

# DAPCO®

## Compact Nitrogen Gas Springs

## SCR and SCS Series



*High Force in a Compact Package!*

- Up to 6.5 tons of force on contact
- Operate self-contained or linked





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 and SCS Series**

DADCO's SCR and SCS Series are ideal for applications that require a high force in a small space. The SCR Series consists of five models providing force up to 3.2 tons on contact with short stroke availability and small diameters. The SCS Series offers force up to 6.5 tons in a small space.

Both series can be operated in self-contained or linked systems. The SCR Series models have side-port enabling linking without the addition of sub-plates, while the SCS Series provides linking capability through an optional base mount. 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.1400	45 mm (1.772")	2849 lb. (1272 daN)
SCR.1900	50 mm (1.968")	3877 lb. (1731 daN)
SCR.3200	63 mm (2.480")	6409 lb. (2862 daN)
SCS.4300	75 mm (2.953")	8010 lb. (3564 daN)
SCS.7000	95 mm (3.740")	12974 lb. (5773 daN)

**High Quality Construction**

To ensure their exceptionally long service life, DADCO's SCR and SCS Series gas springs feature a rod seal to ensure sealability. Superfinished impact resistant piston rods and polyamide bearings provide excellent durability and load capacity.

**Mini Piping System**

DADCO's *MINILink*® System is 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 a control panel. The SCS Series can be piped through the addition of a base mount. For additional information on piping see the Linked Systems catalog, C20100F.

**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.

**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 fill/drain port is located in the cylinder for safe, easy access.

**Rapid Delivery**

DADCO's modern 13,150 m<sup>2</sup> main production facility, as well as satellite facilities, permit 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 and SCS 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](http://www.dadco.net), or contact DADCO.

## 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. Contact DADCO for information on secondary teflon wipers designed to wipe away contaminants from the gas spring rod.

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 the back cover. Cylinder and mount dimensions are shown on pages 4-15.

**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.

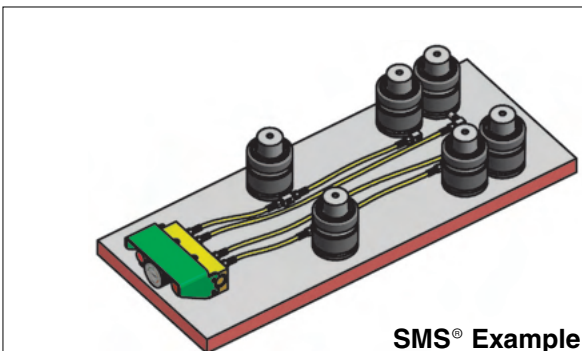
**TO Basic Model** mounted inverted requires back-up to support the full load. Retain inverted cylinders tight in the pocket with the appropriate length cap screw to eliminate movement.

**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.

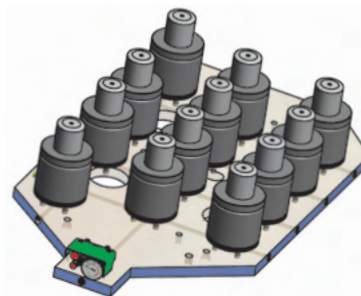
**B12/B112/B312** mounts must be fastened to the bottom groove only. Back-up is required to support the full load.

**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.

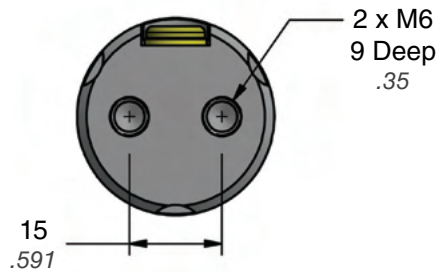
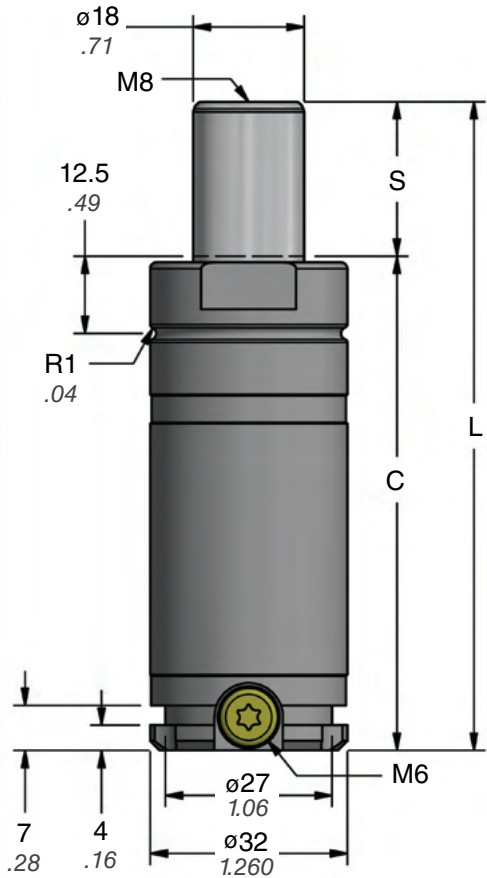


**SMS® Example**



**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 C13106E.



**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.*

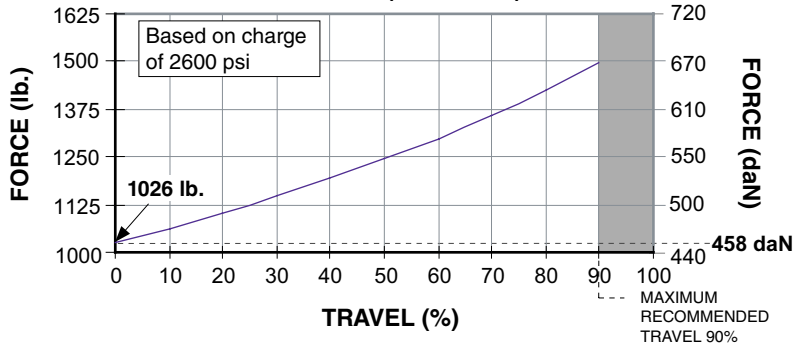
**Operating System:** C = Self-contained,  
F = Open Flow Fitting. *When not specified, default is C, self-contained.*

