 | 0.08 | 2.20 | 348 | HCL3002 | 6.89 | 12.48 | CATS300 |
| 16.85 | | | | | | | | 411 | HCL3004 | | 14.45 | |
| 20.79 | | | | | | | | 474 | HCL3006 | | 16.42 | |
| 24.72 | | | | | | | | 537 | HCL3008 | | 18.39 | |
| 28.66 | | | | | | | | 601 | HCL30010 | | 20.35 | |
| 32.60 | | | | | | | | 664 | HCL30012 | | 22.32 | |

* A1 = Collapsed height including CATS-Series tilt saddle.

## HCL-Series, Single-Acting, Load Return Cylinders

- **Lock nut provides positive and safe mechanical load holding**
- **Low-friction locking rings spin easy, save time and effort**
- **Designed to withstand 10% side-load up to 90% of maximum stroke**
- **Hardened surface resists side-loading and cyclic wear**
- **Overflow port as stroke limiter to prevent plunger blow-out**
- **Weather protected, inside and out**
- **Replaceable bearings enclose the plunger for support throughout the stroke**
- **Certified lifting eyes and base mounting holes**




**SELECTION CHART 400 – 1000-TON HCL-MODELS**
For 50 – 300-ton models, see pages 56-57.
For full product features see pages 44-45.

| Cylinder Capacity (ton) | Stroke (in) | Model Number | Maximum Cylinder Capacity at 10,150 psi (ton) | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Collapsed Height A (in) |
|---|---|---|---|---|---|---|
| **400** | 1.97 | **HCL4002** | 450 | 88.75 | 174.70 | 12.48 |
| | 3.94 | **HCL4004** | | | 349.39 | 14.45 |
| | 5.91 | **HCL4006** | | | 524.09 | 16.42 |
| | 7.87 | **HCL4008** | | | 698.79 | 18.39 |
| | 9.84 | **HCL40010** | | | 873.49 | 20.35 |
| | 11.81 | **HCL40012** | | | 1,048.18 | 22.32 |
| **500** | 1.97 | **HCL5002** | 575 | 113.25 | 222.92 | 14.06 |
| | 3.94 | **HCL5004** | | | 445.85 | 16.02 |
| | 5.91 | **HCL5006** | | | 668.77 | 17.99 |
| | 7.87 | **HCL5008** | | | 891.70 | 19.96 |
| | 9.84 | **HCL50010** | | | 1,114.62 | 21.93 |
| | 11.81 | **HCL50012** | | | 1,337.55 | 23.90 |
| **600** | 1.97 | **HCL6002** | 673 | 132.57 | 260.97 | 14.96 |
| | 3.94 | **HCL6004** | | | 521.94 | 16.93 |
| | 5.91 | **HCL6006** | | | 782.90 | 18.90 |
| | 7.87 | **HCL6008** | | | 1,043.87 | 20.87 |
| | 9.84 | **HCL60010** | | | 1,304.84 | 22.83 |
| | 11.81 | **HCL60012** | | | 1,565.81 | 24.80 |
| **800** | 1.97 | **HCL8002** | 916 | 180.44 | 355.21 | 16.93 |
| | 3.94 | **HCL8004** | | | 710.41 | 18.90 |
| | 5.91 | **HCL8006** | | | 1,065.62 | 20.87 |
| | 7.87 | **HCL8008** | | | 1,420.82 | 22.83 |
| | 9.84 | **HCL80010** | | | 1,776.03 | 24.80 |
| | 11.81 | **HCL80012** | | | 2,131.24 | 26.77 |
| **1000** | 1.97 | **HCL10002** | 1196 | 235.68 | 463.94 | 19.06 |
| | 3.94 | **HCL10004** | | | 927.88 | 21.02 |
| | 5.91 | **HCL10006** | | | 1,391.83 | 22.99 |
| | 7.87 | **HCL10008** | | | 1,855.77 | 24.96 |
| | 9.84 | **HCL100010** | | | 2,319.71 | 26.93 |
| | 11.81 | **HCL100012** | | | 2,783.65 | 28.90 |

**Base Mounting Holes** (in)

| Model / Capacity (ton) | Bolt Circle U | Thread Size V | Minimum Thread Depth Z | Number of Holes | Angle from Coupler |
|---|---|---|---|---|---|
| **HCL400** | 11.81 | M16 x 2 | 0.95 | 3 | 60˚ |
| **HCL500** | 13.39 | M24 x 3 | 1.42 | 3 | 60˚ |
| **HCL600** | 14.57 | M24 x 3 | 1.42 | 3 | 60˚ |
| **HCL800** | 17.32 | M24 x 3 | 1.42 | 3 | 60˚ |
| **HCL1000** | 19.69 | M24 x 3 | 1.42 | 3 | 60˚ |

# Single-Acting, High Tonnage, Lock Nut Cylinders




▲ *Heavy lifting and foundation levelling. The lock nut provides mechanical load holding over a long period of time.*

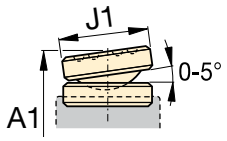
**HCL Series**



Capacity:
**400 - 1000 ton**

Stroke:
**1.97 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**




**CATS-Series Tilt Saddle**

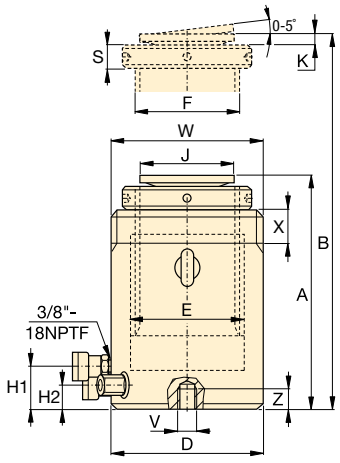
| Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (mm) | Base to Advance Port H (in) | Standard Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Lock Nut Height S (in) | Weight (lbs) | Model Number | Optional Tilt Saddle: Saddle Diameter J1 (in) | Optional Tilt Saddle: Collap. Height* A1 (in) | Optional Tilt Saddle: Saddle Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14.45 | 13.78 | 10.63 | Tr 270 x 6 | 2.64 | 6.26 | 0.20 | 2.56 | 520 | **HCL4002** | 8.27 | 14.37 | **CATS400** |
| 18.39 | | | | | | | | 603 | **HCL4004** | | 16.34 | |
| 22.32 | | | | | | | | 686 | **HCL4006** | | 18.31 | |
| 26.26 | | | | | | | | 770 | **HCL4008** | | 20.28 | |
| 30.20 | | | | | | | | 853 | **HCL40010** | | 22.24 | |
| 34.13 | | | | | | | | 936 | **HCL40012** | | 24.21 | |
| 16.02 | 15.75 | 12.01 | Tr 305 x 6 | 2.95 | 7.05 | 0.20 | 2.83 | 751 | **HCL5002** | 9.06 | 15.94 | **CATS500** |
| 19.96 | | | | | | | | 860 | **HCL5004** | | 17.91 | |
| 23.90 | | | | | | | | 968 | **HCL5006** | | 19.88 | |
| 27.83 | | | | | | | | 1,077 | **HCL5008** | | 21.85 | |
| 31.77 | | | | | | | | 1,186 | **HCL50010** | | 23.82 | |
| 35.71 | | | | | | | | 1,294 | **HCL50012** | | 25.79 | |
| 16.93 | 16.93 | 12.99 | Tr 330 x 6 | 3.19 | 7.64 | 0.20 | 3.15 | 942 | **HCL6002** | 9.84 | 17.05 | **CATS600** |
| 20.87 | | | | | | | | 1,067 | **HCL6004** | | 19.02 | |
| 24.80 | | | | | | | | 1,193 | **HCL6006** | | 20.98 | |
| 28.74 | | | | | | | | 1,319 | **HCL6008** | | 22.95 | |
| 32.68 | | | | | | | | 1,444 | **HCL60010** | | 24.92 | |
| 36.61 | | | | | | | | 1,570 | **HCL60012** | | 26.89 | |
| 18.90 | 19.88 | 15.16 | Tr 385 x 6 | 3.74 | 8.82 | 0.20 | 3.54 | 1,472 | **HCL8002** | 10.83 | 19.17 | **CATS800** |
| 22.83 | | | | | | | | 1,646 | **HCL8004** | | 21.14 | |
| 26.77 | | | | | | | | 1,819 | **HCL8006** | | 23.11 | |
| 30.71 | | | | | | | | 1,992 | **HCL8008** | | 25.08 | |
| 34.65 | | | | | | | | 2,166 | **HCL80010** | | 27.05 | |
| 38.58 | | | | | | | | 2,339 | **HCL80012** | | 29.02 | |
| 21.02 | 22.44 | 17.32 | Tr 440 x 6 | 4.33 | 9.81 | 0.20 | 4.13 | 2,115 | **HCL10002** | 11.81 | 22.09 | **CATS1000** |
| 24.96 | | | | | | | | 2,335 | **HCL10004** | | 24.06 | |
| 28.90 | | | | | | | | 2,556 | **HCL10006** | | 26.02 | |
| 32.83 | | | | | | | | 2,777 | **HCL10008** | | 27.99 | |
| 36.77 | | | | | | | | 2,998 | **HCL100010** | | 29.96 | |
| 40.71 | | | | | | | | 3,219 | **HCL100012** | | 31.93 | |

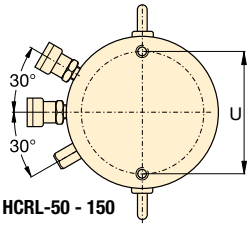
* A1 = Collapsed height including CATS-Series tilt saddle.

▼ Shown: **HCRL2006, HCRL506**

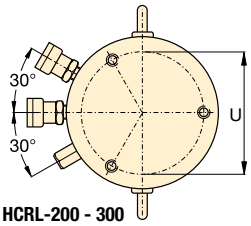



- **Hydraulically controlled fast retraction**
- **Lock nut provides mechanical load holding for a safe work environment**
- **Designed to withstand up to 10% side-load of maximum capacity**
- **Integrated tilt saddle allows up to 5 degrees of misalignment**
- **Hardened surface resists side-loading and cyclic wear**
- **Weather protected, inside and out**
- **Replaceable bearings enclose the plunger externally and internally for support**
- **Certified lifting eyes, base mounting holes and collar thread as standard**
- **Stop-ring to prevent plunger blow-out**
- **Low friction lock nut, spin easy, save time and effort**




HCRL-50 - 150




HCRL-200 - 300

| Collar Thread | | |
|---|---|---|
| **Model / Capacity (ton)** | Thread Size W (mm) | Thread Length X (in) |
| **HCRL50** | M130 X 2 | 1.65 |
| **HCRL100** | M185 X 2 | 2.24 |
| **HCRL150** | M222 X 3 | 2.76 |
| **HCRL200** | M260 X 3 | 3.09 |
| **HCRL250** | M290 X 3 | 3.33 |
| **HCRL300** | M315 X 3 | 3.68 |

The collar thread length is designed for the full rated cylinder capacity.

| Base Mounting Holes | | | |
|---|---|---|---|
| **Model / Capacity (ton)** | Bolt Circle U (in) | Thread Size V (mm) | Min. Thread Depth Z (in) |
| **HCRL50** | 4.13 | M12 x 1.75 | 0.87 |
| **HCRL100** | 5.90 | M12 x 1.75 | 0.87 |
| **HCRL150** | 7.28 | M12 x 1.75 | 0.87 |
| **HCRL200** | 8.46 | M12 x 1.75 | 0.87 |
| **HCRL250** | 9.65 | M12 x 1.75 | 0.87 |
| **HCRL300** | 10.24 | M16 x 2.00 | 0.98 |

| Cylinder Capacity* (ton) | Stroke* (in) | Model Number | Maximum Cylinder Capacity at 10,150 psi (ton) | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) |
|---|---|---|---|---|---|
| **50** | 5.91 | **HCRL506** | 54 | 10.60 | 62.55 |
| | 7.87 | **HCRL508** | | | 83.42 |
| | 9.84 | **HCRL5010** | | | 104.29 |
| | 11.81 | **HCRL5012** | | | 125.16 |
| **100** | 5.91 | **HCRL1006** | 111 | 21.91 | 129.41 |
| | 7.87 | **HCRL1008** | | | 172.54 |
| | 9.84 | **HCRL10010** | | | 215.68 |
| | 11.81 | **HCRL10012** | | | 258.81 |
| **150** | 5.91 | **HCRL1506** | 169 | 33.23 | 196.26 |
| | 7.87 | **HCRL1508** | | | 261.69 |
| | 9.84 | **HCRL15010** | | | 327.11 |
| | 11.81 | **HCRL15012** | | | 392.50 |
| **200** | 5.91 | **HCRL2006** | 225 | 44.31 | 261.62 |
| | 7.87 | **HCRL2008** | | | 348.87 |
| | 9.84 | **HCRL20010** | | | 436.06 |
| | 11.81 | **HCRL20012** | | | 523.31 |
| **250** | 5.91 | **HCRL2506** | 277 | 54.54 | 322.08 |
| | 7.87 | **HCRL2508** | | | 429.35 |
| | 9.84 | **HCRL25010** | | | 536.67 |
| | 11.81 | **HCRL25012** | | | 644.15 |
| **300** | 5.91 | **HCRL3006** | 334 | 65.74 | 388.23 |
| | 7.87 | **HCRL3008** | | | 517.60 |
| | 9.84 | **HCRL30010** | | | 647.03 |
| | 11.81 | **HCRL30012** | | | 776.41 |

* Up to 2000-ton and additional stroke lengths available on request.

# Double Acting, High Tonnage, Lock Nut Cylinders

**Higher Capacities, Longer Strokes**

The HCRL-Series Cylinders are available up to 2000-ton and additional stroke lengths available on request. Contact Enerpac for more information.

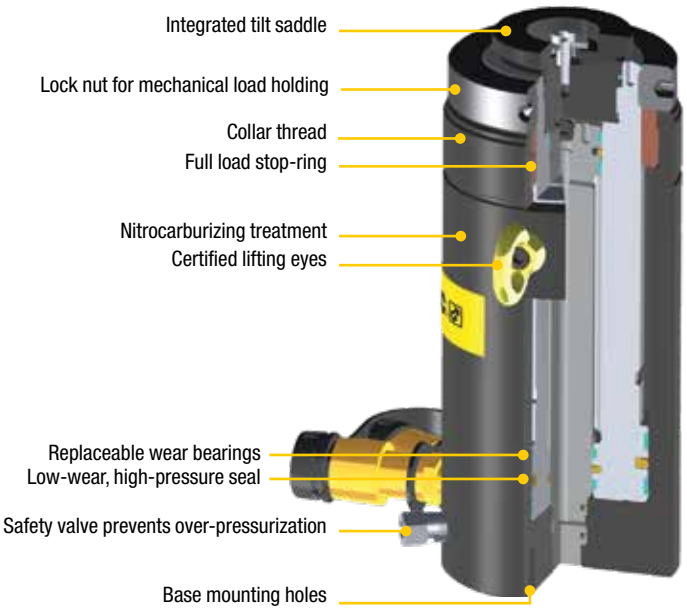
## HCRL Series



Capacity:
**54 - 334 ton**

Stroke:
**5.91 - 11.81 inches**

Maximum Operating Pressure:
**10,150 psi**






**EVO-Series, Synchronous Lifting Systems**

The EVO-system is the safest system for multi-point lifting, provided synchronized control over lifting stroke with a wide variety of features and functions.

| Collapsed Height A (in) | Extended Height B (in) | Outside Diameter D (in) | Cylinder Bore Diameter E (in) | Plunger Diameter F (mm) | Base to Advance Port H1 (in) | Base to Retract Port H2 (in) | Saddle Diameter J (in) | Saddle Protrusion from Plunger K (in) | Lock Nut Height S (in) | Retract Oil Volume ($in^3$) | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.20 | 18.11 | 5.12 | 3.93 | Tr90 X 4 | 1.61 | 1.04 | 3.02 | 0.59 | 1.02 | 1.75 | 65 | HCRL506 |
| 14.84 | 22.71 | | | | | | | | | 3.49 | 79 | HCRL508 |
| 16.81 | 26.65 | | | | | | | | | 5.24 | 88 | HCRL5010 |
| 18.77 | 30.59 | | | | | | | | | 6.99 | 98 | HCRL5012 |
| 13.62 | 19.52 | 7.28 | 5.51 | Tr120 X 6 | 1.97 | 1.41 | 3.02 | 0.59 | 1.42 | 8.73 | 141 | HCRL1006 |
| 16.57 | 14.44 | | | | | | | | | 10.48 | 170 | HCRL1008 |
| 18.54 | 28.38 | | | | | | | | | 4.79 | 188 | HCRL10010 |
| 20.51 | 32.32 | | | | | | | | | 9.59 | 207 | HCRL10012 |
| 14.13 | 20.03 | 8.74 | 6.69 | Tr150 X 6 | 1.81 | 1.24 | 4.96 | 0.51 | 1.77 | 14.38 | 213 | HCRL1506 |
| 17.09 | 24.96 | | | | | | | | | 19.17 | 256 | HCRL1508 |
| 19.06 | 28.90 | | | | | | | | | 23.96 | 284 | HCRL15010 |
| 21.02 | 32.83 | | | | | | | | | 28.76 | 312 | HCRL15012 |
| 15.70 | 21.61 | 10.24 | 7.87 | Tr170 X 6 | 2.80 | 1.92 | 4.96 | 0.51 | 1.97 | 4.79 | 318 | HCRL2006 |
| 18.46 | 26.34 | | | | | | | | | 9.59 | 370 | HCRL2008 |
| 20.43 | 30.28 | | | | | | | | | 14.38 | 406 | HCRL20010 |
| 22.40 | 34.21 | | | | | | | | | 19.17 | 440 | HCRL20012 |
| 16.38 | 22.28 | 11.42 | 8.66 | Tr190 X 6 | 2.80 | 1.92 | 6.30 | 0.59 | 2.17 | 23.96 | 419 | HCRL2506 |
| 19.33 | 27.20 | | | | | | | | | 28.76 | 492 | HCRL2508 |
| 21.30 | 31.14 | | | | | | | | | 10.78 | 538 | HCRL25010 |
| 23.27 | 35.08 | | | | | | | | | 21.57 | 584 | HCRL25012 |
| 16.57 | 22.48 | 12.40 | 9.45 | Tr210 X 6 | 2.80 | 1.92 | 6.30 | 0.59 | 2.17 | 32.35 | 505 | HCRL3006 |
| 19.53 | 27.40 | | | | | | | | | 43.14 | 592 | HCRL3008 |
| 21.50 | 31.34 | | | | | | | | | 53.92 | 647 | HCRL30010 |
| 23.46 | 35.28 | | | | | | | | | 64.70 | 702 | HCRL30012 |

▼ Shown cylinder-pump set: **SCR1010H**




# The Quickest and Easiest Way to Start Working Right Away

**Speed Chart**
See the Enerpac Cylinder Speed Chart in our "Yellow Pages" section.

*Page:* 409

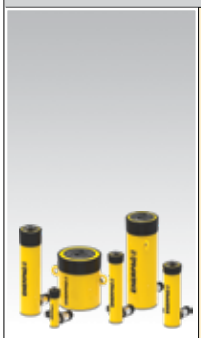


**LW16 Lifting Wedge**
Hydraulic cylinders, jacks and lifting wedges can also be used to assist in positioning and aligning.

The LW16 only requires an access gap of 0.39 inch. See our "Specialty Tools" section on **www.enerpac.com**.

*Page:* 212

- **Optimum match of individual components**
- **All sets are ready to use and include single-acting cylinder, two-speed pump, 6-foot safety hose, calibrated gauge with gauge adaptor**

| 1 Cylinder Selection (See Cylinder Section of this catalog for full product descriptions) | Nominal Set Capacity (ton) | Cylinder Model No. | Stroke (in) | Collapsed Height (in) |
|---|---|---|---|---|
|  **RC-Series, Single-Acting, General Purpose Cylinders** For maximum versatility. 6 | 5 | RC55 | 5.00 | 8.50 |
| | 10 | RC102 | 2.13 | 4.78 |
| | | RC106 | 6.13 | 9.75 |
| | | RC1010 | 10.13 | 13.75 |
| | 15 | RC154 | 4.00 | 7.88 |
| | | RC156 | 6.00 | 10.69 |
| | 25 | RC252 | 2.00 | 6.50 |
| | | RC254 | 4.00 | 8.50 |
| | | RC256 | 6.25 | 10.75 |
| | | RC2514 | 14.25 | 18.75 |
| | 50 | RC506 | 6.25 | 11.13 |
|  **RCS-Series, Single-Acting, Low-Height Cylinders** Ideal where space is restricted. 26 | 10 | RCS101 | 1.50 | 3.47 |
| | 20 | RCS201 | 1.75 | 3.88 |
| | 30 | RCS302 | 2.44 | 4.63 |
| | 50 | RCS502 | 2.38 | 4.81 |
| | 100 | RCS1002 | 2.25 | 5.56 |
|  **RCH-Series, Single-Acting, Hollow Cylinders** For pushing and pulling applications. 34 | 12 | RCH121 | 1.63 | 4.75 |
| | 20 | RCH202 | 2.00 | 6.31 |
| | 30 | RCH302 | 2.50 | 7.03 |
| | 60 | RCH603 | 3.00 | 9.75 |
| | 100 | RCH1003 | 3.00 | 10.00 |

# Single-Acting, Cylinder Pump Sets

**SELECTION EXAMPLE**

**Selected cylinder:**

- RC106, Single-acting cylinder with 6.13" stroke

**Selected pump:**

- P392, Lightweight hand pump

**Set model number:**

- SCR106H

**Included:**

- HC7206 hose
- GF10P gauge
- GA2 adaptor

**SET SELECTION:**

1. **Select the cylinder**
2. **Select the pump**
3. **Find the set model number in the gray field of the matrix**



**GA45GC Gauge Adaptor** [3]

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

*Page:* 162

**SC Series**



Capacity:
**5 - 100 tons**

Stroke:
**1.50 - 14.25 inches**

Maximum Operating Pressure:
**10,000 psi**



**Hydraulic Tool Box**

Tool box with hand pump, gauge adaptor assembly, hose and RC-, RCS-, RSM-Series cylinder.

*Page:* 65

2 **Pump selection** (See Pump Section of this catalog for full product descriptions)

| Hand Pump P142 | Hand Pump P392 | Hand Pump P80 | Foot Pump P392FP | XA-Series Air Pump XA11 | XC-Series Cordless Pump[2] [3] XC1202MB | Accessories Included: Hose Model No. | Gauge Model No. | Gauge Adaptor Model No. |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
| 3 | | | | | | | | |
| SCR55H | – | – | – | – | – | HC7206 | GP10S | GA4 |
| – | SCR102H | – | SCR102FP | SCR102XA | SCR102XCB | HC7206 | GF10P | GA2 |
| – | SCR106H | – | SCR106FP | SCR106XA | SCR106XCB | HC7206 | GF10P | GA2 |
| – | SCR1010H | – | SCR1010FP | SCR1010XA | SCR1010XCB | HC7206 | GF10P | GA2 |
| – | SCR154H | – | SCR154FP | SCR154XA | SCR154XCB | HC7206 | GP10S | GA2 |
| – | SCR156H | – | SCR156FP | SCR156XA | SCR156XCB | HC7206 | GP10S | GA2 |
| – | SCR252H | – | SCR252FP | SCR252XA | SCR252XCB | HC7206 | GF20P | GA2 |
| – | SCR254H | – | SCR254FP | SCR254XA | SCR254XCB | HC7206 | GF20P | GA2 |
| – | SCR256H | – | – | SCR256XA | SCR256XCB | HC7206 | GF20P | GA2 |
| – | – | SCR2514H | – | SCR2514XA[1] | – | HC7206 | GF20P | GA2 |
| – | – | SCR506H | – | SCR506XA[1] | – | HC7206 | GF50P | GA2 |
| – | SCL101H | – | SCL101FP | SCL101XA | – | HC7206 | GF10P | GA2 |
| – | SCL201H | – | SCL201FP | SCL201XA | – | HC7206 | GF230P | GA2 |
| – | SCL302H | – | SCL302FP | SCL302XA | SCL302XCB | HC7206 | GF230P | GA2 |
| – | SCL502H | – | SCL502FP | SCL502XA | SCL502XCB | HC7206 | GF510P | GA2 |
| – | – | SCL1002H | – | – | SCL1002XCB | HC7206 | GF510P | GA2 |
| SCH121H | – | – | – | – | – | HB7206 | GF120P | GA4 |
| – | SCH202H | – | SCH202FP | SCH202XA | SCH202XCB | HC7206 | GF813P | GA3 |
| – | SCH302H | – | SCH302FP | SCH302XA | SCH302XCB | HC7206 | GF813P | GA3 |
| – | – | SCH603H | – | SCH603XA[1] | SCH603XCB | HC7206 | GF813P | GA3 |
| – | – | SCH1003H | – | – | – | HC7206 | GP10S | GA2 |

[1] With **XA12** air pump
[2] XC Cordless Pump includes 115 V charger, for 230 V charger replace the "B" in the model number with an "E".
[3] XC Pump Sets include only the HC7206 Hose and GA45GC Gauge Adaptor accessories

▼ Shown from left to right: **P142ALSS, P392ALSS, V152NV, V66NV, RC256NV, RC106NV, RC53NV**




# RC, P, V Series

Cylinder Capacity:
**5 - 25 tons**

Stroke:
**2 - 6 inches**

Maximum Operating Pressure:
**10,000 psi**

- **Corrosion resistant, nickel-plated valves and cylinders**
- **Stainless steel pump inserts will not corrode**
- **Viton® Seals provide heat and chemical resistance**
- **Anodized aluminum pump reservoirs and plastic encapsulated pump bodies resist wet environments**
- **Two-speed operation reduces pump handle strokes 78% compared to single-speed pumps**
- **Pump handles lock for easy carrying**

**Applications**

Use Enerpac **Extreme Environment Products** in wet environments such as food processing, pulp and paper, mining, construction and applications in high temperature or in welding areas.



**Multifluid Hand Pumps**

**MP-Series** corrosion resistant hand pumps for low pressure filling and high pressure testing applications, suitable for a wide range of fluids.

*Page:* 93

## ▼ CYLINDER CHART




| Cylinder Capacity (ton) | Stroke (in) | Model Number * | Oil Capacity ($in^3$) | Pressure Rating (psi) | Collapsed Height (in) | Extended Height (in) | Outside Diameter (in) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|
| **5** | 3.0 | **RC53NV** | 2.98 | 10,000 | 6.50 | 9.50 | 1.50 | 3.3 |
| **10** | 2.0 | **RC102NV** | 4.75 | 10,000 | 4.78 | 6.91 | 2.25 | 5.1 |
| **10** | 6.0 | **RC106NV** | 13.70 | 10,000 | 9.75 | 15.88 | 2.25 | 9.8 |
| **25** | 6.0 | **RC256NV** | 32.23 | 10,000 | 10.75 | 17.00 | 3.38 | 22.0 |

## ▼ HAND PUMP CHART



| Pump Type | Oil Capacity ($in^3$) | Model Number * | Pressure Rating (psi) | Oil Displacement per Stroke ($in^3$) | Port Dimension (in) | Piston Stroke (in) | Weight (lbs) |
|---|---|---|---|---|---|---|---|
| **Two Speed** | 20 | **P142ALSS** | 200/10,000 | 0.221 / 0.055 | 1/4"-18 NPTF | 0.50 | 4.5 |
| | 55 | **P392ALSS** | 200/10,000 | 0.687 / 0.151 | 3/8"-18 NPTF | 1.00 | 9.0 |

## ▼ VALVE CHART



| Valve Type | Model Number * | Pressure Function | Pressure Rating (psi) | Weight (lbs) |
|---|---|---|---|---|
| **Manual Check Valve** | **V66NV** | Check | 10,000 | 4.5 |
| **Pressure Relief Valve** | **V152NV** | + 3% Repeatability | 800-10,000 | 9.0 |

* For cylinder details see pages 7-9; for pump details see pages 84-85; for valve details see pages 168-169.

# Portable Hydraulic Toolbox

▼ Shown: **SCR106TB**




## SCR, SCL, SRS Series

Capacity:
**5 - 50 tons**

Stroke:
**0.44 - 10.13 inches**

Maximum Operating Pressure:
**10,000 psi**

- **Includes a single-acting cylinder, two-speed lightweight hand pump (P392), gauge adaptor assembly (GA45GC), and 6 ft. rubber hose with couplers (HC9206C)**
- **Complete and ready-to-use hydraulic system**
- **Easy to carry sturdy toolbox**
- **All components ship inside the toolbox as one package**



**Gauge Adaptor Assembly**

Toolbox sets include a 45 degree angled gauge adaptor assembly for improved operating ergonomics and safety.

***Page:*** **162**

| | Cylinder Model | Stroke (in) | Capacity (tons) | Weight (lbs) | Toolbox Set Model Number |
|---|---|---|---|---|---|
|  *RC Series* | **General Purpose Cylinders** | | | | |
| | **RC55** | 5.00 | **5** | 26 | **SCR55TB** |
| | **RC102** | 2.13 | **10** | 27 | **SCR102TB** |
| | **RC106** | 6.13 | **10** | 32 | **SCR106TB** |
| | **RC1010** | 10.13 | **10** | 36 | **SCR1010TB** |
| | **RC154** | 4.00 | **15** | 34 | **SCR154TB** |
| | **RC256** | 6.25 | **25** | 45 | **SCR256TB** |
|  *RCS Series* | **Low-Height Cylinders** | | | | |
| | **RCS101** | 1.50 | **10** | 28 | **SCL101TB** |
| | **RCS201** | 1.75 | **20** | 33 | **SCL201TB** |
| | **RCS302** | 2.44 | **30** | 37 | **SCL302TB** |
| | **RCS502** | 2.38 | **50** | 44 | **SCL502TB** |
|  *RSM Series* | **Flat-Jac® Cylinders** | | | | |
| | **RSM100** | 0.44 | **10** | 26 | **SRS100TB** |
| | **RSM200** | 0.44 | **20** | 28 | **SRS200TB** |
| | **RSM300** | 0.50 | **30** | 31 | **SRS300TB** |
| | **RSM500** | 0.63 | **50** | 37 | **SRS500TB** |

▼ *The Hydraulic Toolbox is a versatile tool and applicable everywhere.*



▼ Shown from left to right: **JHA356, JHA156**




# JH, JHA
## Series

Capacity:
**7 - 100 tons**

Stroke:
**3.00 - 6.13 inches**

Maximum Operating Pressure:
**10,000 psi**

- **All-directional operation on 7, 15 and 35-ton JHA-Series**
- **Internal relief valve to prevent overloading**
- **Machined flat front and bottom surfaces permit flush alignment in tight corners**
- **All models include pumping handle**
- **Chrome-plated plungers**
- **Automatic by-pass port to prevent over-extension (JH-Series)**



**Lifting Wedge and Machine Lifts**

Ideal to lift the load the first few inches. The **LW16** Lifting Wedge requires a very small access gap of only 0.39 inch.

*Page:* **212**



**Load Skates**

For moving heavy loads easily and safely.

*Page:* **214**

| Style | Jack Capacity (ton) | Stroke (in) | Model Number | Jack Effective Area ($in^2$) | Collapsed Height (in) | Extended Height (in) | Bottom Plate Dimensions (W x L) (in) | Plunger Diameter (in) | Pump Speed | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum Jack | **7** | 3.00 | **JHA73** | 1.49 | 5.25 | 8.25 | 2.88 x 6.25 | 1.19 | Single | 11 |
| | **15** | 6.06 | **JHA156** | 3.14 | 9.75 | 15.81 | 3.63 x 9.38 | 1.63 | Single | 29 |
| | **35** | 6.13 | **JHA356** | 7.07 | 10.13 | 16.25 | 4.63 x 10.00 | 2.13 | Single | 40 |
| Steel Jack | **30** | 6.13 | **JH306** | 5.94 | 10.00 | 16.13 | 3.75 x 9.56 | 2.75 | Single | 59 |
| | **50** | 6.09 | **JH506** | 9.62 | 10.25 | 16.34 | 5.00 x 10.19 | 3.50 | 2-Speed | 90 |
| | **100** | 6.06 | **JH1006** | 20.63 | 11.31 | 17.37 | 7.13 x 12.94 | 5.12 | 2-Speed | 184 |

# Industrial Steel Bottle Jacks

▼ Shown: **GBJ010A, GBJ030A, GBJ003A**




## GBJ
### Series

Capacity:
**2 - 110 tons**

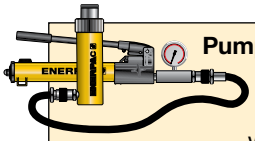
Stroke:
**2.44 - 18.11 inches**



**Screw Feature**

Heat treated, adjustable extension screw with cleated saddle on selected GBJ models helps adjusting and prevents slipping.

- **Lower handle effort reduces operator fatigue**
- **Fully serviceable**
- **High-strength beam and pump linkage for long life**
- **Pumping handle included on all models**
- **Safety relief valve to prevent overload**
- **Automatic by-pass port to prevent over-extension**
- **Wiper seal for extended life**
- **Thick base material with large area for increased strength and stability during lifting**



**Pump and Cylinder Sets**

As an alternative to Industrial Bottle Jacks where the operator is required to stand remote from the jacking point, see the range of pump and cylinder sets.

***Page:*** **62**

▼ *Enerpac heavy-duty hydraulic bottle jack makes lifting loads easier.*




| Jack Cap. (ton) | Stroke (in) | Model Number | Screw Extension (in) | Min. Height (in) | Max. Height (in) | Plunger Dia. (in) | Saddle Dia. (in) | Base Dims. L x W (in) | Wt (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| **2** | 18.11 | **GBJ002LA** | - | 22.44 | 40.55 | 1.14 | - | 2.95 x 4.57 | 13.2 |
| **2** | 4.13 | **GBJ002A** | 2.56 | 6.61 | 13.31 | 0.94 | 0.93 | 2.95 x 4.57 | 7.9 |
| **3** | 4.13 | **GBJ003A** | 2.56 | 6.61 | 13.31 | 0.94 | 0.93 | 2.95 x 4.57 | 8.1 |
| **5** | 5.91 | **GBJ005A** | 2.95 | 8.35 | 17.20 | 1.14 | 1.12 | 2.95 x 4.92 | 9.9 |
| **8** | 5.91 | **GBJ008A** | 2.95 | 8.62 | 17.48 | 1.46 | 1.50 | 3.54 x 5.67 | 13.6 |
| **11** | 5.91 | **GBJ010A** | 2.95 | 8.62 | 17.48 | 1.46 | 1.50 | 3.54 x 5.67 | 14.1 |
| **11** | 2.44 | **GBJ010SA** | 1.18 | 5.16 | 8.78 | 1.46 | 1.50 | 3.54 x 5.67 | 11 |
| **17** | 5.91 | **GBJ015A** | 2.95 | 8.98 | 17.83 | 1.75 | 1.77 | 4.41 x 6.42 | 19.4 |
| **22** | 5.91 | **GBJ020A** | 2.95 | 9.21 | 18.07 | 2.00 | 2.40 | 4.72 x 6.77 | 23.3 |
| **22** | 4.13 | **GBJ020SA** | 2.17 | 7.48 | 13.78 | 2.00 | 2.40 | 4.72 x 6.77 | 20.9 |
| **33** | 5.91 | **GBJ030A** | 2.95 | 9.53 | 18.39 | 2.27 | 2.72 | 5.67 x 7.72 | 34.2 |
| **55** | 5.51 | **GBJ050A** | - | 10.24 | 15.75 | 3.15 | 3.15 | 6.50 x 8.43 | 59.4 |
| **110** | 5.91 | **GBJ100** | - | 11.81 | 17.72 | 4.33 | 3.70 | 11.65 x 13.11 | 191.8 |

All GBJ Jacks meet or exceed: ANSI, PALD, CE

▼ Shown: **PRASA10027L and Accessory Locking U-Rings**




# Safe, Efficient, Mobile Load Lifting

- **60, 100, 150 and 200-ton capacities with pneumatic or electric pumps for the toughest jobs**
- **4-inch ground clearance for transport over rail and rough terrain**
- **Three-position handle provides easy tilt back and transport**
- **Complies with ASME/ANSI B30.1:2015 & CE specifications**
- **Easy-to-change external filter minimizes down time**
- **Rugged, fully enclosed 24-inch wide frame with no exposed fittings or hoses**
- **SUP-R-STACK™ Extension System allows lifting at all heights without blocking.**

**Pendant Cord**

Standard 12 ft. pendant cord for air driven units with pneumatic valves and 20 ft. pendant cord for electric driven units keeps operator away from the load.



**POW'R LOCK – Self-Locking Mobile Lift System**

A self-locking jack that performs automatic locking during lifting, lowering and holding. See the Enerpac PL-Series.

*Page:* **70**



◀ *Enerpac POW'R-RISER® used in mining operations to lift heavy equipment.*

| Capacity (ton) | Stroke (in) | Electric Pump Model Number (115 VAC) | Weight (lbs) |
|---|---|---|---|
| 60 | 14 | **PREMB06014L** | 390 |
| | 27 | **PREMB06027L** | 600 |
| 100 | 16 | **PREMB10016L** | 510 |
| | 27 | **PREMB10027L** | 600 |
| | 16 | - | - |
| | 27 | - | - |
| 150 | 15.5 | - | - |
| | 26.5 | - | - |
| | 15.5 | **PREMB15016L** | 570 |
| | 26.5 | **PREMB15027L** | 708 |
| 200 | 15.3 | - | - |
| | 24.3 | - | - |

(PR-Series not available in Canada. Contact Enerpac.)



### SUP-R-STACK™ Extensions

Increase useful height from 5" to 18".

| Model No. | Size (in) | Model No. | Size (in) |
|---|---|---|---|
| PRE5 | 5 | PRE11 | 11 |
| PRE7 | 7 | PRE14 | 14 |
| PRE9 | 9 | PRE18 | 18 |
| PRES6024 | Extension set includes **PRE5, PRE7, PRE11PRE18** | | |



### Spacers

Fine tune your Extension stack height.

| Model No. | Size (in) | Model No. | Size (in) |
|---|---|---|---|
| PRS1 | 1 | PRS3 | 3 |
| PRS2 | 2 | – | – |
| PRS4 | Set includes (2) **PRS1,** (1) **PRS2** and (1) **PRS3** | | |

## PR Series



Rated Lifting Capacity:
**60 - 200 tons**

Stroke:
**14 - 27 inches**

Maximum Operating Pressure:
**10,000 psi**

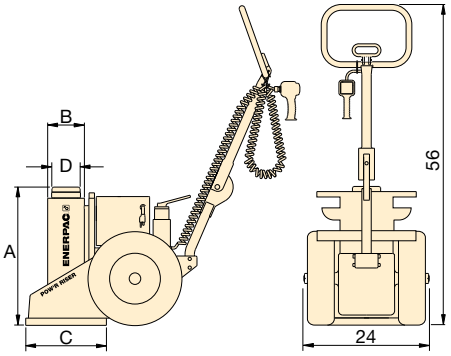
| Cap. (ton) | Swivel Load Cap | Locking U-Rings 1 in. | 3 in. | 4¼ in. | 5½ in. | 10 in. | Set Model Number | Locking U-Ring Sets Include (quantity and model numbers) 2X | 1X | 2X | 1X |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 60 | PRTS60 | PRU11 | PRU13 | PRU14 | – | PRU110 | [1] PRUS126 | PRU11 | PRU13 | PRU14 | – |
| | | | | | | | [2] PRUS137 | PRU11 | PRU13 | PRU14 | PRU10 |
| 100 | PRTS60 | PRU11 | PRU13 | PRU14 | – | PRU110 | [1] PRUS126 | PRU11 | PRU13 | PRU14 | – |
| | | | | | | | [2] PRUS137 | PRU11 | PRU13 | PRU14 | PRU110 |
| 150 | PRTS150 | PRU151 | PRU153 | – | PRU155 | PRU1510 | [3] PRUS1526 | PRU151 | PRU153 | PRU155 | – |
| | | | | | | | [2] PRUS1537 | PRU151 | PRU1510 | PRU155 | – |
| 200 | PRTS200 | PRU201 | PRU203 | – | PRU205 | PRU2010 | [3] PRUS2026 | PRU201 | PRU203 | PRU205 | – |
| | | | | | | | [2] PRUS2037 | PRU201 | PRU2010 | PRU205 | – |

[1] For 14 and 16" stroke models
[2] For 27" stroke models
[3] For 15.5" stroke models

**WARNING!**

**Extensions:** Any two Extensions may be stacked for loads up to 60 tons. For loads over 60 tons or strokes over 14" only one Extension and one Spacer can be used.

**Spacers:** Never exceed 3" in total Spacer height.






### Locking U-Rings

For safe mechanical cribbing of a lifted load, accessory Locking U-Rings can be placed around an extended piston and come in four lengths for each POW'R-Riser® capacity, and are available individually or in sets. Locking U-Rings are accommodated by storage racks integral to the POW'R-Riser®.

| | Air Pump | Weight (lbs) | A (in) | B (in) | C (in) | D (in) | Max. Additional Stack Height Using Optional Ext. System (in) | Valve Type |
|---|---|---|---|---|---|---|---|---|
| | PRAMA06014L | 390 | 24 | 6.4 | 14 | 4 | 32* | Manual |
| | PRAMA06027L | 600 | 37 | 6.4 | 14 | 4 | 11 | |
| | PRAMA10016L | 510 | 26 | 7.0 | 18 | 4 | 21** | |
| | PRAMA10027L | 600 | 37 | 7.0 | 18 | 4 | 11 | |
| | PRASA10016L | 510 | 26 | 7.0 | 18 | 4 | 21** | Pneumatic |
| | PRASA10027L | 600 | 37 | 7.0 | 18 | 4 | 11 | |
| | PRASA15016L | 570 | 26 | 8.0 | 18 | 5 | 21** | |
| | PRASA15027L | 708 | 37 | 8.0 | 18 | 5 | 11 | |
| | - | - | 26 | 8.0 | 18 | 5 | 21** | Manual |
| | - | - | 37 | 8.0 | 18 | 5 | 11 | |
| | PRASA20016L | 640 | 26 | 9.5 | 20 | 6 | 21** | Pneumatic |
| | PRASA20027L | 825 | 37 | 9.5 | 20 | 6 | 11 | |

* Based on one 18" and one 11" Extension and one 3" Spacer.
** Based on one 18" Extension and one 3" Spacer.

For power source, the following characters should be inserted in the 5th space of the model number.

**Ordering Example:**
**Model No. PREMI06014L** is a 14" stroke, 60 ton model, with a manual valve and a 208-240 VAC, 1-ph electric motor.

A Air Pump, 50 scfm, 80 psi
B 115 VAC, 1ph., 50-60 Hz, 20 A
E 208-240 VAC, 1-ph., 50-60 Hz, Euro Plug, 10 A
I 208-240 VAC, 1-ph., 50-60 Hz, USA Plug, 10 A
G [1] 208-240 VAC, 3-ph., 50-60 Hz
W [1] 380-415 VAC, 3-ph., 50-60 Hz
J [1] 440-480 VAC, 3-ph., 50-60 Hz
R [1] 575 VAC, 3-ph., 50-60 Hz

[1] Not available for 60-ton capacity

▼ Shown: **PL20025-ASA and PL20014-ASA**



# Efficient Lifting with Continuous, Automatic Load Locking

- **Provides continuous locking protection during lift, lower and hold functions**
- **Patent-pending control technology synchronizes cylinder and lock nut for smooth and efficient lifting and lowering**
- **Unique double-acting cylinder offers a low collapsed height to accommodate more lifting applications**
- **Simple 2-button pendant allows operation of raise and lower functions from up to 20 feet away**
- **All exposed load-bearing steel cylinder components utilize a nitrocarburizing treatment to reduce wear and resist corrosion**
- **Ergonomic handle has six positions for comfortable handling and folds when not in use**
- **Meets ANSI /ASME B30.1-2015, AS/NZS-2538, AS/NZS-2693 certification criteria**

**Pow'R-LOCK™ Self-Locking Lift System**

Only the **Pow'R-LOCK™** Lift System provides continuous positive locking of the load through all stages of lifting and lowering. No operator intervention is required to activate or de-activate the automatic locking system.

Two different stroke lengths are available. Both models are powered by an external compressed air system (user-supplied). A convenient two-button pendant controls operation of the Lift System's air motor and directional control valve.



**Tilt Load Cap**

All **Pow'R-LOCK™** Lift System models feature a Tilt Load Cap to reduce side-loading.

Enerpac declares that this product has been tested and conforms to applicable standards and is approved to carry the CE mark. An EU Declaration of Conformity is enclosed separately.

CE



◀ *The PL-Series Pow'R-LOCK Portable Lift System.*

**Accessories**

**Flat Load Cap** – Non-tilt load cap has lower profile for tight lifting spaces.

**Spacers** – Minimize gap between load cap and lifting point to maximize hydraulic stroke of the jack.

**Extensions –** Stackable, with large alloy steel locating studs to resist effects of side-loading.

**Extension Base Adapter** – Extension Base Adapter design eliminates risk of improper stacking when using more than one extension.

# PL Series

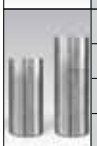


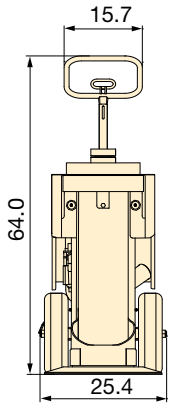
Rated Lifting Capacity:
**200 tons**

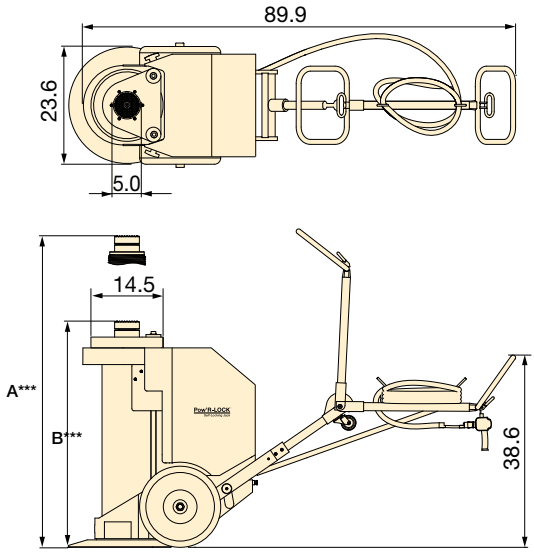
Stroke:
**14 or 24.5 inches**

Maximum Operating Pressure:
**10,000 psi**

## ▼ ACCESSORIES

| | Model Number | Description | Height (in) | PL20014-ASA | PL20025-ASA |
|---|---|---|---|---|---|
|  | **PLC1** | Flat Load Cap | 1.3 | x | x |
|  | **PLS1** | Spacer | 1.0 | x | x |
| | **PLS2** | Spacer | 2.0 | x | x |
|  | **PLE5** | Extension | 5.0 | x | x |
| | **PLE7** | Extension | 7.0 | x | x |
| | **PLE9** | Extension | 9.0 | x | x |
| | **PLE11** | Extension | 11.0 | x | – |
| | **PLE14** | Extension | 14.0 | x | – |
|  | **PLB12** | Extension base adapter | 12.0 | x | – |




| Capacity (ton) | Stroke (in) | Model Number | Cylinder Lifting Speed * in/min Load | Cylinder Lifting Speed * in/min No Load | Recommended Air Supply** (CFM) | Recommended Air Supply** (psi) | A *** (in) | B *** (in) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| **200** | 14.0 | **PL20014-ASA** | 2.0 | 2.4 | 130-150 | 55-100 | 48.0 | 34.0 | 1105 |
| | 24.5 | **PL20025-ASA** | 2.0 | 2.4 | | | 70.0 | 45.5 | 1320 |

* Depending on available airflow, regulator setting, pump speed and load weight.
** Minimum dynamic air pressure of 55-60 psi, 90-100 psi required to achieve 200-ton capacity.
*** Height of items A and B is with swivel load cap installed. Subtract 2-inches if flat load cap is used.

**WARNING!**

**PLE11** and **PLE14** Extensions and **PLB12** Extension Base Adapter are to be used with the "short" model **PL20014-ASA** only.

Use of these extensions on the "tall" model **PL20025-ASA** will result in an excessive maximum lifting height. Load could become unstable and drop, resulting in possible personal injury and/or property damage.

| Model No. | Max. Additional Stack Height* (in) |
|---|---|
| PL20014-ASA | 28.0 |
| PL20025-ASA | 9.0 |

* Using optional PLB and PLE-Series extensions and PLS-Series spacers. Load cap height is NOT included in the stack height.

**Safety First**

When lifting large, heavy vehicles certain precautions must be followed. Follow your published safety directions for lifting and cribbing your loads.

The **Pow'R-LOCK™** Lift System provides load/lock protection, but you must follow the safety directions for load cribbing operations.



**Pow'R-RISER® Lifting Jack**

When automatic load-locking is not required, the Enerpac **Pow'R-RISER®** jack provides a mobile lifting solution.

For more information go to:
**www.enerpac.com**

*Page:* 68

▼ Shown: **BLS1006**



- **Climbing Jacks include integral tilt saddles with maximum tilt angles up to 5°**
- **Large base with anti-rotation rod for stability and safety**
- **Built-in safety valve prevents accidental over-pressurization**
- **Baked enamel finish for increased corrosion resistance**
- **CR400 couplers included on all cylinder models**

▼ *Synchronous Stage Lifting: 48 double-acting jacks (25 and 50 ton) are networked into a 16 point synchronous system to lift this 164-feet, 1100-ton building up to a height of 8-feet to construct a new floor level.*



# A Simple Solution to Incremental Lifting

**Lifting Height**

Climbing Jacks overcome the usual limitation of lift height imposed by the jack's plunger stroke length. Large objects, such as oil tanks, can be lifted, held and lowered for maintenance without sending for a crane.



**Split-Flow Pumps**

SFP-Series Pumps with multiple outlets with equal oil flow. For lifting applications on multiple points Split-Flow Pumps are a far better alternative than using independently operated pumps.

***Page:*** **132**



**EVO-Series, Synchronous Lifting Systems**

The EVO-system is the safest system for multi-point lifting, provided synchronized control over lifting stroke with a wide variety of features and functions.

***Page:*** **136**



**Jack-Up System**

For incremental lifting with higher lifting capacities and up to 66 feet lifting height, see our JS-Series Jack-Up Systems.

***Page:*** **366**

| Cylinder Capacity (tons) | Stroke (in) | Model Number | Max. Cylinder Capacity (tons) Push | Pull |
|---|---|---|---|---|
| **55** | 5.91 | **BLS506** | 55 | 12 |
| **105** | 6.34 | **BLS1006** | 105 | 48 |
| **154** | 5.94 | **BLS1506** | 154 | 74 |
| **220** | 5.94 | **BLS2006** | 220 | 113 |

# Double-Acting Climbing Jacks



◀ *Typical stage-lift application using a custom built Enerpac system to lift the 360 ton Akkerwinde wooden bridge in the Netherlands.*

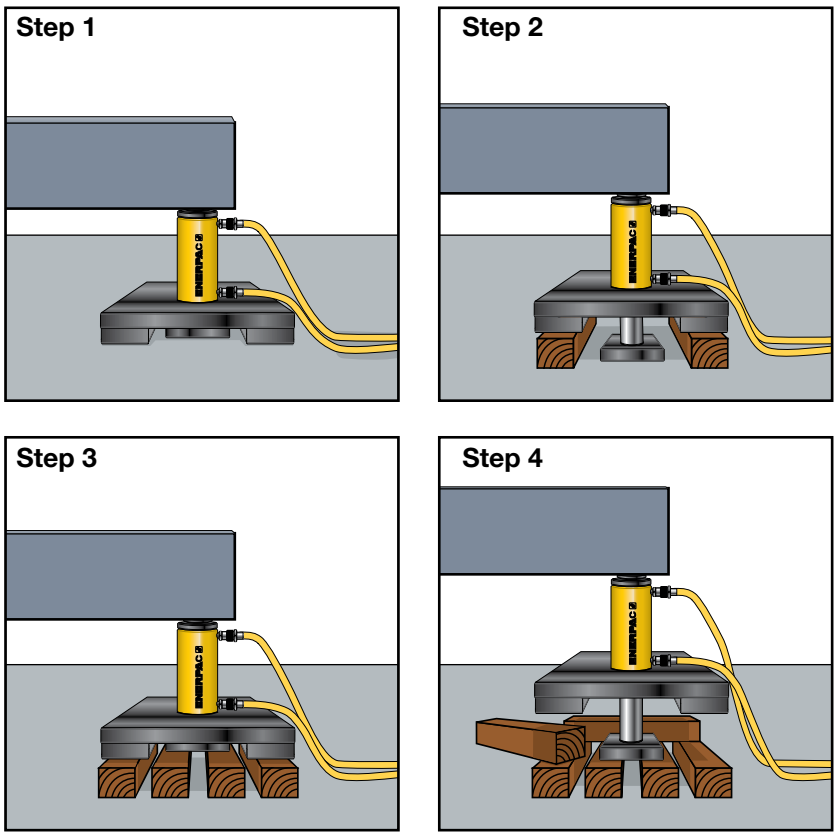
**BLS Series**



Capacity per Lifting Point:
**55 - 220 tons**

Stroke per Stage:
**5.91 - 6.34 inches**

Maximum Operating Pressure:
**10,000 psi**



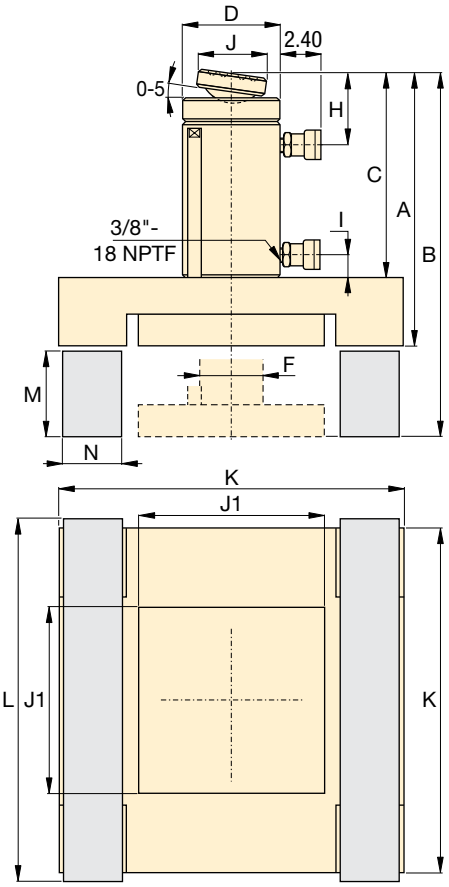

▲ **Stage Lifting Sequence**

**Step 1**: The Climbing Jack is placed on a solid support under the load (retracted plunger).

**Step 2**: Plunger extends, lifting the load and giving clearance to insert two outer blocks under the spreading plate.

**Step 3**: Plunger retracts, giving clearance to position the central blocks which will support the plunger plate for the next extension.

**Step 4**: Plunger extends, lifting the load, giving clearance to insert two new blocks, placed crosswise under the spreading plate.




| Cylinder Effective Area (in²) | | Oil Capacity (in³) | | Climbing Jack Dimensions (in) | | | | | | | | | | Support Blocks * and Dimensions (in) | | | | Wt. | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Push | Pull | Push | Pull | A | B | C | D | F | H | I | J | J1 | K | Material | L | M | N | (lbs) | |
| 11.04 | 3.33 | 67.80 | 20.44 | 15.98 | 21.89 | 12.52 | 5.00 | 3.11 | 2.24 | 1.42 | 1.97 | 9.45 | 20.28 | Azobe Wood | 22.24 | 5.51 | 4.72 | 375 | **BLS506** |
| 20.66 | 9.64 | 136.57 | 63.77 | 17.52 | 23.86 | 13.50 | 6.97 | 3.74 | 2.99 | 0.94 | 2.80 | 12.99 | 26.38 | | 28.35 | 5.91 | 6.30 | 695 | **BLS1006** |
| 30.71 | 14.79 | 188.56 | 90.80 | 18.58 | 24.57 | 14.57 | 8.00 | 4.49 | 3.70 | 1.54 | 5.12 | 9.06 | 18.70 | Solid aluminum or steel | 19.69 | 5.51 | 4.53 | 710 | **BLS1506** |
| 44.21 | 22.50 | 264.35 | 134.80 | 20.08 | 26.02 | 15.24 | 9.76 | 5.24 | 4.02 | 1.46 | 5.12 | 10.63 | 21.65 | | 22.64 | 5.51 | 5.31 | 825 | **BLS2006** |

* Support blocks are not supplied by Enerpac.

▼ SCJ50, Enerpac Self-Locking Cube Jack



# Incremental Lifting System With Automatic Mechanical Locking

- **System is automatically mechanically locked after the lifting or lowering stroke**
- **Self-aligning steel cribbing blocks save time, improve side load resistance, and eliminate the need for wooden cribbing materials**
- **Jobs are completed more efficiently due to simplified operation sequence with 50% less cycles than climbing jacks**
- **End block with adjustable swivel saddle allows fine adjustment during set-up: 1.97-inch screw extension**
- **Can be operated with Enerpac's 10,000 psi hydraulic power units**
- **Maximum sideload 1.5% at full extension**
- **Lloyds witness tested to 125% of maximum working load**

**Why use Self-Locking Cube Jacks?**

The Self-Locking Cube Jack is a safer, more efficient alternative to the jack-and-pack method with wooden cribbing.

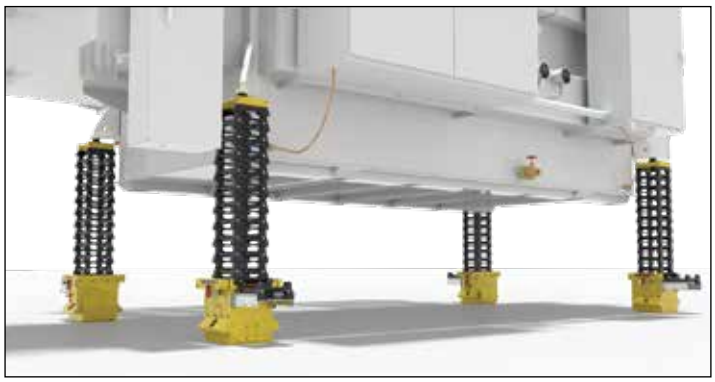
The Cube Jack is derived from the proven Enerpac Jack-up System. The Cube Jack has a small footprint and is usable in confined spaces, providing heavy lift contractors with a stable lift up to 118.3 inch. The cribbing blocks are lightweight and can be handled manually.

**Markets & Applications**

Applications with a minimum starting height of 19 or 22 inches and requirement to lift up to 81 or 118 inches.

- Power Generation transformer jacking
- Mining - equipment maintenance
- Heavy Transport - vehicle unloading
- Oil & Gas - module jacking
- Construction - bridge jacking
- Industrial Movers - lifting, lowering and levelling of heavy equipment.

▼ *Typical set-up with 4 Self-Locking Cube Jack and cribbing blocks to lift a transformer (hydraulic power pack and hoses not shown).*



**Self-Locking Cube Jacks**

Easy-to-use, compact and portable jacking system that utilizes base lifting frames and self-aligning, lightweight steel cribbing blocks, instead of wooden cribbing materials.

**Operation is simple:**

1. Connect the Cube Jacks to the Enerpac Split-Flow Pump and select lifting mode on each base lifting frame.
2. Insert a cribbing block and actuate the Cube Jack until the cribbing block engages the lock mechanism.
3. Retract the jack and repeat the process until the desired lifting height is reached. For the lowering operation select lowering mode on each base lifting frame and reverse the process.

The Cube Jack End Block is equipped with an adjustable saddle for initial alignment with the load. All controls except for the main directional valve, which is on the hydraulic power unit, are included on the Cube Jack.

**Manual cribbing block insertion**

Cribbing blocks are easily managed by hand and the Cube Jack includes integrated fork pockets and lifting rings for effortless positioning.

**Synchronous Lifting & Lowering**

If synchronization is required, the Cube Jack can accommodate stroke sensors and be used with any Enerpac Computer Controlled Synchronous Lifting System.

## SCJ Series



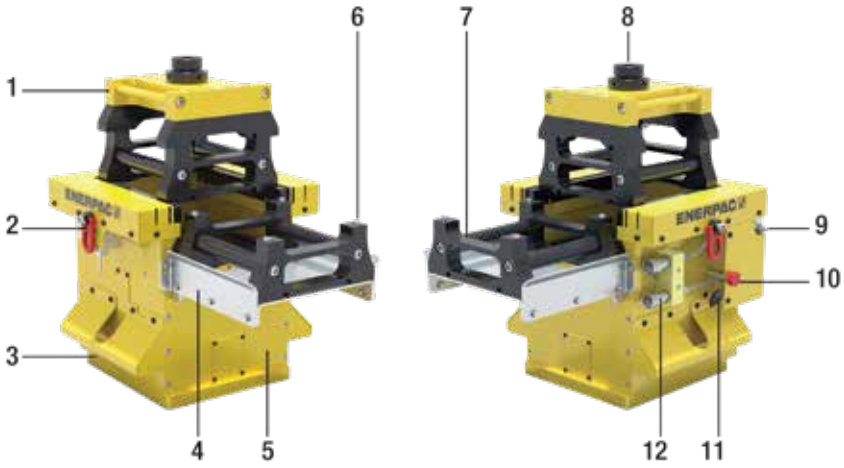
Capacity Per Cube Jack:
**56 - 110 ton**

Maximum Lifting Height:
**81.4 - 118.3 inches**

Maximum Operating Pressure:
**10,000 psi**



▲ *Cube Jack close-up of lifting and lowering valving mode and lock handle.*




**Self-Locking Cube Jacks**

| | |
|---|---|
| 1 | End block with tilting saddle |
| 2 | Eye-bolts for hoisting |
| 3 | Forklift tabs |
| 4 | Removable insert table |
| 5 | Cube Jack base frame |
| 6 | Locating pins |
| 7 | Steel cribbing blocks |
| 8 | Adjustable tilting saddle |
| 9 | Flow control |
| 10 | Mode locking pin |
| 11 | Mode selector lever |
| 12 | Hydraulic connections (Advance / Retract) |

▼ *Optional wire stroke sensor can provide stroke feedback to pump control.*



▼ SCJ100, Enerpac Self-Locking Cube Jack




# Incremental Lifting System With Automatic Mechanical Locking

- **Included with Cube Jack are:**
  - **Cube Jack Base Unit**
  - **End Block with Swivel Saddle**
  - **Multiple cribbing blocks: 11x on SCJ50**
    **18x on SCJ100**
  - **Transportation Frame**
- **Cribbing blocks can be manually inserted into Cube Jack by one person**



**Transportation Frame**

Provided with purchase of each Cube Jack.

Provides storage and transport for base unit, end block, and all included cribbing blocks.



**Lightweight Cribbing Blocks**

Provided with purchase of each Cube Jack.

Spare cribbing blocks can be ordered separately.

| Description | Model No. |
|---|---|
| 1x Cribbing Block | **SCJ5B** |
| 1x Cribbing Block | **SCJ10B** |



**Split-Flow Pumps**

Enerpac recommend to use the SFP-Series Pumps with multiple outlets with equal oil flow.

For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using separately operated pumps.

*Page:* 132

▼ *Forklift tabs on Cube Jacks for easy transportation and positioning with a pallet truck. See dimensions D and I to select the right pallet truck size.*

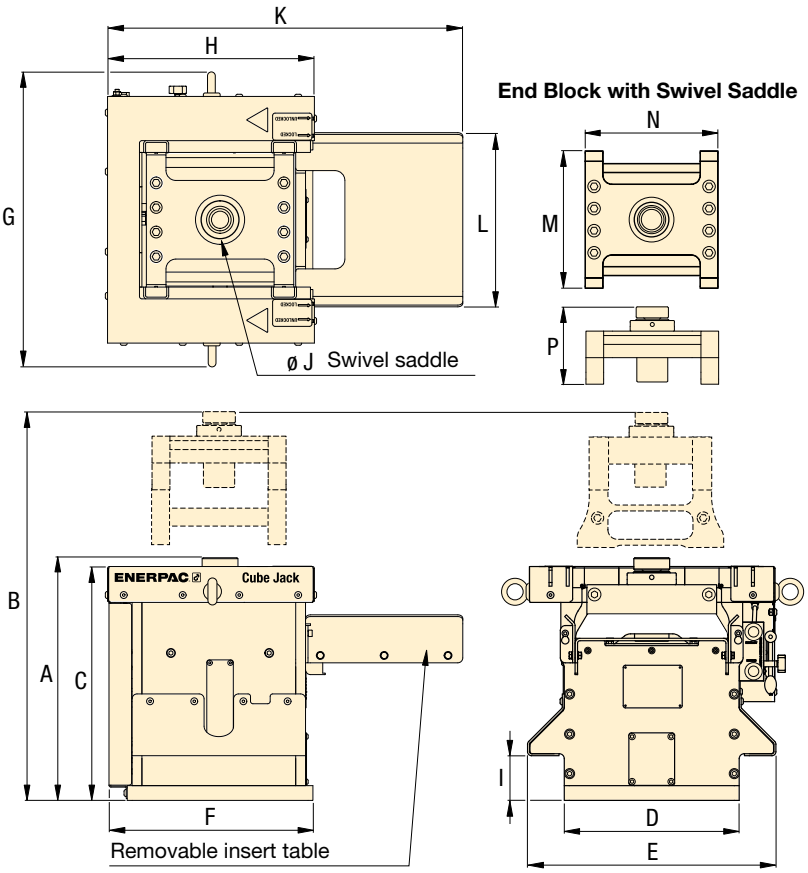



▼ **Self-Locking Cube Jacks**

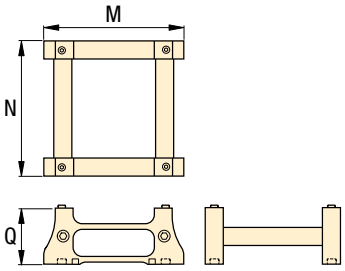
| Lifting Capacity per Base Unit (ton) | Lifting Stroke (in) | Model Number | Maximum Sideload at Full Extension | Oil Capacity per Base Unit ($in^3$) Advance | Oil Capacity per Base Unit ($in^3$) Retract |
|---|---|---|---|---|---|
| **56** | 6.14 | **SCJ50** | 1.5% | 75 | 38 |
| **110** | 6.14 | **SCJ100** | 1.5% | 152 | 85 |

# Self-Locking Cube Jack and Accessories

**Basic Unit**




**Cribbing Block**




## SCJ Series



Capacity Per Cube Jack:
**56 - 110 ton**

Maximum Lifting Height:
**81.4 - 118.3 inches**

Maximum Operating Pressure:
**10,000 psi**



▲ *SCJ100 Self-Locking Cube Jack at maximum height of 118.3 inches with 18 cribbing blocks.*

| Base Unit | | End Block | | Cribbing Block | | Transport Frame* | |
|---|---|---|---|---|---|---|---|
| Model Number | Weight (lbs) | Model Number | Weight (lbs) | Model Number | Weight (lbs) | Model Number | Weight (lbs) |
| **SCJ50** | 794 | **SCJ5EB** | 88 | **SCJ5B** | 35 | **SCJ5F** | 243 |
| **SCJ100** | 1804 | **SCJ10EB** | 220 | **SCJ10B** | 51.7 | **SCJ10F** | 550 |

| Dimensions (inches) | | | | | | | | | | | | | | | | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | P (min) | P (max) | Q | |
| 19.4 | 81.4 | 18.7 | 14 | 19.9 | 17.4 | 21.9 | 16.9 | 3.6 | 4.92 | 28.6 | 13.8 | 11.8 | 12.2 | 6.9 | 8.9 | 4.9 | **SCJ50** |
| 22.0 | 118.3 | 20.7 | 19.9 | 25.8 | 25.0 | 30.4 | 23.5 | 4.0 | 6.69 | 41.2 | 19.8 | 17.7 | 18.1 | 7.4 | 9.4 | 4.9 | **SCJ100** |

* Dimensions Transport Frame L x W x H: **SCJ5F**: 36.25 x 33.5 x 34 inches
**SCJ10F**: 63 x 47.25 x 59 inches

▼ **LH-Series, Low-Height Skidding System**



# Low Height Skidding System for Heavy Loads

## The Ideal Low-Height Jack & Slide Solution

- **Low starting height saves time and increases versatility**
- **Portable design allows for easy transport and setup**
- **System can push or pull load without relocating skidding cylinder**
- **Skid track sections bolt together to allow each setup to be customized as needed**
- **Replaceable PTFE skid pads lower the total cost of ownership**

**Skidding Systems**

The Skidding System is comprised of a series of skid beams moved by hydraulic push-pull cylinders, travelling over a pre-constructed skid track.

A series of special PTFE-coated Teflon® pads are placed on the skid tracks to reduce friction. The push-pull cylinders are then connected by hydraulic hoses to our Split-Flow Pump. The Split-Flow Pump can be mounted on an optional pump cart for easy transport.

An optional storage and transport frame easily holds the equipment in between use.

▼ *LH400, Low-Height Skidding System provides the service team with the ability to maneuver and transport a press frame.*





# Low-Height Skidding System, 400 Tons

### Low-Height Skidding Jack Starter Kit - LH400SKJ

A complete starter kit is available to fit the needs of any jack and slide application. This system comes with two skidding units that will support up to 400 tons in total. This kit will get the job done, but there are optional accessories available in addition (see pages 80-81).

Each skidding unit will have 1 push-pull unit, 2 skid beams, 5 skid tracks, and 2 hoses. The Split-Flow Pump has 2 outlets and can be easily towed on the pump cart. After the job is complete, components can be stowed on the included storage and transport frame.

| LH400SKJ Starter Kit includes: | Model Number | Qty. |
|---|---|---|
| Push-Pull Unit (200 tons) | LHPP25 | 2x |
| Skid Beam A (3.3 feet) | LHSB1A | 2x |
| Skid Beam B (3.3 feet) | LHSB1B | 2x |
| Skid Track (3.3 feet) | LHST1 | 10x |
| Split-Flow Pump (460V, 3 ph) | SFP213MJ | 1x |
| Pump Cart (for SFP-pump) | LHPC | 1x |
| Hydraulic Hoses (50 ft) | HC7250C | 4x |
| Storage and Transport Frame | LHSF | 1x |

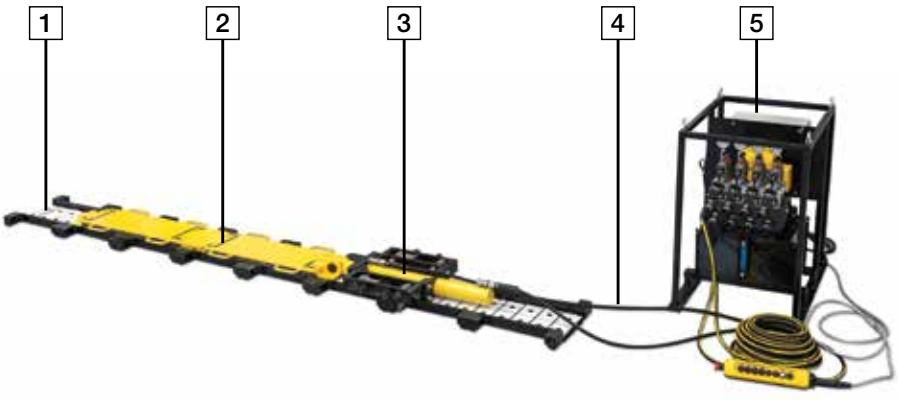
## LH Series



Skidding Capacity (with 2 push-pull units):
**400 tons**

Push-Pull Stroke:
**23.5 inches**

Maximum Operating Pressure:
**10,000 psi**

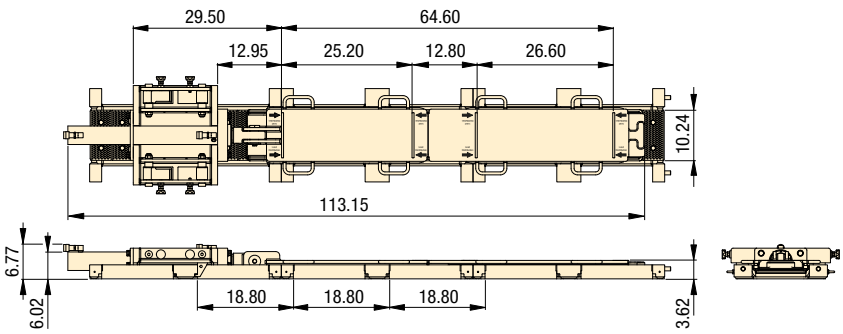



### ▼ LH-Series Skidding System Requirements

| | | |
|---|---|---|
| 1 | Skid Track - LHST1 | Required |
| 2 | Skid Beam - LHSB1A and LHSB1 | Required |
| 3 | Push-Pull Cylinder Unit - LHPP25 | Required |
| 4 | Hydraulic Hoses | Required |
| 5 | Split-Flow Electric Pump | Required |
| 6* | Track Support | Application Dependent |
| 7* | Storage and Transport Frame - LHSF | Optional |
| 8* | Pump Cart - LHPC | Optional |

* not shown

**LH400 Low-Height Skidding System**






### SFP-Series, Split-Flow Pump

Split-Flow pumps distribute an equal amount of hydraulic oil to a maximum of 8 outlets. Smart valve technology allows both controlled lifting and lowering of heavy loads.

*Page:* 132



### Hydraulic Power Packs

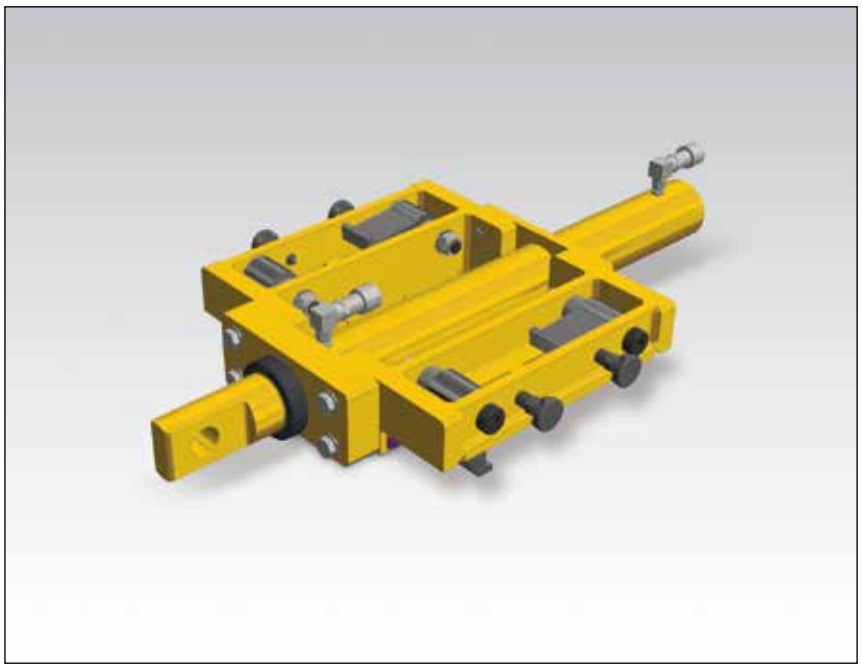
Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with Skidding Systems.



### LHPC Pump Cart

The LHPC pump cart easily tows pump around jobsite and can be used with all models of Split-Flow Pumps.

▼ LHPP25 Low-Height Push-Pull Unit



## Push-Pull Unit

- Connects to first skid beam to push or pull load along skid track
- Easily reverse direction by switching reaction tabs
- Complies to ASME B30.1 and other safety standards

| Maximum Capacity (tons) | | Model Number | Stroke | Weight |
|---|---|---|---|---|
| Push | Pull | | (inch) | (lbs) |
| 25 | 11 | **LHPP25** | 23.5 | 224 |

▼ LHSB1A and LHSB1B Skid Beams



## Skid Beams

- Interlocks without any fasteners to slide load over skid track; skid beam A (LHSB1A) attaches to the push-pull unit skid beam B (LHSB1B) attaches to skid beam A
- Polished stainless steel skid surface
- Carrying handles for easy transport

| Capacity (tons) | Model Number | Weight (lbs) |
|---|---|---|
| 100 | **LHSB1A** | 145 |
| 100 | **LHSB1B** | 139 |

▼ **LHST1 Skid Track**



- **Support the load for skidding operations**
- **Track sections bolt together**
- **Includes 9 pieces easily replaceable PTFE skid pads**

| Max.Cap. (per skid track) (tons) | Model Number | Track Length (in) | Weight (including pads) (lbs) |
|---|---|---|---|
| 100 | **LHST1** | 37.60 | 148 |

## LH Series



Skidding Capacity (with 2 push-pull units):
**400 tons**

Push-Pull Stroke:
**23.5 inches**

Maximum Operating Pressure:
**10,000 psi**



**Teflon® Pads**

A series of special PTFE coated Teflon® pads are placed on the skid tracks. The PTFE surface is matched with the skid beam and designed to achive minimum friction coefficients. Replacement Teflon® pads come in packs of 12 pieces.
Order model number **HSKSPS1**.



**LHSF Storage and Transport Frame**

- For easy storage and transport.
- Fits following components:

2x LLPP25 Push-Pull Unit
2x LHSB1A Skid Beam A
2x LHBS1B Skid Beam B
10x LHST1 Skid Tracks

▼ *An LH400 Skidding System allows the maintenance team to transport transformers with access limitations.*



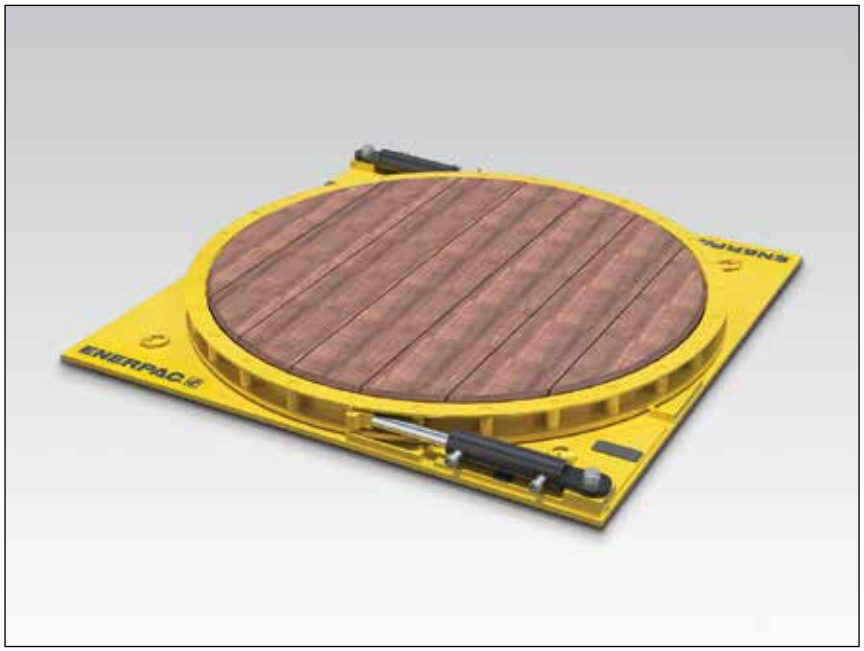
▼ *Details of push-pull unit of LH400.*



▼ *Low-Height Skidding System assembly (LH400).*



▼ ETT 400 Turntable



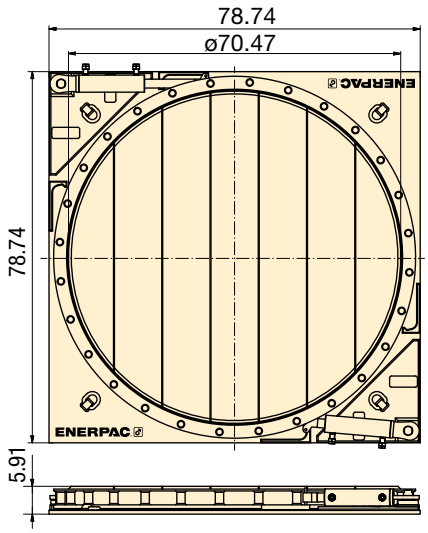
**ETT**
**Series**

Maximum Capacity:
**225 - 450 tons**

Cylinder Capacity:
**25 tons**

Maximum Operating Pressure:
**10,000 psi**

- **Safe and controlled rotation of heavy loads**
- **Easily change rotation direction**
- **Dual capacity: 225 ton with one cylinder, 450 ton with two cylinders**
- **Compact size for use in applications with limited space**
- **Compatible with standard Enerpac pumps**
- **Hardwood surface**




**Safe and Controlled Rotation**

The ETT-Series is your solution for rotating heavy loads during, before or after a lifting and skidding operation.



**SFP-Series, Split-Flow Pump**

Split-Flow pumps distribute an equal amount of hydraulic oil to a maximum of 8 outlets. Smart valve technology allows both controlled lifting and lowering of heavy loads.

*Page:* 132



**LH-Series, Low-Height Skidding**

The ETT-Series is ideal in combination with our skidding systems, particular the LH-Series. Skidding and rotating in confined spaces is simplified.

*Page:* 360



**Telescopic Hydraulic Gantries**

The ETT-Series in combination with our hydraulic gantry SL-Series makes load handling in the most demanding situations easy.

*Page:* 364

▼ **SELECTION CHART**

| Maximum Load Capacity (ton) | Model Number | Cylinder Capacity * (ton) | Cylinder Oil Capacity * ($in^3$) advance | retract | Number of Cylinders* | Rotation per Stroke (degrees) | Platform Diameter (in) | Wt. (lb) |
|---|---|---|---|---|---|---|---|---|
| 225 | **ETT200** | 25 | 48.31 | 21 | 1 | 12.5 | 70.47 | 3748 |
| 450 | **ETT400** | 25 | 48.31 | 21 | 2 | 12.5 | 70.47 | 3803 |

* Per cylinder. Cylinder model number: **BRD259-ETT**

**INFRASTRUCTURE**



Custom cylinders used for incremental bridge launching systems.

**BUILDING CONSTRUCTION**



Custom cylinders for jack and slide operations.

**INFRASTRUCTURE**



Custom SyncHoist cylinders for placement of stadium roof trusses.

**POWERGEN**



Custom double-acting Lock Nut cylinders with internal stroke sensors and an integrated load holding valve for lifting nuclear components.

**INFRASTRUCTURE**



Custom cylinders with embedded sensors for bridge construction.

**POWERGEN**



One of three custom SyncHoist cylinders used to place a 1,140-ton nuclear plant module.

**Enerpac hydraulic pumps are available in over 1,000 different configurations. Whatever your high pressure pump needs are… speed, control, intermittent or heavy-duty performance… you can be sure that Enerpac has the pump to suit the application.**

**Featuring Hand, Battery, Electric, Air and Gasoline powered models, with multiple reservoir and valve configurations, Enerpac offers the most comprehensive high pressure pump line available.**






**Pump Selection**

For help in selecting the correct pump for your application, please review our **"Yellow Pages."**
If you require further assistance, contact the Enerpac office located near you.

*Page:* 406



**Torque Wrench Pumps**

System matched air and electric pumps provide control to operate Enerpac Torque Wrenches.

*Page:* 295

# Pumps and Directional Control Valves Section Overview

| Power Source | Pump Types | Maximum Reservoir Capacity | Max. Flow at Rated Pressure ($in^3$/min) | Series | | Page |
|---|---|---|---|---|---|---|
| Manual | **Lightweight Hand Pumps**<br>Exclusively from Enerpac | 155 $in^3$ | 0.15<br>($in^3$/stroke) | P |  | 86 ▶ |
| | **ULTIMA Steel Hand Pumps**<br>**Low-Pressure Hand Pumps** | 453 $in^3$<br>200 $in^3$ | 0.29<br>0.58<br>($in^3$/stroke) | P<br>P |  | 88 ▶<br>90 ▶ |
| | **Foot Pump**<br>For Hands-Free Operation | 38 $in^3$ | 0.15<br>($in^3$/stroke) | P |  | 92 ▶ |
| | **Multifluid Hand Pumps**<br>Pumping Fluids up to 14,500 psi | – | 1.28<br>($in^3$/stroke) | MP |  | 93 ▶ |
| | **Ultra-High Pressure Hand Pumps**<br>Pressure up to 40,000 psi | 60 $in^3$ | 0.15<br>($in^3$/stroke) | P/11 |  | 94 ▶ |
| Battery | **Battery Powered Hydraulic Pump**<br>Cordless Hydraulic Power | 120 $in^3$ | 15 | XC |  | 96 ▶ |
| | **Cordless Hydraulic Pump**<br>High-Performance Battery Power | 60-120 $in^3$ | 32 | ZC |  | 98 ▶ |
| Electric | **Economy Series**<br>Compact and Portable | 1 gal. | 20 | PU |  | 100 ▶ |
| | **Electric Hydraulic Pumps, E-pulse®**<br>The Heart of the System | 0.8 gal. | 32 | E |  | 102 ▶ |
| | ***Z-Class*** Portable and Powerful | 10 gal. | 60<br>200 | ZU<br>ZE |  | 104 ▶<br>112 ▶ |
| | **8000-Series**<br>The Maximum Flow Pump | 25 gal. | 462 | PEM<br>PER |  | 118 ▶ |
| Air | **Air Hydraulic Pumps**<br>Single and Twin-Air Motor | 80 $in^3$<br>2 gal. | 8<br>9 | PA<br>PAM |  | 120 ▶<br>121 ▶ |
| | **Turbo II Air Hydraulic Pumps**<br>Compact Air Over Hydraulic | 305 $in^3$ | 10 | PA |  | 122 ▶ |
| | **XA-Series Air Hydraulic Pumps**<br>Control and Ergonomics | 122 $in^3$ | 15 | XA |  | 124 ▶ |
| | **ZA4 Air Hydraulic Pumps**<br>The Standard for Air-Hydraulic Pumps | 10 gal. | 80 | ZA |  | 126 ▶ |
| Gasoline | **ZG5/ZG6 Gasoline Hydraulic Pumps**<br>Gas Powered High-Flow Pumps | 10 gal. | 200 | ZG5<br>ZG6 |  | 128 ▶<br>130 ▶ |
| | **8000-Series Gasoline Pumps**<br>For the Largest Jobs | 25 gal. | 1.5<br>(gal/min) | EGM |  | 131 ▶ |
| Controlled | **Split Flow Pump**<br>Multi-point Lifting & Lowering | 40 gal. | 1.5<br>(gal/min) | SFP |  | 132 ▶ |
| | **Synchronized Lifting System**<br>Computer Controlled Monitoring for Precise Lifting | 66 gal. | 1.25<br>(gal/min) | EVO |  | 136 ▶ |
| | **Directional Control Valves** | | | |  | 139 ▶ |

▼ Pumps shown, from top to bottom: **P802, P842, P202, P142**




- **Lightweight and compact design**
- **Durable glass-filled nylon reservoir and nylon encapsulated aluminum pump base for maximum corrosion resistance**
- **Two-speed operation on most models reduces handle strokes by as much as 78% over single speed pumps**
- **Lower handle effort to minimize operator fatigue**
- **Integral 4-way valve on P842 for operation of double-acting cylinders**
- **Handle lock and lightweight construction for easy carrying**
- **Large oil capacities to power a wide range of cylinders or tools**
- **Non-conductive fiberglass handle for operator safety**
- **Internal pressure relief valve for overload protection**

## Exclusively from Enerpac

**Cylinder Matching Chart**

For help in selecting the correct hand pump for your application, please refer to the Cylinder Matching Chart located in the "Yellow Pages".

*Page:* **402**

**Speed Chart**

To determine how a specific pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

*Page:* **409**



**Tank Kits**

When a return-to-tank port is required, the Tank Kits provide a 7/16"-20 port at the rear of the reservoir.

| | |
|---|---|
| **PC20** | Fits P141, P142 |
| **PC25** | Fits P202, P391, P392 |



**LX101 Hand Pump Oil**

A medium viscosity oil specially formulated for hand pumps. Performs well in low temperatures and requires less pumping effort than standard Enerpac HF blue oil.

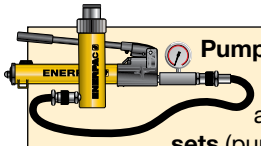
*Page:* **152**

▼ *P392 in action with RC256 cylinders.*



| Pump Type | Usable Oil Capacity ($in^3$) | Model Number | Pressure Rating* (psi) | | Oil Displacement per Stroke ($in^3$) | | Max. Handle Effort (lbs) |
|---|---|---|---|---|---|---|---|
| | | | 1st stage | 2nd stage | 1st stage | 2nd stage | |
| Single speed | 20 | **P141** | N/A | 10,000 | N/A | 0.055 | 72 |
| | 55 | **P391** | N/A | 10,000 | N/A | 0.151 | 85 |
| Two speed | 20 | **P142**** | 200 | 10,000 | 0.221 | 0.055 | 78 |
| | 55 | **P202** | 200 | 10,000 | 0.221 | 0.055 | 63 |
| | 55 | **P392**** | 200 | 10,000 | 0.687 | 0.151 | 93 |
| | 155 | **P802** | 400 | 10,000 | 2.40 | 0.151 | 95 |
| | 155 | **P842***** | 400 | 10,000 | 2.40 | 0.151 | 95 |

* Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.
** Available as set, see note on top of next page.
*** For use with double-acting cylinders.



**Pump and Cylinder Sets**

Pumps marked with an ** are available as **sets** (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

*Page:* 62

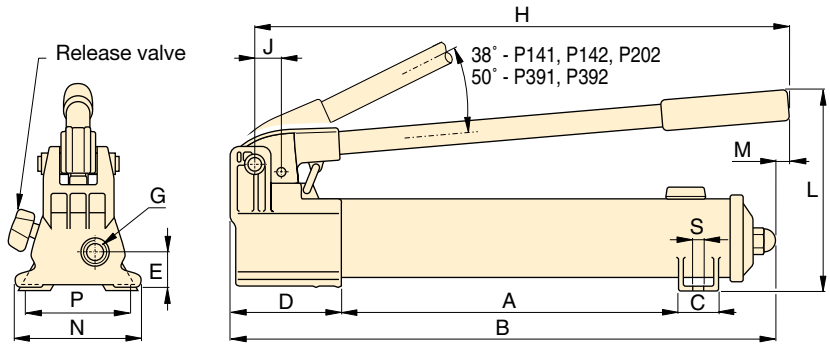
## P Series



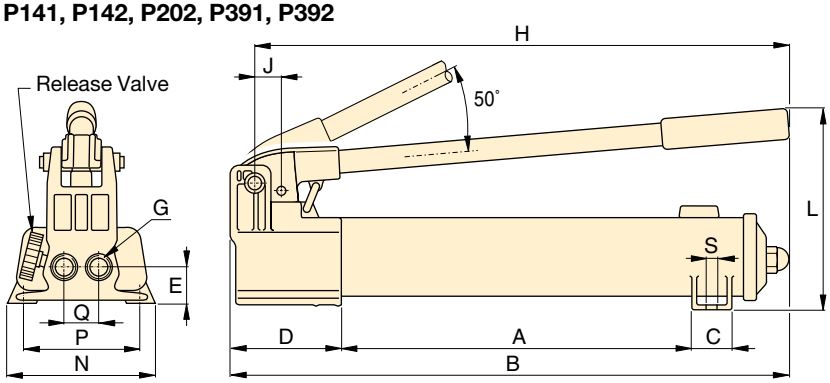
Reservoir Capacity:
**20 - 155 in³**

Flow at Rated Pressure:
**0.055 - 0.15 in³/stroke**

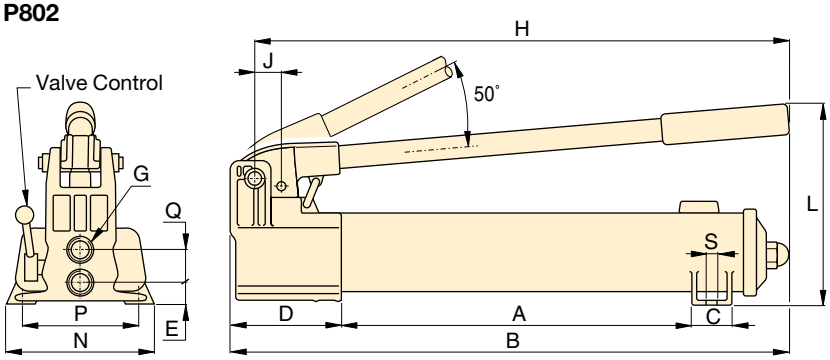
Maximum Operating Pressure:
**10,000 psi**




**P141, P142, P202, P391, P392**




**P802**




**P842**



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 148



**GA45GC Gauge Adaptor**

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

*Page:* 162



**Aluminum Reservoir**

For applications where composite reservoirs may not be suitable, the **P392AL** utilizes an extruded aluminum reservoir. Also included is a second handle for two-hand use. Contact Enerpac for details.

| Piston Stroke | Dimensions (in) | | | | | | | | | | | | | | Weight | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (in) | A | B | C | D | E | G | H | J | L | M | N | P | Q | S | (lbs) | |
| 0.50 | 7.31 | 13.25 | 1.13 | 3.37 | 1.13 | ¼"-18 NPTF | 12.56 | 0.75 | 5.63 | – | 3.75 | 3.25 | – | 0.28 | 4.5 | **P141** |
| 1.00 | 13.56 | 21.00 | 1.44 | 3.93 | 1.31 | ⅜"-18 NPTF | 20.56 | 1.19 | 7.00 | 0.63 | 4.75 | – | – | – | 9.0 | **P391** |
| 0.50 | 7.31 | 13.25 | 1.13 | 3.37 | 1.13 | ¼"-18 NPTF | 12.56 | 0.75 | 5.63 | – | 3.75 | 3.25 | – | 0.28 | 5.3 | **P142**** |
| 0.50 | 13.56 | 20.06 | 1.44 | 3.37 | 1.13 | ¼"-18 NPTF | 15.75 | 0.75 | 5.69 | 0.63 | 3.75 | – | – | – | 7.5 | **P202** |
| 1.00 | 13.56 | 21.00 | 1.44 | 3.93 | 1.31 | ⅜"-18 NPTF | 20.56 | 1.19 | 7.00 | 0.63 | – | – | – | – | 9.0 | **P392**** |
| 1.00 | 13.30 | 21.75 | 1.78 | 5.25 | 1.39 | ⅜"-18 NPTF | 20.75 | 2.19 | 9.00 | – | 7.12 | 6.02 | 1.40 | 0.41 | 18.0 | **P802** |
| 1.00 | 13.30 | 21.75 | 1.78 | 5.25 | 0.81 | ⅜"-18 NPTF | 20.75 | 2.19 | 9.00 | – | 7.12 | 6.02 | 1.44 | 0.41 | 22.0 | **P842***** |

▼ Shown from left to right: **P77, P80, P84, P801, P39**




# The Solution for Tough Jobs

**Two-Speed Pumps**
Recommended for applications where cylinder plunger must advance rapidly to contact load, and applications where greater oil capacities are required, such as multiple cylinder hook-ups.



**Foot Pump Conversion Kits**
Convert your **P39, P77, P80,** or **P801** to foot power with the **PC11** Kit.
Includes instructions for easy conversion.



**GA45GC Gauge Adaptor**
Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

*Page:* 162



**4-Way Control Valve**
P84 and P464 feature a manual 4-way control valve, designed for use with one double-acting or two single-acting cylinders. For system set-up information:

*Page:* 404

- **Reduced handle effort and ergonomic grip for less operator fatigue**
- **Two-speed operation for fast and easy operation (except P39)**
- **Vent free reservoir eliminates spills**
- **Quick grip handle allows for easy transport**
- **Integral reservoir over-pressurization protection**
- **All steel construction, chrome plated plunger and wiper system for durable, long lasting performance**
- **4-way valving on the P84 and P464 for operation of double-acting cylinders**

▼ *In the absence of a power supply, the P80 Hand Pump offers a powerful solution.*



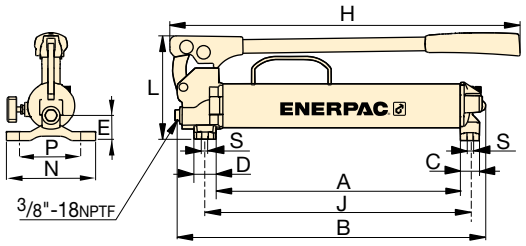
| Pump Type | Usable Oil Capacity ($in^3$) | Model Number | Pressure Rating* (psi) | | Oil Displacement per Stroke ($in^3$) | | Max. Handle Effort (lbs) |
|---|---|---|---|---|---|---|---|
| | | | 1st stage | 2nd stage | 1st stage | 2nd stage | |
| **Single** | 41 | **P39** | N/C | 10,000 | N/C | 0.15 | 85 |
| **Two-speed** | 41 | **P77** | 500 | 10,000 | 1.00 | 0.15 | 88 |
| | 134 | **P80**** | 500 | 10,000 | 1.00 | 0.15 | 77 |
| | 250 | **P801** | 500 | 10,000 | 1.00 | 0.15 | 77 |
| | 134 | **P84***** | 500 | 10,000 | 1.00 | 0.15 | 77 |
| | 453 | **P462** | 200 | 10,000 | 7.69 | 0.29 | 110 |
| | 453 | **P464***** | 200 | 10,000 | 7.69 | 0.29 | 110 |

* Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.
** Available as a set, see note on next page.
*** For use with double-acting cylinders.

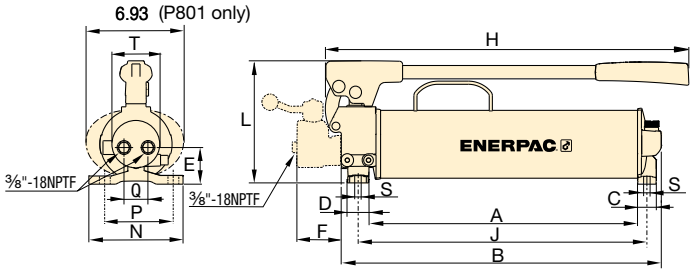
**Speed Chart**

To determine how a specific pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

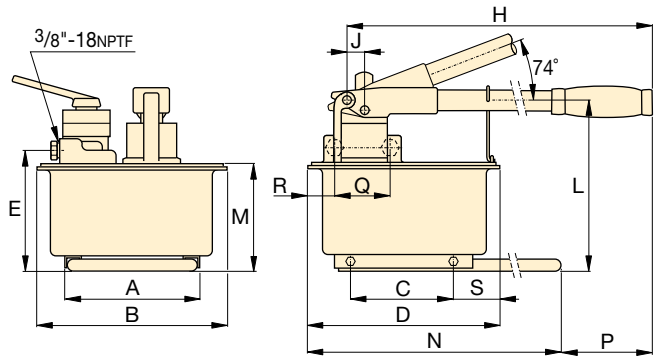
*Page:* 409




**P39, P77**




**P80, P801, P84**




**P462, P464**

# P Series



Reservoir Capacity:
**41 - 453 in³**

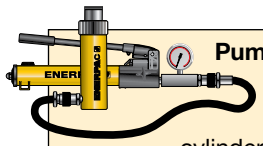
Flow at Rated Pressure:
**0.15 - 0.29 in³/stroke**

Maximum Operating Pressure:
**10,000 psi**



**Extra Capacity Hand Pumps**

**P462** and **P464** feature extra-large reservoirs and a high first-stage flow rate. These pumps are ideally suited for powering high-capacity cylinders.



**Pump and Cylinder Sets**

P80 is also available as a **set** (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

*Page:* 62

**Cylinder Matching Chart**

For help in selecting the correct hand pump for your application, please refer to the Cylinder Matching Chart located in the "Yellow Pages."

*Page:* 402

| Piston Stroke | Dimensions (in) | | | | | | | | | | | | | | | | Weight | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (in) | A | B | C | D | E | F | H | J | L | M | N | P | Q | R | S | T | (lbs) | |
| 1.00 | 15.09 | 18.91 | 1.18 | 1.38 | 1.48 | – | 21.63 | 16.37 | 6.39 | – | 5.51 | 4.37 | – | – | 0.33 | – | 13.6 | **P39** |
| 1.00 | 15.39 | 19.19 | 1.18 | 1.38 | 1.86 | – | 21.63 | 16.67 | 6.39 | – | 5.51 | 4.37 | – | – | 0.33 | – | 15.6 | **P77** |
| 1.00 | 16.83 | 20.12 | 1.18 | 1.38 | 2.17 | – | 23.50 | 18.11 | 7.65 | – | 5.91 | 4.76 | 1.65 | – | 0.33 | 2.93 | 23.6 | **P80**** |
| 1.00 | 16.83 | 20.12 | 1.18 | 1.38 | 2.17 | – | 23.50 | 18.11 | 7.65 | – | 5.91 | 4.76 | 1.65 | – | 0.33 | 2.93 | 31.0 | **P801** |
| 1.00 | 16.83 | 20.06 | 1.18 | 1.38 | 2.30 | 2.77 | 22.78 | 18.11 | 7.65 | – | 5.91 | 4.76 | 1.50 | – | 0.33 | 2.93 | 26.0 | **P84***** |
| 1.50 | 8.25 | 12.13 | 6.42 | 12.63 | 7.68 | – | 26.44 | .98 | 10.63 | 6.89 | 25.6 | 3.63 | – | – | 3.13 | – | 61.0 | **P462** |
| 1.50 | 8.35 | 12.13 | 6.42 | 12.63 | 7.68 | – | 26.44 | .98 | 10.63 | 6.89 | 25.6 | 3.63 | 3.50 | 2.68 | 3.13 | – | 61.0 | **P464***** |

▼ Shown from left to right: **P25, P51, P18**




# When Less Than 10,000 psi is All You Need

- **P25 and P50 pump oil in both forward and reverse handle movement improving overall efficiency, ideal when mounting space is restricted**
- **External load-release valve**
- **Internal pressure-relief valve for overload protection**
- **For use with single-acting cylinders and tools**
- **P18 vertical operation requires pump head facing down**
- **P25, P50 vertical operation requires pump vent side facing up**
- **P51 for horizontal operation only**



**LX101 Hand Pump Oil**

A medium viscosity oil specially formulated for hand pumps. Performs well in low temperatures and requires less pumping effort than standard Enerpac HF blue oil.

***Page:*** **152**



**GA45GC Gauge Adaptor**

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

***Page:*** **162**

▼ *P18 hand pump used for locking the rotating table for marble polishing.*



| Pump Type | Usable Oil Capacity ($in^3$) | Model Number | Pressure Rating (psi) | Oil Displacement per Stroke ($in^3$) | Max. Handle Effort (lbs) |
|---|---|---|---|---|---|
| Single-speed | 18 | **P18** | 2,850 | 0.16 | 34 |
| | 200 | **P25** | 2,500 | 0.58 | 60 |
| | 200 | **P50** | 5,000 | 0.29 | 60 |
| | 50 | **P51** | 3,000 | 0.25 | 61 |

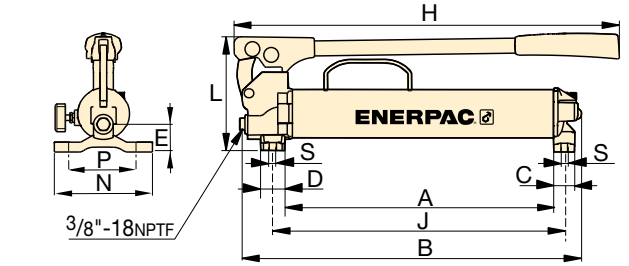
## P Series



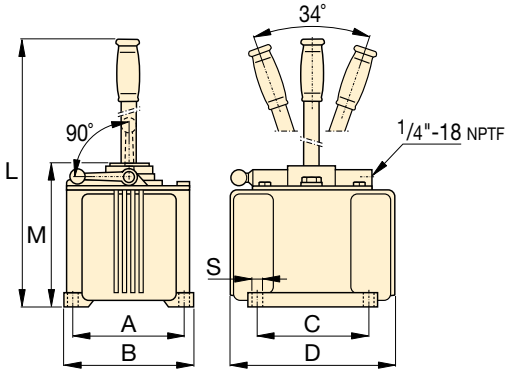
Reservoir Capacity:
**18 - 200 in³**

Flow at Rated Pressure:
**0.16 - 0.58 in³/stroke**

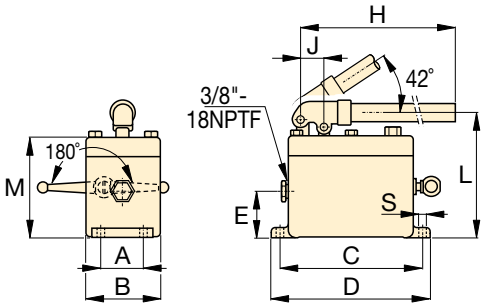
Maximum Operating Pressure:
**2,500 - 5,000 psi**




**P18**




**P25, P50**




**P51**



**Hoses**
Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 148



**MP-Series Multifluid Hand Pumps**
Corrosion resistant hand pumps for low pressure filling and high pressure testing applications, suitable for a wide range of fluids.

*Page:* 93



*P51 hand pumps used with RC-series cylinders to keep wooden layers under pressure during lamination of plates.* ▶

| Piston Stroke | Dimensions (in) | | | | | | | | | | | | Weight | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (in) | A | B | C | D | E | H | J | L | M | N | P | S | (lbs) | |
| 1.00 | 8.70 | 12.44 | 1.18 | 1.38 | 1.48 | 15.17 | 9.98 | 6.39 | – | 5.51 | 4.37 | 0.33 | 11 | **P18** |
| 1.50 | 6.00 | 6.82 | 6.00 | 9.43 | – | – | – | 26.94 | 7.88 | – | – | 0.40 | 36 | **P25** |
| 1.50 | 6.00 | 6.82 | 6.00 | 9.43 | – | – | – | 26.94 | 7.88 | – | – | 0.40 | 37 | **P50** |
| 1.00 | 2.06 | 3.63 | 7.12 | 7.88 | 2.25 | 24.00 | 1.16 | 6.31 | 5.06 | – | – | 0.34 | 12 | **P51** |

# Lightweight Hydraulic Foot Pump

ENERPAC

▼ Shown: **P392FP**

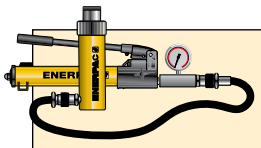



**P**
**Series**

Reservoir Capacity:
**38 in³**

Flow at Rated Pressure:
**0.151 in³/stroke**

Maximum Operating Pressure:
**10,000 psi**



**Pump and Cylinder Sets**

The **P392FP** is available as **sets** (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

***Page:*** **92**

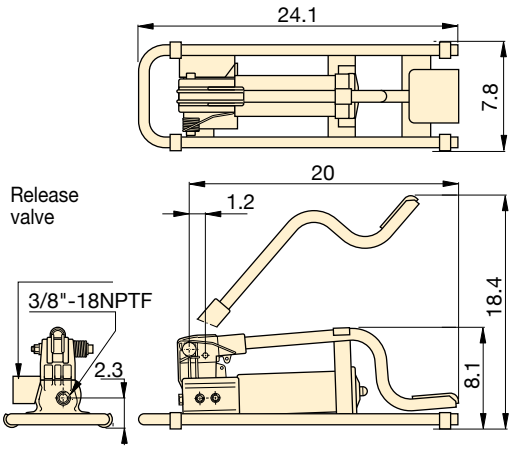


**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

***Page:*** **148**

- **Robust, durable and compact**
  - **Steel frame for maximum stability**
  - **Steel pumping handle**
  - **Aluminum reservoir**
- **Foot pedal lock and lightweight construction for portability**
- **Two-speed operation reduces foot pedal strokes**
- **Large foot-pad release valve for controlling load descent**
- **Internal pressure relief valve for overload protection**




▼ *P392FP offers the advantage of hands-free operation to handle and control the tool or cylinder.*



| Usable Oil Capacity (in³) | Model Number | Pressure Rating (psi) 1st stage | Pressure Rating (psi) 2nd stage | Oil Displacement per Stroke (in³) 1st stage | Oil Displacement per Stroke (in³) 2nd stage | Max. Handle Effort (lbs) | Piston Stroke (in) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|
| 30 | **P392FP *** | 200 | 10,000 | 0.687 | 0.151 | 125 | 1 | 16 |

* Available as set, see note on this page.

▼ Shown: **MP110**




## MP Series

Reservoir Capacity:
**2 gallon (optional)**

Flow at Rated Pressure:
**0.12 - 1.28 in³/stroke**

Maximum Operating Pressure:
**1,500 - 14,500 psi**



**Optional Reservoir Kit**

The two-gallon reservoir kit **MP10T*** includes tank with skid frame, top plate with reservoir seal, suction pipe and mounting bolts. Useable oil capacity is 1.5 gal.

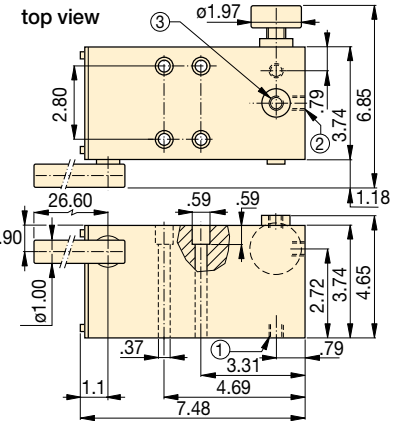
*For use with mineral oil applications only.



Also available is model number **11-400.**

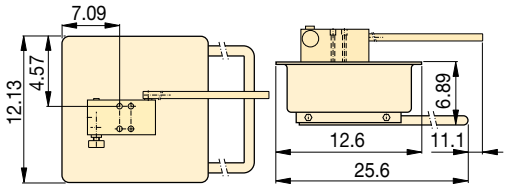
**Page:** 94

- **Superior corrosion resistance**
- **Impregnated aluminum anodized pump housing with stainless steel internal pumping components**
- **Standard Nitrile seals – excellent for demineralized water, oil/water emulsions, water glycols, mineral oils, hydraulic fluids**
- **Custom EPDM seals available for use with Skydrol® or brake fluids**
- **Two-speed pumps up to 14,500 psi pressure**
- **Externally adjustable pressure-relief valve**
- **1/4" NPTF gauge port**




**MP110, 350, 700, 1000**

① Suction / Tank return port 3/8"-18 NPTF
② Pressure port 3/8"-18 NPTF
③ Gauge port 1/4"-18 NPTF




**MP10T**

▼ *MP-Series pumps are ideal for testing and filling applications.*



| Pump Type | Usable Oil Capacity (in³) | Model Number | Pressure Rating (psi) 1st stage | Pressure Rating (psi) 2nd stage | Oil Displacement per Stroke (in³) 1st stage | Oil Displacement per Stroke (in³) 2nd stage | Max. Handle Effort (lbs) | Piston Stroke (in) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| Two Speed | * | **MP110** | 500 | 1500 | 3.2 | 1.28 | 99 | 1.04 | 14.5 |
| | * | **MP350** | 500 | 5000 | 3.2 | 0.43 | 99 | 1.04 | 14.5 |
| | * | **MP700** | 500 | 10,000 | 3.2 | 0.18 | 99 | 1.04 | 14.5 |
| | * | **MP1000** | 500 | 14,500 | 3.2 | 0.12 | 99 | 1.04 | 14.5 |

Note: MP-Pump includes 0.060 in. thick gasket for reservoir mounting.
* MP-Series pumps require the use of an external reservoir.

▼ Shown from left to right: **11-100, P2282**




# Ultra-High Pressure up to 40,000 psi



**2-Way Shut-Off Valve 72-750**

For 40,000 psi applications requiring a shut-off valve or gauge snubber. Made of 318 Stainless Steel and utilizing 0.38-inch cone fittings, it is the perfect selection for use with your Ultra-High Pressure Hand Pump.

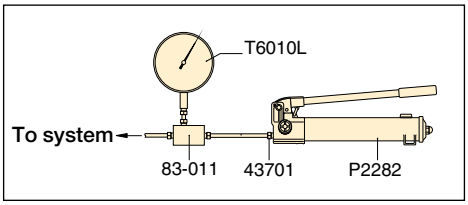


**Test System Gauges**

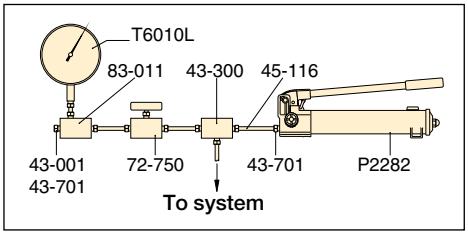
Ideal for monitoring pressure in your hydraulic circuit, Test System Gauges, such as the **T6010L**, are available with cone threads or NPTF threads and in a variety of pressure ranges.

*Page:* **160**

- **Two-speed operation on the P2282 allows for faster fill, reducing cycle times for many testing applications**
- **303 Stainless steel construction on the 11-100 and 11-400 models enable use with many different fluids, such as distilled water, alcohol, diesters, silicones, soluble oils and petroleum**
- **Large release knob for improved control of pressure release**
- **Outlet ports are 3/4"-16 cone for 40,000 psi rating**



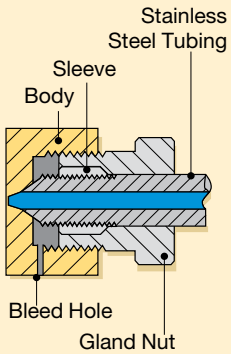

▲ *Typical Test System*




▲ *Test System with Gauge and Snubber*

**Cone Seal**

Stainless Steel High Pressure fittings seal on a "cone" surface and do not require pipe sealer. The Gland Nut holds the sleeve and tubing tight against the cone surface to provide a 40,000 psi seal.




| Pump Type | Usable Oil Capacity (in³) | Model Number | Pressure Rating* (psi) | | Oil Displacement per Stroke (in³) | | Max. Handle Effort (lbs) |
|---|---|---|---|---|---|---|---|
| | | | 1st stage | 2nd stage | 1st stage | 2nd stage | |
| **Two-speed** | 60 | **P2282** | 200 | 40,000 | 0.99 | 0.037 | 106 |
| **Single-speed** | 45 | **11-100** | N/C | 10,000 | N/C | 0.152 | 120 |
| | 45 | **11-400** | N/C | 40,000 | N/C | 0.038 | 120 |

* Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.

## ▼ Optional Ultra-High Pressure Fittings and Tubing

| Description | | Connection | Model No. |
|---|---|---|---|
| | | 40,000 psi | |
| Gland Nut Plug |  | 0.38" cone | 43-001 |
| Elbow |  | 0.38" cone | 43-200 |
| Tee |  | 0.38" cone | 43-300 |
| Gauge Tee |  | 0.38" cone side/<br>0.25" cone gauge port | 43-301 |
| Gauge Adaptor |  | 0.38" cone side/<br>0.25" cone gauge port | 83-011 |
| Coupling |  | 0.38" cone | 43-400 |
| Cross |  | 0.38" cone | 43-600 |
| Gland Nut with Sleeve |  | 0.38" cone | 43-701 |
| Gauge Connector |  | 0.25" cone | 43-704 |
| Tubing |  | 4" tube, O.D. 0.38" *<br>8" tube, O.D. 0.38" *<br>12" tube, O.D. 0.38" * | 45-116<br>45-126<br>45-136 |
| ⚠ WARNING: Maximum working pressure: 10,000 psi only | | | |
| Adaptor |  | 0.38" F cone to ¼" M NPTF<br>0.38" F cone to ⅜" M NPTF | 41-146<br>41-166 |
| Adaptor |  | 0.38" F cone to ¼" F NPTF<br>0.38" F cone to ⅜" F NPTF | 41-246<br>41-266 |
| Adaptor |  | 0.38" M cone to ⅜" F NPTF | 41-366 |

Note: 0.25" cone fittings use 9⁄16"-18 threads, ⅜" cone fittings use ¾"-16 threads.

* Actual tubing lengths are 0.75" less than nominal size shown. These dimensions make distance between centers of valves and fittings multiples of 4" spaces.

## P/11 Series



Reservoir Capacity:
**45 - 60 in³**

Flow at Rated Pressure:
**0.037 - 0.152 in³/stroke**

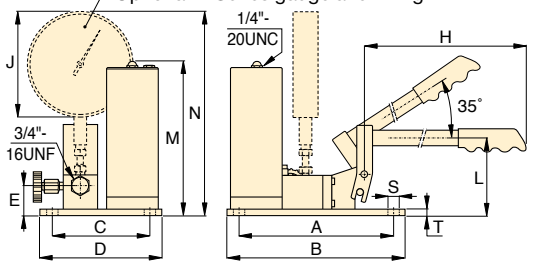
Maximum Operating Pressure:
**10,000 - 40,000 psi**

**Ultra-High Pressure pumps DO NOT have an internal safety pressure relief valve.**

**Stainless Steel Construction**

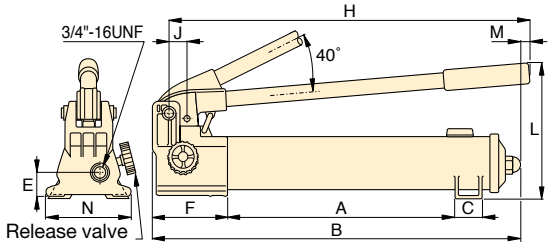
Ultra-high pressure fittings feature all stainless-steel construction except adaptor **41-366**, which features nickel plated carbon steel construction.

**11-100*, 11-400**




*NOTE: Maximum operating pressure for model **11-100** is 10,000 psi.

**P2282**




| | Piston Stroke | Dimensions (in) | | | | | | | | | | | | | Weight | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (in) | A | B | C | D | E | F | H | J | L | M | N | S | T | (lbs) | |
| | 1.00 | 13.56 | 22.00 | 1.40 | – | 1.24 | 5.25 | 20.75 | 1.16 | 9.00 | 0.28 | 4.74 | – | – | 14 | P2282 |
| | 0.78 | 9.45 | 10.50 | 5.98 | 7.00 | 1.77 | – | 25.00 | 6.41 | 4.50 | 9.33 | 12.38 | 0.31 | 0.37 | 22 | 11-100 |
| | 0.78 | 9.45 | 10.50 | 5.98 | 7.00 | 1.77 | – | 25.00 | 6.41 | 4.50 | 9.33 | 12.38 | 0.31 | 0.37 | 22 | 11-400 |

▼ Shown: **XC1201M**




# Performance of a Powered Pump

# Portability of a Hand Pump

- **Lightweight design with integrated handle and carrying strap for portability**
- **Bladder reservoir prevents contamination and allows pump usage in any position**
- **Powerful ½ horsepower motor and 28-volt Lithium-Ion battery deliver exceptional speed and run time**
- **High-strength fiberglass reinforced composite shroud for superior durability in demanding job site environments**
- **Cordless technology eliminates tripping hazards found in other electric or air powered pumps**
- **Available in torque wrench, dump and hold, single-acting and double-acting valve configurations**



**GA45GC Gauge Adaptor**

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

*Page:* 162



**28-Volt Battery**

The XC28V with Lithium-Ion technology for maximum battery performance.



**Roll Cage**

Optional Roll Cage XC-Series pumps. Please order model number **XCRCTK**.



**Interactive Pendant**

An interactive pendant is available on the **XC1302S** dump and hold models and **XC1502T** torque wrench models. Operation, programming, and diagnostic status are provided to the user with yellow, green, and red LED as well as vibration pulses.

The **XC1302S** models can easily toggle between "jog operation" to "dump system pressure" and the **XC1502T** models allow "manual" and "auto cycle" mode.



◀ *Power and simplicity for the toughest jobs.*

**XC-Series Cordless Hydraulic Pump**

The XC-Series cordless pump is ideal for jobs that require a combination of portability, speed, and safety. These cordless pumps are perfect for remote locations without access to power, but also indoors where trip hazards, ergonomics or size is a concern. The XC-Series cordless pump is compatible with all Enerpac hydraulic tools and small to medium sized cylinders.

The Lithium-Ion battery provides superior run time.*

- 279 cuts of 3/8 inch reinforcing bar using the WHC750 Cutter
- 112 lifts with the WR5 Spreader
- 44 splits on 1-inch, grade 8 nuts using the NC3241 Nut Splitter
- 28 lifts of an RC104

*Actual number of cycles per charge will vary depending on condition of tool, battery and ambient conditions. Battery life with double-acting tools is approximately 75% of that for comparable, single-acting tools.

**XC Series**



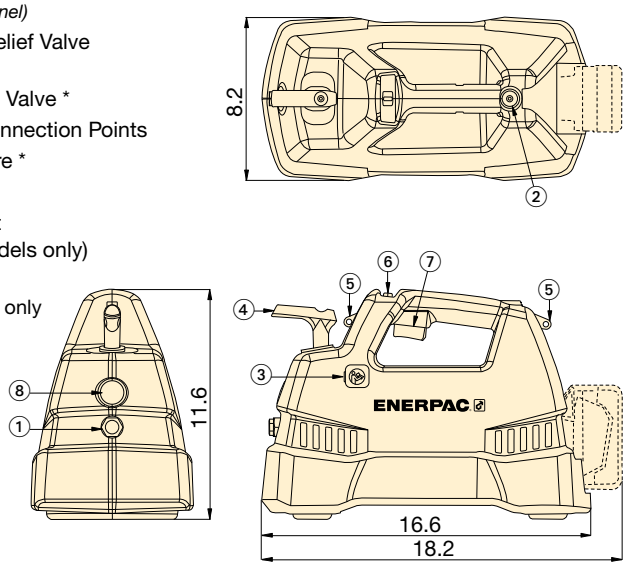
Reservoir Capacity:
**60 - 120 in³**

Flow at Rated Pressure:
**15 in³/min.**

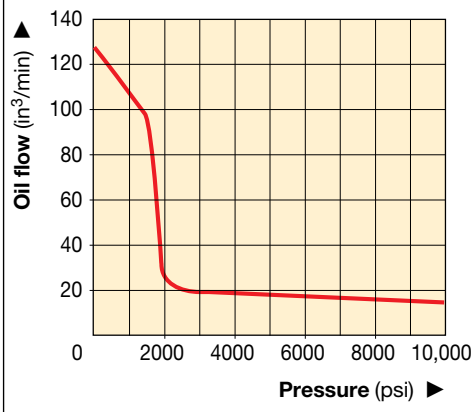
Maximum Operating Pressure:
**10,000 psi**

① Outlet "Advance" Port
② Oil Fill *(must use funnel)*
③ User Adjustable Relief Valve Access Port
④ Directional Control Valve *
⑤ Shoulder Strap Connection Points
⑥ Safety Lock Feature *
⑦ On/Off Switch *
⑧ Inlet "Retract" Port (double-acting models only)

* Single-acting and double-acting models only




**OIL FLOW vs. PRESSURE**






**Battery Charger**

1-hour quick charger.

| | |
|---|---|
| **XC115VC** | 115 VAC |
| **XC230VC** | 230 VAC |

▼ *Take the battery pump anywhere without power cords or air hoses.*



| Pump Types (Used with Cylinder) | Oil Capacity (in³) | Model Number | Output Flow Rate (in³/min) No Load | 2000 psi | 10,000 psi | Valve Function | Charger Voltage (VAC) | Wt. 3) (lbs) |
|---|---|---|---|---|---|---|---|---|
| Single-acting | 60 | **XC1201MB** 1) | 125 | 30 | 15 | 3-way, 2-pos. | 115 | 21.9 |
| | 120 | **XC1202MB** | 125 | 30 | 15 | | | 23.8 |
| | 60 | **XC1201ME** 1) | 125 | 30 | 15 | 3-way, 2-pos. | 230 | 21.9 |
| | 120 | **XC1202ME** | 125 | 30 | 15 | | | 23.8 |
| | 60 | **XC1201M** 2) | 125 | 30 | 15 | 3-way, 2-pos. | – | 21.9 |
| | 120 | **XC1202M** 2) | 125 | 30 | 15 | | | 23.8 |
| Single-acting | 120 | **XC1302SB** | 125 | 30 | 15 | Dump and Hold | 115 | 25 |
| | 120 | **XC1302SE** | 125 | 30 | 15 | | 230 | 25 |
| | 120 | **XC1302S** 2) | 125 | 30 | 15 | | – | 25 |
| Double-acting | 60 | **XC1401MB** | 125 | 30 | 15 | 4-way, 3-pos. | 115 | 22.3 |
| | 120 | **XC1402MB** | 125 | 30 | 15 | | | 24.2 |
| | 60 | **XC1401ME** | 125 | 30 | 15 | 4-way, 3-pos. | 230 | 22.3 |
| | 120 | **XC1402ME** | 125 | 30 | 15 | | | 24.2 |
| | 60 | **XC1401M** 2) | 125 | 30 | 15 | 4-way, 3-pos. | – | 22.3 |
| | 120 | **XC1402M** 2) | 125 | 30 | 15 | | | 24.2 |

1) Available as a cylinder-pump set, see page 62.
2) Batteries and charger not included.
3) Includes oil and battery

▼ Shown: **ZC3308JE**




Tough.
Dependable.
Innovative.
Z CLASS

## High-Performance Battery Power

### Productivity, Performance, Safety

- **High-flow cordless solution saves users time and money by eliminating the need for using a generator and extension cords**
- **Brushless 1.4 hp motor and 3-stage pump maximizes pump and tool productivity while minimizing heat buildup and downtime**
- **The Lithium-Ion battery provides superior run time, even under extreme job site conditions, running approximately 50 cycles on a RC1006 and approximately 90 cycles on a RC504 cylinder on a single charge**
- **Convenient 10 ft. pendant cord for hassle-free operation**
- **Reduce noise level, 80 dba maximum**
- **Zero emission hydraulic power pack**



| Charger | |
|---|---|
| ZC115VC | 115V |
| ZC230VC | 230V |
| **Battery*** | |
| ZC82V4NA | 82V |
| ZC82V4EUAU | 82V |

*NA is North America and EUAU is European and Australia



**Gauges**

Minimize the risk of overloading and ensure long, dependable service from your equipment.

*Page:* 147



**High-Pressure Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 148



◀ *Special Enerpac ZC3-Series pump used for rail stressing applications.*

### ZC-Series Cordless Hydraulic Pump

The Enerpac ZC-Series pump combines the performance of an electric pump with the convenience and portability of a battery pump. This quiet, cordless solution is ideal for applications where emission and noise are a concern, or when electricity or air is not readily available.

Power for the pump is supplied by a rechargeable 82V Lithium-ion battery. The Lithium-ion battery is capable of providing impressive run times, even under extreme job site conditions.

### Valve Options

- 4-way/3-position manual control valve used with double-acting cylinders
- 3-way/3-position manual control valve used with single-acting cylinders
- 4-way/3-position manual control valve with locking and power seat functions used in post tensioning concrete applications

### Applications

- High-flow cordless solution for industrial applications
- Foundation repair
- Rail industry
- Post-tensioning concrete

## ZC Series

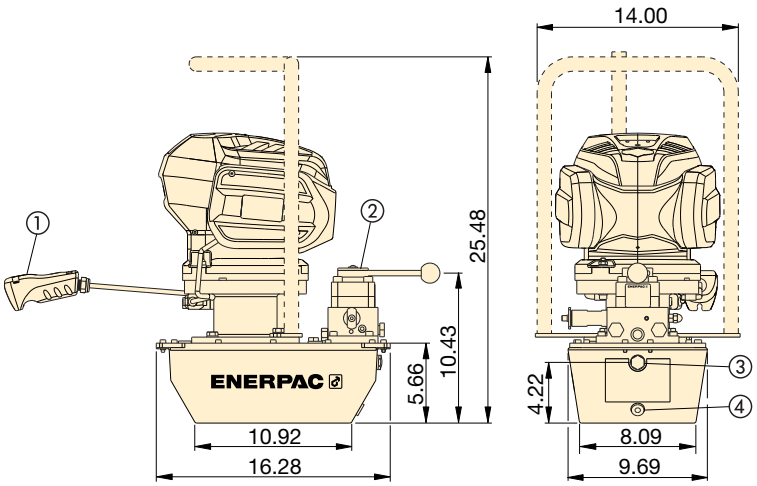


Oil Capacity:
**1.75 gallon**

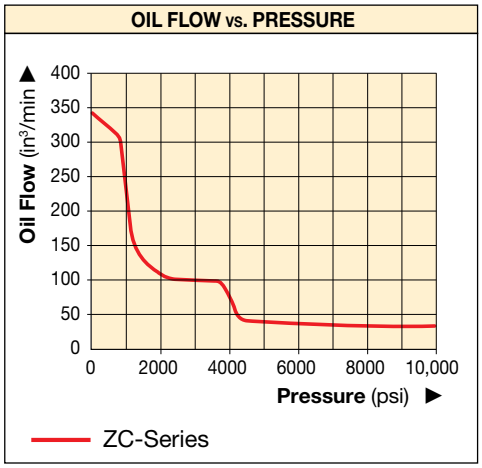
Flow at Rated Pressure:
**32 in³/min.**

Motor Size:
**1.36 hp**

Maximum Operating Pressure:
**10,000 psi**




① Motor On/Off Remote Pendant
② VM43-LPS Valve Shown
③ Sight Glass
④ Oil Drain ½" NPTF




| Used with | Oil Capacity (gal) | Manual Valve Model Number | Valve Function | Model Number* | Output Flow Rate (in³/min) @ no load | @ 4000 psi | @ 10,000 psi | Charger Voltage (VAC) | Weight with Oil** (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| **Single-Acting Cylinder** | 1.75 | VM33 | Advance/Neutral/Retract | **ZC3308JB** | 310 | 80 | 32 | 115 | 65.5 |
| | | | | **ZC3308JE** | | | | 230 | |
| **Double-Acting Cylinder** | 1.75 | VM43 | Advance/Neutral/Retract | **ZC3408JB** | 310 | 80 | 32 | 115 | 65.5 |
| | | | | **ZC3408JE** | | | | 230 | |
| **Power Seater Post-Tensioning Tools** | 1.75 | VM43LPS | Advance/Hold/Retract | **ZC3908JB** | 310 | 80 | 32 | 115 | 73.4 |
| | | | | **ZC3908JE** | | | | 230 | |

* **All models meet CE safety requirements and all** TUV **requirements.** Pump includes one charger and battery.
** Weight including oil and battery. Battery weight = 5.7 lbs.

▼ Shown: **PUJ1200B**




# Heavy on Performance, Light on Weight

- **Lightweight and compact design**
- **Large easy-carry handle for maximum portability**
- **Two-speed operation reduces cycle times for improved productivity**
- **115 VAC 50/60-cycle universal motor will operate on voltages as low as 60 volts**
- **24 VAC remote motor control, 10-ft length for operator safety**
- **Starts under full load**
- **High-strength molded shroud with integral handle, protects motor from contamination and damage**
- **Designed for intermittent duty cycle**



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

*Page:* 148



**Gauges**

Minimize the risk of over-loading and ensure long, dependable service from your equipment. For use with the Economy pump, the **G2535L** gauge and **GA3** gauge adaptor are suggested.

For a full range of gauges, please refer to the System Components section.

*Page:* 147

**Speed Chart**

To determine how the 0.5 hp Economy pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

*Page:* 409

▼ *An Economy Pump, PUJ1200B, is used with an RCS302 to reposition a Scissor lift to simplify maintenance.*



| Used with Cylinder | Oil Capacity (gal) | Model Number * | Pressure Rating (psi) | |
|---|---|---|---|---|
| | | | 1st stage | 2nd stage |
| Single-acting | 0.50 | **PUD1100B** | 200 | 10,000 |
| | 1.00 | **PUD1101B** | 200 | 10,000 |
| | 0.50 | **PUD1300B** | 200 | 10,000 |
| | 1.00 | **PUD1301B** | 200 | 10,000 |
| | 0.50 | **PUJ1200B** | 200 | 10,000 |
| | 1.00 | **PUJ1201B** | 200 | 10,000 |
| Double-acting | 0.50 | **PUJ1400B** | 200 | 10,000 |
| | 1.00 | **PUJ1401B** | 200 | 10,000 |

**About the Economy Pump**

The Economy pump is best suited to power small to medium size cylinders or hydraulic tools. Its lightweight and compact design makes it ideal for applications which require easy transport of the pump.

The Universal motor works well on long extension cords or generator-driven electrical power supplies.

For further application assistance refer to the “Yellow Pages”.

**PUD1100-Series**
- Provides advance/auto-retract of single-acting cylinders
- Ideal for punching applications
- For applications not requiring load holding
- 10-ft pendant controls motor and valve operation

**PUD1300-Series**
- Provides advance/hold/retract of single-acting cylinders
- 10-foot pendant controls motor and valve operation
- Ideal for applications requiring remote valve operation.

**PUJ-Series**
- Available with 3- and 4-way valves for single- or double-acting cylinders
- 10-ft cord controls the motor operation
- Manual valves provide advance/retract tool control

*Page:* 399

# PU Series



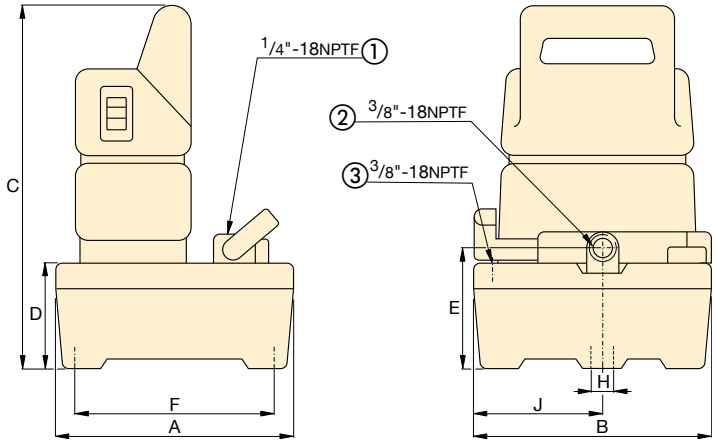
Reservoir Capacity:
**0.5 - 1.0 gallon**

Flow at Rated Pressure:
**20 in³/min.**

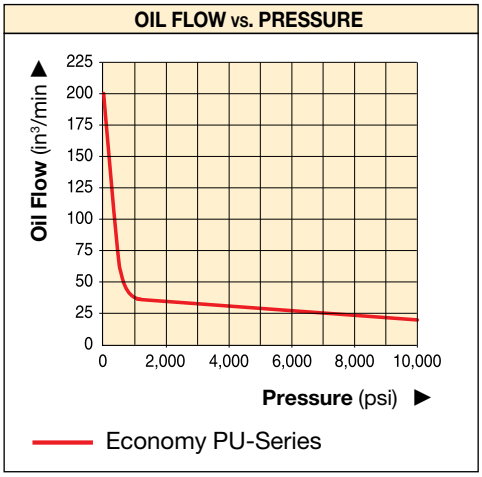
Motor Size:
**0.5 hp**

Maximum Operating Pressure:
**10,000 psi**

* NOTE: CE conformity marking only applies to pumps with an "E" suffix.




① Gauge Port (PUJ1200/1201 only)
② Outlet Port
③ Tank Port



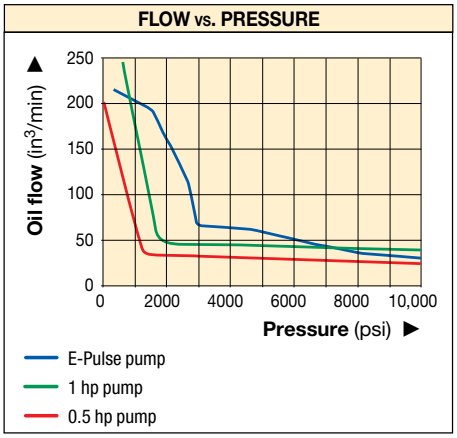

| Output Flow Rate (in³/min) 1st stage | Output Flow Rate (in³/min) 2nd stage | Valve Type | Current Draw (Amps) | Motor Voltage (VAC) | Sound Level (dBA) | Dimensions (in) A | B | C | D | E | F | H | J | Weight (lbs) | Model Number* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | 20 | Dump ** | 9.5 | 115 | 85 | 9.62 | 9.62 | 14.25 | 4.00 | 4.72 | 8.00 | 0.40 | 5.25 | 26 | PUD1100B |
| 200 | 20 | | 9.5 | 115 | 85 | 14.50 | 12.18 | 14.72 | 4.15 | 5.12 | 12.74 | 0.40 | 5.62 | 35 | PUD1101B |
| 200 | 20 | Dump and Hold | 9.5 | 115 | 85 | 9.62 | 9.62 | 14.25 | 4.00 | 4.72 | 8.00 | 0.40 | 5.25 | 26 | PUD1300B |
| 200 | 20 | | 9.5 | 115 | 85 | 14.50 | 12.18 | 14.72 | 4.15 | 5.12 | 12.74 | 0.40 | 5.62 | 35 | PUD1301B |
| 200 | 20 | 3-way, 2-pos. | 9.5 | 115 | 85 | 9.62 | 9.62 | 14.25 | 4.00 | 4.72 | 8.00 | 0.40 | 5.25 | 24 | PUJ1200B |
| 200 | 20 | | 9.5 | 115 | 85 | 14.50 | 12.18 | 14.72 | 4.15 | 5.12 | 12.74 | 0.40 | 5.62 | 31 | PUJ1201B |
| 200 | 20 | 4-way, 3-pos. | 9.5 | 115 | 85 | 9.62 | 9.62 | 14.25 | 4.00 | 4.72 | 8.00 | 0.40 | 5.25 | 29 | PUJ1400B |
| 200 | 20 | | 9.5 | 115 | 85 | 14.50 | 12.18 | 14.72 | 4.15 | 5.12 | 12.74 | 0.40 | 5.62 | 36 | PUJ1401B |

* For 230 volt applications replace “B” suffix with “E”. (CE conformity marking only applies to pumps with an "E" suffix.)
** Electric dump valve for auto-retract of cylinders.

▼ Shown: **EP3404JE-G**




# The Heart of the System




## Performance

- **Smart controls enable motor to maintain constant power across the pressure range**
- **Speed control with dial adjustment for precise operation**
- **24V DC power regulator minimizes effects of poor power supply**
- **Six-piston block design provides even flow for smooth operation of tool**

## Durability

- **High-efficiency permanent magnet, direct drive motor enables continuous use and long service life**
- **System components enclosed for protection**
- **Built-in thermal protection**
- **IP Rating: 54 on the Pump, 67 on the Pendant**

## Convenience

- **Pendant and cord management system**
- **Draining oil not required for pump element maintenance**
- **Convenient oil fill port, oil level indicator, and automatic breather**

**Four Valve Options**

- 3/2 manual
- 4/3 manual
- 3/2 dump
- 3/2 dump and hold

**Typical E-Pulse Pump Applications**

- Lifting
- Spreading
- Cutting
- Pulling
- Crimping
- Pressing
- Bending
- Punching

**E-Pulse® Pumps**

The Enerpac E-Pulse drives high productivity through its innovative design. Smart controls enable the motor to maintain constant power providing higher flow than "traditional" ½ hp pumps. Adjustable speed control enables precision as required.

E-Pulse is designed for convenience. Features include a cord management system and integrated pendant control with a magnet that fits securely into the handle of the pump. The durable aluminum housing is designed to give easy access for serviceability. E-Pulse is the heart to any hydraulic system, ensuring high performance and providing ultimate convenience.

**E Series**



Useable Reservoir Capacity:
**0.8 gallon**

Flow at Rated Pressure:
**32 in³/min.**

Motor Size:
**0.85 hp**

Maximum Operating Pressure:
**10,000 psi**



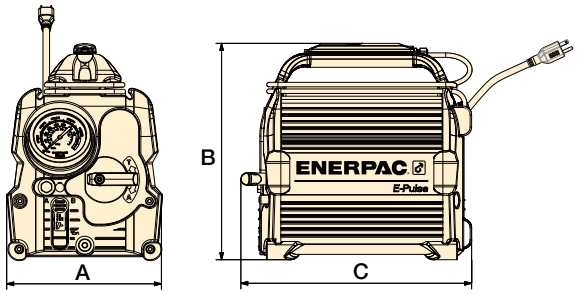

**3/2 Jog, 3/2 Dump, 4/3 Jog**
10-ft. cord



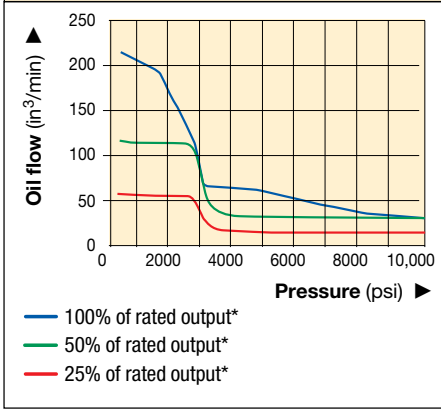

**3/2 Dump and Hold**
10-ft. cord

**Interactive Pendant**

- Operation, programming and diagnostics status provided to operator with yellow, green, and red LED as well as vibration pulses
- Fault codes warn operators of any issues related to voltage, temperature, button controls, or if professional service is required




**FLOW vs. PRESSURE**




* Flow at alternate speed settings

| Used With | Useable Oil Capacity (gal) | Model Number | Output Flow Rate (in³/min) 14.5 psi | 2538 psi | 5075 psi | 10,000 psi | Valve Type | Plug Type | Motor Voltage (VAC) | Current Draw (Amps) | Sound Level (dBA) | Dimensions (in) A | B | C | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S/A* | 0.8 | EP3104DB-G | 220 | 130 | 58 | 32 | Dump | NEMA 5-15 | 100-120 | 12 | 70-85 | 10.2 | 14.2 | 14.0 | 40.9 |
| | 0.8 | EP3104DI-G | 220 | 130 | 58 | 32 | | NEMA 6-15 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 14.0 | 40.9 |
| | 0.8 | EP3104DE-G | 220 | 130 | 58 | 32 | | Schuko CEE 7/7 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 14.0 | 40.9 |
| | 0.8 | EP3204JB-G | 220 | 130 | 58 | 32 | 3-way, 2-pos. | NEMA 5-15 | 100-120 | 12 | 70-85 | 10.2 | 14.2 | 15.2 | 40.5 |
| | 0.8 | EP3204JI-G | 220 | 130 | 58 | 32 | | NEMA 6-15 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 15.2 | 40.5 |
| | 0.8 | EP3204JE-G | 220 | 130 | 58 | 32 | | Schuko CEE 7/7 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 15.2 | 40.5 |
| | 0.8 | EP3304SB-G | 220 | 130 | 58 | 32 | Dump & Hold | NEMA 5-15 | 100-120 | 12 | 70-85 | 10.2 | 14.2 | 14.0 | 41.2 |
| | 0.8 | EP3304SI-G | 220 | 130 | 58 | 32 | | NEMA 6-15 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 14.0 | 41.2 |
| | 0.8 | EP3304SE-G | 220 | 130 | 58 | 32 | | Schuko CEE 7/7 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 14.0 | 41.2 |
| D/A** | 0.8 | EP3404JB-G | 220 | 130 | 58 | 32 | 4-way, 3-pos. | NEMA 5-15 | 100-120 | 12 | 70-85 | 10.2 | 14.2 | 15.2 | 41.1 |
| | 0.8 | EP3404JI-G | 220 | 130 | 58 | 32 | | NEMA 6-15 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 15.2 | 41.1 |
| | 0.8 | EP3404JE-G | 220 | 130 | 58 | 32 | | Schuko CEE 7/7 | 200-250 | 7 | 70-85 | 10.2 | 14.2 | 15.2 | 41.1 |

* Single-acting cylinder
** Double-acting cylinder

## *Z-Class* hydraulic pumps from Enerpac – pumps that run cooler, use less electricity and are easy to service.

Enerpac has used the latest metallurgical, bearing and seal technologies to produce a pump whose features and benefits far surpass the electric pumps that are available today. By reducing the number of moving parts, improving flow dynamics and decreasing friction, Z-Class pumps will stay on the job longer, require less energy to operate and when needed, have lower service costs.




## *Z-Class* electric pumps from Enerpac – simply the best pump you will ever use.



Z Tough. Dependable. Innovative. CLASS

## *Z-Class* Pumping Element — The Heart of Your Hydraulic System

**Highly efficient design** provides increased flow rates, reduced heat generation and a decrease in power consumption. This means improved tool speed and increased service life — which results in higher productivity and lower operating costs.

**Heavy-duty bearings** extend pump life by reducing friction, reducing surface-loading and lowering bearing stresses.

**Pump cavity oil bath** extends pump life by reducing heat, improving lubrication and reducing wear.

**Self-priming, high-flow 1st stage pump** increases pump performance by super-charging the 2nd stage piston pump — improving oil flow in both hot and cold weather operation.

**Balanced rotating components reduce vibration** creating a smoother running pump — reducing wear, friction and sound levels.

**Replaceable piston check-valves** increase service life of major pump components.

**Ergonomic low-voltage pendant** features sealed switches and operates at 24 VDC for improved operator safety.

**Back-lit LCD on Pro *Z-Class* pumps**

- pump usage information, hour and cycle counts
- low-voltage warning and recording
- offers self-test and diagnostic capabilities
- information displayed in six languages
- pressure read-out (when used with pressure transducer)
- adjustable pressure setting (when used with pressure transducer)




*Back-lit LCD available on ZU and ZE-Series Electric Pumps ▶*

### *Z-Class* accessories

Extensive list of accessories including heat exchanger, roll-bar, skid bar, pressure transducer, return-line filter and level and temperature switches, allow complete pump control over a wide range of industrial applications.

### *Z-Class* electric pumps for your application

Available in one flow range for universal motor and four flow ranges for induction motor.

**ZU4 Series Pump Applications**

- **Mobile:** when frequent pump transport is required and/or on remote locations
- **Universal motor:** 1-phase, runs well under poor voltage supply, using generator power supply or using long extension cord
- **Duty-cycle:** for intermittent applications
- **Cylinders and tools:** for medium to large size single and double-acting applications and high speed

**ZE Series Pump Applications**

- **Stationary:** when pump remains in one location
- **Induction motor:** 1 and 3-phase for high-cycle usage
- **Duty-cycle:** for heavy-duty, extended cycle application
- **Cylinders and tools:** for medium to large size single- and double-acting applications and high speed

| Oil Flow Rate @ 10,000 psi ($in^3$/min) | *Z-Class* Pump Series* | Electric Motor Size (hp) | Air Motor Consump-tion (scfm) | Gasoline Engine Size** (ft.lbs) | Page: |
|---|---|---|---|---|---|
| 32 | **ZC3*** | 1.4 | — | — | **98** |
| 40 | **ZE3** | 1.0 | — | — | **112** |
| 60 | **ZE4(T)** | 1.5 | — | — | **112, 302** |
| 60 | **ZU4(T)** | 1.7 | — | — | **106, 300** |
| 80 | **ZA4(T)** | — | 100 | — | **126, 306** |
| 100 | **ZG5**** | — | — | ** | **128** |
| 120 | **ZE5(T)** | 3.0 | — | — | **112, 302** |
| 200 | **ZE6** | 7.5 | — | — | **112** |
| 200 | **ZG6** | — | — | 17 | **130** |

* ZC3 battery powered cordless pumps. ZU4T, ZE4T, ZE5T and ZA4T-Series are Torque Wrench Pumps.
** ZG5 is available in two 4-cycle engine sizes: 7.1 Ft.lbs Honda and 8.5 Ft.lbs Briggs & Stratton.

▼ Shown from left to right: **ZU4304MB, ZU4420SBH**




**ZU**
**Series**

Reservoir Capacity:
**1.2 - 10.3 gallon**

Flow at Rated Pressure:
**60 in³/min.**

Motor Size:
**1.7 hp**

Maximum Operating Pressure:
**10,000 psi**

- **Features *Z-Class* high-efficiency two-stage pump design; higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps**
- **Powerful 1.7 hp universal electric motor provides high power-to-weight ratio and excellent low-voltage operating characteristics**
- **High-strength, molded composite shroud protects motor and electronics, while providing an ergonomic, non-conductive handle for easy transport**
- **Low-voltage pendant provides additional safety for the operator (remote control units)**

**Pro-Series pumps only**

- **LCD readout provides pressure and a number of diagnostic and readout capabilities on a portable electric pump**
  - **pump usage information, hour and cycle counts**
  - **self-test, diagnostic and read-out capabilities**
  - **pressure readout and auto-mode pressure settings**



**Assisted Return Pumps with Venturi Valve Technology**

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4-Series pumps feature Venturi Valve Technology to facilitate the faster return of single-acting gravity return cylinders.

See details in the "Directional Control Valve" section.

***Page:*** **141**

**Speed Chart**

To determine how a "Z" pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the “Yellow Pages”.

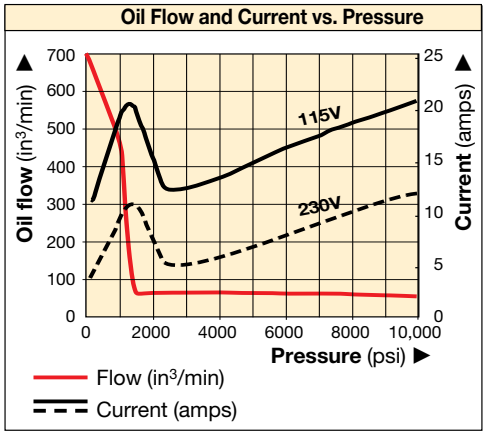
***Page:*** **409**



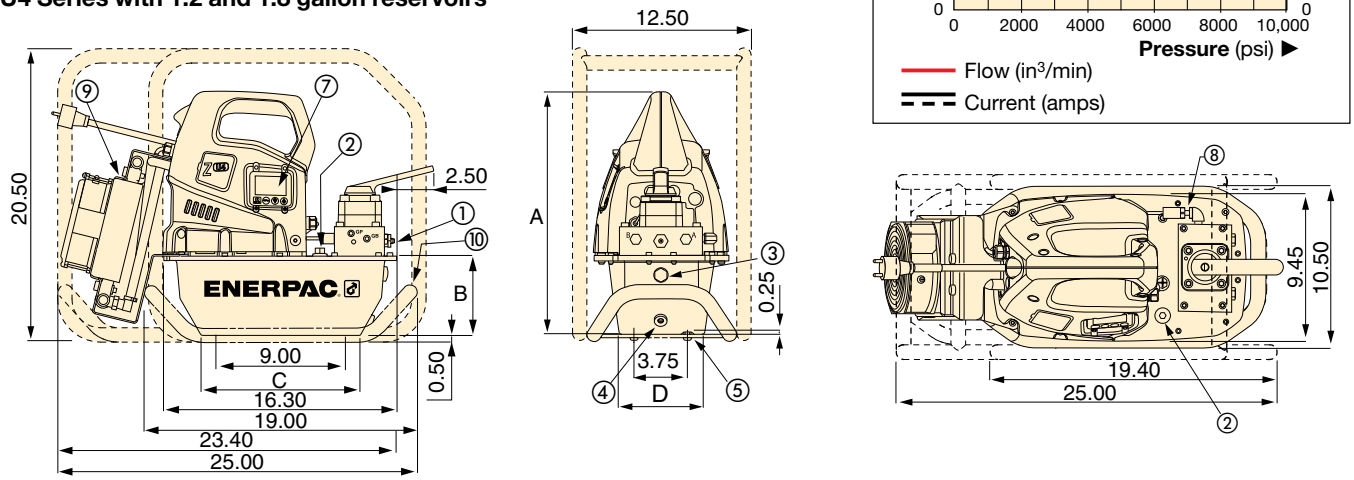

◀ *Designed to be tough, the ZU4-Series with steel reservoirs will take the abuse of today’s construction sites.*

# ZU Series Specifications and Dimensions

| ZU4 Performance | | | | | | | |
|---|---|---|---|---|---|---|---|
| Motor Size | Output Flow Rate (in³/min) | | | | Motor Electrical Specification | Sound Level | Relief Valve Adjustment Range |
| (hp) | 100 psi | 700 psi | 5000 psi | 10,000 psi | (volts-ph-Hz) | (dBA) | (psi) |
| 1.7 | 700 | 535 | 76 | 60 | 115-1-50/60<br>230-1-50/60 | 85-90 | 2,000-10,000 |

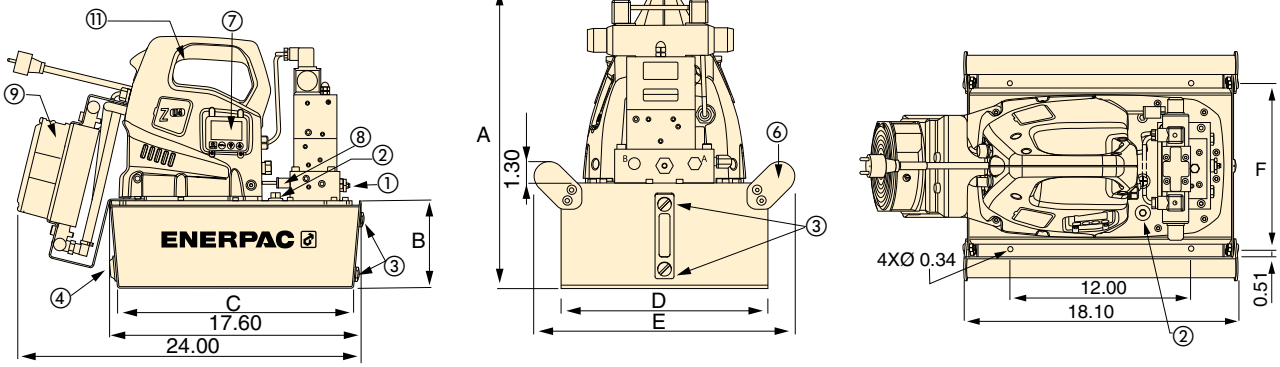



### ZU4 Series with 1.2 and 1.8 gallon reservoirs




### ZU-4 Series with 5.2 and 10.3 gallon reservoirs

(Left view shown without side handle)




① User adjustable relief valve
② Oil fill port, SAE#10
③ Oil level sight gauge
④ Oil Drain, 1/2" NPTF
⑤ M8 x 1.25
⑥ Handles on all 5.2 and 10.3 gallon reservoirs
⑦ Back-lit LCD Electric
⑧ Pressure transducer
⑨ Heat exchanger
⑩ Skid bar
⑪ Handle guard installed on all 5.2 and 10.3 gallon reservoirs
⑫ Reservoir handles (not shown) included on all 5.2 and 10.3 gallon pumps



◀ *Increased output flow and extended brush life increase productivity for post-tensioning applications.*

| Pump Dimensions (in) | | | | | | |
|---|---|---|---|---|---|---|
| Reservoir Capacity (gal) | A | B | C | D | E | F |
| **1.2** | 16.7 | 5.6 | 11.0 | 6.0 | - | - |
| **1.8** | 16.7 | 5.6 | 11.0 | 8.1 | - | - |
| **5.2** | 18.3 | 7.1 | 16.5 | 16.6 | 19.7 | 15.6 |
| **10.3** | 21.7 | 10.6 | 15.7 | 19.9 | 22.7 | 18.9 |

**▼ STEP 1: Select a pump from the Pump Ordering Matrix.**

The functionality of the pump can be determined by the model number. Utilize the guide below to select the best pump for the application from the pump matrix.

| Z | U | 4 | 4 | 08 | J | B | - | H | R |
|---|---|---|---|---|---|---|---|---|---|
| 1 Product Type | 2 Motor Type | 3 Flow Group | 4 Valve Type | 5 Reservoir Size | 6 Valve Operation | 7 Voltage | | 8 Factory Installed Accessories | |

**1 Product Type**

**Z** = Pump Series

**2 Motor Type**

**U** = Universal electric motor

**3 Flow Group**

**4** = 60 $in^3$/min @ 10,000 psi

**4 Valve Type**

**1** = Dump (VE32D)
**2** = 3 way/2 position manual or electric (VM32 or VE32)
**3** = 3 way/3 position manual or electric (VM33 or VE33)
**4** = 4 way/3 position manual or electric (VM43 or VE43)
**6** = 3 way/3 position locking manual w/po check (VM33L)
**7** = 3 way/2 position manual (VM22)
**8** = 4 way/3 position locking manual w/po check (VM43L)
**9** = 4 way/3 position manual w/power seating (VM43LPS)
**10** = 3 way/3 position manual, Venturi-Valve (VM33VAC)
**11** = 3 way/3 position electric, Venturi-Valve (VE33VAC)

**5 Reservoir Capacity**

**04** = 1.2 gallon
**08** = 1.8 gallon
**20** = 5.2 gallon (includes side handles)
**40** = 10.3 gallon (includes side handles)

**6 Valve Operation**

**D** = Dump solenoid valve with pendant and LCD Electric
**J** = Jog manual valve with pendant (w/o LCD)
**L** = Manual valve w/LCD Electric (w/o pendant)
**M** = Manual valve (without pendant and LCD)
**P** = Manual valve with pendant (w/o LCD)
**S** = Solenoid valve with pendant and LCD Electric

**7 Voltage**

**B** = 115V, 1 ph, 50/60Hz
**E** = 208-240V, 1 ph, 50/60 Hz (w/European plug and CE EMC compliant)
**I** = 208-240V, 1 ph, 50/60 Hz (w/NEMA 6-15 plug)

**▼ STEP 2 Factory Installed Accessories**

Select factory installed accessories and add to the pump model number after the hyphen. The example above shows that a Roll Cage **(R)** and Heat Exchanger **(H)** have been added to the pump.

**8 Factory installed accessories include the following:**

**F** = Return Line Filter
**G** = Gauge
**H** = Heat exchanger
**L** = Level/Temperature Switch
**N** = Lifting Eyes (no reservoir handles)
**R** = Roll cage
**K** = Skid Bar
**T** = Pressure transducer
**U** = Foot switch

## ZU Series



Reservoir Capacity:
**1.2 - 10.3 gallon**

Flow at Rated Pressure:
**60 $in^3$/min.**

Motor Size:
**1.7 hp**

Maximum Operating Pressure:
**10,000 psi**

***Z-Class* – A Pump For Every Application**

Patented *Z-Class* pump technology provides high by-pass pressures for increased productivity—important in applications using long hose runs and high pressure-drop circuits, like heavy lifting or certain double-acting tools.

