Catalog No. C09102E

DADCO®

Compact Nitrogen Gas Springs

SCR Series

ø32 ø38 ø50 ø63

High Force in a Compact Package!

- **Up to 3.2 tons of force on contact**
- **Completely serviceable**
- **Operates self-contained or linked**

PED 2014/68/EU COMPLIANT

Introduction

DADCO®

The global leader in nitrogen gas spring technology

DADCO produces top quality products at competitive prices and provides a superior level of customer service. Founded in 1958, DADCO is the highest volume producer of gas springs for press tools. DADCO's products are widely approved and used in global operations for many industries including metal stamping, automotive and plastic injection molding.

SCR Series

DADCO's SCR Series is ideal for applications that require a high force in a small space. The SCR Series consists of four models providing force up to 3.2 tons on contact with short stroke availability and small diameters.

The SCR Series can be operated in both self-contained or linked systems. All models have side-port enabling linking without the addition of sub-plates. A variety of stroke lengths and mount options are available for new or existing applications.

Model	Diameter	Maximum Force on Contact
SCR.0500	32 mm *(1.260˝)*	1026 lb. *(458 daN)*
SCR.0800	38 mm *(1.496˝)*	1978 lb. *(883 daN)*
SCR.1900	50 mm *(1.968˝)*	3877 lb. *(1731 daN)*
SCR.3200	63 mm *(2.480˝)*	6409 lb. *(2862 daN)*

Adjustable Force

For convenience, self-contained cylinders are usually delivered pre-charged to the desired force and ready to install. If force adjustment is ever needed, a filling/draining port is located in the cylinder for safe, easy access.

High Quality Construction

To ensure their exceptionally long service life, DADCO's SCR Series Gas Springs feature a cartridge assembly with a rod seal to ensure seal ability. All DADCO gas springs have high quality construction features for excellent load capacity and resistance to wear.

Mini Piping System

DADCO offers the *MINILink*® System, an extremely compact piping system that does not require special ordering information or factory preparation. Self-contained SCR Series Gas Springs may be converted at any time to a linked system mode by adding DADCO's exclusive Mini-fittings, *MINIFLEX*® hose and the 90.407.11 mini control panel. For additional information on piping see pages 12 and 13.

Customer Satisfaction

DADCO's motto is *"Whatever It Takes To Satisfy Our Customers."* DADCO will assist in any way possible to ensure that customers are completely satisfied. DADCO's salespeople and distributors are solution-oriented, product-knowledgeable, and eager to assist customers. DADCO's engineers are available to help customers with specific applications.

DADCO continues to develop new solutions that exceed industry expectations. DADCO offers a full range of nitrogen gas spring, nitrogen gas lifter and ISO/metric air cylinder products and accessories. DADCO products are widely approved and used in global operations for many industries including metal stamping, automotive, and plastic injection molding.

Rapid Delivery

DADCO's modern 13,150 m^2 main production facility as well as satellite facilities permits the fastest deliveries in the industry. Products are available both directly and through a network of trained distributors providing worldwide support.

Warranty

DADCO warrants its SCR Series Nitrogen Gas Springs to be free from defects in workmanship or materials for a period of one year from date of manufacture.

CAD Templates On-line

DADCO's entire product line is available on-line in solid models and 2D CAD formats. For more information, visit our website, www.dadco.net, or contact DADCO.

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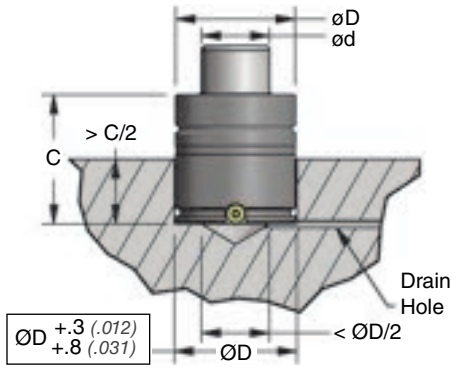
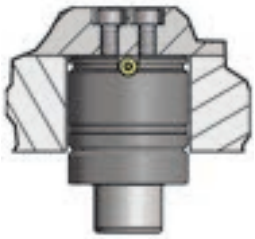
Installation Examples

DADCO Gas Springs can be installed with the piston rod in any position. However, DADCO Gas Springs should be installed in a manner that avoids lateral pressure, any substantial lateral or oblique force will shorten the spring's service life. To maximize gas spring life, there should be a stroke reserve of at least 10% of the length of the stroke when the gas spring is installed in the press tool.

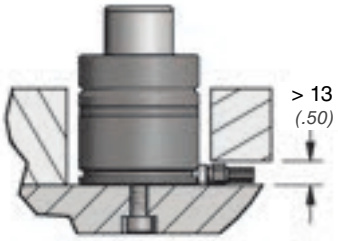
DADCO offers a variety of mount options to meet specific customer applications. Installation and fastening of the gas springs should take into consideration load support, fastener selection and torque values. For additional information on installation requirements see page 15. Cylinder and mount dimensions are shown on pages 4-11.



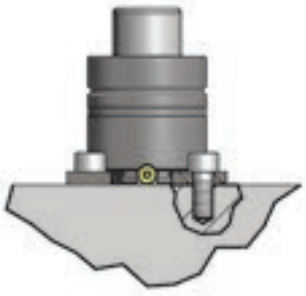
TO Basic Model in a flat bottom pocket. The pocket must be bored with a flat bottom, or a spacer must be used to create a flat surface.



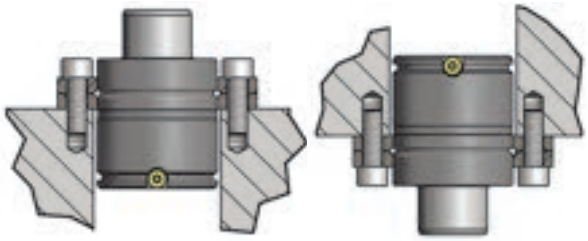
TO Basic Model mounted inverted requires back-up to support the full load. Retain inverted cylinders tight in the pocket with the appropriate length cap screw to eliminate movement.



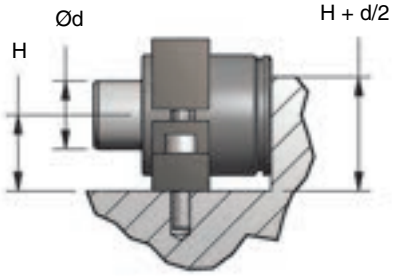
TO Basic Model mounted to a plate. Linked cylinders require clearance for the hose and fittings. The SCR Series has an M6 Port and requires a minimum of 13 mm when linked.



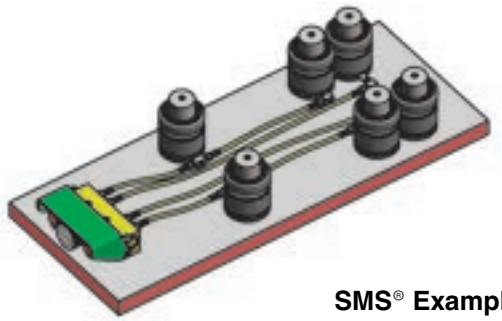
B12/B112/B312 mounts must be fastened to the bottom groove only. Back-up is required to support the full load.



FA/RF/B21/B321/B325 mounts must be fastened to the top groove only. The wire ring supplied with mounts supports the full load.



B19/B319/B319V mounts require back-up to support the load.