Force Charts

On-Contact Force

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

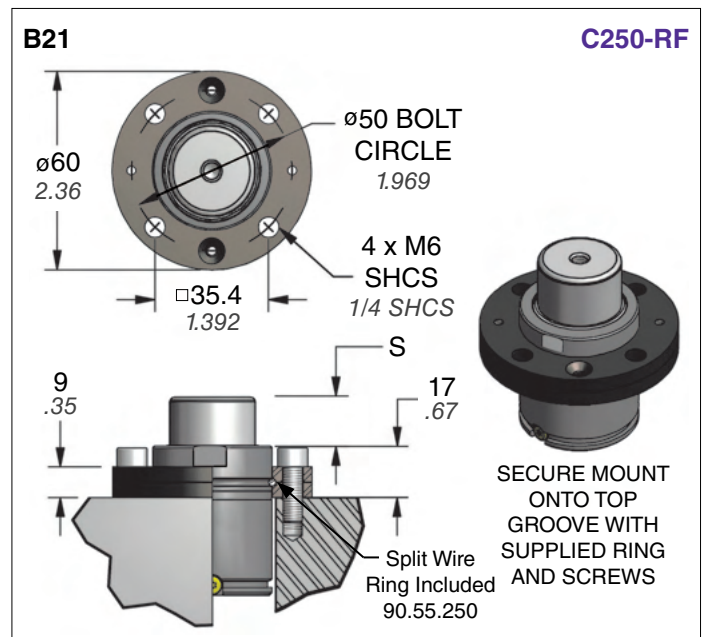
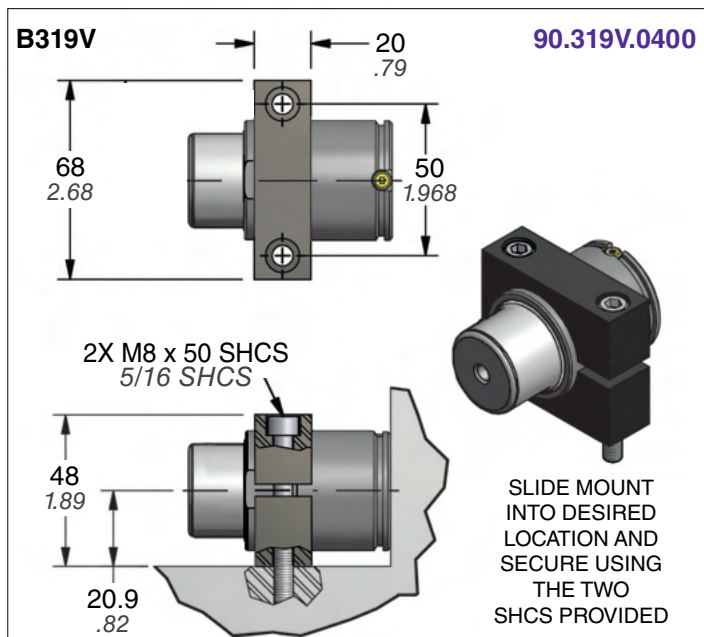
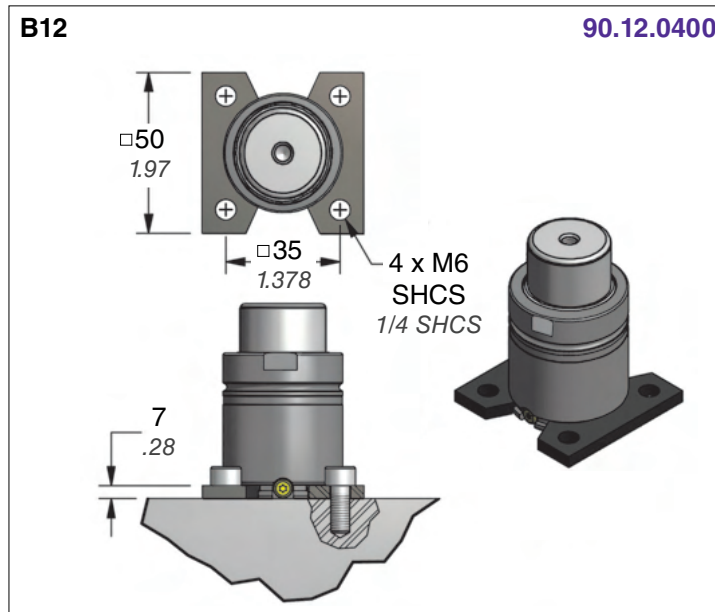
Force Chart (Isothermic)



