

GGG Gas Springs

Guden

Overnight Design. Overnight Delivery.

GGS-X

Sets the standard for reliable, lightweight controlled motion

GGS-SafeLock

Eliminates the need for separate safety rods in critical lift-assist operations

GGS-316L Stainless

High corrosion resistance for external and sterile environments

GGS-FrictionStop

Multi-position holding of a counter-balanced weight

GGS-SetForce

Set to any force within its range

Dampers

Force-absorbing instead of force-supplying



GGG Gas Springs

WE'VE GOT IT UNDER CONTROL

Whether you want to lift, lower or dampen, the Guden line of GGS Gas Springs will provide the controlled motion you need. From standard to stainless steel, to gas springs that lock, stop or even set to your required force, we can handle any application you propose.



APPLICATIONS

From printer covers to hatches and resistance equipment — if the application requires lifting and holding, there's a GGS Gas Spring to do the job.

GUDEN STOCKS GGG GAS SPRINGS

In most cases, Guden can satisfy your application with a gas spring we have in stock. This allows you to specify a gas spring for any concept or configuration, even if only a small quantity is required.

GGS-X

Our most popular product, the GGS-X Gas Springs are reliable, lightweight and compact—able to lift up to 250 lbs.

FIVE YEAR WARRANTY

Guden warrants the GGS-X Gas Springs to have a minimum P1 pressure at the end of two years. Warranties up to five years are available based on the results of our specific application analysis. Contact us for more detailed warranty information.

PATENTED MULTILOBE SEAL

The GGS-X Gas Springs patented multilobe seal significantly reduces gas leakage to give you years of reliable performance. The state-of-the-art seal also makes small tube-to-shaft diameter ratios possible.

BUILT TO LAST

① **Patented Multilobe Seal** - for dependable performance and minimal leakage. ② **Heavy Gauge Steel Body** - for structural reinforcement. ③ **Hard Chromium Plated Steel Shaft** - prevents corrosion, scratching; superior lubricity. ④ **Hydraulic Fluid** - lubricates and dampens the shaft during every cycle. ⑤ **Heat Cured Paint** - prevents rusting. ⑥ **Limit Groove** - limits extension to a close tolerance position. ⑦ **Self-Cleaning Orifice** - opens during each cycle. ⑧ **Piston Assembly** - provides maximum control during the extension stroke.





▲ *The patented multilobe seal significantly reduces gas leakage to give you years of reliable performance.*

STOCK PART NUMBERS AND SIZES

Stock Part No.	Rod Dia. (in.)	Tube Dia. (in.)	Stroke Size (in.)	Compd. Size (in.)	Ext. Size (in.)	Std. End Fittings	P1 Force (lbs) Standard Stock Sizes
GGX21	.315	.75	3.5	8.4	11.9	K, I	20,30,40,60,90,120
GGX22	.315	.75	5	10.25	15.25	K, I	20,30,40,60,90,120
GGX23	.315	.75	6	11	17	K, I	20,30,45,60,90,120
GGX24	.315	.75	7	12.63	19.63	K, I	20, 30, 60, 90, 120
GGX26	.315	.75	5.5	9.77	15.27	K, I	20,30,60,90,120,150
GGX31	.39	.87	10	17.8	27.8	K, I	100,120,150,200,250 ^{xxx}
GGX38	.39	.87	15.00	20.30	35.30	J	150,200,250
GGX40	.24	.59	2	5.5	7.5	K	20,30,40,60,80,100 ^{**}
GGX43	.24	.59	3.15	6.45	9.6	K	20,30,40,50,60,80,90,100
GGX44	.24	.59	3.5	8.5	12	K	20,40,60,70,80,100
GGX45	.24	.59	5	9.5	14.5	K	20,40,60,80,100
GGX47	.24	.59	6.18	11.01	17.19	K	20,30,40,60,80,100
GGX48	.24	.59	8	11.68	19.68	K	20,30,40,50,60,70,80,90,100

- Notes: 1. Complete part number consists of stock part number plus the P1 force in lbs. plus the end fitting suffix, i.e., GGX21-060-K.
 2. The P1 forces and end fittings listed are the standard sizes we normally stock.
 3. See page 14 for ordering information on end fittings, ball studs, brackets and clips used for mounting.