Enerpac ZU4 Hydraulic Pumps are built to power small to large-sized cylinders or hydraulic tools, or wherever high-speed, intermittent duty, remote hydraulic power is needed.

**Pro Electric Pump**

Digital (LCD) display features a built-in hour meter and shows self-diagnostic, cycle-count and low voltage warning information.

Pressure can also be displayed when the pump is equipped with a pressure transducer.

# ZU-Series Pump Ordering Matrix

## ▼ ZU-SERIES MANUAL PUMP MODELS

| | S/A or D/A[1] | Hold  | Valve Type[2] | Reservoir Capacity (gal) | Unit Weight w/ oil[5] (lbs) | Model Number 115 VAC, 1 Phase[3] | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Manual Only | Standard Electric w/ Pendant | Classic Electric w/ Pendant[4] |
| • Ideal choice for most applications<br>• Manual valve control, for single-acting or double-acting applications<br>• Motor control on shroud<br>• Venturi Valve technology (VM33VAC) for faster retract of single acting cylinders<br>• Pendant models ideal for light production and lifting applications<br>• Locking valves provide hydraulic locking of cylinder until valve is shifted into retract position | S/A | | VM22 | 1.2 | 59 | **ZU4704MB (I, E)** | | **ZU4704PB (I, E)** |
| | S/A | | VM22 | 1.8 | 65 | **ZU4708MB (I, E)** | | **ZU4708PB (I, E)** |
| | S/A | | VM22 | 5.2 | 108 | **ZU4720MB (I, E)** | | **ZU4720PB (I, E)** |
| | S/A | | VM32 | 1.2 | 55 | **ZU4204MB (I, E)** | **ZU4204JB (I, E)** | |
| | S/A | | VM32 | 1.8 | 61 | **ZU4208MB (I, E)** | **ZU4208JB (I, E)** | |
| | S/A | | VM32 | 5.2 | 104 | **ZU4220MB (I, E)** | **ZU4220JB (I, E)** | |
| | S/A | | VM32 | 10.3 | 155 | **ZU4240MB (I, E)** | **ZU4240JB (I, E)** | |
| | S/A | ● | VM33 | 1.2 | 56 | **ZU4304MB (I, E)** | | |
| | S/A | ● | VM33 | 1.8 | 62 | **ZU4308MB (I, E)** | **ZU4308JB (I, E)** | **ZU4308PB (E)** |
| | S/A | ● | VM33 | 5.2 | 106 | **ZU4320MB (I, E)** | **ZU4320JB (I, E)** | **ZU4320PB (E)** |
| | S/A | ● | VM33 | 10.3 | 156 | **ZU4340MB (I, E)** | **ZU4340JB (I, E)** | **ZU4340PB (E)** |
| | S/A | ● | VM33VAC | 1.8 | 63 | **ZU41008MB (E)** | **ZU41008JB (E)** | |
| | S/A | ● | VM33VAC | 5.2 | 106 | **ZU41020MB (E)** | **ZU41020JB (E)** | |
| | S/A | ● | VM33L | 1.8 | 66 | **ZU4608MB (E)** | **ZU4608JB, (E)** | |
| | S/A | ● | VM33L | 5.2 | 109 | **ZU4620MB (E)** | **ZU4620JB, (E)** | |
| | D/A | ● | VM43 | 1.8 | 63 | **ZU4408MB (I, E)** | **ZU4408JB (I, E)** | **ZU4408PB (E)** |
| | D/A | ● | VM43 | 5.2 | 106 | **ZU4420MB (I, E)** | **ZU4420JB (I, E)** | **ZU4420PB (E)** |
| | D/A | ● | VM43 | 10.3 | 156 | **ZU4440MB (I, E)** | **ZU4440JB (I, E)** | **ZU4440PB (E)** |
| | D/A | ● | VM43L | 1.8 | 67 | **ZU4808MB (E)** | **ZU4808JB (E)** | |
| | D/A | ● | VM43L | 5.2 | 110 | **ZU4820MB (E)** | **ZU4820JB (E)** | |

## ▼ ZU-SERIES PRO SOLENOID VALVE MODELS WITH PENDANT AND LCD ELECTRIC

| | S/A or D/A[1] | Neutral  | Valve Type[2] | Reservoir Capacity (gal) | Unit Weight w/ oil (lbs) | Model Number 115 VAC, 1 Phase[3] |
|---|---|---|---|---|---|---|
| **DUMP VALVE MODELS**<br>• Ideal for punching, crimping and cutting<br>• For use when load-holding is not required | S/A | | VE32D | 1.2 | 63 | **ZU4104DB (I, E)** |
| | S/A | | VE32D | 1.8 | 69 | **ZU4108DB (I, E)** |
| | S/A | | VE32D | 5.2 | 112 | **ZU4120DB (I, E)** |
| | | | | | | |
| **SINGLE AND DOUBLE ACTING MODELS**<br>• Ideal for lifting applications and where remote control is required<br>• Motor runs continuously on pumps with VE33 and VE43 valves.<br>• With VE32 valve, motor only runs during the advance function, while holding and retracting, the motor is off<br>• Venturi Valve technology (VE33VAC) for faster retract of single-acting cylinders | S/A | ● | VE32 | 1.2 | 63 | **ZU4204SB (I, E)** |
| | S/A | ● | VE32 | 1.8 | 69 | **ZU4208SB (I, E)** |
| | S/A | ● | VE32 | 5.2 | 112 | **ZU4220SB (I, E)** |
| | S/A | ● | VE33 | 1.8 | 81 | **ZU4308SB (I, E)** |
| | S/A | ● | VE33 | 5.2 | 124 | **ZU4320SB (I, E)** |
| | S/A | ● | VE33 | 10.3 | 174 | **ZU4340SB (I, E)** |
| | S/A | ● | VE33VAC | 1.8 | 74 | **ZU41108SB (E)** |
| | S/A | ● | VE33VAC | 5.2 | 117 | **ZU41120SB (E)** |
| | S/A | ● | VE33VAC | 10.3 | 168 | **ZU41140SB (E)** |
| | D/A | ● | VE43 | 1.8 | 81 | **ZU4408SB (I, E)** |
| | D/A | ● | VE43 | 5.2 | 124 | **ZU4420SB (I, E)** |
| | D/A | ● | VE43 | 10.3 | 174 | **ZU4440SB (I, E)** |

[1] S/A or D/A = Single acting or double-acting pumps
[2] Additional details can be found in the Directional Control Valve section
[3] "I" indicates pump is available in 208-240V, 1-phase, 50/60 Hz with NEMA 6-15 plug. Model number order example: ZU4208MI.
"E" indicates pump is available in 208-240V, 1-phase, 50/60 Hz with European plug and CE CMC compliant. Model number order example: ZU4208ME.
[4] Classic Electric Pump has traditional electro-mechanical components (transformers, relays, switches) in place of solid-state electronics.
[5] Manual weights given, Standard Electric w/pendant add 1lb and Classic Electric w/pendant add 3 lbs.
Note: Valve Operation L available on Manual Pumps. Substitute "L" for "M" Valve Operation



## Roll Cage (R)

- Protects and stabilizes the pump

| Popular Pump Models with Factory Installed Roll Cages | |
|---|---|
| ZU4108DBR (I, E) | ZU4308MBR (I, E) |
| ZU4208JBR (I, E) | ZU4320MBR (I, E) |
| ZU4220JBR (I, E) | ZU4408MBR (I, E) |
| ZU4208SBR (I, E) | ZU4420MBR (I, E) |
| ZU4308JBR (I, E) | ZU4408JBR (I, E) |
| ZU4320JBR (I, E) | ZU4420JBR (I, E) |
| ZU4308SBR (I, E) | ZU4408SBR (I, E) |
| ZU4320SBR (I, E) | ZU4420SBR (I, E) |

| Accessory Kit No.  | Fits on Reservoir |
|---|---|
| ZRC-04 | 1.2 and 1.8 gallon[1)] |
| ZRC-04H | 1.2 and 1.8 gallon[2)] |
| ZRB-20 | 5.2 gallon |
| ZRB-40 | 10.3 gallon |

[1)] Without heat exchanger [2)] With heat exchanger



## Foot Switch (U)

- 10 ft. cord, hands-free control

| Popular Pump Models with Factory Installed Foot Switch |
|---|
| ZU4108DBU (I, E) |
| ZU4208SBU (I, E) |
| ZU4220SBU (I, E) |
| ZU4320SBU (I, E) |
| ZU4408SBU (I, E) |
| ZU4420SBU (I, E) |

| Accessory Kit No.  | Can be used on ZU4 Pumps with solenoid dump and 3-position valves, LCD electric |
|---|---|
| ZCF-2 | Solenoid VE-Series valves |



## Heat Exchanger (H)

- Removes heat from bypass oil
- Increases oil life, reduces wear on hydraulic components

| Popular Pump Models with Factory Installed Heat Exchanger |
|---|
| ZU4108DBH (I, E) |
| ZU4208SBH (I, E) |
| ZU4308SBH (I, E) |
| ZU4408SBH (I, E) |
| ZU4420SBH (I, E) |

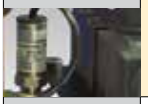
| Accessory Kit No.  | Can be used on |
|---|---|
| ZHE-U115 | 115V pumps |
| ZHE-U230 | 230V pumps |

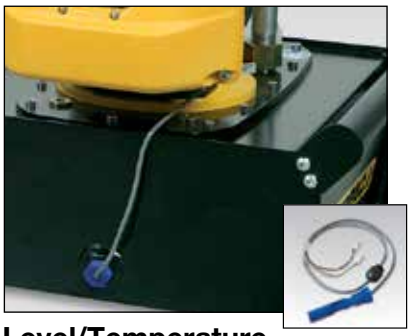


## Pressure Transducer (T)

- More durable than analog gauges
- Displays psi, bar or Mpa
- Motor shutoff or shift to neutral at set pressure

| Popular Pump Models with Factory Installed Pressure Transducer, Requires LCD Electric Pump |
|---|
| ZU4108DBT (I, E) |
| ZU4208SBT (I, E) |
| ZU4308SBT (I, E) |
| ZU4408SBT (I, E) |
| ZU4420SBT (I, E) |

| Accessory Kit No.  | Adjustable Pressure Range (psi) | Switch-Point Repeatability | Dead-band (psi) |
|---|---|---|---|
| ZPT-U4 | 50-10,000 | ± 0.5% | 50 |



## Level/Temperature Switch (L)

- Shuts off pump when high operating temperature or low oil is reached
- Plugs directly into pump electrical enclosure
- Easy installation to pump reservoir
- Requires LCD electric

| Model Number | Operating Temperature (° F) | Maximum Pressure (psi) | Wt. (lbs) |
|---|---|---|---|
| ZLS-U4 | 40-230 | 150 | 0.11 |



## Return Line Filter (F)

- 25 micron filter removes contaminants from return oil flow
- Internal by-pass valve prevents damage if filter is dirty
- Features maintenance indicator

| Accessory Kit Model Number | Maximum Pressure (psi) | Maximum Oil Flow (GPM) | By-pass Setting (psi) |
|---|---|---|---|
| ZPF | 200 | 12.0 | 25 |



## Skidbar (K)

- Provides easy two-hand lift
- Provides greater pump stability on soft or uneven surfaces
- Cannot be used in combination with roll cage

| Accessory Kit No. | For ZU-Series Pumps with 1.2 and 1.8 Gallon Reservoir | Wt. (lbs) |
|---|---|---|
| SBZ-4 | 1.2-1.8 gal. w/o heat exchanger | 4.9 |
| SBZ-4L | 1.2-1.8 gal. with heat exchanger | 5.5 |



## Gauge (G)

- Minimize risk of overloading to ensure long life of equipment
- 2.5" face diameter, glycerin filled
- Dual Scale, PSI and Bar

| Model No. | Description |
|---|---|
| G2536L | 15,000 psi, Ø 2.5 inches |

## ZU Series



Reservoir Capacity:
**1.2 - 10.3 gallon**

Flow at Rated Pressure:
**60 $in^3$/min.**

Motor Size:
**1.7 hp**

Maximum Operating Pressure:
**10,000 psi**

### Heat Exchanger

- Stabilizes oil temperature at a maximum of 130° F at 70° F ambient temperature.

Not suitable for water-glycol or water based fluid.

| Thermal Transfer * Btu/h | Maximum pressure (psi) | Maximum oil flow (GPM) | Voltage (VDC) |
|---|---|---|---|
| 900 | 300 | 7.0 | 12 |

* At GPM at 70 °F ambient temperature.

▼ Shown from left to right: **ZE3304MBK, ZE4110DBFHR**




**ZE Series**

Reservoir Capacity:
**1.2 - 10.3 gallon**

Flow at Rated Pressure:
**40 - 200 in³/min**

Motor Size:
**1.0 - 7.5 hp**

Maximum Operating Pressure:
**10,000 psi**

- **Features *Z-Class* high-efficiency pump design; higher oil flow and by-pass pressure, cooler running and requires 18% less current draw than comparable pumps**
- **Totally enclosed, fan-cooled industrial electric motors supply extended life and stand up to harsh industrial environments**
- **Low-voltage pendant, on certain models, provides additional safety for the operator**
- **Multiple valve and reservoir configurations provide application specific models to match the most demanding industrial applications**
- **High-strength, molded electrical enclosure protects electronics, power supplies and LCD readout from harsh industrial environments**
- **LCD readout on electric valve models provides a number of diagnostic and readout capabilities**
- **IP54 Rating for superior dust and water protection**

## The Standard for Industrial Applications



**Assisted Return Pumps with Venturi Valve Technology**

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZE-Series pumps feature Venturi Valve Technology to facilitate the faster return of single-acting gravity return cylinders. See valve type in ordering matrix and details in the "Directional Control Valve" section.

***Page:*** **141**



**User Adjustable Relief Valve**

All VM and VE-Series have a user adjustable relief valve to allow the operator to easily set the optimum working pressure.

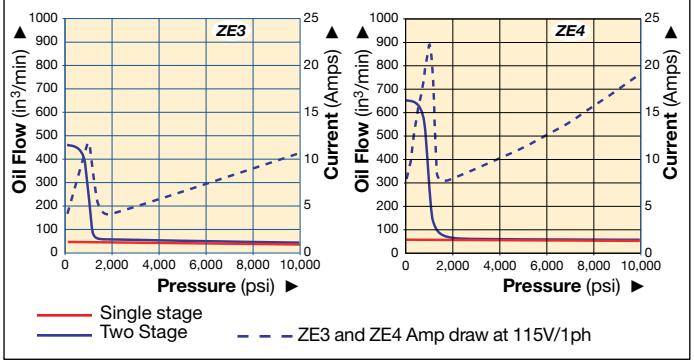


**Locking Valves**

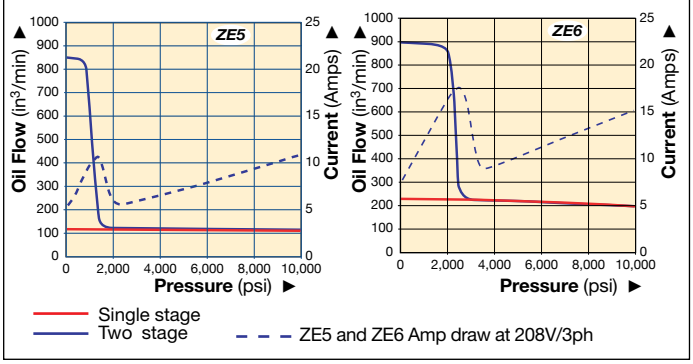
For applications requiring positive load holding, VM-Series valves (except VM32) are available with a pilot-operated check valve. This provides hydraulic locking of the load until the valve is shifted into the retract position. To order this feature on your ZE-series pump see the valve type in the order matrix.

***Page:*** **140**

### ZE3 and ZE4 Oil Flow and Current vs. Pressure




### ZE5 and ZE6 Oil Flow and Current vs. Pressure




## ▼ PERFORMANCE CHART

| Pump Series | Operation | Output Flow Rate (in³/min) 100 psi | 700 psi | 5,000 psi | 10,000 psi | Available Reservoir Sizes (gal) | Motor Size hp | RPM | Relief Valve Adjustment Range (psi) | Sound Level (dBA) |
|---|---|---|---|---|---|---|---|---|---|---|
| ZE3 | Single-stage | 43 | 43 | 42 | 40 | 1.2, 1.8, 2.6, 5.2, 10.3 | 1.0 | 1750 | 1000-10,000 | 75 |
| | Two-stage | 450 | 385 | 42 | 40 | | | | | |
| ZE4 | Single-stage | 64 | 64 | 62 | 60 | 1.2, 1.8, 2.6, 5.2, 10.3 | 1.5 | 1750 | 1000-10,000 | 75 |
| | Two-stage | 650 | 600 | 62 | 60 | | | | | |
| ZE5 | Single-stage | 128 | 126 | 123 | 120 | 2.6, 5.2, 10.3 | 3.0 | 1750 | 1000-10,000 | 75 |
| | Two-stage | 850 | 825 | 123 | 120 | | | | | |
| ZE6 | Single-stage | 220 | 215 | 210 | 200 | 2.6, 5.2, 10.3 | 7.5 | 3450 | 1000-10,000 | 80 |
| | Two-stage | 900 | 890 | 210 | 200 | | | | | |

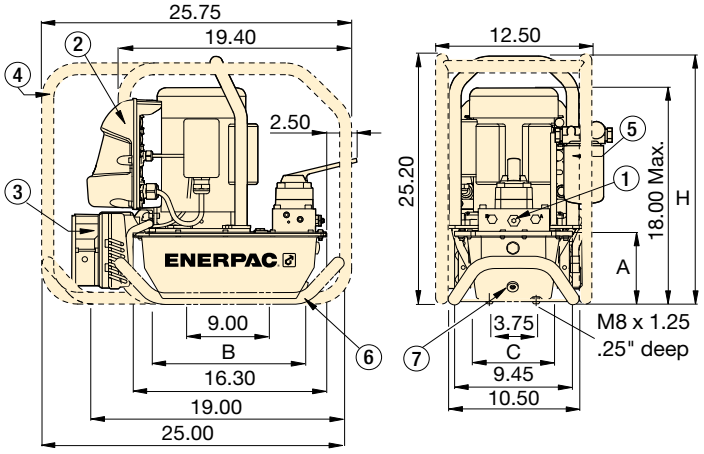
Output flow rate is listed at 60 Hz. Flow rate will be approximately 5/6 of these values at 50 Hz.

**Single-Stage or Two-Stage Pumps**

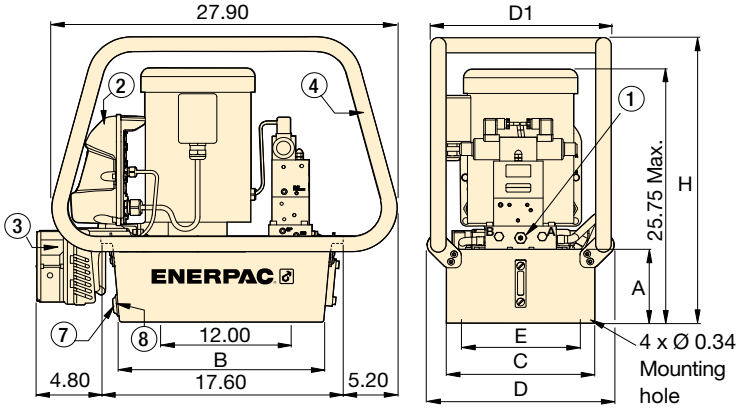
Choose single-stage pumps for applications that require constant flow regardless of pressure, such as testing or clamping.

Two-stage pumps have an increased output flow at low pressure to allow fast movement towards the load, for reduced cycle times and increased productivity.

### ZE-Series Pumps with 1.2 and 1.8 gallon reservoir




### ZE-Series Pumps with 2.6, 5.2, 10.3 gallon reservoir




① User-adjustable relief valve on all manual and solenoid valves:
3/8" NPTF on A and B ports
1/4" NPTF on auxiliary ports
② Electric Box
③ Heat Exchanger
④ Roll Bar
⑤ Return Line Filter
⑥ Skid Bar
⑦ Oil Drain
⑧ Oil Level/Temperature Switch

| Reservoir Capacity (gal) | ZE-Series Pump Dimensions (in) A | B | C | D | D1 | E | H |
|---|---|---|---|---|---|---|---|
| 1.2 | 5.6 | 11.0 | 6.0 | – | – | – | 20.2 |
| 1.8 | 5.6 | 11.0 | 8.1 | – | – | – | 20.2 |
| 2.6 | 6.2 | 16.5 | 12.0 | 15.1 | 14.6 | 11.0 | 23.6 |
| 5.2 | 7.1 | 16.5 | 16.6 | 19.7 | 19.2 | 15.6 | 24.6 |
| 10.3 | 10.6 | 15.7 | 19.9 | 22.7 | 22.5 | 18.9 | 28.1 |

## ▼ STEP 1: Select a Pump from the Pump Ordering Matrix.

The functionality of the pump can be determined by the model number. Utilize the guide below to select the best pump for the application from the pump matrix.

| Z | E | 4 | 4 | 20 | M | B | - | F | H |
|---|---|---|---|---|---|---|---|---|---|
| 1 Product Type | 2 Motor Type | 3 Flow Group | 4 Valve Type | 5 Reservoir Capacity | 6 Valve Operation | 7 Voltage | | 8 Factory Installed Accessories | |

### 1 Product Type

**Z** = Pump Class

### 2 Motor Type

**E** = Induction Electric Motor

### 3 Flow Group

**3** = 40 $in^3$/min @ 10,000 psi
**4** = 60 $in^3$/min @ 10,000 psi
**5** = 120 $in^3$/min @ 10,000 psi
**6** = 200 $in^3$/min @ 10,000 psi

### 4 Valve Types

**0** = No valve w/cover plate
**1** = Dump (VE32D)
**2** = 3-way/2-position manual (VM32)
**3** = 3-way/3-position manual or electric (VM33 or VE33)
**4** = 4-way/3-position manual or electric (VM43 or VE43)
**6** = 3-way/3-position locking manual w/po check (VM33L)
**7** = 3-way/2-position manual (VM22)
**8** = 4-way/3-position locking manual w/po check (VM43L)
**10** = 3-way/3-position manual, Venturi-Valve (VM33VAC) [6]
**11** = 3-way/3-position electric, Venturi-Valve (VE33VAC) [6]

### 5 Reservoir Capacity

**04** = 1.2 gallon
**08** = 1.8 gallon
**10** = 2.6 gallon
**20** = 5.2 gallon
**40** = 10.3 gallon

### 6 Valve Operation

**D** = Dump valve (w/ pendant and LCD)
**L** = Manual valve (w/o pendant, w/ LCD)
**M** = Manual valve [3] (w/o pendant or LCD)
**N** = No valve [3] (no electrical box)
**S** = Solenoid valve (w/ pendant and LCD)

### 7 Voltage

Single Phase

**B** = 115V 1 ph 50-60Hz [1]
**E** = 208-240V 1 ph 50-60 Hz European Plug
**I** = 208-240V 1 ph 50-60 Hz USA Plug

Three Phase [3]

**G** = 208-240V 3ph 50-60Hz
**J** = 460-480V 3ph 50-60Hz
**W** = 380-415V 3ph 50-60Hz

## ▼ STEP 2: Factory Installed Accessories

Select factory installed accessories and add to the pump model number after the hyphen. The example above shows that a Return Line Filter **(F)** and Heat Exchanger **(H)** have been added to the pump.

### 8 Factory installed accessories include the following:

**F** = Filter
**G** = 0-15,000 psi gauge (2 1/2") [4]
**H** = Heat exchanger [2]
**K** = Skid bar (1.2 and 1.8 gal. reservoirs only)
**L** = Level/temp switch [2]
**N** = No reservoir handles (includes lifting eyes)
**R** = Roll cage
**S** = Single stage [5]
**T** = Pressure transducer [2] [4]
**U** = Foot switch [2]

1) 115-volt pumps are supplied with 15-amp plug for intermittent use. 20-amp circuit recommended for frequent full pressure use.
2) These accessories require LCD electrical package. Pressure switch option only available on manual valves without locking valve. The LCD electrical package can accept either a pressure switch or pressure transducer, but not both.
3) Standard Electric models with 3-phase motors are shipped without cord, motor starter or overload protection.
4) Pressure gauge not available on pump models with pressure transducer. Pressure transducer provides digital pressure readout on LCD display.
5) Not available on Valve Types 10, 11
6) Not available on ZE3

## ▼ ZE-SERIES PUMP MODELS

**No Valve with coverplate, no electric box**

**Manual Valve without electric box or LCD**

- Ideal choice for most applications
- Manual valve control, for both single-acting or double-acting applications
- Venturi Valve Technology (VM33VAC) for faster retract of single-acting cylinders
- Manual motor control
- On/off switch on 1-phase electric motor

**Solenoid Dump Valve with electric box and LCD**

- Ideal for punching, crimping and cutting
- For use when load holding is not required
- Push-button control pendant with 10-ft. cord controls the valve and motor

**Solenoid 3-position Valve with Electric Box**

- Ideal for production and lifting applications
- All valves are 3-position for Advance-Hold-Retract
- Venturi Valve Technology (VM33VAC) for faster retract of single-acting cylinders
- Push-button control pendant with 10-ft. cord controls the valve and motor

# ZE-Series Pump Ordering Matrix

| S/A or D/A [1] | Hold  | Valve Type [2] | Reservoir Capacity (gal) | ZE3 Series (1.0 hp) Output Flow Rate at 10,000 psi: 40 in³/min | | ZE4 Series (1.5 hp) Output Flow Rate at 10,000 psi: 60 in³/min | | ZE5 Series (3.0 hp) Output Flow Rate at 10,000 psi: 120 in³/min | | ZE6 Series (7.5 hp) Output Flow Rate at 10,000 psi: 200 in³/min | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Model Number [3] | Wt. (lbs) | Model Number [3] | Wt. (lbs) | Model Number [3] | Wt. (lbs) | Model Number [3] | Wt. (lbs) |
| | | | 1.8 | ZE3008NB (I, E, W, J, G) | 99 | ZE4008NB (I, E, W, J, G) | 95 | | | | |
| | | | 2.6 | ZE3010NB (I, E, W, J, G) | 99 | ZE4010NB (I, E, W, J, G) | 108 | ZE5010NW (J, G) | 119 | ZE6010NW (J, G) | 158 |
| | | | 5.2 | ZE3020NB (I, E, W, J, G) | 126 | ZE4020NB (I, E, W, J, G) | 135 | ZE5020NW (J, G) | 146 | ZE6020NW (J, G) | 185 |
| | | | 10.3 | ZE3040NB (I, E, W, J, G) | 177 | ZE4040NB (I, E, W, J, G) | 186 | ZE5040NW (J, G) | 197 | ZE6040NW (J, G) | 236 |
| S/A | | VM22 | 5.2 | | | ZE4720MB (E, W) | 143 | | | | |
| S/A | | VM32 | 1.2 | ZE3204MB (E) | 85 | | | | | | |
| S/A | | VM32 | 1.8 | ZE3208MB (I, E, W, J, G) | 91 | ZE4208MB (I, E, W, J, G) | 100 | | | | |
| S/A | | VM32 | 2.6 | ZE3210MB (I, E, W, J, G) | 104 | ZE4210MB (I, E, W, J, G) | 113 | ZE5210MW (J, G) | 124 | ZE6210MW (J, G) | 163 |
| S/A | | VM32 | 5.2 | ZE3220MB (I, E, W, J, G) | 131 | ZE4220MB (I, E, W, J, G) | 140 | ZE5220MW (J, G) | 151 | ZE6220MW (J, G) | 190 |
| S/A | ● | VM33 | 1.2 | ZE3304MB (E) | 86 | | | | | | |
| S/A | ● | VM33 | 1.8 | ZE3308MB (I, E, W, J, G) | 92 | ZE4308MB (I, E, W, J, G) | 101 | | | | |
| S/A | ● | VM33 | 2.6 | ZE3310MB (I, E, W, J, G) | 105 | ZE4310MB (I, E, W, J, G) | 114 | ZE5310MW (J, G) | 125 | ZE6310MW (J, G) | 164 |
| S/A | ● | VM33 | 5.2 | ZE3320MB (I, E, W, J, G) | 132 | ZE4320MB (I, E, W, J, G) | 141 | ZE5320MW (J, G) | 152 | ZE6320MW (J, G) | 191 |
| S/A | ● | VM33 | 10.3 | ZE3340MB (I, E, W, J, G) | 183 | ZE4340MB (I, E, W, J, G) | 192 | ZE5340MW (J, G) | 203 | ZE6340MW (J, G) | 242 |
| S/A | ● | VM33VAC | 1.8 | | | ZE41008MB (I, E, W, J, G) | 101 | | | | |
| S/A | ● | VM33VAC | 5.2 | | | ZE41020MB (I, E, W, J, G) | 141 | ZE51020MW (J, G) | 153 | ZE61020MW (J, G) | 192 |
| S/A | ● | VM33VAC | 10.3 | | | | | ZE51040MW (J, G) | 203 | ZE61040MW (J, G) | 242 |
| S/A | ● | VM33L | 1.8 | ZE3608MB (I, E, W, J, G) | 92 | | | | | | |
| S/A | ● | VM33L | 5.2 | ZE3620MB (I, E, W, J, G) | 136 | ZE4620MB (I, E, W, J, G) | 145 | | | | |
| S/A | ● | VM33L | 10.3 | ZE3640MB (I, E, W, J, G) | 187 | ZE4640MB (I, E, W, J, G) | 196 | | | | |
| D/A | ● | VM43 | 1.2 | ZE3404MB (E) | 86 | | | | | | |
| D/A | ● | VM43 | 1.8 | ZE3408MB (I, E, W, J, G) | 92 | ZE4408MB (I, E, W, J, G) | 101 | | | | |
| D/A | ● | VM43 | 2.6 | ZE3410MB (I, E, W, J, G) | 106 | ZE4410MB (I, E, W, J, G) | 114 | ZE5410MW (J, G) | 125 | ZE6410MW (J, G) | 164 |
| D/A | ● | VM43 | 5.2 | ZE3420MB (I, E, W, J, G) | 132 | ZE4420MB (I, E, W, J, G) | 141 | ZE5420MW (J, G) | 152 | ZE6420MW (J, G) | 191 |
| D/A | ● | VM43 | 10.3 | ZE3440MB (I, E, W, J, G) | 183 | ZE4440MB (I, E, W, J, G) | 192 | ZE5440MW (J, G) | 203 | ZE6440MW (J, G) | 242 |
| D/A | ● | VM43L | 1.8 | ZE3808MB (I, E, W, J, G) | 96 | | | | | | |
| D/A | ● | VM43L | 5.2 | ZE3820MB (I, E, W, J, G) | 136 | ZE4820MB (I, E, W, J, G) | 145 | ZE5820MW (J, G) | 156 | ZE6820MW (J, G) | 195 |
| D/A | ● | VM43L | 10.3 | ZE3840MB (I, E, W, J, G) | 187 | ZE4840MB (I, E, W, J, G) | 196 | ZE5840MW (J, G) | 207 | ZE6840MW (J, G) | 246 |
| S/A | | VE32D | 1.2 | ZE3104DB (I, E, W, J, G) | 94 | | | | | | |
| S/A | | VE32D | 1.8 | ZE3108DB (I, E, W, J, G) | 100 | ZE4108DB (I, E, W, J, G) | 109 | | | | |
| S/A | | VE32D | 2.6 | ZE3110DB (I, E, W, J, G) | 114 | ZE4110DB (I, E, W, J, G) | 122 | ZE5110DW (J, G) | 136 | ZE6110DW (J, G) | 175 |
| S/A | | VE32D | 5.2 | ZE3120DB (I, E, W, J, G) | 140 | ZE4120DB (I, E, W, J, G) | 149 | ZE5120DW (J, G) | 163 | ZE6120DW (J, G) | 202 |
| S/A | | VE32D | 10.3 | | | ZE4140DB (I, E, W, J, G) | 199 | ZE5140DW (J, G) | 213 | ZE6140DW (J, G) | 252 |
| S/A | ● | VE33 | 1.2 | ZE3304SB (I, E, W, J, G) | 106 | | | | | | |
| S/A | ● | VE33 | 1.8 | ZE3308SB (I, E, W, J, G) | 112 | ZE4308SB (I, E, W, J, G) | 121 | | | | |
| S/A | ● | VE33 | 2.6 | ZE3310SB (I, E, W, J, G) | 125 | ZE4310SB (I, E, W, J, G) | 134 | ZE5310SW (J, G) | 148 | ZE6310SW (J, G) | 186 |
| S/A | ● | VE33 | 5.2 | ZE3320SB (I, E, W, J, G) | 152 | ZE4320SB (I, E, W, J, G) | 161 | ZE5320SW (J, G) | 174 | ZE6320SW (J, G) | 213 |
| S/A | ● | VE33 | 10.3 | ZE3340SB (I, E, W, J, G) | 203 | ZE4340SB (I, E, W, J, G) | 212 | ZE5340SW (J, G) | 225 | ZE6340SW (J, G) | 264 |
| S/A | ● | VE33VAC | 1.8 | | | ZE41108SB (I, E, W, J, G) | 115 | | | | |
| S/A | ● | VE33VAC | 5.2 | | | ZE41120SB (I, E, W, J, G) | 155 | ZE51120SW (J, G) | 168 | ZE61120SW (J, G) | 207 |
| S/A | ● | VE33VAC | 10.3 | | | | | ZE51140SW (J, G) | 219 | ZE61140SW (J, G) | 258 |
| D/A | ● | VE43 | 1.2 | ZE3404SB (I, E, W, J, G) | 106 | | | | | | |
| D/A | ● | VE43 | 1.8 | ZE3408SB (I, E, W, J, G) | 112 | ZE4408SB (I, E, W, J, G) | 121 | | | | |
| D/A | ● | VE43 | 2.6 | ZE3410SB (I, E, W, J, G) | 125 | ZE4410SB (I, E, W, J, G) | 134 | ZE5410SW (J, G) | 148 | ZE6410SW (J, G) | 186 |
| D/A | ● | VE43 | 5.2 | ZE3420SB (I, E, W, J, G) | 152 | ZE4420SB (I, E, W, J, G) | 161 | ZE5420SW (J, G) | 174 | ZE6420SW (J, G) | 213 |
| D/A | ● | VE43 | 10.3 | ZE3440SB (I, E, W, J, G) | 203 | ZE4440SB (I, E, W, J, G) | 212 | ZE5440SW (J, G) | 225 | ZE6440SW (J, G) | 264 |

1) S/A = Single acting / D/A = Double acting
2) See Valve Section for technical information.
3) "B" suffix model numbers shown are 115 VAC, 1-phase, 50/60 Hz
Other voltages available as shown. Replace “B” voltage suffix with selected voltage character. Model number order example: ZE4108DI is 208-240V, 1 phase, 50/60 Hz.
See Ordering Guide page for voltage descriptions
Note: Voltage options K (440V, 3-phase, 50/60HZ) and R (575V, 3-phase, 60 Hz) are available on select models. Contact your local representative for availability.
Note: Valve Operation L available on Manual Pumps. Substitute "L" for "M" Valve Operation



## Electric Box [1)]

- **Back-lit LCD**
- **Pump usage information, hour and cycle counts**
- **Low-voltage warning and recording**
- **Self-test and diagnostic capabilities**
- **Pressure read-out [2)]**
- **Auto-mode pressure setting [2)]**
- **Information can be displayed in six languages [3)]**

1) Included on pumps with solenoid valves
2) When used with pressure transducer
3) English, French, German, Italian, Spanish and Portuguese



## Level/Temperature Switch [4)]

- **Shuts down pump before oil level reaches an unsafe level, avoiding damage due to cavitation**
- **Shuts down pump when unsafe oil temperature is reached**
- **Ideal if pump is used in remote area without visual access to oil level**

4) 24V, requires Electric Box. Available for 2.6, 5.2 and 10.3 gallon reservoirs

| Accessory Kit Model Number | Fixed Temperature Signal (° F) | Operating Temperature (° F) | Max. Pressure (psi) |
|---|---|---|---|
| **ZLS-U4** | 75 | 40 - 230 | 150 |



## Return Line Filter

- **25 micron nominal filter removes contaminants from return oil flow before allowing it back into tank**
- **Internal by-pass valve prevents damage if filter is dirty**
- **With maintenance indicator**
- **Replaceable filter element PF25**

| Accessory Kit Model Number | Maximum Pressure (psi) | Maximum Oil Flow (GPM) | By-pass Setting (psi) |
|---|---|---|---|
| **ZPF** | 200 | 12.0 | 25 |



## Roll Cage

- **For easy portability**
- **Protects pump and electric box**
- **Available for all reservoir sizes**

| Accessory Kit Number | Fits on Reservoir |
|---|---|
| **ZRC-04** | 1.2 and 1.8 gallon[1)] |
| **ZRC0-4H** | 1.2 and 1.8 gallon[2)] |
| **ZRB-10** | 2.6 gallon |
| **ZRB-20** | 5.2 gallon |
| **ZRB-40** | 10.3 gallon |

1) Without heat exchanger
2) With heat exchanger



## Skid Bar

- **Provides easy two-hand lift**
- **Provides greater pump stability on soft or uneven surfaces**

| Accessory Kit Number | For ZE-Series Pumps with Reservoir | Wt. (lbs) |
|---|---|---|
| **SBZ-4** | 1.2 & 1.8 gal. w/o heat exchanger | 4.9 |
| **SBZ-4L** | 1.2 & 1.8 gal. with heat exchanger | 5.5 |



## Foot Switch [5)]

- **Hands-free remote control on solenoid dump and 3-position valves**
- **With 10-foot cord**

5) 15V, requires Electric Box

| Accessory Kit Number | Can be used on ZE-Series Pumps with |
|---|---|
| **ZCF-2** | Solenoid VE-Series valves |



## Pressure Transducer [1]

- **Displays pressure on LCD in bar, MPa or psi**
- **More accurate than analog gauge**
- **Calibration can be fine-tuned for certification**
- **Easy-viewing variable rate display**
- **"Set pressure" feature turns off motor at user defined pressure (or shifts valve to neutral on models with VE33/ VE43 valves)**

[1] 24V, requires Electric Box

| Accessory Kit Model number | Adjustable Pressure Range (psi) | Switch-point Repeat-ability | Dead-band (psi) |
|---|---|---|---|
| ZPT-U4 | 50-10,000 | ± 0.5% | 50 |



## Pressure Switch [2] [3] [4]

- **Controls pump, monitors system**
- **Adjustable pressure 500-10,000 psi**
- **Includes glycerin filled, 15,000 psi pressure gauge, G2536L**
- **Accuracy ± 1.5% of full scale**

[2] 24V, requires Electric Box. Not available in combination with pressure transducer.
[3] Not available on LCD electronics
[4] Only available on locking valves without pressure transducer

| Accessory Kit Model number | Switch-point Repeat-ability | Deadband (psi) | Oil Ports (NPT) |
|---|---|---|---|
| ZPS-E3 | ± 2% | 115-550 | 3/8" |



## Heat Exchanger [5]

- **Removes heat from bypass oil to provide cooler operation**
- **Stabilizes oil viscosity, increasing oil life, and reduces wear of pump and other hydraulic components**

[5] 24V DC, requires electric box

| Accessory Kit Model number | Fits on Reservoir | Weight (lbs) |
|---|---|---|
| ZHE-E04 | 1.2 and 1.8 gallon | 9.0 |
| ZHE-E10 | 2.6, 5.2 and 10.3 gallon | 9.0 |

**ZE Series**



Reservoir Capacity:
**1.2 - 10.3 gallon**

Flow at Rated Pressure:
**40 - 200 $in^3$/min**

Motor Size:
**1.0 - 7.5 hp**

Maximum Operating Pressure:
**10,000 psi**

**ZPT-U4 Pressure Transducer**

More durable against mechanical and hydraulic shock than analog gauges.

- Digital pressure read-out provides accuracy of 5% of full scale.
- Easy-viewing variable rate display automatically varies increments between 44, 203, 508 and 2103 psi as rate of pressure change increases.
- "Set pressure" feature turns off motor at user defined pressure (or shifts valve to neutral on VE33 and VE43 valves).

**ZHE-Series Heat Exchangers**

Heat exchanger stabilizes oil temperature at 130° F at 70° F ambient temperature. Thermal transfer at 5 GPM and 70° F ambient temperature: 900 Btu/hour.

**Do not exceed maximum oil flow of 7.0 GPM and maximum pressure of 300 psi. Not suitable for water-glycol or high water based fluids.**

▼ Shown: **PEM8418**




# The Largest Pump for the Largest Jobs

- **Panel-mounted pressure gauge and adjustable relief valve for system pressure control**
- **Two-speed pump design, with high by-pass pressure, for rapid cylinder advance**
- **Dual-voltage motor (230/460 VAC, 3-phase, 60 Hz)**
- **Full length reservoir sight tube with integral thermometer for ease in monitoring oil level and temperature**
- **Low voltage controls to protect the pump operator**



**Locking Valves**

Pumps with VM4 manual valves are available with VM4L manual valves for positive load holding. Add suffix **"L"** to pump model number.

***Page:*** **140**



**FS34 Foot Control Switch**

This 3-position switch allows hands-free control of the solenoid valve on the pump. Operates 24V and 115V valves that use the square electrical connector.



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

***Page:*** **148**




◀ *With similar specifications, a gasoline-powered EGM8000 Series is shown here performing a synchronized lift.*

**About the 8000 Series**

The 8000 Series is the largest pump in the Enerpac line and the best choice to power most large size cylinders, multiple cylinder circuits, and applications where the need for high speed requires high flow rates.

The 8000 Series, with its large reservoir capacity, is best suited for large jobs and may be the only solution because of the required oil capacity.

For further application assistance see our "Yellow Pages", or consult your local Enerpac office.

# PEM PER Series

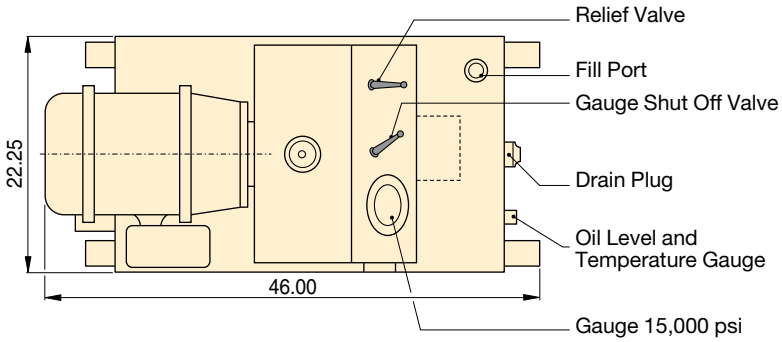


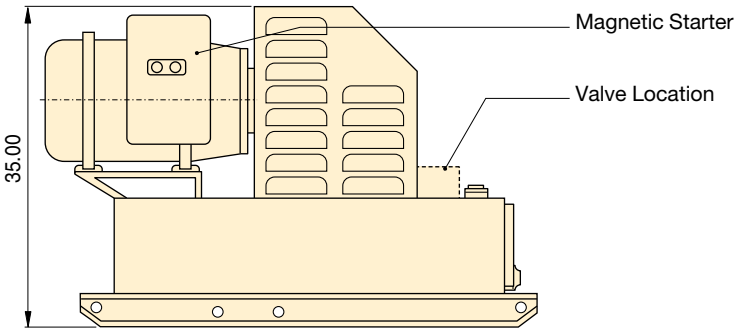
Reservoir Capacity:
**25 gallon**

Flow at Rated Pressure:
**2.0 gal/min.**

Motor Size:
**12.5 hp**

Maximum Operating Pressure:
**10,000 psi**



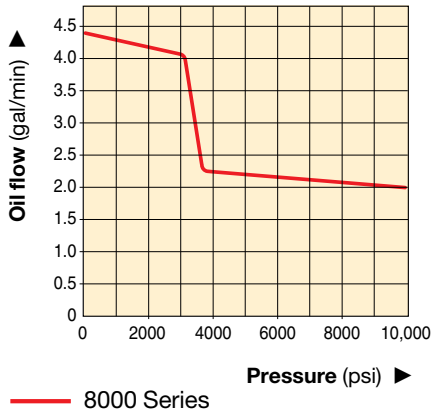

Dimensions shown in inches.

**Speed Chart**

To determine how an 8000-Series pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

*Page:* 409

**OIL FLOW vs. PRESSURE**




| Used with Cylinder | Usable Oil Capacity (gal) | Model Number | Pressure Rating (psi) 1st stage | Pressure Rating (psi) 2nd stage | Output Flow Rate (gal/min) 1st stage | Output Flow Rate (gal/min) 2nd stage | Valve Type | Valve Function | Current Draw (Amps) | Motor Voltage* (VAC) | Sound Level (dBA) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-acting | 18 | PEM8218 | 3,700 | 10,000 | 4.4 | 2.0 | Manual (VM-2) | 3-way, 2-pos. | 33.0 | 230 | 78-84 | 720 |
| | 18 | PEM8218C | 3,700 | 10,000 | 4.4 | 2.0 | | | 16.5 | 460 | 78-84 | 720 |
| Double-acting | 18 | PEM8418 | 3,700 | 10,000 | 4.4 | 2.0 | Manual (VM-4) | 4-way, 3-pos. | 33.0 | 230 | 78-84 | 720 |
| | 18 | PEM8418C | 3,700 | 10,000 | 4.4 | 2.0 | | | 16.5 | 460 | 78-84 | 720 |
| | 18 | PER8418 | 3,700 | 10,000 | 4.4 | 2.0 | Solenoid (VE43) | 4-way, 3-pos. | 33.0 | 230 | 78-84 | 765 |
| | 18 | PER8418C | 3,700 | 10,000 | 4.4 | 2.0 | | | 16.5 | 460 | 78-84 | 765 |

* Consult Enerpac for availability of other voltages.

▼ Shown from top to bottom: **PA1150, PA133**




## PA Series

Reservoir Capacity:
**36 - 80 in³**

Flow at Rated Pressure:
**8 in³/min.**

Maximum Operating Pressure:
**10,000 psi**



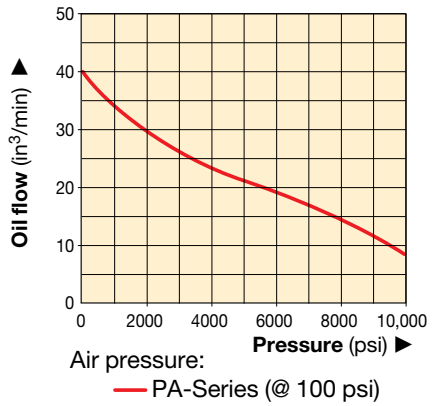
**PC66 Reservoir Conversion Kit**

Double the reservoir capacity of your existing PA133 with this easy to install conversion kit.

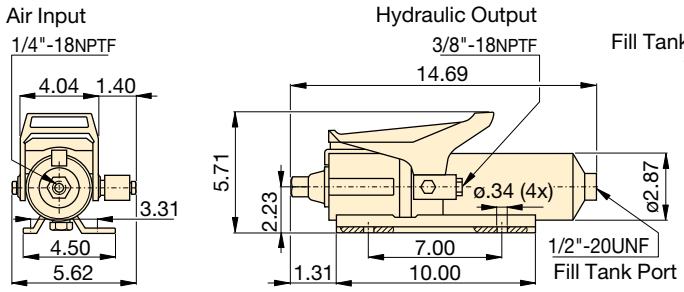
| Model number | PC66 |
|---|---|

- **Rugged construction – built for long life and easy service**
- **Swivel coupling simplifies hydraulic connection and pump operation**
- **Three-position treadle provides cylinder advance, hold and retract operation**
- **PA133 operates in all positions for increased versatility in use and mounting**
- **Base mounting slots provided on PA133**

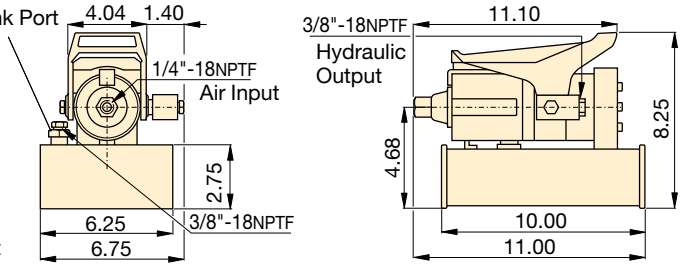
**OIL FLOW vs. PRESSURE**




Dimensions shown in inches.




PA133




PA1150

| Used with Cylinder | Usable Oil Capacity (in³) | Model Number | Pressure Rating (psi) | Output Flow Rate (in³/min) No load | Output Flow Rate (in³/min) Load | Valve Function | Air Pressure Range* (psi) | Air Consumption (scfm) | Sound Level (dBA) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|
| Single-acting | 36 | PA133 | 10,000 | 40 | 8 | Advance/Hold/Retract | 60-120 | 9 | 85 | 12 |
| | 80 | PA1150 | 10,000 | 40 | 8 | Advance/Hold/Retract | 60-120 | 9 | 85 | 18 |

* Recommended Regulator-Filter-Lubricator: RFL102.

▼ Shown: **PAM1041**




## PAM Series

Reservoir Capacity:
**1.0 - 2.0 gallon**

Flow at Rated Pressure:
**9 in³/min.**

Maximum Operating Pressure:
**10,000 psi**



**Locking Valves**

Pumps with VM4 manual valves are available with VM4L manual locking valves instead.
Add suffix **"L"** to pump model number.

*Page:* **140**

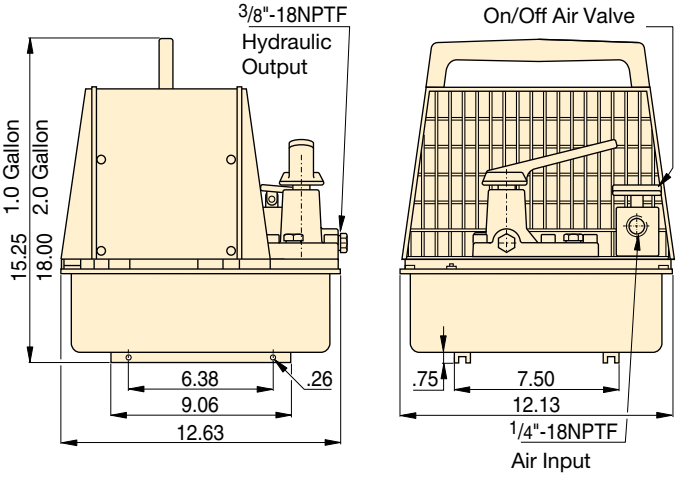


**Remote Air Valve**

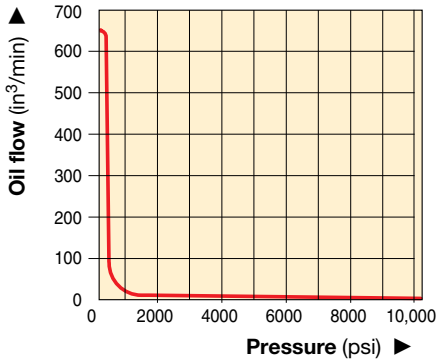
For remote operation of PAM10 series air pumps. Permits either hand or foot operation.

| Model number [1] | VA2 |
|---|---|

- **Twin air motor configuration delivers high-flow performance in first stage, up to 200 psi, for rapid cylinder advance**
- **1 and 2-gallon reservoirs for use with a wide range of cylinders**
- **Integral shroud protects air motors and provides easy portability**




**OIL FLOW vs. PRESSURE**




| Used with Cylinder | Usable Oil Capacity (gal) | Model Number (with Shroud) | Pressure Rating (psi) | Output Flow Rate (in³/min) 1st stage | Output Flow Rate (in³/min) 2nd stage | Valve Function | Valve Model | Air Pressure Range* (psi) | Air Consumption (scfm) | Sound Level (dBA) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-acting | 0.7 | **PAM1021** | 10,000 | 650 | 9 | Adv/Hold/Ret | VM2 | 60-120 | 18 | 87 | 50 |
| | 2.0 | **PAM1022** | 10,000 | 650 | 9 | Adv/Hold/Ret | VM2 | 60-120 | 18 | 87 | 60 |
| Double-acting | 0.7 | **PAM1041** | 10,000 | 650 | 9 | Adv/Hold/Ret | VM4 | 60-120 | 18 | 87 | 50 |
| | 2.0 | **PAM1042** | 10,000 | 650 | 9 | Adv/Hold/Ret | VM4 | 60-120 | 18 | 87 | 60 |

* Recommended Regulator-Filter-Lubricator: RFL102

▼ Shown left to right: **PAMG1402N, PATG1102N, PARG1102N, PATG1105N**



# Compact Air Over Hydraulic

- **High efficiency cast aluminum air motor for increased life and reduced air consumption**
- **Fully serviceable air motor assembly**
- **Reinforced heavy-duty reservoir for applications in tough environments**
- **New generation air-saver piston with rugged one-piece design reduces air consumption and operating costs**
- **Return-to-tank port for use in remote valve applications**
- **Quiet – only 76 dBA with low air consumption of 12 scfm**
- **Operating air pressure: 40-125 psi, enables pump to start at extremely low pressure**
- **Internal pressure-relief valve provides overload protection**
- **Mounting Bracket Kit (MTB1) available to mount pumps to horizontal or vertical surfaces**



**RFL102**
**Regulator-Filter-Lubricator**

Recommended for use with all air pumps. Provides clean, lubricated air and allows for air pressure adjustment. Steel bowl guards are standard.

| Order model number [1] | RFL102 |
|---|---|



**Large Reservoir Models**

The Turbo II Air Pump is also available with a larger reservoir: **PATG1105N, PAMG1405N,** and **PARG1105N.**



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 148

▼ *Easily operated by hand or by foot.*





| Used with Cylinder | Usable Oil Capacity ($in^3$) | Model Number |
|---|---|---|
| Single-acting | 127 | PATG1102N |
| | 230 | PATG1105N |
| | 127 | PARG1102N |
| | 230 | PARG1105N |
| Double-acting | 127 | PAMG1402N |
| | 230 | PAMG1405N |

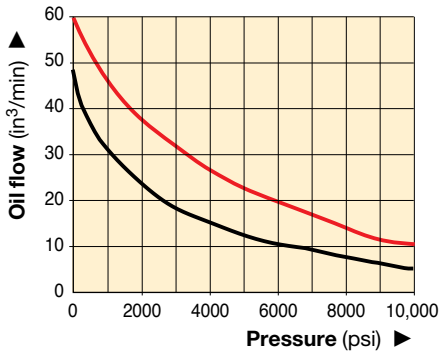
The **PATG**-models use a foot or hand-operated treadle to control air and valve functions.

The **PAMG**-models use a treadle with a locking feature and a 4-way manual valve.

The **PARG**-models use a 15-ft. pendant hose for convenient one-man operation.

**OIL FLOW vs. PRESSURE**

Turbo II Air Pump (@ 100 psi)




# PATG PARG PAMG Series



Reservoir Capacity:
**150 - 305 in³**

Flow at Rated Pressure:
**5 - 10 in³/min.**

Maximum Operating Pressure:
**10,000 psi**

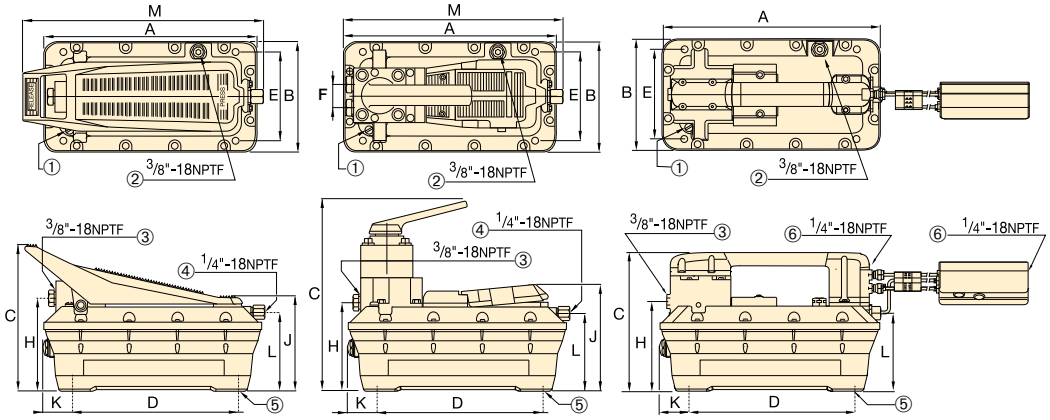
| Pressure Rating (psi) | Output Flow Rate (in³min) No load | Output Flow Rate (in³min) Load | Model Number | Valve Function | Air Pressure Range (psi) | Air Consumption (scfm) | Sound Level (dBA) |
|---|---|---|---|---|---|---|---|
| 10,000 | 60 | 10 | **PATG & PAMG** | Advance/ Hold/ Retract | 40-115 | 12 | 76 |
| 10,000 | 51[1)] | 6[1)] | **PARG** | | 40-115 | 12 | 76 |
| 10,000 | 48[2)] | 5[2)] | | | 40-115 | 8 | 76 |

[1)] Air supply connected at pendant. [2)] Air supply connected at pump shown on flow curve.

**Speed Chart**

To determine how an 8000-Series pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

*Page:* 409




**PATG1102N**
**PATG1105N**

**PAMG1402N**
**PAMG1405N**

**PARG1102N**
**PARG1105N**

① Filtered "Permanent" Tank Vent

② Return-to-Tank/Auxiliary Vent/Fill Tank Port

③ Hydraulic Output

④ Swivel Air Input with Filter

⑤ 4 Mounting Holes for #10 thread forming screw. Max. depth into reservoir = 0.75"

⑥ Air Input Options

| Dimensions (in) A | B | C | D | E | F | H | J | K | L | M | Weight (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.33 | 6.49 | 8.29 | 9.04 | 4.00 | – | 5.15 | 5.75 | 1.65 | 4.43 | 13.62 | 18 | **PATG1102N** |
| 15.60 | 7.92 | 8.22 | 9.04 | 4.00 | – | 5.08 | 5.75 | 3.28 | 4.41 | 17.20 | 22 | **PATG1105N** |
| 12.33 | 6.49 | 7.88 | 9.04 | 4.00 | – | 5.15 | – | 1.65 | 4.43 | – | 22 | **PARG1102N** |
| 15.60 | 7.92 | 7.88 | 9.04 | 4.00 | – | 5.08 | – | 3.28 | 4.41 | – | 26 | **PARG1105N** |
| 12.33 | 6.49 | 10.50 | 9.04 | 4.00 | 1.42 | 5.23 | 6.00 | 1.65 | 4.43 | 12.60 | 24 | **PAMG1402N** |
| 15.60 | 7.92 | 10.50 | 9.04 | 4.00 | 1.42 | 5.19 | 6.00 | 3.28 | 4.41 | 15.94 | 28 | **PAMG1405N** |

▼ Shown: **XA11G**




- **Higher oil flow for increased productivity**
- **Variable oil flow and fine metering for precise control**
- **Ergonomic design for less operator fatigue**
- **Closed hydraulic system prevents contamination and allows pump usage in any position**
- **Pedal lock function for retract position**
- **External adjustable pressure setting valve**
- **ATEX Certified.* Includes ground screw for explosion protection**

* See explanation of ATEX Certification in "Yellow Pages".

▼ *Easily operated by foot. No need to fully lift up foot - rest body weight on heel, resulting in a hands-free and stable working position.*



# Control and Ergonomics



**Optional Pressure Gauge**

Integrated gauge with calibrated scale reading in psi, bar and MPa for actual pressure reading.



**Optional 4-Way 3-Position Valve**

For powering double-acting hydraulic cylinders and tools.



**Optional 1/2 Gallon Reservoir**

Double oil capacity for powering larger hydraulic cylinders and tools.



**"Joy-stick" Lever Kit**

Customer installed set of handles for manual operation of both pedals.

| Order model number [1] | XLK1 |
|---|---|



**Hydraulic Swivel Connector**

Customer installed swivel connector for optimal orientation of the hydraulic hose.

| Order model number [1] | XSC1 |
|---|---|

[1] Accessories must be ordered separately.



**PRODUCTION APPLICATION**

XA11 pump is used with a 13-ton hollow cylinder to compress and position diesel engine valve springs.

The operator benefits from the fine metering capabilities to apply the mandatory precise stroke and force.

# XA Series



Reservoir Capacity:
**61 - 122 in³**

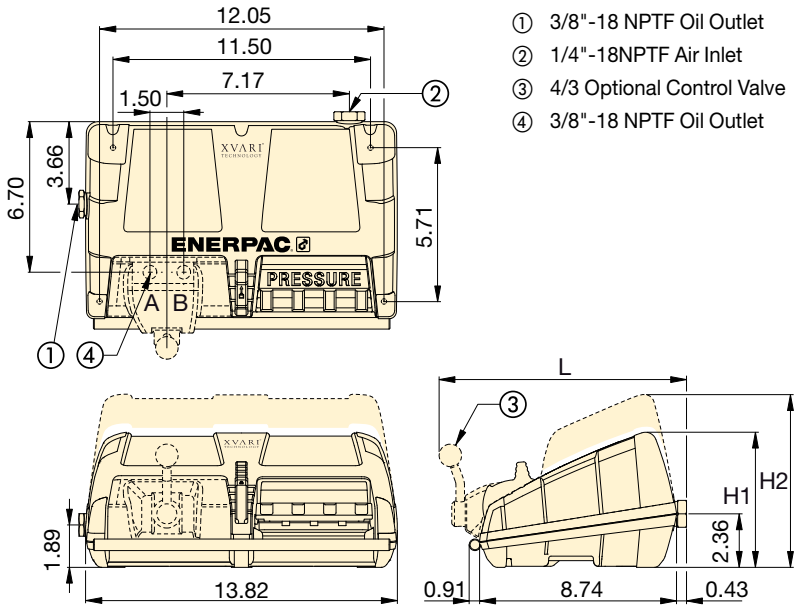
Flow at Rated Pressure:
**15 in³/min.**

Air Consumption:
**10 - 35 scfm**

Maximum Operating Pressure:
**10,000 psi**

## ▼ XA-SERIES PERFORMANCE CHART

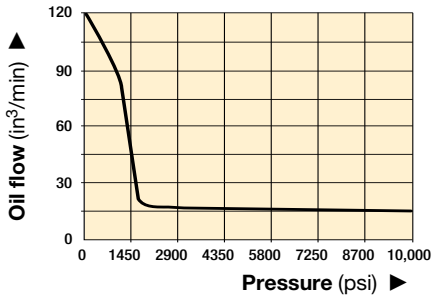
| Maximum Pressure (psi) | Output Flow Rate (in³/min) No load | Output Flow Rate (in³/min) Load | Pump Series | Valve Function | Dynamic Air Pressure (psi) | Sound Level (dba) |
|---|---|---|---|---|---|---|
| 10,000 | 120 | 15 | **XA1** | Advance/Hold/Retract | 30-125 | 88 |




① 3/8"-18 NPTF Oil Outlet
② 1/4"-18NPTF Air Inlet
③ 4/3 Optional Control Valve
④ 3/8"-18 NPTF Oil Outlet

**OIL FLOW vs. PRESSURE**

at 100 psi dynamic air pressure






**Regulator-Filter-Lubricator**

Recommended for use with all XA-Series Air pumps. Provides clean, lubricated air and allows for air pressure adjustment.

| Order model number [1] | RFL102 |
|---|---|

## ▼ SELECTION CHART

| For Use With Cylinder Tool | Usable Oil Capacity (in³) | Model No. [1] | Pressure Gauge | 3-Way, 3-Position Valve | 4-Way, 3-Position Valve | Dimensions (in) H1 | Dimensions (in) H2 | Dimensions (in) L | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| Single-acting | 61 | **XA11** [2] | – | • | – | 5.98 | – | – | 19.0 |
| | 122 | **XA12** [2] | – | • | – | – | 6.69 | – | 22.4 |
| Single-acting | 61 | **XA11G** | • | • | – | 5.98 | – | – | 19.4 |
| | 122 | **XA12G** | • | • | – | – | 6.69 | – | 22.9 |
| Double-acting | 61 | **XA11V** | – | – | • | 5.98 | – | 10.98 | 22.3 |
| | 122 | **XA12V** | – | – | • | – | 6.69 | 10.98 | 25.7 |
| Double-acting | 61 | **XA11VG** | • | – | • | 5.98 | – | 10.98 | 22.7 |
| | 122 | **XA12VG** | • | – | • | – | 6.69 | 10.98 | 26.2 |

[1] High-flow coupler CR400 and accessories must be ordered separately.
[2] Available as cylinder pump set, see page 63.

▼ Shown: **ZA4208MX, ZA4420MX**




Z Tough. Dependable. Innovative. CLASS

- **Features Z-Class high efficiency pump design, higher oil flow and bypass pressure**
- **Two-speed operation and high by-pass pressure reduces cycle time for improved productivity**
- **Internal relief valves. One is factory set for overload protection while the second is user adjustable for pre-setting maximum system pressure**
- **Sight gauge on 1.2 and 1.8-gallon and level gauge on 2.6, 5.2 and 10.3-gallon reservoirs allow quick and easy oil level monitoring**
- **Optional heat exchanger warms exhaust air to prevent freezing and cools the oil**

**ATEX Certified**

See explanation of ATEX certification in the "Yellow Pages."

Ex II 2 GD ck T4 DEKRA 0602 CE

*Page:* 399

**Speed Chart**

To determine how a ZA Series pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

*Page:* 409



**Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 148

| ZA4 Performance | | |
|---|---|---|
| Dynamic Air Pressure Range (psi) | Air Consumption (scfm) | Sound Level (dBA) |
| 60-100 | 20-100 | 94-97 |

| Used with Cylinder | Usable Oil Capacity (gal) | Valve Model Number[2] | Valve Function | Model Number | Output Flow Rate[1] (in³/min) 100 psi | 700 psi | 5,000 psi | 10,000 psi |
|---|---|---|---|---|---|---|---|---|
| Single-acting | 1.2 | Manual VM32 | Advance/ Retract | ZA4204MX | 850 | 675 | 110 | 80 |
| | 1.8 | | | ZA4208MX | 850 | 675 | 110 | 80 |
| | 5.2 | | | ZA4220MX | 850 | 675 | 110 | 80 |
| Double-acting | 1.2 | Manual VM43 | Advance/ Hold/ Retract | ZA4404MX | 850 | 675 | 110 | 80 |
| | 1.8 | | | ZA4408MX | 850 | 675 | 110 | 80 |
| | 2.6 | | | ZA4410MX | 850 | 675 | 110 | 80 |
| | 5.2 | | | ZA4420MX | 850 | 675 | 110 | 80 |
| | 10.3 | | | ZA4440MX | 850 | 675 | 110 | 80 |

1) Actual flow will vary with air supply
2) See valve section for hydraulic symbols and details

# ZA-Series, Air Hydraulic Pump Ordering Matrix

**CUSTOM BUILD YOUR ZA4 AIR PUMP**

**▼ This is how a ZA-Series Pump model number is built up:**

| Z | A | 4 | 2 | 08 | M | X | - | F | H | K | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Product Type | 2 Motor Type | 3 Flow Group | 4 Valve Type | 5 Usable Oil Capacity | 6 Valve Operation | 7 Voltage | | 8 Options | | | |

**1 Product Type**
**Z** = Pump class

**2 Motor Type**
**A** = Air motor

**3 Flow Group**
**4** = 80 in³/min@10,000 psi

**4 Valve Type**
**0** = No valve with cover plate
**2** = 3-way, 2-position (VM32)
**3** = 3-way, 3-position (VM33)
**4** = 4-way, 3-position (VM43)
**6** = 3-way, 3-position, locking (VM33L)
**7** = 3-way, 2-position (VM22)
**8** = 4-way, 3-position, locking (VM43L)

**5 Usable Oil Capacity**
**04** = 1.2 gallon
**08** = 1.8 gallon
**10** = 2.6 gallon
**20** = 5.2 gallon
**40** = 10.3 gallon

**6 Valve Operation**
**M** = Manual valve
**N** = No valve

**7 Voltage**
**X** = Not applicable

**8 Options**
(Specify in alphabetical order)
**F** = Filter
**G** = 0-15,000 psi gauge (2 1/2")
**H** = Heat exchanger*
**K** = Skid bar*
**N** = No reservoir handles (includes lifting eyes; 2.5, 5, 10 gallon only)
**R** = Roll bars
* (1 and 2 gallon reservoirs only)

**Ordering Example**

**Model Number: ZA4208MXFHK**

ZA4208MXFHK is an air operated pump with a 3-way, 2-position manual valve, a 1.8 gallon reservoir, filter, heat exchanger and skid bar.

## ZA Series

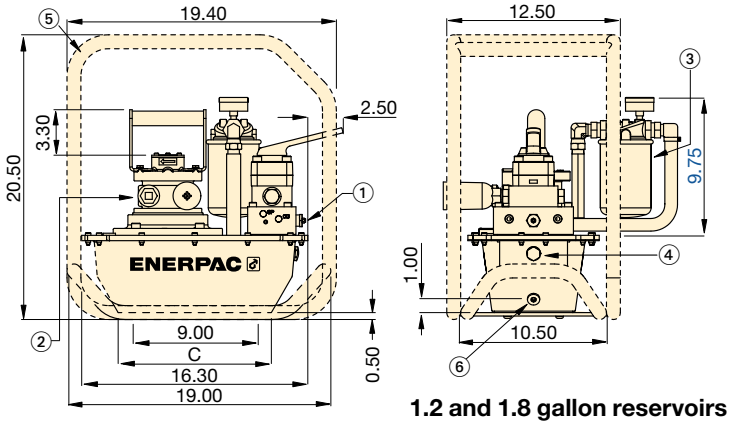


Reservoir Capacity:
**1.2 - 10.3 gallon**

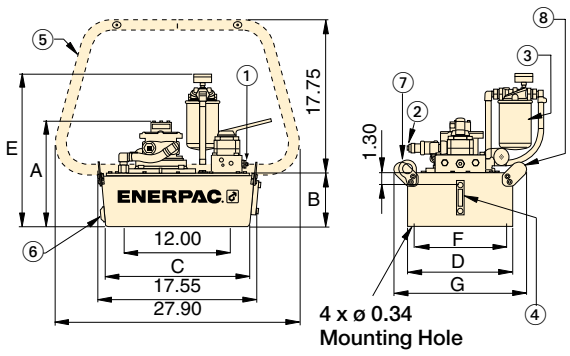
Flow at Rated Pressure:
**80 in³/min.**

Maximum Operating Pressure:
**10,000 psi**

① User adjustable relief valve on all manual valves
② Air inlet 1/2" NPTF
③ Return Line Filter (optional)
④ Oil Sight Gauge
⑤ Roll Cage (optional)
⑥ Oil Drain
⑦ Lifting eyes (4) (optional)
⑧ Handles
Skid Bar (Model No. SBZ4) (optional)




**1.2 and 1.8 gallon reservoirs**

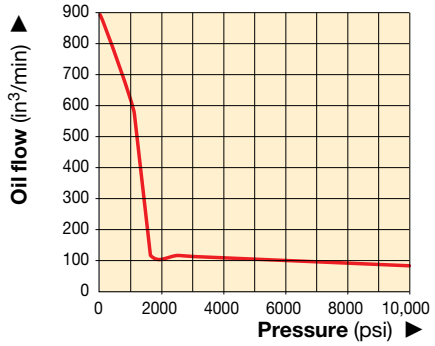



**2.6, 5.2, 10.3 gallon reservoirs**

| | Dimensions (in) | | | | | | | Weight (incl. oil) |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | (lbs) |
| | 11.6 | 5.6 | 11.0 | 6.0 | 15.4 | - | - | 65.5 |
| | 11.6 | 5.6 | 11.0 | 8.1 | 15.4 | - | - | 75.7 |
| | 13.0 | 7.1 | 16.5 | 16.6 | 16.0 | 15.6 | 18.4 | 112.7 |
| | 11.6 | 5.6 | 11.0 | 6.0 | 15.4 | - | - | 66.7 |
| | 11.6 | 5.6 | 11.0 | 8.1 | 15.4 | - | - | 76.9 |
| | 12.0 | 6.1 | 16.5 | 12.0 | 16.0 | 11.0 | 15.1 | 87.1 |
| | 13.0 | 7.1 | 16.5 | 16.6 | 16.9 | 15.6 | 18.4 | 113.9 |
| | 16.5 | 10.6 | 15.7 | 19.9 | 20.4 | 18.9 | 23.0 | 164.6 |

**OIL FLOW vs. PRESSURE**

100 psi Dynamic Air Pressure at 70 scfm



▼ Shown: **ZG5420MX-R**




Z Tough. Dependable. Innovative. CLASS

- **Features *Z-Class* high-efficiency pump design, higher oil flow and bypass pressure**
- **Two-speed operation reduces cycle time for improved productivity**
- **Full-sight oil level glass on all reservoirs allow quick and easy oil level monitoring**
- **ZG5 is available in two 4-cycle engine sizes: 7.1 ft.lbs Honda and 8.5 ft.lbs Briggs & Stratton**

**Speed Chart**

To determine how a ZG Series pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

*Page:* 409

**ZG-Series, Gasoline Pump Performance**

Elevation can affect the performance of any gasoline engine. ZG-Series pumps are designed to develop rated performance at elevations up to 4921 ft.

For applications above this elevation please consult your Enerpac office.



**User-Adjustable Relief Valve**

All VM-Series directional valves have a user adjustable relief valve to allow the operator to easily set the optimum working pressure.

▼ **SELECTION CHART**

| Used with Cylinder | Usable Oil Capacity (gal) | Valve Model Number | Valve Function | Model Number with Roll Cage | Output Flow Rate ($in^3$/min) at 100 psi | at 700 psi | at 5000 psi | at 10,000 psi | Sound Level (dBA) |
|---|---|---|---|---|---|---|---|---|---|
| Single-Acting | 2.6 | VM33 | Advance/ Hold/ Retract | ZG5310MX-R | 700 | 650 | 110 | 100 | 88 - 93 |
| | 5.2 | | | ZG5320MX-R | 700 | 650 | 110 | 100 | 88 - 93 |
| Double-Acting | 2.6 | VM43 | | ZG5410MX-R | 700 | 650 | 110 | 100 | 88 - 93 |
| | 5.2 | | | ZG5420MX-R | 700 | 650 | 110 | 100 | 88 - 93 |
| Single-Acting | 2.6 | VM33 | | ZG5310MX-BR | 400 | 380 | 110 | 100 | 91 - 95 |
| | 5.2 | | | ZG5320MX-BR | 400 | 380 | 110 | 100 | 91 - 95 |
| Double-Acting | 2.6 | VM43 | | ZG5410MX-BR | 400 | 380 | 110 | 100 | 91 - 95 |
| | 5.2 | | | ZG5420MX-BR | 400 | 380 | 110 | 100 | 91 - 95 |
| | 10.3 | VM43L | | ZG5840MX-BR | 400 | 380 | 110 | 100 | 91 - 95 |

*To order Briggs & Stratton motor, place a "B" suffix in the model number.

## CUSTOM BUILD YOUR ZG AIR PUMP

**▼ This is how a ZG-Series Pump model number is built up:**

| Z | G | 5 | 4 | 10 | M | X | - | F | R | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Product Type | 2 Motor Type | 3 Flow Group | 4 Valve Type | 5 Usable Oil Capacity | 6 Valve Operation | 7 Voltage | | 8 Options | | | |

**1 Product Type**
**Z** = Pump class

**2 Motor Type**
**G** = Gasoline Engine

**3 Flow Group**
**5** = 100 in³/min@10,000 psi
**6** = 200 in³/min@10,000 psi (see page 130)

**4 Valve Type**
**0** = No valve with coverplate [1]
**2** = 3-way, 2-position (VM32)
**3** = 3-way, 3-position (VM33)
**4** = 4-way, 3-position (VM43)
**6** = 3-way, 3-position, locking (VM33L)
**8** = 4-way, 3-position, locking (VM43L)

[1] For remote valve mounting order **BSS1090** high pressure connecting plate.

**5 Usable Oil Capacity (Reservoir Size)**
**10** = 2.6 gallon
**20** = 5.2 gallon
**40** = 10.3 gallon

**6 Valve Operation**
**M** = Manual valve
**N** = No valve

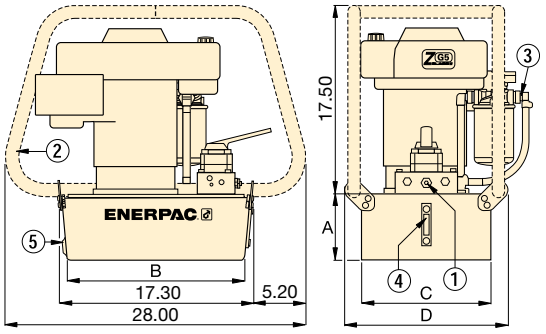
**7 Voltage**
**X** = Not applicable

**8 Options**
(Specify in alphabetical order)
**B** = Briggs & Stratton gasoline engine
**F** = Return Line Filter
**G** = 15,000 psi gauge
**N** = No reservoir handles (includes lifting eyes; 2.5, 5, 10 gallon only)
**R** = Roll bars

**Ordering Example**

Model Number: **ZG5420MXFR**

This is a 10,000 psi hydraulic pump, with a 4/3 manual valve, 2.6 gallon reservoir, with a 7.1 ft-lbs Honda gasoline engine pump, return-line filter and roll bar.




① User-adjustable relief valve on all manual valves. 3/8" NPTF on A and B ports; 1/4" NPTF on auxiliary ports.
② Roll Bar (optional)
③ Return Line Filter (optional)
④ Oil Level Gauge
⑤ Oil Drain

| | Motor Manufacturer* | Relief Valve Adjustment Range | ZG5 Dimensions (in) | | | | Wt. | Model Number with Roll Cage |
|---|---|---|---|---|---|---|---|---|
| | (ft-lbs) | (psi) | A | B | C | D | (lbs) | |
| | Honda | 1000-10,000 | 6.1 | 16.5 | 12.0 | 15.1 | 113.6 | **ZG5310MX-R** |
| | | | 7.1 | 16.3 | 16.6 | 19.7 | 140.9 | **ZG5320MX-R** |
| | | | 6.1 | 16.5 | 12.0 | 15.1 | 113.6 | **ZG5410MX-R** |
| | | | 7.1 | 16.3 | 16.6 | 19.7 | 141.0 | **ZG5420MX-R** |
| | Briggs & Stratton * | 1000-10,000 | 6.1 | 16.5 | 12.0 | 15.1 | 111.0 | **ZG5310MX-BR** |
| | | | 7.1 | 16.3 | 16.6 | 19.7 | 138.3 | **ZG5320MX-BR** |
| | | | 6.1 | 16.5 | 12.0 | 15.1 | 111.1 | **ZG5410MX-BR** |
| | | | 7.1 | 16.3 | 16.6 | 19.7 | 138.4 | **ZG5420MX-BR** |
| | | | 10.6 | 15.7 | 19.8 | 21.9 | 189.6 | **ZG5840MX-BR** |

## ZG5 Series



Reservoir Capacity:
**2.6 - 5.2 - 10.3 gallon**

Flow at Rated Pressure:
**100 in³/min.**

Engine Size:
**7.1 and 8.5 Ft.lbs**

Maximum Operating Pressure:
**10,000 psi**



**High-Pressure Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 148

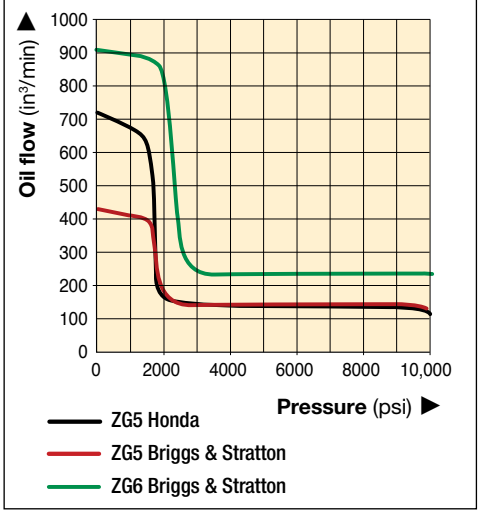


**ZG6-Series 17.0 Ft-lb Pump**

The ZG6 pump has a 200 in³/min. oil flow at 10,000 psi, Briggs & Stratton 4-cycle gasoline engine with electric start and 12 volt charge output for accessories.

*Page:* 130

**OIL FLOW vs. PRESSURE**



▼ Shown: **ZG6440MXBCFH**



## ZG6 Series

Reservoir Capacity:
**10.3 gallon**

Flow at Rated Pressure:
**200 $in^3$/min.**

Engine Size:
**17.0 Ft.lbs**

Sound Level:
**88 - 93 dBA**

Maximum Operating Pressure:
**10,000 psi**

- **Features *Z-Class* high-efficiency pump design:**
  - **higher oil flow and bypass pressure**
  - **patented balanced rotating pump components to reduce vibration**
  - **replaceable piston check valves that increase service life of pump components**
- **Two-speed operation reduces cycle time for improved productivity**
- **Full-sight oil level glass on all reservoirs allow quick and easy oil level monitoring**
- **Sturdy wheeled cart allows transport over uneven terrain and features collapsible handles**
- **Dual forced-air heat exchangers stabilizes hydraulic oil temperature**
- **Roll cage for easy portability and hoisting, protects pump**
- **Briggs & Stratton 17 ft.lbs engine with electric start, pressurized oil and 16-amp charge output for accessories**

**Other Options Available**

The ZG5/ZG6 pumps are available in a wide range of configurations and options. Contact Enerpac for further information.



**User Adjustable Relief Valve**

All VM-Series directional valves have a user adjustable relief valve to allow the operator to easily set the optimum working pressure.

| Used with Cylinder | Usable Oil Capacity (gal) | Valve Model Number | Valve Function | Model Number | Motor Manufacturer* | Motor Size (Ft.lbs) | Weight (lbs) |
|---|---|---|---|---|---|---|---|
| **Double-Acting** | 10.3 | VM43 | Advance/Hold/Retract | **ZG6440MX-BCFH** | Briggs & Stratton | 17.0 | 334.0 |

▼ Shown: **EGM8418**




# EGM
## Series

Reservoir Capacity:
**25 gallon**

Flow at Rated Pressure:
**1.5 gal/min.**

Motor Size:
**18 hp**

Maximum Operating Pressure:
**10,000 psi**



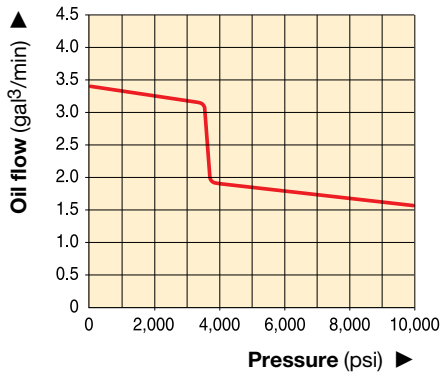
**Locking Valves**

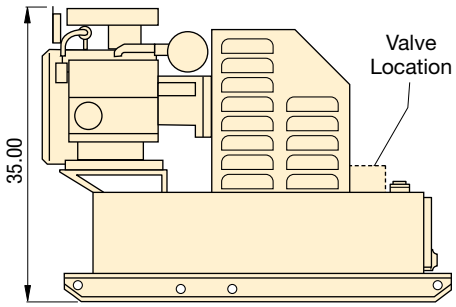
Pumps with VM4 manual valves are available with VM4L manual valves for positive load holding. Add suffix "L" to pump model number.

***Page:*** **140**

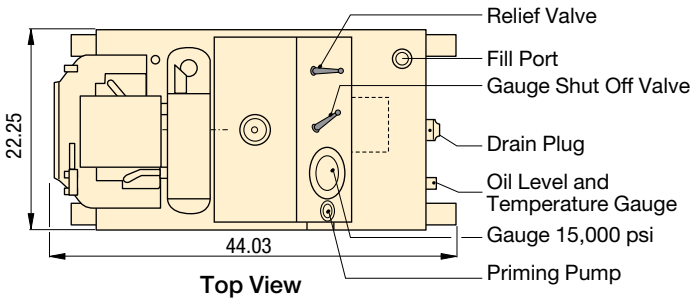
- **Industrial grade 18 hp twin-cylinder motor**
- **Panel mounted pressure gauge and adjustable relief valve for system pressure control**
- **Two-speed pump design with high by-pass pressure for rapid cylinder advance**
- **Built in oil temperature and oil level gauge**
- **External adjustable relief valve (1,200-10,000 psi) allows control of operating pressure without opening the pump**
- **Integral priming circuit guarantees quick starts after transport**

**OIL FLOW vs. PRESSURE**




Side View




Top View

| Used with Cylinder | Usable Oil Capacity (gal) | Model Number | Pressure Rating (psi) | | Output Flow Rate (gal/min) | | Valve Type | Valve Function | Sound Level (dBA) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1st stage | 2nd stage | 1st stage | 2nd stage | | | | |
| **Single-acting** | 18 | **EGM8218** | 3,700 | 10,000 | 3.4 | 1.5 | 3-way, 2-pos. | Adv./Retr. | 94 | 890 |
| **Double-acting** | 18 | **EGM8418** | 3,700 | 10,000 | 3.4 | 1.5 | 4-way, 3-pos. | Adv./Hold/Retr. | 94 | 890 |

▼ SFP421SJ and SFP404SJ (Gauges and retract valves not shown)




# Multiple Outlets with Equal Flow for Lifting and Lowering

- **2, 4, 6 or 8 split-flow outlets**
- **Individual or simultaneously operation of valves, with advance/hold/retract function**
- **Joystick (manual) controlled or pendant (solenoid) controlled valves**
- **Flow per outlet ranging from 20 to 305 $in^3$/min at 10,000 psi**
- **For double- and single-acting cylinders**
- **Adjustable pressure relief valve per circuit**
- **Reservoir: 5, 10 or 40 gallons**
- **All models include pressure gauges**

▼ *Step-by-step stage lifting an old windmill using double-acting RR506 cylinders powered by a Split-Flow Pump.*



### Typical Split-Flow Pump Applications

For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using independently operated pumps. Where synchronization of maximum 4% is acceptable, Split-Flow Pumps are a safe and economical solution.

The SFP-Series pumps feature both single and synchronized multiple outlet control either through joystick or pendant operation.

**Application examples:**

- Bridge deck lifting for bearing maintenance
- Stage lifting in construction and shipbuilding
- Skidding to move structures and buildings
- Levelling of constructions like wind turbines



### Remote Control Pendant

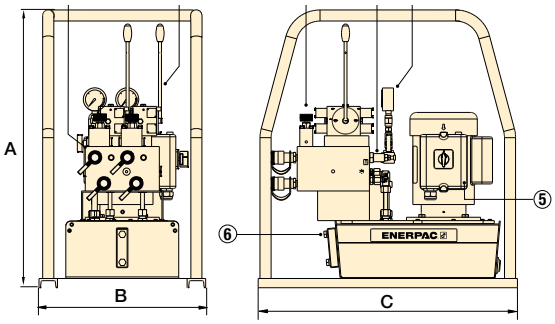
Split-Flow Pumps with solenoid valves include a remote pendant with selector switches for each individual outlet, allowing single or multiple cylinder operation.



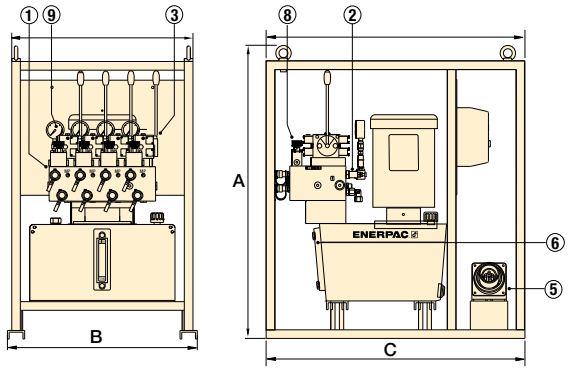
### Hoses and Couplers

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac System Components.

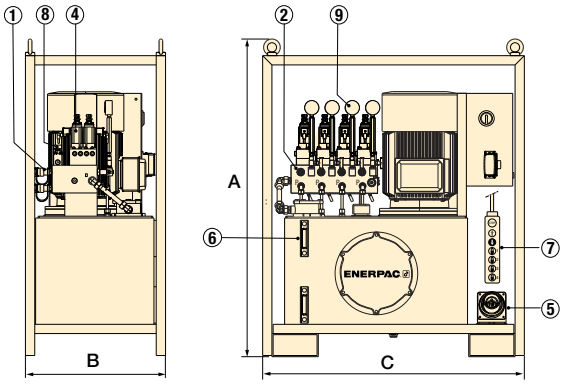
*Page:* 148




◀ **SFP-Series with 5-gallon reservoir (shown with 2 split-flow outlets)**




◀ **SFP-Series with 10-gallon reservoir (shown with 4 split-flow outlets)**




◀ **SFP-Series with 40-gallon reservoir (shown with 4 split-flow outlets)**

# SFP Series




Reservoir Capacity:
**5, 10 or 40 gallon**

Split-Flow Outlets:
**2, 4, 6 or 8 outlets**

Flow at Rated Pressure:
**20 - 305 in³/min**

Maximum Operating Pressure:
**10,000 psi**



**Lifting Cylinders**

For a complete line of Enerpac cylinders, see the Cylinder and Lifting Products in our catalog.

*Page:* 5

① Manifold with split-flow outlets and CR400 couplers
② Adjustable pressure relief valve per circuit
③ Manual 4/3 control valves with joysticks
④ Solenoid 4/3 control valves (24 VDC)
⑤ Power Socket
⑥ Oil sight gauge(s)
⑦ Remote control pendant with 16 ft. cord
⑧ Flow control valve
⑨ Hydraulic gauge

| Number of Split-Flow Outlets | Reservoir Size (gal) | Oil Flow per Outlet @ 10,000 psi (in³/min) | Pump Model Number 4/3 Valve Operation Advance/Hold/Retract Manual (Joystick) | 24 V Solenoid (Pendant) | Motor Size 460 V - 3ph 60 Hz (hp) | Dimensions (in) A | B | C | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 5 | 20 | SFP202MB* | – | 1.0* | 29.5 | 17.7 | 27.6 | 189 |
| | 10 | 94 | SFP213MJ | SFP213SJ | 7.5 | 40.0 | 25.2 | 38.2 | 485 |
| | 40 | 203 | SFP228MJ | SFP228SJ | 10 | 53.4 | 23.8 | 45.7 | 1309 |
| | 40 | 305 | SFP242MJ | SFP242SJ | 15 | 53.4 | 23.8 | 45.7 | 1173 |
| 4 | 10 | 33 | SFP404MJ | SFP404SJ | 7.5 | 40.0 | 25.2 | 38.2 | 567 |
| | 40 | 65 | SFP409MJ | SFP409SJ | 7.5 | 53.4 | 23.8 | 45.7 | 1065 |
| | 40 | 101 | SFP414MJ | SFP414SJ | 10 | 53.4 | 23.8 | 45.7 | 1314 |
| | 40 | 153 | SFP421MJ | SFP421SJ | 15 | 53.4 | 23.8 | 45.7 | 1314 |
| 6 | 10 | 33 | SFP604MJ | SFP604SJ | 7.5 | 40.0 | 25.2 | 38.2 | 637 |
| | 40 | 94 | — | SFP613SJ | 15 | 53.4 | 31.7 | 47.2 | 1239 |
| 8 | 40 | 94 | — | SFP813SJ | 20 | 53.4 | 31.7 | 47.2 | 1327 |

* 115V-1 ph, 60 Hz

**Motor Voltage**

Motor voltage is specified by the last letter in the model number.

Other motor voltages are available from Enerpac. Change "J" in the model as follows for other options:

**J** = 460-480V, 3 ph, 50-60 Hz
**G** = 208-240V, 3 ph, 50-60 Hz
**W** = 380-415V, 3 ph, 50-60 Hz

▼ **SFP-Series Split-Flow Pump Kit Components**




## Connecting Split-Flow Pumps for more lift points and greater accuracy

- **Control multiple Split-Flow Pumps with one control unit**
- **Pumps can be closer to the lifting points, requiring shorter hoses and increasing accuracy**
- **Synchronize all lift points to within 0.04 inch (1.0 mm)**
- **Network control boxes expand the number of lifting points by combining up to four split-flow pumps together, simplifying lifting operations by using a single operator station**
- **Plug and play synchronous lift upgrade kits limit initial investment and provide everyday flexibility to tailor the controls to the applications needs**

### Split Flow Pumps Kits

SFP Series kits are customized from standard components to meet the needs of your unique applications. On the next page is the guide to help you choose the right components to upgrade or expand your equipment based on your application needs.

Contact your regional Enerpac representative / territory manager for support with your specific project.

### Split-Flow Pump Network Kits

Split-Flow Pump Network Kits connect multiple Split-Flow Pumps under one control system.

### Split-Flow Pump Synchro Kits

Split-Flow Pump Synchro Kits connect and electronically synchronize each lift point of a single Split-Flow Pump or multiple Split-Flow Pumps under one control system.



### Junction Box

**SFPKSS4** and **SFPKSS8** junction boxes consolidate the signals from pressure and stroke sensors, allowing the master control box to synchronize the lifting operation.



### SFPKMN, Master Control Box

All SFP-Series Synchro Kits include a master control box to allow the operator to easily monitor and control a multi-point synchronized lift and adjust individual lift points as needed.
All master control boxes feature an industrial grade touch screen and a user-friendly interface.



### EVO-SC-25, Stroke Sensor Cable, 82 feet

Can be connected together for additional length. Ordered separately, requires one for each stroke sensor.



### EVO-WSS, Wire Stroke Sensors

Provides stroke feedback to controls. Includes magnets for mounting. Ordered separately, requires one sensor for each lifting point. Available in measuring range from 3.9 to 49.2 in.

| Model Number | Range (in) | Model Number | Range (in) |
|---|---|---|---|
| EVO-WSS-100 | 3.9 | EVO-WSS-750 | 29.5 |
| EVO-WSS-125 | 4.9 | EVO-WSS-1000 | 39.4 |
| EVO-WSS-375 | 14.8 | EVO-WSS-1250 | 49.2 |
| EVO-WSS-500 | 19.7 | – | – |



### Communication Cables

EVO-COMM-Series communication cables transfer information about the synchronized lift operation from the master control panel to each of the connected split-flow pumps.

| Model Number | Length (ft) | Model Number | Length (ft) |
|---|---|---|---|
| EVO-COMM-25 | 82 | EVO-COMM-75 | 246 |
| EVO-COMM-50 | 164 | EVO-COMM-100 | 328 |

**Upgrading Split-Flow Pumps**

To network multiple SFP-pumps together with standard function see drawing and table ①.

To upgrade a single SFP-pump to synchronous lift capability, see drawing and table ②.

To upgrade and network multiple SFP-pumps together with synchronous lift capabilities, see drawing and table ③.

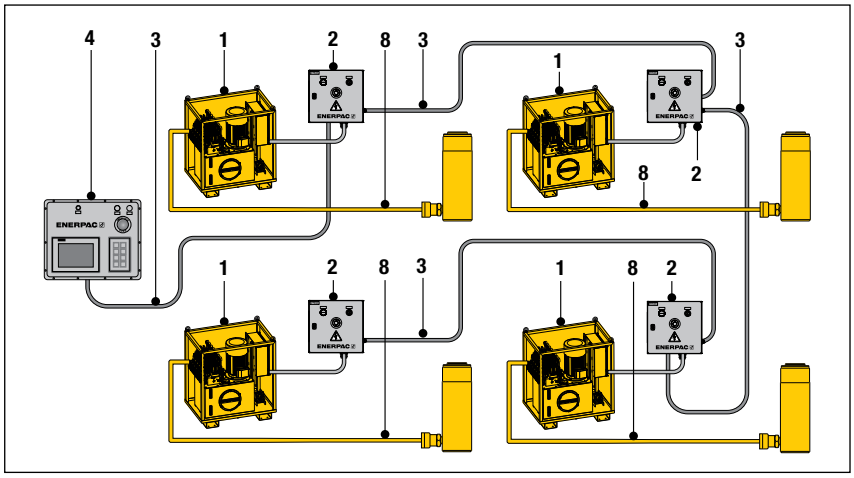
# SFP Series



Multiple Pumps in Network System:
**1 - 4 Pumps**

Maximum Lifting Points:
**32x Cylinders**

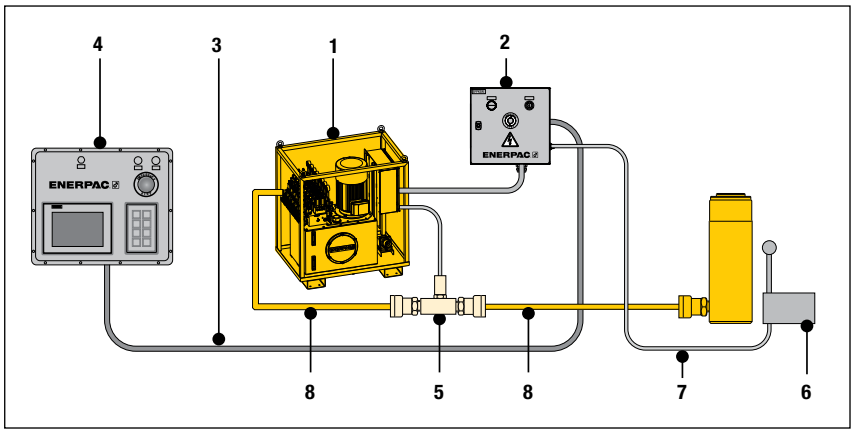
## ① Networked SFP-Pumps in Standard Operation




**① Networked SFP-Pumps in Standard Operation**

| No. | Qty. | Model No. & Description |
|---|---|---|
| 1 | 4x | **SFP...SW** Pumps with solenoid valves |
| 2 | 4x | **SFPKSN** Junction Box, 1x per pump |
| 3 | 4x | **SFPCOMM25** Communication Cable, 1x per pump |
| 4 | 1x | **SFPKMN** Master Control Box |
| 8 | | HC-700-Series, Hydraulic Hoses |

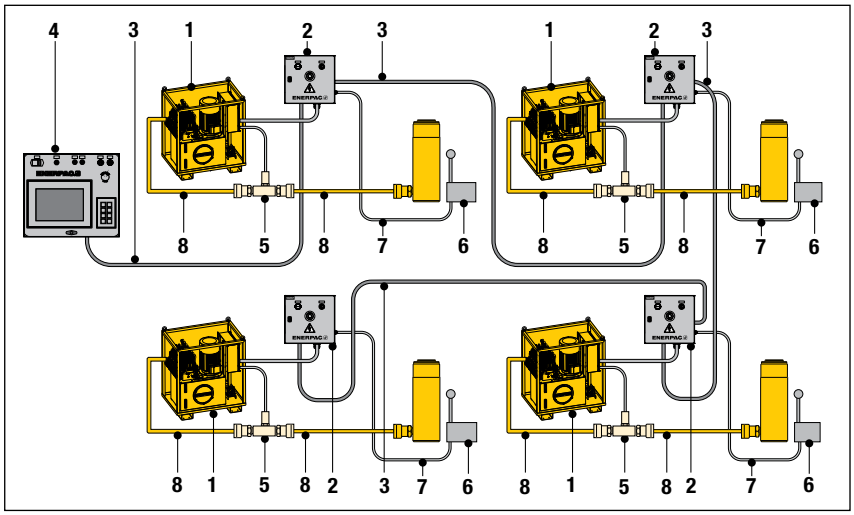
## ② Single SFP-Pump in Multiple-Point Synchronous Lifting Operation




**② Single SFP-Pump in Multiple-Point Synchronous Lifting Operation**

| No. | Qty. | Model No. & Description |
|---|---|---|
| 1 | 1x | **SFP...SW** Pump with solenoid valves |
| 2 | 1x | **SFPKSS4** Junction Box for 2-4 lifting points or **SFPKSS8** for 6-8 lifting points |
| 3 | 1x | **SFPCOMM25** Communication Cable |
| 4 | 1x | **SFPSSC** Single Slave Control Box |
| 5 | | **SFPKPT** Pressure Transducer Kit (1x per cylinder A-port) |
| 6 | | **EVO-WSS-XXX** Stroke Sensor, 1x per cylinder |
| 7 | | **EVO-SC25** Stroke Sensor Cable, 1x per cylinder |
| 8 | | HC-700-Series, Hydraulic Hoses |

## ③ Networked Pumps in Multiple-Point Synchronous Lifting Operation




**③ Networked SFP-Pumps in Multiple-Point Synchronous Lifting Operation**

| No. | Qty. | Model No. & Description |
|---|---|---|
| 1 | 4x | **SFP...SW** Pump with solenoid valves |
| 2 | 4x | **SFPKSS4** Junction Box, 1x per pump, for 2-4 lifting points or **SFPKSS8** Junction Box for 6-8 lifting points) |
| 3 | 4x | **EVO-COMM-XXX** Communication Cable, 1x per pump |
| 4 | 1x | **EVOMASTER** Master Control Box |
| 5 | | **SFPKPT** Pressure Transducer Kit, 1x per cylinder A-port) |
| 6 | | **EVO-WSS-XXX** Stroke Sensor, 1x per cylinder |
| 7 | | **EVO-SC25** Stroke Sensor Cable, 1x per cylinder |
| 8 | | HC700-Series, Hydraulic Hoses |

▼ **EVO8** (shown with 4 cylinders and stroke sensors, (sold separately)




# The Multi-Functional Synchronous Lifting System

- **Modular lifting pumps to control 4, 8 or 12 lifting points**
- **Can be connected to single- or double-acting cylinders with the same or different lifting capacities**
- **PLC-controlled system with integrated 10,000 psi hydraulic power unit and 66-gallon reservoir**
- **Network capability to link up to 4 EVO units (HPUs) to a separate EVO master-control box via wireless control**
- **Intuitive user interface providing easy set up, control and navigation**
- **Data storage and recording capabilities**
- **Variable frequency drive motor (VFD) and PLC for precise synchronization and oil flow control**

**EVO-System Work Modes**

The application possibilities are infinite with the standard EVO-System, powering interlinked hydraulic cylinders – single or double-acting, push or pull, stage lift, hollow plunger or lock nut cylinders. The EVO-System has 9 work modes. The operator can navigate to any of these menus:

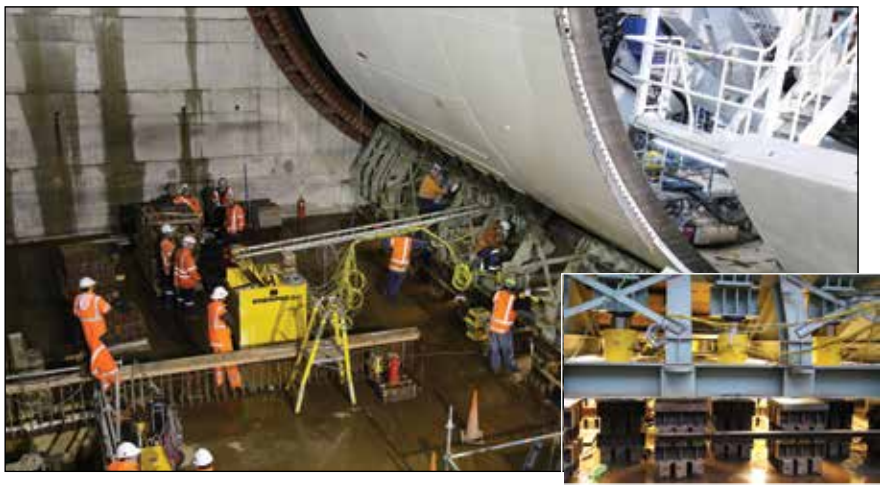
1. Manual
2. Pre-Load
3. Automatic
4. Retract Fast
5. Depressurize
6. Tilting
7. Stage Lift
8. Weighing *
9. Center of Gravity determination *

* Available in the **EVO-W-models.**

**Typical Synchronous Lifting Applications**

- Bridge lifting and repositioning
- Bridge launching
- Bridge maintenance
- Incremental launching and box jacking
- Lifting and lowering of heavy equipment
- Lifting, lowering, levelling and weighing of heavy structures and buildings
- Structural and pile testing
- Lifting and weighing of oil platforms
- Foundation levelling of onshore and offshore wind turbines
- De-propping/load transfer from temporary steel work
- Foundation shoring

▼ *Shown: 3600-ton tunnel boring machine lowered and tilted into its starting position with the EVO-Series Synchronous Lifting System.*



**Benefits of the EVO-Series System**

**Precise control of multiple lift points**
- Comprehensive understanding and management of a lifting operation from a central control system improves safety and operational productivity
- Programmable synchronized lifting
- Automatic stop at pre-set cylinder stroke or load limit

**Safe and efficient movement of loads**
- System secured with warning and stop features to realize optimal safety

**High accuracy**
- Variable frequency drive (VFD) and PLC for precise synchronization and control of oil flow, stroke and speed
- Depending the cylinder capacities used, an accuracy of 0.040 inches between lifting points is achieved

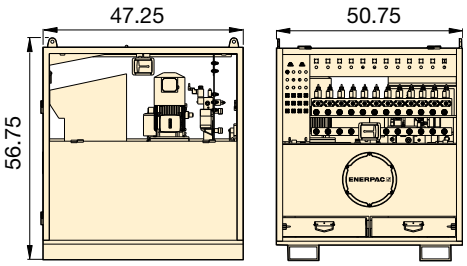
**Ease of operation**
- User friendly interface: visual screens, icons, symbols and color coding
- A single operator controls the entire operation

**Monitoring and Data Recording**
- Displays data of the operation.
- Data recording at user-defined intervals
- Data storage and read-out for reporting

**Network capability**
- Ethernet IP protocol for communication between hydraulic power units, allow easy “plug and play”

**EVOW Weighing System**
Weighing applications with 1% accuracy
- Includes calibrated sensors and auto-calibration of external load cells
- Center of gravity determination functionality
- Parameters for “waiting time for stabilization” and “number of cycles”.

**Global standardized system**
- Enerpac global coverage ensures local support




**EVO-Series (Standard)**

| Lifting Points | Variable Oil Flow (in³/min) (< 1,800 psi) | Variable Oil Flow (in³/min) (> 1,800 psi) | Model Number 460-480V, 3ph, 50-60Hz | Usable Oil Capacity (gal) | Motor Size (hp) | Motor Speed [2] | Wt. (lbs) |
|---|---|---|---|---|---|---|---|
| 4 | 243-812 | 46-153 | **EVO 421460** | 66 | 4 | VFD | 2000 |
| 4 | 243-812 | 46-153 | **EVO 421460 W** [1] | 66 | 4 | VFD | 2000 |
| 4 | 285-951 | 88-292 | **EVO 440460** | 66 | 10 | VFD | 2210 |
| 4 | 285-951 | 88-292 | **EVO 440460 W** [1] | 66 | 10 | VFD | 2210 |
| 8 | 243-812 | 46-153 | **EVO 821460** | 66 | 4 | VFD | 2000 |
| 8 | 243-812 | 46-153 | **EVO 821460 W** [1] | 66 | 4 | VFD | 2000 |
| 8 | 285-951 | 88-292 | **EVO 840460** | 66 | 10 | VFD | 2000 |
| 8 | 285-951 | 88-292 | **EVO 840460 W** [1] | 66 | 10 | VFD | 2000 |
| 12 | 243-812 | 46-153 | **EVO 1221460** | 66 | 4 | VFD | 2025 |
| 12 | 243-812 | 46-153 | **EVO 1221460 W** [1] | 66 | 4 | VFD | 2025 |
| 12 | 285-951 | 88-292 | **EVO 1240460** | 66 | 10 | VFD | 2250 |
| 12 | 285-951 | 88-292 | **EVO 1240460 W** [3] | 66 | 10 | VFD | 2250 |

[1] Model numbers with suffix **W** are pumps for weighing systems.
[2] VFD = Variable Frequency Drive18-60 Hz.

## EVO Series



Number of Lifting Points:
**4, 8, 12 (up to 48)**

Reservoir Capacity:
**66 gallon**

Flow at Rated Pressure:
**46 - 292 in³/min.**

Motor Size:
**4 - 10 hp**

Maximum Operating Pressure:
**10,000 psi**



**Stroke Sensors and Cables**

Optional accessories required for each lifting point and stroke sensor.

*Page:* 134



**EVO-Master Control Box**

Required to link up to 4 standard EVO-pumps together to achieve a maximum of 48 lifting points. Contact Enerpac for more information.

▼ *Precision levelling caisson pier box: 3 EVO-Systems connected with 32 jacks lowered the 1100-ton bascule pier box.*



## Enerpac offers a wide variety of hydraulic pumps for all your custom needs.

Hydraulic pumps are at the heart of any hydraulic system. Different systems require different flow, pressure and control. Enerpac offers a wide variety of hydraulic pumps from small hand-operated pumps to large gasoline powered pumps. Still many applications require a customized pump to operate the system. These may include larger reservoir capacity, custom valve configurations or added electrical controls.

Enerpac also specializes in power units and controls used for synchronous lifting/lowering of multiple jacking points.



*Private labeled electric torque wrench pumps for OEMs.*




*Custom pumps with control packages.*



*Pumps with custom valve manifolds and circuits.*

### OVERVIEW



*Custom hydraulic pump for a bridge deck launching system.*

### CUSTOMIZABLE FEATURES:

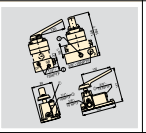
- Reservoir and Frame
- Valve Configurations
- Controls
- Oil Types
- Seals
- Pressure and Flow
- Coolers and Heaters
- Paint
- Motor Type
- Human Machine Interface (HMI)

# Directional Control Valves Section Overview

**Enerpac hydraulic valves are available in a wide variety of models and configurations.**

**Whatever your requirements… directional control, flow control, or pressure control… you can be sure that Enerpac has the correct valve to match your application exactly.**

**Designed and manufactured for safe operation up to 10,000 psi, the range of Enerpac valves allows for direct pump mounting, remote mounting, manual or solenoid actuation, and in-line installation, giving you flexible solutions to control your hydraulic system.**


| Valve Type | Series | | Page |
|---|---|---|---|
| Pump-Mounted Directional Control Valves | VM, VE |  | 140 ▶ |
| Remote-Manual Directional Control Valves | VC |  | 142 ▶ |
| Valve Dimensions | VC, VM, VE |  | 143 ▶ |
| Modular/Solenoid Operated Directional Control Valves | VE |  | 144 ▶ |




**Pressure and Flow Control Valves**

For more hydraulic system control with pressure relief valves, shut-off valves, check valves and sequence valves see our "System Components" section.

*Page:* 147

**Valving Help**

See Basic System Set-Up and Valve Information in our 'Yellow Pages'

*Page:* 404



▼ Shown from left to right: **VM32, VE33, VM33, VM43L, VE43**



# For Reliable Control of Single and Double-Acting Cylinders

- **Advance/Retract and Advance/Hold/Retract operation of single-acting and double-acting cylinders**
- **Manual or solenoid operation**
- **Pump mounting will retrofit on most Enerpac pumps**
- **Available "locking" option on VM Series valves for load-holding applications**
- **Standard "locking" feature on VE Series 3-position valves**
- **User adjustable relief valves allow the operator to easily set the working pressure**

### Venturi Valve Technology

- **For fast return of single-acting gravity and spring-return cylinders**
- **Available as manual or solenoid valve on ZU4- and ZE-Series electric pumps**
- **Retrofit Venturi valve kits for field installation on existing ZU4- and ZE-Series electric pumps**

**Adjustable Relief Valve**
All valves feature several gauge ports for "system", A port and B port pressure monitoring. User-adjustable relief valves are included on all models to allow the operator to easily set the optimum working pressure for each application. VM33 and VE43 valves include "System Check" feature, for more precise pressure holding and improved system control. The VM33 has improved porting which provides faster cylinder retraction while motor is running.

**Locking Valves**
For applications that require positive load holding, VM-Series valves (except VM22 and VM32) are available with a pilot-operated check valve. This option provides hydraulic locking of the load until the valve is shifted into the retract position.

| Valve Operation | Used with Cylinder | Valve Type |
|---|---|---|
| Manual | Single-acting | 3-Way 2 Position |
| Manual | Single-acting | 3-Way 2 Position |
| Manual | Single-acting | 3-Way 3 Position, Tandem Center |
| Manual | Single-acting ONLY | 3-Way 3 Position, Tandem Center, Venturi Return Assist |
| Manual | Double-acting | 4-Way 3 Position, Tandem Center |
| Manual | Single-acting | 3-Way 3 Position, Tandem Center, Locking |
| Manual | Double-acting | 4-Way 3 Position, Tandem Center, Locking |
| Solenoid 24 VDC | Single-acting | 3-Way 2 Position |
| Solenoid 24 VDC | Single-acting | 3-Way 2 Position, Dump |
| Solenoid 24 VDC | Single-acting ONLY | 3-Way 3 Position, Tandem Center, Venturi Return Assist |
| Solenoid 24 VDC | Single-acting | 3-Way, 3 Position, Tandem Center |
| Solenoid 115 VAC | Single-acting | 3-Way, 3 Position, Tandem Center |
| Solenoid 24 VDC | Double-acting | 4-Way, 3 Position, Tandem Center |
| Solenoid 115 VAC | Double-acting | 4-Way, 3 Position, Tandem Center |

For remote valve applications, see page 142.



**Assisted Return Pumps**

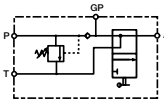
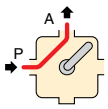
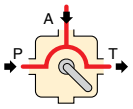
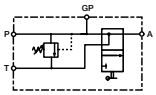
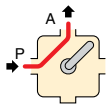
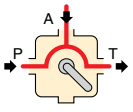
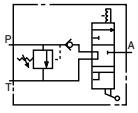
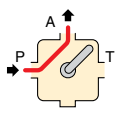
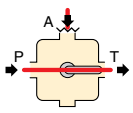
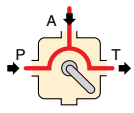
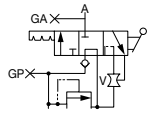
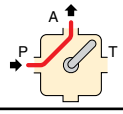
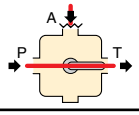
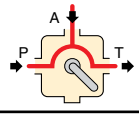
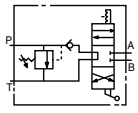
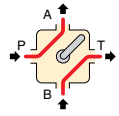
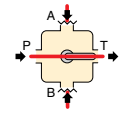
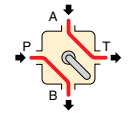
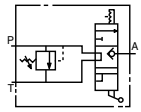
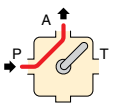
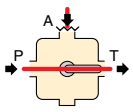
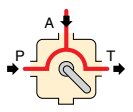
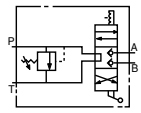
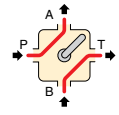
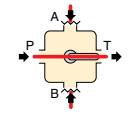
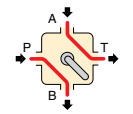
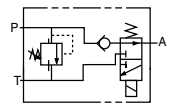
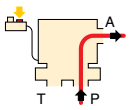
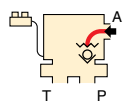
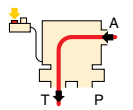
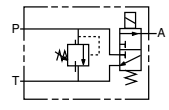
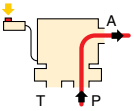
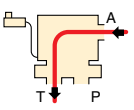
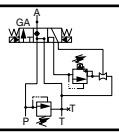
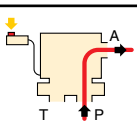
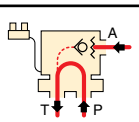
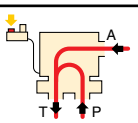
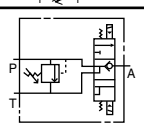
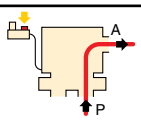
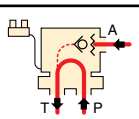
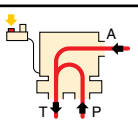
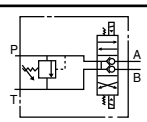
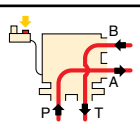
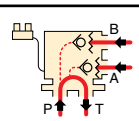
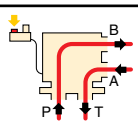
To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds. ZU4 and ZE-Series pumps feature Venturi valve technology to facilitate the faster return of single-acting gravity return cylinders.
See details on **www.enerpac.com**

# VM, VE Series



Flow Capacity:
**4.5 gal/min.**

Maximum Operating Pressure:
**10,000 psi**

| Model Number | Hydraulic Symbol | Schematic Flowpath | | | Weight |
|---|---|---|---|---|---|
| | | Advance | Neutral | Retract | (lbs) |
| VM22 |  |  | |  | 5.6 |
| VM32 |  |  | |  | 5.6 |
| VM33 |  |  |  |  | 6.7 |
| VM33VAC |  |  |  |  | 7.5 |
| VM43 |  |  |  |  | 6.8 |
| VM33L |  |  |  |  | 10.7 |
| VM43L |  |  |  |  | 10.8 |
| VE32 [1] |  |  |  |  | 8.7 |
| VE32D [1] |  |  | |  | 8.7 |
| VE33VAC [1] |  |  |  |  | 22 |
| VE33 [1] |  |  |  |  | 20.3 |
| VE33-115 | | | | | 20.3 |
| VE43 [1] |  |  |  |  | 20.3 |
| VE43-115 | | | | | 20.3 |

[1] When ordering Enerpac VE-Series solenoid valves, the pendant must be ordered separately for Z-Class Pumps
See page 143 for product dimensions.



**Assisted Return Pumps with Venturi Valve Technology**

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4 and ZE-Series pumps feature Venturi Valve Technology to facilitate the faster return of single-acting gravity return cylinders. See valve type in ZU4 and ZE-pump ordering matrix on pages 109 and 115.

**Venturi Valve Retrofit Kits**

For field installation on existing ZU4, ZE and ZA-Series pumps, Retrofit Kits are available for manual and solenoid operated valves.

| For Valve Model | For Valve Operation | Pendant |
|---|---|---|
| VM33, VM33L | Manual | **VM33RVK** |
| VE33 | Solenoid | **VUV5** |

▼ Shown from left to right: **VC20, VC4L**



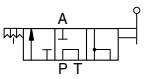
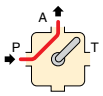
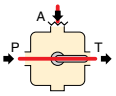
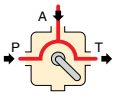
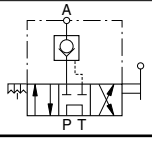
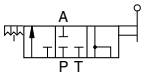
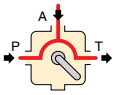
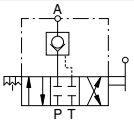
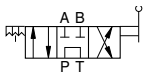
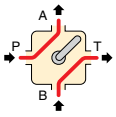
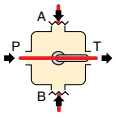
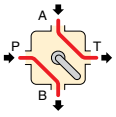
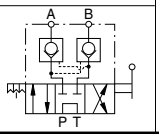
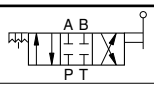
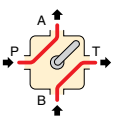
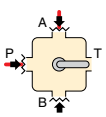
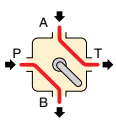
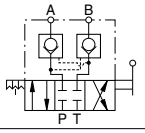
# Reliable Remote Control



**Locking Valves**

For applications that require positive load holding, VC and VM Series valves are available with a pilot-operated check valve. This option provides hydraulic locking of the load until the valve is shifted into the retract position.

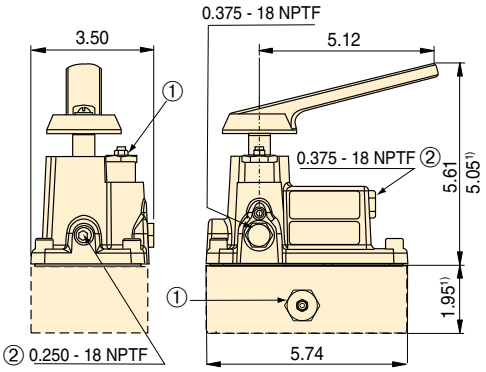
- **Advance/Hold/Retract operation for use with single-acting or double-acting cylinders**
- **Return line kit included with remote valves**

| Valve Operation | Used with Cylinder | Valve Type | Model Number | Hydraulic Symbol | Schematic Flowpath | | | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|
| | | | | | Advance | Hold | Retract | |
| Manual | Single Acting | 3-Way, 3 Position, Tandem Center | **VC3** |  |  |  |  | 6.4 |
| Manual | Single Acting | 3-Way, 3 Position, Tandem Center, Locking | **VC3L** |  | | | | 10.3 |
| Manual | Single Acting | 3-Way, 3 Position, Closed Center | **VC15** |  |  |  |  | 6.4 |
| Manual | Single Acting | 3-Way, 3 Position, Closed Center, Locking | **VC15L** |  | | | | 10.3 |
| Manual | Double Acting | 4-Way, 3 Position, Tandem Center | **VC4** |  |  |  |  | 6.4 |
| Manual | Double Acting | 4-Way, 3 Position, Tandem Center, Locking | **VC4L** |  | | | | 10.3 |
| Manual | Double Acting | 4-Way, 3 Position, Closed Center | **VC20** |  |  |  |  | 6.4 |
| Manual | Double Acting | 4-Way, 3 Position, Closed Center, Locking | **VC20L** |  | | | | 10.3 |

Return line kit included with remote valves

## Pump Mounted Directional Control Valves

Valve dimensions in inches.

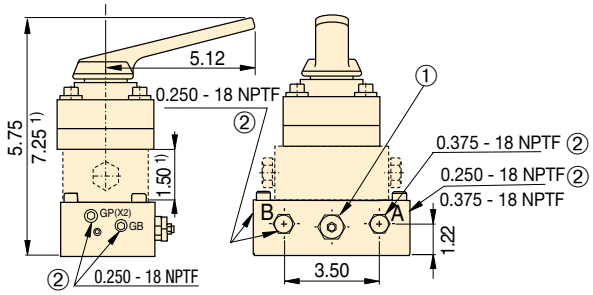



① User Adjustable Relief Valve

② Auxiliary Port

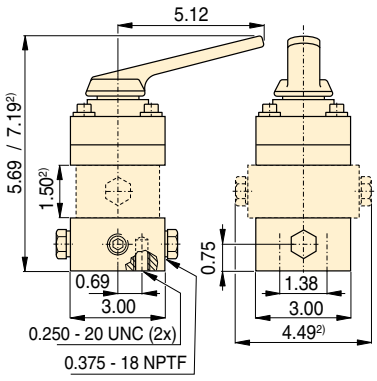
**VM22, VM32**

[1] VM22 only

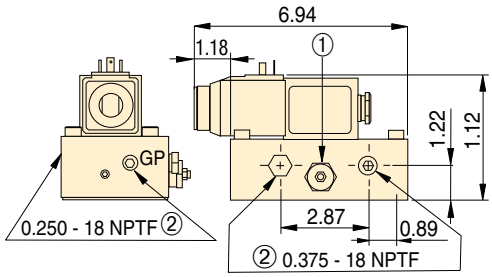



**VM33, VM33L, VM43, VM43L**

[1] VM33VAC, VM33L and VM43L only



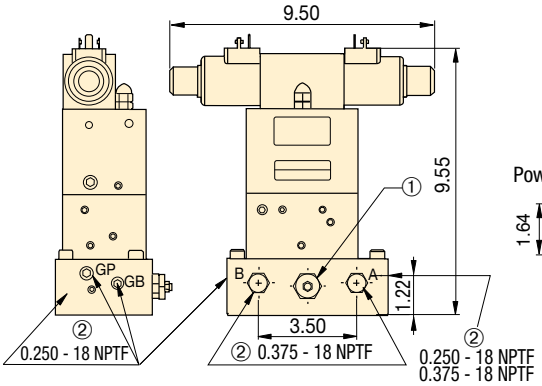

**VC3, VC3L, VC15, VC15L**
**VC4, VC4L, VC20, VC20L**



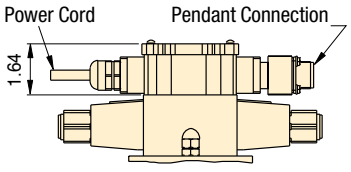

**VE32, VE32D**

[2] VC3L, VC15L, VC4L and VC20L only

## Remote Manual Directional Control Valves




**VE33, VE43**




**VE33-115**
**VE43-115**

**VC, VM, VE Series**



Flow Capacity:
**4.5 gal/min.**

Maximum Operating Pressure:
**10,000 psi**



**Gauges**

Minimize the risk of over-loading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

*Page:* 147



**Fittings**

For additional fittings see the fitting page of the System Components section.

*Page:* 153

**Valving Help**

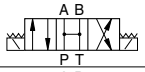
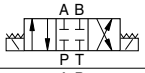
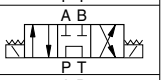
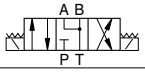
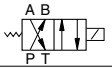
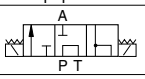
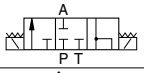
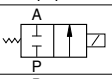
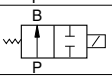
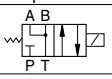
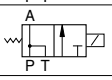
See Basic System Set-Up and Valve Information in our 'Yellow Pages'

*Page:* 399

▼ Shown top to bottom: **VEC15600D, VEK15000B, VEC15000B**



- **Ideal for independent control of multiple cylinders or functions**
- **Relief valve and pilot-operated check accessory valves are stackable between manifold and valve body**
- **Remote and pump mounting**

| Valve Flow Path | Used with Cylinder | Valve Code | Hydraulic Symbol |
|---|---|---|---|
| 4-Way, 3-Position (4/3) Open Center | Double-acting | **A** |  |
| 4-Way, 3-Position (4/3) Closed Center | Double-acting | **B** |  |
| 4-Way, 3-Position (4/3) Tandem Center | Double-acting | **C** |  |
| 4-Way, 3-Position (4/3) Float Center | Double-acting | **D** |  |
| 4-Way, 2-Position (4/2) Crossover Offset | Double-acting | **E** |  |
| 3-Way, 3-Position (3/3) Tandem Center | Single-acting | **F** |  |
| 3-Way, 3-Position (3/3) Closed Center | Single-acting | **G** |  |
| 2-Way, 2-Position (2/2) Normally Closed | System Un-loading | **H*** |  |
| 2-Way, 2-Position (2/2) Normally Open | | **K*** |  |
| 4-Way, 2-Position (4/2) Float Offset | Double-acting | **M** |  |
| 3-Way, 2-Position (3/2) Normally Open | Single-acting | **P** |  |

* Requires use of tank port for dump or unloading.

# Unmatched Combinations and Possibilities



**3-Way Check Valve**

Use a **VS51** 3-way pilot operated check valve assembly to convert your 3-way modular valve into a load-holding valve.



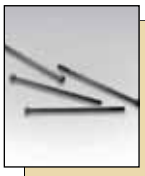
**4-Way Check Valve**

Use a **VS61** 4-way pilot operated check valve assembly to convert your 4-way modular valve into a load-holding valve.



**System Pressure Control**

To add system pressure control to your modular valve, order **VS11 Relief Valve** assembly.



**Bolt Kits for Accessory Valves With No Manifold**

Order Bolt Kit **BK2** when adding one of the accessory valves. Order Bolt Kit **BK3** when adding any combination of two accessory valves.

**How to order one of the 1,300 possible model numbers?**

With over 1,300 possible model numbers, Enerpac has the perfect valve for you. Use the “chart” to build your own valve for the specific application you require. This is the complete guide to all the Modular valves that are available.

# VE-Series Solenoid Operated Valves Ordering Matrix

## CUSTOM BUILD YOUR MODULAR VALVES

▼ **This is how a Modular Valve Model Number is built up:**

| VE | A | - | 1 | 5 | 600 | - | D |
|---|---|---|---|---|---|---|---|
| 1 Solenoid Operated Valve | 2 Valve Flow Path | | 3 Flow Capacity | 4 Voltage | 5 Accessory Valves | | 6 Manifold |

**1 Product Type**
- **VE** = Solenoid Operated Valve

**2 Valve Code**
- **A** = 4/3 Open Center
- **B** = 4/3 Closed Center
- **C** = 4/3 Tandem Center
- **D** = 4/3 Float Center
- **E** = 4/2 Crossover Offset
- **F** = 3/3 Tandem Center
- **G** = 3/3 Closed Center
- **H** = 2/2 Normally Closed
- **K** = 2/2 Normally Open
- **M** = 4/2 Float Offset
- **P** = 3/2 Normally Open

**3 Flow Capacity**
- **1** = 4 gallons per minute

**4 Voltage**
- **1** = 24 VDC
- **2** = 220/240 V, 1 ph, 50 Hz
- **5** = 115 V, 1 ph, 60 Hz

**5 Accessory Valves**
- **000** = No accessory valves
- **100** = Relief Valve only
- **150** = Relief Valve and 3-way pilot operated check valve **Only for VEF/VEG**
- **160** = Relief Valve and 4-way pilot operated check valve **Only for VEA/VEB/VEC/VED**
- **500** = 3-way pilot operated check valve **Only for VEF/VEG**
- **600** = 4-way pilot operated check valve **Only for VEA/VEB/VEC/VED**

**6 Manifold**
- **A** = No manifold**
- **B** = Remote Mounted
- **D** = Pump Mounted*

* Only for valve code: **VEA/VEC/VEF**
** Must order Bolt Kit separately.

**Example: VEA15600-D**

VEA15600-D is a Modular Valve with a 4-way, 3-position open center flowpath, 115 VAC, and an integral pilot-operated check valve, for mounting on an Enerpac pump.

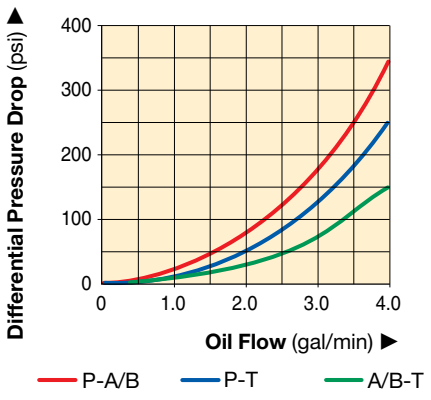
## VE Series

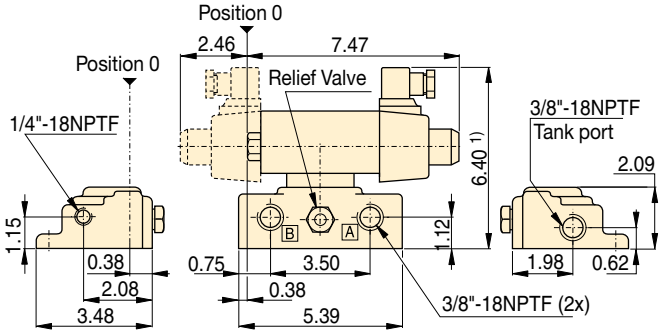


Flow Capacity:
**4 gal/min.**

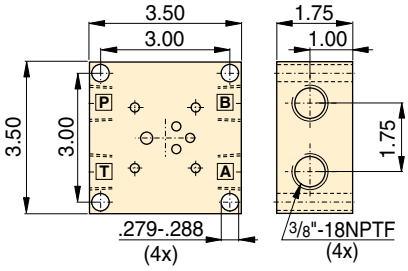
Maximum Operating Pressure:
**10,000 psi**

**Pressure Drop versus Oil Flow**




**Modular Valve Pump Mounted** 1) add 1.85 inch for each Accessory Valve




**Modular Valve Remote Mount Manifold**

| Maximum Operating Pressure (psi) | Amperage Draw | | | Seal Material | Valve Plug |
|---|---|---|---|---|---|
| | 24 VDC | 115 VAC 60 Hz | 230 V 60 Hz | | |
| 0 - 10,000 | N/A Inrush | 3.6 A Inrush | 1.8 A Inrush | Buna-N, Polyure-thane | DIN 43650 |
| | 2.5 A Holding | 1.0 A Holding | 0.5 A Holding | | |

**All the additional components you need to complete your high pressure hydraulic system. Engineered to work with your Enerpac cylinders, pumps and tools. All Enerpac components are designed and manufactured to the most exacting standards.**

**With this complete line of hydraulic hoses, couplers, fittings, manifolds, oil and gauges Enerpac has the accessories to compliment your system and ensure the efficient operation, long life, and safety of your hydraulic equipment.**

**Yellow Pages**

For sample system set-ups and how to correctly specify your system components, please view the Enerpac ***Yellow Pages***.

***Page:*** **399**

**Maintain System Integrity**

Use Enerpac System Components, designed to interface with Enerpac Cylinders, Pumps and Tools to ensure your system operates at peak performance.



# System Components and Control Valves Section Overview

| Component Type | Series | | Page |
|---|---|---|---|
| Hoses | H700<br>H900 |  | 148 ▶ |
| Couplers | A, C,<br>F, Z |  | 150 ▶ |
| Hydraulic Oil | HF<br>LX |  | 152 ▶ |
| Manifolds | A |  | 152 ▶ |
| Control Manifolds | AM |  | 152 ▶ |
| Fittings | FZ |  | 153 ▶ |
| Split Flow Pump Manifolds | SFM |  | 154 ▶ |
| Hydraulic Force &<br>Pressure Gauges | GF<br>GP |  | 156 ▶ |
| Hydraulic Pressure Gauges | G, H |  | 158 ▶ |
| Test System Gauges | T |  | 160 ▶ |
| Digital Gauges | DGR |  | 161 ▶ |
| Gauge Adaptor Assembly | GA45 |  | 162 ▶ |
| Gauge Accessories | GA<br>NV<br>V |  | 163 ▶ |
| Flow and Pressure Control Valves | V |  | 164 ▶ |

▼ Shown from top to bottom: **HC7206, HC7210, HC9206**



## Emphasize Safety and Quality

To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

**WARNING !**

- **Do not exceed 10,000 psi maximum pressure.**
- **Do not handle hoses while under pressure.**

More safety instructions in our "Yellow Pages".

***Page:*** **400**

**Vinyl strain relief guard on both ends of hose to improve life and durability on all models.**

**Thermo-plastic Hoses (700-Series)**

- **For demanding applications, featuring a 4:1 design factor**
- **Maximum working pressure of 10,000 psi**
- **Two layers of steel wire braids**
- **Outside jacket is polyurethane, to provide maximum abrasion resistance**
- **Exhibits low volumetric expansion under pressure to enhance overall system efficiency**

**Heavy-duty Rubber Hoses (900-Series)**

- **The most complete offering: 35 models up to 50 feet in length**
- **Rubber coated with two layers of steel wire braids**
- **Designed to comply with Material Handling Institute IJ100 hose specification**
- **Flexible, with little "memory", is the best choice for long hose runs**



◀ *To prevent back pressure and to increase cylinder retraction speed, when using long hoses, the Enerpac HC7300 range of hoses with increased internal diameter is the best choice.*

▼ **Hose End Couplings**

| | |
|---|---|
| ¼" NPTF |  |
| ⅜" NPTF |  |
| A604 |  |
| A630 |  |
| AH604 |  |
| AH630 |  |
| C604 |  |
| CH604 |  |

**Hose Oil Capacity**

When using long hose lengths, it is sometimes necessary to fill the pump reservoir after filling the hoses. To determine the hose oil capacity, use the following:

For 0.25" internal diameter hoses:
Capacity ($in^3$) = .5892 x Length (ft)

For 0.38" internal diameter hoses:
Capacity ($in^3$) = 1.3608 x Length (ft)

# H700 H900 Series



Inside Diameter:
**0.25 and 0.38 inch**

Length:
**2 - 50 feet**

Maximum Operating Pressure:
**10,000 psi**

| Internal Dia. | Hose End Assemblies and Couplers* | | Hose Length | 700-Series Thermo-plastic | | 900-Series Heavy-duty Rubber | |
|---|---|---|---|---|---|---|---|
| (in) | End one | End two | (ft) | Model Number | Wt. (lbs) | Model Number | Wt. (lbs) |
| 0.25 | ¼" NPTF | ¼" NPTF | 6 | – | | H9206Q | 2.6 |
| | | ⅜" NPTF | 6 | – | | H9206S | 2.6 |
| | | A630 | 6 | HB7206QB | 2.4 | HB9206QB | 3.1 |
| | | AH630 | 6 | – | | HB9206Q | 2.9 |
| | | CH604 | 6 | HC7206Q | 2.3 | HC9206Q | 3.0 |
| | ⅜" NPTF | ⅜" NPTF | 2 | H7202 | 1.2 | H9202 | 1.6 |
| | | | 3 | H7203 | 1.5 | H9203 | 1.9 |
| | | | 6 | H7206 | 2.0 | H9206 | 2.6 |
| | | | 10 | H7210 | 3.0 | H9210 | 3.9 |
| | | | 20 | H7220 | 6.2 | H9220 | 8.0 |
| | | | 30 | H7230 | 10.0 | H9230 | 13.0 |
| | | | 50 | H7250 | 15.4 | H9250 | 22.0 |
| | | A604 | | – | | – | |
| | | | 6 | HA7206B | 2.5 | HA9206B | 3.2 |
| | | | 10 | – | | HA9210B | 4.5 |
| | | AH604 | | – | | – | |
| | | | 3 | – | | HA9203 | 2.1 |
| | | | 6 | HA7206 | 2.2 | HA9206 | 2.9 |
| | | | 10 | HA7210 | 3.2 | HA9210 | 4.2 |
| | | AH630 | 6 | HB7206 | 2.2 | HB9206 | 2.9 |
| | | C604 | 3 | HC7203B | 2.2 | HC9203B | 2.9 |
| | | | 6 | HC7206B | 2.8 | HC9206B | 3.7 |
| | | | 10 | HC7210B | 3.9 | HC9210B | 5.0 |
| | | CH604 | 3 | HC7203 | 1.7 | HC9203 | 2.2 |
| | | | 6 | HC7206 | 2.3 | HC9206 | 3.0 |
| | | | 10 | HC7210 | 3.3 | HC9210 | 4.3 |
| | | | 20 | HC7220 | 6.4 | HC9220 | 8.3 |
| | CH604 | CH604 | 6 | HC7206C | 2.4 | HC9206C | 3.1 |
| | | | 50 | HC7250C | 15.4 | HC9250C | 20.0 |
| 0.38 | ⅜" NPTF | ⅜" NPTF | 6 | H7306 | 3.5 | H9306 | 4.6 |
| | | | 10 | H7310 | 5.4 | H9310 | 7.0 |
| | | | 20 | H7320 | 10.0 | H9320 | 13.0 |
| | | | 30 | H7330 | 16.2 | H9330 | 21.0 |
| | | | 50 | H7350 | 15.2 | H9350 | 33.0 |
| | | CH604 | 6 | HC7306 | 3.4 | HC9306 | 4.9 |
| | | | 8 | – | | HC9308 | 6.2 |
| | | | 10 | HC7310 | 5.6 | HC9310 | 7.3 |

* For technical information on couplers see next page.



**GA45GC Gauge Adaptor**

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

*Page:* 162



**Torque Wrenches Hoses**

Use Enerpac 3.5:1 twin safety hoses with double-acting wrenches to ensure the integrity of your hydraulic system. See Selection Matrix.

*Page:* 303



**Fittings**

For additional fittings see the fitting page of the System Components section.

*Page:* 153



**Premium Hydraulic Oil**

Use only genuine Enerpac hydraulic oil. The wrong oil can destroy seals and pump.

*Page:* 152

▼ Shown: **FH604, FR400, A630 disassembled, C604, AH604, AR400**



# Quick Connection of Hydraulic Lines

**Thread Sealer**

To seal NPTF threads use one of the new anaerobic thread sealers or Teflon® paste. When using Teflon® tape, apply the tape one thread back from the end of a fitting to prevent it from entering the hydraulic system.

**WARNING!**

**Couplers should be pressurized only when completely connected, and should not be coupled or uncoupled when pressurized.**

More safety instructions in our "Yellow Pages".

*Page:* 400

**S- and W-Series Torque Wrench Couplers**

S- and W-Series Torque Wrenches require 1/4" spin-on couplers and THQ hoses.

*Page:* 239

## ⅜" High Flow Couplers

- **Standard equipment on most Enerpac cylinders**
- **Recommended for use on all Enerpac pumps and cylinders where space and porting permits**
- **Include "2-in-1" dust cap for use on male and female coupler halves**

## ⅜" High Flow "Flush-face" Couplers

- **Featuring "Push-to-connect" operation, to guarantee good connection every time**
- **Flush-face, zero-leak operation for minimal spillage**
- **HTMA* recognized for safety and performance**

## ⅜" Regular Spee-D-Coupler®

- **For medium-duty applications; for use with hand pumps**
- **Includes female steel dust cap**

## ¼" Regular Coupler

- **For use with small cylinders and hand pumps**
- **Includes female steel dust cap**

## ¼" Spin-on Torque Wrench Couplers

- **For use with 10,000 psi S- and W-Series torque wrenches, THQ-Series hoses and 10,000 psi torque wrench pumps**

## ¼" Lock-Ring Torque Wrench Couplers

- **For use with 11,600 psi HXD and SQD-Series torque wrenches, THC-Series hoses and 11,600 psi torque wrench pumps**

* Hydraulic Tool Manufacturers Association

▼ *With the use of Enerpac High Flow Couplers, hoses are easily installed for multiple hydraulic line connections in this 34 points PLC-controlled lifting system.*





**CT604 Safety Tool**

Use the Enerpac CT604 to relieve hydraulic back pressure by safely bleeding the hydraulic coupler. Minimize injuries from projectile parts and under-skin hydraulic fluid injections by eliminating unsafe coupler bleeding practices. The CT604 is Enerpac-engineering safe for use at 10,000 psi (700 bar).

NOTE: C-Series only.

## A, C, F, T Series



Maximum Flow Capacity:
**372 - 2,500 in³/min.**

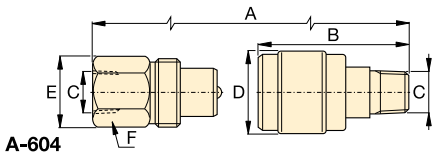
Thread:
**¼" and ⅜" NPTF**

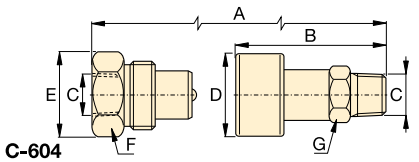
Maximum Operating Pressure:
**10,000 - 11,600 psi**

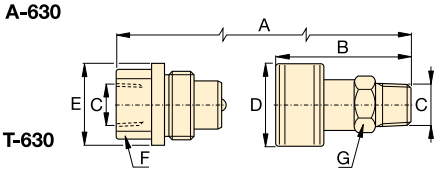


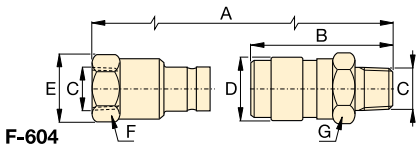
**Metal Dust Caps**

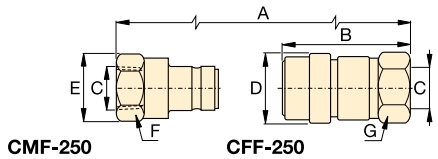
Steel dust caps are available for the C604 series couplers. Order model number:
**CD411M** for female half
**CD415M** for male half




| Maximum Flow Capacity (in³/min) | Coupler Type | Model Numbers | | | Dimensions (in) | | | | | | | Dust Cap(s) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Complete Set | Female Half | Male Half | A* | B | C | D | E | F | G | |
| 2,100 | 10,000 psi High Flow Coupler  | C604 | CR400 | CH604 | 3.26 | 2.87 | ⅜" NPTF | 1.38 | 1.38 | 1.25 | 1.00 | (2x) CD411 Included |
| 2,500 | 10,000 psi Flush-face coupler  | F604 | FR400 | FH604 | 4.36 | 2.85 | ⅜" NPTF | 1.23 | 1.23 | 1.06 | 1.12 | – |
| 462 | 10,000 psi Regular Spee-D-Coupler®  | A604 | AR400 | AH604 | 3.09 | 2.53 | ⅜" NPTF | 1.12 | 0.94 | 0.94 | 0.73 | Z410 female only Included |
| 462 | 10,000 psi Regular Coupler  | A630 | AR630 | AH630 | 2.61 | 1.72 | ¼" NPTF | 0.87 | 0.81 | 0.75 | 0.57 | Z640 female only Included |
| 695 | 10,000 psi Spin-on Coupler  | T630 | TR630 | TH630 | 2.87 | 2.36 | ¼" NPTF | 1.14 | 1.14 | 0.74 | 0.82 | – |
| 372 | 11,600 psi Lock-ring Coupler  | – | CFF250 | CMF250 | 2.99 | 2.28 | ¼" NPTF | 0.91 | 1.10 | 0.94 | 0.87 | – |

* Value A is total length when male and female halves are connected.

▼ Shown top to bottom: **HF101, HF100, HF102, LX101, A65, and FZ1055**



## Hydraulic Oil

| Contents | Model Number | |
|---|---|---|
| 1 Quart | **HF100** | High viscosity index ensures maximum lubricity over a wide range of operation temperatures. |
| 1 Gallon | **HF101** | |
| 5 Gallons* | **HF102** | |
| 55 Gallons | **HF104** | |
| 1 Gallon** | **LX101** | |

* Packed in two 2½ gallon cans.
** Hand pump oil.

### HF Oil

- **Specially formulated for power pumps**
  - **maximum volumetric efficiency**
  - **maximum heat transfer**
  - **prevents cavitation**
  - **anti-sludge, anti-rust, anti-foam additives**
- **Maximum film protective lubricity**
  - **anti-oxidation additives**

### LX Hand Pump Oil

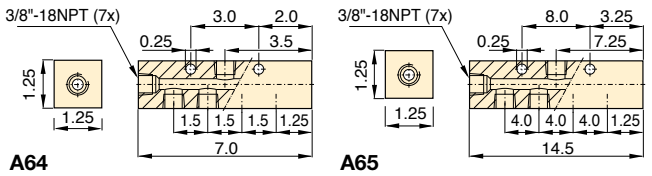
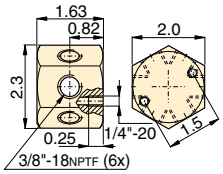
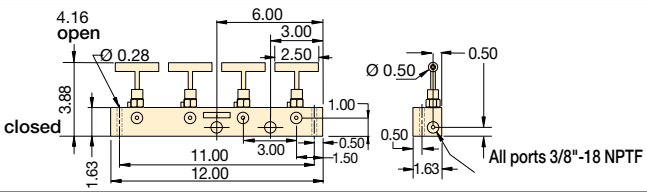
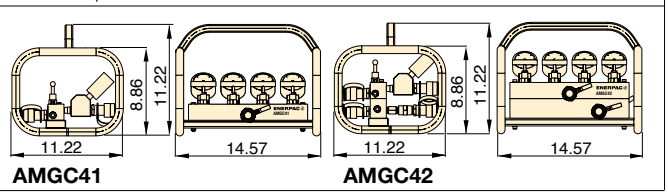
- **Specially formulated for hand pumps**
  - **anti-sludge, anti-rust additives**
- **Reduced handle effort over HF blue oil**
  - **good low temperature performance**
- **Not for use in power pumps**

### ▼ Oil Specifications Chart

| | HF Oil | LX Oil |
|---|---|---|
| ISO Viscosity Grade | 32 | 15 |
| API Gravity, ASTM D1298 | 32 | 34 |
| Viscosity, ASTM D445 | | |
| SUS @ 212° F | 43.7 | 38 |
| SUS @ 104° F | 151 | 77.5 |
| Viscosity Index, ASTM D2270 | 95 | 100 |
| Pour Point, °F, ASTM D97 | -36.5 | -47.5 |
| Flash Point, °F, ASTM D92 | 375 | 370 |
| Color | Blue | Yellow |

NOTE: SAE grades do not apply to hydraulic oil.

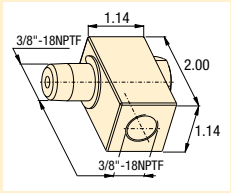
## Manifolds

| Description | | Model No. | Dimensions (in) |
|---|---|---|---|
| **7" Long Manifold** with 7 female ports. |  | **A64** |  |
| **14" Long Manifold** that allows direct mounting of control valves to the manifold. 7 female ports. | | **A65** | |
| **6-Port Hexagon Manifold** Plugs furnished for all ports ⅜"-18 NPTF. |  | **A66** |  |
| **Premounted Manifold** Functions as split-flow valve to control 2 to 4 single-acting cylinders simultaneously. All ports ⅜"-18 NPTF. |  | **AM21** **AM41** |  |
| **4-Way Single- and Double-Acting Manifold Assemblies** with female couplers on all ports allowing the manifold to be quickly connected to up to 4 cylinders. |  | **AMGC41** **AMGC42** |  |



**3/8" Swivel Connector**

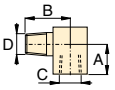
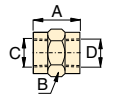
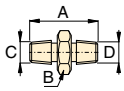
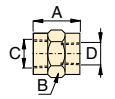
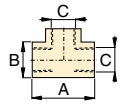
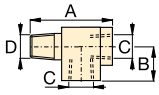
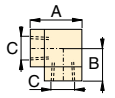
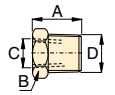
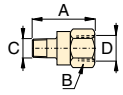
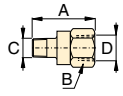
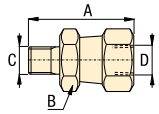
360° swivel coupler for optimal orientation of the hydraulic connection on cylinders, pumps and hoses. Order Model No. **XSC1**.




# A, AM FZ, BFZ, HF, LX Series



## 10,000 psi Fittings

| | | Model Number | Dimensions (in) | | | | |
|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | |
| **Street Elbow**<br>From: ⅜"-NPTF Male<br>To: ⅜"-NPTF Female |  | **FZ1616** | 0.94 | 1.30 | ⅜"-18 NPTF | ⅜"-18 NPTF |  |
| **Reducing Connector**<br>From: ⅜"-NPTF Female<br>To: ¼"-NPTF Female |  | **FZ1615** | 1.13 | 1.00 | ⅜"-18 NPTF | ¼"-18 NPTF |  |
| From: ½"-NPTF Female<br>To: ⅜"-NPTF Female | | **FZ1625** | 1.38 | 1.25 | ½"-14 NPTF | ⅜"-18 NPTF | |
| **Hexagon Nipple**<br>From: To:<br>¼"-NPTF ¼"-NPTF<br>⅜"-NPTF ⅜"-NPTF<br>⅜"-NPTF ⅜"-NPTF |  | **FZ1608** | 1.50 | 0.63 | ¼"-18 NPTF | ¼"-18 NPTF |  |
| | | **FZ1619** | 2.00 | 0.75 | ⅜"-18 NPTF | ⅜"-18 NPTF | |
| | | **FZ1617** | 1.47 | 0.75 | ⅜"-18 NPTF | ⅜"-18 NPTF | |
| **Coupling**<br>From: To:<br>⅜"-NPTF ⅜"-NPTF<br>¼"-NPTF ¼"-NPTF |  | **FZ1614** | 1.14 | 1.00 | ⅜"-18 NPTF | ⅜"-18 NPTF |  |
| | | **FZ1605** | 1.14 | 0.75 | ¼"-18 NPTF | ¼"-18 NPTF | |
| **Cross**<br>From: ⅜"-NPTF Female<br>To: ⅜"-NPTF Female |  | **FZ1613** | 1.77 | 1.00 | ⅜"-18 NPTF | – |  |
| **Street Tee**<br>From: To:<br>⅜"-NPTF ⅜"-NPTF<br>¼"-NPTF ¼"-NPTF |  | **FZ1612** | 1.77 | 1.00 | ⅜"-18 NPTF | – |  |
| | | **FZ1637** | 1.77 | 0.94 | ¼"-18 NPTF | – | |
| **Street Tee**<br>From: ⅜"-NPTF Female<br>To: ⅜"-NPTF Male |  | **BFZ16312** | 2.20 | 1.02 | ⅜"-18 NPTF | ⅜"-18 NPTF |  |
| **Elbow**<br>From: To:<br>⅜"-NPTF ⅜"-NPTF<br>¼"-NPTF ¼"-NPTF |  | **FZ1610** | 1.38 | 0.88 | ⅜"-18 NPTF | – |  |
| | | **FZ1638** | 1.41 | 0.94 | ¼"-18 NPTF | – | |
| **Reducer**<br>From: To:<br>⅜"- NPTF ¼"-NPTF<br>¼"- NPTF ½"-NPTF<br>⅜"- NPTF G¼" |  | **FZ1630** | 0.75 | 0.75 | ¼"-18 NPTF | ⅜"-18 NPTF |  |
| | | **BFZ1630** | 1.10 | 0.86 | ¼"-18 NPTF | ½"-14 NPTF | |
| | | **BFZ16301** | 0.75 | 0.75 | G¼" | ⅜"-18 NPTF | |
| **Adaptor**<br>From: To:<br>G¼" ¼"-NPTF<br>G¼" ⅛"-NPTF<br>G⅜" ¼"-NPTF<br>G⅜" ⅜"-NPTF |  | **BFZ16411** | 1.37 | 0.75 | ¼"-18 NPTF | G¼" |  |
| | | **BFZ16421** | 1.22 | 0.75 | ⅛"-27 NPTF | G¼" | |
| | | **BFZ16323** | 1.69 | 0.94 | ¼"-18 NPTF | G⅜" | |
| | | **BFZ16324** | 1.69 | 0.94 | ⅜"-18 NPTF | G⅜" | |
| **Adaptor**<br>From: To:<br>¼"-18 NPTF ⅜"-18 NPTF<br>½"-14 NPTF ¼"-18 NPTF<br>½"-14 NPTF ⅜"-18 NPTF |  | **FZ1055** | 1.75 | 0.94 | ¼"-18 NPTF | ⅜"-18 NPTF |  |
| | | **FZ1633** | 1.18 | 0.75 | ½"-27 NPTF | ¼"-18 NPTF | |
| | | **FZ1634** | 1.75 | 1.13 | ⅜"-18 NPTF | ½"-18 NPTF | |
| **Swivel Fitting**<br>From: ⅜"-NPTF Male<br>To: ⅜"-NPTF Female |  | **FZ1660** | 1.59 | 0.88 | ⅜"-18 NPTF | ⅜"-18 NPTF |  |

▼ Shown from left to right: **SFM41, SFM42 Split-Flow Manifolds**



# Improved safety on basic simultaneous lifting applications

- **Split-Flow Manifolds improve safety, precision and control in lifting and lowering operations**
- **Pressure gauge, flow control valve in each outlet port; CR400 couplers installed in each inlet and outlet port**
- **Regulates both advance and retract speeds: lifting and lowering**
- **1 inlet, 4 outlets. Maximum of 4 cylinders per manifold: SFM41 for single-acting cylinders, SFM42 for double-acting cylinders**
- **Minimum pump oil flow: 50 $in^3$/min to deliver 9.1 $in^3$/min per cylinder**
- **Maximum difference among outlets: 10% of the stroke**
- **More cylinders can be controlled simultaneously by connecting several SFM-models parallel**



**Pressure Gauges G2535L**

Glycerin filled pressure gauges are installed in each outlet pressure line to monitor the pressure of each cylinder.

*Page:* 162



**Optimum Performance**

Minimum pump oil flow must be 50 $in^3$/min to deliver 9.1 $in^3$/min per cylinder. Enerpac recommends to use Z-Class electric, air driven or gasoline pumps from the ZU4, ZE4, ZE5, ZA4 and ZG-Series.



**SFP-Series, Split-Flow Pumps**

When a higher accuracy is required across cylinder strokes in a multi-point lifting or lowering application Enerpac recommends using the SFP-Series Split-Flow Pumps.

*Page:* 132

**Contact Enerpac!**

Contact the Enerpac office nearest to you for advice and technical assistance in the layout of your ideal Lifting System or visit us at: www.enerpac.com.
Or ask Enerpac for assistance: enerpac.com/contact-us



◀ *To repair the foundation, silos needed to be lifted, levelled and structurally supported. Powered by a ZE5-Series electric pump the split-flow manifold used to operate multiple hydraulic cylinders.*

### Split-Flow Manifolds

The SFM-Series offer an economical solution for basic multi-point simultaneous lifting applications and enables a single operator to control a maximum of 4 lifting points from one manifold.

The Split-Flow Manifolds are equipped with pressure compensated flow control valves, to preset and limit advance and retract speed of each cylinder, allowing to move up to 4 cylinders simultaneously.

The SFM-Series provide more lifting and lowering control compared to AM-Series Control Manifolds. See flow control valve adjustments table below.

Minimum pump oil flow must be 50 $in^3$/min (ZE4-Series pumps) to deliver 9.1 $in^3$/min per cylinder. Several SFM-models can be connected parallel to the same pump to allow simultaneous operation of 8, 12 or 16 cylinders.

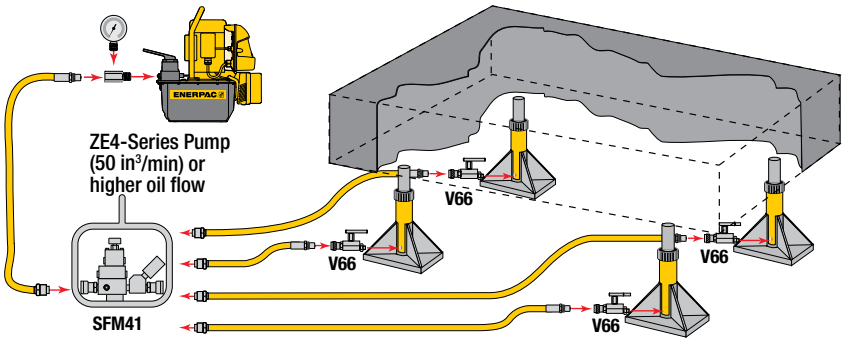
Higher flow pumps are required to achieve faster advance speeds. A 20% higher oil flow must be considered for a proper speed compensation.

