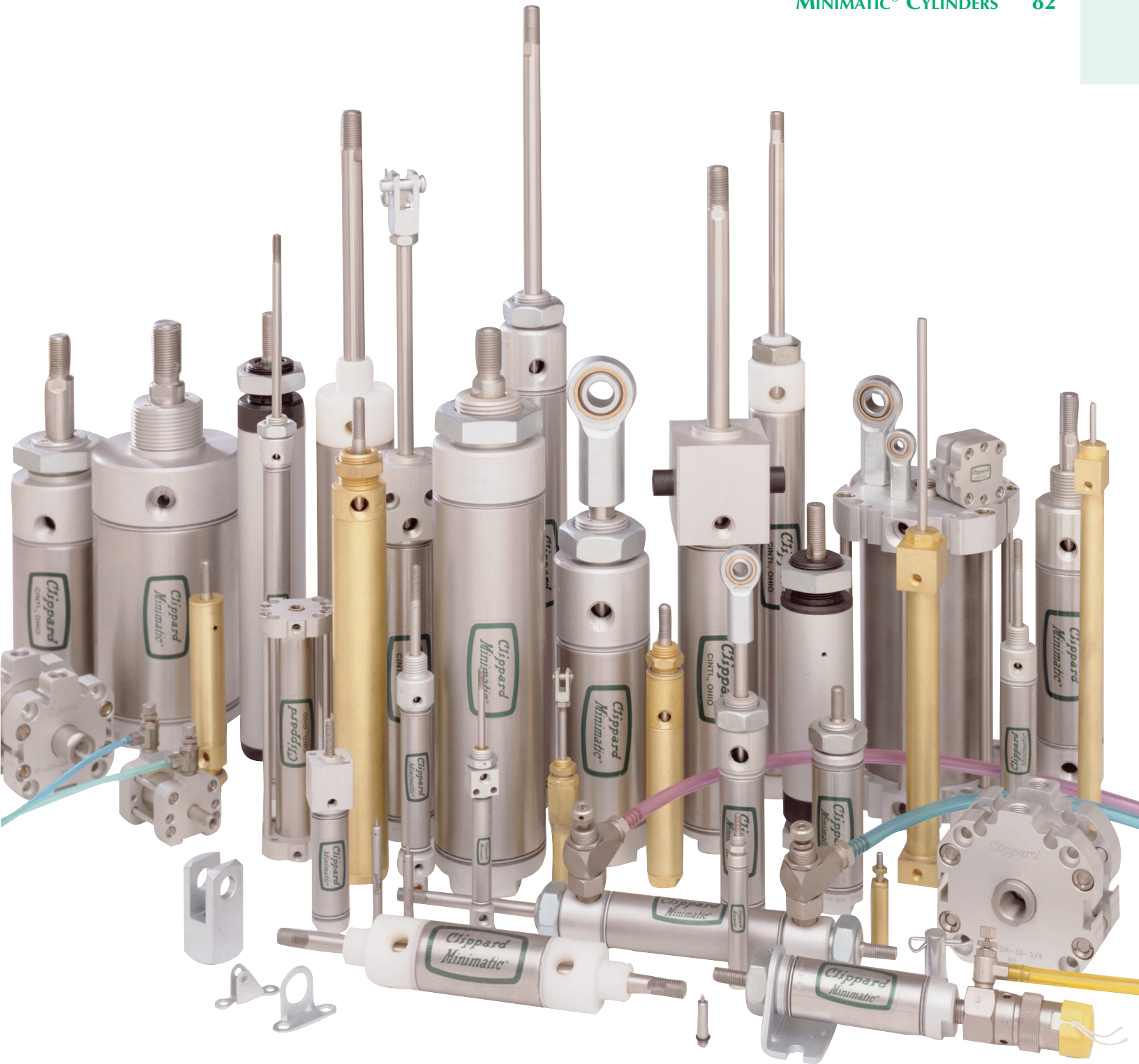


STAINLESS STEEL CYLINDERS	2
CORROSION RESISTANT CYLINDERS	62
AIR FORCE ONE COMPACT CYLINDERS	70
MINIMATIC® CYLINDERS	82

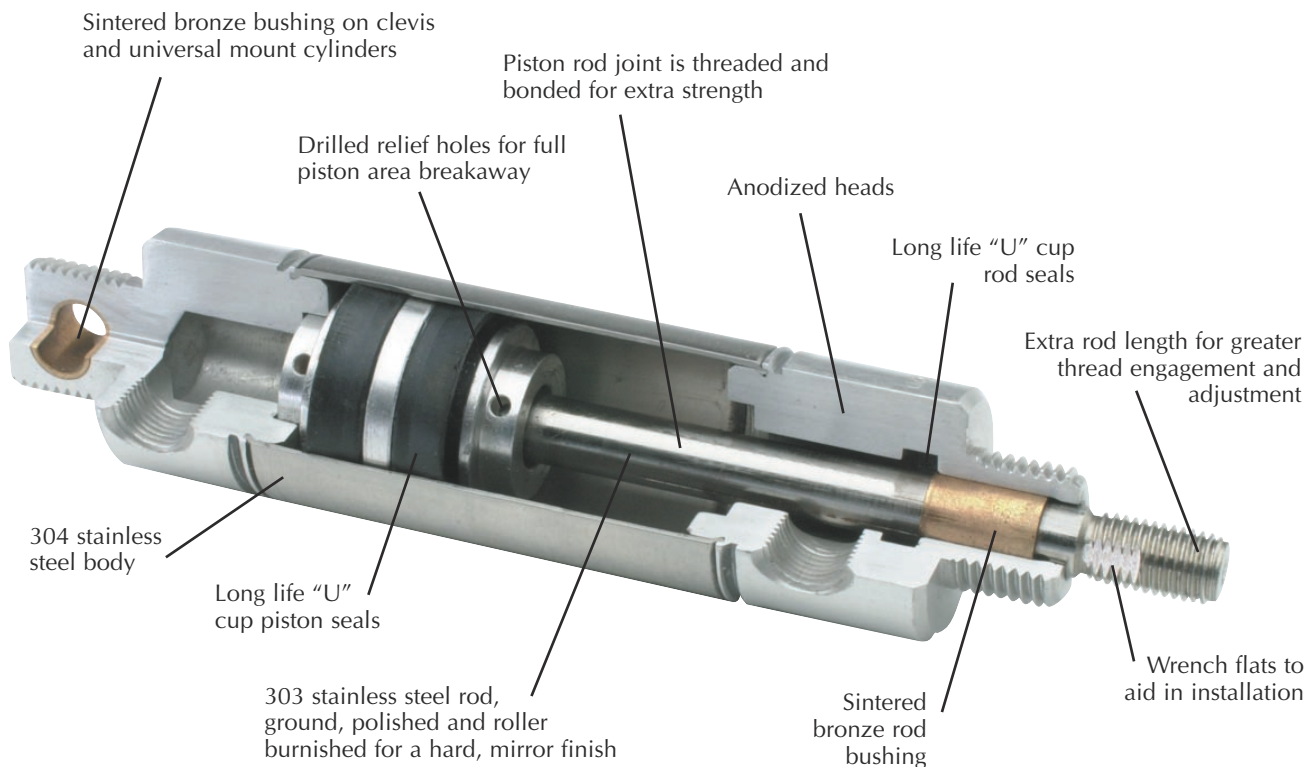




STAINLESS STEEL CYLINDER CONSTRUCTION

In the early 1950's, Clippard introduced miniature pneumatic cylinders and valves to industry. No other manufacturer can boast of the same experience or knowledge of miniature components.

Air cylinders have always been an integral part of the Clippard Minimatic® line. Over the years Clippard has responded to requests from cylinder users to provide additional sizes of air cylinders and auxiliary support products. While competitively priced, these products maintain the Clippard standard for quality and reliability that has been the industry standard for many years.



Features

- Polished ID 304 stainless steel tubes for low breakaway
- Precision rolled construction for a solid, leakproof cylinder at a reasonable price
- Machined aluminum heads are clear anodized for extra protection against corrosion
- Cylinder heads are machined from one side for better concentricity
- Sintered bronze rod bushing
- Sintered bronze clevis bushing on all clevis and universal mount cylinders
- Rods are threaded and bonded to pistons
- Ground, polished and roller burnished 303 stainless rods provide a smoother rod finish that protects rod seals, giving longer life
- Full piston area breakaway to assure full power from the beginning of each stroke
- Buna-N "U"-cup piston seals for full power, low friction and trouble-free performance
- Buna-N "U"-cup rod seals for leakproof operation
- Temperature range: -32°F to 230°F
- Maximum pressure: 250 psig



NUMBERING SYSTEM

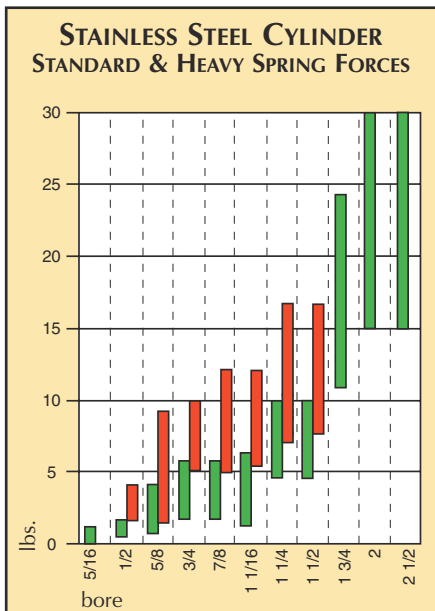
Stroke

In inches & fractions of an inch

□	□	□	-	□	-	□	-	□
Mounting Type		Rod Type		Bore		Options		
S - Stud U - Universal C - Clevis F - Front Block E - End Stud T - Trunnion		D - Double Ended Rod R - Rotating Rod N - Non-Rotating Rod H - Hollow Rod		05 - 5/16" 08 - 1/2" 10 - 5/8" 12 - 3/4" 14 - 7/8" 17 - 1 1/16" 20 - 1 1/4" 24 - 1 1/2" 28 - 1 3/4" 32 - 2" 40 - 2 1/2" 48 - 3"		B - Bumpers V - Viton® Seals C - Cushions MB - Magnetic Piston for Hall Effect sensors (includes bumpers) F - Cushion Front End R - Cushion Rear End W - Rod Wiper S - Side Ported H - Heavy Spring P - Rotated Ports		
	Cylinder Type							
	D - Double Acting S - Single Acting R - Reverse Acting F - Front Spring Bias B - Back Spring Bias							

Not all combinations are available - consult factory

SPECIFICATIONS



Bore Size

5/16	1/2	5/8	3/4	7/8	1-1/16	1-1/4	1-1/2	1-3/4	2	2-1/2	3
------	-----	-----	-----	-----	--------	-------	-------	-------	---	-------	---

Force Factor - Extend (Area)

.07	.19	.31	.44	.60	.88	1.2	1.7	2.4	3.1	4.9	7.0
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Rod Size

1/8	3/16	3/16	1/4	1/4	5/16	3/8	7/16	1/2	5/8	5/8	3/4
-----	------	------	-----	-----	------	-----	------	-----	-----	-----	-----

Rod Area

.01	.03	.03	.05	.05	.08	.11	.15	.20	.31	.31	.44
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Force Factor - Retract (Area)

.06	.16	.28	.39	.55	.80	1.09	1.55	2.20	2.90	4.59	6.56
-----	-----	-----	-----	-----	-----	------	------	------	------	------	------

The force required, operating air pressure and cylinder bore are all factors that must be determined or known when sizing an air cylinder. If two are known the other is easily calculated per the formulas and triangle shown below.