CUSTOM ORDER GAS SPRING P1 PRESSURE RANGES

Series	Min.	Max.
GGX20	20	150
GGX30	75	250
GGX40	15	100

Note: Custom forces (and sizes) may be specified for the GGX 20, 30 & 40 series by using the above P1 pressure ranges.

^{**} Stocked with I fitting in 40 lb. and 80 lb. pressures.
^{xxx} Stocked with J fitting in 200 lb. and 250 lb. pressures.

GGGS-SafeLock

GGGS-SafeLock Gas Springs eliminate the need for separate rods in critical lift-assist applications. They lock in place when fully extended, protecting the operator from potential injury in the unlikely event of gas spring failure through overload or misuse.

The GGS-SafeLock is simple to use and operates automatically. When the gas spring is fully extended a spring-loaded locking shroud springs into place, preventing the gas spring from compressing. The GGS-SafeLock is manually released by applying thumb pressure to the locking shroud, allowing the gas spring to compress in a controlled manner.

The locking shroud is finished with the same epoxy coating as the gas spring body, providing excellent corrosion resistance and an attractive appearance. A guide inside the shroud prevents scratching of the gas spring cylinder.

GGGS-SafeLock Gas Springs combine superior quality with the added safety feature required in many severe, heavy duty applications, such as trucks, construction machinery, switch gear and agricultural equipment. A single GGS-SafeLock can be used in conjunction with a standard GGS-X.





Eliminates the need for separate safety rods in critical lift-assist operations.



STOCK PART NUMBERS AND SIZES

Stock Part No.	Rod Dia. (in.)	Tube Dia. (in.)	Stroke Size (in.)	Compressed Size (in.)	Extended Size (in.)	Standard End Fittings	P1 Force (lbs) Standard Stock Sizes
ECL22	.315	.715	5	10.25	15.25	K, I	20, 30, 60, 90, 120
ECL23	.315	.715	6	11	17	K, I	20, 30, 60, 90, 120
ECL24	.315	.715	7	12.63	19.63	K, I	20, 30, 60, 90, 120
ECL31	.39	.87	10	17.8	27.8	K, I	100, 120, 150, 200

- Notes: 1. Complete part number consists of stock part number plus the P1 force in lbs. plus the end fitting suffix, i.e., GGS21-060-K.
 2. The P1 forces and end fittings listed are the standard sizes we normally stock.
 3. See page 14 for ordering information on end fittings, ball studs, brackets and clips used for mounting.

Items in gray type are not normally stocked, call for availability.

GGGS-316L Stainless

Guden's most popular GGS-X Gas Springs have been expanded with the introduction of the GGS-316L Stainless. Manufactured using 316L stainless steel, they offer increased corrosion resistance for industrial, marine and sterile environments.

GGGS-316L Stainless Gas Springs are ideally suited for use in harsh environment applications requiring high levels of corrosion resistance, such as powerboat engine covers and doors. They are also well suited for applications requiring high levels of cleanliness such as the food and medical industries where highly corrosive cleaning materials are used. Our stainless steel gas springs are also hard chrome-plated to give additional hardness and corrosion resistance.

*Designed for
sterile environments.* ▶





High corrosion resistance for external and sterile environments.

STOCK PART NUMBERS AND SIZES

Stock Part No.	Rod Dia. (in.)	Tube Dia. (in.)	Stroke Size (in.)	Compressed Size (in.)	Extended Size (in.)	Standard End Fittings	P1 Force (lbs) Standard Stock Sizes
STS21	.315	.710	3.5	8.4	11.9	K, I	20, 30, 60, 90, 120
STS22	.315	.710	5	10.25	15.25	K, I	20, 30, 60, 90, 120
STS23	.315	.710	6	11	17	K, I	20, 30, 60, 90, 120
STS24	.315	.710	7	12.63	19.63	K, I	20, 30, 60, 90, 120
STS31	.39	.87	10	17.8	27.8	K, I	100, 120, 150, 200
STS40	.235	.591	2	5.5	7.5	K	20, 40, 60, 80, 100
STS43	.235	.591	3.0	6.58	9.58	K	20, 40, 60, 80, 100
STS44	.235	.591	3.40	8.5	12	K	20, 40, 60, 80, 100
STS45	.235	.591	5	9.45	14.45	K	20, 40, 60, 80, 100
STS47	.235	.591	6.18	11.01	17.19	K	20, 40, 60, 80, 100
STS48	.235	.591	7.90	11.68	19.65	K	20, 40, 60, 80, 100

