

# DADCO®

## Mini Nitrogen Gas Springs

## LJ and L Series



**1/3, 1/2 and 3/4 Ton Compact Height Gas Springs!**





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.



### LJ and L Series

DADCO's L Series Gas Springs are ideal for stampers of small parts. They are dependable and enduring in a variety of applications. L Series Springs provide reliable guidance and durability in situations where part volumes are high or sideload is an issue.

DADCO is phasing out the LJ Series. Refer to the **Ultra Force**® catalog for comparable sized gas springs to use in new designs. The compact size of DADCO's U Series Springs is ideal for limited shut height applications.

Model	Diameter	Maximum Force on Contact
LJ/L.300	38 mm (1.496")	302 daN (678 lb.)
LJ/L.500	44.5 mm (1.750")	471 daN (1059 lb.)
LJ/L.750	50 mm (1.968")	736 daN (1655 lb.)

Convenient to use, Mini Series Gas Springs can be operated in a self-contained mode or in a linked system with DADCO's exclusive **MINILink**® System.

### Adjustable Force

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

### Rapid Delivery

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

### CAD Templates On-line

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

### Mini Piping System

Some customers prefer the ability to adjust and monitor force without removing the gas springs from the tool. To suit their requirements, DADCO offers the **MINILink**® System, an extremely compact piping system that does not require special ordering information or factory preparation. Self-contained Mini Series Gas Springs may be converted at any time to a linked system mode by adding DADCO's exclusive Mini-fittings, **MINIFLEX**® hose and the 90.407.11G mini control panel. For information on piping see DADCO's Nitrogen Gas Spring Linked System Components Catalog.

### Rod Wiper Fights Draw Compound

DADCO's Mini Springs feature the Duralene® Rod Wiper, which guards against draw die contamination within the cylinder. Unlike conventional wipers, DADCO's Duralene® Rod Wiper resists attack from caustic fluids. For applications where a particularly aggressive draw die compound is used, contact DADCO for alternative wiper options.



### Performance is Guaranteed

DADCO's LJ Series Nitrogen Gas Springs provide a long, maintenance-free life and are backed in writing by the exclusive One Year/One Million Stroke **Gold Guarantee**.



DADCO's L Series Nitrogen Gas Springs are reliable and long-lasting, backed in writing by DADCO's exclusive Two Year/Two Million Stroke **Select Guarantee**.

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

### 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.

### Provide Stroke Reserve

- DADCO LJ and L 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 (F.1 and F.2).

### Avoid Side Loading

- A misaligned press or die can cause side loading that increases wear on the bearing, seal, and piston rod (F.4). Therefore, avoid side loading when possible (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.4). Die vibration and/or misalignment will damage the spring.

### Protect From Fluids

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

### Discharging Self-Contained Gas Spring

- The DADCO Pressure Analyzer (90.315.5) allows for charging, discharging and gauging of the pressure in the gas springs (F.7).

### Recharging Self-Contained Gas Spring

- Hold the spring vertically at all times during filling. Never compress the gas spring in a vice or clamp outside of the die or application as damage to the gas spring can result (F.8).
- Never fill a gas spring unless the rod is in the fully extended position (F.10). 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 rod cartridge assembly up until it is seated firmly against the retaining ring (F.9). Remove the T-handle from the rod and charge the gas spring to the desired pressure. Refer to the Mini Series Maintenance Instructions for complete step-by-step instruction.