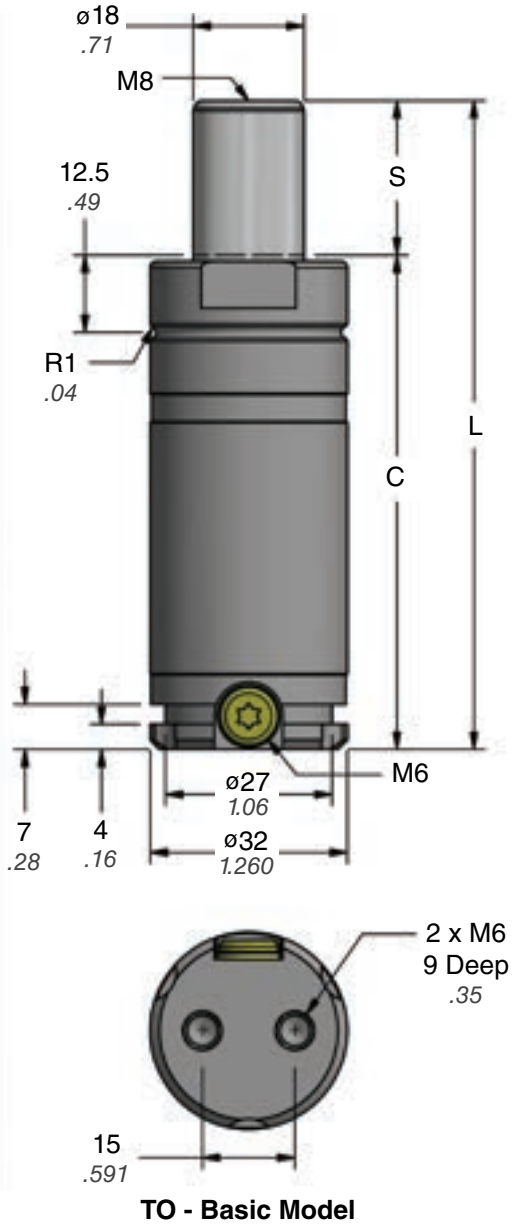


SMS® Example

SMS-i® Example

DADCO offers customized Sectional Mounting Systems (SMS®) and Sectional Mounting Systems – Internal (SMS-i®), which are fabricated to customer specifications, leak tested and shipped ready to install. For more information refer to catalog C13106D.

SCR.0500 — 458 daN / 0.5 ton



TO - Basic Model

Part No.	S mm *inch*	C	L ±0.25 *±0.010*
SCR.0500.010	10 *0.39*	65 *2.56*	75 *2.953*
SCR.0500.015	15 *0.59*	70 *2.76*	85 *3.346*
SCR.0500.025	25 *0.98*	80 *3.15*	105 *4.134*
SCR.0500.032	32 *1.26*	87 *3.43*	119 *4.685*
SCR.0500.038	37.5 *1.48*	92.5 *3.64*	130 *5.118*
SCR.0500.050	50 *1.97*	105 *4.13*	155 *6.102*
SCR.0500.063	62.5 *2.46*	117.5 *4.63*	180 *7.087*
SCR.0500.080	80 *3.15*	135 *5.31*	215 *8.465*

Ordering Example:

SCR.0500.025. *TO.* *C.* *180*

Part Number:
Includes Series, Model and Stroke Length.

Mount Option:
TO = Basic Model. *When not specified, default is TO.* B319V and B21 mounts ordered with cylinder will be attached at the factory.

Charging Pressure:
15–180 bar *(220–2600 psi)*.
When not specified, default is 180 bar.

Operating System: C = Self-contained, F = Open Flow Fitting. *When not specified, default is C, self-contained.*

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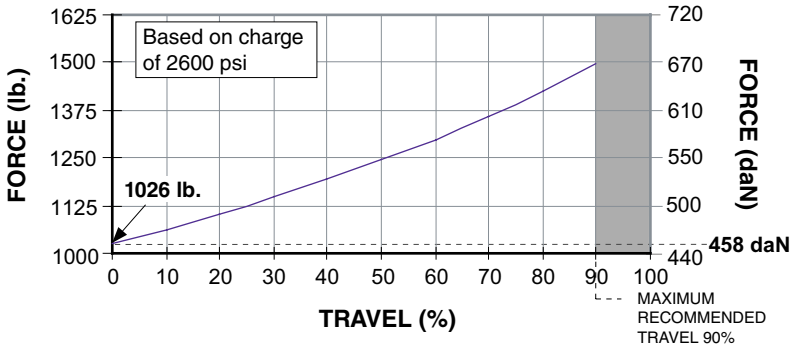
SCR.0500 — 458 daN / 0.5 ton

Force Charts

On-Contact Force

psi	lb.
2600	1026
2175	858
2000	789
1750	690
1500	592
1000	394
500	197
250	99

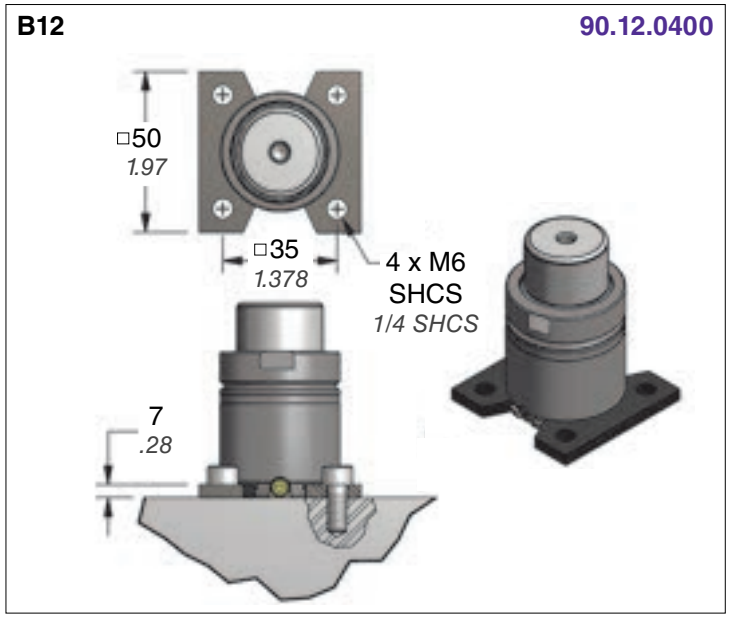


On-Contact Force

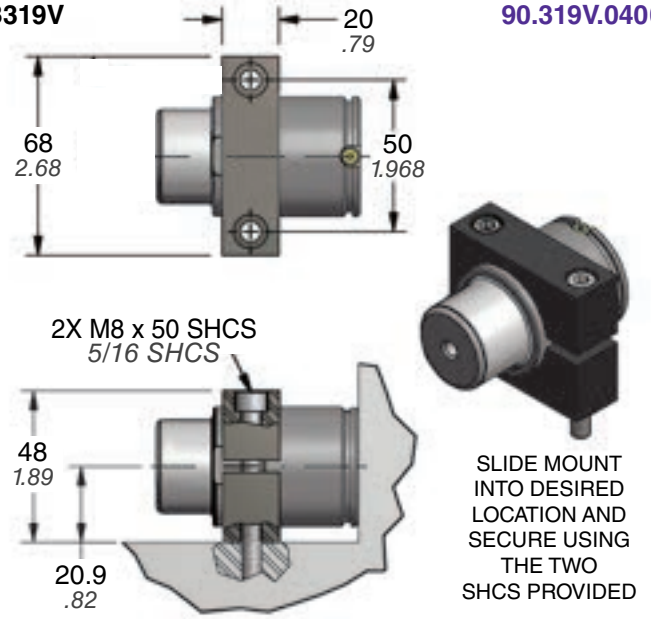
bar	daN
180	458
150	382
125	318
100	254
75	191
50	127
25	64
20	51