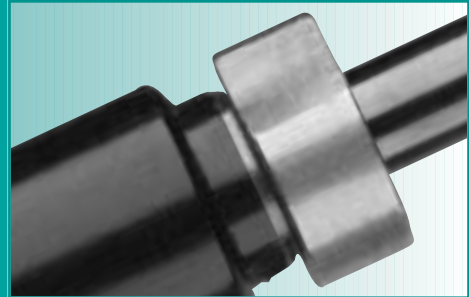
- Notes: 1. Complete part number consists of stock part number plus the P1 force in lbs. plus the end fitting suffix, i.e., STS21-060-K.
 2. The P1 forces and end fittings listed are the standard sizes we normally stock.
 3. See page 14 for ordering information on end fittings, ball studs, brackets and clips used for mounting.

Items in gray type are not normally stocked, call for availability.

GGX-FrictionStop

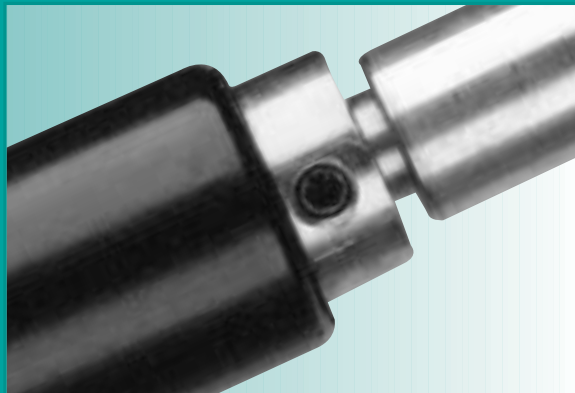
GGX-FrictionStop Gas Springs enable multi-position holding of a counter-balanced weight over the entire stroke of the gas spring. A modified version of the GGX-X, they are easy to fit by a simple screw adjustment to the correct level of support. Once fitted, finger-tip control allows movement to any position required. The lock-nut is adjusted to suit the application's weight (about a half turn), thereby applying a "stick-slip" friction to the piston rod.

GGX-FrictionStop Gas Springs are ideal for a wide variety of applications such as sunbeds, printer canopies, monitor arms, acoustic hoods, delicatessen counters and many more.



GGX-SetForce

The GGX-SetForce is designed to allow you to set the force of the gas spring before or during an installation. These gas springs are charged to their maximum force during manufacture. By using the standard tool provided, gas can be gradually released via the SetForce valve to provide the force suited to your application. Once the force has been established, the GGX SetForce may be used as is, or returned to Guden so we can provide you with fixed force GGX-X Gas Springs set to your precise requirement.





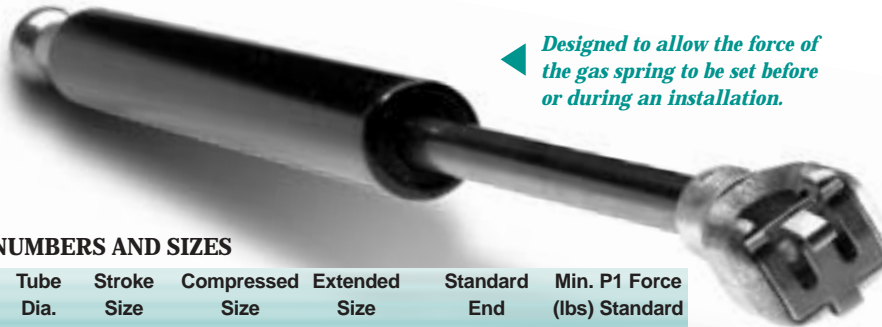
Provides multi-position holding of a counterbalanced weight.

