Catalog No. C09101G

DADCO®

Super Compact Nitrogen Gas Springs

SC Series

PED
2014/68/EU
COMPLIANT

Introduction

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.

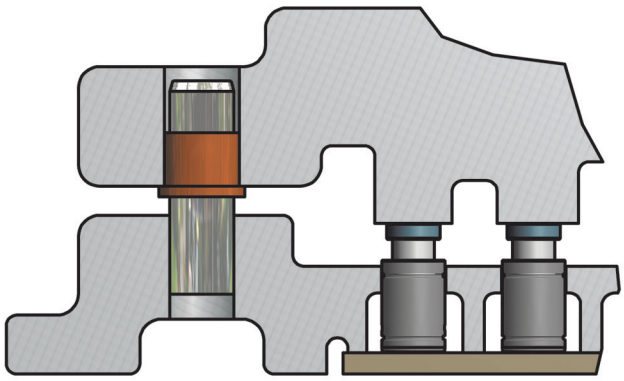
Super Compact - SC Series
DADCO's Super Compact Series is ideal for applications that require high force and short stroke lengths including absorbing break through and flanging. With stroke lengths ranging from 6 mm to 50 mm, and outer diameters ranging from 25 mm to 150 mm, DADCO continues to provide 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.

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 m^2 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.



SC Series Gas Springs should be installed in a manner that avoids lateral forces. Proper alignment and guidance in the tool is imperative for optimal performance.

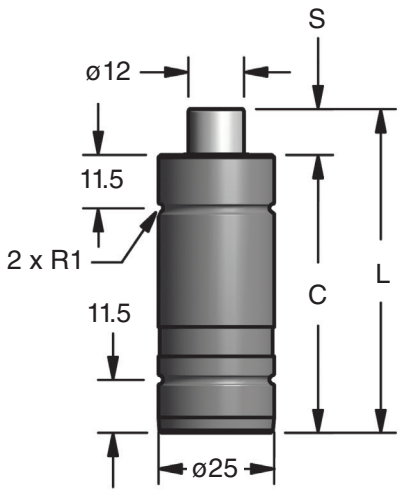
A safety warning plate, indicating that a gas spring is installed in the tool, should be placed in a clearly visible position either on a press tool or in its vicinity. Contact your DADCO customer service representative to order or request bulletin B01130D.

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



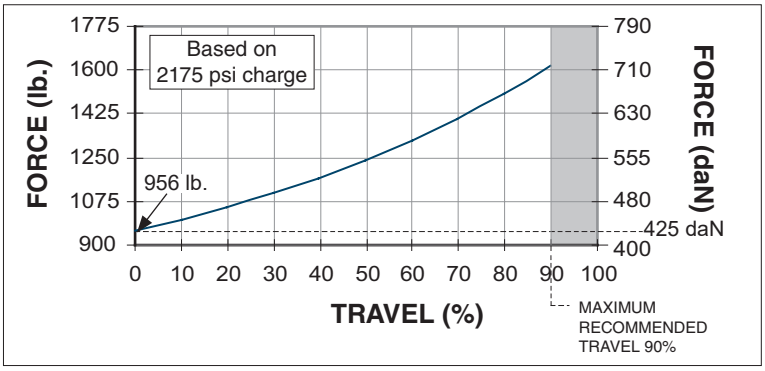
TO – Basic Mount

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

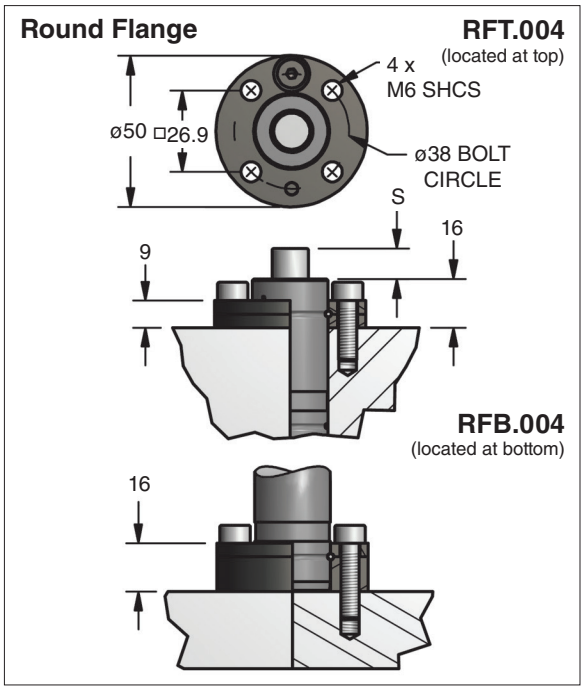
On-Contact Force

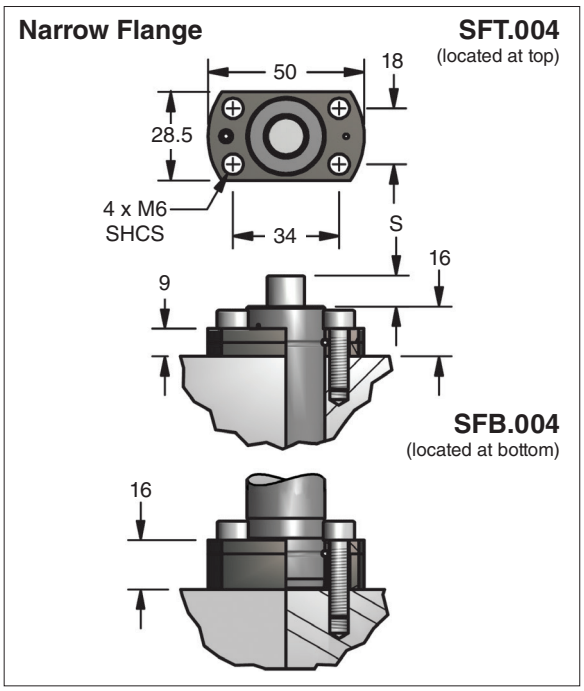
psi	lb.
2175	956
2000	879
1750	769
1500	659
1000	439
500	220
250	110

bar	daN
150	425
125	354
100	284
75	213
50	142
25	71
20	57



Mount Options

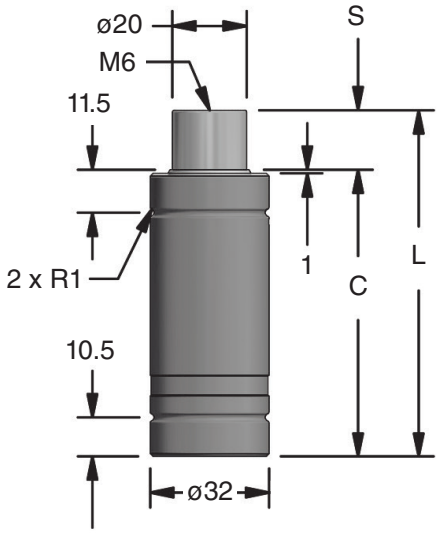


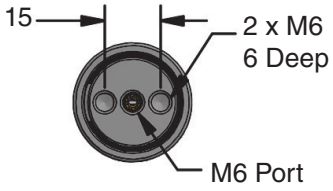


Ordering Examples:

Cylinder Only: SC.00420.25.TO.150 **Cylinder w/Mount:** SC.00420.25.RFT.150

SC.00740 – 736 daN





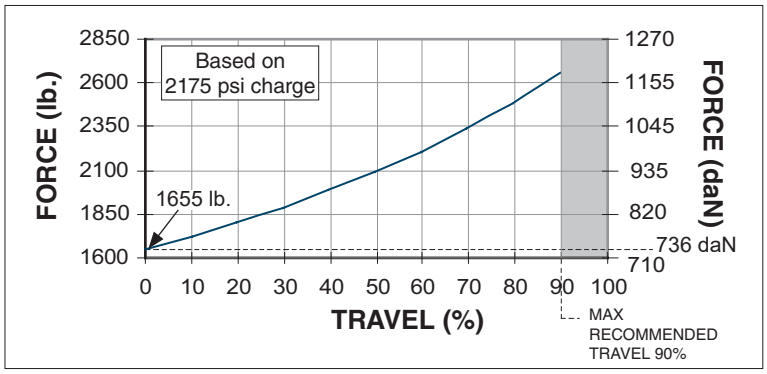
TO – Basic Mount

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

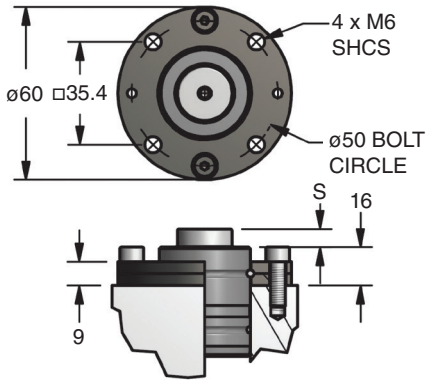
psi	lb.
2175	1655
2000	1522
1750	1331
1500	1141
1000	761
500	380
250	190

bar	daN
150	736
125	614
100	491
75	368
50	245
25	123
20	98

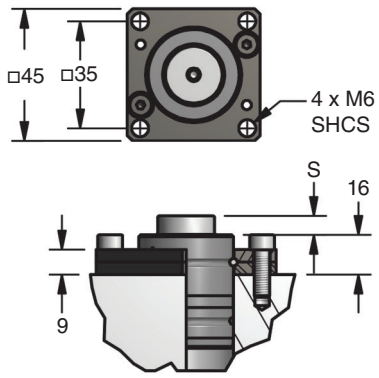


Mount Options

Round Flange **C250-RF**
(with cylinder) **B21**



Square Flange **90.25.0400**
(with cylinder) **B25**



Ordering Examples:

Cylinder Only: SC.00740.25.TO.150 **Cylinder with Mount:** SC.00740.25.B21.150

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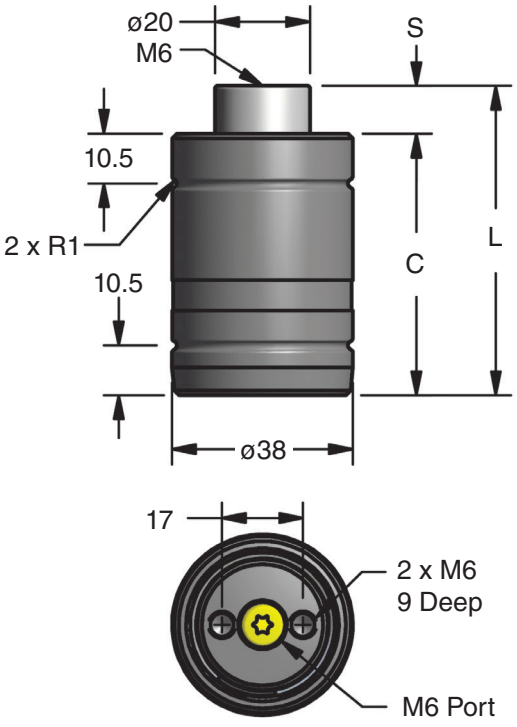
SC.01000 – 10 kN



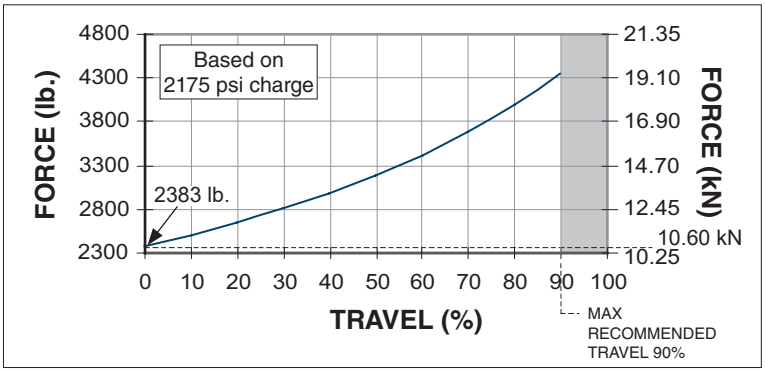
TO – Basic Mount

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

On-Contact Force

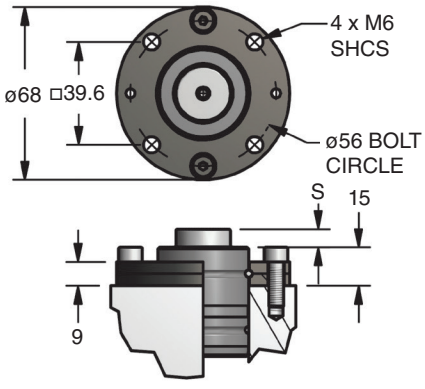
psi	lb.
2175	2383
2000	2191
1750	1917
1500	1643
1000	1096
500	548
250	274

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

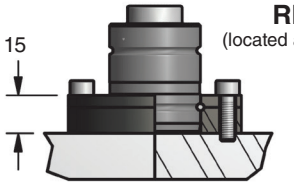


Mount Options

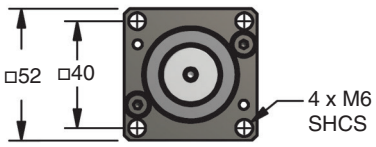
Round Flange **RFT.010** (located at top)

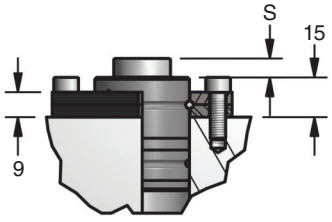


RFB.010 (located at bottom)

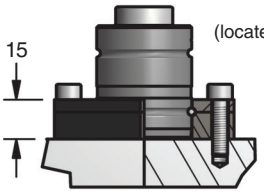


Square Flange **SFT.010** (located at top)

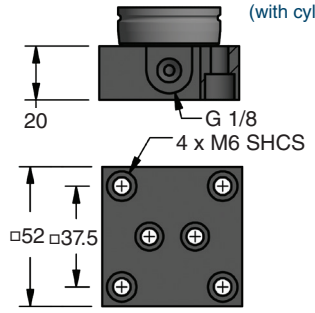




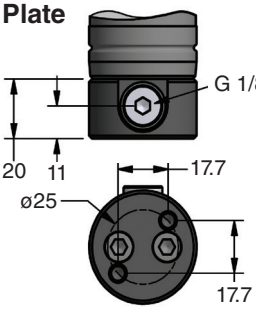
SFB.010 (located at bottom)



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



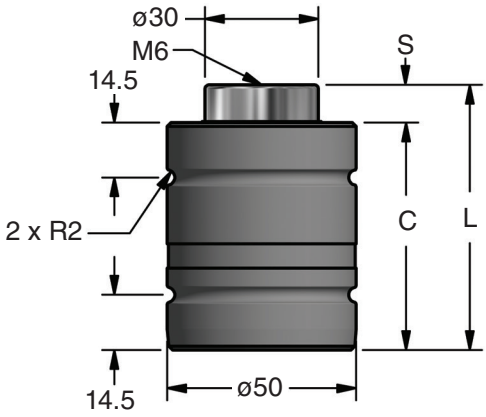
Sub Plate **CSP.01000** **SCL.01000** (with cylinder)

