

# DADCO®

Micro Nitrogen Gas Springs

C Series

**NEW!**  
**Micro 70™**



*Ideal for Coil Spring Replacement*

# DADCO®

DADCO produces top quality products at competitive prices and provides a superior level of customer service. Founded in 1958, DADCO is the highest volume producer of gas springs for press tools. DADCO's products are widely approved and used in global operations for many industries including metal stamping, automotive and plastic injection molding.

## Advanced Technology

DADCO's revolutionary Micro Nitrogen Gas Springs provide unparalleled versatility in industrial tools. The patented design offers unmatched performance in high quality dies, molds and machines.

## Nitrogen Gas Springs vs. Coil Springs

DADCO's Micro Nitrogen Gas Springs easily replace conventional coil springs. Micro Springs deliver more force in less space than coil springs and one Micro Spring can provide the force of several heavy-duty coil springs. See page 2 for Coil Spring conversion information.

## Range of Micro Sizes

DADCO's Micro Nitrogen Gas Springs are available in five models. Each spring is color-coded for easy identification of force rating and is shipped ready to install. No additional equipment or previous experience with nitrogen is required.

Model	Diameter	Maximum Force on Contact
<b>Micro 45™</b>	12 mm (.472")	112 lb. (50 daN)
<b>Micro 70™</b>	15 mm (.591")	154 lb. (68 daN)
<b>Micro 90™</b>	19 mm (.748")	200 lb. (89 daN)
<b>Micro 180™</b>	25 mm (.984")	450 lb. (200 daN)
<b>Micro 250™</b>	32 mm (1.260")	701 lb. (313 daN)

DADCO also offers an adjustable force model that can be customized to meet individual force requirements. The adjustable model may be set to the desired pressure at the factory or in the field with appropriate charging equipment. See page 15 for more information on charging Micro Springs.



## Threaded Body Micro 45™ and Micro 90™

DADCO's Threaded Body Micro is an ideal part ejector, replacing conventional coil spring stock lifters. Preset and adjustable force models are available with force ratings as low as 10 lb. Each spring is color-coded for easy identification of force rating. DADCO's unique hex tools, shown on page 14, allow for easy installation and removal of the Threaded Body Micro Springs. Refer to pages 5 and 9 for threaded body options.



## Compact Size

DADCO Micro Springs deliver more force in less space than coil springs, making them ideal for use in limited space applications. DADCO Micro Springs can deliver up to 700 lb. of force on contact and are available in stroke lengths up to 200 mm. For any given stroke length all models maintain a uniform over-all-height, making them easy to design in and interchange if necessary.

## Cost Effective

DADCO Micro Springs are inexpensive, easy to install, and provide a cost-effective solution to downtime problems associated with other springs.

## No Preloading Required

DADCO Micro Springs deliver full rated force *on contact* with no preloading required. Occasionally, slight preloading is recommended, especially for stroke lengths from 150-200 mm, to prevent full spring travel where material thickness varies and parts can stick (i.e. stripper applications).

## Rod Wiper Fights Draw Compound

DADCO's Duralene® Rod Wiper excludes most draw die compounds. For applications where an aggressive draw die compound is used contact DADCO for alternative wiper options.

## Guaranteed Long Life

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



## CAD Templates On-line

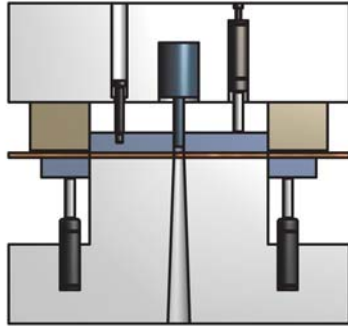


DADCO's entire product line is available on-line in solid models and 2D CAD formats. For more information, visit our website, [www.dadco.net](http://www.dadco.net), or contact DADCO.

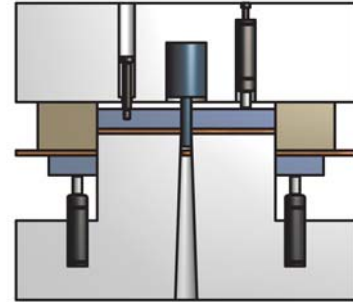
## Application Examples

### Blanking

INNER PRESSURE  
PAD AND PUNCH  
STRIPPER CLAMPS  
STOCK

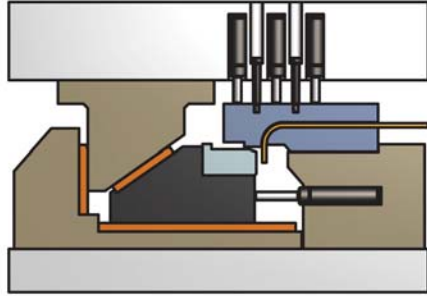


BLANKED PART  
SHOWN WITH  
BOTH PUNCH AND  
TRIM STRIPPERS  
COMPRESSED

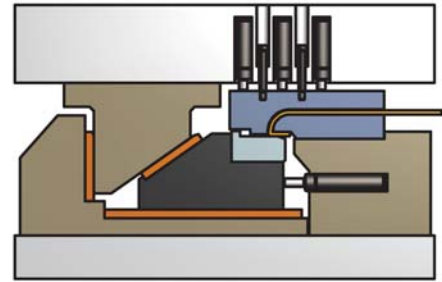


### Bend and Flange

LEADING SPRING  
PAD BENDS PART  
BEFORE DIE  
MOUNTED CAM  
ENGAGES

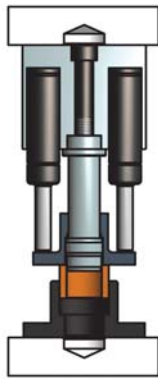


SPRING  
PAD HOLDS  
PART WHILE  
CAM ACTION  
FLANGES PART

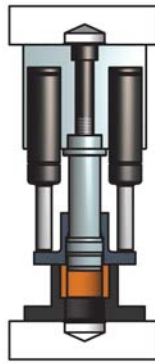


### Bushing Installation and Sizing

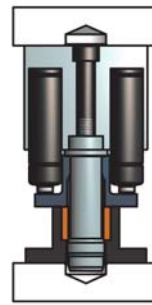
PART LOADED  
AND MICRO  
SPRING  
PRESSING  
BUSHING



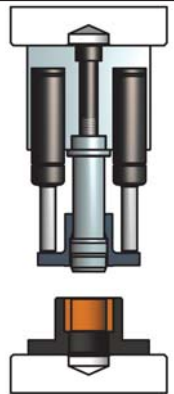
BUSHING  
PRESSED  
INTO PLACE



BUSHING  
SIZED  
AND  
INSTALLED



PART  
COMPLETE  
UNLOAD



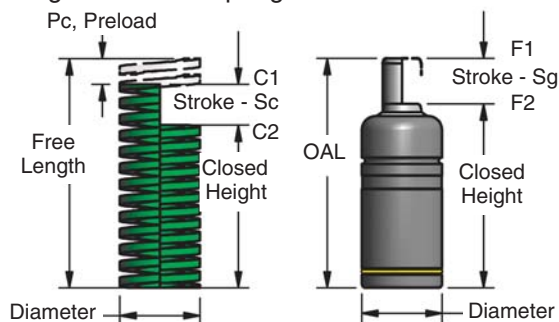
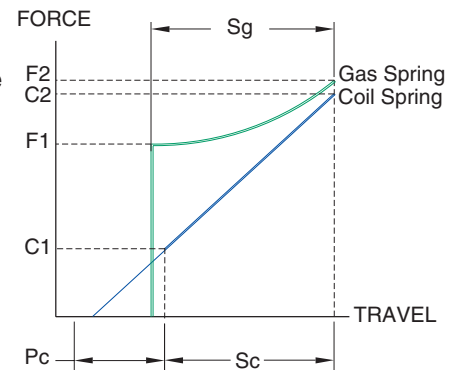
The above examples are conceptual and are not intended as engineering design for specific forces or applications. All tool designs must be individually engineered for their intended function. See page 16 for recommendations and limitations for mounting and installation.

