

DADCO®

Full and Compact Height Nitrogen Gas Springs

90.10 / 90.8 Series



90.10 Series
Full Height /
Matches ISO Standards

90.8 Series
Compact Height
Alternative

PED
2014/68/EU
COMPLIANT

DADCO®

The global leader in nitrogen gas spring technology

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.



90.10 and 90.8 Series

DADCO's full height 90.10 Series matches the ISO Standard specifications and offers the widest choice of sizes, stroke lengths and accessories available. All international automotive standard mounts (welded and attachable) are offered, as well as legacy mounts for replacement of older springs, see pages 4-20.

DADCO's compact 90.8 Series is 25 mm – 50 mm (0.98" – 1.97") shorter than ISO Standard Nitrogen Gas Springs. It is available in several models with stroke lengths up to 250 mm.

Can Diameter (mm)	Model	90.10 Series Overall Length (mm)	90.8 Series Overall Length (mm)	Maximum Force on Contact
32	00170	2 x Stroke + 50	N/A	1.7 kN
44.5	00500	2 x Stroke + 85	N/A	5 kN
50	00750	2 x Stroke + 95	2 x Stroke + 70	7.5 kN
75	01500	2 x Stroke + 110	2 x Stroke + 85	15 kN
95	03000	2 x Stroke + 120	2 x Stroke + 95	30 kN
120	05000	2 x Stroke + 140	2 x Stroke + 102.5	50 kN
150	07500	2 x Stroke + 155	2 x Stroke + 105	75 kN
195	10000	2 x Stroke + 160	N/A	100 kN

High Quality Construction

DADCO's 90.10 and 90.8 Series Gas Springs feature: a one-piece body (base-to-tube welding process verified ultrasonically); impact fatigue-resistant alloy steel super finished piston rod; rod cartridge with a proprietary double-lip rod seal; low friction rod bearings; a glass-filled, nylon guide ring on the piston retainer and special high temperature synthetic lubricant. The result of this combination is a superior design that ensures low friction, sealability and excellent wear characteristics essential for optimum gas spring life.

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.

Numerous Piping Options

With DADCO's 90.10 and 90.8 Series, piping gas springs is easy because every necessary tool or component is readily available. For more information, refer to DADCO's Nitrogen Gas Spring Linked System Components Catalog. Training and technical assistance are also offered by DADCO.



SMS®

For those instances when a customer prefers to have DADCO provide a finished system, several options are available. A popular option, DADCO's Sectional Mounting System (SMS®) includes cylinders mounted to a SMS® plate and linked using hose, fittings and a control panel. Shipped ready to install, customers find the SMS® to be a trouble free, cost-effective option. For additional information, refer to catalog C13106B.

SMS-i®

Another option is the Sectional Mounting System-Internal (SMS-i®). The SMS-i® consists of an internally piped plate with mounted cylinders. DADCO recommends using the SMS-i® as a cost-effective alternative to traditional manifold systems. For more information, request catalog C13106B.

Guaranteed Long Life

In factory testing and field experience, the service life of DADCO's 90.10 and 90.8 Series Gas Springs consistently exceeds one million strokes. This is supported by DADCO's written One Year/One Million Stroke *Gold Guarantee*. Contact DADCO for more information.

Warranty

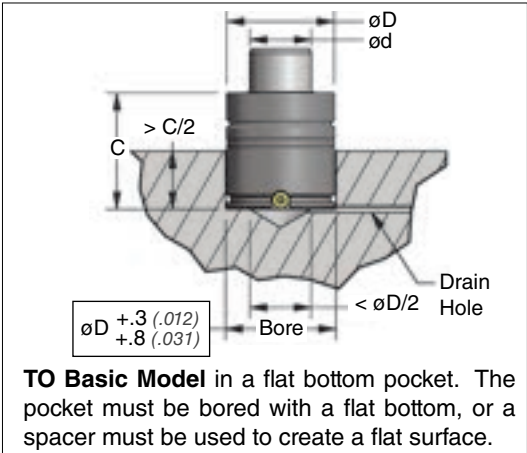
DADCO warrants its products to be free from defects in workmanship or materials for a period of one year from date of manufacture.

CAD Templates

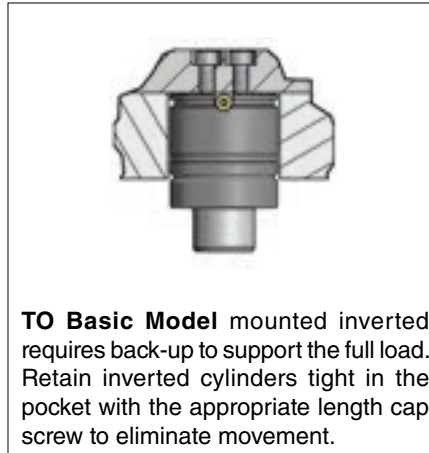
DADCO's entire product line is available on-line in solid models and 2D CAD formats. For more information, visit our website, www.dadco.net, or contact DADCO.

Application Examples

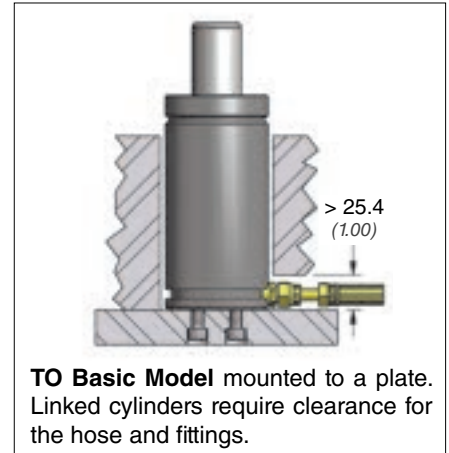
DADCO offers a variety of mount options to meet specific customer applications. Installation and fastening of the gas springs should take into consideration load support, fastener selection and torque values. For additional information on installation requirements see page 23. Cylinder and mount dimensions are shown on pages 4-20.



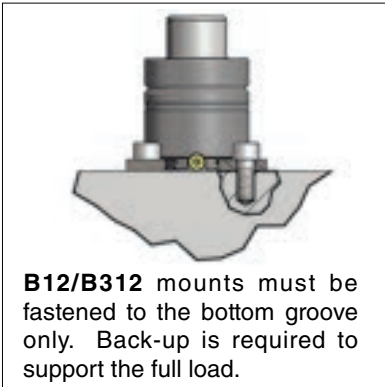
TO Basic Model in a flat bottom pocket. The pocket must be bored with a flat bottom, or a spacer must be used to create a flat surface.



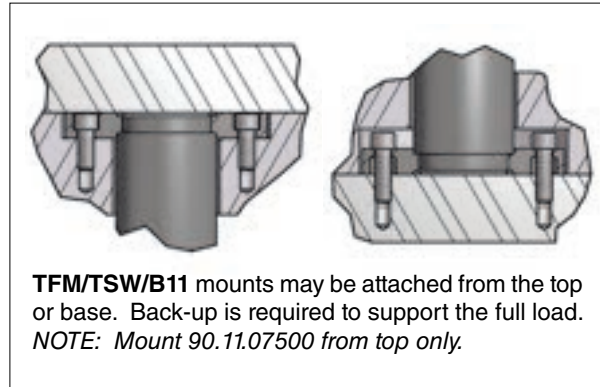
TO Basic Model mounted inverted requires back-up to support the full load. Retain inverted cylinders tight in the pocket with the appropriate length cap screw to eliminate movement.



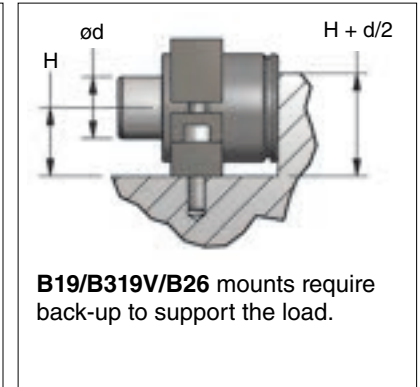
TO Basic Model mounted to a plate. Linked cylinders require clearance for the hose and fittings.



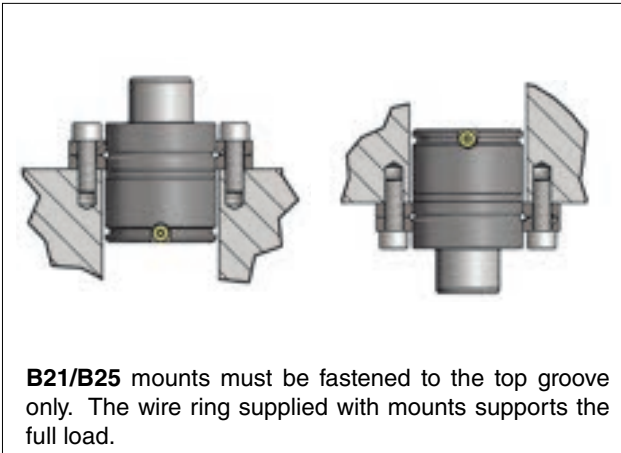
B12/B312 mounts must be fastened to the bottom groove only. Back-up is required to support the full load.



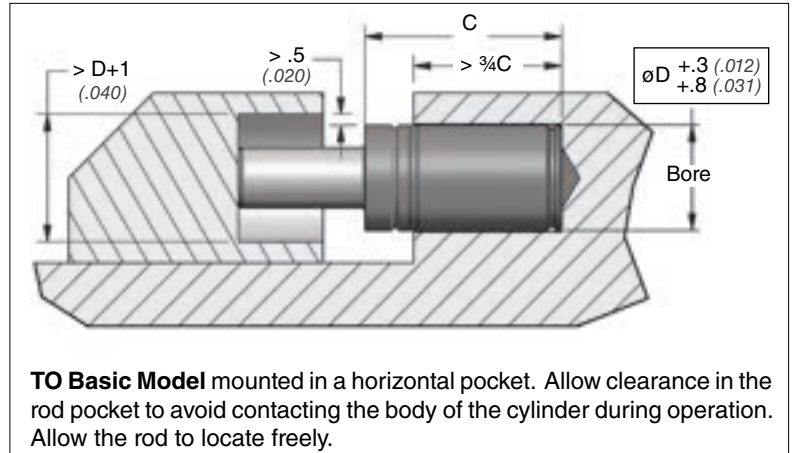
TFM/TSW/B11 mounts may be attached from the top or base. Back-up is required to support the full load. *NOTE: Mount 90.11.07500 from top only.*



B19/B319V/B26 mounts require back-up to support the load.



B21/B25 mounts must be fastened to the top groove only. The wire ring supplied with mounts supports the full load.



TO Basic Model mounted in a horizontal pocket. Allow clearance in the rod pocket to avoid contacting the body of the cylinder during operation. Allow the rod to locate freely.

SMS® / SMS-i® DADCO offers customized Sectional Mounting Systems (SMS® and SMS-i®) which are fabricated to customer specifications, pressure tested and shipped ready to install.



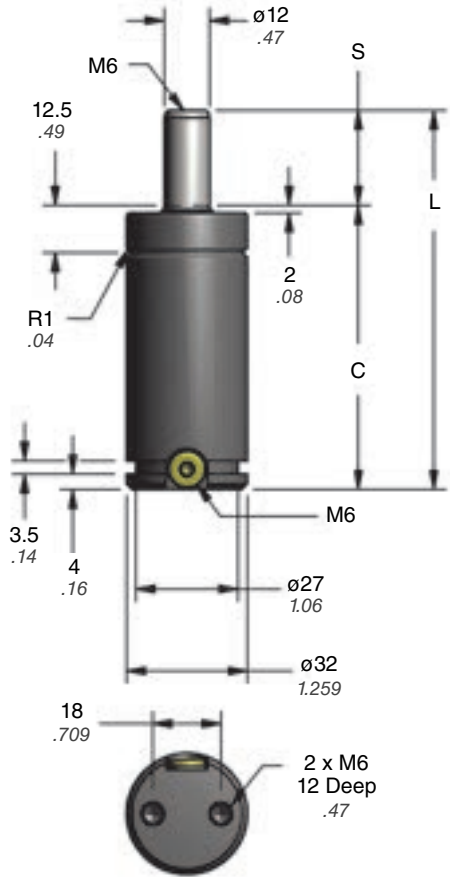
DADCO SMS-i® with (6) 90.10.05000 gas springs plumbed internally and connected to a control panel.



DADCO SMS® with (4) 90.10.03000 gas springs linked using 90.400 (Y-400) hose, fittings and a control panel.

90.10 and 90.8 Series Nitrogen Gas Springs

1.7 kN / 0.17 ton



TO – Basic Model

Model Not Available in 90.8 Series

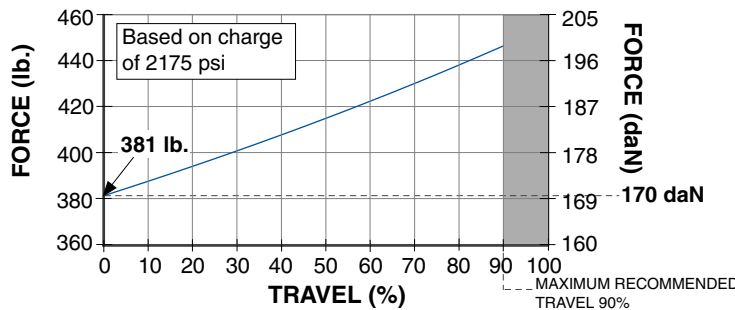
90.10.00170			
Part No.	S mm inch	C	L ±0.25 ±0.010
90.10.00170.010	10 0.39	60 2.36	70 2.756
90.10.00170.013	12.7 0.50	62.7 2.47	75.4 2.969
90.10.00170.016	16 0.63	66 2.60	82 3.228
• 90.10.00170.025	25 0.98	75 2.95	100 3.937
90.10.00170.038	38 1.50	88 3.46	126 4.961
• 90.10.00170.050	50 1.97	100 3.94	150 5.906
90.10.00170.063	63.5 2.50	113.5 4.47	177 6.969
• 90.10.00170.080	80 3.15	130 5.12	210 8.268
90.10.00170.100	100 3.94	150 5.91	250 9.843
90.10.00170.125	125 4.92	175 6.89	300 11.811

• ISO standard stroke lengths

Force Charts

On-Contact Force

psi	lb.
2175	381
2000	351
1750	307
1500	263
1000	175
500	88
250	44



On-Contact Force

bar	daN
150	170
125	141
100	113
75	85
50	57
25	40
20	23

Ordering Example:

90.10.00170.025. TO. C. 150

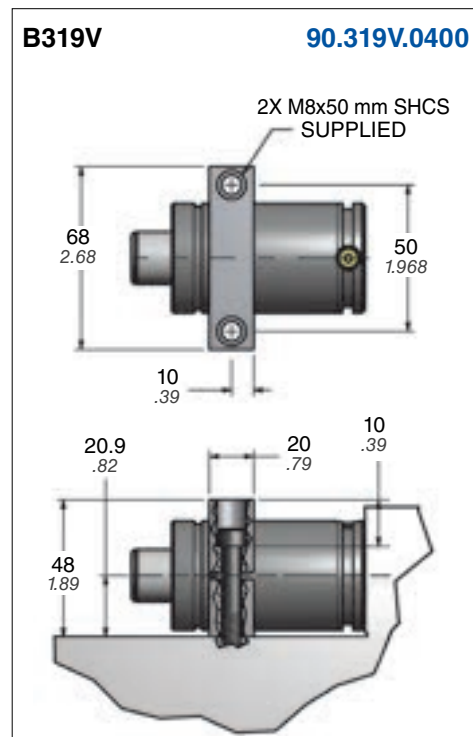
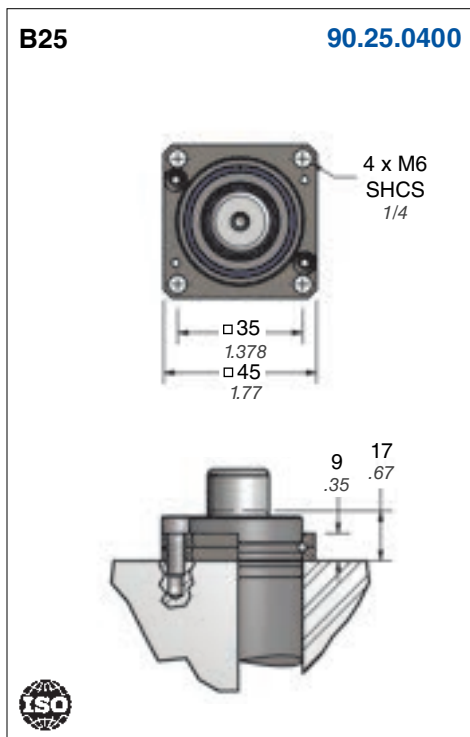
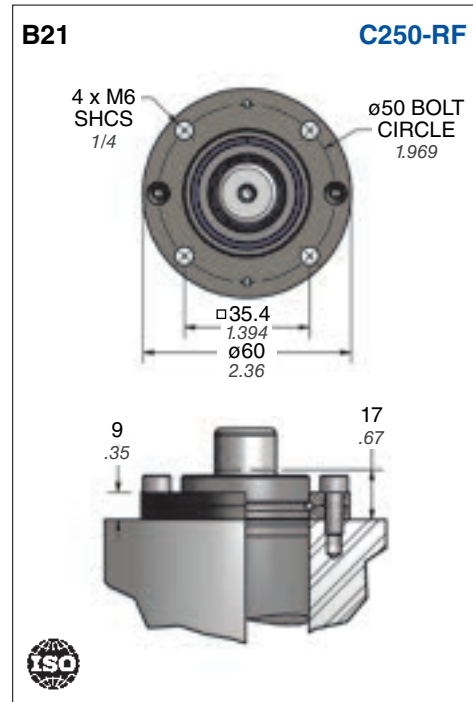
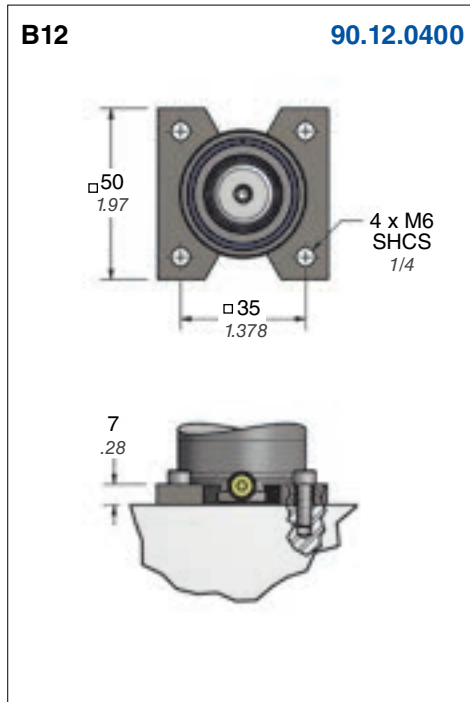
Part Number: Includes Series (90.10), Model and Stroke Length.

Mount Option: TO = Basic Model. When not specified, default is TO. Mounts ordered with cylinder will be attached at the factory.

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.

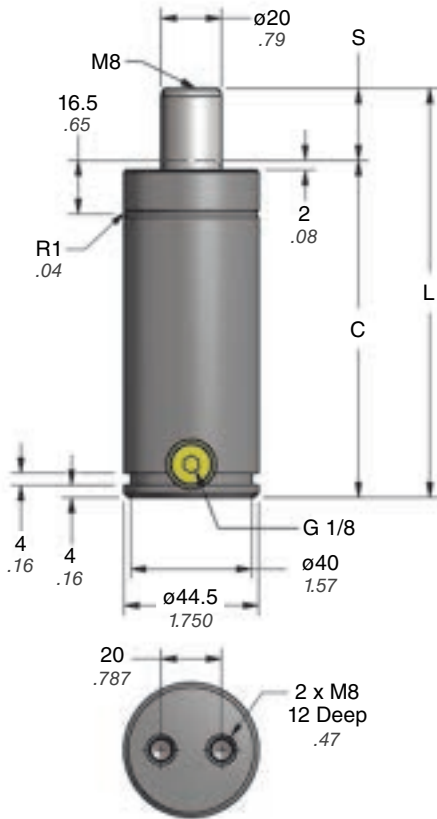
1.7 kN / 0.17 ton



Ordering Example: **Cylinder with Mount:** 90.10.00170.025.B21.C.150 **Mount Only:** C250-RF

90.10 and 90.8 Series Nitrogen Gas Springs

5 kN / 0.5 ton



TO – Basic Model

Model Not Available in 90.8 Series

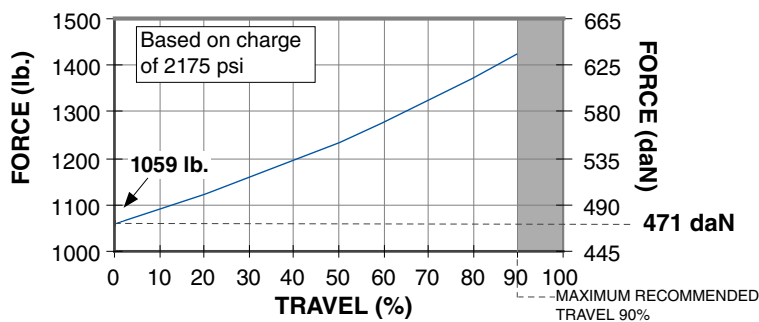
90.10.00500			
Part No.	S mm inch	C	L ±0.25 ±0.010
90.10.00500.013	12.5 0.49	97.5 3.84	110 4.331
• 90.10.00500.025	25 0.98	110 4.33	135 5.315
90.10.00500.038	37.5 1.48	122.5 4.82	160 6.299
• 90.10.00500.050	50 1.97	135 5.31	185 7.283
90.10.00500.063	62.5 2.46	147.5 5.81	210 8.268
• 90.10.00500.080	80 3.15	165 6.50	245 9.646
90.10.00500.100	100 3.94	185 7.28	285 11.220
90.10.00500.125	125 4.92	210 8.27	335 13.189
90.10.00500.160	160 6.30	245 9.65	405 15.945
90.10.00500.200	200 7.87	285 11.22	485 19.094

• ISO standard stroke lengths

Force Charts

On-Contact Force

psi	lb.
2175	1059
2000	974
1750	852
1500	730
1000	487
500	243
250	122



On-Contact Force

bar	daN
150	471
125	393
100	314
75	236
50	157
25	79
20	63

Ordering Example:

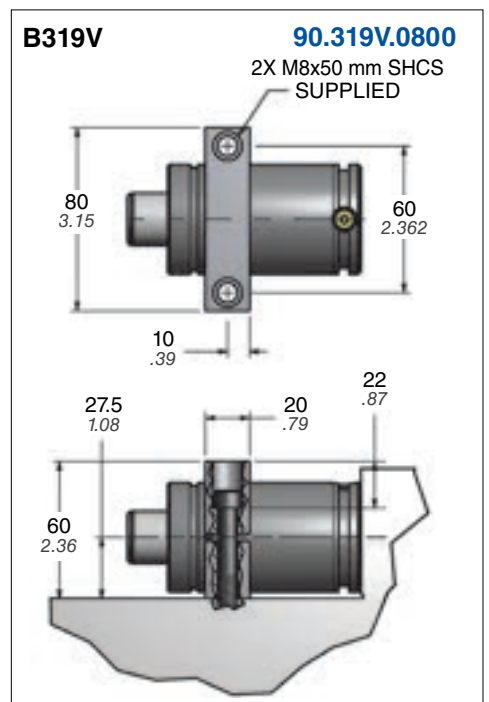
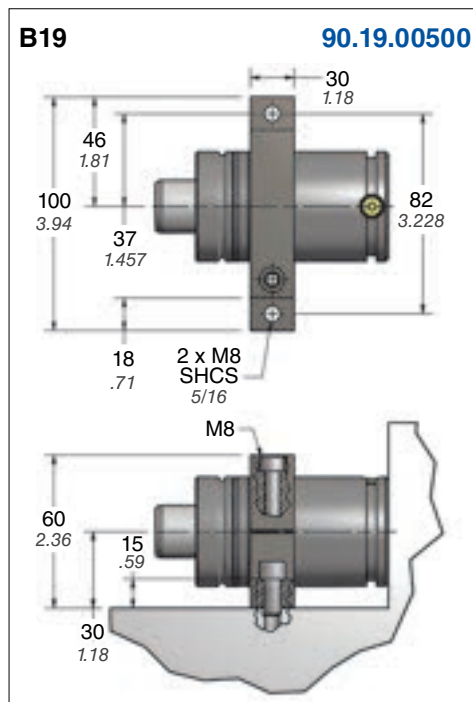
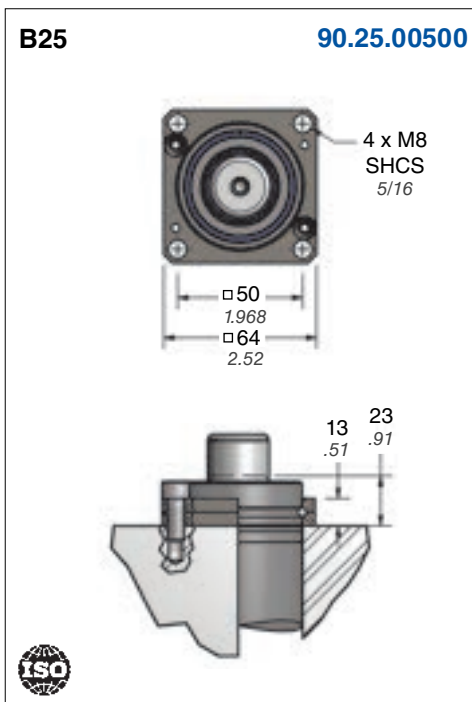
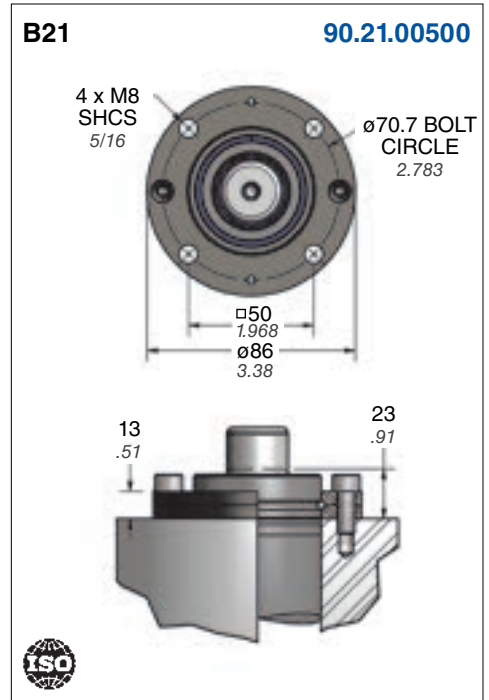
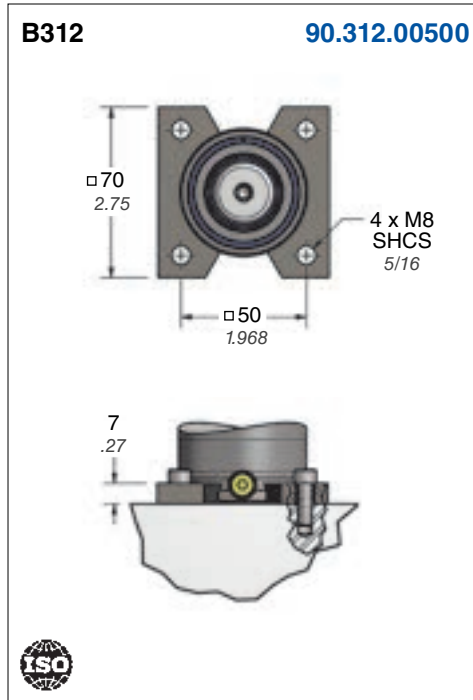
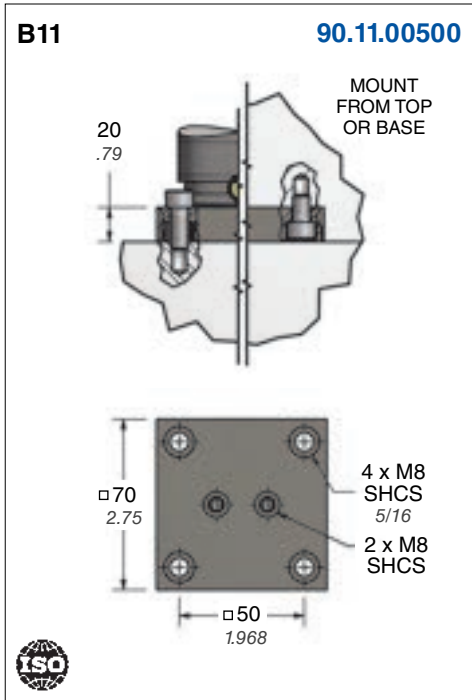
90.10.00500.025. TO. C. 150

Part Number: Includes Series (90.10), Model and Stroke Length.

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

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.*

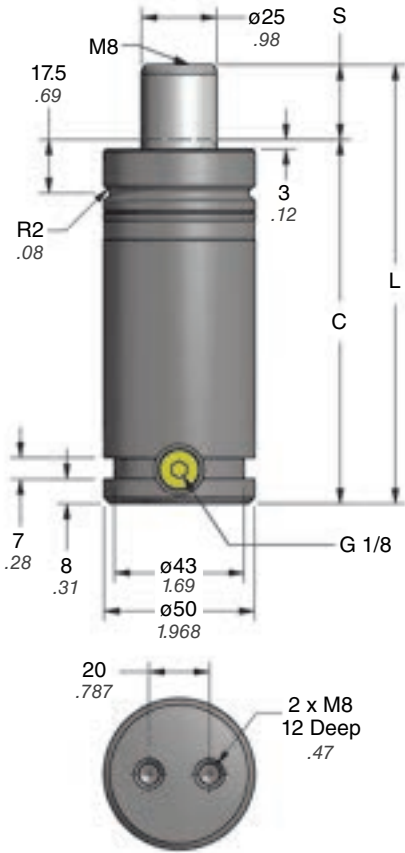


Ordering Example: Cylinder with Mount: 90.10.00500.025.B21.C.150 Mount Only: 90.21.00500

90.10 and 90.8 Series Nitrogen Gas Springs

7.5 kN / 0.75 ton

25 mm shorter!