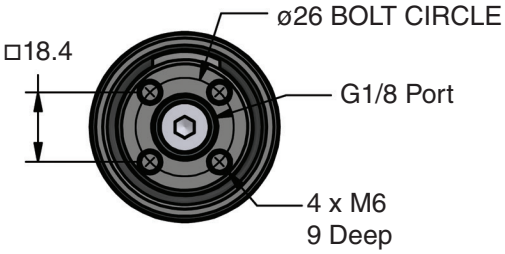


Ordering Examples:

Cylinder Only:	SC.01000.25.TO.150	**Cylinder with Square Sub Plate:**	SC.01000.25.B50.0
Cylinder with Mount:	SC.01000.25.RFT.150	**Cylinder with Round Sub Plate:**	SCL.01000.25.TO.0
		Sub Plate Only:	CSP.01000 / 90.50.01000

SC.01800 – 19 kN





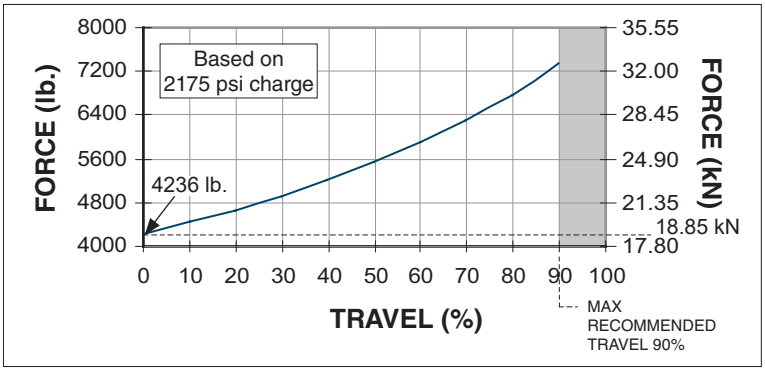
TO – Basic Mount

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

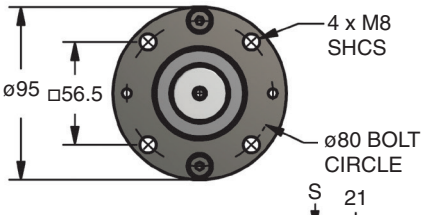
psi	lb.
2175	4236
2000	3896
1750	3409
1500	2922
1000	1948
500	974
250	487

bar	kN
150	18.85
125	15.71
100	12.57
75	9.42
50	6.28
25	3.14
20	2.51

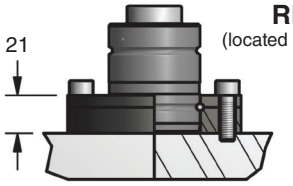


Mount Options

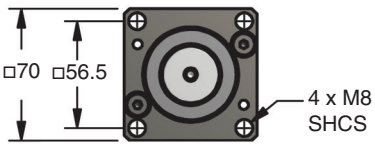
Round Flange **RFT.018** (located at top)

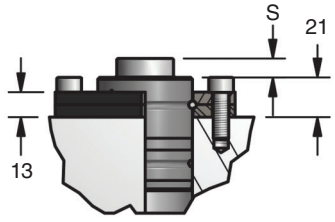


RFB.018 (located at bottom)

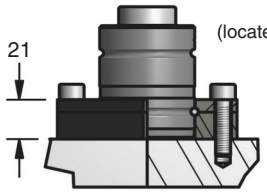


Square Flange **SFT.018** (located at top)

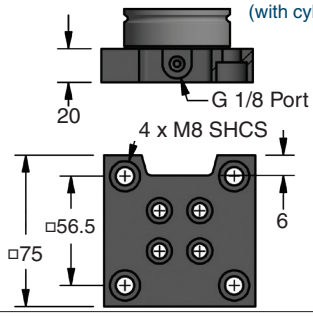




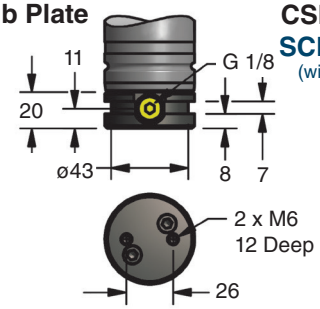
SFB.018 (located at bottom)



Square Sub Plate **90.50.01800** (with cylinder) **B50**



Sub Plate **CSP.01800** **SCL.01800** (with cylinder)



Ordering Examples:

Cylinder Only:	SC.01800.25.TO.150	**Cylinder with Square Sub Plate:**	SC.01800.25.B50.0
Cylinder with Mount:	SC.01800.25.RFT.150	**Cylinder with Sub Plate:**	SCL.01800.25.TO.0
		Sub Plate Only:	CSP.01800 / 90.50.01800

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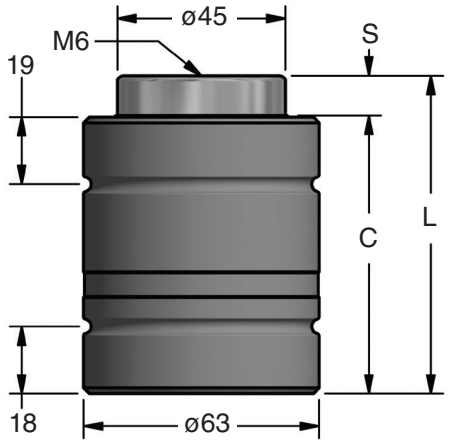
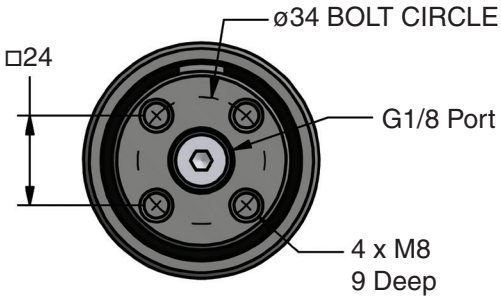
SC.03500 – 32 kN





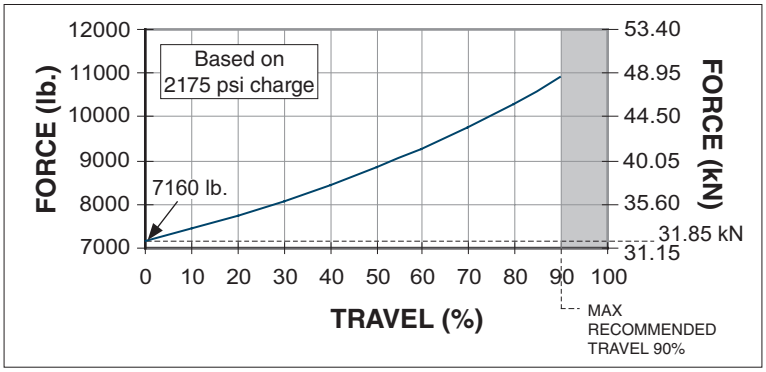
TO – Basic Mount

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

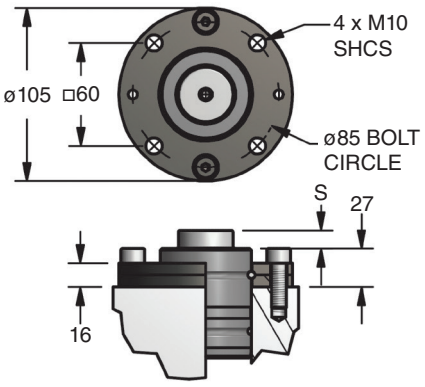
psi	lb.
2175	7160
2000	6584
1750	5761
1500	4938
1000	3292
500	1646
250	823

bar	kN
150	31.85
125	26.55
100	21.24
75	15.93
50	10.62
25	5.31
20	4.25

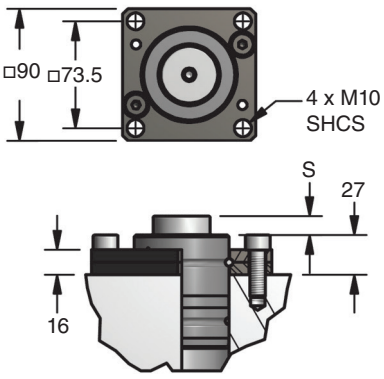


Mount Options

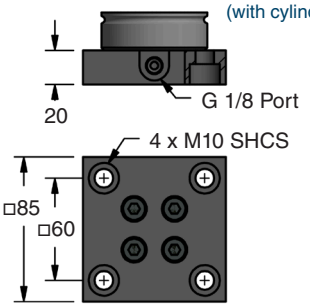
Round Flange **90.21.1600**
(with cylinder) **B21**