### Coil Spring Conversion

Unlike coil springs, DADCO Micro Nitrogen Gas Springs provide full rated force on contact. This force is repeatable, eliminating scrap and maximizing productivity. One Micro Spring can provide the force of several heavy duty coil springs, and will outlast the coil springs.

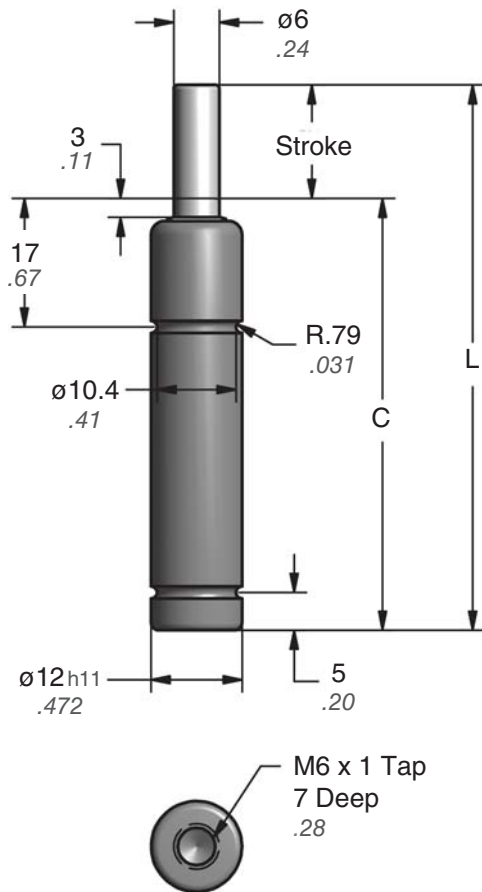
Most die springs have a limitation on compression, after which there is failure or severely reduced cycle life. Heavy and extra heavy duty die springs can only be compressed 15-20% of the closed height, after which there is failure or severely reduced cycle life.

Coil spring force is based on the spring rate of the coil spring. Spring rate is determined by the material, wire diameter, spring diameter, number of coils and height of the coil spring.



All coil springs require a preload to achieve a contact force ( $C_1$ ) larger than zero. For most spring applications the preload force is the force required to strip, hold, form or return the part. As a result of the spring rate, coil springs have a continuing increase in force after preload ( $C_1 - C_2$ ).

DADCO Micro Series Gas Springs have a much flatter curve that will not exceed 30% of the original force for any stroke size ( $F_1 - F_2$ ). When retrofitting coil springs calculate the total preloaded force required for the application. The number and color (load rating) of Micro Gas Springs can then be determined.



Part No.	Stroke mm inch	C	L ±0.4 ±0.015
•C.045.007	07 .28	49 1.93	56 2.205
C.045.010	10 .39	52 2.05	62 2.441
C.045.013	12.7 .50	54.7 2.15	67.4 2.654
•C.045.015	15 .59	57 2.24	72 2.835
•C.045.025	25 .98	67 2.64	92 3.622
•C.045.038	38 1.50	80 3.15	118 4.646
•C.045.050	50 1.97	92 3.62	142 5.591
C.045.063	63.5 2.50	108.5 4.27	172 6.772
C.045.080	80 3.15	125 4.92	205 8.071

• Preferred Sizes

### Force on Contact – Adjustable Black Model

#### Imperial

#### Metric

Force Chart	Initial lb. daN	Final lb. daN	Pressure psi bar
Yellow - YW	112 50	166 74	2560 177
Red - RD	84 37	124 55	1920 132
Blue - BU	56 25	83 37	1280 88
Green - GR	28 12	41 18	640 44
Black - BK	See Charts		

Pressure (psi)	Force (lb.-f)
2560	112
2200	96
2000	88
1750	77
1500	66
1000	44
500	22
260	11

Pressure (bar)	Force (daN)
177	50
150	42
125	35
100	28
75	21
50	14
35	10
18	5

$$P = F \div .044 \quad F = P \times .044$$

$$P = F \div .283 \quad F = P \times .283$$

### Ordering Example:

**C.045.007.GR**

Part Number:

Includes Series, Model and Stroke Length

Force:

YW, RD, BU, GR

BK – Black adjustable model - specify pressure:  
18 – 177 bar (260 – 2560 psi).

Adjustable Model Ordering Example:

C.045.007.BK.150

**Micro 45™ Mounts**

**Attachable Mount Options**

**RM C45-RM**

Top view dimensions:  $\phi 36$  1.42,  $\phi 25$  .984, 2 x M5 SHCS #10 SHCS.

Side view dimension: 12.7 .50

**DADCO-LOK**

SLIDE INTO DESIRED LOCATION AND LOCK

**NF C45-NF**

Top view dimensions: 16 .61, 34 7.35, 2 x  $\phi 6.6$  .26, 24 .945.

Side view dimensions: Stroke 9 .35, 21.5 .85, Split wire ring included 90.55.045.

**Narrow Flange**

**RF C45-RF**

Top view dimensions:  $\phi 36$  1.42,  $\phi 25$  .984, 2 x  $\phi 6.6$  .26.

Side view dimensions: Stroke 9 .35, 21.5 .85, Split wire ring included 90.55.045.

**Round Flange**

**Threaded Body Styles**

**TB1, TB2 & TB4**

Top view dimension: 9.5 .37

Side view dimensions: 8.5 .33, Stroke, 40 1.58, L, C.

Labels: LOCKING ELEMENT, TB2, TB1, TB4.

	TB2	TB4	TB1
Thread	M16 x 1.5	M16 x 2	5/8"-11

**Jam Nut**

Dimensions: D, C, B, Thd., A.

	C45-JN1	SL16-JN	C45-JN4
A	9 .36	8 .31	8 .31
B	5/8"-11	M16 x1.5	M16 x2
C	27 1.06	24 .95	24 .95
D	31 1.23	28 1.10	28 1.10

**TB3**

Top view dimension: 17 .67

Side view dimensions: 5 .20, Stroke, 40 1.58, L, C.

Label: LOCKING ELEMENT, TB3.

	TB3
Thread	M16 x 2

**Ordering Example:**

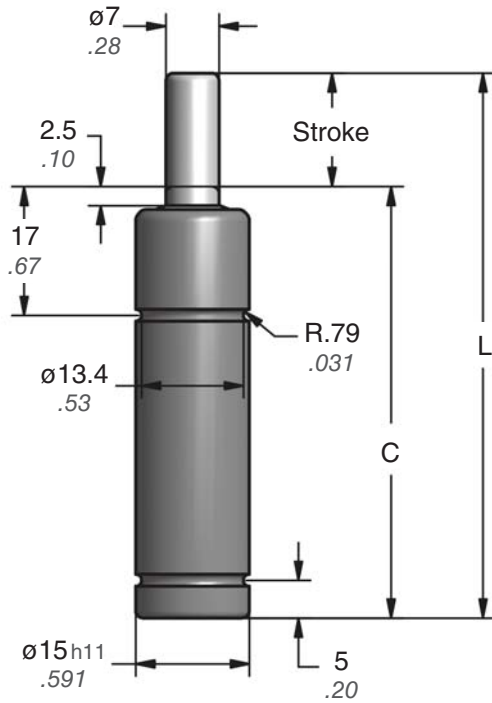
**C.045.007.TB1.GR**

**Part Number:**  
Includes Series, Model and Stroke Length

**Mount Option:**  
RM, NF, RF, TB1, TB2, TB3, TB4  
Mount Only Ordering Example: C45-RM

**Force:**  
YW, RD, BU, GR  
BK – Black adjustable model - specify pressure:  
18 – 177 bar (260 – 2560 psi).  
Adjustable Model Ordering Example:  
C.045.007.TB1.BK.150

Refer to Bulletin #B04120 for GC.045.015.TB5 information.