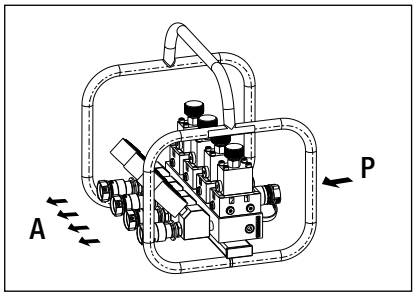
Example : when using 4 cylinders: if oil flow of 28 $in^3$/min is required per cylinder, the pump oil flow must be: 4 x 28 = 112 + 20% = 134 $in^3$/min.

The maximum stroke deviation between the cylinders can reach up to 10% depending on the cylinder pressure.

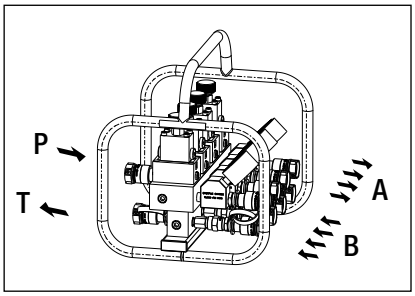
Oil flow adjustment is also possible during cylinder operation by fine tuning using the flow control valves.

All cylinders connected to the SFM-manifold must have the same capacity (effective area). Both advance and retract speed are limited by the same valves. Use hoses of the same lengths to improve the accuracy of the hydraulic system. Improved precision when difference of pressures among the cylinders is within 4350 psi.




SFM41




SFM42

▼ SPLIT-FLOW MANIFOLDS

| For use with Cylinders | Model Number | Minimum Oil Flow to each Cylinder ($in^3$/min) | Female Couplers Included | Dimensions L x W x H (in) | Wt. (lbs) |
|---|---|---|---|---|---|
| 4x single-acting | **SFM41** | 9.1 | CR400 | 14.6 x 13.2 x 14.8 | 53 |
| 4x double-acting | **SFM42** | 9.1 | CR400 | 14.6 x 13.2 x 14.8 | 66 |

## SFM Series



Inlet Connection:
**1x Power Pump**

Outlet Connections:
**Max. 4 Cylinders**

Minimum Pump Flow Required:
**50 $in^3$/min.**

Maximum Operating Pressure:
**10,000 psi**



### Load Holding

Use **V66 Check Valves** for load holding applications with single-acting cylinders.



### Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses. Enerpac recommends using hoses of the same lengths between the SFM and cylinders to improve system accuracy.

*Page:* 148



### Flow Control Valves

The Split-Flow Manifold has pressure compensated flow control valves installed in each outlet line. The oil flow from the SFM-Manifold to each cylinder can be adjusted by turning the knob on the valve.

| Flow Control Valve Adjustments | | | |
|---|---|---|---|
| Number of Knob Turns | Oil Flow ($in^3$/min) | Number of Knob Turns | Oil Flow ($in^3$/min) |
| ½ | 9.1 | 3 | 115.9 |
| 1 | 27.4 | 3½ | 219.6 |
| 1½ | 45.8 | 4 | 341.6 |
| 2 | 54.9 | 4½ | 506.3 |
| 2½ | 79.3 | Open | 628.3 |

▼ Shown: **GF230P, GF835P, GP10S**



- **GF-Series gauges are calibrated with dual scale reading for pressure and force**
- **Excellent readability; 4-inch diameter gauge face**
- **Fast, easy installation**
- **GF-Series gauges are glycerin filled**
- **Stainless steel gauge cases for corrosion resistance**
- **GP-Series gauges are calibrated with dual scale reading for psi and bar**

▼ *A GP10S gauge is used on this press to check the hydraulic pressure required to bend a steel plate.*



## Visual References for System Pressure and Force



**Auto-Damper Valve V10**

For automatic control of gauge fluctuations, the **V10** Auto-Damper Valve controls the movement of the gauge needle by restricting oil flow in and out of the gauge. No adjustments needed.

*Page:* 164



**Snubber Valve V91**

Infinitely adjustable for metering oil out of a gauge. The **V91** Snubber Valve is also suitable as a shut-off valve to protect the gauge during high cycle applications.

*Page:* 163

**Used With**



| |
|---|
| All 10-ton cylinders |
| All 15-ton cylinders |
| All 5-ton RC, RSM cylinders |
| All 10-ton RC, RCS, RSM cylinders |
| All 25-ton RC cylinders |
| All 50-ton RC, RR cylinders |
| 12-ton RCH-Series |
| RCH, RRH20, 30 and 60-ton |
| RCS201, 302 |
| RCS502, 1002 |
| 25, 30, 50-ton RC, RCS, RSM, RR |
| 75 and 95-ton RC, RR cylinders |
| 150 and 200-ton RR cylinders |



| |
|---|
| 10-ton presses |
| 25-ton presses |
| 50-ton presses |
| 100-ton presses |
| 150-200 ton presses |

# Hydraulic Force and Pressure Gauges

**Load Gauges**

To measure external load supported by a cylinder or jack. For pressing parts together under pre-determined loads, weighing, testing, etc.

**Pressure Gauges**

To measure the input pressure into cylinders, jacks or high pressure systems. Also for all testing applications.

**GP-Series** gauges are dry gauges.
**GF-Series** gauges are glycerin filled.

**Force Gauges**

To measure external load supported by a cylinder or jack in tons. For pressing parts together under pre-determined loads, weighing, testing, etc.

## GF GP Series

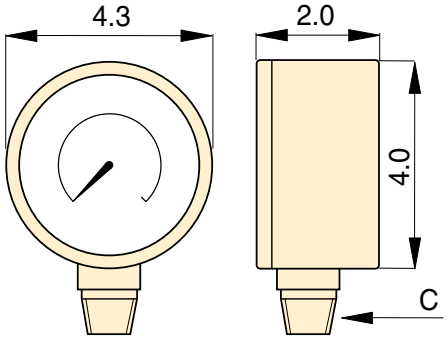


Pressure Range:
**0 - 15,000 psi**

Face Diameter:
**4 inches**

Accuracy, % of full scale:
**± 1%**

**All Models**






**Maximum Indicator Pointer**

Indicator retains peak readings of pressure or force generated by the system.

Order model number: **H4000G**.

Can easily be installed on GP-Series dry gauges.

| Gauge Type and Calibration | | | | | Units per Division | Model Number* | Thread C (in) | Gauge Adaptor Required | | |
|---|---|---|---|---|---|---|---|---|---|---|
| psi | bar | psi | lbs | tons | | | | GA1 | GA2 | GA3 |
| 0-10,000 | 0-700 | – | – | – | 100 psi, 10 bar | GP10S | ½ NPTF | ● | ● | |
| 0-15,000 | 0-1000 | – | – | – | 200 psi, 10 bar | GP15S | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | 0-10,000 | 0-5 | 100 psi, 100 lbs, 0.1 ton | GF5P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | 0-22,200 | 0-11 | 100 psi, 200 lbs, 0.2 ton | GF10P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | 0-51,500 | 0-25.5 | 100 psi, 500 lbs, 0.5 ton | GF20P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | 0-110,000 | 0-55 | 100 psi, 1000 lbs, 1 ton | GF50P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | 0-27,000 | 0-13.5 | 100 psi, 200 lbs, 0.25 ton | GF120P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | – | 0-23.5/36/65 | 100 psi, 0.5/0.5/1 ton | GF813P | ¼ NPTF | | | ● |
| – | – | 0-10,000 | – | 0-22/32 | 100 psi, 0.5/0.5 ton | GF230P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | – | 0-50/100 | 100 psi, 1/1 ton | GF510P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | – | 0-25.5/32.5/55 | 100 psi, 0.5/0.5/0.5 ton | GF835P | ¼ NPTF | | | ● |
| – | – | 0-10,000 | – | 0-79/103 | 100 psi, 1/1 ton | GF871P | ¼ NPTF | | | ● |
| – | – | 0-10,000 | – | 0-150/200 | 100 psi, 5/5 ton | GF200P | ¼ NPTF | | | ● |
| – | – | 0-10,000 | 0-22,200 | 0-11 | 100 psi, 200 lbs, 0.2 ton | GF10P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | 0-51,500 | 0-25.5 | 100 psi, 500 lbs, 0.5 ton | GF20P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | 0-11,000 | 0-55 | 100 psi, 1000 lbs, 1 ton | GF50P | ½ NPTF | ● | ● | |
| – | – | 0-10,000 | – | 0-79/103 | 100 psi, 1/1 ton | GF871P | ¼ NPTF | | | ● |
| – | – | 0-10,000 | – | 0-150/200 | 100 psi, 5/5 ton | GF200P | ¼ NPTF | | | ● |

163

* Metric scale Force Gauges are available by changing the “P” suffix to “B”.

▼ Shown: **H4049L, G2534R, G4089L, G2535L, G4040L**



# Visual References for System Pressure

## Glycerin Filled (G-Series)

- **Calibrated in dual scale reading in psi and bar**
- **All pressure sensing parts sealed and dampened by glycerin for long life**
- **Includes safety blow-out disk and pressure equalizing membrane**
- **Gauge snubbers or needle valves recommended for high-cycle applications**

## High-Cycle Dry Gauges (H-Series)

- **Calibrated in dual scale reading in psi and bar**
- **Ideal for use in many applications, specifically for high cycle and harsh environments**
- **Gauge snubbers or needle valves recommended to shut off gauge when not in use**



**GA45GC Gauge Adaptor Assembly**

45° angled gauge adaptor improves safety.

*Page:* 162



**Gauge Adaptor**

For easy gauge installation into almost any system, Enerpac offers a complete line of gauge adaptors.

*Page:* 153



**Snubber Valve V91**

Infinitely adjustable for metering oil out of a gauge. The **V91** Snubber Valve is also suitable as a shut-off valve to protect the gauge during high-cycle applications.

*Page:* 163



◀ *When lifting or pressing, always use a gauge. A gauge is your "window" to the system–it lets you see what's going on.*

**CAUTION! When lifting or pressing, always use a gauge.**

Do not override factory setting of relief valves. Always use a gauge to check system pressure. A gauge is your "window" to the system. It lets you see what's going on.

See our Safety Instructions.

*Page:* 400

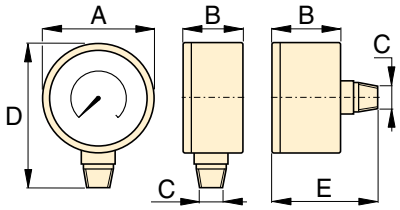
# G H Series



Pressure Range:
**0 - 15,000 psi**

Face Diameter:
**2.5 - 4 inches**

Accuracy, % of full scale:
**±1% and 1½%**




| Dimensions (in) | | | | | | |
|---|---|---|---|---|---|---|
| Face Diam. | Connection | A | B | C | D | E |
| 2.5 | Lower Mount | 2.50 | 1.46 | ¼" NPTF | 3.31 | – |
| 2.5 | Center Rear | 2.50 | 1.46 | ¼" NPTF | – | 2.48 |
| 4.0 | Lower Mount | 4.0 | 1.15 | ¼" NPTF | 4.80 | – |
| 4.0 | Lower Mount | 4.0 | 1.93 | ½" NPTF | 5.38 | – |

Note: dimensions for reference only.



**Maximum Indicator Pointer**

Indicator retains peak readings of pressure or force generated by the system.

Order model number: **H4000G**.

Note: For use on H-Series gauges only.

## ▼ SELECTION CHART

| Gauge Series | Pressure Range | | Model Number | | | | Major Graduation | | Minor Graduation | | Major Graduation | | Minor Graduation | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Face ø 2.5" ¼ NPTF Lower Mount | Face ø 2.5" ¼ NPTF Center Rear | Face ø 4" ¼ NPTF Lower Mount | Face ø 4" ½ NPTF Lower Mount | (psi) | | | | (bar) | | | |
| | (psi) | (bar) | Accuracy ±1½% | Accuracy ±1½% | Accuracy ±1% | Accuracy ±1% | (2.5") | (4") | (2.5") | (4") | (2.5") | (4") | (2.5") | (4") |
| G -Series | 0-100 | 0-7 | G2509L | – | – | – | 10 | – | 2 | – | 1 | – | 0,01 | – |
| | 0-160 | 0-11 | G2510L | – | – | – | 10 | – | 2 | – | 1 | – | 0,02 | – |
| | 0-200 | 0-14 | G2511L | – | – | – | 50 | – | 5 | – | 1 | – | 0,02 | – |
| | 0-300 | 0-20 | G2512L | – | – | – | 50 | – | 5 | – | 5 | – | 0,50 | – |
| | 0-600 | 0-40 | G2513L | – | – | – | 100 | – | 10 | – | 10 | – | 1 | – |
| | 0-1,000 | 0-70 | G2514L | G2531R | – | – | 100 | – | 20 | – | 10 | – | 1 | – |
| | 0-2,000 | 0-140 | G2515L | – | – | – | 500 | – | 50 | – | 10 | – | 2 | – |
| | 0-3,000 | 0-200 | G2516L | – | – | – | 500 | – | 50 | – | 50 | – | 5 | – |
| | 0-6,000 | 0-400 | G2517L | G2534R | – | – | 1000 | – | 100 | – | 100 | – | 10 | – |
| | 0-10,000 | 0-700 | G2535L | G2537R | G4088L | G4039L | 2000 | 1000 | 200 | 100 | 100 | 100 | 10 | 10 |
| | 0-15,000 | 0-1000 | G2536L | G2538R | G4089L | G4040L | 3000 | 3000 | 200 | 200 | 100 | 100 | 20 | 20 |
| H-Series | 0-10,000 | 0-700 | – | – | H4049L | H4071L | – | 1000 | – | 100 | – | 100 | – | 10 |

▼ Gauge shown: **T6003L**




## T Series

Pressure Range:
**0 - 50,000 psi**

Face Diameter:
**6.4 inches**

Accuracy, % of full scale:
**± ½% and ± 1½%**

- **Calibrated for dual scale reading in psi and bar**
- **All gauges have spring-loaded backs with rubber blow-out plugs to protect case assembly in case of over-pressurization**
- **40,000 and 50,000 psi models include flange mounting**
- **1/2" NPTF versions are made of high-strength alloy steel**
- **0.25" cone models are made of 316 stainless steel, with 403 stainless steel on 40,000 and 50,000 psi models**
- **Integral maximum indicator pointer standard on all gauges**



**Cone Mount Gauge Adaptor**

Contains fittings to connect ¼" cone fitting gauge to ⅜" cone system.

Kit includes **43-301** tee, **43-704** gauge adaptor and **45-116 t**ubing.

Order model number: **83-011**.

***Page:*** **95**



**Cone Mount Gauge Connector**

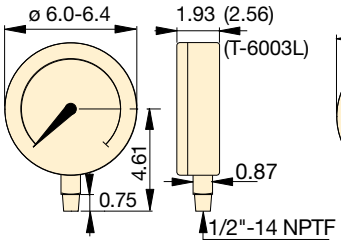
For connecting gauges with ¼" cone fitting directly to model number **11-100** or **11-400** pump. May be used with other ¼" cone systems.

Order model number: **43-704**

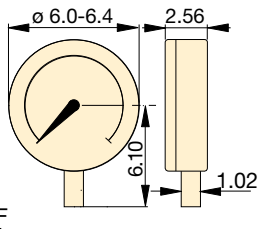
***Page:*** **95**

▼ *An Enerpac P2282 hand pump equipped with a T6011L test system gauge is used for proof pressure testing of hydraulic valves.*

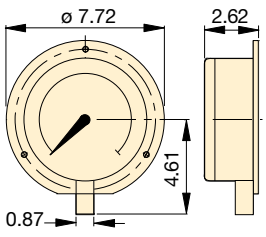



**T6001L, 6002L, 6003L**




**T6007L, 6008L**




**T6010L, 6011L**

| Pressure Range (psi) | Pressure Range (bar) | Model Number: Alloy Steel ½" NPTF | Model Number: Stainless Steel 0.25" Cone | Number Intervals (psi) | Graduation Intervals (psi) | Number Intervals (bar) | Graduation Intervals (bar) |
|---|---|---|---|---|---|---|---|
| 0-1,000* | 0-70 | **T6001L** | – | 100 | 10 | 10 | 1 |
| 0-5,000* | 0-350 | **T6002L** | – | 500 | 50 | 50 | 5 |
| 0-10,000* | 0-700 | **T6003L** | **T6007L** | 1,000 | 100 | 100 | 10 |
| 0-20,000* | 0-1400 | – | **T6008L** | 1,000 | 100 | 200 | 20 |
| 0-40,000** | 0-2800 | – | **T6010L** | 5,000 | 200 | 500 | 20 |
| 0-50,000** | 0-3500 | – | **T6011L** | 5,000 | 500 | 500 | 50 |

* Accuracy: ± ½%
** Accuracy: ± 1½%

▼ Gauge shown: **DGR2**




## DGR
### Series

Pressure Range:
**0 - 20,000 psi**

Voltage:
**3 VDC** (battery)

Accuracy, % of full scale:
**± 0.25%**

- **Rated for system pressure up to 20,000 psi**
- **Displays in multiple units: psi, bar, mPA, kg/cm² (user selectable)**
- **Zero reset – ensures that gauge reads actual system pressure**
- **Batteries included, condition indicator on read-out**
- **IP65 rated case design**
- **Shut off selectable – menu driven**
- **UL listed, CE and RoHS compliant**



**Back-lit Readout**

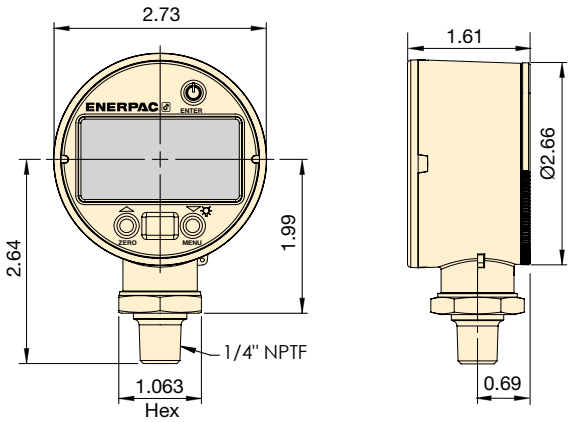
Back-lit readout allows easy reading in less than ideal lighting.



**Gauge Adaptor**

For easy gauge installation into almost any system, Enerpac offers a complete line of gauge adaptors.

*Page:* 163




| Pressure Rating (psi) | | Pressure Rating (bar) | | Model Number | Pressure Rating (MPa) | | Pressure Rating (Kg/cm²) | |
|---|---|---|---|---|---|---|---|---|
| Range | Resolution | Range | Resolution | | Range | Resolution | Range | Resolution |
| 0-20,000 | 1 | 0-1380 | 0.1 | **DGR2** | 0-140 | 0.01 | 0-1400 | 0.1 |

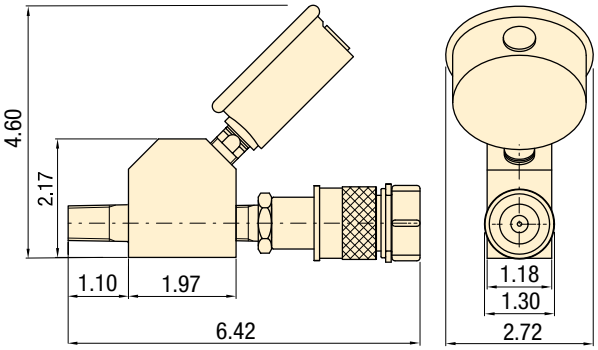
▼ *Greater accuracy and easier to read: enhance your ability to monitor and control hydraulic system pressure up to 20,000 psi.*



▼ Shown: **GA45GC**



- **45° angled gauge improves visibility**
- **Slim and narrow design**
- **Easy to fit in a broad range of systems**
- **Maximize controlled load movement**
- **Glycerin dampened gauge with dual scale**
- **Enerpac high-flow female coupler**




| Model Number | Gauge Port | Male End | Female End | Gauge Range | |
|---|---|---|---|---|---|
| | | | | (psi) | (bar) |
| **GA45GC** | G2535L | 3/8" NPTF | CR400 | 0-10,000 | 0-700 |

## GA45GC, AMGC Series

Maximum Operating Pressure:
**10,000 psi**

Connection 1:
**3/8" NPTF Male**

Connection 2:
**CR400 Coupler**



**4-Way Manifold Assembly Complete with Gauges**

Offering ease of portability and convenience with an ergonomic robust design, ready to use. Enerpac's CR400 female couplers on all ports allow the manifold to be quickly connected to up to four cylinders. Glycerin filled, 10,000 psi gauges allow operators to work safely. All protected by the robust protection frame.

| Manifold Type (used for cylinders) | Model Number |
|---|---|
| 4x Single-acting | **AMGC41** |
| 4x Double-acting | **AMGC42** |

***Page:*** **154**



**Portable Tool Box**

Portable tool box with hand pump, GA45GC gauge adaptor assembly, hose and RC, RSM, RCS-cylinder, WR5 wedgie or LW16 lifting wedge.

***Page:*** **65**

▼ *The Gauge Adaptor Assembly is the window to your system; allows easy reading of the pressure for safe operation.*



▼ Shown left to right: **GA3, V91, GA1, GA2, GA4, NV251, GA918**



# GA, NV, V
## Series

Operating Pressure:
**10,000 psi**

▼ *A gauge is easily installed into your hydraulic system using a gauge adaptor.*







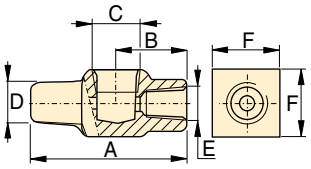




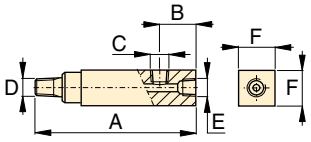
### Gauge Adaptors (GA-Series)

- For easy mounting of a pressure gauge into your system
- Male end screws into pump or cylinder port, female end accepts hose or coupler, third port is for gauge connection
- GA918 provides for swivel connection
- Simplifies gauge installation and reading

| Model Number | Gauge Port (NPTF) | Male End (NPTF) | Female End (NPTF) | Dimensions (in) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | E | F |
| GA1 | ½" NPTF | ⅜" NPTF | ⅜ | 2.81 | 1.24 | ½" NPTF | ⅜" NPTF | ⅜" NPTF | 1.25 |
| GA2 | ½" NPTF | ⅜" NPTF | | 6.10 | 1.38 | ½" NPTF | ⅜" NPTF | ⅜" NPTF | 1.25 |
| GA3 | ¼" NPTF | ⅜" NPTF | | 5.25 | 1.38 | ¼" NPTF | ⅜" NPTF | ⅜" NPTF | 1.25 |
| GA4 | ½" NPTF | ¼" NPTF | | 4.38 | 1.38 | ½" NPTF | ¼" NPTF | ⅜" NPTF | 1.25 |




**GA1**



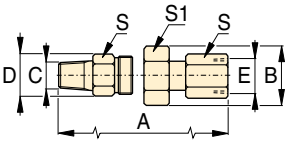

**GA2, GA3, GA4**



### Swivel Adaptor (GA918)

- Simplifies gauge installation and reading

| Model Number | Dimensions (in) | | | | | | |
|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | S | S1 |
| GA918 | 4.62 | 1.72 | ½" NPTF | 1.30 | ½" NPTF | 1.13 | 1.50 |



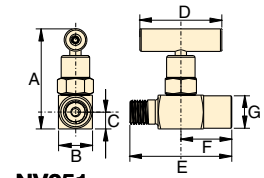




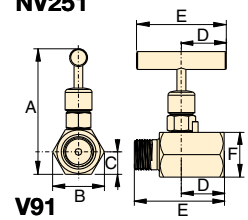

### Needle Valves (NV- and V-Series)

- Both NV251 and V91 provide positive shut-off
- 316 stainless steel stem, 24 threads/in.

| Model Number | Orifice | Thread Size | Dimensions (in) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G |
| NV251 | 0.17 | ¼" NPT | 2.22 | 0.75 | 0.38 | 1.81 | 2.25 | 1.13 | 0.72 |
| V91 | 0.19 | ½" NPT | 3.50 | 1.44 | 0.63 | 1.25 | 2.50 | 1.25 | — |




**NV251**




**V91**

▼ Shown from left to right: **V152, V66, V82, V161, V42, V17**




# Your Hydraulic Control Solution

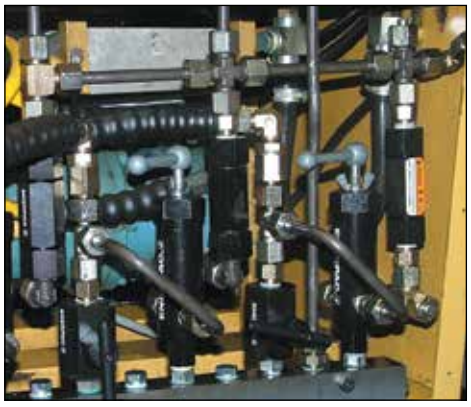
**Valve Applications**

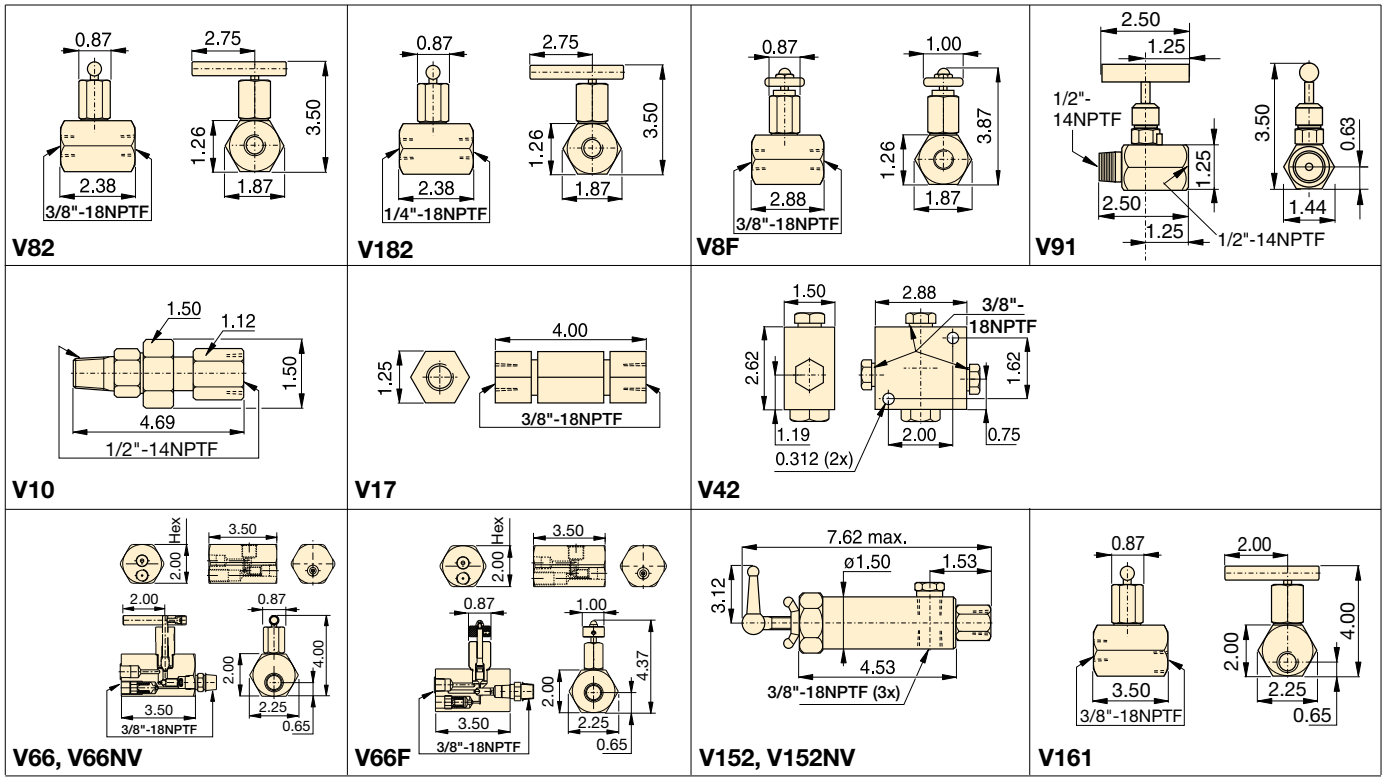
To see these valves used in typical hydraulic circuits, please see our "Yellow Pages".

*Page:* **410**

- **All valves are rated for 10,000 psi operating pressure**
- **All valves feature NPTF porting to insure against leakage at rated pressure**
- **All valves are painted, coated, or plated for corrosion resistance**
- **Viton® seals (in V66NV and V152NV) for high temperature applications, nickel-plated for maximum corrosion resistance**

▼ *The V152 Pressure Relief Valve limits the pressure or force developed in the hydraulic system.*






Valve Dimensions in inches.



**Premounted Manifold**

For two or four port manifold with integral flow control valves, see the manifold page of the System Components section.

*Page:* 152



**Fittings**

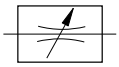
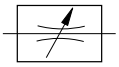
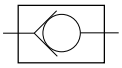
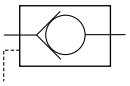
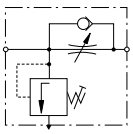
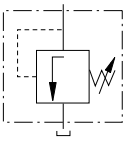
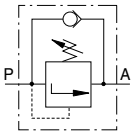
For additional fittings see the fitting page of the System Components section.

*Page:* 153

# V Series



Maximum Operating Pressure:
**10,000 psi**

| Valve Type and Model Number | | Description | | Hydraulic Symbol |
|---|---|---|---|---|
| **Needle Valve**<br>**V82**<br>**V182F**<br>**V8F** |  | **V82:** To control cylinder speed. Can also be used as shut-off valve for temporary load holding. ⅜" NPTF female ports.<br>**V182**: Same as V82, but with | ¼" NPTF female ports. Also suitable for gauge snubbing.<br>**V8F:** Similar to V82, but with very fine metering for precise flow control.<br>**Not recommended as shut-off valve.** |  |
| **Snubber Valve**<br>**V91** |  | **V91:** Adjustable for metering oil out of a gauge to prevent snapping of gauge pointer when load or pressure is suddenly released. Also suitable as shut-off valve to protect | the gauge during high cycling applications. ½" NPTF male and female threads for use with GA1, GA2 or GA4 gauge adaptors. |  |
| **Auto Damper® Valve**<br>**V10** |  | **V10:** To be used when gauge pressure must be monitored during high cycle applications. Creates a flow resistance when load is released suddenly. | No adjustments are necessary. ½" NPTF male and female threads for use with GA1, GA2 or GA4 gauge adaptors. |  |
| **Check Valve**<br>**V17** |  | **V17:** Ruggedly built to resist shock and operate with low pressure drop. Closes smoothly without pounding. ⅜" NPTF female ports. | |  |
| **Pilot Operated Check Valve**<br>**V42** |  | **V42:** Can be mounted at the cylinder to hold the load in case of system pressure loss. Normally used with double-acting cylinders where pilot port receives pressure | from a Tee-fitting in the cylinder retract line. ⅜" NPTF female ports. Pilot pressure ratio 14% (6.5:1). |  |
| **Manually Operated Check Valve**<br>**V66, V66NV***<br>**V66F** |  | **V66, V66NV:** For load holding applications with single- and double-acting cylinders. Valves allow oil to flow back to tank when cylinder retracts. V66NV with Viton seals, nickel-plated. | **V66F:** Similar to V66, but with very fine metering capability for precise flow control. V66F not designed for load holding applications. |  |
| **Pressure Relief Valve**<br>**V152**<br>**V152NV*** |  | **V152:** Limits pressure developed by the pump in hydraulic circuit, thus limiting the force created by other components. Valve opens whenever preset pressure is reached. | To increase pressure setting, turn handle clockwise. Includes:<br>• 3 ft return line hose kit<br>• ±3% repeatability<br>• 800-10,000 psi adjustment range. |  |
| **Sequence/Pressure Differential Valve**<br>**V161** |  | **V161:** To control oil flow to a secondary circuit. Flow is blocked until system pressure rises to the V161 setting. When this pressure level is reached, the V161 opens to | allow flow to the secondary circuit. A pressure differential is always maintained between the primary and secondary circuit.<br>**Min. operating pressure: 2000 psi.** |  |

* See page 64 for more information about products for use in high temperature and extreme environment applications.

**Enerpac Hydraulic Presses are available in a wide variety of standard capacities and configurations, or you can "build your own" with the easy-to-use matrix.**

**The press frames are a welded construction for maximum strength and durability, and when combined with the power of high-pressure hydraulics, will provide years of safe and dependable service in your workshop.**

**Enerpac press capacities range from 10 ton to 200 ton and are available in Bench, C-Frame, Arbor, H-Frame and Roll-Frame models.**

**These press features increase productivity and broaden the range of applications:**

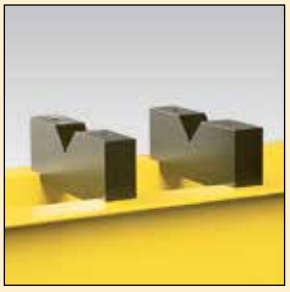
Standard on many Enerpac IP Presses, the exclusive Hydra-Lift™ offers effortless adjustment to the press daylight by use of a hydraulic lift.




Easy horizontal cylinder position is achieved with the unique "roller-head" cylinder mounting block, standard on most Enerpac IP Presses.




Optional "V-blocks" for positioning of complex parts are designed with high-strength steel for long life.





# Press Section Overview

Available in capacities from 10 to 200 ton, each Enerpac press consists of three basic high-quality components: a press frame, a power source and a cylinder.

**Press Frame**
Press frames include features like horizontally adjustable cylinders and vertically adjustable bolsters for ease of use and optimal positioning of the workpiece.

**Power Source**
Depending on the production requirements, Enerpac presses can be powered by manual, air hydraulic and electric pumps.

**Cylinder**
Depending on the application, double-acting cylinders offer increased efficiency. Check out the Selection Charts for the press best suited for your needs.

**Gauge**
All Workshop presses and Roll-Frame Presses feature an easy to monitor pressure/force gauge for increased safety.

| Capacity (tons) | Press Type and Functions | Series | | Page |
|---|---|---|---|---|
| 10-200 | H-Frame Presses | IP |  | 168 ▶ |
| 50-200 | Roll Frame Presses | IPR |  | 172 ▶ |
| 5-20 | C-Clamp Presses | A |  | 174 ▶ |
| 10-30 | Arbor Presses | A |  | 175 ▶ |
| 10-200 | Press Accessories<br>Press Speed Chart | |  | 176 ▶ |
| 10-200 | Custom Built Presses | IP |  | 177 ▶ |
| 10-75 | Workshop Bench Presses<br>Workshop H-Frame Presses | VLP<br>XLP |  | 178 ▶ |
| 5<br>1-100 | Tension Meter<br>Load Cells | TM<br>LH |  | 180 ▶ |
| | Custom Hydraulic Presses | |  | 181 ▶ |

▼ Press shown: **IPE5060**




# Setting the Industry Standard

- **Quality welded frame for maximum strength and long life**
- **Exclusive "Hydra-Lift™" bed for effortless adjustment of the vertical daylight (10-ton models are manual)**
- **Roller head design is standard to allow movement and locking of the cylinder from side to side (10 ton, 25 ton and 30 ton are manual)**
- **All models in the Quick Selection Chart have been matched to a pump, cylinder, hoses and gauge, offering the complete package**




◀ *An Enerpac H-Frame press quickly removes the shaft from this assembly.*




**Cylinder Mounting Block**

Allows cylinder mounting into a press frame, while also allowing side to side adjustment of cylinder position.

*Page:* 176



**Hydra-Lift™**

Allows easy, effortless daylight adjustment. Standard on most H-Frame presses.

*Page:* 176



**Pump Mounting Bracket**

Heavy-duty steel brackets allow mounting of one of the Enerpac Power Sources to power your press.

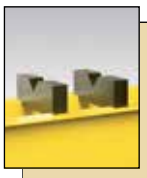
*Page:* 176



**Gauge Included**

All standard press models include a gauge and gauge adaptor, matching the press capacity.

*Page:* 171



**V-Blocks**

These optional V-Blocks are designed for easy fixturing of round stock and other non-uniform materials. Featuring precise fit into the press bolster.

*Page:* 176

**Ordering Variations**

Any variations to a listed part number must be ordered as two separate items. For example, if you need a different voltage electric pump, please order from the modular matrix on page 177 and the electric pump from the modular matrix on page 115 (electric) or page 127 (air).

Any questions should be directed to our Technical Service Department.

*Page:* 176

**Cylinder Types**

= Single-acting, Spring Return

= Double-acting, Hydraulic Return

# IP Series



Capacity:
**10 - 200 tons**

Maximum Daylight and Width:
**54.50 & 48.00 inches**

Maximum Operating Pressure:
**10,000 psi**

## ▼ QUICK SELECTION CHART

For more technical information see next page.

| Press Capacity (tons) | Maximum Vertical Daylight (in) | Maximum Bed Width (in) | Power Source: Type: Man. | Type: Elec. | Type: Air | Valve: Man. | Valve: Elec. | Press Model Number | Cylinder: Spring Return | Cylinder: Hydraulic Return | Cylinder: Stroke (in) | Speed (sec/in)*: Rapid Advance | Speed (sec/in)*: Pressing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 40.00 | 18.63 | | ● | | ● | | IPE1215 | ● | | 10 | 0.90 | 6.70 |
| | 40.00 | 18.63 | | | ● | ● | | IPA1220 | ● | | 10 | 2.20 | 13.40 |
| | 40.00 | 18.63 | ● | | | ● | | IPH1240 | ● | | 10 | {4} | {15} |
| | 40.00 | 18.63 | ● | | | ● | | IPH1234 | | ● | 10 | {2} | {15} |
| | 40.00 | 18.63 | | | ● | ● | | IPA1244 | | ● | 10 | 2.20 | 13.40 |
| 25 | 54.50 | 29.00 | | ● | | ● | | IPE2505 | ● | | 6 | 1.50 | 15.40 |
| | 54.50 | 29.00 | | ● | | | ● | IPE2510 | ● | | 14 | 0.70 | 7.70 |
| | 54.50 | 29.00 | | | ● | ● | | IPA2520 | ● | | 14 | 5.20 | 30.90 |
| | 54.50 | 29.00 | ● | | | ● | | IPH2531 | ● | | 14 | {5} | {34} |
| 30 | 54.50 | 29.00 | | | ● | ● | | IPA3071 | | ● | 14 | 0.60 | 43.00 |
| | 54.50 | 29.00 | | ● | | | ● | IPE3060 | | ● | 14 | 0.90 | 9.80 |
| | 54.50 | 29.00 | ● | | | ● | | IPH3080 | | ● | 14 | {7} | {34} |
| 50 | 48.56 | 28.75 | | ● | | | ● | IPE5010 | ● | | 13 | 1.02 | 11.04 |
| | 48.56 | 28.75 | | | ● | ● | | IPA5021 | ● | | 6 | 1.00 | 74.00 |
| | 48.56 | 28.75 | ● | | | ● | | IPH5030 | ● | | 6 | {2} | {38} |
| | 48.56 | 28.75 | ● | | | ● | | IPH5031 | ● | | 6 | {11} | {73} |
| | 48.56 | 28.75 | | ● | | ● | | IPE5005 | ● | | 6 | 2.90 | 28.90 |
| | 48.56 | 28.75 | | | ● | ● | | IPA5073 | | ● | 13 | 1.00 | 22.20 |
| | 48.56 | 28.75 | | ● | | | ● | IPE5060 | | ● | 13 | 1.00 | 11.00 |
| | 48.56 | 28.75 | ● | | | ● | | IPH5080 | | ● | 13 | {2} | {38} |
| 100 | 41.00 | 35.00 | | | ● | ● | | IPA10023 | ● | | 10 | 1.90 | 41.20 |
| | 41.00 | 35.00 | | ● | | | ● | IPE10010 | ● | | 10 | 1.90 | 20.60 |
| | 41.00 | 35.00 | ● | | | ● | | IPH10030 | ● | | 10 | {3} | {70} |
| | 41.00 | 35.00 | | ● | | | ● | IPE10060 | | ● | 13 | 1.90 | 20.60 |
| | 41.00 | 35.00 | ● | | | ● | | IPH10080 | | ● | 6 | {3} | {70} |
| 150 | 48.50 | 48.00 | | ● | | | ● | IPE15065 | | ● | 13 | 2.20 | 15.40 |
| 200 | 48.50 | 48.00 | | ● | | | ● | IPE20065 | | ● | 13 | 3.10 | 22.10 |

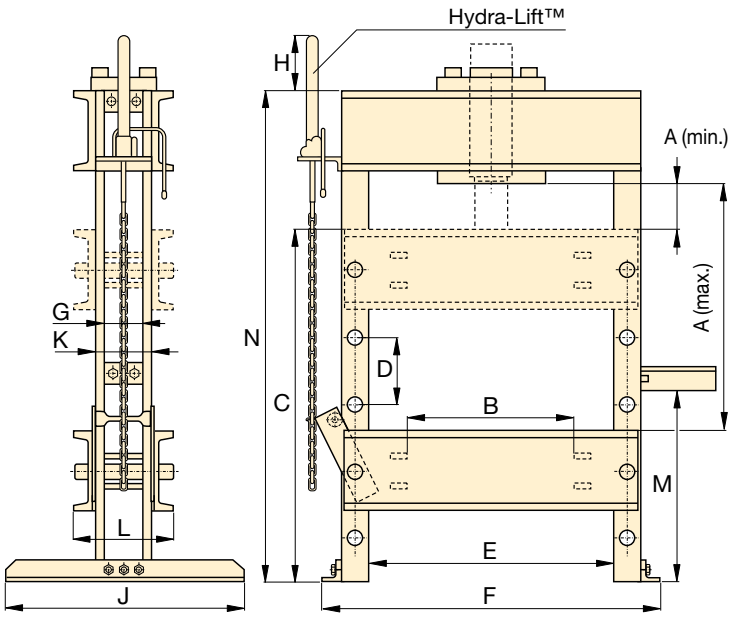
* {--} Speed in strokes per inch plunger travel

▼ *The moveable "cylinder mounting block" allows the user to quickly adapt the press to a specific job.*




◀ For full features see page 174.

| Press Capacity (tons) | Press Model Number | Pump Model Number | Page: | Cylinder Model Number | Page: | H-Frame Press Dimensions (in) A (max) | A (min) | B | C | D | E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | **IPE1215** | PEM1201B | **102** | RC1010 | **6** | 40.00 | 2.44 | – | 46.75 | 5.00 | 18.63 |
| | **IPA1220** | XA12 | **125** | RC1010 | **6** | 40.00 | 2.44 | – | 46.75 | 5.00 | 18.63 |
| | **IPH1240** | P392 | **86** | RC1010 | **6** | 40.00 | 2.44 | – | 46.75 | 5.00 | 18.63 |
| | **IPH1234** | P84 | **88** | RR1010 | **40** | 40.00 | 2.44 | – | 46.75 | 5.00 | 18.63 |
| | **IPA1244** | XA12V | **125** | RR1010 | **40** | 40.00 | 2.44 | – | 46.75 | 5.00 | 18.63 |
| 25 | **IPE2505** | PUJ1200B | **100** | RC256 | **6** | 54.50 | 7.00 | – | 57.00 | 11.88 | 29.00 |
| | **IPE2510** | ZE3310SB-N | **115** | RC2514 | **6** | 54.50 | 7.00 | – | 57.00 | 11.88 | 29.00 |
| | **IPA2520** | XA12 | **125** | RC2514 | **6** | 54.50 | 7.00 | – | 57.00 | 11.88 | 29.00 |
| | **IPH2531** | P80 | **88** | RC2514 | **6** | 54.50 | 7.00 | – | 57.00 | 11.88 | 29.00 |
| 30 | **IPA3071** | PAM1042 | **121** | RR3014 | **40** | 54.50 | 7.00 | – | 57.00 | 11.88 | 29.00 |
| | **IPE3060** | ZE3410SB-N | **115** | RR3014 | **40** | 54.50 | 7.00 | – | 57.00 | 11.88 | 29.00 |
| | **IPH3080** | P84 | **88** | RR3014 | **40** | 54.50 | 7.00 | – | 57.00 | 11.88 | 29.00 |
| 50 | **IPE5010** | ZE4320SB-N | **115** | RC5013 | **6** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| | **IPA5021** | PAM1022 | **121** | RC506 | **6** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| | **IPH5030** | P462 | **86** | RC506 | **6** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| | **IPH5031** | P80 | **88** | RC506 | **6** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| | **IPE5005** | PUJ1200B | **100** | RC506 | **6** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| | **IPA5073** | ZA4408MX | **126** | RR5013 | **40** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| | **IPE5060** | ZE4420SB-N | **115** | RR5013 | **40** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| | **IPH5080** | P464 | **88** | RR5013 | **40** | 48.56 | 7.06 | 18.76 | 54.00 | 10.38 | 28.75 |
| 100 | **IPA10023** | ZA4208MX | **126** | RC10010 | **6** | 41.00 | 5.50 | 20.00 | 51.00 | 11.69 | 35.00 |
| | **IPE10010** | ZE4320SB-N | **115** | RC10010 | **6** | 41.00 | 5.50 | 20.00 | 51.00 | 11.69 | 35.00 |
| | **IPH10030** | P462 | **86** | RC10010 | **6** | 41.00 | 5.50 | 20.00 | 51.00 | 11.69 | 35.00 |
| | **IPE10060** | ZE4420SB-N | **115** | RR10013 | **40** | 41.00 | 5.50 | 20.00 | 51.00 | 11.69 | 35.00 |
| | **IPH10080** | P464 | **88** | RR1006 | **40** | 41.00 | 5.50 | 20.00 | 51.00 | 11.69 | 35.00 |
| 150 | **IPE15065** | ZE5420SG-N | **115** | RR15013 | **40** | 48.50 | 12.50 | 28.00 | 54.50 | 10.00 | 48.00 |
| 200 | **IPE20065** | ZE5420SG-N | **115** | RR20013 | **40** | 48.50 | 12.50 | 28.00 | 54.50 | 10.00 | 48.00 |




| H-Frame Press Dimensions (in) | | | | | | | | Weight | Press Model Number |
|---|---|---|---|---|---|---|---|---|---|
| F | G | H | J | K | L | M | N | (lbs) | |
| 24.88 | – | – | 29.75 | 4.25 | 7.44 | 35.00 | 52.00 | 298 | **IPE1215** |
| 24.88 | – | – | 29.75 | 4.25 | 7.44 | 35.00 | 52.00 | 160 | **IPA1220** |
| 24.88 | – | – | 29.75 | 4.25 | 7.44 | 35.00 | 52.00 | 158 | **IPH1240** |
| 24.88 | – | – | 29.75 | 4.25 | 7.44 | 35.00 | 52.00 | 189 | **IPH1234** |
| 24.88 | – | – | 29.75 | 4.25 | 7.44 | 35.00 | 52.00 | 163 | **IPA1244** |
| 40.50 | 4.00 | 13.25 | 30.00 | 5.25 | 10.69 | 26.50 | 76.00 | 605 | **IPE2505** |
| 40.50 | 4.00 | 13.25 | 30.00 | 5.25 | 10.69 | 26.50 | 76.00 | 697 | **IPE2510** |
| 40.50 | 4.00 | 13.25 | 30.00 | 5.25 | 10.69 | 26.50 | 76.00 | 610 | **IPA2520** |
| 40.50 | 4.00 | 13.25 | 30.00 | 5.25 | 10.69 | 26.50 | 76.00 | 620 | **IPH2531** |
| 40.50 | 4.00 | 13.25 | 30.00 | 5.25 | 10.69 | 26.50 | 76.00 | 684 | **IPA3071** |
| 40.50 | 4.00 | 13.25 | 30.00 | 5.25 | 10.69 | 26.50 | 76.00 | 722 | **IPE3060** |
| 40.50 | 4.00 | 13.25 | 30.00 | 5.25 | 10.69 | 26.50 | 76.00 | 664 | **IPH3080** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 1,040 | **IPE5010** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 968 | **IPA5021** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 968 | **IPH5030** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 926 | **IPH5031** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 930 | **IPE5005** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 1,057 | **IPA5073** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 1,051 | **IPE5060** |
| 42.75 | 5.00 | 8.75 | 36.00 | 7.25 | 14.38 | 30.75 | 76.00 | 1,003 | **IPH5080** |
| 51.00 | 5.50 | 8.75 | 36.00 | 6.50 | 17.25 | 33.13 | 76.00 | 1,650 | **IPA10023** |
| 51.00 | 5.50 | 8.75 | 36.00 | 6.50 | 17.25 | 33.13 | 76.00 | 1,722 | **IPE10010** |
| 51.00 | 5.50 | 8.75 | 36.00 | 6.50 | 17.25 | 33.13 | 76.00 | 1,656 | **IPH10030** |
| 51.00 | 5.50 | 8.75 | 36.00 | 6.50 | 17.25 | 33.13 | 76.00 | 1,743 | **IPE10060** |
| 51.00 | 5.50 | 8.75 | 36.00 | 6.50 | 17.25 | 33.13 | 76.00 | 1,665 | **IPH10080** |
| 67.17 | 9.12 | 3.09 | 44.00 | 13.12 | 21.85 | 47.75 | 90.00 | 3,906 | **IPE15065** |
| 67.17 | 9.12 | 3.09 | 44.00 | 13.12 | 21.85 | 47.75 | 90.00 | 3,906 | **IPE20065** |

## IP Series



Capacity:
**10 - 200 tons**

Maximum Daylight and Width:
**54.50 & 48.00 inches**

Maximum Operating Pressure:
**10,000 psi**



### H-Frame Press Gauges

All standard press models include a gauge and gauge adaptor, matching the press capacity:

| Press Capacity (tons) | Gauge Model Number | Adaptor Model Number |
|---|---|---|
| 10 | **GF10P** | **GA2** |
| 25 | **GF20P** | **GA2** |
| 30 | **GF835P** | **GA3** |
| 50 | **GF50P** | **GA2** |
| 100 | **GF871P** | **GA3** |
| 150 | **GF200P** | **GA3** |
| 200 | **GF200P** | **GA3** |

For more information on gauges, please refer to the System Components section.

***Page:*** **147**

### Ordering Variations

Any variations to a listed part number must be ordered as two separate items. For example, if you need a different voltage electric pump, please order from the modular matrix on page 177 and the electric pump from the modular matrix on page 115 (electric) or page 127 (air).

Any questions should be directed to our Technical Service Department.

***Page:*** **176**

▼ Shown: **IPR10075**




## The One and Only

- **Quality welded frame for maximum strength and long life**
- **Frame rolls easily on four steel roller bearings**
- **Hydraulic clamp cylinders lock frame into position**
- **Exclusive "Hydra-Lift™" bolster for effortless adjustment of the vertical daylight**
- **Standard roller head design allows movement of the cylinder from side to side**
- **All models in the Quick Selection Chart have been matched to a pump, cylinder, hoses and gauge, offering the complete package**
- **Roll Frame design features a stationary bed with the ability to support heavy loads**




**Cylinder Mounting Block**
Allows cylinder mounting into a press frame, while also allowing side to side adjustment of cylinder position.

*Page:* **176**



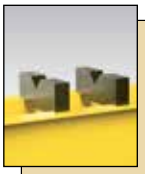
**Pump Mounting Bracket**
Heavy-duty steel brackets to allow conversion to one of the Enerpac Power Sources to power your press.

*Page:* **176**



**Hydra-Lift™**
Allows easy, effortless daylight adjustment.

*Page:* **176**



**Optional V-Blocks**
These V-Blocks, 200 ton only, are designed for easy fixturing of round stock and other non-uniform materials. Featuring precise fit into the press bolster.

*Page:* **176**

| Press Capacity (tons) | Vertical Daylight A (in) minimum | Vertical Daylight A (in) maximum | Horizontal Daylight E (in) | Pump Model Number | Page: | Press Model Number | Cylinder, Double-Acting Hydraulic Return | Stroke (in) | Model Number | Page: | Speed (sec/in) Rapid Advance | Speed (sec/in) Pressing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **50** | 6.00 | 37.12 | 28.75 | ZE4420SB-N | **115** | **IPR5075** | ● | 13.13 | RR5013 | **41** | 1.0 | 11.1 |
| **100** | 6.28 | 41.28 | 35.00 | ZE5420SG-N | **115** | **IPR10075** | ● | 13.13 | RR10013 | **41** | 1.5 | 10.3 |
| **200** | 11.00 | 51.00 | 48.00 | ZE5420SG-N | **115** | **IPR20075** | ● | 13.00 | RR20013 | **41** | 3.1 | 22.1 |

▼ *An IPR20075 Roll Frame Press is used to remove a large shaft from this pillow-block assembly. The Roll Frame design allows this heavy part to be safely loaded with an overhead crane.*




## IPR Series



Capacity:
**50 - 200 tons**

Maximum Daylight and Width:
**51.00 & 48.00 inches**

Maximum Operating Pressure:
**10,000 psi**



### Roll Frame Press Gauges

All standard press models include a gauge and gauge adaptor, matching the press capacity:

| Press Capacity (tons) | Gauge Model Number | Adaptor Model Number |
|---|---|---|
| 50 | **GF50P** | **GA2** |
| 100 | **GF871P** | **GA3** |
| 200 | **GF200P** | **GA3** |

For more information on gauges, please refer to the System Components section.

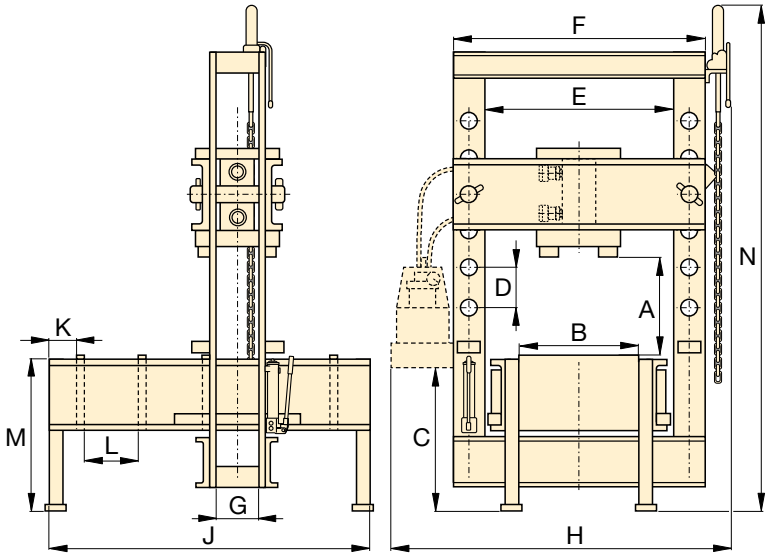
***Page:*** **147**

### Ordering Variations

Any variations to a listed part number must be ordered as two separate items. For example, if you need a different voltage electric pump, please order from the modular matrix on page 177 and the electric pump from the modular matrix on page 115 (electric) or page 127 (air).

Any questions should be directed to our Technical Service Department.

***Page:*** **176**




| | Roll Frame Press Dimensions (in) | | | | | | | | | | | Weight | Press Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | C | D | F | G | H | J | K | L | M | N | (lbs) | |
| | 20.71 | 38.25 | 10.38 | 36.75 | 5.00 | 55.92 | 64.00 | 8.00 | 10.63 | 30.00 | 112.96 | 1,961 | **IPR5075** |
| | 26.50 | 38.00 | 8.75 | 45.00 | 5.75 | 63.19 | 66.00 | 8.00 | 10.63 | 32.00 | 118.94 | 3,849 | **IPR10075** |
| | 38.75 | 36.75 | 10.00 | 64.00 | 9.12 | 84.63 | 86.50 | 8.00 | 15.00 | 36.00 | 125.96 | 7,869 | **IPR20075** |

▼ Shown from left to right: **A220 and A330**




# The Standard In Workshop Tools

### C-Clamp Press

- **5, 10 and 20 ton capacity**
- **Operational in all positions**

### Arbor Press

- **Foot mounting holes for horizontal or vertical positioning**
- **Machined work surfaces for easier fixturing**
- **Slotted back to simplify loading and unloading of longer parts**



**Push Pin A183**

For applications requiring precision pressing, such as shaft removal and insertion. This attachment fits 10 ton cylinders and requires the use of a threaded adaptor saddle (A13).



**Smooth Saddle A185**

For pressing applications of delicate parts, such as aluminum castings, this saddle decreases surface marks during the pressing application. Requires 10-ton cylinder and threaded adaptor saddle (A13).

▼ *A310 Arbor Press*



| Press Type | Press Capacity (tons) | Maximum Vertical Daylight (in) | Maximum Bed Width (in) | Cylinder Series Number* | Press Model Number | Weight (lbs) |
|---|---|---|---|---|---|---|
| Arbor | **10** | 9.06 | 5.31 | RC10-x | **A310*** | 62 |
| | **30** | 10.00 | 7.00 | RC30-x | **A330*** | 220 |
| C-Clamp | **5** | 6.50 | 2.00 | RC5-x | **A205*** | 14 |
| | **10** | 9.00 | 3.25 | RC10-x | **A210*** | 37 |
| | **20** | 11.88 | 3.75 | ** | **A220**** | 83 |

* Requires RC cylinder listed, see page 7 for specifications.
** Requires RC25 ton cylinder, limited to 20 tons.



▲ *RC-308 cylinder mounted in A-330 Arbor Press powered by a PATG-Turbo Air pump for controlled pressing of bearings for sprockets of weaving machines. The V-152 Pressure Relief Valve controls the pressing force.*

## A Series



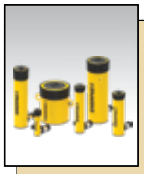
Capacity:
**5 - 30 ton**

Maximum Daylight and Width:
**11.88 and 7.00 inches**

Mounting Capabilities:
**Fixed or Portable**

Maximum Operating Pressure:
**10,000 psi**

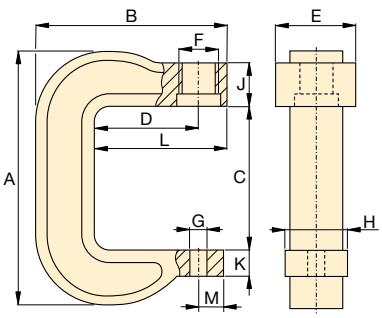
**For high-cycle production applications, C-Clamp and Arbor presses should be limited in their capacity. Consult Enerpac Technical Services for specific application details.**



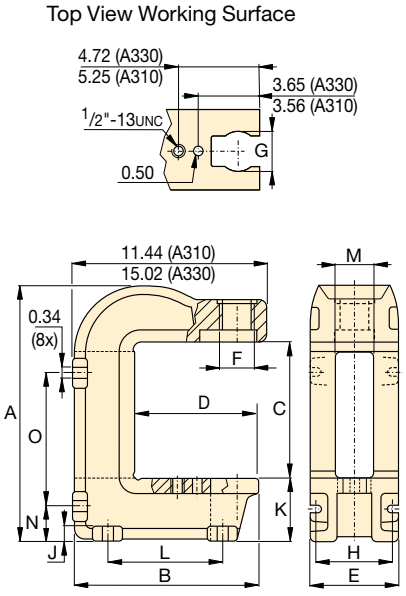
**Hydraulic Cylinders**
Cylinders for C-Clamps and Arbor Presses must be ordered separately.
*Page:* 6



**Hydraulic Pumps**
Pumps for C-Clamps and Arbor Presses must be ordered separately.
*Page:* 85




**C-Clamp Press A205, A210, A220**




**Arbor Press A310, A330**

| | Press Dimensions (in) | | | | | | | | | | | | | | Press Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | O | |
| | 16.31 | 11.06 | 9.06 | 7.25 | 5.94 | 2¼-14 UN | 2.50 | 4.81 | 0.75 | 3.75 | 6.88 | 2.56 | 2.13 | 8.63 | **A310*** |
| | 22.18 | 14.02 | 10.00 | 7.40 | 7.00 | 3⁵⁄₁₆-12 UN | 2.50 | 5.50 | 1.10 | 6.63 | 8.00 | 2.63 | 3.88 | 10.88 | **A330*** |
| | 11.44 | 8.00 | 6.50 | 3.75 | 2.88 | 1½-16 UN | 1.02 | 2.00 | 2.50 | 1.06 | 4.75 | 1.00 | – | – | **A205*** |
| | 16.00 | 11.13 | 9.00 | 6.00 | 3.25 | 2¼-14 UN | 1.02 | 3.00 | 2.50 | 1.69 | 7.63 | 1.13 | – | – | **A210*** |
| | 21.25 | 13.63 | 11.88 | 6.00 | 4.76 | 3⁵⁄₁₆-12 UN | 1.02 | 3.75 | 2.75 | 1.88 | 8.38 | 1.13 | – | – | **A220**** |

| Description | Frame Capacity | Model Number | | Features |
|---|---|---|---|---|
| **Cylinder Mounting Block** | 10 ton H-Frame<br>25 and 30 ton H-Frame<br>50 ton H-Frame<br>100 ton H-Frame<br>200 ton H-Frame | **IPK1012**<br>**IPK3012**<br>**PK501**<br>**PK1002**<br>**PK2002** |  | • All mounting blocks allow horizontal movement of cylinder |
| **V- Blocks** | 10 ton H-Frame<br>25 and 30 ton H-Frame<br>50 ton H-Frame<br>100 ton H-Frame<br>150 & 200 ton H-Frame<br>200 ton Roll Frame | **A136**<br>**A130**<br>**A150**<br>**A175**<br>**A200**<br>**A200R** |  | • Machined from high strength steel for long life<br>• All model numbers include two V-blocks |
| **Hydra-Lift™** | 25-100 ton H-Frame<br>150-200 ton H-Frame<br>50 and 100 ton Roll Frame<br>200 ton Roll Frame | **IPL100**<br>**IPL101**<br>**IPLR100**<br>**IPLR200** |  | • Allows easy, effortless daylight adjustments<br>• Includes accessory chain |
| **Pump Mounting Bracket** | Hand operated and small Air Pumps; P80, P84, P142, P392, PA133, XA, Turbo II pumps<br><br>Electric, large Hand Pumps, and ZA4 Air Pumps; ZE Series, P462, P464, 10/90 Series Air Pumps | **PMB1**<br><br>**PMB2** |  | • Both mounting brackets are pre-drilled to accept a number of different pump models |

## Cylinder Speed

This chart will help you calculate the time required for an Enerpac cylinder to extend when powered by a 10,000 psi Enerpac hydraulic pump. The Cylinder Speed Chart can also be used to determine the pump type and model best suited for an application when you know the plunger speed required.

### Cylinder and Pump Selection Chart

| Cylinder Capacity (tons) | Cylinder Load | Hand Operated Pumps | | | | Electric Pumps | | | | | Air Pumps | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Strokes per inch of plunger travel | | | | Seconds per inch of plunger travel | | | | | | | | |
| | | Single Speed | Two-Speed | | | ½ hp Port. | ½ hp Subm. | ZE3 Series | ZE4 Series | ZE5 Series | @100 psi air | | | |
| | | P391 | P392 | P80 P84 | P462 P464 | | | | | | XA | PA133 | PAM 10 Series | ZA4 |
| **10** | No load | 15 | 4 | 2 | 1 | 0.7 | 0.9 | 0.3 | 0.2 | 0.2 | 1.10 | 2.70 | 0.21 | 0.16 |
| | Load | 15 | 15 | 15 | 8 | 6.7 | 6.7 | 3.4 | 2.2 | 1.1 | 9.00 | 16.80 | 14.90 | 4.50 |
| **25** | No load | 34 | 8 | 5 | 1 | 1.5 | 2.1 | 0.7 | 0.5 | .4 | 2.60 | 6.20 | 0.48 | 0.36 |
| | Load | 34 | 34 | 34 | 18 | 15.5 | 15.5 | 7.7 | 5.2 | 2.6 | 20.60 | 38.60 | 34.30 | 10.30 |
| **30** | No load | 43 | 10 | 7 | 1 | 1.9 | 2.6 | 0.9 | 0.6 | 0.5 | 3.20 | 7.50 | 0.60 | 0.46 |
| | Load | 43 | 43 | 43 | 23 | 19.5 | 19.5 | 9.80 | 6.5 | 3.3 | 26.00 | 48.70 | 43.30 | 13.00 |
| **50** | No load | 73 | 16 | 11 | 2 | 3.3 | 4.4 | 1.50 | 1.0 | 0.8 | 5.50 | 13.30 | 1.00 | 0.80 |
| | Load | 73 | 73 | 73 | 38 | 33.2 | 33.2 | 16.6 | 11.0 | 5.5 | 44.20 | 82.92 | 73.70 | 22.10 |
| **100** | No load | 137 | 30 | 21 | 3 | 6.2 | 8.3 | 2.8 | 1.9 | 1.5 | 10.30 | 24.80 | 1.90 | 1.50 |
| | Load | 137 | 137 | 137 | 71 | 61.9 | 61.9 | 31.0 | 20.7 | 10.3 | 82.50 | 154.70 | 137.50 | 41.30 |

Note: Values are approximate. Cylinder speed may vary in actual application.

## CUSTOM BUILD YOUR OWN PRESS

If the press that would best fit your application cannot be found in the charts, you can easily build your custom press here. All presses must be ordered with cylinders. **The pump is ordered separately.**

**▼ This is how a press model number is built up:**

| IP | H | - | 050 | S | 06 | - | 1 |
|---|---|---|---|---|---|---|---|
| 1 Product Type | 2 Frame Type | | 3 Press Capacity | 4 Cylinder Type | 5 Cylinder Stroke | | 6 Pump Mounting Kit |

**1 Product Type**
**IP** = Industrial Press

**2 Frame Type**
**H** = H-Frame
**R** = Roll Frame [1]

**3 Press Capacity**
**010** = 10 ton
**025** = 25 ton
**030** = 30 ton
**050** = 50 ton
**100** = 100 ton
**150** = 150 ton
**200** = 200 ton

**4 Cylinder Type**
**S** = Single-Acting (RC-Series)
**D** = Double-Acting (RR-Series)

**5 Cylinder Stroke** (in)
- 10 ton S/A: **06, 08, 10, 12, 14**
  10 ton D/A: **10, 12**
- 25 ton S/A: **06, 10, 12, 14**
- 30 ton S/A: **08**
  30 ton D/A: **08, 14**
- 50 ton S/A: **06, 13**
  50 ton D/A: **06, 13, 20**
- 100 ton S/A: **06, 10**
  100 ton D/A: **06, 13, 18**
- 150 ton D/A: **06, 13, 32**
- 200 ton D/A: **13, 18, 24**

**6 Pump Mounting Kit** [2]
**0** = No mounting kit
**1** = Hand operated and small air pumps:
P80, P84, P141, P142, P202, P391, P392, PA133 and all Turbo II Air pumps
**2** = Electric, large hand operated and modular air pumps:
PUJ12, PEM12, ZE36 Series P462, P464 PAM10 and -90 Series

[1] Roll Frame Press: 50-, 100- and 200-ton press capacity only. (Assembly required)
[2] Includes hoses for press, except for option **0**.

### Ordering Example

**Model number: IPH050S06-2**

IPH050S06-2 is a 50-ton H-Frame press with a single-acting, 6-inch stroke cylinder (RC506). It has a pump mounting kit (for an electric Pump or a Modular Air Pump).

See the cylinder and pump selection chart on previous page for selecting the proper pump.

## IP Series



Capacity:
**10 - 200 tons**

Maximum Daylight and Width:
**54.50 & 48.00 inches**

Maximum Operating Pressure:
**10,000 psi**

**"No Load"** indicates the plunger speed as it extends toward the load (1st stage).
**"Load"** indicates the plunger speed as the load is applied at a system pressure of 10,000 psi (2nd stage).

**Formula V = A ÷ Q**

**V** (sec/in) = **A** ($in^2$) ÷ **Q** ($in^3$/min)
**V** = Cylinder plunger speed in seconds per inch
**A** = Cylinder effective area in square inches ($in^2$)
**Q** = Pump oil flow in cubic inches ($in^3$)

$$\text{Cylinder Plunger Speed (sec/in)} = \frac{\text{Cylinder Effective Area } (in^2)}{\text{Pump Flow Rate } (in^3/min)} \times \frac{60 \text{ sec}}{1}$$

▼ Shown from left to right: **XLP256XA11GU, XLP506XA12GU, VLP106P142U**




## VLP-Series Bench Presses

- **Compact design mounts conveniently on bench top**
- **Operational in vertical or horizontal position**

## XLP-Series Presses

- **Easy height adjustment with integrated winch mechanism**
- **Horizontal cylinder adjustment enables flexible load placement**
- **Multiple pump options including pneumatic foot-controlled pumps with integrated gauges for optimal control and variable oil flow**
- **50 and 75-ton units provided in kit form**

# No workshop can do without one



**XA-Series Foot Pump**

The XLP-Press with XA-Series Air Powered Foot Pump: no need to fully lift up foot – rest bodyweight on heel, resulting in a handsfree and stable working position – safe and controlled press operation.



**Press Kits**

The 50 and 75-ton presses come standard as unassembled kits, and include complete press frame, winch, cylinder, pump with gauge, couplers and hose.



**Easy Grip Forklift Access**

Cut-away in lower frame for pallet truck access allows easy transportation of 50 and 75-ton XLP-Series Presses.



**Side-To-Side Cylinder Movement**

Cylinder can be positioned horizontally side-to-side on all XLP-Series presses.

| Press Capacity (tons) | Maximum Vertical Daylight (in) | Maximum Bed Width (in) | Press Model Number | Power Source: Pump Type Man. | Pump Type Elec. | Pump Type Air | Valve Type Man. | Valve Type Elec. | Pump Model Number | Cylinder: S/A | Cylinder: D/A | Stroke (in) | Cylinder Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 16.73 | 17.13 | **VLP106P142U** | ● | | | ● | | P142 | ● | | 6.13 | RC106 |
| | 16.73 | 17.13 | **VLP106PAT1U** | | | ● | ● | | PATG1102N | ● | | 6.13 | RC106 |
| 25 | 47.68 | 20.08 | **XLP256P392U** | ● | | | ● | | P392 | ● | | 6.25 | RC256 |
| | 47.68 | 20.08 | **XLP256XA11GU** | | | ● | ● | | XA11G | ● | | 6.25 | RC256 |
| 50 | 37.80 | 38.98 | **XLP506P802U** | ● | | | ● | | P802 | ● | | 6.25 | RC506 |
| | 37.80 | 38.98 | **XLP506XA12GU** | | | ● | ● | | XA12G | ● | | 6.25 | RC506 |
| | 37.80 | 38.98 | **XLP5013ZEBU** | | ● | | | ● | ZE4408SB | | ● | 13.13 | RR5013 |
| | 37.80 | 38.98 | **XLP5013ZEIU** | | ● | | | ● | ZE4408SI | | ● | 13.13 | RR5013 |
| 75 | 37.60 | 38.98 | **XLP756XA12GU** | | | ● | ● | | XA12G | ● | | 6.13 | RC756 |

= Single-Acting = Double-Acting

**Bringing Value to the Workshop**

The VLP- and XLP-Series Presses provide a simple and economical solution for standard workshop applications.

The 10-ton VLP comes standard with an RC cylinder and a hand or air pump. Compact and versatile, it's the ideal solution for pressing smaller workpieces from the comfort of a workbench.

The similarly equipped 25-ton XLP features a sturdy welded H-frame, an adjustable bolster and a horizontally adjustable cylinder.

The 50- and 75-ton XLP Presses offer an exceptional value with features including adjustable lower and upper bolsters, horizontally adjustable cylinders, single- and double acting cylinders*, and multiple pump options. These presses come standard as unassembled kits which include the frame, winch, cylinder, pump, gauge, couplers and hose.

For premium performance in more demanding applications, Enerpac also offers the IP Press Series, which features heavy duty welded frames and a broad range of cylinder and pump options. Contact Enerpac for additional information.

*On select models

# VLP, XLP Series

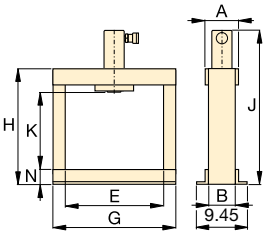


Capacity:
**10 - 75 tons**

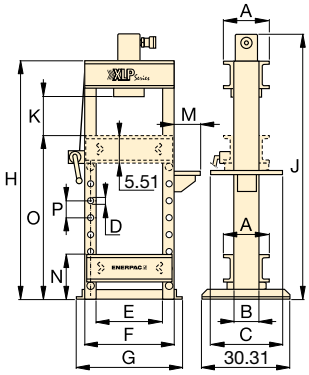
Maximum Daylight and Width:
**47.68 & 38.98 inches**

Maximum Operating Pressure:
**10,000 psi**

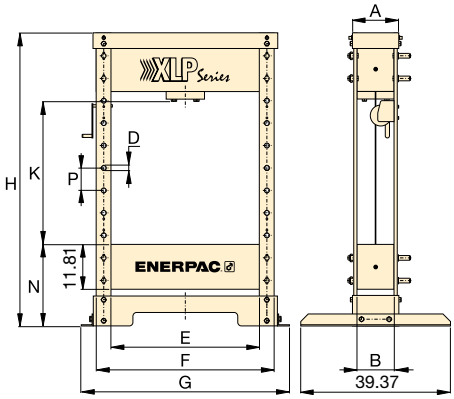
**IMPORTANT!**
Workshop press frames are designed exclusively for pressing operations, not for pulling. For pulling applications please contact Enerpac.



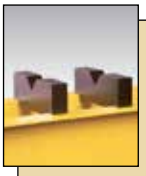

**VLP 10 ton**




**XLP 25 ton**




**XLP 50, 75 ton**



**Optional V-Blocks for VLP and XLP Presses**

Place upright to facilitate the positioning of pipes and bars, or upside down to serve as a convenient work table. Each model number includes two V-blocks.

| To be used with press (ton) | V-Blocks Model Number |
|---|---|
| 10 | VB10 |
| 25 | VB25 |
| 50 | VB501 |
| 75 | VB101 |

| Speed (inches/sec) ** | | Dimensions (in) | | | | | | | | | | | | | | Wt. | Press Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rapid Advance | Pressing | A | B | C | D | E | F | G | H | J | K | M | N | O | P | (lbs) | |
| 0.10** | 0.02** | 4.33 | 3.15 | – | – | 17.13 | – | 21.26 | 24.21 | 29.61 | 16.73 | – | 3.15 | – | – | 108 | VLP106P142U |
| 0.45 | 0.07 | 4.33 | 3.15 | – | – | 17.13 | – | 21.26 | 24.21 | 29.61 | 16.73 | – | 3.15 | – | – | 119 | VLP106PAT1U |
| 0.13** | 0.03** | 10.63 | 5.51 | 20.08 | 1.26 | 20.08 | 24.80 | 27.95 | 63.78 | 67.13 | 14.06-47.68 | 5.51 | 8.58 | 42.20 | 4.80 | 364 | XLP256P392U |
| 0.39 | 0.05 | 10.63 | 5.51 | – | 1.26 | 20.08 | 24.80 | 27.95 | 63.78 | 67.13 | 14.06-47.68 | – | 8.58 | 42.20 | 4.80 | 375 | XLP256XA11GU |
| 0.22** | 0.01** | 12.20 | 9.45 | – | 1.26 | 38.98 | 46.85 | 54.72 | 76.97 | – | 8.27-37.80 | – | 21.46 | – | 5.91 | 1312 | XLP506P802U |
| 0.18 | 0.02 | 12.20 | 9.45 | – | 1.26 | 38.98 | 46.85 | 54.72 | 76.97 | – | 8.27-37.80 | – | 21.46 | – | 5.91 | 1323 | XLP506XA12GU |
| 0.98 | 0.09 | 12.20 | 9.45 | – | 1.26 | 38.98 | 46.85 | 54.72 | 76.97 | 79.53 | 8.27-37.80 | – | 21.46 | – | 5.91 | 1530 | XLP5013ZEBU |
| 0.98 | 0.09 | 12.20 | 9.45 | – | 1.26 | 38.98 | 46.85 | 54.72 | 76.97 | 79.53 | 8.27-37.80 | – | 21.46 | – | 5.91 | 1530 | XLP5013ZEIU |
| 0.13 | 0.02 | 16.54 | 12.99 | – | 1.65 | 38.98 | 48.43 | 56.30 | 76.97 | – | 8.07-37.60 | – | 21.46 | – | 5.91 | 1984 | XLP756XA12GU |

** = speed in inches per hand pump stroke

▼ Shown: **LH102 and TM5** (in middle)



# TM, LH
## Series

Capacity:
**2,000 to 200,000 lbs.**

Accuracy, % of full scale:
**± 2%**

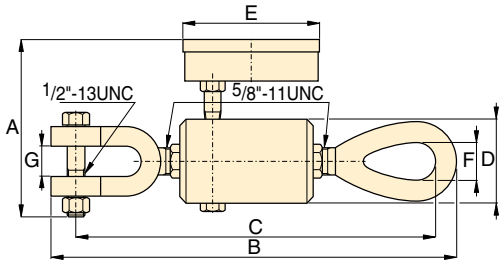
**TM and LH models are 100% tested to verify accuracy within a ± 2% range.**

**If your application requires a calibrated tool, it must be submitted for certification testing.**

**Certification is NOT available from Enerpac.**

## Tension Meter TM5

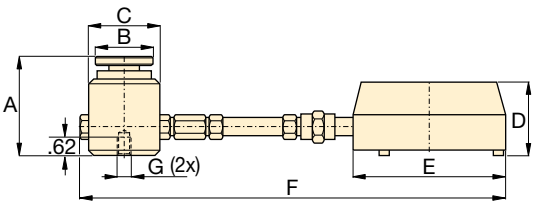
- **Accuracy, ± 2% of full scale**
- **Zinc and bronze plated to resist rust and corrosion**
- **Dual-range readout in kilograms and pounds**
- **Cushioned metal case provides safe storage and transport**
- **Maximum indicating pointer reading for pre-selected forces or to maintain maximum force readings**




**TM5**

## Load Cells LH Series

- **Accuracy, ± 2% of full scale**
- **Swivel loading pad reduces eccentric loading for improved accuracy**
- **Maximum indicating pointer reading for pre-selected forces or to maintain maximum force readings**
- **Dual-range readout in kilograms and pounds**




**LH-Series**

| Type | Gauge Capacity | | Model Number | Minimum Reading | | Gauge Increments | | Dimensions (in) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (lbs) | (kg) | | (lbs) | (kg) | (lbs) | (kg) | A | B | C | D | E | F | G |
| Direct Mounted | 10,000 | 4500 | **TM5** | 1,000 | 500 | 100 | 100 | 4.75 | 9.75 | 9.29 | 2.00 | 4.00 | 0.88 | 0.75 |
| Direct Load Cell Mounted | 2,000 | 900 | **LH10** | 200 | 100 | 20 | 20 | 3.06 | 1.75 | 2.25 | 2.38 | 4.00 | 10.00 | ¼"-20, 1.75" BC |
| | 10,000 | 4500 | **LH50** | 1,000 | 500 | 100 | 100 | 3.06 | 1.75 | 2.25 | 2.38 | 4.00 | 10.00 | ¼"-20, 1.75" BC |
| Remote Mounted with 2 ft. Hose | 2,000 | 900 | **LH102** | 200 | 100 | 20 | 20 | 3.06 | 1.75 | 2.25 | 2.38 | 5.81 | 33.31 | ¼"-20, 1.75" BC |
| | 10,000 | 4500 | **LH502** | 1,000 | 500 | 100 | 100 | 3.06 | 1.75 | 2.25 | 2.38 | 5.81 | 33.10 | ¼"-20, 1.75" BC |
| | 20,000 | 9000 | **LH1002** | 2,000 | 1000 | 200 | 200 | 3.06 | 1.75 | 2.25 | 2.38 | 5.81 | 33.10 | ¼"-20, 1.75" BC |
| Remote Mounted with 6 ft. Hose | 50,000 | 21000 | **LH2506** | 5,000 | 2500 | 500 | 500 | 4.00 | 2.75 | 3.38 | 2.38 | 5.81 | 82.44 | ⅜"-24, 2.5" BC |
| | 100,000 | 45000 | **LH5006** | 5,000 | 2500 | 1,000 | 1000 | 5.22 | 4.00 | 5.00 | 2.38 | 5.81 | 84.06 | ⅜"-24, 3.5" BC |
| | 200,000 | 90000 | **LH10006** | 20,000 | 10000 | 2,500 | 1000 | 6.22 | 5.00 | 6.25 | 2.38 | 5.81 | 85.31 | ⅜"-24, 4.0" BC |

## With decades of experience and in-house capabilities look to Enerpac to help find solutions to your customization needs.

Next to our large range of standard workshop presses, Enerpac offers the possibility of customization. Because many customers have specific requirements, we offer turn-key project management, including design, engineering and manufacturing. As the market leader, we listen to our customers and with our world wide experience we offer the best solutions, especially when safety is not negotiable. Whether a longer stroke, wider frame or complete new design is required, our custom product group has many years of experience in multiple industries to deliver a solution that meets or exceeds expectations.

### OVERVIEW




▲ *Enerpac's hydraulic presses can be configured to fulfill a broad range of applications. Each press is designed and manufactured according to customer specifications and in cooperation with our engineering team.*



◀ *Fully Automated PLC-Controlled 1800-Ton, High-Accuracy Press*



◀ *50-Ton Workshop Press for Maintenance Jobs*



◀ *100-Ton Press for Assembly of Spring-Loaded Cylinders*

### CUSTOMIZABLE FEATURES:

- Capacity
- Cylinder Stroke
- Pump Type
- Controls
- Guarding
- Daylight Dimensions

### CONFIGURATIONS

- Vertical and horizontal press
- Cylinders mounted in upper and lower bolsters
- Height built to customer specifications
- Daylight (vertical and horizontal) built to customer specifications

**Enerpac offers a complete line of pullers with the widest range of sizes, capacities and styles. Whether your application requires mechanical or hydraulic force, Enerpac can satisfy your requirements.**

**Made of high strength steel alloys, you can depend on Enerpac pullers to provide years of trouble-free operation, even in the harshest environments.**



**Hydraulic Pullers**

These hydraulic pullers eliminate time-consuming and unsafe hammering, heating or prying. Damage to parts is minimized through the use of controlled hydraulic power.



**Lock-Grip Pullers**

The puller's self-centering closing system allows all jaws to move simultaneously, making it easy for a single operator to mount the puller and to perform the application.

**CAUTION!**

**Not all puller components and configurations are rated at the set capacity. Please contact Enerpac for specific details.**

**Always wear Safety Goggles and Gloves while using pullers.**



# Puller Section Overview

**When selecting a puller it is important to consider three basic specifications:**

**1. Capacity:**

The amount of force the puller is capable of producing.

Typically, the capacity required for a job can be determined by using the shaft diameter of the part being pulled.

For manual pullers, the center bolt diameter of the puller should be at least half the diameter of the shaft being pulled from.

For hydraulic pullers, the capacity in tons should be 7 to 10 times the shaft diameter. Use the following chart:

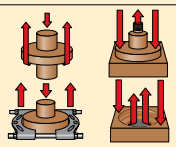
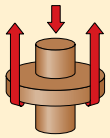
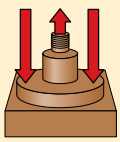
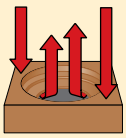
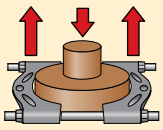
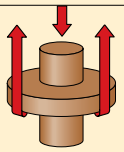
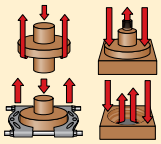
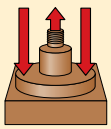
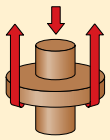
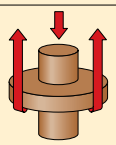
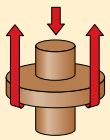
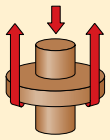
| Shaft Diameter | Puller Capacity |
|---|---|
| 0" to 1" | 14 ton |
| 1" to 2" | 24 ton |
| 2" to 3.5" | 36 ton |
| 3.5" to 5.5" | 50 ton |

**2. Reach:**

The distance between the bottom of the base and the jaw flats. The puller's reach must equal or exceed the same distance of the part being pulled.

**3. Spread:**

The distance between the jaws. The puller's spread needs to be greater than the width of the part being pulled.

| Puller Function | Capacity (tons) | Puller Type | Series | | Page |
|---|---|---|---|---|---|
|  | 14-50 | **Master Puller Sets**<br>Max. Reach: 27.56 in.<br>Spread Range: 43.30 in. | BHP |  | 184 ▶ |
|  | 14-50 | **Grip Puller Sets**<br>Max. Reach: 27.56 in.<br>Spread Range: 43.30 in. | BHP |  | 185 ▶ |
|  | 7-24 | **Cross-Bearing Puller Sets**<br>Max. Reach: 34.00 in.<br>Spread Range: 22.44 in. | BHP |  | 186 ▶<br>193 ▶ |
|  | 7-25 | **Bearing Cup Pullers**<br>Max. Reach: 5.71 in.<br>Spread Range 14.17 in. | BHP |  | 187 ▶ |
|  | 7-25 | **Bearing Separator**<br>Max. Spread: 9.65 in.<br>Max. Width 11.50 in. | BHP |  | 187 ▶ |
|  | 1-20 | **Mechanical Sync Grip Puller**<br>Max. Reach: 4.13-23.62 in.<br>Spread Range: 4.33-26.77 in. | SGM |  | 190 ▶ |
|  | 14-50 | **Hydraulic Sync Grip Puller Sets**<br>Max. Reach: 12.60-27.56 in.<br>Spread Range: 13.78-38.58 in. | MPS<br>GPS |  | 191 ▶<br>192 ▶ |
|  | 14-50 | **Mechanical Lock-Grip Pullers**<br>Max. Reach: 4.02-13.46 in.<br>Spread Range: 5.20-25.00 in. | LGM |  | 194 ▶ |
|  | 10-50 | **Hydraulic Lock-Grip Pullers**<br>Max. Reach: 8.46-16.06 in.<br>Spread Range: 11.81-25.98 in. | LGH |  | 196 ▶ |
|  | 100 | **Hydraulic Lock-Grip Master Pullers Sets**<br>Max. Reach: 8.46-16.06 in.<br>Spread Range: 11.81-25.98 in. | LGHMS |  | 199 ▶ |
|  | 10-50 | **Internal Mechanical Pullers**<br>Max. Reach: 1.77-3.11 in.<br>Spread Range: 0.98-3.94 in. | IPM |  | 200 ▶ |
|  | 100 | **Posi Lock® 100-Ton Puller**<br>Max. Reach: 48.0 in.<br>Spread Range: 7.5-70 in. | EPH |  | 201 ▶ |

▼ Shown: **Master Puller Set BHP3751G**




# Multi-Purpose Puller Set

**WARNING**

**Not all puller components and configurations are rated at the set capacity. Please contact Enerpac for specific details.**

- **Supplied with a full hydraulic set including pump, hose, cylinder, gauge and gauge adaptor in a storage case**
- **High quality, forged steel components provide superior reliability and service**
- **Sets include speed crank and adjusting screw for fast contact to work before hydraulics are applied**
- **All Master Puller Sets include a Grip Puller, a Cross Bearing Puller, a Bearing Cup Puller and a Bearing Separator which can be ordered separately. See items 10, 20, 30 and 40**

▼ *Maintenance engineers throughout the industry greatly appreciate Enerpac Master Puller sets.*



▼ **SELECTION CHART**

| | Master Puller Set Capacity | 14 ton | 24 ton | 36 ton | 50 ton* | Page Number |
|---|---|---|---|---|---|---|
| | Model Number ▶ | **BHP1752** | **BHP2751G** | **BHP3751G** | **BHP5751G** | |
| | **Included Hydraulics: Set Weight ▶** | 82 lbs | 198 lbs | 380 lbs | 657 lbs | |
| | Hand Pump | P142 | P392 | P392 | P80 | **86-89** ▶ |
| | Cylinder | RWH121900 | RCH202 | RCH302 | RCH603 | **34-35** ▶ |
| | Saddle | – | HP2015 | HP3015 | HP5016 | **35** ▶ |
| | Hose | HC7206C | HC7206C | HC7206C | HC7206C | **149** ▶ |
| | Gauge Adaptor Assembly | GA45GC | GA45GC | GA45GC | GA45GC | **162** ▶ |
| | **Included Pullers:** | | | | | |
| **10** | Grip Puller | BHP1762 | BHP252 | BHP352 | BHP552 | **185** ▶ |
| **20** | Cross Bearing Puller | BHP1772 | BHP262 | BHP362 | BHP562 | **186** ▶ |
| **30** | Bearing Cup Puller | BHP180 | BHP280 | BHP380 | BHP580 | **187** ▶ |
| **40** | Bearing Separator | BHP181 | BHP282 | BHP382 | BHP582 | **187** ▶ |

* Puller capacity at 7,850 psi

▼ Shown: **Grip Puller Set BHP351G**




# BHP
## Series

Capacity:
**14, 24, 36 and 50 tons**

Maximum Reach:
**9.92 - 27.56 inches**

Spread Range:
**9.84 - 43.30 inches**

Maximum Operating Pressure:
**10,000 psi**

**WARNING**

**Not all puller components and configurations are rated at the set capacity. Please contact Enerpac for specific details.**

- **Precise hydraulic control allows fast, efficient and safe pulling**
- **High quality, forged steel components provide superior reliability and service**
- **Available with and without full hydraulic set**

**Ordering Example**

**Model Number BHP251G:**

Includes Grip Puller BHP252 and a full hydraulic set. (Hand pump, cylinder, saddle, hose, gauge and gauge adaptor.)

**Model Number BHP252:**

Includes Grip Puller mechanical parts **only,** for use with your existing hydraulics.

▼ **SELECTION CHART**

| **Grip Puller Set Capacity** | | | **14 ton** | **24 ton** | **36 ton** | **50 ton**** |
|---|---|---|---|---|---|---|
| **Model Number** | | **Included ▶** | **BHP152** | **BHP251G** | **BHP351G** | **BHP551G** |
| **Hydraulics:** | | **set weight ▶** | 48 lbs | 123 lbs | 200 lbs | 353 lbs |
| Hand Pump | | | P142 | P392 | P392 | P80 |
| Cylinder | | | RWH121900 | RCH202 | RCH302 | RCH603 |
| Saddle | | | – | HP2015 | HP3015 | HP5016 |
| Hose | | | HC7206C | HC7206C | HC7206C | HC7206C |
| Gauge Assembly Adaptor | | | GA45GC | GA45GC | GA45GC | GA45GC |
| **10 Grip Puller *** | **Model Number ▶** | | **BHP1762*** | **BHP252*** | **BHP352*** | **BHP552*** |
| Spread Range (in) | | 2-jaw | 9.84 | 15.75 | 23.38 | 35.43 |
| | | 3-jaw | 9.84 | 19.68 | 31.50 | 43.30 |
| Maximum Reach (in) | | 2-jaw | 9.92 | 11.81 | 15.25 | 27.56 |
| | | 3-jaw | 9.92 | 11.81 | 15.25 | 27.56 |
| Jaw (in) | | Thickness | 0.59 | 0.79 | 0.98 | 1.18 |
| | | Width | 0.94 | 1.10 | 1.50 | 1.57 |
| Adjusting Screw (in) | | Thread | ¾"-16 UNF | 1"-8 UNC | 1¼"-7 UNC | 1⅝"-5.5 UNS |
| | | Length | 15.75 | 26.38 | 31.16 | 38.39 |

* Grip Puller model number without hydraulics.
** Puller capacity at 7,850 psi

▼ Shown: **Cross-Bearing Puller Set BHP361G**




**BHP Series**

Capacity:
**7, 12, 18 and 25 tons**

Maximum Reach:
**14.06 - 34.00 inches**

Maximum Spread Range:
**10.24 - 22.83 inches**

Maximum Operating Pressure:
**5000 psi**

**WARNING!**
**Not all puller components and configurations are rated at the set capacity. Please contact Enerpac for specific details.**

- **Precise hydraulic control allows fast, efficient and safe pulling**
- **High quality, forged steel components provide superior reliability and service**
- **The Cross-Bearing Puller without hydraulics, Bearing Cup Puller and Bearing Puller may be ordered separately. See items 20, 30 and 40**

| Cross Bearing Puller Sets | | | |
|---|---|---|---|
|  |  |  |  |
| **P142** Hand Pump | **XA11G** Air Pump | **PUD1300** Electric Pump | **XC1201M** Cordless Pump |
| **BHP162** | **BHP162A** | **BHP162E*** | **BHP162C*** |
| **BHP261G** | **BHP261GA** | **BHP261GE*** | **BHP261GC*** |
| **BHP361G** | **BHP361GA** | **BHP361GE*** | **BHP361GC*** |
| **BHP561G** | **BHP561GA** | **BHP561GE*** | **BHP561GC*** |

*For 115 V application add "B" suffix
For 230 V application add "E" suffix

▼ **SELECTION CHART** – Each set includes all items in columns*

| | Cross-Bearing Puller Set Capacity | | 7 ton | 12 ton | 18 ton | 25 ton |
|---|---|---|---|---|---|---|
| | | * SET Model Number ▶ | **BHP162** | **BHP261G** | **BHP361G** | **BHP561G** |
| | **Included Hydraulics:** | **set weight ▶** | 57 lbs | 137 lbs | 267 lbs | 408 lbs |
| | Hand Pump | | P142 | P392 | P392 | P80 |
| | Cylinder | | RWH121900 | RCH202 | RCH302 | RCH603 |
| | Saddle | | – | HP2015 | HP3015 | HP5016 |
| | Hose | | HC7206C | HC7206C | HC7206C | HC7206C |
| | Gauge | | GA45GC | GA45GC | GA45GC | GA45GC |
| **20** | **SET includes Cross-Bearing Puller** | **Model Number ▶** | **BHP1772** | **BHP262** | **BHP362** | **BHP562** |
| | Spread (in) | Maximum | 10.24 | 13.58 | 17.32 | 22.83 |
| | | Minimum | 4.53 | 5.51 | 7.09 | 8.66 |
| | Reach (in) | Maximum | 14.06 | 22.44 | 27.95 | 34.00 |
| | Adjusting Screw (in) | Diameter | ¾"-16 UNF | 1"-8 UNC | 1¼"-7 UNC | 1⅝"-5.50 UNS |
| | | Length | 15.75 | 26.38 | 31.10 | 38.39 |
| | Leg (in) | Length | 4.17 | 4.53 | 8.07 | 23.98 |
| | | Length | 14.06 | 9.45 | 18.11 | 34.02 |
| | | Length | – | 16.54 | 27.95 | – |
| | | Length | – | 22.44 | – | – |
| | Upper Leg Ends (in) | Thread | ¾"-16 UNF | ¾"-16 UNF | 1"-14 UNS | 1¼"-12 UNF |
| | Lower Leg Ends (in) | Thread | ⅝"-18 UNF | ⅝"-18 UNF | 1"-14 UNS | 1¼"-12 UNF |
| **30** | **SET includes Bearing Cup Puller** | **Model Number ▶** | **BHP180** | **BHP280** | **BHP380** | **BHP580** |
| **40** | **SET includes Bearing Separator** | **Model Number ▶** | **BHP181** | **BHP282** | **BHP382** | **BHP582** |
| | SET includes Wooden Case | **Model Number ▶** | **CW166** | **CW166** | **CW550** | **CW750** |

* Each set includes Cross-Bearing Puller, Bearing Cup Puller, Bearing Separator and Case

▼ Shown: **BHP180**



## Bearing Cup Puller

- **Made of high strength steel alloy**
- **Easily adapted to Cross Bearing Pullers for fast and efficient removal of the most difficult parts**
- **Adjustable to fit a variety of bearings and seals**

**BHP**
**Series**

Capacity:
**7, 12, 18 and 25 tons**

Maximum Reach:
**4.53 - 5.91 inches**

Maximum Spread Range:
**5.71 - 9.45 inches**

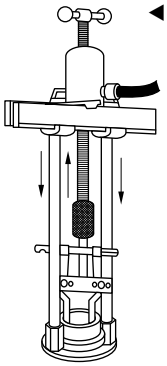
Maximum Operating Pressure:
**5000 psi**

▼ **SELECTION CHART**

| Capacity* | | 7 ton | 12 ton | 18 ton | 25 ton |
|---|---|---|---|---|---|
| **30 Bearing Cup Puller** | | | | | |
| **Model Number ▶** | | **BHP180** | **BHP280** | **BHP380** | **BHP580** |
| Spread (in) | Max. | 5.71 | 6.30 | 9.45 | 9.45 |
| | Min. | 1.57 | 1.26 | 2.36 | 2.36 |
| Reach (in) | Max. | 4.53 | 5.51 | 5.91 | 5.91 |
| Center Screw | Thread | ¾"-16 UNF | 1"-8 UNC | 1¼"-7 UNC | 1⅝"-5.50 UNS |

* Bearing cup puller rated at 50% of puller capacity.

**WARNING!**
**Do not exceed 50% of the rated puller capacity when using a double crosshead (2 grip arms) or when using puller legs in combination with bearing puller attachment.**



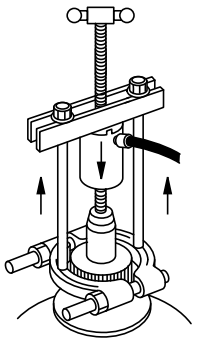
◀ *Bearing Cup Puller shown with Cross Bearing Puller attachment.*

▼ Shown: **BHP181**



## Bearing Separator

- **Made of high strength steel alloy**
- **Wedge-shaped edges allow removal of the most hard-to-grip components**
- **Easily adapted to Cross Bearing Pullers for fast and efficient removal of the most difficult parts**



*Bearing Separator shown with Cross Bearing Puller attachment.* ▶

▼ **SELECTION CHART**

| Capacity** | | 7 ton | 12 ton | 18 ton | 25 ton |
|---|---|---|---|---|---|
| **40 Bearing Separator** | | | | | |
| **Model Number ▶** | | **BHP181** | **BHP282** | **BHP382** | **BHP582** |
| Spread (in) | Max. | 4.33 | 5.28 | 9.84 | 9.84 |
| | Min. | 0.39 | 0.47 | 0.67 | 0.67 |
| Width (in) | | 4.33 | 6.10 | 10.24 | 10.24 |
| Thread | | ⅝"-18 UNF | ⅝"-18 UNF | 1"-14 UNS | 1¼"-12 UNF |

* Bearing separator rated at 50% of puller capacity.

**Bearing Separator**

Bearing Separator has wedge shaped edges for placing puller behind hard to reach bearings, gears, etc., where clearance prevents direct application of grip puller arms.

The Bearing Separator should be used with the Cross Bearing Puller.

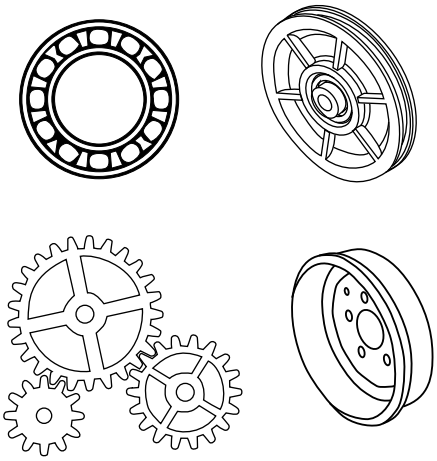
## OVERVIEW

**The Enerpac Sync Grip multi-purpose puller range is designed to make your jobs easier and safer to accomplish.**

**Remove bearings, bushings, gears, sleeves, wheels and flywheels, sprockets and other shaft mounted items simply and effectively.**

**Mechanical and hydraulic configurations are available with a variety of optional accessories that expand application range and increase utility.**

**Hydraulic models are available in standard sets which include detachable hydraulic cylinders and a choice of pump options, along with a gauge assembly and hose for safe monitoring of applied pulling forces.**



**Always wear safety goggles and gloves while using pullers.**

**WARNING!**
**Do not exceed 50% of the rated puller capacity when using two jaw configurations.**

### ▼ DIMENSIONAL DATA

| Puller Capacity | Puller Model No. | Sync-Grip Pullers Dimensions (in) | | | | | | | | Wt.*** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Standard Reach Jaws | | Optional Extended Reach Jaws | | Jaw Tip | | | Jaw Hole Spacing | |
| | | Max. Reach | Max. Spread | Max. Reach | Max. Spread | Height | Width | Thickness | | |
| (ton) | | A | B | A | B | D | E | F | (in) | (lbs) |
| **Mechanical Pullers** | | | | | | | | | | |
| 1 | SGM01* | 4.13 | 4.33 | — | — | 0.31 | 0.28 | 0.30 | 0.75 | 1.8 |
| 4 | SGM04* | 7.28 | 6.89 | — | — | 0.30 | 0.31 | 0.83 | 2.01 | 4.4 |
| 7 | SGM07* | 8.86 | 9.45 | — | — | 0.39 | 0.31 | 0.98 | 1.75 | 14.3 |
| 10 | SGM10* | 16.14 | 13.78 | 19.29 | 15.94 | 0.49 | 0.59 | 0.98 | 3.27 | 32.0 |
| 20 | SGM20 | 23.62 | 26.77 | 25.20 | 28.35 | 0.87 | 0.94 | 1.61 | 4.92 | 122.3 |
| **Hydraulic Pullers** | | | | | | | | | | |
| 14 | SGH14* | 12.60 | 13.78 | 15.75 | 15.94 | 0.49 | 0.59 | 0.98 | 3.27 | 55.1 |
| 24 | SGH24 | 12.60 | 18.90 | 17.13 | 21.26 | 0.61 | 0.69 | 1.22 | 4.53 | 108.0 |
| 36 | SGH36 | 16.14 | 25.59 | 20.67 | 28.35 | 0.87 | 0.94 | 1.61 | 4.92 | 165.3 |
| 50** | SGH64 | 27.56 | 38.58 | 33.46 | 42.52 | 1.18 | 1.06 | 1.97 | 5.91 | 363.7 |
| 100 | SGH100 | 39.37 | 63.00 | — | — | 1.79 | 1.94 | 2.76 | 9.84 | 842 |

* Puller can be set up as a 2 or 3 jaw configuration.
** Puller capacity at 7,850 psi, maximum cylinder capacity @ 10,000 psi is 64.6 tons.
*** With standard legs and cylinder for hydraulic models



Sync-Grip Pullers: available in both mechanical or hydraulic versions. Some models can be configured as a two jaw puller, however, three jaws are recommended for most even distribution of pulling forces.



Cross Puller: hydraulically powered via detachable cylinder and choice of pump. The Cross Puller can be used individually as a 'push' puller or in conjunction with the Bearing Separator or Bearing Cup Puller.



Bearing Separator: use where access is restricted. The Bearing Separator is used in conjunction with the Cross Puller.



Bearing Cup Puller: specifically designed for cup style bearing and other applications requiring an internal style puller.

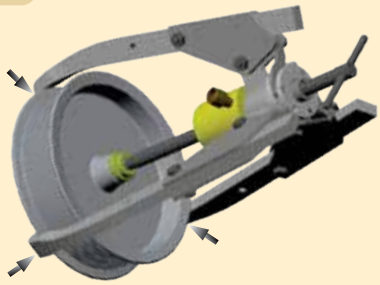


Detachable Hollow Cylinder: provided with all hydraulic puller models including both the standard Sync Grip and Cross Puller.



In Sync Grip, Cross Bearing and Master Puller Sets, a hose and gauge are provided as standard along with your choice of pump; including manual hand operated, cordless battery powered, electric or air powered. In each case the pump selection has been optimized for compatibility with the pullers.

**Easy To Use**



**Simple, Safe, Productive**

All three jaws close simultaneously making the puller easier and safer to operate.

The synchronous feature of the SGM and SGH-Series Pullers makes positioning the puller simple and helps prevent misalignment.

## ▼ DIMENSIONAL DATA

| Cross Puller Dimensions (in) | | | Wt.** | Bearing Separator Dims. (in) | | | | Wt. | Bearing Cup Dimensions (in) | | | | | | | | Wt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Spread Range | | | | Jaw Tip | | | | |
| Standard Leg Height | Long Leg Height | Maximum Spread | | Dia. | Spread Range | | Thread Size | | Height | Height | Min. Spread | Max. Spread | Height | Width | Thickness | | |
| | | | | | Min. Spread | Max. Spread | | | | | | | | | | | |
| A | A | B | (lbs) | A | B | B | C | (lbs) | A | B | C | C | D | E | F | (lbs) |
| **Mechanical Pullers** | | | | **Mechanical Pullers** | | | | | **Mechanical Pullers** | | | | | | | | |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| **Hydraulic Pullers** | | | | **Hydraulic Pullers** | | | | | **Hydraulic Pullers** | | | | | | | | |
| 4.17 | 14.06 | 10.24 | 40.77 | 4.33 | 0.39 | 4.33 | 5/8"- 18 UNF | 6.0 | 4.53 | 9.33 | 1.57 | 5.71 | 0.20 | 0.18 | 1.22 | 4.41 |
| 4.53 | 22.44 | 13.58 | 76.04 | 6.10 | 0.47 | 5.28 | 5/8"- 18 UNF | 12.6 | 5.51 | 10.47 | 1.26 | 6.30 | 0.18 | 0.18 | 0.98 | 5.29 |
| 8.07 | 27.95 | 17.32 | 123.42 | 10.24 | 0.67 | 9.84 | 1" - 14 UNS | 62.8 | 5.91 | 12.20 | 2.36 | 9.45 | 0.31 | 0.43 | 2.17 | 13.22 |
| 23.97 | 34.01 | 22.83 | 250.15 | 10.24 | 0.67 | 9.84 | 1-1/4"- 12 UNF | 62.8 | 5.91 | 12.20 | 2.36 | 9.45 | 0.31 | 0.43 | 2.17 | 14.11 |
| — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |

** With cylinder and standard legs

▼ Shown: **SGM10 with three jaws**



# SGM
## Series

Puller Capacity:
**1 - 20 tons**

Maximum Reach:
**4.1 - 23.6 inches**

Maximum Spread:
**4.3 - 26.8 inches**

- **Sync Grip mechanism synchronizes movement of all jaws for simultaneous engagement, helping to prevent misalignment for safe and easy use**
- **Threaded spindle and jaw indexes provide adjustable reach**
- **Three-jaw configuration for even load distribution**
- **Two-jaw configuration for confined access applications available on all pullers 10 ton and below (not available on SGM20)**
- **High-strength forged jaws for superior reliability**
- **Suitable for a variety of applications including bearings, bushings, wheels, gears and pulleys**

**Dimensions**
Dimensional information for all puller models is included in the dimensional overview table:

*Page:* 188

**WARNING!**
**Do not exceed 50% of the rated puller capacity when using two jaw configurations.**

▼ *SGM10 with two jaws.*



▼ **DIMENSIONAL DATA**

| Puller Capacity (ton) | Puller Model No. | Dimensions (in) Max. Reach A | Max. Spread B | Weight (lbs) | Long Jaw Sets Model No.* | Dimensions (in) Max. Reach A | Max. Spread B |
|---|---|---|---|---|---|---|---|
| 1 | **SGM01** | 4.13 | 4.33 | 1.8 | – | — | — |
| 4 | **SGM04** | 7.28 | 6.89 | 4.4 | – | — | — |
| 7 | **SGM07** | 8.86 | 9.45 | 14.3 | – | — | — |
| 10 | **SGM10** | 16.14 | 13.78 | 32.0 | **SG1002K** | 19.29 | 15.94 |
| 20 | **SGM20** | 23.62 | 26.77 | 122.3 | **SG3002K** | 25.20 | 28.35 |

* Jaw sets include three jaws.

# Hydraulic Sync-Grip Master Puller Sets

▼ Shown: **MPS14H**




## MPS
### Series

Puller Capacity:
**14 - 50 tons**

Maximum Reach:
**12.6 - 27.6 inches**

Maximum Spread:
**13.8 - 38.6 inches**

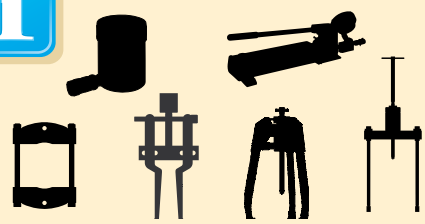
Maximum Operating Pressure:
**10,000 psi**

- **Sync Grip mechanism synchronizes movement of all jaws for simultaneous engagement**
- **Hydraulically applied pulling force increases pulling capacity reducing operator fatigue**
- **Standard jaws adjust to accommodate different reach requirements. Optional long jaw sets available for additional reach requirements**
- **Designed for applications including pulling, pushing and dismounting gears, bearings, bushings, etc.**

**Dimensions**
Dimensional information for all puller models is included in the dimensional overview table:

*Page:* 188

**Sets Include:**[1)]



[1)] Choose pump options below.

▼ **DIMENSIONAL DATA**

| Puller Capacity (ton) | Model No. (Puller and Cylinder) | Stroke (in) | Dimensions (in) Max. Reach A | Dimensions (in) Max. Spread B | Wt. (lbs) | Hydraulic Puller Sets: Hand Pump | Air Pump | Electric Pump | Cordless Pump | All Sets Include: | Long Jaw Sets Model No.*** | Dimensions (in) Max. Reach A | Dimensions (in) Max. Spread B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | **SGH14** | 1.0 | 12.60 | 13.78 | 55.1 | **MPS14H** | **MPS14A** | **MPS14E** | **MPS14C** | * | **SG1002K** | 15.75 | 15.94 |
| 24 | **SGH24** | 2.0 | 12.60 | 18.90 | 108.0 | **MPS24H** | **MPS24A** | **MPS24E** | **MPS24C** | **GA45GC** | **SG2002K** | 17.13 | 21.26 |
| 36 | **SGH36** | 2.5 | 16.14 | 25.59 | 165.3 | **MPS36H** | **MPS36A** | **MPS36E** | **MPS36C** | **&** | **SG3002K** | 20.67 | 28.35 |
| 50** | **SGH64** | 3.0 | 27.56 | 38.58 | 363.7 | **MPS64H** | **MPS64A** | **MPS64E** | **MPS64C** | **HC7206C** | **SG6002K** | 33.46 | 42.52 |

* 14-ton sets include an AR630 female coupler, GA45 gauge adaptor, and G2535L gauge.
** Puller capacity at 7,850 psi, maximum cylinder capacity @ 10,000 psi is 64.6 tons.
*** Jaw sets include three jaws.

For 115 V application add "B" suffix
For 230 V application add "E" suffix

# Hydraulic Sync-Grip Puller Sets

ENERPAC

▼ Shown: **GPS14H**




## GPS Series

Puller Capacity:
**14 - 100 tons**

Maximum Reach:
**12.6 - 39.4 inches**

Maximum Spread:
**13.8 - 63.0 inches**

Maximum Operating Pressure:
**10,000 psi**

- **Sync Grip mechanism synchronizes movement of all jaws for simultaneous engagement**
- **Hydraulically applied pulling force increases pulling capacity and reduces operator fatigue**
- **Threaded spindle and jaw indexes provide adjustable reach**
- **Three-jaw configuration for even load distribution**
- **High-strength forged jaws for superior reliability**
- **The versatile puller set facilitates safe and easy dismounting in a variety of applications**

**Dimensions**
Dimensional information for all puller models is included in the dimensional overview table:

*Page:* 188

**Sets Include:[1)]**



[1)] Choose pump options below.

### ▼ DIMENSIONAL DATA

| Puller Capacity (ton) | Model No. (Puller and Cylinder) | Stroke (in) | Dimensions (in) Max. Reach A | Dimensions (in) Max. Spread B | Wt. (lbs) | Hydraulic Puller Sets: Hand Pump | Air Pump | Electric Pump | Cordless Pump | All Sets Include: | Long Jaw Sets Model No.*** | Dimensions (in) Max. Reach A | Dimensions (in) Max. Spread B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | SGH14 | 1.0 | 12.60 | 13.78 | 55.1 | GPS14H | GPS14A | GPS14E | GPS14C | * | SG1002K | 15.75 | 15.94 |
| 24 | SGH24 | 2.0 | 12.60 | 18.90 | 108.0 | GPS24H | GPS24A | GPS24EE | GPS24CC | GA45GC & HC7206C | SG2002K | 17.13 | 21.26 |
| 36 | SGH36 | 2.5 | 16.14 | 25.59 | 165.3 | GPS36H | GPS36A | GPS36E | GPS36C | | SG3002K | 20.67 | 28.35 |
| 50** | SGH64 | 3.0 | 27.56 | 38.58 | 363.7 | GPS64H | GPS64A | GPS64E | GPS64C | | SG6002K | 33.46 | 42.52 |
| 100 | SGH100 | 3.0 | 39.37 | 63.00 | 842.0 | — | — | GPS100E | — | | — | — | — |

* 14-ton sets include an AR630 female coupler, GA45 gauge adaptor, and G2535L gauge.
** Puller capacity at 7,850 psi, maximum cylinder capacity @ 10,000 psi is 64.6 tons.
*** Jaw sets include three jaws.

For 115 V application add "B" suffix
For 230 V application add "E" suffix

# Cross-Bearing Puller Sets

▼ Shown: **Cross-Bearing Puller Set BHP361G**




- **Precise hydraulic control allows fast, efficient and safe pulling**
- **High-quality forged components provide superior reliability and service**
- **Quick set-up to tackle a variety of jobs**

## BHP
### Series

Puller Capacity:
**7 - 25 tons**

Maximum Reach:
**14.1 - 34 inches**

Maximum Spread:
**10.2 - 22.8 inches**

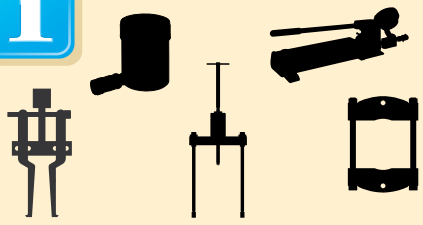
Maximum Operating Pressure:
**10,000 psi**

**WARNING!**
**Enerpac cylinder and pump can be operated to 10,150 psi, but should not be operated past 5,075 psi when using the cross bearing puller set tools.**

**Dimensions**
Dimensional information for all puller models is included in the dimensional overview table:

*Page:* 188

**Sets Include:**[1)]



[1)] Choose pump options below.

▼ **DIMENSIONAL DATA**

| Puller Capacity* (ton) | Cross-Bearing Only Model No. | Stroke (in) | Dimensions (in) Maximum Reach A | Dimensions (in) Maximum Spread B | Cross Bearing Puller Sets Hand Pump | Air Pump | Electric Pump | Cordless Pump |
|---|---|---|---|---|---|---|---|---|
| 7 | **BHP1772** | 1.0 | 14.06 | 10.24 | **BHP162** | **BHP162A** | **BHP162E** | **BHP162C** |
| 12 | **BHP262** | 2.0 | 22.44 | 13.58 | **BHP261G** | **BHP261GA** | **BHP261GE** | **BHP261GC** |
| 18 | **BHP362** | 2.5 | 27.95 | 17.32 | **BHP361G** | **BHP361GA** | **BHP361GE** | **BHP361GC** |
| 25 | **BHP562** | 3.0 | 34.01 | 22.83 | **BHP561G** | **BHP561GA** | **BHP561GE** | **BHP561GC** |

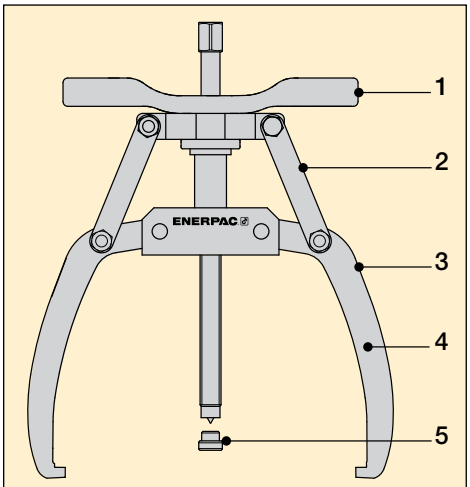
* Cross Puller, Bearing Cup Puller and Bearing Separator rated at 50% of Grip Puller capacity.

For 115 V application add "B" suffix
For 230 V application add "E" suffix

▼ Shown: **2 and 3-Jaw Mechanical Lock-Grip Pullers**



- **Quickly and easily mount on a wide range of applications**
- **Lock-on jaws offer a secure grip for safe and easy operation**
- **Synchronous jaw movement enables entire pulling job to be performed by a single operator**
- **Available in 2 and 3-jaw configurations**




1. Convenient adjustment handle simplifies positioning of jaws on application and increases speed of operation.
2. Locking mechanism helps prevent puller jaws from slipping off application during pulling process.
3. Greater spreading width on top portion of jaws enables use on thicker objects.
4. Synchronous jaw movement increases ease of use, allowing one operator to mount the tool and perform the pulling application.
5. Point protector helps prevent damage to spindle when pulling against a flat surface.

▼ *Lock-Grip Pullers – the simple, safe and cost-effective way to remove shaft-mounted parts.*



# Mechanical Lock-Grip Pullers

LGM-Series Pullers are an ideal solution for pulling small to medium-size wheels, sprockets, bearings and other similar shaft-mounted parts. The puller's self- centering closing system allows all jaws to move simultaneously, making it easy for a single operator to mount the puller and to perform the application.

Turning the puller handle locks the jaws onto the application, allowing the desired object to be pulled free when the spindle is turned.

## LGM Series

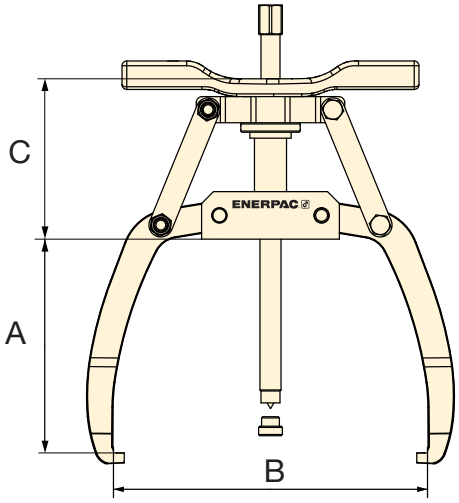


Puller Capacity:
**3 - 40 tons**

Maximum Reach:
**4.02 - 13.19 inches**

Maximum Spread:
**5.20 - 25 inches**

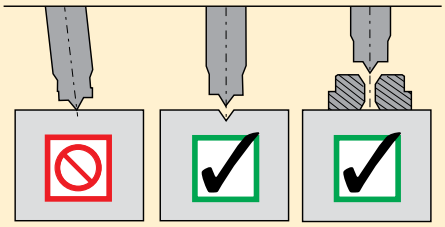
**IMPORTANT!**
**Always wear safety goggles and gloves while using pullers.**




**Point Protector**

LGM-Series Pullers MUST be used with a point protector if the shaft end does not contain a drilled center hole.

One point protector is included with every puller.



## ▼ SELECTION CHART

| Puller Model No. | Dimensions (in) | | | | Number of Jaws | Puller Capacity | Maximum Torque | Weight | Replacement Point Protector Item Number |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum Reach A | Minimum Spread Dia. B | Maximum Spread Dia. B | C | | (ton) | (ft-lbs) | (lbs) | |
| **LGM203** | 4.02 | 1.10 | 5.20 | 2.36 | 2 | 3 | 30 | 3.74 | **SGM0404** |
| **LGM305** | 4.02 | 1.10 | 5.20 | 2.36 | 3 | 5 | 50 | 4.62 | |
| **LGM204** | 5.59 | 1.18 | 7.32 | 3.54 | 2 | 4 | 50 | 5.50 | |
| **LGM306** | 5.59 | 1.18 | 7.32 | 3.54 | 3 | 6 | 74 | 6.82 | |
| **LGM207** | 6.97 | 1.38 | 10.24 | 5.28 | 2 | 7 | 87 | 10.78 | **SGM0704** |
| **LGM308** | 6.97 | 1.38 | 10.24 | 5.28 | 3 | 8 | 99 | 15.18 | |
| **LGM211** | 8.46 | 3.31 | 11.81 | 4.96 | 2 | 11 | 150 | 14.74 | |
| **LGM318** | 8.46 | 4.33 | 15.35 | 5.51 | 3 | 18 | 245 | 21.56 | |
| **LGM324** | 10.43 | 4.33 | 18.11 | 5.51 | 3 | 24 | 327 | 30.64 | **LGH14K6** |
| **LGM340** | 13.19 | 3.94 | 25.00 | 7.68 | 3 | 40 | 735 | 79.37 | **LGH24K6** |

# LGH-Series, Hydraulic Lock-Grip Pullers ENERPAC

▼ Shown: **2 and 3-Jaw Hydraulic Lock-Grip Pullers**

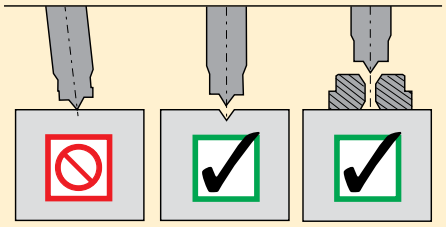


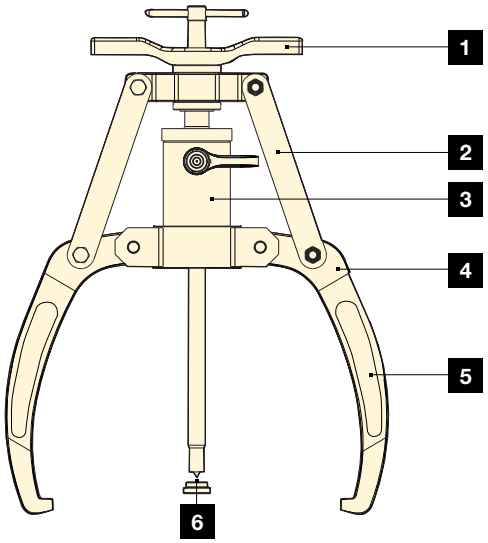
- **Quickly and easily mount on a wide range of applications**
- **Hydraulically applied pulling force increases pulling capacity, reducing operator fatigue**
- **Lock-on jaws offer a secure grip for safe and easy operation**
- **Synchronous jaw movement enables entire pulling job to be performed by a single operator**
- **Available in 2 and 3-jaw configurations with or without a detachable hollow cylinder**

**Point Protector**

LGH-Series Pullers MUST be used with a point protector if the shaft end does not contain a drilled center hole.

One point protector is included with every puller.






1. Convenient adjustment handle simplifies positioning of jaws on application and increases speed of operation.
2. Locking mechanism helps prevent jaws from slipping off application during pulling process.
3. Detachable hollow cylinder offers increased pulling capacity compared to mechanical alternatives.
4. Greater spreading width on jaws enables use on thicker objects.
5. Synchronous jaw movement increases ease of use, allowing one operator to mount the tool and perform the pulling application.
6. Point protector helps prevent damage to spindle when pulling against a flat surface.

# Hydraulic Lock-Grip Pullers

LGH-Series Pullers provide the same safety and ease of use as their mechanical counterparts, with the pulling force applied by a standard 10,150 psi hydraulic cylinder. LGH-Series Pullers can apply up to 64 tons of force and are perfect for removing larger shaft-mounted objects up to 26 inches in diameter.

Turning the puller handle locks the jaws onto the application, allowing the desired object to be pulled free when the spindle is turned.

## LGH Series



Puller Capacity:
**10 - 64 tons**

Maximum Reach:
**8.46 - 16.06 inches**

Maximum Spread:
**11.81 - 25.98 inches**

Maximum Operating Pressure:
**10,150 psi**

**IMPORTANT!**
**Always wear safety goggles and gloves while using pullers.**

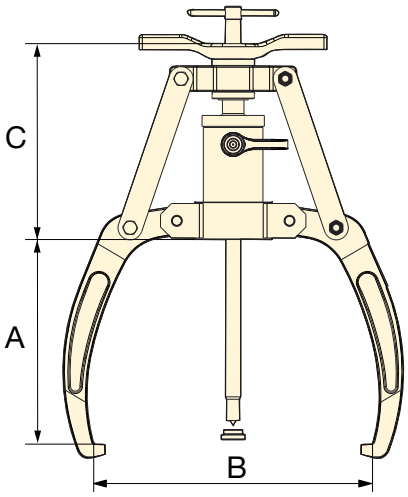
**Model Numbers Without a Cylinder**

To order a puller without cylinder, add "NC" after "LGH".

Example: LGHNC210

**Sets Include:[1) 2)]**






[1)] Choose pump options below.
[2)] All sets include hose model number HC7206C.

### ▼ DIMENSIONAL DATA

| Puller Model No.* | Dimensions (in) Max. Reach A | Min. Spread Dia. B | Max. Spread Dia. B | C | No. of Jaws | Puller Cap. (ton) | Wt. (lbs) | Replacement Point Protector Item Number | Hydraulic Puller Sets[1) 2)] Hand Pump (P392) Gauge (GA45GC) | Air Pump (XA11G) Integrated Gauge | Electric Pump (PUD1300) Gauge (G2535L) | Cordless Pump (XC1201M) Gauge (GA45GC) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LGH210** | 8.46 | 3.31 | 11.81 | 7.56 | 2 | 10 | 22.66 | **SGM0704** | — | — | — | — |
| **LGH310** | 8.46 | 3.31 | 11.81 | 7.56 | 3 | 10 | 27.94 | **SGM0704** | **LGHS310H** | **LGHS310A** | **LGHS310E** | **LGHS310C** |
| **LGH214** | 10.24 | 4.92 | 14.96 | 7.32 | 2 | 14 | 31.24 | **LGH14K6** | — | — | — | — |
| **LGH314** | 10.24 | 4.92 | 14.96 | 7.32 | 3 | 14 | 40.04 | **LGH14K6** | **LGHS314H** | **LGHS314A** | **LGHS314E** | **LGHS314C** |
| **LGH224** | 13.23 | 6.50 | 18.90 | 12.80 | 2 | 24 | 82.28 | **LGH24K6** | — | — | — | — |
| **LGH324** | 13.23 | 6.50 | 18.90 | 12.80 | 3 | 24 | 104.06 | **LGH24K6** | **LGHS324H** | **LGHS324A** | **LGHS324E** | **LGHS324C** |
| **LGH253** | 16.06 | 9.06 | 25.98 | 18.62 | 2 | 53 | 243.76 | **LGH253K6** | — | — | — | — |
| **LGH364** | 16.06 | 9.06 | 25.98 | 18.62 | 3 | 64 | 306.90 | **LGH253K6** | **LGHS364H** | **LGHS364A** | **LGHS364EB** | **LGHS364C** |

*Standard models include cylinder. To receive puller without cylinder add "NC" after LGH (Example: LGHNC210).

For 115 V application add "B" suffix
For 230 V application add "E" suffix

# Hydraulic Lock-Grip Master Puller Sets

ENERPAC

**Master Puller Set includes a hydraulic puller, cylinder, a pump with hose and gauge for standard pulling applications, as well as a selection of accessories designed for work environments where clearance prevents a direct application of the puller jaws.**



**Lock-Grip Pullers:** All sets come with a hydraulic LGH-Series Puller. Both two jaw and three jaw versions are available.



**Detachable Hollow Cylinder:** Provided with all hydraulic pullers as well as the Cross Puller.



**Pump with Hose and Gauge:** Puller Sets and Master Puller Sets are supplied with a hose, gauge, and your choice of a hand, air, electric or cordless pump.



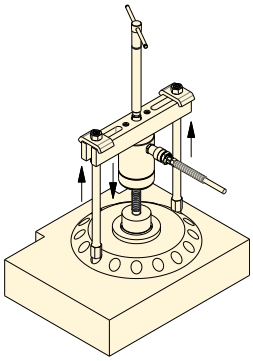
**Cross Puller:** Hydraulically powered via a detachable hydraulic cylinder and pump. The Cross Puller can be used individually as a 'push' puller, or in conjunction with the Bearing Separator or Bearing Cup Puller.



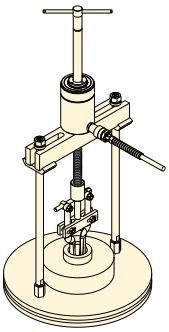
**Bearing-Cup Puller:** Specifically designed to pull cup style bearings and other applications requiring an internal style puller.



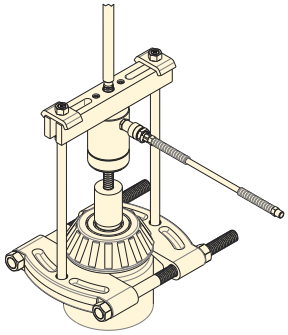
**Bearing Separator (used with Cross Bearing Puller):** Features narrow edges, which enable puller to be placed behind hard to reach bearings, gears, etc., where limited clearance prevents the direct application of puller arms.



▲ *Cross Puller on application*



▲ *Cross Puller with Bearing Cup Puller on application*



▲ *Cross Puller with Bearing Separator on application*

**▼ DIMENSIONAL DATA**

| Puller Model No. | Cross Puller Dimensions (in) | | | | | Thread Size | Wt.* |
|---|---|---|---|---|---|---|---|
| | Model No. | A | Min. B | | C | | (lbs) |
| LGH310 | BHP112 | 11.02 | 4.53 | | 5/8"-18 UNF | | 4.40 |
| LGH314 | BHP172 | 11.02 | 4.53 | | 5/8"-18 UNF | | 4.62 |
| LGH324 | BHP272 | 14.57 | 5.51 | | 5/8"-18 UNF | | 5.28 |
| LGH364 | BHP672 | 24.21 | 8.66 | | 1 1/4"-12 UNF-2A | | 14.08 |

| Bearing Separator Dimensions (in) | | | | Wt. |
|---|---|---|---|---|
| Model No. | A | Min. B | Max. B | (lbs) |
| BHP181 | 4.33 | 0.39 | 4.33 | 6.16 |
| BHP282 | 6.14 | 0.47 | 5.28 | 12.54 |
| BHP292 | 7.17 | 0.51 | 8.27 | 27.5 |
| BHP682 | 11.81 | 0.79 | 11.81 | 95.7 |

| Bearing Cup Puller Dimensions (in) | | | | | Wt. |
|---|---|---|---|---|---|
| Model No. | A | B | Min. C | Max. C | (lbs) |
| BHP180 | 5.31 | 9.29 | 1.57 | 5.71 | 4.4 |
| BHP190 | 6.46 | 10.43 | 1.57 | 5.71 | 4.62 |
| BHP280 | 6.46 | 10.43 | 1.57 | 5.71 | 5.28 |
| BHP580 | 5.91 | 12.20 | 2.36 | 9.45 | 14.08 |

* With slotted crosshead, cylinder, and spindle

# Hydraulic Lock-Grip Master Puller Sets

▼ Shown: **LGHMS Master Puller Set with Hand Pump Option**




## LGHMS
### Series

Puller Capacity:
**10 - 64 tons**

Maximum Reach:
**8.46 - 16.06 inches**

Maximum Spread:
**11.81 - 25.98 inches**

Maximum Operating Pressure:
**10,150 psi**

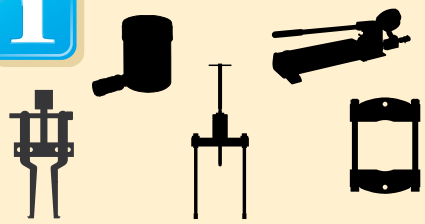
**WARNING!**
**Enerpac cylinders and pumps can be operated to 10,150 psi, but should not be operated past 5,000 psi when using the Cross Bearing Puller Set tools.**

- **All LGHMS-Series Master Puller Sets include an LGH-Series Puller, a Cross Puller, a Bearing Separator, a Bearing Cup Puller, a detachable Hollow Cylinder, a hose, a gauge and a pump**
- **Set options include hand, air, electric and cordless pumps for an optimal solution to every application**

**Dimensions**
Dimensional information for all puller models is included in the dimensional overview table:

*Page:* 188

**Sets Include:[1) 2)]**



[1)] Choose pump options below.
[2)] All sets include hose model number HC7206C.

▼ **DIMENSIONAL DATA**

| Puller Model No. | Dimensions | | Number of Jaws | Puller Capacity | Replacement Point Protector Item Number | Hydraulic Master Puller Sets[1) 2)] | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Minimum Spread (in) | Maximum Spread (in) | | (ton) | | Hand Pump (P392) Gauge (GA45GC) | Air Pump (XA11G) Integrated Gauge | Electric Pump (PUD1300) Gauge (G2535L) | Cordless Pump (XC1201M) Gauge (GA45GC) |
| **LGH310** | 3.31 | 11.81 | 3 | 10 | **SGM0704** | **LGHMS310H** | **LGHMS310A** | **LGHMS310E** | **LGHMS310C** |
| **LGH314** | 4.92 | 14.96 | 3 | 14 | **LGH14K6** | **LGHMS314H** | **LGHMS314A** | **LGHMS314E** | **LGHMS314C** |
| **LGH324** | 6.50 | 18.90 | 3 | 24 | **LGH24K6** | **LGHMS324H** | **LGHMS324A** | **LGHMS324E** | **LGHMS324C** |
| **LGH364** | 9.06 | 25.98 | 3 | 64 | **LGH253K6** | **LGHMS364H** | **LGHMS364A** | **LGHMS364E** | **LGHMS364C** |

For 115 V application add “B” suffix
For 230 V application add “E” suffix

▼ Shown: **IPM3**



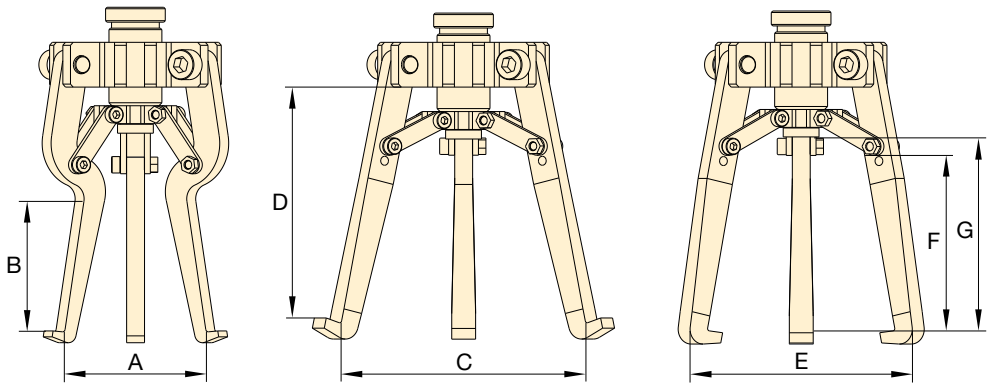
## IPM
### Series

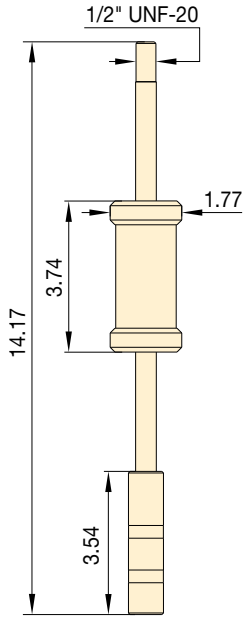
Maximum Reach:
**1.77 - 3.11 inches**

Spread Range:
**0.98 - 3.94 inches**

**IMPORTANT!**
**Always wear Safety Goggles and Gloves while using pullers.**

- **Remove bearings or other shaft-mounted parts where no spindle support is available**
- **Slide hammer allows for application of safe, high-impact force**
- **Includes two sets of jaws for internal and external pulling applications**




**Slide Hammer Dimensions** (in)

▼ **DIMENSIONAL CHART**

| Model Number | Internal Jaw Dimensions (in) | | | Standard Jaw Dimensions (in) | | | | | | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Internal Configuration | | | External Configuration | | | | |
| | Spread Diameter A | | Maximum Reach B | Spread Diameter C | | Maximum Reach D | Spread Diameter E | | Maximum Reach F | G | |
| | (min) | (max) | | (min) | (max) | | (min) | (max) | | | (lbs) |
| **IPM3** | 0.98 | 2.36 | 1.77 | 2.36 | 3.94 | 3.11 | 0.59 | 2.95 | 2.16 | 2.75 | 4.60 |

# Posi Lock® 100-Ton Hydraulic Grip Pullers

▼ **EPH1003**



## EPH Series

Capacity:
**100 tons**

Maximum Reach:
**48 inches**

Spread Range:
**7.5 - 70 inches**

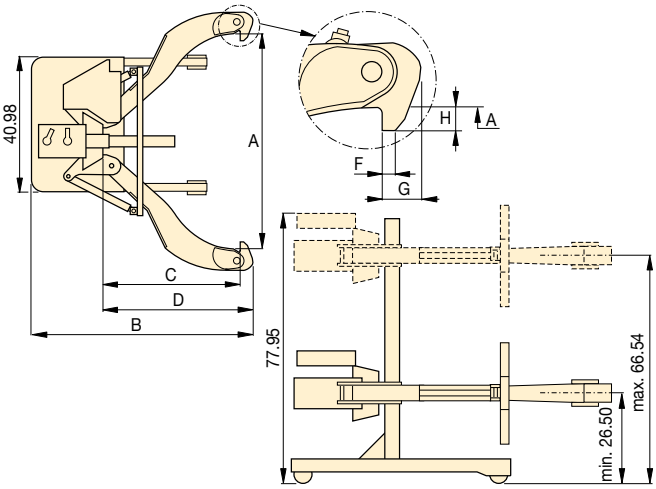
Maximum Operating Pressure:
**10,000 psi**

- **Roller cart with power lift**
- **Adjustable jaw tips**
- **Puller easily detaches from cart**
- **Self-contained unit**
- **Puller height range 26.5" to 66.5"**

**Pushing Adaptors**

All Posi Lock 100 Ton Hydraulic Pullers include (3) pushing adaptors.

| Diameter (in) | Overall Length (in) | Model Number |
|---|---|---|
| 3.5 | 29 | **EPHT1162** |
| 3.5 | 19 | **EPHT1163** |
| 3.5 | 9 | **EPHT1164** |



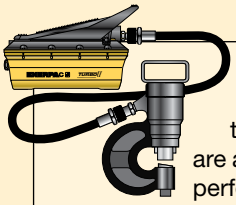



▲ *The EPH1002 quickly and easily removes this drive coupler from its shaft.*

| Number of Jaws | Max. Spread (in) | Capacity (tons) | Model Number | Dimensions (in) | | | | | | | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Spread Range A | Overall Length B | Reach (max.) C | Jaw Length D | Jaw Width F | Tip Clearance G | Tip Depth H | |
| 2 | 70.00 | 100 | **EPH1002** | 7.5-70.0 | 77.00 | 48.00 | 53.00 | 1.25 | 3.5 | 3.5 | 1700 |
| 3 | 70.00 | | **EPH1003** | 7.5-70.0 | 77.00 | 48.00 | 53.00 | 1.25 | 3.5 | 3.5 | 1950 |

**Enerpac offers an extensive range of dedicated tools for a variety of specific and flexible applications. Whatever your requirement… punching, spreading or bending… you can be sure that Enerpac has the correct tool to do your job safely and efficiently.**

**Featuring maintenance sets, machine lifts and load skates, as well as hole punches pipe benders and cable cutters, Enerpac has the tools to ensure that even your most demanding applications can be undertaken with the highest degree of safety and accuracy.**



**Pump and Tool Sets**

Selected hydraulic tools in this section are available in sets, for a perfect tool/pump match.

**Hydraulic System Setup**

Check out our "Yellow Pages" section for help on system setups and valving configurations.

*Page:* 399



**Hydraulic, Electric and Manual Cutters**

Enerpac Cutters can be found in the Cutter section of this catalog.

*Page:* 221



# Speciality Tool Section Overview

| Capacity (tons) | Tool Type and Functions | Series | | Page |
|---|---|---|---|---|
| 2.5 - 12.5 | Maintenance Sets | MS |  | 204 ▶ |
| 35 - 50 | Punch, Punch Sets | SP<br>MSP<br>STP |  | 208 ▶ |
| 16 | Lifting Wedge | LW |  | 212 ▶ |
| 8.5 - 20 | Hydraulic Machine Lifts | SOH |  | 213 ▶ |
| 1 - 80 | Heavy-Duty Load Skates | ER<br>ES<br>ELP |  | 214 ▶ |
| 0.67 - 16 (cu. feet) | Industrial Storage Cases | CM |  | 216 ▶ |
| 0.75 - 1.00 | Hydraulic Wedgie Spread Cylinders | A<br>WR |  | 217 ▶ |
| Nominal Bore 1/2 - 4 inches | Pipe Bender Sets | STB |  | 218 ▶ |

▼ Shown: **MS210**




# The Universal Hydraulic Tool Box

**Maintenance Sets**

Enerpac Maintenance sets are a complete assortment of accessories matched to hydraulic powered tools. Using these sets allows you to quickly configure a unique tool to meet your most difficult jobs.

Built around the Enerpac lightweight hand pump, hose and cylinder, these sets enable you to push, pull, lift, press, straighten, spread and clamp with forces up to 12.5 tons.

- **All sets include Enerpac pump, hose, cylinder and gauge**
- **Lock-on or threaded connectors**
- **Complete set for almost every maintenance application**



**More Information**

For detailed information on all included attachments, see the following pages.

*Page:* **206**



*Clamping a workpiece is just one of the many applications for the Enerpac maintenance sets.* ▶

▼ **QUICK SELECTION CHART**

| **Capacity** using attachments* (tons) | **Set Model Number** |  |  |  |  |  | **Number of Attachment Components** | **Weight** (lbs) |
|---|---|---|---|---|---|---|---|---|
| **2.5** | **MS24** | P142 | HC7206 | RC55 | GP10S | GA4 | 33 | 59 |
| **2.5** | **MSFP5**** | P142 | HC7206 | RC55 | G2535L | GA3 | 24 | 44 |
| **5** | **MSFP10** | P392 | HC7206 | RC106 | G2535L | GA3 | 23 | 105 |
| **5** | **MS210** | P392 | HC7206 | RC106 | GP10S | GA2 | 35 | 140 |
| **12.5** | **MS220** | P392 | HC7206 | RC256 | GP10S | GA2 | 13 | 210 |
| **5 - 12.5** | **MS21020** | P392 | HC7206 | RC102, 106, 256 | GP10S | GA2 | 53 | 350 |

* If no attachments are being used, capacity is double these values. Maximum operating pressure is then 10,000 psi.
** This set also includes the FZ1055 Adaptor.

**CAUTION!**

**When cylinders are used with maintenance set attachments or components, the maximum system pressure must be limited to half the rated pressure (5,000 psi).**

**WARNING!**

**Only use attachments provided with set. Non Enerpac attachments and longer extension tubes will reduce column strength, potentially creating unsafe conditions.**

## MS Series

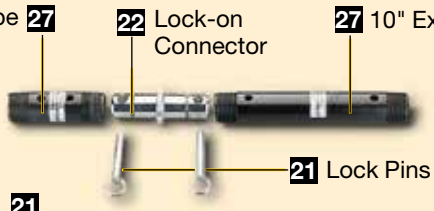


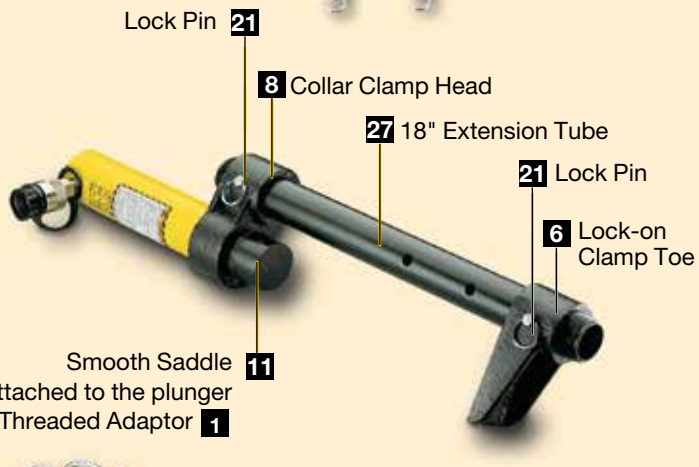
Capacity (using attachments):
**2.5 - 12.5 tons**

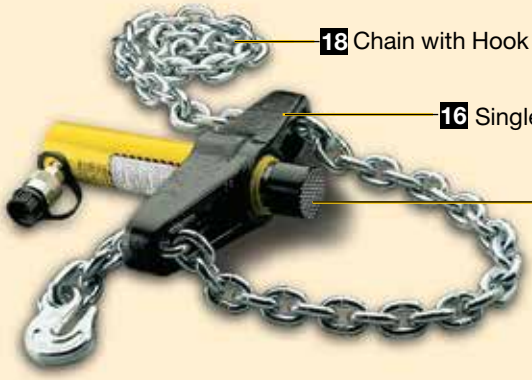
Max. Operating Pressure (using attachments):
**5,000 psi**

### ▼ APPLICATION EXAMPLES



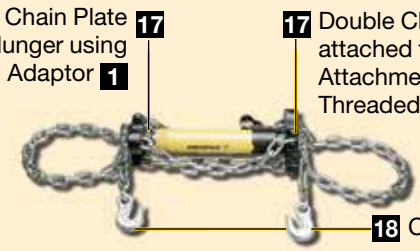









**CAUTION! When cylinders are used with maintenance set attachments or components, the maximum system pressure must be limited to half the rated pressure (5,000 psi).**

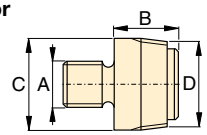
Note: All dimensions in inches.

| Set Model No. | MS2-4 | MSFP5 | MSFP10 | MS2-10 | MS2-20 | MS2-1020 |
|---|---|---|---|---|---|---|
| Base/Collar/ Plunger Attachments | Capacity Using Attachments | | | | | |
| | 2.5 tons | 2.5 tons | 5.0 tons | 5.0 tons | 12.5 tons | 5-12.5 tons |
| Cylinder Series | RC5 | RC5 | RC10 | RC10 | RC25 | RC10, RC25 |
| 1 | A23 | A23 | A13 | A13 | A28 | A13 / A28 |
| 2 | A25 | A25 | A21 | A21 | A27 | A21 / A27 |
| 3 | A1034 | A1034 | A20 | A20 | A595 | A20 / A595 |
| 4 | MZ4010 | MZ4010 | A14 | A14 | A243 | A14 / A243 |
| 5 | A545 | A545 | A10 | A10 | – | A10(2x) |
| 6 | – | – | – | A8 | – | A8 |
| 7 | A530 | A530 | A6 | A6 | – | A6 |
| 8 | MZ4011 | – | – | A192 | – | A192 |
| 9 | – | – | – | A305 | – | A305 |
| 10 | A531 | A531 | A18 | A18 | – | A18 |
| 11 | – | – | – | A185 | – | A185 |
| 12 | A532 | A532 | A15 | A15 | – | A15 |
| 13 | – | – | – | – | A607 | A607 |
| 14 | A629 | A629 | A129 | A129 | – | A129 |
| 15 | A539 | A539 | A128 | A128 | – | A128 |
| Chains and Attachments for Pulling | 2.5 tons | 2.5 tons | 5.0 tons | 5.0 tons | 12.5 tons | 5-12.5 tons |
| Cylinder Series | RC5 | RC5 | RC10 | RC10 | RC25 | RC10, RC25 |
| 16 | A558 | – | – | A132 | A238 | A132, A238 |
| 17 | – | – | – | A5 (2x) | – | A5(2x) |
| 18 | A557(2x) | – | – | A141(2x) | A218(2x) | A141(2x) / A218(2x) |
| Tubes, Connectors and Adaptors | 2.5 tons | 2.5 tons | 5.0 tons | 5.0 tons | 12.5 tons | 5-12.5 tons |
| Cylinder Series | RC5 | RC5 | RC10 | RC10 | RC25 | RC10, RC25 |
| 19 | A544 | – | – | A19(2x) | A242(2x) | A19(2x) and A242(2x) |
| 20 | WR5 | WR5 | WR5 | A92 | – | A92 |
| 21 | MZ4013(4x) | MZ4013(4x) | A16(4x) | A16(4x) | – | A16(4x) |
| 22 | MZ4007(3x) | MZ4007(3x) | MZ1050(3x) | MZ1050(2x) | – | MZ1050(3x) |
| 23 | MZ4008(2x) | – | – | MZ1051 | – | MZ1051(2x) |
| 24 | MZ4009 | MZ4009 | MZ1052 | MZ1052 | – | MZ1052 |
| 25 | – | – | – | A285 | – | A285 |
| 26 | A650 | – | – | – | – | – |
| Length: 3" | MZ4002 | MZ4002 | – | – | – | |
| 5" | MZ4003 | MZ4003 | MZ1002 | MZ1002 | – | MZ1002 |
| 10" | MZ4004 | MZ4004 | MZ1003 | MZ1003 | A239 | MZ1003 and A239 |
| 18" | MZ4005(2x) | MZ4005 | MZ1004 | MZ1004 | A240 | MZ1004(2x) and A240 |
| 23" | MZ4006 | MZ4006 | – | – | – | – |
| 30" | – | – | MZ1005 | MZ1005 | A241 | MZ1005(2x) and A241 |
| Case | CM6 | CM6 | CW166 | CW166 | CW166 | CW350 |
| Weight | 59 lbs. | 44 lbs. | 105 lbs. | 140 lbs. | 210 lbs. | 350 lbs. |

## Base/Collar/Plunger Attachments

### 1 Threaded Adaptor

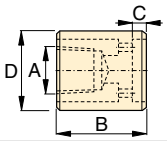





| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | A23 | ¾"-16 UN | 1.13 | 1.05 | ¾"-14 NPT |
| 5.0 | A13 | 1"-8 UN | 1.25 | 2.19 | 1¼"-11½ NPT |
| 12.5 | A28 | 1½"-16 UN | 1.87 | 2.75 | 2"-11½ NPT |

### 2 Base Attachment

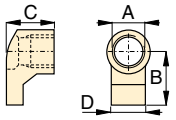





| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | A25 | ¾"-14 NPT | 2.00 | 0.50 | 1.75 |
| 5.0 | A21 | 1¼"-11½ NPT | 2.25 | 0.50 | 2.56 |
| 12.5 | A27 | 2"-11½ NPT | 2.50 | 0.50 | 3.88 |

### 3 Collar Toe

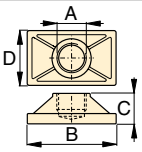





| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | A1034 | 1½"-16 | 2.13 | 1.97 | 1.25 |
| 5.0 | A20 | 2¼"-14 | 3.16 | 2.25 | 2.25 |
| 12.5 | A595 | 3⁵⁄₁₆"-12 | 4.06 | 2.03 | 3.18 |

### 4 Flat Base



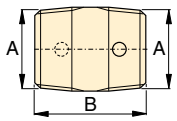



| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | MZ4010 | ¾"-14 NPT | 4.50 | 1.25 | 2.50 |
| 5.0 | A14 | 1¼"-11½ NPT | 6.50 | 1.38 | 3.50 |
| 12.5 | A243* | 2"-11½ NPT | 6.50 | 2.31 | 6.50 |

* A243 is a round base model

### 5 Threaded Connector

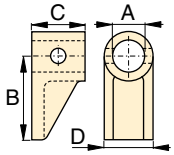





| Tons | Model No. | A | B |
|---|---|---|---|
| 2.5 | A545 | ¾"-14 NPT | 1.38 |
| 5.0 | A10 | 1¼"-11½NPT | 1.63 |

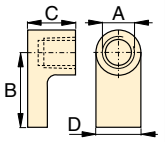
### 6 Lock-on Clamp Toe





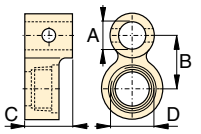

| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 5.0 | A8 | 1.69 | 4.13 | 2.00 | 2.25 |

## 7 Threaded Plunger Toe

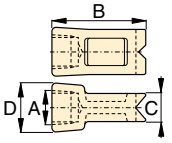

| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | A530 | ¾"-14 NPT | 2.25 | 1.00 | 1.33 |
| 5.0 | A6 | 1¼"-11½ NPT | 3.12 | 1.25 | 2.25 |

## 8 Collar Clamp Head

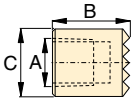

| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | MZ4011 | ¾"-14 NPT | 1.95 | 3.00 | 1½-16 UN |
| 5.0 | A192 | 1.69 | 2.50 | 2.00 | 2¼-14 UN |

## 9 Spreader Toe

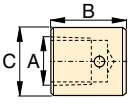

| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 5.0 | A305 | 1¼"-11½ NPT | 4.50 | 1.00 | 2.00 |

## 10 Serrated Saddle

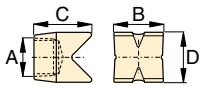

| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 2.5 | A531 | ¾"-14 NPT | 1.25 | 1.09 |
| 5.0 | A18 | 1¼"-11½ NPT | 2.00 | 1.50 |

## 11 Smooth Saddle

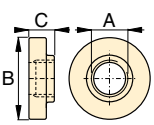

| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 5.0 | A185 | 1¼"-11½ NPT | 1.50 | 2.00 |

## 12 90° V-Base

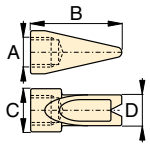

| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | A532 | ¾"-14 NPT | 1.50 | 1.88 | 1.00 |
| 5.0 | A15 | 1¼"-11½ NPT | 2.13 | 2.25 | 2.13 |

## 13 Plunger Base

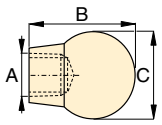

| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 12.5 | A607 | 2"-11½ NPT | 6.56 | 1.53 |

## 14 Wedge Head


| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | A629 | ¾"-14 NPT | 2.75 | 1.31 | 1.13 |
| 5.0 | A129 | 1¼"-11½ NPT | 4.00 | 2.00 | 1.75 |

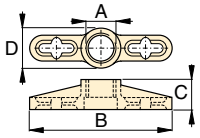
## 15 Rubber Flex-Head


| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 2.5 | A539 | ¾"-14 NPT | 1.75 | 2.75 |
| 5.0 | A128 | 1¼"-11½ NPT | 3.40 | 3.40 |

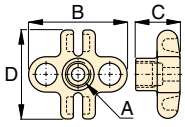
## Chains and Attachments for Pulling

## 16 Single Chain Plate


| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 2.5 | A558 | 1½"-16 UN | 7.75 | 1.56 | 1.75 |
| 5.0 | A132 | 2¼"-14 UN | 12.12 | 2.50 | 3.12 |
| 12.5 | A238 | 3⅝"-12 UN | 17.75 | 4.03 | 4.93 |

## 17 Double Chain Plate


| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 5.0 | A5 | 1¼"-11½ NPT | 6.18 | 2.00 | 4.96 |

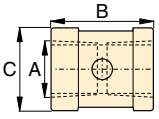
## 18 Chain with Hook



| Tons | Model No. | Chain Length |
|---|---|---|
| 2.5 | A557 | 5 feet |
| 5.0 | A141 | 6 feet |
| 12.5 | A218 | 8 feet |

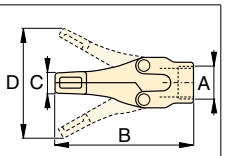
## Tubes, Connectors and Adaptors

## 19 Pipe Coupling

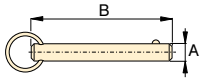

| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 2.5 | A544 | ¾"-14 NPT | 1.69 | 1.31 |
| 5.0 | A19 | 1¼"-11½ NPT | 1.94 | 2.15 |
| 12.5 | A242 | 2"-11½ NPT | 3.50 | 3.25 |

## 20 Spreader

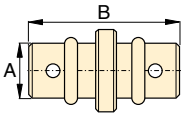

| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 1.0 | WR5 | — | 8.78 | 0.50 | 3.70 |
| 1.0 | A92 | 2¼"-14 UN | 9.63 | 1.38 | 6.25 |

## 21 Lock Pin

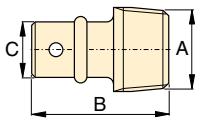

| Tons | Model No. | A | B |
|---|---|---|---|
| 2.5 | MZ4013 | 0.25 | 2.38 |
| 5.0 | A16 | 0.44 | 3.25 |

## 22 Lock-on Connector

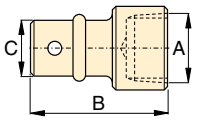

| Tons | Model No. | A | B |
|---|---|---|---|
| 2.5 | MZ4007 | 0.75 | 3.12 |
| 5.0 | MZ1050 | 1.31 | 5.00 |

## 23 Male Lock-on Adaptor

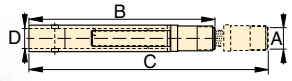

| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 2.5 | MZ4008 | ¾"-14 NPT | 2.38 | 0.75 |
| 5.0 | MZ1051 | 1¼"-11½ NPT | 3.56 | 1.31 |

## 24 Female Lock-on Adaptor

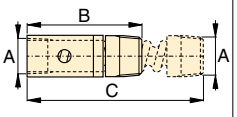

| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 2.5 | MZ4009 | ¾"-14 NPT | 2.56 | 0.75 |
| 5.0 | MZ1052 | 1¼"-11½ NPT | 3.81 | 1.31 |

## 25 Adjustable Extension


| Tons | Model No. | A | B | C | D |
|---|---|---|---|---|---|
| 5.0 | A285 | 1¼"-11½ NPT | 13.20 | 17.37 | 1.30 |

## 26 Slip-Lock Extension


| Tons | Model No. | A | B | C |
|---|---|---|---|---|
| 2.5 | A650 | ¾"-14 NPT | 7.88 | 14.37 |

▼ Shown: **SP35S**




- **0.50" thick mild steel maximum capacity**
- **Round, oblong and square punches and dies are available to solve your punching applications**
- **Long life Enerpac single-acting, spring return design**
- **Durable case keeps tools and dies together and provides for easy carrying and storage**
- **CR400 female coupler included**

▼ *SP-Series, Lightweight Hydraulic Punch – much faster than drilling.*

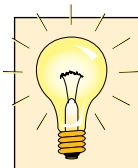


# Much Faster than Drilling...



**Tool Kit SPK10**

Included with all 35-ton punches, this tool kit is used to remove and install the punch into the head.
Can be ordered as a replacement under model number **SPK10**.