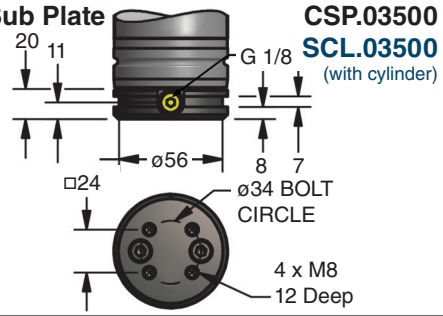
Square Flange **90.25.1600**
(with cylinder) **B25**



Square Sub Plate **90.50.03500**
(with cylinder) **B50**



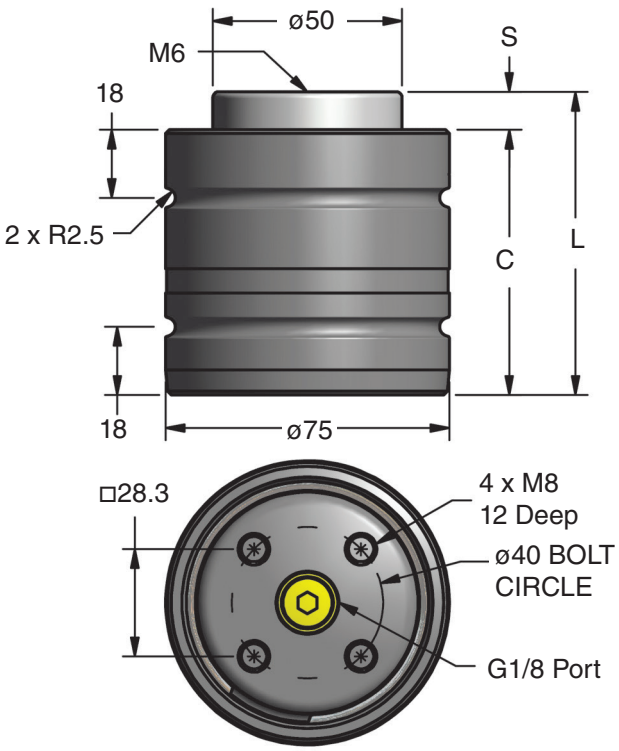
Sub Plate **CSP.03500**
SCL.03500
(with cylinder)



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

SC.04700 – 47 kN



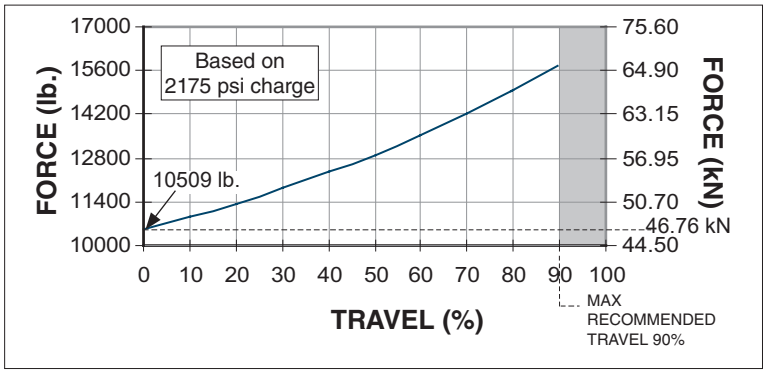
TO – Basic Mount

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

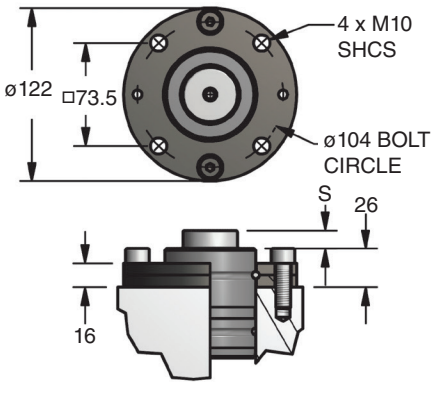
psi	lb.
2175	10509
2000	9663
1750	8456
1500	7248
1000	4832
500	2416
250	1208

bar	kN
150	46.76
125	38.96
100	31.17
75	23.38
50	15.59
25	7.79
20	6.23

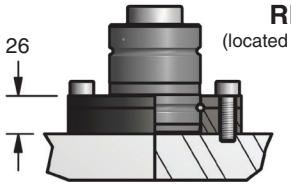


Mount Options

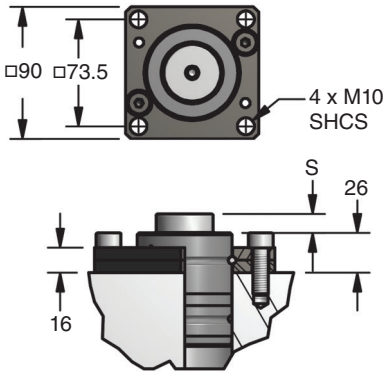
Round Flange — **RFT.047** (located at top)



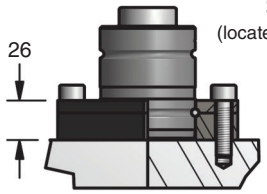
RFB.047 (located at bottom)



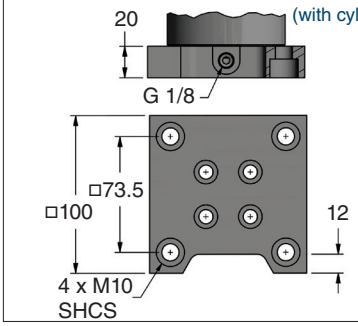
Square Flange — **SFT.047** (located at top)



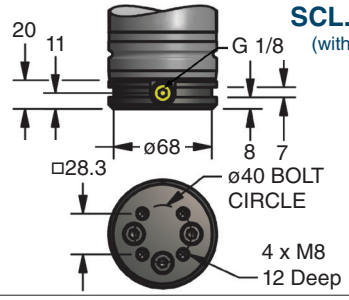
SFB.047 (located at bottom)



Square Sub Plate — **90.50.4300** (with cylinder) **B50**



Round Sub Plate — **CSP.04700** **SCL.04700** (with cylinder)



Ordering Examples:

Cylinder Only:	SC.04700.25.TO.150	**Cylinder with Square Sub Plate:**	SC.04300.25.B50.0
Cylinder with Mount:	SC.04700.25.RFT.150	**Cylinder with Round Sub Plate:**	SCL.04700.25.TO.0
		Sub Plate Only:	CSP.04700 / 90.50.4300