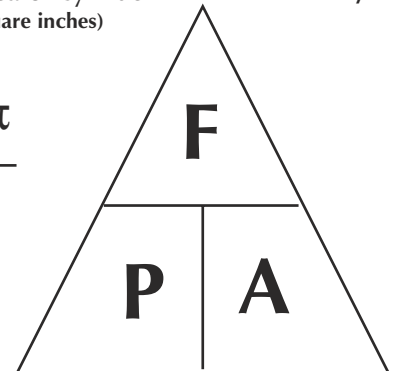
F - Force or load in pounds
P - Pressure
A - Area of cylinder
(square inches)

$$F = P \times A$$

$$P = F / A$$

$$A = F / P$$

Area is derived using either of the following formulas: **Diameter** ² x .7854 or **Radius** ² x π



Standard Spring Forces (lbs)

Bore	5/16	1/2	5/8	3/4	7/8	1-1/16	1-1/4	1-1/2	1-3/4	2	2-1/2
At Rest	.5	.9	1.3	3.0	3.0	2.0	4.5	4.5	11.0	15.0	15.0
Compressed	1.0	2.0	4.0	6.0	6.0	7.0	10.0	10.0	24.0	30.0	30.0

Heavy Spring Forces (lbs)

Bore	5/16	1/2	5/8	3/4	7/8	1-1/16	1-1/4	1-1/2	1-3/4	2	2-1/2
At Rest	N/A	2.0	3.3	5.0	5.0	5.5	8.5	8.5	N/A	N/A	N/A
Compressed	N/A	4.0	9.0	10.0	10.0	13.0	17.0	17.0	N/A	N/A	N/A



STAINLESS STEEL CYLINDER

OPTIONS

The following options are available with Clippard stainless steel cylinders. Available options are shown by the abbreviations noted in the information shown with each standard cylinder.

Viton® Seals -V

This option is used in applications where chemical resistance, compatibility and temperature become an issue. Temperature ranges: -20 F up to 400 F.

Viton® is a registered trademark of DuPont Co.

Cushions -C

(Front Cushion Only) -F

(Rear Cushion Only) -R

Clippard's cushion cylinders offer an adjustable cushion to slow the cylinder near the end of the stroke to reduce impact and prolong cylinder life. Our adjustment needle is held captive to prevent the needle from blowing out. The cushion can be adjusted to have a dead stop 1/2" from end of stroke or adjusted to have virtually no effect on the action of the cylinder. See specific cylinder specifications for availability of this option.

No Rod Threads -N

Rods are provided with no threads when this option is ordered.

Magnetic Piston -MB

A magnet is attached to the piston that will actuate the Hall Effect and reed switches. This option also includes bumpers and extends the overall length of the cylinder. Switches and clamps need to be ordered separately. For more information see page 60 on Clippard's Hall Effect and reed switches. For multiple reed switches we need a 1" stroke or more. Maximum temperature 300° F.

Rod Wipers -W

Rod Wipers are added to cylinders in applications where a liquid wash could dry out the rod seals of a double acting cylinder.

Non-standard Options

- Extra Rod Extensions
- Thread Modifications
- Silk Screening Private Labels

If you can't find a cylinder to suit your needs call your Clippard distributor to inquire about custom cylinders.

Bumpers -B

Internal polyurethane bumpers are supplied for applications where the cylinder is cycled with a light load and/or high speeds. The elastic bumpers reduce noise and shock to the load. Use of this option may add to the overall length of the cylinder. See specific cylinder listings on the following pages for availability and details of the overall length added. Maximum temperature 200° F.

Side Ported -S

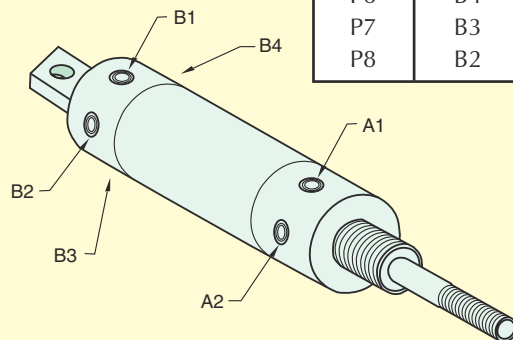
Side ported rear heads are sometimes needed when the standard cylinder has the rear port out the back. This option changes the design of the rear head so the rear port is located on the side of the cylinder. Overall length of cylinder changes with this option.

Heavy Spring -H

In single acting, reverse acting or spring bias cylinders the standard spring force can be changed by ordering the -H option. The spring forces for the heavy springs are shown on page three.

Rotated Ports

Option #	Rear Port	Front Port
P2	B2	A2
P3	B1	A2
P4	B4	A2
P5	B3	A2
P6	B4	A1
P7	B3	A1
P8	B2	A1



This option is used in applications where ports need to be rotated to accommodate a specific space requirement or port orientation for the fittings and tube attachments. The diagram explains the options and orientation of the ports. See the specific cylinder to find availability of these options.



STROKE LENGTHS

Standard stroke lengths for each bore size and cylinder style are listed in



this catalog. Non-standard stroke lengths (not listed in the catalog) up to 24" for single acting cylinders and 36" for double acting cylinders are available. Stroke length should be specified in inches and fractions of an inch. Consult the factory for other requirements.

In applications, attention should be given to minimizing the side load on the rod to insure a smooth stroke without binding. Also, in applications where the cylinder rod is subjected to an unsupported column load, the load on the rod should be less than the force shown in the table below to prevent buckling of the rod.

Maximum Load (lbs) to Prevent Buckling of the Rod									
Rod dia.	Rod Length								
	1"	5"	10"	15"	20"	25"	30"	35"	40"
1/8"	110	12	3	1.3					
3/16"	262	59	15	6.6	3.7				
1/4"	478	190	47	21	12	7.5			
5/16"	756	451	116	52	29	19	13		
3/8"	1091	786	240	106	60	38	27	20	
7/16"	1490	1184	444	197	111	71	49	36	28
1/2"	1950	1645	757	336	189	120	84	62	47
5/8"	3055	2750	1795	821	462	295	205	150	115
3/4"	4405	4100	3140	1700	950	613	425	312	240

Rod Thread	Bore Size	Series	Rod Size	Rod Flats
#5-40 UNC-2A	5/16	05	1/8	none
#10-32 UNF-2A	1/2	08	3/16	none
#10-32 UNF-2A	5/8	10	3/16	none
1/4-28 UNF-2A	3/4	12	1/4	.218
1/4-28 UNF-2A	7/8	14	1/4	.218
5/16-24 UNF-2A	1 1/16	17	5/16	.250
3/8-24 UNF-2A	1 1/4	20	3/8	.312
7/16-20 UNF-2A	1 1/2	24	7/16	.375
1/2-20 UNF-2A	1 3/4	28	1/2	.437
1/2-20 UNF-2A	2	32	5/8	.500
1/2-20 UNF-2A	2 1/2	40	5/8	.500
5/8-18 UNF-2A	3	48	3/4	.625

CUSTOM CYLINDERS

If your application requires a custom feature that you do not see in our catalog please contact our distributor in your area

for assistance. We manufacture a wide variety of special cylinders. Examples of our custom cylinder capabilities would include: stroke and rod modifications, special mounting configurations and ports, seal and lubrication options, integrated valving and adjustable stroke cylinders. We also provide application based special cylinder design for those customers having unique parameters.

FREE CYLINDER SAMPLE PROGRAM

We invite competitive comparisons. If you are an OEM that uses air cylinders, Clippard will provide a free sample for your evaluation. Contact us or your local distributor and ask for the "Free Sample Cylinder" request form.





POSITION SENSORS

Clippard pneumatic cylinders are available with a choice of magnetically operated position sensors. The magnetic reed switch or Hall Effect sensor... on cylinders equipped with magnetic piston option.

Hall Effect Position Sensors

Clippard Hall Effect sensors offer the user more accurate sensing of piston location for the ultimate in pneumatic system control.

The Hall Effect sensor operates with Clippard stainless steel pneumatic cylinders equipped with internal magnets on the pistons. By accurately sensing the magnetic field of the piston when it passes beneath the sensor, the position of the rod piston is determined, and a feedback signal is created. See page 60.



Reed Switches

The Clippard RS magnetic reed switches have power ranges to 25 watts, current up to 1.5 amperes and a rated lifespan of 10 million cycles. Plan to use them where the high performance of the Clippard HS Hall Effect switch is not required.

Two models are available: 36 volts or 200 volts AC/DC. Each is a SPST normally open configuration. When the cylinder's magnet-equipped piston moves to a location where the magnet is positioned below the reed switch, the switch sends a feedback signal to indicate piston location. In the 36 VDC model, an LED provides switch closing indication. See page 60.

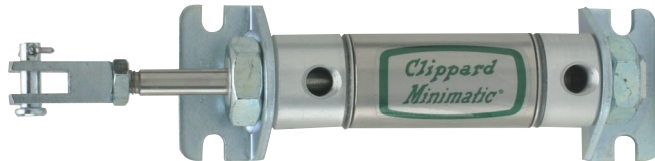


ACCESSORIES

Mounting Hardware

For efficient power and easy mounting, Clippard has designed and manufactured brackets suitable for each cylinder shown in this catalog.

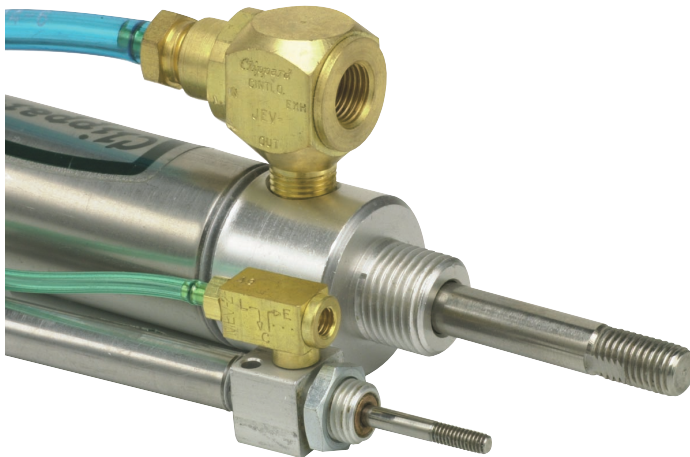
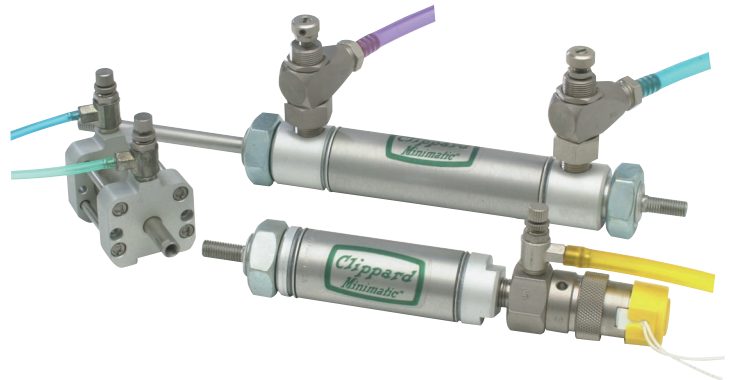
These products are shown on the last page of each corresponding bore size and include clevis mounting brackets, foot mounting brackets, rod clevis assemblies and rod eye assemblies. Extra mounting nuts are available.



