

DAPCO®

Super Compact Nitrogen Gas Springs

SC Series



PED
2014/68/EU
COMPLIANT

DADCO®

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.

Super Compact - SC Series

DADCO's Super Compact Series is ideal for applications that require high force and short stroke lengths including absorbing break through and flanging. With stroke lengths ranging from 6 mm to 50 mm, and outer diameters ranging from 25 mm to 150 mm, DADCO continues to provide more force in less space by providing up to 21 tons (18400 daN) of force on contact.



Linked Capabilities

The Super Compact Series can be operated in both self-contained or linked systems. Super Compact models SC.01000 – SC.18300 have side-port linked capabilities through the addition of a sub plate to the base of the cylinder. DADCO will install sub plates for systems requiring linked capabilities through the side-port. In addition, models SC.07500 – SC.18300 have a SCLW option. The SCLW provide an integral G 1/8 side port as an alternative to sub plates, but has a limited number of stroke lengths. For more information refer to page 12.

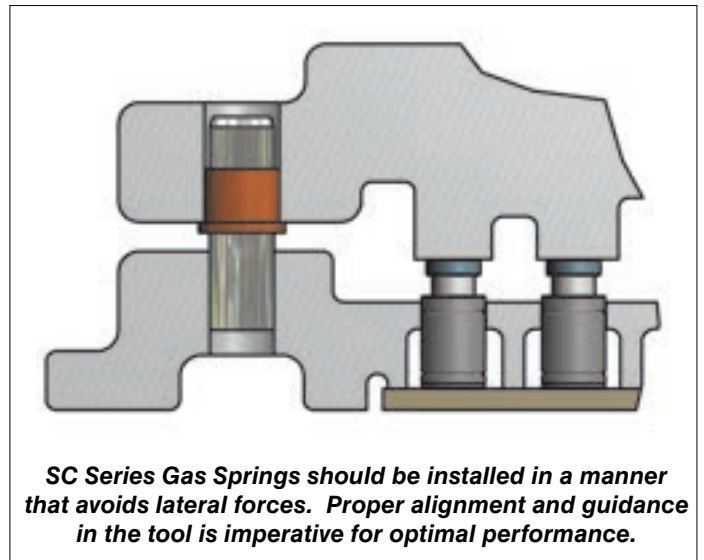
DADCO offers a full range of nitrogen gas spring accessories including hose, fittings, control panels, and surge tanks. For more information, contact DADCO.

Rapid Delivery

DADCO's modern 13,150 m² 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.

Installation Example

DADCO Nitrogen Gas Springs can be installed with the piston rod in any position. However, DADCO springs should be installed in a press or die that avoids lateral pressure, as 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. Avoid contact with draw compound or other contaminants and provide adequate draining in the gas spring pockets.



A safety warning plate, indicating that a gas spring is installed in the tool, should be placed in a clearly visible position either on a press tool or in its vicinity. Contact your DADCO customer service representative to order or request bulletin B01130D.

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.

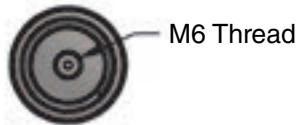
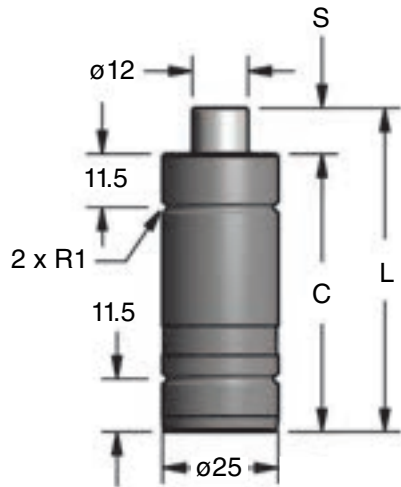
Warranty

DADCO warrants its SC 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.

SC.00420 – 425 daN

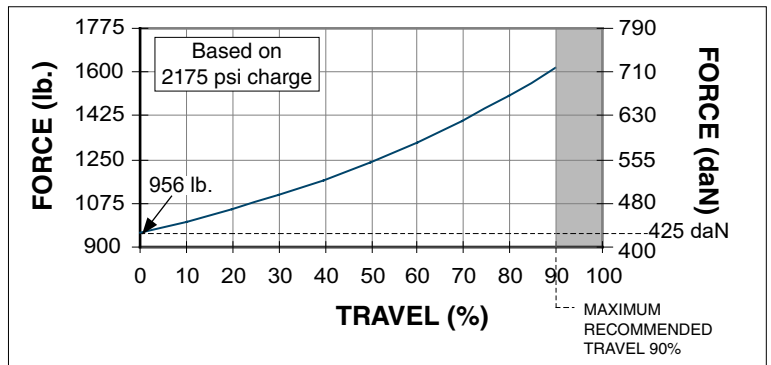


TO – Basic Mount

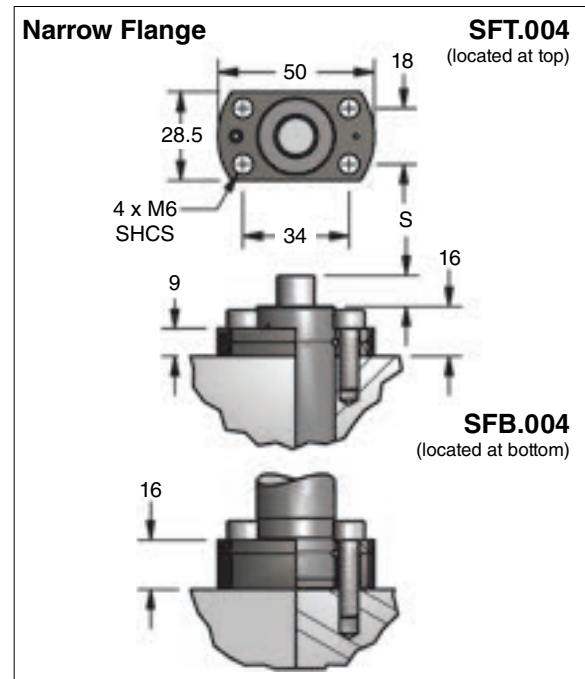
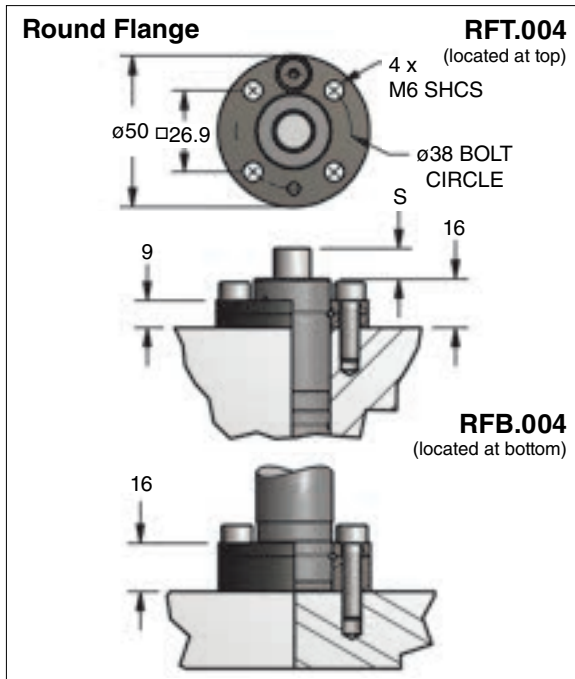
Part No.	S	C	L
SC.00420.10	10	60	70
SC.00420.16	16	75	91
SC.00420.25	25	95	120

On-Contact Force

psi	lb.	bar	daN
2175	956	150	425
2000	879	125	354
1750	769	100	284
1500	659	75	213
1000	439	50	142
500	220	25	71
250	110	20	57



