



CABLE SUSPENSION RIGGING APPLICATIONS

VOLUME VII

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Cable Suspension Systems



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Aircraft Cable

Wire Rope Aircraft Cable from Griplock® Systems is available as either galvanized or stainless steel. Cable assemblies are available in 7 × 7 or 7 × 19 galvanized or stainless, medium-to-high tensile strength aircraft cable. These assemblies are factory fitted with a variety of die-cast zinc, swaged aluminum, swaged copper or swaged steel terminals.

STOCK CABLE SIZES: 3/64", 1/16", 5/64", and 3/32" unless noted.

STOCK CABLE LENGTHS: 24", 48", 96", 120", 150", 180", and 240" unless noted.

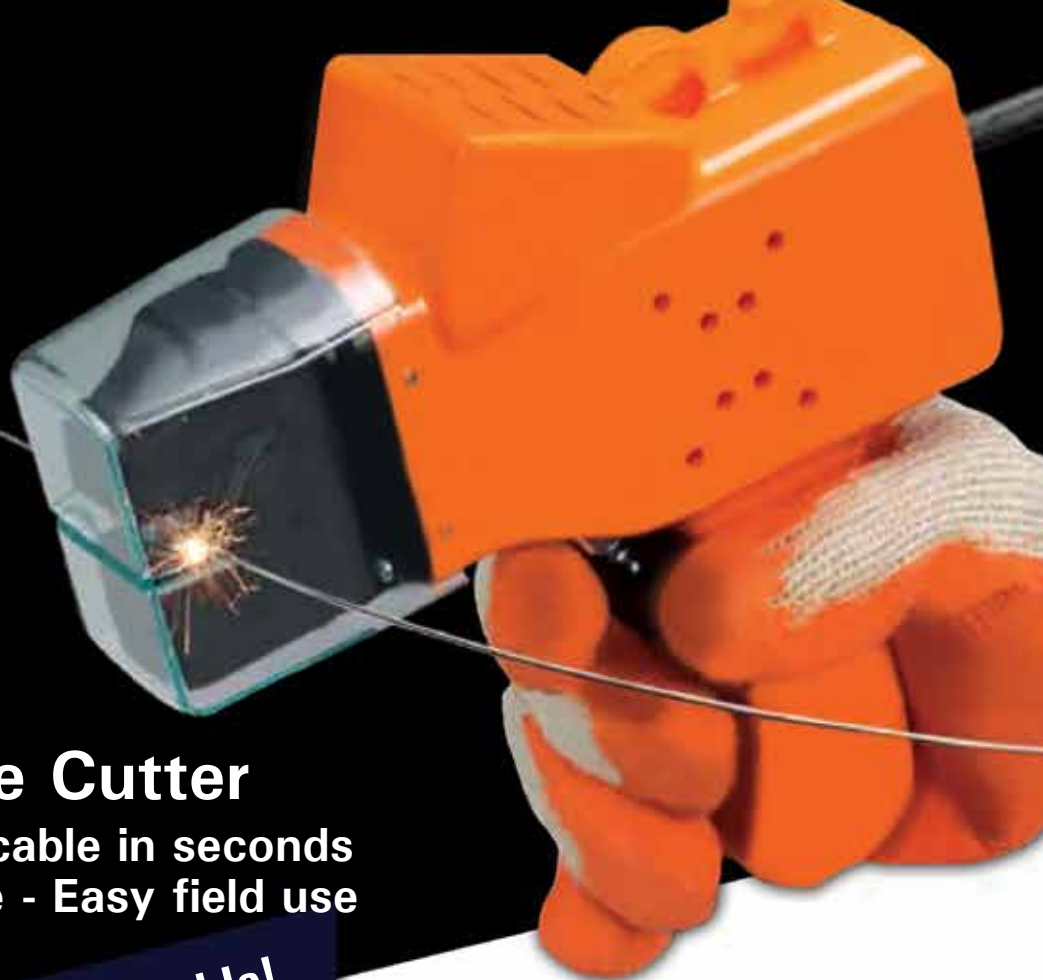
STOCK CABLE TYPE: 7x7 galvanized and 304 stainless unless noted. 1/8" and up: 7x19.

NON-STOCK CABLE: If cables in non-stock lengths and/or with non-stock terminals are available then we will ship them immediately at no extra charge. If they need to be manufactured there may be a lead time of several weeks, depending on the type and quantity. For cables that need to be cut down to a specific non-stock length there will be a charge for the next available stock length up, in addition to a \$1.00 cutting charge. A custom cable set-up charge may also be imposed.

Please consult us for more information on swaged and zinc die cast terminals. Cables are made exclusively of medium-to-high tensile strength aircraft cable.

WHERE IT STOPS IT LOCKS®

Griplock Systems, LLC
 793 Duncan Reidville Rd. 1029 Cindy Lane
 Duncan, SC 29334 Carpinteria, CA 93013



Portable Fuse Cutter

Cut and fuse aircraft cable in seconds
Portable - Affordable - Easy field use

A Better Way To Cut Aircraft Cable!

Cuts aircraft cable sizes: 1/32" – 1/16"
Works with standard 110Vac



Select diameter of cables



Cut and Fuse aircraft cable



Automatically Cleans



Set includes:

1x Portable Fuse Cutter
1x Electrical Control Box
1x Automatic Cleaner
1x Pair of Gloves

1x Pair of Safety Glasses
2x Safety Shields
1x Extra Brush
1x Plastic Tool Box

See how it works!