STOCK PART NUMBERS AND SIZES

Stock Part No.	Rod Dia. (in.)	Tube Dia. (in.)	Stroke Size (in.)	Compressed Size (in.)	Extended Size (in.)	Standard End Fittings	P1 Force (lbs) Standard Stock Sizes
FRC21	.315	.715	3.46	8.5	11.9	K, I	20, 30, 60, 90, 120
FRC22	.315	.715	5	10.25	15.25	K, I	20, 30, 60, 90, 120
FRC23	.315	.715	6	11	17	K, I	20, 30, 60, 90, 120
FRC24	.315	.715	6.90	12.73	19.63	K, I	20, 30, 60, 90, 120
FRC31	.39	.87	10	17.8	27.8	K, I	100, 120, 150, 200
FRC40	.235	.598	2	5.5	7.5	K	20, 40, 60, 80, 100
FRC43	.235	.598	3.0	6.6	9.6	K	20, 40, 60, 80, 100
FRC44	.235	.598	3.5	8.5	12	K	20, 40, 60, 80, 100
FRC45	.235	.598	5	9.5	14.5	K	20, 40, 60, 80, 100
FRC47	.235	.598	6.18	11.01	17.19	K	20, 40, 60, 80, 100
FRC48	.235	.598	8	11.68	19.68	K	20, 40, 60, 80, 100

- Notes: 1. Complete part number consists of stock part number plus the P1 force in lbs. plus the end fitting suffix, i.e., FRC21-060-K.
 2. The P1 forces and end fittings listed are the standard sizes we normally stock.
 3. See page 14 for ordering information on end fittings, ball studs, brackets and clips used for mounting.

Items in gray type are not normally stocked, call for availability.



Designed to allow the force of the gas spring to be set before or during an installation.

STOCK PART NUMBERS AND SIZES

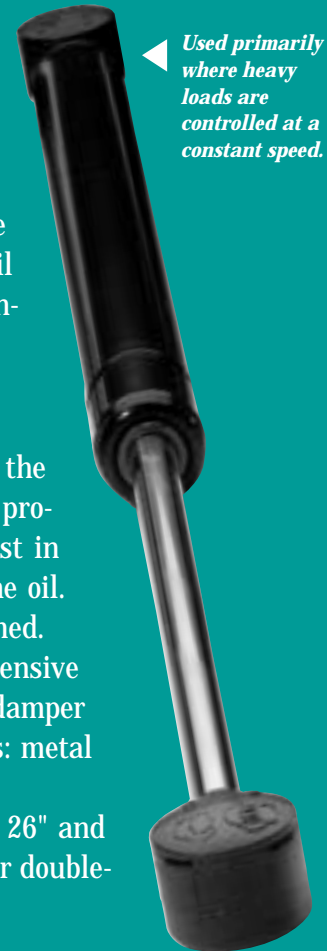
Stock Part No.	Rod Dia. (in.)	Tube Dia. (in.)	Stroke Size (in.)	Compressed Size (in.)	Extended Size (in.)	Standard End Fittings	Min. P1 Force (lbs) Standard Stock Sizes
GGs21	.315	.715	3.5	8.4	11.9	K, I	145
GGs22	.315	.715	5	10.25	15.25	K, I	145
GGs23	.315	.715	6	11	17	K, I	145
GGs24	.315	.715	7	12.63	19.63	K, I	145
GGs31	.39	.87	10	17.8	27.8	K, I	230
GGs40	.235	.598	2	5.5	7.5	K	90
GGs43	.235	.598	3.0	6.6	9.6	K	90
GGs44	.235	.598	3.5	8.5	12	K	90
GGs45	.235	.598	5	9.5	14.5	K	90
GGs47	.235	.598	6.18	11.01	17.19	K	90
GGs48	.235	.598	8	11.68	19.68	K	90

- Notes: 1. Complete part number consists of stock part number plus VLF for SetForce feature plus the end fitting suffix, i.e., GGs21-VLF-K.
 2. The P1 forces and end fittings listed are the standard sizes we normally stock.
 3. See page 14 for ordering information on end fittings, ball studs, brackets and clips used for mounting.