Mount Options



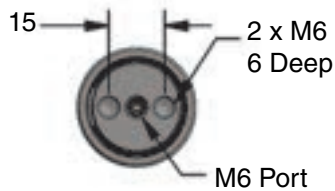
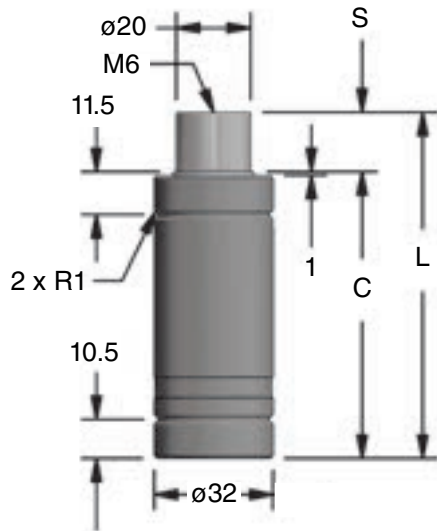
Ordering Examples:

Cylinder Only: SC.00420.25.TO.150

Cylinder w/Mount: SC.00420.25.RFT.150

Super Compact Nitrogen Gas Springs

SC.00740 – 736 daN

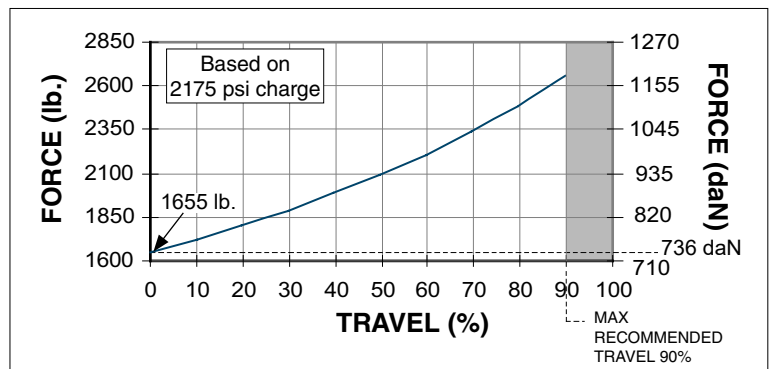


TO – Basic Mount

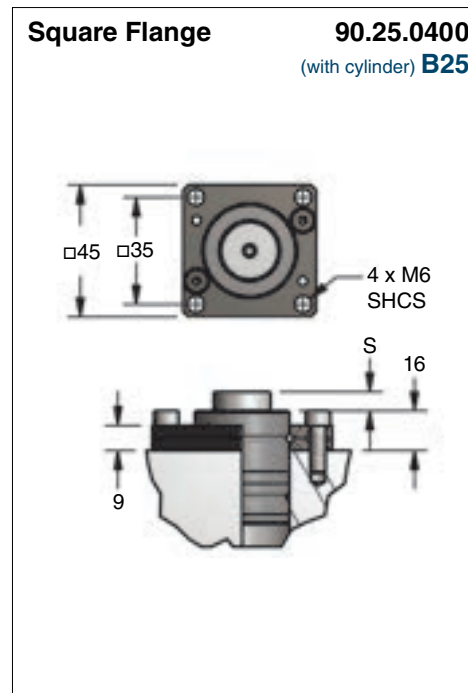
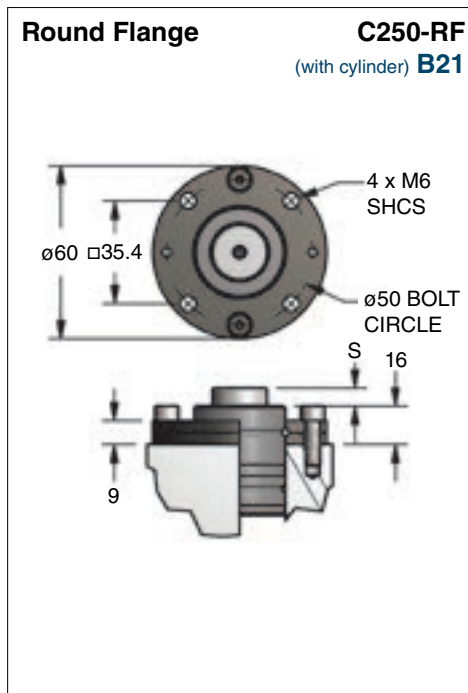
Part No.	S	C	L
SC.00740.06	6	57	63
SC.00740.10	10	65	75
SC.00740.16	16	77	93
SC.00740.25	25	95	120
SC.00740.32	32	108	140
SC.00740.40	40	125	165
SC.00740.50	50	145	195

On-Contact Force

psi	lb.	bar	daN
2175	1655	150	736
2000	1522	125	614
1750	1331	100	491
1500	1141	75	368
1000	761	50	245
500	380	25	123
250	190	20	98



Mount Options



Ordering Examples:

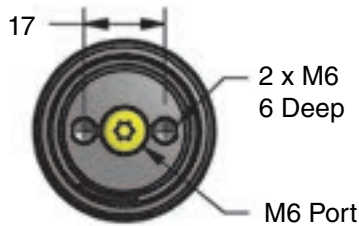
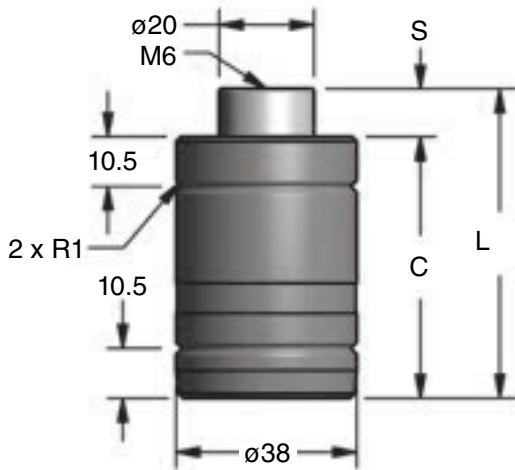
Cylinder Only: SC.00740.25.TO.150

Cylinder with Mount: SC.00740.25.B21.150

SC.01000 – 10 kN

Super Compact Nitrogen Gas Springs

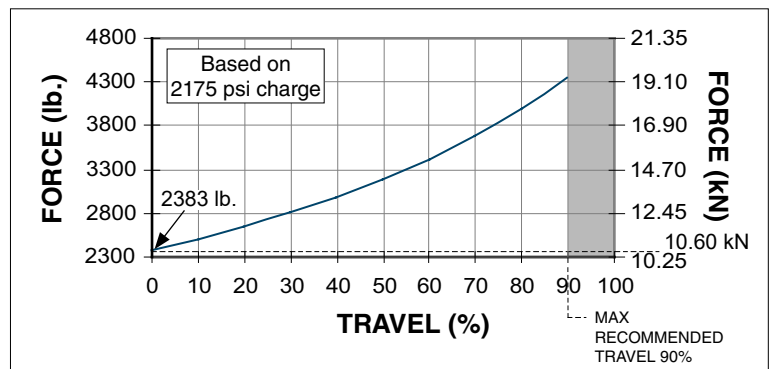
Part No.	S	C	L
SC.01000.06	6	55	61
SC.01000.10	10	68	78
SC.01000.16	16	84	100
SC.01000.25	25	110	135
SC.01000.32	32	135	167
SC.01000.40	40	155	195
SC.01000.50	50	180	230



TO – Basic Mount

On-Contact Force

psi	lb.	bar	kN
2175	2383	150	10.60
2000	2191	125	8.84
1750	1917	100	7.07
1500	1643	75	5.30
1000	1096	50	3.53
500	548	25	1.77
250	274	20	1.41



Mount Options

Round Flange **RFT.010**
(located at top)

RFB.010
(located at bottom)

Square Flange **SFT.010**
(located at top)

SFB.010
(located at bottom)

NEW! **Square Sub Plate 90.50.01000**
(with cylinder) **B50**

Sub Plate **CSP.01000**
SCL.01000
(with cylinder)