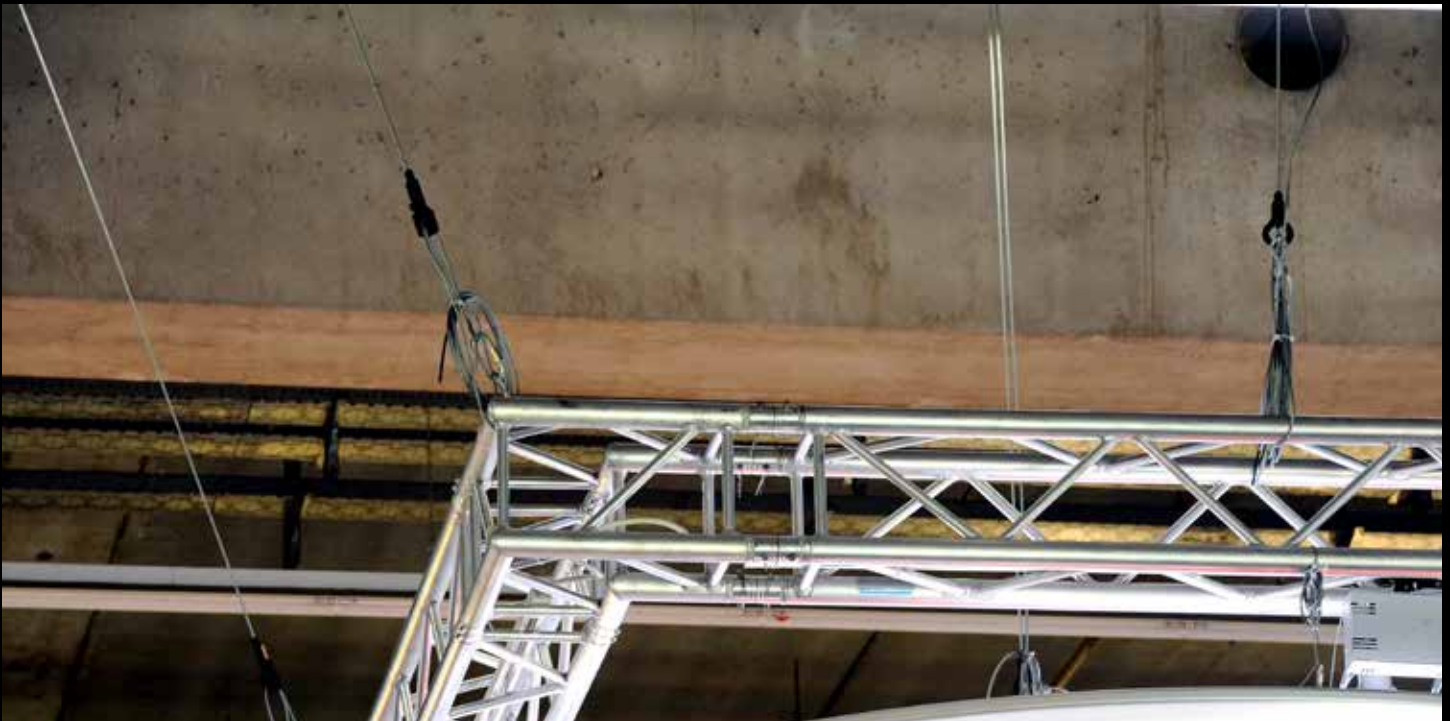
GRIPLOCK SYSTEMS

Griplock Systems® has been providing manufacturers and contractors with the world's highest quality and most reliable cable suspension products since 1992.

Griplock's® ground-breaking line of heavy duty 6-ball grippers are TÜV* certified. In addition, our 6-ball grippers are the only grippers to be BGV C1** certified for overhead use at European public events. As a result of meeting these stringent safety standards, our quick to install grippers are rapidly replacing traditional rigging hardware throughout the North American Event and Entertainment Industries.

**TÜV is a worldwide affiliation of independent testing laboratories similar to Underwriters Laboratories (UL).*

***The BGV C1 standard has been adopted throughout Europe as the rigging industry safety standard. See page 17 for more information.*



THE GRIPLOCK® GRIPPER



SAFE AND EFFICIENT

FAST AND EASY TOOL-FREE INSTALLATION WITH THE HIGHEST SAFETY STANDARDS

FULLY ADJUSTABLE

ADJUST, RE-ADJUST AND RE-USE OVER AND OVER AGAIN

ULTRA HEAVY DUTY

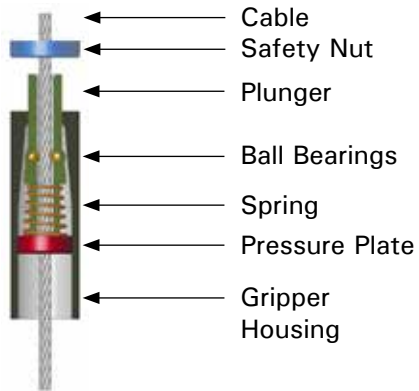
PERMANENTLY OR TEMPORARILY SUSPEND WITH UP TO 1,000 LBS SAFE WORKING LOAD*

HIGH VALUE

HIGH QUALITY ENGINEERING AT AN AFFORDABLE PRICE

**Safe Working Loads (SWLs) are 20% of the minimum break strength of the Gripper / Cable combinations - Static Loads Assumed. See Weight Charts on page 18.*

HOW A GRIPPER WORKS



Griplock® Grippers are sophisticated in design and simple to use:

Loosen the safety nut, insert the cable into the plunger and slide the gripper to the desired position. Where It Stops It Locks®! Release the plunger and tighten the safety nut to lock the gripper off in both directions. The 3- or 6-ball gripping mechanism is spring-loaded and lets the gripper move freely UP the cable. The gripper cannot move down unless the plunger is depressed and the gripping mechanism released. The plunger cannot be depressed while there is any weight on the gripper.