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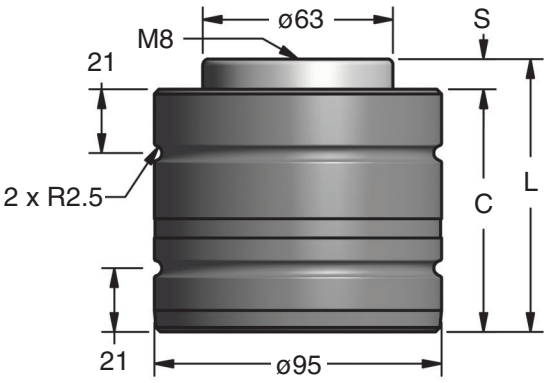
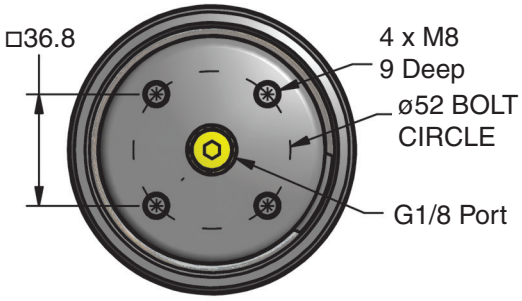
SC.07500 – 75 kN





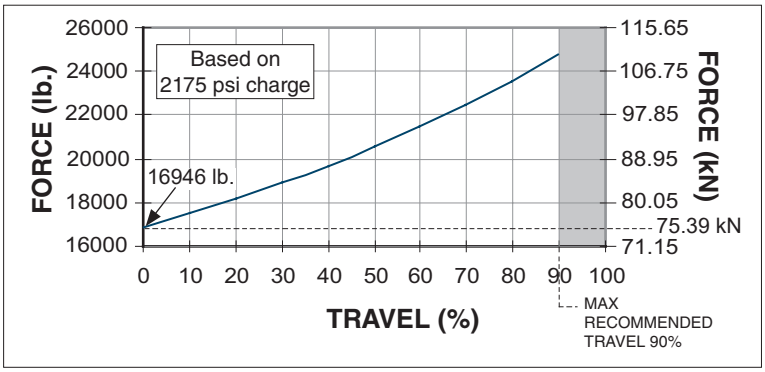
TO – Basic Mount

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

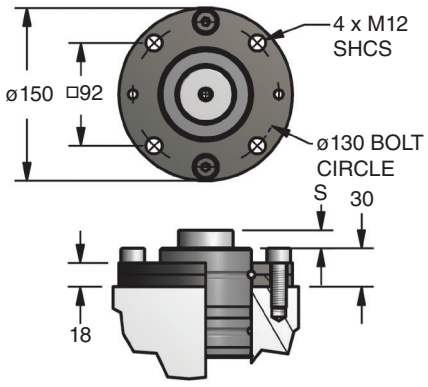
psi	lb.
2175	16946
2000	15582
1750	13635
1500	11687
1000	7791
500	3896
250	1948

bar	kN
150	75.39
125	62.83
100	50.26
75	37.70
50	25.13
25	12.57
20	10.05

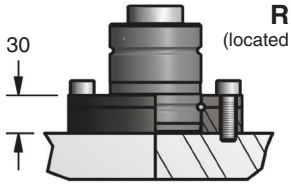


Mount Options

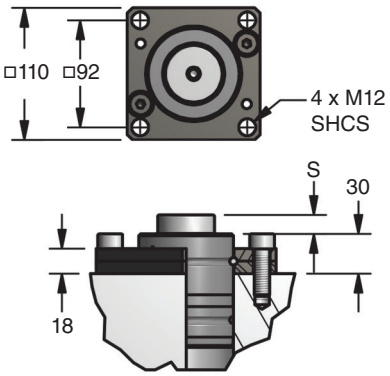
Round Flange — RFT.075 (located at top)



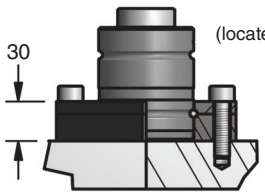
RFB.075 (located at bottom)



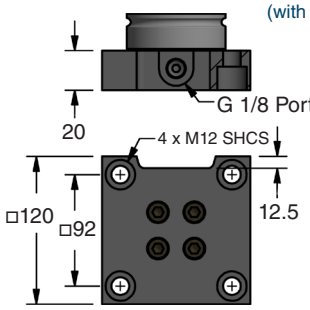
Square Flange — SFT.075 (located at top)



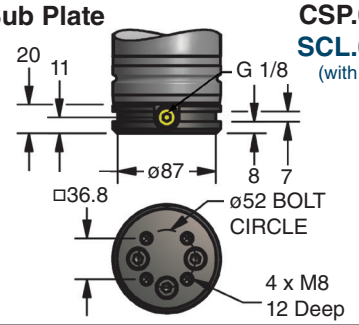
SFB.075 (located at bottom)



Square Sub Plate — 90.50.07500 (with cylinder) B50



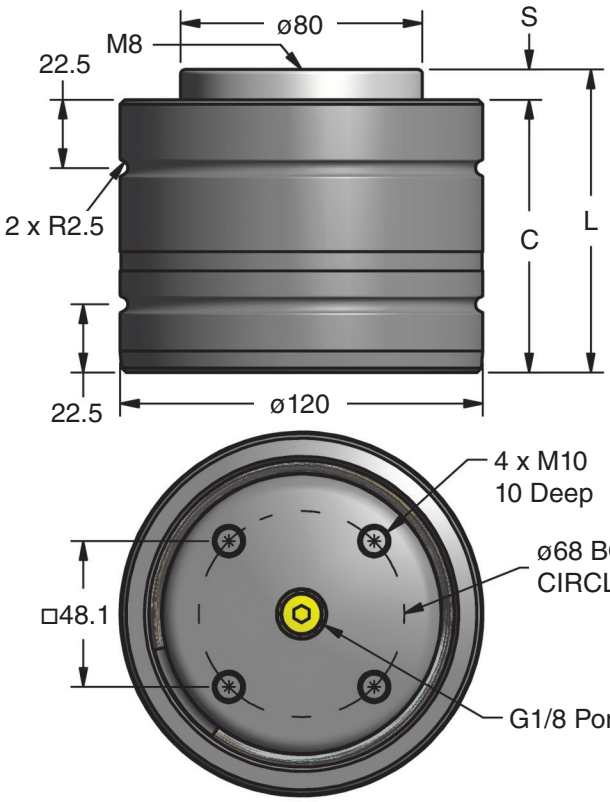
Sub Plate — CSP.07500 / SCL.07500 (with cylinder)



Ordering Examples:

Cylinder Only:	SC.07500.25.TO.150	**Cylinder with Square Sub Plate:**	SC.07500.25.B50.0
Cylinder with Mount:	SC.07500.25.RFT.150	**Cylinder with Sub Plate:**	SCL.07500.25.TO.0
		Sub Plate Only:	CSP.07500 / 90.50.07500