**Ordering Information**

The 35-ton hydraulic punch may be ordered by itself or as a set, including an electric, air or hand pump.

Please refer to the Quick Selection Chart information on next page.

A punch and die may also be ordered as a matched set.

▼ **STANDARD PUNCH AND DIE SETS SELECTION CHART**

| Hole Shape | Imperial* | | Metric* | |
|---|---|---|---|---|
| | Hole Size (in) | Bolt Size (in) | Hole Size (mm) | Bolt Size (mm) |
| ● | 0.31 | ¼ | 7.9 | – |
| ● | 0.38 | 5⁄16 | 9.5 | M8 |
| ● | 0.44 | ⅜ | 11.1 | M10 |
| ● | 0.53 | 7⁄16 | 13.5 | M12 |
| ● | 0.56 | ½ | 14.3 | – |
| ● | 0.69 | ⅝ | 17.5 | M16 |
| ● | 0.78 | – | 19.8 | M18 |
| ● | 0.81 | ¾ | 20.6 | – |
| ■ | 0.31 | ¼ | 7.9 | – |
| ■ | 0.38 | 5⁄16 | 9.5 | M8 |
| ■ | 0.44 | ⅜ | 11.1 | M10 |
| ■ | 0.50 | 7⁄16 | 12.7 | M12 |
| ⬮ | 0.31 x 0.75 | ¼ | 7.9 x 19 | – |
| ⬮ | 0.38 x 0.75 | 5⁄16 | 9.5 x 19 | M8 |
| ⬮ | 0.44 x 0.75 | ⅜ | 11.1 x 19 | M10 |
| ⬮ | 0.50 x 0.75 | 7⁄16 | 12.7 x 19 | M12 |

* Material thickness should **not** exceed hole diameter.

## ▼ QUICK SELECTION CHART

| Included | | | | | Model Number | Weight |
|---|---|---|---|---|---|---|
| * | Punch and Die Set | Pump | Pump Type[1] | Hose | | (lbs) |
| SP35 | – | – | – | – | **SP35** | 35 |
| SP35 | Standard** | – | – | – | **SP35S** | 40 |
| SP35 | Standard** | PUD1100B | E | HC7206 | **SP35SP** | 70 |
| SP35 | Metric*** | – | – | – | **MSP351** | 40 |
| SP35 | Standard** | P392 | H | HC7206 | **STP35H** [2] | 55 |
| SP35 | Standard** | PATG1102N | A | HC7206 | **STP35A** [2] | 63 |

* Punch oil capacity: 4.58 in³
Includes the following punch and die sets:
** SPD438, SPD688, SPD563 and SPD813
*** SPD375, SPD531, SPD438 and SPD688

[1] E = Electric; H = Hand; A = Air operated
[2] STP35H and STP35A include the GP10S gauge and GA2 gauge adapter.

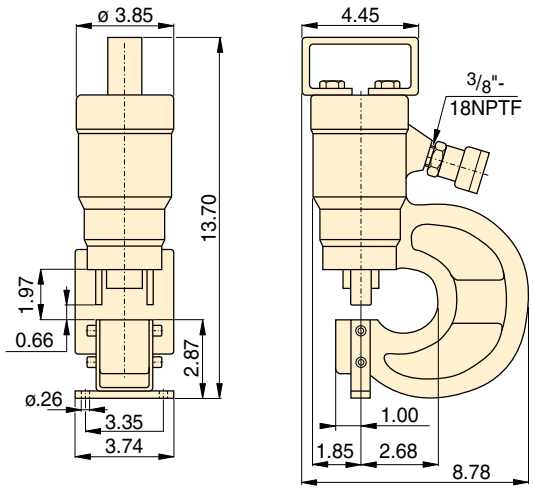
# SP, MSP, STP Series



Capacity:
**35 tons**

Hole Sizes:
**0.31 - 0.81 inch**

Maximum Operating Pressure:
**10,000 psi**




**CAUTION!**
Chart below is for reference only! Maximum allowable material thickness to be punched varies with set wear.

**CAUTION!**
Material thickness should not exceed hole diameter.

| | Standard Punch & Die Set | Maximum Allowable Material Thickness To Be Punched (in) (Material thickness should not exceed hole diameter.) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model No. | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) | 11) |
| | **SPD313** | 0.31 | 0.31 | 0.25 | 0.25 | 0.25 | 0.25 | 0.13 | 0.19 | 0.25 | 0.25 | 0.25 |
| | **SPD375** | 0.38 | 0.38 | 0.31 | 0.31 | 0.31 | 0.31 | 0.19 | 0.25 | 0.31 | 0.31 | 0.31 |
| | **SPD438** | 0.44 | 0.44 | 0.38 | 0.38 | 0.38 | 0.31 | 0.19 | 0.31 | 0.31 | 0.31 | 0.31 |
| | **SPD531** | 0.50 | 0.50 | 0.44 | 0.44 | 0.44 | 0.38 | 0.25 | 0.31 | 0.38 | 0.38 | 0.38 |
| | **SPD563** | 0.50 | 0.50 | 0.50 | 0.44 | 0.50 | 0.44 | 0.25 | 0.38 | 0.44 | 0.44 | 0.44 |
| | **SPD688** | 0.50 | 0.50 | 0.50 | 0.44 | 0.50 | 0.40 | 0.25 | 0.31 | 0.40 | 0.40 | 0.40 |
| | **SPD781** | 0.50 | 0.50 | 0.50 | 0.44 | 0.50 | 0.38 | 0.25 | 0.31 | 0.38 | 0.39 | 0.38 |
| | **SPD813** | 0.50 | 0.50 | 0.50 | 0.44 | 0.50 | 0.31 | 0.19 | 0.31 | 0.31 | 0.31 | 0.31 |
| | **SPD458** | 0.31 | 0.31 | 0.25 | 0.25 | 0.25 | 0.25 | 0.13 | 0.19 | 0.25 | 0.25 | 0.25 |
| | **SPD549** | 0.38 | 0.38 | 0.31 | 0.31 | 0.31 | 0.31 | 0.19 | 0.25 | 0.31 | 0.31 | 0.31 |
| | **SPD639** | 0.44 | 0.44 | 0.38 | 0.38 | 0.38 | 0.31 | 0.19 | 0.31 | 0.31 | 0.31 | 0.31 |
| | **SPD728** | 0.50 | 0.50 | 0.44 | 0.44 | 0.44 | 0.38 | 0.25 | 0.31 | 0.38 | 0.38 | 0.34 |
| | **SPD106** | 0.31 | 0.31 | 0.25 | 0.25 | 0.25 | 0.25 | 0.13 | 0.19 | 0.25 | 0.25 | 0.25 |
| | **SPD125** | 0.38 | 0.38 | 0.31 | 0.31 | 0.31 | 0.31 | 0.19 | 0.25 | 0.31 | 0.31 | 0.31 |
| | **SPD188** | 0.44 | 0.44 | 0.38 | 0.38 | 0.38 | 0.31 | 0.19 | 0.31 | 0.31 | 0.31 | 0.31 |
| | **SPD250** | 0.50 | 0.50 | 0.44 | 0.44 | 0.44 | 0.38 | 0.25 | 0.31 | 0.38 | 0.38 | 0.38 |

**Steel Qualities (see table):**

1) Mild A-7
2) Boiler Plate
3) Structural A-36
4) Struct Corten (ASTM A242)
5) Cold Rolled C-1018
6) Hot Rolled C-1050
7) Hot Rolled C-1095
8) Hot Rolled C-1095 Annealed
9) Stainless Annealed
10) Stainless 304 Hot Rolled
11) Stainless 316 Cold Rolled

▼ Shown: **SP50100**




# Cuts the Time Spent Forming Holes

- **Available as a complete set including electric pump and hoses**
- **Double-acting cylinder design for fast cycle times**
- **Punch and die changeover tools included**
- **Lifting handle for easy carrying**
- **Adjustable power stripper prevents movement of the metal during stripping**
- **CR400 female couplers included**



**Depth Stop**

For simplified repetitive punching applications an adjustable Depth Stop is available.
Order model number: **SP110.**



**Foot Mounting Kit**

A foot mounting kit for easy mounting of the 50-ton punch to workbench or fixture is available.
Please order: **SP120.**



**Ordering Information**

The 50-ton Hydraulic Punch may be ordered by itself or as a set with an electric pump. A punch and die may be ordered as a matched set. Please refer to the selection chart information.



◄ *Save time using this 50-ton Enerpac Punch.*

▼ *Shown below is the 50-ton punch with SP120 and SP110 assembled.*



## ▼ QUICK SELECTION CHART PUNCH SETS

| Included | | | | Set Model Number | Weight |
|---|---|---|---|---|---|
| Model Number Punch* | Punch & Die Sets | Pump | Hose (2x) | | (lbs) |
| SP50 | All** | – | – | **SP50100** | 255 |
| SP50 | All** | ZE4410SBN | HC7206 | **SP5000** | 384 |

* Punch Oil Capacity:
Advance: 17 in³
Retract: 14 in³

** All standard sets from chart below.

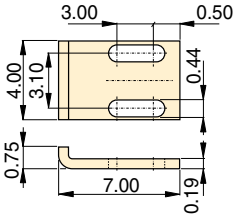
**SP**
**Series**



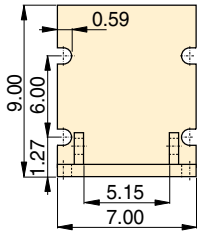
Capacity:
**50 tons**

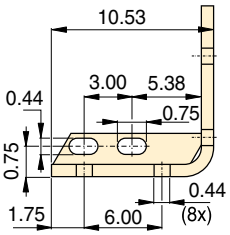
Hole Sizes:
**0.53 - 1.03 inches**

Maximum Operating Pressure:
**10,000 psi**

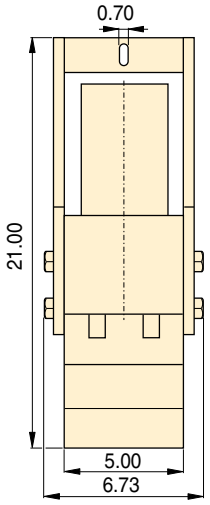


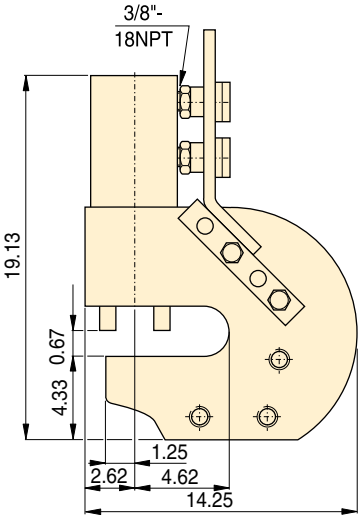

**SP110**




**SP120**




**SP50**

**CAUTION!**
Material thickness should not exceed hole diameter.

**CAUTION!**
Chart below is for reference only! Maximum allowable material thickness to be punched varies with set wear.

**Steel Qualities** (see table below):

1) Mild A-7
2) Boiler Plate
3) Structural A-36
4) Struct Corten (ASTM A242)
5) Cold Rolled C-1018
6) Hot Rolled C-1050
7) Hot Rolled C-1095
8) Hot Rolled C-1095 Annealed
9) Stainless Annealed
10) Stainless 304 Hot Rolled
11) Stainless 316 Cold Rolled

## ▼ STANDARD PUNCH AND DIE SELECTION CHART

| Hole Shape | Hole Size | Bolt Size | Standard Punch and Die Set | Maximum Allowable Material Thickness To Be Punched (in) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (in) | (in) | Model Numbers | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | 9) | 10) | 11) |
| ● | 0.53 | ½ | **SP150** | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.49 | 0.32 | 0.40 | 0.49 | 0.49 | 0.49 |
| ● | 0.66 | ⅝ | **SP170** | 0.56 | 0.56 | 0.56 | 0.50 | 0.56 | 0.51 | 0.32 | 0.40 | 0.51 | 0.51 | 0.51 |
| ● | 0.78 | ¾ | **SP190** | 0.56 | 0.56 | 0.56 | 0.50 | 0.56 | 0.49 | 0.32 | 0.40 | 0.49 | 0.50 | 0.49 |
| ● | 0.91 | ⅞ | **SP121** | 0.56 | 0.56 | 0.56 | 0.50 | 0.56 | 0.35 | 0.22 | 0.35 | 0.35 | 0.35 | 0.35 |
| ● | 1.03 | 1 | **SP123** | 0.56 | 0.56 | 0.56 | 0.44 | 0.56 | 0.31 | 0.19 | 0.31 | 0.31 | 0.31 | 0.31 |

▼ Shown: **LWC16, LW16 with SB2 and optional LWB1**



**LW Series**

Minimum Clearance:
**0.39 inches**

Maximum Lift Height:
**2.02* - 2.72* inches**

Maximum Force:
**16 tons**

Maximum Operating Pressure:
**10,000 psi**

* Using LWB1



**Portable Hydraulic Toolbox**
Tool Box set includes hand pump, gauge, adaptor assembly, hose and coupler.

*Page:* 65



**Split-Flow Manifolds**
Split Flow Valves to control two or four lifting wedges simultaneously (**LW16** only).

**AM21** with 3 ports 3/8" NPTF.
**AM41** with 5 ports 3/8" NPTF.

*Page:* 152

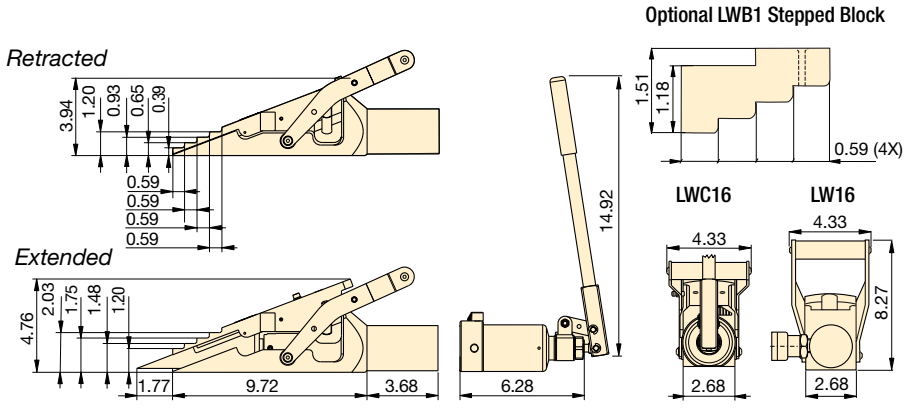
- **Minimized access gap for greater accessibility on applications with limited insertion space**
- **Secure, stable lifting and lowering motion with no slippage**
- **Single-acting spring return cylinder allows for automatic, mechanical retraction**
- **Integrated hand pump offers greater maneuverability (LWC16 only)**
- **Includes safety block SB2**

**Portable Hydraulic Toolbox Set SWR5PGH**

Tool box includes P392 hand pump, gauge adaptor assembly, hose and **WR5**.

▼ *The LW-Series is the ideal solution for lifting heavy equipment with minimum floor clearance.*






LW16 & LWC16 Wedge — LWC Integrated Pump

| Max. Lifting Force (ton) | Model No. | Minimum Clearance Gap (in) | Max. Lift per Stage (in) | Max. Lifting Height (in) | Max. Lifting Height using Stepped Block (in) | Oil Capacity ($in^3$) | Wt. (lbs) | Pump Power Source |
|---|---|---|---|---|---|---|---|---|
| 16 | LW16* | 0.39 | 0.83 | 2.02 | 2.72 | 4.75 | 15.4 | External |
| | LWC16** | | | | | – | 22.0 | Integrated |

* Includes SB2

** Includes SB2, LWB1, and carrying case

▼ Shown from left to right: **SOH10-6, SOH23-6**



# SOH
## Series

Lifting Capacity:
**8.5 - 20 tons**

Stroke:
**5.39 - 6.18 inches**

Toe Clearance:
**0.79 - 1.18 inches**

Maximum Operating Pressure:
**10,000 psi**

- **For lifting heavy equipment with minimum available access**
- **Remote operation of hydraulic pump enhances safety**
- **Low-height lifting toe**
- **Precision guided to reduce friction and isolate cylinder from side-loads**
- **Two extendable support feet provide extra stability**
- **Includes RC-Series cylinder with CR400 coupler**



**ER-Series Load Skates**

In combination with the Enerpac Lifting Wedge we recommend Load Skates for moving heavy loads.

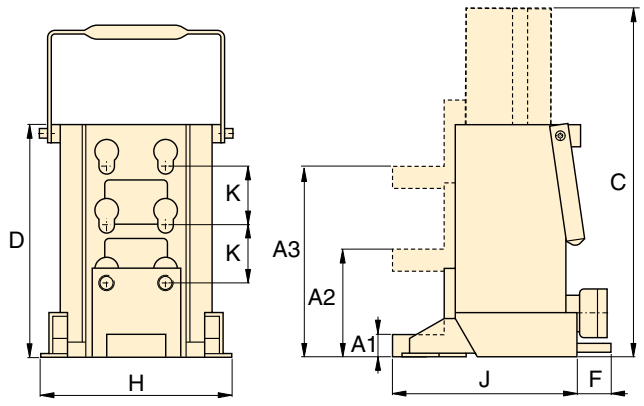
*Page:* 214



**RSM Flat-Jac®**

Low height, single acting spring-return cylinders are ideal for space restricted applications.

*Page:* 26

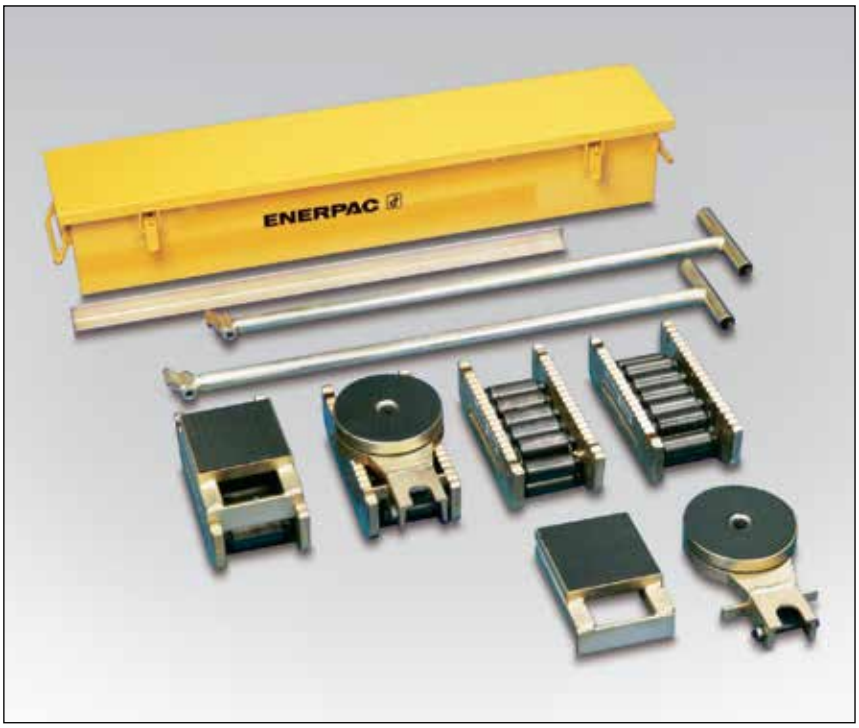



▼ *Heavy transport using Load Skates. The machine is first lifted, using SOH-Series Enerpac Machine Lifts.*



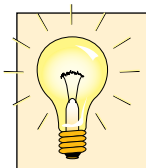
| Capacity | Toe Clearance with Cylinder Retracted (in) | | | Stroke | Model Number | Oil Capacity | Dimensions (in) | | | | | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Minimum | Central | Maximum | | | | Total Ext. Height | Total Body Height | | | | | |
| (ton) | A1 | A2 | A3 | (in) | | ($in^3$) | C | D | F | H | J | K | (lbs) |
| **8.5** | 0.79 | 3.74 | 6.69 | 5.39 | **SOH10-6** | 13.7 | 17.00 | 11.61 | – | 7.48 | 8.46 | 2.95 | 59.2 |
| **20** | 1.18 | 4.33 | 7.48 | 6.18 | **SOH23-6** | 32.0 | 18.58 | 12.40 | 2.56 | 10.24 | 9.84 | 3.15 | 99.2 |

▼ Shown: **Set ERS20**




# Move Heavy Loads Easily and Safely

- **Rugged and sturdy construction for long life**
- **Low profile construction for increased stability**
- **Low rolling-resistance allows for easy load movement**
- **Attachable load leveling plates and swivel turntables for turning corners**



Sets (see table) include all components necessary to handle a variety of applications. Two **ELB1** link-up bars, two **ERH1** handles (34.4" long) and one **EMB1** metal box are included. Optional long handle **ERH2** (46.4") also available.



**Lifting Wedge and Machine Lifts**

To place the Load Skates, the load must first be lifted. This can be done easily and safely using Enerpac Lifting Wedge or Machine Lifts.

*Page:* 212

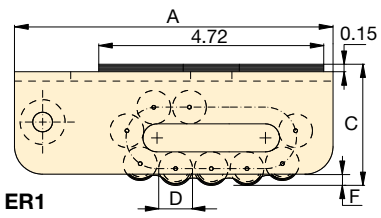
▼ *Heavy transport using Load Skates. The machine is first lifted, using SOH-Series Enerpac Machine Lifts.*



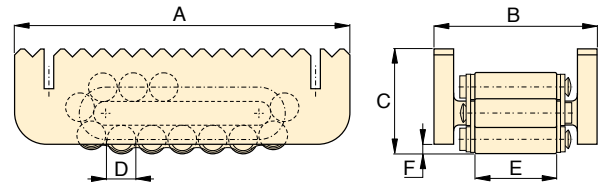

▼ *Chemical tank transportation: The first inch(s) the load was lifted with an RCS-Series Low Height Cylinder and then moved onto load skates for transportation.*



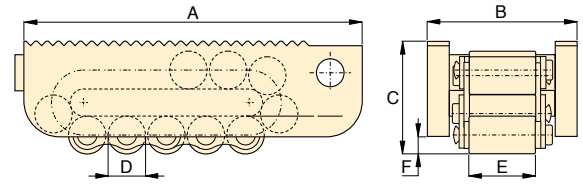
# Heavy-Duty Caterroller™ Load Skates




**ER1**




**ER10, ER15, ER30**

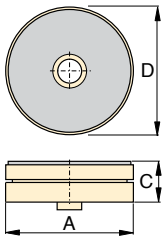



**ER60, ER80**

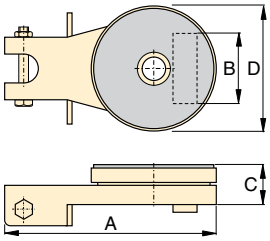
## ELP, ER, ES Series



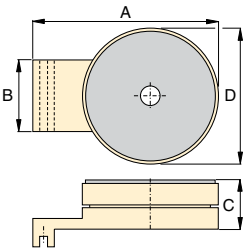
Maximum Carrying Capacity:
**80 tons**




**Turntable Swivel ES1**

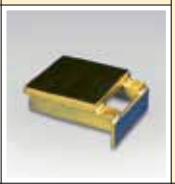



**Turntable Swivel ES10, ES15, ES30**

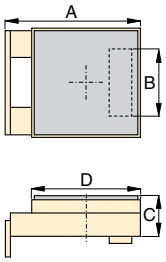



**Turntable Swivel ES60, ES80**

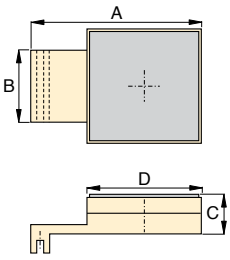
**Load Skates may be ordered separately or as a matched set.**

| Set Capacity* (tons) | Set Model Number | Load Skates (4) | Turntable Swivels (2) | Leveling Plates (2) | Weight Including handles and metal box (lbs) |
|---|---|---|---|---|---|
| | |  |  |  | |
| 20 | ERS20 | ER10 | ES10 | ELP10 | 110 |
| 30 | ERS30 | ER15 | ES15 | ELP15 | 123 |
| 60 | ERS60 | ER30 | ES30 | ELP30 | 167 |

* Sets are designed to enable two skates to take full load for extra safety on uneven floor surfaces




**Leveling Plate**
**ELP10**
**ELP15**
**ELP30**




**Leveling Plate**
**ELP60**
**ELP80**

| | Capacity (ton) | Model Number | Dimensions (inch) A | B | C | D | E | F | Contact Rolls per Skate | Rollers per Skate | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Load Skates** | 1 | **ER1** | 6.69 | 3.94 | 2.56 | 0.71 | 2.00 | 0.24 | 4 | 11 | 8.4 |
| | 10 | **ER10** | 8.27 | 3.94 | 2.63 | 0.71 | 2.00 | 0.24 | 5 | 15 | 11.5 |
| *ER1* | 15 | **ER15** | 8.69 | 4.45 | 2.95 | 0.94 | 2.38 | 0.39 | 4 | 13 | 16.0 |
| | 30 | **ER30** | 10.63 | 5.13 | 3.63 | 1.18 | 2.69 | 0.39 | 4 | 13 | 28.6 |
| | 60 | **ER60** | 15.00 | 6.63 | 4.94 | 1.65 | 3.00 | 0.63 | 4 | 13 | 70.4 |
| *ER10* | 80 | **ER80** | 20.88 | 7.19 | 5.75 | 1.97 | 3.38 | 0.75 | 6 | 17 | 134.2 |
| **Turntable Swivel** | 1 | **ES1** | 8.15 | – | 1.02 | 3.54 | – | – | – | – | 2.4 |
| | 10 | **ES10** | 8.66 | 2.87 | 1.65 | 5.12 | – | – | – | – | 8.1 |
| *ES1* | 15 | **ES15** | 8.66 | 3.39 | 1.65 | 5.12 | – | – | – | – | 8.1 |
| | 30 | **ES30** | 9.84 | 3.78 | 1.89 | 5.91 | – | – | – | – | 11.7 |
| | 60 | **ES60** | 10.83 | 4.49 | 2.40 | 7.48 | – | – | – | – | 30.1 |
| *ES10* | 80 | **ES80** | 14.17 | 5.04 | 2.40 | 8.66 | – | – | – | – | 41.6 |
| **Leveling Plate** | 10 | **ELP10** | 5.87 | 2.87 | 1.65 | 4.72 | – | – | – | – | 8.1 |
| | 15 | **ELP15** | 5.87 | 3.39 | 1.65 | 4.72 | – | – | – | – | 8.1 |
| | 30 | **ELP30** | 7.01 | 3.78 | 1.89 | 5.12 | – | – | – | – | 11.6 |
| | 60 | **ELP60** | 10.63 | 4.49 | 2.40 | 7.09 | – | – | – | – | 30.4 |
| | 80 | **ELP80** | 13.78 | 5.04 | 2.40 | 7.87 | – | – | – | – | 41.4 |

▼ Shown: **CM16**




**CM**
**Series**

Case Size:
**0.67 - 16 cubic ft.**

# Protect your Equipment

- **Protect your equipment from dust, water, grease and dirt**
- **Reduce losses on the jobsite, maintenance area or shop**
- **Durable steel, painted with rust-resistant primer and finished in durable enamel**
- **Heavy-duty hinges and lifting handles**
- **Lockable**

**Maintenance Sets**

Enerpac Maintenance sets are a complete assortment of accessories matched to hydraulic powered tools. Using these sets allows you to quickly configure a unique tool to meet your most difficult jobs.

Built around the Enerpac lightweight hand pump, hose and cylinder, these sets enable you to push, pull, lift, press, straighten, spread and clamp with forces up to 12.5 tons.



**Hydraulic Pullers**

These hydraulic pullers eliminate time-consuming and unsafe hammering, heating or prying. Damage to parts is minimized through the use of controlled hydraulic power.

**Page:** 183

▼ *When not storing the lifting system, this heavy-duty storage case doubles as a work station.*




| Case Size ($ft^3$) | Model Number | Interior Dimensions L x W x H (in) | Thickness (in) | Weight (lb) |
|---|---|---|---|---|
| 0.67 | **CM6** | 23.5 x 7 x 8 | 0.035 | 15.4 |
| 1.13 | **CM1** | 24.5 x 11.1 x 6.5 | 0.035 | 17.6 |
| 4.50 | **CM4** | 30.6 x 17.9 x 13.9 | 0.059 | 35.3 |
| 7.50 | **CM7** | 47.6 x 15.2 x 18 | 0.074 | 125.7 |
| 16.00 | **CM16** | 47.9 x 23.9 x 21.9 | 0.059 | 121.3 |

▼ Shown clockwise from top: **WR15, WR5, A92**




# A, WR
## Series

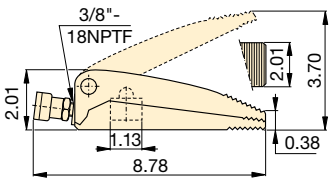
Capacity:
**0.75 - 1.00 ton**

Tip Clearance:
**0.50 - 1.38 inches**

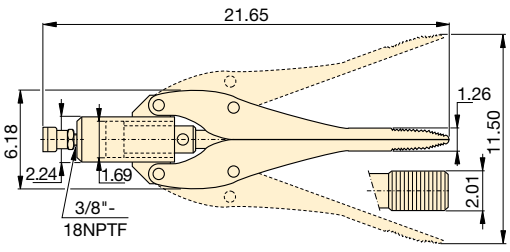
Maximum Spread Range:
**3.70 - 11.50 inches**

Maximum Operating Pressure:
**10,000 psi**

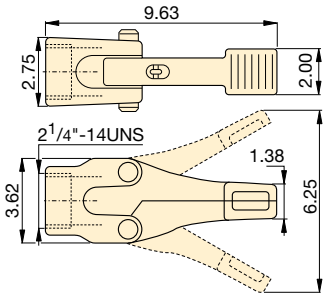
- **Single-acting, spring return**
- **WR15: For long stroke spreading applications**
- **WR5: For use in very confined work areas**
- **A92*: Spreader attachment screws onto RC-Series 10-ton cylinders (except RC101)***




**WR5**




**WR15**




**A92***

| Spreader Capacity (ton) | Tip Clearance (in) | Model Number | Maximum Spread (in) | Cylinder Effective Area ($in^2$) | Oil Capacity ($in^3$) | Wt. (lbs) |
|---|---|---|---|---|---|---|
| 1.00 | 0.50 | **WR5** | 3.70 | 1.00 | 0.61 | 5.0 |
| 0.75 | 1.26 | **WR15** | 11.50 | 2.25 | 3.91 | 25.0 |
| 1.00 | 1.38 | **A92*** | 6.25 | – | – | 8.0 |

* Maximum system pressure must be limited to half the rated pressure (5000 psi)



**RC-Series TRIO Cylinders**
10-ton RC-Series TRIO cylinders (except RC101) fit into A92 Spreader attachment.
***Page:*** 6

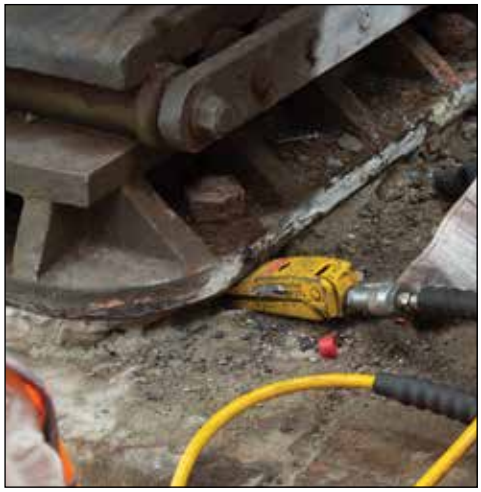


**Best Match Hand Pump**
To power your WR5 and WR15 the **P392** hand pump is an ideal choice.
***Page:*** 86



**Portable Hydraulic Toolbox Set SWR5PGH**
Tool box includes P392 hand pump, gauge adaptor assembly, hose and **WR5**.
***Page:*** 65

▼ *A WR5 Wedgie cylinder is used to loosen a bridge bearing.*



▼ Shown: **STB101H**

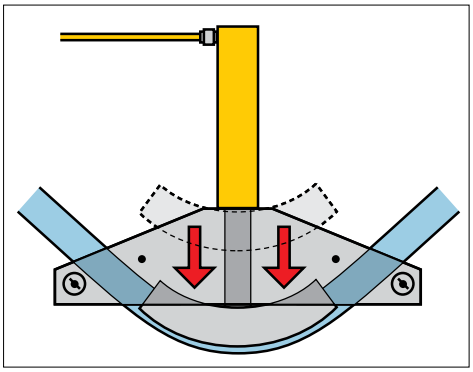



# Quick, Safe and Wrinkle-free Bending

**'One Shot' and 'Sweep'**

One shot shoes give up to a 90° bend without resetting. Sweep shoes are used where increased radii are required for multiple parallel pipe installations.

- **Makes smooth, wrinkle-free bends**
- **Sets include cylinder, hose and manual, air or electric pump**
- **Sets are also available without hydraulics**
- **Bending shoes and bending frame are lightweight, heat-treated aluminum**
- **All sets include sturdy steel storage case**
- **All sets include BZ12091 angle indicator for accurate bending**
- **BZ12377 Shoe Lock Pin included in every set**
- **Eject-O-Matic™ benders (STB202 models) use a double-acting cylinder to eject pipe from the bending shoe**



▲ *Typical one shot bending operation.*

▼ **SELECTION CHART**

| Pipe Range Nominal Size (in) | | Set Model Number | Hand Pump* | Air Pump* | Electric Pump* | Cylinder* | Hose* | Steel Case* | Saddle | Weight (includes steel case) |
|---|---|---|---|---|---|---|---|---|---|---|
| One Shot | Sweep | |  |  |  |  |  |  |  | (lbs) |
| ½ - 2 | – | **STB101X** | – | – | – | – | - | CM4 | A12 | 88 |
| | | **STB101N** | – | – | | RC1010 | HC7206 | CM4 | A12 | 105 |
| | | **STB101H** | P392 | – | – | RC1010 | HC7206 | CM4 | A12 | 114 |
| | | **STB101A** | – | PATG1102N | – | RC1010 | HC7206 | CM4 | A12 | 119 |
| | | **STB101B** | – | – | PUJ1200B[2)] | RC1010 | HC7206 | CM4 | A12 | 127 |
| 1 - 2 | 2½ - 4 | **STB221X** | – | – | – | – | - | CM7 | A29 | 229 |
| | | **STB221N** | – | – | – | RC2510 | HC7206 | CM7 | A29 | 263 |
| | | **STB221H** | P80 | – | – | RC2510 | HC7206 | CM7 | A29 | 286 |
| 1¼ - 4 | – | **STB202X[1)]** | – | – | – | – | - | CM7 | A29 | 316 |
| | | **STB202N[1)]** | – | – | – | RR3014 | HC7206 (2x) | CM7 | A29 | 383 |
| | | **STB202B[1)]** | – | – | ZU4408SB[2)] | RR3014 | HC7206 (2x) | CM7 | A29 | 467 |

* See corresponding sections of this catalog for more detailed specifications.

[1)] Eject-O-Matic™ [2)] For 230 volt applications change the last digit of Set Model Number from "B" to "E".

| Nominal pipe size (outside dia.) (in) | Wall Thick-ness (in) | Schedule Pipe * | Pipe Bend Inside Radius (in) | STB101 ½ - 2 One Shot | STB221 1-2 One Shot 2½ - 4 Sweep | STB202 1¼ - 4 One Shot | One Shot Bending Shoe Model Number | Sweep Bending Shoe Model Number |
|---|---|---|---|---|---|---|---|---|
| ½ (0.840) | 0.109 | 40 | 2⅞ | Yes | – | – | BZ12011 | – |
| | 0.147 | 80 | | Yes | – | – | | |
| | 0.187 | 160 | | WS | – | – | | |
| | 0.294 | DEH | | WS | – | – | | |
| ¾ (1.050) | 0.113 | 40 | 4 | Yes | – | – | BZ12021 | – |
| | 0.154 | 80 | | Yes | – | – | | |
| | 0.218 | 160 | | WS | – | – | | |
| | 0.308 | DEH | | WS | – | – | | |
| 1 (1.315) | 0.133 | 40 | 5⅛ | Yes | Yes | – | BZ12031 | – |
| | 0.179 | 80 | | Yes | Yes | – | | |
| | 0.250 | 160 | | WS | WS | – | | |
| | 0.358 | DEH | | – | WS | – | | |
| 1¼ (1.660) | 0.140 | 40 | 6⅞ | Yes | Yes | Yes | BZ12041 | – |
| | 0.191 | 80 | | Yes | Yes | Yes | | |
| | 0.250 | 160 | | WS | WS | Yes | | |
| | 0.342 | DEH | | – | WS | WS | | |
| 1½ (1.900) | 0.145 | 40 | 7 5⁄16 | Yes | Yes | Yes | BZ12051 | – |
| | 0.200 | 80 | | Yes | Yes | Yes | | |
| | 0.281 | 160 | | WS | WS | Yes | | |
| | 0.400 | DEH | | – | WS | WS | | |
| 2 (2.375) | 0.154 | 40 | 8 5⁄16 | Yes | Yes | Yes | BZ12061 | – |
| | 0.218 | 80 | | – | Yes | Yes | | |
| | 0.343 | 160 | | – | WS | Yes | | |
| 2½ (2.875) | 0.203 | 40 | 9½ | – | Yes | Yes | BZ12341 | BZ12382 |
| | 0.276 | 80 | | – | WS | Yes | | |
| | 0.375 | 160 | | – | WS | Yes | | |
| 3 (3.500) | 0.216 | 40 | 11¼ | – | Yes | Yes | BZ12351 | BZ12383 |
| | 0.300 | 80 | | – | WS | Yes | | |
| 3½ (4.000) | 0.226 | 40 | 15½ | – | Yes | Yes | BZ12391 | BZ12384 |
| | 0.318 | 80 | | – | WS | Yes | | |
| 4 (4.500) | 0.237 | 40 | 17¾ | – | Yes | Yes | BZ12392 | BZ12385 |
| | 0.337 | 80 | | – | – | Yes | | |

***Schedule Pipe: 40** = Standard; **80** = Extra Heavy; **160** = Double Extra Heavy;
**DEH** = Double Extra Heavy (slightly thicker than 160);
**WS** = Can be bent by using wider spacing for swivel shoes.

## STB Series



Nominal Pipe Size:
**0.5 - 4 inches**

Maximum Bend Angle:
**90°**

Maximum Operating Pressure:
**10,000 psi**

All bender sets are designed to bend mild steel pipe. For other material please consult Enerpac.

| Frame Assembly | Pivot Pin** | Pivot Shoes** | One Shot or Sweep[3] Bending Shoes included | | | | | | | | Set Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BZ12371 | BZ12375 | BZ12071 | BZ12011 | BZ12021 | BZ12031 | BZ12041 | BZ12051 | BZ12061 | – | – | STB101X<br>STB101N<br>STB101H<br>STB101A<br>STB101B |
| BZ12372 | BZ12376 | BZ13401 | BZ12031 | BZ12041 | BZ12051 | BZ12061 | BZ12382[3] | BZ12383[3] | BZ12384[3] | BZ12385[3] | STB221X<br>STB221N<br>STB221H |
| BZ12374 | BZ12376 | BZ13401 | – | BZ12041 | BZ12051 | BZ12061 | BZ12341 | BZ12351 | BZ12391 | BZ12392 | STB202X[1]<br>STB202N[1]<br>STB202B[1] |

[3] Shoes are Sweep, all other shoes are One Shot.
** Sets include two pivot pins and two pivot shoes.



**When you need to make cuts through heavy-duty bar, chain, cable and similar materials, look no further than Enerpac's broad range of cutters.**

**An extensive lineup of hydraulic, electric and manual cutters provides a quick, safe and cost-effective solution for technicians from construction, mining, manufacturing and many other industries.**

**Enerpac's cutters are built to handle industrial-grade materials on a daily basis. Like all Enerpac tools, each cutter is designed and built to last in tough working conditions for a safer, simpler and more productive workflow.**







| Cutter Type | | Maximum Tool Capability* | Series | | Power Source | Page |
|---|---|---|---|---|---|---|
| **Bar Cutters** |  | 2.04" (Maximum Material Cutting Diameter) | **EB** |  | Hydraulic, Electric, Cordless | **222** ▶ |
| **Decommissioning Cutters** |  | 6.69" (Maximum Blade Aperture) | **EDC** |  | Hydraulic | **226** ▶ |
| **Flat Bar Cutters** |  | 2.75" x 0.59" (Maximum Material Cutting Height and Width) | **EFB** |  | Electric | **227** ▶ |
| **Chain Cutters** |  | 1.25" (Maximum Link Cutting Diameter) | **ECC** |  | Electric | **228** ▶ |
| **Wire and Cable Cutters** |  | 7.09" (Maximum Material Cutting Diameter) | **EWC** |  | Hydraulic, Electric | **230** ▶ |
| **Cutter / Spreader Combination Tools** |  | 11.81" (Maximum Blade Aperture) | **ECS** |  | Electric | **233** ▶ |
| **Hydraulic Cutterheads** |  | 4.00" (Maximum Material Cutting Diameter) | **WHC WHR STC** |  | Hydraulic | **234** ▶ |
| **Self-Contained Hydraulic Cutters** |  | 3.38" (Maximum Material Cutting Diameter) | **WMC** |  | Manual | **235** ▶ |
| **Pumps and Accessories** |  | 1.5 - 7.5 hp | **EBH EWCH** |  | Electric | **236** ▶ |
| **Pumps and Accessories** |  | 1.4 - 7.5 hp | **EDCH** |  | Electric, Cordless | **237** ▶ |

* Actual cutting capabilities may vary depending on material being cut.

▼ Shown left to right: **EBC20B, EBH30, EBE22B**



# Your Fast, Safe and Simple Solution for Cutting Metal Bar

## Productivity

- **A broad range of hydraulic and electric tools quickly and easily cut through heavy-duty bar**
- **Highly durable, long-lasting blades outlast angle grinder or saw blades**

## Safety

- **Controlled cutting process enhances user safety compared with use of cut-off blades**
- **Minimal spark risk compared to torching, grinding and sawing methods**
- **Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome)**

**Internal Mechanics**

**EBH-Series:** Cylinder is driven by an external Enerpac pump

**EBE, EBC-Series:** Cylinder is driven by a radial pump powered by an electric motor.

**Typical Bar Cutting Applications**

- Commercial and residential construction
- Concrete and masonry
- Metal fabrication
- Industrial manufacturing

▼ *Enerpac's bar cutters are built to handle tough cutting applications.*





# EBH-Series Hydraulic Bar Cutters

**EBH-Series Hydraulic Bar Cutters**

EBH-Series Hydraulic Bar Cutters are driven by a specialized external hydraulic pump for optimal power and a higher duty cycle compared with other cutter types.

These cutters are ideal for use in production or manufacturing facilities with demanding, high-volume cutting applications.

**EBH Series**

CE



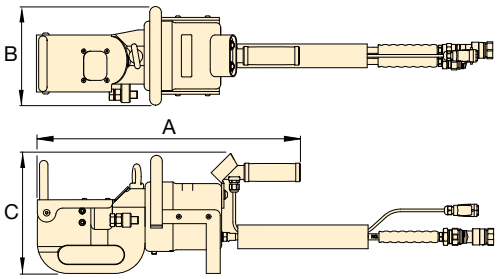
Maximum Material Hardness:
**43 HRc**

Maximum Material Diameter:
**1.18 - 2.04 inches**

Maximum Operating Pressure:
**10,000 psi**

① Highly durable blades maintain effectiveness throughout rigorous use
② Safety guard helps protect hands from injury
③ Heavy-duty cutting head provides a longer operational life
④ Lifting handle enables easier positioning and transport
⑤ Double-acting cylinder with advance and retract buttons improves control and reduces jamming
⑥ External hydraulic pump helps keep the tool cool, improving operational time (pump, hose, and pump coupler sold separately)






**Pumps and Accessories**

The EBH-Series Cutters are designed to work with specialized ZE4 and ZE6-Series pumps.

Pump models vary by voltage type. The pump and hose are sold separately. Both are required for the system to function. See page 236 for complete details on required pumps and accessories.

*Page:* **236**



Optional gauges and accessories may be used to monitor pressure in the hydraulic circuit. Enerpac recommends **Gauge Kit GKHC** for use with Enerpac hydraulic cutters.

Drawings are for guidance purposes only, exact tool configurations vary by model.

| Maximum Material Diameter* (in) | Model Number | Maximum Material Tensile Strength* (psi) | Maximum Material Hardness* (HRc) | Maximum Cutting Force (tons) | Maximum Hydraulic Operating Pressure (psi) | Dimensions (in) A | B | C | Weight (lbs) | Replacement Blade Kit Number |
|---|---|---|---|---|---|---|---|---|---|---|
| 1.18 | **EBH30** | 87,000 | 43 | 50 | 10,000 | 18.9 | 7.2 | 8.7 | 46 | **EBH3001K** |
| 1.38 | **EBH35** | 89,900 | 43 | 68 | 10,000 | 22.3 | 8.4 | 10.2 | 106 | **EBH3501K** |
| 2.04 | **EBH52** | 72,500 | 43 | 121 | 10,000 | 30.1 | 10.39 | 12.2 | 299 | **EBH5201K** |

* Maximum material properties indicated refer to the material to be cut.

**EBE-Series Electric Bar Cutters**

The versatile EBE-Series Electric Bar Cutters quickly cut through heavy-duty bar up to one inch (26 mm) in diameter without the need for an external hydraulic pump. Their compact size and low weight enable them to be easily transported and used wherever an external power source is available.

## EBE Series



Maximum Material Hardness:
**43 HRc**

Maximum Material Diameter:
**0.87 - 1.02 inches**

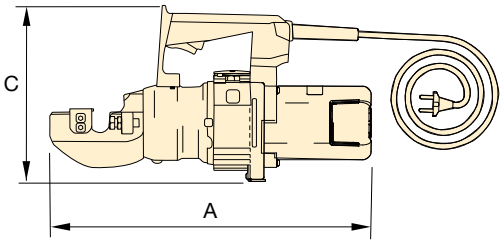
Voltage*:
**120 and 230 Volts**

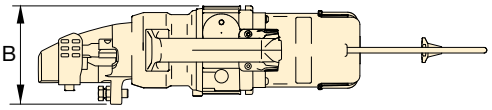
* ETL certification applies to 120V tools only

① Highly durable blades maintain effectiveness throughout rigorous use
② Safety guard helps protect hands from injury
③ Heavy-duty cutting head provides a longer operational life
④ Lifting handle enables easy positioning and transport
⑤ Piston-release mechanism allows blade to be reset, reducing jamming and providing a controlled cutting process

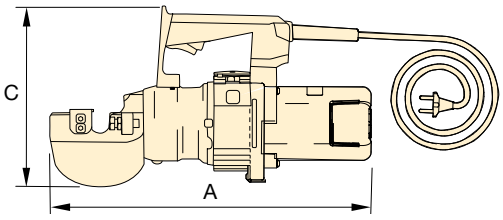



**EBE22**




**EBE26**




**Voltage: (Model No. ending with suffix)**

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)
**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Maximum Material Diameter* (in) | Power Specifications Volts | Hz | Amps | Watts | Model Number | Maximum Material Tensile Strength* (psi) | Maximum Material Hardness* (HRc) | Maximum Cutting Force (tons) | Dimensions (in) A | B | C | Cord Length (ft) | Wt. (lbs) | Replacement Blade Kit Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.87 | 120 | 60 | 11 | 1300 | **EBE22B** | 94,275 | 43 | 25.1 | 18.1 | 5.5 | 9.8 | 6 | 29 | **EBE2201K** |
| 0.87 | 230 | 50 | 6.8 | 1400 | **EBE22E** | 94,275 | 43 | 25.1 | 18.1 | 5.5 | 9.8 | 10 | 29 | **EBE2201K** |
| 1.02 | 120 | 60 | 11 | 1300 | **EBE26B** | 94,275 | 43 | 37 | 18.4 | 5.5 | 10.2 | 6 | 35 | **EBE2601K** |
| 1.02 | 230 | 50 | 6.8 | 1400 | **EBE26E** | 94,275 | 43 | 37 | 18.4 | 5.5 | 10.2 | 10 | 35 | **EBE2601K** |

* Maximum material properties indicated refer to the material to be cut.

# EBC-Series Cordless Bar Cutters

**EBC-Series Cordless Bar Cutters**

The highly portable EBC-Series Cordless Bar Cutters quickly and easily slice through up to number 6 rebar, or similar metal bar up to 0.79" (20mm) in diameter.

A powerful 20V Lithium-ion battery provides mobility and long lasting performance, making these tools the perfect go-to solution for the jobsite, including remote locations, or anywhere an external power source is not available.

**EBC Series**



Maximum Material Hardness:
**43 HRc**

Maximum Material Diameter:
**0.79 inches**

* ETL certification applies to 120V tools only

① Highly durable blades maintain effectiveness throughout rigorous use
② Safety guard helps protect hands from injury
③ Highly durable cutting head can be rotated 360 degrees to aid in the positioning of the blades on the application.
④ Lifting handle enables easy positioning and transport
⑤ Piston-release mechanism allows blade to be reset, providing a controlled cutting process and reducing jamming
⑥ Powerful 20V battery provides high performance and complete mobility

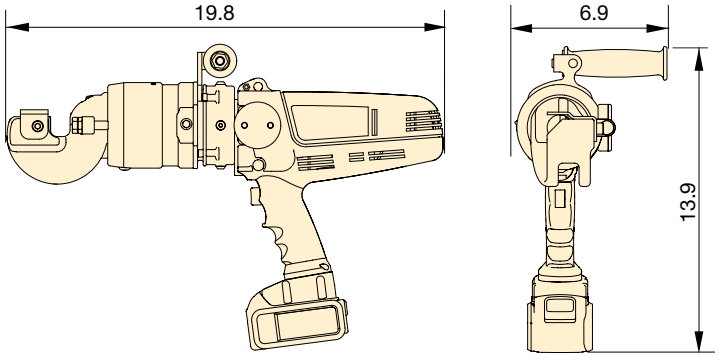



**Batteries and Chargers**

EBC-Series Cutters come standard with two DeWALT® TM 20V-5Ah Lithium-ion batteries and one DeWALT® TM 12V and 20V charger. Additional batteries and chargers sold separately.

EBC-Series Cutters work with DeWALT® 20V MAX* batteries. DeWALT® is a registered trademark of DEWALT Industrial Tool Co., which has not manufactured, licensed, approved, or endorsed this cutter product.

Dimensions shown in inches.




**EBC-Series Replacement Parts**

To order replacement parts, use one of the model numbers shown below.

| For Cutter Model No. | DeWALT® Lithium-ion Battery | Li-ion Battery Charger 12V and 20V |
|---|---|---|
| EBC20B | B205 | BC1220B |
| EBC20E | B185 | BC1220E |

**Charger Voltage: (Model No. ending with suffix)**

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)
**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Maximum Material Diameter* (in) | Power Specifications: Battery Input Voltage (volts) | Power Specifications: Amps | Power Specifications: Watts | Model Number** | Maximum Material Tensile Strength* (psi) | Maximum Material Hardness* (HRc) | Maximum Cutting Force (tons) | Weight (without battery) (lbs) | Replacement Blade Kit Number |
|---|---|---|---|---|---|---|---|---|---|
| 0.79 | 18-20 | 46 | 830 | **EBC20B** | 94,275 | 43 | 21.2 | 19.2 | **EBC2001K** |
| 0.79 | 18-20 | 46 | 830 | **EBC20E** | 94,275 | 43 | 21.2 | 19.2 | **EBC2001K** |

* Maximum material properties indicated refer to the material to be cut.
** To order an EBC-Series Cutter without batteries or a charger, remove the "B" or "E" from the Model Number, e.g. "EBC20"

▼ Shown: **EDCH130**



## EDCH Series

Maximum Material Hardness:
**41 HRc**

Maximum Blade Aperture:
**5.12 – 6.69 inches**

Maximum Operating Pressure:
**10,000 psi**



**Pumps and Accessories**

The EDCH-Series Cutters are designed to work with specialized ZC3, ZE4 and ZE6-Series pumps.

The pump and hose are sold separately. Both are required for the system to function. See page 237 for complete details on required pumps and accessories.

*Page:* 237



Optional gauges and accessories may be used to monitor pressure in the hydraulic circuit. Enerpac recommends **Gauge Kit GKHC** for use with Enerpac hydraulic cutters.

### Productivity

- **Powerful jaws and an exceptionally large blade aperture enable use on a large variety of applications including metal tubes, communication cables, profiles and similar materials***
- **Multiple pump options provide power, speed and mobility for all your applications**

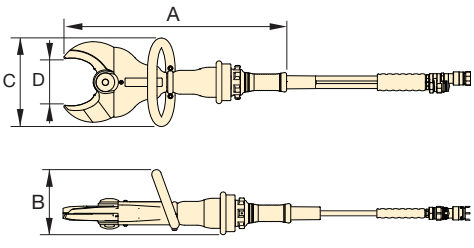
### Safety

- **Minimal spark risk compared with torching, grinding and sawing methods**
- **Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome)**

* NOTE: Do not use to cut wire rope. Use instead the wire and rope cutter, page 232.




① Durable blades maintain efficiency throughout rigorous use
② Double-acting steel piston and cylinder improve robustness and control
③ Control knob immediately stops the tool when released, improving operator safety
④ External hydraulic pump helps keep tool cooler and working longer (pump, hose, and pump coupler sold separately)




| Maximum Blade Aperture (in) | Model Number | Maximum Material Tensile Strength* (psi) | Maximum Material Hardness* (HRc) | Maximum Hydraulic Operating Pressure (psi) | Dimensions (in) A | B | C | D | Weight (lbs) | Replacement Blade Kit Number |
|---|---|---|---|---|---|---|---|---|---|---|
| 5.12 | **EDCH130** | 94,275 | 41 | 10,000 | 23.2 | 6.7 | 9.2 | 5.1 | 25.4 | **EDCH13001K** |
| 5.70 | **EDCH145** | 94,275 | 41 | 10,000 | 27.0 | 8.1 | 9.7 | 5.7 | 37.3 | **EDCH14501K** |
| 6.69 | **EDCH170** | 94,275 | 41 | 10,000 | 28.9 | 6.8 | 9.8 | 6.7 | 53.4 | **EDCH17001K** |

* Maximum material properties indicated refer to the material to be cut.

▼ Shown: **EFBE5017B**



## EFBE Series

Maximum Material Hardness:
**33 HRc**

Maximum Material Dimensions:
**1.96 x 0.67 – 2.75 x 0.59 in.**

Voltage*:
**120 and 230 volts**

* ETL certification applies to 120V tools only

## Productivity

- **Cut through high-tensile flat bar in seconds**
- **Highly durable, long-lasting blades offer increased longevity and less down time**

## Safety

- **Controlled cutting process enhances operator safety**
- **Minimal spark risk compared with torching, grinding and sawing methods**



**Replacement Blade Kits**

To order replacement parts use one of the model numbers shown below.

| For Cutter Model Number | Order Blade Kit Number |
|---|---|
| EFBE5017B | EFBE501701K |
| EFBE5017E | EFBE501701K |
| EFBE7015B | EFBE701501K |
| EFBE7015E | EFBE701501K |

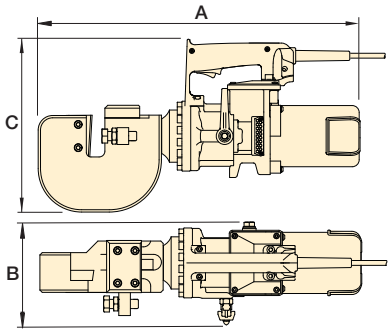



① Highly durable blades cut through flat bar, maintaining effectiveness throughout rigorous use

② Heavy-duty cutting head provides a longer operational life

③ Robust handle enables easy positioning and transport

④ Piston-release mechanism allows blade to be retracted, providing a controlled cutting process and reducing jamming




**Voltage: (Model No. ending with suffix)**

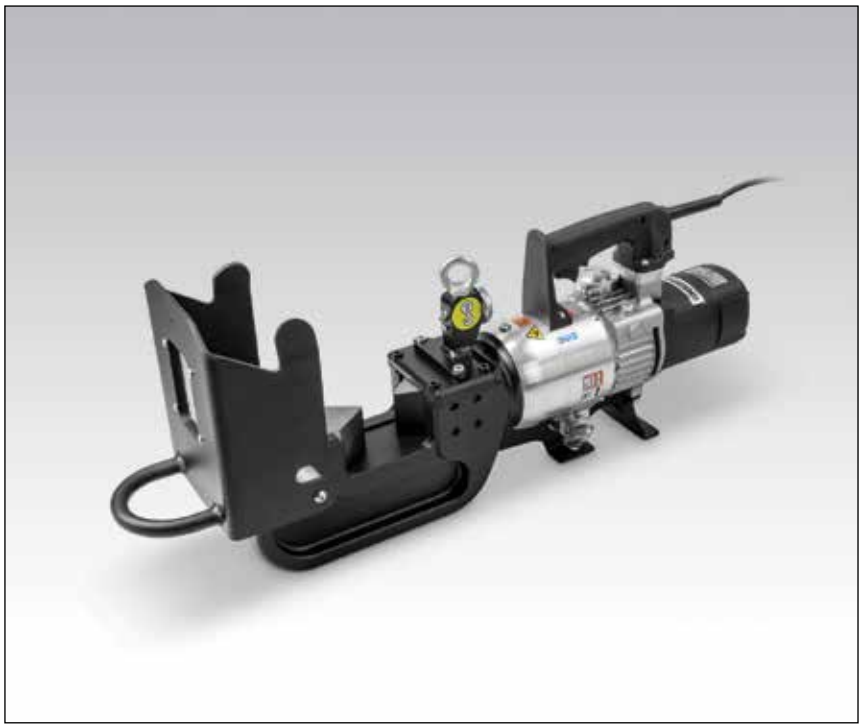
**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)

**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Max. Material Dimensions* (in) | | Power Specifications | | | | Model Number | Maximum Material Tensile Strength* | Maximum Material Hardness* | Maximum Cutting Force | Cord Length | Dimensions (in) | | | Wt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Height | Width | Volts | Hz | Amps | Watts | | (psi) | (HRc) | (tons) | (ft) | A | B | C | (lbs) |
| 1.96 | 0.67 | 120 | 60 | 11.0 | 1300 | **EFBE5017B** | 65,267 | 33 | 29.8 | 6 | 19.0 | 6.9 | 10.7 | 46 |
| 1.96 | 0.67 | 230 | 50 | 6.8 | 1400 | **EFBE5017E** | 65,267 | 33 | 29.8 | 10 | 19.0 | 6.9 | 10.7 | 46 |
| 2.75 | 0.59 | 120 | 60 | 11.0 | 1300 | **EFBE7015B** | 65,267 | 33 | 29.8 | 6 | 21.9 | 6.9 | 11.7 | 66 |
| 2.75 | 0.59 | 230 | 50 | 6.8 | 1400 | **EFBE7015E** | 65,267 | 33 | 29.8 | 10 | 21.9 | 6.9 | 11.7 | 66 |

* Maximum material properties indicated refer to the material to be cut.

▼ Shown: **ECCE32B-Series Chain Cutter**



# Your Simple Solution for Cutting High-Strength Industrial Chain

**Internal Mechanics**

**ECCE-Series**: Cylinder is driven by a radial pump powered by an electric motor.

## Productivity

- **Quickly cut through heavy-duty chain links with minimal effort**
- **Highly durable blades outlast angle grinder or saw blades**

## Safety

- **Controlled cutting process behind a protective shield enhances safety**
- **Precisely cut only selected link, helping prevent damage to adjacent links and weakening of chain**
- **Minimal spark risk compared to torching, grinding and sawing methods**
- **Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome)**

**Typical Chain Cutting Applications**

- Chain manufacturing
- Mining
- Rigging / material handling for transport
- Oil and gas
- Marine

▼ *Cut through chain links with ease using Enerpac's chain cutters.*



# ECCE-Series Electric Chain Cutters

**ECCE-Series Electric Chain Cutters**

ECCE-Series Electric Chain Cutters are ideal for applications where safety is paramount. Unlike other cutting methods, Enerpac's chain cutters precisely cut selected chain links behind an enclosed, transparent safety guard.

This not only protects the operator's hands, it also helps prevent damage to adjacent links, which often results from using alternative cutting methods like torches or cut-off tools.

**ECCE Series**



Maximum Material Hardness:
**46 HRc**

Maximum Material Diameter:
**1.25 inches**

Maximum Grade Chain:
**100**

Voltage*:
**120 and 230 volts**

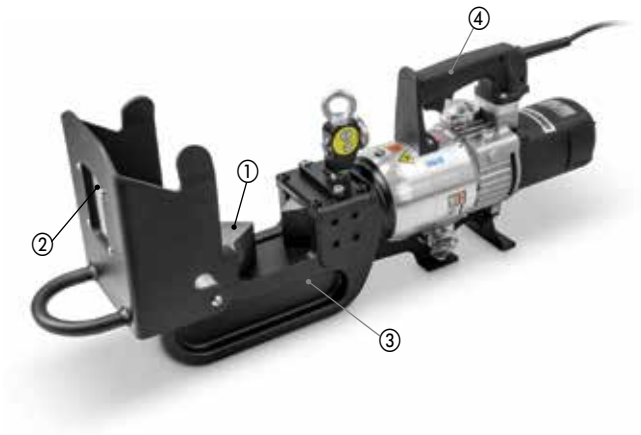
* ETL certification applies to 120V tools only

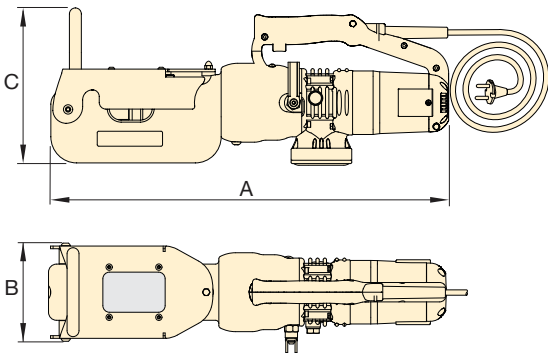
① Highly durable blades cut through heavy-duty chain, maintaining effectiveness throughout rigorous use

② Transparent safety guard protects hands and allows continuous monitoring for better management of cutting process

③ Heavy-duty cutting head provides a longer operational life

④ Lifting handle and eyebolt enable easy positioning and transport




**Voltage: (Model No. ending with suffix)**

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)

**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Maximum Material Diameter [1) 2)] (in) | | | Power Specifications | | | | Model Number | Maximum Material Hardness [1)] | Maximum Cutting Force | Dimensions (in) | | | Cord Length | Wt. | Replacement Blade Kit Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Grade 70 | Grade 80 | Grade 100 | Volts | Hz | Amps | Watts | | (HRc) | (tons) | A | B | C | (ft) | (lbs) | |
| 1.00 | 1.00 | 0.5 | 120 | 60 | 10.0 | 1200 | **ECCE26B** | 46 | 35.1 | 23.6 | 6.0 | 9.3 | 6 | 55 | **ECCE2601K** |
| 1.00 | 1.00 | 0.5 | 230 | 50 | 5.3 | 1100 | **ECCE26E** | 46 | 35.1 | 23.6 | 6.0 | 9.3 | 10 | 55 | **ECCE2601K** |
| 1.25 | 1.00 | 0.75 | 120 | 60 | 11.0 | 1300 | **ECCE32B** | 46 | 52.9 | 27.5 | 7.5 | 12.6 | 6 | 106 | **ECCE3201K** |
| 1.25 | 1.00 | 0.75 | 230 | 50 | 6.8 | 1400 | **ECCE32E** | 46 | 52.9 | 27.5 | 7.5 | 12.6 | 10 | 106 | **ECCE3201K** |

[1)] Cutting larger chains or those of a grade higher than those recommended will result in increased wear, and may damage the tool.
[2)] All links over 1/2" must be cut in two passes, with each pass cutting one side of the link.

▼ Shown left to right: **EWCH90 and EWCE55B**



# The Quick and Clean Way to Cut Cable and Wire Rope

## Productivity

- **A broad range of hydraulic and electric tools quickly and easily cut through cable and wire rope**

## Safety

- **Controlled cutting process enhances operator safety**
- **Minimal spark risk compared with torching, grinding and sawing methods**
- **Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome)**

**Internal Mechanics**

**EWCH-Series:** Cylinder is driven by an external Enerpac pump.

**EWCE-Series:** Cylinder is driven by a radial pump powered by an electric motor

**Typical Wire and Cable Cutting Applications**

- Telecommunications
- Electrical installation and maintenance
- Power generation and transmission
- Shipbuilding

▼ *Guillotine-style blades make quick work of electrical cables and wire rope.*



# EWCH-Series Hydraulic Wire and Cable Cutters

**EWCH-Series Hydraulic Wire and Cable Cutters**

EWCH-Series Hydraulic Wire and Cable Cutters are ideal for use in production facilities where demanding, high-volume cutting applications are often encountered.

Each tool is driven by a specialized external hydraulic pump, which provides greater cutting force and allows for higher duty cycles compared with other cutter types.

**EWCH Series**

CE



Maximum Material Hardness (Cable):
**43 HRc**

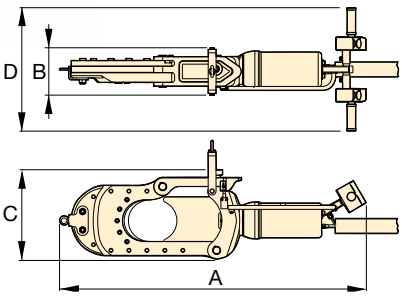
Maximum Material Diameter:
**3.54 - 7.09 inches**

Maximum Operating Pressure:
**10,000 psi**

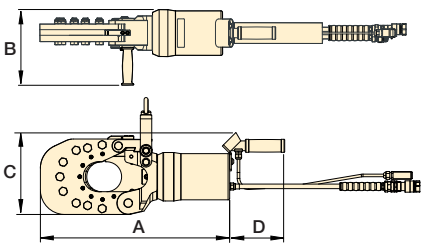
① Guillotine-style blades maintain effectiveness throughout rigorous use
② Cutting head can be opened and closed to help position material to be cut
③ Eyebolt facilitates easy lifting
④ Double-acting cylinder with advance and retract buttons improves control and reduces jamming
⑤ External hydraulic pump helps keep tool cooler and working longer (pump, hose, and pump coupler sold separately)



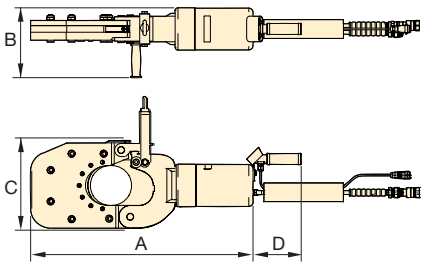

**EWCH180**




**EWCH90**




**EWCH140**






**Pumps and Accessories**

The EWCH-Series Cutters are designed to work with specialized ZE6-Series pumps.

The pump and hose are sold separately. Both are required for the system to function. See page 236 for complete details on required pumps and accessories.

*Page:* **236**



Optional gauges and accessories may be used to monitor pressure in the hydraulic circuit. Enerpac recommends **Gauge Kit GKHC** for use with Enerpac hydraulic cutters.

| Maximum Material Diameter* (in) | Model Number | Maximum Material Tensile Strength* (psi) | Maximum Material Hardness* (HRc) | Maximum Cutting Force (tons) | Maximum Hydraulic Operating Pressure (psi) | Dimensions (in) A | B | C | D | Wt. (lbs) | Replacement Blade Kit Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.54 | **EWCH90** | 94,275 | 43 | 61.8 | 10,000 | 22.9 | 11.1 | 9.9 | 6.7 | 119 | **EWCH9001K** |
| 5.51 | **EWCH140** | 94,275 | 43 | 61.8 | 10,000 | 30.8 | 9.7 | 12.2 | 6.7 | 198 | **EWCH14001K** |
| 7.09 | **EWCH180** | 94,275 | 43 | 89.0 | 10,000 | 53.7 | 8.3 | 15.8 | 21.7 | 330 | **EWCH18001K** |

* Maximum material properties indicated refer to the material to be cut.

# EWCE-Series Electric Wire and Cable Cutters

ENERPAC

**EWCE-Series Electric Wire and Cable Cutters**

EWCE-Series Electric Wire and Cable Cutters combine the efficiency and safety of their hydraulic counterparts with the greater portability of electric tools. Their lighter weight allows for easier carrying and positioning. Available in 120V and 230V versions.

**EWCE Series**



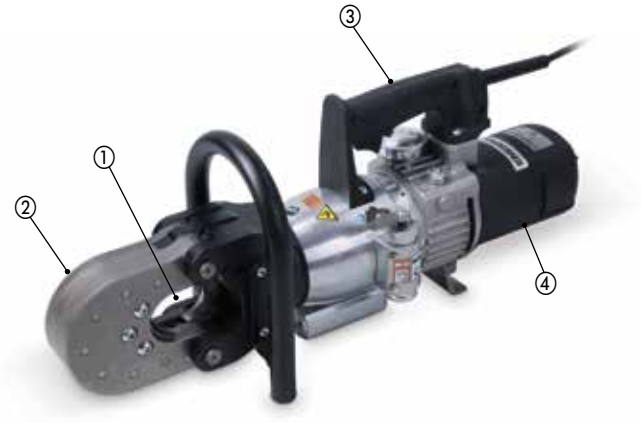
Maximum Material Hardness:
**48 HRc**

Maximum Material Diameter:
**1.65 - 2.17 inches**

Voltage*:
**120 and 230 Volts**

* ETL certification applies to 120V tools only

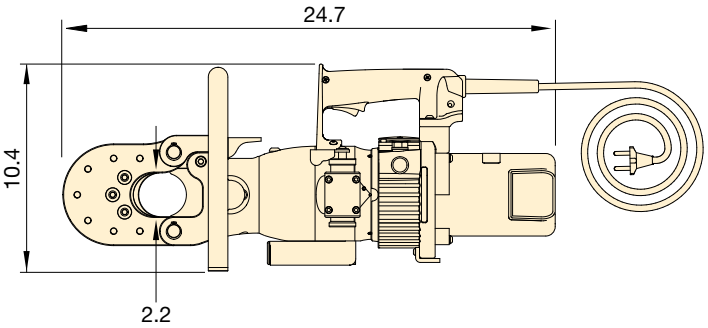
① Durable, guillotine-style blades maintain effectiveness throughout rigorous use
② Cutting head opens wide for easy positioning of wire or cable
③ Robust handles enable easy positioning and transport
④ Double-acting cylinder with directional control improves handling and reduces jamming

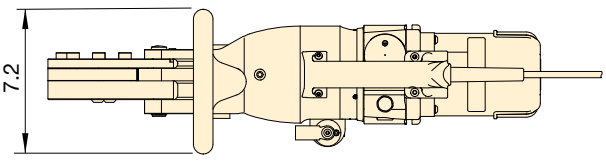



▼ *Cut through wire and cables with ease.*



Dimensions shown in inches.




**Voltage: (Model No. ending with suffix)**

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)
**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Max. Material Diameter* (in) | | Power Specifications | | | | Model No. | Maximum Material Hardness* | Maximum Cutting Force | Cord Length | Weight | Replacement Blade Kit Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Cable | Rope | Volts | Hz | Amps | Watts | | (HRc) | (tons) | (ft) | (lbs) | |
| 2.17 | 1.65 | 120 | 60 | 11.0 | 1300 | **EWCE55B** | 48 | 38.2 | 6 | 55 | **EWCE5501K** |
| 2.17 | 1.65 | 230 | 50 | 6.8 | 1400 | **EWCE55E** | 48 | 38.2 | 10 | 55 | **EWCE5501K** |

* Maximum material properties indicated refer to the material to be cut.

# ECS-Series Cutter / Spreader Combination Tools

▼ Shown: **ECSE300B**



## ECSE Series

Maximum Material Hardness:
**41 HRc**

Maximum Blade Aperture:
**11.81 inches**

Voltage*:
**120 and 230 Volts**

* ETL certification applies to 120V tools only

**Internal Mechanics**

**ECSE-Series:** Cylinder is driven by a radial pump powered by an electric motor.

**Typical Cutter / Spreader Applications**

- Industrial manufacturing
- Recycling
- Demolition

## Productivity

- **Blades easily cut through metal profiles, pipes, rods and other obstructions**
- **Wedges on tips of blades provide powerful spreading force**

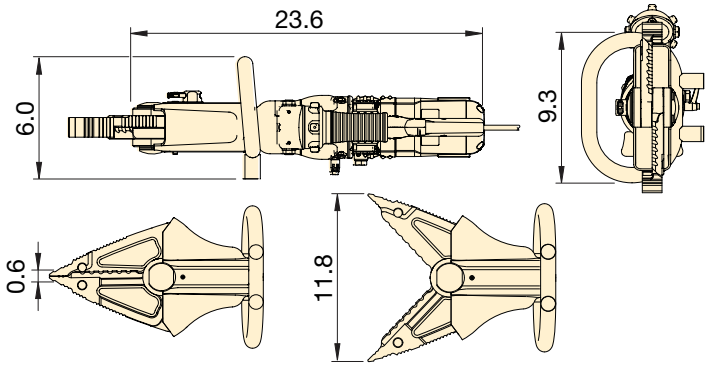
## Safety

- **Controlled cutting process creates minimal spark risk compared with torching, grinding and sawing methods**




① Highly durable blades grip and cut through metal obstructions with ease
② Cutting head can be rotated 180 degrees in each direction for easier access to the application
③ Robust handle enables easy positioning and transport
④ Double-acting cylinder improves control and reduces jamming
⑤ Wedges provide powerful spreading force

Dimensions shown in inches.




**Voltage: (Model No. ending with suffix)**

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)
**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Maximum Blade Aperture (in) | Power Specifications Volts | Hz | Amps | Watts | Model Number | Maximum Material Tensile Strength* (psi) | Maximum Material Hardness* (HRc) | Maximum Spreading Force** (tons) | Cord Length (ft) | Weight (lbs) | Replacement Jaws Kit Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.81 | 120 | 60 | 10.0 | 1200 | **ECSE300B** | 94,275 | 41 | 5.17 | 6 | 33 | **ECSE30001K** |
| 11.81 | 230 | 50 | 5.3 | 1100 | **ECSE300E** | 94,275 | 41 | 5.17 | 10 | 33 | **ECSE30001K** |

* Maximum material properties indicated refer to the material to be cut.
** 0.98 inches from jaw tips with jaws closed.

▼ Shown left to right: **WHC3380, WHC750**

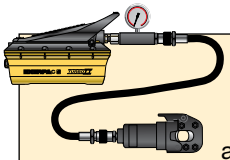



# WHC, WHR, STC Series

Capacity:
**3 - 20 tons**

Cutting Capacity:
**0.50 - 4 inches**

Maximum Operating Pressure:
**10,000 psi**



**Cutterhead Sets**

Hydraulic Cutterheads are available as sets (pump, tool and hose).

| Cutter Model Number | Pump Model Number | Set Model Number † |
|---|---|---|
| WHC750 | P392 | STC750H |
| WHC750 | P392FP | STC750FP |
| WHC750 | PATG1102N | STC750A |
| WHC1250 | P392 | STC1250H |
| WHC1250 | P392FP | STC1250FP |
| WHC1250 | PATG1102N | STC1250A |

†: H = Hand Pump, A = Air Operated Pump
FP = Foot Pump

- **Single acting, spring-return on all models, except WHR1250**
- **Guillotine action for efficient operation**
- **Lifting handles on larger models**
- **Carrying bag included for easy carrying and tool protection**
- **Ideal for use with most Enerpac pumps featuring 3-way valve or dump valve and 10,000 psi pressure rating (except WHR1250, which requires 4-way valve)**
- **CR400 coupler and dust cap included on all models**

▼ *Steel rope is easily cut with the smooth guillotine action of an Enerpac cutterhead.*



▼ **Selection Chart Maximum Cutting Capacities** (diameter in inches)

| Cutter Head Operation | Model Number | Capacity (ton) | Oil Cap. (in³) | Steel Wire Rope, Hemp-core or IWRC 6x7 6x12 6x19 | Round Bar: Copper Wire or Bar | Round Bar: Aluminum Wire or Bar | Round Bar: Soft Steel Bolts | Round Bar: Reinforcing Bar | Wire Strand: Bare Copper Wire Strands | Wire Strand: Bare Aluminum Wire Strands 6x7 | Wire Strand: ACSR | Wire Strand: Guy Steel Wire Strands 1x7 1x19 | Cable: Telephone Cable CPP | Cable: Underground Cable (Power) | Length (in) | Wt. (lbs) | Replacement Blade Kit Numbers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-acting | WHC750* | 4 | 1.2 | 0.63 | 0.75 | 0.75 | 0.56 | 0.50*** | 0.75 | 0.75 | 0.75 | 0.63 | ☆ | ☆ | 5.00 | 7 | WCB750 |
| | WHC1250* | 20 | 8.2 | 1.25 | 1.25 | 1.25 | 1.25 | 1.00 | 1.25 | 1.25 | 1.25 | 0.88 | ☆ | ☆ | 11.00 | 25 | WCB1250 |
| | WHC2000 | 13 | 7.3 | 1.00 | 1.25 | 1.25 | 0.88 | ☆ | 2.00 | 2.00 | 2.00 | 0.75 | ☆ | 2.00 | 15.00 | 23 | WCB2000 |
| | WHC3380 | 3 | 4.0 | ☆ | ☆ | ☆ | ☆ | ☆ | 3.00 | 3.00 | ☆ | ☆ | 3.38 | 3.38 | 19.00 | 20 | WCB3380 |
| | WHC4000 | 8 | 8.4 | ☆ | ☆ | ☆ | ☆ | ☆ | 3.50 | 3.50 | ☆ | ☆ | 4.00 | 4.00 | 24.00 | 32 | WCB4000 |
| D/A** | WHR1250 | 20 | 7.5 | 1.25 | 1.25 | 1.25 | 1.25 | 1.00 | 1.25 | 1.25 | 1.25 | 0.88 | ☆ | ☆ | 16.50 | 26 | WCB1250 |

* Available in sets. ** D/A = Double-acting *** Low Alloy

☆ Will not cut designated material

▼ Shown left to right: **WMC2000, WMC750**



# WMC
## Series

Capacity:
**3 - 20 tons**

Maximum Material Diameter:
**0.38 - 3.38 inches**

- **Rotating heads for operator convenience**
- **Guillotine action (except WMC1000) for efficient operation**
- **Carrying bag included for easy carrying and tool protection**
- **Velcro® straps to secure handles on larger models for easy transportation**
- **Spring-return on all models**
- **Lightweight, self-contained tool, can be used anywhere**



**Replacement Blades**

To order 60-62HRc hardened replacement blades use one of the model numbers shown below.

| For Cutter Model Number | Order Blade Model Number |
|---|---|
| WMC580 | WCB750 |
| WMC750 | WCB750 |
| WMC1000 | WCB1000 |
| WMC1250 | WCB1250 |
| WMC1580 | WCB1580 |
| WMC2000 | WCB2000 |
| WMC 3380 | WCB3380 |

**Caution!**

A "☆" in the charts on these pages means that this hydraulic cutter is not designed to cut this size or type of material. Any attempt to do so may result in personal injury and damage to the unit and will void the warranty.

▼ **Selection Chart Maximum Cutting Capacities** (diameter in inches)

| Model Number | Capacity (ton) | Steel Wire Rope, Hemp-core or IWRC 6x7 6x12 6x19 | Round Bar | | | | Wire Strand | | | | | Cable | | Length (in) | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Copper Wire or Bar | Alumi-num Wire or Bar | Soft Steel Bolts | Rein-forcing Bar | Bare Copper Wire Strands | Bare Alumi-num Wire Strands 6x7 | ACSR Wire Strands | Guy Steel Wire Strands 1x7 | Guy Steel Wire Strands 1x19 | Tele-phone Cable CPP | Under-ground Cable (Power) | | |
| **WMC580** | **4** | 0.63 | 0.63 | 0.63 | 0.63 | 0.38 | 0.63 | 0.63 | 0.63 | 0.56 | 0.56 | ☆ | ☆ | 15.00 | 8 |
| **WMC750** | **4** | 0.75 | 0.75 | 0.75 | 0.69 | 0.50*** | 0.75 | 0.75 | 0.75 | 0.56 | 0.56 | ☆ | ☆ | 15.00 | 8 |
| **WMC1000*** | **20** | ☆ | 0.75 | 0.75 | 0.75 | 0.75 | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | 26.75 | 25 |
| **WMC1250** | **20** | 1.25 | 1.25 | 1.25 | 1.25 | 0.88 | 1.25 | 1.25 | 1.25 | 0.88 | 0.88 | ☆ | ☆ | 26.75 | 23 |
| **WMC1580** | **6** | 0.75 | 0.75 | 0.75 | 0.75 | ☆ | 1.50 | 1.50 | 1.50 | 0.63 | 0.63 | ☆ | ☆ | 22.00 | 15 |
| **WMC2000** | **13** | 1.00 | 1.25 | 1.25 | 0.88 | ☆ | 2.00 | 2.00 | 2.00 | 0.75 | 0.75 | ☆ | ☆ | 24.75 | 24 |
| **WMC3380** | **3** | ☆ | ☆ | ☆ | ☆ | ☆ | 3.00 | 3.00 | ☆ | ☆ | ☆ | 3.38 | 3.38 | 26.00 | 22 |

* Cuts .50" alloy chain grade 70 (type G7 transport or tie-down) or grade 80 (for overhead lifting applications)
☆ Will not cut designated material
*** Low Alloy

**EBH-Series Bar Cutters and EWCH-Series Wire and Cable Cutters are powered by an external pump with an electric valve. A twin hydraulic hose and electric cable connect the tools to the pump, allowing the user to operate them directly from a control panel located on the cutters.**

## ZE Series



Reservoir Capacity:
**1.2 - 2.6 gallon**

Motor Size:
**1.5 - 7.5 hp**

Maximum Operating Pressure:
**10,000 psi**

**▼ Pumps used with EBH Bar Cutters and EWCH Wire & Cable Cutters**



### ZE4-Series Pump

Specialized **ZE4-Series** pumps provide a balance of speed and versatility, and are available in 115 and 230 volts. Recommended for use with **EBH30** and **EBH35** cutters when portability, or the convenience of using standard voltage is required.



### ZE6-Series Pump

Specialized **ZE6-Series** three-phase pumps offer a high-flow rate that provides fast performance for demanding applications. Recommended for all **EWCH and EBH** bar cutting applications where speed is critical, or where higher flow rates are required by the application.



### Gauges

Optional gauges and accessories may be used to monitor pressure in the hydraulic circuit. Enerpac recommends **Gauge Kit GKHC** for use with Enerpac hydraulic cutters.



### Hoses

EBH-and EWCH-Series Cutters require a twin hose with an electric cable. The hose comes equipped with the appropriate couplers.

Required hoses sold separately.

| Description | Model No. |
|---|---|
| 20 ft. long, twin hose with sheath and electric cable | **CH720EC** |

**Voltage: (Model No. ending with suffix)**

**B** = 115V, 50-60 Hz (with NEMA 5-15 plug)
**E** = 208-240V, 50-60 Hz (with commonly used European (SCHUKO) plug)
**I** = 208-240V, 50-60 Hz (with NEMA 6-15 plug)

| Pump Series | Pump Model Number [1] [2] | Motor Electrical Specification | Motor Size (hp) | Reservoir Capacity (gal) | Height (in) | Length (in) | Width (in) | Wt. (lbs) | Recommended Cutter Model Number (sold separately) |
|---|---|---|---|---|---|---|---|---|---|
| ZE4 | **ZE4404XB** | 115 V-1 ph 50-60 Hz | 1.5 | 1.2 | 20.2 | 20.5 | 11.0 | 100 | EBH30 EBH35 |
| | **ZE4404XE** | 208-240V-1 ph 50-60 Hz | | | | | | | |
| | **ZE4404XI** | 208-240V-1 ph 50-60 Hz | | | | | | | |
| ZE6 | **ZE6410XG-S** | 208-240 V-3 ph | 7.5 | 2.6 | 15.1 | 22 | 15.1 | 170 | All EWCH- and EBH-Series Cutters |
| | **ZE6410XJ-S** | 460-480 V-3 ph | | | | | | | |
| | **ZE6410XK-S** | 440 V-3 ph | | | | | | | |
| | **ZE6410XW-S** | 380-415 V-3 ph | | | | | | | |

[1] Indicated pumps come equipped with appropriate configurations to work with indicated cutters.
[2] ZE6 pumps are available with roll cages. To add add a roll cage, add an "R" prior to the "S" in the nomenclature, e.g. ZE6410XG-RS.

# Pumps and Accessories for EDCH Cutters

**EDCH-Series Decommissioning Cutters are designed to work in a wide variety of environments, from factories to demolition projects. Enerpac offers multiple pump options to provide power, speed and mobility for all your applications.**

**▼ Pumps used with EDCH Decommissioning Cutters**



## ZC3-Series Pumps

Specialized ZC3-Series Cordless Pumps offer the portability of a cordless tool without the added weight of an integrated motor, combining freedom of movement with ease of use. Recommended for use with **EDCH130** cutters.



## ZE4-Series Pumps

Specialized ZE4-Series Pumps provide a balance of speed and versatility. Recommended for use with all **EDCH** Cutters when the convenience of using standard voltage is required.



## ZE6-Series Pump

Specialized ZE6-Series pumps offer a high-flow rate that provides fast performance. Recommended for use with all **EDCH** Cutters when 3-phase power is available, and speed is critical.

**Voltage: (Model No. ending with suffix)**

**B** = 115V, 50-60 Hz (with NEMA 5-15 plug)
**E** = 208-240V, 50-60 Hz (with commonly used European (SCHUKO) plug)
**I** = 208-240V, 50-60 Hz (with NEMA 6-15 plug)

## ZE, ZC Series



Reservoir Capacity:
**1.2 - 2.6 gallon**

Motor Size:
**1.4 - 7.5 hp**

Maximum Operating Pressure:
**10,000 psi**



### Gauges

Optional gauges and accessories may be used to monitor pressure in the hydraulic circuit. Enerpac recommends **Gauge Kit GKHC** for use with Enerpac hydraulic cutters.



### Hoses

EDCH-Series Cutters require a twin hose for operation. The hose comes equipped with the appropriate couplers.

Required hoses sold separately.

| Description | Model No. |
|---|---|
| 20 ft. long, twin hose only | **CH720MC** |

| Pump Series | Pump Model Number [1] [2] | Motor Electrical Specification | Motor Size (hp) | Reservoir Capacity (gal) | Height (in) | Length (in) | Width (in) | Wt. (lbs) | Recommended Cutter Model Number (sold separately) |
|---|---|---|---|---|---|---|---|---|---|
| ZC3 | **ZC3204XB** | Cordless (115 V Charger) | 1.4 | 1.2 | 25.7 | 18.6 | 14.3 | 60 | EDCH130 |
| | **ZC3204XE** | Cordless (230 V Charger) | | | | | | | |
| ZE4 | **ZE4204XB** | 115 V-1 ph 50-60 Hz | 1.5 | 1.2 | 20.2 | 20.5 | 11.0 | 100 | EDCH130<br>EDCH145<br>EDCH170 |
| | **ZE4204XE** | 208-240V-1 ph 50-60 Hz | | | | | | | |
| | **ZE4204XI** | 208-240V-1 ph 50-60 Hz | | | | | | | |
| ZE6 | **ZE6210XG-S** | 208-240 V-3 ph | 7.5 | 2.6 | 15.1 | 22 | 15.1 | 170 | |
| | **ZE6210XJ-S** | 460-480 V-3 ph | | | | | | | |
| | **ZE6210XK-S** | 440 V-3 ph | | | | | | | |
| | **ZE6210XW-S** | 380-415 V-3 ph | | | | | | | |

[1] Indicated pumps come equipped with appropriate configurations to work with indicated cutters.
[2] ZE6 pumps are available with roll cages. To add add a roll cage, add an "R" prior to the "S" in the nomenclature, e.g. ZE6210XG-RS.

**Enerpac's Bolting Solutions caters to the complete bolting work-flow, ensuring joint integrity in a variety of applications throughout industry:**

### Joint Assembly

From simple pipe alignment to complex joint positioning of large structural assemblies, our comprehensive line of joint assembly products range from hydraulic and mechanical flange alignment and flange closing tools to PLC-controlled multi-point synchronous positioning systems.

### Controlled Tightening

Enerpac offers a variety of controlled tightening options to best meet the requirements of your application. From manual torque multipliers to hydraulic and pneumatic driven square drive wrenches, and from low-profile hexagon torque wrenches to inter-connectable bolt tensioning tools; we offer the products you need for accurate and simultaneous tightening of multiple bolts.

### Joint Separation

Enerpac also provides hydraulic nut splitters and a variety of mechanical and hydraulic spreading tools for joint separation during inspection, maintenance and decommissioning operations. High-quality bolting solutions from the brand you can trust. See how Enerpac can make your bolting work-flow more accurate, safer and efficient.

**Enerpac Bolting Integrity Software Solutions**

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections.

The software is used by a wide range of clients worldwide often interfacing with maintenance, construction and commissioning management systems.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report.

Custom Joint information can also be entered.

*Page:* **416**



# Bolting Tools and Pumps Section Overview

| | Capacity | Tool Type and Functions | Series | | Page |
|---|---|---|---|---|---|
| Controlled Tightening and Loosening | 1400-26,150 Ft.lbs | **Square Drive Hydraulic Torque Wrenches-Steel** | S |  | 240 ▶ |
| | ¾ – 6⅛ inches<br>19 - 155 mm | **Heavy-duty Impact Sockets** Square Drive | BSH |  | 244 ▶ |
| | 1 1/16 - 4 15/16 inches<br>27- 120 mm | **Back-Up Spanners for Torque Wrenches** | BUS |  | 245 ▶ |
| | 1 13/16 - 2 15/16 inches<br>46- 75 mm | **Safe T™ Torque Lock** | STTL |  | 246 ▶ |
| | 2000-35,000 Ft.lbs<br>1980-4360 Ft.lbs | **Low-Profile Hydraulic Torque Wrenches-Steel**<br>**UltraSlim Stepped-Width Cassette** | W<br>W-SL |  | 248 ▶<br>258 ▶ |
| | 1408-28,002 Ft.lbs | **Hexagon and Square Drive Torque Wrenches**<br>One drive, two tools | RSL, RLP<br>RSL, RSQ |  | 262 ▶ |
| | 1411-24,057 Ft-lbs | **Square Drive Aluminum Torque Wrenches** | DSX |  | 274 ▶ |
| | 1541-7562 Ft.lbs | **Drive Units, Hexagon Cassettes & Square Drive Torque Wrenches** | HMT<br>HLP, HSQ |  | 278- ▶<br>283 ▶ |
| | 750-8000 Ft.lbs | **Manual Torque Multipliers** | E |  | 284 ▶ |
| | 1000-6000 Ft-lbs | **Pneumatic Torque Wrenches** | PTW |  | 286 ▶ |
| | 148-7375 Ft.lbs | **Mobile Calibration System** | MCS |  | 290 ▶ |
| | | **Selection Matrix**<br>Torque Wrenches - Pumps - Hoses | |  | 291 ▶ |
| | Flow<br>15 in³/min. | **Portable Electric Torque Wrench Pumps**<br>Cordless Hydraulic Power | XC |  | 292 ▶ |
| | Flow<br>32 in³/min. | **Electric Torque Pumps** | E-Pulse |  | 294 ▶ |
| | Flow<br>60-120 in³/min. | **Electric Torque Pumps** | TQ |  | 296 ▶ |
| | Flow<br>60-120 in³/min. | **Electric Torque Pumps** | ZU4T |  | 298 ▶ |
| | Flow<br>60-120 in³/min. | **Electric Torque Pumps** | ZE4T,<br>ZE5T |  | 302 ▶ |
| | Flow 25-60 in³/min. | **Air Torque Pumps** | LAT<br>ZA4T |  | 304 ▶<br>306 ▶ |
| | 15.1 - 522.7 tons<br>25.2 - 444.9 tons | **Topside Tensioners** | HM<br>GT |  | 310 ▶<br>314 ▶ |
| | 17.8 - 260.9 tons | **Subsea Tensioners** | EAJ |  | 316 ▶ |
| | 22.9 - 333.9 tons | **Power Gen Tensioners**<br>**Foundation Bolt Tensioners** | PGT<br>FTR, FTE |  | 318- ▶<br>323 ▶ |
| | 0.037 in³/stroke | **High-Pressure Hand Pump**<br>**Ultra-High-Pressure Hoses & Couplers** | HPT<br>HT, B |  | 324<br>325 |
| | Flow 4 in³/min.<br>Flow 8-20 in³/min. | **Ultra High-Pressure Air Pump**<br>**Electric Tensioning Pumps** | ATP<br>ZUTP |  | 327 ▶<br>328 |
| Joint Assembly / Joint Separation | 1-10 tons | **Flange Alignment Tools** | ATM |  | 330 ▶ |
| | 8-14 tons | **Step-type Industrial Spreaders** | FSC, FSH,<br>FSM |  | 332 ▶<br>▶ |
| | ½ - 2⅞ A/F<br>2¾ - 5⅜ A/F | **Hydraulic Nut Splitters** | NC, NSC<br>NSH |  | 334 ▶<br>338 |
| | 1-12 in. flange | **Mechanical Flange Face Tool** | FF |  | 340 ▶ |

▼ Shown: **S3000PX**




## Safety and Performance

- **Compact, high-strength uni-body construction provides a small operating radius without sacrificing endurance**
- **35° rotation angle and rapid return stroke for fast operation**
- **Tough manifold design with added safety feature for enhanced operator safety**

## Simplicity

- **360° click-on reaction arm with quick release lever provides easier handling, even when wearing gloves**
- **Includes robust handle which mounts on both sides of tool for extra maneuverability**
- **Push button square drive release for quickly reversing the square drive for tightening or loosening**

## Versatility

- **Available with optional enhanced tilt and swivel TSP300 manifold for horizontal and vertical maneuverability, with greater durability***

## Accuracy

- **Constant torque output provides accuracy of +/-3% across full stroke**
- **Optional Angle-of-Turn Indicator provides measurement of rotation**

* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com

# Setting New Standards in Safety, Simplicity and Performance



### Two Handle Styles

Robust angled positioning handles come standard with every S-Series (X-Edition) tool. Straight positioning handles are available as accessories.

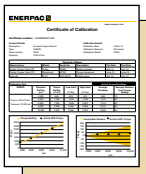
| Compatible S-Series (X-Edition) wrenches | Angled positioning handles (standard) | Straight positioning handles (optional) |
|---|---|---|
| S1500X, S3000X | **SWH6A** | **SWH6S** |
| S6000X, S11000X | **SWH10A** | **SWH10S** |
| S25000X | Supplied with an eyebolt handle **(SWH10EA)** | |



### TSP - Pro Series Swivel

The optional TSP300 tilt and swivel manifold with robust interlocking design provides 360° X-axis rotation and 160° Y-axis rotation.

*Page:* 243



### Calibration Certificate

All X-Edition tools are CE-ATEX certified and are shipped complete with a calibration certificate.

CE II 2 GD T4

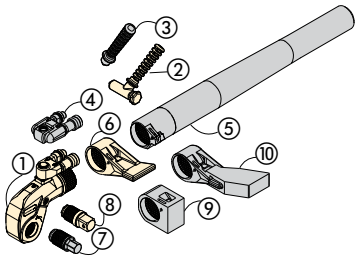
### Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

*Page:* 416

# Square Drive Hydraulic Torque Wrenches

Standard are ① ② ⑥ ⑧. Other items are optional.




① Drive Unit
② Angled Positioning Handle
③ Straight Positioning Handle
④ Pro Series Swivel
⑤ Reaction Tube Extension
⑥ Standard Reaction Arm
⑦ Allen® Drive
⑧ Square Drive
⑨ Short Reaction Arm
⑩ Extended Reaction Arm

**250%**

**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

## S Series (X-Edition)



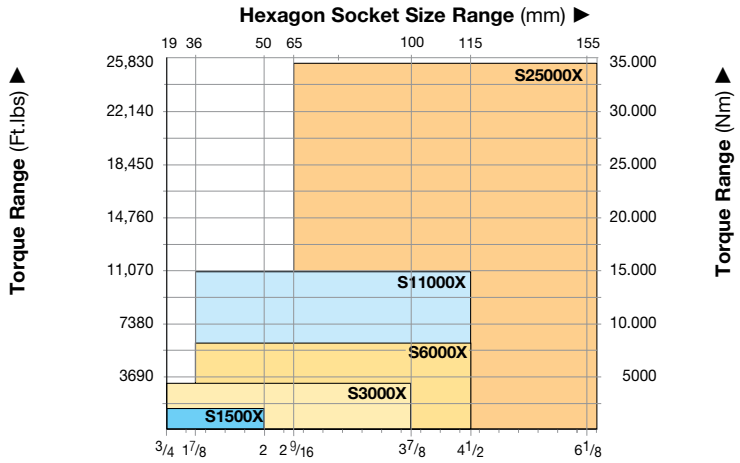
Nominal Torque at 10,000 psi:
**26,150 Ft.lbs**

Square Drive Range:
**¾ - 2½ inches**

Nose Radius:
**0.98 - 2.52 inches**

Maximum Operating Pressure:
**10,000 psi**

***TORQUE WRENCH SELECTION (based on hexagon socket size range)**






**Back-Up Spanners**

Hands free tool to be used to stop back nut from turning during make up or break out.

*Page:* 245



**Safe T™ Torque Lock**

The Safe T Torque Lock is suitable for all bolted applications from 140 to 11,070 ft-lbs. using a heavy-duty impact socket.

The patented mechanical locking system creates a hands-free torque wrench solution suitable for Enerpac only square drive tools.

Suitable for S3000X, S6000X, and S11000X.

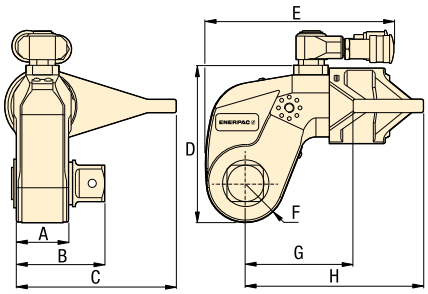
*Page:* 246



**Use only Heavy-Duty Impact Sockets**

For power-driven torquing equipment, according to ISO2725 and ISO1174; DIN 3129 and DIN 3121 or ASME-B107.2/1995.

*Page:* 244




| Nominal Torque at 10,000 psi / 690 bar | | Minimum Torque at 1000 psi / 69 bar | | Square Drive | | Angle-of-Turn Model No. (optional) | Torque Wrench Model No.* | Dimensions (in) | | | | | | | | Wt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size (in) | Model No. (included with wrench) | | | A | B | C | D | E | F | G | H | |
| (Ft.lbs) | (Nm) | (Ft.lbs) | (Nm) |  | |  |  | | | | | | | | | (lbs) |
| 1440 | 1952 | 144 | 195 | ¾" | SD15–012 | AOT15 | **S1500X** | 1.54 | 2.56 | 4.25 | 3.82 | 5.35 | 0.98 | 2.76 | 5.08 | 7.0 |
| 3225 | 4373 | 323 | 438 | 1" | SD30–100 | AOT30 | **S3000X** | 1.89 | 3.15 | 5.31 | 5.04 | 6.81 | 1.30 | 3.54 | 6.34 | 12.3 |
| 6150 | 8338 | 615 | 834 | 1½" | SD60–108 | AOT60 | **S6000X** | 2.17 | 3.62 | 6.65 | 6.18 | 7.56 | 1.57 | 4.33 | 7.40 | 20.2 |
| 11,175 | 15.151 | 1,118 | 1.515 | 1½" | SD110–108 | AOT110 | **S11000X** | 2.83 | 4.49 | 7.76 | 7.48 | 8.98 | 1.95 | 5.24 | 9.02 | 34.7 |
| 26,150 | 35.455 | 2,615 | 3.545 | 2½" | SD250–208 | AOT250 | **S25000X** | 3.50 | 5.63 | 9.69 | 9.61 | 11.30 | 2.52 | 7.17 | 11.61 | 70.8 |

* To order a S-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation. e.g., **S1500PX**.

Nominal Torque at 10,000 psi:
**26,150 ft.lbs.**

Hexagon Size Allen® Drive:
**½ - 2¼ in. (14-85 mm)**

**For S Series (X-Edition)**



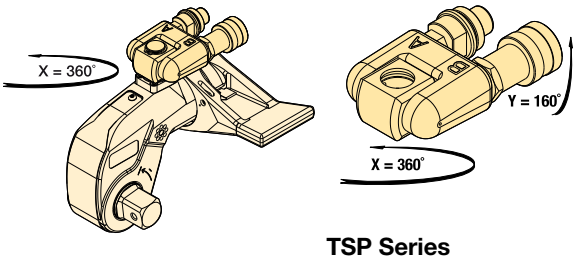
| TORQUE WRENCH | OPTIONAL ALLEN® DRIVES, IMPERIAL | | | | OPTIONAL ALLEN® DRIVES, METRIC | | | | SHORT REACTION ARM FOR ALLEN® DRIVES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | | |  | | | |  | |  |   | |
| **Model Number** | **Hexagon Size** (in) | **Maximum Torque** (ft.lbs) | **Model Number** | **Dim. B1** (in) | **Hexagon Size** (mm) | **Maximum Torque** (ft.lbs) | **Model Number** | **Dim. B1** (in) | **Model Number** | **Dimensions** (in) **C1** | **H1** |
| **S1500X (1440 Ft-lbs)** | ½ | 355 | **SDA15008** | 2.6 | **14** | 475 | **SDA1514** | 2.60 | **SRA15X** | 2.66 | 2.56 |
| | ⅝ | 690 | **SDA15010** | 2.6 | **17** | 850 | **SDA1517** | 2.68 | | | |
| | ¾ | 1195 | **SDA15012** | 2.8 | **19** | 1185 | **SDA1519** | 2.76 | | | |
| | ⅞ | 1400 | **SDA15014** | 2.9 | **22** | 1400 | **SDA1522** | 2.87 | | | |
| | **1** | 1400 | **SDA15100** | 3.0 | **24** | 1400 | **SDA1524** | 2.91 | | | |
| **S3000X (3225 Ft-lbs)** | ⅝ | 690 | **SDA30010** | 3.0 | **17** | 850 | **SDA3017** | 3.03 | **SRA30X** | 3.15 | 2.91 |
| | ¾ | 1195 | **SDA30012** | 3.1 | **19** | 1185 | **SDA3019** | 3.11 | | | |
| | ⅞ | 1895 | **SDA30014** | 3.3 | **22** | 1835 | **SDA3022** | 3.23 | | | |
| | **1** | 2825 | **SDA30100** | 3.4 | **24** | 2385 | **SDA3024** | 3.31 | | | |
| | **1⅛** | 3200 | **SDA30102** | 3.5 | **27** | 3200 | **SDA3027** | 3.35 | | | |
| | **1¼** | 3200 | **SDA30104** | 3.5 | **30** | 3200 | **SDA3030** | 3.43 | | | |
| | – | – | – | – | **32** | 3200 | **SDA3032** | 3.46 | | | |
| **S6000X (6050 Ft-lbs)** | ⅝ | 690 | **SDA60010** | 3.3 | **17** | 850 | **SDA6017** | 3.39 | **SRA60X** | 3.60 | 3.50 |
| | ¾ | 1195 | **SDA60012** | 3.5 | **19** | 1185 | **SDA6019** | 3.46 | | | |
| | ⅞ | 1895 | **SDA60014** | 3.6 | **22** | 1835 | **SDA6022** | 3.58 | | | |
| | **1** | 2825 | **SDA60100** | 3.7 | **24** | 2385 | **SDA6024** | 3.66 | | | |
| | **1⅛** | 4025 | **SDA60102** | 3.8 | **27** | 3395 | **SDA6027** | 3.70 | | | |
| | **1¼** | 5520 | **SDA60104** | 3.9 | **30** | 4655 | **SDA6030** | 3.78 | | | |
| | – | – | – | – | **32** | 5650 | **SDA6032** | 3.82 | | | |
| **S11000X (11,175 Ft-lbs)** | **1¼** | 5520 | **SDA110104** | 4.5 | **30** | 4655 | **SDA11030** | 4.41 | **SRA110X** | 5.02 | 4.17 |
| | **1⅜** | 7345 | **SDA110106** | 4.6 | **32** | 5650 | **SDA11032** | 4.49 | | | |
| | **1½** | 9535 | **SDA110108** | 4.6 | **36** | 8040 | **SDA11036** | 4.61 | | | |
| | **1⅝** | 11,000 | **SDA110110** | 4.8 | **41** | 11,000 | **SDA11041** | 4.76 | | | |
| | **1¾** | 11,000 | **SDA110112** | 4.9 | **46** | 11,000 | **SDA11046** | 5.00 | | | |
| **S25000X (26,150 Ft-lbs)** | **1½** | 9535 | **SDA250108** | 5.5 | **36** | 8040 | **SDA25036** | 5.51 | **SRA250X** | 6.24 | 5.31 |
| | **1⅝** | 12,120 | **SDA250110** | 5.7 | **41** | 11,880 | **SDA25041** | 5.67 | | | |
| | **1¾** | 15,135 | **SDA250112** | 5.8 | **46** | 16,775 | **SDA25046** | 5.83 | | | |
| | **1⅞** | 18,620 | **SDA250114** | 5.9 | **50** | 21,545 | **SDA25050** | 5.94 | | | |
| | **2** | 22,595 | **SDA250200** | 5.9 | **55** | 26,150 | **SDA25055** | 6.06 | | | |
| | **2¼** | 26,150 | **SDA250204** | 6.0 | **60** | 26,150 | **SDA25060** | 6.22 | | | |
| | – | – | – | – | **65** | 26,150 | **SDA25065** | 6.34 | | | |
| | – | – | – | – | **70** | 26,150 | **SDA25070** | 6.46 | | | |
| | – | – | – | – | **75** | 26,150 | **SDA25075** | 6.61 | | | |
| | – | – | – | – | **85** | 26,150 | **SDA25085** | 6.89 | | | |

## TSP-Series, Pro Series Swivels

- Robust interlocking design
- 360° X-axis and 160° Y-axis rotation
- Increases tool fit in restricted access areas
- Simplifies hose placement
- Includes male and female couplers

**TSP RTEX SRSX Series**





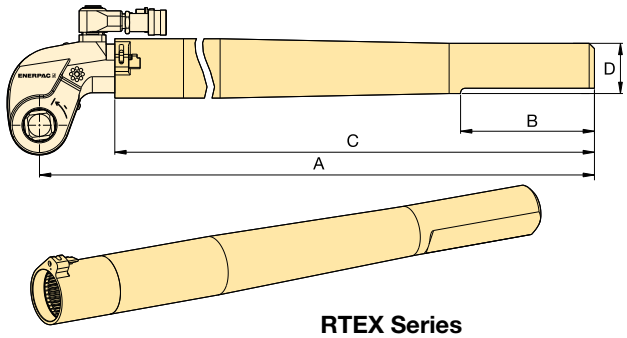

**TSP Series**

| Torque Wrench Model Number | Model Number | Maximum Pressure (psi) | Wt. (lbs) |
|---|---|---|---|
| S1500X, S3000X, S6000X, S11000X, S25000X | TSP300* | 10,000 | 0.44 |

Note: To order a S-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation, e.g., **S1500PX.**

* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com

## RTEX-Series, Reaction Tube Extensions



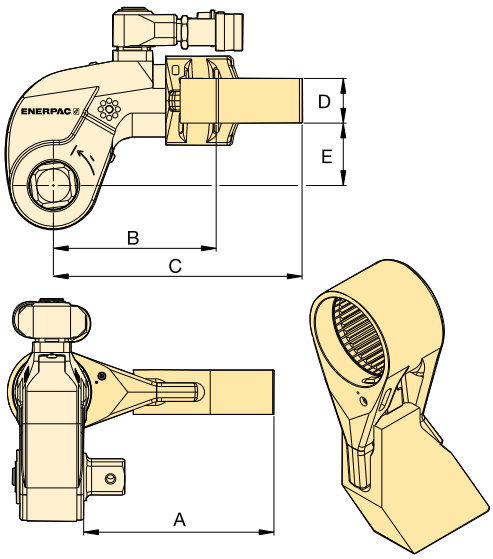

**RTEX Series**

- Full torque rated
- Increases tool fit in restricted access areas

| Torque Wrench Model Number | Model Number | Dimensions (in) | | | | Wt. (lbs)* |
|---|---|---|---|---|---|---|
| | | A | B | C | D | |
| S1500X | RTE15X | 27.80 | 5.98 | 25.04 | 2.28 | 10.1 |
| S3000X | RTE30X | 28.86 | 5.98 | 25.47 | 2.24 | 12.1 |
| S6000X | RTE60X | 29.41 | 5.98 | 25.94 | 2.56 | 17.0 |
| S11000X | RTE110X | 30.28 | 5.98 | 26.57 | 2.99 | 24.7 |
| S25000X | RTE250X | 32.01 | 5.98 | 26.97 | 3.94 | 38.1 |

* Weights indicated are for the accessories only and do not include the wrench.

## SRSX-Series, Extended Reaction Arms




**SRSX Series**

- Lightweight interchangeable design

| Wrench Model | Max. Torque (Ft-lbs) | Model Number | Dimensions (in) | | | | | Wt. (lbs)* |
|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | |
| S1500X | 1328 | SRS151X | 3.70 | 3.39 | 5.00 | 0.94 | 1.34 | 1.8 |
| | 1210 | SRS152X | 4.69 | 3.82 | 5.43 | 0.94 | 1.34 | 2.2 |
| | 1131 | SRS153X | 5.71 | 4.29 | 5.83 | 0.94 | 1.34 | 2.6 |
| S3000X | 2890 | SRS301X | 4.37 | 4.17 | 6.61 | 1.34 | 1.89 | 3.5 |
| | 2739 | SRS302X | 5.39 | 4.61 | 7.17 | 1.34 | 1.89 | 4.4 |
| | 2638 | SRS303X | 6.38 | 5.20 | 7.80 | 1.34 | 1.89 | 5.5 |
| S6000X | 5784 | SRS601X | 5.43 | 5.04 | 7.56 | 1.54 | 2.44 | 5.1 |
| | 5501 | SRS602X | 6.42 | 5.67 | 8.15 | 1.54 | 2.44 | 6.0 |
| | 5295 | SRS603X | 7.44 | 6.26 | 8.74 | 1.54 | 2.44 | 7.5 |
| S11000X | 10,812 | SRS1101X | 5.87 | 6.18 | 9.13 | 1.81 | 2.99 | 9.7 |
| | 10,300 | SRS1102X | 6.89 | 6.77 | 9.72 | 1.81 | 2.99 | 11.2 |
| | 9883 | SRS1103X | 7.87 | 7.36 | 10.28 | 1.81 | 2.99 | 12.8 |
| S25000X | 24,751 | SRS2501X | 7.20 | 8.23 | 11.61 | 1.97 | 3.94 | 16.8 |
| | 23,652 | SRS2502X | 8.19 | 8.74 | 12.20 | 1.97 | 3.94 | 18.5 |
| | 22,694 | SRS2503X | 9.17 | 9.29 | 12.83 | 1.97 | 3.94 | 22.0 |

* Weights indicated are for the accessories only and do not include the wrench.

- **Heavy-duty impact sockets**
- **Supplied with "Pin and Ring"**

## BSH Series

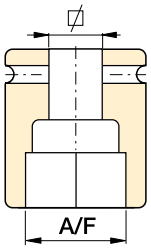


Hexagon Sizes:

**¾ - 6⅛ inches | 19 - 155 mm**

**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.




**Pin and Ring**

All sockets are supplied with a "Pin and Ring" to hold the socket in place on the square drive of the tool.

| METRIC SOCKETS | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3/4" Square Drive | | 1" Square Drive | | 1 1/2" Square Drive | | 2 1/2" Square Drive | |
| A/F (mm) | Model Number | A/F (mm) | Model Number | A/F (mm) | Model Number | A/F (mm) | Model Number |
| 19 | BSH7519 | 19 | BSH1019 | 36 | BSH1536 | 65 | BSH2565 |
| 24 | BSH7524 | 24 | BSH1024 | 41 | BSH15163 | 70 | BSH2570 |
| 27 | BSH7527 | 27 | BSH1027 | 46 | BSH1546 | 75 | BSH2575 |
| 30 | BSH7530 | 30 | BSH1030 | 50 | BSH1550 | 80 | BSH2580 |
| 32 | BSH7532 | 32 | BSH1032 | 55 | BSH1555 | 85 | BSH2585 |
| 36 | BSH7536 | 36 | BSH1036 | 60 | BSH1560 | 90 | BSH2590 |
| 41 | BSH75163 | 41 | BSH10163 | 65 | BSH1565 | 95 | BSH2595 |
| 46 | BSH7546 | 46 | BSH1046 | 70 | BSH1570 | 100 | BSH25100 |
| 50 | BSH7550 | 50 | BSH1050 | 75 | BSH1575 | 105 | BSH25105 |
| – | – | 55 | BSH1055 | 80 | BSH1580 | 110 | BSH25110 |
| – | – | 60 | BSH1060 | 85 | BSH1585 | 115 | BSH25115 |
| – | – | 65 | BSH1065 | 90 | BSH1590 | 120 | BSH25120 |
| – | – | 70 | BSH1070 | 95 | BSH1595 | 125 | BSH25125 |
| – | – | 75 | BSH1075 | 100 | BSH15100 | 135 | BSH25135 |
| – | – | 80 | BSH1080 | 105 | BSH15105 | 140 | BSH25140 |
| – | – | 85 | BSH1085 | 110 | BSH15110 | 145 | BSH25145 |
| – | – | 90 | BSH1090 | 115 | BSH15115 | 150 | BSH25150 |
| – | – | 95 | BSH1095 | – | – | 155 | BSH25155 |
| – | – | 100 | BSH10100 | – | – | – | – |

| IMPERIAL SOCKETS | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3/4" Square Drive | | 1" Square Drive | | | | 1 1/2" Square Drive | | | | 2 1/2" Square Drive | | | |
| A/F (in) | Model Number | A/F (in) | Model Number | A/F (in) | Model Number | A/F (in) | Model Number | A/F (in) | Model Number | A/F (in) | Model Number | A/F (in) | Model Number |
| ¾" | BSH7519 | ¾" | BSH1019 | 2 5⁄16" | BSH10231 | 1 7⁄16" | BSH15144 | 2 13⁄16" | BSH15281 | 2 7⁄16" | BSH25244 | 4 3⁄16" | BSH25419 |
| 7⁄8" | BSH75088 | 7⁄8" | BSH10088 | 2 3⁄8" | BSH10238 | 1 1⁄2" | BSH1538 | 2 7⁄8" | BSH15288 | 2 1⁄2" | BSH25250 | 4 1⁄4" | BSH25425 |
| 15⁄16" | BSH75094 | 15⁄16" | BSH10094 | 2 7⁄16" | BSH10244 | 1 9⁄16" | BSH15156 | 2 15⁄16" | BSH1575 | 2 9⁄16" | BSH2565 | 4 5⁄16" | BSH25110 |
| 1 1⁄16" | BSH7527 | 1 1⁄16" | BSH1027 | 2 1⁄2" | BSH10250 | 1 5⁄8" | BSH15163 | 3" | BSH15300 | 2 5⁄8" | BSH25263 | 4 3⁄8" | BSH25438 |
| 1 3⁄16" | BSH7530 | 1 3⁄16" | BSH1030 | 2 9⁄16" | BSH1065 | 1 11⁄16" | BSH1543 | 3 1⁄16" | BSH15306 | 2 11⁄16" | BSH25269 | 4 1⁄2" | BSH25450 |
| 1 1⁄4" | BSH75125 | 1 1⁄4" | BSH10125 | 2 5⁄8" | BSH10263 | 1 3⁄4" | BSH15175 | 3 1⁄8" | BSH15313 | 2 3⁄4" | BSH2570 | 4 5⁄8" | BSH25463 |
| 1 5⁄16" | BSH75131 | 1 5⁄16" | BSH10131 | 2 11⁄16" | BSH10269 | 1 13⁄16" | BSH1546 | 3 3⁄16" | BSH15319 | 2 13⁄16" | BSH25281 | 4 3⁄4" | BSH25475 |
| 1 3⁄8" | BSH7535 | 1 3⁄8" | BSH1035 | 2 3⁄4" | BSH1070 | 1 7⁄8" | BSH15188 | 3 1⁄4" | BSH15325 | 2 7⁄8" | BSH25288 | 4 7⁄8" | BSH25488 |
| 1 7⁄16" | BSH75144 | 1 7⁄16" | BSH10144 | 2 13⁄16" | BSH10281 | 1 15⁄16" | BSH15194 | 3 3⁄8" | BSH15338 | 2 15⁄16" | BSH2575 | 5" | BSH25500 |
| 1 1⁄2" | BSH7538 | 1 1⁄2" | BSH1038 | 2 7⁄8" | BSH10288 | 2" | BSH15200 | 3 1⁄2" | BSH15350 | 3" | BSH25300 | 5 1⁄8" | BSH25513 |
| 1 9⁄16" | BSH75156 | 1 9⁄16" | BSH10156 | 2 15⁄16 | BSH1075 | 2 1⁄16" | BSH15206 | 3 5⁄8" | BSH15363 | 3 1⁄16" | BSH25306 | 5 3⁄16" | BSH25519 |
| 1 5⁄8" | BSH75163 | 1 5⁄8" | BSH10163 | 3" | BSH10300 | 2 1⁄8" | BSH15213 | 3 3⁄4" | BSH1595 | 3 1⁄8" | BSH25313 | 5 1⁄4" | BSH25525 |
| 1 11⁄16" | BSH7543 | 1 11⁄16" | BSH1043 | 3 1⁄16" | BSH10306 | 2 3⁄16" | BSH15219 | 3 7⁄8" | BSH15388 | 3 3⁄16" | BSH25319 | 5 3⁄8" | BSH25538 |
| 1 3⁄4" | BSH75175 | 1 3⁄4" | BSH10175 | 3 1⁄8" | BSH10313 | 2 1⁄4" | BSH15225 | 3 15⁄16" | BSH15100 | 3 1⁄4" | BSH25325 | 5 1⁄2" | BSH25140 |
| 1 13⁄16" | BSH7546 | 1 13⁄16" | BSH1046 | 3 3⁄16" | BSH10319 | 2 5⁄16" | BSH15231 | 4" | BSH15400 | 3 3⁄8" | BSH25338 | 5 3⁄4" | BSH25575 |
| 1 7⁄8" | BSH75188 | 1 7⁄8" | BSH10188 | 3 1⁄4" | BSH10325 | 2 3⁄8" | BSH15238 | 4 1⁄8" | BSH15105 | 3 1⁄2" | BSH25350 | 5 7⁄8" | BSH25150 |
| 1 15⁄16" | BSH75194 | 1 15⁄16" | BSH10194 | 3 3⁄8" | BSH10338 | 2 7⁄16" | BSH15244 | 4 3⁄16" | BSH15419 | 3 5⁄8" | BSH25363 | 6" | BSH25600 |
| 2" | BSH75200 | 2" | BSH10200 | 3 1⁄2" | BSH10350 | 2 1⁄2" | BSH15250 | 4 1⁄4" | BSH15425 | 3 3⁄4" | BSH2595 | 6 1⁄8" | BSH25613 |
| – | – | 2 1⁄16" | BSH10206 | 3 5⁄8" | BSH10363 | 2 9⁄16" | BSH1565 | 4 5⁄16" | BSH15110 | 3 7⁄8" | BSH25388 | – | – |
| – | – | 2 1⁄8" | BSH10213 | 3 3⁄4" | BSH1095 | 2 5⁄8" | BSH15263 | 4 3⁄8" | BSH15438 | 3 15⁄16" | BSH25100 | – | – |
| – | – | 2 3⁄16" | BSH10219 | 3 7⁄8" | BSH10388 | 2 11⁄16" | BSH15269 | 4 1⁄2" | BSH15450 | 4" | BSH25400 | – | – |
| – | – | 2 1⁄4" | BSH10225 | – | – | 2 3⁄4" | BSH1570 | 4 5⁄8" | BSH15463 | 4 1⁄8" | BSH25105 | – | – |

# Back-Up Spanners for Torque Wrenches

▼ **BUS03 Back-Up Spanner** (safety cable not shown)




## BUS
### Series

Hexagon Sizes (A/F):
**1 1/16 - 4 15/16 inches**

Hexagon Sizes (A/F):
**27 - 120 mm**

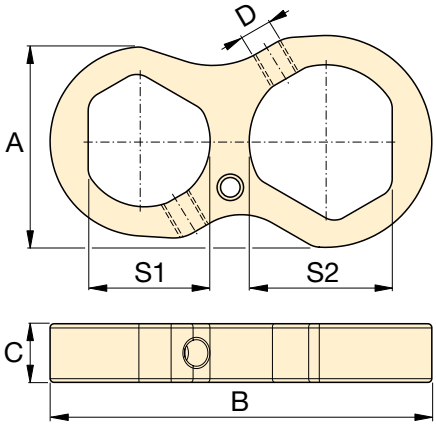
**Back-Up Spanners**

Hands free operation of a hydraulic torque wrench improves the safety of the operator significantly.

Enerpac Back-Up Spanners are a hands-free tool that eliminates the need to use a flogging spanner as a backing tool.

The Back-Up Spanners have been specifically designed to prevent them from locking onto the nut during bolt torquing operations. They fit easily onto the back nut and prevent it from turning during make up or break out of bolted joints.

- **Hands free solution – improves operator safety**
- **Eliminates the need for flogging spanners**
- **Speeds up the bolting process**
- **Includes safety cable with quick-connect carabiners, stainless steel tethers and secure Allen-key fixings**
- **Won't lock on during operations**
- **Lightweight, spark-free and non-impact for improved safety and ease of use**
- **Two hexagon sizes in one tool**




▼ **SELECTION CHART BACK-UP SPANNERS**

| Hexagon Sizes (A/F) | | Model Number | Dimensions (in) | | | | Wt. |
|---|---|---|---|---|---|---|---|
| S1 to S2 (in) | S1 to S2 (mm) | | A | B | C | D | (lb) |
| 1 1/16 - 1 1/4" | 27 - 32 | **BUS 01** | 2.0 | 3.9 | 0.6 | M8 | 0.7 |
| 1 7/16 - 1 5/8" | 36 - 41 | **BUS 02** | 2.4 | 4.7 | 0.6 | M8 | 0.9 |
| 1 13/16 - 2" | 46 - 50 | **BUS 03** | 3.0 | 5.6 | 0.8 | M8 | 1.3 |
| 2 3/16 - 2 3/8" | 55 - 60 | **BUS 04** | 3.5 | 6.5 | 0.8 | M12 | 1.8 |
| 2 9/16 - 2 3/4" | 65 - 70 | **BUS 05** | 3.9 | 7.5 | 1.0 | M16 | 2.2 |
| 2 15/16 - 3 1/8" | 75 - 80 | **BUS 06** | 4.4 | 8.4 | 1.0 | M16 | 2.9 |
| 3 1/2 - 3 7/8" | – | **BUS 07** | 5.3 | 10.1 | 1.2 | M20 | 4.9 |
| 4 1/4 - 4 5/8" | – | **BUS 08** | 6.4 | 12.2 | 1.2 | M20 | 7.3 |
| - | 85 - 90 | **BUS 09** | 5.0 | 9.5 | 1.0 | M16 | 3.7 |
| 3 3/4 - 3 15/16" | 95 - 100 | **BUS 10** | 5.4 | 10.5 | 1.2 | M20 | 5.1 |
| 4 1/8 - 4 15/16" | 105 - 110 | **BUS 11** | 6.0 | 11.7 | 1.2 | M20 | 6.8 |
| - | 115 - 120 | **BUS 12** | 6.5 | 12.6 | 1.2 | M20 | 7.7 |

▼ *Enerpac Back-Up Spanners to be used to stop back nut from turning during make up or break out.*



▼ Shown: **STTLS Safe T™ Torque Lock**




# Hands-free Torque Wrench System

**Safe T™ Torque Lock**

The Safe T Torque Lock is suitable for all bolted applications from 140 ft-lbs to 11,070 ft-lbs. using a heavy-duty impact socket.

The patented mechanical locking system creates a hands-free torque wrench solution suitable for Enerpac only square drive tools.

Suitable for:

| S-Series | RSQ-Series |
|---|---|
| S3000X | RSQ3000 |
| S6000X | RSQ5000 |
| S11000X | RSQ11000 |

**IMPORTANT:**

**Safe T Torque Lock not suitable for use on PTFE coated nuts.**

## Safety – Safe T™ Torque Lock

- **Transforming Enerpac S-Series and RSQ-Series wrenches into a dedicated hands-free tool**
- **Improves operator safety during bolting operations by minimizing exposure to pinch points and high-pressure hydraulic connections**
- **Grips securely to the application in any orientation, including inverted positions**
- **Minimizes drop hazards of falling tools**
- **Reduces operator fatigue on overreaching or awkward positioning of the tool**

## Simplicity

- **With one twist of the locking collar the Safe T Torque Lock grips onto the application, firmly holding the full tool weight in place**
- **Assembles onto the torque wrench with one push of the square drive quick-release button for tightening or loosening**
- **Locking feature dramatically reduces the number of tool lifts**

## Versatility

- **Suitable for both S-Series & RSL-Series square drive wrenches**
- **Simple twist & lock mechanism is user friendly, easy to operate**
- **No additional loose components like reaction washers are needed**

▲ *Hands-free torque wrench system: STLLS-model with S-Series torque wrench. The square drive of the wrench can easily be exchanged by the Safe T Torque Lock model.*



**Common Torque Lock Applications:**

- Oil & Gas flanges
- Tower Crane installation
- Machine installation/assembly (Mining),
- Wind Tower installation etc.

**Industries**

- Oil & Gas, Petrochemical
- Wind Power Generation
- Mining
- Marine
- Manufacturing
- Rail and more

# STTL Series



Hexagon Range (A/F):
**1 13/16 - 2 15/16 inch**

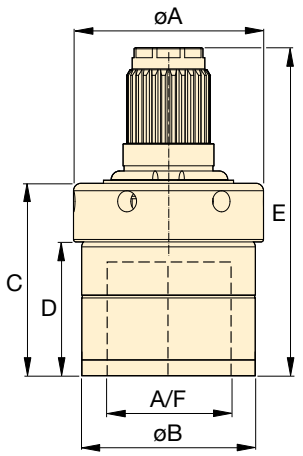
Hexagon Range (A/F)
**46 - 75 mm**



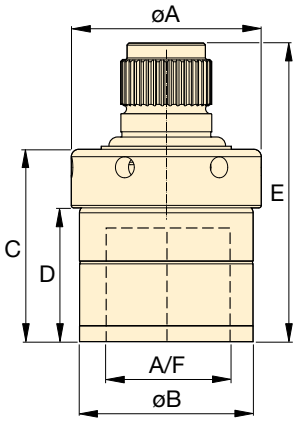
**Back-Up Spanners**

Hands free tool to be used to stop back nut from turning during make up or break out.

*Page:* 245




**STTLS**
**for S-Series Spline Fitting**




**STTLR**
**for RSQ-Series Spline Fitting**

| Hexagon Sizes (A/F) (inch) | (mm) | For use with torque wrench model | Safe T™ Torque Lock Model Number: For S-Series Spline Fitting | For RSQ-Series Spline Fitting | Dimensions (in) A | B | C | D | E | Wt. (lbs) | Dimensions (mm) A | B | C | D | E | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 13/16 | 46 | S3000X | STTLS31046 | - | 3.0 | 2.8 | 3.1 | 2.1 | 5.2 | 4.4 | 77 | 71 | 78 | 54 | 133 | 2,0 |
| | | RSQ3000 | - | STTLR31046 | | | | | 4.8 | 4.2 | | | | | 121 | 1,9 |
| 2 | 50 | S3000X | STTLS31550 | – | 3.5 | 3.2 | 3.1 | 2.1 | 5.2 | 5.7 | 89 | 82 | 78 | 54 | 133 | 2,6 |
| | | RSQ3000 | – | STTLR31550 | | | | | 4.8 | 5.7 | | | | | 123 | 2,6 |
| 2 3/16 | 55 | S3000X | STTLS31055 | - | 3.7 | 3.4 | 3.3 | 2.3 | 5.4 | 6.6 | 93 | 86 | 83 | 58 | 138 | 3,0 |
| | | RSQ3000 | - | STTLR31055 | | | | | 5.1 | 6.4 | | | | | 130 | 2,9 |
| 2 3/8 | – | RSQ3000 | – | STTLR315238 | 3.9 | 3.6 | 3.6 | 2.6 | 5.4 | 7.7 | 99 | 92 | 91 | 67 | 136 | 3,5 |
| 2 | 50 | RSQ5000 | – | STTLR51550 | 3.5 | 3.2 | 3.1 | 2.1 | 5.2 | 5.9 | 89 | 82 | 78 | 54 | 132 | 2,7 |
| – | 60 | S6000X | STTLS61560M | - | 3.9 | 3.6 | 3.4 | 2.5 | 5.9 | 8.2 | 99 | 92 | 86 | 62 | 150 | 3,7 |
| | | RSQ5000 | - | STTLR51560M | | | | | 5.7 | 8.2 | | | | | 145 | 3,7 |
| 2 3/8 | – | S6000X | STTLS615238 | – | 3.9 | 3.6 | 3.6 | 2.6 | 6.0 | 8.4 | 99 | 92 | 91 | 67 | 154 | 3,8 |
| | | RSQ5000 | | STTLR515238 | | | | | 5.9 | 8.4 | | | | | 150 | 3,8 |
| 2 9/16 | 65 | S6000X | STTLS61565 | - | 4.2 | 3.9 | 4.2 | 2.9 | 6.8 | 11.7 | 107 | 100 | 108 | 74 | 172 | 5,3 |
| | | RSQ5000 | - | STTLR51565 | | | | | 6.6 | 11.9 | | | | | 168 | 5,4 |
| 2 3/4 | 70 | S6000X | STTLS61570 | – | 4.5 | 4.2 | 4.3 | 3.0 | 6.8 | 13.0 | 114 | 107 | 109 | 76 | 173 | 5,9 |
| | | RSQ5000 | | STTLR51570 | | | | | 6.7 | 13.2 | | | | | 169 | 6,0 |
| 2 15/16 | 75 | S6000X | STTLS61575 | - | 4.4 | 4.1 | 4.4 | 3.1 | 7.0 | 12.3 | 112 | 105 | 113 | 80 | 177 | 5,6 |
| | | RSQ5000 | - | STTLR51575 | | | | | 6.9 | 13.2 | | | | | 173 | 5,8 |
| – | 60 | S11000X | STTLS111560M | - | 3.9 | 3.6 | 3.4 | 2.5 | 6.6 | 9.3 | 99 | 92 | 86 | 62 | 167 | 4,2 |
| | | RSQ11000 | - | STTLR111560M | | | | | 6.1 | 9.3 | | | | | 156 | 4,2 |
| 2 9/16 | 65 | S11000X | STTLS111565 | - | 4.2 | 3.9 | 4.2 | 2.9 | 7.5 | 12.8 | 107 | 100 | 107 | 74 | 189 | 5,8 |
| | | RSQ11000 | - | STTLR111565 | | | | | 7.0 | 12.8 | | | | | 178 | 5,8 |
| 2 3/4 | 70 | S11000X | STTLS111570 | – | 4.5 | 4.2 | 4.3 | 3.0 | 7.5 | 14.1 | 114 | 107 | 109 | 76 | 191 | 6,4 |
| | | RSQ11000 | | STTLR111570 | | | | | 7.1 | 14.3 | | | | | 181 | 6,5 |
| 2 15/16 | 75 | S11000X | STTLS111575 | - | 4.4 | 4.1 | 4.4 | 3.1 | 7.7 | 13.2 | 112 | 105 | 113 | 80 | 195 | 6,0 |
| | | RSQ11000 | - | STTLR111575 | | | | | 7.2 | 13.2 | | | | | 183 | 6,0 |
| 3 1/8 | – | S11000X | STTLS1115318 | – | 4.8 | 4.5 | 4.5 | 3.2 | 7.8 | 16.1 | 122 | 115 | 115 | 81 | 197 | 7,3 |
| | | RSQ11000 | - | STTLR1115318 | | | | | 7.3 | 16.3 | | | | | 185 | 7,4 |

▼ W4206X cassette with W4000PX drive unit




## Setting New Standards in Safety, Simplicity and Performance

### Safety and Performance

- **Superior strength to size ratio provides easy access to difficult to reach applications without sacrificing endurance**
- **30° rotation angle and rapid return stroke provide fast operation**
- **Tough manifold design with added safety feature for enhanced operator safety**

### Simplicity

- **Fast release drive unit enables rapid exchange of cassettes, no tools required and no pins to lose**
- **Drive unit includes robust handle which mounts on both sides to allow for extra maneuverability**
- **Quick and easy disassembly for maintenance without special tools**

### Versatility

- **Available with optional enhanced tilt and swivel TSP300 manifold for horizontal and vertical maneuverability, with greater durability***
- **X-Edition drive units, cassettes and most accessories are compatible with standard edition tools***
- **Drive unit compatible with UltraSlim cassettes**

### Accuracy

- **Constant torque output provides accuracy of +/-3% across full stroke**

* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com



**Two Handle Styles**

Robust angled positioning handles come standard with every W-Series (X-Edition) tool. Straight positioning handles, designed for extreme limited acess applications, are available as accessories.

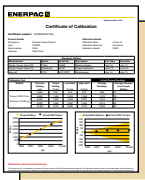
| Compatible W-Series (X-Edition) Wrenches | Angled Positioning Handles (standard) | Straight Positioning Handles (optional) |
|---|---|---|
| W2000X, W4000X | **SWH6A** | **SWH6S** |
| W8000X, W15000X | **SWH10A** | **SWH10S** |
| W22000X, W35000X | Supplied with an eyebolt handle **(SWH10EA)** | |



**TSP - Pro Series Swivel**

The optional TSP300 tilt and swivel manifold with robust interlocking design provides 360° X-axis rotation and 160° Y-axis rotation.

*Page:* 260



**Calibration Certificate**

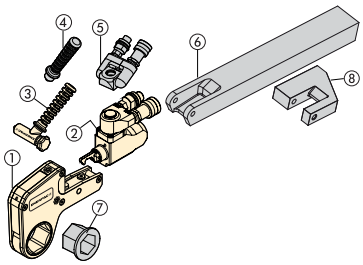
All X-Edition cassettes are CE-ATEX certified, factory calibrated and are shipped complete with a calibration certificate.

CE Ex II 2 GD ck T4
CSA/SIRA 15XT072

**Bolting Integrity Software**

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

*Page:* 416






**Hexagon Cassettes and Reducer Inserts**

Full range of interchangeable hexagon cassettes and reducing inserts provides maximum versatility.

Refer to pages 250 - 257.

① Hexagon Cassette
② Drive Unit
③ Angled Positioning Handle
④ Straight Positioning Handle (optional)
⑤ Pro Series Swivel (optional)
⑥ Extended Reaction Arm (optional)
⑦ Reducer Insert (optional)
⑧ Reaction Paddle (optional)

## W Series (X-Edition)



Nominal Torque at 10,000 psi:
**35,000 ft.lbs**

Hexagon Range:
**1 1/16 - 6 1/8 in | 30-155 mm**

Nose Radius:
**1.22 - 4.52 inches**

Maximum Operating Pressure:
**10,000 psi**

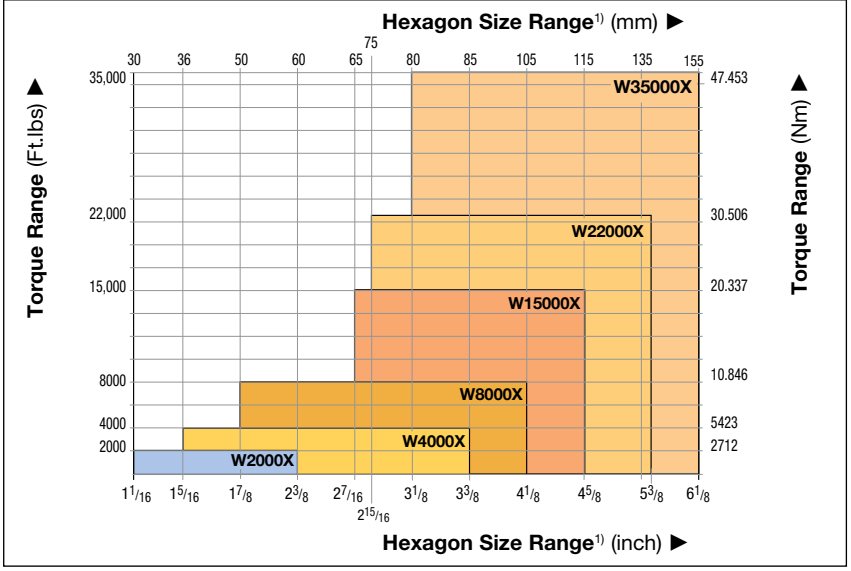


**Torque Wrench Pump Selection Matrix**

For optimum speed and performance see the torque wrench and pump matrix.

*Page:* 291

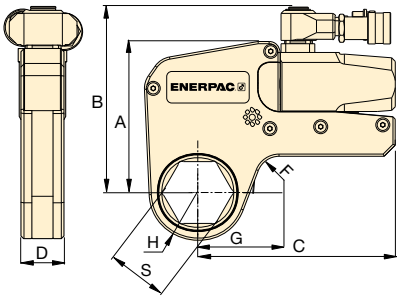
### DRIVE UNIT AND INTERCHANGEABLE CASSETTE SELECTION




[1] See page 411 for table of hexagon sizes of bolts, nuts and related thread diameters.

▼ *These rigid steel wrenches with low-profile interchangeable hexagon cassettes guarantee durability and maximum versatility in bolting applications.*

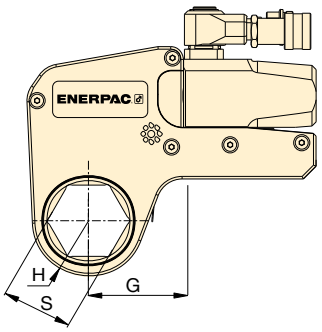


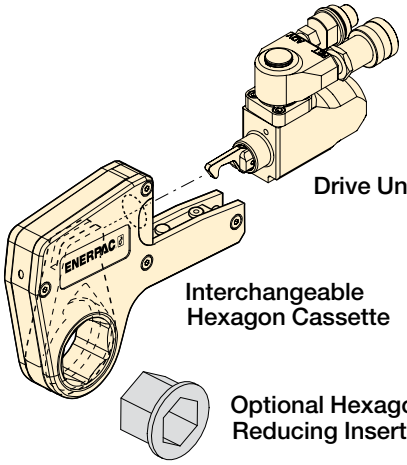



### ▼ SELECTION CHART

| Hexagon Range * | | Nominal Torque at 10,000 psi | | Drive Unit Model Number ** | Minimum Torque | | Dimensions (see pages 250-257 for dimensions **G, H,** and **S**) (in) | | | | | Weight (Drive unit without hexagon cassette) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  *Page:* 256 | | | |  | | | | | | | | |
| (in) | (mm) | (Ft.lbs) | (Nm) | | (Ft.lbs) | (Nm) | A | B | C | D | F | (lbs) |
| 1 1/16 - 2 3/8 | 30 - 60 | 2040 | 2766 | **W2000X** | 204 | 277 | 4.29 | 5.55 | 5.83 | 1.26 | 0.79 | 3.04 |
| 1 5/16 - 3 3/8 | 36 - 85 | 4175 | 5661 | **W4000X** | 418 | 566 | 5.35 | 6.57 | 7.01 | 1.61 | 0.79 | 4.44 |
| 1 7/8 - 4 1/8 | 50 - 105 | 8470 | 11,484 | **W8000X** | 847 | 1148 | 6.77 | 8.07 | 8.19 | 2.07 | 0.98 | 6.59 |
| 2 7/16 - 4 5/8 | 65 - 115 | 15,330 | 20,785 | **W15000X** | 1533 | 2079 | 8.15 | 9.45 | 9.96 | 2.48 | 0.79 | 10.72 |
| 2 15/16 - 5 3/8 | 75 - 135 | 22,500 | 30,506 | **W22000X** | 2250 | 3050 | 8.94 | 10.46 | 11.68 | 3.03 | 1.38 | 16.98 |
| 3 1/8 - 6 1/8 | 80-155 | 35,000 | 47,453 | **W35000X** | 3500 | 4745 | 10.54 | 11.94 | 13.60 | 3.57 | 1.98 | 26.40 |

* With in-line reaction foot.
** To order a W-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation. e.g., **W2000PX**.




## W Series (X-Edition)



Nominal Torque at 10,000 psi:
**2040 ft.lbs**

Hexagon Range:
**1 1/16 - 2 3/8 inches**

Maximum Operating Pressure:
**10,000 psi**



**Metric Sizes**

For metric sizes of hexagon cassettes and reducer inserts see:

*Page:* 256



**Back-Up Spanners**

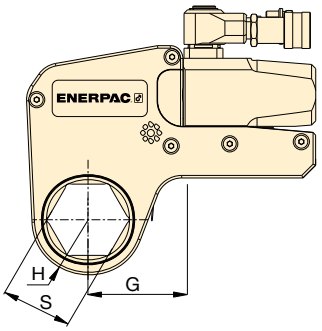
Hands free tool to be used to stop back nut from turning during make up or break out.

*Page:* 245

▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size S (in) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W2000X | 1 1/16 | 1.22 | 2.11 | W2101X | 4.19 | – | – | – | – | – | – |
| | 1 1/8 | 1.22 | 2.11 | W2102X | 4.19 | – | – | – | – | – | – |
| | 1 3/16 | 1.22 | 2.11 | W2103X | 4.19 | – | – | – | – | – | – |
| | 1 1/4 | 1.22 | 2.11 | W2104X | 4.19 | – | – | – | – | – | – |
| | 1 5/16 | 1.22 | 2.11 | W2105X | 4.48 | – | – | – | – | – | – |
| | 1 3/8 | 1.22 | 2.11 | W2106X | 4.43 | – | – | – | – | – | – |
| | 1 7/16 | 1.22 | 2.11 | W2107X | 4.37 | 1 7/16 - 1 1/8 | W2107R102 | – | – | – | – |
| | 1 1/2 | 1.32 | 2.29 | W2108X | 4.51 | – | – | – | – | – | – |
| | 1 9/16 | 1.32 | 2.29 | W2109X | 4.44 | – | – | – | – | – | – |
| | 1 5/8 | 1.32 | 2.29 | W2110X | 4.38 | 1 5/8 - 1 1/4 | W2110R104 | 1 5/8 - 1 3/16 | W2110R103 | – | – |
| | 1 11/16 | 1.44 | 2.38 | W2111X | 4.63 | – | – | – | – | – | – |
| | 1 3/4 | 1.44 | 2.38 | W2112X | 4.57 | – | – | – | – | – | – |
| | 1 13/16 | 1.44 | 2.38 | W2113X | 4.46 | 1 13/16 - 1 7/16 | W2113R107 | 1 13/16 - 1 1/4 | W2113R104 | – | – |
| | 1 7/8 | 1.54 | 2.48 | W2114X | 4.69 | – | – | – | – | – | – |
| | 1 15/16 | 1.54 | 2.48 | W2115X | 4.64 | – | – | – | – | – | – |
| | 2 | 1.54 | 2.48 | W2200X | 4.54 | 2 - 1 5/8 | W2200R110 | 2 - 1 7/16 | W2200R107 | – | – |
| | 2 1/16 | 1.65 | 2.70 | W2201X | 4.83 | – | – | – | – | – | – |
| | 2 1/8 | 1.65 | 2.70 | W2202X | 4.74 | – | – | – | – | – | – |
| | 2 3/16 | 1.65 | 2.70 | W2203X | 4.64 | 2 3/16 - 1 13/16 | W2203R113 | 2 3/16 - 1 5/8 | W2203R110 | 2 3/16 - 1 7/16 | W2203R107 |
| | 2 1/4 | 1.75 | 2.55 | W2204X | 4.94 | – | – | – | – | – | – |
| | 2 5/16 | 1.75 | 2.55 | W2205X | 4.84 | – | – | – | – | – | – |
| | 2 3/8 | 1.75 | 2.55 | W2206X | 4.72 | 2 3/8 - 2 | W2206R200 | 2 3/8 - 1 7/8 | W2206R114 | 2 3/8 - 1 13/16 | W2206R113 |
| | – | – | – | – | – | 2 3/8 - 1 1/2 | W2206R108 | 2 3/8 - 1 7/16 | W2206R107 | 2 3/8 - 1 5/8 | W2206R110 |

# W4000X Series Imperial Cassettes & Reducer Inserts




Nominal Torque at 10,000 psi:
**4175 ft.lbs**

Hexagon Range:
**1 5/16 - 3 3/8 inches**

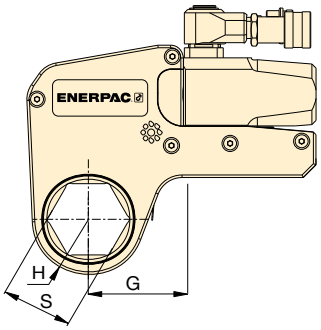
Maximum Operating Pressure:
**10,000 psi**

**W Series (X-Edition)**



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size S (in) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W4000X | 1 5/16 | 1.46 | 2.40 | W4105X | 8.15 | – | – | – | – | – | – |
| | 1 3/8 | 1.46 | 2.40 | W4106X | 8.15 | – | – | – | – | – | – |
| | 1 7/16 | 1.46 | 2.40 | W4107X | 8.15 | – | – | – | – | – | – |
| | 1 1/2 | 1.46 | 2.40 | W4108X | 8.31 | – | – | – | – | – | – |
| | 1 9/16 | 1.46 | 2.40 | W4109X | 8.22 | – | – | – | – | – | – |
| | 1 5/8 | 1.46 | 2.40 | W4110X | 8.15 | – | – | – | – | – | – |
| | 1 11/16 | 1.56 | 2.52 | W4111X | 8.43 | – | – | – | – | – | – |
| | 1 3/4 | 1.56 | 2.52 | W4112X | 8.35 | – | – | – | – | – | – |
| | 1 13/16 | 1.56 | 2.52 | W4113X | 8.25 | – | | – | – | – | – |
| | 1 7/8 | 1.63 | 2.63 | W4114X | 8.45 | – | – | – | – | – | – |
| | 1 15/16 | 1.63 | 2.63 | W4115X | 8.39 | – | – | – | – | – | – |
| | 2 | 1.63 | 2.63 | W4200X | 8.28 | 2 - 1 7/16 | W4200R107 | – | – | – | |
| | 2 1/16 | 1.73 | 2.89 | W4201X | 8.65 | – | – | – | – | – | – |
| | 2 1/8 | 1.73 | 2.89 | W4202X | 8.53 | – | – | – | – | – | – |
| | 2 3/16 | 1.73 | 2.89 | W4203X | 8.42 | 2 3/16 - 1 5/8 | W4203R110 | 2 3/16 - 1 7/16 | W4203R107 | 2 3/16 - 1 1/4 | W4203R104 |
| | 2 1/4 | 1.83 | 2.78 | W4204X | 8.73 | – | – | – | – | – | – |
| | 2 5/16 | 1.83 | 2.78 | W4205X | 8.61 | – | – | – | – | – | – |
| | 2 3/8 | 1.83 | 2.78 | W4206X | 8.47 | 2 3/8 - 2 | W4206R200 | 2 3/8 - 1 13/16 | W4206R113 | 2 3/8 - 1 7/16 | W4206R107 |
| | – | – | – | – | – | 2 3/8 - 1 3/8 | W4206R106 | – | – | – | – |
| | 2 7/16 | 1.95 | 3.00 | W4207X | 8.96 | 2 7/16 - 2 | W4207R200 | – | – | – | – |
| | 2 1/2 | 1.95 | 3.00 | W4208X | 8.86 | 2 1/2 - 2 | W4208R200 | 2 1/2 - 1 13/16 | W4208R113 | 2 1/2 - 2 1/16 | W4208R201 |
| | 2 9/16 | 1.95 | 3.00 | W4209X | 8.67 | 2 9/16 - 2 3/16 | W4209R203 | 2 9/16 - 2 1/8 | W4209R202 | – | – |
| | – | – | – | – | – | 2 9/16 - 2 | W4209R200 | 2 9/16 - 1 13/16 | W4209R113 | – | – |
| | 2 5/8 | 2.07 | 3.08 | W4210X | 9.14 | – | – | – | – | – | – |
| | 2 11/16 | 2.07 | 3.08 | W4211X | 9.03 | – | – | – | – | – | – |
| | 2 3/4 | 2.07 | 3.08 | W4212X | 8.84 | 2 3/4 - 2 3/8 | W4212R206 | 2 3/4 - 2 3/16 | W4212R203 | 2 3/4 - 2 1/8 | W4212R202 |
| | 2 13/16 | 2.18 | 3.21 | W4213X | 9.32 | – | – | – | – | – | – |
| | 2 7/8 | 2.18 | 3.21 | W4214X | 9.17 | – | – | – | – | – | – |
| | 2 15/16 | 2.18 | 3.21 | W4215X | 8.96 | 2 15/16 - 2 9/16 | W4215R209 | 2 15/16 - 2 3/8 | W4215R206 | 2 15/16 - 2 3/16 | W4215R203 |
| | – | – | – | – | – | 2 15/16 - 2 | W4215R200 | – | – | – | – |
| | 3 | 2.30 | 3.29 | W4300X | 9.51 | 3 - 2 3/16 | W4300R203 | – | – | – | – |
| | 3 1/16 | 2.30 | 3.29 | W4301X | 9.42 | – | – | – | – | – | – |
| | 3 1/8 | 2.30 | 3.29 | W4302X | 9.16 | – | – | 3 1/8 - 2 3/4 | W4302R212 | 3 1/8 - 2 9/16 | W4302R209 |
| | – | – | – | – | – | 3 1/8 - 2 3/8 | W4302R206 | 3 1/8 - 2 5/16 | W4302R205 | 3 1/8 - 2 1/4 | W4302R204 |
| | – | – | – | – | – | 3 1/8 - 2 3/16 | W4302R203 | 3 1/8 - 2 1/8 | W4302R202 | 3 1/8 - 2 | W4302R200 |
| | 3 3/16 | 2.44 | 3.37 | W4303X | 9.92 | – | – | – | – | – | – |
| | 3 1/4 | 2.44 | 3.37 | W4304X | 9.92 | – | – | – | – | – | – |
| | 3 5/16 | 2.44 | 3.37 | W4305X | 9.92 | – | – | – | – | – | – |
| | 3 3/8 | 2.44 | 3.37 | W4306X | 9.92 | – | – | – | – | – | – |




Nominal Torque at 10,000 psi:
**8470 ft.lbs**

Hexagon Range:
**1⅞ - 4⅛ inches**

Maximum Operating Pressure:
**10,000 psi**

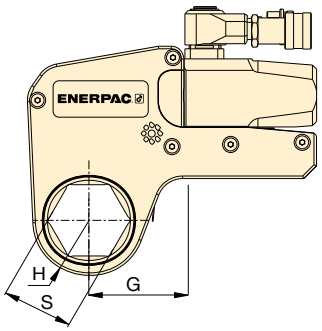
**W**
**Series**
**(X-Edition)**



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size S (in) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W8000X | 1⅞ | 1.77 | 3.08 | W8114X | 17.97 | – | – | – | – | – | – |
| | 1 15/16 | 1.77 | 3.08 | W8115X | 17.89 | – | – | – | – | – | – |
| | 2 | 1.77 | 3.08 | W8200X | 17.75 | – | – | – | – | – | – |
| | 2 1/16 | 1.89 | 3.15 | W8201X | 17.52 | – | – | – | – | – | – |
| | 2⅛ | 1.89 | 3.15 | W8202X | 17.36 | – | – | – | – | – | – |
| | 2 3/16 | 1.89 | 3.15 | W8203X | 17.22 | – | – | – | – | – | – |
| | 2¼ | 2.01 | 3.25 | W8204X | 17.92 | – | – | – | – | – | – |
| | 2 5/16 | 2.01 | 3.25 | W8205X | 17.76 | – | – | – | – | – | – |
| | 2⅜ | 2.01 | 3.25 | W8206X | 17.59 | – | – | – | – | – | – |
| | 2 7/16 | 2.07 | 3.38 | W8207X | 17.65 | – | – | – | – | – | – |
| | 2½ | 2.07 | 3.38 | W8208X | 17.52 | – | – | – | – | – | – |
| | 2 9/16 | 2.07 | 3.38 | W8209X | 17.29 | 2 9/16 - 2 | W8209R200 | | – | | – |
| | 2⅝ | 2.20 | 3.34 | W8210X | 17.50 | – | – | – | – | – | – |
| | 2 11/16 | 2.20 | 3.34 | W8211X | 17.36 | – | – | – | – | – | – |
| | 2¾ | 2.20 | 3.34 | W8212X | 17.12 | 2¾ - 2 3/16 | W8212R203 | | – | | – |
| | 2 13/16 | 2.28 | 3.35 | W8213X | 17.57 | – | – | – | – | – | – |
| | 2⅞ | 2.28 | 3.35 | W8214X | 17.38 | – | – | – | – | – | – |
| | 2 15/16 | 2.28 | 3.35 | W8215X | 17.11 | 2 15/16 - 2⅜ | W8215R206 | 2 15/16 - 2 3/16 | W8215R203 | – | – |
| | 3 | 2.38 | 3.52 | W8300X | 17.77 | – | – | – | – | – | – |
| | 3 1/16 | 2.38 | 3.52 | W8301X | 17.65 | – | – | – | – | – | – |
| | 3⅛ | 2.38 | 3.52 | W8302X | 17.33 | 3⅛ - 2 9/16 | W8302R209 | 3⅛ - 2⅜ | W8302R206 | 3⅛ - 2 3/16 | W8302R203 |
| | – | – | – | – | – | 3⅛ - 2 | W8302R200 | – | – | – | – |
| | 3 3/16 | 2.60 | 3.63 | W8303X | 18.99 | – | – | – | – | – | – |
| | 3¼ | 2.60 | 3.63 | W8304X | 18.72 | – | – | – | – | – | – |
| | 3 5/16 | 2.60 | 3.63 | W8305X | 18.54 | – | – | – | – | – | – |
| | 3⅜ | 2.60 | 3.63 | W8306X | 18.36 | – | – | – | – | – | – |
| | 3 7/16 | 2.60 | 3.63 | W8307IX | 18.11 | – | – | – | – | – | – |
| | 3½ | 2.60 | 3.63 | W8308X | 17.81 | 3½ - 3 | W8308R300 | 3½ - 2 15/16 | W8308R215 | 3½ - 2¾ | W8308R212 |
| | 3 9/16 | 2.91 | 4.05 | W8309X | 20.36 | – | – | – | – | – | – |
| | 3⅝ | 2.91 | 4.05 | W8310X | 20.18 | – | – | – | – | – | – |
| | 3 11/16 | 2.91 | 4.05 | W8311X | 19.93 | – | – | – | – | – | – |
| | 3¾ | 2.91 | 4.05 | W8312X | 19.71 | 3¾ - 3⅛ | W8312R302 | 3¾ - 2 15/16 | W8312R215 | 3¾ - 2¾ | W8312R212 |
| | 3 13/16 | 2.91 | 4.05 | W8313X | 19.46 | – | – | – | – | – | – |
| | 3⅞ | 2.91 | 4.05 | W8314X | 19.10 | 3⅞ - 3⅛ | W8314R302 | 3⅞ - 2 15/16 | W8314R215 | – | – |
| | 3 15/16 | 3.13 | 4.33 | W8315X | 20.31 | – | – | – | – | – | – |
| | 4 | 3.13 | 4.33 | W8400X | 20.04 | – | – | – | – | – | – |
| | 4 1/16 | 3.13 | 4.33 | W8401IX | 19.80 | – | – | – | – | – | – |
| | 4⅛ | 3.13 | 4.33 | W8402X | 19.39 | – | – | – | – | – | – |

# W15000X Series Imperial Cassettes & Reducer Inserts




Nominal Torque at 10,000 psi:
**15,330 ft.lbs**

Hexagon Range:
**2 7/16 - 4 5/8 inches**

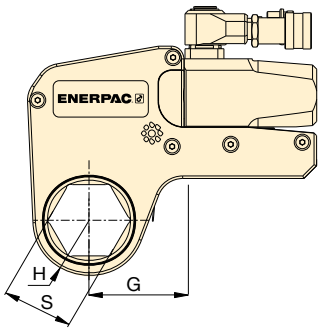
Maximum Operating Pressure:
**10,000 psi**

**W Series (X-Edition)**



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size S (in) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W15000X | 2 7/16 | 2.32 | 3.49 | W15207X | 30.72 | – | – | – | – | – | – |
| | 2 1/2 | 2.32 | 3.49 | W15208X | 30.72 | – | – | – | – | – | – |
| | 2 9/16 | 2.32 | 3.49 | W15209X | 30.72 | – | – | – | – | – | – |
| | 2 5/8 | 2.32 | 3.49 | W15210X | 30.72 | – | – | – | – | – | – |
| | 2 11/16 | 2.32 | 3.49 | W15211X | 30.72 | – | – | – | – | – | – |
| | 2 3/4 | 2.32 | 3.49 | W15212X | 30.72 | – | – | – | – | – | – |
| | 2 13/16 | 2.44 | 3.56 | W15213X | 30.62 | – | – | – | – | – | – |
| | 2 7/8 | 2.44 | 3.56 | W15214X | 30.39 | – | – | – | – | – | – |
| | 2 15/16 | 2.44 | 3.56 | W15215X | 30.08 | – | – | – | – | – | – |
| | 3 | 2.54 | 3.66 | W15300X | 30.86 | 3 - 2 1/8 | W15300R202 | – | – | – | – |
| | 3 1/16 | 2.54 | 3.66 | W15301X | 30.71 | – | – | – | – | – | – |
| | 3 1/8 | 2.54 | 3.66 | W15302X | 30.34 | 3 1/8 - 2 9/16 | W15302R209 | | – | | |
| | 3 3/16 | 2.74 | 3.80 | W15303X | 32.38 | – | – | – | – | – | – |
| | 3 1/4 | 2.74 | 3.80 | W15304X | 32.07 | – | – | – | – | – | – |
| | 3 5/16 | 2.74 | 3.80 | W15305X | 31.85 | – | – | – | – | – | – |
| | 3 3/8 | 2.74 | 3.80 | W15306X | 31.63 | – | – | – | – | – | – |
| | 3 7/16 | 2.74 | 3.80 | W15307IX | 31.32 | – | – | – | – | – | – |
| | 3 1/2 | 2.74 | 3.80 | W15308X | 30.98 | 3 1/2 - 2 15/16 | W15308R215 | 3 1/2 - 2 3/4 | W15308R212 | | – |
| | 3 9/16 | 2.95 | 4.01 | W15309X | 31.70 | – | – | – | – | – | – |
| | 3 5/8 | 2.95 | 4.01 | W15310X | 31.70 | – | – | – | – | – | – |
| | 3 11/16 | 2.95 | 4.01 | W15311X | 31.70 | – | – | – | – | – | – |
| | 3 3/4 | 2.95 | 4.01 | W15312X | 31.70 | 3 3/4 - 3 1/8 | W15312R302 | 3 3/4 - 2 15/16 | W15312R215 | | – |
| | 3 13/16 | 2.95 | 4.01 | W15313X | 31.70 | – | – | – | – | – | – |
| | 3 7/8 | 2.95 | 4.01 | W15314X | 31.70 | 3 7/8 - 3 1/8 | W15314R302 | 3 7/8 - 2 15/16 | W15314R215 | – | – |
| | 3 15/16 | 3.17 | 4.06 | W15315X | 34.02 | – | – | – | – | – | – |
| | 4 | 3.17 | 4.06 | W15400X | 33.70 | – | – | – | – | – | – |
| | 4 1/16 | 3.17 | 4.06 | W15401IX | 33.41 | – | – | – | – | – | – |
| | 4 1/8 | 3.17 | 4.06 | W15402X | 33.09 | 4 1/8 - 3 1/2 | W15402R308 | 4 1/8 - 3 5/16 | W15402R305 | 4 1/8 - 3 1/4 | W15402R304 |
| | 4 3/16 | 3.17 | 4.06 | W15403IX | 32.81 | – | – | – | – | – | – |
| | 4 1/4 | 3.17 | 4.06 | W15404X | 32.29 | 4 1/4 - 3 1/2 | W15404R308 | 4 1/4 - 3 1/8 | W15404R302 | – | – |
| | 4 5/16 | 3.44 | 4.52 | W15405X | 35.61 | – | – | – | – | – | – |
| | 4 3/8 | 3.44 | 4.52 | W15406X | 35.32 | – | – | – | – | – | – |
| | 4 7/16 | 3.44 | 4.52 | W15407X | 34.99 | – | – | – | – | – | – |
| | 4 1/2 | 3.44 | 4.52 | W15408IX | 34.63 | – | – | – | – | – | – |
| | 4 9/16 | 3.44 | 4.52 | W15409IX | 34.28 | – | – | – | – | – | – |
| | 4 5/8 | 3.44 | 4.52 | W15410IX | 33.72 | 4 5/8 - 3 15/16 | W15410R315 | 4 5/8 - 3 7/8 | W15410R314 | 4 5/8 - 3 3/4 | W15410R312 |
| | – | – | – | – | – | 4 5/8 - 3 1/2 | W15410R308 | – | – | – | – |




Nominal Torque at 10,000 psi:
**22,500 ft.lbs**

Hexagon Range:
**2 15/16 - 5 3/8 inches**

Maximum Operating Pressure:
**10,000 psi**

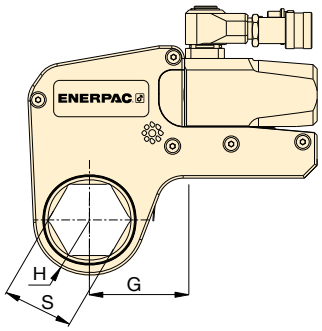
**W Series (X-Edition)**



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size S (in) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number | Hexagon Reducer (in) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W22000X | 2 15/16 | 2.64 | 4.02 | W22215X | 48.72 | – | – | – | – | – | – |
| | 3 | 2.64 | 4.02 | W22300X | 48.40 | – | – | – | – | – | – |
| | 3 1/16 | 2.64 | 4.02 | W22301X | 48.22 | – | – | – | – | – | – |
| | 3 1/8 | 2.64 | 4.02 | W22302X | 47.78 | 3 1/8 - 2 3/8 | W22302R206 | 3 1/8 - 2 3/16 | W22302R203 | – | – |
| | 3 3/16 | 2.85 | 4.23 | W22303X | 50.58 | – | – | – | – | – | – |
| | 3 1/4 | 2.85 | 4.23 | W22304X | 50.19 | – | – | – | – | – | – |
| | 3 5/16 | 2.85 | 4.23 | W22305X | 49.92 | – | – | – | – | – | – |
| | 3 3/8 | 2.85 | 4.23 | W22306X | 49.66 | – | – | – | – | – | – |
| | 3 7/16 | 2.85 | 4.23 | W22307X | 50.29 | – | – | – | – | – | – |
| | 3 1/2 | 2.85 | 4.23 | W22308X | 48.87 | 3 1/2 - 2 3/4 | W22308R212 | 3 1/2 - 2 9/16 | W22308R209 | 3 1/2 - 2 3/8 | W22308R206 |
| | 3 9/16 | 3.07 | 4.45 | W22309X | 51.58 | – | – | – | – | – | – |
| | 3 5/8 | 3.07 | 4.45 | W22310X | 51.30 | – | – | – | – | – | – |
| | 3 11/16 | 3.07 | 4.45 | W22311X | 50.93 | – | – | – | – | – | – |
| | 3 3/4 | 3.07 | 4.45 | W22312X | 50.62 | 3 3/4 - 2 15/16 | W22312R215 | – | – | – | – |
| | 3 13/16 | 3.07 | 4.45 | W22313X | 50.24 | – | – | – | – | – | – |
| | 3 7/8 | 3.07 | 4.45 | W22314X | 49.77 | 3 7/8 - 3 1/8 | W22314R302 | 3 7/8 - 2 15/16 | W22314R215 | 3 7/8 - 2 3/4 | W22314R212 |
| | 3 15/16 | 3.35 | 4.72 | W22315X | 53.57 | – | – | – | – | – | – |
| | 4 | 3.35 | 4.72 | W22400X | 53.19 | – | – | – | – | – | – |
| | 4 1/16 | 3.35 | 4.72 | W22401IX | 52.82 | – | – | – | – | – | – |
| | 4 1/8 | 3.35 | 4.72 | W22402X | 52.43 | – | – | – | – | – | – |
| | 4 3/16 | 3.35 | 4.72 | W22403X | 52.09 | – | – | – | – | – | – |
| | 4 1/4 | 3.35 | 4.72 | W22404X | 51.48 | 4 1/4 - 3 1/2 | W22404R308 | 4 1/4 - 3 1/8 | W22404R302 | 4 1/4 - 2 15/16 | W22404R215 |
| | 4 5/16 | 3.54 | 4.92 | W22405X | 54.26 | – | – | – | – | – | – |
| | 4 3/8 | 3.54 | 4.92 | W22406X | 53.91 | – | – | – | – | – | – |
| | 4 7/16 | 3.54 | 4.92 | W22407X | 53.50 | – | – | – | – | – | – |
| | 4 1/2 | 3.54 | 4.92 | W22408IX | 53.06 | – | – | – | – | – | – |
| | 4 9/16 | 3.54 | 4.92 | W22409X | 52.64 | – | – | – | – | – | – |
| | 4 5/8 | 3.54 | 4.92 | W22410IX | 51.99 | 4 5/8 - 3 7/8 | W22410R314 | 4 5/8 - 3 3/4 | W22410R312 | 4 5/8 - 3 1/2 | W22410R308 |
| | 4 3/4 | 3.74 | 5.12 | W22412X | 54.54 | | – | – | – | – | – |
| | 4 7/8 | 3.74 | 5.12 | W22414X | 53.60 | – | – | – | – | – | – |
| | 5 | 3.74 | 5.12 | W22500X | 52.37 | 5 - 4 1/4 | W22500R404 | 5 - 4 1/8 | W22500R402 | 5 - 3 7/8 | W22500R314 |
| | 5 1/8 | 3.94 | 5.31 | W22502X | 55.10 | – | – | – | – | – | – |
| | 5 3/16 | 3.94 | 5.31 | W22503X | 54.71 | – | – | – | – | – | – |
| | 5 1/4 | 3.94 | 5.31 | W22504X | 54.05 | – | – | – | – | – | – |
| | 5 3/8 | 3.94 | 5.31 | W22506X | 52.77 | 5 3/8 - 4 5/8 | W22506R410 | 5 3/8 - 4 1/4 | W22506R404 | 5 3/8 - 4 1/8 | W22506R402 |
| | – | – | – | W22506X | 52.77 | 5 3/8 - 3 7/8 | W22506R314 | – | – | – | – |

# W35000X Series Imperial Cassettes & Reducer Inserts




**W Series (X-Edition)**



Nominal Torque at 10,000 psi:
**35,000 ft.lbs**

Hexagon Range:
**3⅛ - 6⅛ inches**

Maximum Operating Pressure:
**10,000 psi**

▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size S (in) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (in) | Model Number |
|---|---|---|---|---|---|---|---|
| W35000X | 3⅛ | 3.02 | 4.99 | W35302X | 72.30 | 3⅛ – 2 | W35302R200 |
| | 3⁹⁄₁₆ | 3.02 | 4.99 | W35303X | 72.10 | – | – |
| | 3¼ | 3.02 | 4.99 | W35304X | 71.70 | – | – |
| | 3⁵⁄₁₆ | 3.02 | 4.99 | W35305X | 71.40 | – | – |
| | 3⅜ | 3.02 | 4.99 | W35306X | 71.00 | – | – |
| | 3⁷⁄₁₆ | 3.02 | 4.99 | W35307IX | 70.50 | – | – |
| | 3½ | 3.02 | 4.99 | W35308X | 70.10 | 3½ - 2⁵⁄₁₆ | W35308R205 |
| | 3⁹⁄₁₆ | 3.23 | 5.22 | W35309X | 71.40 | – | – |
| | 3⅝ | 3.23 | 5.22 | W35310X | 73.40 | – | – |
| | 3¹¹⁄₁₆ | 3.23 | 5.22 | W35311X | 73.00 | – | – |
| | 3¾ | 3.23 | 5.22 | W35312X | 72.50 | – | – |
| | 3¹³⁄₁₆ | 3.23 | 5.22 | W35313X | 72.10 | – | – |
| | 3⅞ | 3.23 | 5.22 | W35314X | 71.40 | 3⅞ - 2¹¹⁄₁₆ | W35314R211 |
| | 3¹⁵⁄₁₆ | 3.45 | 5.39 | W35315X | 70.80 | 3¹⁵⁄₁₆ - 2¹³⁄₁₆ | W35315R213 |
| | 4 | 3.45 | 5.39 | W35400X | 74.70 | | – |
| | 4⅛ | 3.45 | 5.39 | W35401X | 74.30 | – | – |
| | 4⅛ | 3.45 | 5.39 | W35402X | 73.90 | – | – |
| | 4³⁄₁₆ | 3.45 | 5.39 | W35403X | 73.40 | – | – |
| | 4¼ | 3.45 | 5.39 | W35404X | 72.80 | 4¼ - 3⅛ | W35404R301 |
| | 4⁵⁄₁₆ | 3.69 | 5.63 | W35405X | 76.90 | – | – |
| | 4⅜ | 3.69 | 5.63 | W35406X | 76.50 | – | – |
| | 4⁷⁄₁₆ | 3.69 | 5.63 | W35407X | 76.10 | – | – |
| | 4½ | 3.69 | 5.63 | W35408X | 75.60 | – | – |
| | 4⁹⁄₁₆ | 3.69 | 5.63 | W35409IX | 75.20 | – | – |
| | 4⅝ | 3.69 | 5.63 | W35410IX | 74.50 | 4⅝ - 3⅝ | W35410R310 |
| | 4¾ | 3.91 | 5.85 | W35412X | 78.50 | 4¾ - 3¾ | W35412R312 |
| | 4⅞ | 3.91 | 5.85 | W35414X | 76.90 | – | – |
| | 5 | 3.91 | 5.85 | W35500X | 75.60 | 5 - 4 | W35500R400 |
| | 5⅛ | 4.09 | 6.02 | W35502X | 78.90 | 5⅛ - 4⅛ | W35502R402 |
| | 5³⁄₁₆ | 4.09 | 6.02 | W35503X | 78.50 | – | – |
| | 5¼ | 4.09 | 6.02 | W35504X | 77.60 | – | – |
| | 5⅜ | 4.09 | 6.02 | W35506X | 76.30 | 5⅜ - 4⁵⁄₁₆ | W35506R405 |
| | 5½ | 4.31 | 6.24 | W35508X | 79.80 | – | – |
| | 5⁹⁄₁₆ | 4.31 | 6.24 | W35509X | 79.40 | – | – |
| | 5⅝ | 4.31 | 6.24 | W35510X | 78.50 | – | – |
| | 5¾ | 4.31 | 6.24 | W35512X | 76.90 | 5¾ - 4¾ | W35512R412 |
| | 5⅞ | 4.52 | 6.46 | W35514X | 80.90 | 5⅞ - 4⅞ | W35514R414 |
| | 6 | 4.52 | 6.46 | W35600X | 79.60 | – | |
| | 6⅛ | 4.52 | 6.46 | W35602X | 77.80 | 6⅛ - 5⅛ | W35602R502 |

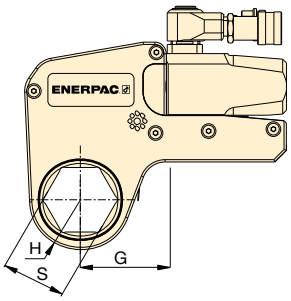


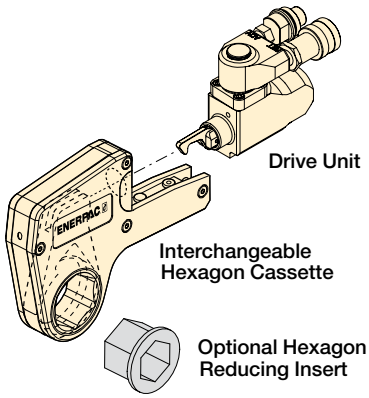
**Back-Up Spanners**
Hands free tool to be used to stop back nut from turning during make up or break out.