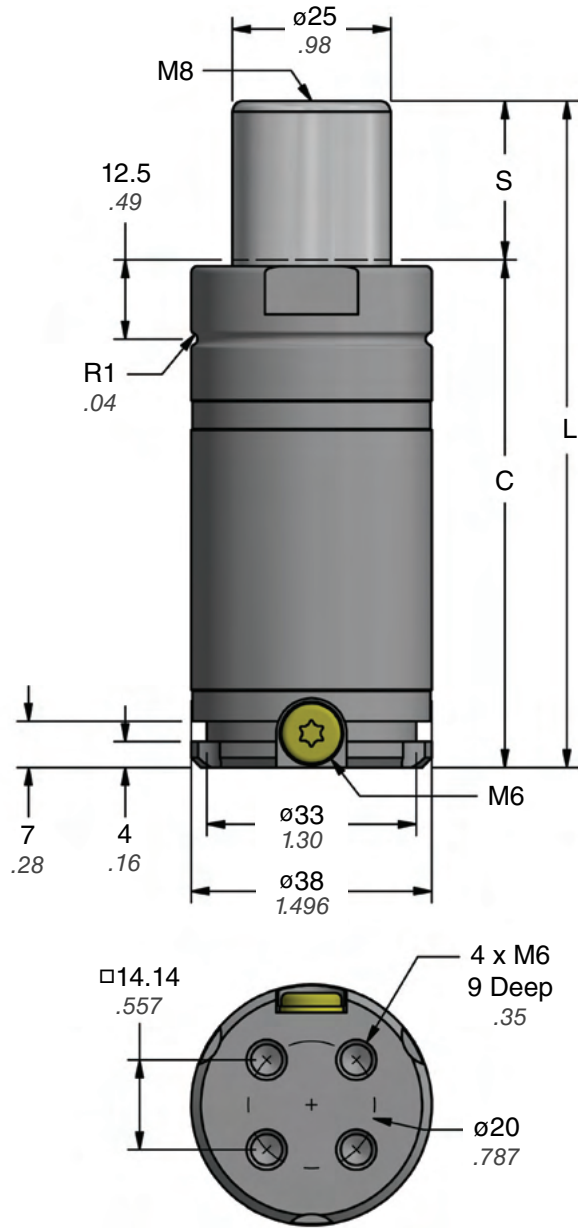
On-Contact Force

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

Mount Options



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



**TO - Basic Model**

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

**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.*

# SCR.0800 — 883 daN / 1 ton

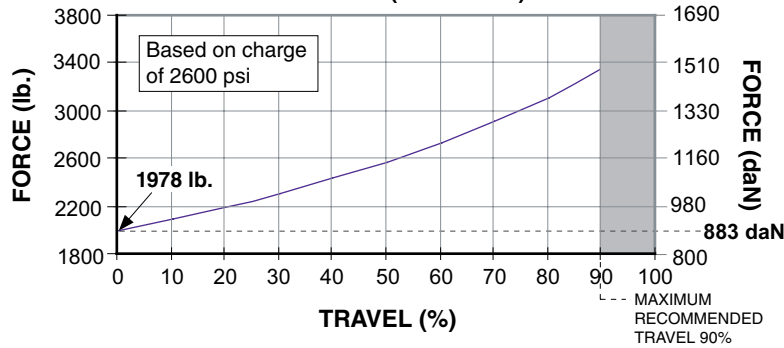
## Compact Nitrogen Gas Springs

### Force Charts

On-Contact Force

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

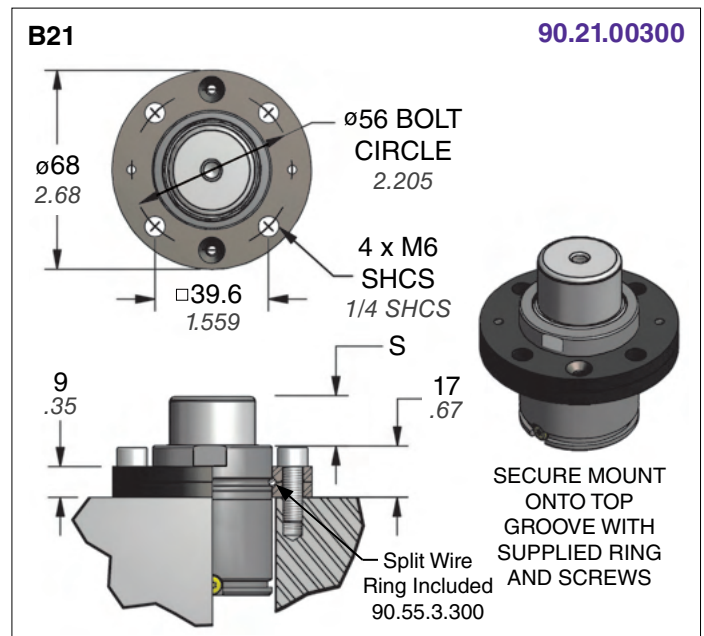
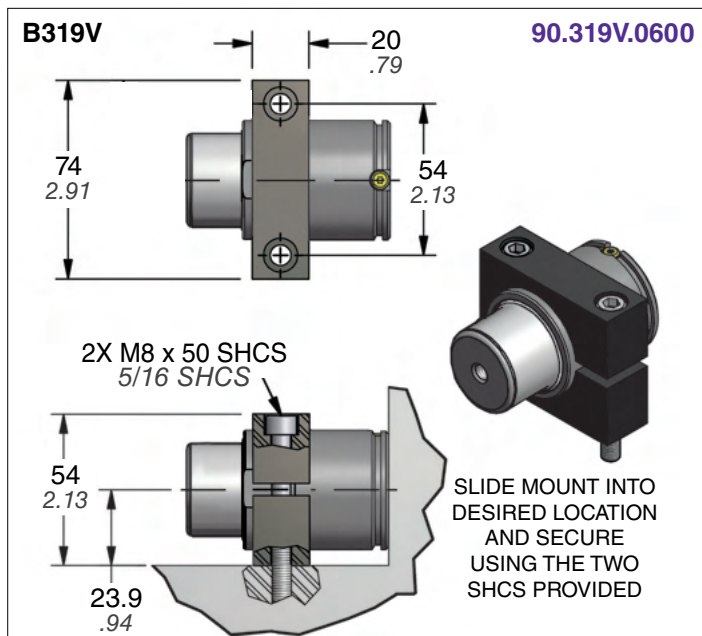
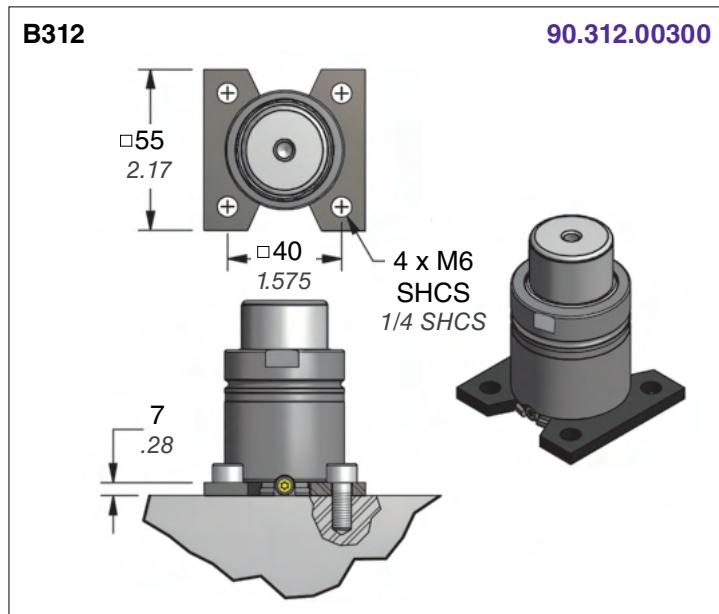
Force Chart (Isothermic)



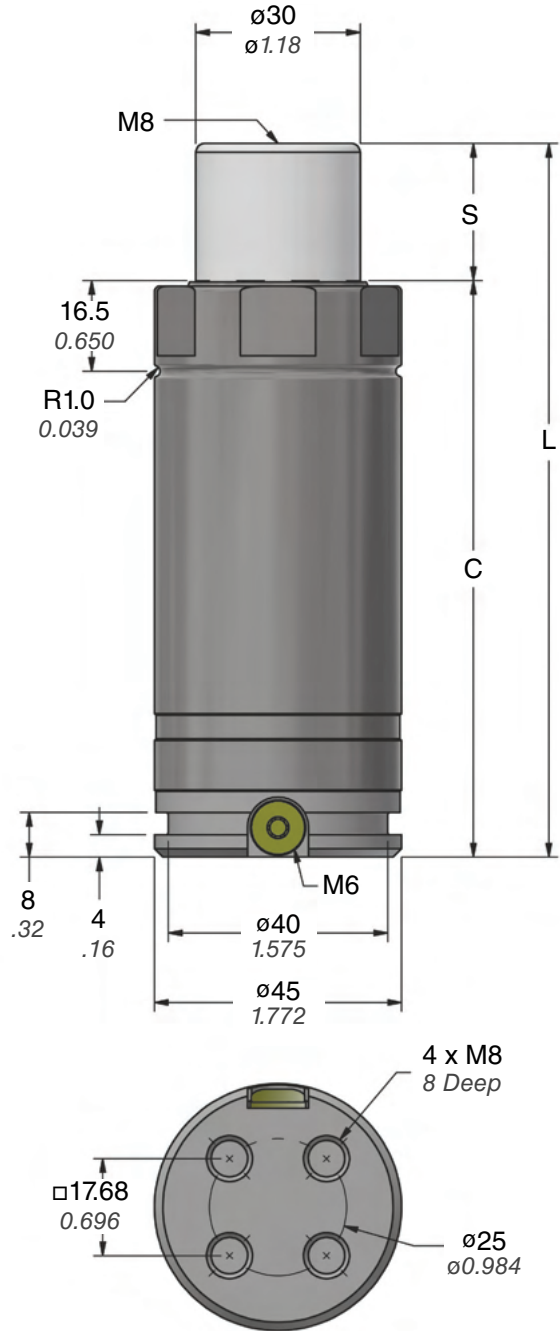
On-Contact Force

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

### Mount Options



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



Part No.	S mm inch	C	L $\pm 0.25$ $\pm 0.010$
SCR.1400.010	10 0.39	90 3.54	100 3.937
SCR.1400.015	15 0.59	95 3.74	110 4.331
SCR.1400.025	25 0.98	105 4.13	130 5.118
SCR.1400.032	32 1.26	112 4.41	144 5.669
SCR.1400.038	37.5 1.48	117.5 4.63	155 6.102
SCR.1400.050	50 1.97	130 5.12	180 7.087
SCR.1400.063	62.5 2.46	142.5 5.61	205 8.071
SCR.1400.080	80 3.15	160 6.30	240 9.449