### Converting from Self-Contained mode to Linked mode

#### Remove Port Plug (A.1).

#### Exhausting the Spring

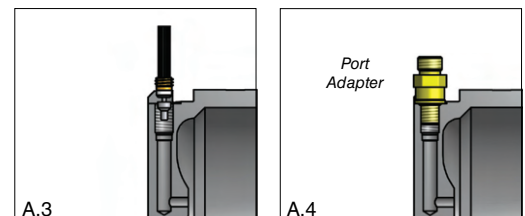
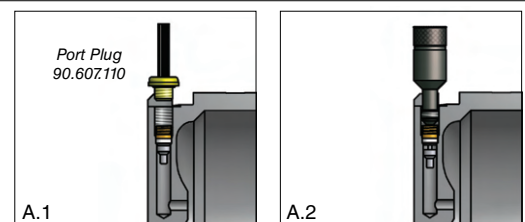
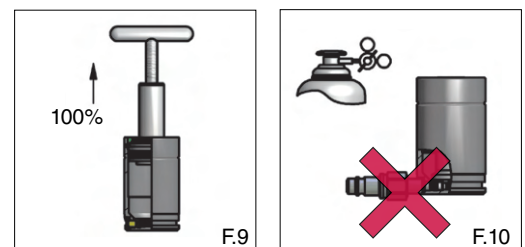
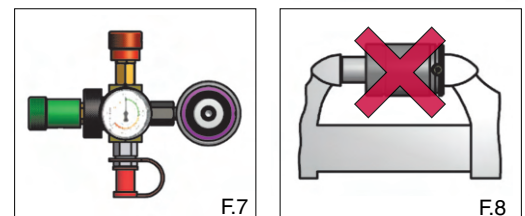
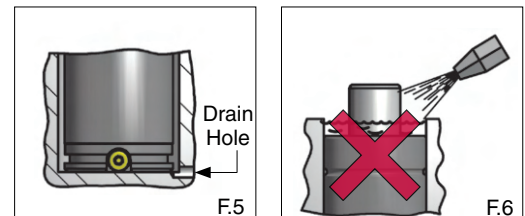
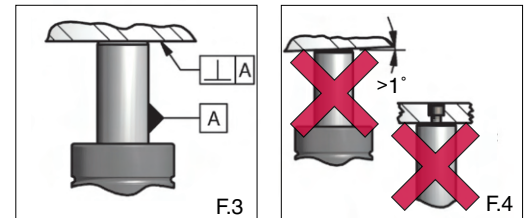
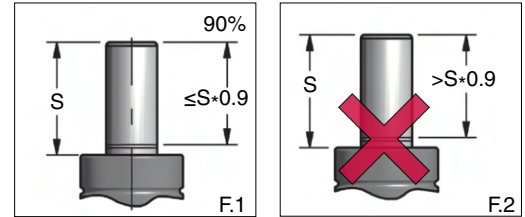
- With the cylinder in horizontal position, exhaust the gas spring by depressing the valve stem using the appropriate tool (A.2). Keep face and hands clear of the port.
- After all the gas pressure is exhausted, be sure that the piston rod will retract into the tube manually. If not, try depressing the valve stem again. If still unsuccessful **STOP** and contact your DADCO Service Representative.

#### Remove Valve

- Remove the valve by unscrewing it using the appropriate tool (A.3).

#### Ready to Pipe

- Install a port adapter into the open M6 port (A.4). A wide variety of port adapters and fittings are available, refer to DADCO's Nitrogen Gas Spring Linked System Components Catalog.