To re-adjust, loosen the safety nut, depress the plunger and move the gripper to a new position.

Most grippers are supplied with a safety nut. Even if they are not, their gripping ability in the downward direction is not affected.

GRIPLOCK® PREMIUM and ZF STANDARD GRIPPERS

The finest grippers available anywhere, Griplock's **Premium** grippers combine an immense range of applications with a beautiful finish and extraordinary holding power.

Lower cost **ZF Standard** grippers are competitively priced for use in rigging applications.

ZF Standard grippers are built to our specifications and receive full quality assurance testing.

Part numbers are in green, eg. **ZF-15ZZ**. Griplock® Systems recommends a lower safe working load (SWL) for **ZF Standard** grippers than **Premium** grippers. See page 18.



TYPE 15 LIGHT DUTY 3-BALL GRIPPERS

See page 18 for weight load information

**GRIP
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SYSTEMS®



15-1420-S

Bottom exit gripper,
steel housing,
steel 1/4-20 external
thread, safety nut.
Nickel plated.
For 3/64" - 1/16" cable



15-RI-S

Bottom exit ring gripper,
safety nut.
Nickel plated.
For 3/64" - 1/16" cable



15-GHA

Bottom exit snap hook gripper.
Nickel plated.
For 3/64" - 1/16" cable
15-GHA-B
Black zinc plated



15Z-1420-GHA

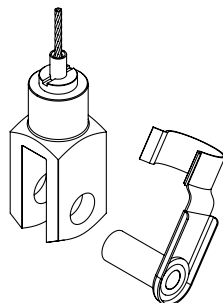
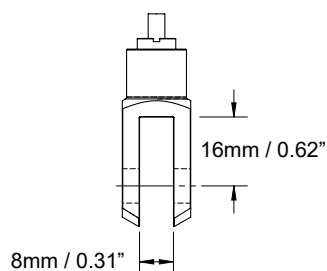
Side exit gripper with
snap hook.
Nickel plated.
For 3/64" - 1/16" cable



15-FORK-8X16

Bottom exit fork gripper,
0.31" (8mm) clevis width.
Nickel plated.
For 3/64" - 1/16" cable

Example



ZF-15ZZ

Loopmaker gripper,
double 3-ball mechanism.
Nickel plated.
For 3/64" - 1/16" cable



75 lbs max.
Loop



50 lbs max.
Series

**GRIP
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TYPE 18 & 25 LIGHT DUTY 3-BALL GRIPPERS

See page 18 for weight load information



18-RI-S

Bottom exit ring gripper,
safety nut.
Nickel plated.
For 3/64" - 5/64" cable



25Z-1420i-T2

Side exit gripper, 1/4-20
internal thread.
Nickel plated.
For 1/16" - 3/32" cable