Part No.	Stroke mm inch	C	L ±0.4 ±0.015
•C.070.007	07 .28	49 1.93	56 2.205
C.070.010	10 .39	52 2.05	62 2.441
C.070.013	12.7 .50	54.7 2.15	67.4 2.654
•C.070.015	15 .59	57 2.24	72 2.835
•C.070.025	25 .98	67 2.64	92 3.622
•C.070.038	38 1.50	80 3.15	118 4.646
•C.070.050	50 1.97	92 3.62	142 5.591
C.070.063	63.5 2.50	108.5 4.27	172 6.772
•C.070.080	80 3.15	125 4.92	205 8.071
C.070.100	100 3.94	145 5.71	245 9.646
C.070.125	125 4.92	170 6.69	295 11.614

• Preferred Sizes

Force Chart	Initial lb. daN	Final lb. daN	Pressure psi bar
Yellow - YW	154 68	208 93	2560 177
Red - RD	115 51	156 69	1920 132
Blue - BU	77 34	104 46	1280 88
Green - GR	38 17	52 23	640 44
Black - BK	See Charts		

### Force on Contact – Adjustable Black Model

#### Imperial

Pressure (psi)	Force (lb.-f)
2560	154
2200	132
2000	120
1750	105
1500	90
1000	60
500	30

#### Metric

Pressure (bar)	Force (daN)
177	68
150	57
125	48
100	38
75	29
50	19
35	13

$$P = F \div .060 \quad F = P \times .060$$

$$P = F \div 0.38 \quad F = P \times 0.38$$

### Ordering Example:

**C.070.007.GR**

Part Number:

Includes Series, Model and Stroke Length

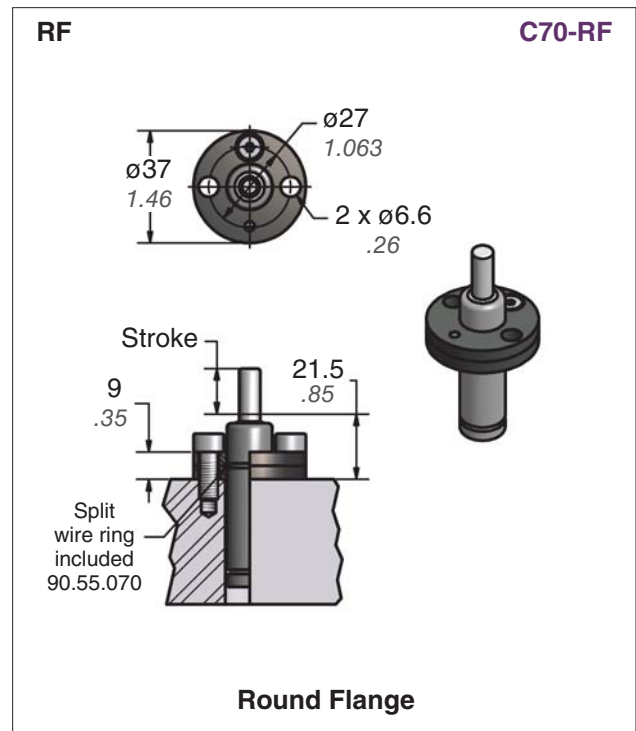
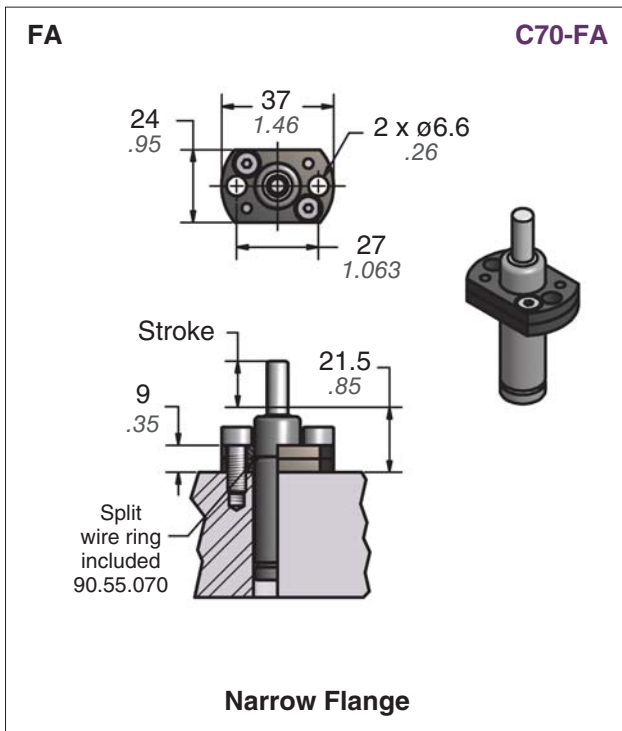
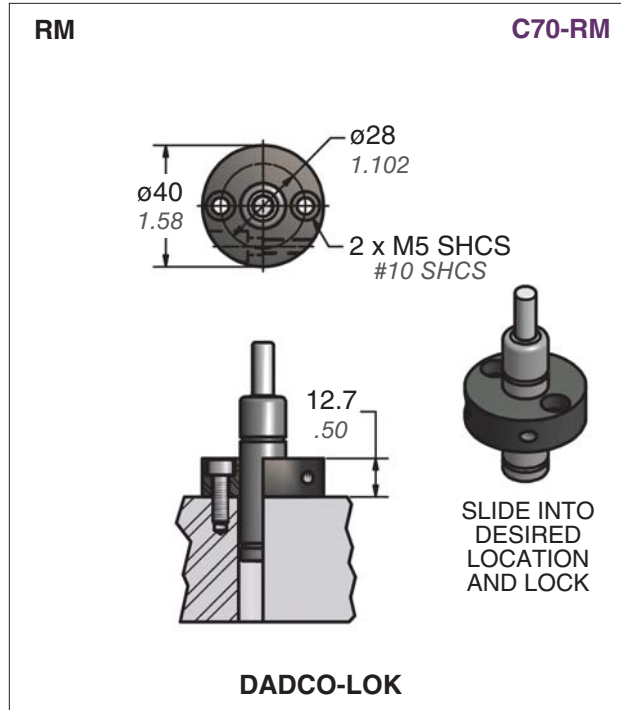
Force:

YW, RD, BU, GR

BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).

Ordering Example: C.070.007.BK.150

**Micro 70™ Mounts**



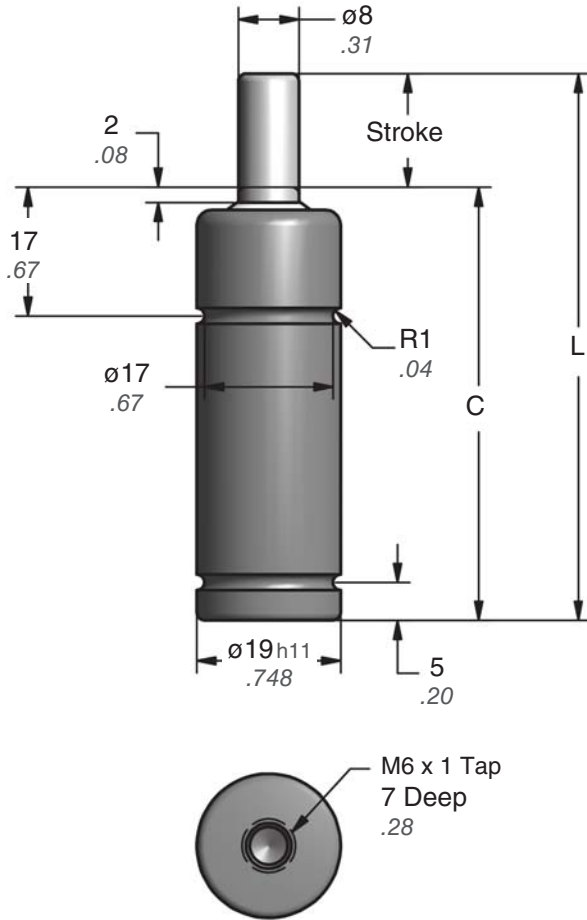
**Ordering Example:**

**C.070.007.RM.GR**

**Part Number:** \_\_\_\_\_  
Includes Series, Model and Stroke Length

**Mount Option:** \_\_\_\_\_  
RM, FA, RF  
Mount Only Ordering Example: C70-RM

**Force:** \_\_\_\_\_  
YW, RD, BU, GR  
BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).  
Adjustable Model Ordering Example:  
C.070.007.RM.BK.150