Items in gray type are not normally stocked, call for availability.

Dampers

Dampers are force-absorbing instead of force-supplying. They are used primarily where a heavy load or door must be lowered or swung in a controlled motion at a constant speed. For example, dampers prevent a door from slamming shut or swinging wildly open. Guden dampers are similar in appearance and construction to our GGS-X Gas Springs, except the tube is filled with hydraulic oil instead of charged gas, and the oil inside the damper must pass through an orifice plate, thus controlling speed.



TWO STANDARD TYPES

Two types of standard dampers are available, depending on the direction of damping required. Compression dampers, which provide controlled speed in the compressive direction, operate best in the shaft up position so that the internal piston remains in the oil. The lid or door should be closed before full compression is reached.

Extension dampers, which provide controlled speed in the extensive direction, work best in the shaft down position. An extension damper is an excellent end-of-motion stop with appropriate end fittings: metal for heavier loads, plastic for lighter loads.

Custom dampers are available with extended lengths up to 26" and strokes up to 8". All dampers are also available on special order double-damped in both compression and extension.

STOCK PART NUMBERS AND SIZES (See page 14 for end fittings)

Stock Part Number		Rod Dia.	Tube Dia.	Extended Length [†]	Stroke	Min. Load	Max. Load	Orifice Plate Damping Identification				
Compression	Extension	(In.)	(In.)	(In.)	(In.)	(lbs.)	(lbs.)	Heavy Damping	Med. Heavy Damping	Medium Damping	Med. Light Damping	Light Damping
GDC50	GDE50	.24	.59	7.89	2	3	50	C	J	D	N	E
GDC51	GDE51	.24	.59	10.02	3	3	50	C	J	D	N	E
GDC52	GDE52	.24	.59	12.50	4	3	50	C	J	D	N	E
GDC53	GDE53	.24	.59	15.02	5	3	50	C	J	D	N	E
GDC60	GDE60	.315	.87	12.24	4	20	100	J	D	E	F	S
GDC61	GDE61	.315	.87	14.49	5	20	100	J	D	E	F	S
GDC62	GDE62	.315	.87	17.01	6	20	100	J	D	E	F	S
GDC63	GDE63	.315	.87	19.65	7	20	100	J	D	E	F	S

Note: The complete part number consists of the Stock Part Number (above) plus the Orifice Plate Damping Identification (above) and the end fitting you require (see page 14), i.e., GDC50-D-K. The I, K and Fat Blade end fittings are stock.

† Extended length is .24" longer with the "I" end fitting.

Items in light green type are not normally stocked, call for availability.

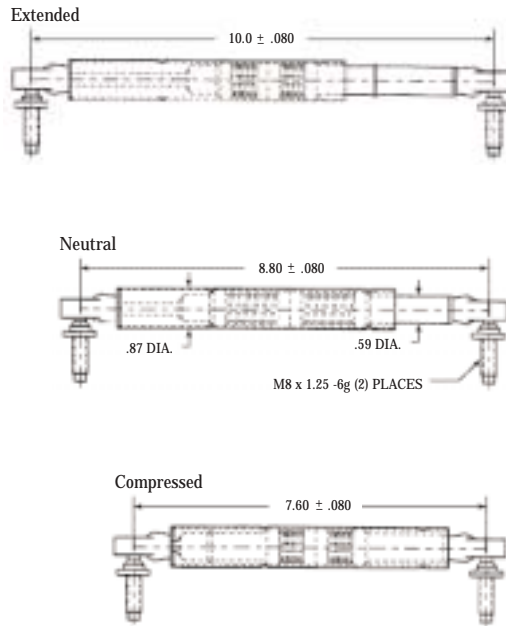
Self-Centering Dampers

Guden's Self-Centering Dampers are a unique, patented damper that allows controlled movement in extension and compression while providing a controlled rate of return from either direction to a neutral position. They consist of an oil filled inner damping tube wrapped by counteracting torsion springs, all encased by a zinc plated outer tube. The damping speed is controlled by the oil passing through an orifice while the return to neutral position is produced by the springs.