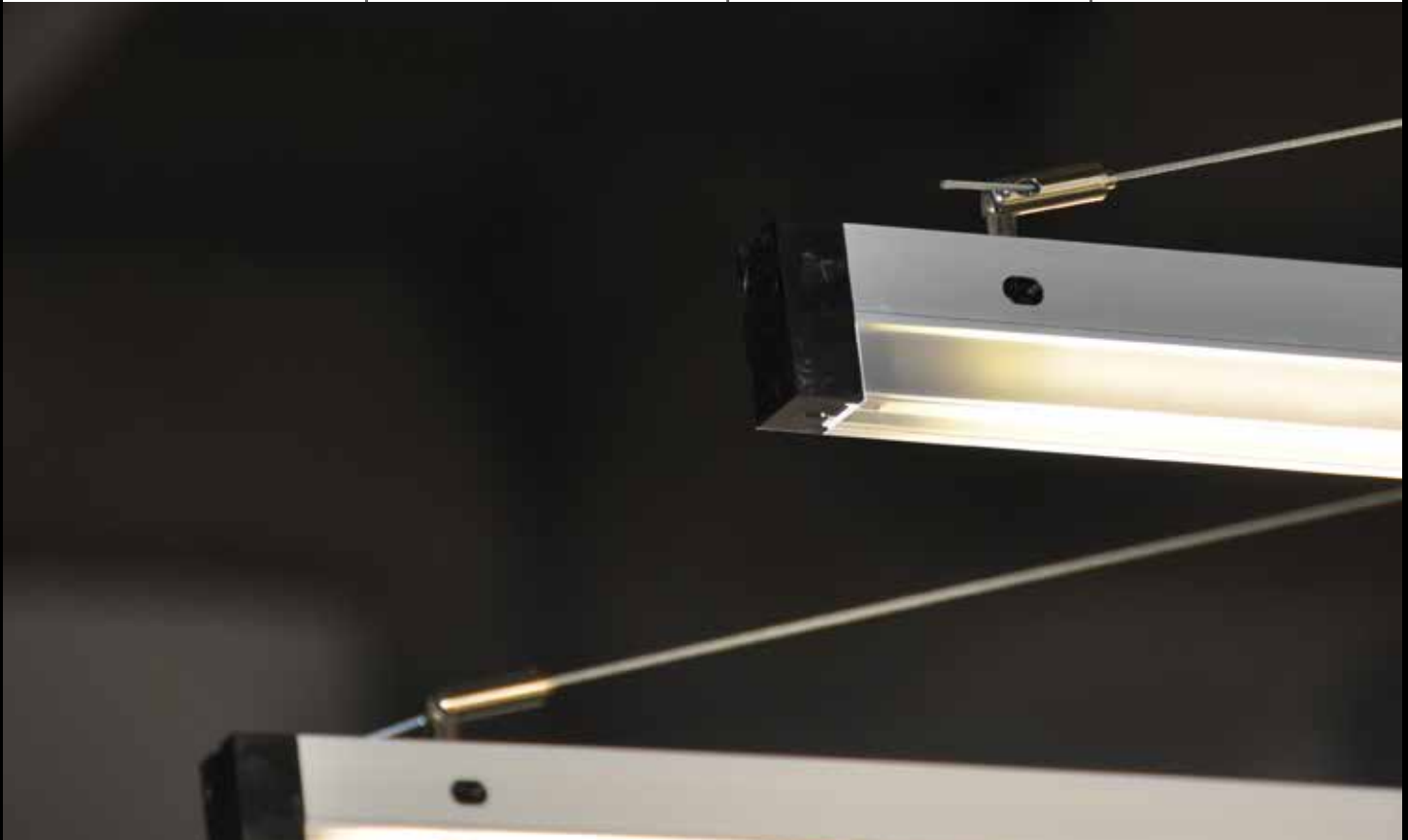
25-FORK-6X12-SC

Bottom exit fork gripper,
safety nut,
0.24" (6mm) clevis width.
Nickel plated.
For 1/16" - 3/32" cable



25Z-1420-GHA

Side exit gripper with
snap hook.
Nickel plated.
For 1/16" - 3/32" cable



TYPE 30 3-BALL & 6-BALL GRIPPERS

See page 18 for weight load information

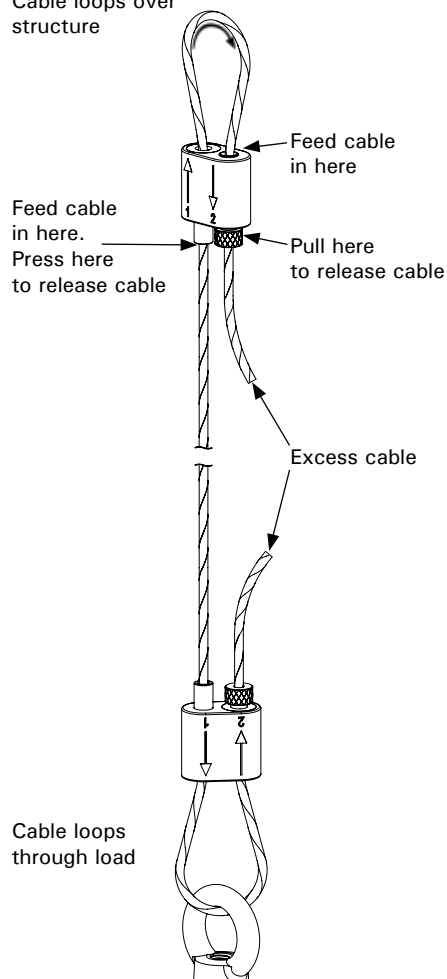
**GRIP
LOCK**
SYSTEMS®



ZF-30X2

Looping gripper,
reverse release,
double 3-ball mechanism.
Nickel plated.
For 3/32" - 1/8" cable
**See page 18 for weight
load information**

Cable loops over
structure



30-3816e-V6-S

Bottom exit gripper, 6-ball mechanism,
3/8-16 external thread, safety nut.
Nickel plated.
For 3/32" - 1/8" cable



30Z-1420i-V6-S

Side exit gripper, 6-ball mechanism,
1/4-20 internal thread, safety nut.
Nickel plated.
For 3/32" - 1/8" cable



30Z-3816i-V6-SC

Side exit gripper, 6-ball mechanism,
3/8-16 internal thread, safety nut.
Nickel plated.
For 3/32" - 1/8" cable



30Z-JU-3816i-V6-SC

Universal ball-jointed side exit gripper,
6-ball mechanism, 3/8-16 internal
thread, safety nut.
Nickel plated.
For 3/32" - 1/8" cable

TYPE 30 3-BALL & 6-BALL GRIPPERS

See page 18 for weight load information

**30Z-CLMP-200-V6-S**

Side exit gripper with clamp attachment, 6-ball mechanism, safety nut, fits 1 1/4" - 1 1/2" pipe or 1.625" to 2" actual OD.

Nickel plated.

For 3/32" - 1/8" cable

30Z-CLMP-200-V6B-S

Black zinc plated

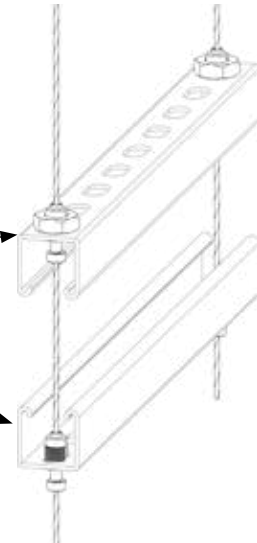
**ZF-30-STRUT-RR**

Bottom exit gripper, 3-ball mechanism, 3/8 IPS thread for slotted strut.