Mount Options

B12 **90.12.0400**

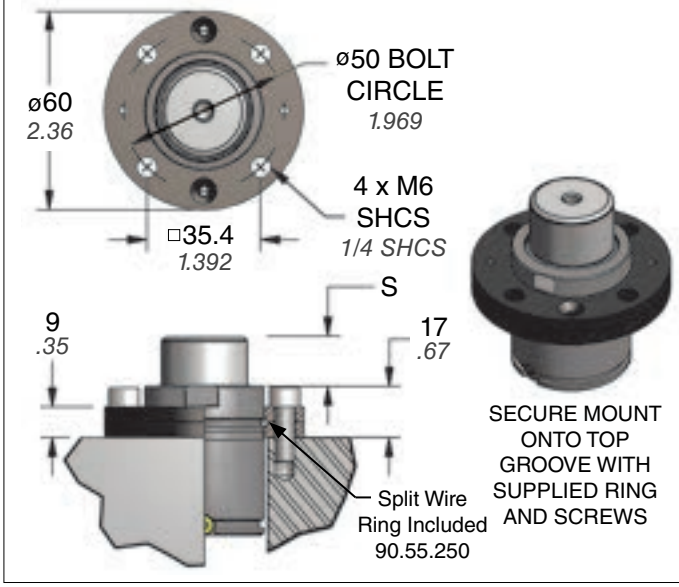


B319V **90.319V.0400**



SLIDE MOUNT INTO DESIRED LOCATION AND SECURE USING THE TWO SHCS PROVIDED

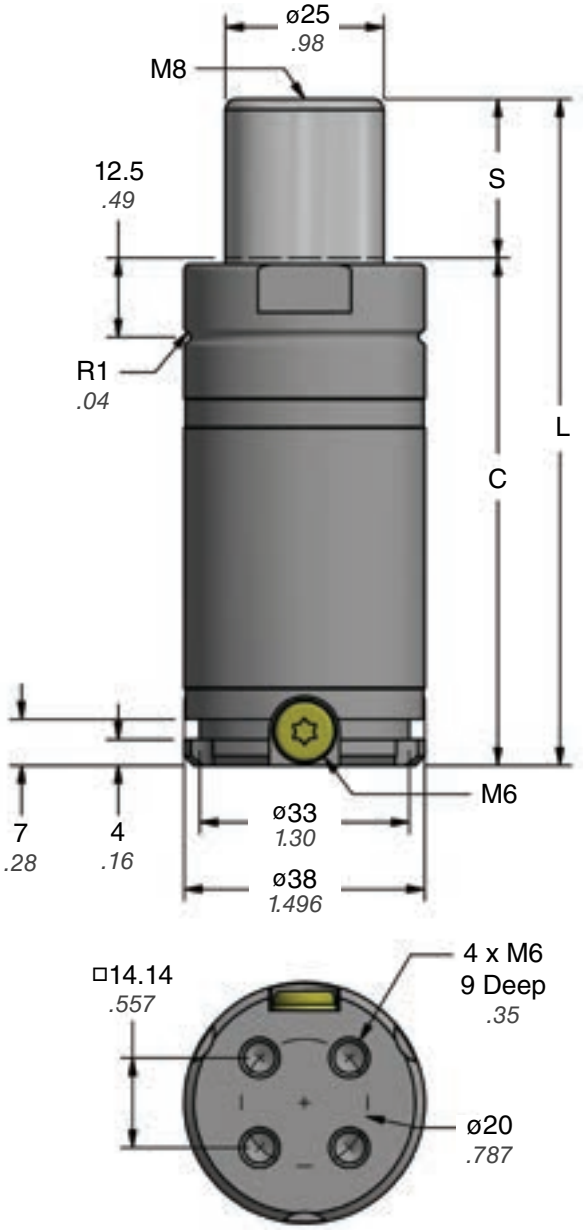
B21 **C250-RF**



SECURE MOUNT ONTO TOP GROOVE WITH SUPPLIED RING AND SCREWS

Ordering Example: **Cylinder with Mount**: SCR.0500.025.B12.C.180 **Mount Only**: 90.12.0400

SCR.0800 — 883 daN / 1 ton



Part No.	S mm *inch*	C	L ±0.25 *±0.010*
SCR.0800.010	10 *0.39*	65 *2.56*	75 *2.953*
SCR.0800.015	15 *0.59*	70 *2.76*	85 *3.346*
SCR.0800.025	25 *0.98*	80 *3.15*	105 *4.134*
SCR.0800.032	32 *1.26*	87 *3.43*	119 *4.685*
SCR.0800.038	37.5 *1.48*	92.5 *3.64*	130 *5.118*
SCR.0800.050	50 *1.97*	105 *4.13*	155 *6.102*
SCR.0800.063	62.5 *2.46*	117.5 *4.63*	180 *7.087*
SCR.0800.080	80 *3.15*	135 *5.31*	215 *8.465*

TO - Basic Model

Ordering Example:

SCR.0800.025. TO. C. 180

Part Number: Includes Series, Model and Stroke Length.

Mount Option: TO = Basic Model. *When not specified, default is TO.* B139V and B21 mounts ordered with cylinder will be attached at the factory.

Charging Pressure: 15–180 bar *(220–2600 psi)*. *When not specified, default is 180 bar.*

Operating System: C = Self-contained, F = Open Flow Fitting. *When not specified, default is C, self-contained.*

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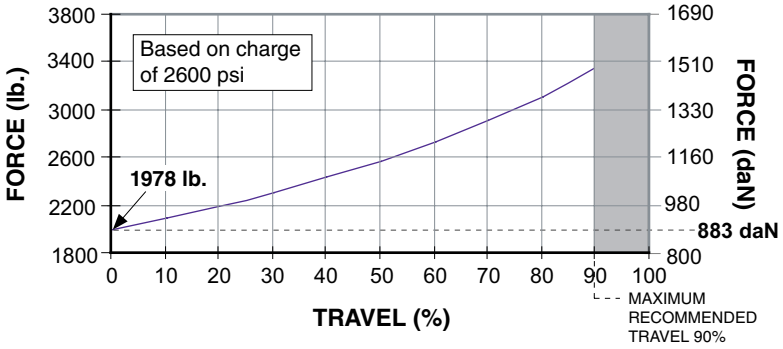
SCR.0800 — 883 daN / 1 ton

Force Charts

On-Contact Force

psi	lb.
2600	1978
2175	1655
2000	1522
1750	1331
1500	1141
1000	761
500	380
250	190

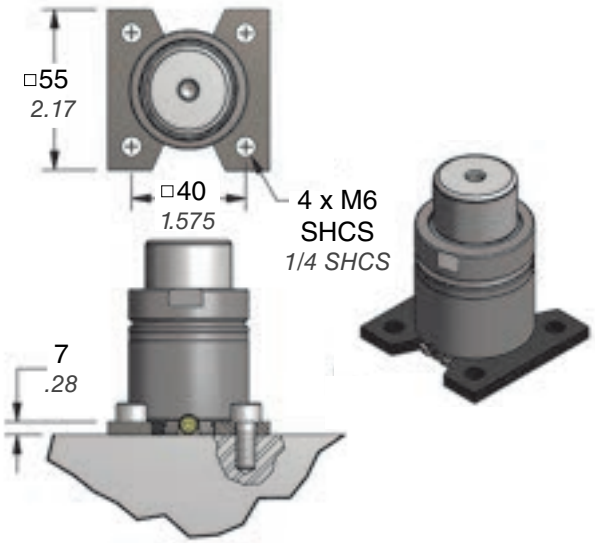


On-Contact Force

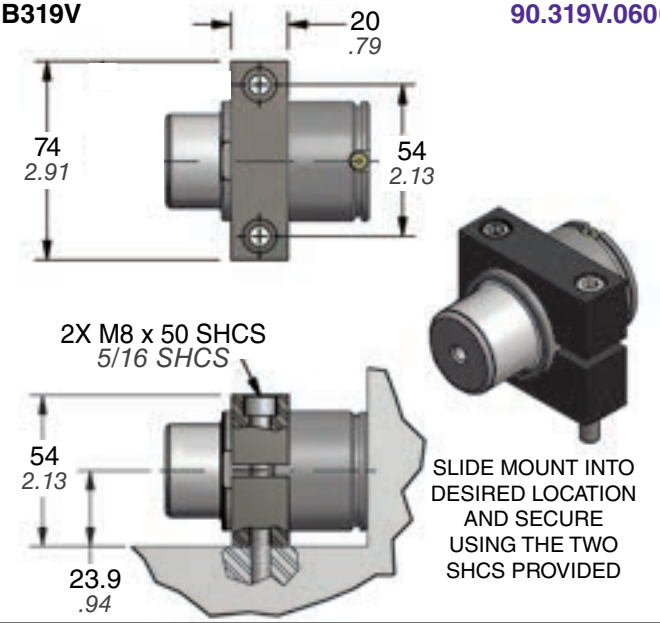
bar	daN
180	883
150	736
125	613
100	491
75	368
50	245
25	123
20	98