TO – Basic Model

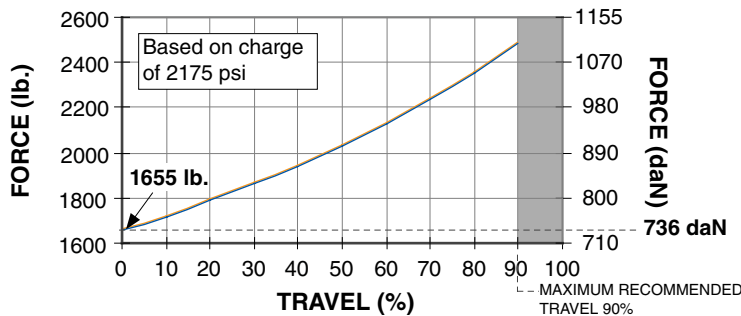
Part No.	S mm inch	90.10.00750		90.8.00750	
		C	L ±0.25 ±0.010	C	L ±0.25 ±0.010
90.__.00750.013	12.5 0.49	107.5 4.23	120 4.724	82.5 3.25	95 3.740
• 90.__.00750.025	25 0.98	120 4.72	145 5.709	95 3.74	120 4.724
90.__.00750.038	37.5 1.48	132.5 5.22	170 6.693	107.5 4.23	145 5.709
• 90.__.00750.050	50 1.97	145 5.71	195 7.677	120 4.72	170 6.693
90.__.00750.063	62.5 2.46	157.5 6.20	220 8.661	132.5 5.22	195 7.677
90.__.00750.075	75 2.95	170 6.69	245 9.646	145 5.71	220 8.661
• 90.__.00750.080	80 3.15	175 6.89	255 10.039	150 5.91	230 9.055
90.__.00750.088	87.5 3.44	182.5 7.19	270 10.630	157.5 6.20	245 9.646
• 90.__.00750.100	100 3.94	195 7.68	295 11.614	170 6.69	270 10.630
90.__.00750.113	112.5 4.43	207.5 8.17	320 12.598	182.5 7.19	295 11.614
• 90.__.00750.125	125 4.92	220 8.66	345 13.583	195 7.68	320 12.598
90.__.00750.138	137.5 5.41	232.5 9.15	370 14.567	207.5 8.17	345 13.583
90.__.00750.150	150 5.91	245 9.65	395 15.551	220 8.66	370 14.567
• 90.__.00750.160	160 6.30	255 10.04	415 16.339	230 9.06	390 15.354
90.__.00750.175	175 6.89	270 10.63	445 17.520	245 9.65	420 16.535
90.__.00750.200	200 7.87	295 11.61	495 19.488	270 10.63	470 18.504
90.__.00750.225	225 8.86	320 12.60	545 21.457	295 11.61	520 20.472
90.__.00750.250	250 9.84	345 13.58	595 23.425	320 12.60	570 22.441
90.__.00750.275	275 10.83	370 14.57	645 25.394	N/A	N/A
90.__.00750.300	300 11.81	395 15.55	695 27.362	N/A	N/A

• ISO standard stroke lengths (90.10.00750 only)

Force Charts

On-Contact Force

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



On-Contact Force

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

Ordering Example:

90.10.00750.025. TO. C. 150

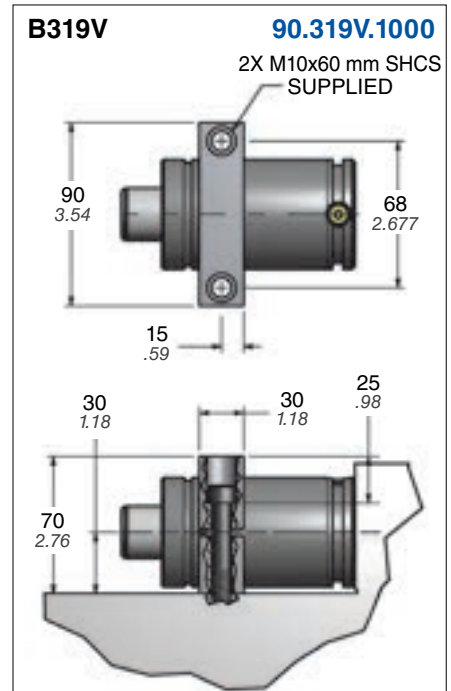
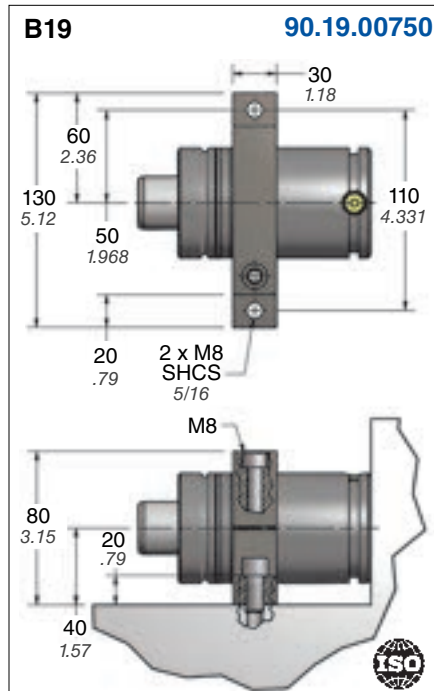
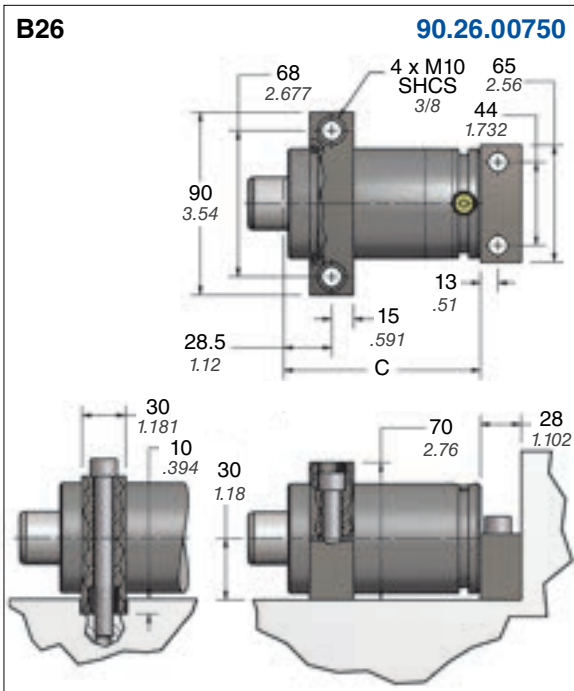
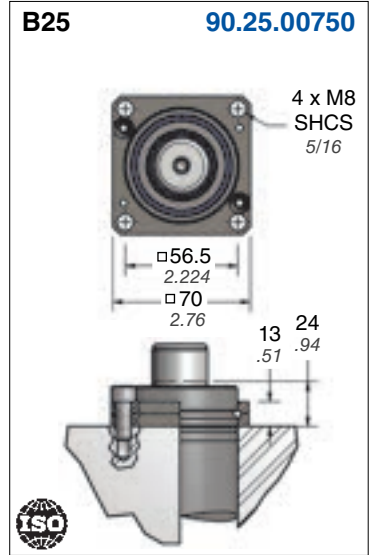
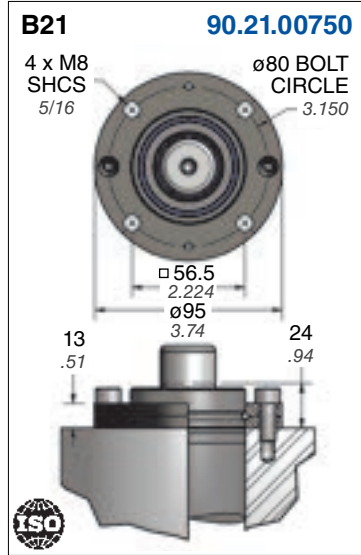
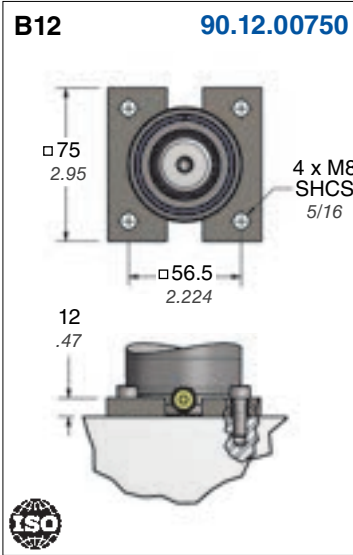
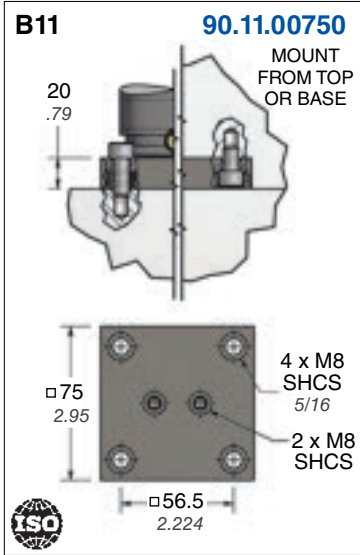
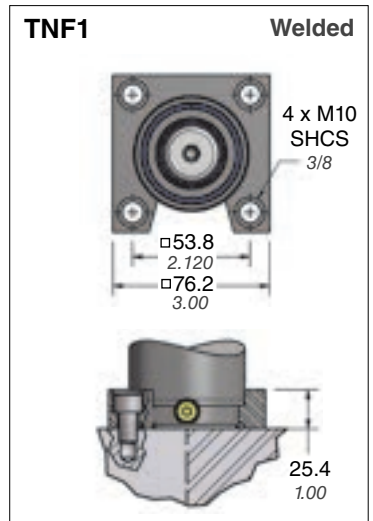
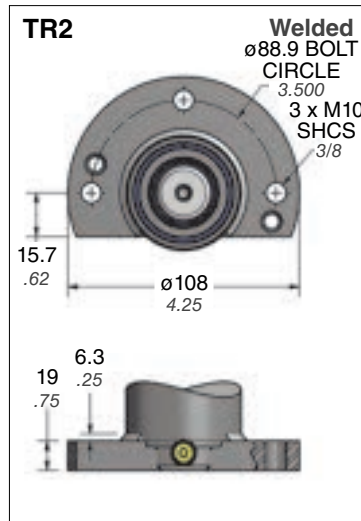
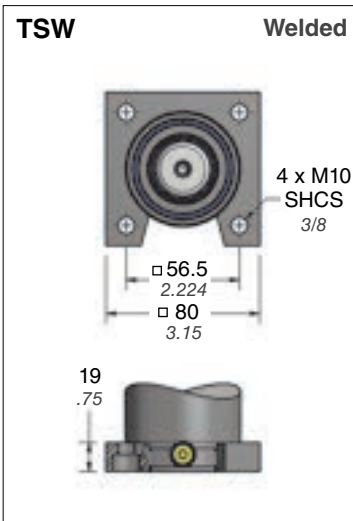
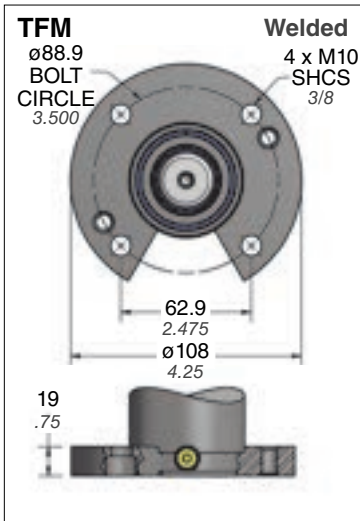
Part Number: Includes Series (90.10 or 90.8), Model and Stroke Length.

Mount Option: TO = Basic Model. When not specified, default is TO. Mounts ordered with cylinder will be attached at the factory.

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.

7.5 kN / 0.75 ton

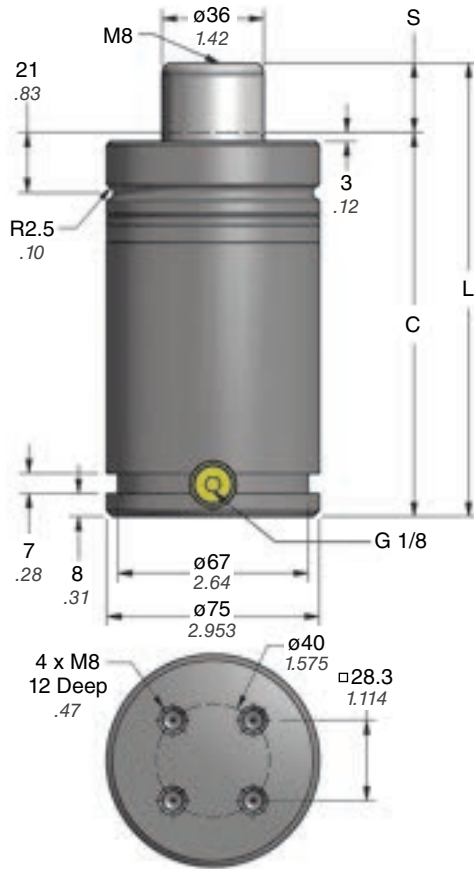


Ordering Example: Cylinder with Mount: 90.10.00750.025.B21.C.150 Mount Only: 90.21.00750

90.10 and 90.8 Series Nitrogen Gas Springs

15 kN / 1.5 ton

25 mm shorter!



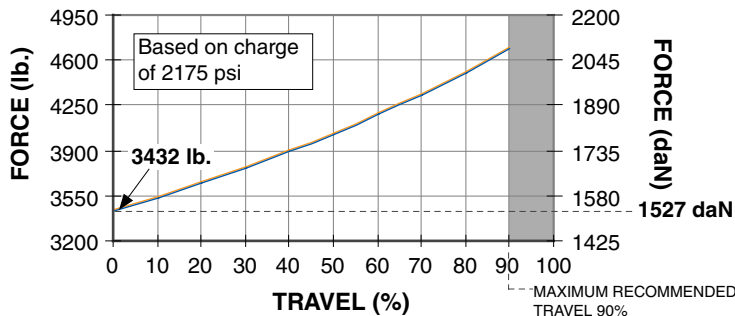
TO – Basic Model

Part No.	S mm inch	90.10.01500		90.8.01500	
		C	L ±0.25 ±0.010	C	L ±0.25 ±0.010
90.__.01500.013	12.5 0.49	122.5 4.82	135 5.315	97.5 3.84	110 4.331
• 90.__.01500.025	25 0.98	135 5.31	160 6.299	110 4.33	135 5.315
90.__.01500.038	37.5 1.48	147.5 5.81	185 7.283	122.5 4.82	160 6.299
• 90.__.01500.050	50 1.97	160 6.30	210 8.268	135 5.32	185 7.283
90.__.01500.063	62.5 2.46	172.5 6.79	235 9.252	147.5 5.81	210 8.268
90.__.01500.075	75 2.95	185 7.28	260 10.236	160 6.30	235 9.252
• 90.__.01500.080	80 3.15	190 7.48	270 10.630	165 6.50	245 9.646
90.__.01500.088	87.5 3.44	197.5 7.78	285 11.220	172.5 6.79	260 10.236
• 90.__.01500.100	100 3.94	210 8.27	310 12.205	185 7.28	285 11.220
90.__.01500.113	112.5 4.43	222.5 8.76	335 13.189	197.5 7.78	310 12.205
• 90.__.01500.125	125 4.92	235 9.25	360 14.173	210 8.27	335 13.189
90.__.01500.138	137.5 5.41	247.5 9.74	385 15.157	222.5 8.76	360 14.173
90.__.01500.150	150 5.91	260 10.24	410 16.142	235 9.25	385 15.157
• 90.__.01500.160	160 6.30	270 10.63	430 16.929	245 9.65	405 15.945
90.__.01500.175	175 6.89	285 11.22	460 18.110	260 10.24	435 17.126
90.__.01500.200	200 7.87	310 12.20	510 20.079	285 11.22	485 19.094
90.__.01500.225	225 8.86	335 13.19	560 22.047	310 12.21	535 21.063
90.__.01500.250	250 9.84	360 14.17	610 24.016	335 13.19	585 23.031
90.__.01500.275	275 10.83	385 15.16	660 25.984	N/A	N/A
90.__.01500.300	300 11.81	410 16.14	710 27.953	N/A	N/A

• ISO standard stroke lengths (90.10.01500 only)