**Ordering Example:**

**SCR.1400.025. TO. C. 180**

**Part Number:**

Includes Series, Model and Stroke Length.

**Mount Option:**

TO = Basic Model. *When not specified, default is TO.*  
B139V, B21 and B25 mounts ordered with cylinder will be attached at the factory.

**Charging Pressure:**

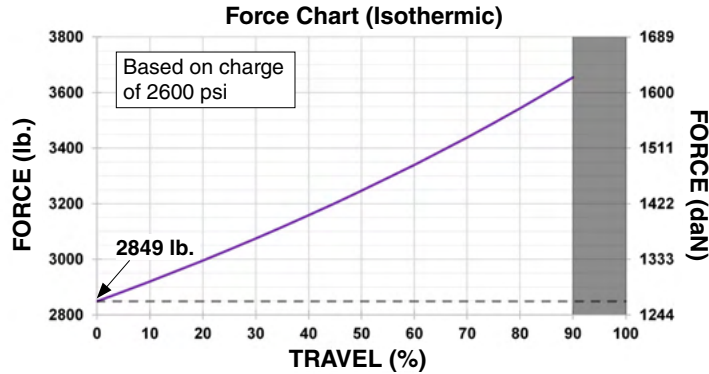
15–180 bar (220–2600 psi).  
*When not specified, default is 180 bar.*

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

Force Charts

On-Contact Force

psi	lb.
2600	2849
2175	2383
2000	2191
1750	1917
1500	1643
1000	1096
500	548
250	274



On-Contact Force

bar	kN
180	12.72
150	10.60
125	8.84
100	7.07
75	5.30
50	3.53
25	1.77
20	1.41

Mount Options

**B312** 90.312.00500

4 x M8 SHCS  
5/16 SHCS

**B319V** 90.319V.0800

2 x M8x50 mm SHCS SUPPLIED

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

**B21** 90.21.0845

ø70.7 BOLT CIRCLE  
2.783

4 x M8 SHCS  
5/16 SHCS

Split Wire Ring Included  
90.55.3.500

SECURE MOUNT ONTO TOP GROOVE WITH SUPPLIED RING AND SCREWS

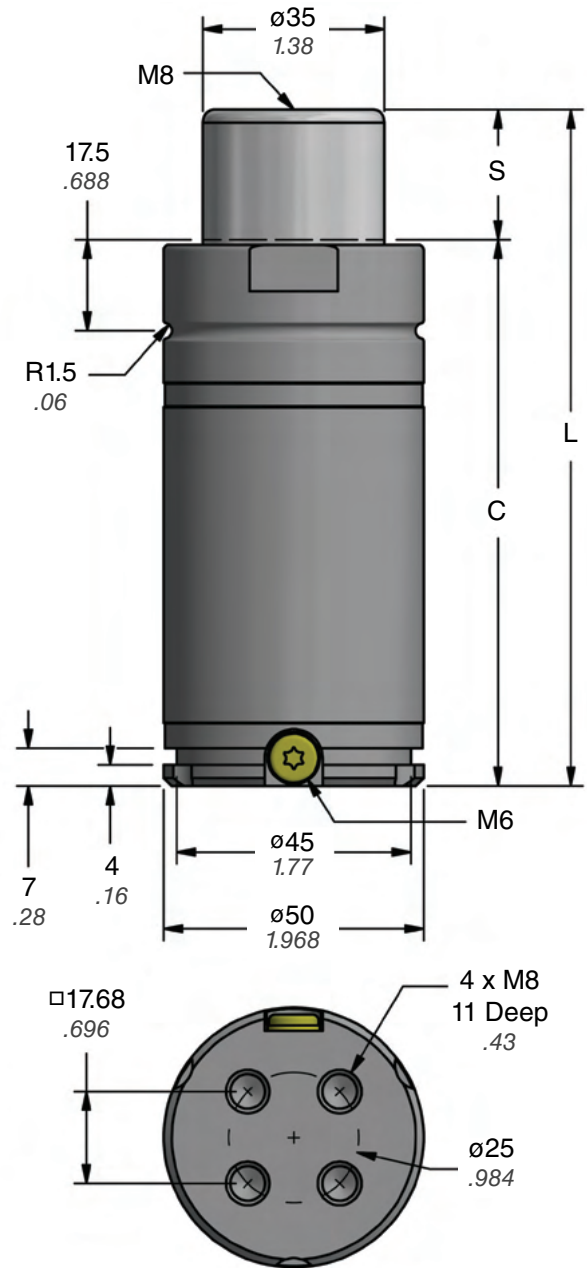
**B25** 90.25.0845

4 x M8 SHCS  
5/16 SHCS

Split Wire Ring Included  
90.55.3.500

SECURE MOUNT ONTO TOP GROOVE WITH SUPPLIED RING AND SCREWS

**Ordering Example:**      **Cylinder with Mount:** SCR.1400.025.B312.C.180      **Mount Only:** 90.312.00500



Part No.	S mm inch	C	L $\pm 0.25$ $\pm 0.010$
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