SC.11800 – 118 kN



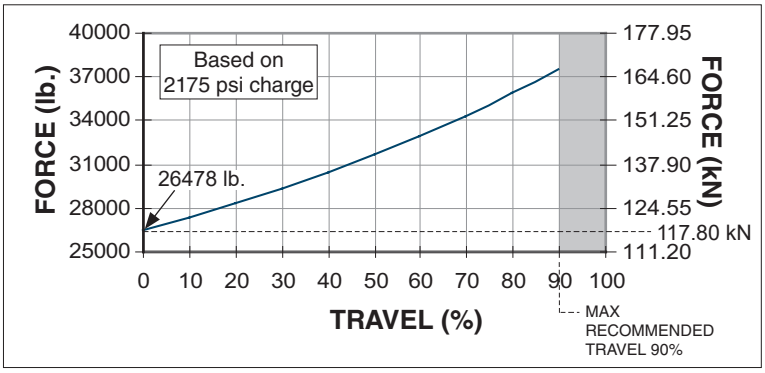
TO – Basic Mount

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

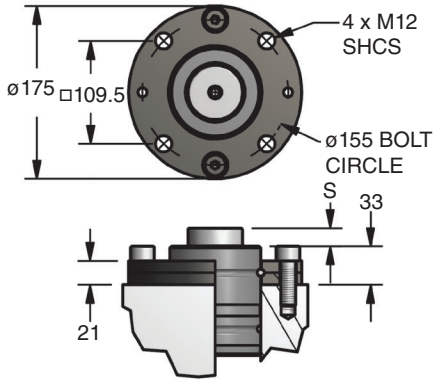
psi	lb.
2175	26478
2000	24347
1750	21304
1500	18261
1000	12174
500	6087
250	3043

bar	kN
150	117.80
125	98.17
100	78.54
75	58.90
50	39.27
25	19.63
20	15.71

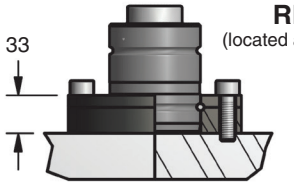


Mount Options

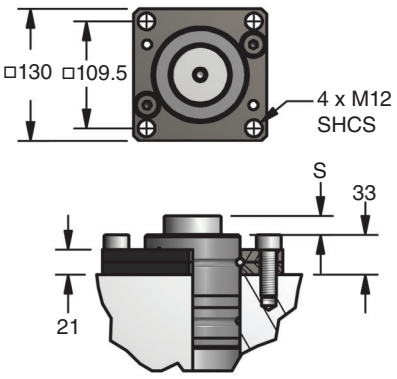
Round Flange **RFT.118** (located at top)



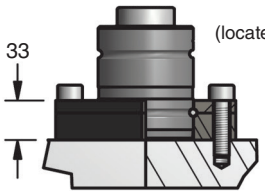
RFB.118 (located at bottom)



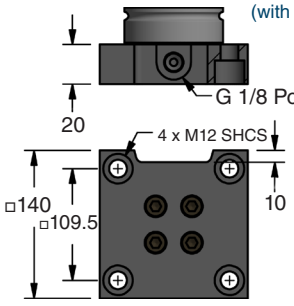
Square Flange **SFT.118** (located at top)



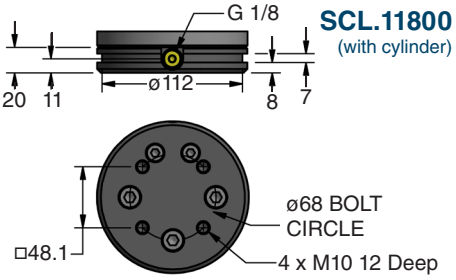
SFB.118 (located at bottom)



Square Sub Plate **90.50.11800** (with cylinder) **B50**



Sub Plate **CSP.11800** **SCL.11800** (with cylinder)



Ordering Examples:

Cylinder Only:	SC.11800.25.TO.150	**Cylinder with Square Sub Plate:**	SC.11800.25.B50.0
Cylinder with Mount:	SC.11800.25.RFT.150	**Cylinder with Sub Plate:**	SCL.11800.25.TO.0
		Sub Plate Only:	CSP.11800 / 90.50.11800

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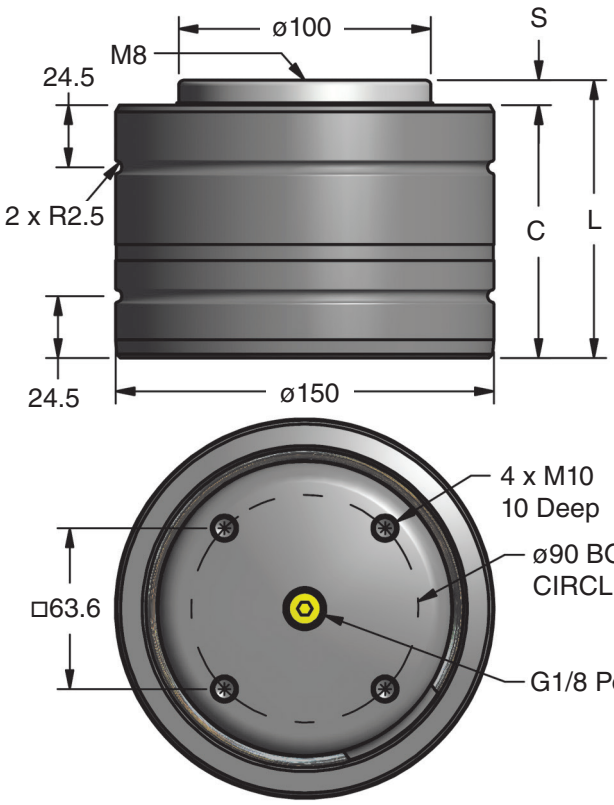
SC.18300 – 184 kN



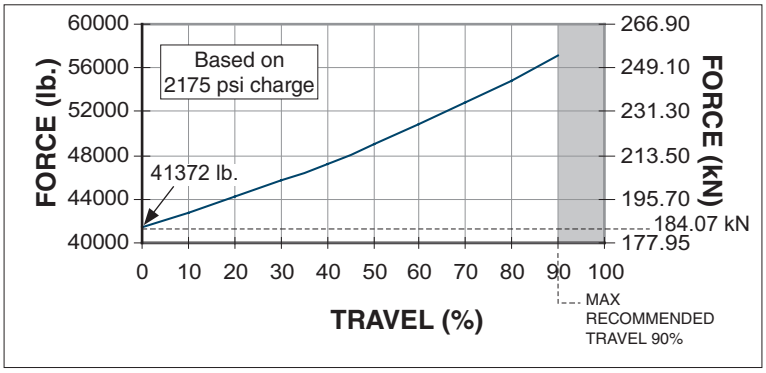
TO – Basic Mount

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

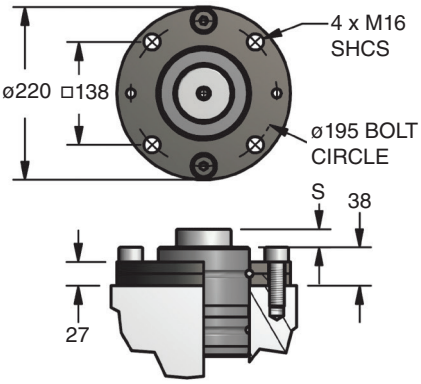
psi	lb.
2175	41372
2000	38043
1750	33287
1500	28532
1000	19021
500	9511
250	4755

bar	kN
150	184.07
125	153.39
100	122.71
75	92.03
50	61.36
25	30.68
20	24.54

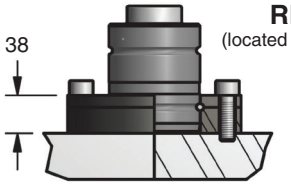


Mount Options

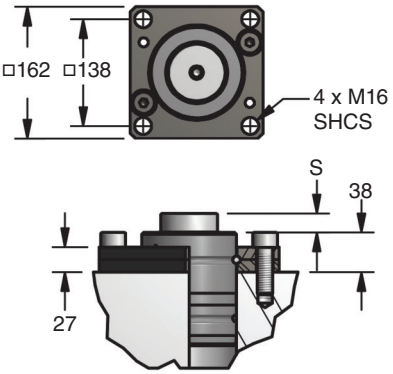
Round Flange — **RFT.183** (located at top)