Nickel plated.

For 3/32" - 1/8" cable

See page 18 for weight load information



Reverse Release (RR) allows height adjustment from above or below.

**30-FORK-10x20-V6B-S**

Bottom exit gripper, 6-ball mechanism, 0.39" (10mm) clevis width, safety nut.

Black zinc plated.

For 3/32" - 1/8" cable

30-FORK-10x20-V6-S

Nickel plated

**30Z-1420-V6-GHA-S**

Side exit gripper with snap hook, 6-ball mechanism, safety nut.

Nickel plated.

For 3/32" - 1/8" cable

**30-RI-V6-S**

Bottom exit ring gripper, 6-ball mechanism, safety nut.

Nickel plated.

For 3/32" - 1/8" cable

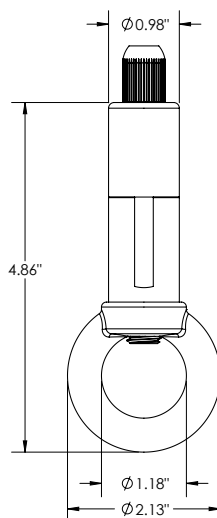
30-RI-V6B-S

Black zinc plated

TYPE 50 6-BALL GRIPPERS

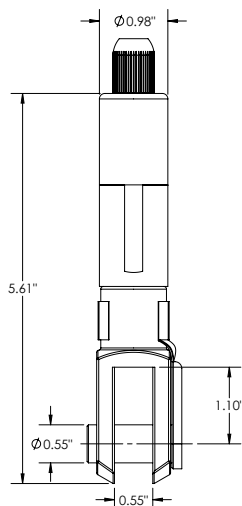
See page 18 for weight load information

**GRIP
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50Z-RI-V6B

Side exit gripper with
ring attachment,
6-ball mechanism,
ring ID 1.18\", safety nut.
Black zinc plated.
For 3/16\" cable



50Z-FORK-14x28-V6B

Side exit gripper with fork
attachment, 6-ball
mechanism, 0.55\" (14mm)
clevis width, safety nut.
Black zinc plated.
For 3/16\" cable

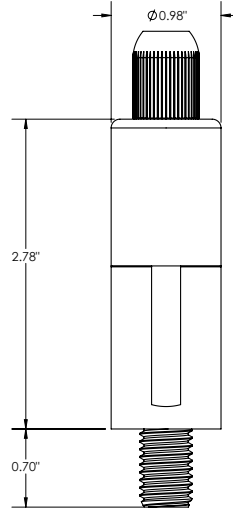


**GRIP
LOCK**

SYSTEMS®

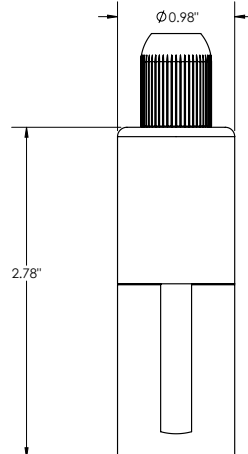
TYPE 50 6-BALL GRIPPERS

See page 18 for weight load information



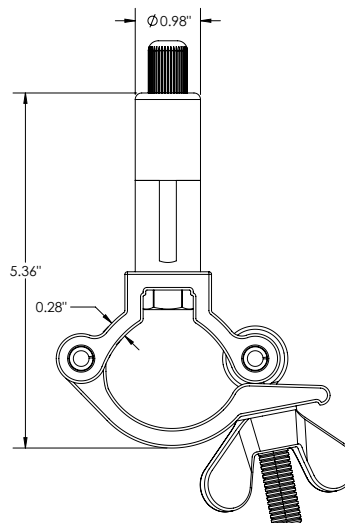
50Z-M12e-V6B-70

Side exit gripper, 6-ball mechanism, M12 x 1.75 external thread, safety nut. Other thread lengths available. Black zinc plated. For 3/16" cable



50Z-M12i-V6B

Side exit gripper, 6-ball mechanism, M12 x 1.75 internal thread, safety nut. Black zinc plated. For 3/16" cable



50Z-CLMP-200-V6B

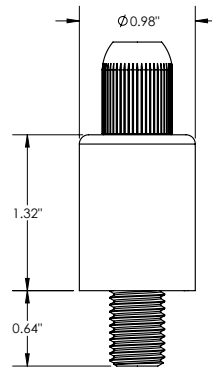
Side exit gripper with clamp attachment, 6-ball mechanism, safety nut, fits 1 1/4" - 1 1/2" pipe or 1.625" to 2" actual OD. Black zinc plated. For 3/16" cable