Flow Controls

Clippard offers a large variety of flow controls and needle valves for adjusting the speed of the cylinder. Several models are available from fine adjustments to coarse adjustments in a variety of mounting configurations.

See page 11, 154 - 155



Quick Exhaust Valves

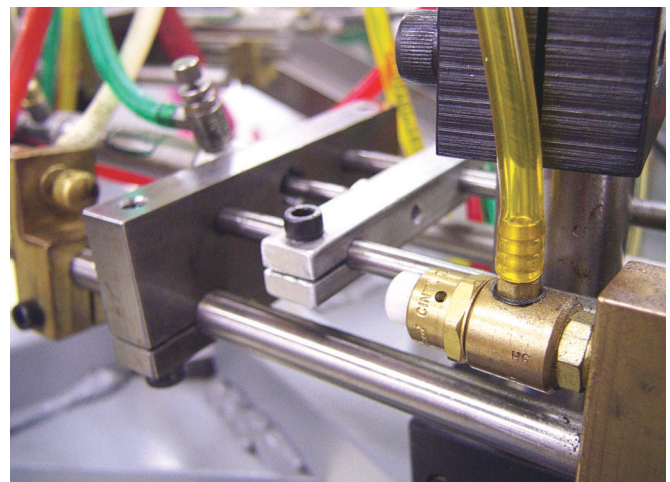
The primary function of a quick exhaust valve is to increase cylinder speed. This also enables the use of smaller directional valves and longer control lines. Offered with several port configurations from 10-32 models up to 1/4 inch.

See page 164, 165

Limit Valves

A limit valve is the best way to have a mechanical limit to return air signals to control valves or circuits. Clippard offers limit valves in ports ranging from 3-56 up to 1/8 NPT, high force and heavy duty limits as well as non-contact sensing valves.

See page 106 - 129



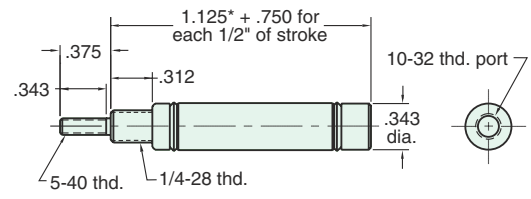


5/16" BORE STAINLESS STEEL CYLINDER

SSR-05-□-□

Single Acting

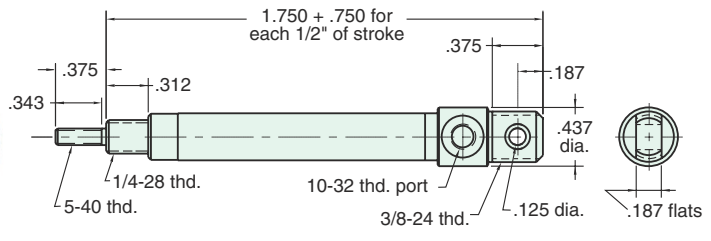
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 1 lbs. **Spring At Rest:** 0.5 lbs.
Options: B, H, V, S, N *For bumpers add .250
 For S option add .220



USR-05-□-□

Single Acting

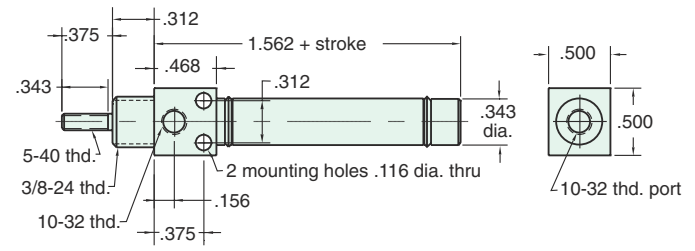
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 1 lbs. **Spring At Rest:** 0.5 lbs.
Options: B, H, V, N For bumpers add .250



SDR-05-□-□

Double Acting

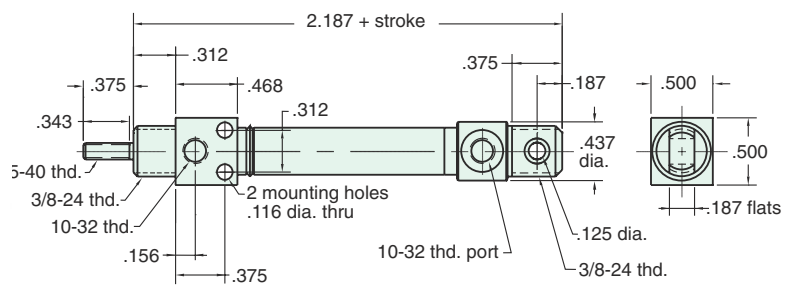
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod
Options: B, V, P6, P7, P8, S, N For bumpers add .250
 For S option add .220



UDR-05-□-□

Double Acting

Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod
Options: B, V, P2, P3, P4, P5, P6, P7, P8, N For bumpers add .250



5/16" BORE STAINLESS STEEL CYLINDER



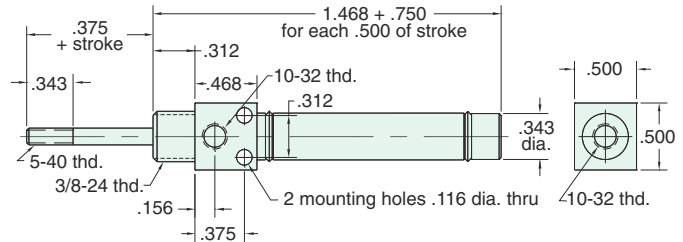
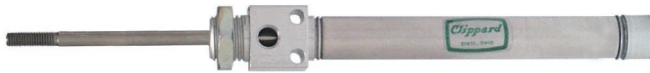
SRR-05-□-□

Reverse Acting

Mount: Stud
Type: Rotating Rod
Options: B, H, V, N

Standard Stroke Lengths: 1/2, 1, 1-1/2, 2, 3, 4
Spring Compressed: 1 lbs. **Spring At Rest:** 0.5 lbs.

For bumpers add .250



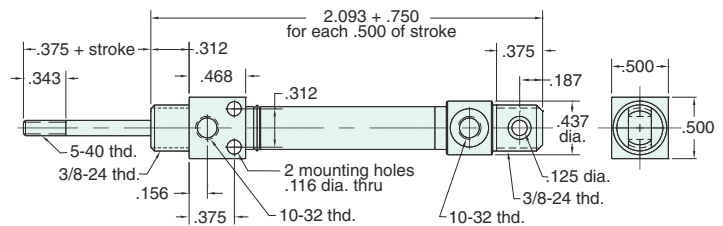
URR-05-□-□

Reverse Acting

Mount: Universal
Type: Rotating Rod
Options: B, H, V, P2, P3, P4, P5, P6, P7, P8, N

Standard Stroke Lengths: 1/2, 1, 1-1/2, 2, 3, 4
Spring Compressed: 1 lbs. **Spring At Rest:** 0.5 lbs.

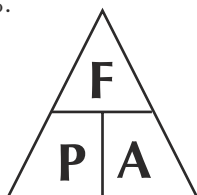
For bumpers add .250



FORCE FACTOR

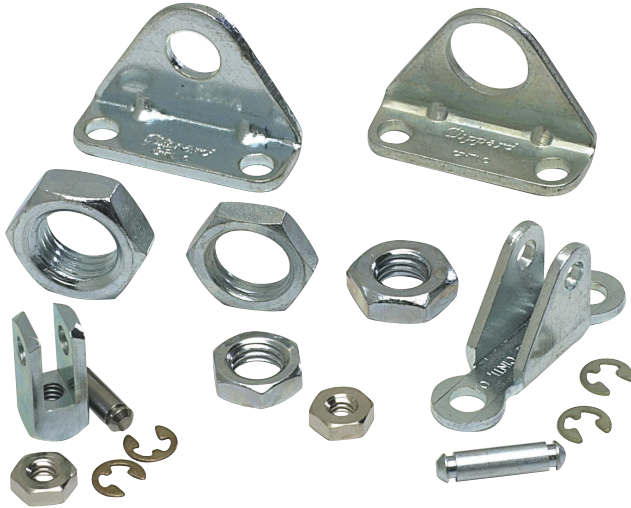
The "force factor" is the nominal area of the cylinder bore size. The chart to the right provides theoretical forces in both the extend and retract stroke of all available bore sizes.

These values are theoretical and make no allowance for friction which varies with the bore size. It is recommended that a 25% safety factor be allowed when selecting a cylinder bore for normal load movement. In high speed applications that number should be at least 40%.



The extend and retract values differ due to the rod diameter.

Bore Size	1/2	5/8	3/4	7/8	1-1/16	1-1/4	1-1/2	1-3/4	2	2-1/2	3	
Force Factor - Extend (area)	.07	.19	.31	.44	.60	.88	1.2	1.7	2.4	3.1	4.9	7.0
Force Factor - Retract (area)	.06	.16	.28	.39	.55	.80	1.09	1.55	2.2	2.9	4.59	6.56
20 PSI - Extend (lbs)	1.4	3.8	6.2	8.8	12.	17.6	24.	34.	48.	62.	98.	140.
20 PSI - Retract (lbs)	1.16	3.25	5.65	7.82	11.02	16.07	21.79	31.	44.07	58.07	91.86	131.16
50 PSI - Extend (lbs)	3.5	9.5	15.5	22.	30.	44.	60.	85.	120.	155.	245.	350.
50 PSI - Retract (lbs)	2.9	8.13	14.13	19.55	27.55	40.17	54.48	77.5	110.18	145.18	229.66	327.91
80 PSI - Extend (lbs)	5.6	15.2	24.8	35.2	48.	70.4	96.	136.	192.	248.	392.	560.
80 PSI - Retract (lbs)	4.64	13.	22.6	31.27	44.07	64.26	87.17	124.	176.29	232.29	367.46	524.66



MOUNTING NUTS

Stud Nut

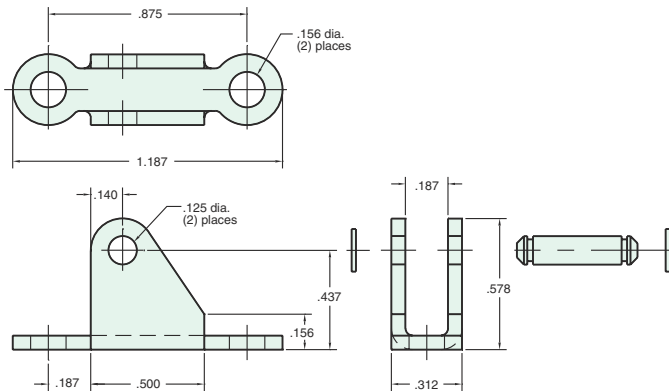
Part Number	Across Flats	Nut Thickness	Nut (Thread)
N04-28A	7/16	5/32	1/4-28
N04-28B	3/8	1/8	1/4-28
N06-24A	9/16	7/32	3/8-24
N06-24B	1/2	1/8	3/8-24