*Page:* 245

**Hexagon Bolt and Nut Sizes**
See the table of hexagon sizes of bolts, nuts and related thread diameters.

*Page:* 411




**W Series (X-Edition)**



Hexagon Range:
**24 - 105 mm**

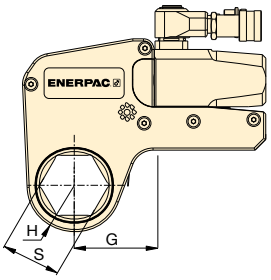
Maximum Operating Pressure:
**10,000 psi (690 bar)**

▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size* S (mm) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (mm) | Model Number | Hexagon Reducer (mm) | Model Number | Hexagon Reducer (mm) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| W2000X | 30 | 1.22 | 2.11 | W2103X | 4.19 | – | – | – | – | – | – |
| | 32 | 1.22 | 2.11 | W2104X | 4.19 | – | – | – | – | – | – |
| | 36 | 1.22 | 2.11 | W2107X | 4.19 | – | – | – | – | – | – |
| | 38 | 1.32 | 2.29 | W2108X | 4.51 | – | – | – | – | – | – |
| | 41 | 1.32 | 2.29 | W2110X | 4.38 | 41 - 32 | W2110R104 | 41 - 30 | W2110R103 | 41 - 24 | W2110R024M |
| | 46 | 1.44 | 2.38 | W2113X | 4.69 | 46 - 36 | W2113R107 | 46 - 32 | W2113R104 | – | – |
| | 50 | 1.54 | 2.48 | W2200X | 4.54 | 50 - 41 | W2200R110 | 50 - 36 | W2200R107 | – | – |
| | 55 | 1.65 | 2.70 | W2203X | 4.64 | 55 - 46 | W2203R113 | 55 - 41 | W2203R110 | 55 - 36 | W2203R107 |
| | 60 | 1.75 | 2.55 | W2206X | 4.72 | 60 - 50 | W2206R200 | 60 - 46 | W2206R113 | 60 - 41 | W2206R110 |
| | – | – | – | – | – | 60 - 36 | W2206R107 | – | – | – | – |
| W4000X | 36 | 1.46 | 2.40 | W4107X | 7.72 | – | – | – | – | – | – |
| | 41 | 1.46 | 2.40 | W4110X | 7.72 | – | – | – | – | – | – |
| | 46 | 1.56 | 2.52 | W4113X | 7.94 | – | – | – | – | – | – |
| | 50 | 1.63 | 2.63 | W4200X | 8.28 | 50 - 36 | W4200R107 | – | – | – | – |
| | 55 | 1.73 | 2.89 | W4203X | 8.42 | 55 - 41 | W4203R110 | 55 - 36 | W4203R107 | 55 - 32 | W4203R104 |
| | 60 | 1.83 | 2.78 | W4206X | 8.47 | 60 - 50 | W4206R200 | 60 - 46 | W4206R113 | 60 - 36 | W4206R107 |
| | 65 | 1.95 | 3.00 | W4209X | 8.67 | 65 - 55 | W4209R203 | 65 - 50 | W4209R200 | 65 - 46 | W4209R113 |
| | 70 | 2.07 | 3.08 | W4212X | 8.84 | 70 - 60 | W4212R206 | 70 - 55 | W4212R203 | – | – |
| | 75 | 2.18 | 3.21 | W4215X | 8.96 | 75 - 65 | W4215R209 | 75 - 60 | W4215R206 | – | – |
| | – | – | – | | – | 75 - 55 | W4215R203 | 75 - 50 | W4215R200 | – | – |
| | 80 | 2.30 | 3.29 | W4302X | 9.16 | 80 - 75 | W4302R215 | 80 - 70 | W4302R212 | 80 - 65 | W4302R209 |
| | – | – | – | | – | 80 - 55 | W4302R203 | 80 - 50 | W4302R200 | | – |
| | 85 | 2.44 | 3.37 | W4085MX | 9.48 | – | – | – | – | – | – |
| W8000X | 50 | 1.77 | 3.08 | W8200X | 17.75 | – | – | – | – | – | – |
| | 55 | 1.89 | 3.15 | W8203X | 17.22 | – | – | – | – | – | – |
| | 60 | 2.01 | 3.25 | W8206X | 17.59 | – | – | – | – | – | – |
| | 65 | 2.07 | 3.38 | W8209X | 17.29 | 65 - 50 | W8209R200 | – | – | – | – |
| | 70 | 2.07 | 3.34 | W8212X | 17.12 | 70 - 55 | W8212R203 | – | – | – | – |
| | 75 | 2.28 | 3.35 | W8215X | 17.11 | 75 - 60 | W8215R206 | 75 - 55 | W8215R203 | – | – |
| | 80 | 2.38 | 3.52 | W8302X | 17.33 | 80 - 65 | W8302R209 | 80 - 60 | W8302R206 | 80 - 55 | W8302R203 |
| | – | – | – | – | – | 80 - 50 | W8302R200 | | – | – | – |
| | 85 | 2.60 | 3.63 | W8085MX | 18.42 | 85 - 70 | W8085R070M | 85 - 65 | W8085R065M | 85 - 60 | W8085R060M |
| | – | – | – | – | – | 85 - 55 | W8085R055M | – | – | – | – |
| | 90 | 2.91 | 4.05 | W8090MX | 20.46 | 90 - 75 | W8090R075M | – | – | – | – |
| | 95 | 2.91 | 4.05 | W8312X | 19.71 | 95 - 80 | W8312R302 | 95 - 75 | W8312R215 | – | – |
| | 100 | 3.13 | 4.33 | W8315X | 20.31 | – | – | – | – | – | – |
| | 105 | 3.13 | 4.33 | W8402X | 19.39 | – | – | – | – | – | – |

* See page **411** for table of hexagon sizes of bolts, nuts and related thread diameters.

# W-Series Metric Cassettes and Reducer Inserts




Hexagon Range:
**50-155 mm**

Maximum Operating Pressure:
**10,000 psi (690 bar)**

**W**
**Series**
**(X-Edition)**



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size S (mm) | Nose Radius H (in) | Dim. G (in) | Model Number | Wt. (lbs) | Hexagon Reducer (mm) | Model Number | Hexagon Reducer (mm) | Model Number |
|---|---|---|---|---|---|---|---|---|---|
| W15000X | 65 | 2.32 | 3.49 | W15209X | 30.72 | – | – | – | – |
| | 70 | 2.32 | 3.49 | W15212X | 30.72 | – | – | – | – |
| | 75 | 2.44 | 3.56 | W15215X | 30.08 | – | – | – | – |
| | 80 | 2.54 | 3.66 | W15302X | 30.34 | 80-65 | W15302R209 | – | – |
| | 85 | 2.74 | 3.80 | W15085MX | 31.70 | 85-70 | W15085R070M | – | |
| | 90 | 2.95 | 4.01 | W15090MX | 33.32 | 90-75 | W15090R075M | – | – |
| | 95 | 2.95 | 4.01 | W15312X | 31.70 | 95-80 | W15312R302 | 95 - 75 | W15312R215 |
| | 100 | 3.17 | 4.06 | W15315X | 34.02 | – | – | – | – |
| | 105 | 3.17 | 4.06 | W15402X | 33.09 | 105-90 | W15402R090M | – | – |
| | 110 | 3.44 | 4.52 | W15405X | 35.61 | 110-95 | W15110R095M | – | – |
| | 115 | 3.44 | 4.52 | W15115MX | 34.48 | 115-100 | W15115R100M | – | – |
| W22000X | 75 | 2.64 | 4.02 | W22215X | 48.72 | – | – | – | |
| | 80 | 2.64 | 4.02 | W22302X | 47.78 | 80-60 | W22302R206 | 80 - 55 | W22302R203 |
| | 85 | 2.85 | 4.23 | W22085MX | 49.74 | 85-65 | W22085MR209 | 85 - 60 | W22085MR206 |
| | 90 | 3.07 | 4.45 | W22090MX | 51.72 | 90-70 | W22090M212 | 90 - 60 | W22090MR206 |
| | 95 | 3.07 | 4.45 | W22312X | 50.62 | 95-75 | W22312R215 | – | – |
| | 100 | 3.35 | 4.72 | W22315X | 53.57 | – | – | – | – |
| | 105 | 3.35 | 4.72 | W22402X | 52.09 | – | – | – | – |
| | 110 | 3.54 | 4.92 | W22404X | 51.48 | – | – | – | – |
| | 115 | 3.54 | 4.92 | W22115MX | 52.88 | – | – | – | – |
| | 120 | 3.74 | 5.12 | W22412X | 54.54 | – | – | – | – |
| | 123 | 3.74 | 5.12 | W22123MX | 53.80 | – | – | – | – |
| | 130 | 3.94 | 5.31 | W22502X | 55.10 | – | – | – | – |
| | 135 | 3.94 | 5.31 | W22506X | 52.77 | 135-105 | W22506R402 | – | – |
| W35000X | 80 | 3.02 | 5.08 | W35302X | 72.30 | 80-50 | W35302R200 | – | – |
| | 85 | 3.02 | 5.08 | W35085MX | 33.10 | – | – | – | |
| | 90 | 3.23 | 5.33 | W35090MX | 34.30 | 90-60 | W35090R206 | – | – |
| | 95 | 3.23 | 5.30 | W35312X | 72.50 | – | – | – | – |
| | 100 | 3.45 | 5.48 | W35315X | 70.80 | – | – | – | – |
| | 105 | 3.45 | 5.48 | W35402X | 73.90 | – | – | – | – |
| | 110 | 3.69 | 5.75 | W35405X | 76.90 | 110-85 | W35405R085M | – | – |
| | 115 | 3.69 | 5.75 | W35115MX | 77.10 | – | – | – | – |
| | 120 | 3.91 | 6.01 | W35412X | 78.50 | 120-95 | W35412R312 | – | – |
| | 123 | 3.91 | 6.01 | W35123MX | 78.90 | – | – | – | – |
| | 130 | 4.09 | 6.30 | W35502X | 78.90 | 130-105 | W35502R402 | – | – |
| | 135 | 4.09 | 6.30 | W35506X | 76.30 | 135-110 | W35506R405 | – | – |
| | 140 | 4.31 | 6.43 | W35508X | 79.80 | 140-115 | W35508R115M | – | – |
| | 145 | 4.31 | 6.43 | W35512X | 76.90 | 145-120 | W35512R412 | – | – |
| | 150 | 4.52 | 6.67 | W35514X | 80.90 | – | – | – | – |
| | 151 | 4.52 | 6.67 | W35151MX | 82.10 | – | – | – | – |
| | 155 | 4.52 | 6.67 | W35602X | 77.80 | 155-130 | W35602R502 | – | – |

▼ Shown: **W4206SL stepped-width cassette with W4000X drive unit**




## Your Easy and Long-Lasting Solution to Difficult Access Bolting Applications



**Designed for Tight Spots**

Stepped width design provides easy access in confined areas. UltraSlim cassettes fit where standard solutions won't.



**Built to Outperform**

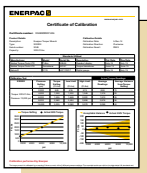
High endurance components keep working when others fail.



**Top Mounted Handles**

Standard top mounted handles provide safety and versatility; optional angled handles are also available.

| | |
|---|---|
| Replacement handle (straight) | **SWH6S** |
| Angled handle (optional) | **SWH6A** |



**Calibration Certificate**

All **UltraSlim Series** cassettes are CE - ATEX certified, factory calibrated and are shipped complete with a calibration certificate.

CE II 2 GD T4
CSA/SIRA 15XT072

### Versatility

- **Lean, stepped width design allows tool to be mounted over bolts where other tools won't fit**
- **Bi-Hexagonal cassette allows twice as many positioning points on nut or bolt**
- **Uses same drive unit as standard W-series hexagon cassettes**
- **Robust top mounted handle stays out of the way, providing safe fastening in hard to reach areas**

### Performance

- **Premium components provide best-in-class endurance**

### Ease of Use

- **Few moving parts are easily accessible for quick field maintenance**
- **Fast release drive unit enables rapid exchange of cassettes, no tools required and no pins to lose**
- **Uses same drive unit as standard and X-Edition cassettes**

### Accuracy

- **Constant torque output provides accuracy of +/- 3% across the full stroke**



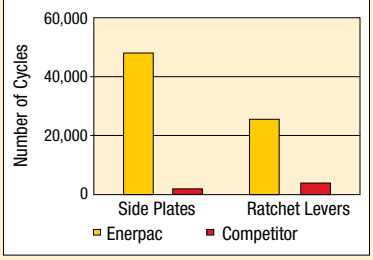
*Slim enough to fit and tough enough to last. This UltraSlim wrench is the perfect controlled bolting solution for this oil and gas flange.* ▶

### UltraSlim Stepped-Width Cassettes

Accessing narrow spaces normally requires significantly reducing the width of the torque wrench. For the tool operator, this has always meant vastly reduced tool durability, and/or reduced torque output.

By using the highest-grade materials, perfecting the geometry, and placing the positioning handle on top of the tool, Enerpac UltraSlim cassettes are able to provide greater torque, get into tighter spaces, and vastly outperform the competition in product durability.*

**Durability of Key Components***




*Average test results, whereby three Enerpac 1 13/16" UltraSlim cassettes and three competitor 1 13/16" cassettes were tested at 4000 ft-lbs for 50,000 cycles. The Enerpac side plates never broke for the full duration of the test.*

## W-SL Series Ultra-Slim



Nominal Torque at 10,000 psi:
**4360 Ft.lbs.**

Hexagon Range:
**1 13/16 - 2 15/16 inches**

Maximum Operating Pressure:
**10,000 psi**



**Torque Wrench Pumps**

Visit enerpac.com for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

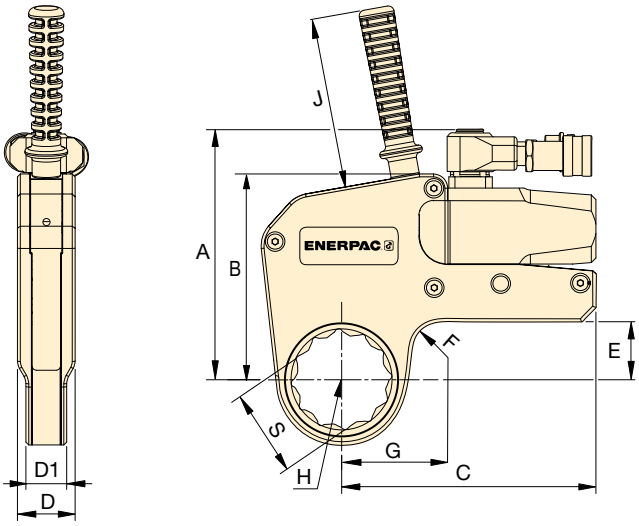
Page: 291



**Torque Wrench Hoses**

Use Enerpac THQ700 Series hoses with W-Series torque wrenches to ensure the integrity of your hydraulic system.

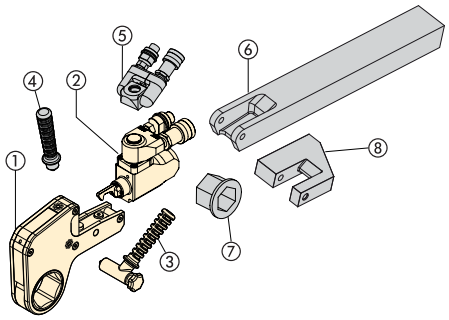
| 10,000 psi | |
|---|---|
| 6 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |




▼ **SELECTION CHART**

| Hexagon Size S (in) | Hexagon Size S (mm) | Nominal Torque @ 10,000 psi (Ft.lbs) | Cassette Model Number | Minimum Torque @ 1000 psi (Ft.lbs) | Nose Radius H (in) | Dimensions (in) G | A | B | C | D | D1 | E | F (radius) | J | Weight (lbs) | Drive Unit Model* (sold separately) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 13/16 | 46 | 1980 | W2113SL | 200 | 1.44 | 2.35 | 5.54 | 4.30 | 5.81 | 1.28 | 1.00 | 0.94 | 0.79 | 4.72 | 4.87 | W2000X |
| 2 | 50 | 1980 | W2200SL | 200 | 1.52 | 2.40 | | | | | | | | | 4.87 | |
| 2 3/16 | 55 | 1980 | W2203SL | 200 | 1.63 | 2.49 | | | | | | | | | 4.87 | |
| 2 3/8 | 60 | 1980 | W2206SL | 200 | 1.75 | 2.56 | | | | | | | | | 4.88 | |
| 1 13/16 | 46 | 4360 | W4113SL | 430 | 1.56 | 2.65 | 6.91 | 5.69 | 7.03 | 1.59 | 1.13 | 1.61 | 0.79 | 4.72 | 10.15 | W4000X |
| 2 3/16 | 55 | 4360 | W4203SL | 430 | 1.73 | 2.70 | | | | | | | | | 10.15 | |
| 2 3/8 | 60 | 4360 | W4206SL | 430 | 1.89 | 2.82 | | | | | | | | | 10.36 | |
| 2 9/16 | 65 | 4360 | W4209SL | 430 | 1.99 | 2.92 | | | | | | | | | 10.37 | |
| 2 3/4 | 70 | 4360 | W4212SL | 430 | 2.11 | 2.98 | | | | | | | | | 10.42 | |
| 2 15/16 | 75 | 4360 | W4215SL | 430 | 2.20 | 2.99 | | | | | | | | | 10.37 | |

* Bi-Hexagonal Cassette includes top mounted straight handle.
** May also be used with **W2000PX** and **W4000PX** drive units, featuring double-swivel manifolds.

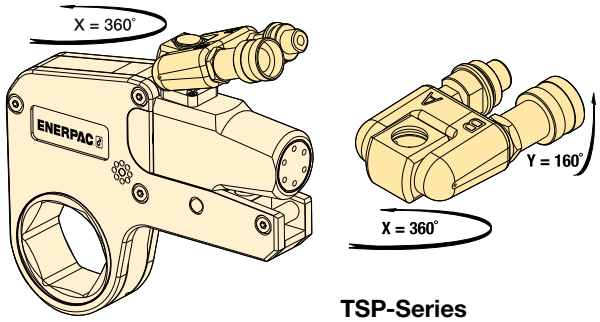


① Hexagon Cassette
② Drive Unit
③ Angled Positioning Handle
④ Straight Positioning Handle (optional)
⑤ Pro Series Swivel (optional)
⑥ Extended Reaction Arm (optional)
⑦ Reducer Insert (optional)
⑧ Reaction Paddle (optional)

**TSP**
**WTE**
**WRP**
**Series**



## TSP-Series, Pro Series Swivels



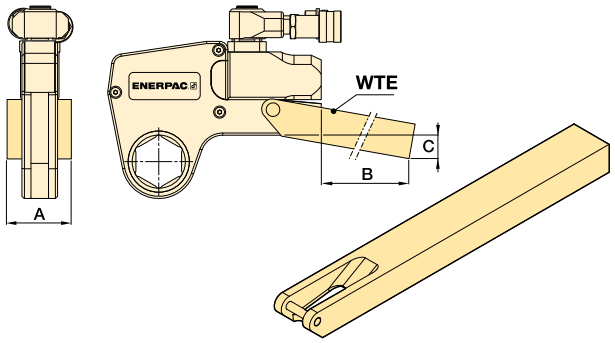

**TSP-Series**

- **Robust interlocking design**
- **360° X-axis and 160° Y-axis rotation**
- **Increases tool fit in restricted access areas**
- **Simplifies hose placement**
- **Includes male and female couplers**

| Torque Wrench Model Number | Model Number | Maximum Pressure (psi) | Wt. (lbs) |
|---|---|---|---|
| W2000X, W4000X, W8000X, W15000X, W22000X, W35000X | TSP300* | 10,000 | 0.44 |

Note: To order a W-series (X-Edition) wrench fitted with the TSP swivel, insert a "P" prior to the "X" in the tool designation, e.g., W2000PX.
* TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on www.enerpac.com

## WTE-Series, Extended Reaction Arm



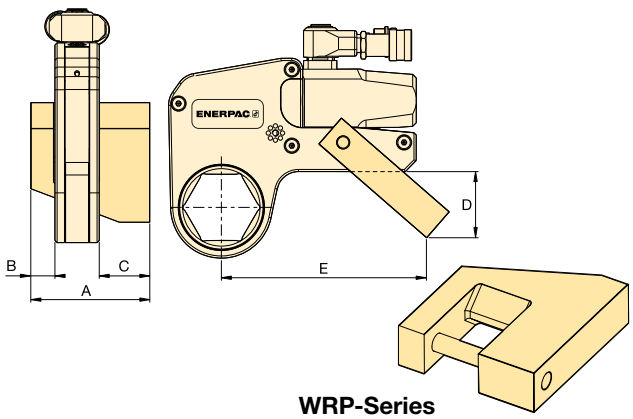

**WTE-Series**

- **Full torque rated**
- **Increases tool fit in restricted access areas**

| Torque Wrench Model Number | Model Number | Dimensions (in) | | | Wt.* (lbs) |
|---|---|---|---|---|---|
| | | A | B | C | |
| W2000X | WTE20 | 2.20 | 15.67 | 2.66 | 5.73 |
| W4000X | WTE40 | 2.60 | 17.17 | 2.91 | 10.14 |
| W8000X | WTE80 | 3.35 | 17.68 | 2.15 | 16.76 |
| W15000X | WTE150 | 4.02 | 19.61 | 2.83 | 26.46 |
| W22000X | WTE220 | 4.49 | 20.51 | 3.03 | 38.14 |
| W35000X | WTE350 | 5.00 | 16.48 | 5.23 | 39.24 |

* Weights indicated are for the accessories only and do not include the wrench.

## WRP-Series Reaction Paddles




**WRP-Series**

- **Lightweight interchangeable design**
- **Allows for offset reaction when in-line reaction is not available**

| Torque Wrench Model Number | Model Number | Dimensions (in) | | | | | Wt.* (lbs) |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | |
| W2000X | WRP20 | 3.31 | 0.63 | 1.40 | 1.77 | 5.83 | 0.88 |
| W4000X | WRP40 | 4.29 | 0.83 | 1.87 | 2.32 | 7.48 | 1.76 |
| W8000X | WRP80 | 5.37 | 1.02 | 2.25 | 2.72 | 8.78 | 4.41 |
| W15000X | WRP150 | 6.50 | 1.26 | 2.74 | 3.43 | 10.12 | 8.60 |
| W22000X | WRP220 | 8.15 | 1.52 | 3.58 | 5.28 | 12.48 | 15.87 |
| W35000X | WRP350 | 9.22 | 1.79 | 3.58 | 7.17 | 13.98 | 23.37 |

* Weights indicated are for the accessories only and do not include the wrench.

**ENERPAC professional series steel torque wrenches provide reliable controlled tightening solutions across many industries.**



***S3000X Square Drive Torque Wrench on Wind Turbine Assembly and Maintenance***

*S3000X used to connect wind turbine segments during assembly and maintenance. A robust but compact solution is required for bolt tightening on wind tower sections. Large numbers of fasteners require precise application of torque to ensure joint integrity is achieved and maintained.*

*The Enerpac S-Series wrench offers simple and reliable operation while providing accurate and repeatable results.*



***W4000X Low-Profile Torque Wrench on an API Pipe Flange***

*Throughout the Oil and Gas, Petrochemical and Processing Industries, pipeline joints, valves, pumps and machinery present challenges for controlled bolting.*

*The restricted access on this flange was easily overcome with an Enerpac W-Series Torque Wrench. The W Wrenches offer reliability and control, ensuring even and consistent torque is applied to all bolts.*



***S3000X on an Oil and Gas Flange***

*During maintenance, quick turnaround times are essential; S-Series wrenches provide a large angle of nut rotation per stroke, offering speed and accuracy in a compact ergonomic tool.*

▼ RSL Drive Units with interchangeable RLP Hexagon Cassette and RSQ Square Drive Head




# Setting New Standards in Safety, Simplicity and Performance

### Safety and Performance

- **Innovative design that completely encloses all moving parts and minimizes pinch points**
- **30-35° rotation angle provides added productivity while avoiding "tool lock-on" which is common with some torque wrench designs**

### Simplicity

- **Simple robust alloy steel design with just three moving parts for reduced maintenance**
- **Robust handles are available for both sides and the tops of cassettes to allow for extra maneuverability**
- **Designed to give optimum strength-to-weight and torque-to-weight ratios**
- **Minimum nose radius for trouble-free tool fit**

### Versatility

- **Interchangeable cassette design**
- **Wide range of hexagon sizes available for all applications**
- **Reaction arm has a simple dial lock for rapid change**
- **For use in multiple industrial, energy, and oil and gas applications**

### Accuracy

- **Accuracy of +/-3%**



**Options and Accessories**

Optional extended reaction arms and tubes are common accessories available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.

*Page:* 269



**Back-Up Spanner**

To be used to stop back nut from turning during make up or break out. Two hex sizes in one tool.

| Hexagon Sizes (A/F) (in) | Hexagon Sizes (A/F) (mm) | Back-Up Spanner Model Number |
|---|---|---|
| 1 1/16 - 1 1/4 | 27 - 32 | BUS01 |
| 1 7/16 - 1 5/8 | 36 - 41 | BUS02 |
| 1 13/16 - 2 | 46 - 50 | BUS03 |
| 2 3/16 - 2 3/8 | 55 - 60 | BUS04 |
| 2 9/16 - 2 3/4 | 65 - 70 | BUS05 |
| 2 15/16 - 3 1/8 | 75 - 80 | BUS06 |
| 3 1/2 - 3 7/8 | – | BUS07 |
| 4 1/4 - 4 5/8 | – | BUS08 |
| – | 85 - 90 | BUS09 |
| 3 3/4 - 3 15/16 | 95 - 100 | BUS10 |
| 4 1/8 - 4 15/16 | 105 - 110 | BUS11 |
| – | 115 - 120 | BUS12 |

245



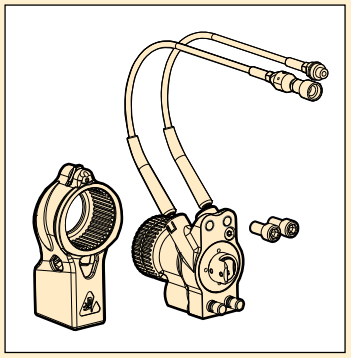
**Torque Wrench Pumps**

Visit enerpac.com for system-matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

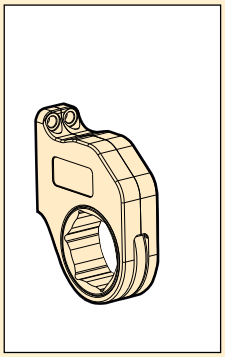
*Page:* 291

# Drive Units for Hexagon Cassettes & Square Drive Heads

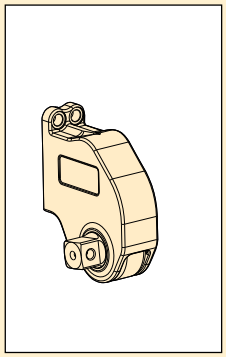
**One Drive, Two Tools**
One RSL-Hydraulic Drive Unit fits RLP-Hexagon Cassette or RSQ-Square Drive Head.



RSL

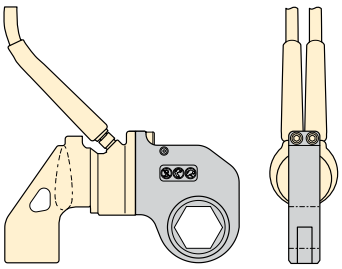


RLP... / RLP...SL

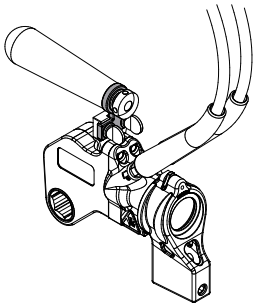


RSQ

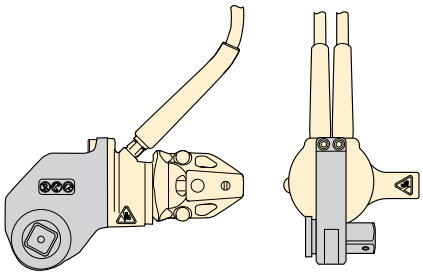
▼ **RSL Torque Wrench Drive Unit shown with RLP Low-Profile Hexagon Cassette**



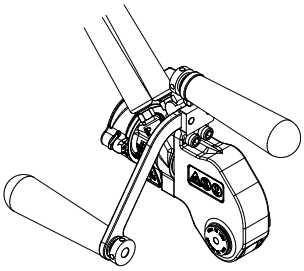
▼ **Contact Enerpac for optional handles.**



▼ **RSL Torque Wrench Drive Unit shown with RSQ Square Drive Head**



▼ **Contact Enerpac for optional handles.**



▼ **SELECTION CHART**

| Hexagon Cassette Range (A/F) (see pages 264-268 for sizes and model numbers) | | Drive Unit Model Number | Maximum Torque Output | | Weight |
|---|---|---|---|---|---|
| (in) | (mm) | | (ft-lbs) | (Nm) | (lbs) |
| ⅞ - 2⅜ | 26 - 60 | **RSL1500** | 1408 | 1909 | 3.4 |
| 1 5⁄16 - 2 15⁄16 | 33 - 75 | **RSL3000** | 3080 | 4176 | 5.6 |
| 1 11⁄16 - 3⅛ | 46 - 80 | **RSL5000** | 5303 | 7190 | 8.9 |
| 2⅜ - 3⅛ | 60 - 80 | **RSL8000** | 7862 | 10659 | 10.6 |
| 2 7⁄16 - 4⅝ | 62 - 110 | **RSL11000** | 11,154 | 15123 | 11.6 |
| 2 15⁄16 - 4⅝ | 75 - 115 | **RSL19000** | 18,843 | 25547 | 20.0 |
| 3⅛- 6⅛ | 80 - 155 | **RSL28000** | 28,002 | 37965 | 22.0 |

## RSL Series



Maximum Torque Output:
**1408 - 28,002 Ft-lbs**

Hexagon Range:
**⅞ - 6⅛ inches**

Hexagon Range:
**26 - 155 mm**

Maximum Operating Pressure:
**10,000 psi**




**Select the Right Torque**
Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.



**Torque Wrench Hoses**
Use Enerpac THQ700 Series hoses with RSL-Series torque wrenches to ensure the integrity of your hydraulic system.

| | |
|---|---|
| 6 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |



**RLP-Series, Low-Profile Hexagon Cassettes**
For metric and imperial hexagon cassettes see pages 264-268.

*Page:* 264

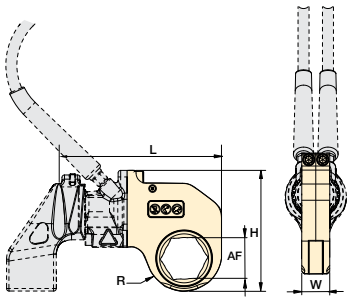


**RSQ-Series, Square-Drive Heads**
RSQ Square Drive Heads are interchangeable with the RLP Hexagon Cassettes for the same size RSL Drive Unit.

*Page:* 272

# Hexagon Cassettes for RSL-Series

ENERPAC




Hexagon Range:
**⅞ - 6⅛ inches**

Hexagon Range:
**26 - 155 mm**

Maximum Operating Pressure:
**10,000 psi**

**RSL Series**



▼ **SELECTION CHART**

| Drive Unit Model Number | AF Size (in) | AF Size (mm) | Hexagon Cassette Model Number | Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Dimensions (in) R | L | W | H | Wt. (lbs) | Dimensions (mm) R | L | W | H | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RSL1500 | ⅞ | – | RLP1014 | 320 | 434 | 0.79 | 6.00 | 1.25 | 4.33 | 2.2 | 20,1 | 152,4 | 31,8 | 110,0 | 1,0 |
| | 1 1/16 | 26 | RLP1101 | 640 | 868 | 0.95 | 6.05 | 1.25 | 4.50 | 2.2 | 24,1 | 153,7 | 31,8 | 114,3 | 1,0 |
| | 1⅛ | – | RLP1102 | 640 | 868 | 1.03 | 6.12 | 1.25 | 4.57 | 2.3 | 26,2 | 155,4 | 31,8 | 116,1 | 1,0 |
| | 1 3/16 | 30 | RLP1103 | 640 | 868 | 1.03 | 6.12 | 1.25 | 4.57 | 2.3 | 26,2 | 155,4 | 31,8 | 116,1 | 1,0 |
| | 1¼ | 32 | RLP1104 | 640 | 868 | 1.03 | 6.12 | 1.25 | 4.57 | 2.3 | 26,2 | 155,4 | 31,8 | 116,1 | 1,0 |
| | 1 5/16 | 33 | RLP1105 | 900 | 1220 | 1.15 | 6.24 | 1.25 | 4.69 | 2.4 | 29,2 | 158,5 | 31,8 | 119,1 | 1,1 |
| | 1⅜ | 35 | RLP1106 | 900 | 1220 | 1.15 | 6.24 | 1.25 | 4.69 | 2.4 | 29,2 | 158,5 | 31,8 | 119,1 | 1,1 |
| | 1 7/16 | 36 | RLP1107 | 900 | 1220 | 1.15 | 6.24 | 1.25 | 4.69 | 2.4 | 29,2 | 158,5 | 31,8 | 119,1 | 1,1 |
| | 1½ | 38 | RLP1108 | 1408 | 1909 | 1.31 | 6.41 | 1.25 | 4.86 | 2.7 | 33,3 | 162,8 | 31,8 | 123,4 | 1,2 |
| | 1 9/16 | – | RLP1109 | 1408 | 1909 | 1.31 | 6.41 | 1.25 | 4.86 | 2.7 | 33,3 | 162,8 | 31,8 | 123,4 | 1,2 |
| | 1⅝ | 41 | RLP1110 | 1408 | 1909 | 1.31 | 6.41 | 1.25 | 4.86 | 2.7 | 33,3 | 162,8 | 31,8 | 123,4 | 1,2 |
| | 1 11/16 | – | RLP1111 | 1408 | 1909 | 1.40 | 6.49 | 1.25 | 4.94 | 2.7 | 35,6 | 164,8 | 31,8 | 125,5 | 1,2 |
| | 1¾ | – | RLP1112 | 1408 | 1909 | 1.40 | 6.49 | 1.25 | 4.94 | 2.7 | 35,6 | 164,8 | 31,8 | 125,5 | 1,2 |
| | 1 13/16 | 46 | RLP1113 | 1408 | 1909 | 1.40 | 6.49 | 1.25 | 4.94 | 2.7 | 35,6 | 164,8 | 31,8 | 125,5 | 1,2 |
| | 1⅞ | – | RLP1114 | 1408 | 1909 | 1.48 | 6.58 | 1.25 | 5.03 | 2.7 | 37,6 | 167,1 | 31,8 | 127,8 | 1,2 |
| | 1 15/16 | – | RLP1115 | 1408 | 1909 | 1.48 | 6.58 | 1.25 | 5.03 | 2.7 | 37,6 | 167,1 | 31,8 | 127,8 | 1,2 |
| | 2 | 50 | RLP1200 | 1408 | 1909 | 1.48 | 6.58 | 1.25 | 5.03 | 2.7 | 37,6 | 167,1 | 31,8 | 127,8 | 1,2 |
| | 2 1/16 | – | RLP1201 | 1408 | 1909 | 1.58 | 6.68 | 1.25 | 5.13 | 2.7 | 40,1 | 169,7 | 31,8 | 130,3 | 1,2 |
| | 2⅛ | – | RLP1202 | 1408 | 1909 | 1.58 | 6.68 | 1.25 | 5.13 | 2.7 | 40,1 | 169,7 | 31,8 | 130,3 | 1,2 |
| | 2 3/16 | 55 | RLP1203 | 1408 | 1909 | 1.58 | 6.68 | 1.25 | 5.13 | 2.7 | 40,1 | 169,7 | 31,8 | 130,3 | 1,2 |
| | 2¼ | – | RLP1204 | 1408 | 1909 | 1.70 | 6.79 | 1.25 | 5.24 | 2.8 | 43,2 | 172,5 | 31,8 | 133,1 | 1,3 |
| | 2 5/16 | – | RLP1205 | 1408 | 1909 | 1.70 | 6.79 | 1.25 | 5.24 | 2.8 | 43,2 | 172,5 | 31,8 | 133,1 | 1,3 |
| | 2⅜ | 60 | RLP1206 | 1408 | 1909 | 1.70 | 6.79 | 1.25 | 5.24 | 2.8 | 43,2 | 172,5 | 31,8 | 133,1 | 1,3 |
| RSL3000 | 1 5/16 | 33 | RLP3105 | 900 | 1220 | 1.18 | 7.62 | 1.38 | 5.49 | 3.5 | 30,0 | 193,5 | 35,1 | 139,4 | 1,6 |
| | 1⅜ | 35 | RLP3106 | 900 | 1220 | 1.18 | 7.62 | 1.38 | 5.49 | 3.5 | 30,0 | 193,5 | 35,1 | 139,4 | 1,6 |
| | 1 7/16 | 36 | RLP3107 | 900 | 1220 | 1.18 | 7.62 | 1.38 | 5.49 | 3.5 | 30,0 | 193,5 | 35,1 | 139,4 | 1,6 |
| | 1½ | 38 | RLP3108 | 1200 | 1627 | 1.32 | 7.77 | 1.38 | 5.63 | 3.9 | 33,5 | 197,4 | 35,1 | 143,0 | 1,8 |
| | 1 9/16 | – | RLP3109 | 1200 | 1627 | 1.32 | 7.77 | 1.38 | 5.63 | 3.9 | 33,5 | 197,4 | 35,1 | 143,0 | 1,8 |
| | 1⅝ | 41 | RLP3110 | 1200 | 1627 | 1.32 | 7.77 | 1.38 | 5.63 | 3.9 | 33,5 | 197,4 | 35,1 | 143,0 | 1,8 |
| | 1 11/16 | – | RLP3111 | 1900 | 2576 | 1.47 | 7.87 | 1.38 | 5.78 | 4.0 | 37,3 | 199,9 | 35,1 | 146,8 | 1,8 |
| | 1¾ | – | RLP3112 | 1900 | 2576 | 1.47 | 7.87 | 1.38 | 5.78 | 4.0 | 37,3 | 199,9 | 35,1 | 146,8 | 1,8 |
| | 1 13/16 | 46 | RLP3113 | 1900 | 2576 | 1.47 | 7.87 | 1.38 | 5.78 | 4.0 | 37,3 | 199,9 | 35,1 | 146,8 | 1,8 |
| | 1⅞ | – | RLP3114 | 2600 | 3526 | 1.60 | 8.04 | 1.38 | 5.92 | 4.5 | 40,6 | 204,2 | 35,1 | 150,4 | 2,0 |
| | 1 15/16 | – | RLP3115 | 2600 | 3526 | 1.60 | 8.04 | 1.38 | 5.92 | 4.5 | 40,6 | 204,2 | 35,1 | 150,4 | 2,0 |
| | 2 | 50 | RLP3200 | 2600 | 3526 | 1.60 | 8.04 | 1.38 | 5.92 | 4.5 | 40,6 | 204,2 | 35,1 | 150,4 | 2,0 |
| | 2 1/16 | – | RLP3201 | 3080 | 4176 | 1.76 | 8.16 | 1.38 | 6.08 | 4.7 | 44,7 | 207,3 | 35,1 | 154,4 | 2,1 |
| | 2⅛ | – | RLP3202 | 3080 | 4176 | 1.76 | 8.16 | 1.38 | 6.08 | 4.7 | 44,7 | 207,3 | 35,1 | 154,4 | 2,1 |
| | 2 3/16 | 55 | RLP3203 | 3080 | 4176 | 1.76 | 8.16 | 1.38 | 6.08 | 4.7 | 44,7 | 207,3 | 35,1 | 154,4 | 2,1 |
| | 2¼ | – | RLP3204 | 3080 | 4176 | 1.84 | 8.25 | 1.38 | 6.15 | 4.8 | 46,7 | 209,6 | 35,1 | 156,2 | 2,2 |
| | 2 5/16 | – | RLP3205 | 3080 | 4176 | 1.84 | 8.25 | 1.38 | 6.15 | 4.8 | 46,7 | 209,6 | 35,1 | 156,2 | 2,2 |
| | 2⅜ | 60 | RLP3206 | 3080 | 4176 | 1.84 | 8.25 | 1.38 | 6.15 | 4.8 | 46,7 | 209,6 | 35,1 | 156,2 | 2,2 |
| | 2 7/16 | 62 | RLP3207 | 3080 | 4176 | 1.95 | 8.14 | 1.38 | 6.26 | 4.6 | 49,5 | 206,8 | 35,1 | 159,0 | 2,1 |
| | 2½ | 63 | RLP3208 | 3080 | 4176 | 1.95 | 8.14 | 1.38 | 6.26 | 4.6 | 49,5 | 206,8 | 35,1 | 159,0 | 2,1 |
| | 2 9/16 | 65 | RLP3209 | 3080 | 4176 | 1.95 | 8.14 | 1.38 | 6.26 | 4.6 | 49,5 | 206,8 | 35,1 | 159,0 | 2,1 |
| | 2⅝ | – | RLP3210 | 3080 | 4176 | 2.04 | 8.23 | 1.38 | 6.36 | 4.4 | 51,8 | 209,0 | 35,1 | 161,5 | 2,0 |
| | 2 11/16 | – | RLP3211 | 3080 | 4176 | 2.04 | 8.23 | 1.38 | 6.36 | 4.4 | 51,8 | 209,0 | 35,1 | 161,5 | 2,0 |
| | 2¾ | 70 | RLP3212 | 3080 | 4176 | 2.04 | 8.23 | 1.38 | 6.36 | 4.4 | 51,8 | 209,0 | 35,1 | 161,5 | 2,0 |
| | 2 13/16 | – | RLP3213 | 3080 | 4176 | 2.16 | 8.34 | 1.38 | 6.54 | 4.7 | 54,9 | 211,8 | 35,1 | 166,1 | 2,1 |
| | 2⅞ | – | RLP3214 | 3080 | 4176 | 2.16 | 8.34 | 1.38 | 6.54 | 4.7 | 54,9 | 211,8 | 35,1 | 166,1 | 2,1 |
| | 2 15/16 | 75 | RLP3215 | 3080 | 4176 | 2.16 | 8.34 | 1.38 | 6.54 | 4.7 | 54,9 | 211,8 | 35,1 | 166,1 | 2,1 |

# Hexagon Cassettes for RSL-Series

**Enerpac's Bolting Integrity Software Solutions** play a key role in implementing and managing an Integrity Program for bolted connections. Our Bolting Software Suite includes **BoltUp** (free, online calculator providing reliable, repeatable bolt loads), **Informate** (bolt load calculation software for huge range of flanged joints and clamped connections), and **Integrity Data Management System/iDMS** (flexible data management and activity-planning system for use on assets featuring bolted connections).

Contact Enerpac for more information.

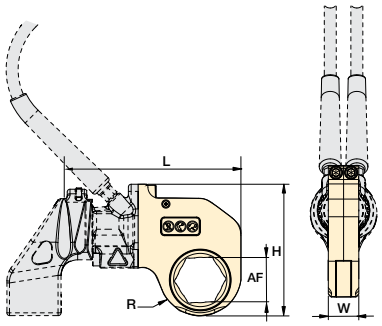
*Page:* 416



**Slimline Hexagon Cassettes**

For accessing narrow spaces RLP...SL Stepped-Width Hexagon Cassettes are available. Slimline cassettes use same drive unit as standard RLP-cassettes.

270




## RSL Series



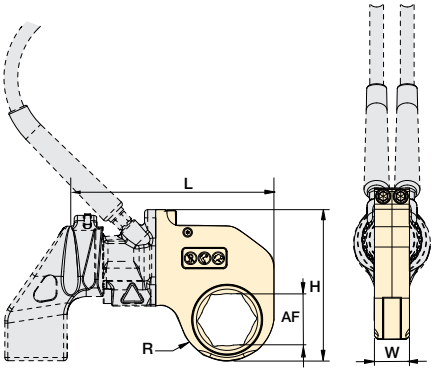
Hexagon Range:
**⅞ - 6⅛ inches**

Hexagon Range:
**26 - 155 mm**

Maximum Operating Pressure:
**10,000 psi**

▼ **SELECTION CHART**

| Drive Unit Model Number | AF Size (in) | AF Size (mm) | Hexagon Cassette Model Number | Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Dimensions (in) R | L | W | H | Wt. (lbs) | Dimensions (mm) R | L | W | H | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RSL5000 | 1 11/16 | – | RLP5111 | 2600 | 3526 | 1.61 | 9.08 | 1.75 | 6.52 | 6.6 | 40,9 | 230,6 | 44,5 | 165,6 | 3,0 |
| | 1¾ | – | RLP5112 | 2600 | 3526 | 1.61 | 9.08 | 1.75 | 6.52 | 6.6 | 40,9 | 230,6 | 44,5 | 165,6 | 3,0 |
| | 1 13/16 | 46 | RLP5113 | 2600 | 3526 | 1.61 | 9.08 | 1.75 | 6.52 | 6.6 | 40,9 | 230,6 | 44,5 | 165,6 | 3,0 |
| | 1⅞ | – | RLP5114 | 2600 | 3526 | 1.61 | 9.08 | 1.75 | 6.52 | 6.6 | 40,9 | 230,6 | 44,5 | 165,6 | 3,0 |
| | 1 15/16 | – | RLP5115 | 2600 | 3526 | 1.61 | 9.08 | 1.75 | 6.52 | 6.6 | 40,9 | 230,6 | 44,5 | 165,6 | 3,0 |
| | 2 | 50 | RLP5200 | 2600 | 3526 | 1.61 | 9.08 | 1.75 | 6.52 | 6.6 | 40,9 | 230,6 | 44,5 | 165,6 | 3,0 |
| | 2 1/16 | – | RLP5201 | 3500 | 4746 | 1.71 | 9.18 | 1.75 | 6.62 | 6.5 | 43,4 | 233,2 | 44,5 | 168,1 | 2,9 |
| | 2⅛ | – | RLP5202 | 3500 | 4746 | 1.71 | 9.18 | 1.75 | 6.62 | 6.5 | 43,4 | 233,2 | 44,5 | 168,1 | 2,9 |
| | 2 3/16 | 55 | RLP5203 | 3500 | 4746 | 1.71 | 9.18 | 1.75 | 6.62 | 6.5 | 43,4 | 233,2 | 44,5 | 168,1 | 2,9 |
| | 2¼ | – | RLP5204 | 4500 | 6102 | 1.87 | 9.34 | 1.75 | 6.78 | 7.0 | 47,5 | 237,2 | 44,5 | 172,2 | 3,2 |
| | 2 5/16 | – | RLP5205 | 4500 | 6102 | 1.87 | 9.34 | 1.75 | 6.78 | 7.0 | 47,5 | 237,2 | 44,5 | 172,2 | 3,2 |
| | 2⅜ | 60 | RLP5206 | 4500 | 6102 | 1.87 | 9.34 | 1.75 | 6.78 | 7.0 | 47,5 | 237,2 | 44,5 | 172,2 | 3,2 |
| | 2 7/16 | 62 | RLP5207 | 5303 | 7191 | 2.01 | 9.48 | 1.75 | 6.92 | 7.0 | 51,1 | 240,8 | 44,5 | 175,8 | 3,2 |
| | 2½ | 63 | RLP5208 | 5303 | 7191 | 2.01 | 9.48 | 1.75 | 6.92 | 7.0 | 51,1 | 240,8 | 44,5 | 175,8 | 3,2 |
| | 2 9/16 | 65 | RLP5209 | 5303 | 7191 | 2.01 | 9.48 | 1.75 | 6.92 | 7.0 | 51,1 | 240,8 | 44,5 | 175,8 | 3,2 |
| | 2⅝ | – | RLP5210 | 5303 | 7191 | 2.16 | 9.63 | 1.75 | 7.07 | 7.5 | 54,9 | 244,6 | 44,5 | 179,6 | 3,4 |
| | 2 11/16 | – | RLP5211 | 5303 | 7191 | 2.16 | 9.63 | 1.75 | 7.07 | 7.5 | 54,9 | 244,6 | 44,5 | 179,6 | 3,4 |
| | 2¾ | 70 | RLP5212 | 5303 | 7191 | 2.16 | 9.63 | 1.75 | 7.07 | 7.5 | 54,9 | 244,6 | 44,5 | 179,6 | 3,4 |
| | 2 13/16 | – | RLP5213 | 5303 | 7191 | 2.24 | 9.71 | 1.75 | 7.15 | 7.5 | 56,9 | 246,6 | 44,5 | 181,6 | 3,4 |
| | 2⅞ | – | RLP5214 | 5303 | 7191 | 2.24 | 9.71 | 1.75 | 7.15 | 7.5 | 56,9 | 246,6 | 44,5 | 181,6 | 3,4 |
| | 2 15/16 | 75 | RLP5215 | 5303 | 7191 | 2.24 | 9.71 | 1.75 | 7.15 | 7.5 | 56,9 | 246,6 | 44,5 | 181,6 | 3,4 |
| | 3 | – | RLP5300 | 5303 | 7191 | 2.26 | 9.73 | 1.75 | 7.17 | 7.2 | 57,4 | 247,1 | 44,5 | 182,1 | 3,3 |
| | 3 1/16 | – | RLP5301 | 5303 | 7191 | 2.26 | 9.73 | 1.75 | 7.17 | 7.2 | 57,4 | 247,1 | 44,5 | 182,1 | 3,3 |
| | 3⅛ | 80 | RLP5302 | 5303 | 7191 | 2.26 | 9.73 | 1.75 | 7.17 | 7.2 | 57,4 | 247,1 | 44,5 | 182,1 | 3,3 |
| RSL8000 | 2⅜ | 60 | RLP8206 | 4500 | 6102 | 1.87 | 9.53 | 2.25 | 7.00 | 8.9 | 47,5 | 242,1 | 57,2 | 177,8 | 4,0 |
| | 2 7/16 | 62 | RLP8207 | 5800 | 7865 | 2.01 | 9.67 | 2.25 | 7.13 | 9.0 | 51,1 | 245,6 | 57,2 | 181,1 | 4,1 |
| | 2½ | 63 | RLP8208 | 5800 | 7865 | 2.01 | 9.67 | 2.25 | 7.13 | 9.0 | 51,1 | 245,6 | 57,2 | 181,1 | 4,1 |
| | 2 9/16 | 65 | RLP8209 | 5800 | 7865 | 2.01 | 9.67 | 2.25 | 7.13 | 9.0 | 51,1 | 245,6 | 57,2 | 181,1 | 4,1 |
| | 2⅝ | – | RLP8210 | 7862 | 10.661 | 2.16 | 9.82 | 2.25 | 7.28 | 9.6 | 54,9 | 249,4 | 57,2 | 184,9 | 4,4 |
| | 2 11/16 | – | RLP8211 | 7862 | 10.661 | 2.16 | 9.82 | 2.25 | 7.28 | 9.6 | 54,9 | 249,4 | 57,2 | 184,9 | 4,4 |
| | 2¾ | 70 | RLP8212 | 7862 | 10.661 | 2.16 | 9.82 | 2.25 | 7.28 | 9.6 | 54,9 | 249,4 | 57,2 | 184,9 | 4,4 |
| | 2 13/16 | – | RLP8213 | 7862 | 10.661 | 2.24 | 9.90 | 2.25 | 7.38 | 9.6 | 56,9 | 251,5 | 57,2 | 187,5 | 4,4 |
| | 2⅞ | – | RLP8214 | 7862 | 10.661 | 2.24 | 9.90 | 2.25 | 7.38 | 9.6 | 56,9 | 251,5 | 57,2 | 187,5 | 4,4 |
| | 2 15/16 | 75 | RLP8215 | 7862 | 10.661 | 2.24 | 9.90 | 2.25 | 7.38 | 9.6 | 56,9 | 251,5 | 57,2 | 187,5 | 4,4 |
| | 3 | – | RLP8300 | 7862 | 10.661 | 2.26 | 9.92 | 2.25 | 7.39 | 9.3 | 57,4 | 252,0 | 57,2 | 187,7 | 4,2 |
| | 3 1/16 | – | RLP8301 | 7862 | 10.661 | 2.26 | 9.92 | 2.25 | 7.39 | 9.3 | 57,4 | 252,0 | 57,2 | 187,7 | 4,2 |
| | 3⅛ | 80 | RLP8302 | 7862 | 10.661 | 2.26 | 9.92 | 2.25 | 7.39 | 9.3 | 57,4 | 252,0 | 57,2 | 187,7 | 4,2 |




**RSL Series**



Hexagon Range:
**⅞ - 6⅛ inches**

Hexagon Range:
**26 - 155 mm**

Maximum Operating Pressure:
**10,000 psi**

▼ **SELECTION CHART**

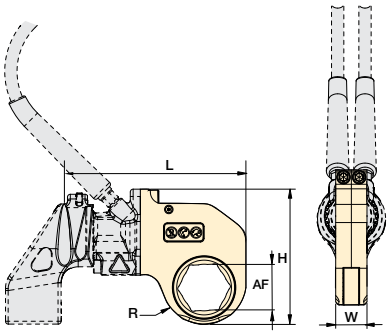
| Drive Unit Model Number | AF Size (in) | AF Size (mm) | Hexagon Cassette Model Number | Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Dimensions (in) R | L | W | H | Wt. (lbs) | Dimensions (mm) R | L | W | H | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RSL11000 | 2 7/16 | 62 | RLP11207 | 5800 | 7865 | 1.98 | 10.00 | 2.50 | 8.03 | 14.2 | 50,3 | 254,0 | 63,5 | 204,0 | 6,4 |
| | 2 1/2 | – | RLP11208 | 5800 | 7865 | 1.98 | 10.00 | 2.50 | 8.03 | 14.2 | 50,3 | 254,0 | 63,5 | 204,0 | 6,4 |
| | 2 9/16 | 65 | RLP11209 | 5800 | 7865 | 1.98 | 10.00 | 2.50 | 8.03 | 14.2 | 50,3 | 254,0 | 63,5 | 204,0 | 6,4 |
| | 2 5/8 | – | RLP11210 | 7300 | 9899 | 2.19 | 11.20 | 2.50 | 8.23 | 14.8 | 55,6 | 284,5 | 63,5 | 209,0 | 6,7 |
| | 2 11/16 | – | RLP11211 | 7300 | 9899 | 2.19 | 11.20 | 2.50 | 8.23 | 14.8 | 55,6 | 284,5 | 63,5 | 209,0 | 6,7 |
| | 2 3/4 | 70 | RLP11212 | 7300 | 9899 | 2.19 | 11.20 | 2.50 | 8.23 | 14.8 | 55,6 | 284,5 | 63,5 | 209,0 | 6,7 |
| | 2 13/16 | – | RLP11213 | 9000 | 12.204 | 2.29 | 11.31 | 2.50 | 8.34 | 14.8 | 58,2 | 287,3 | 63,5 | 211,8 | 6,7 |
| | 2 7/8 | – | RLP11214 | 9000 | 12.204 | 2.29 | 11.31 | 2.50 | 8.34 | 14.8 | 58,2 | 287,3 | 63,5 | 211,8 | 6,7 |
| | 2 15/16 | 75 | RLP11215 | 9000 | 12.204 | 2.29 | 11.31 | 2.50 | 8.34 | 14.8 | 58,2 | 287,3 | 63,5 | 211,8 | 6,7 |
| | 3 | – | RLP11300 | 11,154 | 15.125 | 2.43 | 11.44 | 2.50 | 8.47 | 15.2 | 61,7 | 290,6 | 63,5 | 215,1 | 6,9 |
| | 3 1/16 | – | RLP11301 | 11,154 | 15.125 | 2.43 | 11.44 | 2.50 | 8.47 | 15.2 | 61,7 | 290,6 | 63,5 | 215,1 | 6,9 |
| | 3 1/8 | 80 | RLP11302 | 11,154 | 15.125 | 2.43 | 11.44 | 2.50 | 8.47 | 15.2 | 61,7 | 290,6 | 63,5 | 215,1 | 6,9 |
| | 3 3/16 | – | RLP11303 | 11,154 | 15.125 | 2.60 | 11.71 | 2.50 | 8.64 | 16.6 | 66,0 | 297,4 | 63,5 | 219,5 | 7,5 |
| | – | 85 | RLP11085M | 11,154 | 15.125 | 2.60 | 11.71 | 2.50 | 8.64 | 16.6 | 66,0 | 297,4 | 63,5 | 219,5 | 7,5 |
| | 3 1/4 | – | RLP11304 | 11,154 | 15.125 | 2.60 | 11.71 | 2.50 | 8.64 | 16.6 | 66,0 | 297,4 | 63,5 | 219,5 | 7,5 |
| | 3 5/16 | – | RLP11305 | 11,154 | 15.125 | 2.60 | 11.71 | 2.50 | 8.64 | 16.6 | 66,0 | 297,4 | 63,5 | 219,5 | 7,5 |
| | 3 3/8 | – | RLP11306 | 11,154 | 15.125 | 2.60 | 11.71 | 2.50 | 8.64 | 16.6 | 66,0 | 297,4 | 63,5 | 219,5 | 7,5 |
| | 3 7/16 | – | RLP11307 | 11,154 | 15.125 | 2.60 | 11.71 | 2.50 | 8.64 | 16.6 | 66,0 | 297,4 | 63,5 | 219,5 | 7,5 |
| | 3 1/2 | – | RLP11308 | 11,154 | 15.125 | 2.60 | 11.71 | 2.50 | 8.64 | 16.6 | 66,0 | 297,4 | 63,5 | 219,5 | 7,5 |
| | – | 90 | RLP11090M | 11,154 | 15.125 | 2.88 | 11.89 | 2.50 | 8.92 | 17.2 | 73,2 | 302,0 | 63,5 | 226,6 | 7,8 |
| | 3 9/16 | – | RLP11309 | 11,154 | 15.125 | 2.88 | 11.89 | 2.50 | 8.92 | 17.2 | 73,2 | 302,0 | 63,5 | 226,6 | 7,8 |
| | 3 5/8 | – | RLP11310 | 11,154 | 15.125 | 2.88 | 11.89 | 2.50 | 8.92 | 17.2 | 73,2 | 302,0 | 63,5 | 226,6 | 7,8 |
| | 3 11/16 | – | RLP11311 | 11,154 | 15.125 | 2.88 | 11.89 | 2.50 | 8.92 | 17.2 | 73,2 | 302,0 | 63,5 | 226,6 | 7,8 |
| | 3 3/4 | 95 | RLP11312 | 11,154 | 15.125 | 2.88 | 11.89 | 2.50 | 8.92 | 17.2 | 73,2 | 302,0 | 63,5 | 226,6 | 7,8 |
| | 3 13/16 | – | RLP11313 | 11,154 | 15.125 | 2.88 | 11.89 | 2.50 | 8.92 | 17.2 | 73,2 | 302,0 | 63,5 | 226,6 | 7,8 |
| | 3 7/8 | – | RLP11314 | 11,154 | 15.125 | 2.88 | 11.89 | 2.50 | 8.92 | 17.2 | 73,2 | 302,0 | 63,5 | 226,6 | 7,8 |
| | 3 15/16 | 100 | RLP11315 | 11,154 | 15.125 | 2.98 | 12.00 | 2.50 | 9.03 | 16.4 | 75,7 | 304,8 | 63,5 | 229,4 | 7,4 |
| | 4 | – | RLP11400 | 11,154 | 15.125 | 2.98 | 12.00 | 2.50 | 9.03 | 16.4 | 75,7 | 304,8 | 63,5 | 229,4 | 7,4 |
| | 4 1/16 | – | RLP11401 | 11,154 | 15.125 | 2.98 | 12.00 | 2.50 | 9.03 | 16.4 | 75,7 | 304,8 | 63,5 | 229,4 | 7,4 |
| | 4 1/8 | 105 | RLP11402 | 11,154 | 15.125 | 2.98 | 12.00 | 2.50 | 9.03 | 16.4 | 75,7 | 304,8 | 63,5 | 229,4 | 7,4 |
| | 4 1/4 | – | RLP11404 | 11,154 | 15.125 | 2.98 | 12.00 | 2.50 | 9.03 | 16.4 | 75,7 | 304,8 | 63,5 | 229,4 | 7,4 |
| | 4 5/16 | 110 | RLP11405 | 11,154 | 15.125 | 3.25 | 12.27 | 2.50 | 9.30 | 17.6 | 82,6 | 311,7 | 63,5 | 236,2 | 8,0 |
| | 4 1/2 | – | RLP11408 | 11,154 | 15.125 | 3.25 | 12.27 | 2.50 | 9.30 | 17.6 | 82,6 | 311,7 | 63,5 | 236,2 | 8,0 |
| | 4 5/8 | – | RLP11410 | 11,154 | 15.125 | 3.25 | 12.27 | 2.50 | 9.30 | 17.6 | 82,6 | 311,7 | 63,5 | 236,2 | 8,0 |

# Hexagon Cassettes for RSL-Series

**Enerpac's Bolting Integrity Software Solutions** play a key role in implementing and managing an Integrity Program for bolted connections. Our Bolting Software Suite includes **BoltUp** (free, online calculator providing reliable, repeatable bolt loads), **Informate** (bolt load calculation software for huge range of flanged joints and clamped connections), and **Integrity Data Management System/iDMS** (flexible data management and activity-planning system for use on assets featuring bolted connections).

Contact Enerpac for more information.

*Page:* 416




**RSL Series**



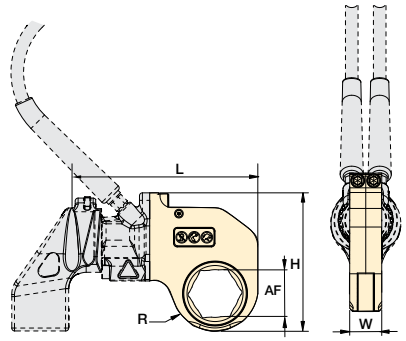
Hexagon Range:
**⅞ - 6⅛ inches**

Hexagon Range:
**26 - 155 mm**

Maximum Operating Pressure:
**10,000 psi**

▼ **SELECTION CHART**

| Drive Unit Model Number | AF Size (in) | AF Size (mm) | Hexagon Cassette Model Number | Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Dimensions (in) R | L | W | H | Wt. (lbs) | Dimensions (mm) R | L | W | H | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RSL19000 | 2 15/16 | 75 | RLP19215 | 11,000 | 14.916 | 2.45 | 12.72 | 2.75 | 9.44 | 21.5 | 62,2 | 323,1 | 69,9 | 239,8 | 9,8 |
| | 3 | – | RLP19300 | 11,000 | 14.916 | 2.45 | 12.72 | 2.75 | 9.44 | 21.5 | 62,2 | 323,1 | 69,9 | 239,8 | 9,8 |
| | 3 1/16 | – | RLP19301 | 11,000 | 14.916 | 2.45 | 12.72 | 2.75 | 9.44 | 21.5 | 62,2 | 323,1 | 69,9 | 239,8 | 9,8 |
| | 3⅛ | 80 | RLP19302 | 11,000 | 14.916 | 2.45 | 12.72 | 2.75 | 9.44 | 21.5 | 62,2 | 323,1 | 69,9 | 239,8 | 9,8 |
| | 3 3/16 | – | RLP19303 | 16,000 | 21.696 | 2.77 | 13.04 | 2.75 | 9.76 | 22.6 | 70,4 | 331,2 | 69,9 | 247,9 | 10,3 |
| | – | 85 | RLP19085M | 16,000 | 21.696 | 2.77 | 13.04 | 2.75 | 9.76 | 22.6 | 70,4 | 331,2 | 69,9 | 247,9 | 10,3 |
| | 3¼ | – | RLP19304 | 16,000 | 21.696 | 2.77 | 13.04 | 2.75 | 9.76 | 22.6 | 70,4 | 331,2 | 69,9 | 247,9 | 10,3 |
| | 3 5/16 | – | RLP19305 | 16,000 | 21.696 | 2.77 | 13.04 | 2.75 | 9.76 | 22.6 | 70,4 | 331,2 | 69,9 | 247,9 | 10,3 |
| | 3⅜ | – | RLP19306 | 16,000 | 21.696 | 2.77 | 13.04 | 2.75 | 9.76 | 22.6 | 70,4 | 331,2 | 69,9 | 247,9 | 10,3 |
| | 3 7/16 | – | RLP19307 | 16,000 | 21.696 | 2.77 | 13.04 | 2.75 | 9.76 | 22.6 | 70,4 | 331,2 | 69,9 | 247,9 | 10,3 |
| | 3½ | – | RLP19308 | 16,000 | 21.696 | 2.77 | 13.04 | 2.75 | 9.76 | 22.6 | 70,4 | 331,2 | 69,9 | 247,9 | 10,3 |
| | – | 90 | RLP19090M | 18,843 | 25.551 | 2.95 | 13.22 | 2.75 | 9.94 | 23.8 | 74,9 | 335,8 | 69,9 | 252,5 | 10,8 |
| | 3 9/16 | – | RLP19309 | 18,843 | 25.551 | 2.95 | 13.22 | 2.75 | 9.94 | 23.8 | 74,9 | 335,8 | 69,9 | 252,5 | 10,8 |
| | 3⅝ | – | RLP19310 | 18,843 | 25.551 | 2.95 | 13.22 | 2.75 | 9.94 | 23.8 | 74,9 | 335,8 | 69,9 | 252,5 | 10,8 |
| | 3 11/16 | – | RLP19311 | 18,843 | 25.551 | 2.95 | 13.22 | 2.75 | 9.94 | 23.8 | 74,9 | 335,8 | 69,9 | 252,5 | 10,8 |
| | 3¾ | 95 | RLP19312 | 18,843 | 25.551 | 2.95 | 13.22 | 2.75 | 9.94 | 23.8 | 74,9 | 335,8 | 69,9 | 252,5 | 10,8 |
| | 3 13/16 | – | RLP19313 | 18,843 | 25.551 | 2.95 | 13.22 | 2.75 | 9.94 | 23.8 | 74,9 | 335,8 | 69,9 | 252,5 | 10,8 |
| | 3⅞ | – | RLP19314 | 18,843 | 25.551 | 2.95 | 13.22 | 2.75 | 9.94 | 23.8 | 74,9 | 335,8 | 69,9 | 252,5 | 10,8 |
| | 3 15/16 | 100 | RLP19315 | 18,843 | 25.551 | 3.30 | 13.57 | 2.75 | 10.28 | 25.3 | 83,8 | 344,7 | 69,9 | 261,1 | 11,5 |
| | 4 | – | RLP19400 | 18,843 | 25.551 | 3.30 | 13.57 | 2.75 | 10.28 | 25.3 | 83,8 | 344,7 | 69,9 | 261,1 | 11,5 |
| | 4 1/16 | – | RLP19401 | 18,843 | 25.551 | 3.30 | 13.57 | 2.75 | 10.28 | 25.3 | 83,8 | 344,7 | 69,9 | 261,1 | 11,5 |
| | 4⅛ | 105 | RLP19402 | 18,843 | 25.551 | 3.30 | 13.57 | 2.75 | 10.28 | 25.3 | 83,8 | 344,7 | 69,9 | 261,1 | 11,5 |
| | 4 3/16 | – | RLP19403 | 18,843 | 25.551 | 3.30 | 13.57 | 2.75 | 10.28 | 25.3 | 83,8 | 344,7 | 69,9 | 261,1 | 11,5 |
| | 4¼ | – | RLP19404 | 18,843 | 25.551 | 3.30 | 13.57 | 2.75 | 10.28 | 25.3 | 83,8 | 344,7 | 69,9 | 261,1 | 11,5 |
| | 4 5/16 | 110 | RLP19405 | 18,843 | 25.551 | 3.44 | 13.71 | 2.75 | 10.43 | 25.6 | 87,4 | 348,2 | 69,9 | 264,9 | 11,6 |
| | 4⅜ | – | RLP19406 | 18,843 | 25.551 | 3.44 | 13.71 | 2.75 | 10.43 | 25.6 | 87,4 | 348,2 | 69,9 | 264,9 | 11,6 |
| | 4 7/16 | – | RLP19407 | 18,843 | 25.551 | 3.44 | 13.71 | 2.75 | 10.43 | 25.6 | 87,4 | 348,2 | 69,9 | 264,9 | 11,6 |
| | 4½ | – | RLP19408 | 18,843 | 25.551 | 3.44 | 13.71 | 2.75 | 10.43 | 25.6 | 87,4 | 348,2 | 69,9 | 264,9 | 11,6 |
| | – | 115 | RLP19115M | 18,843 | 25.551 | 3.44 | 13.71 | 2.75 | 10.43 | 25.6 | 87,4 | 348,2 | 69,9 | 264,9 | 11,6 |
| | 4 9/16 | – | RLP19409 | 18,843 | 25.551 | 3.44 | 13.71 | 2.75 | 10.43 | 25.6 | 87,4 | 348,2 | 69,9 | 264,9 | 11,6 |
| | 4⅝ | – | RLP19410 | 18,843 | 25.551 | 3.44 | 13.71 | 2.75 | 10.43 | 25.6 | 87,4 | 348,2 | 69,9 | 264,9 | 11,6 |




Hexagon Range:
**⅞ - 6⅛ inches**

Hexagon Range:
**26 - 155 mm**

Maximum Operating Pressure:
**10,000 psi**

**RSL Series**



▼ **SELECTION CHART**

| Drive Unit Model Number | AF Size (in) | AF Size (mm) | Hexagon Cassette Model Number | Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Dimensions (in) R | L | W | H | Wt. (lbs) | Dimensions (mm) R | L | W | H | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3⅛ | 80 | RLP28302 | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | 3⅜ | – | RLP28303 | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | – | 85 | RLP28085M | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | 3¼ | – | RLP28304 | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | 3⅝ | – | RLP28305 | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | 3⅜ | – | RLP28306 | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | 3⅞ | – | RLP28307 | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | 3½ | – | RLP28308 | 16,000 | 21.696 | 2.56 | 14.36 | 3.00 | 10.54 | 27.6 | 65,0 | 364,7 | 76,2 | 267,7 | 12,5 |
| | – | 90 | RLP28090M | 22,000 | 29.832 | 2.92 | 14.36 | 3.00 | 10.77 | 28.8 | 74,2 | 364,7 | 76,2 | 273,6 | 13,1 |
| | 3⅝ | – | RLP28309 | 22,000 | 29.832 | 2.92 | 14.36 | 3.00 | 10.77 | 28.8 | 74,2 | 364,7 | 76,2 | 273,6 | 13,1 |
| | 3⅝ | – | RLP28310 | 22,000 | 29.832 | 2.92 | 14.36 | 3.00 | 10.77 | 28.8 | 74,2 | 364,7 | 76,2 | 273,6 | 13,1 |
| | 3¹¹⁄₁₆ | – | RLP28311 | 22,000 | 29.832 | 2.92 | 14.36 | 3.00 | 10.77 | 28.8 | 74,2 | 364,7 | 76,2 | 273,6 | 13,1 |
| | 3¾ | 95 | RLP28312 | 22,000 | 29.832 | 2.92 | 14.36 | 3.00 | 10.77 | 28.8 | 74,2 | 364,7 | 76,2 | 273,6 | 13,1 |
| | 3¹³⁄₁₆ | – | RLP28313 | 22,000 | 29.832 | 2.92 | 14.36 | 3.00 | 10.77 | 28.8 | 74,2 | 364,7 | 76,2 | 273,6 | 13,1 |
| | 3⅞ | – | RLP28314 | 22,000 | 29.832 | 2.92 | 14.36 | 3.00 | 10.77 | 28.8 | 74,2 | 364,7 | 76,2 | 273,6 | 13,1 |
| | 3¹⁵⁄₁₆ | 100 | RLP28315 | 28,002 | 37.971 | 3.29 | 14.47 | 3.00 | 11.14 | 31.7 | 83,6 | 367,5 | 76,2 | 283,0 | 14,4 |
| | 4 | – | RLP28400 | 28,002 | 37.971 | 3.29 | 14.47 | 3.00 | 11.14 | 31.7 | 83,6 | 367,5 | 76,2 | 283,0 | 14,4 |
| | 4⅛ | – | RLP28401 | 28,002 | 37.971 | 3.29 | 14.47 | 3.00 | 11.14 | 31.7 | 83,6 | 367,5 | 76,2 | 283,0 | 14,4 |
| | 4⅛ | 105 | RLP28402 | 28,002 | 37.971 | 3.29 | 14.47 | 3.00 | 11.14 | 31.7 | 83,6 | 367,5 | 76,2 | 283,0 | 14,4 |
| | 4⅜ | – | RLP28403 | 28,002 | 37.971 | 3.29 | 14.47 | 3.00 | 11.14 | 31.7 | 83,6 | 367,5 | 76,2 | 283,0 | 14,4 |
| | 4¼ | – | RLP28404 | 28,002 | 37.971 | 3.29 | 14.47 | 3.00 | 11.14 | 31.7 | 83,6 | 367,5 | 76,2 | 283,0 | 14,4 |
| RSL28000 | 4⅝ | 110 | RLP28405 | 28,002 | 37.971 | 3.43 | 14.61 | 3.00 | 11.28 | 31.5 | 87,1 | 371,1 | 76,2 | 286,5 | 14,3 |
| | 4⅜ | – | RLP28406 | 28,002 | 37.971 | 3.43 | 14.61 | 3.00 | 11.28 | 31.5 | 87,1 | 371,1 | 76,2 | 286,5 | 14,3 |
| | 4⅞ | – | RLP28407 | 28,002 | 37.971 | 3.43 | 14.61 | 3.00 | 11.28 | 31.5 | 87,1 | 371,1 | 76,2 | 286,5 | 14,3 |
| | 4½ | – | RLP28408 | 28,002 | 37.971 | 3.43 | 14.61 | 3.00 | 11.28 | 31.5 | 87,1 | 371,1 | 76,2 | 286,5 | 14,3 |
| | – | 115 | RLP28115M | 28,002 | 37.971 | 3.43 | 14.61 | 3.00 | 11.28 | 31.5 | 87,1 | 371,1 | 76,2 | 286,5 | 14,3 |
| | 4⅝ | – | RLP28409 | 28,002 | 37.971 | 3.43 | 14.61 | 3.00 | 11.28 | 31.5 | 87,1 | 371,1 | 76,2 | 286,5 | 14,3 |
| | 4⅝ | – | RLP28410 | 28,002 | 37.971 | 3.43 | 14.61 | 3.00 | 11.28 | 31.5 | 87,1 | 371,1 | 76,2 | 286,5 | 14,3 |
| | 4¾ | 120 | RLP28412 | 28,002 | 37.971 | 3.65 | 14.83 | 3.00 | 11.50 | 33.5 | 92,7 | 376,7 | 76,2 | 292,1 | 15,2 |
| | – | 123 | RLP28123M | 28,002 | 37.971 | 3.65 | 14.83 | 3.00 | 11.50 | 33.5 | 92,7 | 376,7 | 76,2 | 292,1 | 15,2 |
| | 4⅞ | – | RLP28414 | 28,002 | 37.971 | 3.65 | 14.83 | 3.00 | 11.50 | 33.5 | 92,7 | 376,7 | 76,2 | 292,1 | 15,2 |
| | 5 | – | RLP28500 | 28,002 | 37.971 | 3.65 | 14.83 | 3.00 | 11.50 | 33.5 | 92,7 | 376,7 | 76,2 | 292,1 | 15,2 |
| | 5⅛ | 130 | RLP28502 | 28,002 | 37.971 | 3.79 | 14.97 | 3.00 | 11.64 | 33.2 | 96,3 | 380,2 | 76,2 | 295,7 | 15,1 |
| | 5⅜ | – | RLP28503 | 28,002 | 37.971 | 3.79 | 14.97 | 3.00 | 11.64 | 33.2 | 96,3 | 380,2 | 76,2 | 295,7 | 15,1 |
| | 5¼ | – | RLP28504 | 28,002 | 37.971 | 3.79 | 14.97 | 3.00 | 11.64 | 33.2 | 96,3 | 380,2 | 76,2 | 295,7 | 15,1 |
| | 5⅜ | 135 | RLP28506 | 28,002 | 37.971 | 3.79 | 14.97 | 3.00 | 11.64 | 33.2 | 96,3 | 380,2 | 76,2 | 295,7 | 15,1 |
| | 5½ | 140 | RLP28508 | 28,002 | 37.971 | 4.05 | 15.23 | 3.00 | 11.90 | 33.5 | 102,9 | 386,8 | 76,2 | 302,3 | 15,2 |
| | 5⅝ | – | RLP28509 | 28,002 | 37.971 | 4.05 | 15.23 | 3.00 | 11.90 | 33.5 | 102,9 | 386,8 | 76,2 | 302,3 | 15,2 |
| | 5⅝ | – | RLP28510 | 28,002 | 37.971 | 4.05 | 15.23 | 3.00 | 11.90 | 33.5 | 102,9 | 386,8 | 76,2 | 302,3 | 15,2 |
| | 5¾ | 145 | RLP28512 | 28,002 | 37.971 | 4.05 | 15.23 | 3.00 | 11.90 | 33.5 | 102,9 | 386,8 | 76,2 | 302,3 | 15,2 |
| | 5⅞ | 150 | RLP28514 | 28,002 | 37.971 | 4.22 | 15.48 | 3.00 | 12.15 | 34.5 | 107,2 | 393,2 | 76,2 | 308,6 | 15,6 |
| | 6 | – | RLP28600 | 28,002 | 37.971 | 4.22 | 15.48 | 3.00 | 12.15 | 34.5 | 107,2 | 393,2 | 76,2 | 308,6 | 15,6 |
| | 6⅛ | 155 | RLP28602 | 28,002 | 37.971 | 4.22 | 15.48 | 3.00 | 12.15 | 34.5 | 107,2 | 393,2 | 76,2 | 308,6 | 15,6 |

▼ TWMPS503




## TWMPS503, Torque Wrench Moly Paste

- Enerpac 503 Moly Paste reduces friction on threaded fasteners – bolts, nuts and studs
- The low and uniform friction coefficient of 0.06 (torque coefficient, K, of 0.11) creates reliable assembly conditions
- This lubricant stays in place through heat, load and vibration to ensure trouble-free disassembly from -20° F to 750° F (-29° C to 400° C)
- 4 lbs. (1,8 kg) container

for **RSL** Series



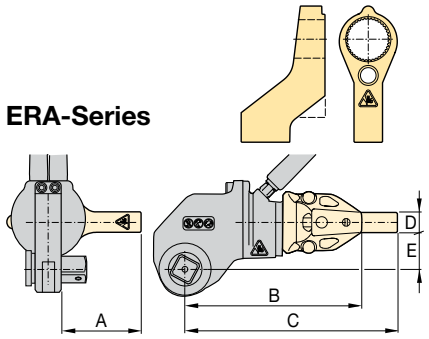
## ERA-Series, Extended Reaction Arms

| For Torque Wrench Model No. | Model Number | Dimensions (in) A | B | C | D | E | (lbs) |
|---|---|---|---|---|---|---|---|
| RSL1500 | ERA15114 | 3.42 | 5.71 | 7.68 | 1.14 | 1.42 | 1.98 |
| | ERA15228 | 4.45 | 7.13 | 9.06 | 1.14 | 1.42 | 3.97 |
| | ERA15342 | 5.47 | 8.90 | 10.87 | 1.14 | 1.42 | 5.95 |
| | ERA15456 | 6.46 | 9.29 | 11.26 | 1.14 | 1.42 | 7.94 |
| | ERA15570 | 7.44 | 11.30 | 13.27 | 1.14 | 1.42 | 9.92 |
| RSL3000 | ERA30114 | 4.13 | 7.68 | 10.12 | 1.34 | 1.61 | 5.95 |
| | ERA30228 | 5.16 | 9.09 | 11.54 | 1.34 | 1.61 | 7.94 |
| | ERA30342 | 6.14 | 10.47 | 12.91 | 1.34 | 1.61 | 9.92 |
| | ERA30456 | 7.13 | 11.89 | 14.66 | 1.34 | 1.61 | 11.90 |
| RSL5000 | ERA50114 | 5.16 | 8.19 | 11.18 | 1.73 | 1.89 | 9.04 |
| | ERA50228 | 6.14 | 9.57 | 12.60 | 1.73 | 1.89 | 11.02 |
| | ERA50342 | 7.13 | 10.98 | 13.98 | 1.73 | 1.89 | 13.01 |
| | ERA50456 | 8.15 | 12.37 | 15.39 | 1.73 | 1.89 | 15.00 |
| RSL11000 | ERA110114 | 4.92 | 8.62 | 11.65 | 2.01 | 2.32 | 13.89 |
| | ERA110228 | 5.91 | 10.04 | 13.06 | 2.01 | 2.32 | 16.09 |
| | ERA110342 | 6.93 | 11.46 | 14.45 | 2.01 | 2.32 | 18.08 |
| | ERA110456 | 7.91 | 12.83 | 15.83 | 2.01 | 2.32 | 20.06 |
| RSL28000 | ERA280228 | 6.73 | 13.19 | 16.18 | 2.24 | 3.50 | 24.91 |
| | ERA280342 | 7.76 | 14.57 | 17.60 | 2.24 | 3.50 | 30.00 |

NOTE: Extended Reaction Arms for RSL8000 and RSL19000 are available on request.

- Only to be used on RSL-drive units with RSQ-square drive wrenches
- Used in place of standard reaction arm
- Lightweight interchangeable design
- Full torque rated

ERA-Series



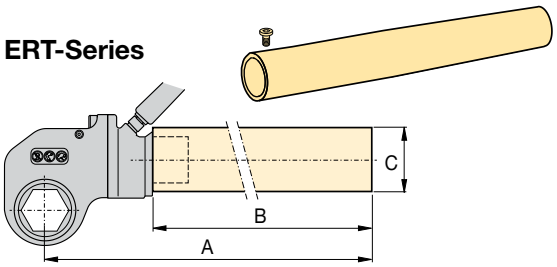

## ERT-Series, Extended Reaction Tubes

| For Torque Wrench Model No. | Model Number | Dimensions (in) A | B | Ø C | Wt. (lbs) |
|---|---|---|---|---|---|
| RSL1500 | ERT152 | 6.18 | 2.01 | 2.24 | 1.98 |
| | ERT156 | 10.20 | 5.98 | 2.24 | 3.53 |
| | ERT159 | 13.19 | 9.02 | 2.24 | 5.51 |
| | ERT1512 | 16.18 | 12.01 | 2.24 | 7.50 |
| | ERT1524 | 28.19 | 24.02 | 2.24 | 14.78 |
| RSL3000 | ERT3012 | 16.89 | 12.01 | 2.76 | 6.61 |
| | ERT3024 | 28.90 | 24.02 | 2.76 | 13.01 |
| RSL5000 | ERT5012 | 17.76 | 12.01 | 3.50 | 12.35 |
| | ERT5024 | 29.76 | 24.02 | 3.50 | 24.91 |
| RSL11000 | ERT1106 | 12.99 | 5.98 | 3.74 | 4.63 |
| | ERT11012 | 19.02 | 12.01 | 3.74 | 9.04 |
| | ERT11018 | 25.00 | 17.99 | 3.74 | 13.45 |
| | ERT11024 | 30.98 | 24.02 | 3.74 | 18.52 |
| RSL19000 | ERT19024 | 31.50 | 24.02 | 5 | 36.82 |
| RSL28000 | ERT2806 | 13.82 | 5.98 | 5 | 7.94 |
| | ERT28012 | 19.80 | 12.01 | 5 | 16.09 |
| | ERT28018 | 25.79 | 17.99 | 5 | 24.03 |
| | ERT28024 | 31.81 | 24.02 | 5 | 36.60 |

NOTE: Extended Reaction Tubes for RSL8000 are available on request.

- Only to be used on RSL-drive units with RLP-hexagon cassettes
- Used in place of standard reaction arm
- One-piece steel design, durable and simple
- Increases tool fit in restricted access areas
- Full torque rated

ERT-Series



▼ Shown: **RSL drive unit with interchangeable RLP—SL slimline cassette**




# Setting New Standards in Simplicity, Versatility and Accuracy

### Simplicity

- **Minimum nose radius for trouble-free tool fit which makes it uniquely equipped to access tight spaces, such as Blowout Preventers (BOPs)**
- **Simple robust alloy steel design with three moving parts for reduced maintenance**
- **Proven to perform even in the harshest environments**
- **Reaction arm has a simple dial lock for rapid change**
- **Designed to give optimum strength-to-weight and torque-to-weight ratios**

### Versatility

- **Interchangeable cassette design**
- **Drive unit / hexagon cassette combination for limited height in line solutions**
- **Wide range of hexagon sizes available for all applications**

### Accuracy

- **Accuracy of +/-3%**

### Ease of Use

- **Few moving parts are easily accessible for quick field maintenance**
- **Innovative design that completely encloses all moving parts and minimizes pinch points**



**Torque Wrench Pumps**

Visit enerpac.com for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

*Page:* 291



**Options and Accessories**

Optional extended reaction arms and tubes are common accessories available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.

*Page:* 269



**Back-Up Spanner**

To be used to stop back nut from turning during make up or break out. Two hex sizes in one tool.

| Hexagon Sizes (A/F) (in) | Hexagon Sizes (A/F) (mm) | Back-Up Spanner Model Number |
|---|---|---|
| 1 1/16 - 1 1/4 | 27 - 32 | **BUS01** |
| 1 7/16 - 1 5/8 | 36 - 41 | **BUS02** |
| 1 13/16 - 2 | 46 - 50 | **BUS03** |
| 2 3/16 - 2 3/8 | 55 - 60 | **BUS04** |
| 2 9/16 - 2 3/4 | 65 - 70 | **BUS05** |
| 2 15/16 - 3 1/8 | 75 - 80 | **BUS06** |
| 3 1/2 - 3 7/8 | – | **BUS07** |
| 4 1/4 - 4 5/8 | – | **BUS08** |
| – | 85 - 90 | **BUS09** |
| 3 3/4 - 3 15/16 | 95 - 100 | **BUS10** |
| 4 1/8 - 4 15/16 | 105 - 110 | **BUS11** |
| – | 115 - 120 | **BUS12** |

*Page:* 245

# Slimline Stepped-Width Hexagon Cassettes

**Slimline Stepped-Width Hexagon Cassettes**

Accessing narrow spaces, typically found on BOP stacks, normally requires significantly reducing the width of the torque wrench. For the tool operator, this has always meant vastly reduced tool durability, and/or reduced torque output.

By using the highest-grade materials and perfecting the geometry, the RSL Slimline cassettes are able to provide greater torque, get into tighter spaces, and vastly outperform the competition in product durability.

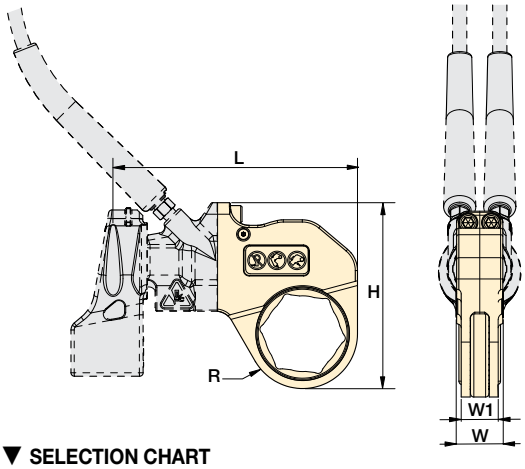
## RSL Series



Hexagon Range:
**1¼ - 3³⁄₁₆ inches**

Hexagon Range:
**32 - 80 mm**

Maximum Operating Pressure:
**10,000 psi**







**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

▼ **SELECTION CHART**

| Drive Unit Model Number | AF Size (in) | AF Size (mm) | Hexagon Cassette Model Number | Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Dimensions (in) R | L | W | W1 | H | Wt. (lbs) | Dimensions (mm) R | L | W | W1 | H | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RSL1500 | 1¼ | 32 | RLP1104SL | 375 | 509 | 1.03 | 6.12 | 1.25 | 1.00 | 4.57 | 2.2 | 26,2 | 155,4 | 31,8 | 25,4 | 116,1 | 1,0 |
| | 1⁷⁄₁₆ | 36 | RLP1107SL | 658 | 892 | 1.15 | 6.24 | 1.25 | 1.00 | 4.69 | 2.3 | 29,2 | 158,5 | 31,8 | 25,4 | 119,1 | 1,0 |
| | 1⅝ | 41 | RLP1110SL | 831 | 1127 | 1.31 | 6.41 | 1.25 | 1.00 | 4.86 | 2.7 | 33,3 | 162,8 | 31,8 | 25,4 | 123,4 | 1,2 |
| | 1¹³⁄₁₆ | 46 | RLP1113SL | 831 | 1127 | 1.40 | 6.49 | 1.25 | 1.00 | 4.94 | 2.7 | 35,6 | 164,8 | 31,8 | 25,4 | 125,5 | 1,2 |
| | 2 | 50 | RLP1200SL | 831 | 1127 | 1.48 | 6.58 | 1.25 | 1.00 | 5.03 | 2.7 | 37,6 | 167,1 | 31,8 | 25,4 | 127,8 | 1,2 |
| RSL3000 | 2 | 50 | RLP3200SL | 1354 | 1836 | 1.60 | 8.04 | 1.38 | 1.13 | 5.92 | 4.5 | 40,6 | 204,2 | 35,1 | 28,7 | 150,4 | 2,0 |
| | 2³⁄₁₆ | 55 | RLP3203SL | 1604 | 2175 | 1.76 | 8.16 | 1.38 | 1.13 | 6.08 | 4.7 | 44,7 | 207,3 | 35,1 | 28,7 | 154,4 | 2,1 |
| | 2⅜ | 60 | RLP3206SL | 1604 | 2175 | 1.84 | 8.25 | 1.38 | 1.13 | 6.15 | 4.8 | 46,7 | 209,6 | 35,1 | 28,7 | 156,2 | 2,2 |
| | 2⁹⁄₁₆ | 65 | RLP3209SL | 1604 | 2175 | 1.95 | 8.14 | 1.38 | 1.13 | 6.26 | 4.6 | 49,5 | 206,8 | 35,1 | 28,7 | 159,0 | 2,1 |
| | 2¾ | 70 | RLP3212SL | 1604 | 2175 | 2.04 | 8.23 | 1.38 | 1.13 | 6.36 | 4.4 | 51,8 | 209,0 | 35,1 | 28,7 | 161,5 | 2,0 |
| | 2¹⁵⁄₁₆ | 75 | RLP3215SL | 1604 | 2175 | 2.16 | 8.34 | 1.38 | 1.13 | 6.54 | 4.7 | 54,9 | 211,8 | 35,1 | 28,7 | 166,1 | 2,1 |
| RSL5000 | 2¾ | 70 | RLP5212SL | 4173 | 5659 | 2.16 | 9.63 | 1.75 | 1.62 | 7.07 | 7.5 | 54,9 | 244,6 | 44,5 | 41,1 | 179,6 | 3,4 |
| | 3⅛ | 80 | RLP5302SL | 4173 | 5659 | 2.26 | 9.73 | 1.75 | 1.62 | 7.17 | 7.2 | 57,4 | 247,1 | 44,5 | 41,1 | 182,1 | 3,3 |
| RSL8000 | 2³⁄₁₆ | 55 | RLP8203SL | 2487 | 3372 | 1.71 | 9.53 | 2.25 | 2.00 | 6.84 | 8.5 | 43,4 | 242,1 | 57,2 | 50,8 | 173,7 | 3,9 |
| | 2⅜ | 60 | RLP8206SL | 3198 | 4336 | 1.87 | 9.67 | 2.25 | 2.00 | 7.00 | 8.9 | 47,5 | 245,6 | 57,2 | 50,8 | 177,8 | 4,0 |
| | 2⁹⁄₁₆ | 65 | RLP8209SL | 4122 | 5589 | 2.01 | 9.67 | 2.25 | 2.00 | 7.13 | 9.0 | 51,1 | 245,6 | 57,2 | 50,8 | 181,1 | 4,1 |
| | 2¾ | 70 | RLP8212SL | 5587 | 7576 | 2.16 | 9.82 | 2.25 | 2.00 | 7.28 | 9.6 | 54,9 | 249,4 | 57,2 | 50,8 | 184,9 | 4,4 |
| | 2¹⁵⁄₁₆ | 75 | RLP8215SL | 5587 | 7576 | 2.24 | 9.90 | 2.25 | 2.00 | 7.36 | 9.6 | 56,9 | 251,5 | 57,2 | 50,8 | 186,9 | 4,4 |
| | 3⅛ | 80 | RLP8302SL | 5587 | 7576 | 2.26 | 9.92 | 2.25 | 2.00 | 7.39 | 9.3 | 57,4 | 252,0 | 57,2 | 50,8 | 187,7 | 4,2 |
| | 3³⁄₁₆ | – | RLP8303SL | 4740 | 6427 | 2.26 | 9.92 | 2.25 | 2.00 | 7.39 | 9.3 | 57,4 | 252,0 | 57,2 | 50,8 | 187,7 | 4,2 |

▼ RSL drive unit with interchangeable RSQ square drive cassette




## Setting New Standards in Safety, Simplicity and Performance

### Safety and Performance

- **Innovative design that completely encloses all moving parts and minimizes pinch points**
- **30–35° of operating stroke provides added productivity while avoiding "tool lock on" which is common with some torque wrench designs**

### Simplicity

- **Simple robust design with just three moving parts for reduced maintenance**
- **Robust handles are available which mount on both sides and the tops of cassettes to allow for extra maneuverability**
- **Pull-type square drive release for quickly reversing the square drive for tightening or loosening**

### Versatility

- **Square Drive Sets available with interchangeable Hexagon Cassettes**
- **Power head / square drive combination for flexible use with standard impact quality sockets**
- **Reaction arm has a simple dial lock for rapid change**

### Accuracy

- **Accuracy of +/-3%**

**Torque Wrench Options and Accessories**

Optional accessories are available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.




**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

*Page:* 412



**BSH-Series Sockets**

Heavy-Duty Impact Sockets for power driven torquing equipment.

*Page:* 244



**Back-Up Spanners**

Hands free tool to be used to stop back nut from turning during make up or break out.

*Page:* 245

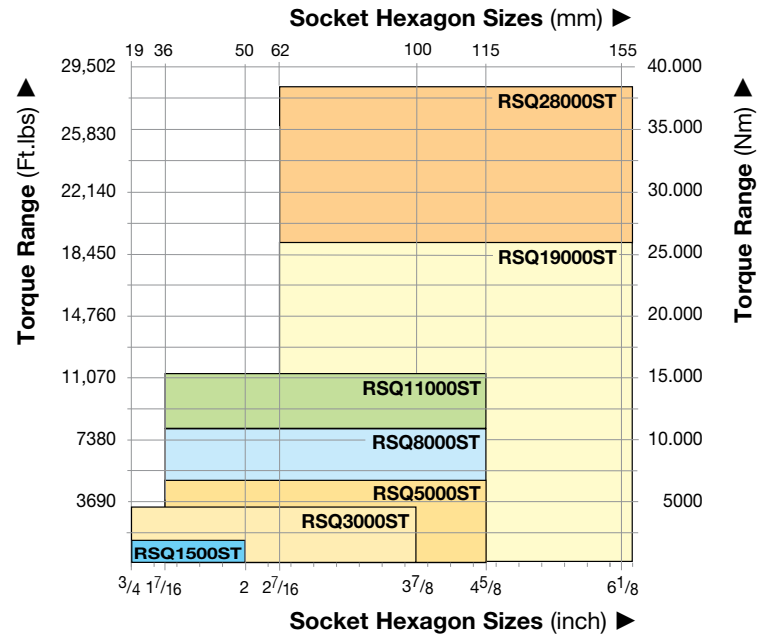


**Torque Wrench Hoses**

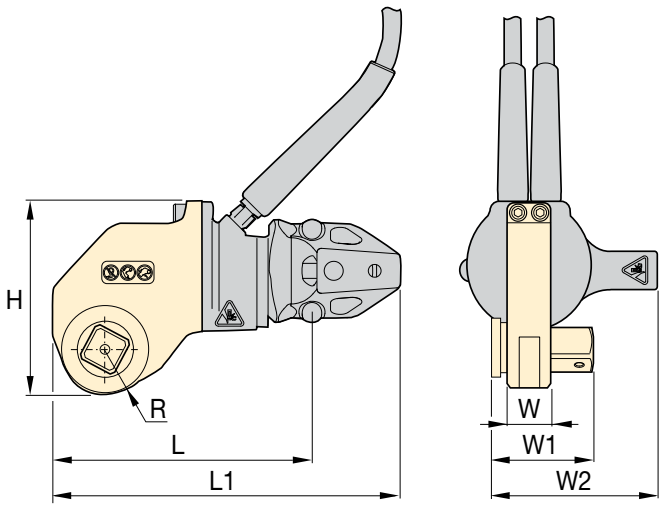
Series hoses with RSL-Series torque wrenches to ensure the integrity of your hydraulic system.

| | |
|---|---|
| 6 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

***TORQUE WRENCH SELECTION**
(based on hexagon socket sizes)




See page 244 for BSH-Sockets.




## RSL Series



Maximum Torque Output:
**1408 - 28,002 ft.lbs**

Maximum Torque Output:
**1909 - 37,965 Nm**

Square Drive Range:
**¾ - 2½ inches**

Maximum Operating Pressure:
**10,000 psi**



**Safe T™ Torque Lock**

The Safe T Torque Lock is suitable for all bolted applications from 140 ft-lbs to 11,070 ft-lbs. using a heavy-duty impact socket.

The patented mechanical locking system creates a hands-free torque wrench solution suitable for Enerpac only square drive tools.
Suitable for:
RSQ3000
RSQ5000
RSQ11000

*Page:* 246



**Torque Wrench Pumps**

Visit enerpac.com for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

*Page:* 291

### ▼ SELECTION CHART

| Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Square Drive Size (in) | Square Drive Head Model Numbers[1] | Square Drive Torque Wrench Set Model Numbers[2] | Dimensions (in) W | W1 | W2 | H | L | L1 | R | Weight (lbs) Drive Unit (no reaction arm) | Reaction Arm | Square Drive Head |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1408 | 1909 | ¾ | **RSQ1500** | **RSQ1500ST** | 1.25 | 2.30 | 3.98 | 4.48 | 6.29 | 7.45 | 0.94 | 3.4 | 1.0 | 2.8 |
| 3080 | 4176 | 1 | **RSQ3000** | **RSQ3000ST** | 1.50 | 2.88 | 4.89 | 5.57 | 7.67 | 10.30 | 1.25 | 5.6 | 2.2 | 5.2 |
| 5303 | 7190 | 1½ | **RSQ5000** | **RSQ5000ST** | 1.75 | 3.71 | 6.31 | 6.42 | 9.27 | 11.67 | 1.52 | 8.9 | 4.0 | 9.1 |
| 7862 | 10659 | 1½ | **RSQ8000** | **RSQ8000ST** | 2.40 | 4.14 | 6.30 | 6.65 | 9.47 | 11.78 | 1.52 | 10.6 | 4.3 | 11.6 |
| 11154 | 15123 | 1½ | **RSQ11000** | **RSQ11000ST** | 2.50 | 4.63 | 6.70 | 7.93 | 11.20 | 12.40 | 1.88 | 11.6 | 6.6 | 18.4 |
| 18843 | 25547 | 2½ | **RSQ19000** | **RSQ19000ST** | 3.25 | 6.38 | 10.42 | 9.48 | 13.46 | 18.97 | 2.50 | 20.0 | 15.7 | 28.9 |
| 28002 | 37965 | 2½ | **RSQ28000** | **RSQ28000ST** | 3.50 | 6.54 | 8.93 | 10.35 | 14.09 | 21.07 | 2.50 | 22.0 | 11.1 | 39.3 |

[1] When ordering an RSQ Square Drive Head the RSL Drive Unit must be ordered separately.
[2] An RSQ....ST Torque Wrench Set includes a RSQ Square Drive Head, RSL Drive Unit with short Whip Hoses, and Reaction Arm

▼ Shown: **DSX11000**




### Safety and Performance

- **High-strength, lightweight aluminum, slimline design suited for complete operator safety**
- **Fully enclosed drive for maximum safety**
- **Built-in, work-at-height safety tether connection**
- **Retained quick release push-button**
- **Patented, easy-to-use, quick release, retained reaction arm**
- **Fine-tooth ratchet prevents the tool 'locking on'**
- **High-cycle design with fewer moving parts making it a more efficient tool to operate, maintain, or repair**
- **35° rotation angle and rapid return stroke for fast operation**

### Simplicity

- **Robust handle which mounts on either side of the tool for extra maneuverability and safer operation**
- **Push-button square drive and reaction arm for fast changes and adjustments**
- **Easily accessible work-at-height connection point**

### Accuracy

- **Constant torque outputs with an accuracy of +/- 3%**

### ATEX certified

- **All DSX tools are CE - ATEX certified**

## Setting Industry-First Safety Standards



**Work-at-Height Connection**

Built-in, work-at-height safety tether.



**Fully Retained Reaction Arm**

Patented, fully retained reaction arm with easy-to-use quick release, helps prevent injuries when working-at-height.



**Secured Square Drive**

Retained quick release push- button.



**Ergonomic Tool Handle**

Robust ergonomic positioning handle comes standard with every DSX tool.

SWH10EA is an eyebolt handle.

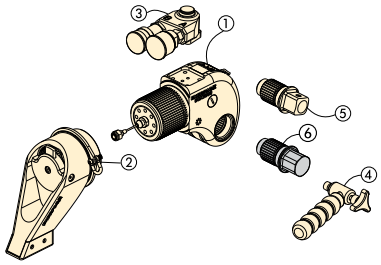
| Compatible DSX-Series wrenches | Ergonomic Handle (Standard) |
|---|---|
| DSX1500, 3000, 5000 | **SWH6A** |
| DSX11000 | **SWH10A** |
| DSX25000 | **SWH10EA** |

**Bolting Integrity Software**

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

# Square Drive Hydraulic Torque Wrenches

Standard are ① ② ③ ④ ⑤.
⑥ is optional.




① Drive Unit
② Reaction Arm
③ Aluminum Swivel
④ Ergonomic Tool Handle
⑤ Square Drive
⑥ Allen® Drive (optional)

**250%**

**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

## DSX Series



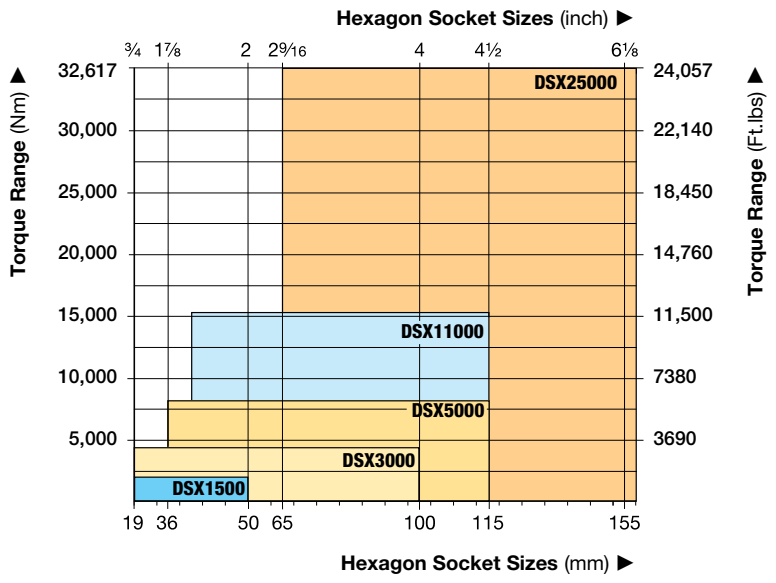
Nominal Torque Output:
**24,057 ft.lbs**

Square Drive Range:
**¾ - 2½ inches**

Nose Radius:
**0.94 - 2.50 inches**

Maximum Operating Pressure:
**10,000 psi**

***TORQUE WRENCH SELECTION**
(based on hexagon socket sizes)






**Back-Up Spanners**

Hands free tool to be used to stop back nut from turning during make up or break out.

*Page:* 245

▼ *The rigid design of the DSX-Series torque wrenches provides durability, reliability and safety.*

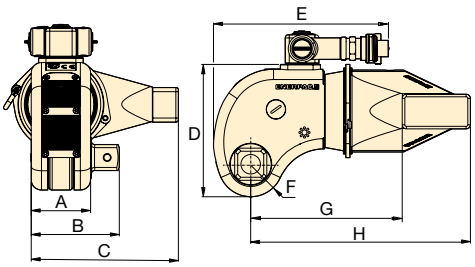




**Use only Heavy-Duty Impact Sockets**

For power driven torquing equipment, according to ISO2725 and ISO1174; DIN 3129 and DIN 3121 or ASME-B107.2/1995.

*Page:* 248




| Nominal Torque at 10,000 psi / 690 bar | | Minimum Torque at 1000 psi / 69 bar | | Square Drive Size (inch) | Square Drive Model No. (included with wrench) | Torque Wrench Model No. | Dimensions (in) | | | | | | | | Wt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (Ft.lbs) | (Nm) | (Ft.lbs) | (Nm) | | | | A | B | C | D | E | F | G | H | (lbs) |
| 1411 | 1913 | 141 | 191 | ¾ | DSX1500-08 | **DSX1500** | 1.7 | 2.6 | 4.2 | 3.7 | 5.7 | 0.94 | 4.4 | 6.4 | 4.8 |
| 3233 | 4383 | 323 | 438 | 1 | DSX3000-08 | **DSX3000** | 2.3 | 3.4 | 5.7 | 5.1 | 6.7 | 1.25 | 5.8 | 8.5 | 10.6 |
| 5635 | 7640 | 563 | 764 | 1½ | DSX5000-08 | **DSX5000** | 2.7 | 4.4 | 6.8 | 5.8 | 7.6 | 1.50 | 7.1 | 10.2 | 17.9 |
| 11,524 | 15,624 | 1152 | 1562 | 1½ | DSX11000-08 | **DSX11000** | 3.4 | 5.1 | 8.5 | 7.2 | 8.7 | 1.88 | 8.94 | 12.8 | 31.7 |
| 24,057 | 32,617 | 2406 | 3262 | 2½ | DSX25000-08 | **DSX25000** | 4.6 | 6.9 | 11.3 | 9.6 | 10.5 | 2.50 | 11.1 | 18.2 | 71.7 |

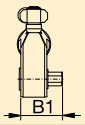
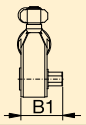
Maximum Torque Output:
**24,057 ft.lbs**

Hexagon Size Allen® Drive:
**½ - 2¼ inches**

Hexagon Size Allen® Drive:
**14 - 85 mm**

**For DSX Series**



| Torque Wrench | Optional Allen® Drives, Imperial | | | | Optional Allen® Drives, Metric | | | |
|---|---|---|---|---|---|---|---|---|
|  | | |  |  B1 | | |  |  B1 |
| **Model Number** (max. torque) | **Hexagon Size** (in) | **Maximum Torque** (Ft.lbs) | **Model Number** | **Dim. B1** (in) | **Hexagon Size** (mm) | **Maximum Torque** (Nm) | **Model Number** | **Dim. B1** (mm) |
| **DSX1500 (1411 Ft.lbs) (1913 Nm)** | ½ | 350 | **DDA15008** | 2.64 | **14** | 644 | **DDA1514** | 67 |
| | ⅝ | 690 | **DDA15010** | 2.64 | **17** | 1152 | **DDA1517** | 67 |
| | ¾ | 1200 | **DDA15012** | 2.64 | **19** | 1627 | **DDA1519** | 67 |
| | ⅞ | 1411 | **DDA15014** | 2.64 | **22** | 1913 | **DDA1522** | 67 |
| | **1** | 1411 | **DDA15100** | 2.64 | **24** | 1913 | **DDA1524** | 67 |
| **DSX3000 (3233 Ft.lbs) (4383 Nm)** | ⅝ | 690 | **DDA30010** | 3.39 | **17** | 1152 | **DDA3017** | 86 |
| | ¾ | 1200 | **DDA30012** | 3.39 | **19** | 1627 | **DDA3019** | 86 |
| | ⅞ | 1900 | **DDA30014** | 3.39 | **22** | 2495 | **DDA3022** | 86 |
| | **1** | 2830 | **DDA30100** | 3.39 | **24** | 3376 | **DDA3024** | 86 |
| | 1⅛ | 3233 | **DDA30102** | 3.39 | **27** | 4383 | **DDA3027** | 86 |
| | 1¼ | 3233 | **DDA30104** | 3.39 | **30** | 4383 | **DDA3030** | 86 |
| | – | – | | 3.39 | **32** | 4383 | **DDA3032** | 86 |
| **DSX5000 (5635 Ft.lbs) (7640 Nm)** | ⅝ | 690 | **DDA50010** | 4.41 | **17** | 1152 | **DDA5017** | 112 |
| | ¾ | 1200 | **DDA50012** | 4.41 | **19** | 1627 | **DDA5019** | 112 |
| | ⅞ | 1900 | **DDA50014** | 4.41 | **22** | 2495 | **DDA5022** | 112 |
| | **1** | 2830 | **DDA50100** | 4.41 | **24** | 3376 | **DDA5024** | 112 |
| | 1⅛ | 5325 | **DDA50102** | 4.41 | **27** | 4610 | **DDA5027** | 112 |
| | 1¼ | 5635 | **DDA50104** | 4.41 | **30** | 7640 | **DDA5030** | 112 |
| | – | – | – | - | **32** | 7640 | **DDA5032** | 112 |
| **DSX11000 (11,524 Ft.lbs) (15.624 Nm)** | 1¼ | 5635 | **DDA110104** | 5.08 | **30** | 7640 | **DDA11030** | 129 |
| | 1⅜ | 9958 | **DDA110106** | 5.08 | **32** | 7640 | **DDA11032** | 129 |
| | 1½ | 9958 | **DDA110108** | 5.08 | **36** | 10.846 | **DDA11036** | 129 |
| | 1⅝ | 11,524 | **DDA110110** | 5.08 | **41** | 15.624 | **DDA11041** | 129 |
| | 1¾ | 11,524 | **DDA110112** | 5.08 | **46** | 15.624 | **DDA11046** | 129 |
| **DSX25000 (24,057 Ft.lbs) (32.617 Nm)** | 1½ | 9958 | **DDA250104** | 6.93 | **36** | 10.846 | **DDA25036** | 176 |
| | 1⅝ | 16,433 | **DDA250106** | 6.93 | **41** | 16.107 | **DDA25041** | 176 |
| | 1¾ | 15,200 | **DDA250112** | 6.93 | **46** | 22.777 | **DDA25046** | 176 |
| | 1⅞ | 22,777 | **DDA250114** | 6.93 | **50** | 29.211 | **DDA25050** | 176 |
| | **2** | 24,057 | **DDA250200** | 6.93 | **55** | 32.617 | **DDA25055** | 176 |
| | 2¼ | 24,057 | **DDA250204** | 6.93 | **60** | 32.617 | **DDA25060** | 176 |
| | – | – | – | - | **65** | 32.617 | **DDA25065** | 176 |
| | – | – | – | - | **70** | 32.617 | **DDA25070** | 176 |
| | – | – | – | - | **75** | 32.617 | **DDA25075** | 176 |
| | – | – | – | - | **85** | 32.617 | **DDA25085** | 176 |

***Enerpac professional bolting tools provide reliable controlled torque and tension solutions across the industry.***

***Portable machining products tackle the most demanding in-situ machining applications.***




***W-Series torque wrench providing accurate and repeatable results***

*Large numbers of fasteners require precise application of torque to ensure joint integrity is achieved and maintained. The Enerpac W-Series wrench was selected as it offers simple and reliable operation. The portable Enerpac E-Pulse torque pump was used and is ideal for high volume fastening applications where weight is a critical factor.*



***Safe, reliable, and repeatable tensioning with compact HydraMax® Tensioners to complete joint integrity***

*With their compact fit and high load generation, and the flexibility to work with all standard flanges, the Enerpac HM-Series HydraMax® tensioners can be used in almost every industry and in many different applications.*



***Portable Machining***

*Mirage® portable machining products tackle the most demanding in-situ machining applications. By replicating machine shop tolerances in-situ, customers can reliably get the job done faster, safer and smarter.* *See pages 378-397 for more information.*

***Oil & Gas:*** *Pipeline repair under pressure; Wellhead high-pressure drilling; Raised, RTJ, compact flanges and hubs; Flange stud removal; Re-thread damaged holes*

***Power Generation:*** *Pipe cutting and weld preparation; Wind turbine blade and tower milling; Turbine casing split line repairs; Subsea cutting and decommissioning.*

▼ HMT-Drive Units with interchangeable HLP-Low-Profile Cassette and HSQ-Square Drive Cassette




# Modular, Durable, Fast and Efficient Torque for Low-Profile and Square Drive Applications

**The HMT-Series is a range of fast, durable and efficient modular hydraulic torque wrenches, enabling you to tackle almost any bolting application. Interchange cassettes with ease, switching the HLP low-profile hexagon cassette with the HSQ square drive whenever your application demands.**

**As an added benefit, tools and cassettes are interchangeable with many other well-known brands, allowing you the freedom to use the tools at your disposal while reducing the cost of upgrading your legacy torque wrench inventory to high quality Enerpac equipment.**

**The tool itself has been carefully designed and manufactured, utiliz0ing superior alloys and surface treatments to make it lightweight, up to 25% faster and more than twice as durable as other tools in the same class.**

### Safety and Performance

- **Supplied with an ergonomic tool safety handle as standard**
- **The HMT Modular Torque/Tool is also supplied with a link pin retainer as standard**

### Versatility

- **Interchangeable with other manufacturers**
- **HMT is able to solve all of your bolting challenges quickly and safely, with one or more attachment options, making it suitable for any application**

### Simplicity

- **The HMT is part of a modular system which is made up of a single power head and one attachment; the HMT Drive Unit and HLP Hexagon cassette or HSQ Square Drive Cassette**

### Accuracy

- **Accuracy of ±3%**

**Torque Wrench Options and Accessories**

Optional accessories are available for maximum versatility.

*Page:* 283



**Back-Up Spanners**

Hands free tool to be used to stop back nut from turning during make up or break out. Two hexagon sizes in one tool.

*Page:* 245



**Torque Wrench Pumps**

Visit enerpac.com for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

*Page:* 291



**Torque Wrench Hoses**

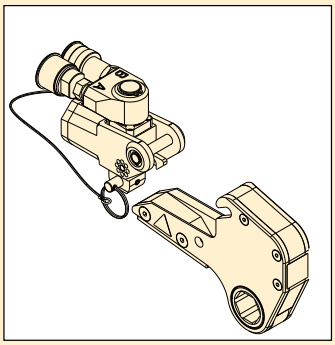
Use Enerpac THQ-700 Series hoses with HMT-Series torque wrenches to ensure the integrity of your hydraulic system.

| | |
|---|---|
| 6 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

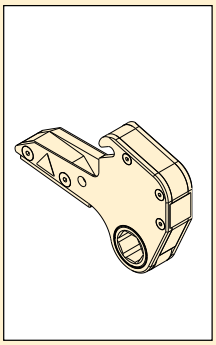
# Drive Units for Hexagon & Square Drive Cassettes

**One Drive, Two Tools**

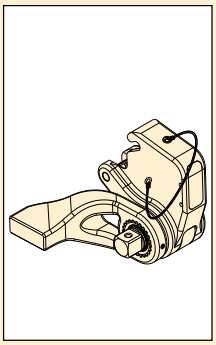
One HMT-Hydraulic Torque Wrench fits HLP Low-Profile or HSQ Square Drive cassette.



HMT...HLP



HLP



HSQ

## HMT Series



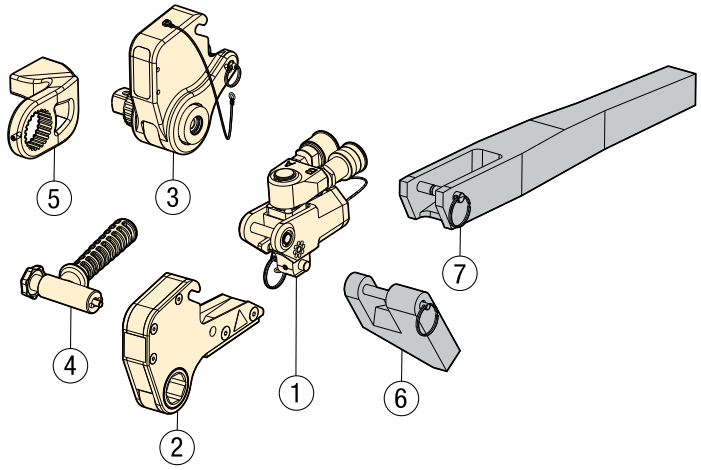
Max. Torque at 10,000 psi:
**1541 - 7562 ft.lbs**

Max. Torque at 690 bar:
**2089 - 10.252 Nm**

Hexagon Range:
**1 1/16 - 3 15/16" / 26 - 100 mm**

Maximum Operating Pressure:
**10,000 psi / 690 bar**

## HMT-Series, Torque Wrench Options and Accessories




① **HMT**: Drive Unit (HMT)
② **HLP**: Hexagon Cassette (page 4-5)
③ **HSQ:** Square Drive Cassette (page 6-7)
④ **SWH**: Ergonomic Tool Handle (page 7)
⑤ Reaction Arm for HSQ

**Optional Parts (for HMT with HLP only)**

⑥ **HRP**: Reaction Paddle (page 4)
⑦ **HTE**: Extended Reaction Arm (page 4)




**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.



**HLP Low -Profile Cassettes**

For the metric and imperial Low-Profile cassettes see:

*Page:* 280



**HSQ Square Drive Cassettes**

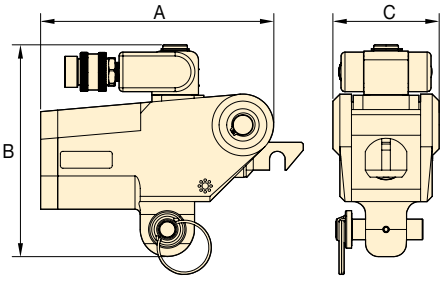
For the metric and imperial Square Drive Cassettes see:

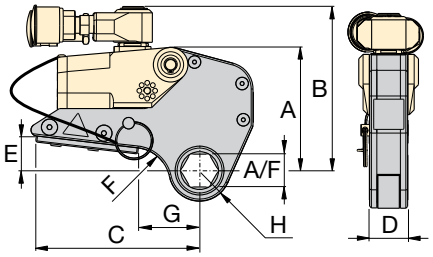
*Page:* 282

### ▼ SELECTION CHART

| Max. Torque Output at 10,000 psi | | Min. Torque Output at 1000 psi | | Drive Unit Model Number | Dimensions (in) | | | Wt. (lbs) | Dimensions (mm) | | | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (ft-lbs) | (Nm) | (ft-lbs) | (Nm) |  | A | B | C | | A | B | C | |
| 1541 | 2089 | 154 | 209 | **HMT1500** | 4.3 | 4.1 | 2.0 | 2.20 | 108 | 104 | 49 | 1,0 |
| 3543 | 4804 | 354 | 480 | **HMT3500** | 5.7 | 5.2 | 2.6 | 3.97 | 146 | 132 | 66 | 1,8 |
| 7562 | 10252 | 756 | 1025 | **HMT7500** | 7.1 | 6.4 | 3.2 | 7.05 | 180 | 163 | 82 | 3,2 |
| 13489 | 18289 | 1349 | 1829 | **HMT13000*** | 8.5 | 7.4 | 3.9 | 4.40 | 216 | 187 | 98 | 9,7 |

* Note: HMT13000 only available for HLP-low profile hexagon cassettes.






Hexagon Range:
**1 1/16 - 3 15/16 inches**

Hexagon Range:
**26 - 100 mm**

Maximum Operating Pressure:
**10,000 psi**

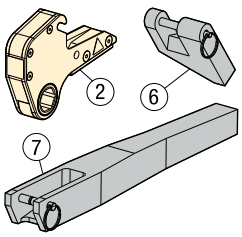
**HLP Series**



▼ **SELECTION CHART**

**IMPORTANT:** HMT-drive units must be ordered separately to operate the HLP-Hexagon Cassettes.

| Drive Unit Model Number | Hexagon Size (in) | Hexagon Size (mm) | Hexagon Cassette Model Number | Maximum Torque Output (ft-lbs) | Maximum Torque Output (Nm) | Dimensions (in) A | B | C | D | E | F | G | H | Wt. (lbs) | Dimensions (mm) A | B | C | D | E | F | G | H | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HMT1500 | 1 1/16 | 26 | HLP1101 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 1.18 | 2.01 | 1.00 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 30 | 51 | 25 | 1,6 |
| | 1 1/8 | - | HLP1102 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 1.18 | 2.01 | 1.00 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 30 | 51 | 25 | 1,6 |
| | 1 3/16 | 30 | HLP1103 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 1.18 | 2.01 | 1.00 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 30 | 51 | 25 | 1,6 |
| | 1 1/4 | 32 | HLP1104 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.95 | 2.01 | 1.08 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 24 | 51 | 27 | 1,6 |
| | 1 5/16 | 33 | HLP1105 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.95 | 2.01 | 1.08 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 24 | 51 | 27 | 1,6 |
| | 1 3/8 | 35 | HLP1106 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 1.89 | 1.19 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 48 | 30 | 1,6 |
| | 1 7/16 | 36 | HLP1107 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 1.89 | 1.19 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 48 | 30 | 1,6 |
| | 1 1/2 | 38 | HLP1108 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.01 | 1.30 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 51 | 33 | 1,6 |
| | 1 9/16 | - | HLP1109 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.01 | 1.30 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 51 | 33 | 1,6 |
| | 1 5/8 | 41 | HLP1110 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.01 | 1.30 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 51 | 33 | 1,6 |
| | 1 11/16 | - | HLP1111 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.01 | 1.30 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 51 | 33 | 1,6 |
| | 1 3/4 | - | HLP1112 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.01 | 1.38 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 51 | 35 | 1,6 |
| | 1 13/16 | 46 | HLP1113 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.01 | 1.38 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 51 | 35 | 1,6 |
| | 1 7/8 | - | HLP1114 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.52 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 39 | 1,6 |
| | 1 15/16 | - | HLP1115 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.52 | 3.53 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 39 | 1,6 |
| | 2 | 50 | HLP1200 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.52 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 39 | 1,7 |
| | 2 1/16 | - | HLP1201 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.52 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 39 | 1,7 |
| | 2 1/8 | - | HLP1202 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.65 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 42 | 1,7 |
| | 2 3/16 | 55 | HLP1203 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.65 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 42 | 1,7 |
| | 2 1/4 | - | HLP1204 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.65 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 42 | 1,7 |
| | 2 5/16 | - | HLP1205 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.65 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 42 | 1,7 |
| | 2 3/8 | 60 | HLP1206 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.71 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 44 | 1,7 |
| | 2 7/16 | 62 | HLP1207 | 1541 | 2089 | 4.48 | 5.32 | 5.35 | 1.2 | 1.13 | 0.55 | 2.36 | 1.71 | 3.75 | 114 | 135 | 136 | 31,5 | 29 | 14 | 60 | 44 | 1,7 |
| HMT3500 | 1 3/8 | 35 | HLP3106 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.89 | 3.09 | 1.30 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 48 | 79 | 33 | 3,9 |
| | 1 7/16 | 36 | HLP3107 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.89 | 3.09 | 1.30 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 48 | 79 | 33 | 3,9 |
| | 1 1/2 | 38 | HLP3108 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.81 | 3.16 | 1.42 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 46 | 80 | 36 | 3,9 |
| | 1 9/16 | - | HLP3109 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.81 | 3.16 | 1.42 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 46 | 80 | 36 | 3,9 |
| | 1 5/8 | 41 | HLP3110 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.81 | 3.16 | 1.42 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 46 | 80 | 36 | 3,9 |
| | 1 11/16 | - | HLP3111 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.81 | 3.16 | 1.42 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 46 | 80 | 36 | 3,9 |
| | 1 3/4 | - | HLP3112 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.58 | 3.08 | 1.52 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 40 | 78 | 39 | 3,9 |
| | 1 13/16 | 46 | HLP3113 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.58 | 3.08 | 1.52 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 40 | 78 | 39 | 3,9 |
| | 1 7/8 | - | HLP3114 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.42 | 3.05 | 1.63 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 36 | 77 | 41 | 3,9 |
| | 1 15/16 | - | HLP3115 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.42 | 3.05 | 1.63 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 36 | 77 | 41 | 3,9 |
| | 2 | 50 | HLP3200 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.42 | 3.05 | 1.63 | 8.60 | 153 | 167 | 184 | 42,0 | 41 | 36 | 77 | 41 | 3,9 |
| | 2 1/16 | - | HLP3201 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.42 | 3.05 | 1.63 | 8.82 | 153 | 167 | 184 | 42,0 | 41 | 36 | 77 | 41 | 4,0 |
| | 2 1/8 | - | HLP3202 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.18 | 2.97 | 1.74 | 8.82 | 153 | 167 | 184 | 42,0 | 41 | 30 | 75 | 44 | 4,0 |
| | 2 3/16 | 55 | HLP3203 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.18 | 2.97 | 1.74 | 8.82 | 153 | 167 | 184 | 42,0 | 41 | 30 | 75 | 44 | 4,0 |
| | 2/4 | - | HLP3204 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 1.18 | 2.97 | 1.74 | 8.82 | 153 | 167 | 184 | 42,0 | 41 | 30 | 75 | 44 | 4,0 |
| | 2 5/16 | - | HLP3205 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.68 | 1.85 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 68 | 47 | 4,1 |
| | 2 3/8 | 60 | HLP3206 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.68 | 1.85 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 68 | 47 | 4,1 |
| | 2 7/16 | 62 | HLP3207 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 1.85 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 47 | 4,1 |
| | 2 1/2 | 63 | HLP3208 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 1.96 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 50 | 4,1 |
| | 2 9/16 | 65 | HLP3209 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 1.96 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 50 | 4,1 |
| | 2 5/8 | - | HLP3210 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 2.07 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 53 | 4,1 |
| | 2 11/16 | - | HLP3211 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 2.07 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 53 | 4,1 |
| | 2 3/4 | 70 | HLP3212 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 2.07 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 53 | 4,1 |
| | 2 13/16 | - | HLP3213 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 2.07 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 53 | 4,1 |
| | 2 7/8 | - | HLP3214 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.80 | 2.07 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 71 | 53 | 4,1 |
| | 2 15/16 | 75 | HLP3215 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.99 | 2.19 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 76 | 56 | 4,1 |
| | 3 | - | HLP3300 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.99 | 2.19 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 76 | 56 | 4,1 |
| | 3 1/16 | - | HLP3301 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.99 | 2.19 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 76 | 56 | 4,1 |
| | 3 1/8 | 80 | HLP3302 | 3543 | 4804 | 6.02 | 6.57 | 7.24 | 1.7 | 1.59 | 0.63 | 2.99 | 2.19 | 9.04 | 153 | 167 | 184 | 42,0 | 41 | 16 | 76 | 56 | 4,1 |

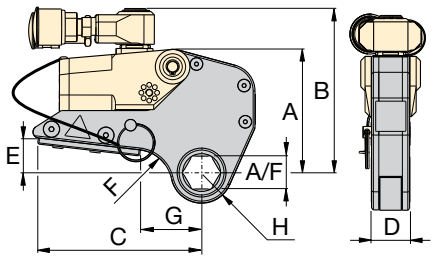



**Optional Parts for HLP-Hexagon Cassettes**

- Full torque rated
- Includes pin to secure onto HLP-cassette
- ⑥ HRP: allows offset reaction when in-line reaction point is not available
- ⑦ HTE: Increases tool fit in restricted areas.

| For HMT with HLP-Series Hexagon Cassettes | Reaction Paddle Model No. ⑥ | Extended Reaction Arm Model No. ⑦ |
|---|---|---|
| HMT1500 + HLP1 | **HRP15** | **HTE15** |
| HMT3500 + HLP3 | **HRP35** | **HTE35** |
| HMT7500 + HLP7 | **HRP75** | **HTE75** |
| HMT13000 + HLP13 | **HRP130** | **HTE130** |

# HLP-Series Hexagon Cassettes for HMT Drive Units




Hexagon Range:
**1 1/16 - 3 15/16 inches**

Hexagon Range:
**26 - 100 mm**

Maximum Operating Pressure:
**10,000 psi**

**HLP Series**



▼ **SELECTION CHART**

**IMPORTANT:** HMT-drive units must be ordered separately to operate the HLP-Hexagon Cassettes.

| Drive Unit Model Number | Hexagon Size | | Hexagon Cassette Model Number | Maximum Torque Output | | Dimensions (in) | | | | | | | | Wt. | Dimensions (mm) | | | | | | | | Wt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (in) | (mm) | | (ft-lbs) | (Nm) | A | B | C | D | E | F | G | H | (lbs) | A | B | C | D | E | F | G | H | (kg) |
| HMT7500 | 2 3/16 | 55 | HLP7203 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 1.65 | 3.39 | 1.91 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 42 | 86 | 49 | 7,1 |
| | 2 1/4 | - | HLP7204 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 1.65 | 3.39 | 1.91 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 42 | 86 | 49 | 7,1 |
| | 2 5/16 | - | HLP7205 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 1.65 | 3.39 | 1.91 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 42 | 86 | 49 | 7,1 |
| | 2 3/8 | 60 | HLP7206 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 1.18 | 3.15 | 1.99 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 30 | 80 | 51 | 7,1 |
| | 2 7/16 | 62 | HLP7207 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 1.18 | 3.15 | 1.99 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 30 | 80 | 51 | 7,1 |
| | 2 1/2 | 63 | HLP7208 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 1.18 | 3.15 | 1.99 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 30 | 80 | 51 | 7,1 |
| | 2 9/16 | 65 | HLP7209 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.87 | 3.15 | 2.07 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 22 | 80 | 53 | 7,1 |
| | 2 5/8 | - | HLP7210 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.79 | 3.15 | 2.19 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 20 | 80 | 56 | 7,1 |
| | 2 11/16 | - | HLP7211 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.79 | 3.15 | 2.19 | 15.65 | 193 | 203 | 227 | 52,6 | 46 | 20 | 80 | 56 | 7,1 |
| | 2 3/4 | 70 | HLP7212 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.79 | 3.15 | 2.19 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 20 | 80 | 56 | 7,9 |
| | 2 13/16 | - | HLP7213 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.79 | 3.15 | 2.19 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 20 | 80 | 56 | 7,9 |
| | 2 7/8 | - | HLP7214 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.79 | 3.15 | 2.19 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 20 | 80 | 56 | 7,9 |
| | 2 15/16 | 75 | HLP7215 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.15 | 2.26 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 17 | 80 | 58 | 7,9 |
| | 3 | - | HLP7300 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.39 | 2.38 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 17 | 86 | 61 | 7,9 |
| | 3 1/16 | - | HLP7301 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.39 | 2.38 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 17 | 86 | 61 | 7,9 |
| | 3 1/8 | 80 | HLP7302 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.39 | 2.38 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 17 | 86 | 61 | 7,9 |
| | 3 1/4 | - | HLP7304 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.39 | 2.52 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 17 | 86 | 64 | 7,9 |
| | - | 85 | HLP7085M | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.39 | 2.52 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 17 | 86 | 64 | 7,9 |
| | 3 3/8 | - | HLP7306 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.39 | 2.52 | 17.42 | 193 | 203 | 227 | 52,6 | 46 | 17 | 86 | 64 | 7,9 |
| | 3 7/16 | - | HLP7307 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.50 | 2.52 | 17.64 | 193 | 203 | 227 | 52,6 | 46 | 17 | 89 | 64 | 8,0 |
| | 3 1/2 | - | HLP7308 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.50 | 2.64 | 17.64 | 193 | 203 | 227 | 52,6 | 46 | 17 | 89 | 67 | 8,0 |
| | - | 90 | HLP7090M | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.74 | 2.64 | 17.64 | 193 | 203 | 227 | 52,6 | 46 | 17 | 95 | 67 | 8,0 |
| | 3 9/16 | - | HLP7309 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.74 | 2.78 | 17.64 | 193 | 203 | 227 | 52,6 | 46 | 17 | 95 | 71 | 8,0 |
| | 3 3/4 | 95 | HLP7312 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.74 | 2.89 | 18.08 | 193 | 203 | 227 | 52,6 | 46 | 17 | 95 | 71 | 8.2 |
| | 3 7/8 | - | HLP7314 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.74 | 2.89 | 18.08 | 193 | 203 | 227 | 52,6 | 46 | 17 | 95 | 74 | 8.2 |
| | 3 15/16 | 100 | HLP7315 | 7562 | 10.252 | 7.60 | 8.01 | 8.94 | 2.1 | 1.81 | 0.67 | 3.74 | 2.89 | 18.08 | 193 | 203 | 227 | 52,6 | 46 | 17 | 95 | 74 | 8,2 |
| HMT13000 | 2 7/16 | 62 | HLP13207 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 1/2 | 63 | HLP13208 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 9/16 | 65 | HLP13209 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 5/8 | 67 | HLP13210 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 11/16 | 68 | HLP13211 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 3/4 | 70 | HLP13212 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 13/16 | 71 | HLP13213 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 7/8 | 73 | HLP13214 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 75 | 119 | 58,0 | 11,0 |
| | 2 15/16 | 75 | HLP13215 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.69 | 2.40 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 119 | 61,0 | 11,0 |
| | 3 | 77 | HLP13300 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.56 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,0 | 11,0 |
| | 3 1/16 | 78 | HLP13301 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.56 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,0 | 11,0 |
| | 3 1/8 | 80 | HLP13302 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.56 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,0 | 11,0 |
| | 3 3/16 | 81 | HLP13303 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.58 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,5 | 11,0 |
| | 3 1/4 | 83 | HLP13304 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.58 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,5 | 11,0 |
| | 3 5/16 | 84 | HLP13305 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.58 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,5 | 11,0 |
| | – | 85 | HLP13085M | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.58 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,5 | 11,0 |
| | 3 3/8 | 86 | HLP13306 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.76 | 4.88 | 2.58 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 70 | 124 | 65,5 | 11,0 |
| | 3 7/16 | – | HLP13307 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.36 | 4.88 | 2.76 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 60 | 124 | 70,0 | 11,0 |
| | 3 1/2 | 89 | HLP13308 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.36 | 4.88 | 2.76 | 24.3 | 204 | 242 | 276 | 63,4 | 57 | 60 | 124 | 70,0 | 11,0 |
| | – | 90 | HLP13090M | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 2.36 | 4.88 | 2.76 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 60 | 124 | 70,0 | 12,0 |
| | 3 9/16 | 91 | HLP13309 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.34 | 4.33 | 2.91 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 34 | 110 | 74,0 | 12,0 |
| | 3 5/8 | 92 | HLP13310 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.34 | 4.33 | 2.91 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 34 | 110 | 74,0 | 12,0 |
| | 3 11/16 | 94 | HLP13311 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.34 | 4.33 | 2.91 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 34 | 110 | 74,0 | 12,0 |
| | 3 3/4 | 95 | HLP13312 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.34 | 4.33 | 2.91 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 34 | 110 | 74,0 | 12,0 |
| | 3 13/16 | 97 | HLP13313 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.73 | 4.69 | 2.95 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 44 | 119 | 75,0 | 12,0 |
| | 3 7/8 | 99 | HLP13314 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.73 | 4.69 | 2.95 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 44 | 119 | 75,0 | 12,0 |
| | 3 15/16 | 100 | HLP13315 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.73 | 4.69 | 2.95 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 44 | 119 | 75,0 | 12,0 |
| | 4 | 102 | HLP13400 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.73 | 4.88 | 3.11 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 44 | 124 | 79,0 | 12,0 |
| | 4 1/16 | – | HLP13401 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.73 | 4.88 | 3.11 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 44 | 124 | 79,0 | 12,0 |
| | 4 1/8 | 105 | HLP13402 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 1.73 | 4.88 | 3.11 | 26.5 | 204 | 242 | 276 | 63,4 | 57 | 44 | 124 | 79,0 | 12,0 |
| | 4 3/16 | – | HLP13403 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.33 | 3.21 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 110 | 81,5 | 13,0 |
| | 4 1/4 | 108 | HLP13404 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.33 | 3.21 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 110 | 81,5 | 13,0 |
| | 4 5/16 | 110 | HLP13405 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.33 | 3.21 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 110 | 81,5 | 13,0 |
| | 4 3/8 | 111 | HLP13406 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.69 | 3.45 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 119 | 87,5 | 13,0 |
| | 4 7/16 | 113 | HLP13407 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.69 | 3.45 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 119 | 87,5 | 13,0 |
| | 4 1/2 | – | HLP13408 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.69 | 3.45 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 119 | 87,5 | 13,0 |
| | 4 9/16 | – | HLP13409 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.69 | 3.45 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 119 | 87,5 | 13,0 |
| | – | 115 | HLP13115M | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.69 | 3.45 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 119 | 87,5 | 13,0 |
| | 4 5/8 | – | HLP13410 | 13.489 | 18.289 | 8.03 | 9.53 | 10.87 | 2.50 | 2.25 | 0.95 | 4.69 | 3.45 | 28.7 | 204 | 242 | 276 | 63,4 | 57 | 24 | 119 | 87,5 | 13,0 |

▼ HMT drive unit with HSQ square drive cassette




# Modular, Durable, Fast and Efficient Torque for Low Profile and Square Drive Applications

### Safety and Performance

- **Innovative design that completely encloses all moving parts and minimizes pinch points**
- **Supplied reaction arm as standard**
- **Fully adjustable 360 degree in-line reaction arm**
- **Fine tooth ratchet prevents locking-on**

### Simplicity

- **Simple robust design with just three moving parts for reduced maintenance**
- **Push button, quick release, reversible square drive**

### Versatility

- **The reaction arm, positioned around the square drive instead of the back of the drive unit, provides you with the possibility to turn the drive unit away from an obstacle**

### Accuracy

- **Accuracy of ±3%**

### ATEX certified

- **All HMT tools are CE - ATEX certified**



**Ergonomic Tool Handle**

Robust ergonomic positioning handle comes standard with every HMT Drive Unit.

| Compatible HMT-Series wrenches | Ergonomic Handle (Standard) |
|---|---|
| HMT1500, 3500, 7500 | **SWH6A** |
| HMT13000 | **SWH10A** |



**Back-Up Spanners**

Hands free tool to be used to stop back nut from turning during make up or break out. Two hexagon sizes in one tool.

*Page:* 245




**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.



**Torque Wrench Hoses**

Use Enerpac THQ-700 Series hoses with HMT-Series torque wrenches to ensure the integrity of your hydraulic system.

| | |
|---|---|
| 6 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

# HMT, Square Drive Hydraulic Torque Wrenches

***Bolting Integrity Software***

Visit enerpac.com to access our free on-line bolting sofware application.
A comprehensive on-line software solution for Bolted Joint integrity.

**Integral databases hold data for:**

- BS1560, MSS SP44, API 6A and 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
- Enerpac's Controlled Bolting Equipment including: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioning tools

**Custom Joint information can also be entered.**

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.

*Page:* 416

## HMT Series



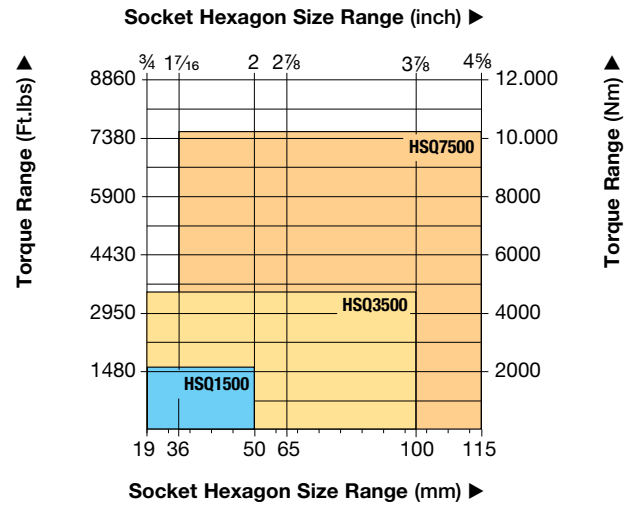
Maximum Torque at 10.000 psi:
**1541 - 7562 Ft.lbs**

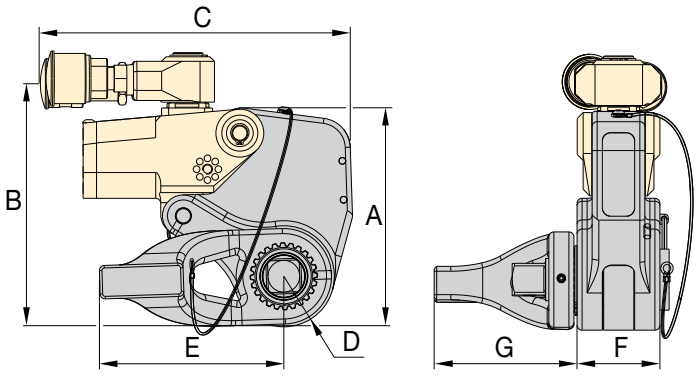
Maximum Torque at 690 bar:
**2089 - 10.252 Nm**

Square Drive Range:
**¾ - 1½ inch**

Maximum Operating Pressure:
**10.000 psi / 690 bar**

**TORQUE WRENCH SELECTION (based on socket size range)**






**BSH-Series Sockets**

Heavy-Duty Impact Sockets for power driven torquing equipment.

*Page:* 244




**Select the Right Torque**

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.