Mount Options

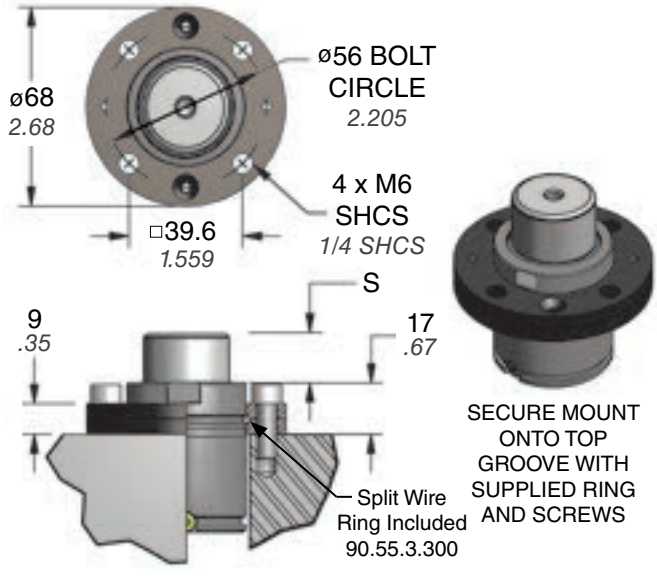
B312 **90.312.00300**



B319V **90.319V.0600**

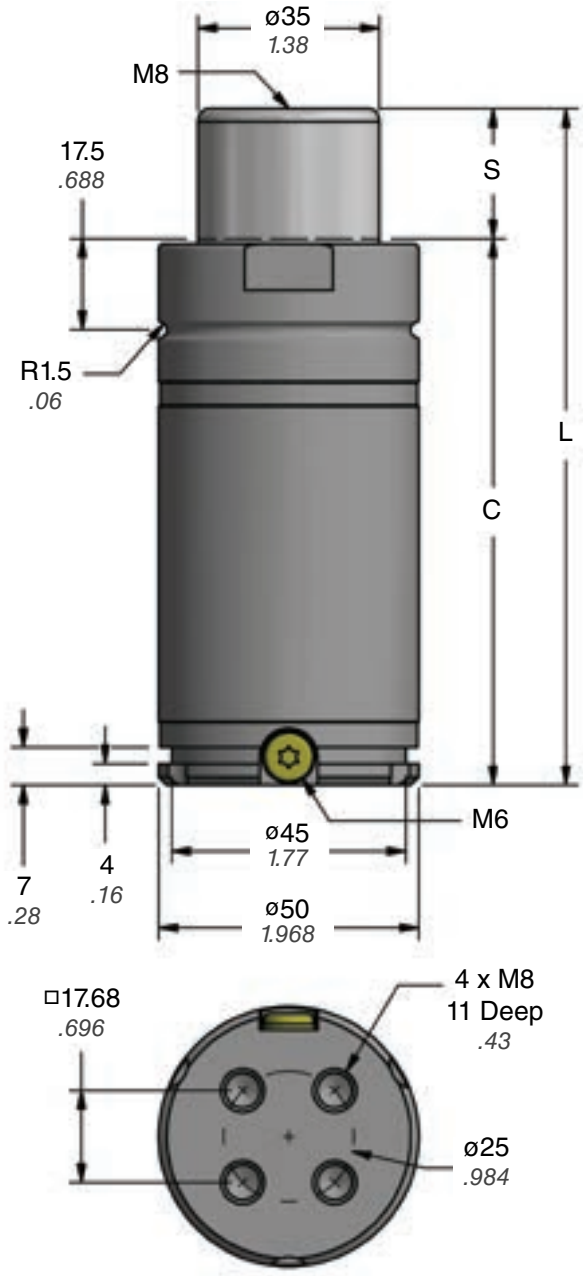


B21 **90.21.00300**



Ordering Example: **Cylinder with Mount**: SCR.0800.025.B312.C.180 **Mount Only**: 90.312.00300

SCR.1900 — 17.3 kN / 1.9 ton



TO - Basic Model

Part No.	S mm *inch*	C	L ±0.25 *±0.010*
SCR.1900.010	10 *0.39*	90 *3.54*	100 *3.937*
SCR.1900.015	15 *0.59*	95 *3.74*	110 *4.331*
SCR.1900.025	25 *0.98*	105 *4.13*	130 *5.118*
SCR.1900.032	32 *1.26*	112 *4.41*	144 *5.669*
SCR.1900.038	37.5 *1.48*	117.5 *4.63*	155 *6.102*
SCR.1900.050	50 *1.97*	130 *5.12*	180 *7.087*
SCR.1900.063	62.5 *2.46*	142.5 *5.61*	205 *8.071*
SCR.1900.080	80 *3.15*	160 *6.30*	240 *9.449*

Ordering Example:

SCR.1900.025. *TO.* *C.* *180*

Part Number:
Includes Series, Model and Stroke Length.

Mount Option:
TO = Basic Model. *When not specified, default is TO.* B319V and B321 mounts ordered with cylinder will be attached at the factory.

Charging Pressure:
15–180 bar *(220–2600 psi).*
When not specified, default is 180 bar.

Operating System: C = Self-contained, F = Open Flow Fitting. *When not specified, default is C, self-contained.*

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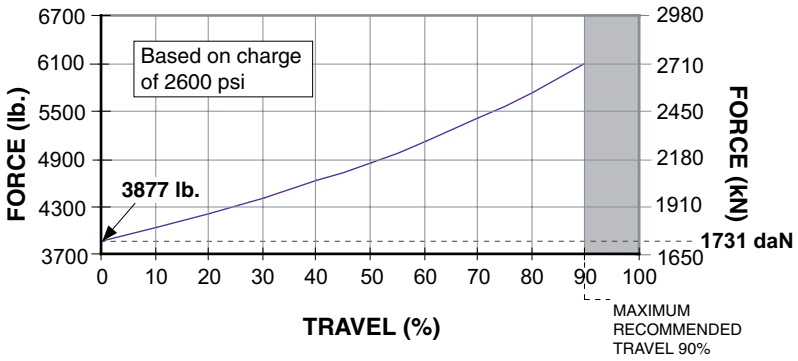
SCR.1900 — 17.3 kN / 1.9 ton

Force Charts

On-Contact Force

psi	lb.
2600	3877
2175	3244
2000	2983
1750	2610
1500	2237
1000	1491
500	746
250	373