**TO - Basic Model**

**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.

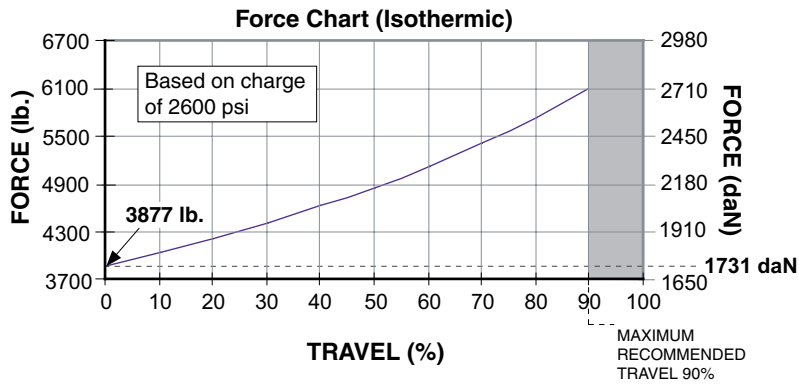
# SCR.1900 — 17.3 kN / 1.9 ton

## Compact Nitrogen Gas Springs

### Force Charts

#### On-Contact Force

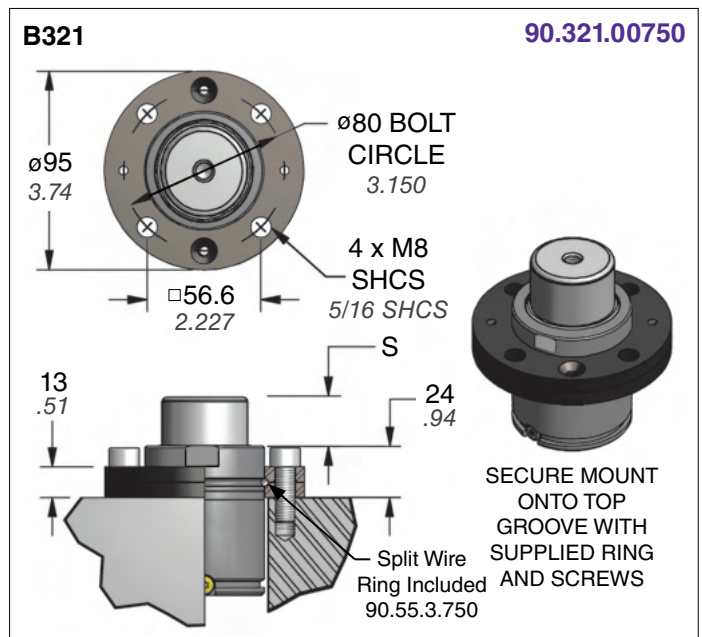
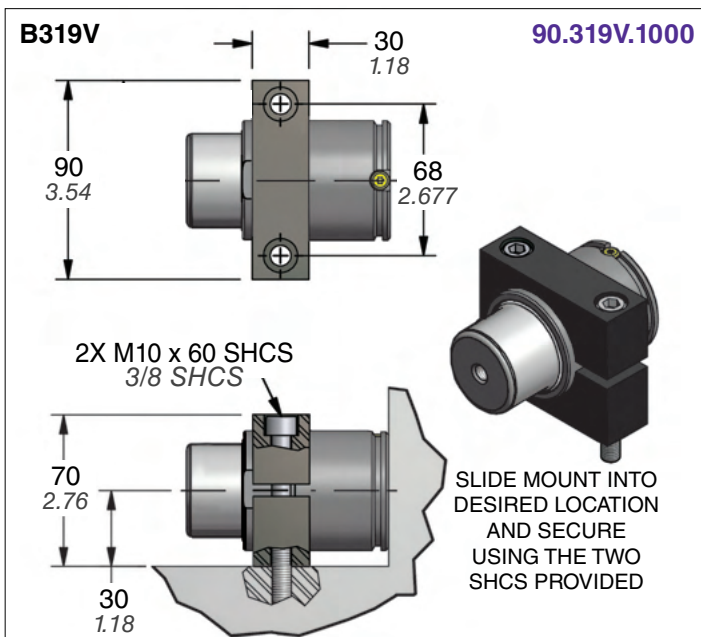
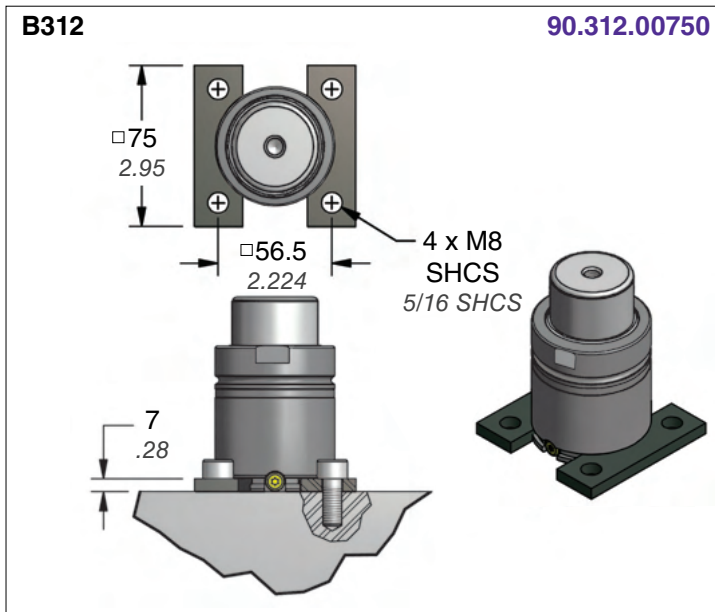
psi	lb.
2600	3877
2175	3244
2000	2983
1750	2610
1500	2237
1000	1491
500	746
250	373