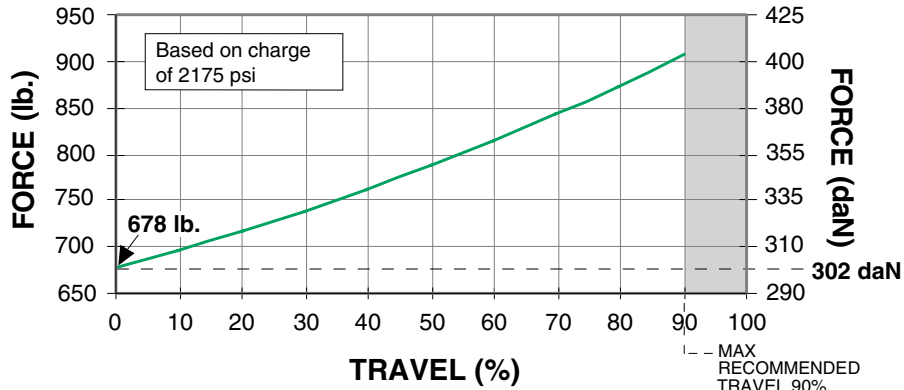




### Force Charts

#### On-Contact Force

psi	lb.
2175	678
2000	623
1750	545
1500	467
1000	312
500	156
250	78



#### On-Contact Force

bar	daN
150	302
125	251
100	201
75	151
50	101
25	50
20	40

### Mount Options

**B21** 90.21.00300

4 x M6 SHCS 1/4

ø56 BOLT CIRCLE 2.205

39.6  
1.559

68  
2.68

17  
.67

9  
.35

SECURE MOUNT ONTO GROOVE WITH SUPPLIED RING

**B27** 90.27.00300

4 x M6 SHCS 1/4

ø57.2 BOLT CIRCLE 2.250

40.4  
1.591

69.9  
2.75

12.7  
.50

SLIDE INTO DESIRED LOCATION AND LOCK USING THE M6 LOCK SCREW PROVIDED

**B312** 90.312.00300

4 x M6 SHCS 1/4

40  
1.575

55  
2.17

7  
.28

**B319V** 90.319V.0600

2 x M8x50 mm SHCS SUPPLIED

74  
2.91

54  
2.126

10  
.39  
20  
.79

16  
.63

SLIDE INTO DESIRED LOCATION SECURE USING THE TWO SHCS PROVIDED

**B322** 90.322.00300

4 x M8 SHCS 5/16

42  
1.654

60  
2.36

15  
.59

6  
.24

17.5  
.69

**TC1 & TC3**

**RETRO-FIT ONLY**

4.8  
.19

19  
.75

L

C

TC1 = 1/2-13 THD  
TC3 = 3/4-16 THD

**Ordering Example:**

**Cylinder with Mount: LJ.300.025.B21.150**

**Mount Only: 90.21.00300**

# Mini LJ / L Nitrogen Gas Springs

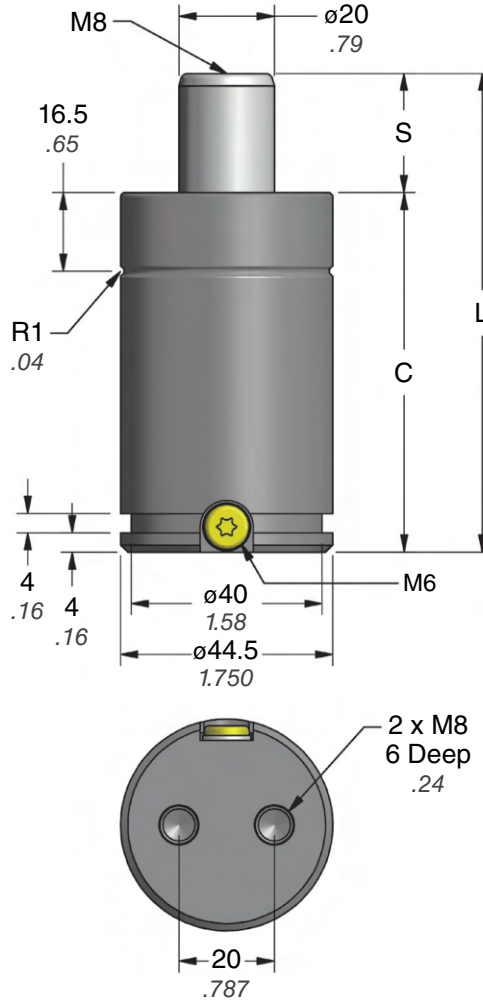
1/2 ton / 5 kN



**LJ.500**  
TO – Basic Model



**L.500**  
TO – Basic Model



Part No.	S mm inch	C	L ±0.25 ±.010
• LJ.500.013	12.5 0.49	44.5 1.75	57 2.244
LJ.500.019	19 0.75	51 2.01	70 2.756
• LJ.500.025	25.3 1.00	56.8 2.24	82.1 3.232
LJ.500.032	31.5 1.24	63 2.48	94.5 3.720