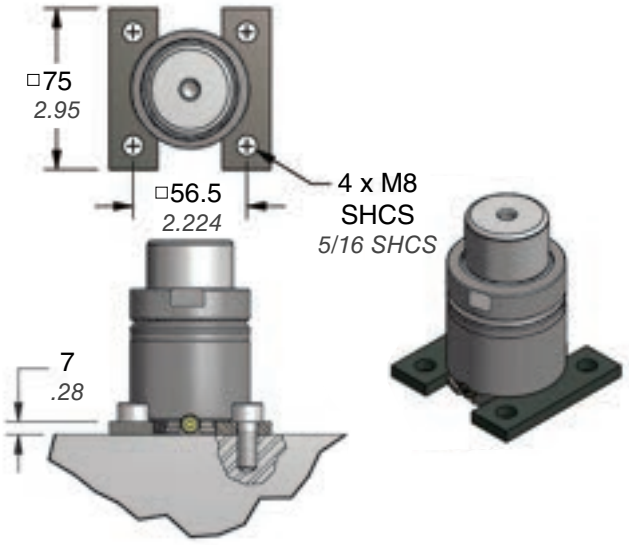


On-Contact Force

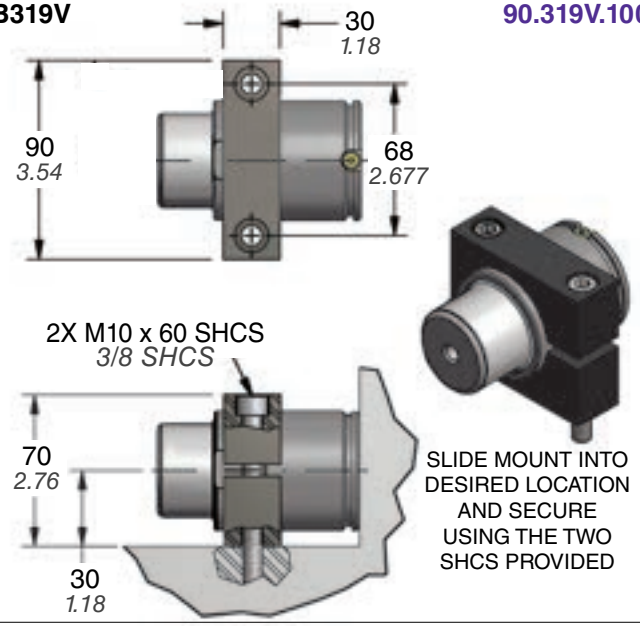
bar	kN
180	17.31
150	14.43
125	12.02
100	9.62
75	7.21
50	4.81
25	2.40
20	1.92

Mount Options

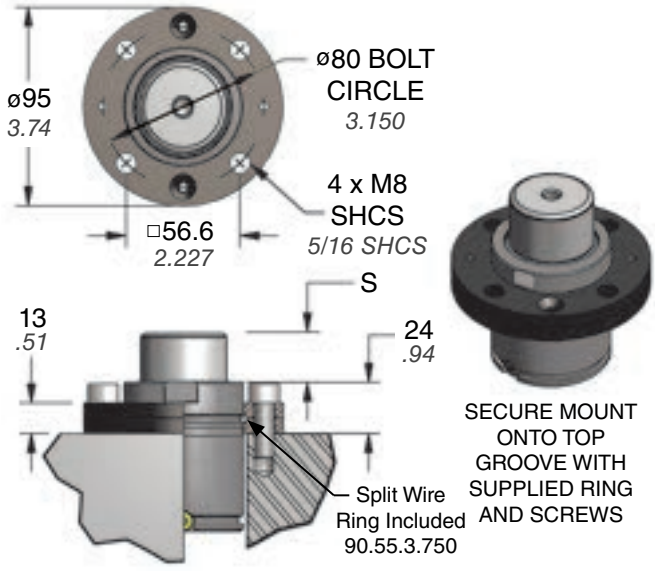
B312 **90.312.00750**



B319V **90.319V.1000**

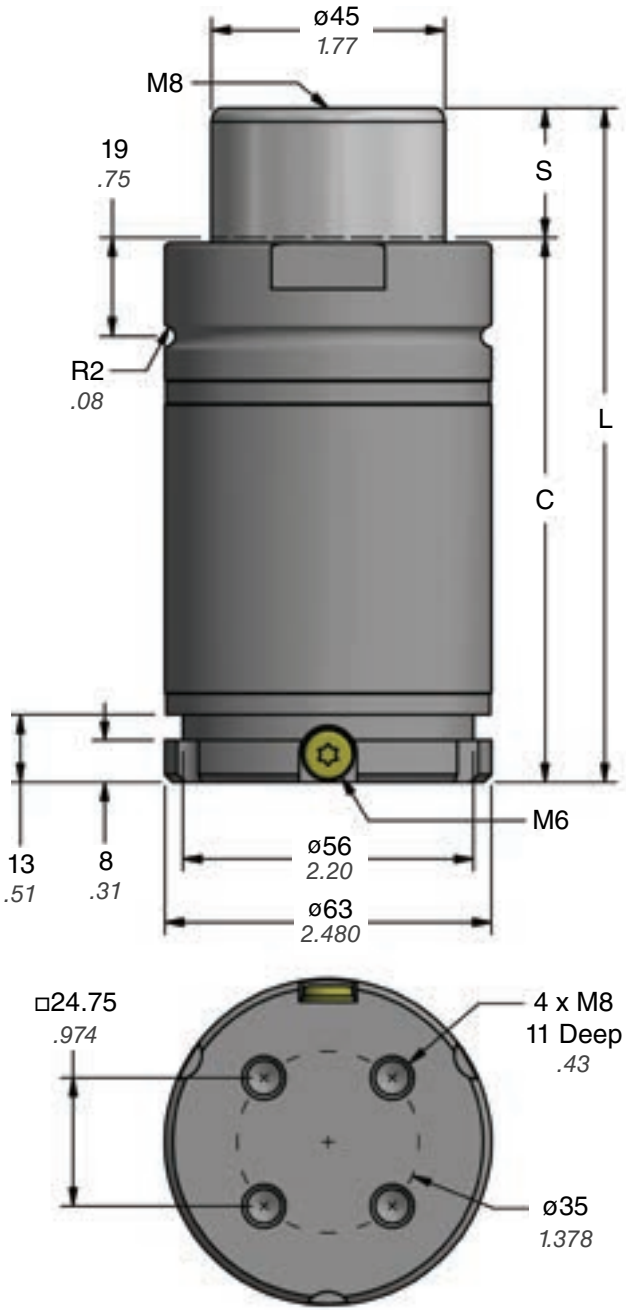


B321 **90.321.00750**



Ordering Example: **Cylinder with Mount**: SCR.1900.025.B312.C.180 **Mount Only**: 90.312.00750

SCR.3200 — 28.6 kN / 3.2 ton



TO - Basic Model

Part No.	S mm *inch*	C	L ±0.25 *±0.010*
SCR.3200.016	16 *0.63*	96 *3.78*	112 *4.409*
SCR.3200.025	25 *0.98*	105 *4.13*	130 *5.118*
SCR.3200.032	32 *1.26*	112 *4.41*	144 *5.669*
SCR.3200.038	37.5 *1.48*	117.5 *4.63*	155 *6.102*
SCR.3200.050	50 *1.97*	130 *5.12*	180 *7.087*
SCR.3200.063	62.5 *2.46*	142.5 *5.61*	205 *8.071*
SCR.3200.080	80 *3.15*	160 *6.30*	240 *9.449*

Ordering Example:

SCR.3200.025. TO. C. 180

Part Number: Includes Series, Model and Stroke Length.

Mount Option: TO = Basic Model. *When not specified, default is TO.* B319V and B21 mounts ordered with cylinder will be attached at the factory.