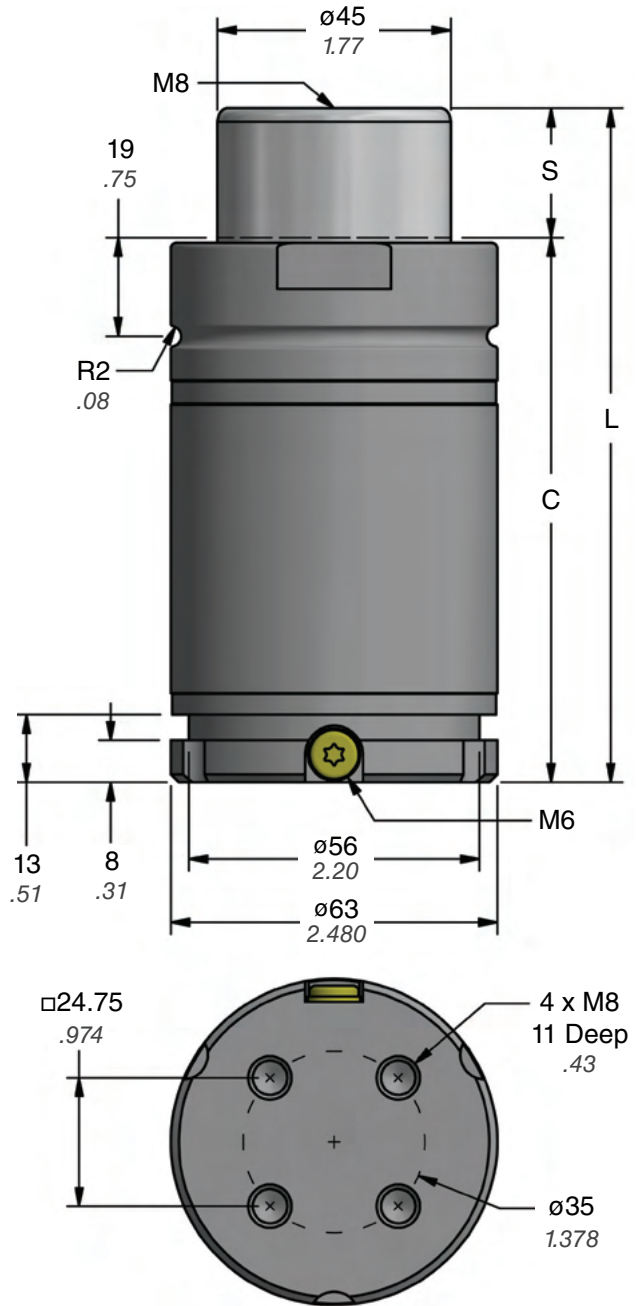
#### On-Contact Force

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



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



**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.

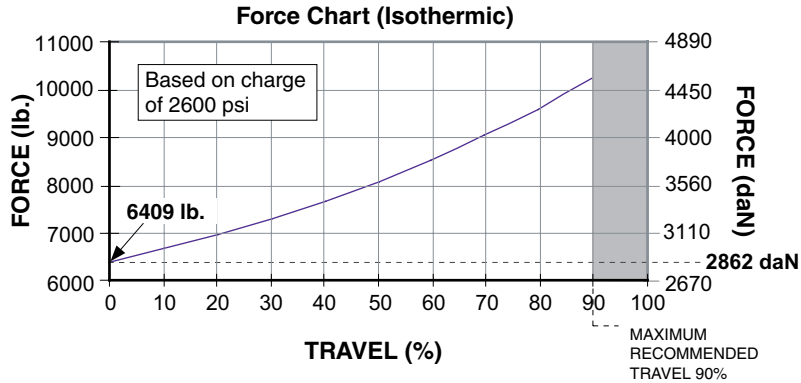
**Operating System:** C = Self-contained,

F = Open Flow Fitting. When not specified, default is C, self-contained.

### Force Charts

**On-Contact Force**

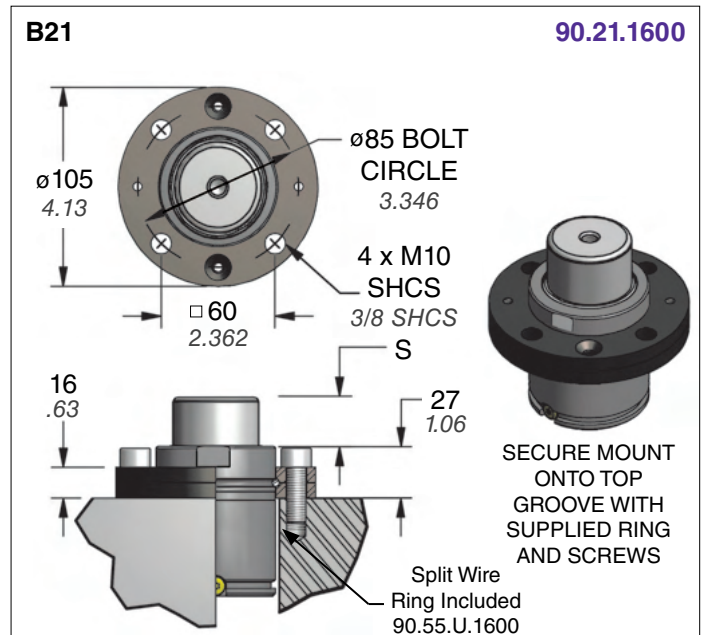
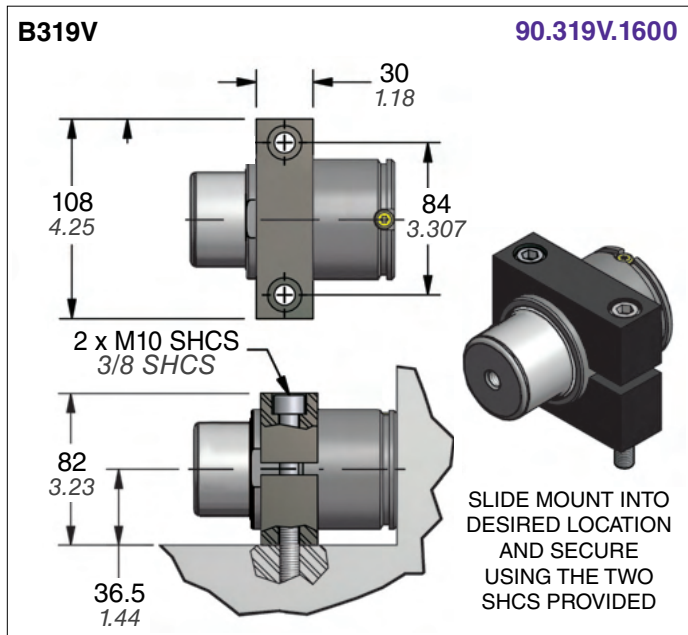
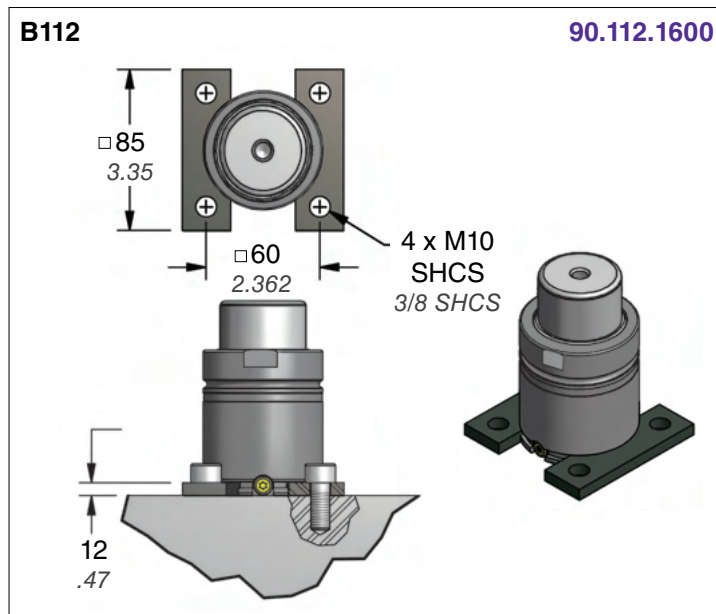
psi	lb.
2600	6409
2175	5362
2000	4930
1750	4314
1500	3698
1000	2465
500	1233
250	616