TYPE 50 6-BALL GRIPPERS

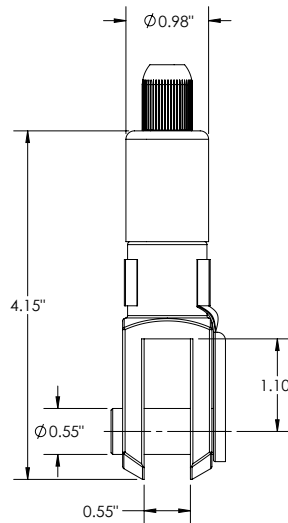
See page 18 for weight load information

**GRIP
LOCK**
SYSTEMS®



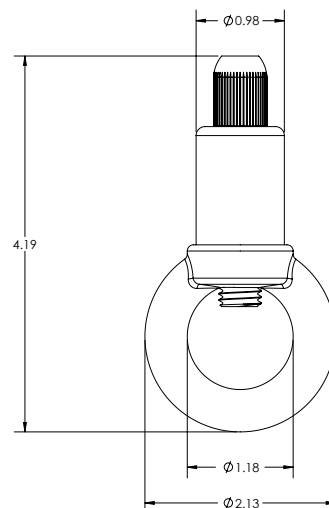
50-M12e-V6B

Bottom exit gripper,
6-ball mechanism,
M12 x 1.75 external
thread, safety nut.
Black zinc plated.
For 3/16" cable



50-FORK-14x28-V6B

Bottom exit gripper with fork
attachment, 6-ball
mechanism, 0.55" (14mm)
clevis width, safety nut.
Black zinc plated.
For 3/16" cable



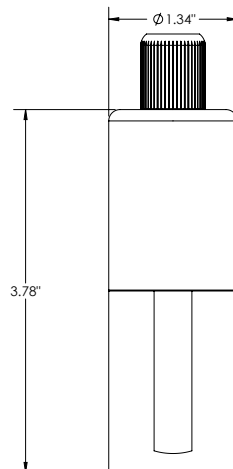
50-RI-V6B

Bottom exit gripper with ring
attachment, 6-ball
mechanism, ring ID 1.18",
safety nut.
Black zinc plated.
For 3/16" cable

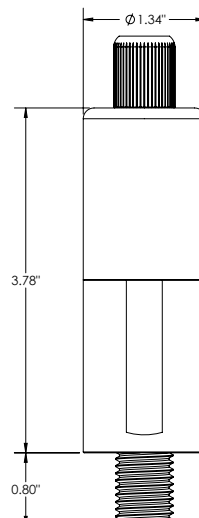


TYPE 66 6-BALL GRIPPERS

See page 18 for weight load information

**66Z-M16i-V6B**

Side exit gripper, 6-ball
mechanism, M16 x 2
internal thread, safety nut.
Black zinc plated.
For 1/4" cable

**66Z-M16e-V6B-80**

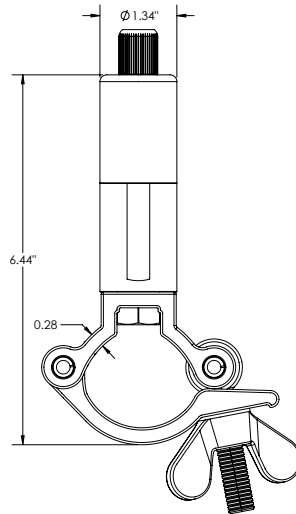
Side exit gripper, 6-ball
mechanism, M16 x 2
external thread, safety nut.
Other thread lengths available.
Black zinc plated.
For 1/4" cable



TYPE 66 6-BALL GRIPPERS

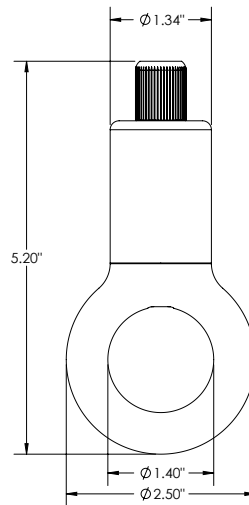
See page 18 for weight load information

**GRIP
LOCK**
SYSTEMS®



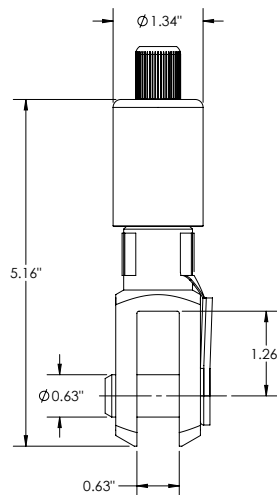
66Z-CLMP-200-V6B

Side exit gripper with clamp attachment, 6-ball mechanism, safety nut, fits 1 ¼" – 1 ½" pipe or 1.625" to 2" actual OD. Black zinc plated. For 1/4" cable



66-RI-V6B

Bottom exit gripper with integrated ring, 6-ball mechanism, ring ID 1.40", safety nut. Black zinc plated. For 1/4" cable



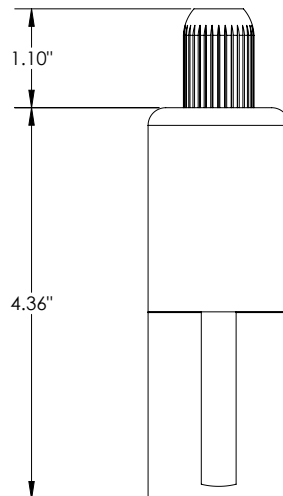
66-FORK-16x32-V6B

Bottom exit gripper with fork attachment, 6-ball mechanism, 0.63" (16mm) clevis width, safety nut. Black zinc plated. For 1/4" cable