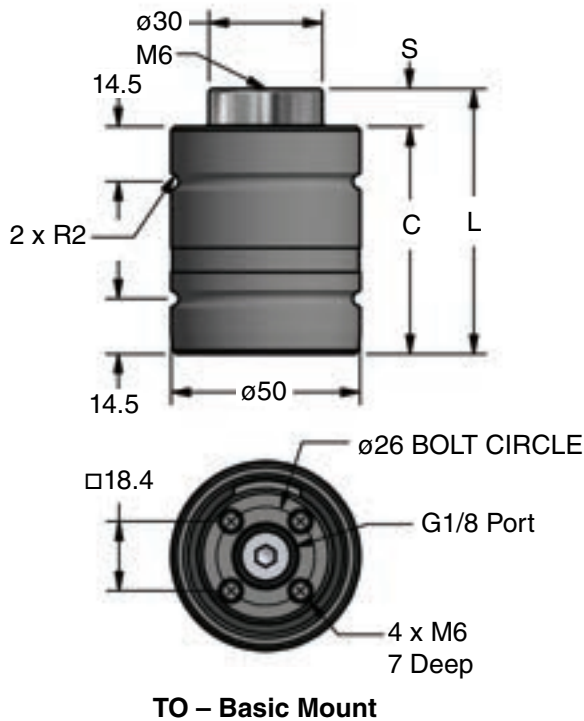
Ordering Examples:

Cylinder Only: SC.01000.25.TO.150
Cylinder with Mount: SC.01000.25.RFT.150

Cylinder with Square Sub Plate: SC.01000.25.B50.0
Cylinder with Round Sub Plate: SCL.01000.25.TO.0
Sub Plate Only: CSP.01000 / 90.50.01000

Super Compact Nitrogen Gas Springs

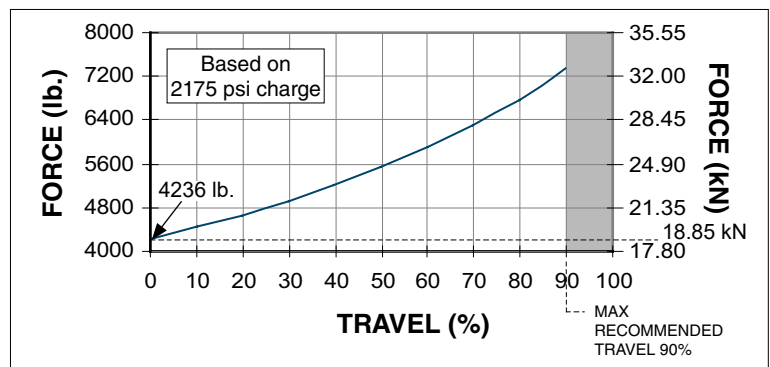
SC.01800 – 19 kN



Part No.	S	C	L
SC.01800.06	6	60	66
SC.01800.10	10	70	80
SC.01800.16	16	90	106
SC.01800.25	25	110	135
SC.01800.32	32	130	162
SC.01800.40	40	150	190
SC.01800.50	50	170	220

On-Contact Force

psi	lb.	bar	kN
2175	4236	150	18.85
2000	3896	125	15.71
1750	3409	100	12.57
1500	2922	75	9.42
1000	1948	50	6.28
500	974	25	3.14
250	487	20	2.51



Mount Options

Round Flange

RFT.018
(located at top)

4 x M8 SHCS
 $\phi 95$ $\square 56.5$
 $\phi 80$ BOLT CIRCLE
S 21
13
RFB.018
(located at bottom)

Square Flange

SFT.018
(located at top)

$\square 70$ $\square 56.5$
4 x M8 SHCS
S 21
13
SFB.018
(located at bottom)

NEW!

Square Sub Plate 90.50.01800

(with cylinder) **B50**

G 1/8 Port
20
4 x M8 SHCS
 $\square 56.5$
 $\square 75$
6

Sub Plate

CSP.01800
SCL.01800
(with cylinder)

11
20
G 1/8
 $\phi 43$
8 7
2 x M6
12 Deep
26

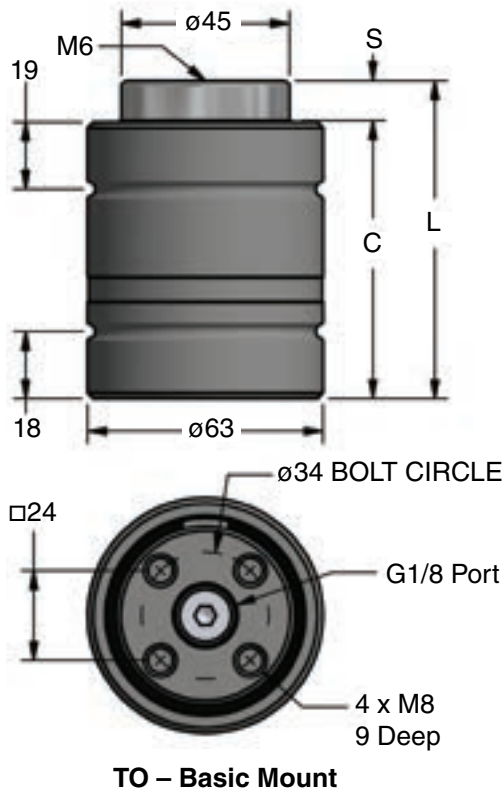
Ordering Examples:

Cylinder Only: SC.01800.25.TO.150
Cylinder with Mount: SC.01800.25.RFT.150

Cylinder with Square Sub Plate: SC.01800.25.B50.0
Cylinder with Sub Plate: SCL.01800.25.TO.0
Sub Plate Only: CSP.01800 / 90.50.01800