Rod Nut

Part Number	Across Flats	Nut Thickness	Nut (Thread)
N02-40	1/4	3/32	5-40

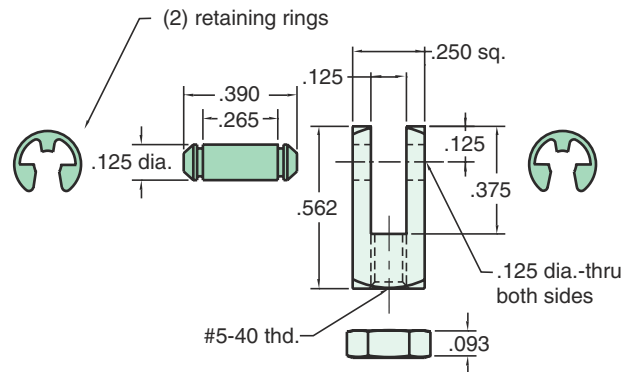
CB-0595

Clevis Bracket
Material: steel, bright zinc plated



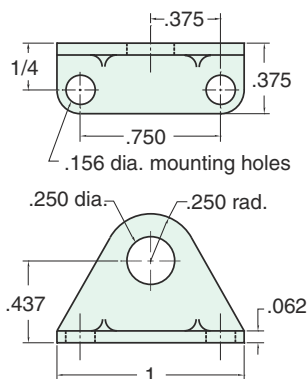
RC-0581

Rod Clevis
Material: steel, bright zinc plated



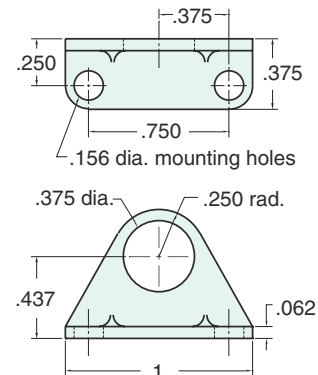
FB-0591

Foot Bracket
Material: steel, bright zinc plated



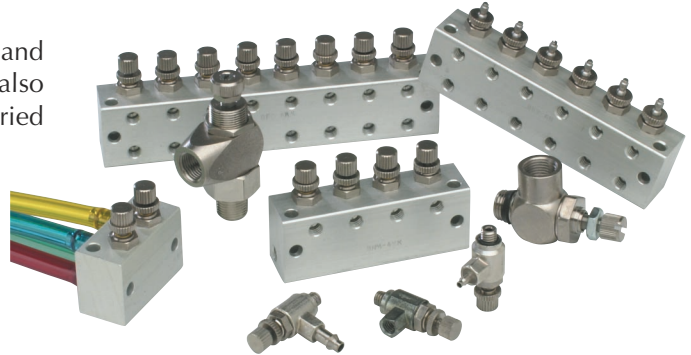
FB-0592

Foot Bracket
Material: steel, bright zinc plated



Flow Controls

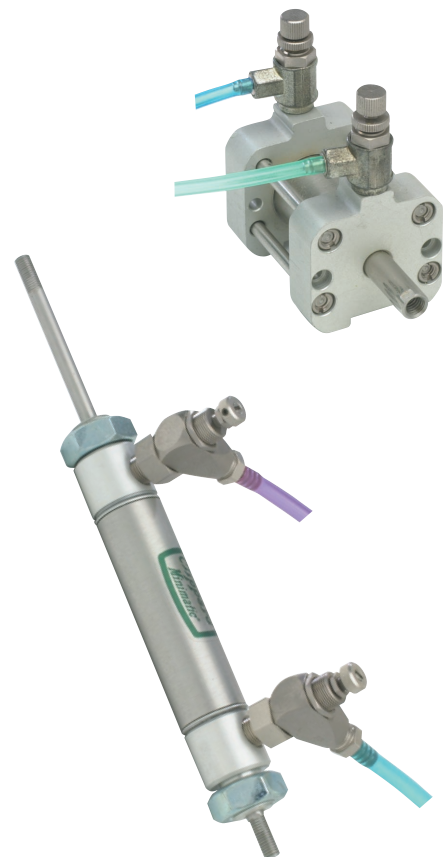
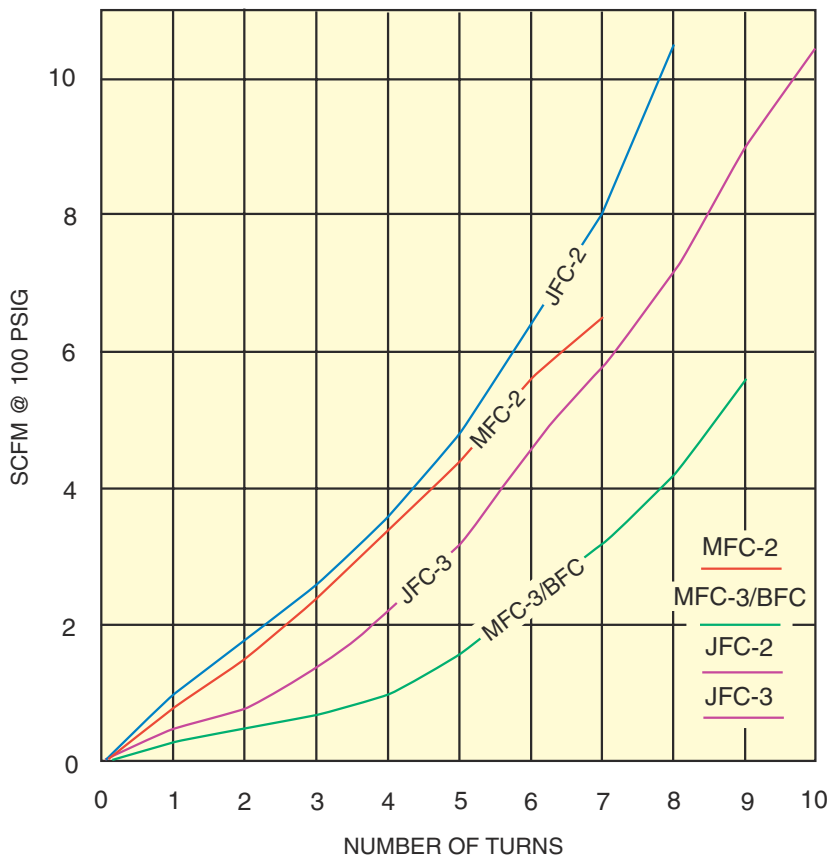
Clippard provides a full range of stainless steel cylinders and Minimatic® cylinders. To compliment this offering, we also manufacture a variety of flow controls to meet the varied needs of our customers. Large and small alike, cylinders often need speed controls, and Clippard flow controls provide that needed control. From the MFC series (#10-32 ports) to JFC series (1/8" NPT ports) flow controls are designed for ease of use either directly installed in the cylinder ports, or remotely (in-line or subplate) mounted.



Clippard also offers a BFC (Block Flow Control) series of flow control valves. This product combines the features of our standard MFC series valve with a manifold-mount configuration to enable the use of up to 8 flow controls in one body.

Whether you are remotely controlling the speed of up to eight miniature cylinders, or just like the convenience of all the speed controls in one place, this series flow control is the right product for the application!

Flow Controls Flow vs. Needle Turns





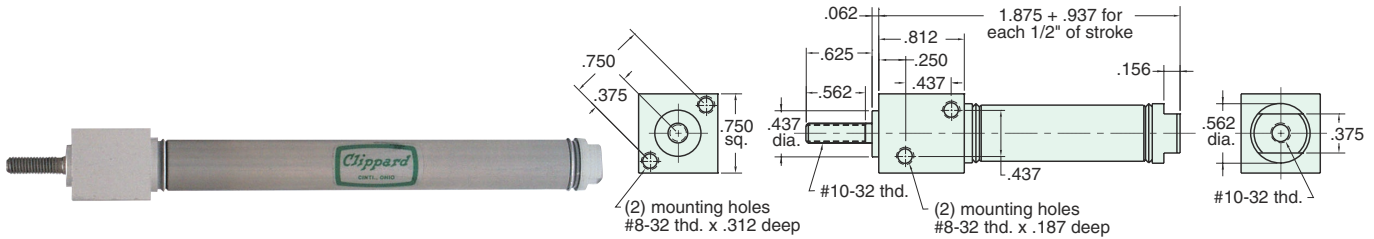
1/2" BORE STAINLESS STEEL CYLINDER

FSR-08-□-□

Single Acting

Mount: Front **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 2 lbs. **Spring At Rest:** 0.9 lbs.
Options: MB, B, H, V, S, N For bumpers add .500" For magnetic bumpers add .812

For S option add .187



SSN-08-□-□

Single Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Non-Rotating Rod **Spring Compressed:** 2 lbs. **Spring At Rest:** 0.9 lbs.
Options: MB, B, H, V, S, N For bumpers add .500" For magnetic bumpers add .812

For S option add .187



SSR-08-□-□

Single Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 2 lbs. **Spring At Rest:** 0.9 lbs.
Options: MB, B, H, V, S, N For bumpers add .500" For magnetic bumpers add .812

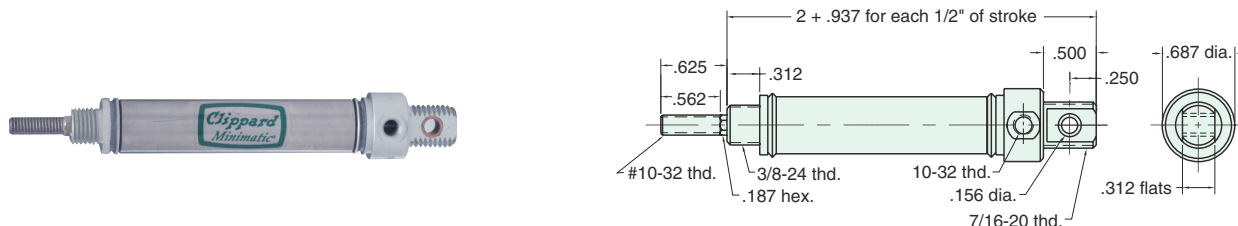
For S option add .187



USN-08-□-□

Single Acting

Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s)
See chart on page 15
Type: Non-Rotating Rod **Spring Compressed:** 2 lbs. **Spring At Rest:** 0.9 lbs. Bumpers add .500
Options: MB, B, H, V, P6, N For magnetic bumpers add .812