Force Charts

psi	lb.
2175	3432
2000	3155
1750	2761
1500	2367
1000	1578
500	789
250	394



bar	daN
150	1527
125	1272
100	1018
75	763
50	509
25	254
20	204

Ordering Example:

90.10.01500.025. TO. C. 150

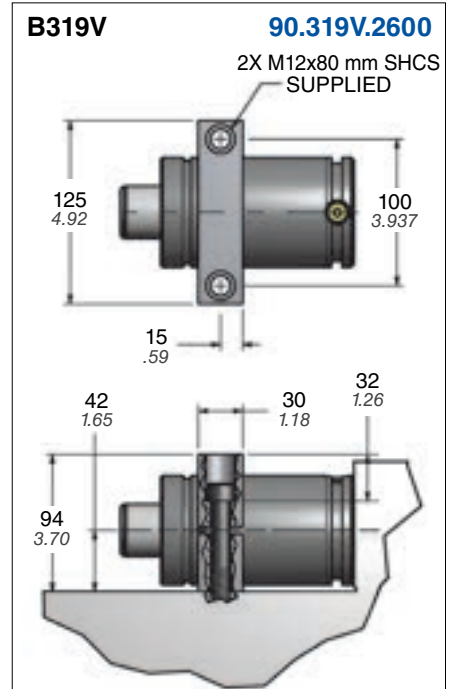
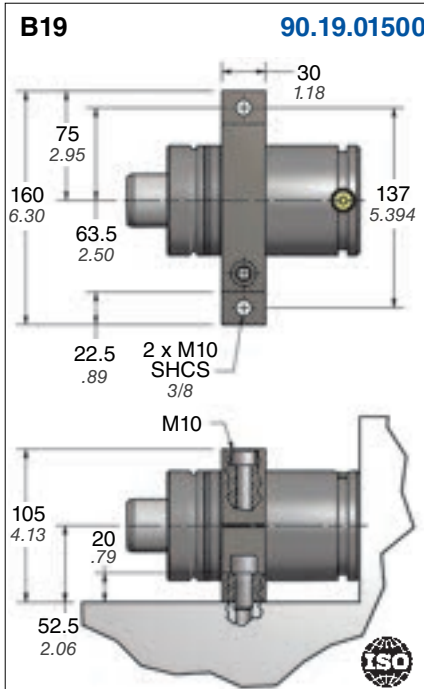
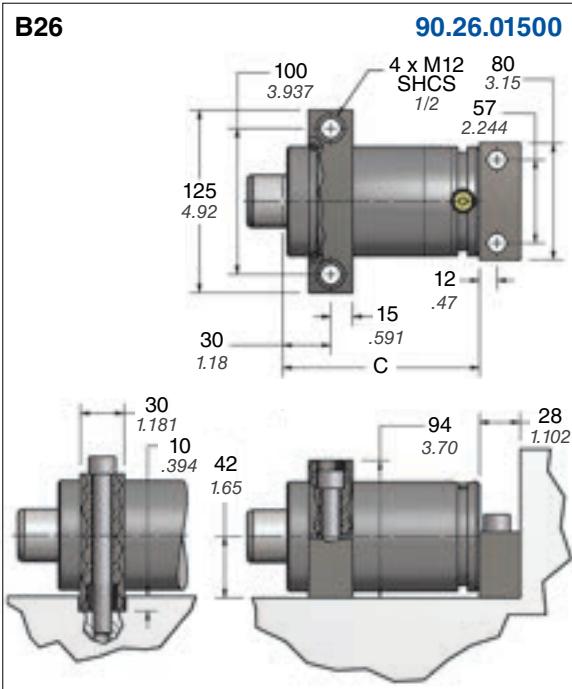
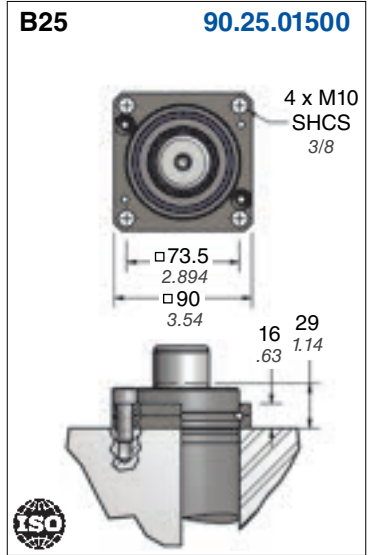
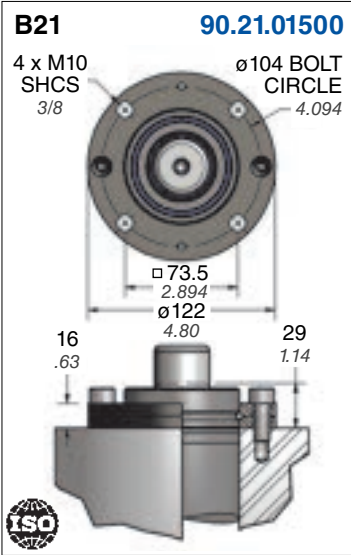
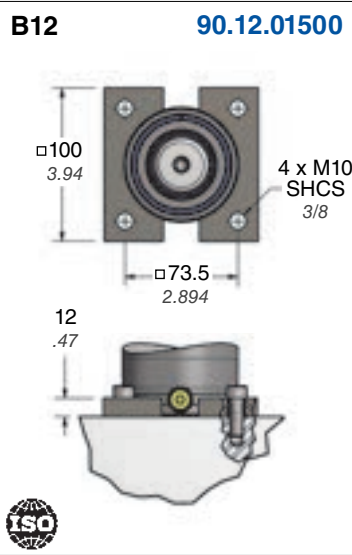
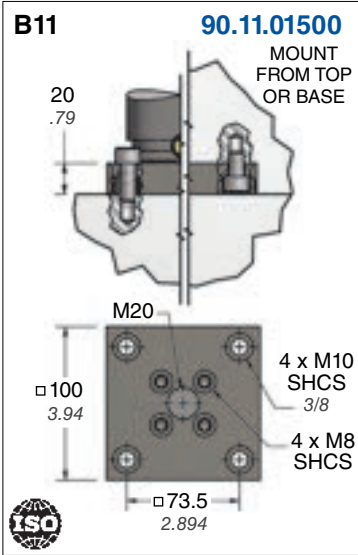
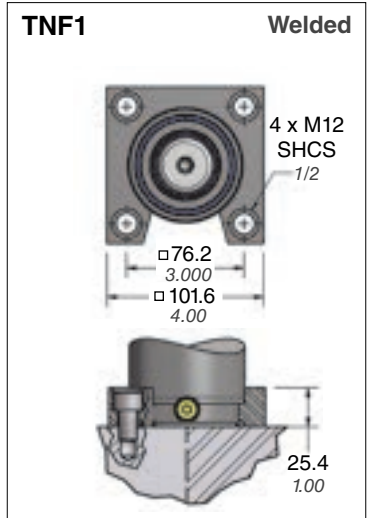
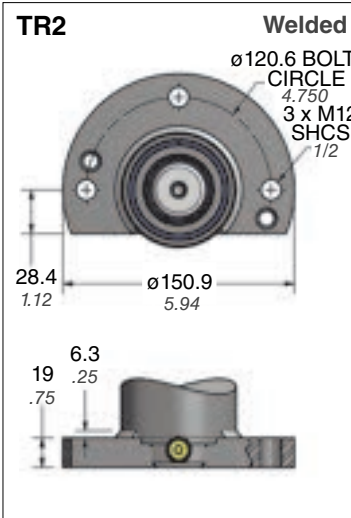
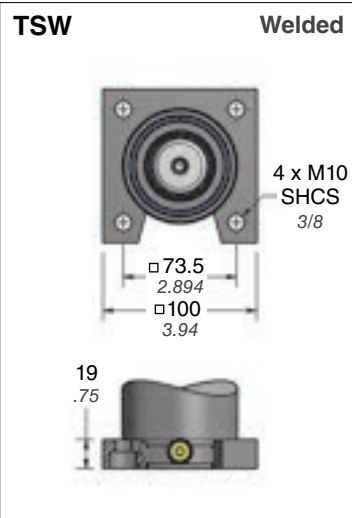
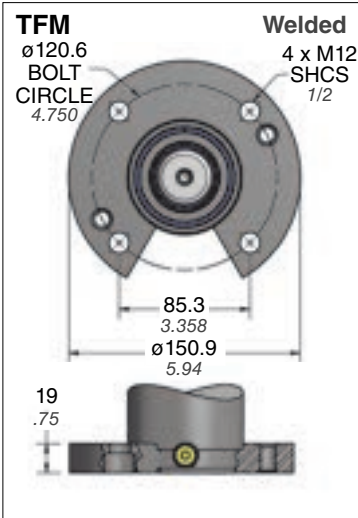
Part Number: Includes Series (90.10 or 90.8), Model and Stroke Length.

Mount Option: TO = Basic Model. When not specified, default is TO. Mounts ordered with cylinder will be attached at the factory.

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.

15 kN / 1.5 ton

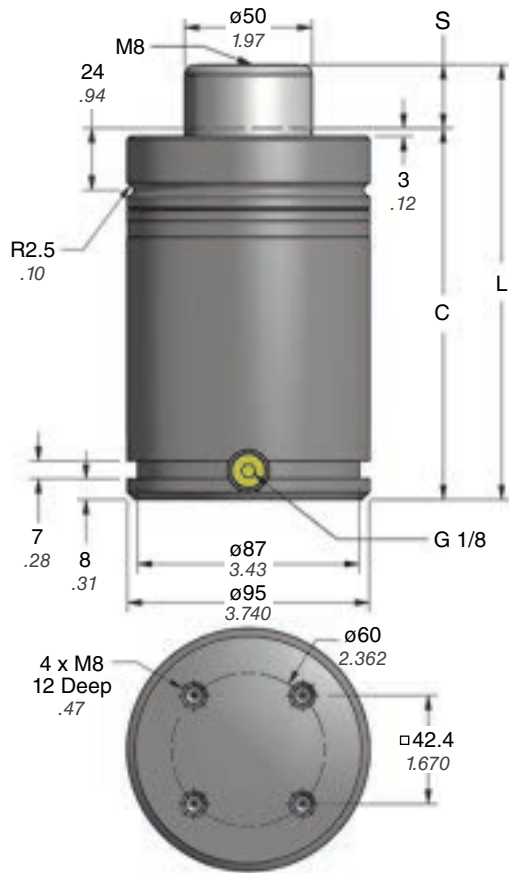


Ordering Example: Cylinder with Mount: 90.10.01500.025.B21.C.150 Mount Only: 90.21.01500

90.10 and 90.8 Series Nitrogen Gas Springs

30 kN / 3 ton

25 mm shorter!



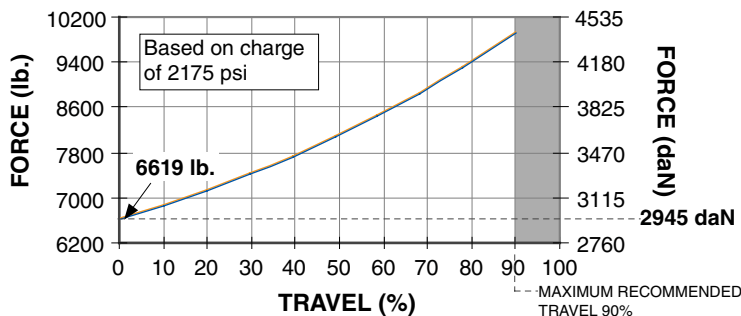
TO – Basic Model

Part No.	S mm inch	90.10.03000 ISO		90.8.03000	
		C	L ±0.25 ±0.010	C	L ±0.25 ±0.010
90.__.03000.013	12.5 0.49	132.5 5.22	145 5.709	107.5 4.23	120 4.724
• 90.__.03000.025	25 0.98	145 5.71	170 6.693	120 4.72	145 5.709
90.__.03000.038	37.5 1.48	157.5 6.20	195 7.677	132.5 5.22	170 6.693
• 90.__.03000.050	50 1.97	170 6.69	220 8.661	145 5.71	195 7.677
90.__.03000.063	62.5 2.46	182.5 7.19	245 9.646	157.5 6.20	220 8.661
90.__.03000.075	75 2.95	195 7.68	270 10.630	170 6.69	245 9.646
• 90.__.03000.080	80 3.15	200 7.87	280 11.024	175 6.89	255 10.039
90.__.03000.088	87.5 3.44	207.5 8.17	295 11.614	182.5 7.19	270 10.630
• 90.__.03000.100	100 3.94	220 8.66	320 12.598	195 7.68	295 11.614
90.__.03000.113	112.5 4.43	232.5 9.15	345 13.583	207.5 8.17	320 12.598
• 90.__.03000.125	125 4.92	245 9.65	370 14.567	220 8.66	345 13.583
90.__.03000.138	137.5 5.41	257.5 10.14	395 15.551	232.5 9.15	370 14.567
90.__.03000.150	150 5.91	270 10.63	420 16.535	245 9.65	395 15.551
• 90.__.03000.160	160 6.30	280 11.02	440 17.323	255 10.04	415 16.339
90.__.03000.175	175 6.89	295 11.61	470 18.504	270 10.63	445 17.520
90.__.03000.200	200 7.87	320 12.60	520 20.472	295 11.61	495 19.488
90.__.03000.225	225 8.86	345 13.58	570 22.441	320 12.60	545 21.457
90.__.03000.250	250 9.84	370 14.57	620 24.409	345 13.58	595 23.425
90.__.03000.275	275 10.83	395 15.55	670 26.378	N/A	N/A
90.__.03000.300	300 11.81	420 16.54	720 28.346	N/A	N/A

• ISO standard stroke lengths (90.10.03000 only)

Force Charts

psi	lb.
2175	6619
2000	6087
1750	5326
1500	4565
1000	3043
500	1522
250	761



bar	daN
150	2945
125	2454
100	1963
75	1473
50	982
25	491
20	393

Ordering Example:

90.10.03000.025. TO. C. 150

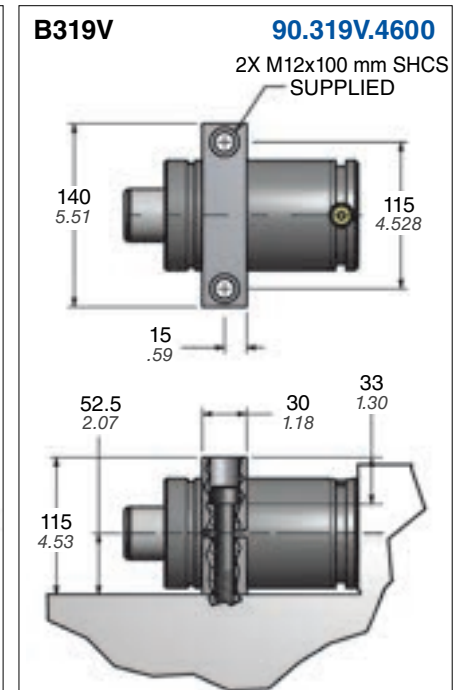
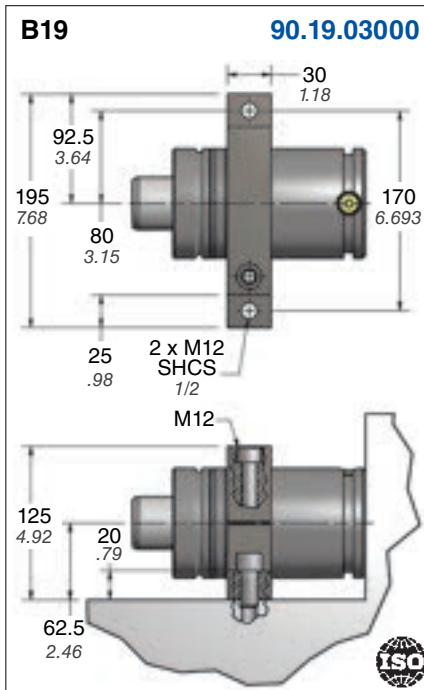
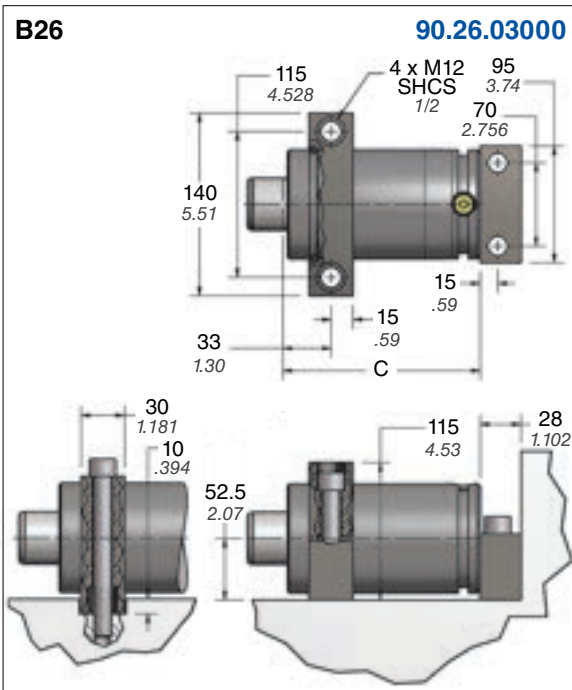
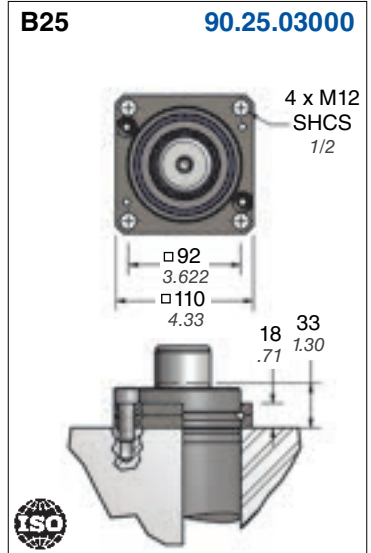
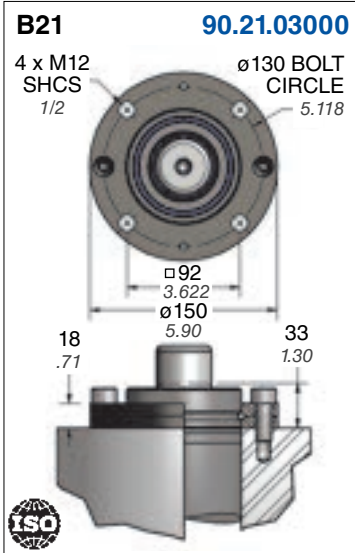
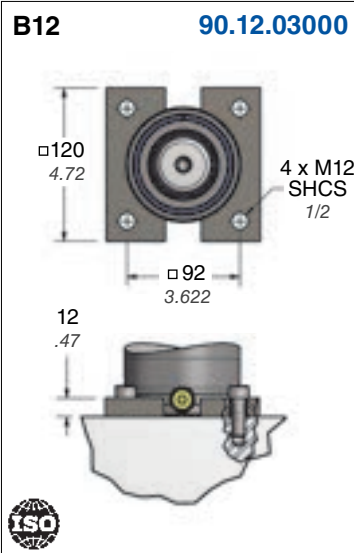
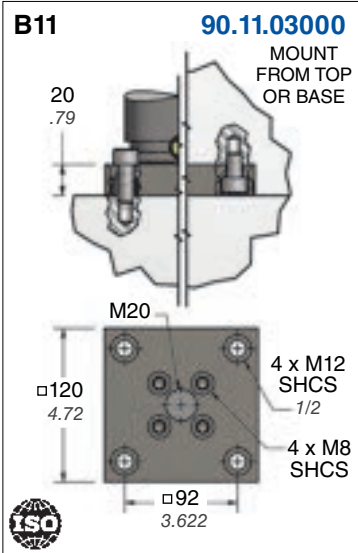
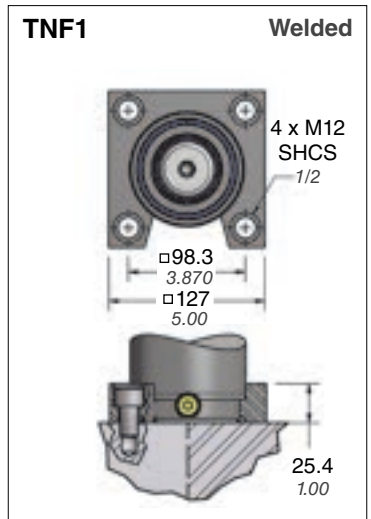
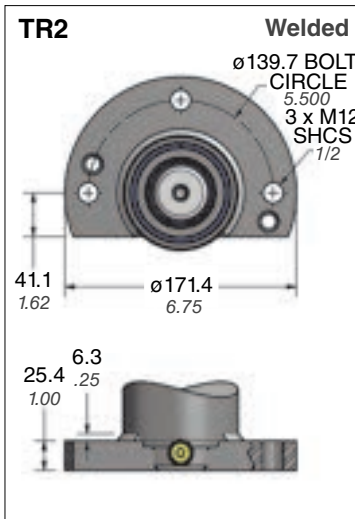
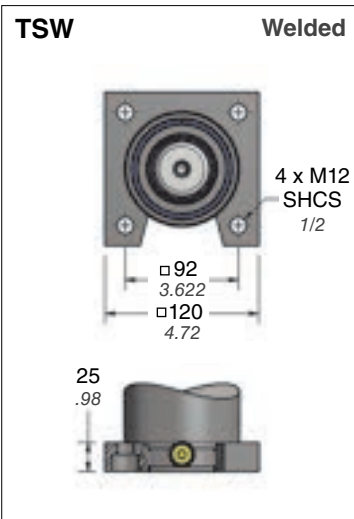
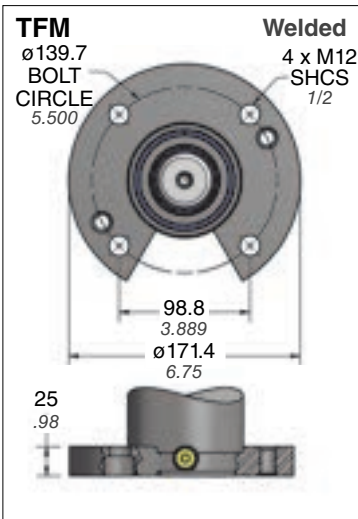
Part Number: Includes Series (90.10 or 90.8), Model and Stroke Length.

Mount Option: TO = Basic Model. When not specified, default is TO. Mounts ordered with cylinder will be attached at the factory.

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.

30 kN / 3 ton

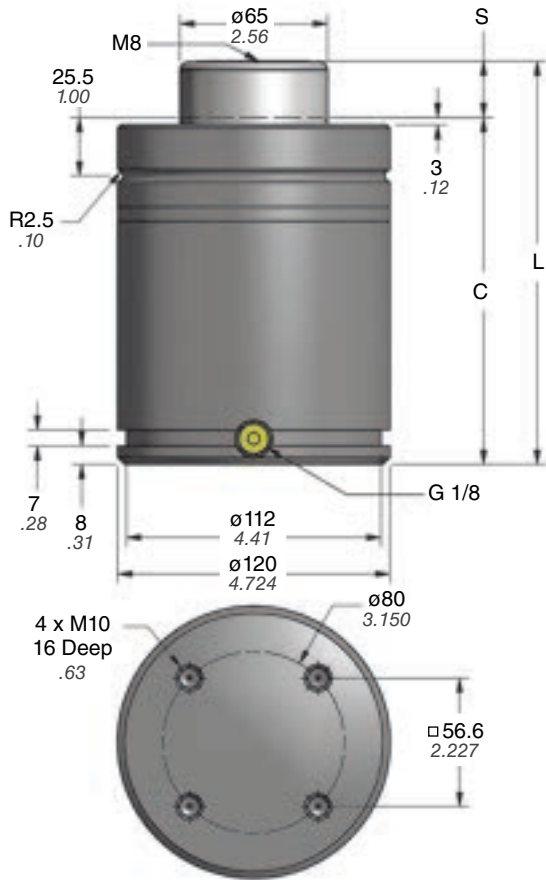


Ordering Example: Cylinder with Mount: 90.10.03000.025.B21.C.150 Mount Only: 90.21.03000

90.10 and 90.8 Series Nitrogen Gas Springs

50 kN / 5 ton

37.5 mm shorter!



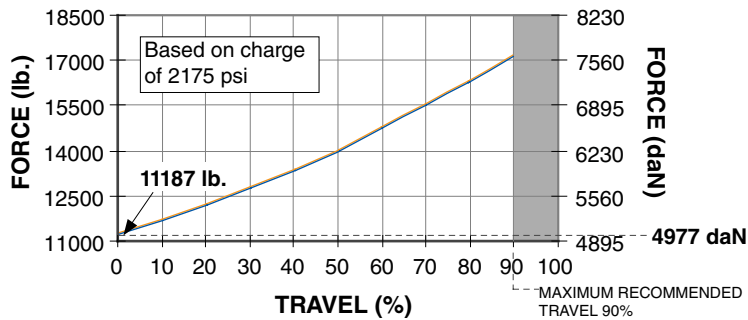
TO – Basic Model

Part No.	S mm inch	90.10.05000 ISO		90.8.05000	
		C	L ±0.25 ±0.010	C	L ±0.25 ±0.010
• 90___.05000.025	25 0.98	165 6.50	190 7.480	127.5 5.02	152.5 6.004
90___.05000.038	37.5 1.48	177.5 6.99	215 8.465	140 5.51	177.5 6.988
• 90___.05000.050	50 1.97	190 7.48	240 9.449	152.5 6.00	202.5 7.972
90___.05000.063	62.5 2.46	202.5 7.97	265 10.433	165 6.50	227.5 8.957
90___.05000.075	75 2.95	215 8.46	290 11.417	177.5 6.99	252.5 9.941
• 90___.05000.080	80 3.15	220 8.66	300 11.811	182.5 7.19	262.5 10.335
90___.05000.088	87.5 3.44	227.5 8.96	315 12.402	190 7.48	277.5 10.925
• 90___.05000.100	100 3.94	240 9.45	340 13.386	202.5 7.97	302.5 11.909
90___.05000.113	112.5 4.43	252.5 9.94	365 14.370	215 8.47	327.5 12.894
• 90___.05000.125	125 4.92	265 10.43	390 15.354	227.5 8.96	352.5 13.878
90___.05000.138	137.5 5.41	277.5 10.93	415 16.339	240 9.45	377.5 14.862
90___.05000.150	150 5.91	290 11.42	440 17.323	252.5 9.94	402.5 15.846
• 90___.05000.160	160 6.30	300 11.81	460 18.110	262.5 10.34	422.5 16.634
90___.05000.175	175 6.89	315 12.40	490 19.291	277.5 10.93	452.5 17.815
90___.05000.200	200 7.87	340 13.39	540 21.260	302.5 11.91	502.5 19.783
90___.05000.225	225 8.86	365 14.37	590 23.228	327.5 12.89	552.5 21.752
90___.05000.250	250 9.84	390 15.35	640 25.197	352.5 13.88	602.5 23.720
90___.05000.275	275 10.83	415 16.34	690 27.165	N/A	N/A
90___.05000.300	300 11.81	440 17.32	740 29.134	N/A	N/A

• ISO standard stroke lengths (90.10.05000 only)

Force Charts

On-Contact Force	
psi	lb.
2175	11187
2000	10287
1750	9001
1500	7715
1000	5143
500	2572
250	1286



On-Contact Force	
bar	daN
150	4977
125	4148
100	3318
75	2489
50	1659
25	830
20	664

Ordering Example:

90.10.05000.025. TO. C. 150

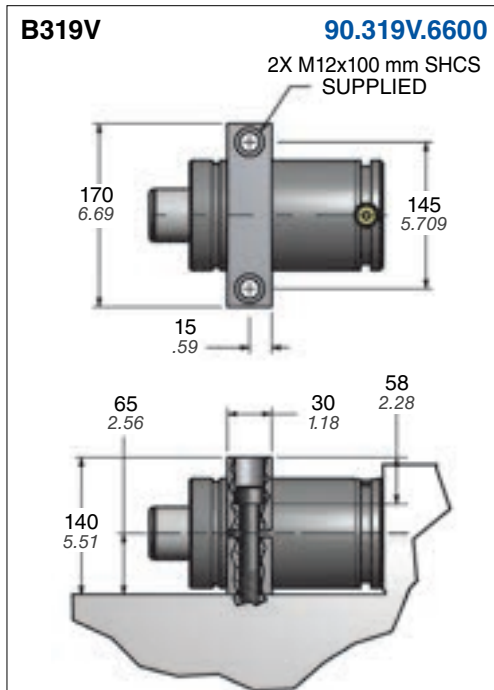
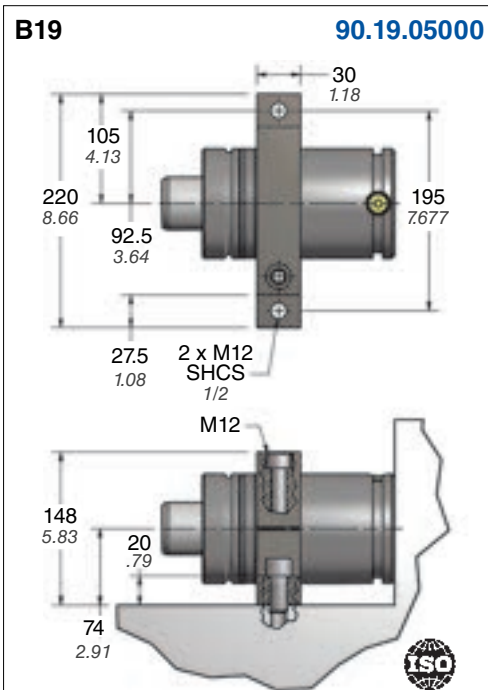
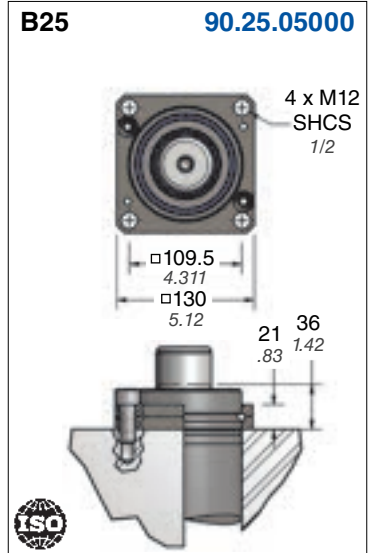
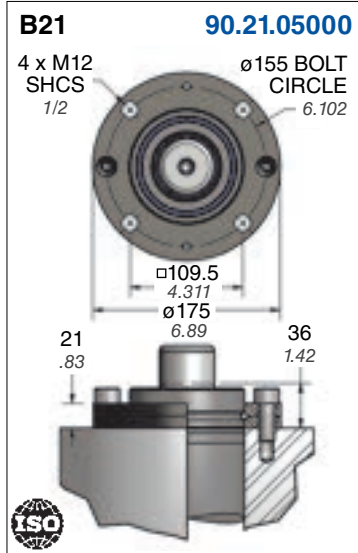
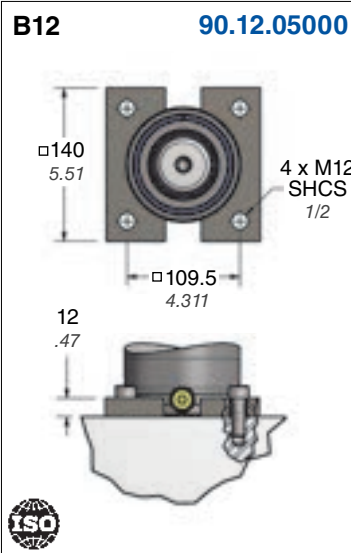
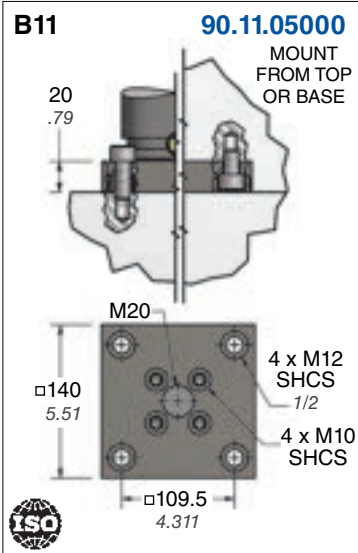
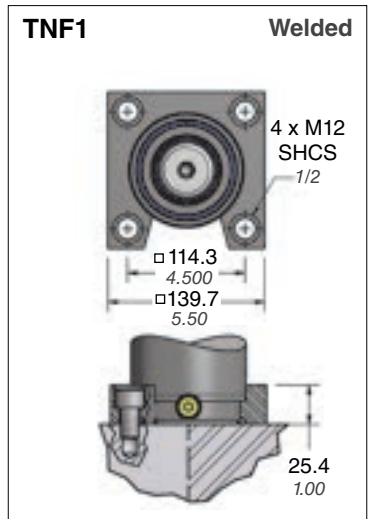
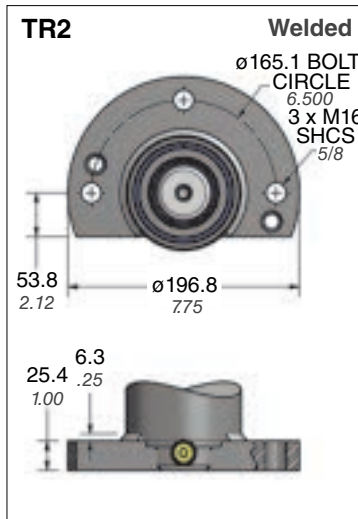
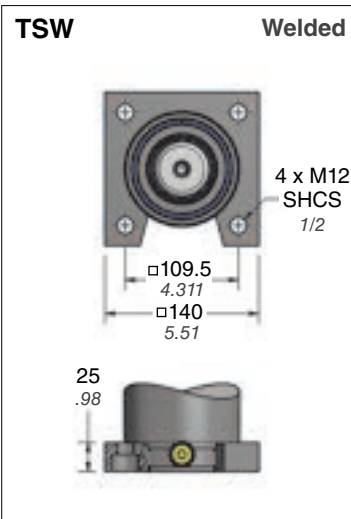
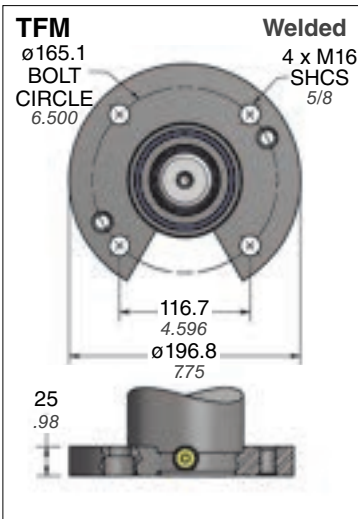
Part Number: Includes Series (90.10 or 90.8), Model and Stroke Length.

Mount Option: TO = Basic Model. When not specified, default is TO. Mounts ordered with cylinder will be attached at the factory.

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.

50 kN / 5 ton

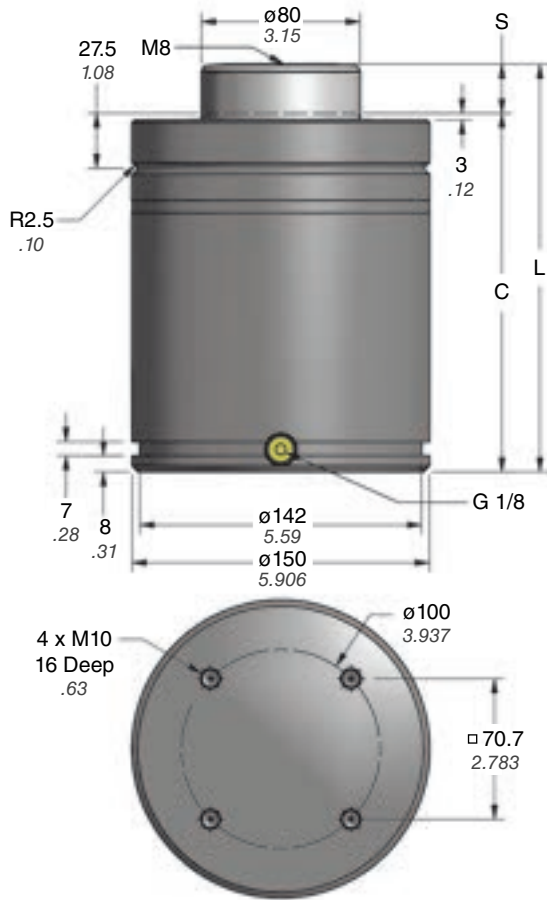


Ordering Example: Cylinder with Mount: 90.10.05000.025.B21.C.150 Mount Only: 90.21.05000

90.10 and 90.8 Series Nitrogen Gas Springs

75 kN / 7.5 ton

50 mm shorter!



TO – Basic Model

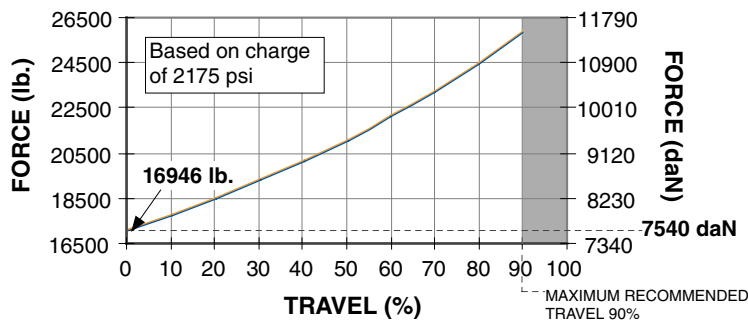
Part No.	S mm inch	90.10.07500 ISO		90.8.07500	
		C	L ±0.25 ±0.010	C	L ±0.25 ±0.010
• 90.07500.025	25 0.98	180 7.09	205 8.071	130 5.12	155 6.102
90.07500.038	37.5 1.48	192.5 7.58	230 9.055	142.5 5.61	180 7.087
• 90.07500.050	50 1.97	205 8.07	255 10.039	155 6.10	205 8.071
90.07500.063	62.5 2.46	217.5 8.56	280 11.024	167.5 6.59	230 9.055
90.07500.075	75 2.95	230 9.06	305 12.008	180 7.09	255 10.039
• 90.07500.080	80 3.15	235 9.25	315 12.402	185 7.28	265 10.433
90.07500.088	87.5 3.44	242.5 9.55	330 12.992	192.5 7.58	280 11.024
• 90.07500.100	100 3.94	255 10.04	355 13.976	205 8.07	305 12.008
90.07500.113	112.5 4.43	267.5 10.53	380 14.961	217.5 8.56	330 12.992
• 90.07500.125	125 4.92	280 11.02	405 15.945	230 9.06	355 13.976
90.07500.138	137.5 5.41	292.5 11.52	430 16.929	242.5 9.55	380 14.961
90.07500.150	150 5.91	305 12.01	455 17.913	255 10.04	405 15.945
• 90.07500.160	160 6.30	315 12.40	475 18.701	265 10.43	425 16.732
90.07500.175	175 6.89	330 12.99	505 19.882	280 11.02	455 17.913
90.07500.200	200 7.87	355 13.98	555 21.850	305 12.01	505 19.882
90.07500.225	225 8.86	380 14.96	605 23.819	330 12.99	555 21.850
90.07500.250	250 9.84	405 15.94	655 25.787	355 13.98	605 23.819
90.07500.275	275 10.83	430 16.93	705 27.756	N/A	N/A
90.07500.300	300 11.81	455 17.91	755 29.724	N/A	N/A

• ISO standard stroke lengths (90.10.07500 only)

Force Charts

On-Contact Force

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



On-Contact Force

bar	daN
150	7540
125	6283
100	5027
75	3770
50	2513
25	1257
20	1005

Ordering Example:

90.10.07500.025. TO. C. 150

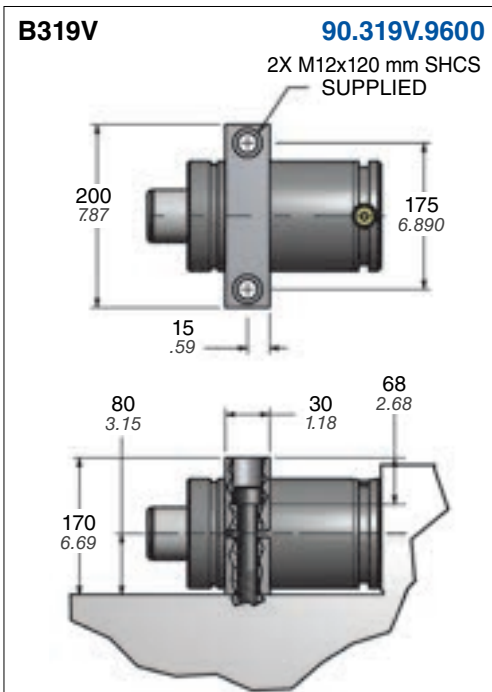
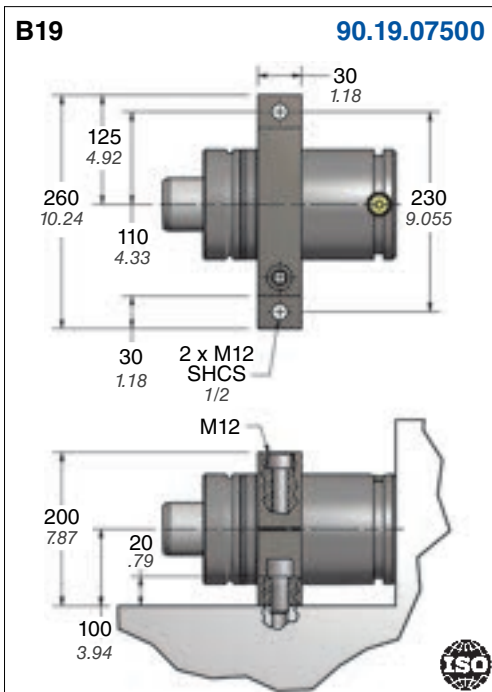
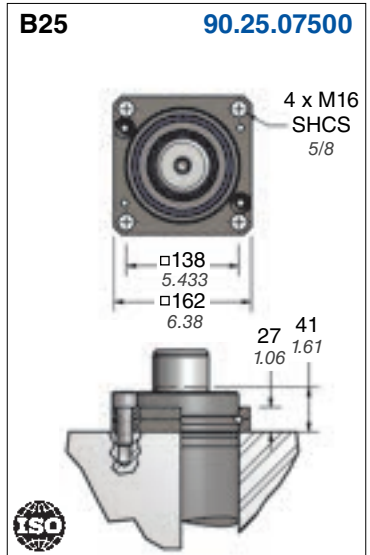
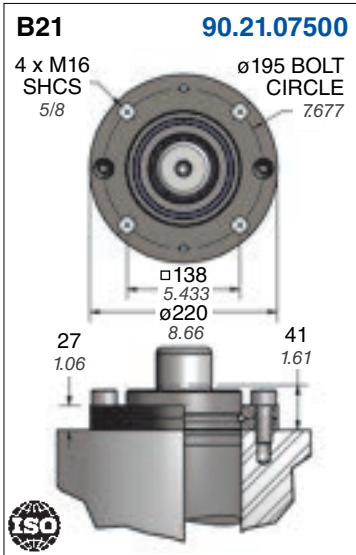
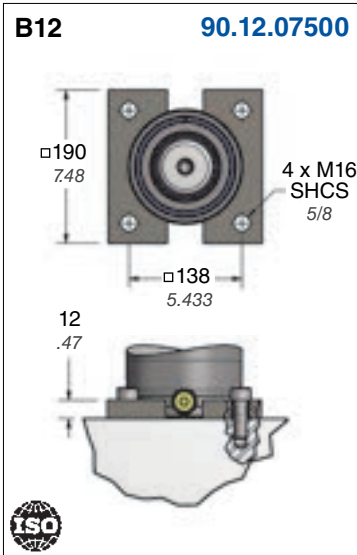
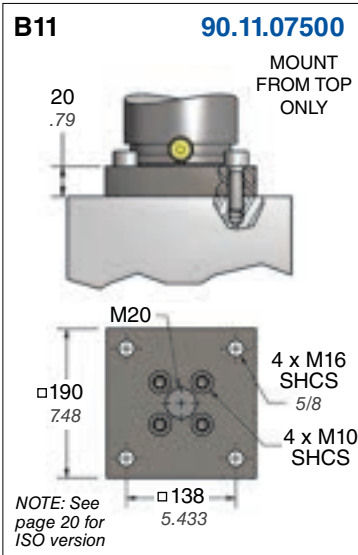
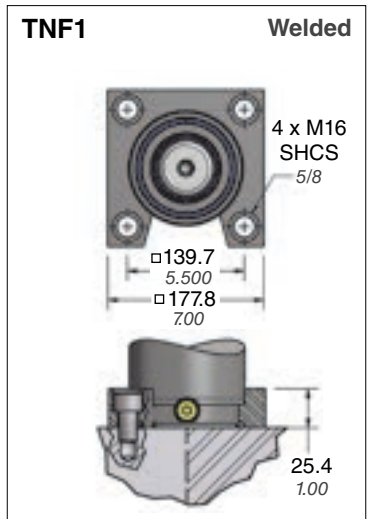
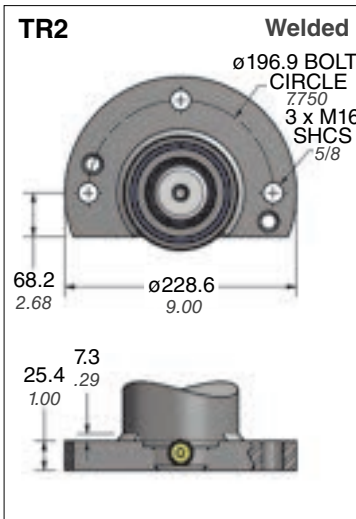
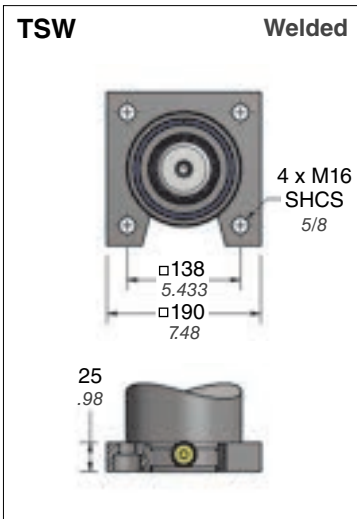
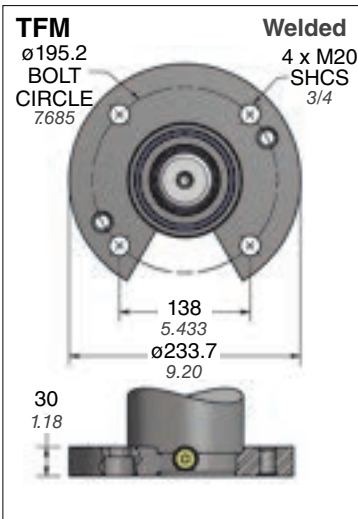
Part Number: Includes Series (90.10 or 90.8), Model and Stroke Length.