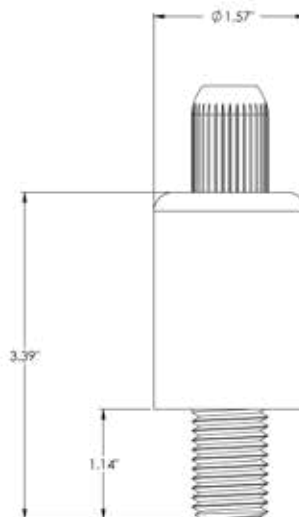


TYPE 80 6-BALL GRIPPERS

See page 18 for weight load information

**80Z-M12i-V6B**

Side exit gripper, 6-ball mechanism, M12 x 1.75 internal thread, safety nut.
Black zinc plated.
For 5/16" cable

**80-M20e-V6B**

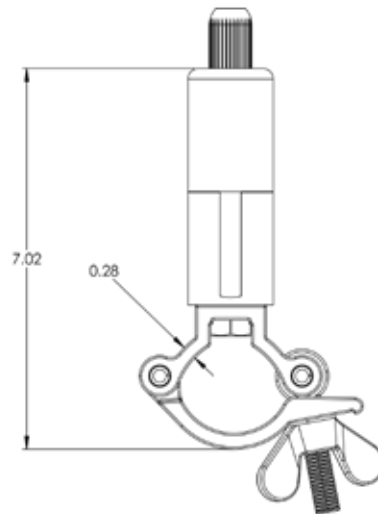
Side exit gripper, 6-ball mechanism, M20 x 2.5 external thread, safety nut.
Black zinc plated.
For 5/16" cable



TYPE 80 6-BALL GRIPPERS

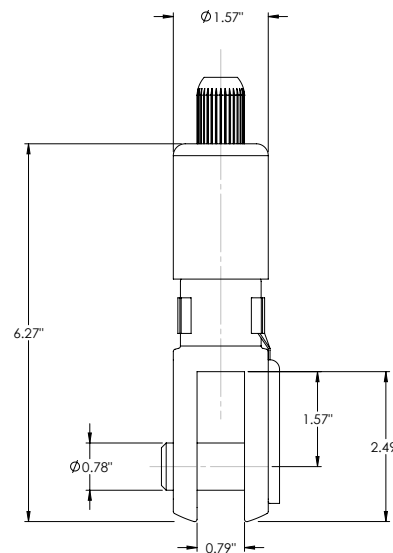
See page 18 for weight load information

**GRIP
LOCK**
SYSTEMS®



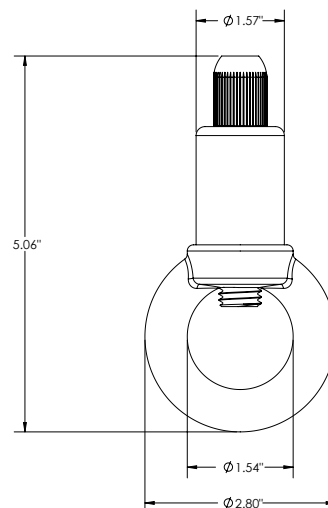
80Z-CLMP-200-V6B

Side exit gripper with clamp attachment, 6-ball mechanism, safety nut, fits 1 ¼" – 1 ½" pipe or 1.625" to 2" actual OD. Black zinc plated. For 5/16" cable



80-FORK-20 x 40-V6B

Bottom exit gripper with fork attachment, 6-ball mechanism, 0.79" (20mm) clevis width, safety nut. Black zinc plated. For 5/16" cable



80-RI-V6B

Bottom exit gripper with ring attachment, 6-ball mechanism, ring ID 1.54", safety nut. Black zinc plated. For 5/16" cable

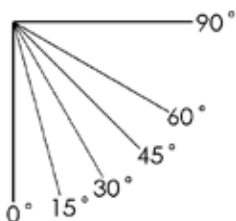




ANGLED APPLICATIONS

- Cables should not enter or exit grippers at more than a 5° angle (see illustration at right).
- A pendant load exerts greater force on angled / non-vertical cables than it would on vertical cables.
- To determine the safe working load on an angled cable supporting a load, take the safe working load for the gripper / cable combination from the weight load chart on page 18 and multiply it by the factor from the chart below. For example, for a 1/16" galvanized cable with type 25 Premium gripper at a 45° angle, take the 60 lbs from the weight load chart on page 18 and multiply it by 0.70 from below: 60 lbs x 0.70 = 42 lbs. So 42 lbs will be the safe working load for each suspension at a 45° angle instead of 60lbs for a vertical suspension. Angles beyond 60° are not recommended.

5° max. deviation
from center line



For more information about this please call our office.

ANGLE FROM VERTICAL	0°	15°	30°	45°	60°
FACTOR	1	0.96	0.86	0.70	0.50

TECHNICAL DATA

BGV C1

BGV is the Institute for Statutory Accident Insurance and Prevention in Germany (Berufsgenossenschaft VBG). The BGV C1 standard is required by most European Insurance companies for public events.

Historically, both the US and European Event and Entertainment Industries have relied upon general industry standards for overhead cable rigging. While both the Americans and Europeans have dramatically improved their professional standards in these and allied industries in recent years, the US has maintained Safe Working Load (SWL) ratio rules of between 5:1 and 10:1, while the Europeans, led by Germany, have adopted BGV C1's more stringent standards. BGV C1 requires that a gripper / cable combination hold a minimum of 80% of the calculated minimum break-strength of the cable alone. Components meeting the 80% minimum are assigned a 12:1 SWL ratio based on the actual minimum break-strength of the cable.