Part No.	Stroke mm inch	C	L ±0.4 ±0.015
•C.090.007	07 .28	49 1.93	56 2.205
C.090.010	10 .39	52 2.05	62 2.441
C.090.013	12.7 .50	54.7 2.15	67.4 2.654
•C.090.015	15 .59	57 2.24	72 2.835
•C.090.025	25 .98	67 2.64	92 3.622
•C.090.038	38 1.50	80 3.15	118 4.646
•C.090.050	50 1.97	92 3.62	142 5.591
C.090.063	63.5 2.50	108.5 4.27	172 6.772
•C.090.080	80 3.15	125 4.92	205 8.071
C.090.100	100 3.94	145 5.71	245 9.646
C.090.125	125 4.92	170 6.69	295 11.614
C.090.150	150 5.91	203 7.99	353 13.898
C.090.160	160 6.30	213 8.39	373 14.685
C.090.175	175 6.89	228 8.98	403 15.866
C.090.200	200 7.87	253 9.96	453 17.835

• Preferred Sizes

Force Chart	Initial lb. daN	Final lb. daN	Pressure psi bar
Yellow - YW	200 89	256 114	2560 177
Red - RD	150 66	192 85	1920 132
Blue - BU	100 44	128 57	1280 88
Green - GR	50 22	64 28	640 44
Purple - PR	20 9	26 12	260 18
Orange - OR	10 5	13 6	130 9
Black - BK	See Charts		

### Force on Contact – Adjustable Black Model

#### Imperial

Pressure (psi)	Force (lb.-f)
2560	200
2200	172
2000	156
1750	136
1500	117
1000	78
500	39

#### Metric

Pressure (bar)	Force (daN)
177	89
150	75
125	63
100	50
75	38
50	25
35	17

$$P = F \div .078 \quad F = P \times .078$$

$$P = F \div 0.50 \quad F = P \times 0.50$$

### Ordering Example:

**C.090.007.GR**

#### Part Number:

Includes Series, Model and Stroke Length  
150 mm - 200 mm strokes; contact DADCO  
for application evaluation.

#### Force:

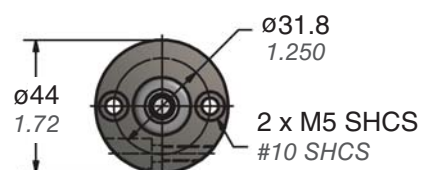
YW, RD, BU, GR, PR, OR  
BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).

Ordering Example: C.090.007.BK.150

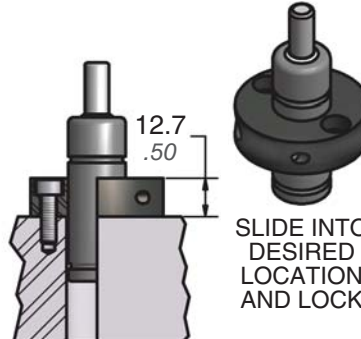
**Micro 90™ Mounts**

**Attachable Mount Options**

**RM C90-RM**

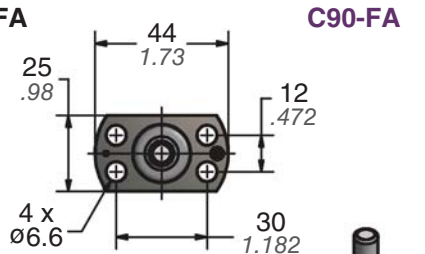


Ø31.8  
1.250  
Ø44  
1.72  
2 x M5 SHCS  
#10 SHCS

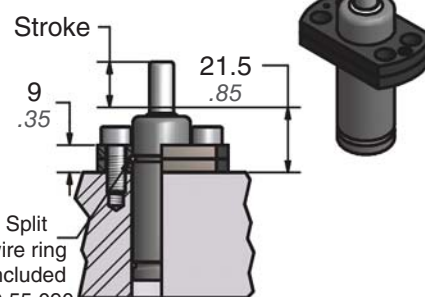


12.7  
.50  
SLIDE INTO DESIRED LOCATION AND LOCK  
**DADCO-LOK**

**FA C90-FA**

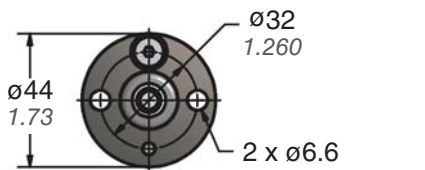


44  
1.73  
25  
.98  
12  
.472  
30  
1.182  
4 x Ø6.6  
.26

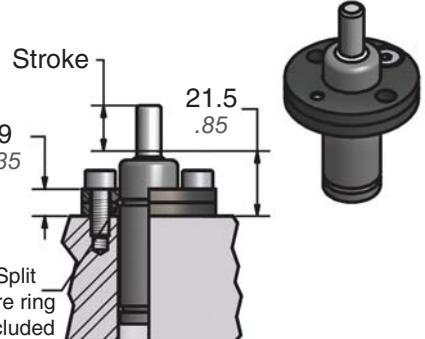


Stroke  
21.5  
.85  
9  
.35  
Split wire ring included  
90.55.090  
**Narrow Flange**

**RF C90-RF**



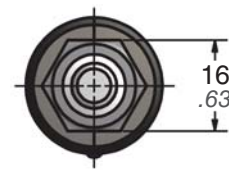
Ø32  
1.260  
Ø44  
1.73  
2 x Ø6.6  
.26



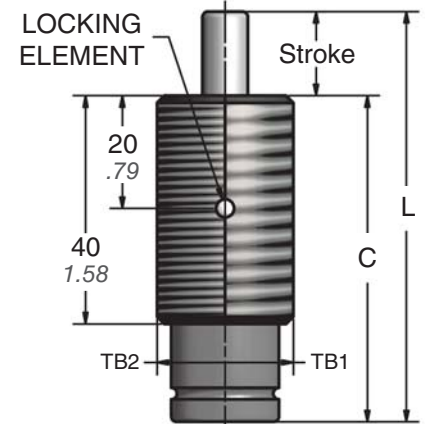
Stroke  
21.5  
.85  
9  
.35  
Split wire ring included  
90.55.090  
**Round Flange**

**Threaded Body Styles**

**TB1 & TB2**



16  
.63

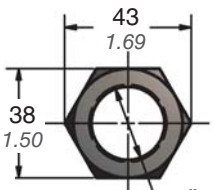


LOCKING ELEMENT  
Stroke  
20  
.79  
40  
1.58  
L  
C  
TB2 TB1

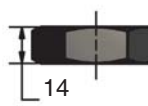
	TB2	TB1
Thread	M24 x 1.5	1"-8

**Jam Nut**

**C90-JN1 (1"-8 Thd.)**

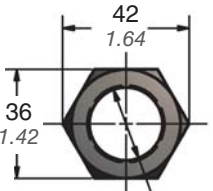


43  
1.69  
38  
1.50  
1"-8 Thd.

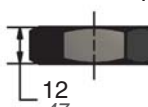


14  
.54

**C90-JN2 (M24 x 1.5 Thd.)**

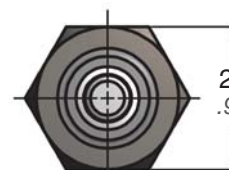


42  
1.64  
36  
1.42  
M24 x 1.5 Thd.