Charging Pressure: 15–180 bar *(220–2600 psi)*. *When not specified, default is 180 bar.*

Operating System: C = Self-contained, F = Open Flow Fitting. *When not specified, default is C, self-contained.*

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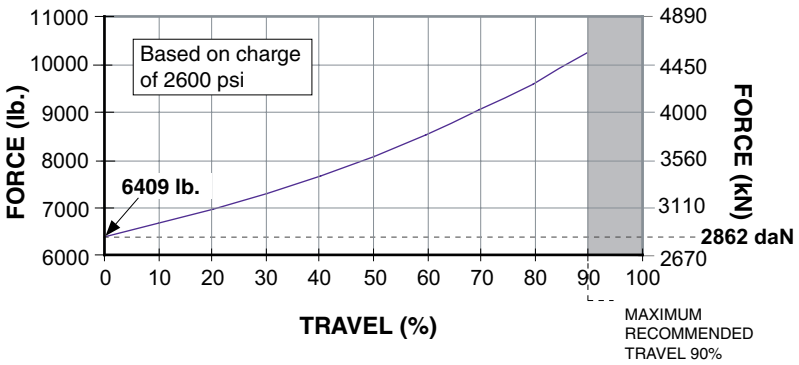
SCR.3200 — 28.6 kN / 3.2 ton

Force Charts

On-Contact Force

psi	lb.
2600	6409
2175	5362
2000	4930
1750	4314
1500	3698
1000	2465
500	1233
250	616

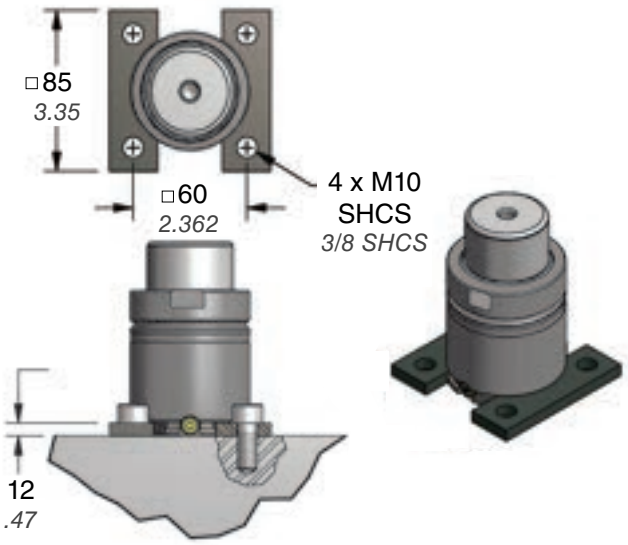


On-Contact Force

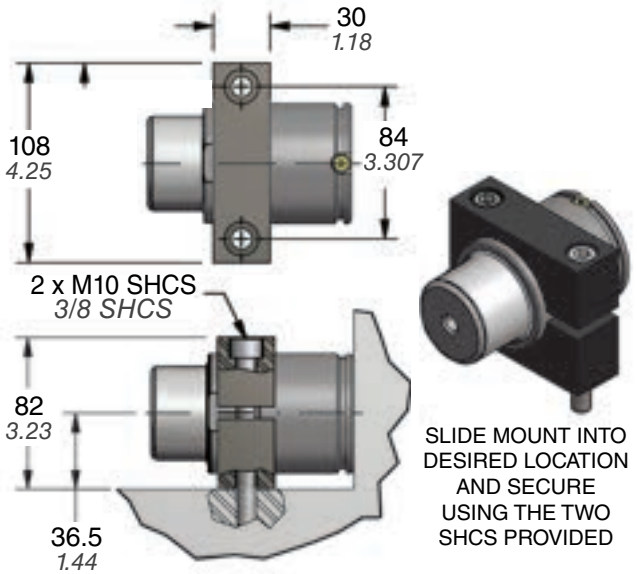
bar	kN
180	28.62
150	23.85
125	19.87
100	15.90
75	11.92
50	7.95
25	3.97
20	3.18

Mount Options

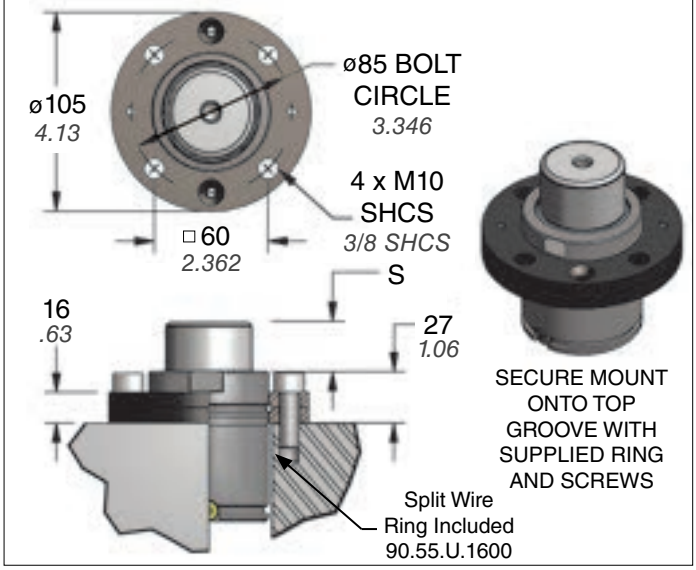
B112 **90.112.1600**



B319V **90.319V.1600**



B21 **90.21.1600**



Ordering Example: **Cylinder with Mount**: SCR.3200.025.B112.C.180 **Mount Only**: 90.112.1600

Linked Operations

Converting from Self-Contained mode to Linked mode

CAUTION
Always wear safety glasses when maintaining nitrogen gas springs. When exhausting pressure, place the gas spring with the port up for safety.

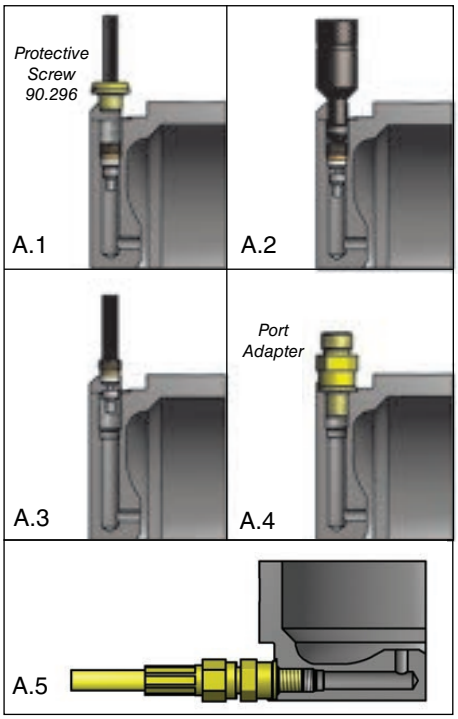
Remove Screw
- Remove the protective screw from the M6 port (A.1).

Exhausting the Spring
- Keeping the face and hands clear of the port, depress the valve stem using the Valve Bleed Tool, *90.360.4,* detailed on page 14 (A.2).
- After all the gas pressure is exhausted, be sure that the piston rod will retract into the tube manually. If not, try depressing the valve stem again. If still unsuccessful **STOP** and contact your DADCO Service Representative.

Remove Compact Valve
- Remove the Compact Valve *(90.260)* by unscrewing it using the Port Servicing Tool, *90.320.8,* detailed on page 14 (A.3).

Ready to Pipe
- Install a port adapter into the open M6 port (A.4). A wide variety of port adapters and fittings are available, see page 13.

Linked
- Attach a *90.700* hose assembly onto the port adapter (A.5). The gas spring is now ready for linked operation with DADCO's Mini Convertible Control Panel, *90.407.P*, detailed on page 13.

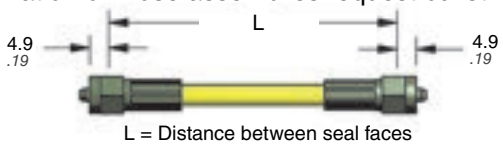


DADCO *MINIFLEX*® Hose

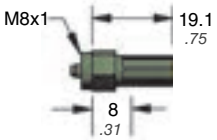
90.700._____(meters)

DADCO's *MINIFLEX*® hose is used to connect gas springs together as a linked system. DADCO offers complete hose assemblies that include two *90.601.943* Hose Adapters and a standard length of *MINIFLEX*® hose, or you can build to suit in the field. For more information on hose assemblies request bulletin 99B105F.