SC.03500 – 32 kN

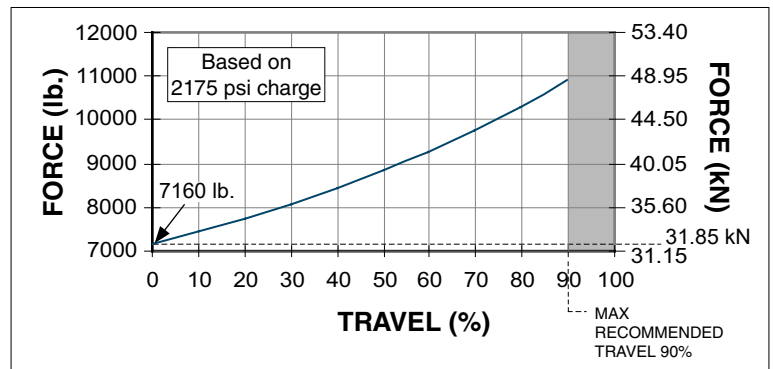
Super Compact Nitrogen Gas Springs



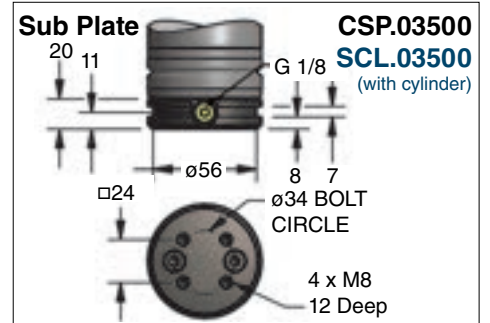
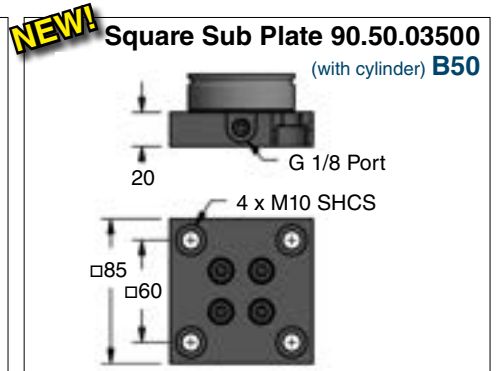
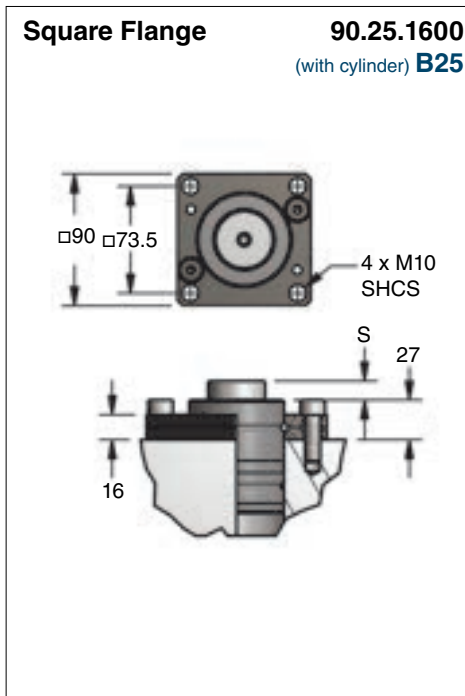
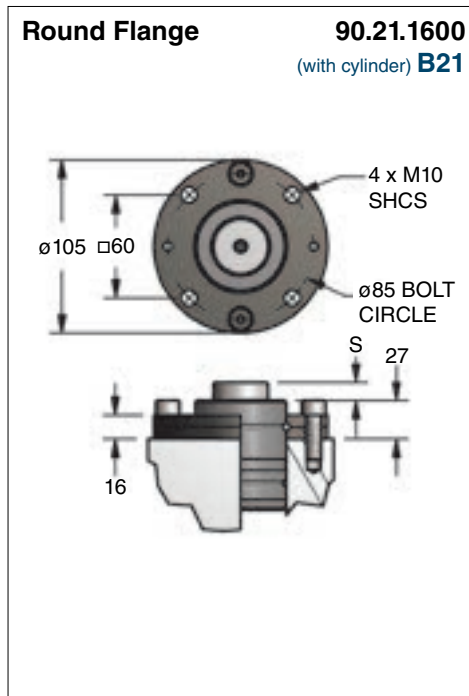
Part No.	S	C	L
SC.03500.10	10	75	85
SC.03500.16	16	87	103
SC.03500.25	25	105	130
SC.03500.32	32	118	150
SC.03500.40	40	135	175
SC.03500.50	50	155	205

On-Contact Force

psi	lb.	bar	kN
2175	7160	150	31.85
2000	6584	125	26.55
1750	5761	100	21.24
1500	4938	75	15.93
1000	3292	50	10.62
500	1646	25	5.31
250	823	20	4.25



Mount Options



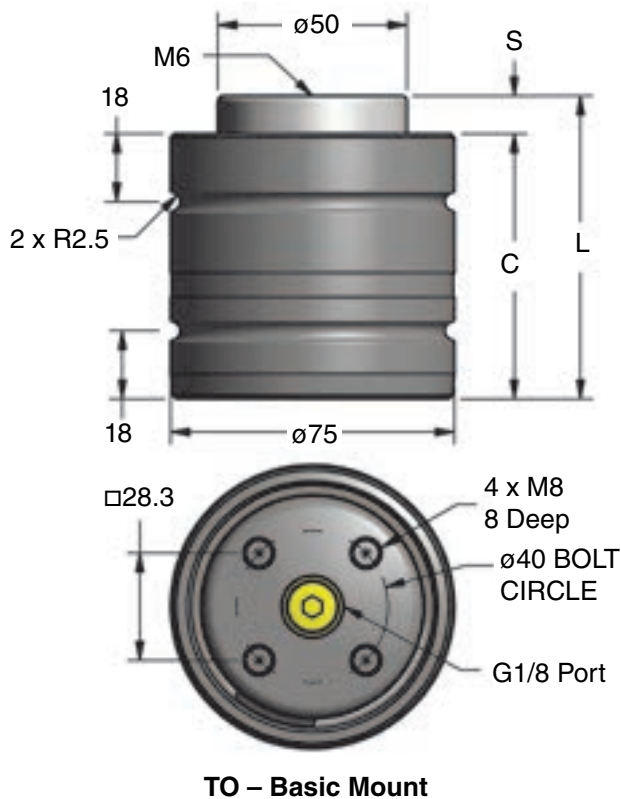
Ordering Examples:

Cylinder Only: SC.03500.25.TO.150
 Cylinder with Mount: SC.03500.25.B21.150

Cylinder with Square Sub Plate: SC.03500.25.B50.0
 Cylinder with Sub Plate: SCL.03500.25.TO.0
 Sub Plate Only: CSP.03500 / 90.50.03500

Super Compact Nitrogen Gas Springs

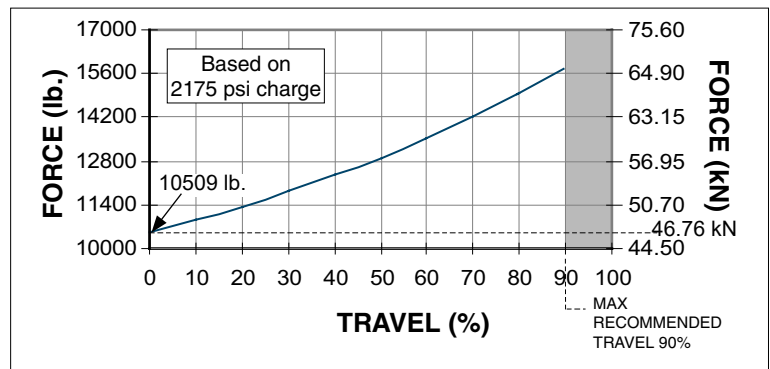
SC.04700 – 47 kN



Part No.	S	C	L
SC.04700.10	10	70	80
SC.04700.16	16	90	106
SC.04700.25	25	110	135
SC.04700.32	32	135	167
SC.04700.40	40	160	200
SC.04700.50	50	190	240

On-Contact Force

psi	lb.	bar	kN
2175	10509	150	46.76
2000	9663	125	38.96
1750	8456	100	31.17
1500	7248	75	23.38
1000	4832	50	15.59
500	2416	25	7.79
250	1208	20	6.23



Mount Options

<p>Round Flange RFT.047 (located at top)</p> <p>RFB.047 (located at bottom)</p>	<p>Square Flange SFT.047 NEW! (located at top)</p> <p>SFB.047 (located at bottom)</p>	<p>Square Sub Plate 90.50.4300 (with cylinder) B50</p> <p>CSP.04700 SCL.04700 (with cylinder)</p>
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Ordering Examples:

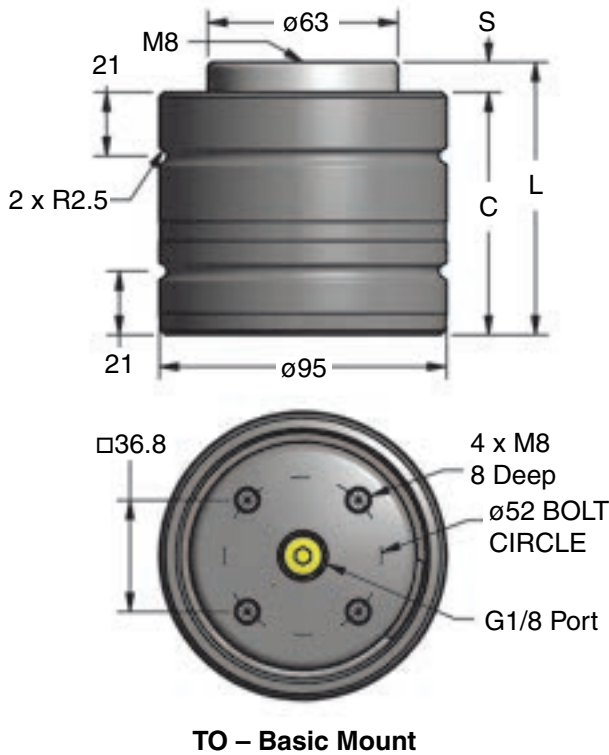
Cylinder Only: SC.04700.25.TO.150
 Cylinder with Mount: SC.04700.25.RFT.150

Cylinder with Square Sub Plate:
 Cylinder with Round Sub Plate:
 Sub Plate Only:

SC.04700.25.B50.0
 SCL.04700.25.TO.0
 CSP.04700 / 90.50.4300

SC.07500 – 75 kN

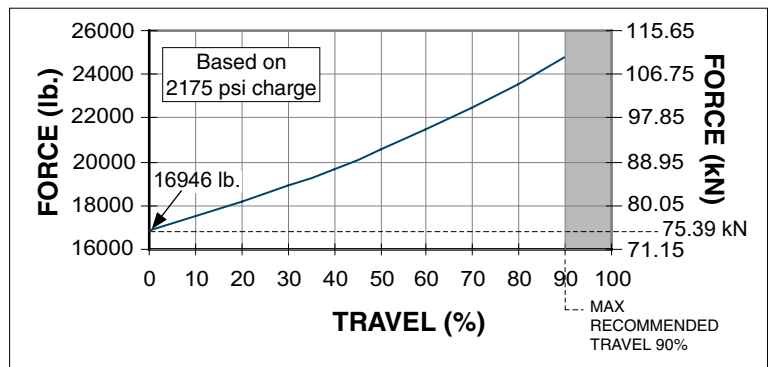
Super Compact Nitrogen Gas Springs



Part No.	S	C	L
SC.07500.10	10	80	90
SC.07500.16	16	100	116
SC.07500.25	25	120	145
SC.07500.32	32	150	182
SC.07500.40	40	170	210
SC.07500.50	50	205	255

On-Contact Force

psi	lb.	bar	kN
2175	16946	150	75.39
2000	15582	125	62.83
1750	13635	100	50.26
1500	11687	75	37.70
1000	7791	50	25.13
500	3896	25	12.57
250	1948	20	10.05



Mount Options

Round Flange RFT.075

(located at top)

RFB.075

(located at bottom)

Square Flange SFT.075

(located at top)

SFB.075

(located at bottom)

NEW! Square Sub Plate 90.50.07000

(with cylinder) B50

Sub Plate CSP.07500

SCL.07500 (with cylinder)

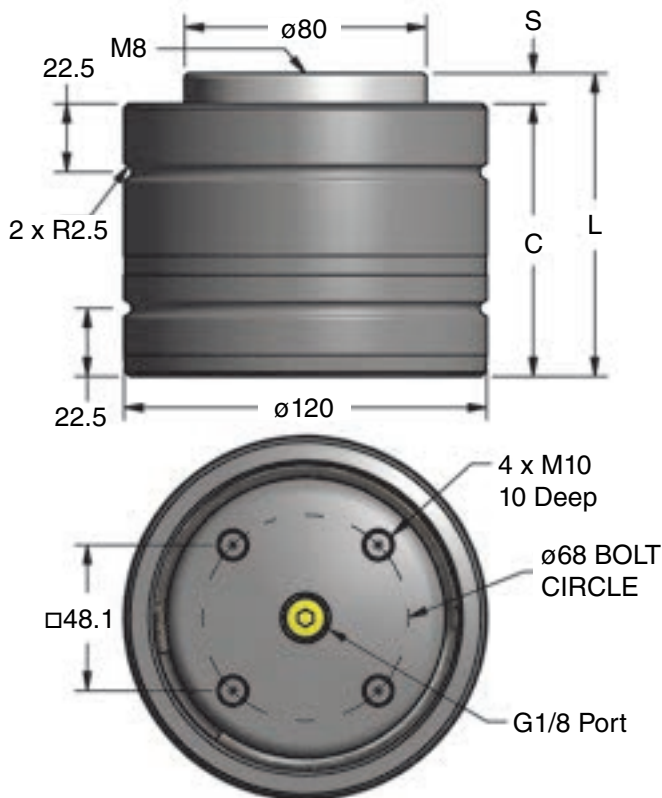
Ordering Examples:

Cylinder Only: SC.07500.25.TO.150
 Cylinder with Mount: SC.07500.25.RFT.150

Cylinder with Square Sub Plate: SC.07500.25.B50.0
 Cylinder with Sub Plate: SCL.07500.25.TO.0
 Sub Plate Only: CSP.07500 / 90.50.07000

Super Compact Nitrogen Gas Springs

SC.11800 – 118 kN

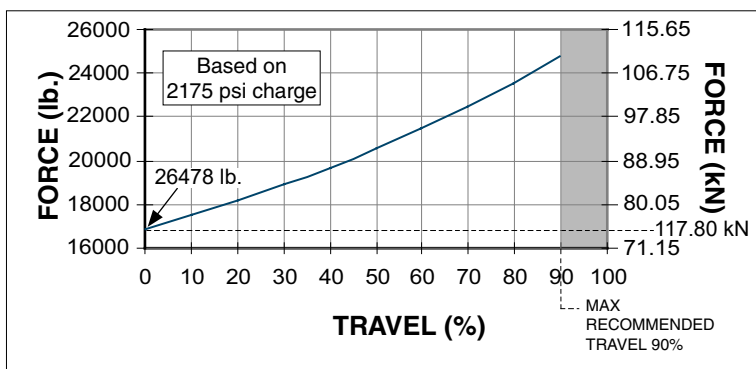


TO – Basic Mount

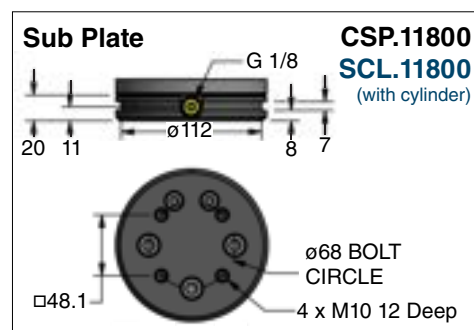
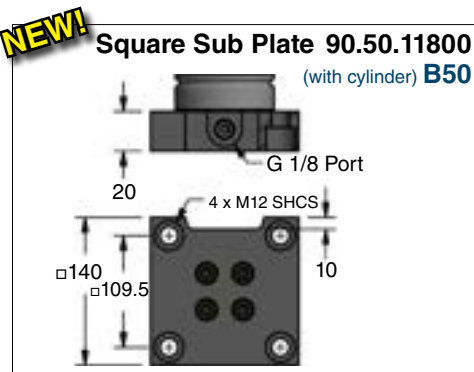
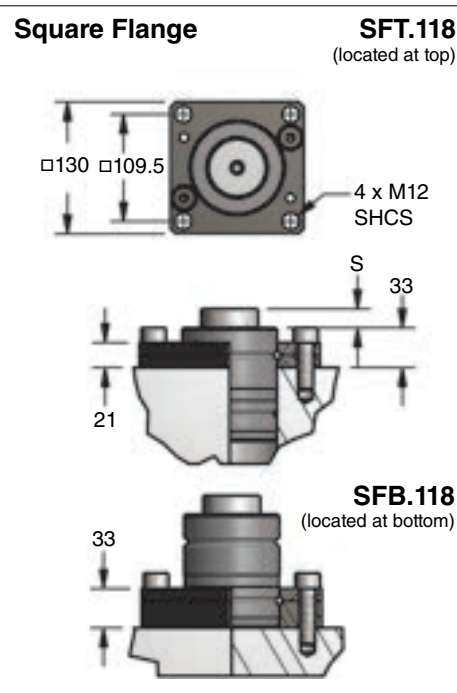
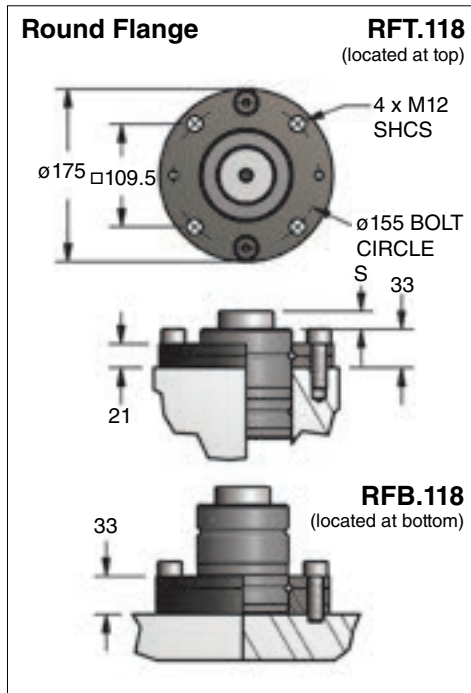
Part No.	S	C	L
SC.11800.10	10	90	100
SC.11800.16	16	110	126
SC.11800.25	25	130	155
SC.11800.32	32	155	187
SC.11800.40	40	180	220
SC.11800.50	50	210	260