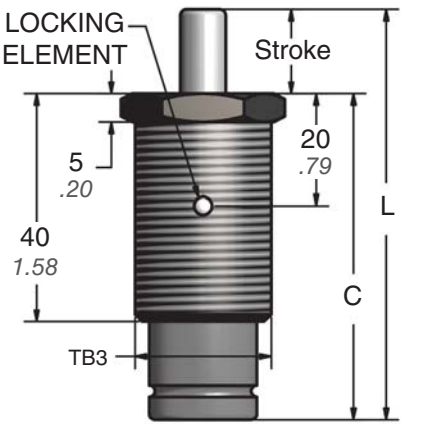


12  
.47

**TB3**



25  
.98



LOCKING ELEMENT  
Stroke  
20  
.79  
5  
.20  
40  
1.58  
L  
C  
TB3

	TB3
Thread	M24 x 1.5

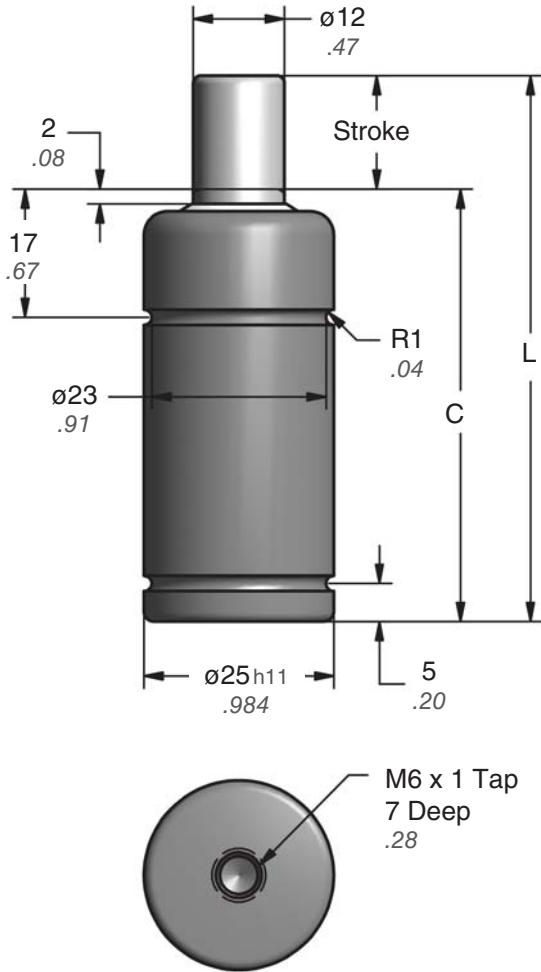
**Ordering Example:**

**C.090.007.TB1.GR**

**Part Number:**  
Includes Series, Model and Stroke Length

**Mount Option:**  
RM, FA, RF, TB1, TB2, TB3  
Mount Only Ordering Example: C90-RM

**Force:**  
YW, RD, BU, GR, PR, OR  
BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).  
Adjustable Model Ordering Example:  
C.090.007.TB1.BK.150



Part No.	Stroke mm inch	C	L ±0.4 ±0.015
•C.180.007	07 .28	49 1.93	56 2.205
C.180.010	10 .39	52 2.05	62 2.441
C.180.013	12.7 .50	54.7 2.15	67.4 2.654
•C.180.015	15 .59	57 2.24	72 2.835
•C.180.025	25 .98	67 2.64	92 3.622
•C.180.038	38 1.50	80 3.15	118 4.646
•C.180.050	50 1.97	92 3.62	142 5.591
C.180.063	63.5 2.50	108.5 4.27	172 6.772
•C.180.080	80 3.15	125 4.92	205 8.071
C.180.100	100 3.94	145 5.71	245 9.646
C.180.125	125 4.92	170 6.69	295 11.614
C.180.150	150 5.91	203 7.99	353 13.898
C.180.160	160 6.30	213 8.39	373 14.685
C.180.175	175 6.89	228 8.98	403 15.866
C.180.200	200 7.87	253 9.96	453 17.835

• Preferred Sizes

### Force on Contact – Adjustable Black Model

#### Imperial

Pressure (psi)	Force (lb.-f)
2560	450
2200	387
2000	351
1750	307
1500	263
1000	175
500	88

$$P = F \div .175 \quad F = P \times .175$$

#### Metric

Pressure (bar)	Force (daN)
177	200
150	170
125	141
100	113
75	85
50	57
35	39

$$P = F \div 1.13 \quad F = P \times 1.13$$

Force Chart	Initial lb. daN	Final lb. daN	Pressure psi bar
Yellow - YW	450 200	612 272	2560 177
Red - RD	337 149	459 204	1920 132
Blue - BU	224 100	306 136	1280 88
Green - GR	112 50	153 68	640 44
Black - BK	See Charts		

### Ordering Example:

**C.180.007.GR**

#### Part Number:

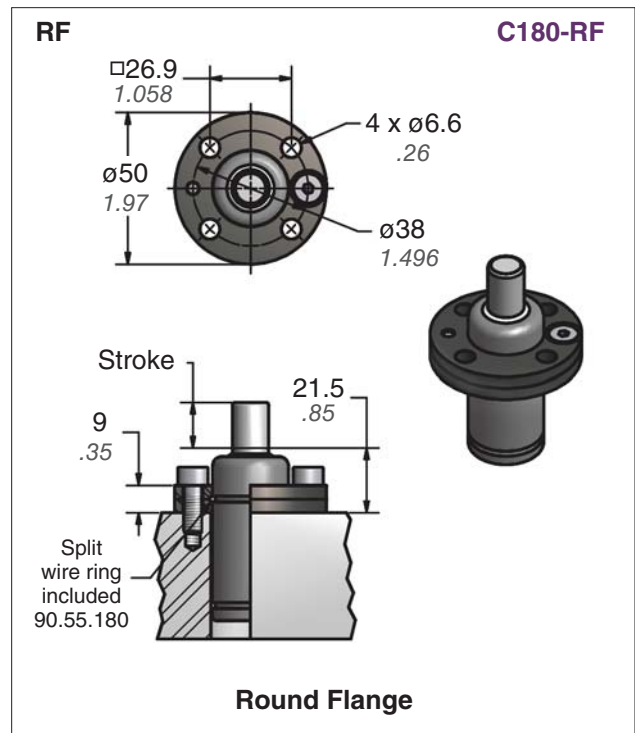
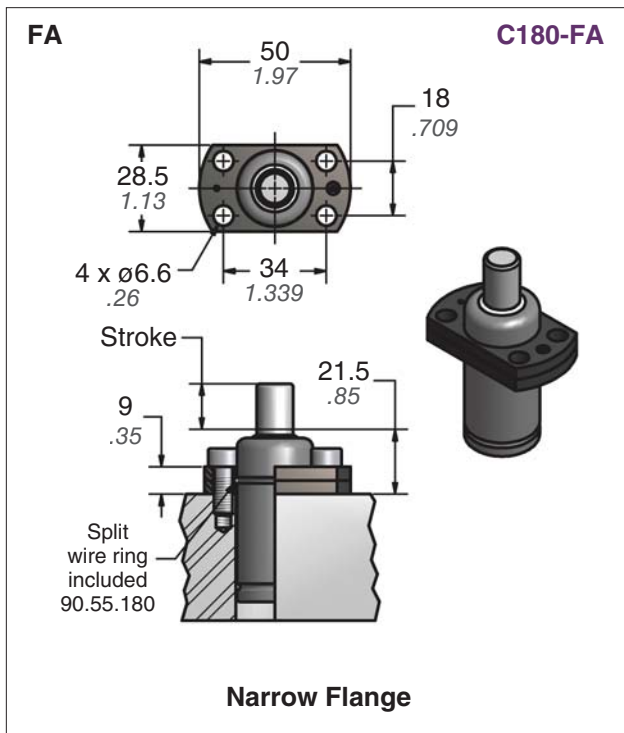
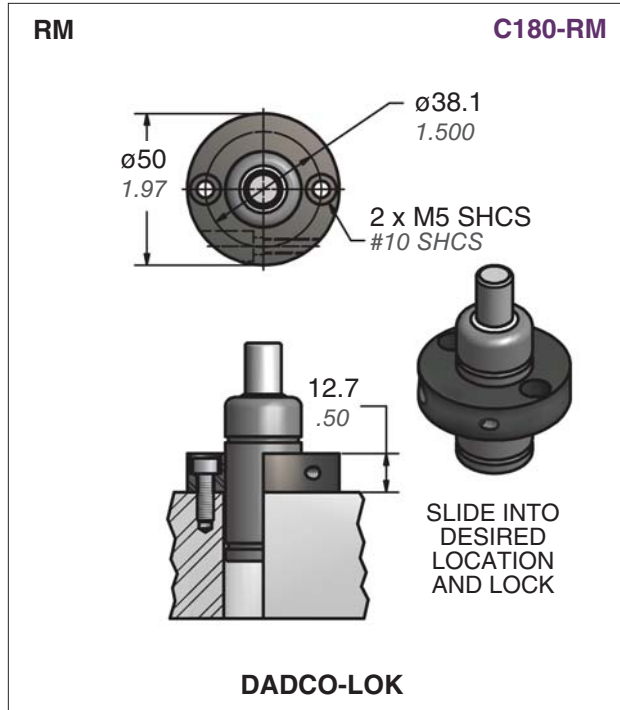
Includes Series, Model and Stroke Length  
150 mm - 200 mm strokes; contact DADCO  
for application evaluation.