**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

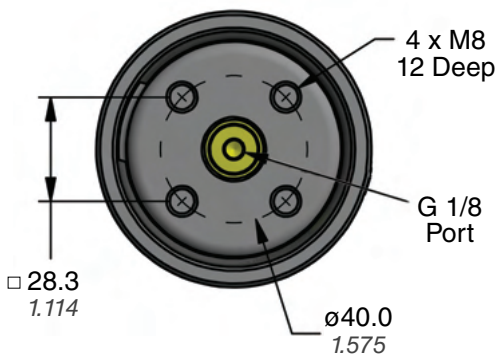
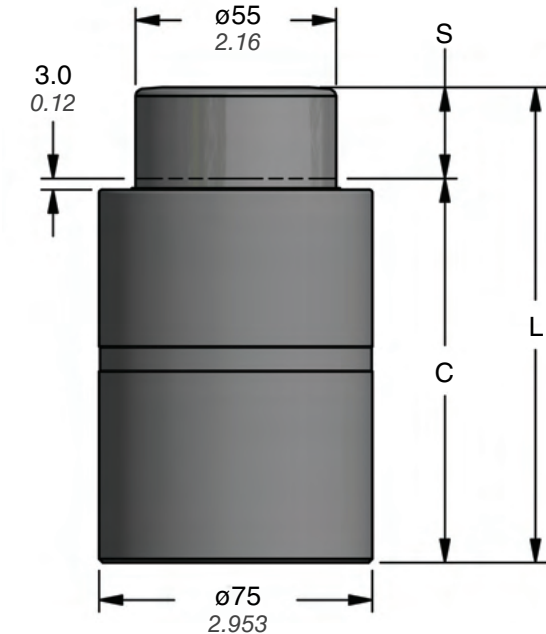
### Mount Options



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

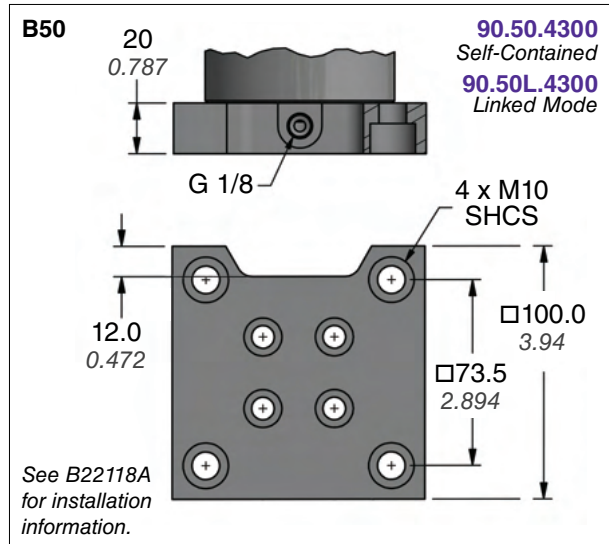
# Compact Nitrogen Gas Springs

## SCS.4300 — 35.6 kN / 4 ton



**TO - Basic Model**

Part No.	S mm inch	C	L ±0.25 ±0.010
SCS.4300.015	15 0.59	85 3.35	100 3.937
SCS.4300.025	25 0.98	95 3.74	120 4.724
SCS.4300.038	38 1.50	112 4.41	150 5.906
SCS.4300.050	50 1.97	130 5.12	180 7.087
SCS.4300.063	63 2.48	147 5.79	210 8.268
SCS.4300.080	80 3.15	170 6.69	250 9.843



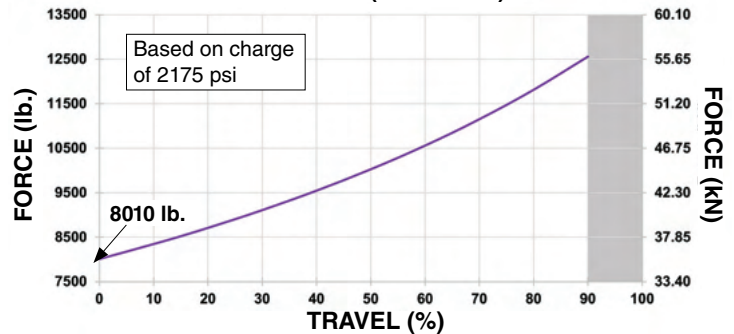
**On-Contact Force**

psi	lb.
2175	8010
2000	7365
1750	6444
1500	5524
1000	3683
500	1841
250	921

**On-Contact Force**

bar	kN
150	35.64
125	29.70
100	23.76
75	17.82
50	11.88
25	5.94
20	4.75

**Force Chart (Isothermic)**



**Ordering Example:**

**SCS.4300.080 . TO . C . 150**

**Part Number:**

Includes Series, Model and Stroke Length.

**Mount Option:**

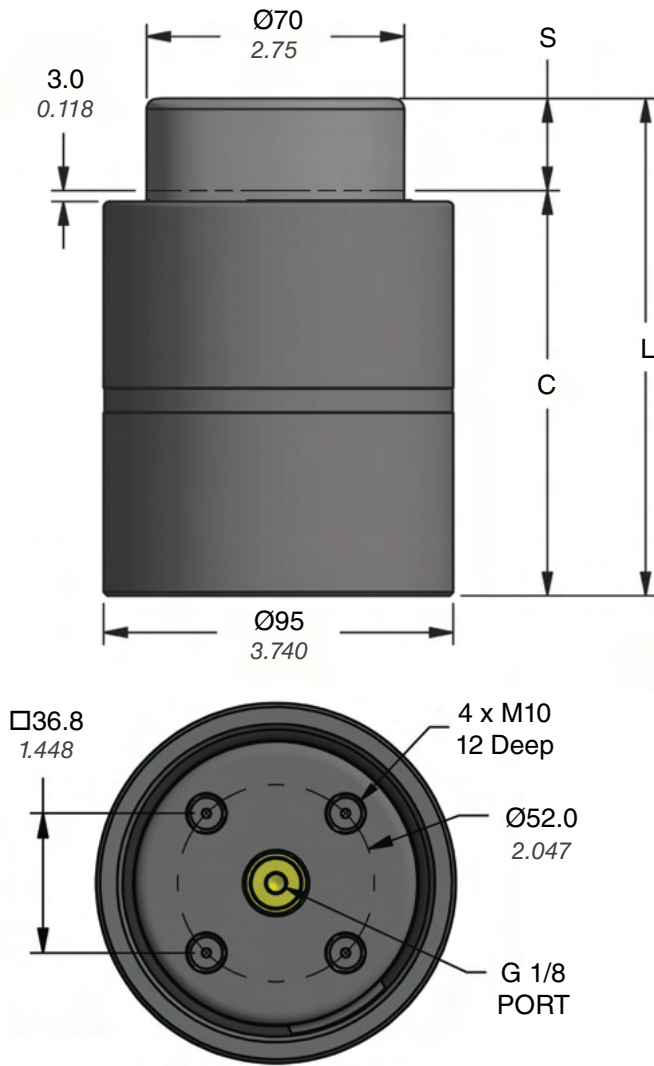
TO = Basic Model. B50 mount ordered with cylinder will be attached at the factory. When not specified, default is TO.

**Charging Pressure:**

15-150 bar (220-2175 psi)  
When not specified, default is 150 bar.