• LJ.500.038	38 1.50	69.5 2.74	107.5 4.232
• LJ.500.050	50 1.97	82 3.23	132 5.197
LJ.500.063	62.5 2.46	94.5 3.72	157 6.181
LJ.500.075	75 2.95	107 4.21	182 7.165
• LJ.500.080	80 3.15	112 4.41	192 7.559
LJ.500.100	100 3.94	132 5.20	232 9.134
LJ.500.125	125 4.92	157 6.18	282 11.102

• Preferred Sizes

Part No.	S* mm inch	C	L ±0.25 ±.010
L.500.006	6.3 0.25	56.8 2.24	63.1 2.484
• L.500.013	12.5 0.49	63 2.48	75.5 2.972
L.500.019	19 0.75	69.5 2.74	88.5 3.484
• L.500.025	25 0.98	75.5 2.97	100.5 3.957
• L.500.038	37.5 1.48	88 3.46	125.5 4.941
• L.500.050	50 1.97	100.5 3.96	150.5 5.925
L.500.063	62.5 2.46	113 4.45	175.5 6.909
L.500.075	75 2.95	125.5 4.94	200.5 7.894
• L.500.080	80 3.15	130.5 5.14	210.5 8.287
L.500.100	100 3.94	150.5 5.93	250.5 9.862
L.500.125	125 4.92	175.5 6.91	300.5 11.831

• Preferred Sizes

\* Extended stroke lengths available in L Series Springs, contact DADCO.

## Ordering Example:

**LJ.500.025. TO. 150**

**Part Number:**

Includes Series (LJ or L), Model and Stroke Length.

**Mount Option:**

TO = Basic Model. When not specified, default is TO.

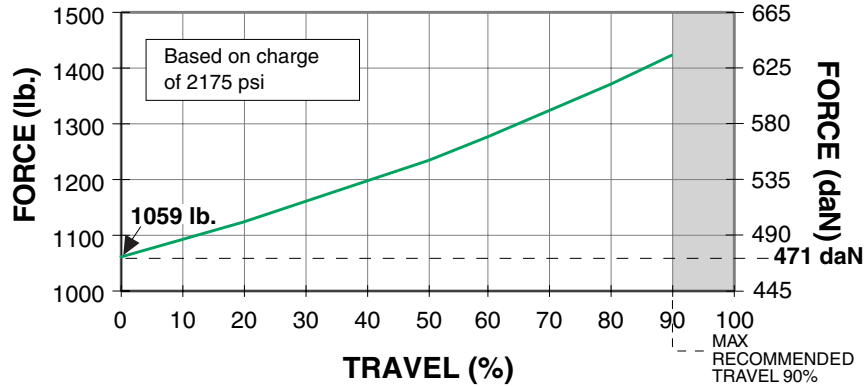
**Charging Pressure:**

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

### 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

### Mount Options

#### B21 90.21.00500

#### B27 90.27.00500

#### B312 90.312.00500

#### B319V 90.319V.0800

#### B322 90.322.00500

#### TC1 & TC3 RETRO-FIT ONLY

Ordering Example:

Cylinder with Mount: LJ.500.025.B21.150

Mount Only: 90.21.00500

# Mini LJ / L Nitrogen Gas Springs

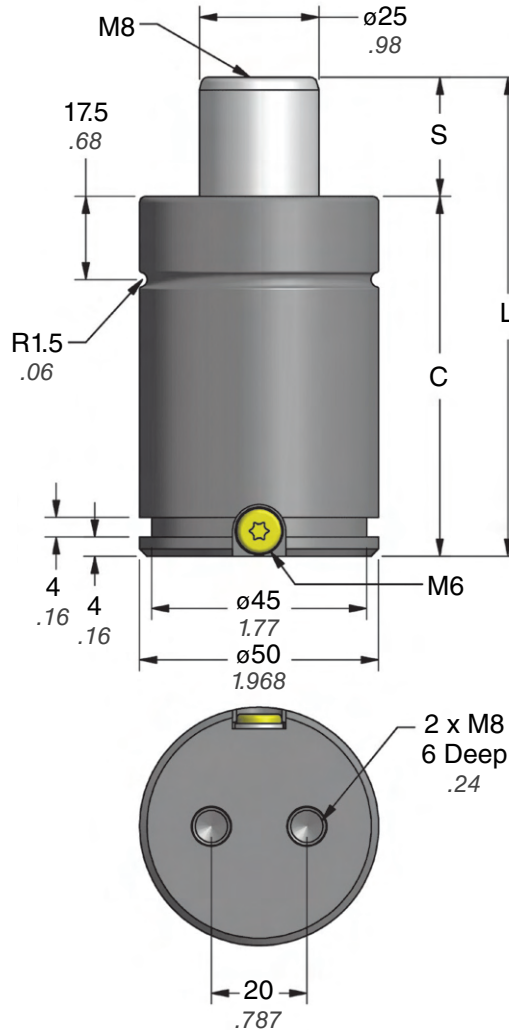
3/4 ton / 7.5 kN



**LJ.750  
TO – Basic Model**



**L.750  
TO – Basic Model**



Part No.	S mm inch	C	L ±0.25 ±.010
• LJ.750.013	12.5 0.49	50.5 1.99	63 2.480
LJ.750.019	18.8 0.74	56.8 2.24	75.6 2.976
• LJ.750.025	25 0.98	63 2.48	88 3.465
LJ.750.032	31.5 1.24	69.5 2.74	101 3.976
• LJ.750.038	37.5 1.48	75.5 2.97	113 4.449
• LJ.750.050	50 1.97	88 3.46	138 5.433
LJ.750.063	62.5 2.46	100.5 3.96	163 6.417
LJ.750.075	75 2.95	113 4.45	188 7.402
• LJ.750.080	80 3.15	118 4.65	198 7.795
LJ.750.100	100 3.94	138 5.43	238 9.370
LJ.750.125	125 4.92	163 6.42	288 11.339

• Preferred Sizes

Part No.	S* mm inch	C	L ±0.25 ±.010
L.750.006	6.3 0.25	56.8 2.24	63.1 2.484
• L.750.013	12.5 0.49	63 2.48	75.5 2.972
L.750.019	19 0.75	69.5 2.74	88.5 3.484
• L.750.025	25 0.98	75.5 2.97	100.5 3.957
• L.750.038	37.5 1.48	88 3.46	125.5 4.941
• L.750.050	50 1.97	100.5 3.96	150.5 5.925
L.750.063	62.5 2.46	113 4.45	175.5 6.909
L.750.075	75 2.95	125.5 4.94	200.5 7.894
• L.750.080	80 3.15	130.5 5.14	210.5 8.287
L.750.100	100 3.94	150.5 5.93	250.5 9.862
L.750.125	125 4.92	175.5 6.91	300.5 11.831

• Preferred Sizes

\* Extended stroke lengths available in L Series Springs, contact DADCO.