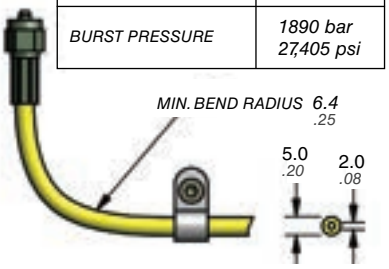
WORKING PRESSURE	*500 bar 7,250 psi*
BURST PRESSURE	*1890 bar 27,405 psi*



90.700.L943.L943._____**.l**
L *(mm)*
Hose Assembly



90.601.943 *(L-943)*
Permanent Hose Adapter



90.504.701
Hose Strap

Hose Assembly Tools

Mini-Crimp
90.710.1 *(MC-1)*

DADCO's Mini-Crimp allows users to easily construct *MINIFLEX*® hose assemblies in the field. Use it with hydraulic or pneumatic crimp machines. No additional die ring is required. For further details, reference bulletin B11110A.

Hose Assembly Clamp
HAC

Insert into bench vise and use to secure hose to prepare for crimping. For more information, request bulletin B00120D.

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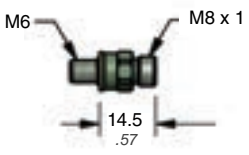
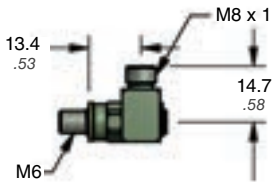
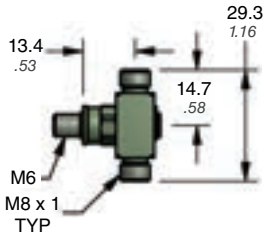
Mini-fittings



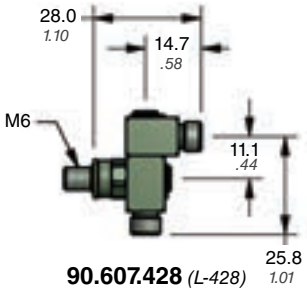
90.607.120 *(L-120)*
Straight Port Adapter



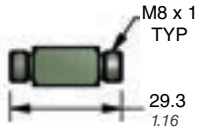
90.607.220 *(L-220)*
90˚ Port Adapter



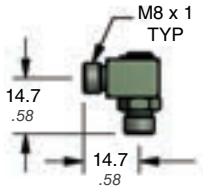
90.607.429 *(L-429)*
Branch Tee Port Adapter



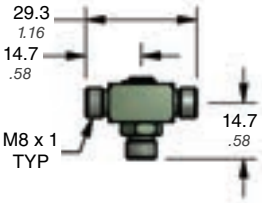
90.607.428 *(L-428)*
Run Tee Port Adapter



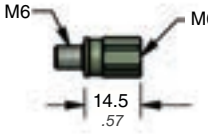
90.606.303 *(L-303)*
Union



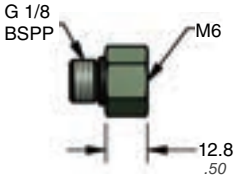
90.607.201 *(L-201)*
Elbow



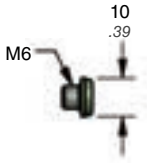
90.607.401 *(L-401)*
Union Tee



90.607.035 *(L-35)*
Port Adapter Extension



90.607.065 *(L-65)*
Reducer
G 1/8 → M6



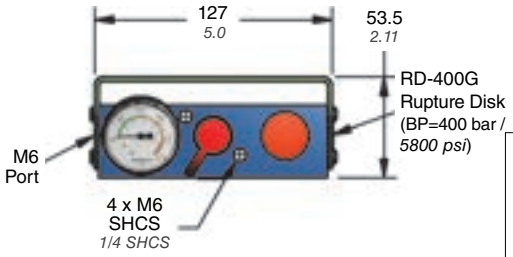
90.607.110 *(L-110)*
Port Plug

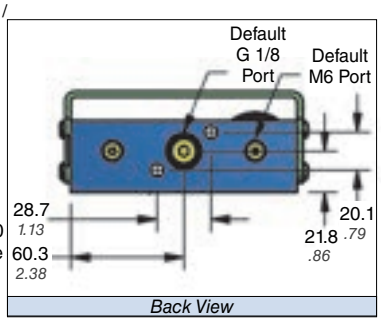
90.605.109 *(L-109)*
Fitting Plug

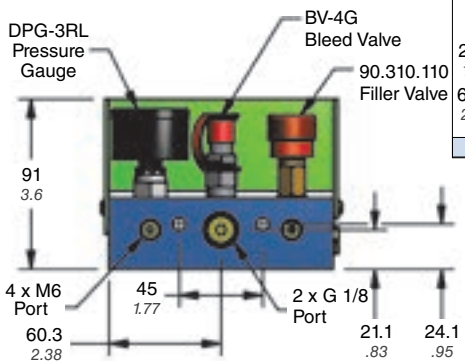
Mini Convertible Control Panel

90.407.P__

The DADCO Mini Convertible Control Panel is used to fill, drain and monitor the pressure of linked DADCO nitrogen gas springs from outside the die. The panel is compatible with SMS-i® and traditional linked systems and has five M6 ports, a high pressure gauge, a quick disconnect fill valve, a bleed valve and a rupture disk to prevent over pressurization. To allow for maximum versatility when linking, the panel is available with a variety of fitting connections.





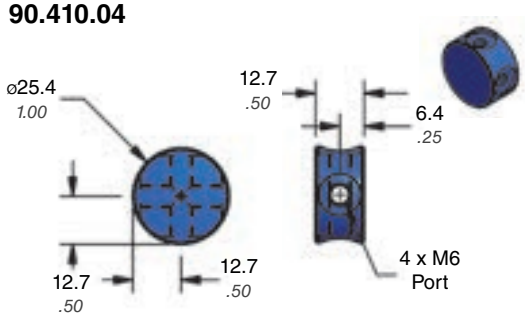


Mini Distribution Block

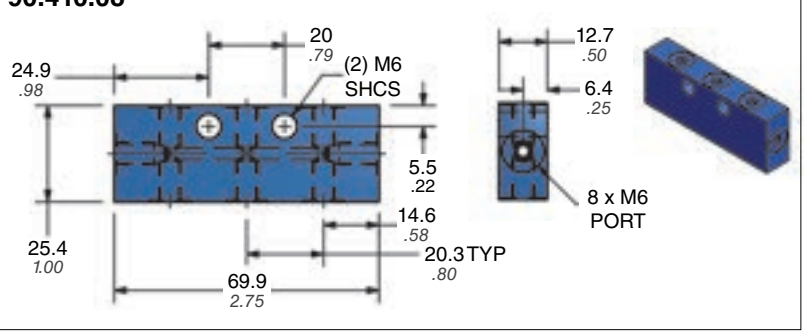
90.410.04 / 90.410.08

The Mini Distribution Block, with four or eight port locations, is used with a Control Panel to simplify piping to multiple cylinders. Plug unused ports with *90.607.110*.

90.410.04



90.410.08



Accessories

Port Servicing Tool
90.320.8

To perform all necessary servicing to the valve compartment. For more information request bulletin B05110A.

Valve Bleed Tool
90.360.4

Use the DADCO Valve Bleed Tool to slowly discharge a spring to the desired pressure. For more information contact DADCO.

Standard Test Stand
90.305.3

Use the Portable Test Stand in conjunction with a Standard Load Cell for precise measurement of gas spring force on contact. For more information refer to bulletin B16112A.

Standard Load Cell
90.301.0500 (SCR.0500)
90.300.0750 (SCR.0800)
90.300.1900 (SCR.1900)
90.300.2600 (SCR.3200)

When used with a DADCO Test Stand, the Standard Load Cell gives precise measurement of gas spring charging pressure. Each model requires its specified load cell. For more information request bulletin B16119A.