On-Contact Force

psi	lb.	bar	kN
2175	26478	150	117.80
2000	24347	125	98.17
1750	21304	100	78.54
1500	18261	75	58.90
1000	12174	50	39.27
500	6087	25	19.63
250	3043	20	15.71



Mount Options



Ordering Examples:

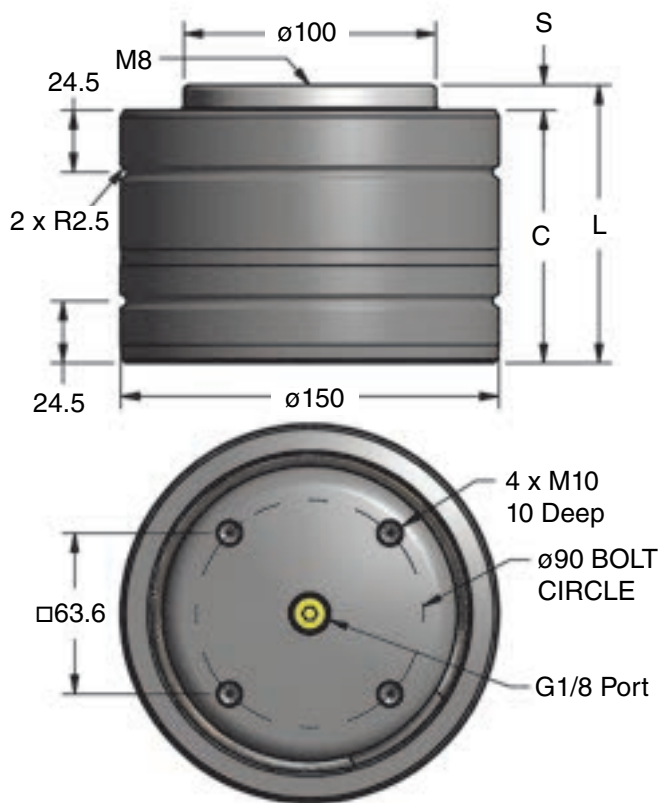
Cylinder Only: SC.11800.25.TO.150
 Cylinder with Mount: SC.11800.25.RFT.150

Cylinder with Square Sub Plate: SC.11800.25.B50.0
 Cylinder with Sub Plate: SCL.11800.25.TO.0
 Sub Plate Only: CSP.11800 / 90.50.11800

SC.11800.25.B50.0
 SCL.11800.25.TO.0
 CSP.11800 / 90.50.11800

SC.18300 – 184 kN

Super Compact Nitrogen Gas Springs

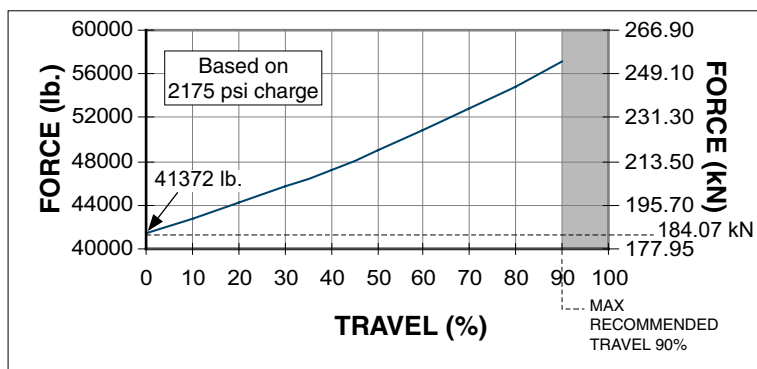


TO – Basic Mount

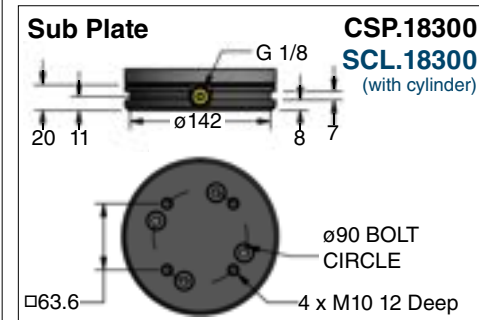
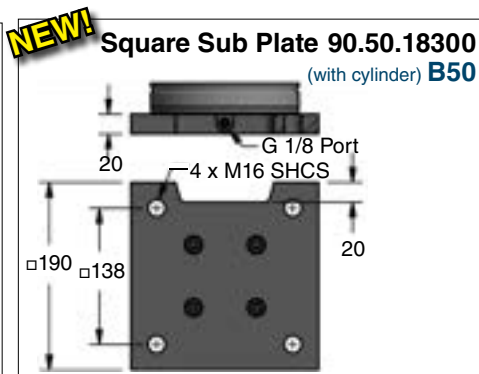
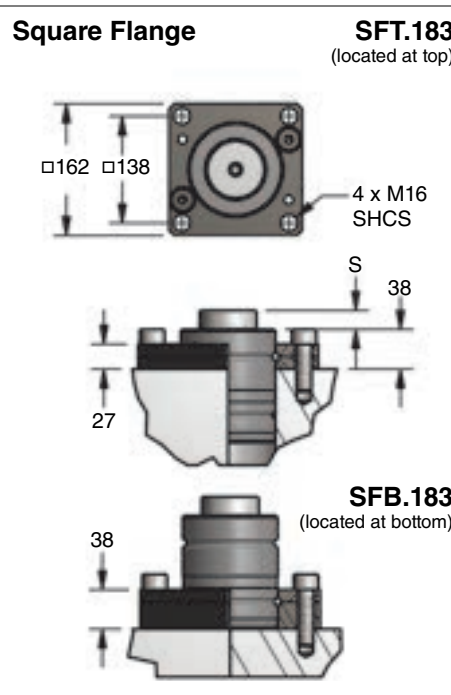
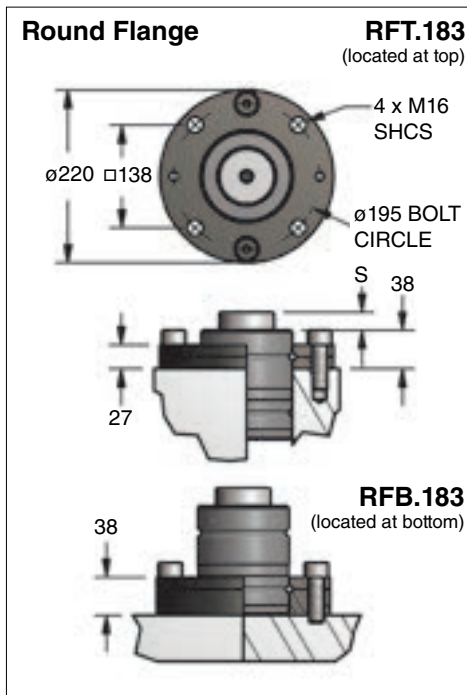
Part No.	S	C	L
SC.18300.10	10	100	110
SC.18300.16	16	120	136
SC.18300.25	25	140	165
SC.18300.32	32	165	197
SC.18300.40	40	195	235
SC.18300.50	50	220	270

On-Contact Force

psi	lb.	bar	kN
2175	41372	150	184.07
2000	38043	125	153.39
1750	33287	100	122.71
1500	28532	75	92.03
1000	19021	50	61.36
500	9511	25	30.68
250	4755	20	24.54