## Ordering Example:

**LJ.750.025. TO. 150**

**Part Number:**  
Includes Series (LJ or L),  
Model and Stroke Length.

**Mount Option:**  
TO = Basic Model. *When not  
specified, default is TO.*

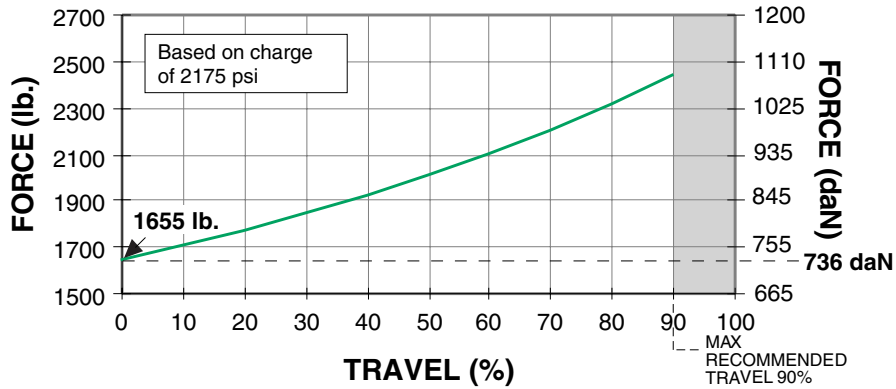
**Charging Pressure:**  
15-150 bar (220-2175 psi).  
*When not specified, default  
is 150 bar.*



### 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

### Mount Options

#### B321 90.321.00750

#### B27 90.27.00750

#### B312 90.312.00750

#### B319V 90.319V.1000

#### B322 90.322.00750

#### TC1 & TC3 RETRO-FIT ONLY

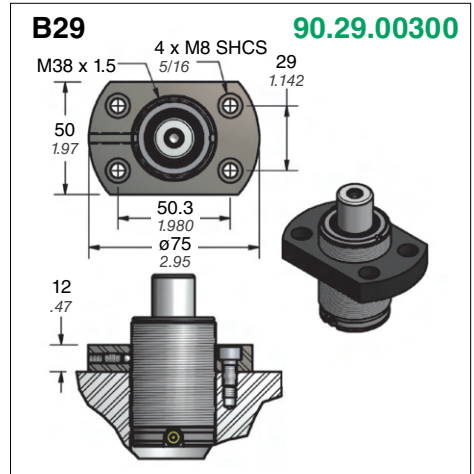
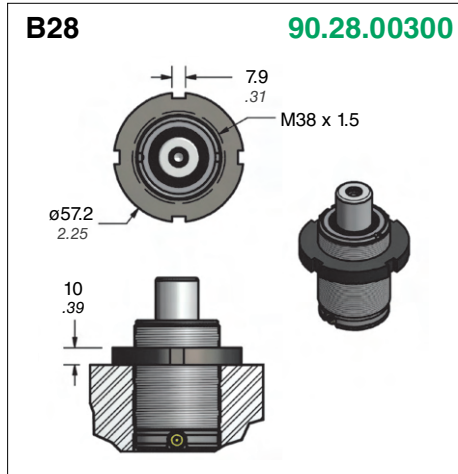
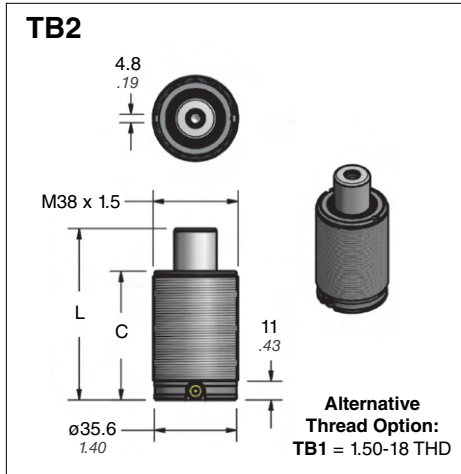
TC1 = 1/2-13 THD  
TC3 = 3/4-16 THD

Ordering Example:

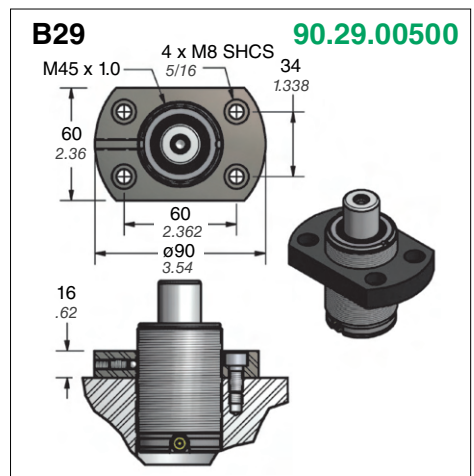
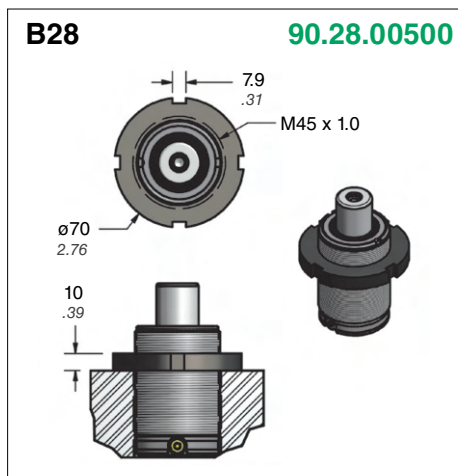
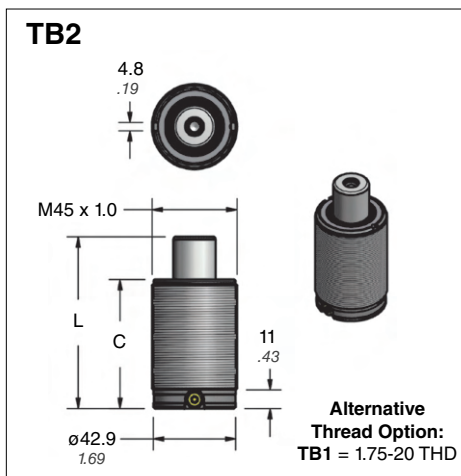
Cylinder with Mount: LJ.750.025.B321.150

Mount Only: 90.321.00750

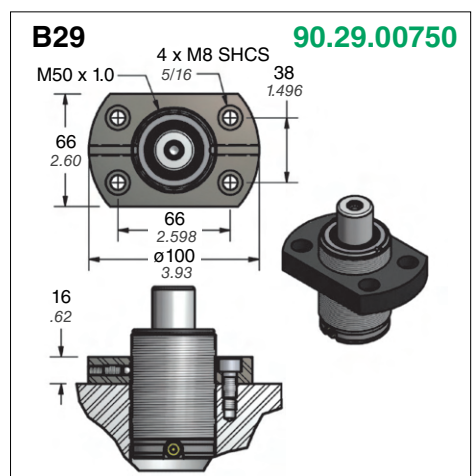
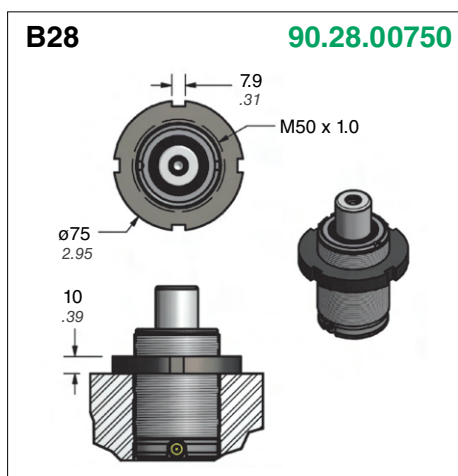
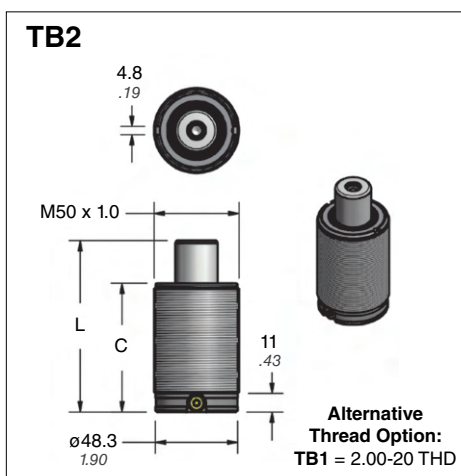
### L.300 Threaded Body



### L.500 Threaded Body



### L.750 Threaded Body



**Ordering Example:** Threaded Body: L.750.025.TB2.150 Threaded Body w/ Mount: L.750.025.B28.150

**Rod End Installation Tool**  
90.386.\_\_\_\_\_(00300, 00500, 00750)

Place over the piston rod for easy installation and removal of Threaded Body L Series Springs and Mini Springs with TC Stud Mount.