Griplock's® Type 50, 66, and 80 6-Ball grippers are the only grippers available in North America that meet the BGV C1 criteria. 3-ball grippers do not meet current BGV C1 standards.

THE BGV C1 SAFE WORKING LOAD

Testing for the BGV C1 certification was performed in Germany on 6-ball grippers using 6x19 fiber core cable, which is typically used for rigging in Europe. The SWL shown on all BGV C1 certified grippers reflects the 12:1 SWL ratio for fiber core cable. In the US however, riggers generally use the much stronger steel core cable. The results of tests on galvanized and stainless steel aircraft cables are shown in the tables on the following page.

INSTRUCTIONS FOR USE

- Use only 7x7 or 7x19 uncoated galvanized or 304 stainless steel aircraft cable. Charts on the following page assume the use of this type of cable. For information about the use of 6x7 or 6x19 fiber core versions of these cables, please contact our office.
- When feeding cable through a gripper always allow cable to pass 2" beyond the gripper housing.
- When cutting excess cable always leave a minimum of 2" of cable showing.
- Cable should be cut using purpose-built cutters.
- Cable will generally not fray when cut. In case of fraying, solder or otherwise seal the cut end.
- Cables should not enter or exit grippers at more than a 5° angle. See page 16.
- The Griplock® Rigging System is ideal for temporary static suspensions in most environments but is not recommended for permanent installations out of doors or in chemical-laden environments such as indoor swimming pools and certain manufacturing facilities. Please contact us for more information.

DISCLAIMER: Weight load guidelines and other specifications are for illustration purposes only. They should not be construed as a warranty that the product or system will conform. Each purchaser is solely responsible for determining that (1) the product and/or system is suitable for the intended application, and (2) the product and/or system complies with all federal, state and local safety and trade laws and regulations. Installers are cautioned that the integrity of the structures to which these components are attached and the fasteners used to attach them are critical to the integrity of the overall system and should therefore be evaluated by a qualified engineer or installer.

PROPRIETARY AND CONFIDENTIAL: The drawings and specifications contained in this publication are the exclusive property of Griplock®Systems, LLC and shall not be divulged, reproduced, copied or used as the basis for the manufacture or sale of apparatus without the express written authorization of Griplock® Systems, LLC.

WEIGHT LOADS

STATIC SAFE WORKING LOADS (SWL) FOR GRIPLOCK® PREMIUM GRIPPERS

Safe working loads are 20% of the minimum break strength of the gripper / cable combination
 Values in **BLUE** are for stainless steel cables. Values in **BLACK** are for galvanized cables.

CABLE DIAMETER		PREMIUM GRIPPER TYPE							
Inches	mm	Type 15	Type 18	Type 25	Type 30	Type 30	Type 50	Type 66	Type 80
		3-Ball	3-Ball	3-Ball	3-Ball	6-Ball	6-Ball	6-Ball	6-Ball
<i>Safe Working Load in pounds</i> <i>7x7 (up to 2.5mm cable) or 7x19 (1/8" cable and higher) galvanized & stainless steel cable</i>									
3/64"	1.2mm	33/ 28	33/ 28						
	1.5mm	56/ 40	56/ 40	56/ 40					
1/16"	1.6mm	60/ 50	60/ 50	60/ 50					
5/64"	2.0mm		80/ 70	80/ 70					
3/32"	2.4mm			126/ 110	126/ 110	126/ 110			
	2.5mm			134/ NA	134/ NA	134/ NA			
1/8"	3.2mm				200/ 180	225/ 200			
3/16"							500/ 444		
1/4"								1000/ 896	
5/16"									1200/ 1000

BOTH CHARTS

- Figures are in pounds.
- The 5:1 SWL reflects both US cable industry and European TÜV standards.
- Where no minimum break strength is shown, gripper and cable combinations are NOT compatible.
- Contact Griplock® Engineering if you are considering any other cable construction for your installation.

UPPER CHART

- The chart above applies to Griplock® **Premium** grippers only. It is not applicable to any other cable-gripping product, including Griplock's **ZF Standard** gripper line.

LOWER CHART

- The chart below applies to Griplock® **ZF Standard** grippers only. It is not applicable to any other cable-gripping product, including Griplock's **Premium** gripper line.

STATIC SAFE WORKING LOADS (SWL) FOR GRIPLOCK® ZF STANDARD GRIPPERS

Safe working loads are 20% of the minimum break strength of the gripper / cable combination
 Values in **BLUE** are for stainless steel cables. Values in **BLACK** are for galvanized cables.

CABLE DIAMETER			ZF STANDARD GRIPPER TYPE	
	Inches	mm	Double Mechanism	Type 30 Single Mechanism
Looped Cable				
Safe Working Load in pounds 7x7 (up to 2.5mm cable) or 7x19 (1/8" cable and higher) galvanized & <i>stainless steel cable</i>				
ZF-30-STRUT-RR	3/32"	2.4mm		95/ <i>87</i>
		2.5mm		100/ <i>90</i>
	1/8"			170/ <i>160</i>
ZF15ZZ	3/64"	1.2mm	35/ <i>30</i>	
		1.5mm	60/ <i>50</i>	
	1/16"	1.6mm	75/ <i>65</i>	
ZF-30X2	3/32"	2.4mm	160/ <i>150</i>	
	1/8"		250/ <i>225</i>	

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