Mount Options

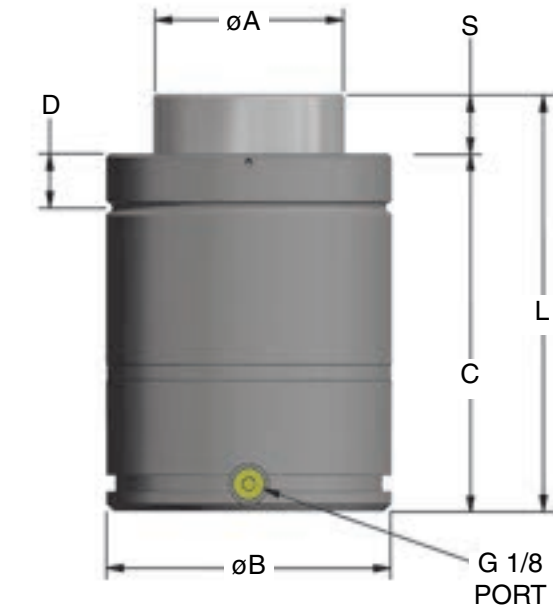


Ordering Examples:	Cylinder with Square Sub Plate:	SC.18300.25.B50.0
Cylinder Only:	Cylinder with Sub Plate:	SCL.18300.25.TO.0
Cylinder with Mount:	Sub Plate Only:	CSP.18300 / 90.50.18300

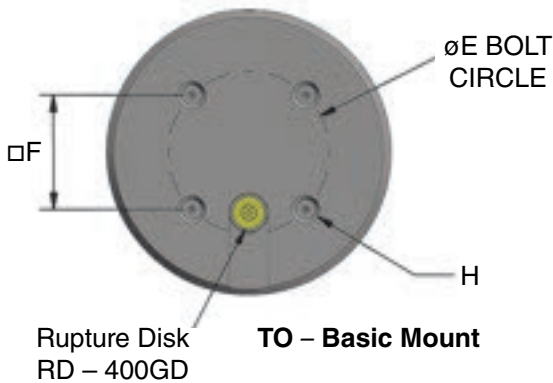
Super Compact Nitrogen Gas Springs

SCLW

The SCLW is an alternative to sub plates. This one-piece body construction is used for specialized piped applications with select models as referenced below. Contact DADCO for qualifications.



Model	SCLW.07500	SCLW.11800	SCLW.18300
A	63	80	100
B	95	120	150
D	21	22.5	24.5
E	52	68	90
F	36.8	48.1	63.6
H	4 x M8 12 DEEP	4 x M10 16 DEEP	4 x M10 17 DEEP

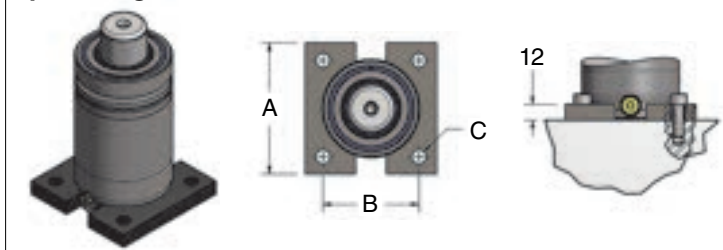


Part No.	S mm	07500		11800		18300	
		C	L ±0.25	C	L ±0.25	C	L ±0.25
SCLW.____.025	25	140	165	150	175	160	185
SCLW.____.032	32	170	202	175	207	185	217
SCLW.____.040	40	190	230	200	240	215	255
SCLW.____.050	50	225	275	230	280	240	290

On-Contact Force

Model	psi	lb.	bar	kN
SCLW.07500	2175	16946	150	75.39
SCLW.11800	2175	26478	150	117.80
SCLW.18300	2175	41372	150	184.07

Split Flange Plate



Mount	SCLW	A mm	B mm	C mm
BSL.075	07500	120	92	4 x M12
BSL.118	11800	140	109.5	4 x M12
BSL.183	18300	190	138	4 x M16

Ordering Example:

SCLW.11800.25. TO. C. 150

Part Number: _____

Includes Series, Model and Stroke Length.

Mount Options: _____

TO = Basic Model, BSL = Split Flange Plate,
RFT = Round Flange, SFT = Square Flange.

Refer to specific model pages for mount dimensions. 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. When not specified, default is C, self-contained.

Repair Tools

**C-Ring Installation Tool
90.352 (SC.01800 – SC.18300)**

To insert the C-Style Retaining Ring into the retaining ring groove. For more information request bulletin B01101E.



**C-Ring Removal Tool
90.355 (SC.00420 – SC.4700)
90.356 (SC.01800 – SC.18300)**

To remove C-Style Retaining Rings safely in a single controlled motion.



**Valve Bleed Tool
90.360.4**

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



**Seal Installation Tool
98.357D.00740 (SC.00740)
98.357D.01000 (SC.01000)**

Use to properly install a new seal onto the rod. All sizes available upon request.



**T-Handle
90.320.1 (SC.00740 – SC.1000)
90.320.2 (SC.01800 – SC.18300)**

To remove the piston rod when disassembling and position correctly when reassembling.