Mount Option: TO = Basic Model. When not specified, default is TO. Mounts ordered with cylinder will be attached at the factory.

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.

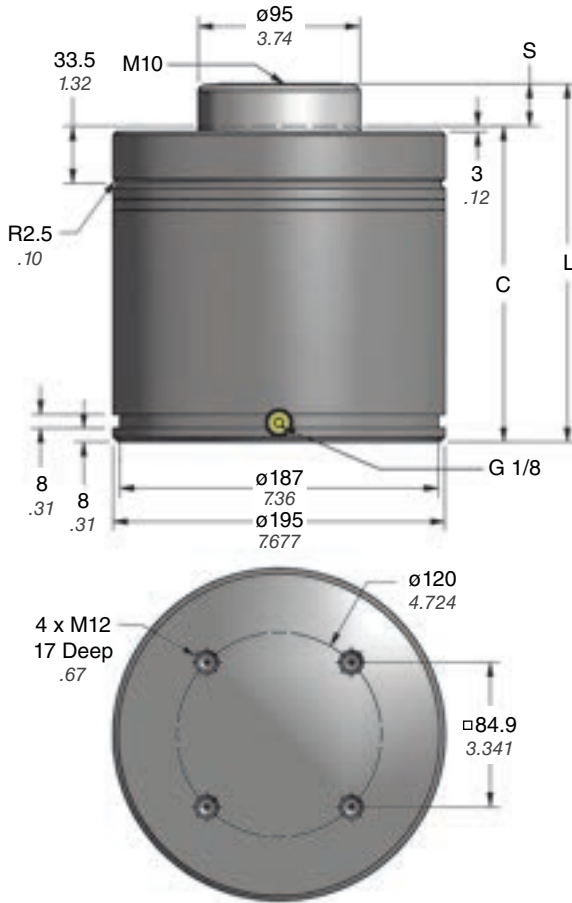
75 kN / 7.5 ton



Ordering Example: Cylinder with Mount: 90.10.07500.025.B21.C.150 Mount Only: 90.21.07500

90.10 and 90.8 Series Nitrogen Gas Springs

100 kN / 10 ton



TO – Basic Model

Model Not Available in 90.8 Series

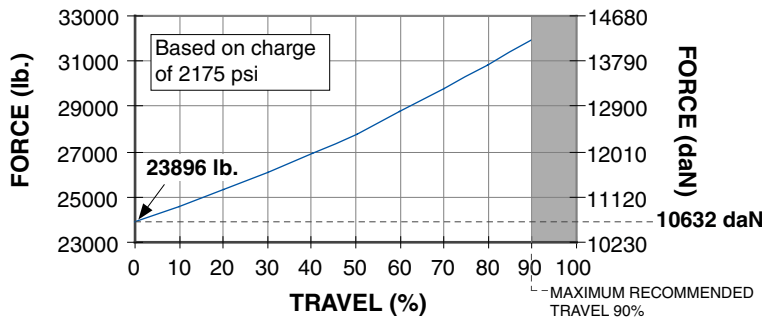
90.10.10000			
Part No.	S mm inch	C	L ±0.25 ±0.010
90.10.10000.025	25 0.98	185 7.28	210 8.268
90.10.10000.038	37.5 1.48	197.5 7.78	235 9.252
• 90.10.10000.050	50 1.97	210 8.27	260 10.236
90.10.10000.063	62.5 2.46	222.5 8.76	285 11.220
• 90.10.10000.080	80 3.15	240 9.45	320 12.598
• 90.10.10000.100	100 3.94	260 10.24	360 14.173
• 90.10.10000.125	125 4.92	285 11.22	410 16.142
• 90.10.10000.160	160 6.30	320 12.60	480 18.898
• 90.10.10000.200	200 7.87	360 14.17	560 22.047
• 90.10.10000.250	250 9.84	410 16.14	660 25.984

• ISO standard stroke lengths

Force Charts

On-Contact Force

psi	lb.
2175	23896
2000	21974
1750	19227
1500	16480
1000	10987
500	5493
250	2747



On-Contact Force

bar	daN
150	10632
125	8860
100	7088
75	5316
50	3544
25	1772
20	1418

Ordering Example:

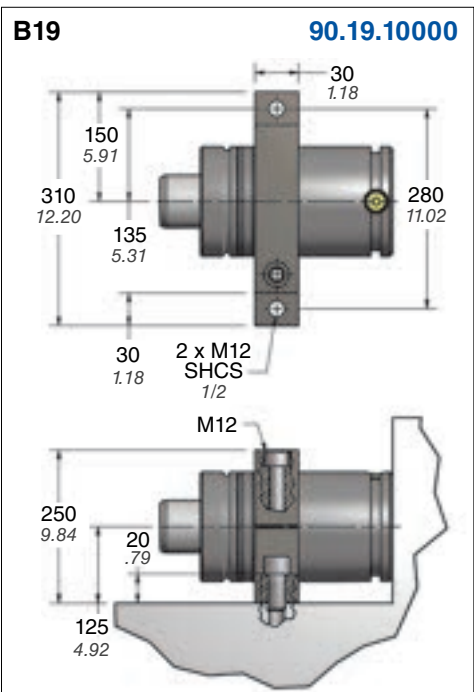
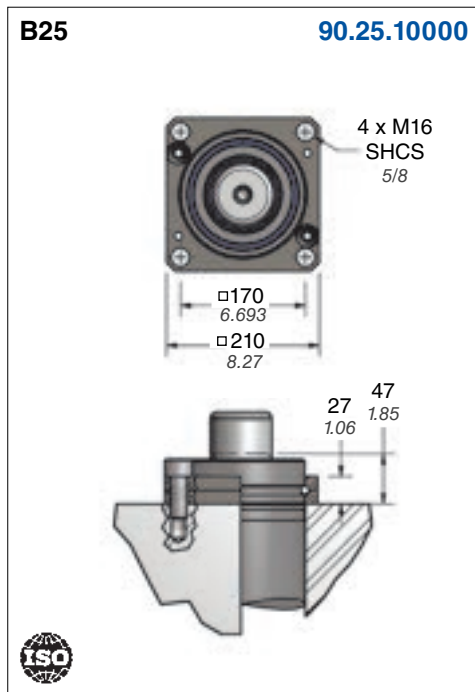
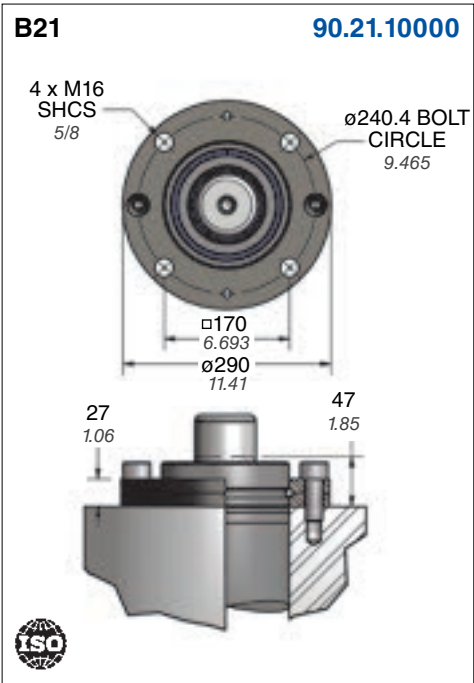
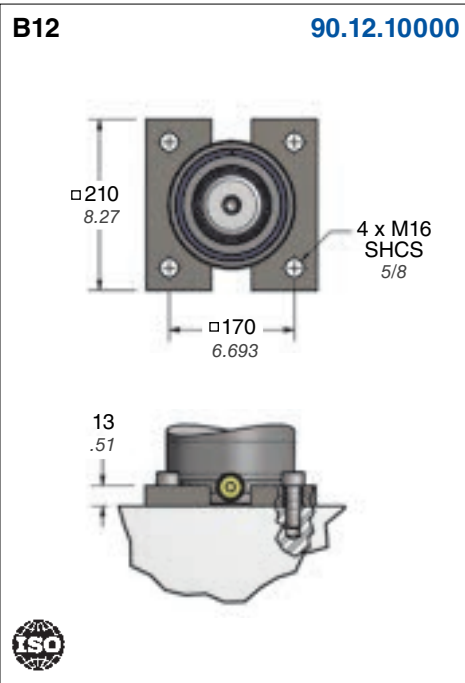
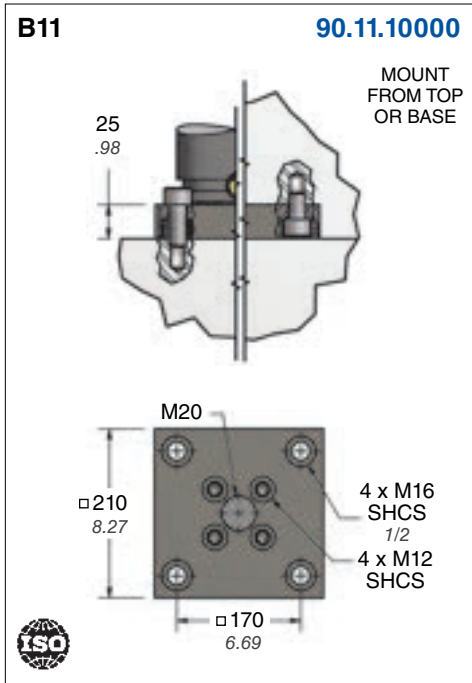
90.10.10000.025. TO. C. 150

Part Number: Includes Series (90.10), Model and Stroke Length.

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

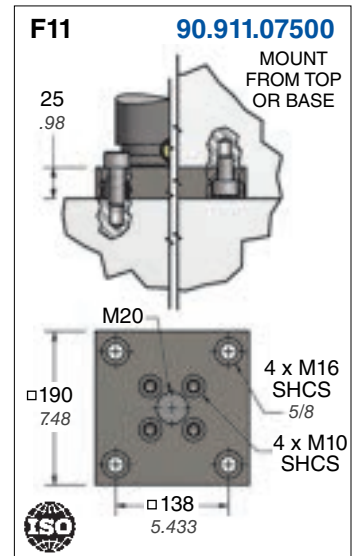
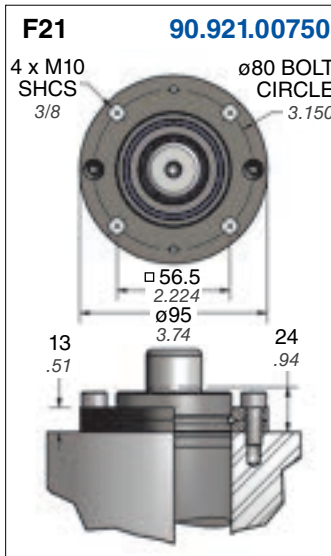
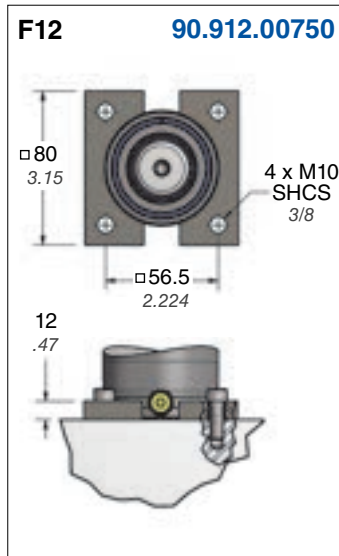
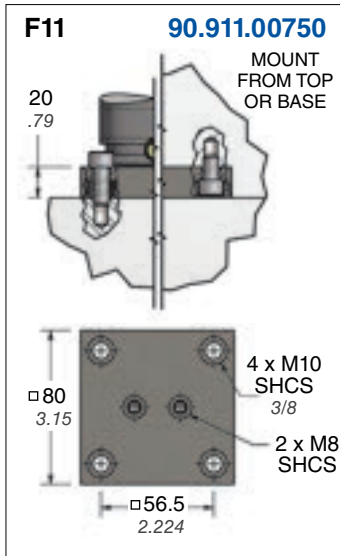
Charging Pressure: 15-150 bar (220-2175 psi). *When not specified, default is 150 bar.*

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

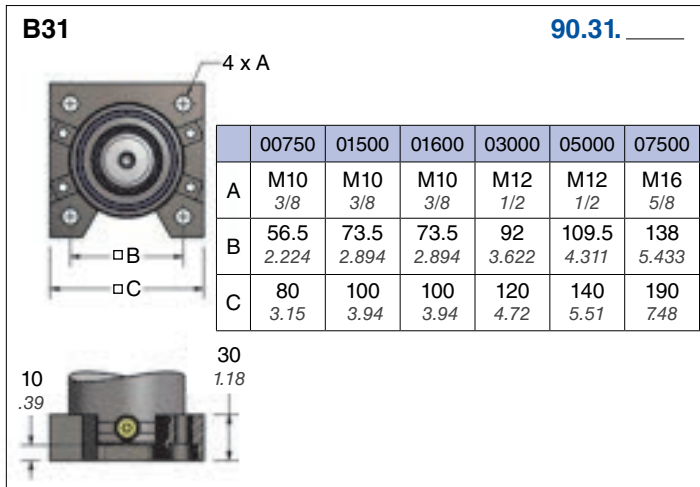


Ordering Example: **Cylinder with Mount:** 90.10.10000.050.B21.C.150 **Mount Only:** 90.21.10000