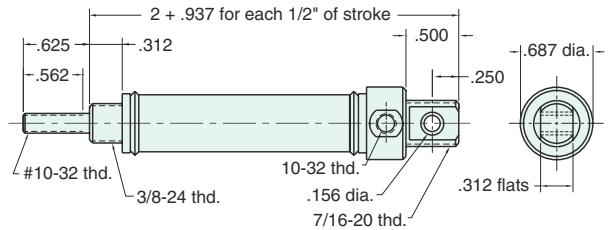
1/2" BORE STAINLESS STEEL CYLINDER



USR-08-□-□

Single Acting

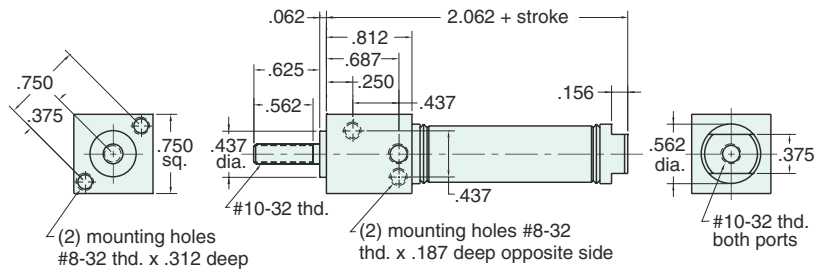
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 15
Type: Rotating Rod **Spring Compressed:** 2 lbs. **Spring At Rest:** 0.9 lbs.
Options: MB, B, H, V, P6, N Bumpers add .500 For magnetic bumpers add .812



FDR-08-□-□

Double Acting

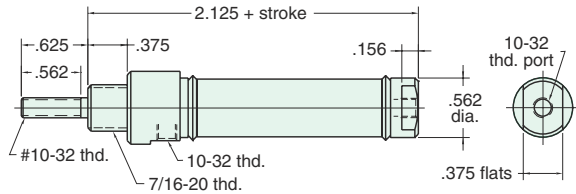
Mount: Front **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Bumpers add .500 For magnetic bumpers add .812
Type: Rotating Rod
Options: MB, B, V, P6, P7, P8, S, N Bumpers add .500 For magnetic bumpers add .812
For S option add .187



SDR-08-□-□

Double Acting

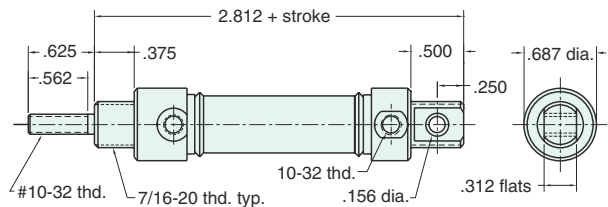
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Bumpers add .500 For magnetic bumpers add .812
Type: Rotating Rod
Options: MB, B, V, P6, P7, P8, S, N Bumpers add .500 For magnetic bumpers add .812
For S option add .187



UDR-08-□-□

Double Acting

Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 15
Type: Rotating Rod
Options: MB, B, V, P2, P3, P4, P5, P6, P7, P8, N Bumpers add .500 For magnetic bumpers add .812





1/2" BORE STAINLESS STEEL CYLINDER

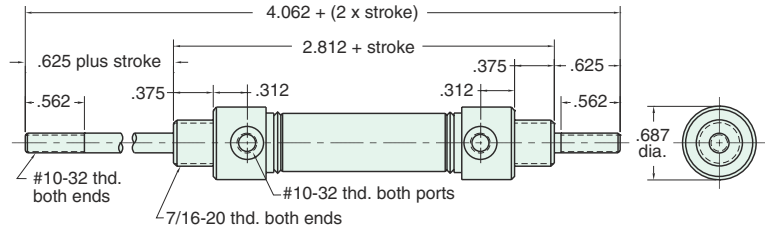
SDD-08-□-□

Double Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Double Rod
Options: MB, B, V, P6, P7, P8, N

For bumpers add .500

For Magnetic Bumper add .812



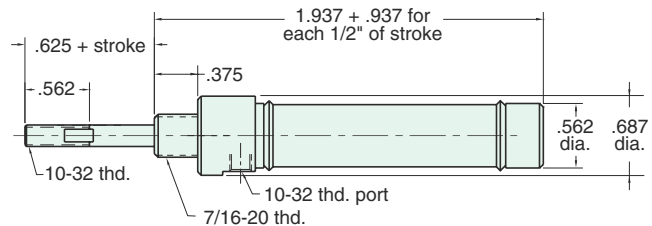
SRR-08-□-□

Reverse Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod
Options: MB, B, H, V, N

For bumpers add .500

For Magnetic Bumper add .812



URR-08-□-□

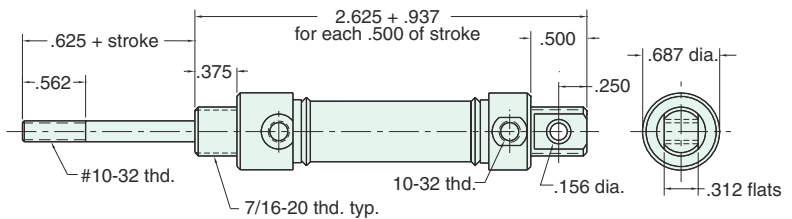
Reverse Acting

Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod
Options: MB, B, H, V, P6, P7, P8, N

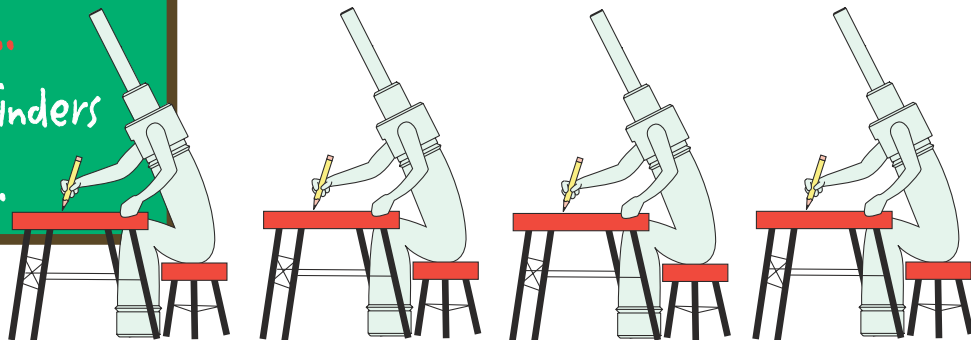
Furnished without nut(s)
See chart on page 15

For bumpers add .500

For Magnetic Bumper add .812



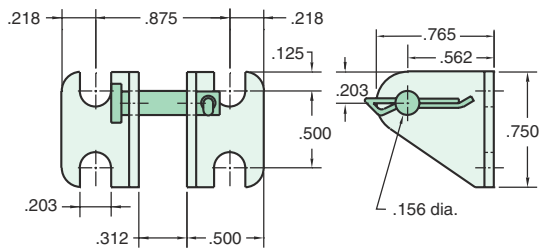
Did you know...
All Clippard Cylinders
are 100% tested.





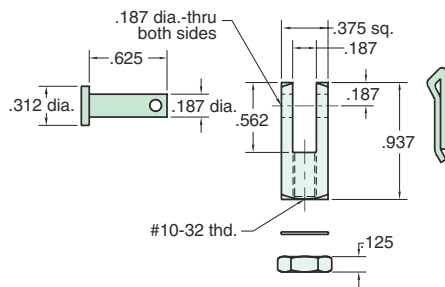
CB-0895

Clevis Bracket
Material: steel, bright zinc plated



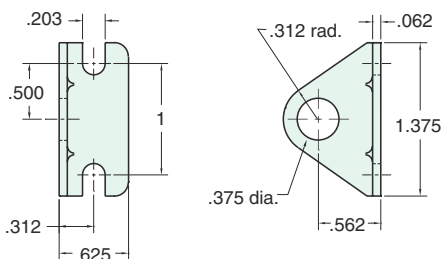
RC-0881

Rod Clevis
Material: steel, bright zinc plated



FB-0891

Foot Bracket
Material: steel, bright zinc plated



MOUNTING NUTS

Stud Nut

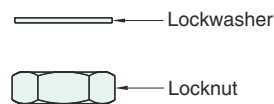
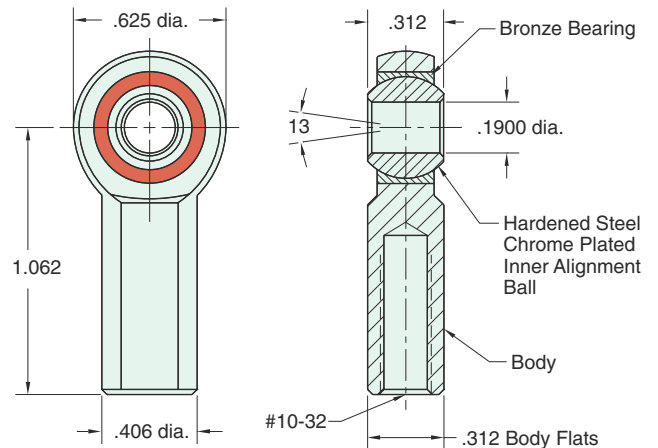
Part Number	Across Flats	Nut Thickness	Nut (Thread)
N06-24A	9/16	7/32	3/8-24
N06-24B	1/2	1/8	3/8-24
N07-20	11/16	1/4	7/16-20

Rod Nut

Part Number	Across Flats	Nut Thickness	Nut (Thread)
N03-32	3/8	1/8	10-32

RE-0885

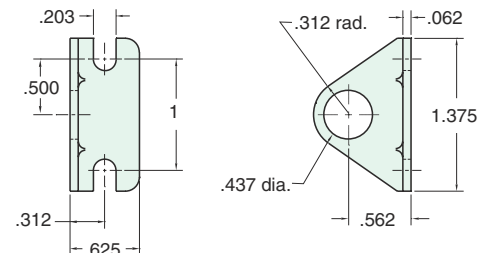
Rod End
Material: steel, bright zinc plated body



Max. Static Radial Load: 1624 lbs.
Fits Rod Thread Size: #10-32

FB-0892

Foot Bracket
Material: steel, bright zinc plated



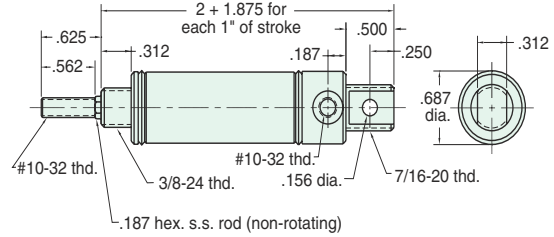


5/8" BORE STAINLESS STEEL CYLINDER

USN-10-□-□

Single Acting

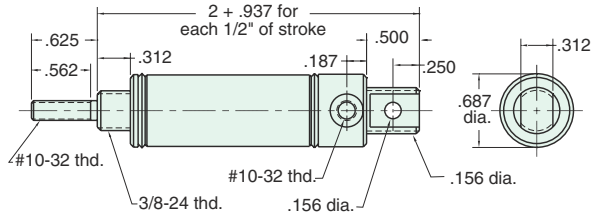
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 19
Type: Non-Rotating Rod **Spring Compressed:** 4 lbs. **Spring At Rest:** 1.3 lbs.
Options: MB, B, H, V, P6, N Bumpers add .500 For magnetic bumpers add .812