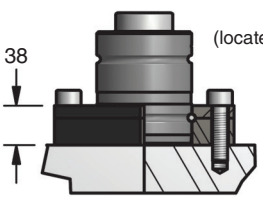
RFB.183 (located at bottom)



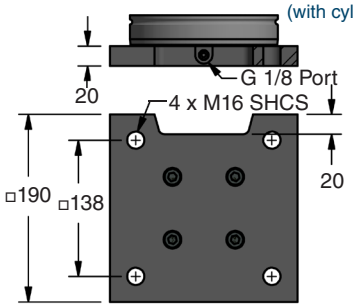
Square Flange — **SFT.183** (located at top)



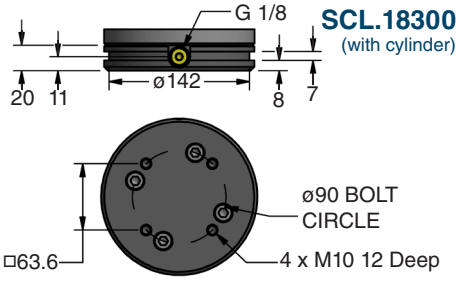
SFB.183 (located at bottom)



Square Sub Plate — **90.50.18300** (with cylinder) **B50**



Sub Plate — **CSP.18300** / **SCL.18300** (with cylinder)



Ordering Examples:

Cylinder Only:	SC.18300.25.TO.150	**Cylinder with Square Sub Plate:**	SC.18300.25.B50.0
Cylinder with Mount:	SC.18300.25.RFT.150	**Cylinder with Sub Plate:**	SCL.18300.25.TO.0
		Sub Plate Only:	CSP.18300 / 90.50.18300

Super Compact Nitrogen Gas Spring Repair Kits

DADCO provides repair kits for DADCO SC Series Nitrogen Gas Springs. Kits include the parts necessary to perform basic repair. To choose the appropriate repair kit refer to the chart below or examine the laser mark on the cylinder for the repair kit number. Instructions specific to each product are included in each repair kit to facilitate safe and proper repair.

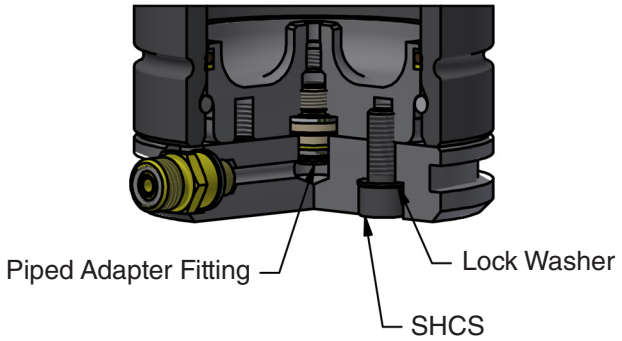
Model	Kit Number
SC.00740	98.801D.00740
SC.01000	98.801D.01000
SC.01800	98.801D.01800
SC.03500	98.801D.03500
SC.04700	98.801D.04700
SC.07500	98.801D.07500
SC.11800	98.801D.11800
SC.18300	98.801D.18300

Linked SC Series Gas Springs

DADCO provides two different mounting options for linking to the SC Series Gas Springs: Round Sub Plate (CSP) and Square Sub Plate (B50). A piped adapter fitting is used for both mounts to connect to the gas spring. Reference the chart below for more information.

The CSP Round Base Mount fastens to the gas spring base with two to three SHCS and lock washers. Tapped holes and a square groove in the CSP Mount provide mounting options.

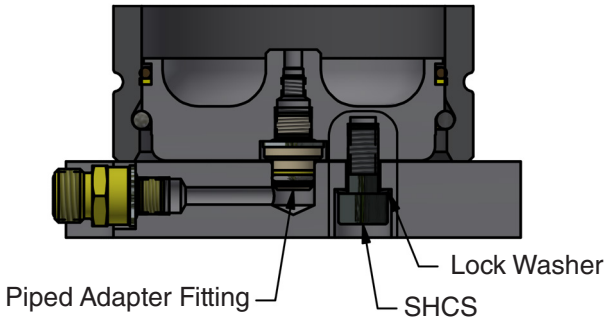
CSP Mount



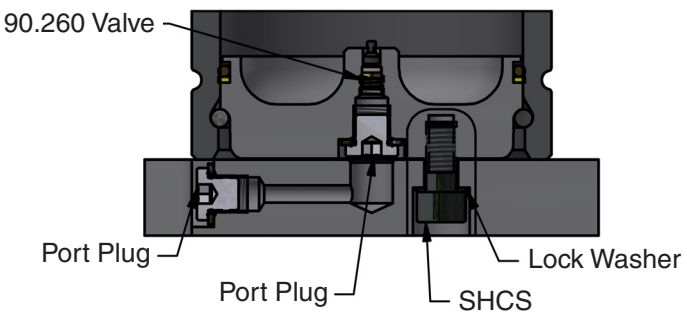
SC Series Model	SHCS		Piped Adapter Fitting
	CSP	B50	
01000	2 x M6	2 x M6	90.269
01800	2 x M8	2 x M8	90.270
03500	3 x M8	4 x M8	
04700	3 x M8	4 x M8	
07500	3 x M8	4 x M8	
11800	3 x M10	4 x M10	
18300	3 x M10	4 x M10	

The B50 Square Base Mount fastens to the gas spring base with two to four SHCS and lock washers. Four counter bores are provided for mounting. Additional fastener for models SC.01800 - SC.18300 provides increased clamping support. The B50 Mount ordering options include linked and self-contained.

B50 Mount Linked



B50 Mount Self-Contained



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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.

90.355

90.356

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.