**Torque Wrench Pumps**

Visit enerpac.com for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

*Page:* 291

**▼ SELECTION CHART**

| Max. Torque Output (ft-lbs) | Max. Torque Output (Nm) | Square Drive Size (in) | Sq. Drive Cassette Model Number* | Dimensions (in) A | B | C | D | E | F | G | Wt. (lbs) | Dimensions (mm) A | B | C | D | E | F | G | Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1541 | 2089 | ¾ | HSQ1500 | 5.71 | 6.61 | 6.85 | 1.19 | 2.36 | 1.95 | 3.29 | 8.16 | 145 | 168 | 174 | 30 | 60 | 50 | 84 | 3,7 |
| 3543 | 4804 | 1 | HSQ3500 | 7.54 | 8.23 | 7.95 | 1.52 | 3.07 | 2.58 | 4.35 | 13.01 | 192 | 209 | 202 | 39 | 78 | 66 | 111 | 5,9 |
| 7562 | 10252 | 1½ | HSQ7500 | 9.60 | 10.08 | 9.25 | 1.99 | 4.33 | 3.23 | 6.32 | 25.13 | 244 | 256 | 235 | 51 | 110 | 82 | 161 | 11,4 |

*** IMPORTANT:** HMT-drive units must be ordered separately to operate the HSQ-Square Drive Cassettes.

▼ Shown from left to right: **E291, E393, E494**



# Accurate, Efficient Torque Multiplication

## When accurate make-up or break-out of stubborn fasteners requires high torque

- **High-efficiency planetary gear sets achieve high output torque from low input torque**
- **Most models operator protected by anti-backlash device**
- **Multiplier output accuracy ± 5% of input torque**
- **Reversible, tighten or loosen bolts**
- **Reaction bar or reaction plate type**
- **Angle-of-turn protractor standard on E300 series models**
- **Reaction plate models offer increased versatility with reaction point locations**
- **E300 and E400 series replaceable shear drives provide overload protection of internal power train**
- **One replacement shear drive is included with each E300 and E400-Series models**

**Typical Torque Multiplier Applications**

- Locomotives
- Power plants
- Pulp and paper mills
- Refineries
- Chemical plants
- Mining and construction
- Off-road equipment
- Shipyards
- Cranes



▼ **SELECTION CHART**

| Torque Multiplier Type | Nominal Torque Output (Ft.lbs) | Nominal Torque Output (Nm) | Model Number |
|---|---|---|---|
| Reaction Bar Multiplier | 750 | 1020 | **E290PLUS** |
| | 1000 | 1358 | **E291** |
| | 1200 | 1627 | **E391** |
| | 2200 | 2983 | **E392** |
| | 3200 | 4340 | **E393** |
| Reaction Plate Multiplier | 2200 | 2983 | **E492** |
| | 3200 | 4339 | **E493** |
| | 5000 | 67879 | **E494** |
| | 8000 | 10,846 | **E495** |

**Manual Torque Multipliers**

Enerpac manual torque multipliers provide efficient torque multiplication in wide clearance applications and when external power sources are not available.

Manual torque multipliers are used in most industrial, construction, and equipment maintenance applications. Hydraulic torque wrenches are better suited for tight tolerance, flange and repetitious bolting applications.

**Use Reaction Bar Models:**

- where space is limited
- where multiple reaction points are available
- when portability is desirable

**Use Reaction Plate Models:**

- above 3200 Ft-lbs. output torque
- on flanges and applications where neighboring bolt or nut is available to react against
- when extreme reaction forces are generated

# E Series



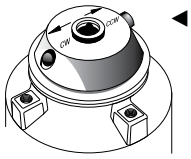
Nominal Output Torque:
**750 - 8000 Ft.lbs**

Torque Ratio:
**3.3:1 - 52:1**

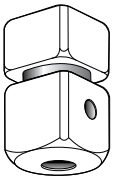
Multiplier Output Ratio Accuracy:
**± 5 %**

**CAUTION!**

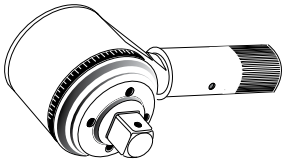
Never use impact type air tools for power driving torque multipliers. Torque multiplier drive train damage will occur.



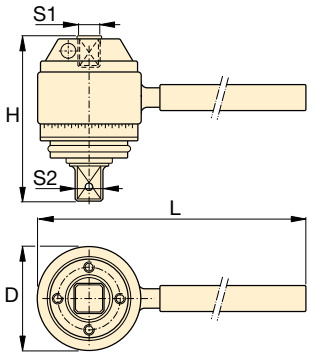
◀ **Selector Pawl**
Models with anti-backlash protection have directional selector pawls. Set the pawl for clockwise or counter-clockwise rotation.



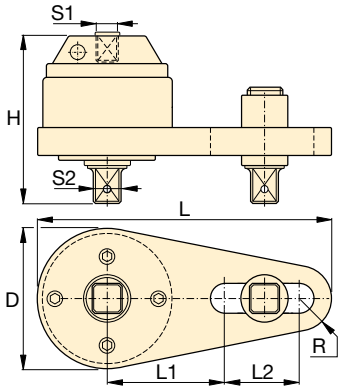
◀ **Shearable Square Drive**
Designed to provide overload protection on E300- and E400-series multiplier power train by shearing when excess input torque is applied. Internal shear pin prevents tool from falling off bolt.



▲ **Angle-of-Turn Protractor**
E391, E392 and E393 models include an angle-of-turn protractor (scale) to tighten fasteners using a "torque turn" method. Allows accurate measuring a specific number of degrees of rotation.




**Reaction Bar Type** [1)]




**Reaction Plate Type** [1)]



**BSH-Series Sockets**

Heavy-Duty Impact Sockets for power driven torquing equipment.

*Page:* 244



**Back-Up Spanners**

Hands free tool to be used to stop back nut from turning during make up or break out. Two hex sizes in one tool.

*Page:* 245

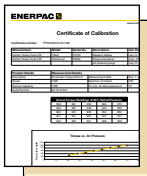
| Input Torque (Ft.lbs) | Input Torque (Nm) | Torque Ratio | Input Female Square Drive S1 (in) | Output Male Square Drive S2 (in) | Output Male Square Drive Replaceable Shear Drive Model No. | Over-load Protec-tion | Anti-Back-lash | Dimensions (in) D | H | L | L1 | L2 | R | Wt. (lbs) | Model Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 227 | 309 | 3.3 : 1 | ½ | ¾ | – | No | No | 2.8 | 3.3 | 8.5 | – | – | – | 4.0 | **E290PLUS** |
| 303 | 411 | 3.3 : 1 | ½ | ¾ | – | No | No | 2.8 | 3.3 | 17.4 | – | – | – | 5.5 | **E291** |
| 200 | 271 | 6 : 1 | ½ | ¾ | E391SDK | Yes | No | 3.9 | 4.0 | 19.6 | – | – | – | 9.0 | **E391** |
| 162 | 220 | 13.6 : 1 | ½ | 1 | E392SDK | Yes | Yes | 4.1 | 5.7 | 19.6 | – | – | – | 15.2 | **E392** |
| 173 | 235 | 20.25 : 1 | ½ | 1 | E393SDK | Yes | Yes | 4.1 | 6.5 | 19.6 | – | – | – | 18.3 | **E393** |
| 162 | 219 | 13.6 : 1 | ½ | 1 | E392SDK | Yes | Yes | 4.9 | 5.5 | 14.0 | 5.5 | 4.9 | 1.3 | 17.2 | **E492** |
| 173 | 234 | 18.5 : 1 | ½ | 1 | E393SDK | Yes | Yes | 4.9 | 6.4 | 14.0 | 5.5 | 4.9 | 1.3 | 19.6 | **E493** |
| 189 | 256 | 26.5 : 1 | ½ | 1½ | E494SDK | Yes | Yes | 5.6 | 8.7 | 14.9 | 7.0 | 3.5 | 1.7 | 34.0 | **E494** |
| 208 | 154 | 52 : 1 | ½ | 1½ | E495SDK | Yes | Yes | 5.8 | 10.7 | 15.2 | 7.0 | 3.5 | 1.9 | 50.3 | **E495** |

[1)] E200 and E400-series do not have an Angle-of-Turn Protractor (scale).
User must verify manual torque wrench accuracy prior to use to ensure accurate final output torque.

▼ **PTW1000**




# Continuous Rotation Controlled Torque



**Calibration Certificate**

All PTW tools are CE declared and are shipped complete with a calibration certificate.

CE



**FRL120C, Filter-Regulator-Lubricator with Air Hose**

All PTW-Series tools are shipped complete with standard reaction arm, and Filter-Regulator-Lubricator (FRL120C).



**MCS-Series, Mobile Calibration System**

To check torque accuracy, run calibration tests and create calibration certificates prior to the use of continuous rotation torque tools in various applications while on a job site.

*Page:* 290

## Productivity

- **High speed continuous rotation for constant torque output**
- **Low friction planetary gearbox design minimizes wear and extends uptime**

## Safety

- **Ergonomic, low vibration design reduces fatigue and the risk of vibration related injuries for the operator**
- **Low noise air motor provides quiet, consistent performance for indoor and outdoor applications**

## Convenience

- **Provided with standard reaction arm; wide assortment of custom arms and accessories are available**
- **Available with or without Filter-Regulator-Lubricator (FRL)**
- **Unique calibration certificate provided with each tool**



◀ *The PTW1000 makes quick work of this flange maintenance job.*

▼ *PTW-Series Pneumatic Torque Wrenches are ideal for applications where speed and precision are critical, such as track maintenance.*



**PTW-Series Pneumatic Torque Wrenches**

Enerpac PTW-Series Pneumatic Torque Wrenches are designed for applications that require speed and control.

The standard package includes a Torque Wrench with a calibration certificate, an FRL (Filter/Regulator/Lubricator), and a 10 ft. (3 m) long, ½" (13 mm) diameter air hose, which connects the FRL to the wrench.

Once the air hoses are connected, the operator simply adjusts the air pressure on the FRL to achieve the desired torque using the calibration certificate. After this, the tool is ready to go to work!*

The air source used with the PTW system must be regulated and/or limited to 120 psi (8.3 bar), and must be capable of providing a volume of at least 50 CFM (85 CMH) at 100 psi (6.9 bar). A separate ½" (13 mm) hose (not included) must be used to connect the FRL to the air supply.

*See instruction manual for comprehensive instructions

# PTW Series



Nominal Output Torque:
**6000 Ft.lbs**

Square Drive Range:
**¾ - 1 - 1½ inches**



**Accessories**

Enerpac offers a full line of accessories including a range of reaction arms and drives.

*Page:* 288



**BSH-Series Sockets**

Heavy-Duty Impact Sockets for power driven torquing equipment.

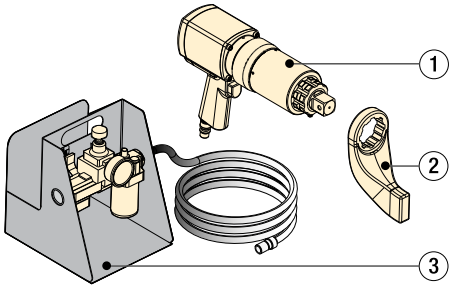
*Page:* 244



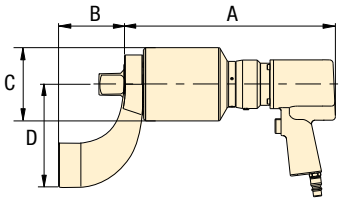
**Back-Up Spanner**

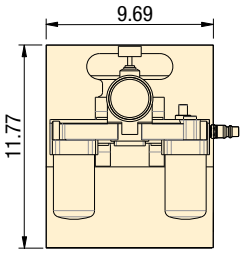
Hands free tool to be used to stop back nut from turning during make up or break out. Two hex sizes in one tool.

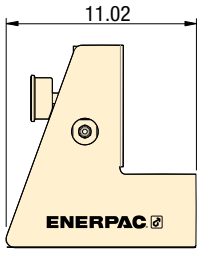
*Page:* 245




① PTW Torque Wrench
② Standard Reaction Arm
③ FRL120C Filter-Regulator-Lubricator with 10-foot air hose



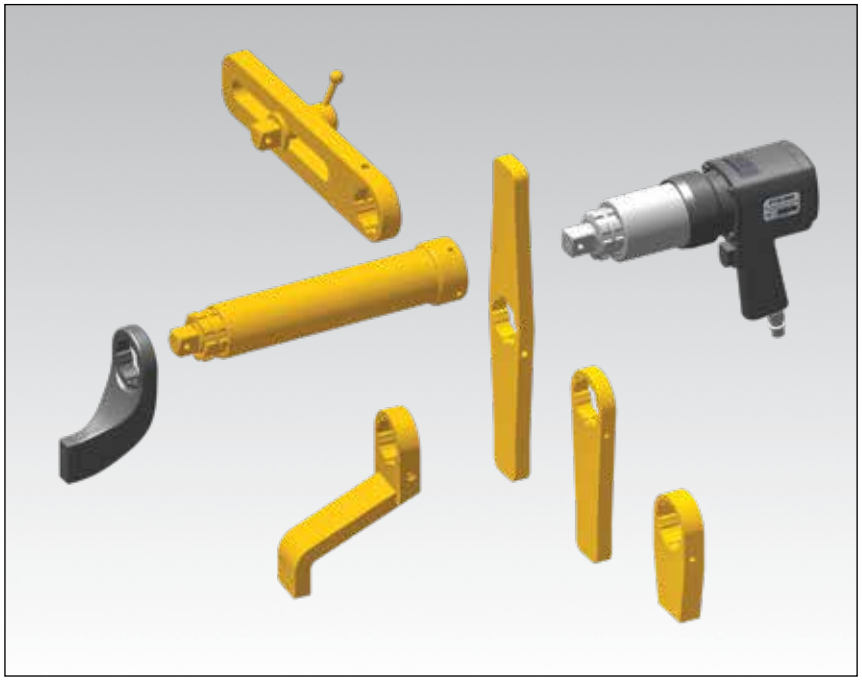

## ▼ SELECTION CHART

All tools are shipped complete with standard reaction arm and FRL*.

| Minimum Torque | | Nominal Torque | | Square Drive | Model Number* | RPM | Dimensions (in) | | | | Weight** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (Ft.lbs) | (Nm) | (Ft.lbs) | (Nm) | (in) | | | A | B | C | D | (lbs) |
| 300 | 407 | 1000 | 1356 | ¾ | **PTW1000-75C** | 12.6 | 10.70 | 3.27 | 2.83 | 5.12 | 17.4 |
| 300 | 407 | 1000 | 1356 | 1 | **PTW1000C** | 12.6 | 10.70 | 3.27 | 2.83 | 5.12 | 18 |
| 500 | 678 | 2000 | 2712 | 1 | **PTW2000C** | 8.0 | 11.26 | 3.27 | 3.11 | 5.24 | 19.5 |
| 900 | 1220 | 3000 | 4067 | 1 | **PTW3000C** | 3.1 | 13.50 | 3.27 | 3.74 | 5.24 | 23 |
| 1300 | 1763 | 6000 | 8135 | 1½ | **PTW6000C** | 2.5 | 14.40 | 4.49 | 5.00 | 7.00 | 39 |

* To order without FRL and hose, remove "C" suffix from model number (e.g. PTW3000).
** Weight does not include reaction arm. Reaction arm weight for PTW1000, PTW2000, PTW3000 is 2.9 lbs. and for the PTW6000 is 7.75 lbs.

▼ Shown: **Accessories for PTW-Series Torque Wrenches**



- **Accessories for further extending the application range of pneumatic torque wrenches**
- **Extended drives increase tool fit in restricted access areas**

**PTW-Series Torque Wrenches**

Enerpac offers the following accessories to support a wide variety of applications in industries such as mining, power generation and oil and gas. For additional custom accessories not pictured here, please contact Enerpac.

**Applications**

PTW-Series Pneumatic Wrenches are designed for applications that require speed and control.

**Mining**
- Track maintenance
- Undercarriage maintenance
- Wheel maintenance
- Shovel maintenance

**Power Generation**
- Turbine bolts
- Tower segments
- Turbine casings

**Oil & Gas**
- Pipe flanges
- Valves
- Manway covers
- Pressure vessels

▼ *Shovel and Track maintenance*

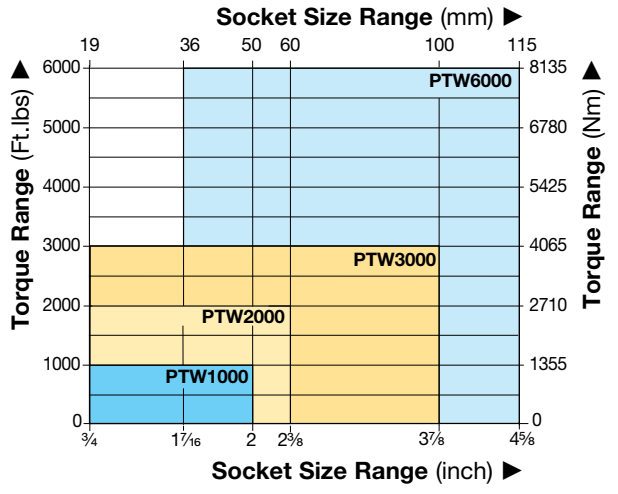


▼ *Wheel maintenance*



# Torque Wrench Accessories for PTW-Series

**TORQUE WRENCH SELECTION***




**PTW Series**



Nominal Output Torque:
**6000 Ft.lbs**

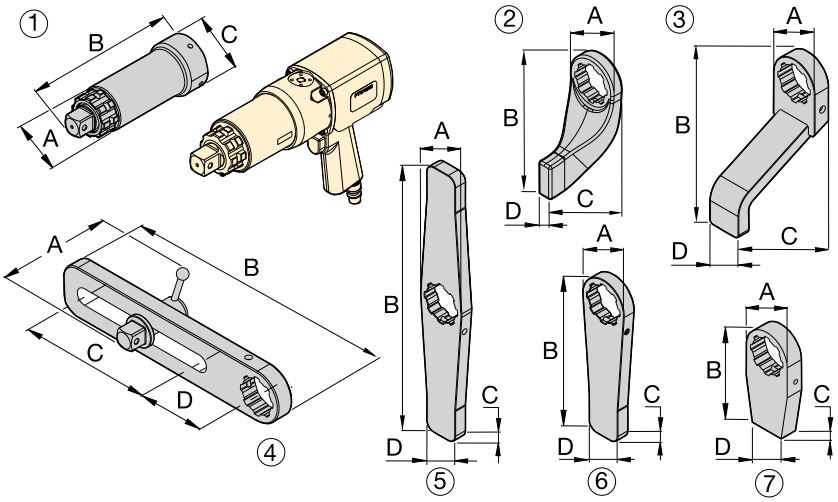
Square Drive Range:
**¾ - 1 - 1½ inches**



**BSH-Series Sockets**

Heavy-Duty Impact Sockets for power driven torquing equipment.

*Page:* 244




**▼ Optional accessories for use with PTW1000, PTW2000, PTW3000 models**

| No. | Description | Model No. | Application | Dimensions in inches A | B | C | D |
|---|---|---|---|---|---|---|---|
| 1 | Extended Drive, 6 inch (152 mm) | **ED6TWS** | Nose extension, primarily for truck wheel bolts | 2.44 | 8.11 | 2.87 | — |
| 1 | Extended Drive, 12 inch (305 mm) | **ED12TWS** | | 2.44 | 15.12 | 2.87 | — |
| 1 | Extended Drive, 18 inch (457 mm) | **ED18TWS** | | 2.44 | 20.12 | 2.87 | — |
| 2 | Standard Reaction Arm | **RATWS** | Standard arm included with PTW model | 2.99 | 6.77 | 4.02 | 0.83 |
| 3 | Extended Reaction Arm | **ERATWS** | Long plate for use with deep well sockets | 2.87 | 5.91 | 7.95 | 2.01 |
| 4 | Sliding Reaction Arm | **SLRATWS** | For widely spaced and uneven bolt centers | 4.41 | 15.00 | 7.99 | 4.02 |
| 5 | Double Straight Reaction Arm | **DSATWS** | Reduces time to reposition arm * | 2.87 | 15.98 | 0.75 | 4.02 |
| 6 | Straight Reaction Arm | **SRATWS** | Long plate for wide spaced reaction points | 2.87 | 9.45 | 0.75 | 2.01 |
| 7 | Blank Reaction Arm ** | **BLTWS** | Weldable blank for custom applications ** | 2.83 | 5.94 | 0.98 | 2.01 |
| **▼ For use with PTW6000** | | | | | | | |
| 1 | Extended Drive 6 inch (152 mm) | **ED6TWL** | Nose extension, primarily for truck wheel bolts | 3.31 | 9.13 | 4.02 | — |
| 1 | Extended Drive 12 inch (305 mm) | **ED12TWL** | | 3.31 | 15.12 | 4.02 | — |
| 2 | Standard Reaction Arm | **RATWL** | Standard arm included with PTW model | 4.02 | 9.02 | 5.75 | 1.26 |
| 3 | Extended Reaction Arm | **ERATWL** | Long plate for use with deep well sockets | 4.02 | 10.00 | 7.24 | 2.52 |
| 4 | Sliding Reaction Arm | **SLRATWL** | For widely spaced and uneven bolt centers | 5.98 | 16.50 | 7.48 | 4.49 |
| 5 | Double Straight Arm | **DSATWL** | Reduces time to reposition arm * | 4.02 | 20.00 | 1.26 | 2.24 |
| 6 | Straight Reaction Arm | **SRATWL** | Long plate for wide spaced reaction points | 4.02 | 12.01 | 1.26 | 2.24 |
| 7 | Blank Reaction Arm ** | **BLTWL** | Weldable blank for custom applications ** | 4.02 | 5.98 | 1.26 | 2.24 |

* Time to reposition arm when repeatedly moving from tightening to loosening.

** ⚠ WARNING: Blank reaction arms must be heat-treated to HRc 38-42 prior to use.

▼ **MCS7500C, Mobile Calibration System**




# MCS Series

Nominal Output Torque:
**148 - 7375 Ft.lbs**

Square Drive Range:
**1½ inches**

**Accuracy**

The calibration system is a calibrated instrument qualified in a UKAS certified laboratory. The accuracy of the MCS7500C is calibrated to meet or exceed:1% of FSD from 2% to 8% of torque range and 1% of reading from 8% to 100% of torque range.

## Versatility

- **Accurately measures torque output for continuous rotation tools and hydraulic (*) square drive torque wrenches from 148-7375 Ft.lbs (200-10,000 Nm)**
- **Adaptable design enables use with a large variety of Enerpac and competitive wrenches**
- **Internal Li-ion battery pack, external power via 5V DC USB power supply**

## Performance

- **Certificate Manager feature enables quick and easy creation of calibration certificates**
- **Tool database feature allows specific wrench data and calibration results to be recorded and saved for future use**
- **Each MCS comes with a standard ISO17025 calibration certificate**

## Ease of Use

- **Compact design facilitates easy transport, allowing calibration to be carried out in the shop, on jobsites, or even in a vehicle**
- **Integrated digital interface enables torque values to be displayed, saved, printed or transferred to a computer**

* Additional Reaction Block and appropriate Adaptor is required with the use of S- and RSL-Series square drive hydraulic wrenches

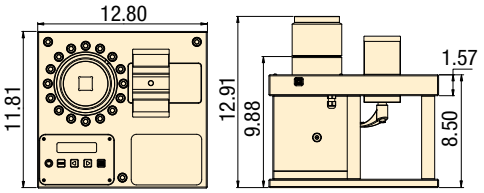


**Female Reducer Set**

The Female Reducer Set consists of two reducers: 1½ x 1 inch and 1½ x ¾ inch. To be ordered separately as **MCS7500RS.**

**Additional Reaction Block and Adaptor**

A heavy-duty adjustable reaction block in combination with one of the three adaptors is required to facilitate the use with S- and RSL-Series Square Drive Wrenches as well as most competitive hydraulic wrenches to maximum 7375 Ft.lbs (10.000 Nm).




▼ **SELECTION CHART**

| Minimum Measurable Torque Output (Ft.lbs) | Minimum Measurable Torque Output (Nm) | Nominal Measurable Torque Output (Ft.lbs) | Nominal Measurable Torque Output (Nm) | Female Square Drive (in) | Model Number** | Description | Weight (lbs) |
|---|---|---|---|---|---|---|---|
| 148 | 200 | 7375 | 10,000 | 1½ | **MCS7500C** | MCS with carrying case | 87 |

** Not suitable for use with impact tools or low-profile torque wrenches.

# Selection Matrix – Optimum Wrench-Pump Combinations

**For optimum speed and performance Enerpac recommends the following system set-up with wrench-pump-hose combinations. For other combinations, consult your Enerpac bolting expert or your authorized Enerpac distributor.**

| | | ELECTRIC PUMPS | | | | | AIR DRIVEN PUMPS | |
|---|---|---|---|---|---|---|---|---|
| | | Cordless XC-Series | E-Pulse® E-Series | TQ-Series | ZU4T-Series | ZE-T-Series | LAT-Series | ZA4T-Series |
| | |  |  |  |  |  |  |  |
| **Speed:** | | | | | | | | |
| **Oil Flow at 10,000 psi:** | | 15 $in^3$/min | 32 $in^3$/min | 30 $in^3$/min | 60 $in^3$/min | 60-120 $in^3$/min | 25 $in^3$/min | 60 $in^3$/min |
| **Reservoir Capacity:** | | 0.5 gallon | 0.8 gallon | 1 gallon | 1.2 - 1.8 gal. | 1.2 - 5.2 gal. | 0.8 gal. | 1.2 - 1.8 gal. |
| **Duty Cycle:** | | Intermittent | Heavy-Duty | Standard | Standard | Heavy-Duty | Standard | Heavy-Duty |
| **Weight:** | | | | | | | | |
| **Field/Factory Work:** | | Field | Field/Factory | Field/Factory | Field | Factory | Field | Field |
|  | S1500X | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal |
| | S3000X | | | | | | | |
| | S6000X | – | Acceptable | Acceptable | | | Acceptable | |
| | S11000X | | | | | | | |
| | S25000X | | | | | | | |
|  | W2000X | Optimal | Optimal | Optimal | | | Optimal | |
| | W4000X | | | | | | | |
| | W8000X | – | Acceptable | Acceptable | | | Acceptable | |
| | W15000X | | | | | | | |
| | W22000X | | | | | | | |
| | W35000X | | | | | | | |
|  | RSL1500 | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal |
| | RSL3000 | | | | | | | |
| | RSL5000 | | | | | | | |
| | RSL8000 | – | Acceptable | Acceptable | | | Acceptable | |
| | RSL11000 | | | | | | | |
| | RSL19000 | | | | | | | |
| | RSL28000 | | | | | | | |
|  | DSX1500 | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal |
| | DSX3000 | | | | | | | |
| | DSX5000 | – | Acceptable | Acceptable | | | Acceptable | |
| | DSX11000 | | | | | | | |
| | DSX25000 | | | | | | | |
|  | HMT1500 | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal | Optimal |
| | HMT3500 | | | | | | | |
| | HMT7500 | Acceptable | | | | | | |
| | HMT13000 | – | Acceptable | Acceptable | | | Acceptable | |

**XC-Series, Portable Cordless Pumps**
The XC battery torque wrench pump is ideal for maintenance bolting applications at sites that do not have access to power or where having extension cords or air hoses could cause trip hazards.

**E-Series, E-Pulse Electric Torque Wrench Pumps**
Ideal for high volume fastening applications where weight is critical. Features an interactive pendant for operation, programming and diagnostics.

**TQ700 Series Electric Torque Wrench Pumps**
Designed for both portability and production to deliver superior bolting speed.

**ZU4T Electric Torque Wrench Pumps**
Works well with long extension cords or generator driven electrical power supplies. Available in **Pro** and **Classic** formats.

**ZU4T Pro Pumps** have an LCD feature to display torque or pressure, selectable torque wrench, and self-diagnostics.

**ZU4T Classic Pumps** feature an analog gauge and a basic electrical package to deliver durable, safe and efficient hydraulic power.

**ZE4-T-Series Electric Torque Wrench Pumps**
Features LCD to display torque or pressure values, and self-diagnostics. With induction motor, making the ZE-Series the coolest and quietest pumps in their class.

**LAT-Series Lightweight Torque Air Pumps**
Combines compact design and high productivity for bolting applications in areas hard to access with larger air powered pumps.

**ZA4T-Series, Air Driven Torque Wrench Pumps**
This air driven pump is best suited to power medium to large size torque wrenches.

**THQ-Series, Torque Wrench Hoses**
Use Enerpac THQ700-Series twin hoses with all torque wrenches to ensure the integrity of your hydraulic system.

▼ **XC1502TB**




# Portable Battery Pump for Torque Applications

- **Ideal for maintenance bolting applications requiring portability and convenience**
- **Interactive pendant provides visual and vibratory feedback of pump operation**
- **User can set pressure and operate in manual or auto-cycle mode**
- **Superior run-time with 5Ah, 28V battery**
- **Brushless DC motor extends motor life and reduces maintenance**
- **20-foot detachable pendant control, with option to use trigger control as well**
- **4-inch glycerin-filled gauge for easy viewing**
- **User-adjustable relief valve can be locked when desired pressure is set**






**28-Volt Battery**

The **XC28V5** with Lithium-Ion technology for maximum battery performance.



**Battery Charger**

1-hour quick charger.

| | |
|---|---|
| **XC115VC** | 115 VAC |
| **XC230VC** | 230 VAC |



**Roll Cage**

A roll cage accessory is available for all XC models. Please order model number **XCRCTK.**



**Torque Wrenches**

The following wrenches are ideal for use with the XC Cordless Torque Wrench Pump:

**Torque Wrench Series**

| S | W | RSL | DSX | HMT |
|---|---|---|---|---|
| S1500X | W2000X | RSL1500 | DSX1500 | HMT1500 |
| S3000X | W4000X | RSL3000 | DSX3000 | HMT3500 |
| | | RSL5000 | DSX5000 | HMT7500 |

Larger wrenches will work with the pump, battery run time and application speed will be impacted.

*Page:* 239

# Cordless Torque Wrench Pump

The XC-Series Cordless Torque Wrench pump is ideal for maintenance applications in the PowerGen, Oil & Gas and MRO markets. This portable pump is perfect for remote locations, sites that do not have access to power or where trip hazards are a concern.

The interactive pendant allows the user to set and clear pressure and operate in manual or auto-cycle mode.

The pump has an easily accessible user adjustable valve for precise pressure control.

**Fasteners Torqued On One Charge**

| Torque Wrench | Nut AF (in) | Stud (in) | Pressure (psi) | Torque (ft-lbs) | Fasteners Torqued |
|---|---|---|---|---|---|
| **S3000X** | 2⅜" | 1½" | 4800 | 1500 | 32 |
| **W2000X** | 2⅜" | 1½" | 5000 | 1000 | 52 |

## XC Series

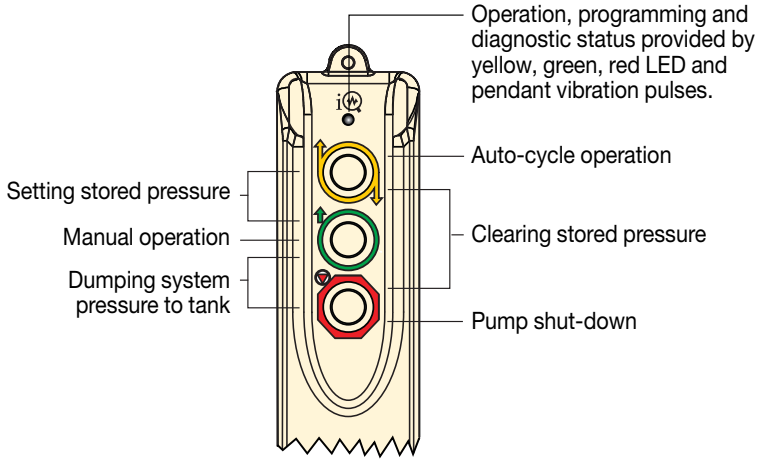


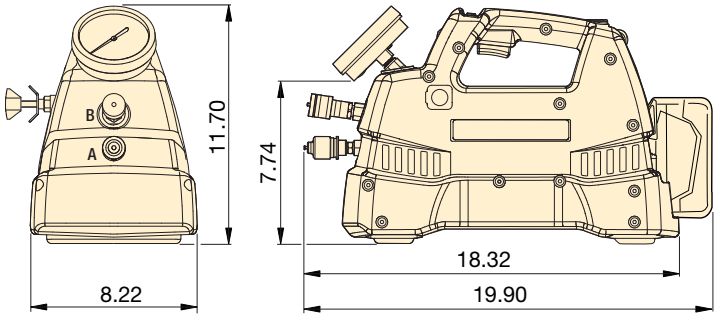
Useable Oil Capacity:
**120 in³**

Flow at Rated Pressure:
**15 in³/minute**

Motor Size:
**0.5 hp**

Maximum Operating Pressure:
**10,000 psi**



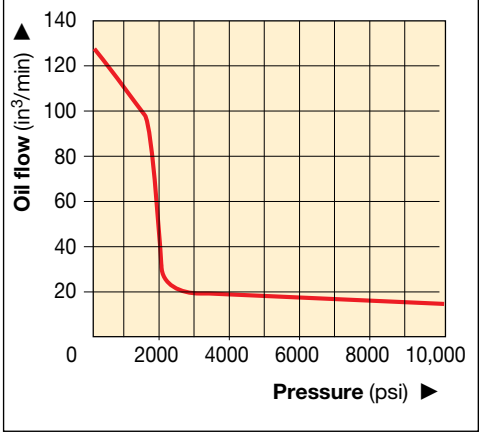



**Twin Torque Wrench Hoses**

Use Enerpac THQ700 series twin hoses with 10,000 psi torque pumps.

| | |
|---|---|
| 6 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

**OIL FLOW vs. PRESSURE**




| Pump Type | Useable Oil Capacity (in³) | Model Number | Output Flow Rate (in³/min) | | | Included with Pump | Weight (includes oil) (lbs) |
|---|---|---|---|---|---|---|---|
| | | | No Load | 2000 psi | 10,000 psi | | |
| Cordless Pump Kit | 120 | **XC1502TB** | 125 | 30 | 15 | 2 batteries and 115V charger | 29.0 |
| Cordless Pump Kit | 120 | **XC1502TE** | 125 | 30 | 15 | 2 batteries and 230V charger | 29.0 |
| Cordless Pump | 120 | **XC1502T*** | 125 | 30 | 15 | No batteries or charger | 26.6 |

* Batteries and charger not included.

▼ EP3504T E-Pulse Torque Wrench Pump




## Performance

- **Two-stage pump with high by-pass pressure: 220 $in^3$/min at 2900 psi, 32 $in^3$/min at 10,000 psi**
- **Smart controls enable motor to maintain constant power across the pressure range**
- **24V DC power regulator minimizes effects of poor power supply**
- **Six-piston block design provides even flow for smooth operation of tool**

## Durability

- **High-efficiency permanent magnet, direct drive motor enables continuous use and long service life**
- **Built-in thermal protection**
- **System components enclosed for protection**
- **IP Rating: IP54 on the Pump, IP67 on the Pendant**
- **Integrated heat exchanger minimizes heat buildup**

## Convenience

- **Integrated calibrated pressure gauge**
- **Pendant and cord management system**
- **Draining oil not required for pump element maintenance**
- **Convenient oil fill port, oil level indicator and automatic breather**

# Productivity through innovation

**Bolting Integrity Software**

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

*Page:* 416



**Torque Wrenches**

The following wrenches are ideal for use with the XC Cordless Torque Wrench Pump:

**Torque Wrench Series**

| S | W | RSL | DSX | HMT |
|---|---|---|---|---|
| S1500X | W2000X | RSL1500 | DSX1500 | HMT1500 |
| S3000X | W4000X | RSL3000 | DSX3000 | HMT3500 |
| | | RSL5000 | DSX5000 | HMT7500 |

Larger wrenches will work with the pump, battery run time and application speed will be impacted.

*Page:* 239



**THQ Series Torque Wrench Hoses**

Use Enerpac THQ700 series twin hoses with 10,000 psi torque wrenches and torque pumps.

| 10,000 psi | |
|---|---|
| 6 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

# E-Series E-Pulse®, Electric Torque Wrench Pumps

**E-Pulse Torque Wrench Pump**

The Enerpac E-Pulse Torque Wrench Pump, through its innovative design, is ideal for high volume fastening applications where weight is a critical factor. Smart controls enable the motor to maintain constant power providing higher flow than "traditional" ½ hp pumps.

The durable aluminum housing, integrated heat exchanger and highly efficient permanent magnet motor minimize heat buildup in the toughest environments. The interactive pendant provides the operator a number of usage options for optimal efficiency. The E-Pulse Torque Wrench Pump is the pinnacle of bolting equipment.

**E Series**

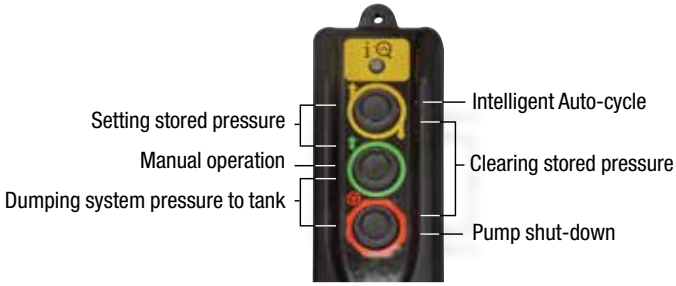


Useable Reservoir Capacity:
**0.8 gallon**

Flow at Rated Pressure:
**32 in³/minute**

Motor Size:
**0.85 hp**

Maximum Operating Pressure:
**10,000 psi**

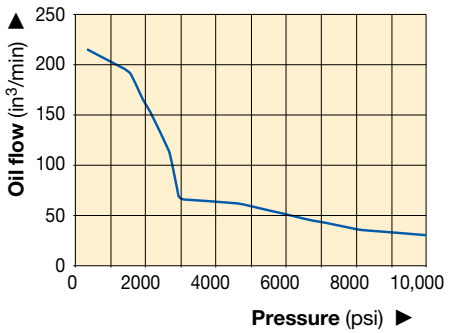


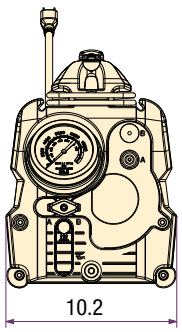

**Torque Wrench**
20-ft. cord

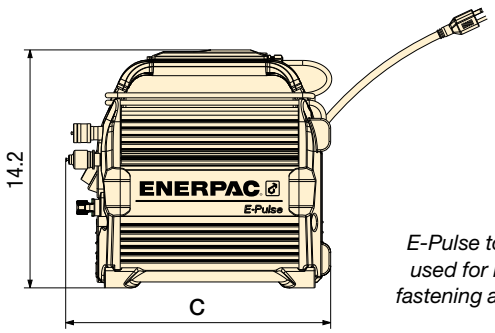
**Interactive Torque Wrench Pendant**

- User can set pressure and operate in manual or auto-cycle mode
- Intelligent Auto-Cycle enables press and release actuation to cycle wrench until final torque is achieved

**FLOW vs. PRESSURE**






*E-Pulse torque pump used for high volume fastening applications.* ▶

| Number of Wrenches Pump can Operate | Useable Oil Capacity (gal) | Model Number | Output Flow Rate (in³/min) 14.5 psi | 2538 psi | 5075 psi | 10,000 psi | Motor Voltage (VAC) | Plug Type | Current Draw (Amps) | Sound Level (dBA) | Dimension C (in) | Weight (with oil) (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.8 | **EP3504TB** | 220 | 130 | 58 | 32 | 100-120 | NEMA 5-15 | 12 | 70-85 | 15.8 | 44.9 |
| | | **EP3504TI** | 220 | 130 | 58 | 32 | 200-250 | NEMA 6-15 | 7 | 70-85 | 15.8 | 44.9 |
| | | **EP3504TE** | 220 | 130 | 58 | 32 | 200-250 | Schuko CEE 7/7 | 7 | 70-85 | 15.8 | 44.9 |
| 2 | 0.8 | **EP3504TB-M*** | 220 | 130 | 58 | 32 | 100-120 | NEMA 5-15 | 12 | 70-85 | 16.9 | 47.9 |
| | | **EP3504TI-M*** | 220 | 130 | 58 | 32 | 200-250 | NEMA 6-15 | 7 | 70-85 | 16.9 | 47.9 |
| | | **EP3504TE-M*** | 220 | 130 | 58 | 32 | 200-250 | Schuko CEE 7/7 | 7 | 70-85 | 16.9 | 47.9 |

* Pump model with multi-port manifold.

▼ **TQ700E**




# Lightweight Electric Torque Wrench Pump

- **Optimized flow technology delivers up to 50% faster bolting than competing pumps**
- **Compact and lightweight design fits through tight openings and provides easy handling**
- **Built-in protection for controls, gauge, and pendant for job-site durability**
- **IP55 rating for superior dust and water protection**
- **Advanced brushless motor provides for quiet, continuous operation, high voltage tolerance, and low maintenance**
- **Heat exchanger prevents breakdown of oil during heavy usage in hot environments**
- **Simple pressure setting and convenient pendant control for hassle-free operation**

▼ *The TQ700E and the W-Series wrenches are a productive combination in wind applications.*





**Hydraulic Torque Wrenches**

Enerpac offers a complete range of square drive and hexagon cassette torque wrenches.

*Page:* 239



**Pendant Control**

The **TQ700** comes equipped with a 20-foot pendant cord which allows the user to pressurize the pump from a distance increasing productivity and speed of setup.



**Four-Port Manifold**

The **TQ700** offers an optional four wrench manifold as an accessory (TQM) factory installed. (Add suffix "M" at the end of the model number. For example: **TQ700EM)**



**Twin Torque Wrench Hoses**

Use Enerpac THQ700 series twin hoses with 10,000 psi torque wrenches and torque pumps.

| 10,000 psi | |
|---|---|
| 6.5 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |



**Gauge Overlay Kit**

Gauge overlay kits are also available separately.

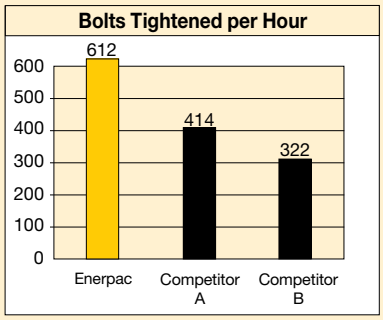
**GT4015-Q** includes overlays for all S-, W-, RSL-, DSX and HMT-Series Torque Wrenches.

### TQ700 Series Pump Applications

The **TQ700 Series** pump is ideal for powering hydraulic wrenches for the Power Generation and Wind Markets.

Bolting speed is more complex than how much flow per minute the pump produces. The key is optimizing the flow rate across the entire bolting cycle. With more oil flowing at the right time and at the right volume, you achieve the optimized flow for a hydraulic bolting system.

The result of this optimized flow is more bolts tightened faster and a more productive work team.




*Internal laboratory testing based on standard torquing procedure on a pipe flange with 14, 1⅞" bolts.*

## TQ Series



Reservoir Capacity:
**1 gallon**

Flow at Rated Pressure:
**30 in³/minute**

Maximum Operating Pressure:
**10,000 psi**

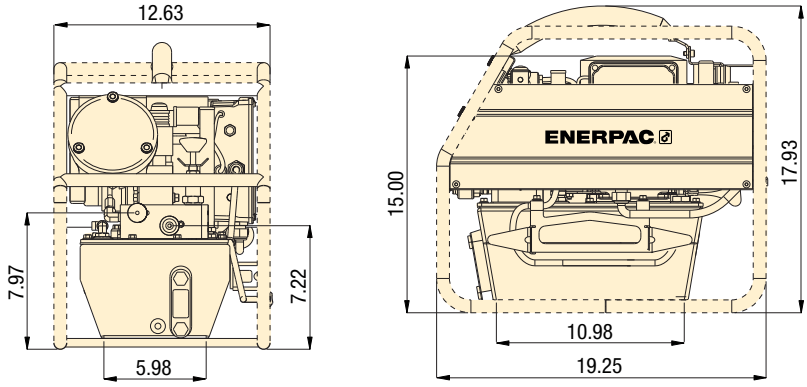
### IP55 Rating for Superior Dust and Water Protection

The IP Code (or Ingress Protection Rating) classifies and rates the degrees of protection provided against the intrusion of solid objects and water in mechanical casings and electrical enclosures.

An IP55 rating means the TQ700 offers complete protection against contact with mechanical and electrical components, and that dust will not enter in a sufficient quantity to interfere with the operation of the equipment.

The IP55 rating also means water jets sprayed against the TQ700 from any direction will not have any harmful effects.

Dimensions shown in inches.




▼ *The TQ700E and the W-Series wrenches are a productive combination.*



▼ **SELECTION CHART**

| For Use with Torque Wrenches | Pressure Rating (psi) | Model Number [1] | Useable Oil Capacity (gal) | Motor Size (hp) | Motor Electrical Specifications (Volt - Ph - Hz) | Sound Level (dBA) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|
| All S, W, RSL, DSX & HMT-Series wrenches | 10,000 | **TQ700B** | 1 | 1.0 | 115 - 1 - 50/60 | 82 - 85 | 68 |
| | 10,000 | **TQ700E** [2] | 1 | 1.0 | 230 - 1 - 50 | 82 - 85 | 66 |
| | 10,000 | **TQ700I** [3] | 1 | 1.0 | 230 - 1 - 60 | 82 - 85 | 66 |

1) All models meet CE safety requirements and all TÜV requirements
2) European plug and CE EMC directive compliant
3) With NEMA 6-15 plug

▼ **ZU4204TB-Q (Pro-Series) and ZU4204BB-Q (Classic)**




Z Tough. Dependable. Innovative. CLASS

- **Features *Z-Class* high-efficiency pump design; higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps**
- **Powerful 1.7 hp universal electric motor provides high power-to-weight ratio and excellent low-voltage operating characteristics**
- **High-strength, molded composite shroud protects motor and electrical components, while providing an ergonomic, non-conductive handle for easy transport**
- **Low-voltage pendant provides additional safety for the operator**
- **Relief valve adjustment range 1800 - 10,000 psi**

**Pro-Series**

- **LCD readout provides pressure and torque display and a number of diagnostic and readout capabilities never before offered on a portable electric pump**
- **Auto cycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed. (Pump can be used with or without auto cycle feature.)**



**Back-lit LCD Display for Pro Series**

Back-lit LCD and Pressure Transducer featuring Auto-Cycle Technology.

- Digital read-out and "Autocycle" setting
- "Auto-Cycle" setting easily programmable
- Torque wrench model is selectable
- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Information can be displayed in English, French, German, Italian, Spanish and Portuguese
- Pressure transducer is more accurate and durable than analog gauges
- Easy-viewing variable rate display
- Display pressure in bar, MPa or psi

### *Z-Class* – A Pump For Every Application

Patented *Z-Class* pump technology provides high by-pass pressures for increased productivity—important in applications using long hose runs and high pressure-drop circuits, like heavy lifting or certain double-acting tools.

Enerpac ZU4 Hydraulic Pumps are built to power small to large torque wrenches.

### Classic Electric Torque Wrench Pump

- The Classic has an analog gauge and traditional electro-mechanical components (transformers, relays and switches) in place of solid-state electronics.

  The Classic delivers durable, safe and efficient hydraulic power.

### Pro Series Electric Torque Wrench Pump

- Digital (LCD) display features a built-in hour meter, pressure and torque display, and shows self-diagnostic, cycle-count and low voltage warning information.
- AutoCycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed. (Pump can be used with or without AutoCycle feature).

## ZU4T Series



Reservoir Capacity:
**1.2 and 1.8 gallons**

Flow at 10,000 psi:
**60 in³/minute**

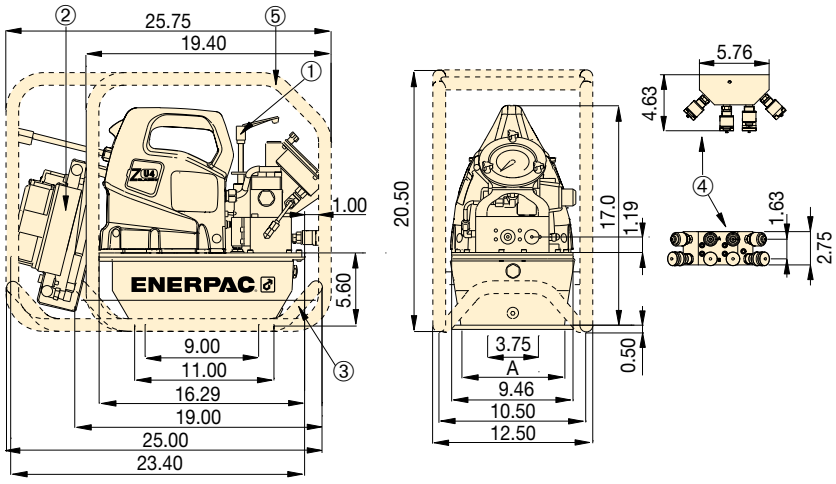
Motor Size:
**1.7 hp**

Maximum Operating Pressure:
**10,000 psi**



### Overlay Kit with Gauge

Available separately for use with ZU4T-Series Classic: **GT4015Q** includes gauge and torque overlays for all S-, W-, RSL-, DSX- and HMT-Series torque wrenches.




**ZU4-Series Torque Wrench Pumps**

| Reservoir Capacity (gallons) | A (in) |
|---|---|
| **1.2** | 6.0 |
| **1.8** | 8.1 |

Dimensions shown in inches

① User adjustable relief valve
② Heat exchanger
③ Skidbar
④ 4-wrench manifold
⑤ Roll cage

### Bolting Integrity Software

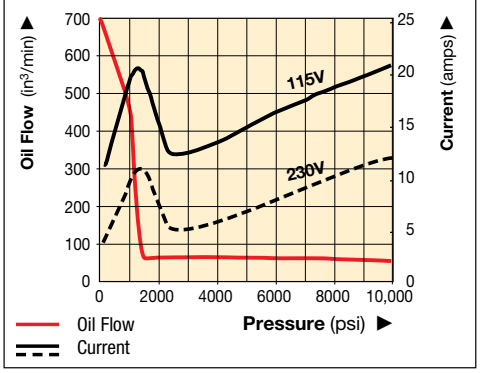
Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

*Page:* 416



*◀ Any brand of hydraulic torque wrench can be powered by the portable ZU4-Series torque wrench pump.*

**OIL FLOW AND CURRENT vs PRESSURE**



**▼ Select a pump from the model matrix at the bottom of the page.**

The functionality of the pump can be determined by the model number. Utilize the guide below to select the best pump for the application.

| Z | U | 4 | 2 | 08 | T | B | - | Q | H | R |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 Product Type | 2 Motor Type | 3 Flow Group | 4 Valve Type | 5 Reservoir Capacity | 6 Valve Operation | 7 Voltage | | Must be a Q | 8 Factory installed Accessories | |

**1 Product Type**
**Z** = Pump series

**2 Motor Type**
**U** = Universal motor

**3 Flow Group**
**4** = 60 $in^3$/min @ 10,000 psi

**4 Valve Type**
**2** = Torque wrench valve

**5 Reservoir Capacity**
**04** = 1.2 gallons
**08** = 1.8 gallons

**6 Valve Operation**
**T** = Solenoid valve with pendant, LCD electric and pressure transducer
**B** = Solenoid valve with pendant, classic electrical

**7 Voltage**
**B** = 115V, 1 ph, 50/60 Hz
**E** = 208-240V, 1 ph, 50/60 Hz (with European plug CE RF compliant)
**I** = 208-240V, 1 ph, 50/60 Hz (with NEMA 6-15 plug)

**8 Factory Installed Accessories**
**H** = Heat exchanger
**K** = Skid Bar
**M** = 4-wrench manifold
**R** = Roll cage



**Torque Wrench Hoses**

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

| 10,000 psi | |
|---|---|
| 6.5 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

▼ *Most hydraulic torque wrenches can be powered by the Enerpac ZU4-Series torque wrench pump.*



**▼ ZU4T-SERIES CLASSIC PUMP MODELS**

| ZU4 Classic Model Numbers | Reservoir Capacity (gal) | Factory Installed Accessories: Heat Exchanger | Roll Cage | Skid Bar | 4-Wrench Manifold | Wt. w/oil (lbs) |
|---|---|---|---|---|---|---|
| ZU4204BB-Q (I, E) | 1.2 | | | | | 71.5 |
| ZU4208BB-Q (I, E) | 1.8 | | | | | 77.5 |
| ZU4204BB-QH (I, E) | 1.2 | ● | | | | 88 |
| ZU4208BB-QH (I, E) | 1.8 | ● | | | | 87 |
| ZU4204BB-QR (E) | 1.2 | | ● | | | 81 |
| ZU4208BB-QR (E) | 1.8 | | ● | | | 87 |
| ZU4204BB-QHR (E) | 1.2 | ● | ● | | | 90 |
| ZU4208BB-QHR (I, E) | 1.8 | ● | ● | | | 96 |
| ZU4208BB-QHK (I, E) | 1.8 | ● | | ● | | 92.5 |
| ZU4208BB-QHM (I, E) | 1.8 | ● | | | ● | 92 |
| ZU4208BB-QMR (E) | 1.8 | | ● | | ● | 93 |
| ZU4208BB-QHMR (I, E) | 1.8 | ● | ● | | ● | 102 |

**▼ ZU4T-SERIES PRO PUMP (LCD) MODELS**

| ZU4 PRO Model Numbers | Reservoir Capacity (gal) | Factory Installed Accessories: Heat Exchanger | Roll Cage | Skid Bar | 4-Wrench Manifold | Wt. w/oil (lbs) |
|---|---|---|---|---|---|---|
| ZU4204TB-Q (I, E) | 1.2 | | | | | 68.5 |
| ZU4208TB-Q (I, E) | 1.8 | | | | | 74.5 |
| ZU4204TB-QH (I, E) | 1.2 | ● | | | | 78 |
| ZU4208TB-QH (I, E) | 1.8 | ● | | | | 84 |
| ZU4204TB-QR (E) | 1.2 | | ● | | | 78 |
| ZU4208TB-QR (E) | 1.8 | | ● | | | 84 |
| ZU4204TB-QHR (E) | 1.2 | ● | ● | | | 87 |
| ZU4208TB-QHR (I, E) | 1.8 | ● | ● | | | 93 |
| ZU4208TB-QHK (I, E) | 1.8 | ● | | ● | | 89.5 |
| ZU4208TB-QHM (I, E) | 1.8 | ● | | | ● | 89 |
| ZU4208TB-QMR (E) | 1.8 | | ● | | ● | 90 |
| ZU4208TB-QHMR (I, E) | 1.8 | ● | ● | | ● | 99 |

# ZU4T Torque Wrench Pump Accessories



## 4-Wrench Manifold

- **For simultaneous operation of multiple torque wrenches**

| Accessory Kit No. | Can be used on ZU4-Series torque wrench pumps |
|---|---|
| **ZTM-Q** [1] | for 10,000-psi torque wrenches |

[1] For 4-Wrench Manifold add 6 lbs to pump weight



## Skidbar

- **Provides greater pump stability on soft or uneven surfaces**
- **Provides easy two-handed lift**

| Accessory Kit No. | Can be used on ZU4-Series torque wrench pumps |
|---|---|
| **SBZ-4** | 1.2 and 1.8 gallon[1] |
| **SBZ-4L** | 1.2 and 1.8 gallon[2] |

[1] Without heat exchanger 5 lbs.
[2] With heat exchanger 5.5 lbs.



## Heat Exchanger

- **Removes heat from the bypass oil to provide cooler operation**
- **Stabilizes oil viscosity, increasing oil life and reduces wear of pump and other hydraulic components**

| Accessory Kit No. | Can be used with: |
|---|---|
| **ZHE-U115** | 115V pumps |
| **ZHE-U230** | 230V pumps |

Heat Exchanger adds 9 lbs. to pump weight.

| Thermal Transfer * Btu/h | Maximum pressure (psi) | Maximum oil flow (GPM) | Voltage (VDC) |
|---|---|---|---|
| 900 | 300 | 7.0 | 12 |

* At 116 in$^3$/min at 70° F ambient temperature. Do not exceed maximum oil flow and pressure ratings.
Heat exchanger is not suitable for water-glycol or high water-based fluids.



## Roll Cage

- **Protects pump**
- **Provides greater pump stability**

| Accessory Kit No. [3] | Can be used on ZU4-Series torque wrench pumps |
|---|---|
| **ZRC-04** | 1.2 and 1.8 gallon reservoir [1] |
| **ZRC-04H** | 1.2 and 1.8 gallon reservoir [2] |

[1] For use with pumps without a heat exchanger fitted
[2] For use with pumps with a heat exchanger fitted
[3] For Roll Cage add 9.5 lbs to pump weight

▼ *These rigid steel wrenches with low-profile interchangeable hexagon cassettes guarantee durability and maximum versatility in bolting applications.*



▼ **ZE4204TB-QHR**



Tough.
Dependable.
Innovative.
Z CLASS

- **Auto-Cycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed (Pump can be used with or without Auto-Cycle feature)**
- **LCD readout provides pressure and torque display and a number of diagnostic and readout capabilities never before offered on a portable electric pump**
- **Totally enclosed, fan-cooled industrial electric motors supply extended life and stand up to harsh industrial environments**
- **High-strength, molded electrical enclosure protects electronics, power supplies and LCD readout from harsh environments**



**Back-lit LCD Display**

- Digital pressure or torque read-out
- Programmable "Auto-Cycle" setting
- "Auto-Cycle" setting easily programmable
- Torque wrench model is selectable
- Display torque in Nm or Ft.lbs
- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Information can be displayed in English, French, German, Italian, Spanish and Portuguese
- Pressure transducer is more accurate and durable than analog gauges

**Bolting Integrity Software**

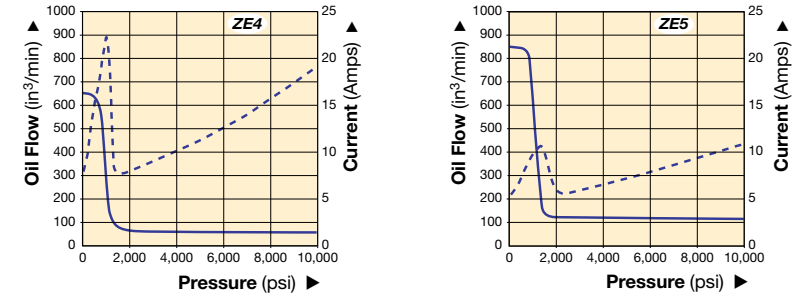
Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

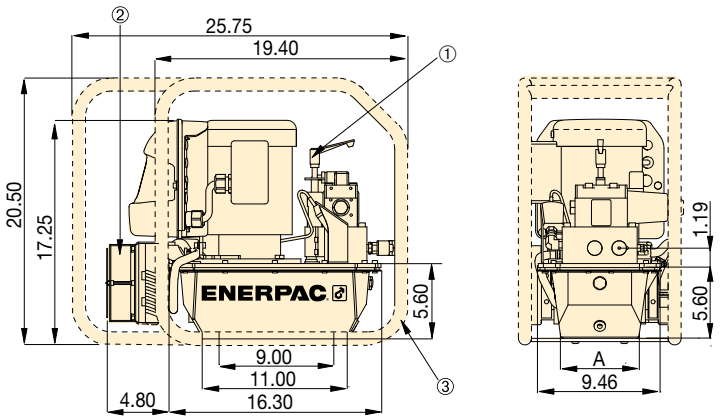
*Page:* 416



◀ *The ZE4 torque wrench pumps are perfectly matched for this W2000X wrench.*

## ZE4 and ZE5 Oil Flow and Current vs. Pressure




| Reservoir Capacity (gallons) | A (in) | B (in) |
|---|---|---|
| **1.2** | 6.0 | 13 |
| **1.8** | 8.1 | 13 |
| **5.2** | 16.6 | 19.2 |

Dimensions shown in inches.
① User adjustable relief valve
② Heat exchanger
③ Roll cage

## ▼ PERFORMANCE CHART

| Pump Series | Output Flow Rate (in³/min) | | | | Motor Size | | Relief Valve Adjustment Range | Sound Level |
|---|---|---|---|---|---|---|---|---|
| | 100 psi | 700 psi | 5,000 psi | 10,000 psi | hp | RPM | (psi) | (dBA) |
| **ZE4T** | 650 | 600 | 62 | 60 | 1.5 | 1750 | 1000 - 10,000 | 75 |
| **ZE5T** | 850 | 825 | 123 | 120 | 3.0 | 1750 | 1000 - 10,000 | 75 |

| Model Numbers [1] | Reservoir Capacity (gal) | Factory Installed Accessories: Heat Exchanger | Roll Cage | 4-Wrench Manifold | Weight w/oil (lbs) |
|---|---|---|---|---|---|
| **ZE4204TB-QR (E)** | 1.2 | | ● | | 120 |
| **ZE4204TB-QHR (E)** | 1.2 | ● | ● | | 129 |
| **ZE4208TB-QHR (E)** | 1.8 | ● | ● | | 135 |
| **ZE4208TB-QHMR (E)** | 1.8 | ● | ● | ● | 141 |
| **ZE5204TJ-QHR (G, W)** | 1.2 | ● | ● | | 142 |
| **ZE5208TJ-QHR (G, W)** | 1.8 | ● | ● | | 148 |
| **ZE5208TJ-QHMR (G, W)** | 1.8 | ● | ● | ● | 154 |
| **ZE5220TJ-QHR (G, W)** | 5.2 | ● | ● | | 194 |

[1] "B" suffix model numbers shown are 115 VAC, 1-phase, 50/60 Hz.
"E" indicates pump available in 208-240V, 1 phase, 50/60 Hz with European plug and CE EMC compliant. Model number order example: ZE4204TE-QR.
"J" indicates pump available in 460-480V, 3-phase, 50/60Hz. Model number order example: ZE5208TJ-QHR.
"G" indicates pump available in 208-240V, 3-phase, 50/60 Hz. Model number order example: ZE5208TG-QHR.
"W" indicates pump available in 380-415V, 3-phase, 50/60 Hz. Model number order example: ZE5208TW-QHR.

## ZE Series

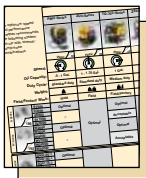


Reservoir Capacity:
**1.2 - 5.2 gallons**

Flow at 10,000 psi:
**60 - 120 in³/minute**

Motor Size:
**1.5 - 3.0 hp**

Maximum Operating Pressure:
**10,000 psi**



**Torque Wrench Pump Selection Matrix**
For optimum speed and performance see the torque wrench pump selection matrix.
Page: 291



**Accessories**
Descriptions can be found in the ZU4T section.
Page: 301



**Torque Wrench Hoses**
Use Enerpac twin safety hoses to connect your torque wrench to the pump.

| 10,000 psi | |
|---|---|
| 6.5 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

▼ LA2504TX-QR, Hydraulic Torque Wrench Pump




# Lightweight and Compact

### Improved Operator Efficiency and Ergonomics

- **Easy to lift, transport and maneuver**
- **Hand carry where no crane, hoist or elevator is available**
- **One person transport up ladders and stairs**
- **Ideal for use on narrow or constrained scaffolding, catwalks, pipe racks and lifts**

### High Productivity

- **Proven 3-piston design provides leading fastening and breakout speed to stay on time and under budget**
- **ATEX certified to meet worksite compliance requirements**

### Reduce Equipment Downtime

- **Roll cage with reinforcement to support and protect FRL**
- **Rugged 1/2" air supply connection with integrated roll cage support**
- **Key components are easy to access and service**

### Standard Features

- **15 foot pendant cord for mobility around work site**
- **4 inch calibrated gauge with certificate, scale in psi and bar**
- **Roll cage and FRL**



**Torque Wrenches**

Optimized for use with Enerpac Hydraulic Torque Wrenches.

Enerpac offers a complete range of square drive and hexagon cassette torque wrenches.

*Page:* 239



**Twin Torque Wrench Hoses**

Use Enerpac **THQ700** series twin hoses with 10,000 psi pumps.

| 10,000 psi | |
|---|---|
| 6.5 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |

**ATEX Certified**

The LAT-Series air-driven pumps are tested and certified according to the ATEX Directive 2014/34/EU.

The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Area Zone 1), in Gas and/or Dust atmospheres.

Each LAT-Series air-driven pump contains the following markings: Ex IIC T4 Gc, Ex IIIC T135°C Dc

Ex II 2 GD CE

# LAT-Series, Air Hydraulic Torque Wrench Pump

**LAT-Series Hydraulic Torque Wrench Pump**

The Enerpac LAT Torque Wrench Pump combines compact design and high productivity for bolting applications in areas hard to access with larger air powered pumps. Whether on an offshore platform, refinery or mine—anywhere in the world, the pump is built for the toughest worksite environments. Featuring a proven Enerpac piston design, reinforced FRL support and air supply connection, the LAT will provide years of reliable service with fastening and breakout speeds to keep you on schedule and under budget.

**LAT Series**



Reservoir Capacity:
**0.8 gallon**

Useable Reservoir Capacity:
**0.5 gallon**

Flow at Rated Pressure:
**25 in³/minute**

Maximum Operating Pressure:
**10,000 psi**

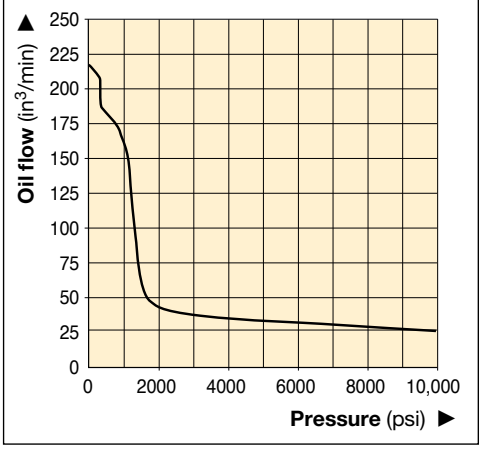
▼ Rugged 1/2" air supply connection with integrated roll cage support



▼ Roll cage design supports and protects FRL



**OIL FLOW vs. PRESSURE**




▼ Proven 3 piston design provides leading speed



▼ Skid Rail accessory bolts to bottom of reservoir to prevent wear from rough surfaces
Part No. DD8365920K



▼ LAT-Series, the portable and compact torque pump.



| Reservoir Capacity (gal) | Model Number | Output Flow Rate (in³/min) No Load | 5000 psi | 10,000 psi | Valve Type | Air Pressure Range psi | Air Consumption (scfm) | Sound Level (dBA) | Dimensions (in) L | W | H | Weight with Oil (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.8 | **LA2504TX-QR** | 214 | 34 | 25 | 4-way, 2-pos. | 65-100 | 65 | 87-90 | 17.1 | 9.8 | 14.8 | 39.6 |

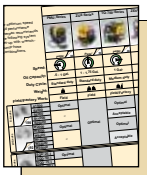
▼ **ZA4204TX-QR**




- **Two-speed operation and high by-pass pressure reduces cycle time for improved productivity**
- **Glycerin filled pressure gauge with transparent overlays in Ft.lbs and Nm for Enerpac torque wrenches provide a quick torque reference**
- **Regulator-Filter-Lubricator with removable bowls and auto drain is standard**
- **Ergonomic pendant allows remote operation up to 20 feet**
- **Valve technology reduces oil operating temperatures and withstands contaminants to increase pump reliability**

▼ *Most hydraulic torque wrenches can be powered by the Enerpac ZA4-Series torque wrench pump.*





**Torque Wrench Pump Selection Matrix**

For optimum speed and performance see the torque wrench pump selection matrix.

*Page:* **291**



**Torque Wrench Hoses**

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

| 10,000 psi | |
|---|---|
| 6.5 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |



**ZA4208TX-QR0P PowaPak™ Air Torque Pump**

ZA4T Pump with stainless steel roll cage and certified lifting eye.

**ZA4-Series Pump Applications**

The ZA4-Series pump is best suited to power medium to large size torque wrenches.

Patent-pending *Z-Class* technology provides high by-pass pressures for increased productivity. Its high power-to-weight ratio and compact design make it ideal for applications which require easy transport of the pump.

For further application assistance contact your local Enerpac office.

**ATEX Certified**

The ZA-series pumps are tested and certified to conform to the EU-ATEX Directive, 2014/34/EU.

The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Area Zone 1), in Gas and /or Dust atmospheres.

The ZA-series pumps are marked with: Ex II 2 GD ck T4.

**II 2 GD ck T4**
DEKRA 0602

## ZA4T Series



Reservoir Capacity:
**1.2 and 1.8 gallons**

Flow at 10,000 psi:
**60 in³/minute**

Air Consumption:
**20 - 100 scfm**

Maximum Operating Pressure:
**10,000 psi**

**Accessory Options**

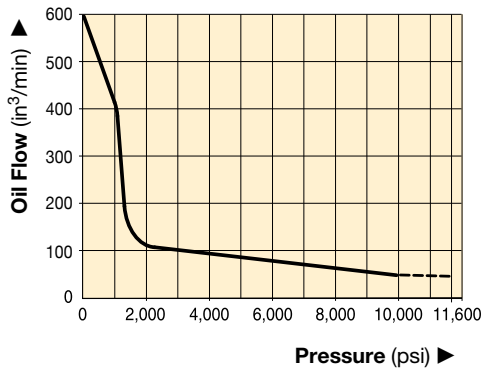
Available by placing the following additional suffix at the end of the model number:

**K** = Skidbar
**M** = 4-wrench manifold
**R** = Roll cage

*Page:* 309

**OIL FLOW vs PRESSURE**

**100 psi dynamic air pressure at 70 scfm**






**Gauge Overlay Kit**

Gauge overlay kits are also available separately.

**GT4015-Q** includes overlays for all S-, W-, RSL-, DSX- and HMT-Series torque wrenches.

▼ *ZA4208TX-QR for improved wrench performance and torque control at low pressure.*



**▼ COMMON PUMP MODELS**

| For Use With Torque Wrenches | Maximum Operating Pressure (psi) | Model Number 1) | Reservoir Capacity (gal) | Weight with Oil (lbs) |
|---|---|---|---|---|
| For all S-, W-, RSL-, DSX and HMT-Series wrenches | **10,000** | **ZA4204TX-Q** | 1.2 | 94 |
| | **10,000** | **ZA4208TX-Q** | 1.8 | 100 |
| | **10,000** | **ZA4204TX-QR*** | 1.2 | 101 |
| | **10,000** | **ZA4208TX-QR*** | 1.8 | 112 |

* With roll cage
1) All models meet CE safety requirements and all TÜV requirements.

**▼ This is how a ZA4-Series pump model number is built up:**

| Z | A | 4 | 2 | 08 | T | X | - | Q | M | R |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 Product Type | 2 Motor Type | 3 Flow Group | 4 Valve Type | 5 Reservoir Size | 6 Valve Operation | 7 Voltage | | 8 Must be Q | 8 Options | 8 Options |

**1 Product Type**
**Z** = Pump Series

**2 Motor Type**
**A** = Air motor

**3 Flow Group**
**4** = 60 $in^3$/min @ 10,000 psi

**4 Valve Type**
**2** = Torque Wrench Valve

**5 Reservoir Capacity**
**04** = 1.2 gallon
**08** = 1.8 gallons

**6 Valve Operation**
**T** = Air operated valve with pendant

**7 Voltage**
**X** = Not applicable

**8 Factory installed features and options**
**Q** = 10,000-psi coupler for use with S-, W- RSL-, DSX- and HMT-Series or other wrenches
**K** = Skidbar
**M** = 4-wrench manifold
**R** = Roll cage

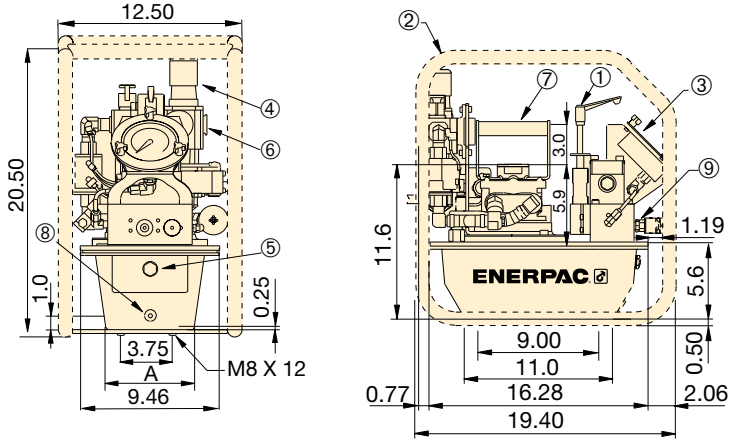
**How to Order Your ZA4-Series Torque Wrench Pump**

**Ordering Example: Model No. ZA4208TX-QMR**

**10,000-psi** pump for use with Enerpac S, W, RSL, DSX, and HMT-Series and other 10,000-psi torque wrenches, 2-gallon reservoir, 4-wrench manifold, and roll cage.

Refer to the torque wrench pump selection matrix for optimum wrench, pump and hose combinations.

Dimensions shown in inches.




① User adjustable relief valve
② Roll bar cage (optional)
③ Gauge with overlays
④ Filter/lubricator/regulator
⑤ Oil level sight gauge
⑥ Air input 1/2" NPTF
⑦ Standard handle
⑧ Oil drain
⑨ 1/4"-18 NPTF Oil Outlet

**ZA4-Series Torque Wrench Pumps**

| Reservoir Size (useable gallons) | A (in) |
|---|---|
| 1 | 6.0 |
| 1.75 | 8.1 |

**ZA4 Performance**

| Output Flow Rate ($in^3$/min) | | | | Dynamic Air Pressure Range | Air Consumption | Sound Level at 100 psi Dynamic | Relief Valve Adjustment Range |
|---|---|---|---|---|---|---|---|
| 100 psi | 700 psi | 5,000 psi | 10,000 psi | (psi) | (scfm) | (dBA) | (psi) |
| 600 | 500 | 80 | 60 | 60-100 | 20-100 | 80-95 | 1,400-10,000* |

* Pump type (-Q) shown.

▼ *Most hydraulic torque wrenches can be powered by the Enerpac ZA4-Series torque wrench pump.*





### Skidbar

- **Provides greater pump stability on soft or uneven surfaces**
- **Provides two-handed lift**

| Accessory Kit No. * | Can be used on ZA4-Series torque wrench pumps |
|---|---|
| SBZ-4 | 1.2 and 1.8-gallon reservoir |

* Add suffix **K** for factory installation. Skidbar weight 4.9 lbs.

**Ordering Example:**
**Model No. ZA4208TX-QK**



### 4-Wrench Manifold

- **For simultaneous operation of multiple torque wrenches**
- **Can be factory installed or ordered separately**

| Accessory Kit No. * | Can be used on ZA4-Series torque wrench pumps |
|---|---|
| ZTM-Q | for 10,000 psi torque wrenches |

* Add suffix **M** for factory installation. Manifold weight 7.9 lbs.

**Ordering Example:**
**Model No. ZA4208TX-QM**

## ZA4T Series



Reservoir Capacity:
**1.2 and 1.8 gallons**

Flow at 10,000 psi:
**60 $in^3$/minute**

Air Consumption:
**20 - 100 scfm**

Maximum Operating Pressure:
**10,000 psi**



**ZA4208TX-QR0P PowaPak™ Air Torque Pump**

ZA4T Pump with stainless steel roll cage and certified lifting eye.



**Twin Torque Wrench Hoses**

Use Enerpac **THQ700** series twin hoses with 10,000 psi pumps.

| 10,000 psi | |
|---|---|
| 6.5 feet long, 2 hoses | **THQ702T** |
| 19.5 feet long, 2 hoses | **THQ706T** |
| 39 feet long, 2 hoses | **THQ712T** |



### 10,000 psi Spin-on Couplers

- **Mounted on:**
  - **Torque wrench pumps with suffix "Q"**
  - **RSL, S and W-Series wrenches**
  - **THQ-Series hoses**
  - **4-Wrench manifold ZTM-Q**



### Roll Cage

- **Protects pump**
- **Provides greater pump stability**

| Accessory Kit No. * | Can be used on ZA4-Series torque wrench pumps |
|---|---|
| ZRC-04 | 1.2 and 1.8-gallon reservoir |

* Add suffix **R** for factory installation. Roll bar cage weight 7.5 lbs.

**Ordering Example:**
**Model No. ZA4208TX-QR**

▼ HM10 Hydramax® Topside Tensioner




- **Fifteen load cells from ¾" to 4" / M20 to M100**
- **Twin ports for quick connection of multiple tools**
- **High bolt-load capacity at maximum 21,750 psi (1500 bar)**
- **Long-stroke capability of 9/16 inch (15 mm) with over stroke elimination**
- **HM01 to HM05: mechanical over-stroke prevention, no spring return; HM06 to HM15: relief valve for over-stroke prevention, spring return**
- **Quick release bridge**
- **Stroke indicator**
- **Captive socket – eliminates falling object risk**
- **Interchangeable adapter kits available**
- **Anti-slip grip for more secure handling**
- **HM-Series HydraMax® Tensioners comply to following: Machine Directive 2006/42/EC, ASME B30.1, EN-ISO 4413:2010, EN-ISO 12100:2010**



◀ *Enerpac HM-Series HydraMax® tensioners have been designed to generate high-bolt loads associated with compact flanges, while providing versatility for maximum bolt coverage.*

# High Bolt Load Capacities, Superior Performance

**HydraMax® Topside Tensioners**

The HM-Series tensioners have been designed to fit all standard flanges, including ANSI, API and compact flanges based on Norsok L005 and generates 30% more load capacity than traditional tensioners.



**Tensioning Pumps, Hoses and Couplers**

High-pressure pumps, hoses and fittings matched for use with the Enerpac Bolt Tensioners.
See enerpac.com

*Page:* 325

**Ultra-High Pressure**

This tool operates at ultra high-pressure, use only the specified fittings and hoses designed for these pressures.

**How to Order HydraMax® Tensioners**

To provide maximum flexibility, Load Cells are ordered separately from Adaptor and Bridge Kits.

Example, to order a complete tensioner for a M24 x 3 threaded bolt order:

1 x Load Cell: **HM03-LC**

1 x Adaptor and Bridge Kit: **HM03BPM-NRS02430**

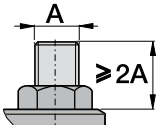
**Bolting Integrity Software**

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet, and Joint Combination report. Custom Joint information can also be entered.

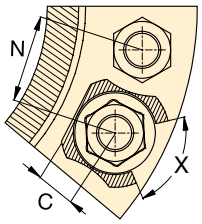
*Page:* 416

**Thread and Pitch Sizes**

Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

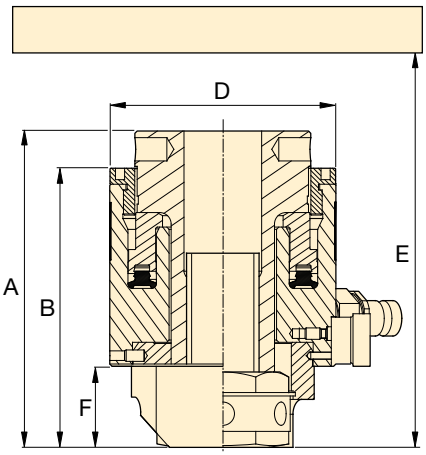



**Minimum Stud Protrusion**




**X = Minimum socket rotation 60°**

**Nearest obstruction**




## HM Series



Bolt Range:
**¾ - 1½" | M20 - M39**

Maximum Load Capacity:
**15.1 - 70.2 tons**

Stroke:
**0.39 - 0.59 inch ***

Maximum Operating Pressure:
**21,750 psi**

* Stroke HM01 models 0.39 inch
Strokes all other HM-models 0.59 inch

| Load Cell Model Number* | Thread Size | Adaptor and Bridge Kit Model Number | Cylinder Effective Area (in²) | Maximum Load Capacity (tons) | Dimensions (in) A | B | C | D | E min. | F | N min. | Load Cell Weight (lbs) | Adaptor and Bridge Kit Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HM01-LC | M20 x 2,5 | HM01BPM-NRS02025 | 1.39 | 15.1 | 4.4 | 3.8 | 0.6 | 2.7 | 7.8 | 1.1 | 2.0 | 3.5 | 1.3 |
| | ¾"- 10UN | HM01BP-NRS0750U10 | 1.39 | 15.1 | 4.4 | 3.8 | 0.6 | 2.7 | 7.8 | 1.1 | 2.0 | 3.5 | 1.3 |
| HM02-LC | M20 x 2,5 | HM02BPM-NRS02025 | 1.92 | 20.9 | 4.7 | 4.1 | 0.6 | 2.9 | 8.2 | 1.1 | 2.1 | 4.0 | 2.0 |
| | M22 x 2,5 | HM02BPM-NRS02225 | 1.92 | 20.9 | 4.7 | 4.1 | 0.6 | 2.9 | 8.2 | 1.1 | 2.1 | 4.0 | 2.0 |
| | ¾"- 10UN | HM02BP-NRS0750U10 | 1.92 | 20.9 | 4.7 | 4.1 | 0.6 | 2.9 | 8.2 | 1.1 | 2.0 | 4.0 | 2.0 |
| | ⅞"-9UN | HM02BP-NRS0875U09 | 1.92 | 20.9 | 4.7 | 4.1 | 0.7 | 2.9 | 8.2 | 1.1 | 2.2 | 4.0 | 1.8 |
| HM03-LC | M20 x 2,5 | HM03BPM-NRS02025 | 2.52 | 27.4 | 4.7 | 4.1 | 0.6 | 3.2 | 8.3 | 1.1 | 2.2 | 4.9 | 2.4 |
| | M22 x 2,5 | HM03BPM-NRS02225 | 2.52 | 27.4 | 4.7 | 4.1 | 0.6 | 3.2 | 8.3 | 1.1 | 2.3 | 4.9 | 2.4 |
| | M24 x 3 | HM03BPM-NRS02430 | 2.52 | 27.4 | 4.7 | 4.1 | 0.8 | 3.2 | 8.3 | 1.1 | 2.3 | 4.9 | 2.4 |
| | ¾"- 10UN | HM03BP-NRS0750U10 | 2.52 | 27.4 | 4.7 | 4.1 | 0.6 | 3.2 | 8.3 | 1.1 | 2.2 | 4.9 | 2.4 |
| | ⅞"- 9UN | HM03BP-NRS0875U09 | 2.52 | 27.4 | 4.7 | 4.1 | 0.7 | 3.2 | 8.3 | 1.1 | 2.3 | 4.9 | 2.4 |
| | 1"- 8UN | HM03BP-NRS1000U08 | 2.52 | 27.4 | 4.9 | 4.3 | 0.8 | 3.2 | 8.5 | 1.3 | 2.4 | 4.9 | 2.4 |
| HM04-LC | M22 x 2,5 | HM04BPM-NRS02225 | 3.35 | 36.4 | 5.0 | 4.4 | 0.7 | 3.5 | 9.1 | 1.1 | 2.4 | 6.0 | 3.5 |
| | M24 x 3 | HM04BPM-NRS02430 | 3.35 | 36.4 | 5.1 | 4.4 | 0.8 | 3.5 | 9.1 | 1.1 | 2.5 | 6.0 | 3.5 |
| | M27 x 3 | HM04BPM-NRS02730 | 3.35 | 36.4 | 5.3 | 4.6 | 0.8 | 3.5 | 9.3 | 1.3 | 2.5 | 6.0 | 3.7 |
| | M30 x 3,5 | HM04BPM-NRS03035 | 3.35 | 36.4 | 5.4 | 4.7 | 0.9 | 3.5 | 9.4 | 1.4 | 2.6 | 6.0 | 3.7 |
| | ⅞"- 9UN | HM04BP-NRS0875U09 | 3.35 | 36.4 | 5.1 | 4.4 | 0.7 | 3.5 | 9.1 | 1.1 | 2.4 | 6.0 | 3.5 |
| | 1"- 8UN | HM04BP-NRS1000U08 | 3.35 | 36.4 | 5.3 | 4.6 | 0.8 | 3.5 | 9.3 | 1.3 | 2.5 | 6.0 | 3.7 |
| | 1⅛"- 8UN | HM04BP-NRS1125U08 | 3.35 | 36.4 | 5.4 | 4.7 | 0.9 | 3.5 | 9.4 | 1.4 | 2.6 | 6.0 | 3.7 |
| HM05-LC | M24 x 3 | HM05BPM-NRS02430 | 4.27 | 46.4 | 5.1 | 4.5 | 0.7 | 3.9 | 9.2 | 1.1 | 2.7 | 7.3 | 4.2 |
| | M27 x 3 | HM05BPM-NRS02730 | 4.27 | 46.4 | 5.3 | 4.7 | 0.8 | 3.9 | 9.4 | 1.3 | 2.7 | 7.3 | 4.4 |
| | M30 x 3,5 | HM05BPM-NRS03035 | 4.27 | 46.4 | 5.5 | 4.8 | 0.9 | 3.9 | 9.5 | 1.4 | 2.8 | 7.3 | 4.4 |
| | M33 x 3,5 | HM05BPM-NRS03335 | 4.27 | 46.4 | 5.6 | 4.9 | 1.1 | 3.9 | 9.6 | 1.5 | 2.8 | 7.3 | 4.6 |
| | 1"-8UN | HM05BP-NRS1000U08 | 4.27 | 46.4 | 5.3 | 4.7 | 0.8 | 3.9 | 9.4 | 1.3 | 2.7 | 7.3 | 4.6 |
| | 1⅛"-8UN | HM05BP-NRS1125U08 | 4.27 | 46.4 | 5.5 | 4.8 | 0.9 | 3.9 | 9.5 | 1.4 | 2.7 | 7.3 | 4.6 |
| | 1¼"-8UN | HM05BP-NRS1250U08 | 4.27 | 46.4 | 5.6 | 4.9 | 1.1 | 3.9 | 9.6 | 1.5 | 2.8 | 7.3 | 4.6 |
| HM06-LC | M30 x 3,5 | HM06BPM-NRS03035 | 6.45 | 70.2 | 5.6 | 5.0 | 0.9 | 4.6 | 9.7 | 1.4 | 3.1 | 9.9 | 6.2 |
| | M33 x 3,5 | HM06BPM-NRS03335 | 6.45 | 70.2 | 5.7 | 5.1 | 1.1 | 4.6 | 9.8 | 1.5 | 3.2 | 9.9 | 6.4 |
| | M36 x 4 | HM06BPM-NRS03640 | 6.45 | 70.2 | 5.9 | 5.2 | 1.3 | 4.6 | 9.9 | 1.6 | 3.3 | 9.9 | 6.6 |
| | M39 x 4 | HM06BPM-NRS03940 | 6.45 | 70.2 | 6.0 | 5.3 | 1.3 | 4.6 | 10.0 | 1.8 | 3.3 | 9.9 | 6.8 |
| | 1⅛"- 8UN | HM06BP-NRS1125U08 | 6.45 | 70.2 | 5.6 | 5.0 | 0.9 | 4.6 | 9.7 | 1.4 | 3.1 | 9.9 | 6.2 |
| | 1¼"- 8UN | HM06BP-NRS1250U08 | 6.45 | 70.2 | 5.7 | 5.1 | 1.1 | 4.6 | 9.8 | 1.5 | 3.2 | 9.9 | 6.4 |
| | 1⅜"- 8UN | HM06BP-NRS1375U08 | 6.45 | 70.2 | 5.9 | 5.2 | 1.3 | 4.6 | 9.9 | 1.6 | 3.2 | 9.9 | 6.6 |
| | 1½"- 8UN | HM06BP-NRS1500U08 | 6.45 | 70.2 | 6.0 | 5.3 | 1.3 | 4.6 | 10.0 | 1.8 | 3.3 | 9.9 | 6.8 |

* Tommy bar is included with Load Cell

**Thread and Pitch Sizes**

Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

## HM Series

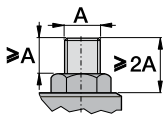


Bolt Range:
**1¼ - 2" | M33 - M52**

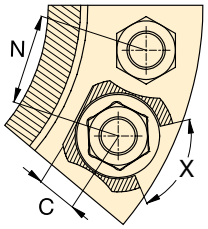
Maximum Load Capacity:
**83.9 - 131.9 tons**

Stroke:
**0.59 inch**

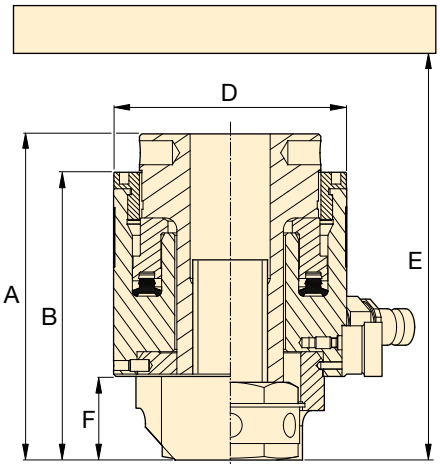
Maximum Operating Pressure:
**21,750 psi**




Minimum Stud Protrusion



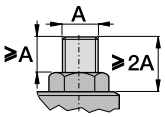

X = Minimum socket rotation 60°



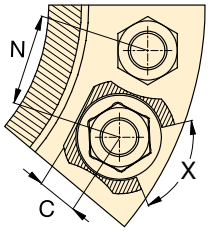

| Load Cell Model Number* | Thread Size | Adaptor and Bridge Kit Model Number | Cylinder Effective Area (in²) | Maximum Load Capacity (tons) | Dimensions (in) A | B | C | D | E min. | F | N min. | Load Cell Weight (lbs) | Adaptor and Bridge Kit Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HM07-LC | M33 x 3,5 | HM07BPM-NRS03335 | 7.72 | 83.9 | 5.7 | 5.0 | 1.1 | 5.0 | 9.7 | 1.5 | 3.4 | 11.5 | 7.5 |
| | M36 x 4 | HM07BPM-NRS03640 | 7.72 | 83.9 | 5.8 | 5.2 | 1.3 | 5.0 | 9.8 | 1.6 | 3.4 | 11.5 | 7.7 |
| | M39 x 4 | HM07BPM-NRS03940 | 7.72 | 83.9 | 5.9 | 5.3 | 1.3 | 5.0 | 9.9 | 1.8 | 3.5 | 11.5 | 7.9 |
| | M42 x 4,5 | HM07BPM-NRS04245 | 7.72 | 83.9 | 6.1 | 5.4 | 1.3 | 5.0 | 10.0 | 1.9 | 3.6 | 11.5 | 8.2 |
| | 1¼"- 8UN | HM07BP-NRS1250U08 | 7.72 | 83.9 | 5.7 | 5.0 | 1.1 | 5.0 | 9.7 | 1.5 | 3.4 | 11.5 | 7.5 |
| | 1⅜"- 8UN | HM07BP-NRS1375U08 | 7.72 | 83.9 | 5.8 | 5.2 | 1.3 | 5.0 | 9.8 | 1.6 | 3.4 | 11.5 | 7.7 |
| | 1½"- 8UN | HM07BP-NRS1500U08 | 7.72 | 83.9 | 5.9 | 5.3 | 1.3 | 5.0 | 9.9 | 1.8 | 3.5 | 11.5 | 7.9 |
| | 1⅝"- 8UN | HM07BP-NRS1625U08 | 7.72 | 83.9 | 6.1 | 5.4 | 1.3 | 5.0 | 10.0 | 1.9 | 3.5 | 11.5 | 8.2 |
| HM08-LC | M36 x 4 | HM08BPM-NRS03640 | 9.10 | 98.9 | 5.9 | 5.2 | 1.3 | 5.4 | 9.9 | 1.6 | 3.6 | 13.9 | 8.6 |
| | M39 x 4 | HM08BPM-NRS03940 | 9.10 | 98.9 | 6.0 | 5.3 | 1.3 | 5.4 | 10.0 | 1.8 | 3.7 | 13.9 | 8.8 |
| | M42 x 4,5 | HM08BPM-NRS04245 | 9.10 | 98.9 | 6.1 | 5.5 | 1.3 | 5.4 | 10.1 | 1.9 | 3.8 | 13.9 | 9.0 |
| | M45 x 4,5 | HM08BPM-NRS04545 | 9.10 | 98.9 | 6.2 | 5.6 | 1.5 | 5.4 | 10.3 | 2.0 | 3.8 | 13.9 | 9.7 |
| | 1⅜"- 8UN | HM08BP-NRS1375U08 | 9.10 | 98.9 | 5.9 | 5.2 | 1.3 | 5.4 | 9.9 | 1.6 | 3.6 | 13.9 | 8.6 |
| | 1½"- 8UN | HM08BP-NRS1500U08 | 9.10 | 98.9 | 6.0 | 5.3 | 1.3 | 5.4 | 10.0 | 1.8 | 3.7 | 13.9 | 8.8 |
| | 1⅝"- 8UN | HM08BP-NRS1625U08 | 9.10 | 98.9 | 6.1 | 5.5 | 1.3 | 5.4 | 10.1 | 1.9 | 3.7 | 13.9 | 9.0 |
| | 1¾"- 8UN | HM08BP-NRS1750U08 | 9.10 | 98.9 | 6.2 | 5.6 | 1.5 | 5.4 | 10.3 | 2.0 | 3.8 | 13.9 | 9.7 |
| HM09-LC | M39 x 4 | HM09BPM-NRS03940 | 10.59 | 115.2 | 6.0 | 5.4 | 1.3 | 5.7 | 10.0 | 1.8 | 3.9 | 14.3 | 11.0 |
| | M42 x 4,5 | HM09BPM-NRS04245 | 10.59 | 115.2 | 6.1 | 5.5 | 1.3 | 5.7 | 10.1 | 1.9 | 3.9 | 14.3 | 13.4 |
| | M45 x 4,5 | HM09BPM-NRS04545 | 10.59 | 115.2 | 6.2 | 5.6 | 1.5 | 5.7 | 10.3 | 2.0 | 4.0 | 14.3 | 11.2 |
| | M48 x 5 | HM09BPM-NRS04850 | 10.59 | 115.2 | 6.4 | 5.7 | 1.6 | 5.7 | 10.4 | 2.1 | 4.0 | 14.3 | 12.1 |
| | 1½"- 8UN | HM09BP-NRS1500U08 | 10.59 | 115.2 | 6.0 | 5.4 | 1.3 | 5.7 | 10.0 | 1.8 | 3.8 | 14.3 | 11.2 |
| | 1⅝"- 8UN | HM09BP-NRS1625U08 | 10.59 | 115.2 | 6.1 | 5.5 | 1.3 | 5.7 | 10.2 | 1.9 | 3.9 | 14.3 | 11.2 |
| | 1¾"- 8UN | HM09BP-NRS1750U08 | 10.59 | 115.2 | 6.2 | 5.5 | 1.5 | 5.7 | 10.1 | 2.0 | 4.0 | 14.3 | 13.2 |
| | 1⅞"- 8UN | HM09BP-NRS1875U08 | 10.59 | 115.2 | 6.4 | 5.7 | 1.6 | 5.7 | 10.4 | 2.1 | 4.0 | 14.3 | 11.9 |
| HM10-LC | M42 x 4,5 | HM10BPM-NRS04245 | 12.20 | 132.6 | 6.3 | 5.6 | 1.3 | 6.1 | 10.5 | 1.9 | 4.1 | 18.3 | 12.6 |
| | M45 x 4,5 | HM10BPM-NRS04545 | 12.20 | 131.9 | 6.4 | 5.7 | 1.5 | 6.1 | 10.6 | 2.0 | 4.2 | 18.3 | 12.6 |
| | M48 x 5 | HM10BPM-NRS04850 | 12.20 | 131.9 | 6.5 | 5.8 | 1.6 | 6.1 | 10.7 | 2.1 | 4.3 | 18.3 | 13.4 |
| | M52 x 5 | HM10BPM-NRS05250 | 12.20 | 131.9 | 6.7 | 6.0 | 1.7 | 6.1 | 10.8 | 2.3 | 4.3 | 18.3 | 13.9 |
| | 1⅝"- 8UN | HM10BP-NRS1625U08 | 12.20 | 131.9 | 6.3 | 5.6 | 1.3 | 6.1 | 10.5 | 1.9 | 4.1 | 18.3 | 12.6 |
| | 1¾"- 8UN | HM10BP-NRS1750U08 | 12.20 | 131.9 | 6.4 | 5.7 | 1.5 | 6.1 | 10.6 | 2.0 | 4.2 | 18.3 | 12.3 |
| | 1⅞"- 8UN | HM10BP-NRS1875U08 | 12.20 | 131.9 | 6.5 | 5.9 | 1.6 | 6.1 | 10.7 | 2.1 | 4.2 | 18.3 | 13.2 |
| | 2"- 8UN | HM10BP-NRS2000U08 | 12.20 | 131.9 | 6.7 | 6.0 | 1.7 | 6.1 | 10.8 | 2.3 | 4.3 | 18.3 | 13.9 |

* Tommy bar is included with Load Cell

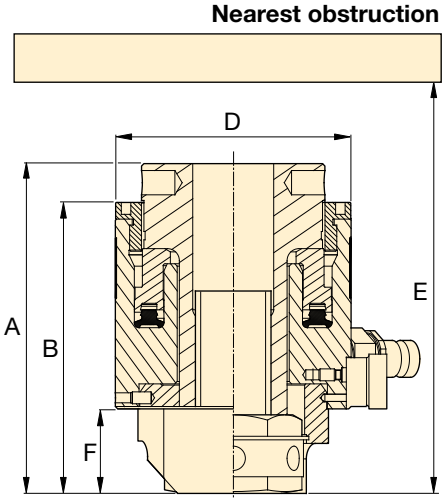
# HM-Series, HydraMax® Topside Tensioners




Minimum Stud Protrusion




X = Minimum socket rotation 60°




## HM Series



Bolt Range:
**1¾ - 4" I M45 - M100**

Maximum Load Capacity:
**171 - 522 tons**

Stroke:
**0.59 inch**

| Load Cell Model Number* | Thread Size ** | Adaptor and Bridge Kit Model Number | Cylinder Effective Area (in²) | Maximum Load Capacity (tons) | Dimensions (in) A | B | C | D | E min. | F | N min. | Load Cell Weight (lbs) | Adaptor and Bridge Kit Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HM11-LC | M45 x 4,5 | HM11BPM-NRS04545 | 15.74 | 171.1 | 6.6 | 5.7 | 1.5 | 6.9 | 10.8 | 2.0 | 4.6 | 23.1 | 16.3 |
| | M48 x 5 | HM11BPM-NRS04850 | 15.74 | 171.1 | 6.7 | 5.8 | 1.6 | 6.9 | 10.9 | 2.1 | 4.6 | 23.1 | 17.4 |
| | M52 x 5 | HM11BPM-NRS05250 | 15.74 | 171.1 | 6.8 | 6.0 | 1.7 | 6.9 | 11.0 | 2.3 | 4.7 | 23.1 | 17.9 |
| | M56 x 5,5 | HM11BPM-NRS05655 | 15.74 | 171.1 | 7.2 | 6.3 | 2.0 | 6.9 | 11.4 | 2.6 | 4.8 | 23.1 | 20.1 |
| | M60 x 5,5 | HM11BPM-NRS06055 | 15.74 | 171.1 | 7.2 | 6.3 | 2.0 | 6.9 | 11.4 | 2.6 | 4.9 | 23.1 | 19.2 |
| | 1¾"- 8UN | HM11BP-NRS1750U08 | 15.74 | 171.1 | 6.6 | 5.7 | 1.5 | 6.9 | 10.8 | 2.0 | 4.6 | 23.1 | 16.5 |
| | 1⅞"- 8UN | HM11BP-NRS1875U08 | 15.74 | 171.1 | 6.7 | 5.8 | 1.6 | 6.9 | 10.9 | 2.1 | 4.6 | 23.1 | 17.4 |
| | 2"- 8UN | HM11BP-NRS2000U08 | 15.74 | 171.1 | 6.8 | 6.0 | 1.7 | 6.9 | 11.0 | 2.3 | 4.7 | 23.1 | 17.9 |
| | 2¼"- 8UN | HM11BP-NRS2250U08 | 15.74 | 171.1 | 7.2 | 6.3 | 2.0 | 6.9 | 11.4 | 2.6 | 4.8 | 23.1 | 19.4 |
| HM12-LC | M48 x 5 | HM12BPM-NRS04850 | 19.72 | 214.4 | 6.7 | 5.8 | 1.6 | 7.6 | 11.0 | 2.1 | 5.0 | 29.3 | 21.4 |
| | M52 x 5 | HM12BPM-NRS05250 | 19.72 | 214.4 | 6.8 | 6.0 | 1.7 | 7.6 | 11.2 | 2.3 | 5.1 | 29.3 | 21.6 |
| | M56 x 5,5 | HM12BPM-NRS05655 | 19.72 | 214.4 | 7.2 | 6.3 | 2.0 | 7.6 | 11.5 | 2.6 | 5.2 | 29.3 | 23.6 |
| | M60 x 5,5 | HM12BPM-NRS06055 | 19.72 | 214.4 | 7.2 | 6.3 | 2.0 | 7.6 | 11.5 | 2.7 | 5.2 | 29.3 | 22.9 |
| | M64 x 6 | HM12BPM-NRS06460 | 19.72 | 214.4 | 7.3 | 6.5 | 2.2 | 7.6 | 11.7 | 2.7 | 5.3 | 29.3 | 24.5 |
| | 1⅞"- 8UN | HM12BP-NRS1875U08 | 19.72 | 214.4 | 6.7 | 5.8 | 1.6 | 7.6 | 11.0 | 2.1 | 5.0 | 29.3 | 21.2 |
| | 2"- 8UN | HM12BP-NRS2000U08 | 19.72 | 214.4 | 6.8 | 6.0 | 1.7 | 7.6 | 11.2 | 2.3 | 5.1 | 29.3 | 21.6 |
| | 2¼"- 8UN | HM12BP-NRS2250U08 | 19.72 | 214.4 | 7.2 | 6.3 | 2.0 | 7.6 | 11.5 | 2.6 | 5.2 | 29.3 | 22.9 |
| | 2½"- 8UN | HM12BP-NRS2500U08 | 19.72 | 214.4 | 7.3 | 6.5 | 2.2 | 7.6 | 11.7 | 2.7 | 5.3 | 29.3 | 23.8 |
| HM13-LC | M64 x 6 | HM13BPM-NRS06460 | 26.29 | 285.9 | 7.7 | 6.8 | 2.2 | 8.6 | 12.2 | 2.7 | 5.8 | 38.8 | 32.0 |
| | M68 x 6 | HM13BPM-NRS06860 | 26.29 | 285.9 | 7.7 | 6.8 | 2.2 | 8.6 | 12.2 | 2.7 | 5.9 | 38.8 | 36.4 |
| | M72 x 6 | HM13BPM-NRS07260 | 26.29 | 285.9 | 8.0 | 7.1 | 2.5 | 8.6 | 12.5 | 3.1 | 6.0 | 38.8 | 35.3 |
| | M76 x 6 | HM13BPM-NRS07660 | 26.29 | 285.9 | 8.1 | 7.3 | 2.7 | 8.6 | 12.7 | 3.2 | 6.0 | 38.8 | 35.9 |
| | 2½"- 8UN | HM13BP-NRS2500U08 | 26.29 | 285.9 | 7.7 | 6.8 | 2.2 | 8.6 | 12.2 | 2.7 | 5.8 | 38.8 | 31.3 |
| | 2¾"- 8UN | HM13BP-NRS2750U08 | 26.29 | 285.9 | 8.0 | 7.1 | 2.5 | 8.6 | 12.5 | 3.1 | 5.9 | 38.8 | 34.8 |
| | 3"- 8UN | HM13BP-NRS3000U08 | 26.29 | 285.9 | 8.1 | 7.3 | 2.7 | 8.6 | 12.7 | 3.2 | 6.3 | 38.8 | 34.8 |
| HM14-LC | M72 x 6 | HM14BPM-NRS07260 | 36.35 | 395.3 | 8.0 | 7.1 | 2.5 | 10.2 | 12.6 | 3.1 | 6.8 | 56.9 | 45.9 |
| | M76 x 6 | HM14BPM-NRS07660 | 36.35 | 395.3 | 8.1 | 7.3 | 2.7 | 10.2 | 12.7 | 3.2 | 6.8 | 56.9 | 47.0 |
| | M80 x 6 | HM14BPM-NRS08060 | 36.35 | 395.3 | 8.1 | 7.3 | 2.7 | 10.2 | 12.7 | 3.2 | 6.9 | 56.9 | 46.7 |
| | M85 x 6 | HM14BPM-NRS08560 | 36.35 | 395.3 | 8.5 | 6.5 | 2.7 | 10.2 | 11.9 | 3.6 | 7.0 | 56.9 | 50.5 |
| | M90 x 6 | HM14BPM-NRS09060 | 36.35 | 395.3 | 8.7 | 7.8 | 3.1 | 10.2 | 13.3 | 3.8 | 7.1 | 56.9 | 51.4 |
| | 3"- 8UN | HM14BP-NRS3000U08 | 36.35 | 395.3 | 8.1 | 7.3 | 2.7 | 10.2 | 12.7 | 3.2 | 6.8 | 56.9 | 45.0 |
| | 3¼"- 8UN | HM14BP-NRS3250U08 | 36.35 | 395.3 | 8.5 | 6.5 | 2.7 | 10.2 | 11.9 | 3.6 | 7.0 | 56.9 | 50.0 |
| | 3½"- 8UN | HM14BP-NRS3500U08 | 36.35 | 395.3 | 8.7 | 7.8 | 3.1 | 10.2 | 13.3 | 3.8 | 7.2 | 56.9 | 52.7 |
| HM15-LC | M90 x 6 | HM15BPM-NRS09060 | 48.06 | 522.7 | 8.7 | 7.8 | 3.1 | 11.7 | 13.3 | 3.8 | 7.8 | 71.6 | 66.1 |
| | M95 x 6 | HM15BPM-NRS09560 | 48.06 | 522.7 | 8.9 | 8.1 | 3.2 | 11.7 | 13.5 | 4.0 | 7.9 | 71.6 | 74.3 |
| | M100 x 6 | HM15BPM-NRS10060 | 48.06 | 522.7 | 9.1 | 8.3 | 3.5 | 11.7 | 13.7 | 4.2 | 8.0 | 71.6 | 77.4 |
| | 3½"- 8UN | HM15BP-NRS3500U08 | 48.06 | 522.7 | 8.7 | 7.8 | 3.1 | 11.7 | 13.3 | 3.8 | 7.8 | 71.6 | 65.0 |
| | 3¾"- 8UN | HM15BP-NRS3750U08 | 48.06 | 522.7 | 8.9 | 8.1 | 3.2 | 11.7 | 13.5 | 4.0 | 7.9 | 71.6 | 72.3 |
| | 4"- 8UN | HM15BP-NRS4000U08 | 48.06 | 522.7 | 9.1 | 8.3 | 3.5 | 11.7 | 13.7 | 4.2 | 8.3 | 71.6 | 75.0 |

* Tommy bar is included with Load Cell

**Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

▼ **GT-Series Topside Bolt Tensioners**




# Accurate & Reliable Extreme Performance Bolt Tensioner



**Tensioning Pumps, Hoses and Couplers**

High-pressure pumps, hoses and fittings matched for use with the Enerpac Bolt Tensioners.

See enerpac.com

*Page:* 325

- **Seven load cells from ⅝" to 4 inches or from M16 to M105**
- **Twin ports for quick connection of multiple tools**
- **Only one size of bridge per size of load cell**
- **Detachable and rotational bridge simplifies tool positioning**
- **Full bridge window – increased access to socket**
- **Captive socket – eliminates falling object risk**
- **Piston stroke indicator**
- **Black surface treatment protects against corrosion**
- **Anti-slip grip for more secure handling**
- **Universal and multi-use tool**
- **GT-Series tensioners comply to Machine Directive 2006/42/ CE. ASME B30.1, EN-ISO 4413:2010 and EN-ISO 12100:2010**

**How to Order**

To provide maximum flexibility Load Cell and Bridges are ordered separately from Adaptor Kits.

Example, to order a complete tensioner for a M36 x 4 threaded bolt order:
1 x Load Cell and Bridge: **GT2-LCB**
1 x Adaptor Kit: **GT2PM-NRS03640**

| Load Cell and Bridge Model Number* | Thread Size | Adaptor Kit Model Number | Cylinder Effective Area | Maximum Load Capacity | Dimensions (in) | | | | | | | Load Cell and Bridge Weight | Adaptor Kit Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | C | D | E min. | F | N min. | | |
| | | | ($in^2$) | (ton) | | | | | | | | (lbs) | (lbs) |
| GT1-LCB | M16 x 2 | GT1PM-NRS01620 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.2 | 6.6 | 3.5 |
| | M18 x 2,5 | GT1PM-NRS01825 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.3 | 6.6 | 3.3 |
| | M20 x 2,5 | GT1PM-NRS02025 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.3 | 6.6 | 3.1 |
| | M24 x 3 | GT1PM-NRS02430 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.4 | 6.6 | 2.9 |
| | M27 x 3 | GT1PM-NRS02730 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.5 | 6.6 | 2.6 |
| | M30 x 3,5 | GT1PM-NRS03035 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.6 | 6.6 | 2.2 |
| | ⅝"- 11UN | GT1P-NRS0625U11 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.2 | 6.6 | 3.5 |
| | ¾"- 10UN | GT1P-NRS0750U10 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.3 | 6.6 | 3.1 |
| | ⅞"- 9UN | GT1P-NRS0875U09 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.4 | 6.6 | 2.9 |
| | 1"- 8UN | GT1P-NRS1000U08 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.5 | 6.6 | 2.6 |
| | 1⅛"- 8UN | GT1P-NRS1125U08 | 2.32 | 25.2 | 5.3 | 4.4 | 1.1 | 3.4 | 9.6 | 1.7 | 2.6 | 6.6 | 2.2 |
| GT2-LCB | M30 x 3,5 | GT2PM-NRS03035 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 2.9 | 9.0 | 5.7 |
| | M33 x 3,5 | GT2PM-NRS03335 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 3.0 | 9.0 | 5.3 |
| | M36 x 4 | GT2PM-NRS03640 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 3.1 | 9.0 | 4.9 |
| | M39 x 4 | GT2PM-NRS03940 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 3.2 | 9.0 | 4.2 |
| | 1⅛"- 8UN | GT2P-NRS1125U08 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 2.9 | 9.0 | 5.7 |
| | 1¼"- 8UN | GT2P-NRS1250U08 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 3.0 | 9.0 | 5.3 |
| | 1⅜"- 8UN | GT2P-NRS1375U08 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 3.1 | 9.0 | 4.9 |
| | 1½"- 8UN | GT2P-NRS1500U08 | 4.15 | 45.1 | 5.4 | 4.4 | 1.4 | 4.2 | 8.9 | 1.6 | 3.2 | 9.0 | 4.4 |

* Tommy bar is included with Load Cell

**Thread and Pitch Sizes**

Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

# GT Series

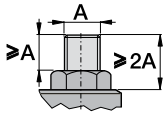


Bolt Range:
**⅝" - 4" | M16 - M105**

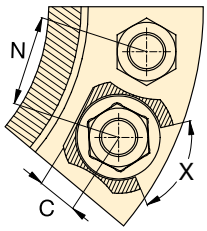
Maximum Load Capacity at 1500 bar:
**86.4 - 444.9 tons**

Stroke:
**0.39 inch**

Maximum Operating Pressure:
**21,750 psi**

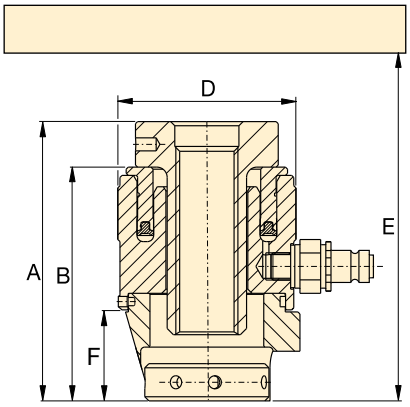



**Minimum Stud Protrusion**




**X = Minimum socket rotation 60°**

**Nearest obstruction**




| Load Cell and Bridge Model Number* | Thread Size | Adaptor Kit Model Number | Cylinder Effective Area (in²) | Maximum Load Capacity (ton) | Dimensions (in) A | B | C | D | E min. | F | N min. | Load Cell and Bridge Weight (lbs) | Adaptor Kit Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GT3-LCB | M39 x 4 | GT3PM-NRS03940 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 3.8 | 15.4 | 12.6 |
| | M42 x 4,5 | GT3PM-NRS04245 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 3.9 | 15.4 | 11.9 |
| | M45 x 4,5 | GT3PM-NRS04545 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 4.0 | 15.4 | 11.0 |
| | M48 x 5 | GT3PM-NRS04850 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 4.1 | 15.4 | 10.4 |
| | M52 x 5 | GT3PM-NRS05250 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 4.2 | 15.4 | 9.3 |
| | 1½"- 8UN | GT3P-NRS1500U08 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 3.7 | 15.4 | 12.6 |
| | 1⅝"- 8UN | GT3P-NRS1625U08 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 3.9 | 15.4 | 11.7 |
| | 1¾"- 8UN | GT3P-NRS1750U08 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 4.0 | 15.4 | 11.0 |
| | 1⅞"- 8UN | GT3P-NRS1875U08 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 4.1 | 15.4 | 10.1 |
| | 2"- 8UN | GT3P-NRS2000U08 | 7.95 | 86.4 | 6.3 | 5.0 | 1.8 | 5.4 | 10.1 | 2.2 | 4.2 | 15.4 | 9.3 |
| GT4-LCB | M52 x 5 | GT4PM-NRS05250 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 4.8 | 26.9 | 23.6 |
| | M56 x 5,5 | GT4PM-NRS05655 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 4.9 | 26.9 | 22.3 |
| | M60 x 5,5 | GT4PM-NRS06055 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 5.0 | 26.9 | 20.7 |
| | M64 x 6 | GT4PM-NRS06460 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 5.1 | 26.9 | 19.4 |
| | M68 x 6 | GT4PM-NRS06860 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 5.2 | 26.9 | 17.9 |
| | 2"- 8UN | GT4P-NRS2000U08 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 4.7 | 26.9 | 23.6 |
| | 2¼"- 8UN | GT4P-NRS2250U08 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 5.0 | 26.9 | 21.4 |
| | 2½"- 8UN | GT4P-NRS2500U08 | 15.17 | 164.9 | 7.1 | 5.6 | 2.4 | 6.9 | 11.1 | 2.8 | 5.2 | 26.9 | 18.7 |
| GT5-LCB | M68 x 6 | GT5PM-NRS06860 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 5.8 | 38.3 | 38.1 |
| | M72 x 6 | GT5PM-NRS07260 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 5.9 | 38.3 | 36.2 |
| | M76 x 6 | GT5PM-NRS07660 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 6.0 | 38.3 | 34.2 |
| | M80 x 6 | GT5PM-NRS08060 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 6.1 | 38.3 | 32.2 |
| | 2½"- 8UN | GT5P-NRS2500U08 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 5.8 | 38.3 | 39.2 |
| | 2¾"- 8UN | GT5P-NRS2750U08 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 6.0 | 38.3 | 35.9 |
| | 3"- 8UN | GT5P-NRS3000U08 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 6.2 | 38.3 | 32.6 |
| | 3¼"- 8UN | GT5P-NRS3250U08 | 23.37 | 254.2 | 8.0 | 6.2 | 3.1 | 8.3 | 11.9 | 3.4 | 6.3 | 38.3 | 28.9 |
| GT6-LCB | M80 x 6 | GT6PM-NRS08060 | 29.41 | 319.8 | 8.6 | 6.8 | 3.2 | 9.4 | 12.7 | 3.7 | 6.6 | 61.3 | 49.2 |
| | M85 x 6 | GT6PM-NRS08560 | 29.41 | 319.8 | 8.6 | 6.8 | 3.2 | 9.4 | 12.7 | 3.7 | 6.7 | 61.3 | 46.3 |
| | M90 x 6 | GT6PM-NRS09060 | 29.41 | 319.8 | 8.6 | 6.8 | 3.2 | 9.4 | 12.7 | 3.7 | 6.9 | 61.3 | 42.8 |
| | M95 x 6 | GT6PM-NRS09560 | 29.41 | 319.8 | 8.6 | 6.8 | 3.2 | 9.4 | 12.7 | 3.7 | 7.0 | 61.3 | 39.7 |
| | 3¼"- 8UN | GT6P-NRS3250U08 | 29.41 | 319.8 | 8.6 | 6.8 | 3.2 | 9.4 | 12.7 | 3.7 | 6.8 | 61.3 | 45.6 |
| | 3½"- 8UN | GT6P-NRS3500U08 | 29.41 | 319.8 | 8.6 | 6.8 | 3.2 | 9.4 | 12.7 | 3.7 | 7.1 | 61.3 | 41.4 |
| | 3¾"- 8UN | GT6P-NRS3750U08 | 29.41 | 319.8 | 8.6 | 6.8 | 3.2 | 9.4 | 12.7 | 3.7 | 7.4 | 61.3 | 37.0 |
| GT7-LCB | M100 x 6 | GT7PM-NRS10060 | 40.90 | 444.9 | 9.6 | 7.2 | 3.5 | 10.9 | 13.1 | 4.3 | 7.7 | 84.2 | 62.8 |
| | M105 x 6 | GT7PM-NRS10560 | 40.90 | 444.9 | 9.6 | 7.2 | 3.5 | 10.9 | 13.1 | 4.3 | 7.8 | 84.2 | 60.2 |
| | 4"- 8UN | GT7P-NRS4000U08 | 40.90 | 444.9 | 9.6 | 7.2 | 3.5 | 10.9 | 13.1 | 4.3 | 8.0 | 84.2 | 60.2 |

* Tommy bar is included with Load Cell

▼ Aquajack® Tensioner EAJ2LC with Quick Fastening Nut




- Compact design
- Long piston stroke
- Misalignment compensation
- Quick, simple hose connection
- Visible piston stroke indication
- 'No spill' overstroke elimination
- Quick fastening or solid reaction nut

▼ *Guaranteed to save time and increase efficiency, Aquajack® tensioners improve diver safety, productivity and reduce diver fatigue.*



# The Most Cost-Effective Solution to Subsea Bolt or Stud Tightening

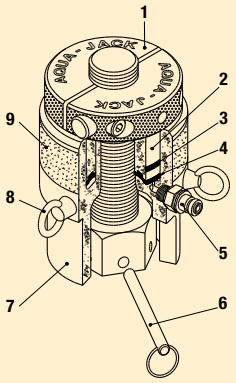


**Quick Fastening Nut Design**

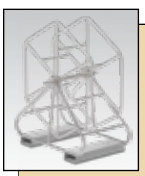
Easily positioned in poor visibility conditions, Aquajack® subsea tensioners feature a compact design and long piston stroke. The unique Split Nut® design of these tools allows rapid application to long bolts and damaged threads, and rapid tool removal.

**No Oil Spillage or Over-Stroking**

Innovative tool design ensures maximum tool strokes can be used without over-stroking the piston or oil spillage. Guaranteed to save time and increase efficiency, Aquajack® subsea tensioners improve diver safety, productivity and reduce diver fatigue.



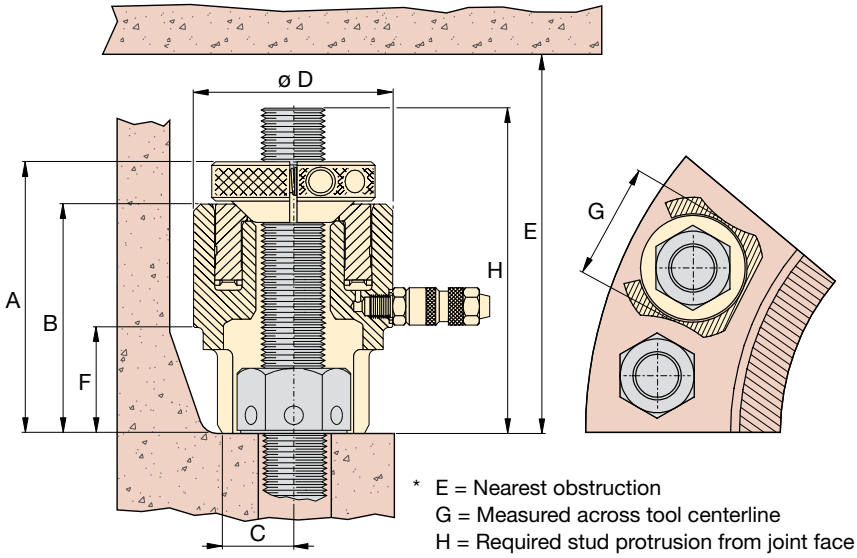

1. Quick Fastening Reaction Nut
2. Long Piston Stroke
3. Maximum Stroke Indicator Band
4. Self-Energizing Seals
5. Hose Connections (2x)
6. Tommy Bar
7. Compact Body Design
8. Lifting Eyes
9. Anti-Slip Tool Surface



**Hose Reel and Stand**

Stainless steel stand with 21,750 psi hoses from 100 ft. up to 800 ft. lengths. All hose reels are built up with multiple 98 ft. length hoses.

*Page:* 325




* E = Nearest obstruction
G = Measured across tool centerline
H = Required stud protrusion from joint face

## EAJ Series



Bolt Range:
**¾" - 3½" | M20 - M90**

Maximum Load Capacity:
**17.0 - 260 US tons**

Maximum Operating Pressure:
**21,750 psi**

| Load Cell Model Number * | Thread Size | Quick Fastening Nut Model Number | Cylinder Effective Area (in²) | Maximum Load Capacity (ton) | Stroke (in) | Dimensions (in) A | B | C | D | E * | F | G * | H * | Tool Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EAJ1LC | ¾" - 10 UN | EAJ1QFN0750U10 | 1.56 | 17.0 | 0.79 | 4.49 | 3.58 | 0.75 | 2.60 | 8.54 | 1.38 | 2.09 | 4.69 | 3.31 |
| | 7/8" - 9 UN | EAJ1QFN0875U09 | | | | | | | | | | | | |
| | M20 x 2,5 | EAJ1QFNM02025 | | | | | | | | | | | | |
| | M22 x 2,5 | EAJ1QFNM02225 | | | | | | | | | | | | |
| EAJ2LC | 1" - 8 UN | EAJ2QFN1000U08 | 2.57 | 28.0 | 1.18 | 5.79 | 4.72 | 0.98 | 3.23 | 11.38 | 1.97 | 2.44 | 5.98 | 6.61 |
| | M24 x 2,5 | EAJ2QFNM02425 | | | | | | | | | | | | |
| | M27 x 3,0 | EAJ2QFNM02730 | | | | | | | | | | | | |
| | 1⅛" - 8 UN | EAJ2QFN1125U08 | | | | | | | | | | | | |
| | M30 x 3,5 | EAJ2QFNM03035 | | | | | | | | | | | | |
| EAJ3LC | 1¼" 8 UN | EAJ3QFN1250U08 | 3.91 | 42.6 | 1.18 | 6.20 | 5.16 | 1.10 | 3.86 | 12.09 | 2.28 | 3.07 | 6.42 | 9.92 |
| | M33 x 3,5 | EAJ3QFNM03335 | | | | | | | | | | | | |
| | 1⅜" - 8 UN | EAJ3QFN1375U08 | | | | | | | | | | | | |
| | M36 x 3,5 | EAJ3QFNM03635 | | | | | | | | | | | | |
| EAJ4LC | 1½" - 8 UN | EAJ4QFN1500U08 | 5.71 | 62.2 | 1.18 | 6.73 | 5.35 | 1.30 | 4.49 | 12.56 | 2.48 | 3.58 | 6.93 | 13.23 |
| | M39 x 4,0 | EAJ4QFNM03940 | | | | | | | | | | | | |
| | 1⅝" - 8 UN | EAJ4QFN1625U08 | | | | | | | | | | | | |
| | M42 x 4,5 | EAJ4QFNM04245 | | | | | | | | | | | | |
| EAJ5LC | 1¾" - 8 UN | EAJ5QFN1750U08 | 9.16 | 99.6 | 1.18 | 7.24 | 5.75 | 1.57 | 5.47 | 13.46 | 2.76 | 4.49 | 7.44 | 19.84 |
| | M45 x 4,5 | EAJ5QFNM04545 | | | | | | | | | | | | |
| | 1⅞" - 8 UN | EAJ5QFN1875U08 | | | | | | | | | | | | |
| | M48 x 5,0 | EAJ5QFNM04850 | | | | | | | | | | | | |
| | 2" - 8 UN | EAJ5QFN2000U08 | | | | | | | | | | | | |
| | M52 x 5,0 | EAJ5QFNM05250 | | | | | | | | | | | | |
| EAJ6LC | M56 x 5,5 | EAJ6QFNM05655 | 12.88 | 140.2 | 1.18 | 7.91 | 6.34 | 1.93 | 6.46 | 14.45 | 3.23 | 5.43 | 8.11 | 28.66 |
| | 2¼" - 8 UN | EAJ6QFN2250U08 | | | | | | | | | | | | |
| | M60 x 5,5 | EAJ6QFNM06055 | | | | | | | | | | | | |
| | 2½" - 8 UN | EAJ6QFN2500U08 | | | | | | | | | | | | |
| | M64 x 6,0 | EAJ6QFNM06460 | | | | | | | | | | | | |
| EAJ7LC | M68 x 6,0 | EAJ7QFNM06860 | 19.17 | 208.6 | 1.18 | 9.06 | 7.01 | 2.95 | 7.56 | 15.75 | 3.74 | 6.06 | 9.25 | 41.89 |
| | 2¾" - 8 UN | EAJ7QFN2750U08 | | | | | | | | | | | | |
| | M72 x 6,0 | EAJ7QFNM07260 | | | | | | | | | | | | |
| | M76 x 6,0 | EAJ7QFNM07660 | | | | | | | | | | | | |
| | 3" - 8 UN | EAJ7QFN3000U08 | | | | | | | | | | | | |
| EAJ8LC | M80 x 6,0 | EAJ8QFNM08060 | 23.98 | 260.9 | 1.18 | 9.72 | 7.60 | 2.68 | 8.39 | 16.22 | 4.29 | 7.17 | 9.92 | 54.01 |
| | 3¼" - 8 UN | EAJ8QFN3250U08 | | | | | | | | | | | | |
| | M85 x 6,0 | EAJ8QFNM08560 | | | | | | | | | | | | |
| | 3½" - 8 UN | EAJ8QFN3500U08 | | | | | | | | | | | | |
| | M90 x 6,0 | EAJ8QFNM09060 | | | | | | | | | | | | |

* Tommy Bar is included with Load Cell.

▼ PGT-Series Single-Stage and Double-Deck Tensioners




# High Precision, Low Maintenance



**Tensioner Pumps**

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.

*Page:* 239



**Hoses and Fittings**

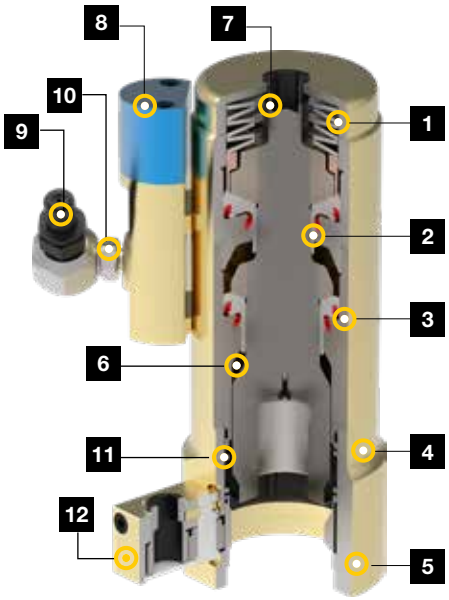
High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

*Page:* 325

- **PGT-Series Bolt Tensioners are designed for critical fastening applications in wind, steam and gas turbines**
- **A broad range of single stage and double deck tensioners provide high performance in tight spaces associated with Power Generation applications**
- **PGT-Series Bolt Tensioners are loaded with performance enhancing features such as Auto-Retract Pistons, Cycle Counters and a premium coating to offer the ultimate in efficiency, durability and ease of use**

| Description | PGTS Single Stage | PGTD Double Deck |
|---|---|---|
| Auto-Retract Piston | ✔ | ✔ |
| Zinc Coating | ✔ | ✔ |
| Geared Nut-Rundown | ✔ | ✔ |
| Over-stroke Indicator | ✔ | ✔ |
| Over-stroke Preventer | ✔ | ✔ |
| Single Male Fitting | ✔ | ✔ |
| Swivel Manifold | ✚ | ✚ |
| Cycle Counter | – | ✚ |

✔ = **Standard on tensioner**
✚ = **Possible option**
– = **Option not available**




▲ The model above illustrates a typical tool configuration. Actual model configurations vary.

1. **Auto-retract piston:** Simplifies use and improves speed of operation.
2. **Long-life puller:** For maximum durability.
3. **Long-life seals:** For maximum durability and extended service life intervals.
4. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
5. **Interchangeable bridge**: For optimal application fit.
6. **Over-stroke preventer:** Mechanically prevents over-stroke, extending cylinder life.
7. **Over-stroke indicator:** Extends cylinder life by helping to prevent over-stroking of cylinder.
8. **Optional counter:** Helps indicate when maintenance is due to maximize uptime.
9. **Quick-disconnect coupler:** For safe, simple hydraulic connection.
10. **Optional 360$^0$ swivel**: available for additional hose positioning flexibility.
11. **Spring-loaded nut engagement**: Keeps socket positioned on nut for faster and easier seating process.
12. **Auto-engage nut rundown:** For rapid and accurate seating of nuts.

# PGT-Series, Power Generation Bolt Tensioners

**Options**

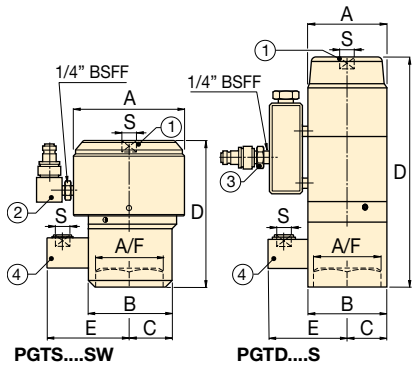
**Fitting Type**

**SW** = Swivel manifold with single male fitting
Example: **PGTS2436SW**

**Cycle-Counter**

**C** = Cycle Counter (not available on PGTS-models)
Example: **PGTD3655SWC**

① Puller bar square drive
② Swivel manifold with single male fitting
③ Single male fitting
④ Nut run down gear box




**PGT Series**



Bolt Range:
**M20 - M72**

Load Range:
**23 - 334 tons**

Maximum Operating Pressure [1]:
**19,575 - 21,750 psi**

[1] Max. Pressure varies, see specification table for details.

## ▼ SPECIFICATION TABLE

| Tensioner Type | Thread Diameter (mm) | Model Number (with single male fitting) | Nut Size A/F (in) | Max. Pressure (psi) | Hyd. Pres. Area ($in^2$) | Max. Load Cap. (tons) | Stroke (in) | Dimensions (in) A | B | C | D | E | S* (in) | Weight (lbs) | Bolt Protrusion (in) min. | max. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Single Stage | M20 x 2,5 | **PGTS2030S** | 1.18 | 21,750 | 2.10 | 22.9 | 0.28 | 2.52 | 2.52 | 1.26 | 3.19 | 3.07 | ⅜ | 4.41 | 1.73 | 2.17 |
| | M24 x 3,0 | **PGTS2436S** | 1.42 | 21,750 | 3.02 | 32.8 | 0.28 | 3.03 | 3.03 | 1.22 | 3.86 | 3.20 | ⅜ | 6.39 | 1.93 | 2.44 |
| | M27 x 3,0 | **PGTS2742S** | 1.65 | 21,750 | 4.10 | 44.6 | 0.31 | 3.62 | 2.95 | 1.34 | 5.08 | 3.27 | ⅜ | 10.58 | 2.36 | 2.76 |
| | M30 x 3,5 | **PGTS3046S** | 1.81 | 21,750 | 4.97 | 54.0 | 0.31 | 3.90 | 3.35 | 1.50 | 5.28 | 3.46 | ⅜ | 12.79 | 2.68 | 2.87 |
| | M33 x 3,5 | **PGTS3350S** | 1.97 | 21,750 | 6.14 | 66.8 | 0.31 | 4.17 | 3.54 | 1.57 | 5.59 | 3.54 | ⅜ | 14.88 | 2.95 | 3.94 |
| | M36 x 4,0 | **PGTS3655S** | 2.17 | 21,750 | 6.92 | 75.3 | 0.35 | 4.37 | 3.54 | 2.19 | 5.04 | 3.75 | ½ | 14.11 | 2.90 | 3.74 |
| | M39 x 4,0 | **PGTS3960S** | 2.36 | 21,750 | 8.62 | 93.8 | 0.39 | 4.86 | 4.09 | 1.81 | 6.30 | 3.78 | ⅜ | 21.54 | 3.50 | 4.53 |
| | M42 x 4,5 | **PGTS4265S** | 2.56 | 21,750 | 9.70 | 105.6 | 0.39 | 5.28 | 4.53 | 2.65 | 6.97 | 3.90 | ½ | 20.94 | 3.11 | 4.53 |
| | M45 x 4,5 | **PGTS4570S** | 2.76 | 21,750 | 11.63 | 126.6 | 0.39 | 5.63 | 4.69 | 2.07 | 6.61 | 4.02 | ⅜ | 29.10 | 3.86 | 4.57 |
| | M48 x 5,0 | **PGTS4875S** | 2.95 | 21,750 | 13.00 | 141.5 | 0.39 | 5.98 | 4.92 | 2.20 | 6.22 | 4.17 | ⅜ | 29.32 | 4.06 | 4.69 |
| | M52 x 5,0 | **PGTS5280S** | 3.15 | 21,750 | 15.65 | 170.2 | 0.39 | 6.50 | 5.28 | 2.30 | 6.73 | 4.25 | ⅜ | 39..46 | 4.17 | 4.65 |
| | M56 x 5,5 | **PGTS5685S** | 3.35 | 21,750 | 18.08 | 196.7 | 0.39 | 6.97 | 5.59 | 2.44 | 6.69 | 4.41 | ⅜ | 44.97 | 4.57 | 5.04 |
| | M60 x 5,5 | **PGTS6090S** | 3.54 | 21,750 | 20.89 | 227.3 | 0.39 | 7.48 | 5.98 | 2.60 | 7.32 | 4.53 | ⅜ | 54.59 | 4.86 | 5.39 |
| | M64 x 6,0 | **PGTS6495S** | 3.74 | 21,750 | 23.74 | 258.3 | 0.39 | 7.87 | 6.26 | 2.70 | 8.15 | 4.65 | ½ | 67.68 | 5.39 | 5.91 |
| | M68 x 6,0 | **PGTS68100S** | 3.94 | 21,750 | 27.11 | 295.0 | 0.39 | 8.41 | 6.65 | 2.85 | 8.11 | 4.84 | ½ | 75.62 | 5.35 | 5.83 |
| | M72 x 6,0 | **PGTS72105S** | 4.13 | 21,750 | 30.69 | 333.9 | 0.39 | 8.86 | 7.01 | 2.99 | 8.78 | 4.96 | ½ | 88.85 | 5.94 | 6.57 |
| Double Deck | M24 x 3,0 | **PGTD2436S** | 1.42 | 19,575 | 3.55 | 34.8 | 0.24 | 4.69 | 3.03 | 1.22 | 7.28 | 3.19 | ⅜ | 10.14 | 2.09 | 2.34 |
| | M27 x 3,0 | **PGTD2742S** | 1.65 | 19,575 | 4.56 | 44.6 | 0.24 | 4.92 | 2.95 | 1.34 | 7.72 | 3.28 | ⅜ | 11.57 | 2.36 | 2.68 |
| | M30 x 3,5 | **PGTD3046S** | 1.81 | 19,575 | 5.31 | 52.0 | 0.28 | 5.28 | 3.35 | 1.46 | 7.68 | 3.46 | ⅜ | 12.70 | 2.36 | 2.76 |
| | M33 x 3,5 | **PGTD3350S** | 1.97 | 19,575 | 6.62 | 64.8 | 0.28 | 5.59 | 3.03 | 1.52 | 8.19 | 3.54 | ⅜ | 14.70 | 2.56 | 3.03 |
| | M36 x 4,0 | **PGTD3655S** | 2.17 | 19,575 | 7.74 | 75.8 | 0.31 | 5.98 | 3.27 | 1.61 | 8.58 | 3.66 | ½ | 17.06 | 2.76 | 3.43 |
| | M39 x 4,0 | **PGTD3960S** | 2.36 | 19,575 | 9.70 | 95.0 | 0.39 | 6.26 | 4.09 | 1.89 | 10.47 | 3.78 | ⅜ | 27.56 | 3.31 | 3.66 |
| | M42 x 4,5 | **PGTD4265S** | 2.56 | 19,575 | 10.64 | 104.2 | 0.39 | 6.69 | 4.09 | 2.05 | 9.78 | 3.90 | ½ | 25.02 | 3.23 | 3.58 |
| | M45 x 4,5 | **PGTD4570S** | 2.76 | 19,575 | 12.93 | 126.6 | 0.39 | 6.97 | 4.69 | 2.09 | 11.57 | 4.09 | ⅜ | 38.91 | 3.82 | 4.21 |
| | M48 x 5,0 | **PGTD4875S** | 2.95 | 19,575 | 14.62 | 143.1 | 0.39 | 4.53 | 4.92 | 2.26 | 11.97 | 4.17 | ⅜ | 44.31 | 4.06 | 4.45 |
| | M52 x 5,0 | **PGTD5280S** | 3.15 | 19,575 | 17.50 | 171.3 | 0.39 | 4.88 | 5.28 | 2.40 | 12.91 | 4.25 | ⅜ | 57.54 | 4.33 | 4.94 |
| | M56 x 5,5 | **PGTD5685S** | 3.35 | 19,575 | 20.06 | 196.4 | 0.39 | 5.20 | 5.59 | 2.56 | 13.62 | 4.41 | ⅜ | 66.14 | 4.61 | 5.22 |
| | M60 x 5,5 | **PGTD6090S** | 3.54 | 19,575 | 23.30 | 228.2 | 0.39 | 5.55 | 5.98 | 2.78 | 14.65 | 4.53 | ⅜ | 81.90 | 4.92 | 5.63 |
| | M64 x 6,0 | **PGTD6495S** | 3.74 | 19,575 | 26.54 | 259.9 | 0.39 | 5.94 | 6.26 | 2.99 | 15.20 | 4.69 | ½ | 94.80 | 5.24 | 6.00 |
| | M68 x 6,0 | **PGTD68100S** | 3.94 | 19,575 | 30.25 | 296.2 | 0.39 | 6.30 | 6.69 | 3.15 | 15.67 | 4.84 | ½ | 109.13 | 5.43 | 6.30 |
| | M72 x 6,0 | **PGTD72105S** | 4.13 | 19,575 | 34.06 | 333.6 | 0.39 | 6.73 | 6.97 | 3.48 | 16.89 | 4.96 | ½ | 132.50 | 5.75 | 6.73 |

* Dimension S = Square Drive of Puller Bar and Gear Box.

▼ FTR-Series Foundation Bolt Tensioner




# High Precision, Low Maintenance

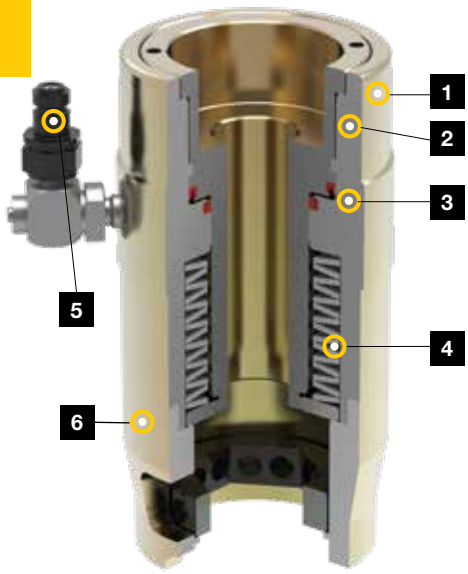
- **FTR-Series Foundation Bolt Tensioners provide fast, accurate and easy tightening of external or internal ring wind tower foundations**
- **Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types**
- **Long-stroke options accelerate process with single-pull tensioning**

**FTR-Series Foundation Bolt Tensioners**

FTR-Series Foundation Bolt Tensioners are designed specifically for tensioning wind tower foundation bolts. These tensioners provide the speed and precision required by this critical application.

Potential thread fit problems are eliminated through the use of existing rebar hex nuts as a reaction point.

The FTR-Series includes long-stroke models, which provide greater speed and ease of use by enabling applications to be completed in a single pull.




1. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
2. **Over-stroke indicator:** Extends life by helping to prevent over-stroking of cylinder.
3. **Long-life seals:** For maximum durability and extended service life intervals.
4. **Auto-retract piston:** Simplifies use and improves speed of operation.
5. **Quick-disconnect coupler:** For safe, simple hydraulic connection. *OPTIONAL 360° swivel available for additional hose positioning flexibility.*
6. **Interchangeable bridge**: For optimal application fit.

▼ *FTR-Series Foundation Bolt Tensioner Wrench*



## ▼ This is how a FTR-Series Foundation Bolt Tensioner Model Number is Built Up:

| FTR | 75 | 14 | 20 | SW | G |
|---|---|---|---|---|---|
| 1 Product Type | 2 Bar Grade | 3 Bar Size Designation | 4 Stroke | 5 Fitting Type | 6 Run Down Gear |

### 1 Product Type
**FTR** = Foundation Tensioner, Round

### 2 Bar Grade
**75** = 75 ksi
**150** = 150 ksi
(or metric designation)

### 3 Bar Size Designation
**Example:** 14 = No. 14 bar

### 4 Maximum Stroke
**Example: 20** = 20 mm (**0.79** inch) max. stroke

### 5 Fitting Type
**SW** = Includes swivel manifold with single male fitting

### 6 Run Down Gear
**G** = Includes Run Down Gear (available in select models)

# FTR Series



Load Range:
**0-308 tons**

Maximum Operating Pressure*:
**21,750 psi / 1500 bar**

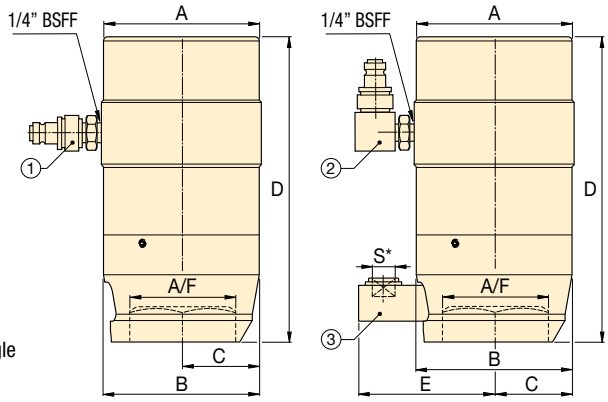
* Max. Pressure varies, see specification table for details.



**Tensioner Pumps**
Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.
*Page:* 239



**Hoses and Fittings**
High-pressure hoses and fittings for use with Enerpac tensioning systems are available.
*Page:* 325




① Single male fitting
② Swivel manifold with single male fitting
③ Nut run down gear box

**FTR....S** **FTR....SWG**

## ▼ SPECIFICATION TABLE

| Bar Grade | Bolt Diameter (in) | Bolt Diameter (mm) | Bar Size Designation | Model Number | Nut AF (in) | Maximum Pressure (psi) | Hydraulic Pressure Area ($in^2$) | Load Capacity (tons) | Stroke (in) | Dimensions (in) A | B | C | D | E | Wt. (lbs) | Min. Bolt Protrusion (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75 ksi | 1.38 | 35 | #10 | FTR751010S | 2.00 | 17,400 | 4.86 | 42.3 | 0.39 | 3.90 | 3.48 | 1.74 | 6.42 | – | 12.9 | 7.87 |
| | 1.38 | 35 | #10 | FTR751025S | 2.00 | 17,400 | 4.84 | 42.1 | 0.98 | 4.53 | 4.02 | 1.65 | 8.64 | – | 24.1 | 9.84 |
| | 1.50 | 38 | #11 | FTR751110S | 2.25 | 21,750 | 4.86 | 52.8 | 0.39 | 3.90 | 3.86 | 1.50 | 7.01 | – | 12.1 | 8.66 |
| | 1.50 | 38 | #11 | FTR751125SG | 2.25 | 21,750 | 4.84 | 52.7 | 0.98 | 4.53 | 4.02 | 2.01 | 8.92 | 3.78 | 25.3 | 10.24 |
| | 1.88 | 48 | #14 | FTR751420S | 2.75 | 16,965 | 9.44 | 80.1 | 0.79 | 5.20 | 5.20 | 2.60 | 10.55 | – | 40.2 | 12.40 |
| 150 ksi | 1.44 | 37 | 1.25 | FTR15012510S | 2.25 | 16,965 | 8.34 | 90.8 | 0.39 | 4.37 | 4.33 | 1.57 | 7.01 | – | 18.2 | 8.66 |
| | 1.56 | 40 | 1.375 | FTR15013810S | 2.50 | 21,750 | 8.34 | 90.8 | 0.39 | 4.37 | 4.33 | 1.50 | 7.01 | – | 17.8 | 8.86 |
| | 2.75 | 70 | 2.50 | FTR15025025S | 4.25 | 21,750 | 28.27 | 307.5 | 1.00 | 8.44 | 8.35 | 3.39 | 13.68 | – | 127.8 | 17.72 |
| 10.9 | 1.42 | 36 | 36 | FTR1093610SG | 2.36 | 21,750 | 5.92 | 64.4 | 0.39 | 4.02 | 3.90 | 1.57 | 6.93 | 3.74 | 19.0 | 7.68 |

Gear box square drive dimension S = 1/2 inch.

▼ FTE-Series Elliptical Foundation Tensioner




# High Precision, Low Maintenance

- **FTE-Series Foundation Bolt Tensioners provide fast and accurate performance in difficult, narrow access foundation tensioning applications**
- **Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types**
- **Ideal universal solution that fits both standard and narrow access applications**

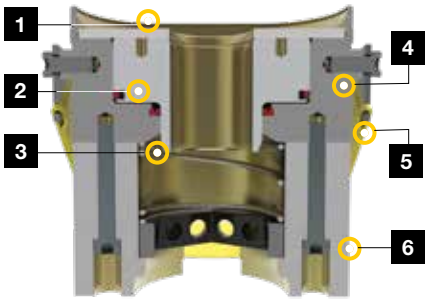
**FTE-Series, Foundation Bolt Tensioners**

Similar to Standard Foundation Tensioners, Elliptical Tensioners were designed specifically for foundation fastening applications on wind towers, and utilize the existing hex nut as a reaction point in order to eliminate thread fit misalignment.

Unlike Standard FTR-Series Tensioners, FTE-Series Tensioners feature an elliptical geometry, which enables fit in narrow access foundation applications, without reducing load capabilities.

Operators may access the nut with a Tommy bar rather then employing the use of an offset rundown gear.

Elliptical tensioners are ideal for close clearance applications, or as a universal tool that will work in nearly any foundation application, whether standard or narrow access.




1. **Max. stroke Indicator:** Extends life by helping to prevent over-stroking of cylinder.
2. **Long-life seals:** For maximum durability and extended service life intervals.
3. **Auto-retract piston:** Simplifies use and improves speed of operation.
4. **Elliptical form**: Provides access to close clearance applications.
5. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
6. **Quick-disconnect coupler** *(not shown)*: For safe, simple hydraulic connection. *OPTIONAL 360° swivel available for additional hose positioning flexibility.*

▼ *FTE-Series, Foundation Bolt Tensioner, designed to fit both standard and narrow access foundation applications.*



# FTE-Series, Foundation Bolt Tensioners (Elliptical)

**▼ This is how an FTE-Series Foundation Bolt Tensioner Model Number is Built Up:**

| FTE | 75 | 10 | SW |
|---|---|---|---|
| 1 Product Type | 2 Bar Grade | 3 Bar Size Designation | 4 Fitting Type |

**1 Product Type**

**FTE** = Foundation Tensioner, Elliptical

**2 Bar Grade**

**75** = 75 ksi
**150** = 150 ksi
(or metric designation)

**3 Bar Size Designation**

**Example: 10** = No. 10 bar

**4 Fitting Type**

**S** = Includes single male fitting
**SW** = Includes swivel manifold with single male fitting

**FTE Series**



Load Range:
**0 - 86 tons**

Maximum Operating Pressure*:
**21,750 psi / 1500 bar**

* Maximum pressure varies, see specification table for details.



**Tensioner Pumps**

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.

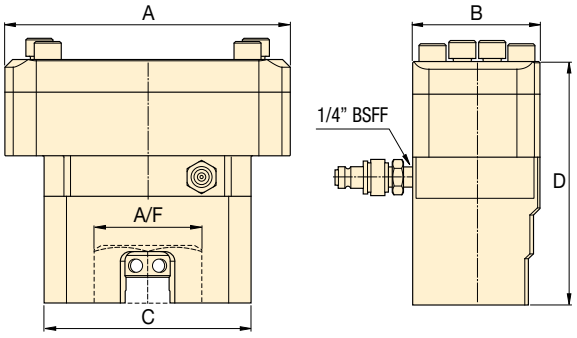
*Page:* 239



**Hoses and Fittings**

High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

*Page:* 325




**▼ SPECIFICATION TABLE**

| Bar Grade | Bolt Diameter (in) | Bolt Diameter (mm) | Bar Size Designation | Model Number | Nut AF (in) | Maximum Pressure (psi) | Hydraulic Pressure Area ($in^2$) | Load Capacity (tons) | Stroke (in) | Dimensions (in) A | B | C | D | Wt. (lbs) | Min. Bolt Protrusion (in) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75 ksi | 1.38 | 35 | #10 | **FTE7510S** | 2.00 | 17,400 | 4.82 | 41.9 | 0.39 | 6.69 | 3.23 | 5.59 | 5.81 | 18.19 | 7.87 |
| | 1.50 | 38 | #11 | **FTE7511S** | 2.25 | 21,750 | 4.82 | 52.4 | 0.39 | 6.69 | 3.23 | 5.59 | 5.81 | 18.19 | 8.66 |
| 150 ksi | 1.44 | 37 | 1.25 | **FTE150125S** | 2.25 | 17,400 | 7.86 | 68.4 | 0.39 | 8.74 | 3.90 | 6.34 | 8.01 | 41.67 | 9.45 |
| | 1.56 | 40 | 1.375 | **FTE150138S** | 2.50 | 21,750 | 7.86 | 85.6 | 0.39 | 8.74 | 3.90 | 6.34 | 8.01 | 40.81 | 9.06 |
| 8.8 | 1.42 | 36 | 36 | **FTE8836S** | 2.36 | 21,750 | 4.82 | 52.4 | 0.39 | 5.59 | 3.23 | 5.59 | 5.81 | 21.32 | 7.09 |

▼ HPT1500




# HPT
## Series

Reservoir Capacity:
**155 in³**

Flow at Rated Pressure:
**0.037 in³/stroke**

Maximum Operating Pressure:
**21,750 psi (1500 bar)**

**Ultra High-Pressure**

These pumps operate at ultra high-pressure, use only the specified fittings and hoses designed for these pressures.

*Page:* 325

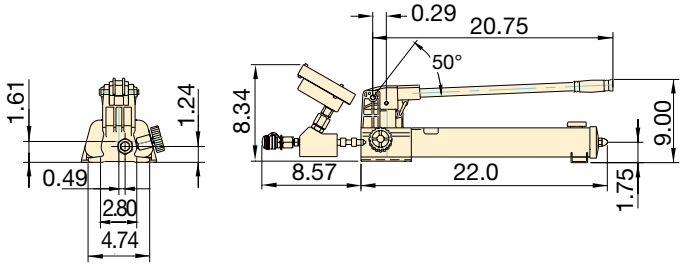


**Applications**

The Enerpac HPT high-pressure Hand Pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts.

*Page:* 239

- **Lightweight and portable high-pressure hand pump**
- **Two-speed operation displaces a larger volume of oil per stroke, reducing cycle times for many testing applications**
- **Includes a gauge and coupler for direct connection to Enerpac Bolt Tensioners**
- **Integrated relief valve set at 21,750 psi**




▼ 21,750 PSI ULTRA-HIGH PRESSURE PUMP

| Pump Type | Usable Oil Capacity (in³) | Model Number | Pressure Rating (psi) 1st stage | Pressure Rating (psi) 2nd stage | Oil Displacement per Stroke (in³) 1st stage | Oil Displacement per Stroke (in³) 2nd stage | High Pressure Oil Port with Female Coupler | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|
| Two Speed | 155 | **HPT1500** | 200 | 21,750 | 0.99 | 0.037 | 1/4" BSPP + BR50 | 19 |

- **Hose Reel and Stand: Stainless steel stand with 21,500 psi hoses from 98.42 up to 885.8 ft. lengths**
- **All hose reels are built up with multiple 98.42 ft. length hoses**
- **Wide offering of hoses and system components to complete your tensioning system**
- **Can be used for subsea fastening systems**
- **Hoses can be inter-connected in multi-tool set-ups using nipples, couplers, T-pieces and Y-Pipe assemblies**

## HT, B Series

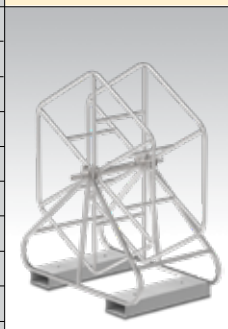


Hose Length:
**3.28 - 98.42 feet**

Hose Reel & Stand:
**98.42 - 885.8 feet**

Maximum Operating Pressure:
**21,750 psi (1500 bar)**

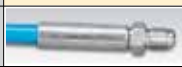
### 21,750 PSI HOSE REEL & STANDS

| Model Number | | Stainless Steel Hose Reels with Stand (Hose with female half BR150 and male half BH150 couplers) |
|---|---|---|
| HT15000RS |  | Reel & Stand Assembly, No Fitting |
| HT15000HRS | | Hose Reel & Stand, No Hose |
| HT15100HRS | | Hose Reel & Stand, with 100 ft. hose |
| HT15200HRS | | Hose Reel & Stand, with 200 ft. hose |
| HT15300HRS | | Hose Reel & Stand, with 300 ft. hose |
| HT15400HRS | | Hose Reel & Stand, with 400 ft. hose |
| HT15500HRS | | Hose Reel & Stand, with 500 ft. hose |
| HT15600HRS | | Hose Reel & Stand, with 600 ft. hose |
| HT15700HRS | | Hose Reel & Stand, with 700 ft. hose |
| HT15900HRS | | Hose Reel & Stand, with 900 ft. hose |



▲ *Inter-connected with HT-Series hoses Enerpac subsea tensioners apply uniform bolt load.*

### 21,750 PSI HOSES

| Model Number | Hoses | Hose End 1 | Hose End 2 | Length (ft) |
|---|---|---|---|---|
| HT1503 |  | 1/4 BSPM 120° Cone | 1/4 BSPM 120° Cone | 3.28 |
| HT1510 |  | 1/4 BSPM 120° Cone | 1/4 BSPM 120° Cone | 9.84 |
| HT15100 |  | 1/4 BSPM 120° Cone | 1/4 BSPM 120° Cone | 98.42 |
| HT1503HR * |  | BH150 | BR150 | 3.28 |
| HT1506HR * |  | BH150 | BR150 | 5.90 |
| HT1510HR * |  | BH150 | BR150 | 9.84 |
| HT1520HR * |  | BH150 | BR150 | 20 |
| HT15100HR * |  | BH150 | BR150 | 98.42 |
| HT1503RR * |  | BR150 | BR150 | 3.28 |
| HT1506RR * |  | BR150 | BR150 | 5.90 |
| HT1510RR * |  | BR150 | BR150 | 9.84 |
| HT1520RR * |  | BR150 | BR150 | 20 |

* Includes dust caps
H = Male Nipple (BH150); R = Female Coupling (BR150)

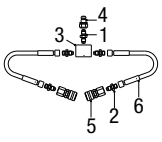
### 21,750 PSI COUPLERS

| Description (Includes dust caps) | Accessories | Complete Set | Female Half | Male Half |
|---|---|---|---|---|
| Quick Disconnect Coupler |  | B150 | BR150 | BH150 |
| Quick Disconnect Coupler and Adaptor Kit |  | BW150AW | – | – |
| Quick Disconnect Blanking Coupler Set* |  | B150B | BR150B | BH150B |

### 21,750 PSI T-PIECES

| Model Number | shown HT15TPMMF | End 1 | End 2 | End 3 |
|---|---|---|---|---|
| HT15TPMMF |  | 1x BH150 | 1x BH150 | 1x BR150 |
| HT15TPMMM | | 1x BH150 | 1x BH150 | 1x BH150 |

### 21,750 PSI Y-PIPE ASSEMBLIES

| Model Number | shown HT1506YTPMMF | End 1 Hose | End 2 Hose | End 3 T-Pieces |
|---|---|---|---|---|
| HT1506YPMMF |   | HT1506HR | HT1506HR | HT15TPMMF |
| HT1510YPMMF | | HT1510HR | HT1510HR | HT15TPMMF |
| HT1506YPFMF | | HT1506RR | HT1506RR | HT15TPMMM |
| HT1510YPFMF | | HT1510RR | HT1510RR | HT15TPMMM |

Y-Pipe Assembly: 1+2 = Adaptor; 3 = Stainless Steel T with 1/4" BSPM;
4 = Male Nipple (BH150); 5 = Female Coupling (BR150); 6 = Hose

## Tensioning Every Single Stud in a Joint Simultaneously



▲ *Multi Stud Tensioning Set-Up.*

**MULTI STUD TENSIONERS**

Enerpac Multi-Stud Tensioning (MST) systems are capable of tensioning every single stud in a joint simultaneously. By applying a predictable and accurate pre-load to all studs, problems associated with conventional bolt tightening techniques are avoided. Typical Enerpac Multi-Stud Tensioning applications include:

### Manway, Hand Hole & Inspection Covers

MST systems are the fastest and most accurate means of loosening and tightening studs on Primary and Secondary Manway Covers, Hand-Hole and Inspection Ports in nuclear facilities. Using special ram areas and strong lightweight materials, the MST's reduce bolting time by as much as 75%.

### Coolant Pump

A custom slimline tensioning system for a Nuclear Reactor Coolant Pump, using six equally spaced tensioners and tightening studs in four passes, has reduced bolting times by 25% and significantly increased tensioning accuracy.

### Wind Turbine Blade Assembly

Using an Enerpac MST has allowed wind turbine blade assembly times to be reduced by approx. 65% while bolt load accuracy and consistency have improved, resulting in better joint life and reduced maintenance requirements. The MST, comprising four tool segments, is capable of simultaneously tensioning up to 88 bolts connecting a 125 ft. long blade to a bearing slew ring.

## MST - Multi-Stud Tensioners

This tool can be custom designed, and built, for virtually any nuclear facility. We specialize in addressing difficult projects that demand accurate loads within tight space envelopes, while also seeking ease of operation and performance.

- Designed in segments enabling the operator to easily and quickly connect each segment to the joint and link together to provide simultaneous loading.
- Very accurate and fast closure system for large tensioning applications on pumps, valves, and steam generators, for example.
- For ease of handling on-site, Enerpac MST systems can be supplied with an integral lifting frame and trolley.