USR-10-□-□

Single Acting

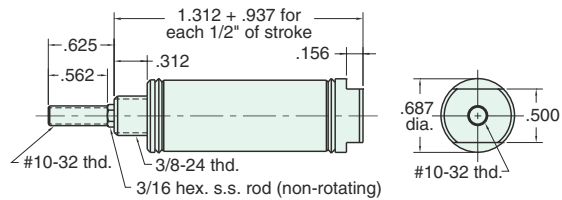
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 19
Type: Rotating Rod **Spring Compressed:** 4 lbs. **Spring At Rest:** 1.3 lbs.
Options: MB, B, H, V, P6, N Bumpers add .500 For magnetic bumpers add .812



SSN-10-□-□

Single Acting

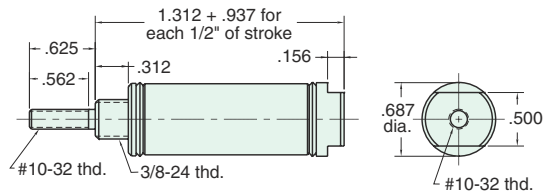
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 19
Type: Non-Rotating Rod **Spring Compressed:** 4 lbs. **Spring At Rest:** 1.3 lbs.
Options: MB, B, H, V, S, N For bumpers add .500 For magnetic bumpers add .812



SSR-10-□-□

Single Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 19
Type: Rotating rod **Spring Compressed:** 4 lbs. **Spring At Rest:** 1.3 lbs.
Options: MB, B, H, V, S, N For bumpers add .500 For magnetic bumpers add .812



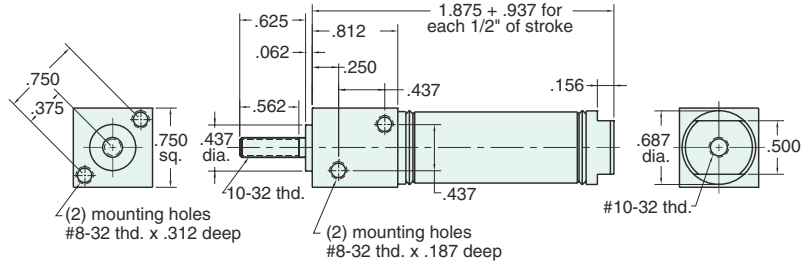
5/8" BORE STAINLESS STEEL CYLINDER



FSR-10-□-□

Single Acting

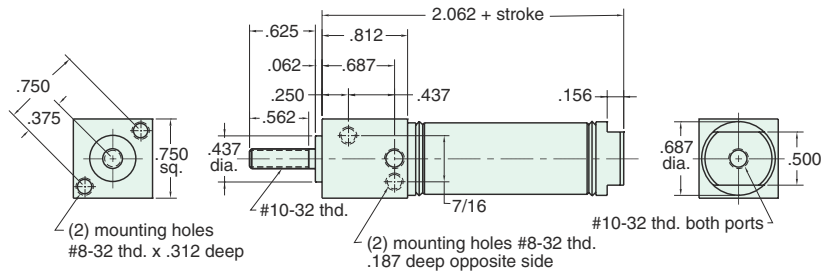
Mount: Front **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 4 lbs. **Spring At Rest:** 1.3 lbs.
Options: MB, B, H, V, S, N For bumpers add .500 For magnetic bumpers add .812
 For S option add .187



FDR-10-□-□

Double Acting

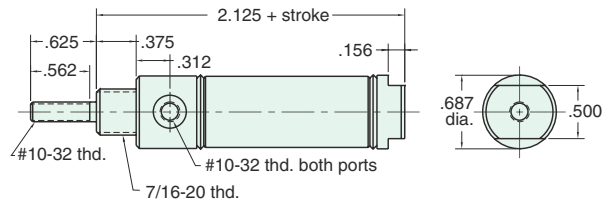
Mount: Front **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod
Options: MB, B, V, P6, P7, P8, S, N For bumpers add .500
 For magnetic bumpers add .812
 For S option add .187



SDR-10-□-□

Double Acting

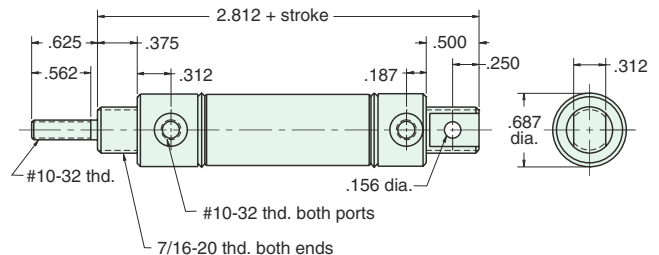
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod
Options: MB, B, V, P6, P7, P8, S, N For bumpers add .500
 For magnetic bumpers add .812
 For S option add .187



UDR-10-□-□

Double Acting

Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod
Options: MB, B, V, P2, P3, P4, P5, P6, P7, P8, N For bumpers add .500
 For magnetic bumpers add .812





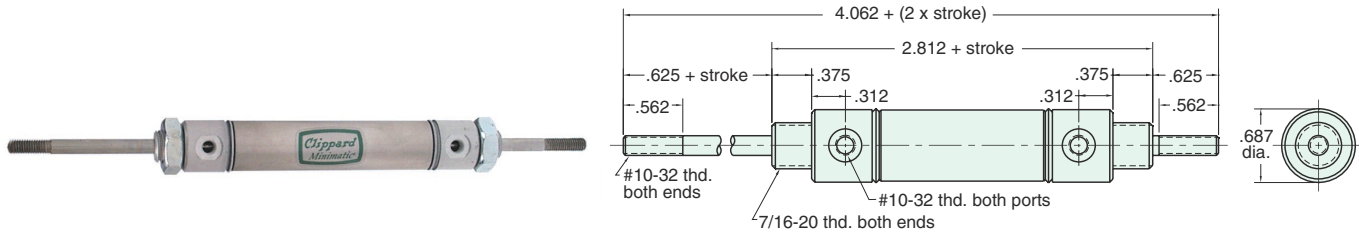
5/8" BORE STAINLESS STEEL CYLINDER

SDD-10-□-□

Double Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Double Rod
Options: MB, B, V, P6, P7, P8, N

For bumpers add .500
 For magnetic bumpers add .812

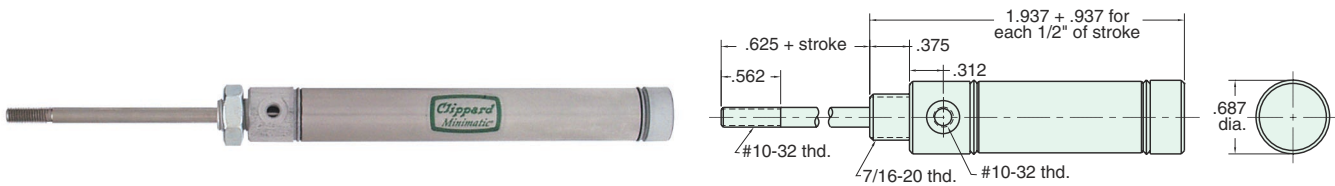


SRR-10-□-□

Reverse Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 4 lbs. **Spring At Rest:** 1.3 lbs.
Options: MB, B, H, V, N

For bumpers add .500

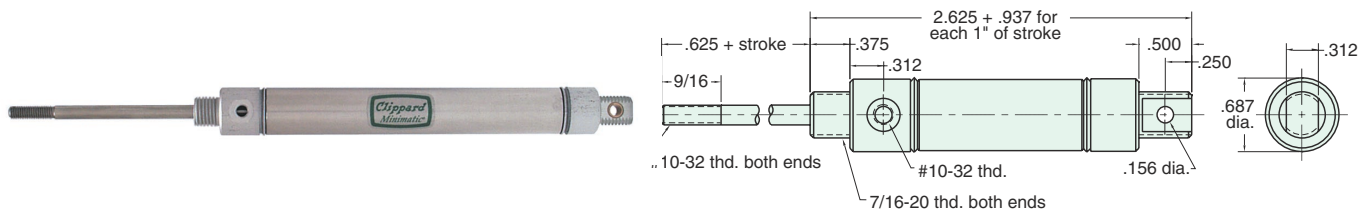


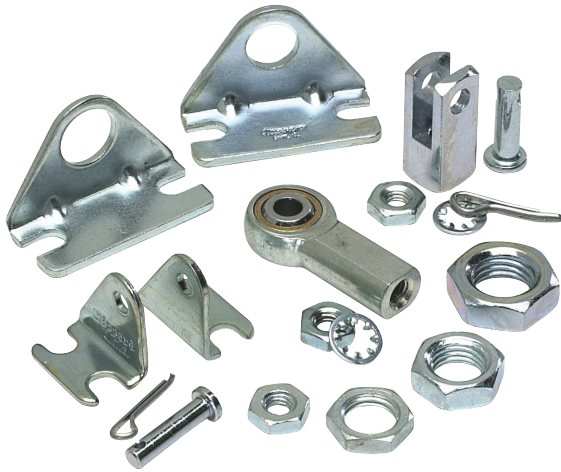
URR-10-□-□

Reverse Acting

Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 4 lbs. **Spring At Rest:** 1.3 lbs.
Options: MB, B, H, V, P6, N

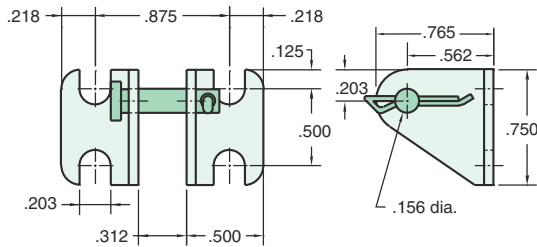
Furnished without nut(s)
 See chart on page 19





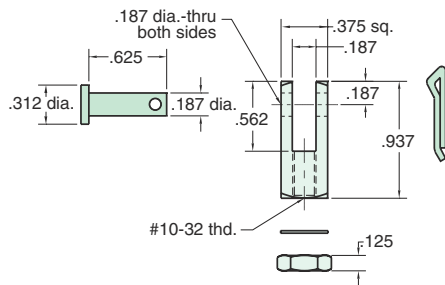
CB-0895

Clevis Bracket
Material: steel, bright zinc plated



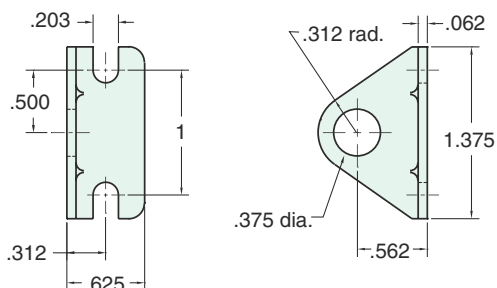
RC-0881

Rod Clevis
Material: steel, bright zinc plated



FB-0891

Foot Bracket
Material: steel, bright zinc plated



MOUNTING NUTS

Stud Nut

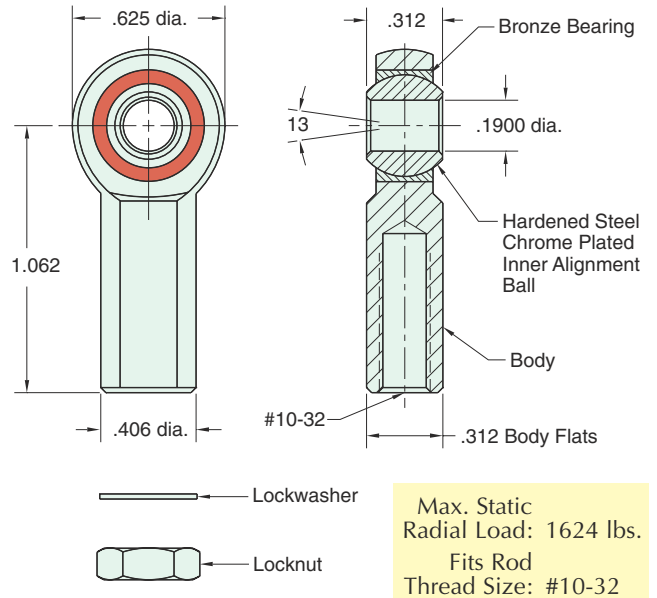
Part Number	Across Flats	Nut Thickness	Nut (Thread)
N06-24A	9/16	7/32	3/8-24
N06-24B	1/2	1/8	3/8-24
N07-20	11/16	1/4	7/16-20