Modular T-Handle
90.320.M

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

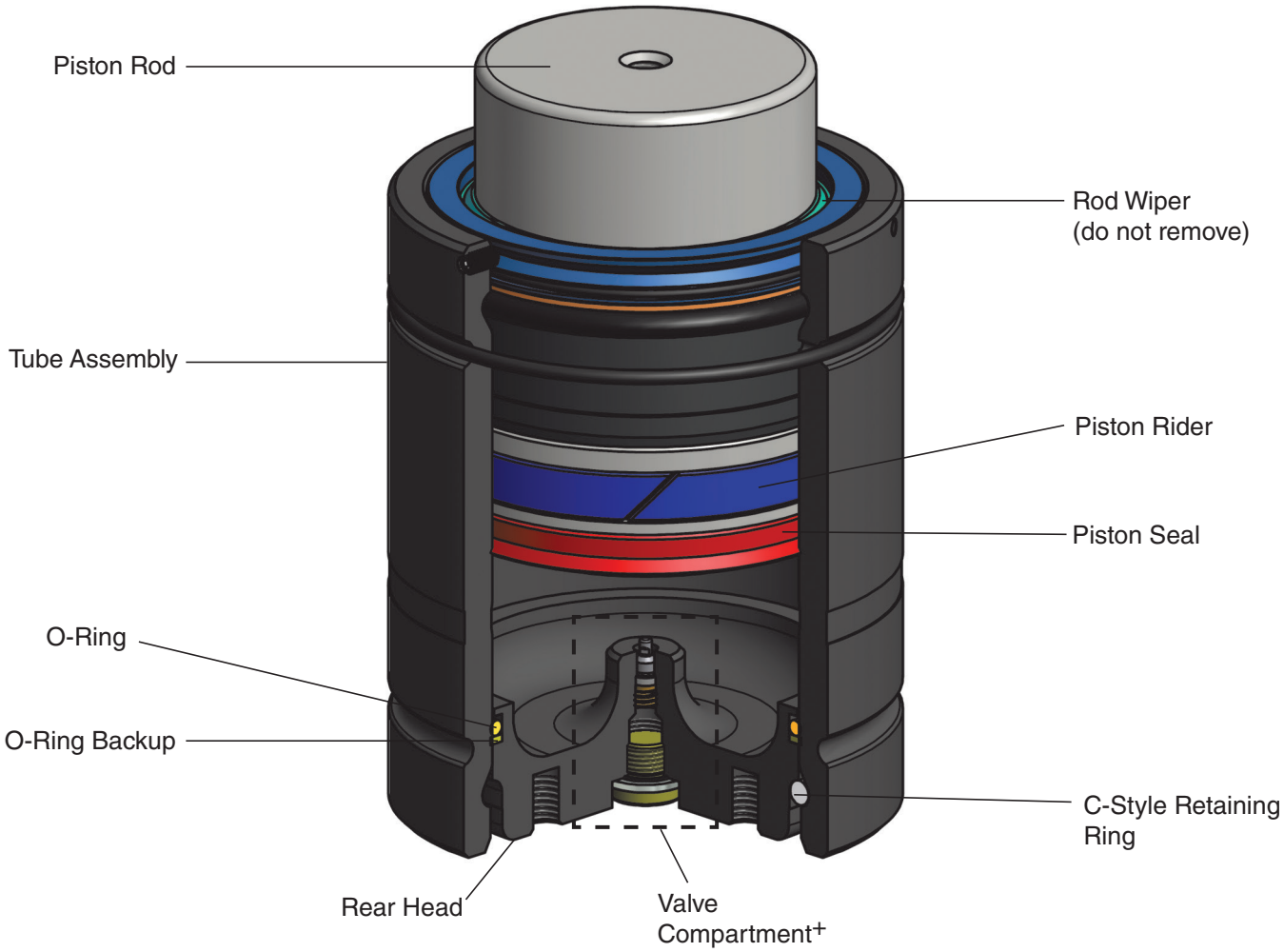
Port Servicing Tool
90.320.8

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

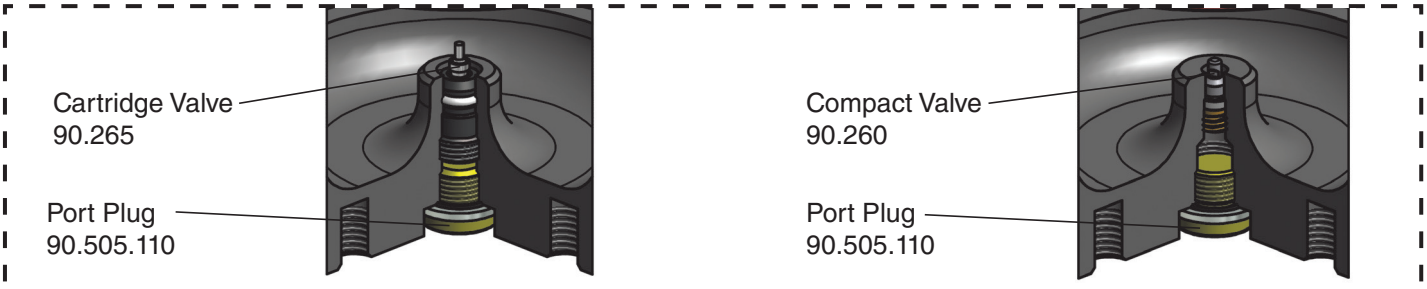
Rear Head Tool
98.328 (SC.01800 – SC.18300)

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)*

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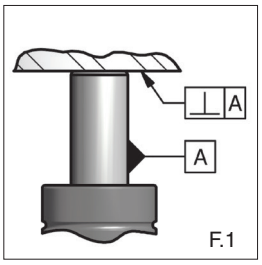
CAUTION
DO NOT attempt maintenance on spring until internal pressure is exhausted.

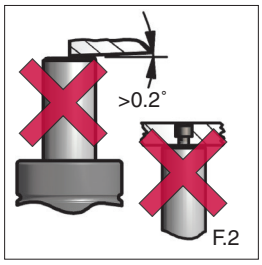
Installation Requirements



F.1

Avoid Side Loading

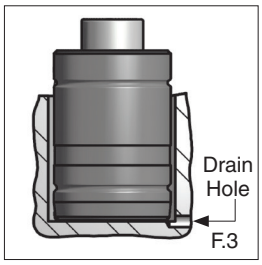
- The striking surface should encompass the full diameter of the rod (F.1).
- A misaligned press or die will lead to side loading. This condition increases wear on the bearing, seal and cylinder wall. Any damage to the cylinder wall renders the product irreparable (F.1). Therefore, avoid side loading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



F.2

Protect From Fluids

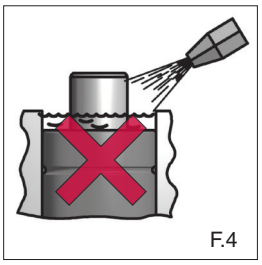
- Direct contact with certain die lubricants and cleaners should be avoided (F.4). Protect gas springs by providing adequate drainage in gas spring pockets (F.3).



F.3

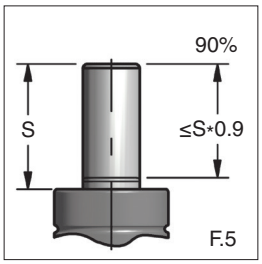
Rod End Thread

- 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.


F.4

Provide Stroke Reserve

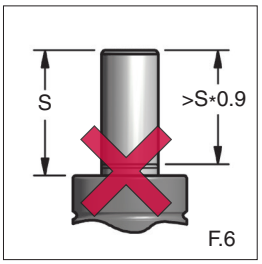
- DADCO Super Compact Gas Springs will permit travel of the full nominal stroke; however, at least a 10% stroke reserve is recommended to achieve optimal performance (F.5 and F.6).



F.5

Discharging Self-Contained Gas Spring

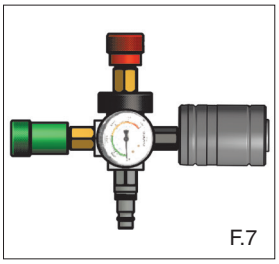
- The DADCO Pressure Analyzer *(90.315.5)* allows for charging, discharging and gauging of the pressure in the SC Series Gas Springs (F.7).

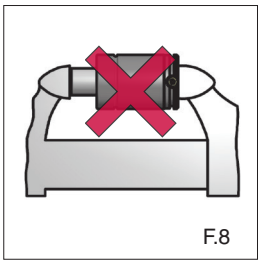


F.6

Recharging Self-Contained Gas Spring

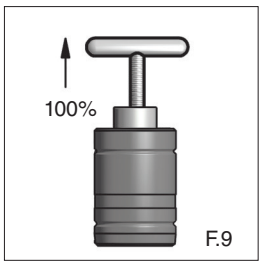
- Hold the spring vertically at all times during filling. Never compress the gas spring in a vice or clamp outside of the die or application as damage to the gas spring can result (F.8).
- Prior to recharging, assure that (1) the rear head is seated against the c-ring and (2) the rod is fully extended (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.


F.7

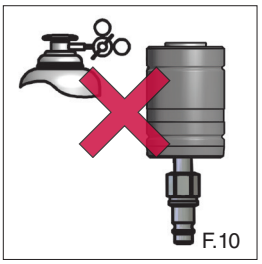

F.8

Repair

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



F.9


F.10

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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