▲ *Multi-Stud Tensioner.*



▲ *Multi-Stud Tensioning application.*

# ATP-Series Ultra High-Pressure Air Pump

▼ **ATP1500**




**ATP Series**

Ex II 2 GD ck T4 IBExU 070/10 CE

Reservoir Capacity:
**1.0 gallon**

Flow at Rated Pressure:
**4 in³/min.**

Maximum Operating Pressure:
**21,750 psi (1500 bar)**

- **General purpose, high-pressure air-driven pump unit for products requiring up to 21,750 psi hydraulic pressure**
- **Compact, lightweight, rugged steel frame for protection and easy handling**
- **Prelubricated pump element, does not require an air line lubricator**
- **Easily adjustable output pressure control**
- **Integrated and protected easy-to-read glycerine-filled gauge**
- **Safety relief-valve limits output pressure**
- **ATEX Certified**

The ATP-series pump is tested and certified according to the Equipment Directive 94 / 9 / EC "ATEX Directive". The explosion protection is for equipment group II, equipment category 2 (hazardous area zone 1), in gas and/or dust atmospheres. The ATP-series pump is marked with: Ex II 2 GD ck T4.

**Ultra High-Pressure**

These pumps operate at ultra high-pressure, use only the specified fittings and hoses designed for these pressures.

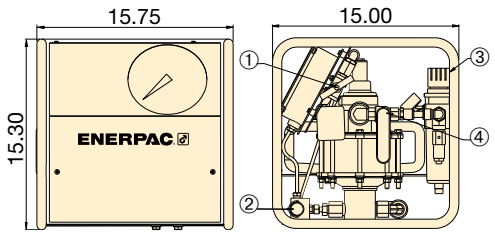
*Page:* 325



**Applications**

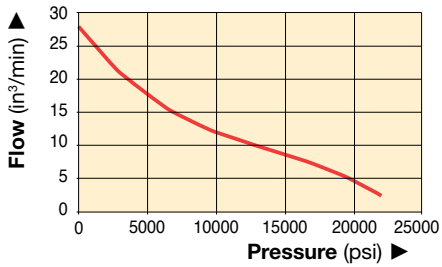
The ATP-pump is ideally suited for use with HM and GT-Series hydraulic bolt tensioning tools and hydraulic nuts.

*Page:* 239




① HPT Shut-off Valve
② 1/4" BSPP HPT Out Port
③ Filter/Regulator
④ Air On/Off Valve

**OIL FLOW vs. PRESSURE**




Flow (in³/min) at 90 psi air input

**21,750 PSI HIGH PRESSURE PUMP**

| Pump Type | Useable Oil Capacity (gal) | Model Number | Pressure Rating (psi) | Output Flow Rate at 0 psi (in³/min) | Output Flow Rate at 21,750 psi (in³/min) | Air Pressure Range (psi) | Air Consumption (sfcm) | Sound Level (dBA) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| Two Speed | 1.0 | **ATP1500** | 21,750 | 26 | 4 | 80-90 | 70 | 70 | 65 |

▼ **ZUTP1500SE-H**




# Reliability, Power and Precision

- **High-efficiency Universal Motor draws lower amps for superior performance in remote locations with low power quality**
- **Two-stage pump design provides high flow at low pressure for fast system fills and controlled flow at high pressure for safe and accurate operation**
- **Compact and lightweight design fits through tight openings and provides easy handling**
- **Panel mounted 6" pressure gauge, with polycarbonate cover, is set into the protective metal shroud for improved visibility and safety**
- **Easily accessible manual override valve to release pressure if power is lost**
- **Safety relief valve limits output pressure**



**Applications**

The Enerpac ZUTP-Series electric pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts.

*Page:* 239

**Ultra-High Pressure**

These pumps operate at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

*Page:* 325

**Bolting Integrity Software**

Visit **www.enerpac.com** to access our free on-line bolting software application and obtain information on tool selection, bolt load calculations and tool pressure settings. A combined application data sheet and joint completion report is also available.

*Page:* 416



◀ *The ZUTP1500 pump is rugged, lightweight, compact for tight openings, and delivers hassle-free operation of bolt tensioning in remote locations with up to two times the speed of competitive pumps.*

### ZUTP-Tensioning Pumps

The ZUTP-Series of pumps achieve high pressure without the need for an intensifier. This allows for low maintenance, resulting in less cost for the end-user.

### ZUTP-S with Solenoid Valve

The **ZUTP1500-S Series** with pendant-operated solenoid valve is ideal for multiple bolt tensioning applications as it allows for single-person operation. The operator can pressurize and depressurize the tensioner directly from the pendant.

# ZUTP Series



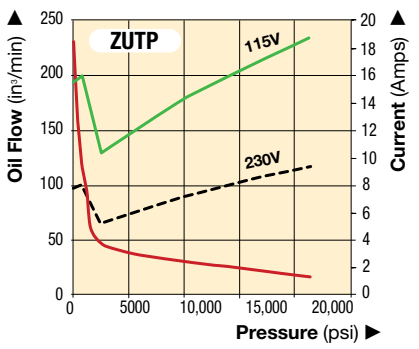
Reservoir Capacity:
**1 gallon**

Flow at Rated Pressure:
**20.0 in³/min.**

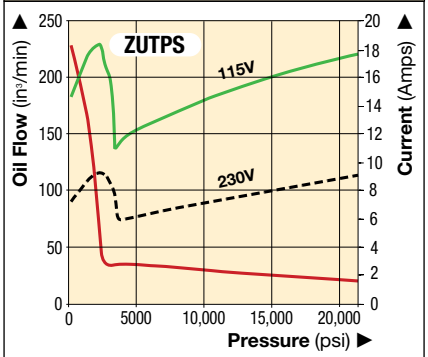
Motor Size:
**1.7 hp**

Maximum Operating Pressure:
**21,750 psi**

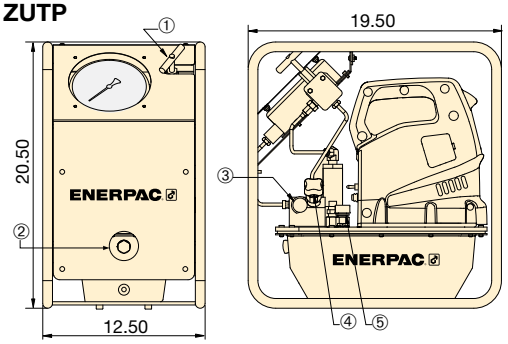
Oil Flow and Current vs. Pressure




Oil Flow and Current vs. Pressure

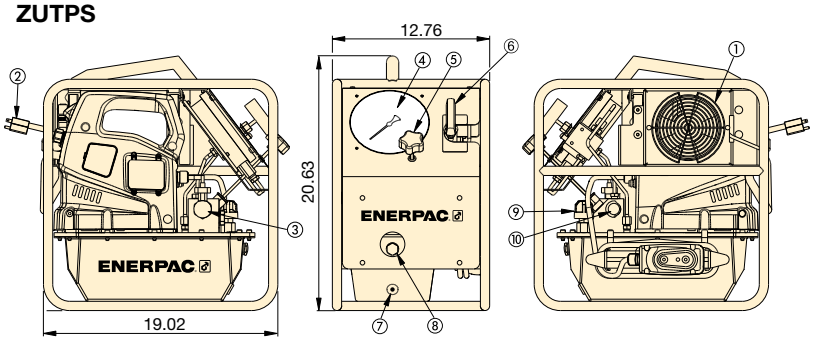



**ZUTP**




① Release Valve
② Sight Glass
③ Out Port
④ User Adjustable Relief Valve
⑤ Breather

**ZUTPS**




① Heat Exchanger (optional)
② Power Cord
③ Solenoid Dump Valve
④ Pressure Gauge
⑤ User Adjustable Relief Valve
⑥ Manual Release Valve
⑦ Oil Drain
⑧ Oil Level Sight Glass
⑨ Breather
⑩ Outlet Port with CEJN Coupler (116 Series)

| Pump Type | Useable Oil Capacity (gal) | Valve Type | Model Number [1] | Pressure Rating (psi) | Output Flow Rate at 0 psi (in³/min) | Output Flow Rate at 21,750 psi (in³/min) | Motor Electrical Specification (50 Hz) | Motor Size (hp) | Sound Level (dBA) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|
| Two Speed | 1.0 | Solenoid | **ZUTP1500SB** | 21,750 | 230 | 20 | 115 VAC, 1-ph | 1.7 | 89 | 65 |
| | | | **ZUTP1500SE** [2] | | | | 230 VAC, 1-ph [2] | | | |
| | | | **ZUTP1500SI** [3] | | | | 230 VAC, 1-ph [3] | | | |
| Two Speed | 1.0 | Solenoid | **ZUTP1500SB-H** [4] | 21,750 | 230 | 20 | 115 VAC, 1-ph | 1.7 | 89 | 75 |
| | | | **ZUTP1500SE-H** [2] [4] | | | | 230 VAC, 1-ph [2] | | | |
| | | | **ZUTP1500SI-H** [3] [4] | | | | 230 VAC, 1-ph [3] | | | |
| Two Speed | 1.0 | Manual | **ZUTP1500B** | 21,750 | 230 | 20 | 115 VAC, 1-ph | 1.7 | 89 | 65 |
| | | | **ZUTP1500E** [2] | | | | 230 VAC, 1-ph [2] | | | |
| | | | **ZUTP1500I** [3] | | | | 230 VAC, 1-ph [3] | | | |

[1] All models meet CE safety requirements and all TÜV requirements.
[2] European plug and CE EMC directive compliant.
[3] With NEMA 6-15 plug.
[4] Pumps come with factory installed heat exchangers

▼ From left to right: **ATM4, ATM9, ATM2**



# The Faster, Simpler and Safer Way to Align Flanges



**Adjustable Reach**

The highly adjustable reach of the wing and drop leg on the ATM4 and ATM9 allows precise alignment.



**Gauge and Adaptor**

The ATM9 includes P142 hand pump and HC7206C 6 ft. long hose. Enerpac recommend the use of the pressure gauge **GP10S** and gauge adaptor **GA4** for easy mounting of the gauge onto your system or use GA45GC Gauge Adaptor Assembly.

- **Enerpac ATM-Series tools rectify twist and rotational misalignment quickly, safely, and without the need for an external power source**
- **Appropriate for use on most ANSI, API, BS and DIN flanges**
- **No slings, hooks or lifting gear required**
- **Can be installed and used in any position (horizontally or vertically)**
- **Portable, lightweight design enables easy transport and use, even in remote locations**
- **Stays stable in position under full load**
- **Reduces set-up time: no need for chains, pulleys or rigs**
- **Safety strap helps provide secure operation**
- **Each ATM-model contains a tool and kit box**

▼ *The compact ATM2 is actuated by simply hand turning the crank.*



▼ *The ATM9 is shown here with optional pressure gauge and gauge adaptor.*



## Applications

Enerpac ATM-Series Tools help correct flange misalignment, and allow bolts to be placed into joints. This alignment takes place during pipework construction, or maintenance.

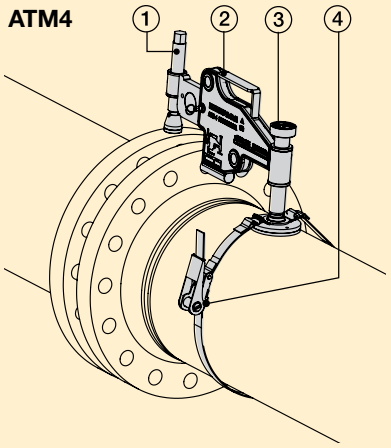
These tools provide pipe installers and maintenance personnel with some of the simplest, safest and most productive solutions available for flange alignment in the market today.

① Extendable wing provides usage on wide variety of flanges.

② Portable, light weight design enables easy transport and use.

③ Hand-adjustable base for easy positioning by a single operator.

④ Safety strap helps provide secure operation from a horizontal or vertical position.




# ATM Series



Minimum Bolt Size:
**0.63 - 1.40 inches**

Flange Wall Thickness:
**0.55 - 9.00 inches**

Maximum Lifting Force:
**1 - 10 tons**



**Cylinder-Pump Sets**

Hydraulic cylinders, jacks and lifting wedges can also be used to assist in pipe line positioning and aligning.

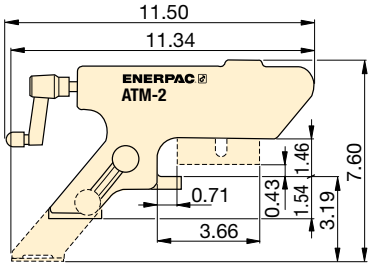
*Page:* 63



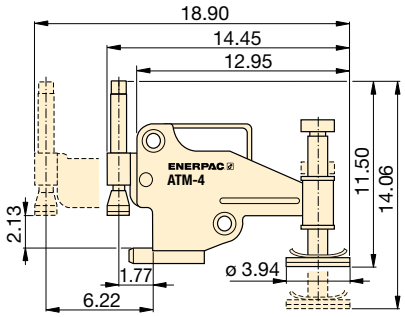
**Pipe Flange Face Tool**

The portable, hand powered tool **FF120** makes even the hardest to reach pipe flanges resurfaceable in a safe and convenient way.

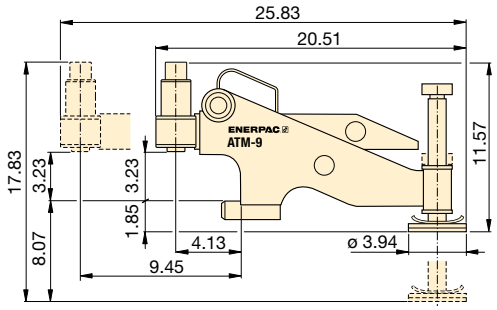
*Page:* 340




**ATM2**




**ATM4**




**ATM9**

| Maximum Lifting Force (ton)* | Maximum Lifting Force (kN)* | Model Number | Minimum Bolt Size** (in) | Minimum Bolt Size** (mm) | Flange Wall Thickness (max) (in) | Flange Wall Thickness (max) (mm) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|
| 1 | 10 | ATM2 | 0.63 | 16 | 0.55 - 3.29 | 14 - 82 | 3.5 |
| 4 | 40 | ATM4 | 0.95 | 24 | 1.18 - 5.23 | 30 - 133 | 19 |
| 10 | 90 | ATM9** | 1.40 | 35,5 | 3.66 - 9.00 | 93 - 228 | 32 |

* At 10,000-psi maximum operating pressure.
** ATM9 includes an Enerpac hand pump and hydraulic hose (gauge and adaptor sold separately). ATM9 weight includes tool only.

▼ *The ATM-Series – the faster, simpler and safer way to align flanges.*



▼ FSC14, FSM8 and FSH14 with Safety Blocks SB1



# Practical, Portable and Lightweight

- **Integrated wedge concept: friction-free, smooth, parallel wedge movement eliminates flange damage and spreading arm failure**
- **Unique interlocking wedge design: no first step bending and risk of slipping out of joint**
- **Requires very small access gap of only 0.24 inch (6 mm)**
- **Stepped spreader arm design: each step can spread under full load**
- **Few moving parts means durability and low maintenance**
- **Safety block SB1 included with FSC14, FSH14 and FSM8**
- **Ratchet spanner SW22 included with FSM8 mechanical spreader**
- **Single-acting cylinder included with FSH14 hydraulic spreader**



**FSC14 with Integrated Hand Pump**

Powered by a built-in hydraulic hand pump, the FSC14 is a ready-to-use tool – no making or breaking hydraulic connections. This compact tool delivers 14 US tons of force and requires a clearance gap as small as 0.24 inch.



**Stepped Blocks FSB1**

Use this pair of stepped blocks to increase wedge opening up to 3.16 in. (80 mm). Fits **FSC, FSH** and **FSM** models.



**AM-Series Control Manifolds**

For simultaneously and even spreading of flange joints, 180° apart with FSH14.

152



**Flange Maintenance Tools**

Secure-Grip flange speading tools for application on flanges with a small gap.

*Page:* 352



◀ *Two FSH14 spreaders used simultaneously with Enerpac handpump, hoses and AM21 control manifold.*

**Flange Spreading Wedges**

The flange spreading tools have been developed to aid and simplify the maintenance of flange joints. No longer will those tasked with separating flanges have to rely on using ropes and pulleys, podgers, tirfors, come-alongs or hammers – there is a safe, quick and effective alternative, the Enerpac range of spreaders. These spreaders use mechanical and hydraulic principles for separating flanges and can spread small, medium or large flange joints. Tool selection is made on the basis of the access gap between the flange faces, the flange size and the required scope of work.

# FSC, FSH, FSM Series



Tip Clearance / Maximum Spread[1]:
**0.24 / 3.16 inches**

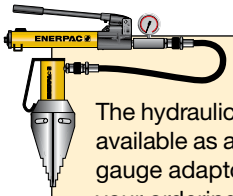
Maximum Spread Force:
**8 - 14 tons**

Maximum Operating Pressure:
**10,000 psi (FSH-14)**



**Safety Lanyard FSC1**

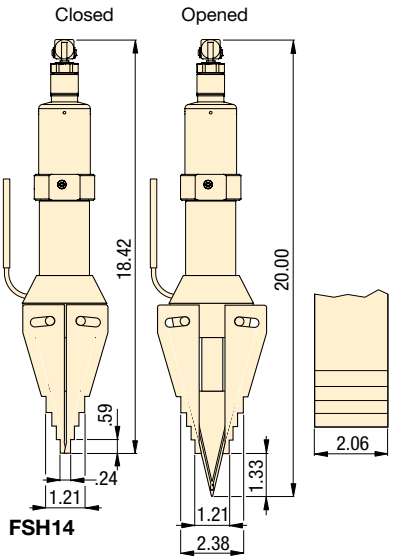
Recommended safety accessory to compliment the safe hands-free bolting. Includes steel cable with carabiners.

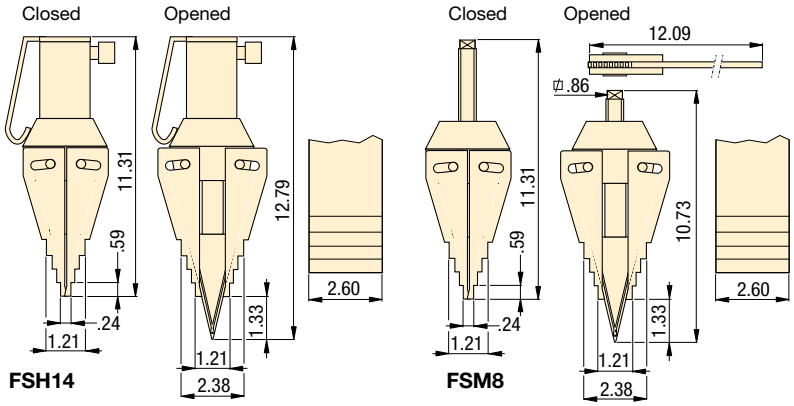


**Tool Pump Sets**

The hydraulic flange spreader is available as a **set** (pump, tool, gauge, gauge adaptor, couplers and hose) for your ordering convenience.

| Spreader Model No. | Hand Pump Model No. | Set Model Number |
|---|---|---|
| FSH14 | P392 | **STF14H** |




▼ *Flange maintenance and joint separation with FSH14 Hydraulic Wedge Spreader.*



| Max. Spreading Force (ton) | Model Number | Tip Clearance (in) | Max. Spread[1] (in) | Type | Oil Capacity ($in^3$) | Wt. (lbs) |
|---|---|---|---|---|---|---|
| **14** | **FSC14** | 0.24 | 3.16 | Integral hydraulics | – | 19.8 |
| **14** | **FSH14*** | 0.24 | 3.16 | External hydraulics | 4.76 | 15.7 |
| **8** | **FSM8** | 0.24 | 3.16 | Mechanical | – | 14.3 |

[1] Using stepped blocks FSB1.
* Available as Tool Pump Set, see note on this page.

▼ Shown from left to right: **NC3241, NC1019, NC1924**

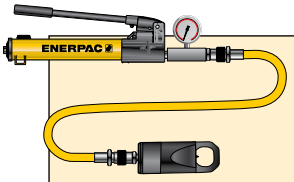



# The Safest and Easiest Way to Remove Corroded and Frozen Nuts

- **Compact and ergonomic design, easy to use**
- **Unique angled head allows flush access**
- **Two blade design (NC-D models) for time saving operation – nuts are split from two sides in one action**
- **Single-acting, spring return cylinder**
- **Heavy-duty chisels can be reground**
- **Nut Splitters include spare chisel, spare set screw and wrench used to secure the chisel**
- **A CR400 coupler is standard**

▼ *Enerpac hydraulic nut splitters – the safest and easiest way to remove corroded and frozen nuts*






**Tool-Pump Kits**

Hydraulic Nut Cutters are available as sets (pump, tool, gauge, adaptor and hose) for your ordering convenience.

| Nut Splitter Model Number | Hand Pump Model Number | Nut Splitter Set Model Number |
|---|---|---|
| NC1924 | P392 | **STN1924H** |
| NC2432 | P392 | **STN2432H** |
| NC3241 | P392 | **STN3241H** |



**High-Pressure Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

***Page:*** **325**



**GA45GC Gauge Adaptor**

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

***Page:*** **162**

# Single-Acting Hydraulic Nut Splitters

**Frozen or Corroded Nuts**

Often nuts are difficult to remove, while loosening using tightening tools is possible, it generally requires larger equipment and is time consuming.

The use of cutting torches or hammers and chisels can cause damage to the joint components, requires significantly longer setup and operational time, and can present a potential safety risk.

**Hydraulic Nut Splitters**

Nut splitting with the Enerpac Hydraulic Nut Splitters is the safest method. It takes less time and avoids costly damage to joint components. The head design fitted with heavy-duty chisels permits the splitting of nuts on a wide variety of applications. With the two blade models nuts are split from two sides in one action.

## NC, STN Series



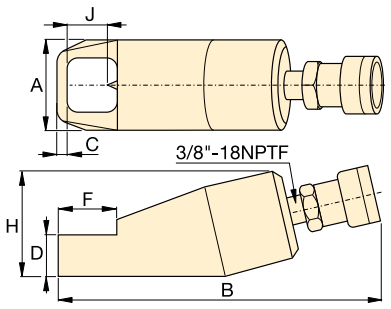
Bolt Range:
**0.31 - 1.88 inches**

Hexagon Nut Range:
**0.50 - 2.88 inches**

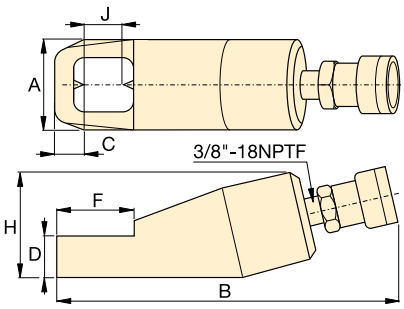
Capacity:
**5 - 90 tons**

Maximum Operating Pressure:
**10,000 psi**

| For Nut Splitter Model No. | Replacement Chisel Model Number | |
|---|---|---|
| | Moving | Static |
| NC1019 | **NCB1019** | – |
| NC1924 | **NCB1924** | – |
| NC2432 | **NCB2432** | – |
| NC3241 | **NCB3241** | – |
| NC4150 | **NCB4150** | – |
| NC5060 | **NCB5060** | – |
| NC6075 | **NCB6075** | – |
| NC1924D | **NCB1924** | **NCB1924D** |
| NC2432D | **NCB2432** | **NCB2432D** |
| NC3241D | **NCB3241** | **NCB3241D** |




**Single Blade Models (NC)**




**Double Blade Models (NC-D)**



| | Bolt Range (in) | Hexagon Nut Range (in) | Maximum Cutting Force (ton) | Oil Capacity ($in^3$) | Model Number | Dimensions (in) A | B | C | D | F | H | J | Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | **0.31-0.50** | 0.50-0.75 | 5 | 0.92 | **NC1019** | 1.57 | 6.69 | 0.27 | 0.75 | 1.10 | 1.89 | 0.83 | 1.8 |
| | **0.50-0.63** | 0.75-0.94 | 10 | 1.22 | **NC1924 *** | 2.17 | 7.52 | 0.32 | 1.02 | 1.57 | 2.44 | 0.98 | 4.4 |
| | **0.63-0.88** | 0.94-1.13 | 15 | 3.66 | **NC2432 *** | 2.52 | 8.74 | 0.39 | 1.22 | 2.01 | 2.83 | 1.30 | 6.6 |
| | **0.88-1.13** | 1.13-1.56 | 20 | 4.88 | **NC3241 *** | 2.95 | 9.61 | 0.67 | 1.42 | 2.60 | 3.46 | 1.69 | 9.7 |
| | **1.13-1.38** | 1.56-2.00 | 35 | 9.46 | **NC4150** | 3.70 | 11.34 | 0.83 | 1.77 | 2.91 | 4.13 | 2.13 | 18.0 |
| | **1.38-1.50** | 2.00-2.25 | 50 | 14.64 | **NC5060** | 4.17 | 12.52 | 0.91 | 2.13 | 3.54 | 5.04 | 2.36 | 26.0 |
| | **1.50-1.88** | 2.38-2.88 | 90 | 30.00 | **NC6075** | 6.14 | 15.47 | 1.02 | 2.83 | 4.33 | 7.13 | 3.15 | 75.1 |
|  | **0.50-0.63** | 0.75-0.94 | 10 | 1.22 | **NC1924D** | 2.13 | 6.61 | 0.87 | 0.98 | 1.97 | 2.60 | 1.02 | 8.4 |
| | **0.63-0.88** | 0.94-1.13 | 15 | 3.66 | **NC2432D** | 2.52 | 10.83 | 0.98 | 1.22 | 2.56 | 3.07 | 1.30 | 11.9 |
| | **0.88-1.13** | 1.13-1.56 | 20 | 4.88 | **NC3241D** | 3.03 | 12.00 | 1.22 | 1.46 | 3.15 | 3.54 | 1.69 | 15.9 |

Ordering Notes: Maximum allowable hardness to split is HRc-44. Not to be used on square nuts or stainless steel.
* Available as Tool-Pump set, see note on page 334.

▼ Shown from left to right: **NSH1927, NSC1927**



# Designed to Meet the Challenges of Bolted Pipeline Flange Joints

- **NSC-Series with built-in small hand pump – useful for subsea applications and working at heights**
- **Quick and easy cutting tip replacement**
- **Drop-tested revolving anchor point and safety lanyard**
- **Revolving composite handle for vibration and shock isolation**
- **Nut Splitters include set of hexagon keys and following spare parts:**
  **– cutting tip**
  **– tip retention screw**
  **– spare alignment screw**
- **CR400 female half coupler is standard (NSH)**



**NSC-Series Nut Splitters with Integral Hand Pump**

Powered by a built-in hydraulic hand pump, the NSC-Series are a ready-to-use tool – no need for hose, separate hand pump or couplings.



**Carrying Case**

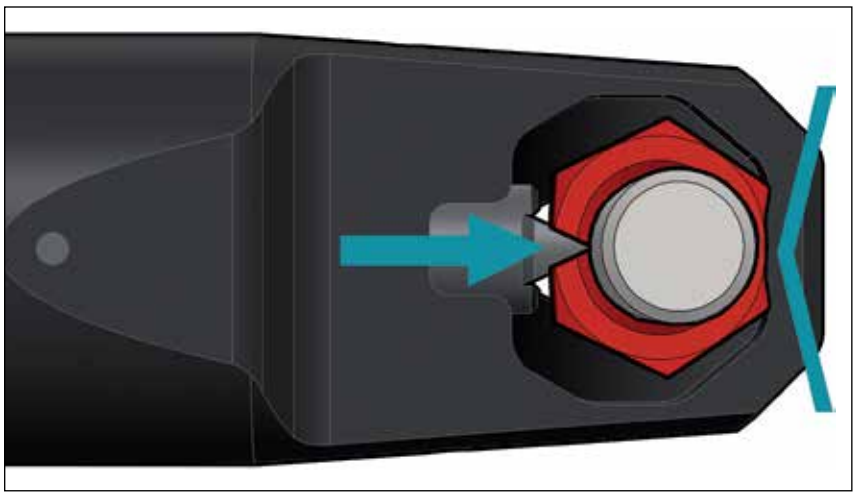
Nut splitters (up to NSH6575) come in a carry case for portability and easy storage.



**Safety Lanyard FSC1**

Standard Safety Lanyard with each nut splitter. Includes steel cable with carabiners.

▼ *The sharp cutting tip and opposing convex reaction point encourages more efficient splitting by spreading the nut open rather than squashing the nut onto the stud. This makes it easier to rotate the nut for the second cut.*





# Single-Acting Integral & Hydraulic Nut Splitters

**Frozen or Corroded Nuts**

Often nuts are difficult to remove, while loosening using tightening tools is possible, it generally requires larger equipment and is time consuming.

The use of cutting torches or hammers and chisels can cause damage to the joint components, requires significantly longer setup and operational time, and can present a potential safety risk.

**Hydraulic Nut Splitters**

Nut splitting with the Enerpac Hydraulic Nut Splitters is the safest method. It takes less time and avoids costly damage to joint components. The head design fitted with heavy-duty chisels permits the splitting of nuts on a wide variety of applications. With the two blade models nuts are split from two sides in one action.

## NSC, NSH Series

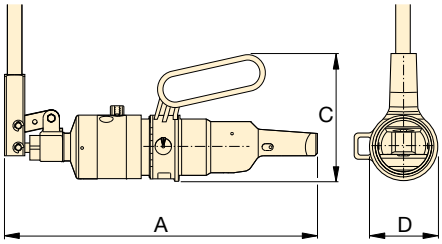


Bolt Range:
**½ - 1⅞ inches**

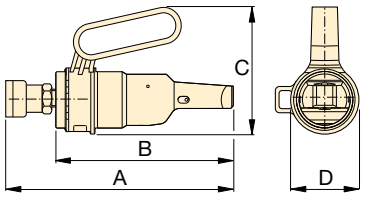
Hexagon Nut Range:
**0.88 - 2.94 inches**

Capacity:
**12 - 50 tons**

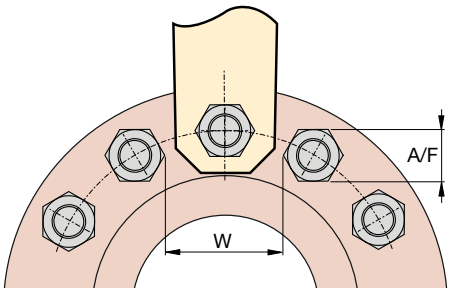
Maximum Operating Pressure:
**10,000 psi (NSH-Series)**

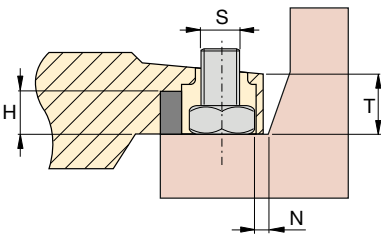



**NSC**




**NSH**






**High-Pressure Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 325



**Joint Separation Tools**

Flange Spreaders (FSC, FSH, FSM-Series) provide quick and easy joint separation using hydraulic or mechanical force.

*Page:* 332

### ▼ NUT SPLITTER SPECIFICATIONS

| Bolt Range (in) | Hexagon Nut Range A/F (in) | Maximum Cutting Force (ton) | Oil Capacity ($in^3$) | Model Number | Nut Splitter Type | Dimensions (in) A | B | C | D | H max. | N min. | S max. | T | W min. | Wt. (lbs) | Cutting Tip Service Kit Model No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ½ - ⅝ | 0.75 - 1.06 | 12 | – | NSC1927 | Integral pump | 13.8 | – | 6.0 | 3.2 | 0.71 | 0.33 | 0.96 | 1.04 | 2.11 | 12.8 | NSH1927CTK |
| ¾ - ⅞ | 0.94 - 1.26 | 15 | – | NSC2432 | | 14.6 | – | 6.0 | 3.2 | 0.98 | 0.35 | 1.04 | 1.26 | 2.26 | 13.9 | NSH2432CTK |
| ½ - ⅝ | 0.75 - 1.06 | 12 | 2.8 | NSH1927 | Hydraulic | 10.0 | 8.3 | 6.0 | 3.2 | 0.71 | 0.33 | 0.96 | 1.04 | 2.11 | 7.7 | NSH1927CTK |
| ¾ - ⅞ | 0.94 - 1.26 | 15 | 2.8 | NSH2432 | | 10.4 | 8.7 | 6.0 | 3.2 | 0.98 | 0.35 | 1.04 | 1.26 | 2.26 | 8.8 | NSH2432CTK |
| ⅞ - 1⅛ | 1.42 - 1.81 | 20 | 4.9 | NSH3646 | | 11.4 | 9.4 | 6.7 | 3.7 | 1.34 | 0.63 | 1.53 | 1.73 | 3.20 | 15.2 | NSH3646CTK |
| 1¼ - 1⅝ | 2.00 - 2.56 | 36 | 14.0 | NSH5065 | | 14.8 | 12.7 | 8.3 | 7.3 | 1.77 | 0.90 | 1.93 | 2.05 | 4.25 | 24.0 | NSH5065CTK |
| 1⅝ - 1⅞ | 2.56 - 2.95 | 50 | 20.0 | NSH6575 | | 15.6 | 13.6 | 8.7 | 7.9 | 2.15 | 1.06 | 2.40 | 2.56 | 5.31 | 54.0 | NSH6575CTK |

Ordering Notes: Maximum allowable hardness to split is ASTM A194 Gr 2H. Not to be used on square nuts or stainless steel.

▼ Shown: **NSH31 with NSPH3, NSH41 with NSPH4**




## Versatile, reliable and trouble-free operation

- **Designed to fit standard BS/ANSI flanges**
- **Blade positioning scale to eliminate bolt damage**
- **Adjustable cutting depth**
- **Ergonomically designed and positioned handle**
- **Interchangeable power heads with cutting blade**
- **Single-acting spring return power head (NSPH)**
- **Double-acting power head (NSPH-D):**
  **– for subsea operation**
- **Nut splitters include spare chisel, spare set screw and wrench used to secure the chisel**
- **CR400 female half coupler standard on NSPH**
- **CR400 + CH604 couplers standard on NSPH-D**

**ATEX certified**
- **All NSH-tools are CE - ATEX certified**



**Blade Positioning Scale**

The power head can be adjusted to preset the blade cutting distance in order to prevent damage to the bolt thread as the nut is cut.

The blade positioning scale can be used with the following bolt and nut forms:
- Unified bolt threads (UN) with heavy series hexagon nuts
- Metric bolt threads (M) with standard series hexagon nuts



**Steel Hand Pumps**

The P80 and P84 two-speed hand pumps are ideal to operate nut splitters. The P84 can be used to power the double-acting tools.

*Page:* 88



**High-Pressure Hoses**

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

*Page:* 325

# Single- and Double-Acting Hydraulic Nut Splitters

### Hydraulic Nut Splitters

These Hydraulic Nut Splitters are the ideal tools for removing seized and corroded nuts, eradicating the need for unsafe grinding or flame cutting.

They are designed with a single acting spring return cylinder and boast a 360 degree rotation, lockable handle improving operator safety.

The heavy-duty blades can also be easily removed to enable replacement blades to be fitted.

### Operator Safety

To improve operator safety an ergonomic, adjustable handle is available which can be easily fitted to the Nut Splitter.

This lightweight, durable accessory can prevent injuries such as trapped fingers by eliminating the need to hold the tool itself.

**ATEX Certified: Ex II 2 G c T6**

These Nut Splitters are tested and certified to conform to the 94/9/EC "ATEX Directive".

The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Zone Area 1) in Gas and/or Dust atmospheres.

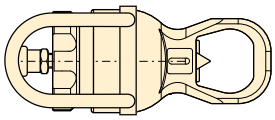
## NSH Series



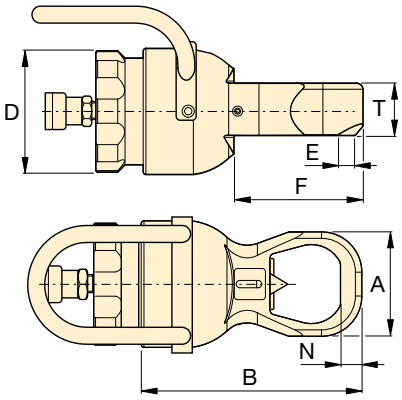
Bolt Range:
**1¾ - 3½ inches**

Hexagon Nut Range:
**2¾ - 5⅜ inches**

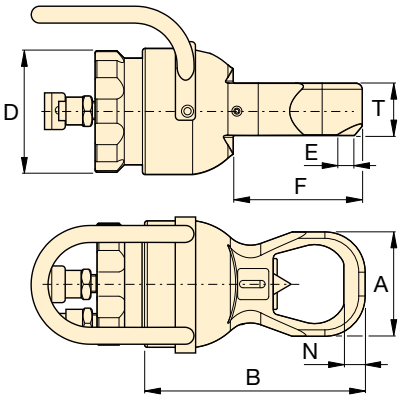
Maximum Operating Pressure:
**10,000 psi**



**Complete Nut Splitter** = **Power Head (NSPH)** + **Cutting Head (NSH)**




**NSPH + NSH**




**NSPH-D + NSH**



### Joint Separation Tools

Flange Spreaders (FSC, FSH, FSM-Series) provide quick and easy joint separation using hydraulic or mechanical force.

*Page:* 332

| For Power Head Model No. | | Cutting Tip Service Kit Model No. |
|---|---|---|
| NSPH3 | NSPH3D | NSPH3CTK |
| NSPH4 | NSPH4D | NSPH4CTK |

### ▼ NUT SPLITTER SPECIFICATIONS

| Bolt Range (in) | Hexagon Nut Range A/F (in) | Maximum Cutting Force (ton) | Oil Capacity (in³) | Model Numbers Nut Splitter Components | | | | | Dimensions (in) | | | | | | | Weight Cutting + Power Head (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cutting Head | Wt. (lbs) | Power Heads Single-acting | Power Heads Double-acting | Wt. (lbs) | A | B | D | E | F | N | T | |
| **1¾ - 2** | 2¾ - 3⅛ | **115** | 33.5 | **NSH31** | 44.1 | **NSPH3** | **NSPH3D** | 48.5 | 5.2 | 12.1 | 7.5 | 0.3 | 7.4 | 1.1 | 3.2 | 92.6 |
| **1¾ - 2¼** | 2¾ - 3½ | **115** | 33.5 | **NSH32** | 46.3 | **NSPH3** | **NSPH3D** | 48.5 | 5.9 | 12.7 | 7.5 | 0.6 | 7.9 | 1.2 | 3.2 | 94.8 |
| **1¾ - 2½** | 2¾ - 3⅞ | **115** | 33.5 | **NSH33** | 48.5 | **NSPH3** | **NSPH3D** | 48.5 | 6.3 | 13.0 | 7.5 | 0.4 | 7.9 | 1.3 | 3.2 | 97.0 |
| **1¾ - 2¾** | 2¾ - 4¼ | **115** | 33.5 | **NSH34** | 48.5 | **NSPH3** | **NSPH3D** | 48.5 | 6.8 | 13.5 | 7.5 | 0.4 | 8.0 | 1.4 | 3.2 | 97.0 |
| **2¾ - 3** | 4¼ - 4⅝ | **195** | 67.0 | **NSH41** | 69.9 | **NSPH4** | **NSPH4D** | 83.8 | 7.4 | 14.5 | 9.3 | 0.2 | 9.1 | 1.4 | 4.4 | 153.7 |
| **2¾ - 3½** | 4¼ - 5⅜ | **195** | 67.0 | **NSH42** | 95.9 | **NSPH4** | **NSPH4D** | 83.8 | 8.6 | 15.5 | 9.3 | 0.1 | 9.7 | 1.4 | 4.4 | 179.7 |

Ordering Notes: Maximum allowable hardness to split is ASTM A194 Gr 2H. Not to be used on square nuts or stainless steel.

▼ **FF120**




# Safe, Efficient and Accurate Refacing of Flat Pipe Flange Surfaces

- **Refacing made easy — hand-operated machine tool can be set up anywhere without the need for air, electric or hydraulic power support**
- **Lightweight and portable — easily transported to remote locations for increased productivity**
- **Adjustable cutting range for flange diameters between 1-12 inches [25,4-304,8 mm]**
- **Interchangeable collets for ID mounting range from 1-6 inches allowing the user to work on many different flanges with minimal time between set-ups**
- **Interchangeable lead screws suitable for refacing damaged raised-face (RF) or flat-face (FF) joint flanges**
- **Tool body with expanding collets centers itself providing real concentric operation**

▼ *The Enerpac FF120 used to face a pipe flange.*





**Complete In-Wheeled Carrying Case**

The **FF120** comes as portable set 33 lbs. (15 kg). Can be transported, easy set-up and operated by a single technician.
Set includes:

- **FFL**-kit with locators, O-Rings and extensions
- **FSS**-kit with feed screw and nut ½"-20 UN for surface roughness Ra 64 - 96 µin.
- **FSF**-kit with feed screw and nut ½"-11 UNF for surface roughness Ra 125 - 250 µin.



**Joint Separation Tools FSC, FSH and FSH-Series** parallel wedge spreaders provide quick and easy joint separation using hydraulic or mechanical force.

*Page:* 332



**Flange Alignment Tools**

The ATM-Series provide safe and high-precision flange alignment tools that fit most commonly used ANSI, API, BS and DIN flanges.

*Page:* 330



**Controlled Tightening and Loosening**

Use Enerpac Bolting Tools to seal the joint to the precise torque or tension required: torque multipliers, torque wrenches and hydraulic bolt tensioners.

*Page:* 239

# Quick Face, Mechanical Flange Face Tool

**Mechanical Flange Face Tool**

Portable, hand powered tool makes even the hardest to reach pipe flanges resurfaceable in a safe and convenient way.

**Makes Refacing Easy**

A simple and cost effective solution – the FF120 turns a two man operation with heavy equipment, compressors and portable generators into a one man job.

The FF120 has interchangeable lead screws that make it suitable for resurfacing damaged flat-faced, raised-face or lens-ring joint flanges to the high safety standards required. After selecting the correct lead screw for the operation, the tool body is inserted in the pipe end and centres itself with adjustable locators to provide real concentric operation.

The tool arm is then rotated by hand using a worm-gear mechanism to provide a perfect spiral "gramophone" finish.

The tool can be adjusted with a calibrated slide to define cut depth and the correct finish.

**Surface Finish and Accuracy**

A serrated finish with 30-55 grooves per inch and a resultant roughness of between Ra 125-492 micro inches (3,2-12,5 µm).

The FF120 has same precision and quality of finish as a lathe.

**Cost-effective Solution**

Small and portable enough to be a permanent addition to your equipment range, Enerpac's FF120 is the perfect solution to all of your small diameter facing problems.

**For more portable machining tools, see page 379.**

## FF Series



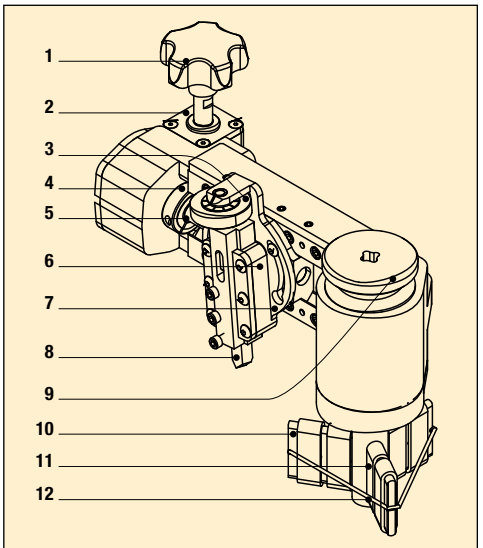
Pipe Flange Cutting Diameter Range:
**1 - 12 inch (25-305 mm)**

Internal Pipe Mounting Diameter Range:
**1 - 6 inch (25-152 mm)**

Average Roughness:
**125 - 492 µin (3,2-12,5) µm**

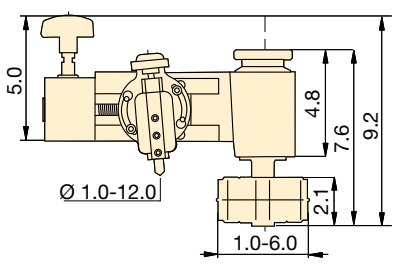


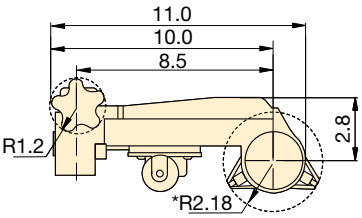

1. Hand-operated cold work tool – no need for external power and hot work permits.
2. Calibrated cross slide for accurate cutting control.
3. Adjustable cutting head for reface of flat flange surfaces of pipes with flange OD facing range ø 1-12 inch [25,4-304,8 mm].
4. Interchangeable lead screws enable selection of surface finish between Ra 125-492 µin.
5. Utilizes standard 3/8 inch or 10 mm tool steel.
6. Range of interchangeable collets allow the tool to accommodate ø 1 - 6 inch [25,4 - 152,4 mm] pipe ID.
7. Tool body with expanding collets centers in the bore ensuring concentric and accurate set-up.




1. Feed Knob
2. Gear Box
3. Cutting Depth Adjustment with indicator: .005 inch (0,127 mm) per mark
4. Locking Collar
5. Lead/Feed Screw
6. Tool Block
7. Swivel Slide
8. HSS 3/8" Tool Bits
9. Mandrel Locking Knob
10. Locator Extensions
11. Adjustable Locators
12. O-Ring

Dimensions shown in inches.




* without locator extensions.

▼ *The Enerpac FF120 Quick Face has same precision and quality of finish as powered machines.*

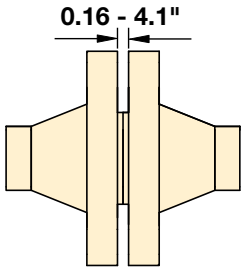


### ▼ TOOL SELECTION CHART

| Pipe Flange Cutting Diameter Range | | Internal Pipe Mounting Diameter Range | | Cutting Result Roughness (Ra µ) | | Model Number | Wt. |
|---|---|---|---|---|---|---|---|
| (in) | (mm) | (in) | (mm) | (in) | (m) | | (lbs) |
| 1.0 - 12.0 | 25,4 -304,8 | 1.0 - 6.0 | 25,4-152,4 | 125 - 492 | 3,2 - 12,5 | **FF120** | 15 |

**The Equalizer range of patented flange spreading tools have been developed to aid and simplify the maintenance of flange joints. No longer will those tasked with separating flanges have to rely on using ropes and pulleys, podgers, tirfors, come-alongs or hammers – there is a safe, quick and effective alternative, the Equalizer range of spreaders. These spreaders use mechanical and hydraulic principles for separating flanges and can spread small, medium or large flange joints. Tool selection is made on the basis of the access gap between the flange faces, the flange size and the required scope of work.**

## SWi Flange Spreading Wedges

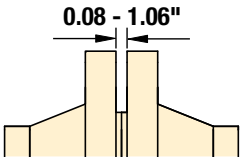



**An innovative flange spreading wedge for use on small, medium or large flange joints with a minimum access gap of 0.16 inch. The SWi range includes ATEX approved options.**

The SWi range has set the new standard for spreading flange joints powerfully, efficiently, effectively and safely. The tools offer the following features and benefits:

- Wider spreading - using the Standard Stepped Block accessories means the SWi range offers up to 30% more flange spreading distance than a traditional SW tool.
- Unrivalled power - the tools now offer up to 27 ton of spreading force when used in pairs, which provides additional confidence when spreading.
- Narrower jaws - the SWi5TE tools are only 1.97 inches wide to help them fit more easily between flange bolts.
- Fully rotational handle – the handle swivels 360° around the wedge head, so that the SWi tools can be used comfortably in all orientations.
- Easier maintenance – end-users will appreciate the ease with which the tools can be maintained. The supplied hex-key and a two-step process is all that's required to disassemble and reassemble the tools.
- No pinch points – the SWi range of tools has been engineered to overcome finger pinch-points.

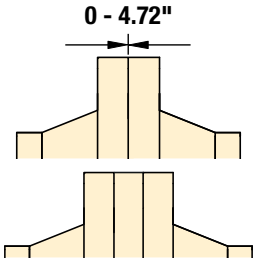
## MG Flange Spreading Tool




**A mechanical tool for small diameter, low pressure flanges with a minimum access gap of 0.08 inch.**

For use on smaller, lower pressure flange joints, this portable and flexible tool can be assembled in two alternative configurations that gives it twice the application range from one tool. The tool is locked onto the flange joint by the spreading bar preventing the risk of it falling from the flange joint.

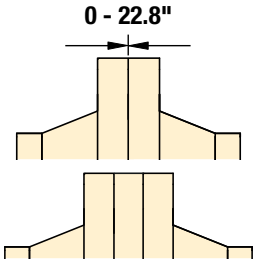
## SG Flange Spreading Tools




**A unique flange spreader that is ideal for situations where there is no access gap or where there is a spacer, a wafer or butterfly valve positioned between the flanges.**

Unique Secure-Grip tools spread by locking into the flange bolt holes and pulling the mating flanges away from each other, the Secure Grip flange spreaders are locked on to the flanges when under load making them arguably the world's safest flange spreading tools.

## VC Valve Change-Out Tools




**Using the same technology as the SG flange spreaders, the VC range has been developed for valve removal applications.**

The VC Range of Valve Change-Out tools has been developed to assist in the removal of valves, spades/spacers or gaskets from large flange joints. The span of the tool is longer than a standard Secure-Grip Flange Spreader and is adjustable to enable the tool to operate in a range of applications.

# Flange Maintenance Tools – Overview

| Capacity (U.S.tons) | Spreading Distance (tons) | Tool Type and Function | Series | | Page |
|---|---|---|---|---|---|
| 8.7 - 27 | 0.16 - 4.1 | **Flange Spreading Tools and Kits**<br>Flange Spreading Wedges | SWi |  | 344 ▶ |
| 15.7 - 27 | 0.24- 4.1 | **Flange Spreading Tools and Kits**<br>Flange Spreading Wedges, ATEX Certified | SWi |  | 346 ▶ |
| 4.2 - 16.9 | 0 - 4.53 | **Flange Spreading Tools and Kits**<br>Hydraulic and Mechanical | SG |  | 348 ▶ |
| 20.2 - 28.1 | 0 - 4.72 | **Flange Spreading Tools and Kits**<br>Hydraulic | SG |  | 350 ▶ |
| 11.2 | 0 - 22.8 | **Flange Spreading Tools and Kits**<br>Secure-Grip Valve Change-Out Tools, Hydraulic | VC |  | 352 ▶ |
| 7.6 | 0.08 - 1.06 | **Flange Spreading Tools and Kits**<br>Mechanical | MG |  | 354 ▶ |
| 11.2 | 22.4 - 0 | **Flange Pulling Tools**<br>Hydraulic | FC |  | 355 ▶ |
| 4.5 - 30.3 | 1.7 - 2.6 | **Flange Alignment Tools and Kits**<br>Wind Turbine Tower Flange Alignment Tools<br>Hydraulic and Mechanical | TFA |  | 356 ▶ |
| 0.08 - 0.26 gallons<br>2-Speed | – | **Hydraulic Sealed Hand Pumps**<br>Standard and ATEX-Certified | HP |  | 357 ▶ |
| 6.5 - 20 feet | – | **Hydraulic Hoses**<br>Standard and ATEX-Certified | 144<br>302 |  | 357 ▶ |

▼ SWi5TI-S



## SWi Series

FLANGE
SPREADING WEDGES

Spreading Force:
**8.7 - 27 tons**

Spreading Distance:
**0.16 - 4.1 inches**

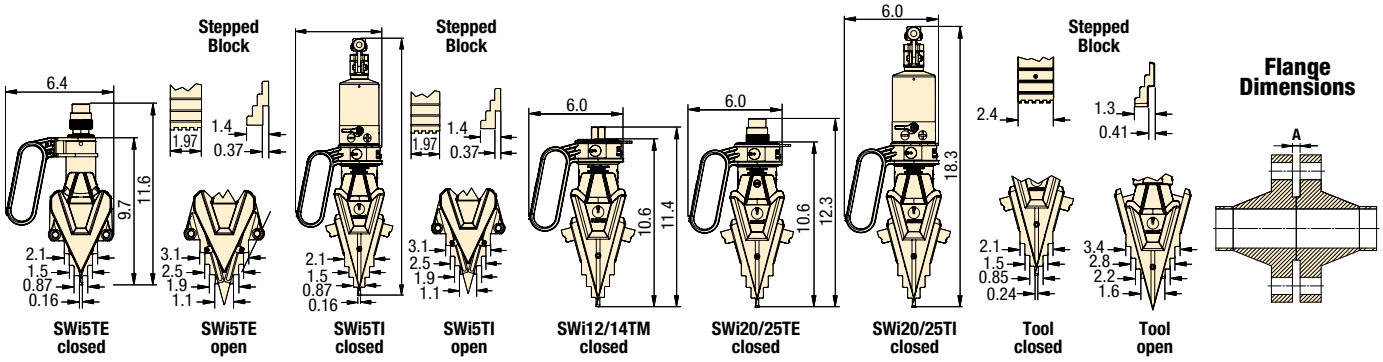
Maximum Operating Pressure:
**10,000 psi ***

* Only relevant for hydraulic tools

- **Practical, portable and lightweight**
- **Revolving handle to aid horizontal or vertical spreading**
- **Removable handle for improved access**
- **No finger pinch point**
- **Increased step-depth on upper steps**
- **Safety lanyard length, 39 inches**
- **Forged key components for strength and reliability**
- **Rapid disassembly and assembly**
- **Narrow jaw teeth – improved tool wear**

**CAUTION**

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.




| Model Number | Type | Maximum Spreading Force Per Tool (ton) | Spreading Distance Maximum * (in) | Flange Dimensions Minimum Access Gap A (in) | Jaw Width (in) | Tool Weight (lbs) | Kit Weight (lbs) | Case Dimensions (in) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|
| **SWi5TE-S** | External Hydraulic | 8.7 | 4 | 0.16 | 1.97 | 11.4 | 19.1 | 22.8 x 13.4 x 7.1 | SWi5TE |
| **SWi5TE-T** | External Hydraulic | 8.7 | 4 | 0.16 | 1.97 | 11.4 | 31.7 | 22.8 x 13.4 x 7.1 | SWi5TE |
| **SWi5TI-S** | Integral Hydraulic | 8.7 | 4 | 0.16 | 1.97 | 15.4 | 23.1 | 22.8 x 13.4 x 7.1 | SWi5TI |
| **SWi1214TMSTDSPB** | Mechanical | 15.7 | 4.1 | 0.24 | 2.4 | 13.7 | 28.7 | 22.8 x 13.0 x 6.5 | SWi12/14TM |
| **SWi2025TEMINSPB** | External Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 14.1 | 25.6 | 22.8 x 13.0 x 6.5 | SWi20/25TE |
| **SWi2025TESTDSPB** | External Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 14.1 | 45.6 | 36.2 x 19.7 x 8.1 | SWi20/25TE |
| **SWi2025TEMAXSPB** | External Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 14.1 | 72.8 | 36.2 x 19.7 x 8.1 | SWi20/25TE |
| **SWi2025TISTDSPB** | Integral Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 18.7 | 20.4 | 22.8 x 13.0 x 6.5 | SWi20/25TI |

* Using stepped blocks.

## **SWi5TE -** Hydraulic Flange Spreading Wedge

**SWi5TE-S** - SWi5TE S Kit



1 x SWi5TE Flange Spreading Tool
1 x Standard Safety Block
1 x Lanyard
1 x Moulded Plastic Carry Case with Protective Foam Inserts

**SWi5TE-T** - SWi5TE T Kit



2 x SWi5TE Flange Spreading Tools
2 x Standard Safety Blocks
2 x Lanyards
1 x Moulded Plastic Carry Case with Protective Foam Inserts

**1640016-01** - SWi5TE Stepped Block Kit



1 x Pair of SWi5TE Stepped Blocks
2 x M6 CSK Hex Screw
2 x Retaining Washer
1 x SWi5TE Large Safety Block
2 x Hex Key

## **SWi12/14TM -** Mechanical Flange Spreading Wedge

**SWi1214TMSTDSPB** - SWi12/14TM STD Kit



1 x SWi12/14TM Flange Spreading Tool
1 x Torque Wrench with 22 mm Socket
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Moulded Plastic Carry Case

## **SWi20/25TE -** Hydraulic Flange Spreading Wedge

**SWi2025TEMINSPB** - SWi20/25TE MIN Kit



1 x SWi20/25TE Flange Spreading Tool
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Moulded Plastic Carry Case

**SWi2025TESTDSPB** - SWi20/25TE STD Kit



1 x SWi20/25TE Flange Spreading Tool
1 x 10,000 psi Hydraulic Hose, 6.5' with 90° Elbow
1 x 10,000 psi HP350S Single-Port Sealed Hand Pump with Gauge
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Moulded Plastic Carry Case

**SWi2025TEMAXSPB** - SWi20/25TE MAX Kit



2 x SWi20/25TE Flange Spreading Tools
2 x 10,000 psi Hydraulic Hoses, 6.5' with 90° Elbow
1 x 10,000 psi HP550D Twin-Port Sealed Hand Pump with Gauge
2 x Set Safety Blocks
2 x Pair of Stepped Blocks
2 x Lanyards
2 x Hex Keys
1 x Moulded Plastic Carry Case

## **SWi5TI -** Integral Hydraulic Flange Spreading Wedge

**SWi5TI-S - SWi5TI S Kit**



1 x SWi5TI Flange Spreading Tool
1 x Standard Safety Block
1 x Lanyard
1 x Moulded Plastic Carry Case with Protective Foam Inserts

**1640016-01** - SWi5TE Stepped Block Kit



1 x Pair of SWi5TE Stepped Blocks
2 x M6 CSK Hex Screw
2 x Retaining Washer
1 x SWi5TE Large Safety Block
2 x Hex Key

## **SWi20/25TI -** Integral Hydraulic Flange Spreading Wedge

**SWi2025TISTDSPB** - SWi20/25TI STD Kit



1 x SWi20/25TI Flange Spreading Tool
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Carry-Strap
1 x Moulded Plastic Carry Case

▼ SWi20/25TEEX




## SWi Series

ATEX CERTIFIED FLANGE SPREADING WEDGES

Spreading Force:
**15.7 - 27 tons**

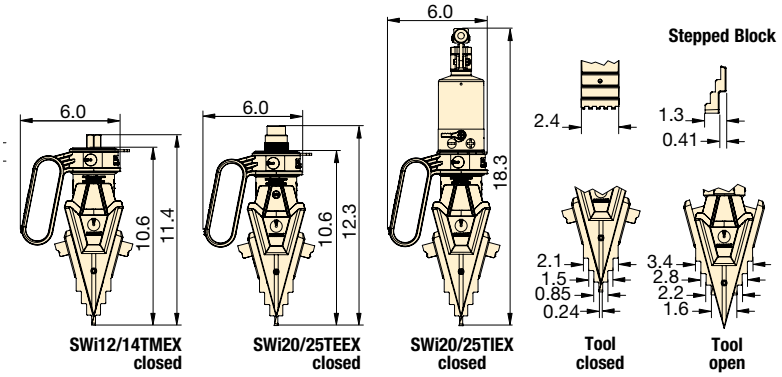
Spreading Distance:
**0.24 - 4.1 inches**

Maximum Operating Pressure:
**10,000 psi ***

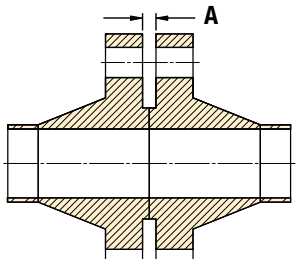
* Only relevant for hydraulic tools

- **ATEX certified**
- **Practical, portable and lightweight**
- **Revolving handle to aid horizontal or vertical spreading**
- **Removable handle for improved access**
- **No finger pinch-point**
- **Increased step-depth on upper steps**
- **Safety lanyard length, 39 inches**
- **Forged key components for strength and reliability**
- **Rapid disassembly and assembly**
- **Narrow jaw teeth – improved tool wear**

**CAUTION**
A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.




**Flange Dimensions**




| Model Number | Type | Maximum Spreading Force Per Tool (ton) | Spreading Distance Maximum * (in) | Flange Dimensions Minimum Access Gap A (in) | Jaw Width (in) | Tool Weight (lbs) | Kit Weight (lbs) | Case Dimensions (in) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|
| **SWi1214TMSTDEX** | Mechanical | 15.7 | 4.1 | 0.24 | 2.4 | 13.7 | 37.5 | 22.8 x 15.7 x 7.1 | SWi12/14TMEX |
| **SWi2025TEMINEX** | External Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 14.1 | 33.1 | 22.8 x 15.7 x 7.1 | SWi20/25TEEX |
| **SWi2025TESTDEX** | External Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 14.1 | 60.6 | 26.8 x 22.0 x 7.1 | SWi20/25TEEX |
| **SWi2025TEMAXEX** | External Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 14.1 | 85.5 | 36.6 x 23.6 x 7.1 | SWi20/25TEEX |
| **SWi2025TISTDEX** | Integral Hydraulic | 27 | 4.1 | 0.24 | 2.4 | 18.7 | 38.6 | 22.8 x 15.7 x 7.1 | SWi20/25TIEX |

* Using stepped blocks.

## SWi12/14TMEX -
ATEX Certified Mechanical Flange Spreading Wedge

II 2G Ex h IIB T5 Gb
II 2D Ex h IIIC T185°F Db

**SWi1214TMSTDEX** - SWi12/14TMEX STD Kit



1 x SWi12/14TMEX Flange Spreading Tool
1 x ATEX Torque Wrench with 22 mm Socket
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Aluminium Carry Case with Protective Foam Inserts

## SWi20/25TIEX -
ATEX Certified Integral Hydraulic Flange Spreading Wedge

II 2G Ex h IIB T5 Gb
II 2D Ex h IIIC T212°F Db

**SWi2025TISTDEX** - SWi20/25TIEX STD Kit



1 x SWi20/25TIEX Flange Spreading Tool
1 x Set of Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Carry-Strap
1 x Aluminium Carry Case with Protective Foam Inserts

## SWi20/25TEEX -
ATEX Certified Hydraulic Flange Spreading Wedge

II 2G Ex h IIB T5 Gb
II 2D Ex h IIIC T212°F Db

**SWi2025TEMINEX** - SWi20/25TEEX MIN Kit



1 x SWi20/25TEEX Flange Spreading Tool
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Aluminium Carry Case with Protective Foam Inserts

**SWi2025TESTDEX** - SWi20/25TEEX STD Kit



1 x SWi20/25TEEX Flange Spreading Tool
1 x 10,000 psi ATEX Hydraulic Hose, 6.5 ft. with 90° Elbow
1 x 10,000 psi HP350S ATEX Single-Port Sealed Hand Pump with Gauge
1 x Set Safety Blocks
1 x Pair of Stepped Blocks
1 x Lanyard
1 x Hex Key
1 x Aluminium Carry Case with Protective Foam Inserts

**SWi2025TEMAXEX** - SWi20/25TEEX MAX Kit



2 x SWi20/25TEEX Flange Spreading Tools
2 x 10,000 psi ATEX Hydraulic Hose, 6.5 ft. with 90° Elbow
1 x 10,000 psi HP550D ATEX Twin-Port Sealed Hand Pump with Gauge
2 x Set Safety Blocks
2 x Pair of Stepped Blocks
2 x Lanyards
2 x Hex Keys
1 x Aluminium Carry Case with Protective Foam Inserts

**These tools have been designed for use in potentially explosive atmospheres which is:**

- Group II (Non-mining equipment)
- Equipment **category 2** where explosive atmosphere is likely to occur in normal operation
- Can be applied in **zones 1** and **2** of gaseous explosive atmospheres and in **zones 21** and **22** of dust explosive atmosphere
- **Gas G** or **Dust D** with type of protection **Ex h** for non-electrical equipment
- Suitable for use with **Group IIB** of a gases and vapours (Ethylene group) and **Group IIIC** of dust (conductive dust)
- For hydraulic tools **T5** means that minimum ignition temperature of gas or vapor >**212°F**; **T212°F** means that minimum ignition temperature of a dust cloud ≥**302°F** and minimum ignition temperature of a 0.2 inch (5mm) dust layer ≥**347°F**
- For mechanical tools **T6** means that minimum ignition temperature of gas or vapor >**185°F; T185°F** means that minimum ignition temperature of a dust cloud ≥**261.5°F** and minimum ignition temperature of a 0.2 inch dust layer ≥ **320°F**

**These tools have been designed and manufactured in accordance with the following transposed harmonized European standards:**

- **EN ISO 80079-36:2016** Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements;
- **EN ISO 80079-37:2016** Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres

  - Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"

▼ SG11TM




# Flange Spreading Tools

- **For use on all flange types with bolt-hole sizes ranging from 0.69 inches to 2.44 inches**
- **Unique expanding collet technology**
- **Little or no access gap required**
- **Secure bolt-hole locking mechanism**

## OPERATING BENEFITS

- **Time-saving, simple operation**
- **Measurable, controlled flange spreading force**
- **Virtually universal, the Secure-Grip Flange Spreader range covers ANSI, DIN, SPO, ASME, API and BS flanges**

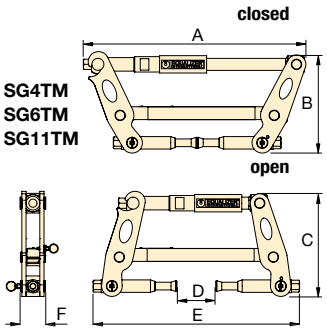
**Range of Application**

For a detailed range of application please request the Secure-Grip Mechanical or Hydraulic Operator Instruction Sheet.

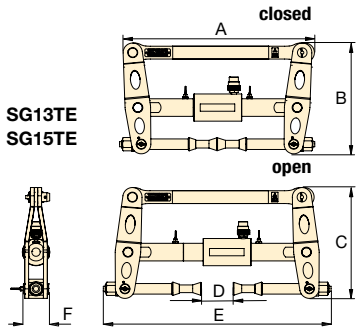
**CAUTION**

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

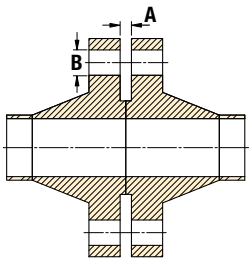
**SG4TM**
**SG6TM**
**SG11TM**




**SG13TE**
**SG15TE**

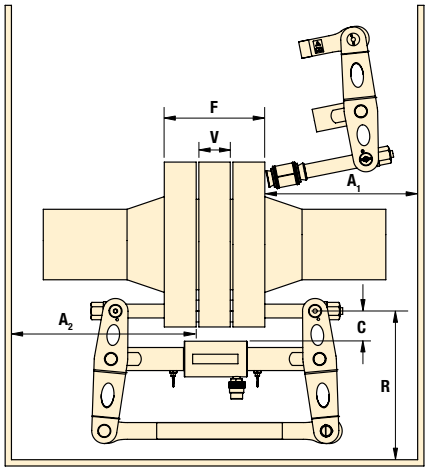



**Flange Dimensions**




| Model Number | Type * | Maximum Spreading Force Per Tool (ton) | Spreading Distance Maximum (in) | Flange Dimensions (in) | | Tool Dimensions (in) | | | | | | Tool Weight (lbs) | Kit Weight (lbs) | Case Dimensions (in) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Minimum Access Gap A | Bolt-hole Diameter B | A | B | C | D | E | F | | | | |
| **SG4TMSTD** | M | 4.2 | 2.95 | 0 | 0.69 - 0.91 | 15.7 | 7.5 | 7.2 | 3.0 | 15.2 | 1.9 | 9.9 | 28.2 | 20.5x14.8x6.5 | SG4TM |
| **SG6TMSTD** | M | 6.7 | 3.15 | 0 | 0.94 - 1.18 | 18.4 | 9.6 | 9.9 | 3.1 | 17.5 | 2.0 | 16.5 | 35.3 | 25.2x21.3x6.5 | SG6TM |
| **SG11TMSTD** | M | 12.4 | 3.54 | 0 | 1.18 - 1.54 | 20.3 | 9.8 | 10.4 | 3.5 | 18.2 | 2.4 | 23.1 | 44.1 | 25.2x21.3x6.5 | SG11TM |
| **SG13TESTD** | H | 14.6 | 4.53 | 0 | 1.50 - 1.93 | 20.3 | 11.9 | 12.4 | 4.5 | 24.8 | 2.8 | 47.4 | 89.3 | 35.0x22.4x6.5 | SG13TE |
| **SG15TESTD** | H | 16.9 | 3.94 | 0 | 1.87 - 2.44 | 23.6 | 13.6 | 15.0 | 3.9 | 28.3 | 3.1 | 57.3 | 99.2 | 35.0x22.4x6.5 | SG15TE |

* M = Mechanical
H = Hydraulic




Spreading Force:
**4.2 - 16.9 tons**

Spreading Distance:
**0 - 4.53 inches**

Maximum Operating Pressure:
**10,000 psi ***

* Only relevant for hydraulic tools

## SG Series



| Model Number | Flange Joint Thickness F | | | Valve / Spacer Thickness V | | | Flange Clearance C | | Radial Space R | | Axial Space (for installation) $A_1$ | | Axial Space (installed) $A_2$ | | Tool Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min. (in) | Max. (in) | Measured: From / To | Min. (in) | Max. (in) | Measured: From / To | Max. (in) | Measured: From / To | Min. (in) | Measured: From / To | Min. (in) | Measured: From / To | Min. (in) | Measured: From / To | |
| **SG4TMSTD** | 2.4 | 7.3 | Outside face of flange / Outside face of flange | 0* | 1.8* | Inside face of flange / Inside face of flange | 2.0 | Bolt-hole circle / Largest OD of valve/ spacer | 6.7 | Bolt-hole circle / Closest obstruction | 6.7 | Outside face of flange / Closest obstruction | 7.9 | Inner face of flange / Closest obstruction | SG4TM |
| **SG6TMSTD** | 2.4 | 8.3 | | 0* | 2.0* | | 2.2 | | 9.1 | | 7.9 | | 9.2 | | SG6TM |
| **SG11TMSTD** | 3.8 | 9.4 | | 0* | 2.4* | | 2.4 | | 9.4 | | 8.8 | | 10.2 | | SG11TM |
| **SG13TESTD** | 4.7 | 12.2 | | 0* | 3.7* | | 2.8 | | 11.0 | | 12.2 | | 10.2 | | SG13TE |
| **SG15TESTD** | 5.5 | 15.7 | | 0* | 3.1* | | 3.1 | | 14.6 | | 15.0 | | 12.4 | | SG15TE |

* Short Collet Holder Kits (SCH) are available which can offer improved range of application.

### **SG4TM** MECHANICAL TOOL KIT



1 X SG4TM Tool
1 X 6" Vernier Calliper
1 X 3/8" Drive Torque Wrench and 16 mm Socket
1 X Safety Block
2 X M16 (5/8") Collets
2 X M20 (3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

### **SG6TM** MECHANICAL TOOL KIT



1 x SG6TM Tool
1 X 6" Vernier Calliper
1 X 3/8" Drive Torque Wrench and 21 mm Socket
1 x Safety Block
2 x M24 (7/8") Collets
2 x M27 (1") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

### **SG11TM** MECHANICAL TOOL KIT



1 x SG11TM Tool
1 x 6" Vernier calliper
1 x 1/2" Drive torque wrench and 24 mm socket
1 x Safety block
2 x M30 (1-1/8") Collets
2 x M33 (1-1/4") Collets
2 x M36 (1-3/8") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

### **SG13TE** HYDRAULIC TOOL KIT



1 x SG13TE Tool
1 x 10,000 psi HP550S Single Port Sealed Hand Pump with Gauge
1 x 10,000 psi Hydraulic Hose, 78.7"
1 x 6" Vernier Calliper
1 x 1/2" Square Drive Flexible Handle
1 x 1-1/8" Socket
1 x Safety Block
2 x M39 (1-1/2") Collets
2 x M42 (1-5/8") Collets
2 x M45 (1-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

### **SG15TE** HYDRAULIC TOOL KIT



1 x SG15TE Tool
1 x 10,000 psi HP550S Single Port Sealed Hand Pump with Gauge
1 x 10,000 psi Hydraulic Hose, 78.7"
1 x 12" Vernier Calliper
1 x 1/2" Square Drive Flexible Handle
1 x 1/2" Socket
1 x Safety Block
2 x M48 (1-7/8") Collets
2 x M52 (2") Collets
2 x M56 (2-1/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

▼ SG18TE & SG25TE



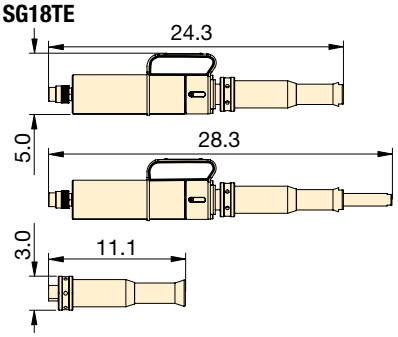
# Flange Spreading Tools

- Applicable for larger-sized flanges
- Actuated by an external hand pump
- Suitable for bolt holes from 2.34 to 4.25 inches

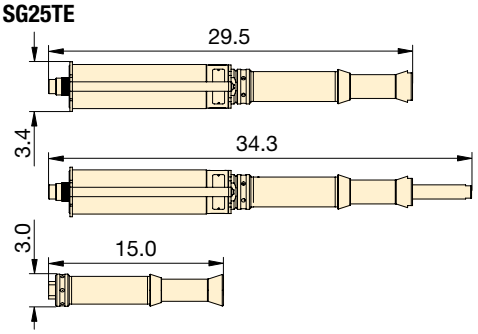
**Range of Application**
For a detailed range of application please request the Secure-Grip In-Line Hydraulic Operator Instruction Sheet.

**CAUTION**
A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

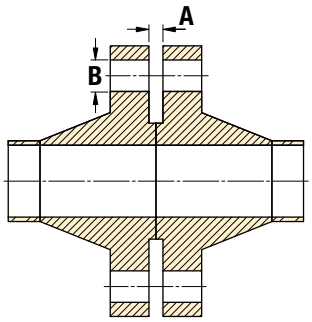
**SG18TE**



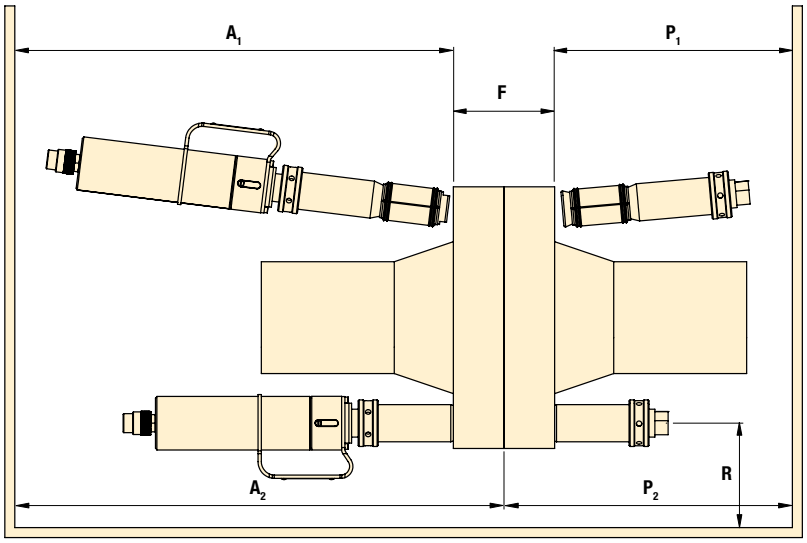

**SG25TE**




**Flange Dimensions**




| Model Number | Type | Maximum Spreading Force Per Tool (ton) | Spreading Distance Maximum (in) | Flange Dimensions (in) | | Tool Weight (lbs) | Kit Weight (lbs) | Case Dimensions (in) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Minimum Access Gap A | Bolt-hole Diameter B | | | | |
| **SG18TESTD** | Hydraulic | 20.2 | 3.93 | 0 | 2.34 - 2.95 | 30.9 | 99.2 | 35 x 22.4 x 6.5 | SG18TE |
| **SG25TESTD** | Hydraulic | 28.1 | 4.72 | 0 | 2.95 - 4.25 | 52.9 | 110.2 | 35 x 22.4 x 6.5 | SG25TE |




# SG Series



Spreading Force:
**20.2 - 28.1 tons**

Spreading Distance:
**0 - 4.72 inches**

Maximum Operating Pressure:
**10,000 psi**

| Model Number | Flange Joint Thickness F | | | Radial Space R | | Axial Space (for installation) $A_1$ | | Axial Space (installed) $A_2$ | | Axial Plug Space (for installation) $P_1$ | | Axial Plug Space (installed) $P_2$ | | Tool No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min. (in) | Max. (in) | Measured: From / To | Min. (in) | Measured: From / To | Min. (in) | Measured: From / To | Min. (in) | Measured: From / To | Min. (in) | Measured: From / To | Min. (in) | Measured: From / To | |
| SG18TESTD | 7.5 | 17.7 | Outside face of flange/ Outside face of flange | 2.2 | Bolt-hole circle / Closest obstruction | 24.4 | Outside face of flange/ Closest obstruction | 35.4 | Inner face of flange/ Closest obstruction | 11.1 | Outside face of flange/ Closest obstruction | 11.1 | Inner face of flange/ Closest obstruction | SG18TE |
| SG25TESTD | 8.3 | 22.4 | | 2.2 | | 29.5 | | 43.3 | | 15.0 | | 15.0 | | SG25TE |

## SG18TE HYDRAULIC TOOL KIT



1 x SG18TE Tool
1 x Spreading Plug
1 x 10,000 psi HP550S Single Port Sealed Hand Pump with Gauge
1 x 10,000 psi Hydraulic Hose, 6.5'
1 x 12" Vernier Calliper
1 x 0.5" Spacer Plate
1 x 5mm Allen Key
1 x 2.0" Spacer
1 x Safety Block
2 x M60 (2-3/8") Collets
2 x M64 (2-1/2") Collets
2 x M70 (2-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

## SG25TE HYDRAULIC TOOL KIT



1 x SG25TE Tool
1 x Spreading Plug
1 x 10,000 psi HP550S Single Port Sealed Hand Pump with Gauge
1 x 10,000 psi Hydraulic Hose, 6.5'
1 x 12" Vernier Calliper
1 x 0.5" Spacer Plate
1 x Safety Block
1 x Aluminium Carry Case with Protective Foam Inserts

**SG25TE COLLETS** (AVAILABLE SEPARATELY)

| Model Number | Description |
|---|---|
| 673601-01 | 2 x M76 (3'') Collets |
| 673901-01 | 2 x M80 (3-1/4'') Collets |
| 674501-01 | 2 x M84 (3-3/8'') Collets |
| 674801-01 | 2 x M90 (3-1/2'') Collets |
| 675101-01 | 2 x M95 (3-3/4'') Collets |
| 675601-01 | 2 x M100 (4'') Collets |

▼ VC10TE



# Valve Change-Out Tools

- Assists in the removal of wafer/butterfly valves, spades/ spacers or gaskets from large flange joints
- Tool span is longer than a standard Secure-Grip Flange Spreader
- Adjustable to enable the tool to operate in a range of situations

**PATENTED SECURE-GRIP SYSTEM:**

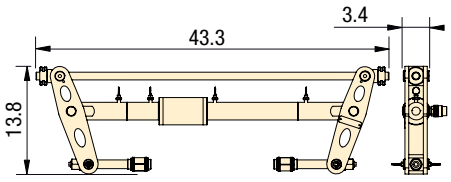
- Unique expanding collet technology
- Secure bolt-hole locking mechanism
- Unique technology makes the Secure-Grip arguably the safest flange spreader for maintenance tasks involving the removal/ inserting of Valves and Blinds
- Virtually universal, the Secure-Grip Flange Spreader range will cover ANSI, DIN, Norsok L005, ASME, API and BS Flanges
- Time-saving, simple operation

**CAUTION**

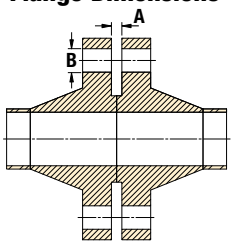
A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

**The Actuator and Extension**

Subassembly can be assembled into 4 different configurations to suit a variety of applications. For a detailed range of application please request the VC10 Operator Instruction Sheet.

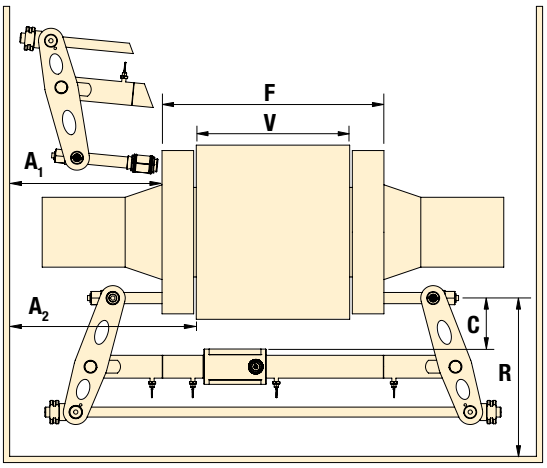



**Flange Dimensions**




| Model Number | Type* | Maximum Spreading Force Per Tool (ton) | Spreading Distance Maximum (in) | Flange Dimensions (pulg) Minimum Access Gap A | Flange Dimensions (pulg) Bolt-hole Diameter B | Tool Kit Weight (2 per Maxi Kit) (lbs) | Pump Kit Weight (lbs) | Gross Kit Weight (lbs) | Tool Case Dimensions (in) | Pump Case Dimensions (in) | Tool No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VC10/13TESTD | H | 11.2 | 22.8 | 0 | 1.50 - 1.93 | 110 | 60 | 170 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/13TE |
| VC10/13TEMAX | H | 11.2 | 22.8 | 0 | 1.50 - 1.93 | 110 | 66 | 287 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/13TE |
| VC10/15TESTD | H | 11.2 | 22.0 | 0 | 1.87 - 2.44 | 117 | 60 | 176 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/15TE |
| VC10/15TEMAX | H | 11.2 | 22.0 | 0 | 1.87 - 2.44 | 117 | 66 | 300 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/15TE |
| VC10/18TESTD | H | 11.2 | 20.2 | 0 | 2.34 - 2.95 | 128 | 60 | 187 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/18TE |
| VC10/18TEMAX | H | 11.2 | 20.2 | 0 | 2.34 - 2.95 | 128 | 66 | 322 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/18TE |
| VC10/25TESTD | H | 11.2 | 19.3 | 0 | 2.95 - 4.25 | 128 | 60 | 187 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/25TE |
| VC10/25TEMAX | H | 11.2 | 19.3 | 0 | 2.95 - 4.25 | 128 | 66 | 322 | 21.7 x 47.2 x 6.7 | 21.7 x 47.2 x 6.7 | VC10/25TE |

* H = Hydraulic




# VC Series



Spreading Force:
**11.2 tons**

Spreading Distance:
**0 - 22.8 inches**

Maximum Operating Pressure:
**10,000 psi**

| Model Number | Flange Joint Thickness F | | | Valve / Spacer Thickness V | | | Flange Clearance C | Radial Space R | Axial Space (for installation) $A_1$ | Axial Space (installed) $A_2$ | Tool Number |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min. (in) | Max. (in) | Measured: From / To | Min. (in) | Max. (in) | Measured: From / To | Measured: From / To | Measured: From / To | Measured: From / To | Measured: From / To | |
| VC10/13TESTD | 4.3 | 27.2 | Outside face of flange / Outside face of flange | 0* | 22.8* | Inside face of flange / Inside face of flange | Bolt-hole circle / Largest OD of valve/spacer - max. 5.1" | Bolt-hole circle / Closest obstruction - min. 14.2" | Outside face of flange / Closest obstruction - min. 11.8" | Inner face of flange / Closest obstruction - min. 14.6" | VC10/13TE |
| VC10/13TEMAX | 4.3 | 27.2 | | 0* | 22.8* | | | | | | VC10/13TE |
| VC10/15TESTD | 5.1 | 27.2 | | 0* | 22.0* | | | | | | VC10/15TE |
| VC10/15TEMAX | 5.1 | 27.2 | | 0* | 22.0* | | | | | | VC10/15TE |
| VC10/18TESTD | 6.9 | 27.2 | | 0* | 20.2* | | | | | | VC10/18TE |
| VC10/18TEMAX | 6.9 | 27.2 | | 0* | 20.2* | | | | | | VC10/18TE |
| VC10/25TESTD | 7.9 | 27.2 | | 0* | 19.3* | | | | | | VC10/25TE |
| VC10/25TEMAX | 7.9 | 27.2 | | 0* | 19.3* | | | | | | VC10/25TE |

* Short Collet Holder Kits (SCH) are available which can offer improved range of application.

## TOOL KITS (1 PER STD KIT, 2 PER MAX KIT)



**VC10/13TE**
1 x VC10/13TE Tool
2 x M39 (1-1/2") Collets
2 x M42 (1-5/8") Collets
2 x M45 (1-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

**VC10/18TE**
1 x VC10/18TE Tool
2 x M60 (2-3/8") Collets
2 x M64 (2-1/2") Collets
2 x M70 (2-3/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

**VC10/15TE**
1 x VC10/15TE Tool
2 x M48 (1-7/8") Collets
2 x M52 (2") Collets
2 x M56 (2-1/4") Collets
1 x Aluminium Carry Case with Protective Foam Inserts

**VC10/25TE**
1 x VC10/25TE Tool
1 x Aluminium Carry Case with Protective Foam Inserts

## PUMP KITS



**For STD Tool Kits**
1 x 10,000 psi HP550S Single Port Hydraulic Hand Pump
1 x Hydraulic Gauge with Manifold
1 x 10,000 psi Hydraulic Hose, 6.5'
1 x Secure Grip Safety Block
1 x Square Drive Flexible Handle
1 x Vernier Calliper
1 x Aluminium Carry Case with Protective Foam Inserts

**For MAX Tool Kits**
1 x 10,000 psi HP1000D Twin Port Hydraulic Hand Pump
2 x Hydraulic Gauges with Manifolds
2 x 10,000 psi Hydraulic Hoses, 6.5'
2 x Secure Grip Safety Blocks
1 x Square Drive Flexible Handle
1 x Vernier Calliper
1 x Aluminium Carry Case with Protective Foam Inserts

### Collet Sizing

It is important that the correct size of collet is used. An undersized collet could allow the collet holder to pull through its bore. An oversized collet has the potential to become jammed in the bolt-hole.

### Range of Application

For a detailed range of application please request the Hydraulic Secure-Grip Valve Change-Out Tool Operator Instruction Sheet.

**VC10/25TE COLLETS** (AVAILABLE SEPARATELY)

| Model Number | Description |
|---|---|
| 673601-01 | 2 x M76 (3'') Collets |
| 673901-01 | 2 x M80 (3-1/4'') Collets |
| 674501-01 | 2 x M84 (3-3/8'') Collets |
| 674801-01 | 2 x M90 (3-1/2'') Collets |
| 675101-01 | 2 x M95 (3-3/4'') Collets |
| 675601-01 | 2 x M100 (4'') Collets |

▼ MG7TM



# MG Series

FLANGE SPREADING TOOL

Spreading Force:
**7.6 tons**

Spreading Distance:
**0.08 - 1.06 inches**

**Range of Application**
For a detailed range of application please request the MG7TM Operator Instruction Sheet.

- **Reversible leg design giving greater range of applications**
- **Unique double-angled wedge produces a greater spreading force without reducing spreading distance**
- **Robust lightweight tool**
- **Spreading force of 7.6 ton**

## OPERATING BENEFITS

- **Locks on to flange joint**
- **Safe, quick and easy operation**
- **Saves time and cost**

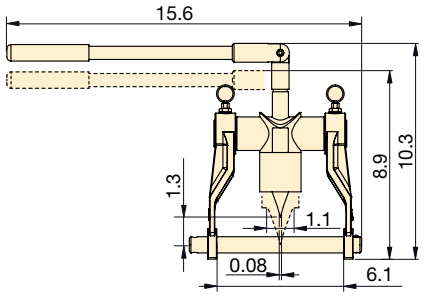
**CAUTION**
A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

**MG7TMSTD Standard Kit**

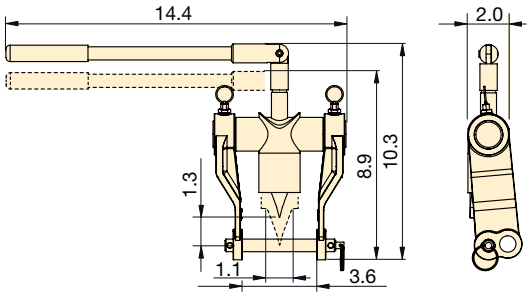


1 x MG7TM Tool
2 x Spreading Bar
1 x Moulded Plastic Carry Case

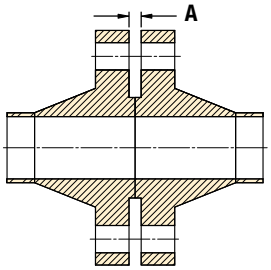
**Tool retracted and advanced using large (Ø 0.8 in) spreading bar**




**Tool retracted and advanced using small (Ø 0.6 in) spreading bar**




**Flange Dimensions**




| Model Number | Type | Maximum Spreading Force Per Tool (ton) | Spreading Distance Maximum (in) | Flange Dimensions Minimum Access Gap A (in) | Wedge Width (in) | Tool Weight (lbs) | Kit Weight (lbs) | Case Dimensions (in) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|
| **MG7TMSTD** | Mechanical | 7.6 | 1.06 | 0.08 | 1.8 | 11.02 | 12.13 | 14.2 x 11.8 x 3.5 | MG7TM |

# Flange Pulling Tool

▼ FC10TE



## FC Series

FLANGE CLOSING TOOL

Closing Force:
**11.2 tons**

Closing Distance:
**22.4 - 0 inches**

Maximum Operating Pressure:
**10,000 psi**

**CAUTION**
A minimum of two flange closing tools must be used when flange pulling. This will enable the operator to maintain an even gap between flange faces and prevent flange / gasket damage.

- **Applicable to all flanges with a bolt-hole diameter of 1 inch or greater, including ANSI, DIN, Norsok L005, ASME and BS flanges**
- **Slide and lock collet system**
- **Low profile tool**
- **Can be used on all vertical and horizontal flanges including ANSI, API, BS, DIN & Norsok L005**
- **Robust yet lightweight**
- **Subsea compatible**
- **Reciprocating hydraulic action**

### OPERATING BENEFITS

- **Reduction in operator fatigue**
- **Reduction in pinch point**
- **Quick and easy to use**

**FC10TESTD STD Kit**



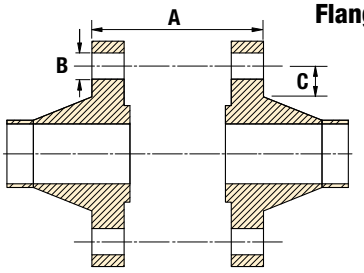
1 x FC10TE Tool
1 x 10,000 psi Hydraulic Hose, 6.5' long
1 x 10,000 psi HP550S Single Port Sealed Hand Pump with Gauge
1 x Aluminium Carry Case with Protective Foam Inserts

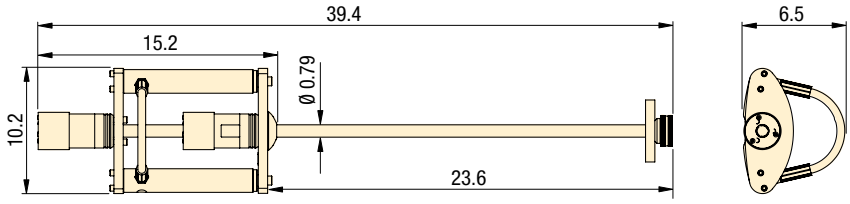
**FC10TEMAX MAX Kit**



2 x FC10TE Tool
2 x 10,000 psi Hydraulic Hoses, 6.5' long
1 x 10,000 psi HP550D Twin Port Sealed Hand Pump with Gauge
1 x Aluminium Carry Case with Protective Foam Inserts

**Flange Dimensions**




| Model Number | Type | Maximum Closing Force Per Tool (ton) | Closing Distance (in) | Flange Dimensions (in) A | B min. | C min. | Tool Weight (lbs) | Kit Weight (lbs) | Box/Case Dimensions (in) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|---|
| **FC10TESTD** | Hydraulic | 11.2 | 22.4 | 0.63-22.4 | 1* | 1.3 | 24.3 | 51.8 | 35.0 x 22.4 x 6.5 | FC10TE |
| **FC10TEMAX** | Hydraulic | 11.2 | 22.4 | 0.63-22.4 | 1* | 1.3 | 24.3 | 80.5 | 35.0 x 22.4 x 6.5 | FC10TE |

* For hole diameter greater than 1.7 inches, please contact Enerpac.

▼ **TFA15TI**



# TFA
## Series

WIND TURBINE TOWER
FLANGE ALIGNMENT TOOLS

Hook Force:
**4.5 - 30.3 tons**

Aligning Distance:
**1.7 - 2.6 inches**

**The TFA Wind Turbine Tower Flange Alignment Tools have been developed to aid the alignment of large flanges on the inside of wind turbine towers during their assembly or installation.**

- **Assists in aligning / de-ovalizing large internal pipe flanges**
- **Helps resolve bolt-hole misalignment within tower sections of wind turbine towers**
- **Can be used both on and offshore**

**TFA4TM** Mechanical Tool Kit



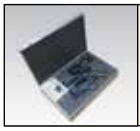
1 x TFA4TM Tool
1 x Torque Wrench
1 x Moulded Plastic Carry Case

**TFA12TE / TFA15TE** External Hydraulic Tool Kit

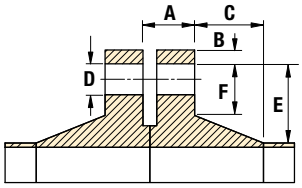


1 x TFA12TE or TFA15TE Tool
1 x Safety Lanyard
1 x Aluminium Carry Case with Protective Foam Inserts

**TFA12TI / TFA15TI** Internal Hydraulic Tool Kit

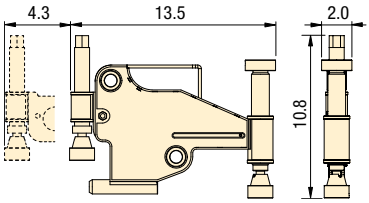


1 x TFA12TI ***or*** TFA15TI Tool
1 x Aluminium Carry Case with Protective Foam Inserts

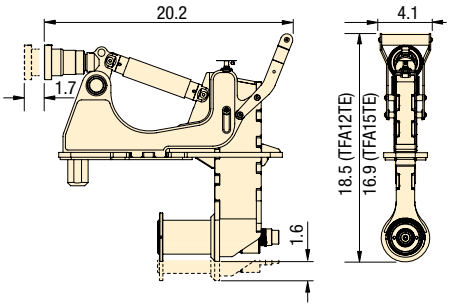



**Flange Dimensions**

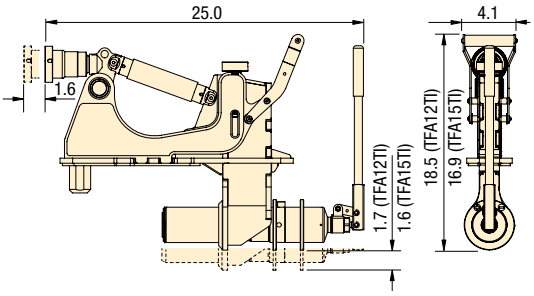
**TFA4TM**




**TFA12TE**
**TFA15TE**




**TFA12TI**
**TFA15TI**




| Model Number | Type* | Maximum Hook Force Per Tool (ton) | Maximum Aligning Distance (in) | Maximum Operating Pressure (psi) | Flange Dimensions (in) A | B | C | D min | E | F min | Tool Weight (lbs) | Kit Weight (lbs) | Box/Case Dimensions (in) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TFA4TMSTD** | M | 4.5 | 1.7 | - | 1.4-5.3 | 0-2.2 | 0-9.1 | 0.98 | 0-4.1 | 0.94 | 17.9 | 39.7 | 23.6 x 14.6 x 7.9 | TFA4TM |
| **TFA12TEMIN** | H | 27.0 | 2.6 | 7,400 | 5.1-7.0 | 4.3-9.5 | 0-16.6 | 1.8 | 3.4-4.9 | 2.4 | 42.5 | 62.6 | 25.2 x 21.3 x 6.5 | TFA12TE |
| **TFA15TEMIN** | H | 30.3 | 2.6 | 10,000 | 3.5-5.4 | 4.3-9.5 | 0-16.6 | 1.8 | 3.4-4.9 | 2.4 | 41.7 | 61.7 | 25.2 x 21.3 x 6.5 | TFA15TE |
| **TFA12TISTD** | H | 27.0 | 2.6 | - | 5.1-7.0 | 4.4-9.5 | 0-16.6 | 1.8 | 3.4-4.9 | 2.4 | 48.3 | 68.3 | 23.0 x 35.4 x 6.3 | TFA12TI |
| **TFA15TISTD** | H | 30.3 | 2.6 | - | 3.5-5.4 | 4.4-9.5 | 0-16.6 | 1.8 | 3.4-4.9 | 2.4 | 47.4 | 67.5 | 23.0 x 35.4 x 6.3 | TFA15TI |

* M = Mechanical
H = Hydraulic

▼ **HP350DMIN**



# HP
## Series

HYDRAULIC SEALED
HAND PUMPS

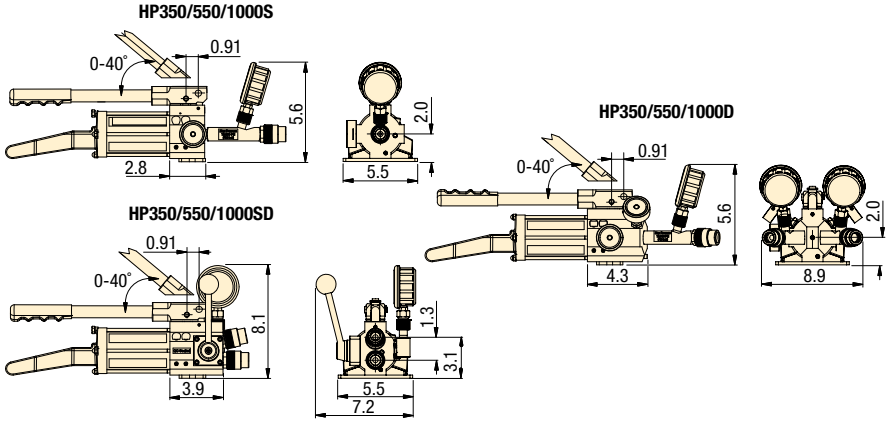
Maximum Pressure Rating:
**1st Stage: 197 psi**
**2nd Stage: 10,000 psi**

Pump Type:
**2-Speed**

- **HP-S, HP-D and HP-SD pump ranges are operable at all angles and are highly resistant to accidental spillage of hydraulic fluid (certified)**
- **The Single-Port and Twin-Port Hand Pumps are also available with ATEX rating, which are certified for use in hazardous areas II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T212° F Db**

**Pump Ratings**

The Hydraulic Single Port,Twin Port and Double-Acting Hand-Pump (and hoses) are tailored for use with hydraulic equipment. Each pump's output is regulated to 10,000 psi and is delivered from threaded 3/8" NPT output ports. The pumps and hoses can be used with any 10,000 psi rated hydraulic equipment within their oil capacity specification. The HP range of hydraulic hand-pumps have been designed with a seal oil reservoir, which allows the pumps to be used in any orientation without the risk of oil spills or air contamination.




**10,000 PSI HOSES**
AVAILABLE TO PURCHASE SEPARATELY

| Model Number | Description |
|---|---|
| 302701-01 | Hydraulic Hose 78.7" |
| 302702-01 | Hydraulic Hose 157.5" |
| 302705-01 | Hydraulic Hose 118.1" |
| 302706-01 | Hydraulic Hose 196.9" |
| 302707-01 | Hydraulic Hose 236.2" |
| 1440008-01 | ATEX Hydraulic Hose 78.7" |
| 1440013-01 | ATEX Hydraulic Hose 157.5" |
| 1440014-01 | ATEX Hydraulic Hose 236.2" |

| Model Number Hand Pump Kit | | Type* | Nominal Oil Capacity ($in^3$) | Useable Oil Capacity ($in^3$) | Oil Volume per Stroke ($in^3$) | | Max. Handle Effort (lbf) | Piston Stroke (in) | Overall Length (in) | Box Dimensions (in) | Pump Weight (lbs) | Kit Weight (lbs) | Tool Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Standard | ATEX | | | | 1st Stage | 2nd Stage | | | | | | | |
| HP350SMIN | HP350SMINEX | SA, SP | 21.4 | 18.3 | 0.221 | 0.047 | 72.75 | 0.71 | 21.8 | 9.8 x 7.1 x 23.6 | 9.7 | 10.8 | HP350S |
| HP550SMIN | HP550SMINEX | SA, SP | 33.6 | 35.4 | 0.221 | 0.047 | 55.12 | 0.71 | 25.3 | 9.8 x 7.1 x 27.6 | 11.2 | 13.0 | HP550S |
| HP1000SMIN | HP1000SMINEX | SA, SP | 61.0 | 67.7 | 0.221 | 0.047 | 46.30 | 0.71 | 34.1 | 9.8 x 7.1 x 35.4 | 13.4 | 15.7 | HP1000S |
| HP350DMIN | HP350DMINEX | SA, TP | 21.4 | 18.3 | 0.221 | 0.047 | 72.75 | 0.71 | 22.8 | 9.8 x 7.1 x 23.6 | 14.3 | 15.9 | HP350D |
| HP550DMIN | HP550DMINEX | SA, TP | 33.6 | 35.4 | 0.221 | 0.047 | 55.12 | 0.71 | 26.3 | 9.8 x 7.1 x 27.6 | 15.9 | 17.9 | HP550D |
| HP1000DMIN | HP1000DMINEX | SA, TP | 61.0 | 67.7 | 0.221 | 0.047 | 46.30 | 0.71 | 35.2 | 9.8 x 7.1 x 35.4 | 15.7 | 20.5 | HP1000D |
| HP350SDMIN | N/A | DA | 21.4 | 18.3 | 0.221 | 0.047 | 72.75 | 0.71 | 18.0 | 9.8 x 7.1 x 23.6 | 11.7 | 12.5 | HP350SD |
| HP550SDMIN | N/A | DA | 33.6 | 35.4 | 0.221 | 0.047 | 55.12 | 0.71 | 22.8 | 9.8 x 7.1 x 27.6 | 12.6 | 13.2 | HP550SD |
| HP1000SDMIN | N/A | DA | 61.0 | 67.7 | 0.221 | 0.047 | 46.30 | 0.71 | 30.3 | 9.8 x 7.1 x 35.4 | 13.0 | 13.9 | HP1000SD |

* SA = Single Acting
SP = Single Port
DA = Double Acting
TP = Twin Port

# Enerpac Heavy-Lifting Technology

**Enerpac's Heavy-Lifting Technology provides customers with tailored solutions, combining hydraulics, steel fabrication and electronic controls for safe, precise movement of heavy loads. Global Leader providing best in class solutions for safe and precise positioning of heavy loads.**

**With more than 60 years supporting industrial markets, Enerpac has gained the unique and in-depth expertise that is respected by industrial professionals around the world. Across every continent, Enerpac's network of application engineers, authorized distributors and technical service centers can reach any location, and deliver innovative solutions, technical assistance and quality products.**

**Enerpac's complete line of standard and customized products and a unique systems approach offers the benefits of safety and efficiency to applications where high forces are required.**

**Whether constructing a signature bridge across a deep valley, lifting a national landmark for seismic retrofit or simultaneously testing hundreds of foundation pilings to support a new building, Enerpac will supply the hydraulic solutions to get the job done safely and efficiently.**



Precision lift and position of heavy loads



Synchronous superlift and launch



Bridge lifting and launching



Jacking with high capacity precision control



Synchronous hoisting and load positioning



Incremental bridge lifting



Transportation



Special high-tonnage cylinders for the Pioneering Spirit lifting beams

# Heavy-Lifting Technology Section Overview

| Capacity (tons) | Capabilities | Series | | Page |
|---|---|---|---|---|
| 140-280 | Skidding Systems | LH HSK |  | 360 ▶ |
| 17-1405 | Heavy-Lifting Strand Jacks | HSL |  | 362 ▶ |
| 110-1178 | Telescopic Hydraulic Gantries | SL SBL |  | 364 ▶ |
| 138-825 | Jack-Up Systems | JS |  | 366 ▶ |
| 60-250 | SyncHoist | SHS, SHAS |  | 368 ▶ |
| 50-100 | Trolley System | ETR |  | 370 ▶ |
| 67 | Self-Propelled Modular Transporter | SPMT |  | 372 ▶ |
| | Lifting Solutions | |  | 373 ▶ |

▼ Shown: **HSK1250 Skidding System**



## HSK-Series Skidding Systems

- **PTFE skid pads with dimpled surface for low friction and long lifetime**
- **Easy to replace skid pads, no tools necessary**
- **Bi-directional operation using push-pull cylinders avoid the need to reposition cylinders for switching direction**
- **Large load support surface on the skid beams for distributing load**
- **Bottom of skid shoes equipped with stainless steel sliding plates**

## LH-Series, Low-Height Skidding System

- **Low starting height saves time and increases versatility**
- **Intuitive pump controls (SFP-Series Split-Flow Pump)**
- **Easily reversible to change skidding direction**
- **Portable design for quick setup**

▼ *LH400 series skidding system used to remove an obsolete press from a facility to make room for new equipment.*



# Ideal Jack and Slide Solution

**Skidding Systems**

The skidding system is comprised of a series of skid beams moved by hydraulic push-pull cylinders, travelling over a pre-constructed track.

A series of special PTFE coated pads are placed on the skid tracks to reduce friction. The PTFE surface is matched with a sliding plate under the Enerpac skid beams, designed to achieve minimum friction coefficients.
The skid beams are connected by hoses to a hydraulic electric or diesel driven powerpack.

In addition to our standard skidding systems, Enerpac can create customized skidding systems to meet your specific requirements.



**Controls**

Enerpac offers several options for controlling our skidding systems.

Wireless Controls allows the operator the freedom to view the skidding operation from multiple locations while providing complete control of all system functions.

Manual controls offer a cost-effective solution by utilizing manual hydraulic valves mounted directly on the skidding system power unit.

▼ *HSKJ-1250 Skid Shoe Jack.*



**Skidding Systems**

Enerpac Skidding Systems are available in several versions:

- **B-Series (Skid Beam)** utilizes a tall skid beam with built-in push-pull cylinders. Skidding direction can be easily switch by flipping a lever on the attached gripper box.
- **J-Series (Skid Jack)** provides the same functionality as the B-Series with the added benefit of having a built-in cylinder for lifting or leveling the load.
- **LH-Series (Low Height)** includes low-height skid beams that can fit in tight spaces while still offering high capacity.

# HSK LH Series

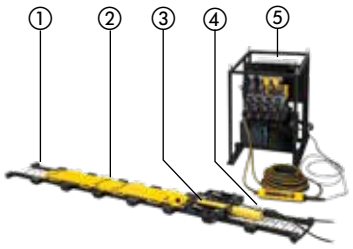


Capacity:
**140 - 280 tons**

Stroke Push/Pull:
**23.62 inches**

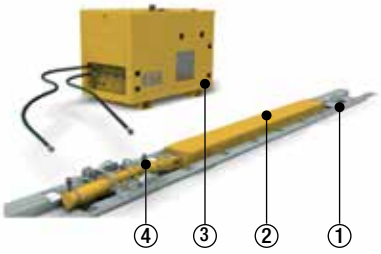
Lifting Stroke*:
**6.89 inches**

* Skid shoe jack version only.



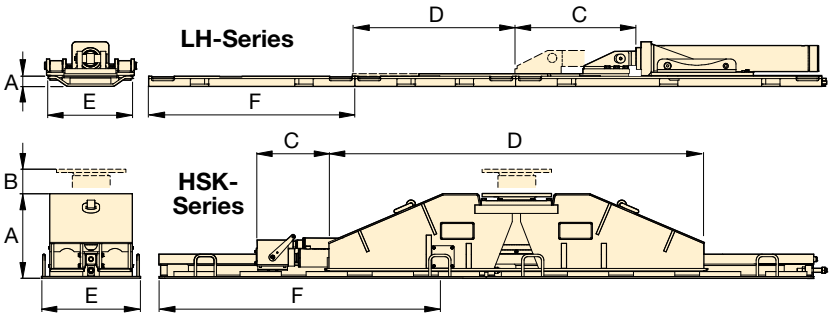

**LH-Series Skidding System Requirements**

1 Skid Track (required)
2 Skid Beam (required)
3 Push-Pull Cylinder Unit (required)
4 Hydraulic Hoses (required)
5 Split-Flow Electric Pump (required)
6 Track Support (optional, not shown)
7 Storage/Transport Frame (optional, not shown)
8 Pump Cart (optional, not shown)




**HSK-Series Skidding System Requirements**

1 Skid Track
2 Skid Beam
3 Hydraulic Power Pack
4 Hydraulic Push-Pull Unit






**Skid Tracks**

Include specially constructed and easily replaceable PTFE coated pads. Skid track is sold separately.



**Hydraulic Power Packs**

Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with Skidding Systems.



**Low Height Skidding and Turntable**

See page 78-82 of this catalog for full details on this versatile product.

| Maximum Capacity (per push-pull unit)* (ton) | Maximum Push-Pull Capacity (ton) Push | Pull | Model Number | Skid Beam Height (with track) A (in) | Lifting Stroke B (in) | Push-Pull Stroke C (in) | Skid Beam Length D (in) | Skid Track Width E (in) | Skid Track Length F (in) | Skid Beam Weight (lbs) | Skid Track Weight (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **140** | **25** | **18** | **HSKB1250** | 12.17 | – | 23.62 | 98.43 | 15.75 | 78.74 | 1,631 | 265 |
| **140** | **25** | **18** | **HSKJ1250** | 19.76 | 6.89 | 23.62 | 66.54 | 15.75 | 78.74 | 1,742 | 265 |
| **280** | **45** | **30** | **HSKB2500** | 14.72 | – | 23.62 | 118.11 | 23.62 | 76.61 | 2,249 | 640 |
| **280** | **45** | **30** | **HSKJ2500** | 23.62 | 6.89 | 23.62 | 70.23 | 23.62 | 76.61 | 3,197 | 640 |
| **200** | **25** | **11** | **LH400**** | 3.62 | – | 23.50 | 42.52 | 18.31 | 37.60 | 139 | 148 |

* Note: Multiple push-pull units are combined to offer greater capacity. Typical setup is two or more units.
** Low Height

▼ Shown: **HSL50006 Strand Jack**




# Heavy Lifting Strand Jacks

## High Capacity - Precision Control

- **Precision control of synchronous lifting and lowering**
- **Can be controlled by a single operator from a central location for increased safety**
- **Automated locking - unlocking operation**
- **Two strand sizes: 0.62" (15.7 mm) and 0.71" (18 mm)**
- **Telescopic strand guide pipes prevent bird caging**
- **Internal components are coated with an anti-corrosion coating, making it suitable for marine environments**
- **Lifting anchor included with all strand jacks**
- **Lloyds witness tested to 125% of maximum working load**

**Strand Jacks**

Enerpac strand jacks are the strand jacks of choice for customers seeking precise synchronous control with heavy lifting capacity in an economical, compact, and reliable foot print.

Enerpac strand jacks are powered by electrical or diesel driven hydraulic power packs and controlled by Enerpac's proprietary SCC-Smart Cylinder Control System to ensure full control of lifting and lowering operations.

Enerpac continually improves reliability, durability, and safety of their strand jacks, making them an industry standard for heavy lifting.

▼ *Shown: HSL85007 Strand Jack System used on Enerpac custom Self-Erecting Tower.*




▼ *Enerpac's SCC-Smart Cylinder Control System simplifies synchronous operation with intuitive controls and a user-friendly graphical interface.*



**Strand Jacks**

A strand jack can be considered a linear winch. In a strand jack, a bundle of steel strands are guided through a main "lifting" jack. Above and below the cylinder are anchor systems with wedges that grip the strand bundle simultaneously. Lifting and lowering a load is achieved by hydraulically controlling the main jack and both mini jacks alternately.

In the case of system pressure loss, the wedges are mechanically closed automatically, holding the suspended load in place.

Today, strand jacks are widely recognized as the most sophisticated heavy lifting solution. They are used all over the world to erect bridges, load out offshore structures, and lift/lower heavy loads where the use of conventional cranes is neither economical nor practical.

# HSL Series

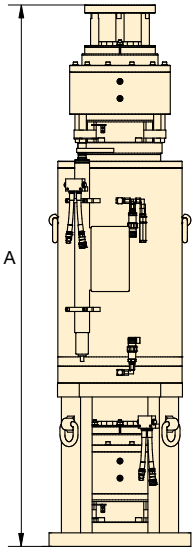


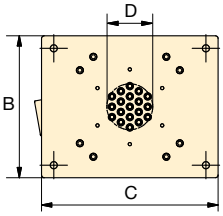
Capacity:
**17 - 1405 tons**

Stroke:
**9.8 - 23.6 inches**

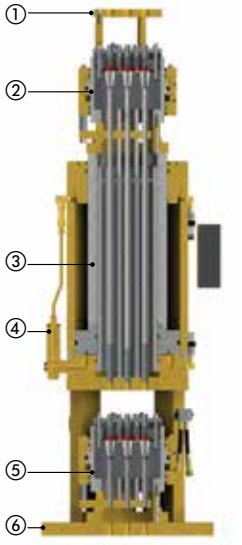
Maximum Operating Pressure:
**5,000 psi**

*Shown: HSL20006 Strand Jack*




① Strand Guide
② Top Mini Jack
③ Main Lifting Jack
④ Counter Balance Valve
⑤ Bottom Mini Jack
⑥ Chair




| Strand Diameter inch (mm) | Capacity (tons) | Model Number | No. of Strands | Stroke (in) | A (in) | B (in) | C (in) | D (in) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|
| 0.62 (15.7) | 34 | **HSL3006** | 3 | 18.9 | 72.9 | 13.8 | 19.7 | 2.3 | 1,102 |
| | 79 | **HSL7006** | 7 | 18.9 | 75.4 | 14.2 | 22.6 | 3.7 | 1,411 |
| | 225 | **HSL20006** | 19 | 18.9 | 78.4 | 20.6 | 25.6 | 6.7 | 2,860 |
| | 337 | **HSL30006** | 31 | 18.9 | 80.6 | 26.5 | 26.5 | 8.5 | 4,820 |
| | 562 | **HSL50006** | 48 | 18.9 | 84.1 | 28.9 | 28.9 | 10.7 | 6,930 |
| 0.71 (18) | 17 | **HSL1507** | 1 | 9.8 | 48.9 | 8.7 | 8.7 | 0.8 | 220 |
| | 51 | **HSL4507** | 3 | 18.9 | 68.0 | 13.8 | 19.7 | 2.9 | 1,102 |
| | 67 | **HSL6007** | 4 | 18.9 | 69.0 | 15.7 | 24.6 | 3.5 | 1,433 |
| | 112 | **HSL10007** | 7 | 18.9 | 75.8 | 16.1 | 24.6 | 4.6 | 1,874 |
| | 225 | **HSL20007** | 12 | 18.9 | 78.8 | 20.6 | 25.6 | 6.5 | 3,086 |
| | 337 | **HSL30007** | 19 | 18.9 | 80.9 | 26.5 | 26.5 | 8.3 | 4,290 |
| | 506 | **HSL45007** | 31 | 18.9 | 87.5 | 28.9 | 28.9 | 10.7 | 6,724 |
| | 731 | **HSL65007** | 43 | 18.9 | 88.1 | 33.5 | 33.5 | 13.8 | 8,690 |
| | 955 | **HSL85007** | 55 | 18.9 | 94.6 | 35.4 | 35.4 | 14.3 | 11,023 |
| | 1124 | **HSL100007** | 66 | 18.9 | 100.7 | 43.0 | 43.0 | 17.2 | 16,865 |
| | 1405 | **HSL125007** | 84 | 23.6 | 104.6 | 43.3 | 43.3 | 18.0 | 18,298 |

▼ **Strand Jack Accessories –**
Contact Enerpac for assistance at **enerpac.com/contact-us**



**SLPP-Series Hydraulic Power Packs**

Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with their industry leading strand jacks.



**SG-Series Strand Guide**

Provides a guide for the strand as a strand jack lifts the load.



**SR-Series Strand Recoiler**

Passively pays in or pays out strands while jacking and lowering.



**SD1 Strand Dispenser**

Essential to safely unbundle a new strand coil.



**Lifting Anchor**

Each Strand Jack includes a lifting anchor for attaching strand to the load.

▼ Shown: **SBL1100 with GST Skid Tracks, Header Beams and Side Shifts**



# Precision Lift and Position of Heavy Loads

## The Ultimate in Safety and Control

- **Self-contained hydraulics and electronics**
- **Intelli-Lift wireless control system**
- **Self-propelled wheels or tank rollers**
- **Foldable boom on SBL900 and SBL1100**
- **Full range of supplementary equipment: header beams, lifting lugs, side shift, skid tracks**
- **Designed and tested to meet ASME B30.1-2015 safety standards**
- **Lloyds witness tested to 120% of maximum working load**



**INTELLI-LIFT**

The Intelli-Lift wireless control system is included with all Enerpac hydraulic gantries. The Intelli-Lift controller offers superior safety and control and includes the following features:

- Encrypted bi-directional communication that eliminates interference from other devices
- Remote operation using multi-channel wireless (2.4 GHz) or wired (RS-485) control
- High and low speed settings
- Automatic synchronization of lifting with an accuracy of 0.95 inch (24 mm)
- Automatic synchronization of travelling with an accuracy of 0.60 inch (15 mm)
- Overload and stroke alarms
- Remote side shift control
- Emergency stop switch

▼ *Shown: SBL1100*



| Maximum Capacity (4 legs) (tons) | Model No. | Retracted Height A (ft) |
|---|---|---|
| 110 | **SL100** | 6.73 |
| 220 | **SL200** | 8.96 |
| 330 | **SL300** | 8.91 |
| 450 | **SL400N** | 8.94 |
| 450 | **SL400** | 10.39 |
| 585 | **SBL500** | 9.97 |
| 1009 | **SBL900** | 16.42 |
| 1178 | **SBL1100** | 14.34 |

**Hydraulic Gantries**

Hydraulic Gantries are a safe, efficient way to lift and position heavy loads in applications where traditional cranes will not fit and permanent overhead structures for job cranes are not an option.

Hydraulic Gantries are placed on skid tracks to provide a means for moving and placing heavy loads, many times with only one pick.

Enerpac offers three series of Hydraulic Gantry systems:

- **SL-Series Super Lift**
  The cost-effective SL-Series Super Lift offer control and stability for everyday lifting applications below 450 ton up to 30 feet.
- **SBL-Series Super Boom Lift**
  The heavy-duty SBL-Series Super Boom Lift boom style gantries offer increased lifting capacity of over 450 ton to heights of almost 40 feet.

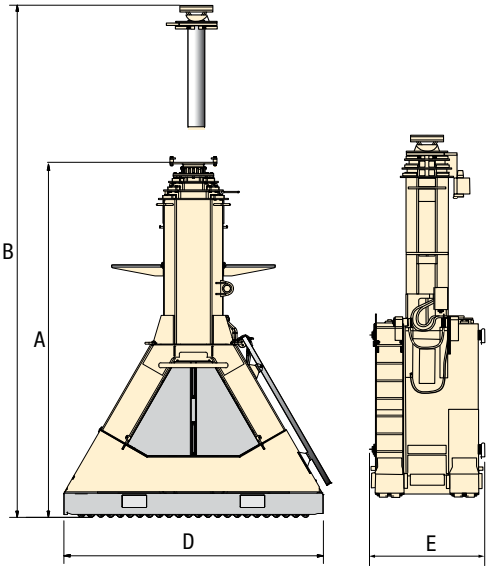
All Enerpac gantries are delivered with specific properties and control systems to ensure optimum stability and safety.

## SL, SBL, Series



Capacity:
**110 - 1178 tons**

Lift Height:
**6.73 - 39.38 feet**




Drawing shows SBL-series, SL-Series without boom.

| Stage 1 | | Stage 2 | | Stage 3 | | Base Length | Base Width | Weight per Leg | Model No. |
|---|---|---|---|---|---|---|---|---|---|
| Max. Height B (ft) | Max. Cap. (4 legs) (ton) | Max. Height B (ft) | Max. Cap. (4 legs) (ton) | Max. Height B (ft) | Max. Cap. (4 legs) (ton) | D (in) | E (in) | (with oil) (lbs) | (4 legs) |
| 11.17 | 110 | 15.59 | 66 | N/A | N/A | 55.12 | 34.65 | 3825 | **SL100** |
| 15.47 | 220 | 21.98 | 150 | N/A | N/A | 55.12 | 34.65 | 4850 | **SL200** |
| 15.11 | 337 | 22.01 | 220 | N/A | N/A | 66.93 | 34.65 | 7165 | **SL300** |
| 14.31 | 450 | 19.76 | 337 | 25.26 | 220 | 66.93 | 34.65 | 7937 | **SL400N** |
| 17.14 | 450 | 23.73 | 450 | 29.99 | 208 | 79.65 | 50.75 | 10,141 | **SL400** |
| 16.40 | 585 | 22.66 | 585 | 28.27 | 337 | 78.39 | 50.43 | 15,466 | **SBL500** |
| 27.24 | 1009 | 37.09 | 664 | N/A | N/A | 135.98 | 55.43 | 29,432 | **SBL900** |
| 22.98 | 1178 | 31.72 | 760 | 39.38 | 424 | 135.98 | 55.43 | 26,345 | **SBL1100** |

▼ **Additional Accessories –**
Contact Enerpac for assistance at **enerpac.com/contact-us**



**Skid Tracks**

Skid tracks used for leveling and load distribution. Available in two standard lengths, 10 feet and 20 feet.



**Header Beams**

Sold in pairs and includes lifting points and fork pockets for easy positioning on gantry towers.

Available in 26.24 ft., 32.80 ft. and 39.36 ft. lengths.



**Powered Side Shift**

Electric propulsion controlled by standard gantry controls. Each set consists of 4 units.



**Lifting Anchors**

Designed to transfer the load to the top of the header beam. Can accommodate a 250 ton shackle or attach directly to the lifted load.

▼ From left to right: **JS125, JS250, JS500, JS750 Jack-Up System** (one lifting tower shown)



# Incremental Lifting System – Synchronously Lift and Mechanically Hold

- **Self-contained hydraulics in each Jack-Up unit for uncluttered work area**
- **Synchronously lift loads with multiple Jack-Up units. The most common system set-up includes four Jack-Up units but can be expanded to include more**
- **Lifting barrels are stacked together to mechanically hold the load**
- **Up to 5% side load capacity depending on capacity and lift height**
- **Computer controls for operating the Jack-Up System with automatic and manual lifting settings**

**Typical Applications**

- Bridge maintenance
- Lifting and lowering of heavy equipment
- Lifting, lowering and levelling of heavy structures and buildings
- De-propping/load transfer from temporary steel work.

**Computer Controls**

Enerpac Jack-Up Systems provide precision control suitable for many demanding lifting and lowering applications. The comprehensive self-contained design features simple to use software.

- Automatic synchronization of multiple networked lift points
- Center of Gravity calculation
- Overload and stroke alarms
- Emergency stop switch at Jack-Up units and controls

▼ *Enerpac JS500 used in bridge construction and de-commissioning.*



▼ *Enerpac Jack-Up System hoists 1500-ton span on Fore River Bridge.*



▼ *Undecking an 1500-ton Electric Rope Shovel in a Copper Mine with a JS500 Jack-Up System for bearing inspection and maintenance.*



### Enerpac Jack-Up Systems

The Jack-Up System is a custom developed multi-point lifting system. A typical system setup includes four jack-up units, one positioned under each corner of a load.

Example: A four unit setup with JS250 has a lifting capacity of 1000 ton (250 ton per unit). The lifting frame of a jack up unit contains four hydraulic lifting cylinders, one in each corner, which lift the load using the stacked steel barrels.

A load is lifted in increments as barrels are slid into the system, lifted, and stacked; forming 'lifting towers'. A jack up system is operated and controlled by a computer control unit.

Each unit's lifting and lowering operations occur simultaneously; the computer control unit's synchronous technology maintains the balance of the load.

## JS Series



Capacity per Lifting Tower:
**138 - 825 tons**

Lifting Height:
**Up to 20 - 66 feet**

### Jack-up System Smart Box

The **Smart Box SBJS-V4** is Enerpac's proprietary control platform. It allows an operator to control up to 8 jack-up towers simultaneously with one **SBLT1** standard laptop.

- Single operator control from a central location provides safe and reliable operation
- Synchronous lift /lower and load control between the lifting positions
- Automatic lifting and lowering cycles
- Displays individual and accumulative stroke/load
- Simple graphical user interface



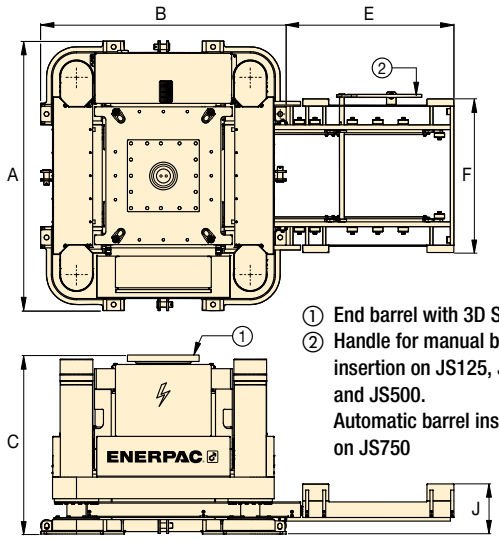
### Adjustable Top Barrel

Includes double-acting lock nut cylinder with swivel saddle. Cylinder can be extended to contact the load. Provides ability to adjust starting height of each leg, ensuring safe and stable lifting. Must be operated with separate pump.



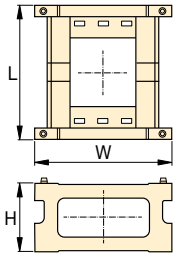
### Trolleys & Skid Tracks

Allows horizontal travel of jack-up systems.




① End barrel with 3D Swivel
② Handle for manual barrel insertion on JS125, JS250 and JS500.
Automatic barrel insertion on JS750

**Jack-Up Systems (JS)**




**Steel Barrel (BLJS)**

### ▼ Steel Barrel

| For use with Jack-Up System | Barrel Set Model Number | Number of Barrels per Set | Barrel Dimensions (in) | | | Weight per Barrel |
|---|---|---|---|---|---|---|
| | | | L | W | H | (lbs) |
| JS125 | **BLJS125** | 4 | 23.62 | 23.62 | 11.81 | 231 |
| JS250 | **BLJS250** | 4 | 45.28 | 45.28 | 19.69 | 792 |
| JS500 | **BLJS500** | 4 | 66.93 | 66.93 | 27.56 | 2090 |
| JS750 | **BLJS750** | 4 | 90.55 | 90.55 | 39.37 | 5170 |

### ▼ Jack-Up Systems

| Capacity per Tower | Model Number | Maximum Sideload | Maximum Lifting Speed | Base Frame Dimensions (in) | | | Barrel Loading System (in) | | | Electric Power Pack | Weight per Jack-Up Unit * | Weight End Barrel (3D Swivel) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (ton) | | | (ft/hr) | A | B | C | E | F | J | hp | (lbs) | (lbs) |
| **138** | **JS125** | 3% @ 19.6 ft | 16 | 47.25 | 43.31 | 37.60 | 27.56 | 27.56 | 8.07 | 12 | 5280 | 1254 |
| **275** | **JS250** | 3% @ 32.8 ft | 13 | 88.58 | 80.71 | 58.07 | 52.81 | 52.81 | 16.46 | 20 | 16,500 | 5280 |
| **550** | **JS500** | 4% @ 49.2 ft | 13 | 110.25 | 90.55 | 66.93 | 69.75 | 69.75 | 18.03 | 40 | 30,250 | 8470 |
| **825** | **JS750** | 5% @ 65.6 ft | 13 | 144.50 | 127.95 | 93.50 | 98.25 | 98.25 | 29.29 | 40 | 52,800 | 19,800 |

* Weight per Jack-Up unit, excluding end barrel or barrel sets.

▼ SHS-Series 4-Point SyncHoist System



# Accurate Hoisting and Load Positioning Enhancing a Crane's Capability

- **High-precision load maneuvering using one crane**
- **Reduces the risk of damage from oscillations of wire rope due to crane jogging and sudden starts/stops**
- **Vastly improving worker safety, operating speed and control**
- **PLC-controlled hydraulics turn lifting into high-accuracy hoisting and load positioning system**
- **Double-acting push/pull cylinders with load-holding valves for added safety**
- **Increased efficiency compared to conventional load positioning methods**

**Options for system management and control:**

- **Manual control: system warning functions**
- **Automatic control: fully PLC-monitorized system with programmable functions using touch screen and system warning functions**
- **Wireless control: self-contained hydraulics with hand-held control**

**Synchronous Hoisting**

Enerpac SyncHoist is a unique crane product for below-the-hook positioning of heavy loads that require precision placement. The SyncHoist system may reduce the number of cranes needed and reduce the costs of multiple picks.

**Functions**

- High precision horizontal and vertical load positioning
- Pre-programmed positioning, tilting and aligning

**Applications**

- Positioning of rotor, stator and propeller blades of wind turbines
- Positioning of roof sections, concrete elements, steel structures
- Positioning of turbines, transformers, fuel rods
- Precise machinery loading, mill rod changes, bearing changes
- Precise positioning of pipe lines, blow out valves
- Positioning and aligning of ship segments prior to assembly

▼ *Bridge segments are hoisted from the ground, being positioned with a 4-point SyncHoist system with fully monitorized cylinders.*



▼ *SyncHoist Powerpack to operate the 4 lifting points.*




▼ *A SyncHoist system used to align steel blocks of the ship's control tower sections allowing gradual lifting and positioning of the load.*



# SyncHoist - High Precision Load Positioning

**What is SyncHoist?**

Enerpac SyncHoist is a hydraulically operated auxiliary attachment for high precision load positioning for cranes. The SyncHoist system can be used for pre-programmed positioning, tilting and aligning of loads.

- Complete system tested in compliance with European lifting directive and safety requirements

**SyncHoist improves safety, operating speed and control of load movement**

Geometric positioning of heavy loads in a horizontal and vertical plane are frequently done using more than one crane. Synchronizing movements between cranes are difficult and risky. The lifting inaccuracy can result in damage to the load and support structures and puts workers at risks. The SyncHoist system can be used for controlled hydraulic horizontal and vertical material handling.

**System management and control**

Contact Enerpac for the following options, or other customized stroke, capacity and control configurations.

**1. Manual control**

- Valves with manual levers
- Warnings for thermal motor protection
- Visual check: oil level, filter indicator

**2. Automatic control**

- Load and stroke monitoring, and stroke control
- PLC-control and touch screen
- Solenoid valves with pendant
- Pre-programmable motions and data recording
- System warnings for:
  - maximum cylinder load control setting
  - stroke and position control
  - thermal motor protection
  - oil level and filter indicator

**Autonomous (wireless) system**

- Wireless remote control
- Only one electric power connection per lifting point
- Integrated hydraulics, PLC and controls
- No need for hydraulic hoses and cables
- No need for mid-hoist disconnection of hoses and movement of pump

## SHS/ SHAS Series

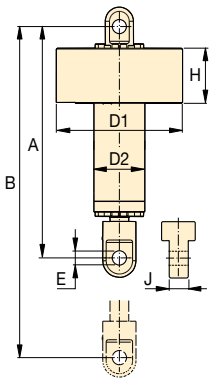


Capacity:
**60 - 250 tons**

Maximum Stroke:
**19.69 - 59.06 inches**

Accuracy Over Full Stroke:
**± 0.040 inches**

Maximum Operating Pressure:
**10,000 psi**




| Capacity (ton) | Total Load (ton) | Cylinder Stroke (in) | Model Number [1] 460-480 VAC, 3 ph - 60 Hz | Control System | Motor Size (hp) | Number of Pump Outlets and Oil Flow [2] ($in^3$/min) | Cylinder Dimensions (in) A | B | D1 | D2 | E | H | J | Wt. (lbs) [3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 x 60 | 240 | 19.69 | SHS 45520 MJ | Manual | 10 | 4 x 85 | 51.18 | 70.87 | 27.17 | 9.65 | 2.32 | 15.16 | 3.15 | 992 |
| | | 39.37 | SHS 45540 MJ | | | | 70.87 | 110.24 | | | | | | 1378 |
| | | 59.06 | SHS 45560 MJ | | | | 90.55 | 149.61 | | | | | | 1764 |
| | | 19.69 | SHS 45520 AJ | Automatic | 20 | 4 x 128 | 51.18 | 70.78 | 27.17 | 9.65 | 2.32 | 15.16 | 3.15 | 992 |
| | | 39.37 | SHS 45540 AJ | | | | 70.87 | 110.25 | | | | | | 1378 |
| | | 59.06 | SHS 45560 AJ | | | | 90.55 | 149.61 | | | | | | 1764 |
| 4 x 94 | 376 | 19.69 | SHS 48520 MJ | Manual | 15 | 4 x 128 | 52.36 | 72.05 | 27.17 | 10.43 | 2.83 | 15.16 | 3.94 | 1102 |
| | | 39.37 | SHS 48540 MJ | | | | 72.05 | 111.42 | | | | | | 1543 |
| | | 59.06 | SHS 48560 MJ | | | | 91.73 | 150.79 | | | | | | 1984 |
| | | 19.69 | SHS 48520 AJ | Automatic | 20 | 4 x 128 | 52.36 | 72.05 | 27.17 | 10.43 | 2.83 | 15.16 | 3.94 | 1102 |
| | | 39.37 | SHS 48540 AJ | | | | 72.05 | 111.42 | | | | | | 1543 |
| | | 59.06 | SHS 48560 AJ | | | | 91.73 | 150.79 | | | | | | 1984 |
| 4 x 120 | 480 | 39.37 | SHS 411040 MJ | Manual | 15 | 4 x 128 | 23.03 | 112.40 | 30.71 | 12.40 | 3.35 | 15.55 | 4.88 | 2138 |
| | | 59.06 | SHS 411060 MJ | | | | 92.72 | 151.77 | | | | | | 2723 |
| | | 39.37 | SHS 411040 AJ | Automatic | 20 | 4 x 128 | 73.03 | 112.40 | 30.71 | 12.40 | 3.35 | 15.55 | 4.88 | 2138 |
| | | 59.06 | SHS 411060 AJ | | | | 92.72 | 151.77 | | | | | | 2723 |
| 4 x 120 | 485 | 39.37 | SHAS 411040 WU [4] | Wireless | 4 x 5 | – | 73.03 | 112.40 | 41.85 | 12.40 | 3.36 | 21.26 | 4.88 | 2608 |
| | | 59.06 | SHAS 411060 WU [4] | | | | 92.72 | 151.77 | | | | | | 3192 |
| 4 x 250 | 991 | 39.37 | SHAS 422540 WU [4] | Wireless | 4 x 10 | – | 84.25 | 123.62 | 48.62 | 16.54 | 5.59 | 22.83 | 7.48 | 7097 |
| | | 59.06 | SHAS 422560 WU [4] | | | | 103.94 | 143.31 | | | | | | 7527 |

[1] With 4 cylinders and one 460-480 VAC-3 phase-60 Hz power pack (suffix J). For 400 VAC-3 phase-50 Hz power pack change suffix J into W. Example: **SHS 45560 MW**.
[2] Pump and cylinders include 4x 82 feet hydraulic hoses with couplers. [3] Weight per cylinder.
[4] WU = with US electrical wiring. Change into suffix "WE" for EU-market. Example: **SHAS 411060 WE**.

▼ **ETR50H, Enerpac Trolley System** (shown with Trolley Tracks)




# Safe & Synchronized Travel

- **High transport speed**
  - **— 164 ft/hour loaded**
  - **— 328 ft/hour unloaded**
- **Suited for repetitive movements**
- **Runs on simple flat steel plate**
- **Ease of maintenance**
  - **– long maintenance intervals**
  - **– no consumables**
- **Clean usage – electric driven**
- **Built-in synchronization – no need for forced external mechanical connection to synchronize movements**
- **Easy transport - compact design**
- **Hydraulic lifting cylinder option available**
- **Kits to accommodate other lifting options also available**

**Product Overview**

The ETR-Series Trolley System is comprised of electrically-driven trolleys which can carry heavy loads along a fixed track system. The entire system is controlled by a hand-held wireless control system. A typical system is comprised of 4 trolleys, 2 tracks and one controller. Trolley tracks and controller must be ordered separately.



**Control Panel and Cables**

Operate up to 8 trolleys (same capacity each) using control panel with included wireless controller.

- Automatic synchronization of traveling with an accuracy of 0.39 inch (10 mm)
- Dual-band radio with automatic frequency search
- Wireless remote operation
- High and low speed settings
- Emergency stop switch
- Control cables operate trolley and provide feedback to controller

**Control Panel**

| Model No. 460-480 VAC, 32A | Dimensions (in) L | W | H | Wt. (lbs) |
|---|---|---|---|---|
| ETR-CPJ8 | 50.81 | 23.62 | 43.25 | 551 |

**Control Cables**

| Model No. | Description |
|---|---|
| ETR-CBL-15 | 50-foot control cable |
| ETR-CBL-25 | 82-foot control cable |

▼ *The trolley system speeds up offshore wind transition piece load out: the transition pieces are positioned in the clamping frames and moved along the track.*



▼ *ETR series electric trolley undergoing factory acceptance testing prior to shipment.*



# Enerpac Trolley System

**ETR-Trolley System**

The Enerpac Trolley System provides an alternative method with increased benefits over traditional skidding methods.

Load movements are more stable due to the continuous movement and ability to precisely control travel speed including acceleration and deceleration.

**Key features:**

Low speed: 82 feet/hour
High speed: 164 feet/hour
Accuracy: 0.38 inches
Sideload: 1.5% rated load
Sound Level: < 80 dBA

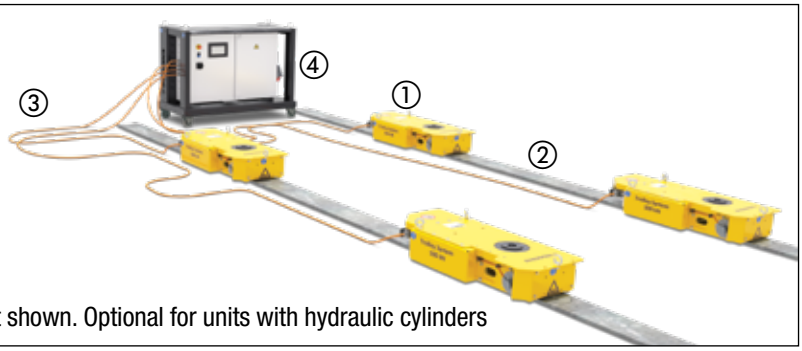
## ETR Series



Capacity Per Trolley:
**50 - 100 tons**

Travel Speed:
**82 - 164 ft/hour**

Motor Power:
**0.5 - 1.0 hp**




* Not shown. Optional for units with hydraulic cylinders

① Electric Trolley - ETR-Series
② Track Plate - ETR-TP-015 or ETR-TP-030
③ Control Cable - ETR-CBL-15 or ETR-CBL-25
④ Control Panel (inc. wireless remote) - ETR-CPJ8
⑤ Split-Flow Electric Pump - SFP-Series*

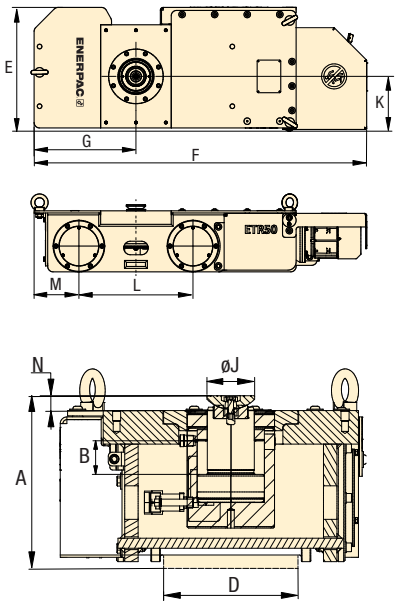


**Additional Mounting Options**

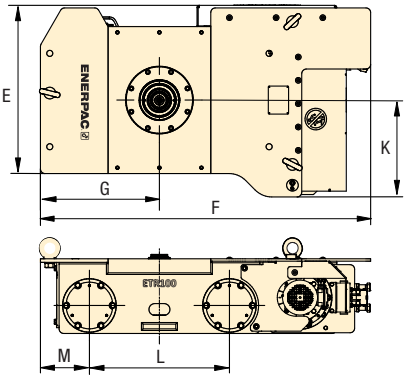
Mounting kits are available to accommodate other lifting and rigging solutions.

| Kit Model No. | Description |
|---|---|
| ETR50-SMK | Enerpac SCJ-50 on ETR50 |
| ETR100-SMK | Enerpac SCJ-100 on ETR100 |
| ETR50-BMK | Swivel beam mount on ETR50 |
| ETR100-BMK | Swivel beam mount on ETR100 |

**ETR50**




**ETR100**






**Trolley Track Plates**

Track plates provide level guidance and support for the trolley. Two plates placed side-by-side are used for operation of ETR100-Series Trolleys. Maximum inclination of tracks is 0.2°.

| Model No. | Trolley Track Plates (in) |
|---|---|
| ETR-TP-015 | 59" track plate |
| ETR-TP-030 | 118" track plate |

| Capacity per Trolley Unit (ton) | Model Number (one unit) | Motor Power (hp) | A (in) | B (in) | D (in) | E (in) | F (in) | G (in) | J (in) | K (in) | L (in) | M (in) | N (in) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | ETR50 | 0.5 | 9.65 | N/A | 7.87 | 17.95 | 48.23 | 14.76 | 4.92 | 7.95 | 16.54 | 6.50 | 0.39 | 684 |
| | ETR50H | | 10.12 | 1.97 | | | | | 2.80 | | | | 0.87 | 705 |
| 100 | ETR100 | 1.0 | 13.62 | N/A | 15.75 | 32.32 | 55.71 | 20.08 | 6.69 | 16.34 | 23.62 | 8.27 | 0.59 | 1874 |
| | ETR100H | | 13.74 | 3.94 | | | | | 2.80 | | | | 0.75 | 1896 |

[1] ETR50H includes HCG502 and CATS50. ETR100H includes HCG1004 and CATS101.
[2] ETR100 series uses two track plates side-by-side.

▼ Shown: **SPMT600-360**



# SPMT
## Series

Capacity (per transporter):
**67 tons**

Transport Speed (unloaded-loaded):
**1.9 - 1.0 mph**

Motor Size:
**75 hp**

**Self-Propelled Modular Transporter**

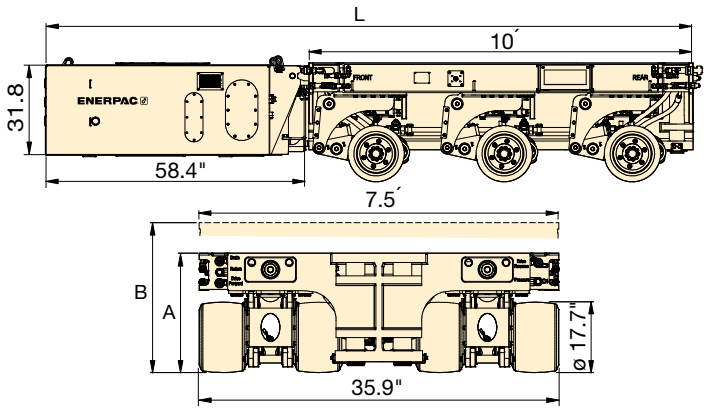
The Enerpac Self-Propelled Modular Transporter (SPMT) features a minimized height and slim design, which makes it very easy to operate in confined spaces. Each wheel unit has a steering function as well as a lifting cylinder at its disposal. Wheel propulsion is established by wheel drives.

The SPMT is operated by the Intelli-Drive Remote Controller. This remote controller can be used both hard wired and wireless (based on radio frequency).

The SPMT is a modular system comprised of trailers with 3 axle lines each and diesel hydraulic power units (HPU). Depending on the model number, the trailers and HPUs can be configured to a maximum of 4 trailers in 2 rows (4x2) or 6 trailers in 2 rows (6x2).

This is the maximum setup of units that can work together on just one Intelli-Drive Remote Controller.

- **Modular design for multiple configurations**
- **Minimized height and slim design are ideal for in-plant operation**
- **Intelli-Drive wireless control system is intuitive and easy to use**
- **One power pack can operate 2-3 trailers maximum depending on model**
- **Two trailers and power pack can be shipped inside a 20 ft. container**
- **Hydraulic power unit is tier-4 diesel engine for reduced emissions**




| Capacity (per transporter) (ton) | Transporter Model Number | Maximum Configuration (transporters in rows) | Steering Range (degrees) | Steering Mode crab | Steering Mode carousel | Retracted Height A (in) | Average Travel Height B (in) | Overall Length L (ft) | Lifting Stroke (in) | Wt. (SPMT) (lbs) | HPU * Model No. | Wt. (HPU*) (lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67 | **SPMT600-100** | 4 x 2 | ±50° | • | – | 30.20 | 37.76 | 14.96 | 15.12 | 15,432 | **MTPP-100** | 5512 |
| | **SPMT600-360** | 6 x 2 | ±179° | • | • | 30.07 | 37.64 | 17.02 | 15.12 | 17,637 | **MTPP-360** | 5512 |

** HPU = 54 kW Power Pack Diesel. HPU is sold separately.*

# FROM SIMPLE TO COMPLEX – LIFTING SOLUTIONS FOR YOUR APPLICATION

For those who do the heavy lifting today, the stakes are high and the challenges complex. We know our customers put their reputations and physical well-being on the line to get the job done right. We take that very seriously.

Backed by a global legacy of ultra-reliable quality and superior precision, Enerpac Heavy Lifting Technology is pushing the industry forward with a wide range of advanced solutions that first and foremost ensure our customers operate safely and productively every day. It isn't about being compliant, or "as good" as the next guy; we outpace the competition by delivering technically superior solutions that are easy to design, safe to use and built to outlast.

## CONSULTATIVE APPROACH TO HEAVY LIFTING

From the very first discussion to gain an understanding of your application to solution design, training and ongoing field support of your operators, you will find a structured process and a team of application experts who will advise you towards a successful solution.



### SOLUTION CONSULTATION

- Requirements Specifications
- Selecting the Right Solution for Your Application

### DESIGN & MANUFACTURING

- Design & Engineering
- Manufacturing Excellence

### TESTING & TRAINING

- Quality Assurance
- Operation & Safety Training

### ON-DEMAND SUPPORT

- On-the-job Application Engineer Support
- Routine Maintenance & Repair Services

## SOLUTION CONSULTATION

- Requirements Specifications
- Selecting the Right Solution for your Application

**Since the late 1950's, Enerpac has been steadfast in their commitment to work closely with customers to understand their lift needs and work-site environment. Not all lifts are the same. There are several factors that must be taken into consideration before recommending the best solution.**

## APPLICATION CONSIDERATIONS

### LOAD CAPACITY
How much weight needs to be lifted, moved and/or positioned?

### LIFT HEIGHT
How high does the load need to be lifted? Are there restrictions above or below the load?

### TYPE OF LIFT
Will you lift from above or below?

### SPACE
How much space is available to complete the task?

### TIME
How the job needs to be completed within a set timeframe due to operational or environmental factors.

### TRANSPORTATION
Does the load need to be transported as well as being lifted? How far and how often?

### TOTAL COST OF OWNERSHIP
What productivity, labor or training costs need to be factored into the solution to make it the best long-term investment.

Because Enerpac engineers have designed solutions for a variety of applications over the years, they are well-equipped to minimize risks and to recommend a simpler solution that others may overlook. Built on a world-class reputation for developing products that meet the most common lifting applications, once your specifications are in the hands of the Enerpac experts, you are sure to receive a comprehensive recommendation that will save time and money while ensuring safety above all else.



**Enerpac has the most complete offering of standard heavy lifting and positioning tools in the market. These products are designed to highest standards of performance and offer great flexibility to meet the demands of even the most challenging applications. Our manufacturing facility adheres to world-class production planning and inventory management to ensure your product arrives at your facility on time as specified.**

## DESIGN & MANUFACTURING

- Design & Engineering
- Manufacturing Excellence



### Design & Engineering

Enerpac engineers are experienced in the latest software, rapid prototyping, failure analysis methods and engineering standards. This allows us to continuously improve and expand our product offering to meet ever changing needs of the market.

- CE, Machinery Directive 2006/42/E
- ASME: B30.1




### Assembly & Quality Assurance

- All Enerpac products are assembled by highly trained individuals, working safely and efficiently from start to finish.
- The Hengelo, NL facility that manufactures the Enerpac heavy-lifting equipment holds several quality certifications.
- ISO 9001: 2015
- ISO 3834-2: 2005
- ISO 14001: 2015
  ISO 45001: 2018



### Fabrication & Machining

- A dedicated steel fabrication and certified welding facility manufactures product components and support structures for the most demanding heavy-lifting applications.
- Complete in-house production is delivered using the latest CNC and conventional turning machines plus a full range of milling and boring equipment.



## TESTING & TRAINING

- Quality Assurance
- Operation & Safety Training

**The Enerpac facility, that makes and builds your heavy-lifting equipment, holds several quality system certifications giving you extra confidence in the safety and reliability of your heavy-lifting equipment. Whether your first lift or move is scheduled upon taking delivery of your new equipment or months later, you will have access to the dedicated Heavy-Lifting team to support your training or troubleshooting needs.**



**Factory Acceptance Testing (FAT)**
Customers are invited to witness FAT, often combined with operator training. Under witness of Lloyd's Register, all equipment is functionally tested to maximum capacity, and in many cases up to 125% of rated load. Additional testing to meet standards compliance, government regulations or specific customer requirements are performed and documented at the same time.




**Documentation**
Upon delivery of your new heavy-lifting equipment, an operator's manual outlines the configuration of your system, detailed operating instructions with safety guidelines, and maintenance recommendations.



**Training**
Operational training is offered with the purchase of all Enerpac heavy-lifting equipment.



**Once you take possession of your new heavy-lifting equipment, you have on-demand access to our field support team. And support continues with ongoing maintenance or system upgrades throughout the life of your assets.**

## ON-DEMAND SUPPORT

- On-the-Job Application Engineer Support
- Routine Maintenance & Repair Services



### On-the-Job Field Support

Should you ever require extra support while using your Enerpac Heavy-Lifting system on the job, our dedicated application engineers will work closely to guide your operators on appropriate use of our equipment. And to ensure job safety, they will travel to your job site as needed to ensure your project is completed timely and without incident.




### Product Warranty

All Enerpac Heavy-Lifting equipment is built to stringent specifications and built to last.

Should you ever encounter a defect in materials or workmanship under normal use, it will be remedied through our standard one-year warranty program.



### Maintenance & Repair

Downtime is minimized with fast delivery of repair parts and consumables stocked at several locations worldwide. For those that want the added confidence of specialized technicians, the Enerpac Maintenance & Repair team are ready to perform your maintenance or repair services for you.



**Since joining the Enerpac portfolio, the design innovation of Mirage machines has continued to deliver new products that help get the job done faster, safer, and smarter. Explore the full product line from flange facing machines, milling machines, hot tapping, drilling and tapping machines to clamshell pipe cutters, decommissioning and band saws. All backed by Enerpac training, application support and service.**

### Design and Innovation

On-Site Machine Tools are the result of over 25 years of expertise and innovation. The pioneering spirit continues under Enerpac ownership through our commitment to new product development. Watch for more new tools being launched in the near future!

### Continuous Improvement

Our specialist manufacturing operation is ISO9001 certified. This means we drive a culture of continuous improvement. Our team members are encouraged to find ways to improve today, tomorrow, and long into the future.

### Specialist Support, Experience and Expertise

Each machining project presents difficult and unique challenges. Making the right choice for your next and any future projects can be complex. That is why our team is eager to support you through every step on your journey. Whether it is choosing the right specification, commissioning your machine, or maintenance - we're with you all the way.



**Specialist Support, Experience and Expertise**



**Utilities**



**Nuclear**



**Oil & Gas**



**Petrochemicals**



**Power Generation**



**Ship Building, Maintenance and Repair**

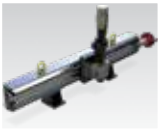


**Wind Power**



**Construction and Mining**

# On-Site Machining Tools – Overview

| Machining Capacities | On-Site Machining Tools | Series | Page |
|---|---|---|---|
| ø 1 - 161 inches<br>ø 25,4 - 4100 mm | **Internal Mount Flange Facing Machines**<br>Create the right flange sealing surface | FF<br>MM-I |  380 ▶ |
| ø 0 - 80 inches<br>ø 0 -2032 mm | **External Mount Flange Facing Machines**<br>Create the right flange sealing surface | MM-E |  381 ▶ |
| ø 2 - 177 inches<br>ø 51 - 4495 mm | **Clamshell Pipe Cutting and Beveling Machines**<br>Narrow Body, Mid-Size and Heavy-Duty | DLR |  382 ▶ |
| ø 98 - 315 inches<br>ø 2500 - 8000 mm | **General Orbital Milling Machines**<br>Machine large flanges accurately and efficiently | OM |  384 ▶ |
| ø 70 - 181 inches<br>ø 1800 - 4600 mm | **Wind Power Orbital Milling Machines**<br>Machine large flanges accurately and efficiently | WP |  385 ▶ |
| 40 - 120 inches<br>100 - 3000 mm | **Linear Milling Machines**<br>On-site milling with workshop precision<br>2 and 3-axis configuration | LMR<br>MR, MRY<br>GM |  386 ▶ |
| ø 1/2 - 60 inches<br>ø 12.7 - 1524 mm | **Hot Tapping Machines and Line Stopping Actuators**<br>Built to deliver power where it matters most | HTM, LPH<br>MHT, CHT<br>LSA |  388 ▶ |
| ø 6 - 60 inches<br>ø 152 - 1524 mm | **Decommissioning Diamond Wire and Band Saws**<br>Cutting the toughest materials | MDWS<br>BS |  390 ▶ |
| ø 2 - 12 inches<br>ø 51 - 305 mm | **Drilling and Tapping Machines**<br>Make light work of the toughest applications | HT<br>T<br>DDU |  392 ▶ |
| ø ⅞ - 11 inches<br>ø 22 - 279 mm | **GeniSYS™ IV Portable 3-zxis CNC Mill**<br>Removal of cracked or broken studs and refurbishment of damaged threads | GeniSYS™ |  394 ▶ |
| ø ¾ - 40 inches<br>ø 19 - 1016 mm | **Isolation and Test Tools**<br>Piping Isolation and Pressure Testing | MITT |  396 ▶ |

## Internal Mount Flange Facing Machines



**FF120**
- Mechanical tool manually operated
- Simple to operate
- Lightweight - only 15 lbs (6,8kg)
- Multiple leadscrew options allow for manually driven, continuous fixed feeds for ASME standard surface finishes
- Calibrated slide to define cut depth and correct finish



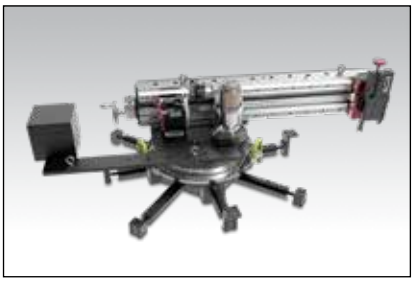
**MM305I and MM610I**
- Swivel tool post for groove details, reduces the need for separate accessories
- Supplied with a range of two quick-set base sizes for improved onto site operation
- Collet base allows for efficient machine mounting and centering



**MM860I and MM1000I**
- 360° swivel tool post for groove details, reduces the need for separate accessories (power feed on MM1000I)
- Supplied with a range of three quick-set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting



**MM1500I**
- Power feed 360° swivel tool post for groove details, reduces the need for separate accessories
- Supplied with a range of three quick-set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting



**MM2000I**
- Power feed 360° swivel tool post for groove details, reduces the need for separate accessories
- Supplied with a range of two quick-set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting.



**MM3000I and MM4500I**
- Power feed 360° swivel tool post for groove details, reduces the need for separate accessories
- Supplied with a range of three quick-set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting
- Milling accessories available with the hydraulic drive version.

**Flange Facing Machines**

Flange Facers are known for precision construction, the results they deliver, and how easy they are to set up on-site. These high-performing machines produce continuous groove facing feeds to ASME standards for the oil & gas, power generation and petrochemical industries.

**MM-I Series feature**
- Hardened slideways for long-term accuracy
- High torque, low noise drive
- Heat exchanger machining accessories available on most models.

**Applications**
- Heat exchanger flanges
- Hub profiles
- Lens ring joints and raised face flanges
- Recessed gaskets and spigots
- Ring type joint grooves (RTJ)
- SPO compact flanges
- Swivel ring and TEC

▼ *MM860I machine to ensure flange joint integrity.*



**Internal Mount Flange Facing Machines**

| Flange Facing Diameter Range | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|
| (inch) | (mm) | | Pneum. | Hydr. |
| 1 – 12 | 25 – 305 | **FF120 *** | ● | |
| 2 – 12 | 51 – 305 | **MM305I** | ● | |
| 2 – 24 | 51 – 610 | **MM610I** | ● | |
| 6 – 34 | 152 – 864 | **MM860I** | ● | |
| 6 – 40 | 152 – 1016 | **MM1000I** | ● | |
| 12 – 60 | 305 – 1524 | **MM1500I** | ● | ● |
| 24 – 80 | 610 – 2032 | **MM2000I** | ● | ● |
| 5 – 120 | 127 - 3048 | **MM3000I** | ● | ● |
| 83 – 161 | 2100 – 4100 | **MM4500I** | | ● |

* FF120 is a mechanical (manual) flange facing tool.