Rod Nut

Part Number	Across Flats	Nut Thickness	Nut (Thread)
N03-32	3/8	1/8	10-32

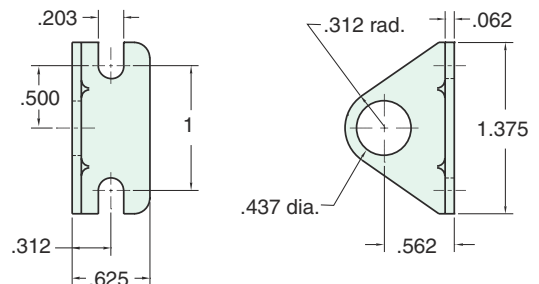
RE-0885

Rod End
Material: steel, bright zinc plated body



FB-0892

Foot Bracket
Material: steel, bright zinc plated





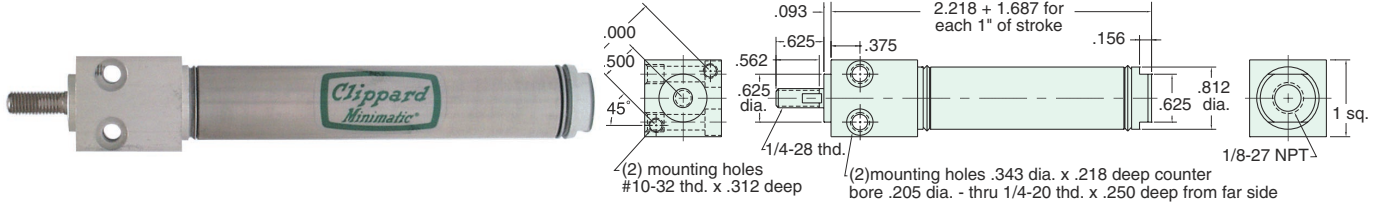
3/4" BORE STAINLESS STEEL CYLINDER

FSR-12-□-□

Single Acting

Mount: Front **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, V, S, N For bumpers add .500 For magnetic bumpers add .812

For S option add .437

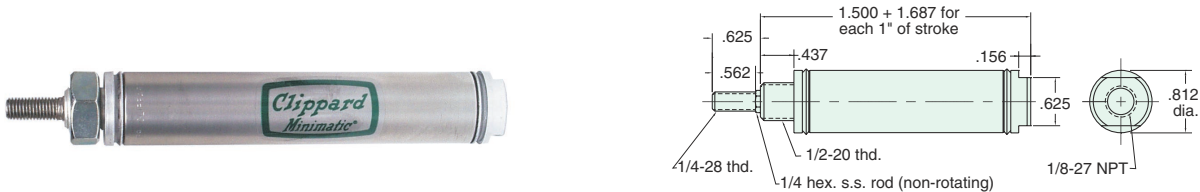


SSN-12-□-□

Single Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Non-Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, V, S, N For bumpers add .500 For magnetic bumpers add .812

For S option add .437

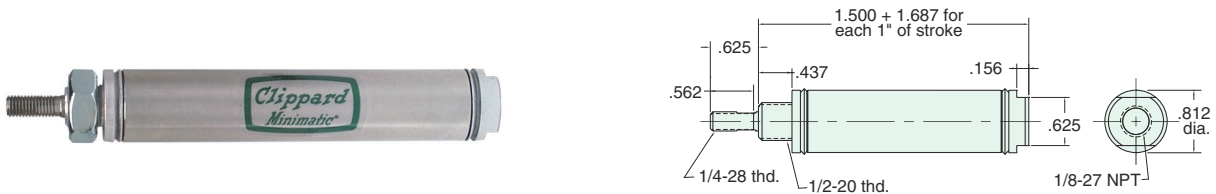


SSR-12-□-□

Single Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, V, S, N For bumpers add .500 For magnetic bumpers add .812

For S option add .437

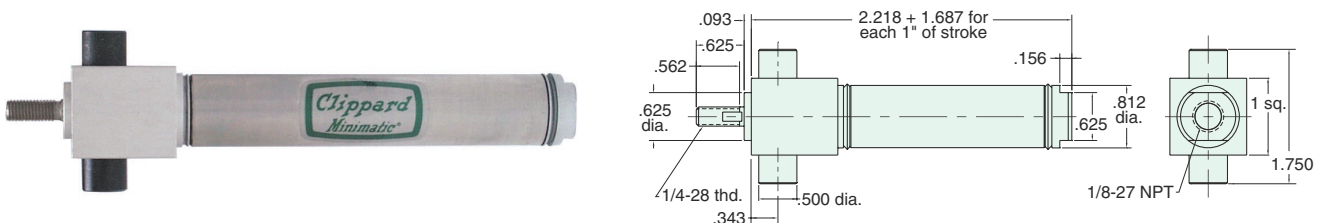


TSR-12-□-□

Single Acting

Mount: Trunnion **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, V, S, N For bumpers add .500 For magnetic bumpers add .812

For S option add .437



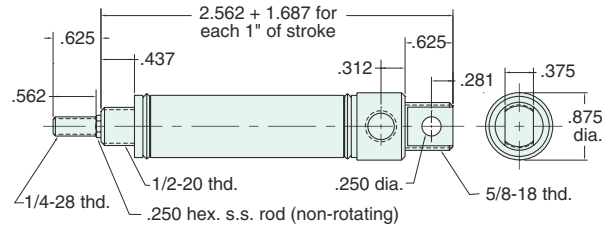
3/4" BORE STAINLESS STEEL CYLINDER



USN-12-□-□

Single Acting

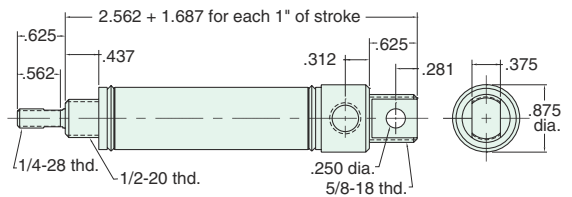
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 25
Type: Non-Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, V, P6, N For bumpers add .500 For magnetic bumpers add .812



USR-12-□-□

Single Acting

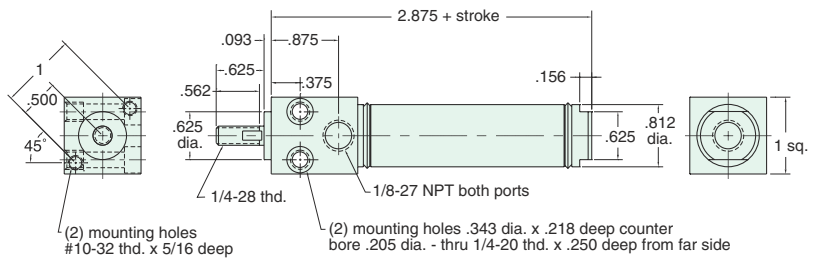
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s) See chart on page 25
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, V, P6, N For bumpers add .500 For magnetic bumpers add .812



FDR-12-□-□

Double Acting

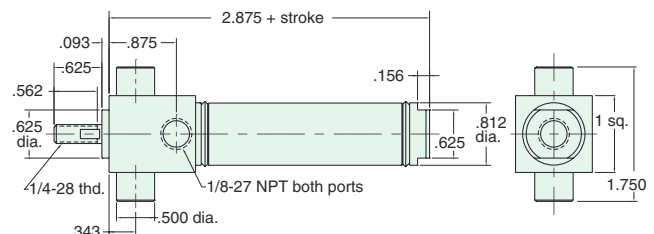
Mount: Front **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4, 5, 6 For bumpers add .500 For magnetic bumpers add .812
Type: Rotating Rod
Options: MB, B, W, V, P6, P7, P8, S, N For S option add .437



TDR-12-□-□

Double Acting

Mount: Trunnion **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4, 5, 6 For bumpers add .500 For magnetic bumpers add .812
Type: Rotating Rod
Options: MB, B, W, V, S, N For S option add .437



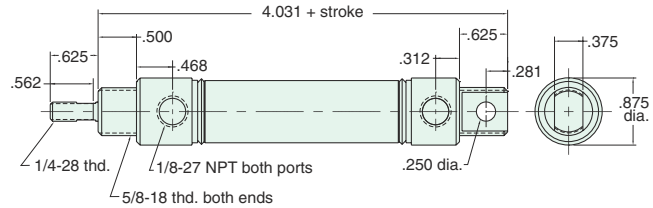


3/4" BORE STAINLESS STEEL CYLINDER

UDR-12-□-□

Double Acting

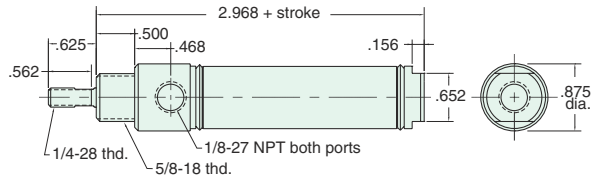
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating rod **Options:** C, F, R, MB, B, W, V, P2, P3, P4, P5, P6, P7, P8, M, N
 Furnished without nut(s) See chart on page 25
 For bumpers add .500
 For magnetic bumpers add .812
 For magnet add .312



SDR-12-□-□

Double Acting

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4, 5, 6
Type: Rotating Rod **Options:** C, F, R, MB, B, W, V, P6, P7, P8, S, M, N
 For bumpers add .500
 For magnetic bumpers add .812
 For C, F, R & S options add .437
 For magnet add .312