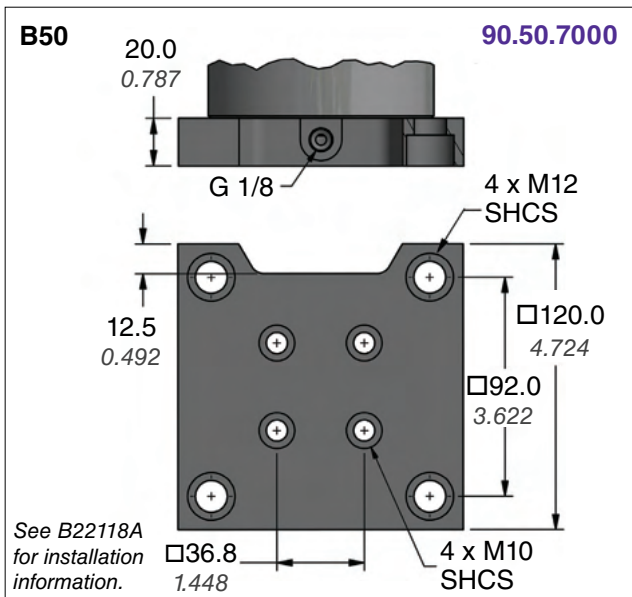
**Operating System:** C = Self-contained, F = Open Flow Fitting with mount. When not specified, default is C, self contained.

## SCS.7000 — 57.7 kN / 6.5 ton



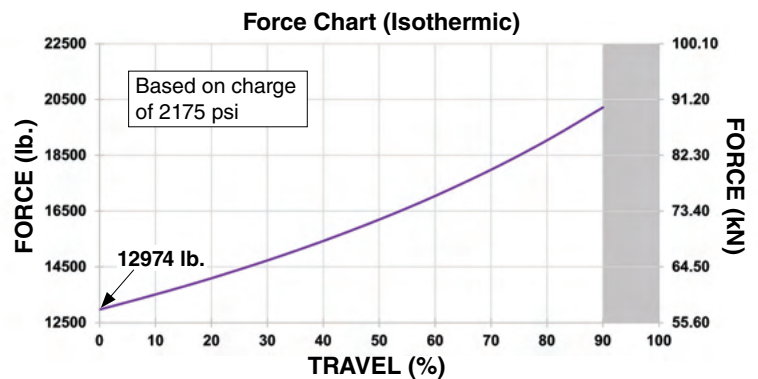
**TO - Basic Model**

Part No.	S mm inch	C	L $\pm 0.25$ $\pm 0.010$
SCS.7000.015	15 0.59	100 3.94	115 4.528
SCS.7000.025	25 0.98	110 4.33	135 5.315
SCS.7000.038	38 1.50	127 5.00	165 6.496
SCS.7000.050	50 1.97	140 5.51	190 7.480
SCS.7000.063	63 2.48	157 6.18	220 8.661
SCS.7000.080	80 3.15	180 7.09	260 10.236



On-Contact Force	
psi	lb.
2175	12974
2000	11930
1750	10439
1500	8948
1000	5965
500	2983
250	1491

On-Contact Force	
bar	kN
150	57.73
125	48.11
100	38.48
75	28.86
50	19.24
25	9.62
20	7.70



### Ordering Example:

**SCS.7000.080. TO. C. 150**

**Part Number:**

Includes Series, Model and Stroke Length.

**Mount Option:**

TO = Basic Model. B50 mount ordered with cylinder will be attached at the factory. When not specified, default is TO.

**Charging Pressure:** 15-150 bar (220-2175 psi) When not specified, default is 150 bar.

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

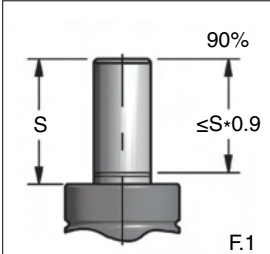
# Technical Data

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

**Operating Specifications**

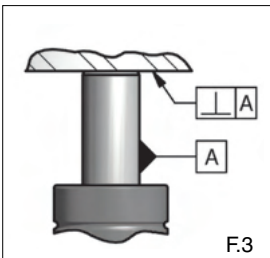
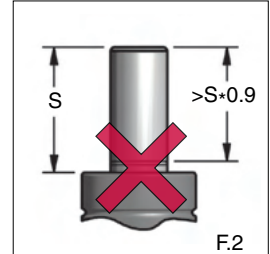
Charging Medium:	Nitrogen Gas
Charging Pressure:	15 – 180 bar (220 psi – 2600 psi)
Operating Temperature:	4°C – 71°C (40°F – 160°F)
Maximum Speed:	.5 m/sec (20 in/sec)

## Installation Requirements



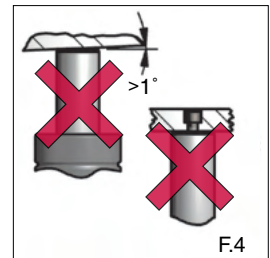
### Provide Stroke Reserve

- DADCO SCR and SCS 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).



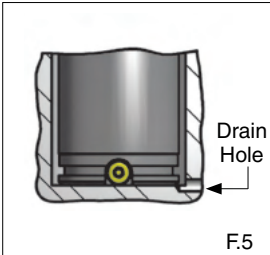
### Avoid Side Loading

- 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).



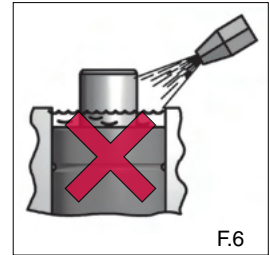
### Rod End Thread

- 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.



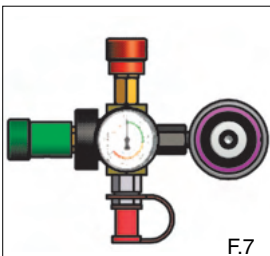
### Protect From Fluids

- 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).



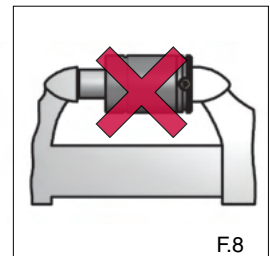
### Discharging Self-Contained Gas Spring

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

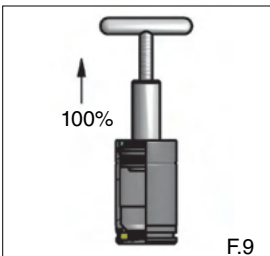


### Recharging Self-Contained Gas Spring

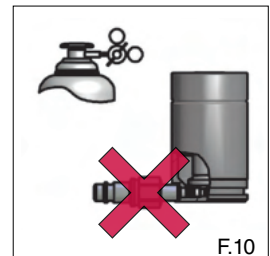
- Hold the spring vertically at all times during filling. Never compress the gas spring in a vice or clamp outside of the die or application as damage to the gas spring can result (F.8).



- Never fill a gas spring unless the rod is in the fully extended position (F.10). Thread the T-handle (90.320.M) 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 and SCS Series gas springs.



# DADCO®

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