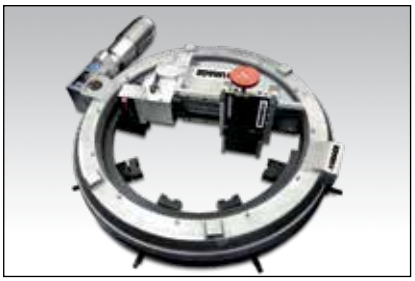
## External Mount Flange Facing Machines



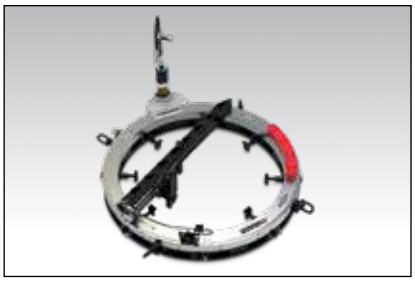
**MM200E**
- Preloaded cross roller bearing drive, ensuring robust, accurate, repeatable machining
- Hardened slideways for long-term accuracy
- Swivel tool post for groove details, reduces the need for separate accessories
- Continuous fixed feed for ASME standard surface finish
- Quick-set integrated clamping jaws



**MM300E**
- Preloaded cross roller bearing drive, ensuring robust, accurate, repeatable machining
- Hardened slideways for long-term accuracy
- Swivel tool post for groove details, reduces the need for separate accessories
- Multiple continuous fixed feeds for ASME standard surface finishes
- Quick-set integrated clamping jaws



**MM600E**
- Preloaded cross roller bearing drive, ensuring robust, accurate, repeatable machining
- Hardened slideways for long-term accuracy
- Power feed 360° swivel tool post for groove details, reduces the need for separate accessories
- Multiple continuous fixed feeds for ASME standard surface finishes
- Quick-set integrated clamping jaws



**MM760E, MM1000E, MM1250E, MM1500E, MM1775E, MM2000E**
- Continuous variable auto-feed for ASME standard finishes
- Choice of pneumatic and hydraulic drive motors
- Quick-set radial clamping adjustment
- Quick-set axial adjustment jaws
- Heavy-duty bearing construction for high metal removal rates and accuracy
- Heat exchanger kits for back facing and slot machining in one operation.

**External Mount Flange Facing Machines**

| Flange Facing Diameter Range | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|
| (inch) | (mm) | | Pneum. | Hydr. |
| 0 – 8 | 0 – 203 | **MM200E** | ● | |
| 0 – 12 | 0 – 305 | **MM300E** | ● | |
| 0 – 24 | 0 – 610 | **MM600E** | ● | |
| 0 – 30 | 0 – 762 | **MM760E** | ● | ● |
| 0 – 40 | 0 – 1016 | **MM1000E** | ● | ● |
| 0 – 50 | 0 – 1270 | **MM1250E** | ● | ● |
| 0 – 60 | 0 – 1524 | **MM1500E** | ● | ● |
| 0 – 70 | 0 – 1778 | **MM1775E** | ● | ● |
| 0 – 80 | 0 – 2032 | **MM2000E** | ● | ● |

**FF MM Series**



Internal Mount Facing Diameter:
**1 - 161"/ 25,4 - 4100 mm**

External Mount Facing Diameter:
**0 - 80"/ 0 - 2032 mm**

Cutting Resultant Roughness:
**Ra 125-492 µin / 3,2-12,5 µ**

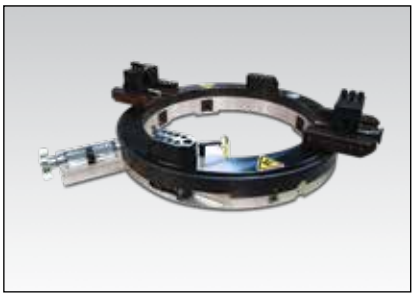
**Surface Finish and Accuracy**

All Flange Facing Machines provide a serrated finish with 30-55 grooves per inch and a resultant roughness of between Ra 3,2-12,5µ (125-492 micro inches). Geared multiple continuous groove-facing feeds for a gramophone finish (ASME Standard).

▼ *MM600E external mount flange facing machine to ensure flange joint integrity.*



## Narrow Body & Mid-Size Clamshell Cutters



**DLR-NB12, NARROW BODY CLAMSHELL CUTTER**

- NB or "Narrow Body" portable clamshells are ideal when space is at a premium
- Standard NB-series cover a range from 2 to 36" outside diameter (51 to 914 mm)
- Narrow body design: ideal when space is at a premium or obstructions are present
- Pneumatic, hydraulic, and electric drive options
- Several different drive options are available to best position the motor for a specific machining application
- Accepts a wide range of accessories to increase performance and expand capabilities
- Full range of bevel and cutting tools available



**DLR-MS30, MID-SIZE CLAMSHELL CUTTER**

- Mid-size machines weigh less than the HD heavy-duty series, but provide greater rigidity than the NB-narrow body series
- Standard MS-series cover a range from 4 to 50" outside diameter (105 to 1270 mm)
- Increased maneuverability and greater clearance than the HD series
- Several different drive options are available to best position the motor for a specific machining application
- Accepts a wide range of accessories to increase performance and expand capabilities
- Full range of bevel and cutting tools available

### Clamshell Cutters

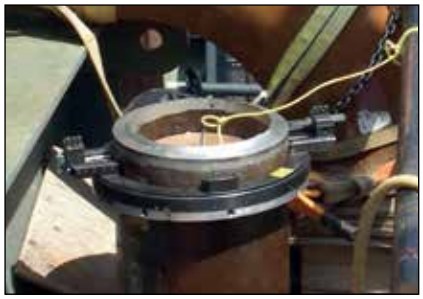
Clamshell cutters in the Enerpac range remain true to the pioneering designs that made DL Ricci the 'go-to' brand for machinists worldwide. Outstanding performance and a comprehensive choice have seen them used widely for applications in new construction, decommissioning, component replacement, fabrication, and maintenance.

### Robust and efficient pipe cutting and beveling

Designed for any industry that needs pipe or tube cutting, or any pipe end preparation weld repair. This may be in the oil & gas sector, power generation, ship building/dock yards, or processing plants during maintenance and shutdowns.

### Applications

- Pipe cutting
- Weld preparation
- Cutting materials, including super duplex, carbon steel, stainless steel, Hastelloy® and Incoloy®
- For pipe diameters up to 177 inches (4495 mm)
- Ideal for projects beyond the usual clamshell configuration – using a wide range of purpose designed accessories.



◀ *NB-model narrow body clamshell cutter.*

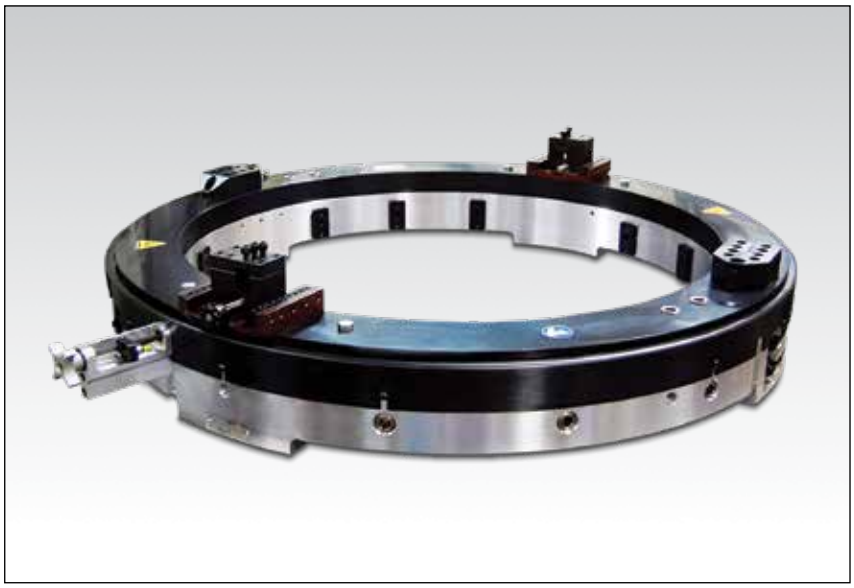
**NB Narrow Body Series Clamshell Cutters**

| Mounting Outside Diameter (min. - max.) | | Machine Model Number | Drive Power Options | | |
|---|---|---|---|---|---|
| (inch) | (mm) | | Pneumatic | Hydraulic | Electric |
| 2 – 4½ | 51 – 114 | **DLR-NB4** | ● | ● | |
| 2⅜ – 6⅝ | 60 – 168 | **DLR-NB6** | ● | ● | |
| 3½ – 8⅝ | 89 – 219 | **DLR-NB8** | ● | ● | ● |
| 4½ – 10¾ | 114 – 273 | **DLR-NB10** | ● | ● | ● |
| 6⅝ – 12¾ | 168 – 324 | **DLR-NB12** | ● | ● | ● |
| 8⅝ –14 | 219 – 356 | **DLR-NB14** | ● | ● | ● |
| 10⅝ – 16 | 219 – 406 | **DLR-NB16** | ● | ● | ● |
| 12¾ – 18 | 324 – 457 | **DLR-NB18** | ● | ● | ● |
| 14 – 20 | 356 – 508 | **DLR-NB20** | ● | ● | ● |
| 18 – 24 | 457 – 609 | **DLR-NB24** | ● | ● | ● |
| 20 – 26 | 508 – 660 | **DLR-NB26** | ● | ● | ● |
| 22 – 28 | 559 – 711 | **DLR-NB28** | ● | ● | ● |
| 24 – 30 | 610 – 762 | **DLR-NB30** | ● | ● | ● |
| 26 – 32 | 661 – 813 | **DLR-NB32** | ● | ● | ● |
| 30 – 36 | 762 – 914 | **DLR-NB36** | ● | ● | ● |

**MS Mid-Size Series Clamshell Cutters**

| Mounting Outside Diameter (min. - max.) | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|
| (inch) | (mm) | | Pneumatic | Hydraulic |
| 4⅛ – 13 | 105 – 330 | **DLR-MS12** | ● | ● |
| 7⅜ – 16¼ | 187 – 413 | **DLR-MS16** | ● | ● |
| 9⅜ – 18¼ | 238 – 464 | **DLR-MS18** | ● | ● |
| 11⅜ – 20¼ | 289 – 514 | **DLR-MS20** | ● | ● |
| 15⅜ – 24¼ | 391 – 616 | **DLR-MS24** | ● | ● |
| 19⅜ – 28¼ | 492 – 718 | **DLR-MS28** | ● | ● |
| 21⅜ – 30¼ | 543 – 769 | **DLR-MS30** | ● | ● |
| 23⅜ – 32¼ | 594 – 819 | **DLR-MS32** | ● | ● |
| 27⅜ – 36¼ | 695 – 921 | **DLR-MS36** | ● | ● |
| 27⅞ – 36¾ | 708 – 934 | **DLR-MS365** | ● | ● |
| 33⅜ – 42¼ | 848 – 1073 | **DLR-MS42** | ● | ● |
| 39⅜ – 48¼ | 1000 – 1226 | **DLR-MS48** | ● | ● |

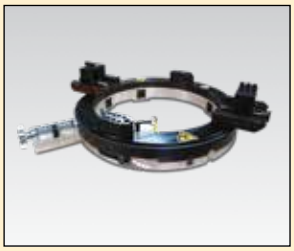
## HD Heavy-Duty Clamshell Cutters



**DLR-HD54, HEAVY-DUTY CLAMSHELL CUTTER**

- Robust body design - ideal for large diameter heavy-wall pipe applications
- 18 heavy-duty models cover a range of 20 - 177" outside diameter (508 - 4495 mm)
- Pneumatic and hydraulic drive options
- Fully adjustable heavy-duty bearing design provides greater serviceability
- Stepped and keyed gear clamps equipped with a through bolt provide a positive fit at each assembly joint
- Accepts a wide range of accessories to increase performance and expand capabilities
- Full range of bevel and server tools available

## DLR Series



Outside Mounting Diameter Range:
**2 - 177 inches**

Outside Mounting Diameter Range:
**51 - 4495 mm**

**Included as Standard with Each Machine**

- Clamshell body
- Locators and extensions covering the full range
- Slides
- Motor and mounting
- Air caddy
- Tool kit
- Manual
- Shipping crate

**HD Heavy-Duty Series Clamshell Cutters**

| Mounting Outside Diameter (min. - max.) | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|
| (inch) | (mm) | | Pneumatic | Hydraulic |
| 20 – 32 | 508 – 813 | **DLR-HD32** | • | • |
| 24 – 36 | 610 – 914 | **DLR-HD36** | • | • |
| 27 – 39 | 686 – 990 | **DLR-HD39** | • | • |
| 31 – 43 | 787 – 1092 | **DLR-HD43** | • | • |
| 33 – 45 | 838 – 1143 | **DLR-HD45** | • | • |
| 36 – 48 | 915 – 1219 | **DLR-HD49** | • | • |
| 38 – 50 | 966 – 1270 | **DLR-HD50** | • | • |
| 41 – 53 | 1042 – 1346 | **DLR-HD53** | • | • |
| 42 – 54 | 1067 – 1360 | **DLR-HD54** | • | • |
| 43 – 55 | 1092 – 1397 | **DLR-HD55** | • | • |
| 45 – 57 | 1143 – 1448 | **DLR-HD57** | • | • |
| 48 – 60 | 1220 – 1524 | **DLR-HD60** | • | • |
| 54 – 66 | 1372 – 1676 | **DLR-HD66** | • | • |
| 60 – 72 | 1524 – 1828 | **DLR-HD72** | • | • |
| 68 – 80 | 1728 – 2032 | **DLR-HD80** | • | • |
| 74 – 86 | 1880 – 2184 | **DLR-HD86** | • | • |
| 86 – 121½ | 2182 – 3086 | **DLR-HD120** | • | • |
| 144 – 177 | 3658 – 4495 | **DLR-HD180** | • | • |

▼ *HD-model heavy-duty clamshell cutter.*



▼ OM6000 Orbital Milling Machine



## OM Series

Cutting Diameter Range:
**98 - 315 inches**

Cutting Diameter Range:
**2500 - 8000 mm**

**General Orbital Milling Machines**

Orbital milling machines are designed to deliver fast material removal and achieve high accuracy across large flange diameters.

**Applications**

- Machining crane bearing faces
- Repairing drag lines
- Machining large flanges
- Machining ship thruster flanges

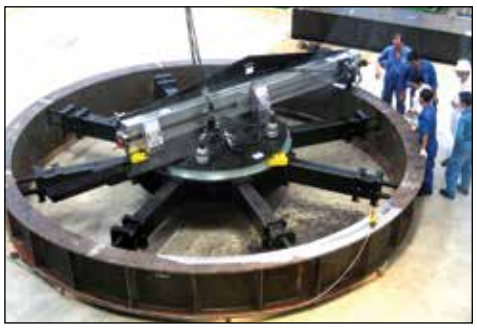
### Machine large flanges accurately and efficiently

- **Precision flatness tolerances across large diameters**
- **Hydraulic high torque anti-backlash drive**
- **Precision preloaded linear rotary drive**
- **Adjustable fast-set hydraulic chuck**
- **Rigid and adjustable mounting base**

▼ *Milling a ship thruster flange.*



▼ *Machining crane bearing face.*

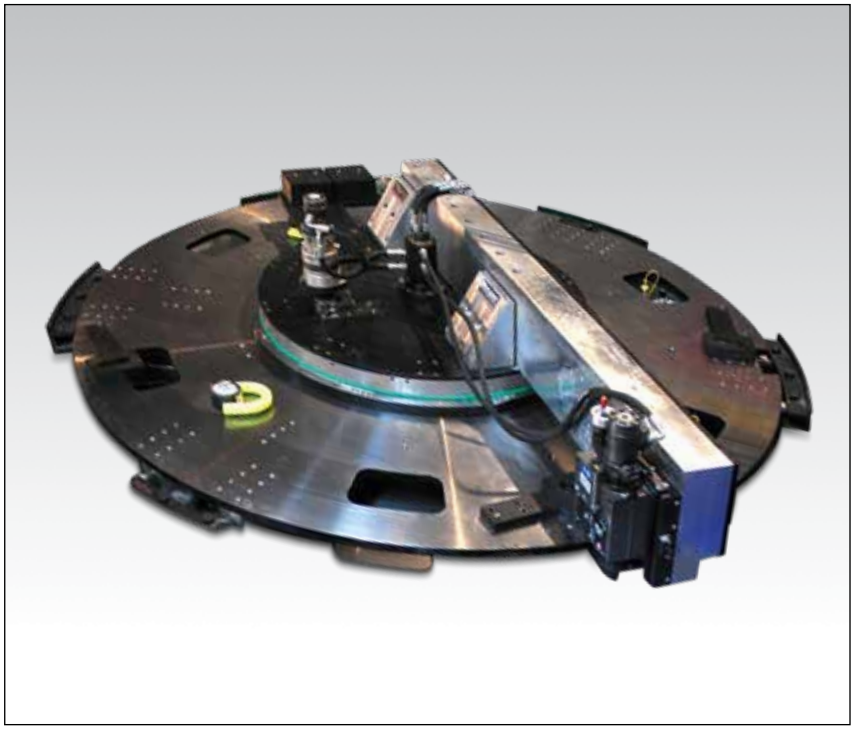


**General Orbital Milling Machines**

| Cutting Diameter Range (min. - max.) (inch) | Cutting Diameter Range (min. - max.) (mm) | Machine Model Number | Hydraulic Power Drive |
|---|---|---|---|
| 98 – 178 | 2500 - 4500 | **OM4500** | • |
| 98 – 237 | 2500 – 6000 | **OM6000** | • |
| 138 – 315 | 3500 – 8000 | **OM8000** | • |

# Wind Power Orbital Milling Machines

▼ **WP3500 Wind Power Orbital Milling Machine**



## WP Series

Cutting Diameter Range:
**70 - 181 inches**

Cutting Diameter Range:
**1800 - 4600 mm**

**Wind Power Orbital Milling Machines**

The wind power orbital milling range is designed especially for companies manufacturing wind turbine rotor blades and towers.

**Applications**

- Wind turbine blade root end milling
- Wind tower flange machining.

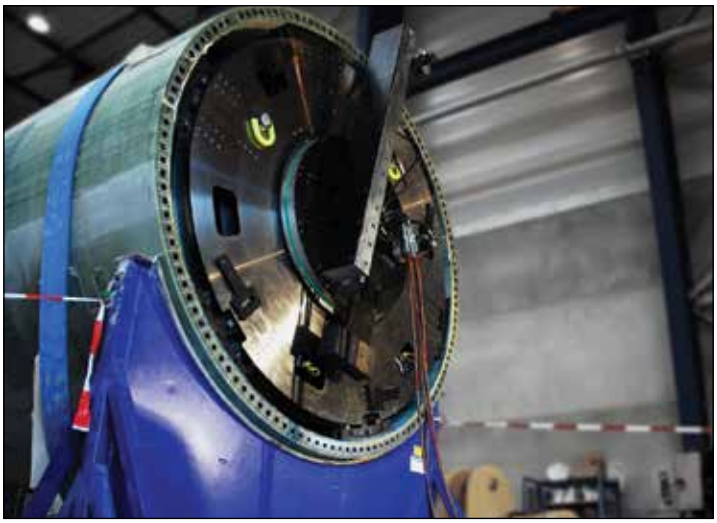
## Machine large flanges accurately and efficiently

- **Fully packaged system; includes trolley, power unit and base**
- **Accurate and repeatable process time**
- **Minimum distortion, fast mount hydraulic base**
- **Adjustable arm for different diameters**
- **Patented hydraulic mounting system for blade and tower production**
- **Direct drive spindle**
- **High torque anti-backlash drive**

▼ *Wind tower machining with WP4600.*



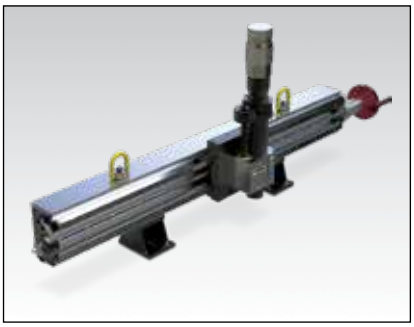
▼ *WP3500 milling turbine blade end.*



**Wind Power Orbital Milling Machines**

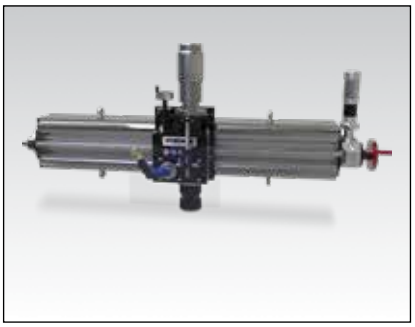
| Cutting Diameter Range (min. - max.) | | Machine Model Number | Hydraulic Power Drive |
|---|---|---|---|
| (inch) | (mm) | | |
| 70 – 96 | 1800 - 2450 | **WP2500** | • |
| 90 – 137 | 2300 – 3500 | **WP3500** | • |
| 110 – 181 | 2800 – 4600 | **WP4600** | • |

## 2-Axis Milling Machines



**LMR1000, 2-AXIS MILLING MACHINE**

- Ideal for lightweight applications
- Hand feed to main axis; auto feed optional
- Features ER40 Collet with ISO30 spindle option
- Choice of Pneumatic and Hydraulic drive



**MR1000, 2-AXIS MILLING MACHINE**

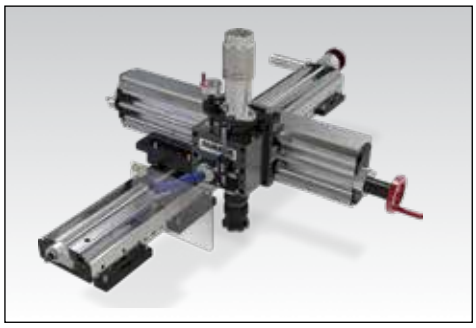
- Induction hardened 'V' rails ensure accuracy and durability
- Ball-screw feed
- Hand and auto feed to main axis
- Direct drive ISO 40 spindle
- Choice of Pneumatic and Hydraulic drive
- Variety of mounting options include bolting, switch magnets, pipe chain clamps and gantry

# LMR, MR, MRY Series

X-Axis Maximum Stroke:
**40 - 120" / 1,0 - 3,0 m**

Y-Axis Maximum Stroke (MRY-Series only):
**12 inches / 305 mm**

## 3-Axis Milling Machines



**MRY1500, 3-AXIS MILLING MACHINE**

- Induction hardened 'V' rails ensure accuracy and durability
- Ball-screw feed
- Hand and auto feed to main axis
- Direct drive ISO 40 spindle
- Choice of pneumatic and hydraulic drive
- Variety of mounting options including: bolting, switch magnets, chain clamps and gantry

▼ *MRY Milling machine on a heat exchanger.*



**2-Axis Linear Milling Machines**

| X-Axis Maximum Stroke | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|
| (inch) | (mm) | | Pneumatic | Hydraulic |
| 40 | 1000 | **LMR1000** | ● | ● |
| 60 | 1500 | **LMR1500** | ● | ● |
| 80 | 2000 | **LMR2000** | ● | ● |
| 40 | 1000 | **MR1000** | ● | ● |
| 60 | 1500 | **MR1500** | ● | ● |
| 80 | 2000 | **MR2000** | ● | ● |
| 120 | 3000 | **MR3000** | ● | ● |

**3-Axis Linear Milling Machines**

| X-Axis Maximum Stroke | | Y-Axis Maximum Stroke | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|---|---|
| (inch) | (mm) | (inch) | (mm) | | Pneumatic | Hydraulic |
| 60 | 1500 | 12 | 305 | **MRY1500** | ● | ● |
| 80 | 2000 | 12 | 305 | **MRY2000** | ● | ● |
| 120 | 3000 | 12 | 305 | **MRY3000** | ● | ● |

## Gantry Milling Machine



**GMRF1000, GANTRY RAIL KIT**

- Modular jointing system for lengths up to 32.8 ft (10 m)
- Linear rail and precision carriages
- Quick set up with jacking system
- Auto and manual feed
- Optional quick-set magnets for mounting

# GMRF Series

X-Axis Maximum Stroke:
**40 - 394" / 1,0 - 10,0 m**

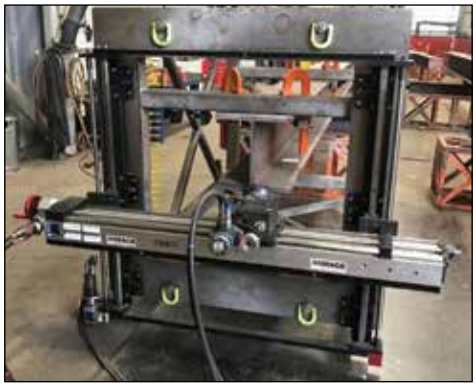
Y-Axis Maximum Stroke:
**40 - 118"/ 1,0 - 3,0 m**

**Linear Milling Machines – Take workshop precision to your next on-site milling project**

These precise and robust milling machines are available in 2- and 3-axis configurations. Each includes the latest workshop tool technology in a portable format. For a fast and efficient set-up, you can choose our optional switch magnets.

**Applications**

- Motor and pump mounting pads
- Aerospace machining
- Crane pedestals
- Heat exchanger repair
- Shaft keyways
- Steel mill housings
- Turbine split-line machining



*I-Beam end face milling with a GMRF1000.* ▶

**Gantry Milling Machine**

| Feed Type | X-Axis Max. Stroke Options [1] | | Y-Axis Max. Stroke Options [2] | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|---|---|---|
| | (inch) | (m) | (inch) | (m) | | Pneumatic | Hydraulic |
| Rack Feed | 40 - 394 | 1.0 - 10.0 | 40 - 118 | 1.0 - 3.0 | **GMRF1000** | • | • |

[1] Common base module 39 inches.

[2] MR milling rail required. Extension kits available.

▼ **HTM100**



**HTM, MANUAL HOT TAPPING**

- Operates to 1480 psi (102 bar)
- Versatile hot taps, bypass lines and completion plugs
- Manual rotation and feed
- Optional pneumatic feed
- 2-inch NPT connection
- Lightweight construction.

# HTM, LPHT MHT Series

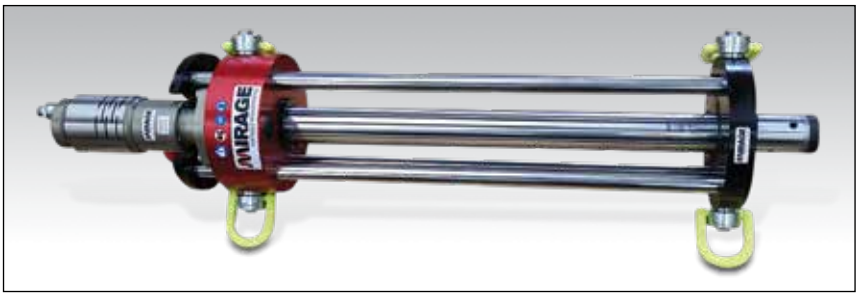


Tapping Diameters:
**½ - 60 inches**

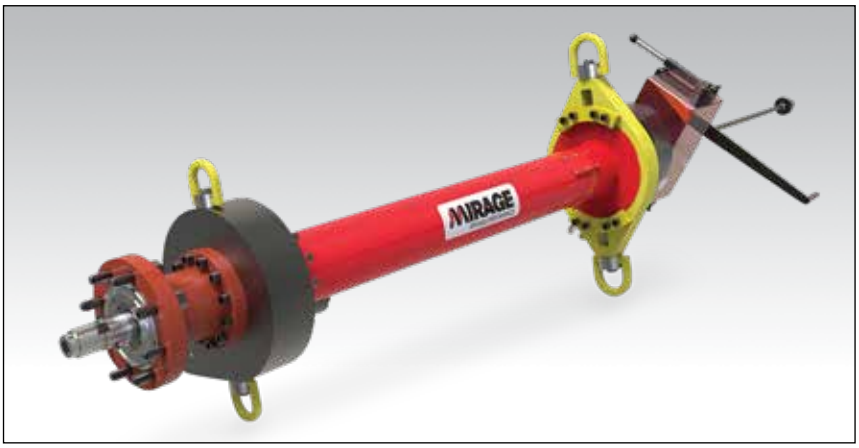
Maximum Stroke:
**18 - 180 inches**

Maximum Operating Pressure:
**285 - 1480 psi**

▼ **LPHT312**



▼ **MHT312**



**LPHT312, LOW PRESSURE HOT TAPPING**

- Operates up to 285 psi (20 bar)
- Pneumatic or hydraulic drive
- Depth-stop to ensure correct hot tap distance

**MHT, HOT TAPPING MACHINES**

- Pressure rating up to 1480 psi (102 bar)
- Helical geared drive situated close to the cutter
- Hydraulic and pneumatic drive options
- Industry standard connection flanges
- Compatible with industry standard tooling
- Fast traverse feed motors available
- Cutter holders included
- Interchangeable seal cartridge

**Hot Tapping – Built to deliver power where it matters most**

Hot tapping is a high-pressure intervention, and our range of hot tapping machines can help towards a safe and effective solution. Industry-leading innovations used include a helical gear drive located as close to the cutting head as possible for maximum efficiency, rotary pressure seals, and four fixed feeds.

**Applications**

- Construction tie-ins
- Gas distribution
- Petrochemical pipelines
- Subsea pipelines
- Temporary installation
- Transmission pipelines
- Valve installation and repair
- Water main pipelines
- Wellhead maintenance

▼ *On-site hot tapping with MHT312.*

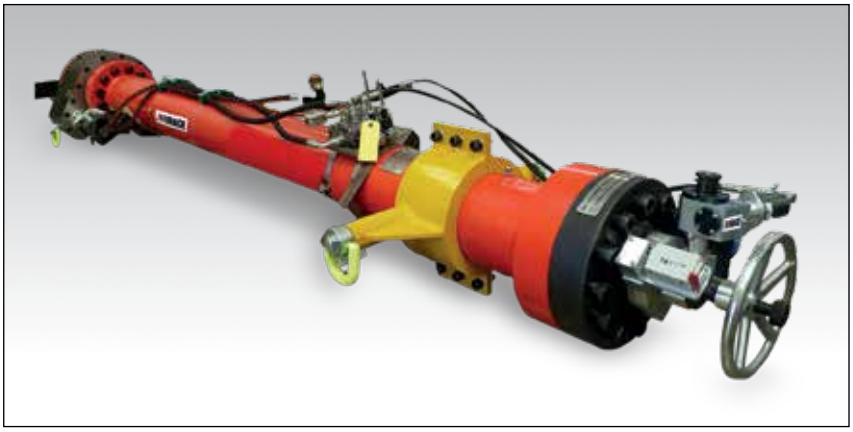


**Hot Tapping Machines**

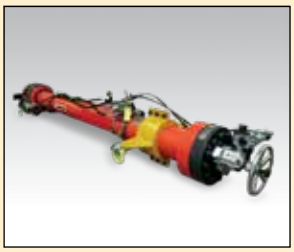
| Tapping Diameters (Min. - Max.) | | Maximum Stroke | | Max. Operating Pressure | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|---|---|---|---|
| (inch) | (mm) | (inch) | (mm) | (psi) | (bar) | | Pneumatic | Hydraulic |
| ½ – 4 | 12.7 – 102 | 18 | 457 | 1480 | 102 | **HTM100** | * | * |
| ½ – 6 | 12.7 – 152 | 32 | 813 | 1480 | 102 | **HTM150XL** | * | * |
| 3 – 12 | 76.2 – 305 | 30 | 762 | 285 | 20 | **LPHT312** | • | • |
| 3 – 12 | 76.2 – 305 | 42 | 1067 | 1480 | 102 | **MHT312** | • | |
| 4 – 20 | 102 – 508 | 72 | 1829 | 1480 | 102 | **MHT420** | | • |
| 8 – 24 | 203 – 609 | 80 | 2032 | 1480 | 102 | **MHT824** | | • |
| 12 – 36 | 76.2 – 914 | 110 | 2794 | 1480 | 102 | **MHT1236** | | • |
| 12 – 42 | 76.2 – 1066 | 132 | 3353 | 1480 | 102 | **MHT1242** | | • |
| 24 – 60 | 203 – 1524 | 180 | 4572 | 1480 | 102 | **MHT2460** | | • |

* HTM has manual rotation and feed.

▼ CHT3000



# CHT, LSA Series



Tapping Diameters:
**3 - 60 inches**

Maximum Stroke:
**43 - 165 inches**

Maximum Operating Pressure:
**1480 - 5000 psi**

▼ LSA1420-H



**LSA-Series Line Stopping Actuators**

Line Stopping Actuators (LSA) are used in conjunction with the required line stop head and housings to carry out line stops in surface or subsea environments. The range is designed for easy use on pipelines in various materials and differing wall thickness. Their use provides temporary pipeline isolation, temporary or permanent bypass and no costly interruption of service.

**CHT, HOT TAPPING MACHINES**

- Working pressure capacity up to 5000 psi (350 bar)
- Drive as close to the cut enhances cut efficiency
- Auto feed — infinitely variable for differing cut conditions
- Constant pressure seal monitoring ports
- Internally pressure balanced for higher-pressure applications
- Industry standard connection flanges
- Compatible with standard industry tooling

**LSA, LINE STOPPING ACTUATOR**

- Operates up to 1480 psi (102 bar)
- Hydraulic drive
- Depth measurement
- Control bar mechanical lock

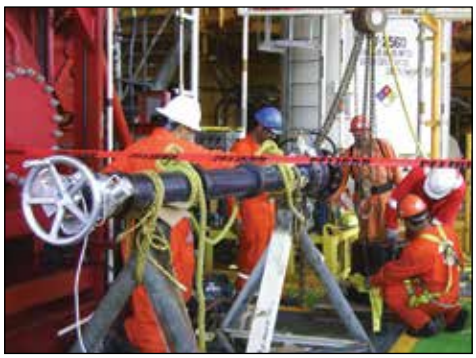


▲ *CHT3000 hot tapping application for petrochemical pipeline installation.*

**CHT-Hot Tapping Machines and LSA-Line Stopping Actuators**

| Tapping Diameters (Min. - Max.) | | Maximum Stroke | | Max. Operating Pressure | | Machine Model Number | Drive Power |
|---|---|---|---|---|---|---|---|
| (inch) | (mm) | (inch) | (mm) | (psi) | (bar) | | Hydraulic |
| 3 – 12 | 76 – 305 | 43 | 1092 | 5000 | 350 | CHT1000 | • |
| 3 – 16 | 76 – 406 | 66 | 1676 | 5000 | 350 | CHT1675 | • |
| 6 – 24 | 152 – 609 | 80 | 2032 | 5000 | 350 | CHT2000 | • |
| 12 – 48 | 305 – 1219 | 150 | 3810 | 5000 | 350 | CHT3000 | • |
| 4 – 12 | 102 – 305 | 72 | 1829 | 1480 | 102 | LSA412-H | • |
| 14 – 20 | 356 – 508 | 105 | 2667 | 1480 | 102 | LSA1420-H | • |
| 22 – 36 | 559 – 914 | 140 | 3556 | 1480 | 102 | LSA2236-H | • |
| 36 – 60 | 914 – 1524 | 165 | 4191 | 1480 | 102 | LSA3660-H | • |

▼ *CHT2000 hot tapping offshore application.*



▼ MDWS1638-H




## MDWS Series

Cutting Diameters:
**6 - 60 inches**

**Decommissioning Saws**

A range of portable saws for a diverse range of tubular severance projects. The band saw range delivers a cost-effective solution to cold cutting requirements in either surface or subsea situations. Diamond wire saws are ideal for cutting through dissimilar materials quickly.

**Applications**

- Offshore platform decommissioning
- Conductors, caissons, piles
- Multiple grouted strings
- Subsea ROV-applications
- Subsea structures
- Pipes, casings and risers

**Items included with each machine:**

- Diamond wire rope
- Tool kit
- Storage / shipping crate
- CE Certificate
- Packing list and manual.

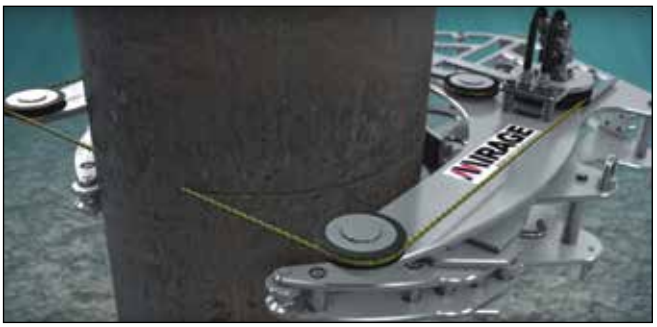
### Cutting the toughest materials in the most challenging environments

- **Strong aluminum frame**
- **Overload clutch for bow damage prevention**
- **Hydraulic auto clamp and auto-feed**
- **Diver and ROV compatible**
- **Available with optional flotation modules for deep water use**
- **User replaceable clamp contact pads, wheels, and wheel liners**
- **Crimped or continuous loop wires available**



▲ *MDWS Diamond Wire Saw lowered into sea.*

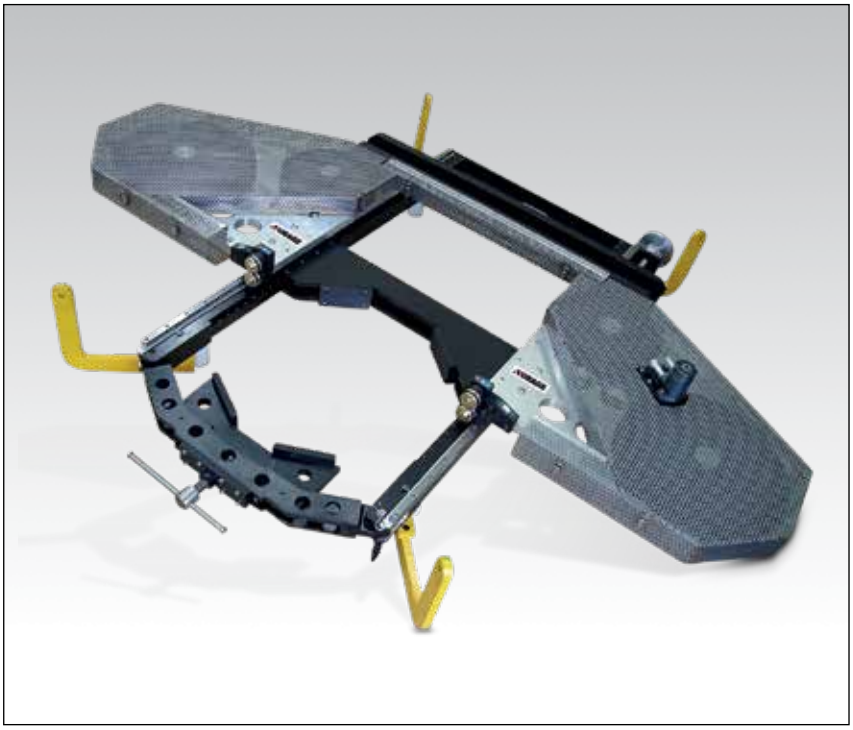
▼ *Subsea pile cutting.*




**Decommissioning Diamond Wire Saws**

| Cutting Diameters (Min. - Max.) (inch) | Cutting Diameters (Min. - Max.) (mm) | Machine Model Number | Main Application | Hydraulic Drive Power |
|---|---|---|---|---|
| 6 – 20 | 152 – 508 | **MDWS620-H** | Subsea | • |
| 16 – 38 | 406 – 965 | **MDWS1638-H** | Subsea | • |
| 36 – 60 | 914 – 1524 | **MDWS3660-H** | Subsea | • |

▼ **BS1636-H**



## Cutting the toughest materials in the most challenging environments

- **Fast, efficient and cost-effective cold cutting**
- **Cuts grouted multiple casings**
- **Fast mounting system**
- **Vertical or parallel operation**
- **Fast clamping and set up**
- **Low height design for minimum clearances**
- **Extensive blade selection for all materials**

# BS
## Series

Cutting Diameters:
**9 - 36 inches**

**Portable Band Saws**

Hydraulically powered portable band saws designed for tubular severance. Designed primarily for topside use, but also suitable for subsea applications.

**Applications**
- Offshore platform decommissioning
- Conductors, caissons, piles
- Multiple grouted strings
- Subsea ROV-applications
- Subsea structures
- Pipes, casings and risers

**Items included with each machine:**
- Band saw blade (2-3TP carbide tipped)
- Tool kit
- Storage / shipping crate
- CE Certificate
- Packing list and manual



▲ *Pipe cutting with BS portable band saw.*

▼ *Decommissioning job with band saw.*



**Portable Band Saws**

| Cutting Diameters (Min. - Max.) (inch) | Cutting Diameters (Min. - Max.) (mm) | Machine Model Number | Main Application | Hydraulic Drive Power |
|---|---|---|---|---|
| 9 – 24 | 228 – 610 | **BS924-H** | Topside | • |
| 16– 36 | 406 – 914 | **BS1636-H** | Topside | • |

## Portable Drilling Machines

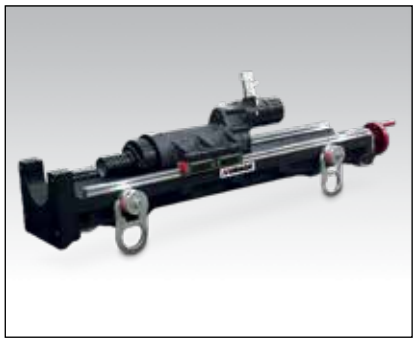
# HT
## Series

Drilling Capability:
**Up to 5 inches**

Maximum Stroke:
**11 - 17 inches**



**HT20**
- 4MT spindle accepts standard tooling
- Linear rails and guides provide accuracy and high-load carrying capacity
- Direct spindle drive
- Manual and variable auto feed



**HT50**
- ISO50 geared spindle
- Linear rails and guides provide accuracy and high-load carrying capacity
- Geared reduction spindle drive
- Manual and variable auto feed



**HT40**
- ISO40 geared spindle
- Linear rails and guides provide accuracy and high load-carrying capacity
- Geared reduction spindle drive
- Manual and variable feed

**Drilling and Tapping**

**Make light work of the toughest drilling and tapping applications**

Drilling and tapping projects on-site require powerful and stable machines that deliver precise results first time. Our machines are designed to do exactly this - giving you reassurance that the job will be done efficiently and to the right specification. They offer high torque and easy operation through their heavy-duty spindles with ISO standard tapers.

Optional switch magnet mounts and chain clamps are also available for a quick and easy setup.

For large scale offshore decommissioning projects, casing pin drills provide an effective solution for creating lift holes into casings - especially in the most challenging of working environments.

**Applications**
- Drilling through armor plate
- Bulkhead hole cutting
- Flange stud drilling
- Flange stud re-threading
- Motor pump stud removal
- Short stroke line boring
- Turbine case stud removal
- Turbine pill drilling
- Casing pin drilling

▼ *HT40 portable drilling machine.*



**Portable Drilling Machines**

| Maximum Diameter with Standard Drills | | Maximum Standard Stroke | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|---|---|
| (inch) | (mm) | (inch) | (mm) | | Pneumatic | Hydraulic |
| 2 | 50.8 | 11 | 279 | **HT20** | • | • |
| 4 | 101.6 | 16 | 406 | **HT40** | • | • |
| 5 | 127.0 | 17 | 432 | **HT50** | • | • |

## Portable Tapping Machines

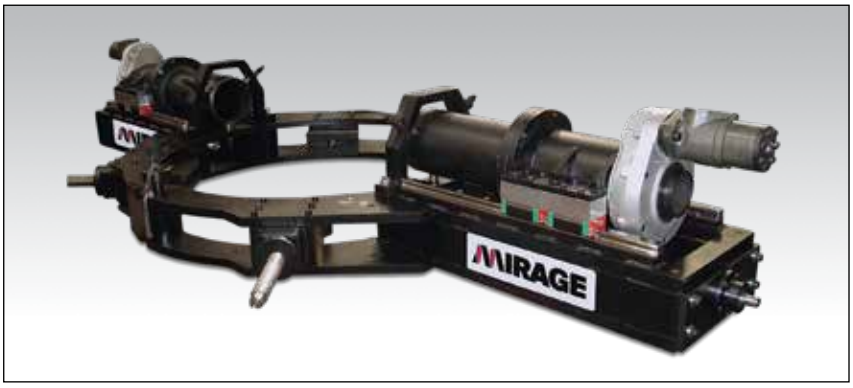


**T30**
- Rigid three pillar construction
- High-torque reduction drive
- Quick keyhole mounting
- Capable of tapping blind and through holes
- Hydraulic drive
- Pressure relief self-feed system



**T725**
- Heavy-duty four pillar construction
- Quick keyhole mounting system
- Capable of tapping blind and through holes
- High-torque reduction drive
- Hydraulic drive
- Pressure relief self-feed system

## Casing Pin Drilling Machine



**DDU1636**
- Efficient pin drilling cold cut method
- Horseshoe mount options
- Helical drive spindle
- 4-inch cutter assembly supplied as standard
- Alternative cutter kits available up to 12 inches

# T, DDU Series

Tapping Capability:
**Up to 7¼ inches**

Case Pin Drilling Diameter:
**Up to 12 inches**

Maximum Stroke:
**12 - 16 inches**



**GeniSYS IV Portable CNC Mill**

Ideal for removal of cracked or broken studs and refurbishment of damaged threads. For hole diameters up to 11 inches and maximum 15.1 inch depths.

*Page:* 394

**Included as Standard with each Machine**

- Tool kit
- All required mounting legs and connections
- Storage/shipping box
- CE certificate
- Operator's manual
- Packing list

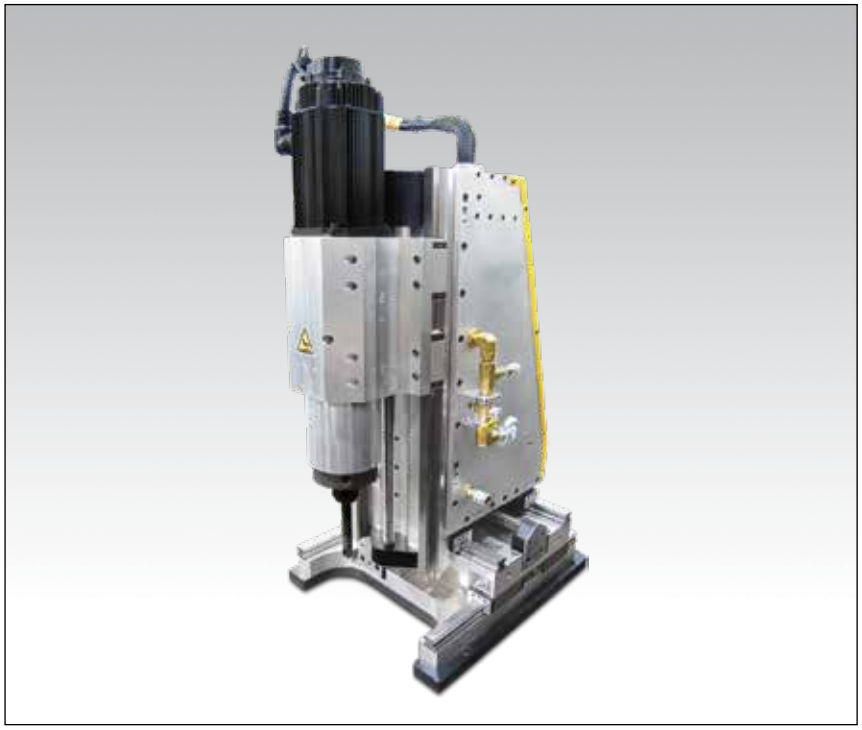
**Portable Tapping and Casing Pin Drilling Machines**

| Maximum Diameter with Standard Drills | | Maximum Standard Stroke | | Casing Pin Drill Clamping Diameter | | Machine Model Number | Drive Power Options | |
|---|---|---|---|---|---|---|---|---|
| (inch) | (mm) | (inch) | (mm) | (inch) | (mm) | | Pneumatic | Hydraulic |
| 3 | 76 | 12 | 305 | – | – | **T30** | • | • |
| 7¼ | 184 | 13 | 330 | – | – | **T725** | • | • |
| 12 | 305 | 16 | 406 | 9 – 24 | 228 – 609 | **DDU924** | | • |
| 12 | 305 | 16 | 406 | 16 – 36 | 406 – 914 | **DDU1636** | | • |

▼ *DDU1636 casing pin drilling.*



▼ GeniSYS™ IV Portable CNC Mill



## For removal of cracked or broken studs, and refurbishment of damaged threads

- **CNC software allows the GeniSYS IV to be programmed to perform multiple tasks within its working envelope**
- **Can create bore and thread hole diameters ranging from 0.875 – 11 inches (22,2 mm – 279,4 mm)**
- **Hole depths up to 15.12 inches (384 mm)**
- **High tolerance profile rails produce consistent results**
- **All three axes utilize precision ground ball screws, providing precise movement of the milling head**
- **Accurate and repeatable machining**
- **A cold cutting operation**
- **Ejects chips during operation**
- **Single machine capable of drilling, threading and general milling applications**

**Included as Standard**

The machine is supplied complete with the following items:

- GeniSYS IV milling machine
- Control System
- Laptop
- Motor and cables
- Storage / shipping boxes
- Operator's manual

▼ *Thread cutting*



▼ *GeniSYS IV CNC Milling Machine.*



# GeniSYS™ IV Portable 3-Axis CNC Milling Machine

**GeniSYS™ IV Portable CNC Mill**

The GeniSYS IV is a highly portable 3-axis CNC milling machine. The motion control command center provides the ultimate in performance monitoring and technician safety.

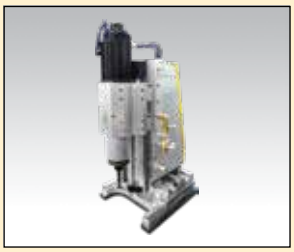
Designed for the accurate removal of cracked or broken studs up to 11-inch diameter and the precise refurbishment of damaged threads. This is achieved without the need for manually controlled drilling or metal disintegration techniques.

Can be used for automated general profile milling applications.

**Typical examples**

- Manway covers
- Reactor studs
- Bolt extraction and threading applications
- Recirculation pumps
- Turbine cases
- Heat exchangers
- Motor bases and many more high impact assets

**GeniSYS**



Hole Diameter:
**⅞ - 11 inches**

Hole Depths:
**Up to 15.12 inches**



▲ *A typical thread before refurbishment*



▲ *New machined thread*

**Tooling**

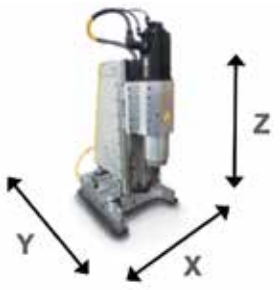
Standard tooling packages available to support general milling and thread milling applications.

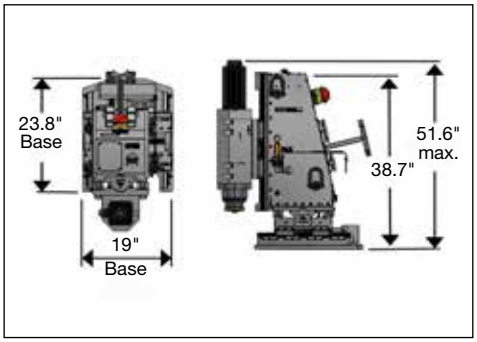


▲ *Enlarging a hole*



▲ *Coring out the center of a bolt (minor diameter).*




**Dimensions GeniSYS IV**

| Base Length | | Base Width | | Total Height | | Weight | |
|---|---|---|---|---|---|---|---|
| (inch) | (mm) | (inch) | (mm) | (inch) | (mm) | (lbs) | (kg) |
| 23.8 | 605 | 19 | 483 | 51.6 | 1311 | 1100 | 499 |

**Specifications GeniSYS IV Portable 3-axis CNC Milling Machine**

| Hole Diameters (Min. - Max.) | | Machine Model Number | Maximum Hole Depth | | Milling Head Maximum Travel | | | | | | Spindle Speed | Spindle Motor | | Motor Voltage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | X-axis | | Y-axis | | Z-axis | | | | | |
| (inch) | (mm) | | (inch) | (mm) | (inch) | (mm) | (inch) | (mm) | (inch) | (mm) | (RPM) | (hp) | (kW) | (Volt, 3 phase) |
| ⅞ – 11 | 22.2 – 279.4 | **GeniSYS IV** | 15.12 | 384 | 8 | 203.2 | 8 | 203.2 | 17 | 431.8 | 3000 | 6.7 | 5.0 | 380 - 440 |

▼ Shown: **MITT6A, MITT16A, MITT2A, MITT1A**




# Ultimate Versatility in Piping Isolation and Pressure Testing

- **Combination Isolation and Test Tool assures vapor-free isolation for hot work and high-pressure capability between seals for testing welds with one tool**
- **Multi-schedule capability – up to 6 schedules covered per tool, 40 tools cover 154 pipe diameter / schedule combinations**
- **Lightweight, slim and versatile design – no crane required, able to mount in elbows and tees, able to test mismatched schedules**
- **High-pressure capability – test welds with relative ease up to 4500 psi**
- **Self-centering tools are user-friendly and require minimal training**
- **Hydrodynamic capability for heat treating**

**Inline Isolation and Test Tools**

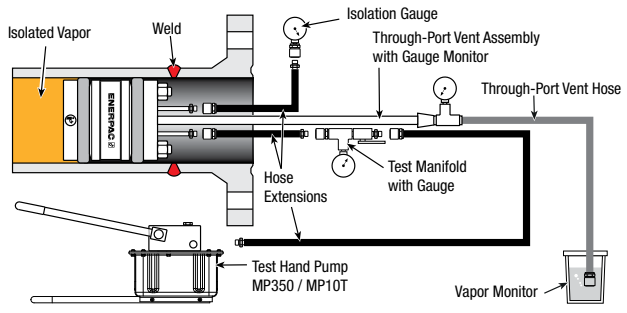
MITT-series tools obsolete traditional pipe cleaning and hydrotesting methods used for maintenance and construction operations.

The MITT series tools improve safety by limiting the test pressure volume and reduce downtime by eliminating cleaning requirements.

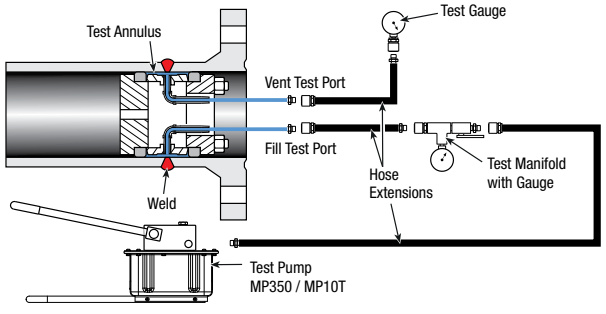
Key benefits of the tools include:

- Significantly reduce maintenance project timelines
- Safely perform welding on hydrocarbon lines with the peace of mind of a positive pressurized hydrostatic isolation
- Achieve significant reduction in wastewater (<1/4 gallon of water required for a 24-inch test)
- Patent Pending

**MITT Isolation / Vapor Barrier Arrangement**




**MITT Isolation Pressure Test Arrangement**



| Nominal Pipe Diameter (in) | Model Number | Pipe Schedules Covered | Max. Tool Pressure Rating (psi) | Tool Body Diameter (in) | Overall Length (in) | Stud, Nut, Washer Size (in) | Pressure Port Size (ASME NPT) | Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|
| ¾ | MITT075A | 5, 10, STD/40 | 4500 | 0.7 | 14 | 1/8" | Female 1/8" | 1.7 |
| | MITT075B | XS/80, 160 | 4500 | 0.6 | 14 | 1/8" | Female 1/8" | 1.5 |
| 1 | MITT1A | 5, 10, STD/40 | 4500 | 0.9 | 14 | 1/8" | Female 1/8" | 1.9 |
| | MITT1B | XS/80, 160 | 4500 | 0.7 | 14 | 1/8" | Female 1/8" | 1.6 |
| 1¼ | MITT125A | 5, 10, STD/40 XS/80 | 4500 | 1.1 | 14 | 1/4" | Female 1/4" | 2.9 |
| 1½ | MITT150A | 5,10, XS/80 | 4500 | 1.4 | 14 | 1/4" | Female 1/4" | 4.1 |
| | MITT150B | 160 | 4500 | 1.1 | 14 | 1/4" | Female 1/4" | 3.4 |
| 2 | MITT2A | 5,10, STD/40, XS/80 | 4500 | 1.8 | 14 | 1/4" | Female 1/4" | 5.4 |
| | MITT2B | 160, XXS | 4500 | 1.4 | 14 | 1/4" | Female 1/4" | 4.3 |
| 3 | MITT3A | 5,10, STD/40, XS/80 | 4500 | 2.8 | 7 | 3/8" | Male 1/8" | 5 |
| | MITT3B | 160, XXS | 4500 | 2.3 | 7 | 3/8" | Male 1/8" | 4.5 |
| 4 | MITT4A | 5,10, STD/40, 60, XS/80 | 4500 | 3.7 | 7 | 5/16" | Male 1/8" | 5.59 |
| | MITT4B | 120, 160 | 4500 | 3.2 | 7 | 5/16" | Male 1/8" | 4.81 |
| | MITT4C | XXS | 4500 | 3.0 | 7 | 5/16" | Male 1/8" | 4.25 |
| 6 | MITT6A | 10 , STD/40, 60 | 4500 | 5.7 | 7 | 5/8" | Male 1/4" | 13 |
| | MITT6B | XS / 80, 120 | 4500 | 5.4 | 7 | 5/8" | Male 1/4" | 12 |
| | MITT6C | 160, XXS | 4500 | 4.8 | 7 | 5/8" | Male 1/4" | 10 |
| 8 | MITT8A | 10, 20, 30, STD/40, XS/80 | 4500 | 7.4 | 7 | 5/8" | Male 1/4" | 19 |
| | MITT8B | 100, 120, 140, XXS, 160 | 4500 | 6.6 | 7 | 5/8" | Male 1/4" | 16 |
| 10 | MITT10A | 20, 30, STD/40, XS/60, 80 | 4500 | 9.4 | 7 | 5/8" | Male 1/4" | 29 |
| | MITT10B | 100, 120, XXS/140, 160 | 4500 | 8.4 | 7 | 5/8" | Male 1/4" | 25 |
| 12 | MITT12A | 10, 20, 30, STD, 40, XS | 4500 | 11.6 | 7 | 5/8" | Male 1/4" | 43 |
| | MITT12B | 60, 80, 100, XXS/120 | 4500 | 10.7 | 7 | 5/8" | Male 1/4" | 41 |
| | MITT12C | 140, 160 | 4500 | 9.8 | 7 | 5/8" | Male 1/4" | 32 |
| 14 | MITT14A | 10, 20, STD/30, 40 | 4500 | 12.8 | 7 | 5/8" | Male 1/4" | 45 |
| | MITT14B | XS, 60, 80 | 4500 | 12.8 | 7 | 5/8" | Male 1/4" | 42 |
| | MITT14C | 100, 120, 140, 160 | 4500 | 11.1 | 7 | 5/8" | Male 1/4" | 38 |
| 16 | MITT16A | 10, 20, STD/30, XS/40, 60 | 4500 | 14.6 | 7 | 5/8" | Male 1/4" | 54 |
| | MITT16B | 80, 100 | 4500 | 13.6 | 7 | 5/8" | Male 1/4" | 48 |
| | MITT16C | 120, 140, 160 | 4500 | 12.8 | 7 | 5/8" | Male 1/4" | 45 |
| 18 | MITT18A | 10, 20, STD, 30, XS, 40 | 4500 | 16.5 | 7 | 5/8" | Male 1/4" | 64 |
| | MITT18B | 60, 80 | 4500 | 15.8 | 7 | 5/8" | Male 1/4" | 60 |
| | MITT18C | 100, 120 | 4500 | 14.9 | 7 | 5/8" | Male 1/4" | 55 |
| | MITT18D | 140, 160 | 4500 | 14.1 | 7 | 5/8" | Male 1/4" | 52 |
| 20 | MITT20A | 10, STD/20, XS / 30 | 4500 | 18.9 | 7 | 5/8" | Male 1/4" | 80 |
| | MITT20B | 40, 60 | 4500 | 18.0 | 7 | 5/8" | Male 1/4" | 73 |
| | MITT20C | 80, 100 | 4500 | 17.1 | 7 | 5/8" | Male 1/4" | 67 |
| | MITT20D | 120, 140 | 4500 | 16.1 | 7 | 5/8" | Male 1/4" | 61 |
| | MITT20E | 160 | 4500 | 15.7 | 7 | 5/8" | Male 1/4" | 60 |
| 22 | MITT22A | STD, XS | 4500 | 20.6 | 7 | 5/8" | Male 1/4" | 89 |
| | MITT22B | 60, 80 | 4500 | 19.4 | 7 | 5/8" | Male 1/4" | 81 |
| | MITT22C | 100, 120 | 4500 | 18.4 | 7 | 5/8" | Male 1/4" | 75 |
| | MITT22D | 140, 160 | 4500 | 17.4 | 7 | 5/8" | Male 1/4" | 69 |
| 24 | MITT24A | 10, STD/20, XS, 30 | 1150 | 22.6 | 7 | 5/8" | Male 1/4" | 99 |
| | MITT24B | 40, 60 | 2250 | 21.7 | 7 | 5/8" | Male 1/4" | 94 |
| | MITT24C | 80, 100 | 3375 | 20.6 | 7 | 5/8" | Male 1/4" | 88 |
| | MITT24D | 120, 140 | 4500 | 19.5 | 7 | 5/8" | Male 1/4" | 82 |
| | MITT24E | 160 | 4500 | 18.9 | 7 | 5/8" | Male 1/4" | 80 |
| 26 | MITT26A | 10, STD, XS | 1150 | 24.6 | 7 | 55/8" | Male 1/4" | 115 |
| 30 | MITT30A | 10, STD, XS/20, 30 | 1150 | 28.6 | 7 | 5/8" | Male 1/4" | 147 |
| | MITT30B | 40 | 1150 | 28.1 | 7 | 5/8" | Male 1/4" | 140 |
| 32 | MITT32A | 10, STD, XS/20, 30 | 1150 | 30.6 | 7 | 5/8" | Male 1/4" | 158 |
| | MITT32B | 40 | 1150 | 30.3 | 7 | 5/8" | Male 1/4" | 155 |
| 34 | MITT34A | 10, STD, XS/20, 30 | 425 | 32.6 | 7 | 5/8" | Male 1/4" | 168 |
| | MITT34B | 40 | 425 | 32.2 | 7 | 5/8" | Male 1/4" | 165 |
| 36 | MITT36A | 10, STD, XS | 425 | 34.6 | 7 | 5/8" | Male 1/4" | 187 |
| 38 | MITT38A | STD, XS | 425 | 36.6 | 7 | 5/8" | Male 1/4" | 208 |
| 40 | MITT40A | STD, XS | 425 | 38.6 | 7 | 5/8" | Male 1/4" | 230 |

# MITT Series




Pipe Diameters:
**¾ - 40 inches**

Water Capacity per Test:
**0.10 - 0.75 gallon**

Maximum Test Pressure:
**4500 psi**



**Cost-Effective Spares**

Buna 90 shore hardness seals and stainless steel seal backing rings provide additional pressure capacity for a low cost.



**Ancillary Kit – MITTAK**

All ancillary components required to safely isolate piping and test new welds (includes manual valves, gauge set, hoses, hand tools, fittings).



**Pump and Reservoir**

To match the full capability of the tools, the **MP350** hand pump and **MP10T** reservoir are recommended.

▼ *MITT2A tool being torqued in a test stand for high-pressure testing.*



# Enerpac "Yellow Pages"
*stand for*
## Hydraulic Information!

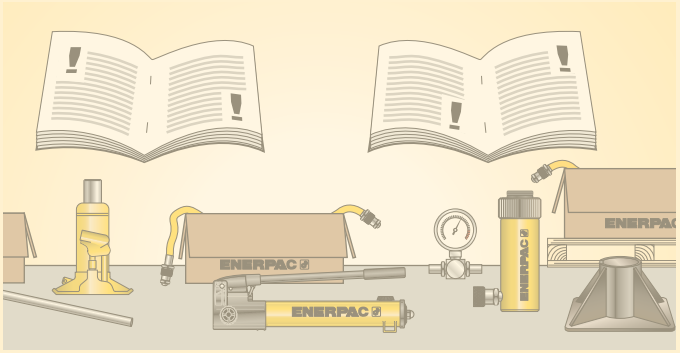
**If selecting hydraulic equipment is not your daily routine then you will appreciate these pages. The "Yellow Pages" are designed to help you work with hydraulics. They will help you to better understand the basics of hydraulics, of system set-ups and of the most commonly used hydraulic techniques. The better your choice of equipment, the better you will appreciate hydraulics. Take the time to go through these "Yellow Pages" and you will benefit even more from Enerpac High Pressure Hydraulics.**

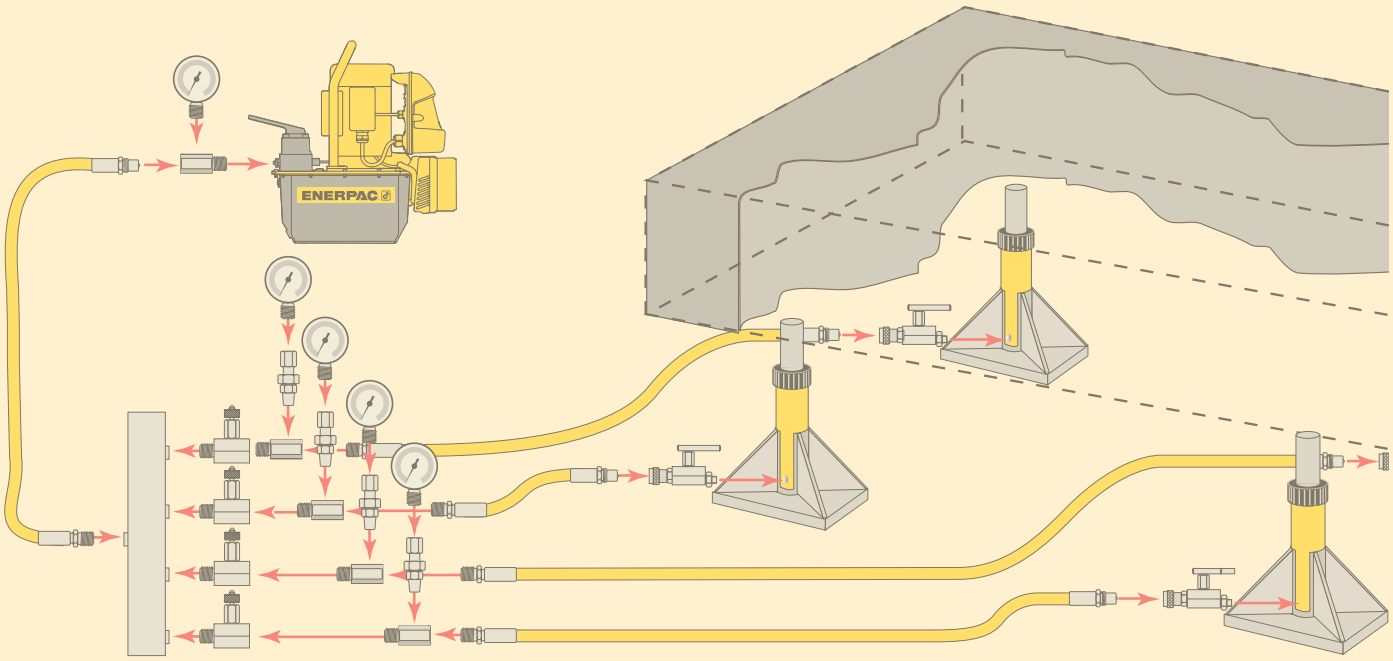
**ENERPAC WARRANTY STATEMENT**

Visit our website for the complete Global Lifetime Warranty or call your Authorized Service Center.

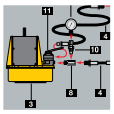
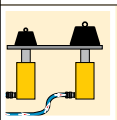
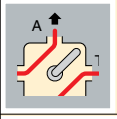
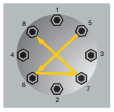
**Learn More About Hydraulics**

Visit www.enerpac.com to learn more about hydraulics and system set-ups.



# Yellow Pages Overview


| Section | Page |
|---|---|
| Safety Instructions |  400-401 ▶ |
| Product Selection & Worksheet |  402-403 ▶ |
| Basic System Set-ups |  404-405 ▶ |
| Basic Hydraulics |  406-407 ▶ |
| Conversion Tables and Speed Charts |  408-409 ▶ |
| Valve Information |  410 ▶ |
| Hexagon Bolt and Nut Sizes | 411 ▶ |
| Torque Tightening Torque Tensioning |  412-415 ▶ |
| Bolting Integrity Software |  416-417 ▶ |


ISO 9001 REGISTERED

ENERPAC, 199 Gateway Court, Columbus WI 53925 USA

Enerpac is certified for several quality standards. These standards require compliance with standards for management, administration, product development and manufacturing.

Enerpac worked hard to earn the quality rating ISO9001, in its ongoing pursuit of excellence.

**DIN-ISO 1402**

Enerpac Thermoplastic and Rubber Hoses have been tested and confirm to this Standard.

**ASME B30.1–2015**

Our cylinders fully comply with the criteria set forth by the American Society of Mechanical Engineers (except RD, BRD, HCL, LPL, CUSP and JHA-Series).

**Product Design Criteria**

All hydraulic components are designed and tested to be safe for use at maximum 10,000 psi unless otherwise specifically noted.

Where specified, Enerpac electric power units meet the design, assembly and test requirements of The Standards Council of Canada (CAN C22.2 No. 68-92), and UL73 for the United States. Units were tested and certified for both USA and Canada by TŰV, and by CSA, USA-OSHA-NRTLs.,(Nationally Recognized Testing Laboratories.)

**EMC Directive**

Where specified, Enerpac electric power pumps meet the requirements for Electromagnetic Compatibility per EMC Directive 2014/30/EU.

**CE Marking & Conformity**

Enerpac provides Declarations of Conformity or Incorporation, as applicable, and CE Marks for products according to the EU Directives.

**ATEX 95 Certified**

The S, W, DSX and HMT-Series torque wrenches, ZA, XA, LAT and ATP-Series air-driven pumps, SWi-Ex-flange spreaders, HP-EX hand pumps and the 144 type hoses are tested and certified according to the Directive 2014/34/EU "ATEX Directive".
The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Zone Area 1 in Gas and/or Dust atmospheres).

| | |
|---|---|
| S, W-Wrenches: | **Ex II 2 GD T4** |
| DSX, HMT-Wrenches: | **Ex II 2 G c T6** |
| ZA4, ZA4T-Air Pumps: | **Ex II 2 GD ck T4** |
| ZA4TX-QROP-Pumps: | **Ex IIC T4 Gc**<br>**Ex IIIC T135°C Dc** |
| ATP, XA-Air Pumps: | **Ex II 2 GD ck T4**: |
| LAT-Air Pumps: | **Ex IIC T4 Gc and**<br>**Ex IIIC T135°C Dc** |
| Swi-Ex Spreaders: | **II 2G Ex h IIB T5 Gb** and<br>**II 2D Ex h IIIC T85°C Db** |
| HP-Ex Hand Pumps: | **II 2G Ex h IIB T5 Gb** and<br>**II 2D Ex h IIIC T100°C Db** |
| 144 Hoses: | **II 2G Ex h IIB T5 Gb** and<br>**II 2D Ex h IIIC T100°C Db** |




When used correctly, hydraulic power is one of the safest methods of applying force to your work. To that end we offer some DO's and DON'Ts, simple common sense points which apply to practically all Enerpac hydraulic products.

- Lift slowly and check often
- Avoid standing in the line of force
- Anticipate possible problems and take steps to avoid them

The illustrations and application photos of Enerpac products throughout this catalog are used to portray how some of our customers have used hydraulics in industry.

In designing similar systems, care must be taken to select the proper components that provide safe operation and fit your needs.

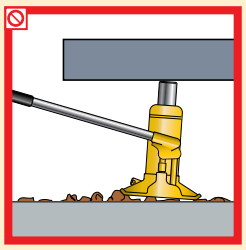
Check to see if all safety measures have been taken to avoid the risk of injury and property damage from your application or system.

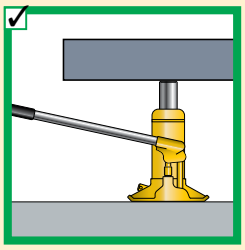
Enerpac cannot be held responsible for damage or injury caused by unsafe use, maintenance or application of its products.

Please contact the Enerpac office or a representative for guidance when you are in doubt as to the proper safety precautions to be taken in designing and setting up your particular system.

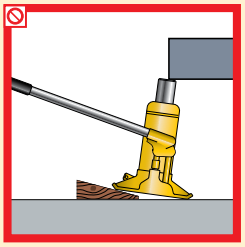
In addition to these tips, every Enerpac product comes with specific safety information and instructions. Please read them carefully.

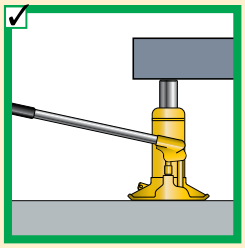
## Jacks



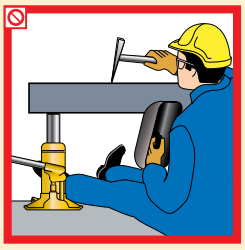


◀ **Provide a level and solid support for the entire jack base area.**





◀ **The entire jack saddle must be in contact with the load. Movement of the load must be in the same direction as jack plunger.**





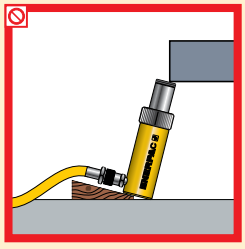
◀ **Never place any part of your body under the load. Ensure the load is on a solid support before venturing under.**

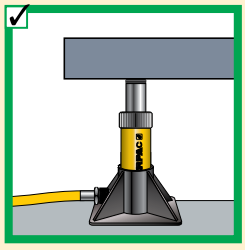




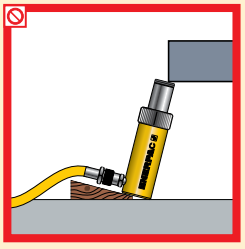
◀ **Remove the jack handle when it is not being used.**

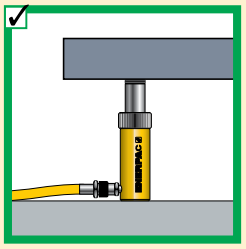
## Cylinders



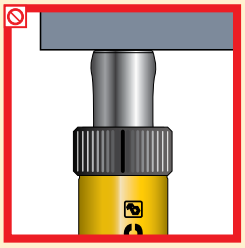


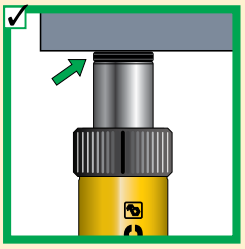
◀ **Provide a solid support for the entire cylinder base area. Use cylinder base attachment for more stability.**



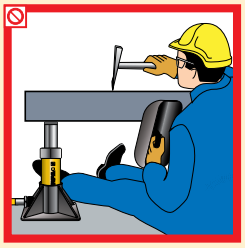


◀ **The entire cylinder saddle must be in contact with the load. Movement of the cylinder must be parallel with the movement of the load.**





◀ **Do not use cylinder without saddle. This will cause plunger to "mushroom". Saddles distribute load evenly on the plunger.**





◀ **As with jacks, never place any part of your body under the load. Load must be on cribbing before venturing under.**





◀ **Always protect cylinder threads for use with attachments.**

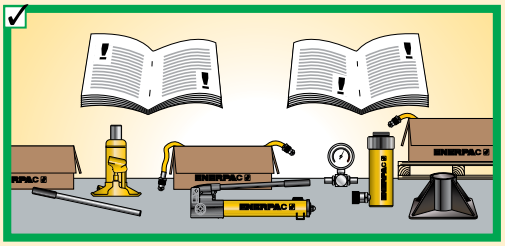




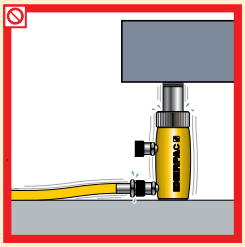
◀ **Keep hydraulic equipment away from open fire and temperatures above 150 °F (65 °C).**

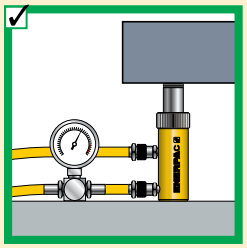
## General

**80% Manufacturer's rating of load and stroke are maximum safe limits. Good practice encourages using only 80% of these ratings! 80%**



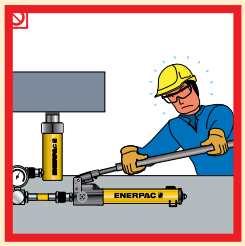
Always read instructions and safety warnings that come with your Enerpac hydraulic equipment.

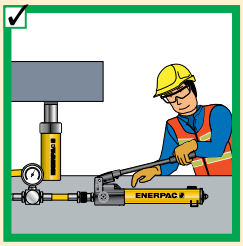




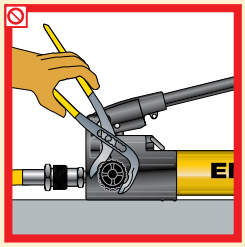
Both couplers must be connected when using double-acting cylinders. Ensure return hose is fitted.

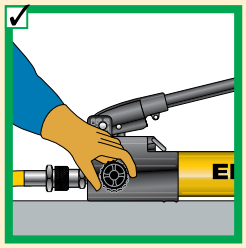
## Pumps



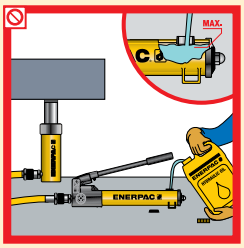


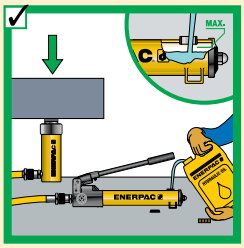
Don't use handle extenders. Hand pumps should be easy to operate when used correctly.



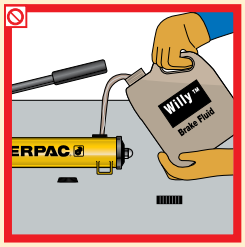


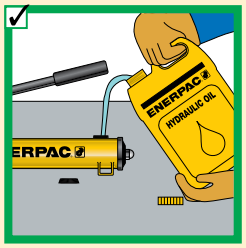
Close release valve finger tight. Using force will ruin the valve.





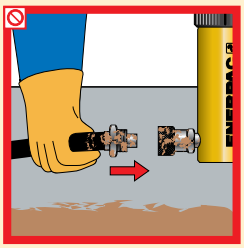
Fill pump only to recommended level. Fill only when connected cylinder is fully retracted.

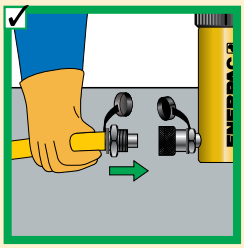




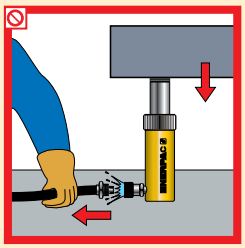
Always use genuine Enerpac hydraulic oil.

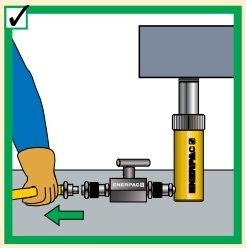
## Hoses and couplers



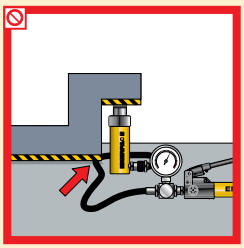


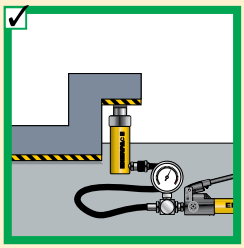
Clean both coupler parts before connecting. Use dust caps when coupler parts are not connected.



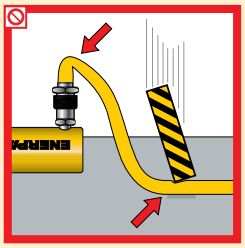


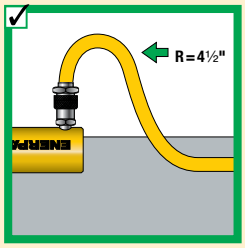
Detach cylinder only when fully retracted or use shut-off valves or safety valves to lock-in cylinder pressure.



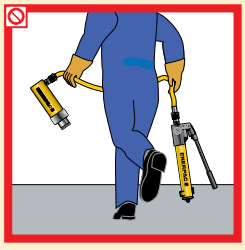


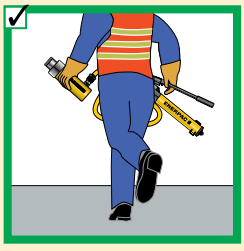
Keep hoses away from the area beneath loads.



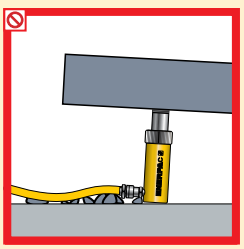


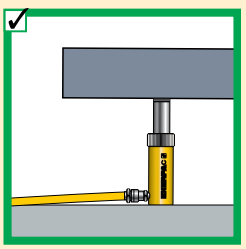

Don't kink hoses. Bending radius should be at least 4½ inch. Don't drive over or drop heavy objects on hoses.





Don't lift hydraulic equipment by the hoses.





Never allow the cylinder to be lifted off of the ground through the couplers.

## ▼ HAND PUMP AND SINGLE-ACTING CYLINDER MATCHING CHART

| Capacity (tons) ► ▼ Stroke (inches) | 5 t | 10 t | 15 t | 25 t | 30 t | 50 t | 60 t | 75 t | 100 t | 150 t |
|---|---|---|---|---|---|---|---|---|---|---|
| < 1.00 | | | | | | | | | | |
| 1.00 | | | | | | | | | | |
| 2.00 | | | | | | | | | | |
| 3.00 | | | | | | | | | | |
| 4.00 | | | | | | | | | | |
| 5.00 | | | | | | | | | | |
| 6.00 | | | | | | | | | | |
| 7.00 | | | | | | | | | | |
| 8.00 | | | | | | | | | | |
| 9.00 | | | | | | | | | | |
| 10.00 | | | | | | | | | | |
| 12.00 | | | | | | | | | | |
| 13.00 | | | | | | | | | | |
| 14.00 | | | | | | | | | | |
|  |  | P392 Page: 86 | |  | P80 Page: 88 |  | P462 Page: 88 | | | |

Note: Selection based on oil capacity requirements of cylinders.

## ▼ POWER PUMP SELECTION CHART

| Oil Flow* | Low (20 in³/min) | | Medium (60 to 100 in³/min) | | High (33 to 305 in³/min) | |
|---|---|---|---|---|---|---|
| Reservoir Oil Capacity | 0.5-1 gal. | 1.5 gal. | 1.2-10.3 gal. | 1.2-10.3 gal. | 2.6-10.3 gal. | 5, 10, 40 gal. |
| Duty Cycle** | Intermittent | Extended | Intermittent | Extended | Extended | Extended |
| Portable/Stationary*** | Portable | Stationary | Portable | Stationary | Stationary | Stationary |
| Recommended Series | PU-Series Economy | E-Series E-Pulse® | ZU4-Series | ZE3-, ZE4- and ZE5 Series | ZE6 Series | SFP Series |
| |  |  |  |  |  |  |
| | Page: 101 | Page: 102 | Page: 106 | Page: 112 | Page: 112 | Page: 132 |

* Oil Flow
- Determined by motor size
- Directly affects electrical power requirements
- Determines cylinder or tool speed

** Duty Cycle
- Extended applications require more than one hour of uninterrupted pump use
- Intermittent use – from 20 minutes to one hour, depending on reservoir capacity (contact Enerpac for details)

*** Portability

**Portable**
- Ergonomic handles
- Flexible power requirements

**Stationary**
- Mounting options
- Normally requires stable power

# Product Selection Worksheet

▼ **Complete the following information to select the right products:**

## Cylinder Selection

| *Question:* | *Tips/help* | *Data* | *Model Number* |
|---|---|---|---|
| **Total force required in tons:** | Total load | | |
| **Number of cylinders required:** | Number of lifting points | | |
| **Force per cylinder in tons:** | Should be 80% of total cylinder cap. | | |
| **Stroke required:** | Plunger travel | | |
| **Single or double acting (D/A):** | D/A used when pull force is required, or retract speed is critical | | |
| **Type of plunger required:** | Hollow or solid | | |
| **Collapsed height required:** | Height with plunger fully retracted | | |
| **Optional saddle required:** | Tilt, Grooved, Flat | | |
| **Cylinder base:** | Improves stability | | |
| **Cylinder attachments: (RC-series)** | Expanded functions | | |
| **Selected cylinder model:** | | ▶ | |
| **Including coupler model:** | | | |

## Pump Selection

The three most commonly selected pumps are hand pumps, electric pumps and air-driven pumps. Gas powered pumps, however can be selected in the same way.

**Available power source:** ☐ **Manual** ☐ **Battery** ☐ **Electric** ☐ **Compressed Air** ☐ **Gasoline**

| | | | |
|---|---|---|---|
| **Hand pump** | | | |
| **Single- or double-acting operation** | Not for high-cycle applications<br>Use 4-way valve for D/A applications<br>Check speed chart on page 409 for number of strokes per inch) | | |
| **Selected hand pump:** | | ▶ | |
| **Electric or compressed air pump** | | | |
| **Need for portability:** | Weight and power requirements | | |
| **Duty cycle:** | Intermittent or extended | | |
| **Required usable oil capacity:** | Intermittent =1.2 x cylinder oil capacity<br>high cycle = 2 x cylinder oil capacity | | |
| **Available voltage:** | Single phase or Three phase | | |
| **Lifting speed** (Important/not important): | Use speed chart on page 409 | | |
| **Type of control:** | Manual/remote pendant | | |
| **Type of actuation/function:** | Advance/hold/retract | | |
| **Accessories:** | Roll bar, Oil Filter kit, ... | | |
| **Selected pump:** | | ▶ | |
| **To suit hose:** | Oil connection | | |

## System Components

| | | | |
|---|---|---|---|
| **Number of hoses and length required:** | | | |
| **Selected hoses:** | | ▶ | |
| **Manifold or tee:** | | ▶ | |
| **Extra hose per manifold** (2): | | ▶ | |
| **Gauge** (psi, lbs or tons scale): | GF-series glycerine for high cycle | ▶ | |
| **Gauge adaptor:** | | ▶ | |
| **Fittings:** | | ▶ | |
| **Pressure relief safety valve:** | | ▶ | |
| **Load-holding valve(s):** | | ▶ | |
| **Hydraulic oil:** | | ▶ | |

**1 Cylinder**
Applies hydraulic force.
*Page* **5**

**2 Cylinder Base Plate**
For applications such as lifting where additional cylinder stability is required.
*Page* **10**

**3 Pump**
Provides hydraulic flow.
*Page* **84**

**4 Hose**
Transports hydraulic fluid.
*Page* **148-149**

**5 Male Coupler**
For quick connection of the hose to system components.
*Page* **150-151**

**6 Female Coupler**
For quick connection of the hose end to the system components (usually included with the cylinder).
*Page* **150-151**

**7 Gauge**
To monitor pressure of the hydraulic circuit.
*Page* **156-157**

**8 Gauge Adaptor**
For quick and easy gauge installation.
*Page* **162**

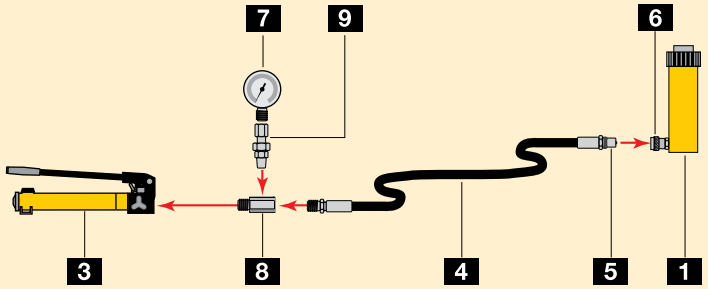
**9 Swivel Connector**
Allows proper allignment of valves and/or gauges. Used when units being connected cannot be rotated.
*Page* **163**

**10 Auto-damper Valve V10**
Used to protect gauge from damage due to sudden pulses in the system. Needs no adjustment and allows correct positioning of gauge, prior to tightening.
*Page* **164-165**

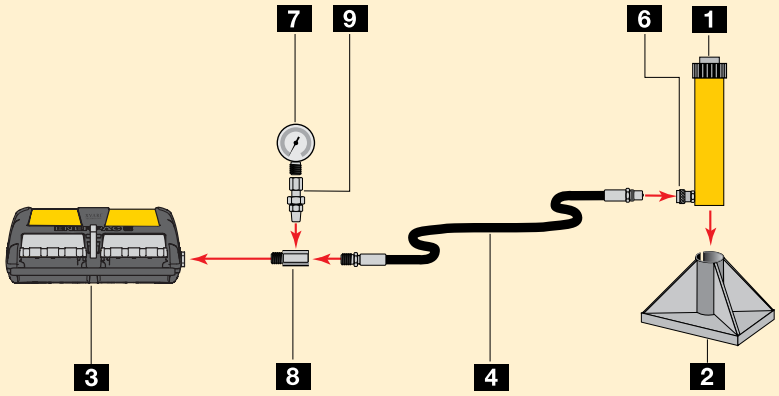
**11 4-Way Directional Control Valve**
Controls the direction of hydraulic fluid in a double-acting system (usually included with the powerpack).
*Page* **164-165**

**Single-acting push application**, such as in a press.
The hand pump offers controlled cylinder advance, but may require many hand pump strokes in longer stroke applications when the cylinder capacity is 25 ton or above.

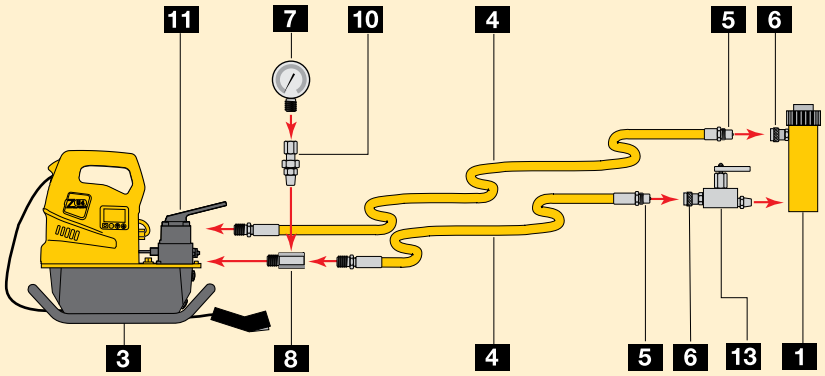
Examples of pump, hose and cylinder sets can be found on page 62.



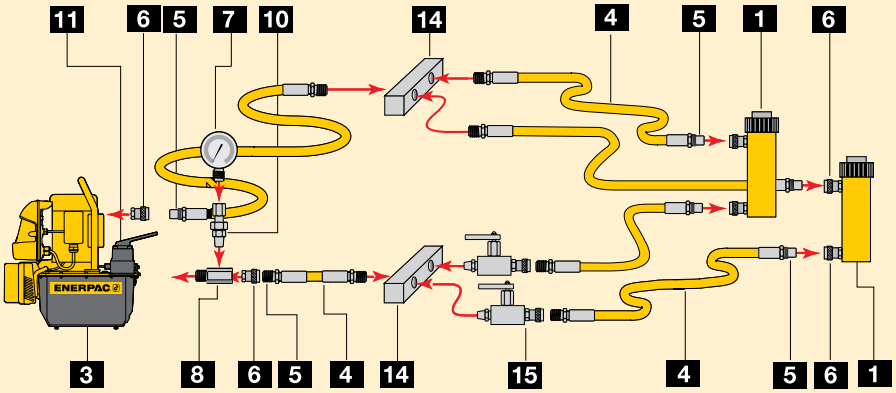

**Single-acting cylinder** with longer stroke used for lifting applications.



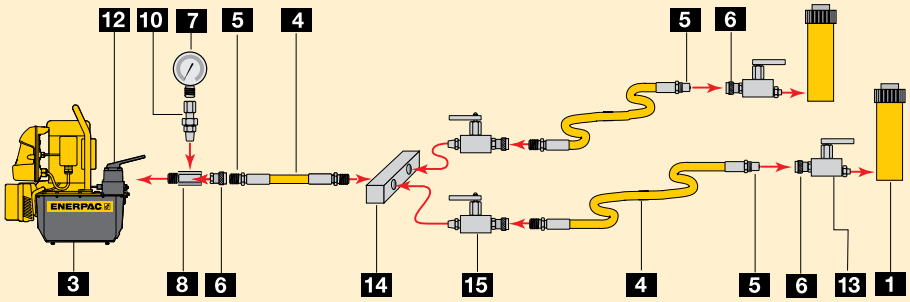

**Double-acting cylinder set-up** used for lifting applications where a slow controlled descent of the load must be maintained.



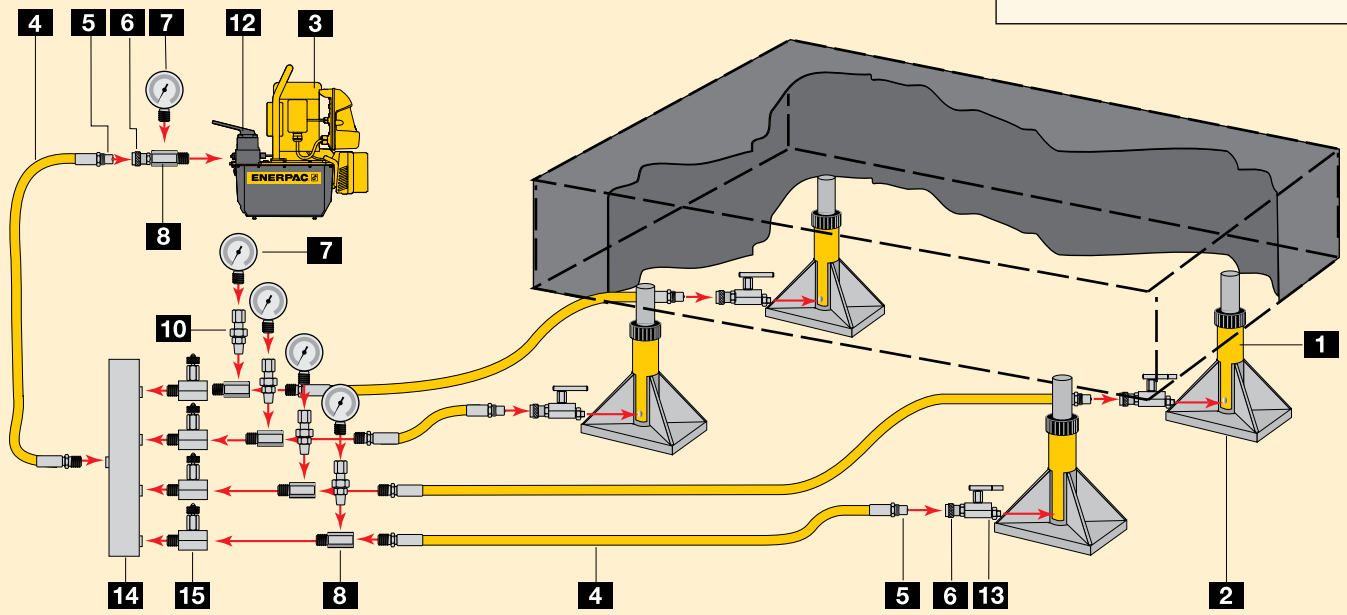
**Double-acting cylinder set-up** used in a push/pull application.




**Two point lifting set-up using single-acting cylinders.**




**Four point lifting set-up, using single-acting cylinders, flow control valves and safety valves.**




**12 3-Way Directional Control Valve**
Controls the direction of hydraulic fluid in a single-acting system (usually included with the powerpack).
*Page* **164-165**

**13 Safety Holding Valve**
Holds the load in lifting applications.
*Page* **165**

**14 Manifold**
Allows distribution of hydraulic fluid from one power source to several cylinders

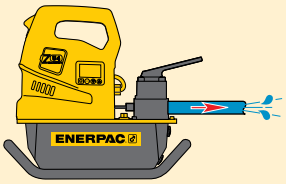
**Split-Flow Manifold**
Allows distribution of hydraulic fluid from one power source to several single-acting cylinders
*Page* **152 & 154**

**15 Needle Valve**
Regulates the flow of hydraulic fluid to or from the cylinders.
*Page* **165**

**www.enerpac.com**
Visit our web site to learn more about hydraulics and system set-ups.

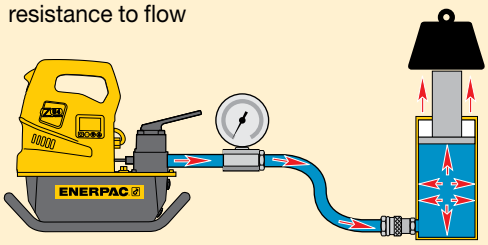
## Flow

A hydraulic pump produces flow




## Pressure

Pressure occurs when there is resistance to flow




## Pascal's Law

Pressure applied at any point upon a confined liquid is transmitted undiminished in all directions (Fig.1).

This means that when more than one hydraulic cylinder is being used, each cylinder will lift at its own rate, depending on the force required to move the load at that point (Fig. 2).

Cylinders with the lightest load will move first, and cylinders with the heaviest load will move last (Load A), as long as the cylinders have the same capacity.

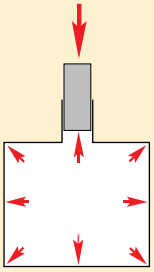


*Figure 1*

To have all cylinders operate uniformly so that the load is being lifted at the same rate at each point, either control valves (see Valve section) or Synchronous Lift System components (see Cylinder section) must be added to the system (Load B).

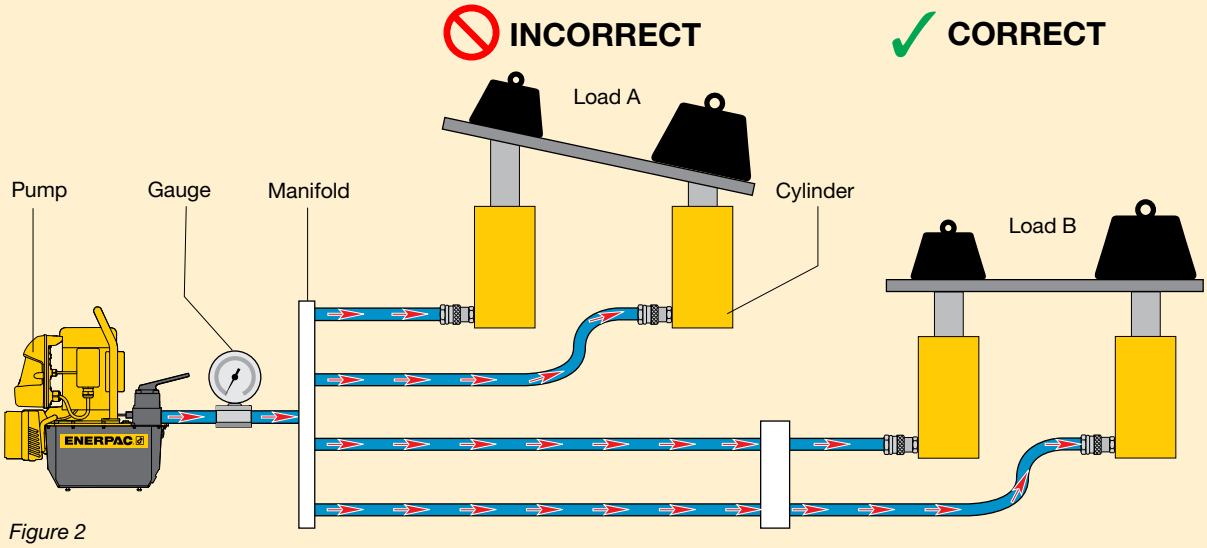



*Figure 2*

Synchronous Lift or Control Valves to provide uniform lifting of load.

**CAUTION!**

**When lifting or pressing, always use a gauge.**

A gauge is your "window" to the system. It lets you see what's going on. You will find the gauges in the System Components section.

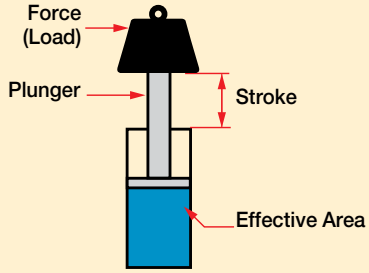
*Page:* 147

**Learn more about hydraulics**

Visit **www.enerpac.com** to learn more about hydraulics and system set-ups.

## Force

The amount of force a hydraulic cylinder can generate is equal to the hydraulic pressure times the "effective area" of the cylinder (see cylinder selection charts).




| Force | = | Hydraulic Working Pressure | x | Cylinder Effective Area |
|---|---|---|---|---|
| F | = | P | x | A |

Use this formula to determine either force, pressure or effective area if two of the variables are known.

**Example 1**
An RC106 cylinder with 2.24 $in^2$ effective area operating at 8,000 psi will generate what force?
**Force** = 8,000 psi x 2.24 $in^2$ = 17,920 lbs.

**Example 2**
An RC106 cylinder lifting 14,000 lbs will require what pressure?
**Pressure** = 14,000 lbs ÷ 2.24 $in^2$ = 6,250 psi.

**Example 3**
An RC256 cylinder with 5.15 $in^2$ effective area is required to produce a force of 41,000 lbs. What pressure is required?
**Pressure** = 41,000 lbs. ÷ 5.15 $in^2$ = 7961 psi.

**Example 4**
Four RC308 cylinders each with 6.49 $in^2$ effective area are required to produce a force of 180,000 lbs. What pressure is required?
**Pressure** = 180,000 lbs ÷ (4 x 6.49 $in^2$) = 6933 psi.
Remember, since four cylinders are used together, the area for one cylinder must be multiplied by the number of cylinders used.

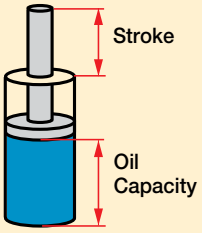
**Example 5**
A HCL2506 cylinder with 56.27 $in^2$ effective area is going to be used with a power source that is capable of 7,500 psi. What is the theoretical force available from that cylinder?
**Force** = 7,500 psi x 56.27 $in^2$ = 422,025 lbs.

## Cylinder Oil Capacity

The volume of oil required for a cylinder (cylinder oil capacity) is equal to the effective area of the cylinder times the stroke*.

| Cylinder Oil Capacity | = | Cylinder Effective Area | x | Cylinder Stroke |
|---|---|---|---|---|

* **Note**: these are theoretical examples and do not take into account the compressibility of oil under high pressure.




**Example 1**
An RC158 cylinder with 3.14 $in^2$ effective area and an 8 in. stroke will require what volume of oil?
**Oil Capacity** = 3.14 $in^2$ x 8 in = 25.12 $in^3$

**Example 2**
An RC5013 cylinder has an effective area of 11.05 $in^2$ and a stroke of 13.25 in. How much oil will be required?
**Oil Capacity** = 11.05 $in^2$ x 13.25 in = 146.41 $in^3$

**Example 3**
An RC10010 cylinder has an effective area of 20.63 $in^2$ and a stroke of 10.25 in. How much oil will it require?
**Oil Capacity** = 20.63 $in^2$ x 10.25 in = 211.46 $in^3$

**Example 4**
Four RC308 cylinders are being used, each with an effective area of 6.49 $in^2$ and stroke of 8.25 in. How much oil will be required?
**Oil Capacity** = 6.49 $in^2$ x 8.25 in = 53.54 $in^3$ for one cylinder
Multiply by four to obtain the required capacity: 214.17 $in^3$

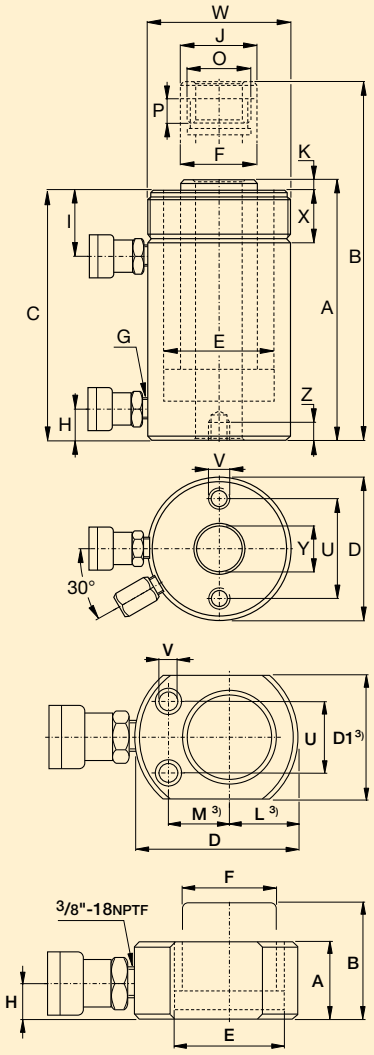
**CAUTION!**
**Enerpac oil will compress 2.28% at 5,000 psi and 4.1% at 10,000 psi.**

*Page:* 152

## Key to cylinder dimensions

Dimensions shown in the Selection Charts of the cylinder section are identified on the relevant drawings by the capital letter references listed here: A for collapsed height through Z for depth of internal base thread.

A = Collapsed height
B = Extended height
C = Cylinder body length
D = Cylinder outside diameter
D1 = Cylinder width
E = Cylinder inside diameter (bore)
F = Plunger rod diameter
G = Oil inlet thread
H = Cylinder bottom to advance port
I = Cylinder top to retract port
J = Saddle outside diameter
K = Saddle protrusion from plunger
L = Plunger center to side of base
M = Mounting holes to plunger center
N = Length of smaller cylinder part
O = Plunger hole or thread of saddle
P = Plunger thread length
Q = Plunger outside thread (pull cylinders only)
U = Bolt circle diameter of mounting holes
V = Thread of cylinder mounting holes
W = Collar thread
X = Collar thread length
Y = Center hole diameter (hollow cylinders only)
Z = Depth of base hole thread




## Key to measurements

**All capacities and measurements in the catalog are expressed in uniform values.**

**The conversion chart provides helpful information for their translation into equivalent systems.**

**You can also visit our website at www.enerpac.com to download a FREE conversion calculator.**

**Pressure:**

| | |
|---|---|
| 1 psi | = 0.069 bar |
| 1 bar | = 14.50 psi |
| 1 kPa | = 0.145 psi |

**Volume:**

| | |
|---|---|
| 1 $in^3$ | = 16.387 $cm^3$ |
| 1 $cm^3$ | = 0.061 $in^3$ |
| 1 liter | = 61.02 $in^3$ |
| 1 liter | = 0.264 gal |
| 1 US gal | = 3,785 $cm^3$ |
| | = 3.785 l |
| | = 231 $in^3$ |

**Weight:**

| | |
|---|---|
| 1 pound (lb) | = 0.4536 kg |
| 1 kg | = 2.205 lbs |
| 1 metric ton | = 2,205 lbs |
| 1 ton (short) | = 2,000 lbs |
| 1 ton (short) | = 907.18 kg |

**Temperature:**

To convert °F to °C:
$T_{°C} = (T_{°F} - 32) \div 1.8$
To convert °C to °F:
$T^{°F} = (T_{°C} \times 1.8) + 32$

**Torque:**

| | |
|---|---|
| 1 Ft.lbs | = 1.356 Nm |
| | = 0.138 kgf.m |
| 1 Nm | = 0.738 Ft.lbs |
| | = 0.102 kgf.m |

**Other measurements:**

| | |
|---|---|
| 1 in | = 25.4 mm |
| 1 mm | = 0.039 in |
| 1 $in^2$ | = 6.452 $cm^2$ |
| 1 $cm^2$ | = 0.155 $in^2$ |
| 1 hp | = 0.735 kW |
| 1 kW | = 1.359 hp |
| 1 Nm | = 0.73756 Ft.lbs |
| 1 Ft.lbs | = 1.355818 Nm |

**Imperial to metric**

| Inches | Decimal | mm |
|---|---|---|
| 1/16 | 0.06 | 1.59 |
| 1/8 | 0.13 | 3.18 |
| 3/16 | 0.19 | 4.76 |
| 1/4 | 0.25 | 6.35 |
| 5/16 | 0.31 | 7.94 |
| 3/8 | 0.38 | 9.53 |
| 7/16 | 0.44 | 11.11 |
| 1/2 | 0.50 | 12.70 |
| 9/16 | 0.56 | 14.29 |
| 5/8 | 0.63 | 15.88 |
| 11/16 | 0.69 | 17.46 |
| 3/4 | 0.75 | 19.05 |
| 13/16 | 0.81 | 20.64 |
| 7/8 | 0.88 | 22.23 |
| 15/16 | 0.94 | 23.81 |
| 1 | 1.00 | 25.40 |

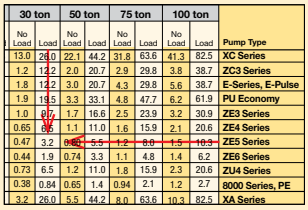
## Cylinder Speed

This chart will help you calculate the time required for an Enerpac cylinder to lift a load when powered by a 10,000 psi Enerpac hydraulic pump.

The Cylinder Speed Chart can also be used to determine the pump type and model best suited for an application when you know the plunger speed required.

### To determine: Cylinder plunger speed

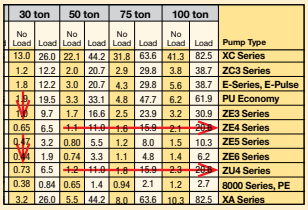
An RC-308 cylinder (30 ton) is powered by a ZE-5 pump. While lifting the load, the cylinder plunger will require 3.2 seconds to travel 1 inch. While extending towards the load, the cylinder plunger travels at 0.47 sec/in.



| 30 ton | | 50 ton | | 75 ton | | 100 ton | | |
|---|---|---|---|---|---|---|---|---|
| No Load | Load | No Load | Load | No Load | Load | No Load | Load | Pump Type |
| 13.0 | 26.0 | 22.1 | 44.2 | 31.8 | 63.6 | 41.3 | 82.5 | XC Series |
| 1.2 | 12.2 | 2.0 | 20.7 | 2.9 | 29.8 | 3.8 | 38.7 | ZC3 Series |
| 1.8 | 12.2 | 3.0 | 20.7 | 4.3 | 29.8 | 5.6 | 38.7 | E-Series, E-Pulse |
| 1.9 | 19.5 | 3.3 | 33.1 | 4.8 | 47.7 | 6.2 | 61.9 | PU Economy |
| 1.0 | 9.7 | 1.7 | 16.6 | 2.5 | 23.9 | 3.2 | 30.9 | ZE3 Series |
| 0.65 | 6.5 | 1.1 | 11.0 | 1.6 | 15.9 | 2.1 | 20.6 | ZE4 Series |
| 0.47 | 3.2 | 0.80 | 5.5 | 1.2 | 8.0 | 1.5 | 10.3 | ZE5 Series |
| 0.44 | 1.9 | 0.74 | 3.3 | 1.1 | 4.8 | 1.4 | 6.2 | ZE6 Series |
| 0.73 | 6.5 | 1.2 | 11.0 | 1.8 | 15.9 | 2.3 | 20.6 | ZU4 Series |
| 0.38 | 0.84 | 0.65 | 1.4 | 0.94 | 2.1 | 1.2 | 2.7 | 8000 Series, PE |
| 3.2 | 26.0 | 5.5 | 44.2 | 8.0 | 63.6 | 10.3 | 82.5 | XA Series |

### To determine: Best matching pump

Your 30 ton cylinder needs to move a load at a speed of 6.50 sec/in. Simply go down from the top of the chart, to the value of 6.50 sec/in. Then follow the chart to the right to find that the ZE4 pump or ZU4 is most suitable for your application.



| 30 ton | | 50 ton | | 75 ton | | 100 ton | | |
|---|---|---|---|---|---|---|---|---|
| No Load | Load | No Load | Load | No Load | Load | No Load | Load | Pump Type |
| 13.0 | 26.0 | 22.1 | 44.2 | 31.8 | 63.6 | 41.3 | 82.5 | XC Series |
| 1.2 | 12.2 | 2.0 | 20.7 | 2.9 | 29.8 | 3.8 | 38.7 | ZC3 Series |
| 1.8 | 12.2 | 3.0 | 20.7 | 4.3 | 29.8 | 5.6 | 38.7 | E-Series, E-Pulse |
| 1.9 | 19.5 | 3.3 | 33.1 | 4.8 | 47.7 | 6.2 | 61.9 | PU Economy |
| 1.0 | 9.7 | 1.7 | 16.6 | 2.5 | 23.9 | 3.2 | 30.9 | ZE3 Series |
| 0.65 | 6.5 | 1.1 | 11.0 | 1.6 | 15.9 | 2.1 | 20.6 | ZE4 Series |
| 0.47 | 3.2 | 0.80 | 5.5 | 1.2 | 8.0 | 1.5 | 10.3 | ZE5 Series |
| 0.44 | 1.9 | 0.74 | 3.3 | 1.1 | 4.8 | 1.4 | 6.2 | ZE6 Series |
| 0.73 | 6.5 | 1.2 | 11.0 | 1.8 | 15.9 | 2.3 | 20.6 | ZU4 Series |
| 0.38 | 0.84 | 0.65 | 1.4 | 0.94 | 2.1 | 1.2 | 2.7 | 8000 Series, PE |
| 3.2 | 26.0 | 5.5 | 44.2 | 8.0 | 63.6 | 10.3 | 82.5 | XA Series |

### Number of Pump Handle Strokes per Inch of Cylinder Plunger Travel

| Cyl. Capacity ▶ | 5 ton | | 10 ton | | 15 ton | | 25 ton | | 30 ton | | 50 ton | | 75 ton | | 100 ton | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ▼ Power Source | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | Pump Type | Page |
| **Manual** | 18.0 | 18.0 | 40.7 | 40.7 | 57.1 | 57.1 | 93.8 | 93.8 | 118.0 | 118.0 | 200.7 | 200.7 | 289.1 | 289.1 | 375.1 | 375.1 | **P141** | **87** |
| | 6.6 | 6.6 | 14.9 | 14.9 | 20.9 | 20.9 | 34.4 | 34.4 | 43.3 | 43.3 | 73.6 | 73.6 | 106.0 | 106.0 | 137.5 | 137.5 | **P39** | **89** |
| | 6.6 | 6.6 | 14.8 | 14.8 | 20.8 | 20.8 | 34.2 | 34.2 | 43.0 | 43.0 | 73.1 | 73.1 | 105.3 | 105.3 | 136.6 | 136.6 | **P391** | **87** |
| | 4.5 | 18.0 | 10.1 | 40.7 | 14.2 | 57.1 | 23.3 | 93.8 | 29.4 | 118.0 | 50.0 | 200.7 | 71.9 | 289.1 | 93.3 | 375.1 | **P142/202** | **87** |
| | 1.4 | 6.6 | 3.3 | 14.8 | 4.6 | 20.8 | 7.5 | 34.2 | 9.4 | 43.0 | 16.1 | 73.1 | 23.1 | 105.3 | 30.0 | 136.6 | **P392** | **87** |
| | 1.0 | 6.6 | 2.2 | 14.9 | 3.1 | 20.9 | 5.2 | 34.4 | 6.5 | 43.3 | 11.0 | 73.6 | 15.9 | 106.0 | 20.6 | 137.5 | **P77/80/84/801** | **89** |
| | 0.4 | 6.6 | 0.9 | 14.8 | 1.3 | 20.8 | 2.2 | 34.2 | 2.7 | 43.0 | 4.6 | 73.1 | 6.6 | 105.3 | 8.6 | 136.6 | **P802/842** | **87** |
| | 0.1 | 3.4 | 0.3 | 7.7 | 0.4 | 10.8 | 0.7 | 17.8 | 0.8 | 22.4 | 1.4 | 38.1 | 2.1 | 54.8 | 2.7 | 71.1 | **P462/464** | **89** |

### Seconds per Inch of Cylinder Plunger Travel

| Cyl. Capacity ▶ | 5 ton | | 10 ton | | 15 ton | | 25 ton | | 30 ton | | 50 ton | | 75 ton | | 100 ton | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ▼ Power Source | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | Pump Type | Page |
| **Electric** (speed based on 60 Hz) * XC based on 28V battery | 2.0 | 4.0 | 4.5 | 9.0 | 6.3 | 12.6 | 10.3 | 20.6 | 13.0 | 26.0 | 22.1 | 44.2 | 31.8 | 63.6 | 41.3 | 82.5 | **XC Series** | **96-97** |
| | 0.18 | 1.9 | 0.41 | 4.2 | 0.57 | 5.9 | 0.94 | 9.7 | 1.2 | 12.2 | 2.0 | 20.7 | 2.9 | 29.8 | 3.8 | 38.7 | **ZC3 Series** | **98-99** |
| | 0.27 | 1.9 | 0.61 | 4.2 | 0.86 | 5.9 | 1.4 | 9.7 | 1.8 | 12.2 | 3.0 | 20.7 | 4.3 | 29.8 | 5.6 | 38.7 | **E-Series, E-Pulse** | **102-103** |
| | 0.30 | 3.0 | 0.67 | 6.7 | 0.94 | 9.4 | 1.5 | 15.5 | 1.9 | 19.5 | 3.3 | 33.1 | 4.8 | 47.7 | 6.2 | 61.9 | **PU Economy** | **100-101** |
| | 0.15 | 1.5 | 0.35 | 3.4 | 0.49 | 4.7 | 0.80 | 7.7 | 1.0 | 9.7 | 1.7 | 16.6 | 2.5 | 23.9 | 3.2 | 30.9 | **ZE3 Series** | **112-115** |
| | 0.10 | 1.0 | 0.22 | 2.2 | 0.31 | 3.1 | 0.52 | 5.2 | 0.65 | 6.5 | 1.1 | 11.0 | 1.6 | 15.9 | 2.1 | 20.6 | **ZE4 Series** | **112-115** |
| | 0.07 | 0.50 | 0.16 | 1.12 | 0.23 | 1.6 | 0.38 | 2.6 | 0.47 | 3.2 | 0.80 | 5.5 | 1.2 | 8.0 | 1.5 | 10.3 | **ZE5 Series** | **112-115** |
| | 0.07 | 0.30 | 0.15 | 0.67 | 0.21 | 0.94 | 0.35 | 1.5 | 0.44 | 1.9 | 0.74 | 3.3 | 1.1 | 4.8 | 1.4 | 6.2 | **ZE6 Series** | **112-115** |
| | 0.11 | 1.0 | 0.25 | 2.2 | 0.35 | 3.1 | 0.58 | 5.2 | 0.73 | 6.5 | 1.2 | 11.0 | 1.8 | 15.9 | 2.3 | 20.6 | **ZU4 Series** | **106-111** |
| | 0.06 | 0.13 | 0.13 | 0.29 | 0.19 | 0.41 | 0.30 | 0.67 | 0.38 | 0.84 | 0.65 | 1.4 | 0.94 | 2.1 | 1.2 | 2.7 | **8000 Series, PE** | **118-119** |
| **Air** (at 100 psi air pressure) | 0.05 | 4.0 | 1.1 | 9.0 | 1.6 | 12.6 | 2.6 | 20.6 | 3.2 | 26.0 | 5.5 | 44.2 | 8.0 | 63.6 | 10.3 | 82.5 | **XA Series** | **124-125** |
| | 1.0 | 5.9 | 2.2 | 13.4 | 3.1 | 18.8 | 5.2 | 30.9 | 6.5 | 39.0 | 11.0 | 66.3 | 15.9 | 95.5 | 20.6 | 123.9 | **Turbo II Pump** | **122-123** |
| | 1.2 | 7.4 | 2.7 | 16.8 | 3.8 | 23.6 | 6.2 | 38.6 | 7.8 | 48.7 | 13.3 | 82.9 | 19.1 | 119.3 | 24.8 | 154.7 | **PA133** | **120** |
| | 0.09 | 6.6 | 0.21 | 14.9 | 0.29 | 20.9 | .48 | 34.3 | 0.60 | 43.3 | 1.0 | 73.7 | 1.5 | 106.0 | 1.9 | 137.5 | **PAM-Series** | **121** |
| | 0.07 | 0.74 | 0.16 | 1.7 | 0.22 | 2.4 | .36 | 3.9 | 0.46 | 4.9 | 0.78 | 8.3 | 1.1 | 11.9 | 1.5 | 15.5 | **ZA4 Series** | **126-127** |
| **Gasoline** | 0.08 | 0.59 | 0.19 | 1.3 | 0.27 | 1.9 | 0.44 | 3.1 | 0.56 | 3.9 | 0.95 | 6.6 | 1.4 | 9.5 | 1.8 | 12.4 | **ZG5 Series, Briggs** | **128-129** |
| | 0.15 | 0.59 | 0.34 | 1.3 | 0.47 | 1.9 | 0.77 | 3.1 | 0.97 | 3.9 | 1.7 | 6.6 | 2.4 | 9.5 | 3.1 | 12.4 | **ZG5 Series, Honda** | **128-129** |
| | 0.07 | 0.30 | 0.15 | 0.67 | 0.21 | 0.94 | 0.34 | 1.5 | 0.43 | 1.9 | 0.74 | 3.3 | 1.1 | 4.8 | 1.4 | 6.2 | **ZG6 Series** | **130** |

**No Load** indicates the plunger speed as the plunger extends toward the load (1st stage).

**Load** indicates the plunger speed as the load is lifted at a system pressure of 10,000 psi (2nd stage).

**Formula V = A ÷ Q**

**V** (sec/in) = **A** ($in^2$) ÷ **Q** ($in^3$/min)

**V** = Cylinder plunger speed in seconds per inch

**A** = Cylinder effective area in square inches

**Q** = Pump oil flow in cubic inches

**Example:** At what speed **(V)** will the RC308 (30 ton) cylinder move when powered by a ZE3 electric driven pump?

RC308 Cylinder effective area **A** = 6.50 $in^2$

ZE3 pump oil flow **Q**, (no load) is 450 $in^3$/min

**V =** 6.50 $in^2$ ÷ 450 $in^3$/min x 60 = **0.87 sec/in**

$$\text{Cylinder Plunger Speed (sec/in)} = \frac{\text{Cylinder Effective Area}}{\text{Pump Flow Rate}} \times \frac{60 \text{ sec}}{1}$$

## Ways

The (oil) ports on a valve.
A 3-way valve has 3 ports:
pressure **(P)**, tank **(T),** and cylinder **(A)**.
A 4-way valve has 4 ports:
pressure **(P)**, tank **(T)**, advance **(A)** and retract **(B)**.

**Single-acting** cylinders require at least a 3-way valve, and can, under certain instances, be operated with a 4-way valve.

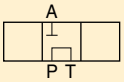
**Double-acting** cylinders require a 4-way valve, providing control of the flow to each cylinder port.

## Positions

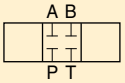
The number of control points a valve can provide. A 2-position valve has the ability to control only the advance or retraction of the cylinder. To be able to control the cylinder with a hold position, the valve requires a 3rd position.

## Center Configuration

The center position of a valve is the position at which there is no movement required of the hydraulic component, whether a tool or cylinder.

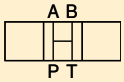



The most common is the **Tandem Center**. This configuration provides for little to no movement of the cylinder and the unloading of the pump. This provides for minimum heat build-up.

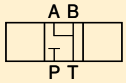



The next most common is the **Closed Center** configuration, which is used mostly for independent control of multi-cylinder applications. This configuration again provides for little to no movement of the cylinder, but also dead-heads the pump, isolating it from the circuit.
Use of this type of valve may require some means of unloading the pump to prevent heat build-up.

There are many more types of valves, such as Open Center and Float Center. These valves are used mostly in complex hydraulic circuits and require other special considerations.



Open Center

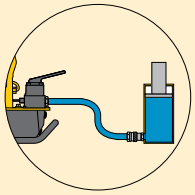


Float Center

## Directional Control Valves

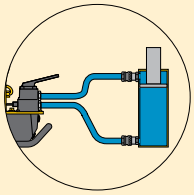
### 3-Way Valves

are used with single-acting cylinders



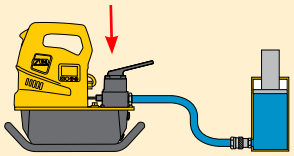
### 4-Way Valves

are used with double-acting cylinders

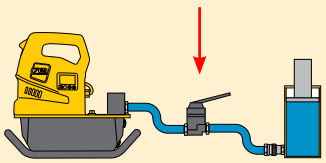


Valves may be either pump mounted or remote mounted.

**Pump Mounted**

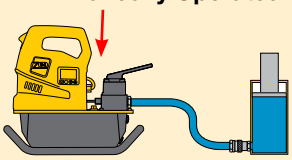


**Remote Mounted**

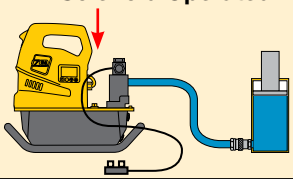


Valves may be either manually or solenoid operated.

**Manually Operated**



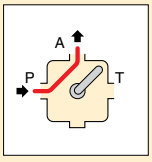
**Solenoid Operated**



## Advance Hold Retract

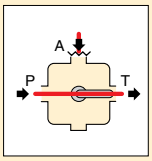
### Single-acting cylinder

Controlled by a 3-way, 3-position valve.



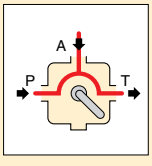

**Advance**

The oil flows from the pump pressure port P to the cylinder port A: the cylinder plunger will extend.




**Hold**

The oil flows from the pump pressure port P to the tank T. The cylinder port A is closed: the cylinder plunger will maintain its position.

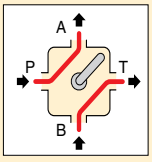



**Retract**

The oil flows from the pump port P and cylinder port A to the tank T: the cylinder plunger will retract.

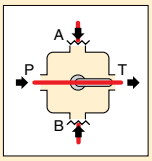
### Double-acting cylinder

Controlled by a 4-way, 3-position valve.



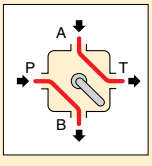

**Advance**

The oil flows from the pump pressure port P to the cylinder port A, and from cylinder port B to tank T: the cylinder plunger will extend.




**Hold**

The oil flows from the pump pressure port P to the tank T. The cylinder ports A and B are closed: the cylinder plunger will maintain position.

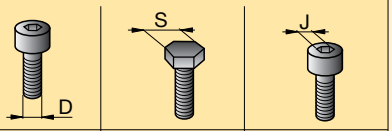



**Retract**

The oil flows from the pump pressure port P to cylinder port B, and from cylinder port A to tank T: the cylinder plunger will retract.

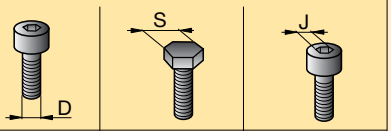
# Hexagon Nut and Bolt Sizes

**METRIC SIZES**




| Thread Size D (mm) | Hexagon Size S (mm) | Hexagon Size J (mm) |
|---|---|---|
| M 10 | 17 | 8 |
| M 12 | 19 | 10 |
| M 14 | 22 | 12 |
| M 16 | 24 | 14 |
| M 18 | 27 | 14 |
| M 20 | 30 | 17 |
| M 22 | 32 | 17 |
| M 24 | 36 | 19 |
| M 27 | 41 | 19 |
| M 30 | 46 | 22 |
| M 33 | 50 | 24 |
| M 36 | 55 | 27 |
| M 39 | 60 | 27 (30) |
| M 42 | 65 | 32 |
| M 45 | 70 | - |
| M 48 | 75 | 36 |
| M 52 | 80 | 36 |
| M 56 | 85 | 41 |
| M 60 | 90 | 46 |
| M 64 | 95 | 46 |
| M 68 | 100 | 50 |
| M 72 | 105 | 55 |
| M 76 | 110 | 60 |
| M 80 | 115 | 65 |
| M 85 | 120 | 70 |
| M 90 | 130 | 70 (75) |
| M 95 | 135 | - |
| M 100 | 145 | 85 |
| M 105 | 150 | - |
| M 110 | 155 | - |
| M 115 | 165 | - |
| M 120 | 170 | - |
| M 125 | 180 | - |
| M 130 | 185 | - |
| M 140 | 200 | - |
| M 150 | 210 | - |

**IMERIAL SIZES**




| Thread Size D (in) | Hexagon Size * S (in) | Hexagon Size J (in) |
|---|---|---|
| 5/8" | 1 1/16" | 1/2" |
| 3/4" | 1 1/4" | 5/8" |
| 7/8" | 1 7/16" | 3/4" |
| 1" | 1 5/8" | 3/4" |
| 1 1/8" | 1 13/16" | 7/8" |
| 1 1/4" | 2" | 7/8" |
| 1 3/8" | 2 3/16" | 1" |
| 1 1/2" | 2 3/8" | 1" |
| 1 5/8" | 2 9/16" | - |
| 1 3/4" | 2 3/4" | 1 1/4" |
| 1 7/8" | 2 15/16" | 1 3/8" |
| 2" | 3 1/8" | 1 5/8" |
| 2 1/4" | 3 1/2" | 1 3/4" |
| 2 1/2" | 3 7/8" | 1 7/8" |
| 2 3/4" | 4 1/4" | 2" |
| 3" | 4 5/8" | 2 1/4" |
| 3 1/4" | 5" | 2 1/4" |

* Heavy hexagon nuts.

**Determine the maximum torque according to the bolt (nut) size and grade. Always consult the manufacturer's instructions or engineering recommendations when making bolted connections.**

**IMPORTANT**

The hexagon sizes shown in the tables should be used as a guide only. Individual sizes should be checked before specifying any equipment.



**BSH-Series Sockets**

Use only Heavy Duty Impact Sockets for power driven torquing equipment, according to ISO2725 and ISO1174; DIN3129 and DIN3121 or ASME-B107.2/1995.

*Page:* **244**

## Tightening Methods

Principally there are two modes of tightening: "Uncontrolled" and "Controlled".

### Uncontrolled tightening

Uses equipment and/or procedures that cannot be measured. Preload is applied to a bolt and nut assembly using a hammer and spanner or other types of impact tools.

### Controlled tightening

Employs calibrated and measurable equipment, follows prescribed procedures and is carried out by trained personnel.

## Advantages of Controlled Tightening

### Known, controllable and accurate bolt loads

Employs tooling with controllable outputs and adopts calculation to determine the required tool settings.

### Uniformity of bolt loading

Especially important on gasketed joints as an even and consistent compression is required for the gasket to be effective.

### Safe operation following prescribed procedures

Eliminates the dangerous activities of manual uncontrolled tightening and requires that the operators be skilled and follow procedures.

### Reduces operational time resulting in increased productivity

Reduces tightening time and operator fatigue by replacing manual effort with the use of controlled tooling.

### Reliable and repeatable results

Using calibrated, tested equipment, following procedures and employing skilled operators achieves known results consistently.

### The right results first time

Many of the uncertainties surrounding in-service joint failures are removed by ensuring the correct assembly and tightening of the joint are carried out the first time.

***Bolting Integrity Software***

A comprehensive on-line software solution for Bolted Joint integrity.

Integral databases hold data for:

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
- Enerpac's Controlled Bolting Equipment including: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioning tools

Custom Joint information can also be entered.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.

**www.enerpac.com**

## What is Torque?

It is a measure of how much force acting on an object which causes that object to rotate.

### What is Torque Tightening?

The application of preload to a fastener by the turning of the fastener's nut.

### Torque Tightening and Preload

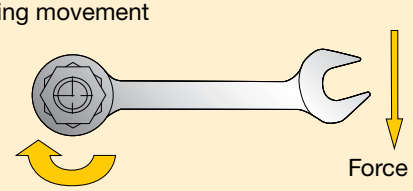
The amount of preload created when torquing is largely dependant on the effects of friction.

Principally there are three different "torque components":

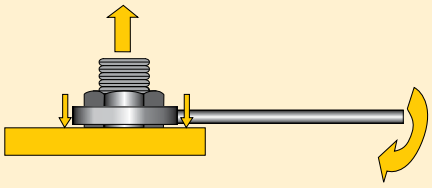
- torque to stretch the bolt
- torque to overcome the friction in bolt and nut threads
- torque to overcome friction at the nut spot face (bearing contact surface).

**Torque Tightening**

Turning movement




Stretch of Fastener (Pre-load)



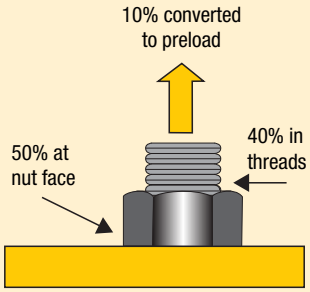
**Preload (residual load) = Applied Torque *minus* Frictional Losses**

## Lubrication Reduces Friction

Lubrication reduces the friction during tightening, decreases bolt failure during installation and increases bolt service life. Variation in friction coefficients affect the amount of preload achieved at a specified torque. Higher friction results in less conversion of torque to preload. The value for the friction coefficient provided by the lubricant manufacturer must be known to accurately establish the required torque value.

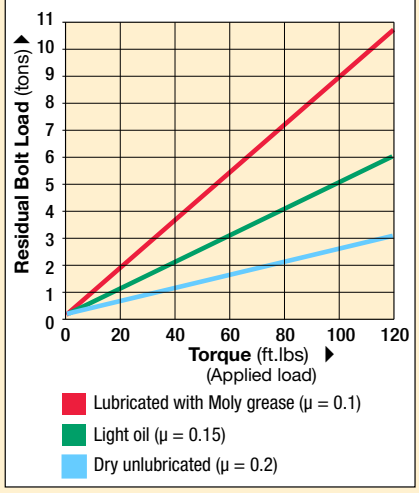
Lubricant or anti-seizure compounds should be applied to both the nut bearing surface and the male threads.

### Frictional Losses

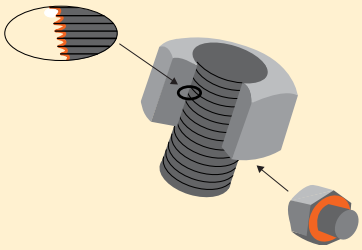



**Frictional Losses (dry steel bolt)**

**Lubrication Reduces Friction**




***Example of how a lubricant can reduce the effect of friction and convert more torque to bolt preload.***

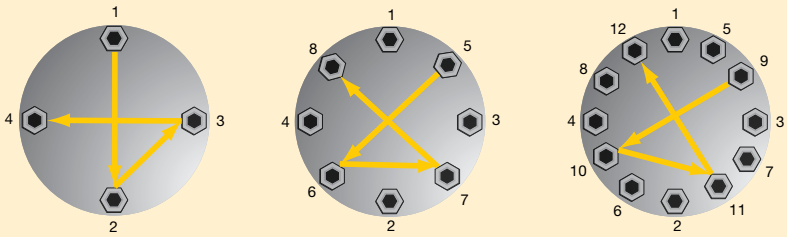


*Friction points should always be lubricated when using the torque tightening method.*

## Torque Procedure

When torquing it is common to tighten only one bolt at a time, this can result in Point Loading and Load Scatter. To avoid this, torque is applied in stages following a prescribed pattern:

### Torque Sequence




**Step 1** Spanner tight ensuring that 2 - 3 threads extend above nut.

**Step 2** Tighten each bolt to **one-third** of the final required torque following the pattern as shown above.

**Step 3** Increase the torque to **two-thirds** following the pattern shown above.

**Step 4** Increase the torque to **full torque** following the pattern shown above.

**Step 5** Perform one final pass on each bolt working clockwise from bolt 1, at the full final torque.

### Select the Right Wrench

Choose your Enerpac torque wrench using the untightening rule of thumb:

- When loosening a nut or bolt more torque is usually required than when tightening.
- For general conditions it can take up to 2½ times the input torque to breakout.
- Do not apply more than 75% of the maximum torque output of the tool when loosening nuts or bolts.

### Conditions of bolted joints

- Humidity corrosion (rust) requires up to twice the torque required for tightening.
- Sea water and chemical corrosion requires up to 2½ times the torque required for tightening.
- Heat corrosion requires up to 3 times the torque required for tightening.

### Breakout Torque

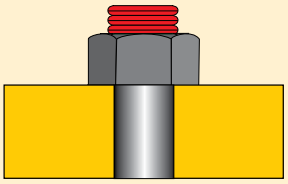
When loosening bolts a torque value higher than the tightening torque is normally required. This is mainly due to corrosion and deformations in the bolt and nut threads.

Breakout torque cannot be accurately calculated, however, depending on conditions it can take up to 2½ times the input torque to breakout.

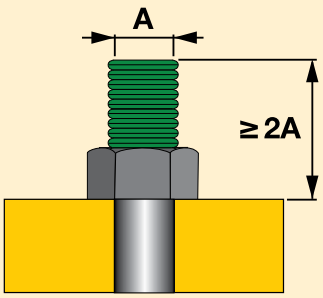
The use of penetrating oils or anti-seize products is always recommended when performing breakout operations.

**Tensioning requires longer bolts**

INCORRECT



CORRECT




## What is Bolt Tensioning?

Tensioning is the direct axial stretching of the bolt to achieve **preload**. Inaccuracies created through friction are eliminated. Massive mechanical effort to create torque is replaced with simple hydraulic pressure. A uniform load can be applied by tensioning multiple studs simultaneously.

Tensioning requires longer bolts, and a seating area on the assembly around the nut. Tensioning can be done using detachable Bolt Tensioners or Hydraulic Nuts.

**Preload (residual load) = Applied Load *minus* Load Losses**

## What is Load Loss?

**Load loss** is a loss of bolt elongation depending on factors such as thread deflections, radial expansion of the nut, and embedding of the nut into the contact area of the joint. Load loss is accounted for in calculation and is added to the preload value to determine the initial **Applied Load**.

**The preload depends on Applied Load and Load Loss (load loss factor).**

### GLOSSARY OF TERMS

**Applied Load:** The load applied to a bolt during tensioning which includes an allowance for Load Loss.

**Bolt Tensioning:** A method of controlled tightening which applies preload to a bolt by stretching it axially.

**Breakout Torque:** The amount of torque required to loosen a tightened bolt. (Usually more torque is required to loosen a bolt than was used to tighten it.)

**Elastic Range:** The range on a bolt's stress / strain curve where stress is directionally proportional to strain.

**Load Loss:** The losses in a bolt which occur on transfer of load from a tensioning device to the bolt assembly (these may arise from phenomena such as thread deflection and embedding of the nut to the contact area of the joint, and is calculated as a factor of the length to diameter ratio of the bolt).

**Load Scatter:** The spread of differing loads in a sequence of bolts after they have been loaded. It is mostly due to the elastic interaction of the bolts and the joint member; as subsequently tightened bolts further compress the joint, previously tightened bolts are subject to some relaxation.

**Plastic Range:** The range on a stress/strain curve where the tensile load applied to a bolt results in permanent deformation.

**Preload:** The load in a bolt immediately after it has been tightened.

**Proof Load:** Proof load is often used interchangeably with Yield Strength but is usually measured at 0.2% plastic strain.

**Tensile Point:** The point at which the tensile loading on a bolt causes the bolt to rupture.

**Torque Tightening:** The application of Preload to a bolt by turning of the bolt's nut.

**Ultimate Strength:** The maximum tension which can be created by tensile load on a bolt.

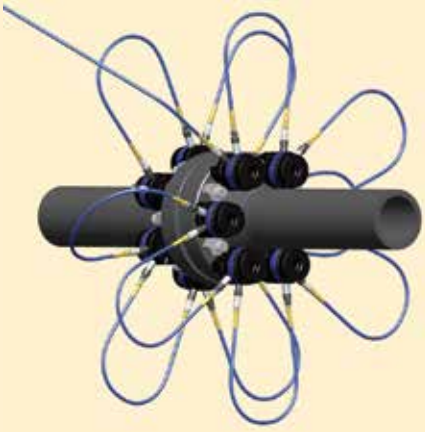
**Yield Strength:** The point at which a bolt begins to plastically deform under tensile loading.

**NOTE:** Bolt is used as a generic term for a threaded fastener.

**Manufacturer's rating of pressure and load are maximum safe limits.**
**Good practice encourages using only 80% of these ratings!**

## Tensioning Operation

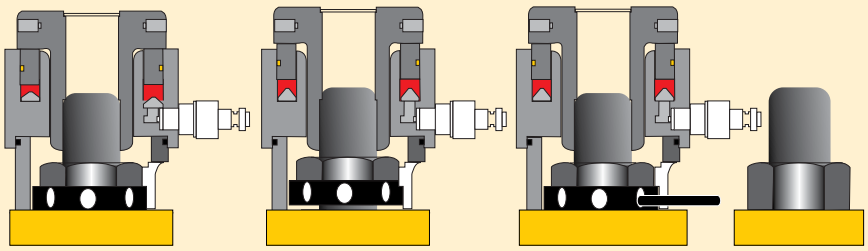
Tensioning permits the simultaneous tightening of multiple bolts; the tools are connected in sequence via a high-pressure hose assembly to a single pump unit. This ensures each tool develops the exact same load and provides a uniform clamping force across the joint. This is especially important for pressure containing vessels requiring even gasket compression to affect a seal.



## General Procedure

**Step 1:** The bolt tensioner is fitted over the stud
**Step 2:** Hydraulic pressure is applied to the tensioner which then stretches the stud.
**Step 3:** The Stud's nut is wound down against the joint face
**Step 4:** Pressure is released and the tool removed.

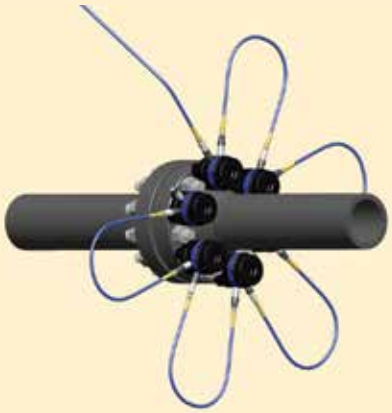
The bolt behaves like a spring, when the pressure is released the bolt is under tension and attempts to contract, creating the required clamping force across the joint.



**Step 1** **Step 2** **Step 3** **Step 4**

## Set-up using a 100% tensioning procedure

All bolts are tensioned simultaneously.



## Set-up using a 50% tensioning procedure

Half the bolts are tensioned simultaneously, the tools are relocated on the remaining bolts and they are subsequently tensioned.

## Less than 100% Tensioning

Not all applications allow for the simultaneous fit of a tensioning device on each bolt, in these cases at least two tensioning pressures are applied. This is to account for a load loss in those bolts already tensioned as the next sets are tightened. The load losses are accounted for in calculation and a higher load is applied to allow the first sets to relax back to the target preload.

**Read Instruction Manuals**

Please refer to the product Instruction Sheets for safe use guidelines and detail on the correct set up and operation of the equipment.

# Bolting Integrity Software

**Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software is used extensively within Enerpac and increasingly by a wide range of clients worldwide often interfacing with maintenance, construction and commissioning management systems.**

- First developed over 20 years ago, we have continued to update and enhance the software based on user feedback, technology advances and our roles on industry standard committees, to produce the most comprehensive suite of joint integrity software available.
- Recommended bolt loads for standard joints are derived from independently verified calculation methods and traceable back to standards

**Integral databases hold data for:**

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive flange and bolt materials
- Comprehensive range of lubricants
- Enerpac controlled bolting equipment includes torque, multipliers, hydraulic wrenches and bolt tensioners.
- Custom joint information can also be entered.



▲ **Standard flange calculation menu (INFORMATE)**

**The Enerpac Bolting Software Suite includes:**

- **Bolt-Up** - Online bolt load calculator. Free access and use on www.enerpac.com.
- **INFORMATE** - Advanced calculation and procedure software. Contact Enerpac for user licenses and dedicated support.
- **iDMS Integrity Data Management System** - A complete Integrity Assurance project management package for managing bolted joints from cradle to grave. Contact Enerpac for user licenses and dedicated support.

**Bolt-Up**

**Bolt-Up** is a simple to use online calculator, built upon the Informate calculation engine, providing reliable, repeatable bolt loads for:

- Carbon steel weldneck ANSI 16.5 standard flanges, using a limited range of bolt materials; selected gasket options and a fixed lubrication value.
- Inputting basic joint configuration information allows Bolt-Up to determine: bolt load; bolt stress and the required torque. These outputs are displayed alongside basic flange and bolt information e.g. joint thickness and bolt size/quantity.

**Bolting Integrity Software**

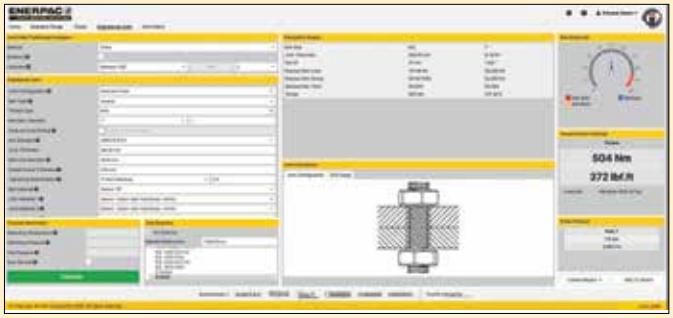
The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.

This software includes the following hydraulic tool selections:

- S, W, RSL, DSX and HMT Torque Wrenches,
- HM-Series HydraMax®, GT-Series Bolt Tensioners, and EAJ-Series AquaJack Subsea Tensioners

| Software Model No. | INFORMATE Subscriptions<br>Contact Enerpac for details |
|---|---|
| BS01PP | Bolting software 1 person purchase |
| BS01PAS | Bolting software 1 person annual support |
| BS05PP | Bolting software 5 person purchase |
| BS05PAS | Bolting software 5 person annual support |

# Bolting Integrity Software



▲ **Engineered Joint menu (INFORMATE)**



▲ **Clamp menu (INFORMATE)**

### INFORMATE Bolt Load Calculation Software

INFORMATE can be used on a huge range of flanged joints and clamped connections in virtually any situation from process piping to custom-designed flange connections.

- Calculate bolt loads and stresses, determine tooling pressures for Enerpac torque and tensioning equipment; analyse existing connections and test custom designed connections.
- Extensive material database covering all common standards:
  - Common and industry specific lubricants
  - 200+ bolting materials
  - 500+ flange materials
  - 60+ gasket materials
- Engineered Joint Calculation Features - allows for different types of bolted application for non-circular or structural applications.
- Installed direct to the desktop or accessed via the internet, Informate is available in a single version that is configurable to client requirements and includes multiple international standards and the latest and forthcoming regulatory data, when taken with a maintenance package.

### Integrity Data Management System (iDMS)

iDMS is a flexible data management and activity planning system specifically for use on assets featuring bolted connections.

Designed to store the entire lifecycle data relating to every critical bolted joint on an installation, it aids planning, ensures joint integrity, as well as reducing construction and maintenance schedules and costs.

- Provides managers and technicians with essential information about joint components used in assembly, in addition it specifies the tools and the torque or tension values to deliver a leak-free joint.
- Allows planner and maintenance engineers to rapidly build packages of work complete with all documentation and then track them to completion
- Whenever a joint is worked on, all of the previous history and experience of that joint is available, allowing any particular requirements of the joint to be taken into account proactively prior to joint assembly and tightening.

iDMS Custom Tailored Solutions available to meet client needs, for example:

- Embedded Informate bolted joint calculator
- Export and import of data to asset management systems
- Exporting data to populate customer documentation
- Color coding of the joint provides an instant review of the status

**Contact Enerpac for User License**

**The Enerpac Academy is our in-house training program, offering Enerpac product operators and maintenance staff the opportunity to be trained in the safe use and maintenance of high-pressure hydraulic tools.**

**Operating these tools requires sound knowledge of how they work and how they should be maintained. Correct use of these tools increases safety and reduces risk – both for the operator and the environment in which the tools are used. Having the right training enables the operator to use the tools safely and properly.**




### Enerpac Academy

- Safety focus for operators, tools and environment
- Dedicated in-house Enerpac training centers
- Both standard training courses and specialized training services
- Highly experienced training staff
- Develops alternative training options such as
  - eLearning modules
  - vLearning sessions
  - Instructional videos

## In-house Training Centers



Do you work with high-pressure hydraulic tools on a regular basis or even every day? The training courses are designed to be highly interactive with a strong hands-on element. Each training course is led by a qualified trainer, an Enerpac specialist capable of providing high quality training. A written or practical exam is part of certain training courses.

## Training Center Locations




- **Columbus, Wisconsin (USA)**
- **Ede (The Netherlands)**
- **Bangalore (India)**
- **Singapore**
- **Sydney (Australia)**

Enerpac Academy offers a meticulously compiled training program covering tool knowledge, repairs and maintenance, and safe operation of Enerpac hydraulic tools. If you would like to schedule a training course, please contact Enerpac for a training calendar, application form, and brochure at www.enerpac.com.

## In-Person Training



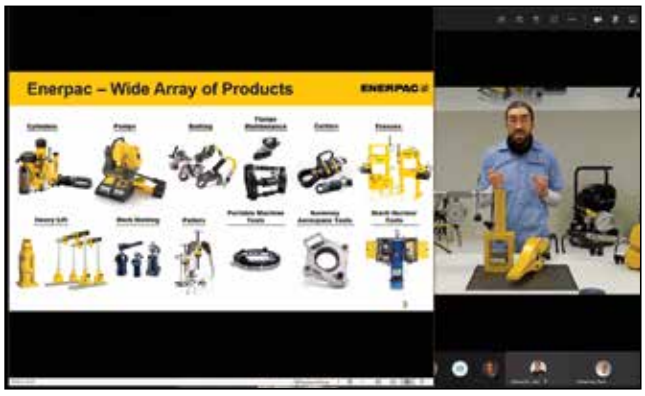

- Highly experienced training staff
- Class sizes range from 8 to 20, depending on class and location
- Commercial Sales, Service and Repair Class capabilities
- Most classes consist of theoretical and hands-on training

## eLearning Modules




- Enerpac Training available on “your” schedule
- Courses available to support New Product Launches, Product Awareness Training and Enerpac Academy Courses
- Available to external viewers through Enerpac’s “LDMS” system

## vLearning Sessions




- Interactive training available on-line
- Sessions contain Technical Presentations, Hands-on product demos and end with a Q&A session
- Classes cover many topics, such as Product Operational information and Service & Repair Training
- Look for scheduling and registration details on www.Enerpac.com

## Instructional Videos




- Informational videos created with Enerpac Academy Training processes in-mind
- Topics range from product “how-to” videos to application and operational videos
- Videos are available on the Enerpac “You-Tube” channel and other venues, where appropriate

# Enerpac Worldwide Locations

ENERPAC

http://www.enerpac.com/en/enerpac-locations

**Australia and New Zealand**
Actuant Australia Pty Ltd.
3 Orion Rd, Jandakot, WA 6164
Australia
Tel: +61 287 177 200
Fax: +61 297 438 648
Australia Toll Free: +1800 225 084
New Zealand Toll Free: +0800 363 772

**Brazil**
Power Packer do Brasil Ltda.
Rua Luiz Lawrie Reid, 548
09930-760 - Diadema (SP)-Brasil
Tel: +55 11 5687 2211
Toll Free: 0800 891 5770

**China (Taicang)**
Actuant (China) Industries Co.Ltd.
No. 6 Nanjing East Road,
Taicang Economic Dep Zone,
Jiangsu, China
T +86 0512 5328 7500
F +86 0512 5335 9690
Toll Free:
T +86 400 885 0369

**Enerpac Heavy Lifting Technology B.V.**
Zuidelijke Havenweg 3, 7554 RR Hengelo
P.O. Box 421, 7550 AK Hengelo
The Netherlands
T +31 74 242 20 45
F +31 74 243 03 38

**France and French speaking Switzerland**
ENERPAC
Une division d'ACTUANT France S.A.S.
6 rue du 4 septembre,
Immeuble Le Poversy, Bâtiment B - 6ème étage,
92130 Issy-les-Moulineaux, France
Tel: +33 1 60 13 68 68
Fax: +33 1 69 20 37 50

**Germany, Austria and German speaking Switzerland**
Actuant GmbH
P.O. Box 300113, D-40401 Düsseldorf
Willstätterstrasse 13, D-40549 Düsseldorf
Germany
T +49 211 471 490
F +49 211 471 49 28

**Central and Eastern Europe, Baltic States and CIS countries**
Enerpac Eastern Europe Sp. z o.o.
Krakowska Street 280,
building: Eximius Park 200, floor 1,
32-080 Zabierzów, Poland

**India**
Enerpac India Private Limited
No. 10, Bellary Road, Sadashivanagar,
Bangalore, Karnataka - 560 080 India
T +91 80 3928 9000

**Italy, Greece and Turkey**
ENERPAC S.p.A.
Via Leonardo da Vinci, 97
20090 Trezzano sul Naviglio (Milano)
T +39 02 4861 111
F +39 02 4860 1288

**Japan**
Enerpac Co., Ltd.
Besshocho 85-7
Kita-ku, Saitama-shi 331-0821, Japan
T +81 48 662 4911
F +81 48 662 4955

**Middle East, North Africa and Caspian Sea Countries**
ENERPAC Middle East FZE
Swiss Tower, Office 902, Cluster Y,
Jumeirah Lake Towers
Dubai-United Arab Emirates
Tel: +971 4 527 0700

**Norway**
ENERPAC AS
Kirkegata 3, NO-2000, Lillestrom
P.O. Box 3051, NO-2028, Lillestrom, Norway
Tel: +47 91 578 300

**Russia**
Rep. office Enerpac
Russian Federation
Admirala Makarova Street 8
125212 Moscow, Russia
T +7 495 98090 91
F +7 495 98090 92

**Southeast Asia, Hong Kong and Taiwan**
Actuant Asia Pte Ltd.
83 Joo Koon Circle,
Singapore 629109
T +65 68 63 0611
F +65 64 84 5669
Toll Free:
T +1800 363 7722

**South Korea**
Actuant Korea Ltd.
3Ba 717, Shihwa Industrial Complex
Jungwang-Dong, Shihung-Shi
Kyunggi-Do
Republic of Korea 429-450
T +82 31 434 4506
F +82 31 434 4507

**Spain and Portugal**
ENERPAC SPAIN, S.L.
Avenida Valdelaparra N° 27 3ª - L8
28108 Alcobendas (Madrid), Spain
T +34 91 884 86 06
F +34 91 884 86 11

**South Africa and other English speaking African countries**
ENERPAC AFRICA ( PTY ) Ltd.
Cambridge Office Park, Block E
5 Bauhinia Avenue
Highveld Techno Park, Centurion 0157
Republic of South-Africa
T 0027 (0) 12 940 0656

**Sweden, Denmark, Finland and Iceland**
Enerpac Scandinavia AB
Box 83
82222 Alfta, Sweden
Tel: +46 (0) 415 000

**The Netherlands, Belgium, Luxembourg**
ENERPAC B.V.
Galvanistraat 115, 6716 AE Ede
P.O. Box 8097, 6710 AB Ede
The Netherlands
T +31 318 535 911
F +31 318 535 848

**United Kingdom and Ireland**
ENERPAC UK LTD
5 Coopies Field
Morpeth, Northumberland
NE61 6JR, England
T +44 1670 5016 50
F +44 1670 5016 51

**USA, Latin America and Caribbean**
ENERPAC World Headquarters
P.O. Box 3241
Milwaukee, WI 53201-3241 USA
N86 W12500 Westbrook Crossing
Menomonee Falls, Wisconsin 53051
T +1 262 293 1600
F +1 262 293 7036
User inquiries:
+1 800 433 2766
Distributor inquiries/orders:
+1 800 558 0530
+1 800 628 0490

*While every care has been taken in the preparation of this catalog and all data contained within is deemed accurate at the time of printing, Enerpac does reserve the right to make changes to the specifications of any product, or discontinue any product, contained within this catalog without prior notice.*

*All illustrations, performance specifications, weights and dimensions reflect the nominal values and slight variations may occur due to manufacturing tolerances. Please consult Enerpac if final dimensions are critical.*

*All information in this catalog can be changed due to product improvements without prior notice.*

© Copyright 2021, Enerpac.

All rights reserved. Any copying or other use of material in this catalog (text, illustrations, drawings, photos) without express written consent is prohibited.

Cylinders & Lifting Products



Pumps & Directional Control Valves



System Components & Control Valves



Presses



Pullers



Speciality Tools



Cutters



Bolting Tools



Flange Maintenance Tools



Heavy Lifting Technology



Portable Machining Tools



# EXTENSIVE GLOBAL DISTRIBUTION NETWORK

## WHERE TO BUY THE RIGHT TOOLS

With over 1500+ distributors and 3500+ points of sale in over 100+ countries, Enerpac has a vast distribution network to reach all your local industrial tool needs.

Find on-demand access to application experts who can provide hands-on demonstrations, help with product selection or discuss rental options along with on-going service.



## WORLD CLASS SUPPORT RESULTS IN THE RIGHT TOOL

Whether you're looking for help identifying the right product, receive technical support, training or request product materials, we have experts ready to answer your questions and provide guidance on the tool or accessory that will help get your toughest job done. Reach out to us at Enerpac.com/support.

## VISIT STORE.ENERPAC.COM

Buy in person at your local Enerpac Tool Center or purchase select tools directly online.

GET THE LATEST VERSION

Enerpac © 2021 100 EN-US