DADCO Pressure Analyzer
90.315.5

Use the DADCO Pressure Analyzer to easily charge, discharge, and gauge the pressure in DADCO's SCR Series Gas Springs. For more information request bulletin B01133F.

Quick Disconnect Charging Nipple
90.310.143 *(CN-4)*

Use the DADCO Quick Disconnect Charging Nipple to charge the SCR Series Gas Springs. For more information contact DADCO.

Digital Load Cell
90.305.BGA (Meter)
90.305.LC.05A (22.2 kN Load Cell)
90.305.LC.50A (222 kN Load Cell)

The *90.305.BGA* meter can display force in Newtons, Kg or lbs. When paired with the *90.305.LC.05A* Load Cell it may be used to measure gas spring force up to 5,000 lbs. When paired with the *90.305.LC.50A* Load Cell gas spring force can be measured up to 50,000 lbs. For more information request bulletin B04106E.

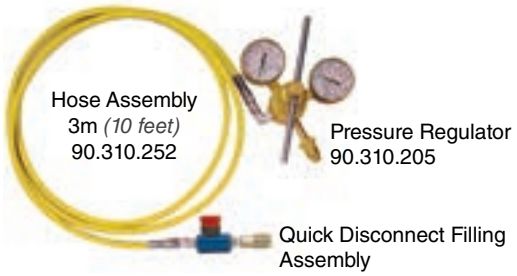

90.305.BGA


90.305.LC.05A


90.305.LC.50A

High Pressure Quick Disconnect Charging Assembly
90.310.044

Use the DADCO High Pressure Quick Disconnect Charging Assembly, 90.310.044, with the 90.310.143 Charging Nipple or 90.315.5 Charging Adapter to charge self-contained gas springs. The 90.310.044 includes the 90.310.205 Pressure Regulator, 90.310.252 Hose Assembly and the 90.310.340 Quick Disconnect Filling Assembly. *A standard pressure charging assembly, 90.310.040 is available for pressures below 2200 psi. For more information contact DADCO.*



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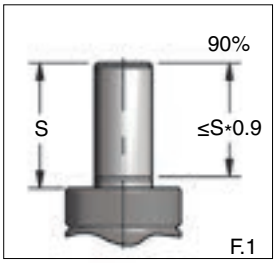
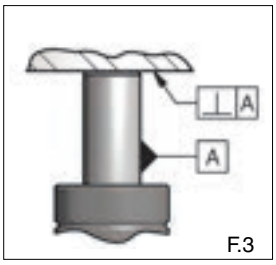
CAUTION
DO NOT attempt maintenance on spring until internal pressure is exhausted.

Operating Specifications

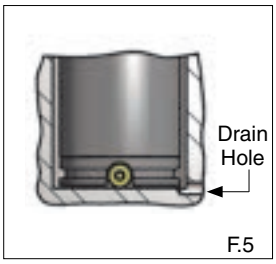
Charging Medium:	Nitrogen Gas
Charging Pressure:	15 – 180 bar *(220 psi – 2600 psi)*
Operating Temperature:	4°C – 71°C *(40°F – 160°F)*
Maximum Speed:	.5 m/sec *(20 in/sec)*



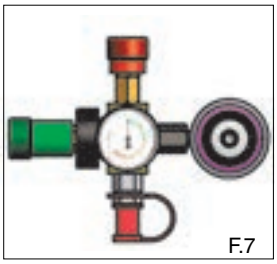
F.1

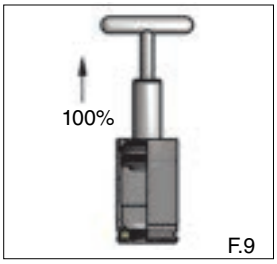


F.3



F.5


F.7



F.9

Installation Requirements

Provide Stroke Reserve

- DADCO SCR Series gas springs will permit travel of the full nominal stroke; however, at least a 10% stroke reserve is recommended to achieve optimal performance (F.1 and F.2).

Avoid Side Loading

- A misaligned press or die can cause side loading that increases wear on the bearing, seal, and piston rod (F.3). Therefore, avoid side loading when possible (F.4).

Rod End Thread

- The end of the piston rod has a construction thread intended for assembly and disassembly purposes only, and should never be used to mount or secure the gas spring (F.4). Die vibration and/or misalignment will damage the spring.

Protect From Fluids

- Direct contact with certain die lubricants and cleaners should be avoided (F.6). Protect gas springs by providing adequate drainage in gas spring pockets (F.5).

Discharging Self-Contained Gas Spring

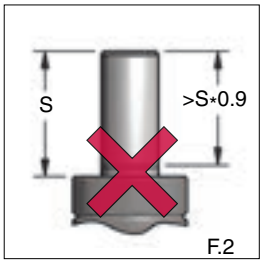
- The DADCO Pressure Analyzer *(90.315.5)* allows for charging, discharging and gauging of the pressure of the SCR Series gas springs (F.7). For information on completely exhausting the gas spring see page 12.

Recharging Self-Contained Gas Spring

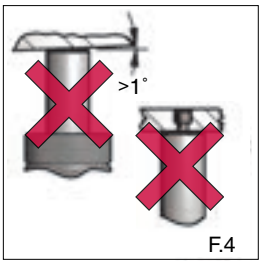
- Hold the spring vertically at all times during filling. Never compress the gas spring in a vice or clamp outside of the die or application as damage to the gas spring can result (F.8).

- Never fill a gas spring unless the rod is in the fully extended position (F.10). Thread the T-handle *(90.320.1)* into the rod end and depress the valve stem with the Valve Bleed Tool *(90.360.4)* or Port Servicing Tool *(90.320.8)*. Pull the rod cartridge assembly up until it is seated firmly against the retaining ring (F.9). Remove the T-handle from the rod and charge the gas spring to the desired pressure.

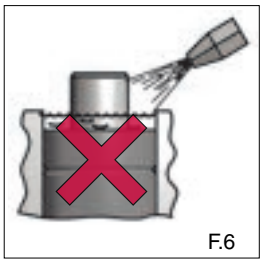
- Contact DADCO for repair of the SCR Series gas springs.



F.2



F.4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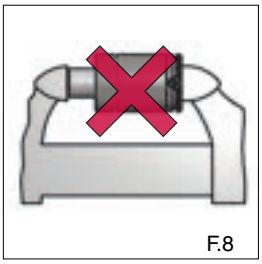
F.8


F.10

Other DADCO Products

SCS.4300
- Extended rod guidance
- 75mm in diameter
- Forces up to 35.6 kN
- Full range of standard stroke lengths up to 80 mm
- Linking capabilities

Micro 45®-Micro 250® – Micro Series
- Ideal for coil spring replacement
- 12 mm to 32 mm in diameter
- Up to 3 kN of force on contact
- Bolt-on or welded mounts available

Mini – LJ and L Series
- 38 mm, 45 mm and 50 mm diameters
- Force models: 3 kN, 5 kN, and 7.5 kN
- Full range of standard stroke lengths up to 125 mm

Ultra Force® – U Series
- 19 mm to 195 mm in diameter
- Forces up to 199 kN
- Full range of standard stroke lengths up to 125 mm

SL2.090 and SL2.180 – Nitrogen Gas Spring Two Post Lifters
- 160 mm and 180 mm rail widths
- Powered by the **Micro 90®** and **Micro 180®**
- Stroke lengths available from 23 mm to 198 mm
- Two post for rail lift applications
- Compact Rail Plate available

SLN.090 and SLN.180 – Micro Nitrogen Gas Lifters
- Non-rotating design; provides lift and guidance
- Two guide rod options for single point, multipoint or rail lift applications
- Compact design powered by the **Micro 90®** and **Micro 180®**
- Stroke lengths available from 25 mm to 125 mm

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