**Port Servicing Tool
90.320.8**

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

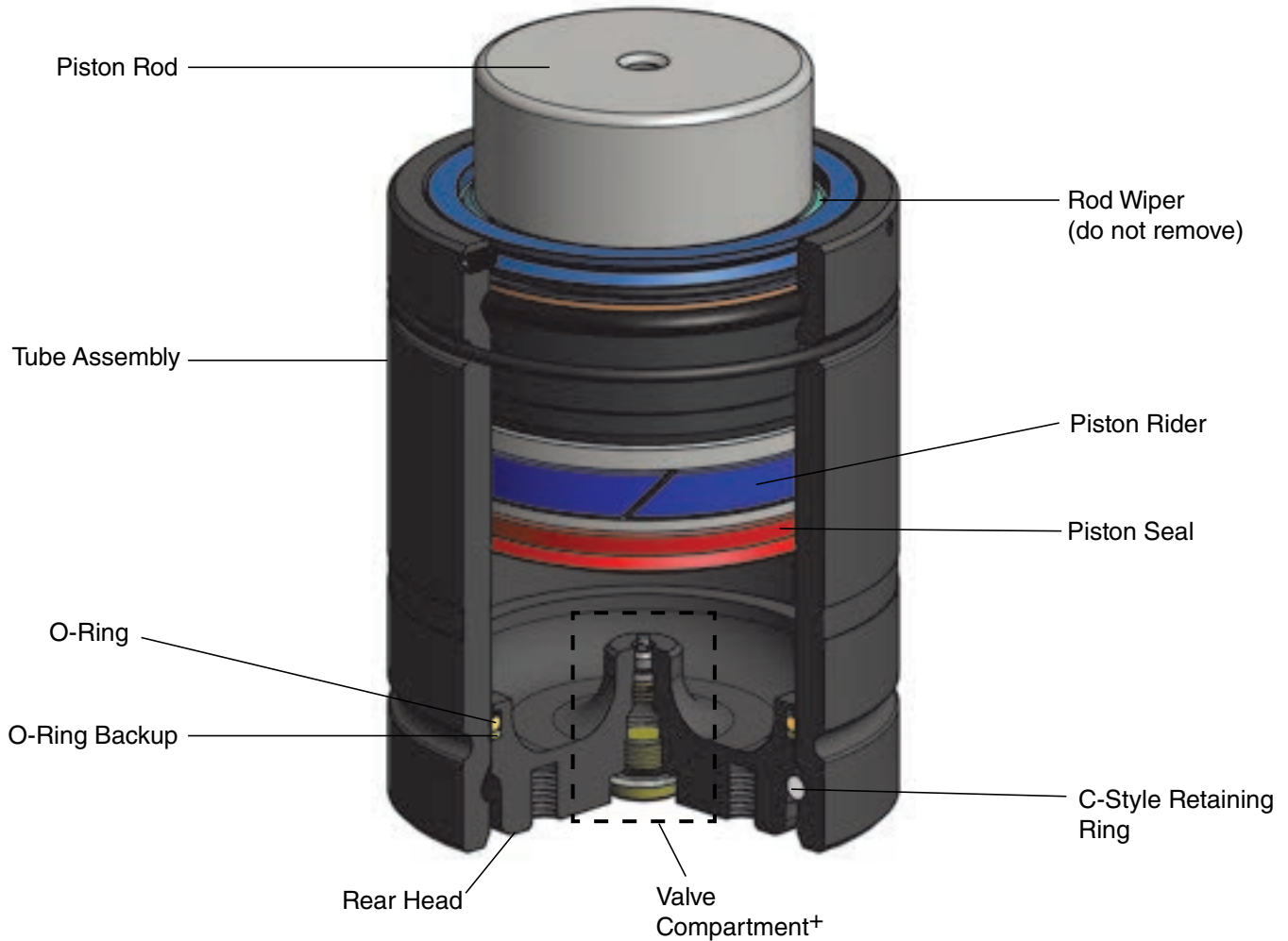


**Rear Head Tool
98.328 (SC.01800 – SC.18300)**

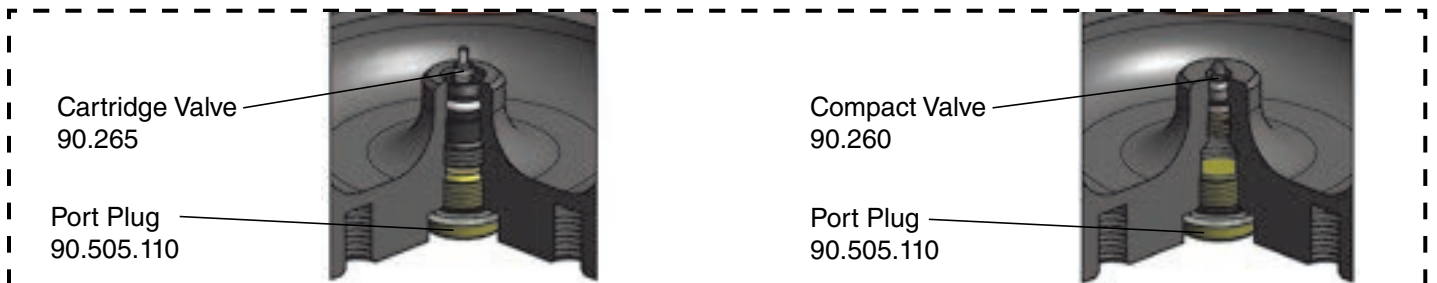
Seats the rear head against the C-Style Retaining Ring after installation.



SC Internal Construction



Valve Compartment+



If Nitrogen Gas Spring port requires maintenance, verify valve type that was removed and replace with the same valve. Please note: valves are not interchangeable. Model SC.01000 uses Port Plug 90.607.110.

Note: SC Series nitrogen gas springs are repairable, please contact DADCO for more information.

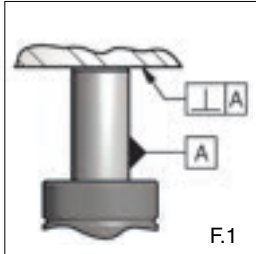
Operating Specifications

Charging Medium:	Nitrogen Gas	Maximum Charging Pressure:	15 – 150 bar (220 – 2175 psi)
Operating Temperature:	4°C – 71°C (40°F – 160°F)	Maximum Speed:	1.6 m/sec (63 in/sec)

CAUTION

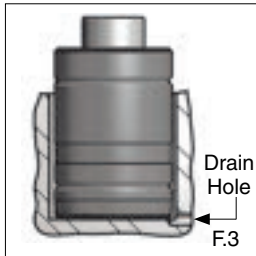
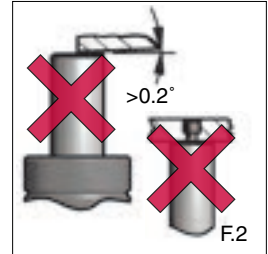
DO NOT attempt maintenance on spring until internal pressure is exhausted.

Installation Requirements



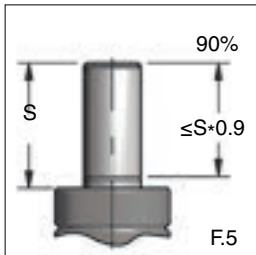
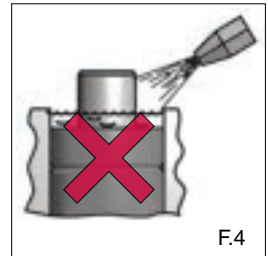
Avoid Side Loading

- The striking surface should encompass the full diameter of the rod (F.1).
- A misaligned press or die will lead to side loading. This condition increases wear on the bearing, seal and cylinder wall. Any damage to the cylinder wall renders the product irreparable (F.1). Therefore, avoid side loading when possible (F.2).



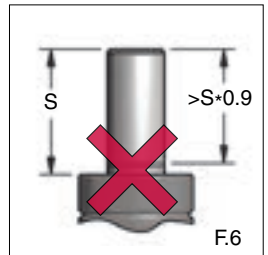
Protect From Fluids

- Direct contact with certain die lubricants and cleaners should be avoided (F.4). Protect gas springs by providing adequate drainage in gas spring pockets (F.3).



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.2). DADCO's SC.00420 does not have a rod end thread and should be sent to DADCO for repair.

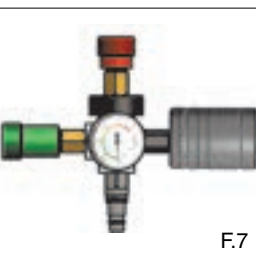


Provide Stroke Reserve

- DADCO Super Compact Gas Springs will permit travel of the full nominal stroke; however, at least a 10% stroke reserve is recommended to achieve optimal performance (F.5 and F.6).

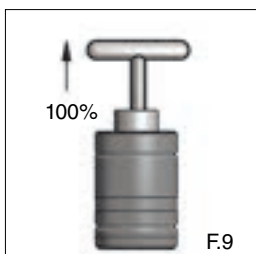
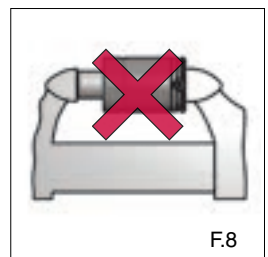
Discharging Self-Contained Gas Spring

- The DADCO Pressure Analyzer (90.315.5) allows for charging, discharging and gauging of the pressure in the SC Series Gas Springs (F.7).



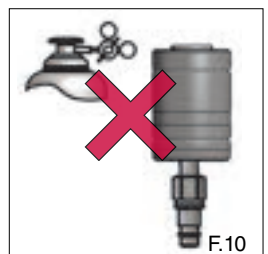
Recharging Self-Contained Gas Spring

- 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).
- Prior to recharging, assure that (1) the rear head is seated against the c-ring and (2) the rod is fully extended (F.9). Never charge the gas spring with the rod down or the rear head not seated against the c-ring (F.10). To seat the rear head, thread two bolts into the tapped holes in the rear head and depress the valve stem while pulling the rear head back against the c-ring. Thread the T-handle (90.320.1 or 90.320.2) 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 piston rod up until it is firmly seated. Remove the T-handle from the rod and charge the gas spring to the desired pressure.



Repair

- For information on the repair of DADCO's Super Compact Series reference bulletin B02103E.



Other DADCO Products



SCR Series

- From 32 mm to 63 mm in diameter
- Forces up to 28.6 kN
- Full range of standard stroke lengths up to 80 mm
- Completely serviceable



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



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
- **UltraPak®** cartridge for long life



Patented

Ultra Force Extended® – UX Series

- 25-55% more force on-contact than ISO Standard Nitrogen Gas Springs
- Long stroke lengths - up to 300 mm
- From 50 mm to 195 mm in diameter
- Up to 199 kN of force on contact
- Matches ISO Envelope



Guide Retainer Sets – GRS / GRS.HD Series

- Robust design with combined guidance and retention
- Four rod diameters: 25 mm, 30 mm, 36 mm, 50 mm and 65 mm
- Various stroke lengths to suit application requirements
- Replaces common pins, bushings and spools



Power Cam and Power Pump System

- Guided hydraulic die cam with nitrogen return
- **Power Cam** may be installed and operated in any orientation
- 15 kN and 40 kN force models available
- Ideal for secondary operations such as punching, piercing, forming or flanging

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