The most common use for this new technology is in the control of hydrostatic transmissions for almost any motorized application such as lawn mowers, tractors and farm equipment. The Self-Centering Damper replaces a combination of springs and dampers with a single, compact, cost-effective unit.

TWO STANDARD TYPES

There are two types of Self-Centering Dampers offered, the SCD09 and SCD12, providing centering forces of 9 lbs. and 12 lbs., respectively. Each type can be ordered with light or heavy damping. Both dampers extend or compress 1.20" from a neutral length of 8.80" between mounting centers.



STOCK PART NUMBERS AND SIZES

Stock Part Number	Centering Force	Body Diameter	Damping Rate	Damping Direction
SCD09	9 lbs.	.866	Light or Heavy	Extension and Compression
SCD12	12 lbs.	.866	Light or Heavy	Extension and Compression



Cutaway View

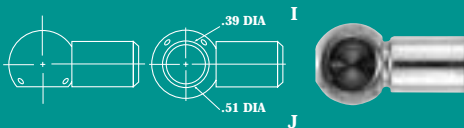
Actual Product

End Fittings, Brackets & More

END FITTINGS

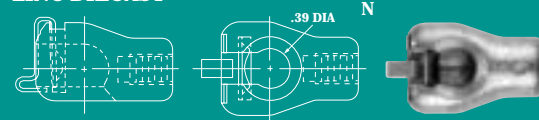
To complete GGS-X part number, specify the end connector suffix below, i.e., GGS21-060-K. Details on end connector applications and materials are available from Guden. Units are in inches.

STEEL ZINC PLATED



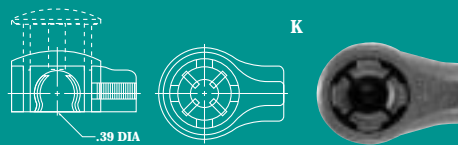
"I" end fitting Max P1 Pressure=200 lbs.
(Not recommended for GGS40 series)
"J" end fitting is only available on the GGS31

ZINC DIECAST



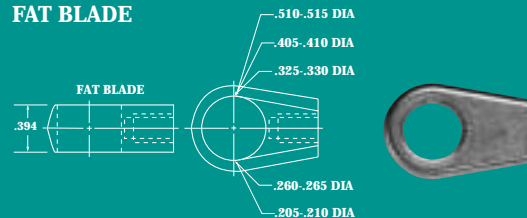
"N" end fitting - Max P1 Pressure=250 lbs.

NEOPRENE PLASTIC



"K" end fitting - Max P1 Pressure=150 lbs.

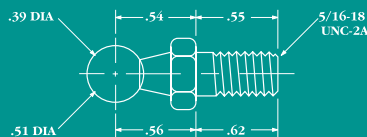
FAT BLADE



BRACKETS, BALL STUDS & CLIPS

Specify part numbers for the brackets or ball studs required, including the material/finish suffix, as follows: -02 for steel with commercial zinc finish, -02B for steel with black zinc finish, or -32 for stainless steel. All the balls on the brackets are steel with commercial zinc finish. Brackets are not recommended for gas springs with P1 pressure in excess of 90 pounds. Use threaded ball studs.

BS101-02
BS101-32



BS102-02
BS102-32

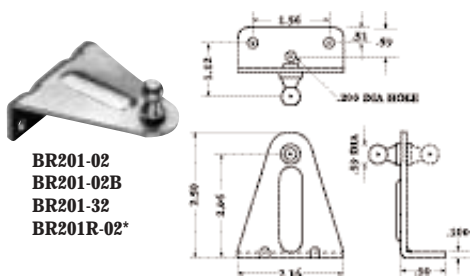


SC90
SC100

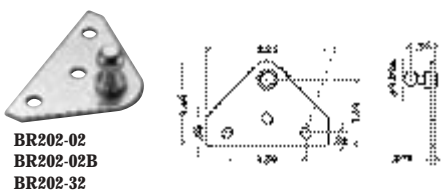


Spring clips are required for end fittings I (SC90) and J (SC100).