**Base Installation Tool**  
90.387.1 (L.300)  
90.387.2 (L.500, L.750)

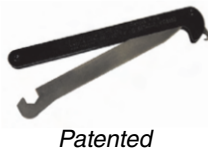
Place into holes in base of TB Threaded Body L Springs for easy installation and removal.

## Tools & Accessories

### C-Ring Removal Tool

**90.355** (RPL-40)

To remove C-style retaining rings safely in a single controlled motion.



### Removal Sleeve

**90.340.**\_\_\_\_\_

(00300, 00500, 00750)

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



### C-Ring Installation Tool

**90.351.**\_\_\_\_\_

(00300, 00500, 00750)

To insert the C-style retaining ring into the retaining ring groove.



### T-Handle

**90.320.M**

(M6, M8, M10)

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



### Valve Bleed Tool

**90.360.4**

Use the Valve Bleed Tool to slowly discharge a spring to the desired pressure.



### Port Servicing Tool

**90.320.8**

To perform all necessary servicing to the valve compartment. For more information, refer to bulletin B05110.



### Mini Test Stand

**90.305.2 Standard Configuration**

**90.305.2D Digital Configuration**

Use the Mini Test Stand in conjunction with DADCO's standard or digital load cells for precise measurement of gas spring force on contact. For more information refer to bulletin B08108B.



90.305.2

### Standard Load Cell

**90.300.0300** (LC-0300)

**90.300.0500** (LC-0500)

**90.300.0750** (LC-0750)

When used with a test stand, the Standard Load Cell gives precise measurement of gas spring charging pressure. Each model requires its specified load cell. For more information see bulletin B16119.



### Digital Load Cell

**90.305.BGA (Meter)**

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

The 90.305.BGA meter can display force in Newtons, Kg or lbs. When paired with the 90.305.LC.05A Load Cell it may be used to measure gas spring force up to 5,000 lbs. For more information request bulletin B04106D.



### DADCO Pressure Analyzer

**90.315.5**

Use the DADCO Pressure Analyzer to easily charge, discharge and gauge the pressure in DADCO's Mini Series Gas Springs. For more information request bulletin B01133E.

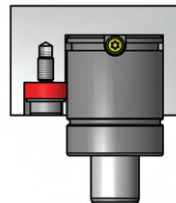


### Cinch-Lock

**90.13M (8 mm Tap)**

**90.13E (5/16"-18 Tap)**

Use the Cinch-Lock to secure DADCO gas springs in a pocket without additional mounting components. See bulletin B08105A for details.

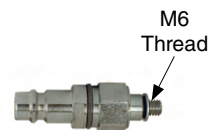


### Quick Disconnect

**Charging Nipple**

**90.310.143 (CN-4)**

Use the DADCO Quick Disconnect Charging Nipple to charge the Mini Series Gas Springs.

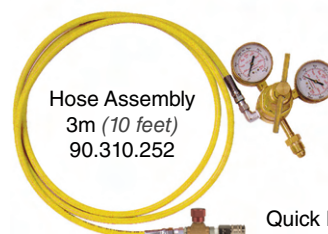


### Quick Disconnect Charging Assembly

**90.310.040** (CA-40)

Use the DADCO Quick Disconnect Charging Assembly, 90.310.040, with the 90.310.043 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 for charging 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. For more information request bulletin B16118.



Hose Assembly  
3m (10 feet)  
90.310.252

Pressure Regulator  
90.310.201

Quick Disconnect Filling Assembly  
90.310.338