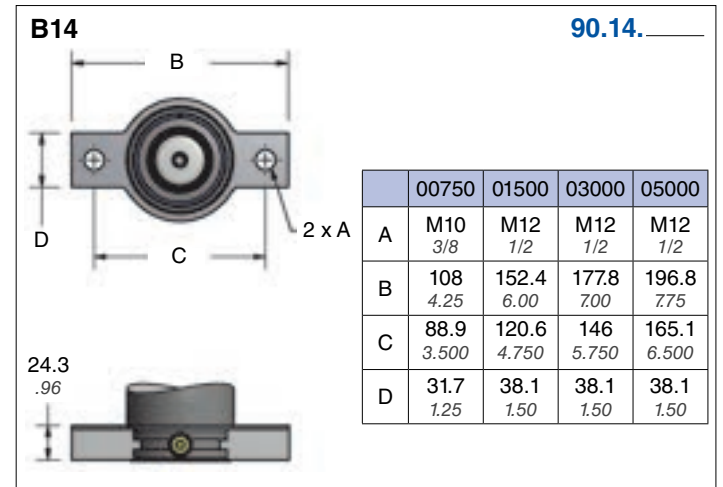
Special WDX Mounts



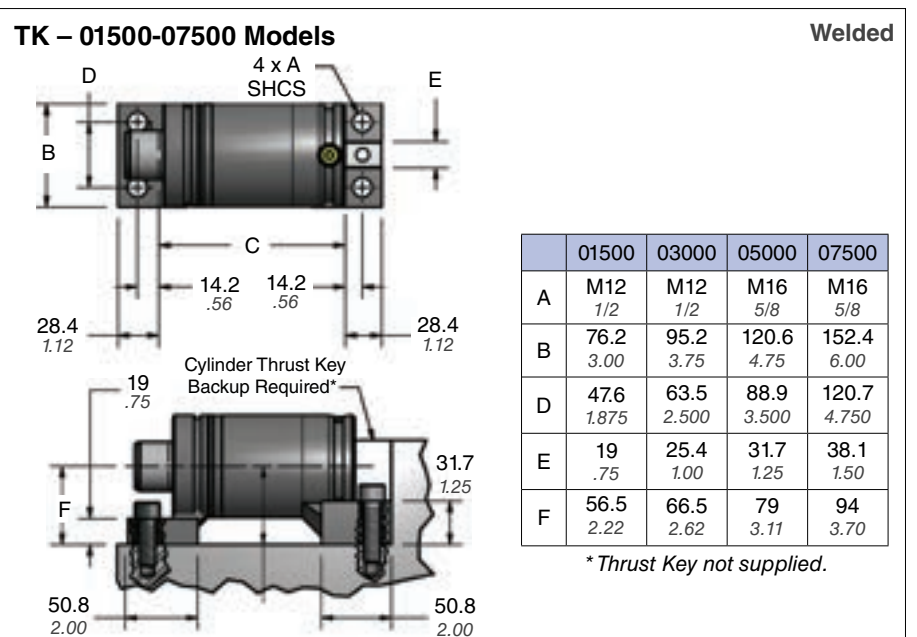
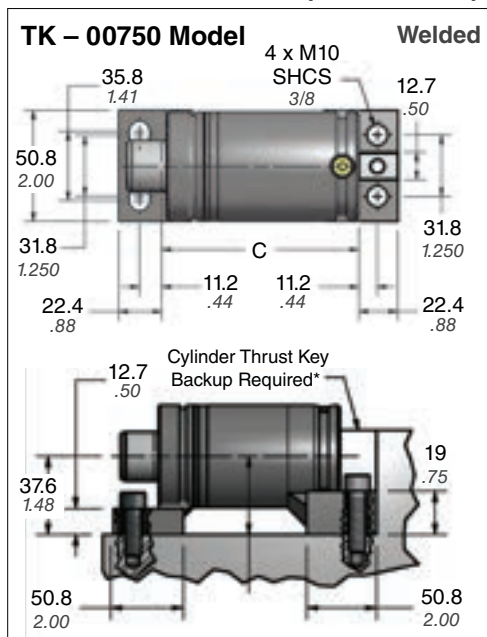
Special WDX Mounts (Continued)



Alternative Mounts



Alternative Mounts (Continued)



Repair Tools and Accessories

Cartridge Starter Kit

90.335._____
(00500, 00750, 01500, 03000,
05000, 07500, 10000)

The Cartridge Starter Kit includes an Assembly Cap (90.330.____) and an Assembly Cone (90.331.____). The Assembly Cone is used to start the cartridge assembly onto the rod without damaging the seal, the Assembly Cap is used to set the cartridge at a proper depth for C-Ring installation.



90.330.____



90.331.____

Removal Sleeve

90.340._____
(00400, 00500, 00750, 01500,
03000, 05000, 07500)

To position the cartridge below the C-ring groove when assembling or disassembling a gas spring.



C-Ring Installation Tool

90.351.00400 (00170 Model)
90.351.00500 (00500 Model)
90.350.00750 (00750 Model)

To insert the C-Style Retaining Ring into the retaining ring groove of 170, 500 and 750 Models.



C-Ring Installation Tool

90.352 (01500 – 07500 Models)
90.352.10000 (10000 Model)

To insert the C-Style Retaining Ring into the retaining ring groove of 01500 – 10000 Models. For more information request bulletin B01101D.



C-Ring Removal Tool

90.355 (00170 – 01500 Models)
90.356 (00750 – 10000 Models)

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



90.355

90.356

T-Handle

90.320.1 – M6 Thread
90.320.2 – M8 Thread
90.320.10 – M10 Thread

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



Quick Disconnect Charging Assembly

90.310.040
Use the DADCO Quick Disconnect Charging Assembly, 90.310.040, with the 90.310.111 Charging Nipple or 90.315.5 Pressure Analyzer to charge self-contained gas springs. The 90.310.040 can also be used with a DADCO control panel to charge linked systems. The 90.310.040 includes the 90.310.201 Pressure Regulator, 90.310.252 Hose Assembly and the 90.310.338 Quick Disconnect Filling Assembly.



Hose Assembly
3m (10 ft)
90.310.252

Pressure Regulator
90.310.201

Quick Disconnect
Filling Assembly
90.310.338

Quick Disconnect Charging Nipple

90.310.143 – M6 Thread
90.310.111 – G 1/8 Port

Use the DADCO Quick Disconnect Charging Nipple to charge the 90.10 and 90.8 Series gas springs. For more information, contact DADCO.



90.310.143

90.310.111

Standard Load Cell

90.300._____

(00500, 00750, 01500, 03000, 05000, 07500, 10000)

The Standard Load Cell gives precise measurement of gas spring charging pressure. Each model requires its specified load cell. Load cells for 00500 – 07500 Models may be used with the Portable Test Stand; the load cell for the 90.10.10000 may be used with an arbor press.



Digital Load Cell

90.305.BGA (Meter)

90.305.LC.05A (22.2 kN Load Cell)

90.305.LC.50A (222 kN Load Cell)

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



90.305.BGA



90.305.LC.05A



90.305.LC.50A

DADCO Pressure Analyzer

90.315.5

DADCO's Pressure Analyzer includes two interchangeable bits to easily charge, discharge and gauge the pressure in any DADCO Nitrogen Gas Spring. For more information request bulletin B01133F.



Portable Test Stand

90.305.2 / 2D (00170)

90.305.3 (00500 – 07500)

Use the Portable Test Stand in conjunction with a Standard Load Cell for precise measurement of gas spring force. Excludes use with 90.10.10000. For more information request bulletin B16112A.



90.305.2



90.305.3

DADCO Electronic Pressure Monitors

DADCO's Electrical Pressure Monitors indicate if pressure drops below a preset level, alerting the press controller to shut down the press. They are available in a variety of configurations to suit a variety of applications. For more information request bulletin B10105B or contact DADCO.



Valve Bleed Tool

90.360.4

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



Port Servicing Tool

90.320.8

To perform all necessary servicing to the valve compartment.



DADCO Repair Tool Kits

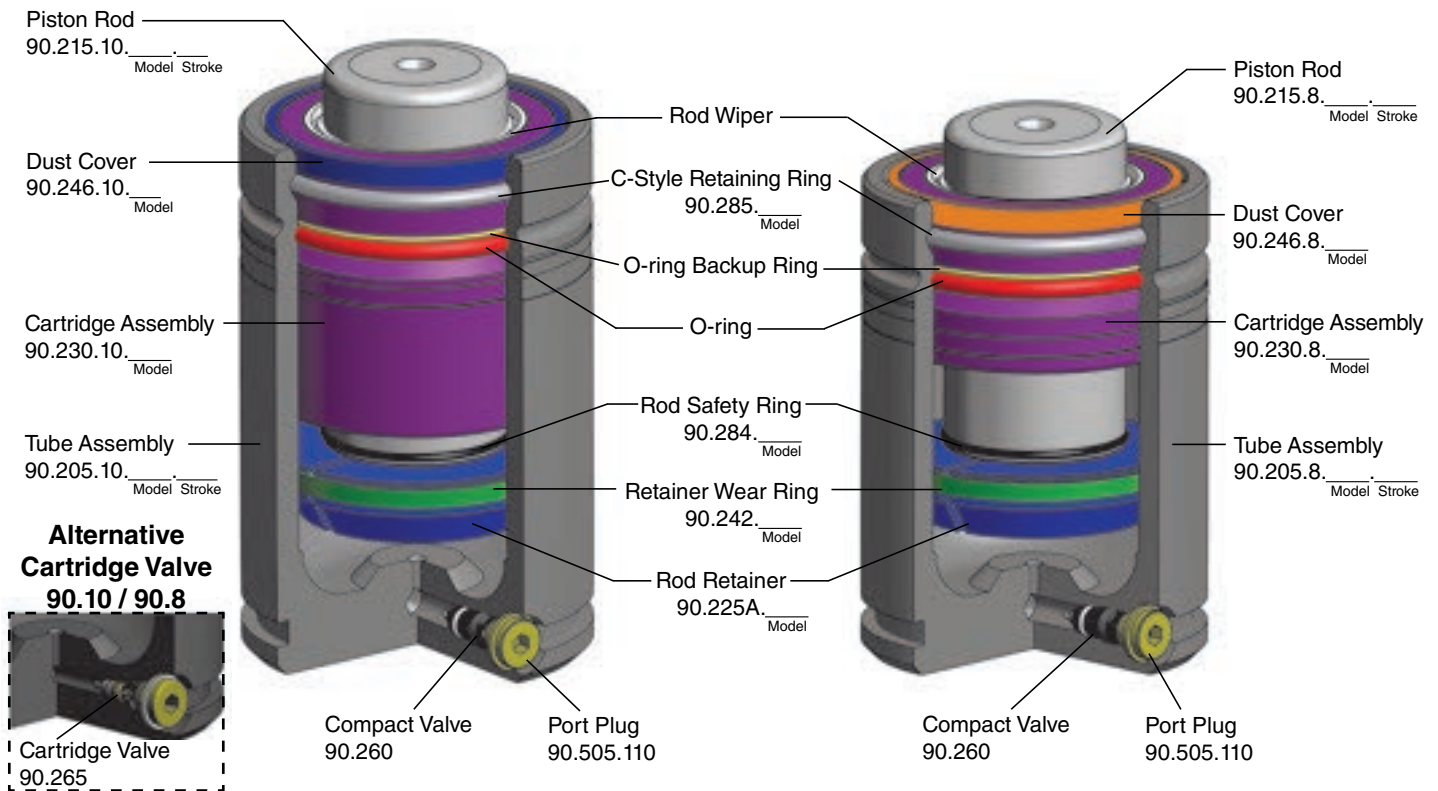
DADCO's most popular repair tools are now available in boxed sets for each of our three main classifications of nitrogen gas springs: Micro, Mini and Large Series. Kits may include DADCO load cells, charging nipples and various repair tools. Separate repair tool and load cell sets are also available. For more information request bulletin B05143B.



Parts List

90.10 Series Parts List

90.8 Series Parts List

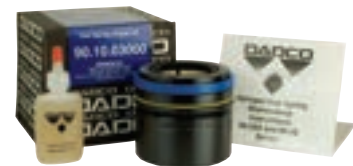


Repair Kits

Include a fully assembled cartridge, dust cover, bottle of assembly oil and a maintenance manual.

90.10 Series	
Model	Repair Kit No.
90.10.00170	90.201.00170
90.10.00500	90.201A.00500
90.10.00750	90.201.00750
90.10.01500	90.201.01500
90.10.03000	90.201.03000
90.10.05000	90.201.05000
90.10.07500	90.201.07500
90.10.10000	90.201.10000

90.8 Series	
Model	Repair Kit No.
90.8.00750	90.208.00750
90.8.01500	90.208.01500
90.8.03000	90.208.03000
90.8.05000	90.208.05000
90.8.07500	90.208.07500



Replacement Part Ordering Example:

Piston Rod: 90.215. 10. 00750. 025

Part Number _____
 Series: _____
 90.10 = 10 or 90.8 = 8

Stroke (mm)
 Model: 00170, 00500, 00750, 01500, 03000, 05000, 07500, 10000
 (00170, 00500 and 10000 models available in 90.10 Series only)

NOTE: DADCO's 90.10 and 90.8 Series Nitrogen Gas Springs are permanently marked with model number, serial number and repair kit number. Please refer to these when ordering replacement parts.

Operating and Technical Data

CAUTION

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

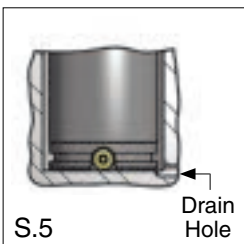
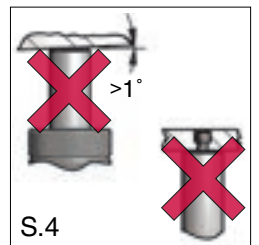
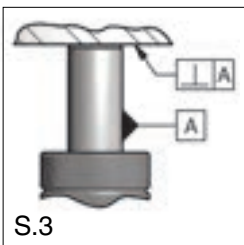
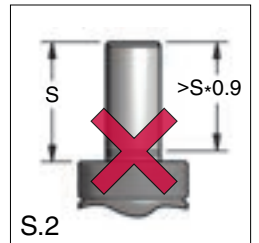
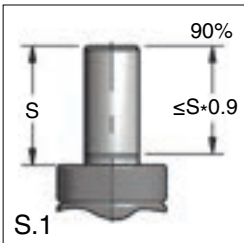
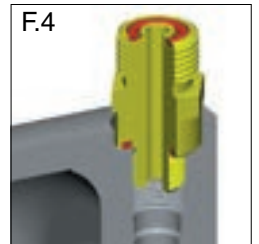
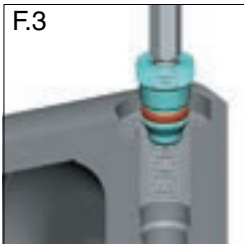
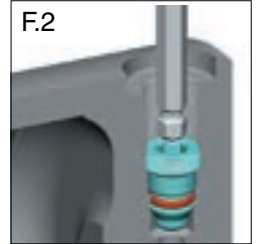
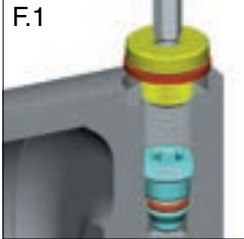
Operating Specifications

Charging Medium:	Nitrogen Gas
Charging Pressure Range:	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)

*For extended range applications contact DADCO.

Self-contained to Linked Operation

- Always wear safety glasses when maintaining gas springs. When exhausting pressure, place the gas spring horizontally with the port up for safety.
- Remove port plug, 90.607.110 or 90.505.110 (F.1).
- With the cylinder in the horizontal position, depress the valve stem using the appropriate tool (F.2). Cover the port with a cloth to absorb discharge.
- After all of the gas pressure is exhausted, be sure that the piston rod will retract into the tube manually. If not, try depressing the valve again. If still unsuccessful, stop and contact your DADCO Service Representative.
- Remove the valve using the appropriate tool (F.3). Lubricate the threads and o-ring of the port adapter being installed (F.4).
- Install port adapter in open port (F.4). A wide variety of port adapters are available, refer to DADCO's Nitrogen Gas Spring Linked System Components Catalog.
- DADCO surge tanks are used with open-flow systems to increase the volume in the system thereby reducing the pressure rise when cylinders are stroked. Refer to the Linked Systems Catalog for more information.



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.
- Never fill a gas spring unless the rod is in the fully extended position (R.1). Filling a gas spring with its rod down can result in improper retaining ring seating (R.2). Thread the T-handle 90.302.1, 90.320.2 or 90.320.10 into the rod end and depress the valve stem with the appropriate tool, then pull the rod cartridge assembly up until it is seated firmly against the retaining ring (R.1).
- Charge this spring to the desired pressure. Refer to DADCO's 90.8/90.10 Series Maintenance Instructions B06124D for complete step-by-step instruction.

Provide Stroke Reserve

- DADCO's 90.8 and 90.10 Series Gas Springs will permit travel of the full nominal stroke; however, at least a 10% stroke reserve is recommended to achieve optimal performance and safety (S.1, S.2).
- Overstroking the rod or impacting the top of the gas spring will cause permanent damage.

Avoid Side Loading

- Side loading resulting from press action or die construction causes increased wear on bearing, seal and piston rod (S.4). Therefore, avoid side loading when possible (S.3).

Rod End Thread

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

Protect From Fluids

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

DADCO

The global leader in nitrogen gas spring technology

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