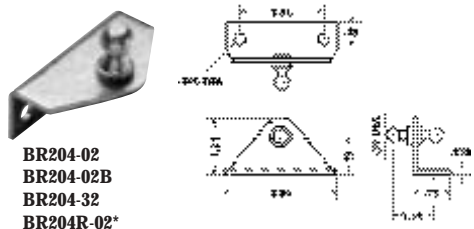
BRACKETS, BALL STUDS & CLIPS (CONTINUED)



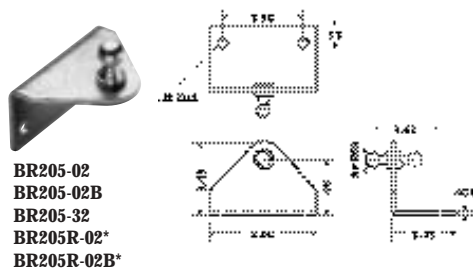
BR201-02
BR201-02B
BR201-32
BR201R-02*



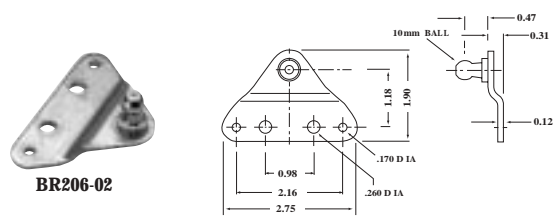
BR202-02
BR202-02B
BR202-32



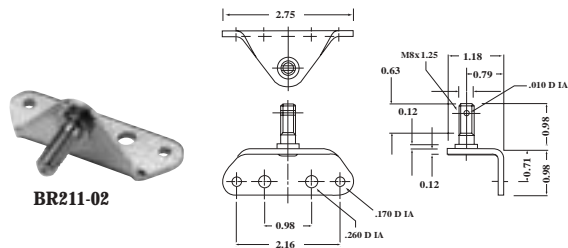
BR204-02
BR204-02B
BR204-32
BR204R-02*



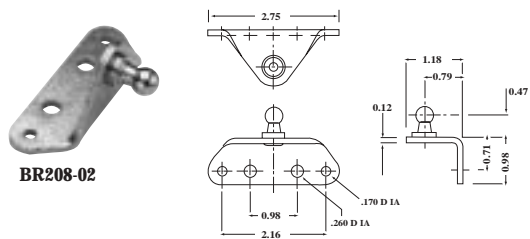
BR205-02
BR205-02B
BR205-32
BR205R-02*
BR205R-02B*



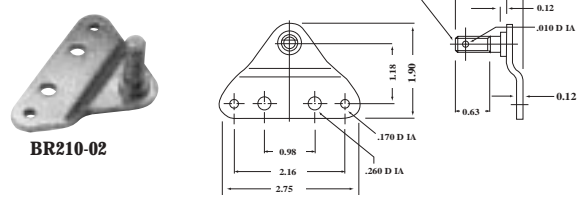
BR206-02



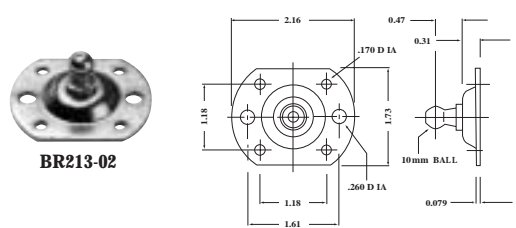
BR211-02



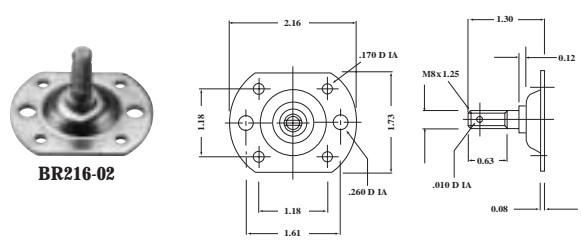
BR208-02



BR210-02



BR213-02



BR216-02

* Specify this part number for ball stud mounted on reverse (R) side - see dotted line ball stud drawing.

Guden

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