#### Force:

YW, RD, BU, GR  
BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).

Ordering Example: C.180.007.BK.150

**Micro 180™ Mounts**



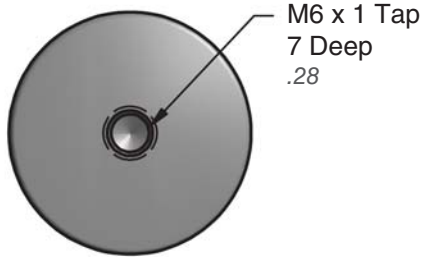
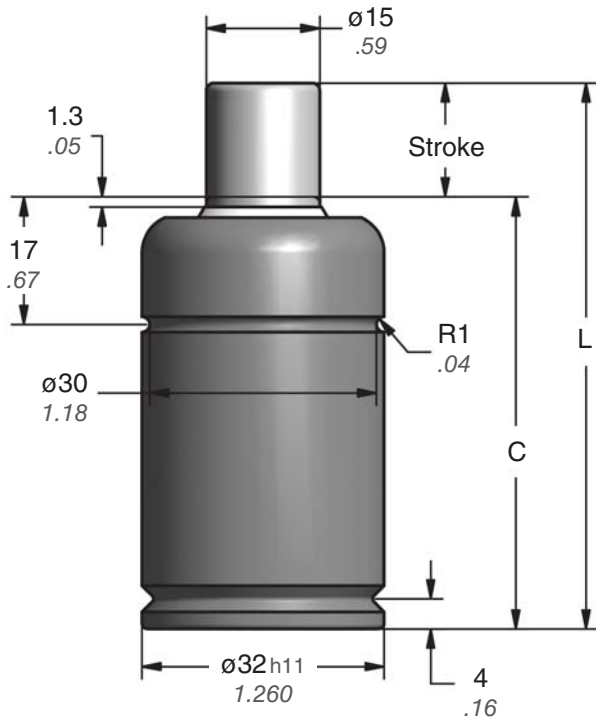
**Ordering Example:**

**C.180.007.RM.GR**

**Part Number:**  
Includes Series, Model and Stroke Length

**Mount Option:**  
RM, FA, RF  
Mount Only Ordering Example: C180-RM

**Force:**  
YW, RD, BU, GR  
BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).  
Adjustable Model Ordering Example:  
C.180.007.RM.BK.150



Part No.	Stroke	C	L ±0.4 ±0.015
	mm inch		
•C.250.007	07 .28	49 1.93	56 2.205
C.250.010	10 .39	52 2.05	62 2.441
C.250.013	12.7 .50	54.7 2.15	67.4 2.654
•C.250.015	15 .59	57 2.24	72 2.835
•C.250.025	25 .98	67 2.64	92 3.622
•C.250.038	38 1.50	80 3.15	118 4.646
•C.250.050	50 1.97	92 3.62	142 5.591
C.250.063	63.5 2.50	108.5 4.27	172 6.772
•C.250.080	80 3.15	125 4.92	205 8.071
C.250.100	100 3.94	145 5.71	245 9.646
C.250.125	125 4.92	170 6.69	295 11.614

• Preferred Sizes

Force Chart	Initial lb. daN	Final lb. daN	Pressure psi bar
Yellow - YW	701 313	940 418	2560 177
Red - RD	526 233	705 314	1920 132
Blue - BU	351 156	470 209	1280 88
Green - GR	175 78	235 105	640 44
Black - BK	See Charts		

### Force on Contact – Adjustable Black Model

#### Imperial

Pressure (psi)	Force (lb.-f)
2560	701
2200	603
2000	548
1750	479
1500	411
1000	274
500	137

$$P = F \div .274 \quad F = P \times .274$$

#### Metric

Pressure (bar)	Force (daN)
177	313
150	265
125	221
100	177
75	133
50	88
35	60

$$P = F \div 1.77 \quad F = P \times 1.77$$

### Ordering Example:

**C.250.007.GR**

**Part Number:**

Includes Series, Model and Stroke Length

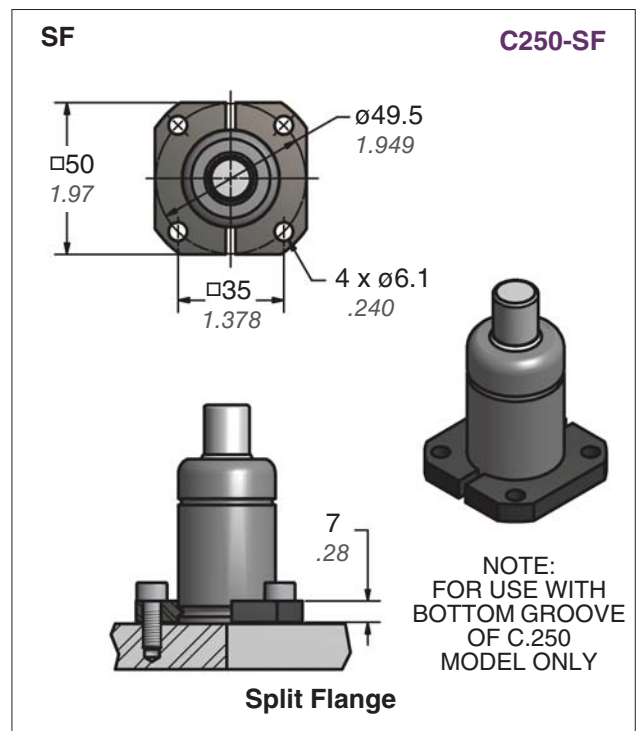
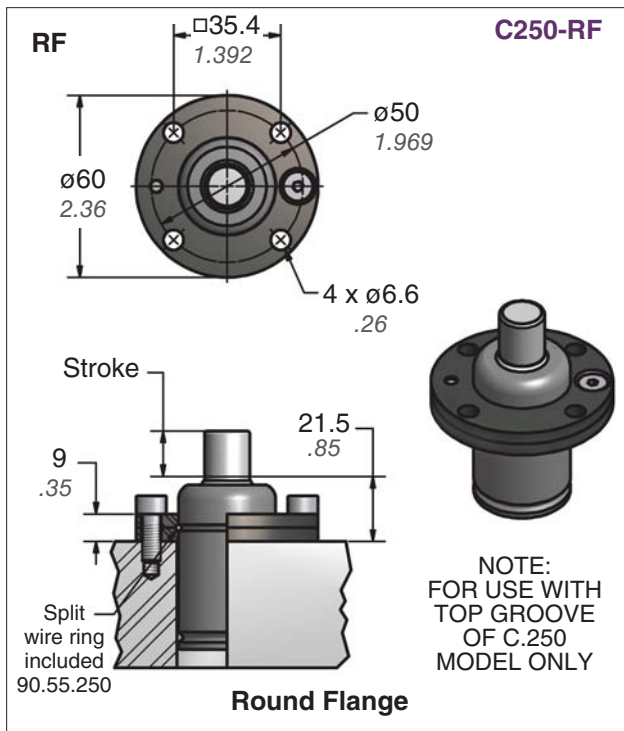
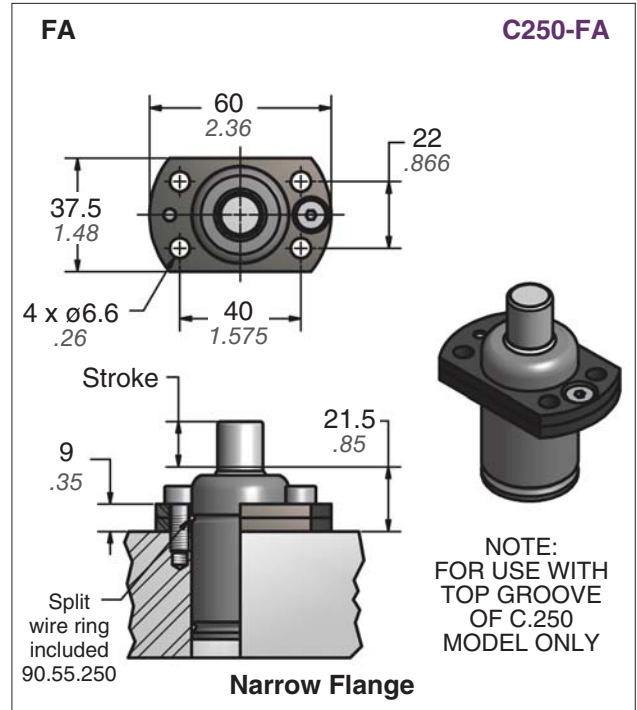
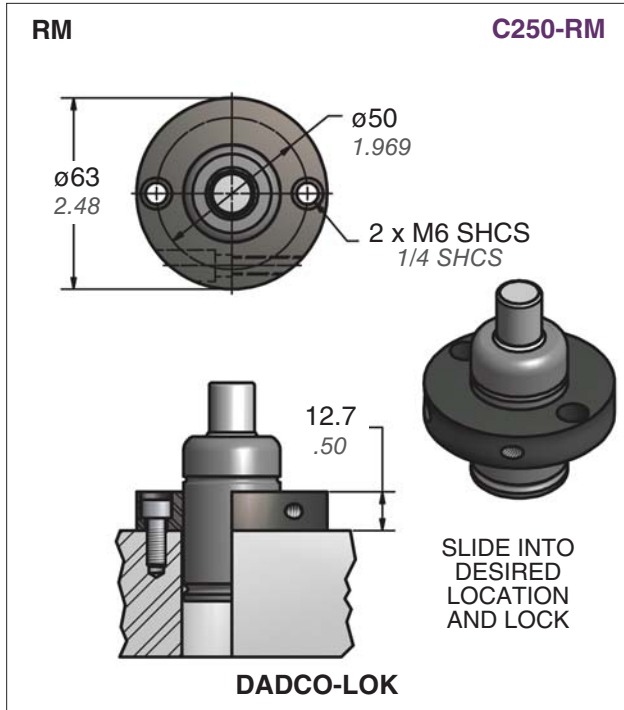
**Force:**