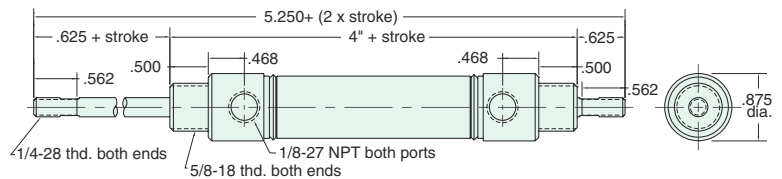


For C, F, & R options use side ported rear head

SDD-12-□-□

Double Acting

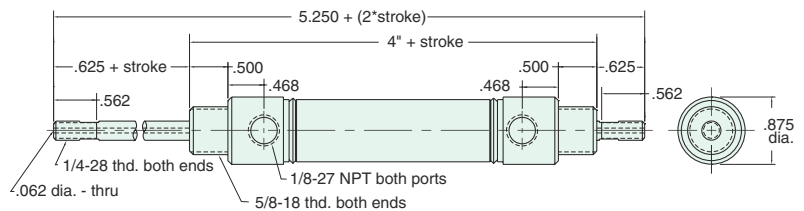
Mount: Stud **Standard Stroke Lengths:** 1, 2, 3, 4, 5, 6
Type: Double Rod **Options:** C, F, MB, B, W, V, P6, P7, P8, M, N
 Bumpers add .500 For magnetic bumpers add .812
 For CM, FM add .312



SDH-12-□-□

Double Acting

Mount: Stud **Standard Stroke Lengths:** 1, 2, 3, 4, 5, 6
Type: Hollow Rod **Options:** C, F, MB, B, W, V, P6, P7, P8, M, N
 For bumpers add .500
 For magnetic bumpers add .812
 For CM, FM add .312



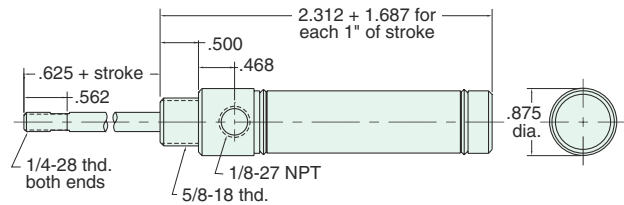
3/4" BORE STAINLESS STEEL CYLINDER



SRR-12-□-□

Reverse Acting

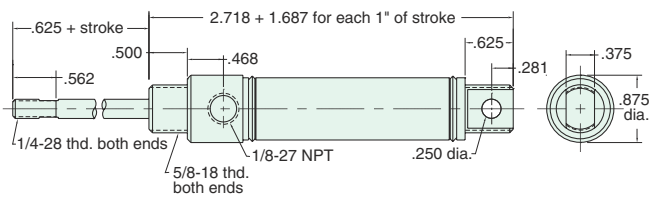
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, W, V, N For bumpers add .375
 For magnetic bumpers add .687



URR-12-□-□

Reverse Acting

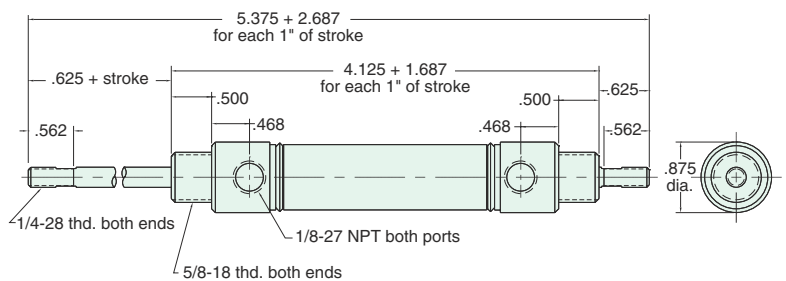
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4 Furnished without nut(s)
See chart on page 25
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, W, V, P6, N For bumpers add .500
 For magnetic bumpers add .812



SFD-12-□-□

Double Acting, Spring Bias

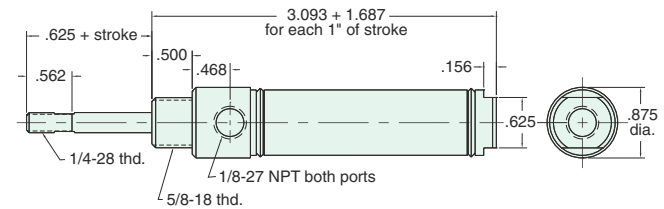
Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Double Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, W, V, P6, P7, P8, N For bumpers add .375
 For magnetic bumpers add .687



SBR-12-□-□

Double Acting, Rear Spring Bias

Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, W, V, P6, P7, P8, S, N For bumpers add .375
 For magnetic bumpers add .687
 For S option add .437





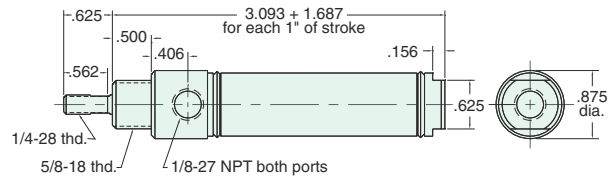
3/4" BORE STAINLESS STEEL CYLINDER

SFR-12-□-□

Double Acting, Front Spring Bias



Mount: Stud **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, W, V, P6, P7, P8, S, N For bumpers add .375
For magnetic bumpers add .687
For S option add .437

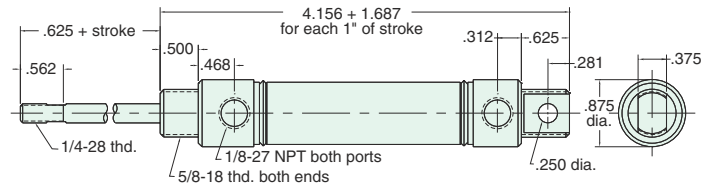


UBR-12-□-□

Double Acting, Rear Spring Bias



Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, W, V, P2, P3, P4, P5, P6, P7, P8, N For bumpers add .375
For magnetic bumpers add .687

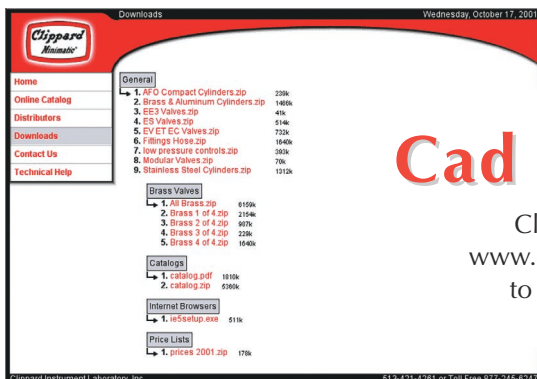
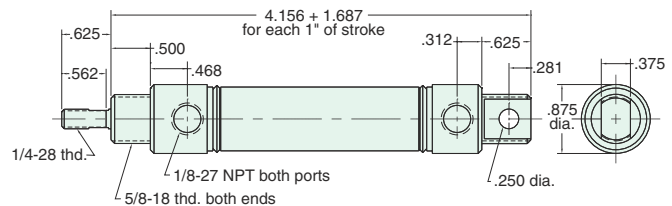


UFR-12-□-□

Double Acting, Front Spring Bias



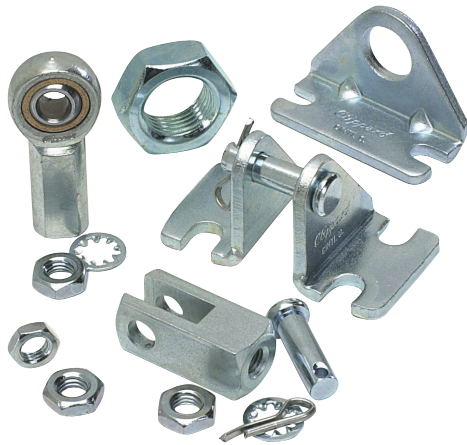
Mount: Universal **Standard Stroke Lengths:** 1/2, 1, 1-1/2, 2, 3, 4
Type: Rotating Rod **Spring Compressed:** 6 lbs. **Spring At Rest:** 3 lbs.
Options: MB, B, H, W, V, P2, P3, P4, P5, P6, P7, P8, N For bumpers add .375
For magnetic bumpers add .687



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Cad Files:

Clippard offers all of our products in CAD format at our website, www.clippard.com. Download the files and insert them into your design to save time and money. CD's are available upon special request.



MOUNTING NUTS

Stud Nut

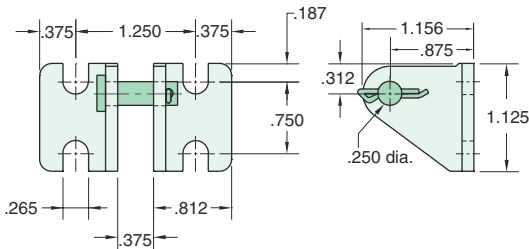
Part Number	Across Flats	Nut Thickness	Nut (Thread)
N08-20	3/4	5/16	1/2-20
N10-18	15/16	3/8	5/8-18

Rod Nut

Part Number	Across Flats	Nut Thickness	Nut (Thread)
N04-28A	7/16	5/32	1/4-28
N04-28B	3/8	1/8	1/4-28

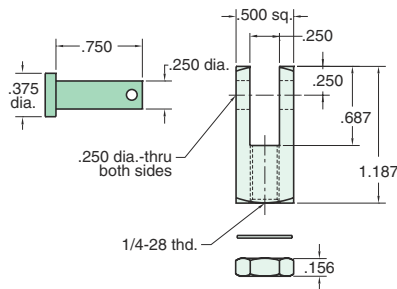
CB-1795

Clevis Bracket
Material: steel, bright zinc plated



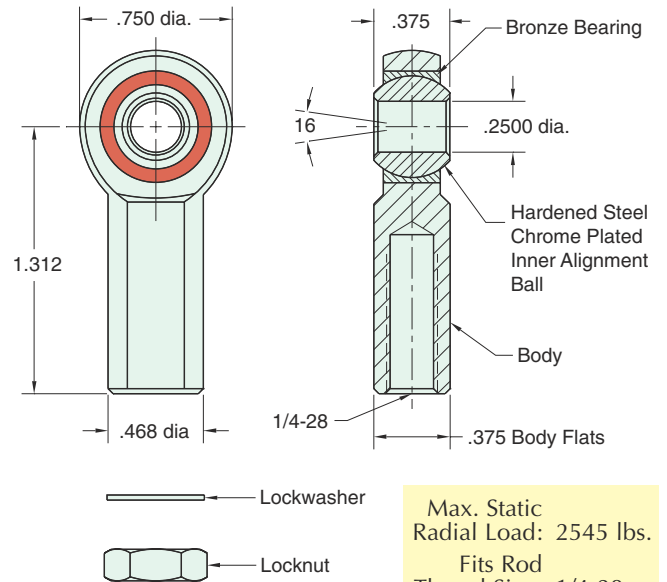
RC-1281

Rod Clevis
Material: steel, bright zinc plated



RE-1285

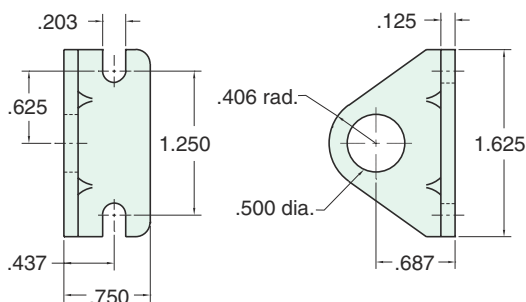
Rod End
Material: steel, bright zinc plated body



Max. Static Radial Load: 2545 lbs.
Fits Rod Thread Size: 1/4-28

FB-1291

Foot Bracket
Material: steel, bright zinc plated



FB-1791

Foot Bracket
Material: steel, bright zinc plated