YW, RD, BU, GR

BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).

Ordering Example: C.250.007.BK.150

**Micro 250™ Mounts**



**Ordering Example:**

**C.250.007.RM.GR**

**Part Number:**

Includes Series, Model and Stroke Length

**Mount Option:**

RM, FA, RF, SF

Mount Only Ordering Example: C250-RM

**Force:**

YW, RD, BU, GR

BK – Black adjustable model - specify pressure:  
35 – 177 bar (500 – 2560 psi).

Adjustable Model Ordering Example:

C.250.007.RM.BK.150

### Micro Load Cell

LC-\_\_\_\_ (045, 070, 090, 180 or 250)

Use the Micro Load Cell with a Micro Test Stand or arbor press to determine the force of a Micro Spring. Depress the micro rod 1/16" to read gas spring force from the color-coded gauge. Request Bulletin No. B07108 for additional information.



### Micro Test Stand MTS-125

Use the Micro Test Stand and Load Cell for precise measurement of gas spring force on contact. Request Bulletin No. B01127 for additional information.



### RT-90-A

When placed over the piston rod, the installation and removal tool engages the hex socket for easy installation and removal of the Threaded Body **Micro 90™** TB1 and TB2.



### RT-Ratcheting Tool

**RT-45** (for use with **Micro 45™** TB1, TB2 and TB4)  
**RT-16-B** (for use with **Micro 90™** TB1 and TB2)

Ratcheting tool with internal hex drive for easy installation and removal of the Threaded Body Micro. Other options available, request Bulletin No. B04139A.



### Specialized Mounts

For customers with special applications that have space constraints or require return force, DADCO offers custom mount options. Contact DADCO for additional information.



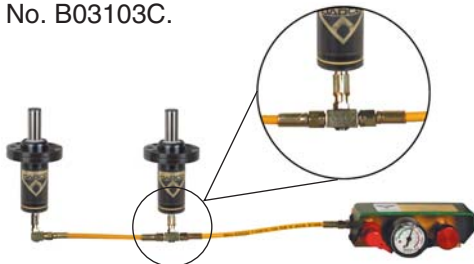
### Micro Wiper Cap

For customers with applications where aggressive draw die compound is used, DADCO offers the Micro Wiper Cap. The wiper cap can be ordered in a variety of materials and is installed at the factory to guard against draw die contamination, request Bulletin No. B03102A. Alternatively, DADCO offers an internal wiper in different materials. Contact DADCO for additional information.



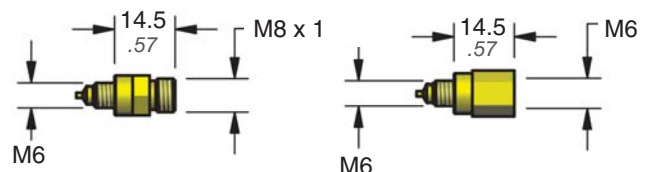
### Linked Micro System

Typically DADCO Micro Series Nitrogen Gas Springs are operated self-contained, however they may also be linked. When operated as a linked system, adjustment, monitoring, draining and refilling can be performed from a central control panel mounted outside the die, request Bulletin No. B03103C.



### Micro Series Port Adapters

DADCO's Micro Series Port Adapters are designed specifically to work with DADCO's Micro Series Nitrogen Gas Springs manufactured after August 1, 2003. These port adapters may be used with DADCO's *MINIFLEX®* Hose and Fittings, refer to Catalog No. C09118A.



**90.607.122**  
(L-122)

Micro Service Fitting

**90.607.038**  
(L-38)

Micro Port Adapter Extension

## Charging Information

### Operating Specifications

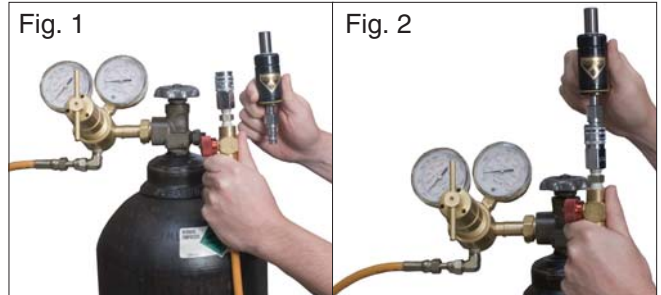
Charging Medium:	Nitrogen Gas
Maximum Charging Pressure:	177 bar (2560 psi)
Operating Temperature:	-6°C – 71°C (20°F – 160°F)
Maximum Speed:	35 m/min (23 in/sec)

### CAUTION:

Always wear safety goggles when performing any maintenance work on gas springs.

### Charging Micro Gas Springs

- When filling the Micro Spring, initially fill with low pressure (< 4 bar or 70 psi) to extend rod fully; then fill to desired pressure. Hold the spring vertically at all times during filling (Fig. 1).
- The Micro Spring charging pressure range varies by gas spring model. Verify range before charging.
- **All Micro Springs should be inspected before recharging.**
- **Do not recharge gas springs if damaged. Refer to discharging instructions below for proper disposal.**
- Use the Quick Disconnect Charging Nipple and the High Pressure Quick Disconnect Charging Assembly to charge the Micro Spring to the appropriate pressure (Fig. 2).



### Quick Disconnect Charging Nipple 90.310.143 (CN-4)

Use the DADCO Quick Disconnect Charging Nipple to charge the Micro Series Gas Spring. For more information contact DADCO.



M6 Thread

### DADCO Charging Adapter 90.315.5

Use the DADCO Charging Adapter to easily charge and discharge pressure in DADCO's Micro Series Gas Spring. *Not recommended for checking pressure due to small size of Micro Series Gas Springs.*



### High Pressure Quick Disconnect Charging Assembly 90.310.041 (CA-41)

Use the DADCO High Pressure Quick Disconnect Charging Assembly, 90.310.041, with the 90.310.143 Charging Nipple or 90.315.5 Charging Adapter to charge self-contained gas springs. The 90.310.041 includes the 90.310.205 Pressure Regulator, 90.310.252 Hose Assembly and the 90.310.338 Quick Disconnect Filling Assembly. *A standard pressure charging assembly, 90.310.040 is available for pressures below 2200 psi, for a CGA-580 tank. For more information contact DADCO.*



Hose Assembly  
3 m (10 feet)  
90.310.252

Pressure  
Regulator  
90.310.205

Tank Connection  
CGA-680

Quick Disconnect  
Filling Assembly  
90.310.338

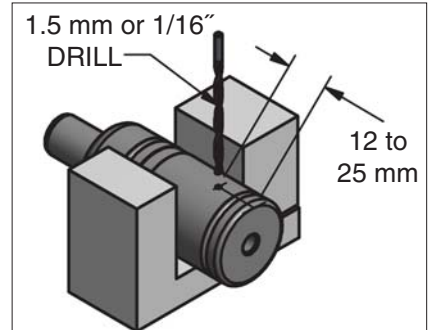
### How to discharge a Micro Gas Spring before disposal

**CAUTION:** Before disposing of damaged or worn out gas springs be sure to discharge all pressure. Contact DADCO for additional information.

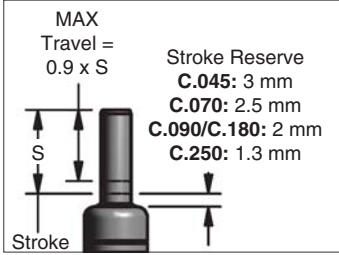
1. Discharge through the adjustable valve using the Valve Bleed Tool or Charging Adapter, 90.315.5.
2. If spring is damaged and cannot be discharged using the Valve Bleed Tool then drill a hole to discharge.



Valve Bleed Tool  
90.360.4

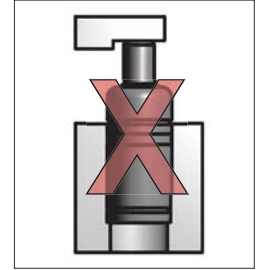
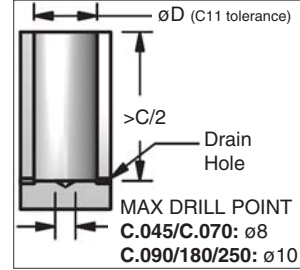


# Mounting Specifications



## General Information

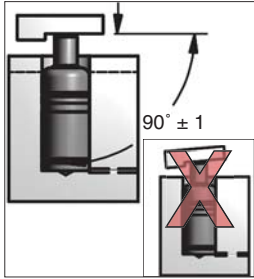
- DO NOT exceed 90% of stroke
- Stripping applications require a slight preload 0.5 mm – 1 mm
- Use enough force to strip the part
- Design adequate safety so spring is not over stroked



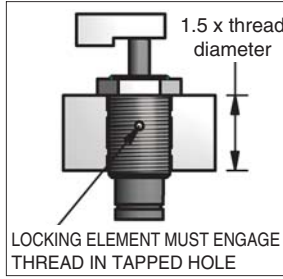
**NOTE:** For additional information on Micro Installation and Operation Specifications request Bulletin No. B00121E. When using Micro Springs with stroke lengths greater than 125 mm please contact DADCO Engineering for application and installation evaluation.

It is necessary to have a flat surface against the base of the spring in all circumstances. Incorrect pockets may cause structural damage or reduced life.

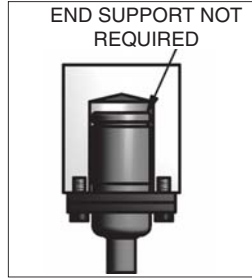
## Recommendations



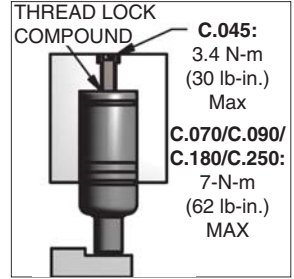
Side loading from axial or contact misalignment should be minimized,  $<1^\circ$ .



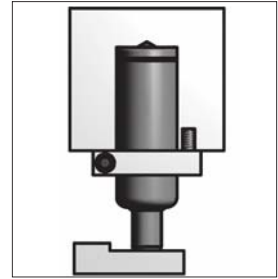
A minimum thread engagement of 1.5 x thread diameter, is recommended for TB mounts.



All properly installed mounts (RM, NF, FA, RF, TB) support the load. No back-up is required.

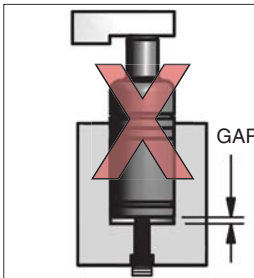


Retain inverted cylinders as shown with M6 cap screw. A close tolerance hole is required, depth  $> C/2$ .

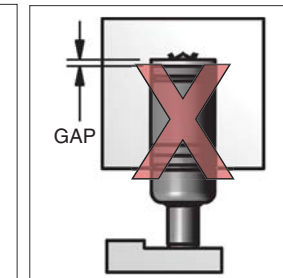


Mounts such as the DADCO-LOK™ may be used to retain the spring from rod end. If possible use a positive stop.

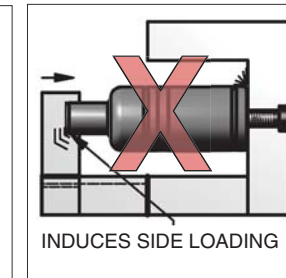
## Improper Installation Examples



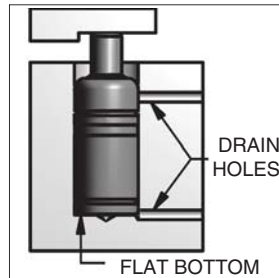
Verify the cap screw length.



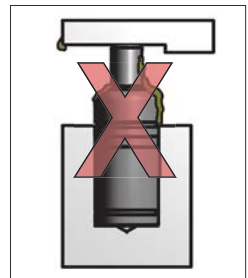
Avoid large gaps in the upper. Use the tapped hole in the base to secure and preload if possible.



Do not constrain the rod end. Do not use the bottom mount in an unsupported or open mounting application.



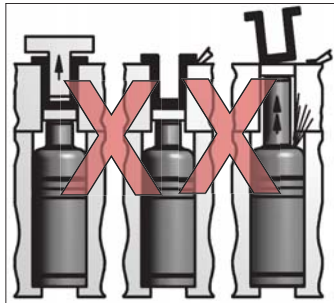
Provide adequate drainage in gas spring pockets. Direct contact with certain die lubricants and cleaners can be harmful to gas springs or may cause pressure increase.



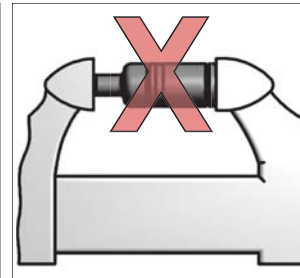
## Contaminants

## Uncontrolled Release

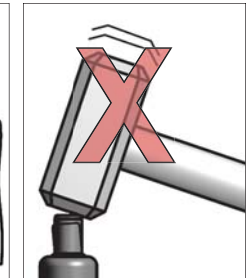
If parts are jamming, determine the root cause and repair it before production continues. Failure to repair the problem will cause failure or damage of the gas spring. Preloading the pad will prevent gas spring damage from "snap action" or sudden release. Restricting rod travel will help prevent spring damage.



Sudden release will cause the gas spring to exhaust.



Never compress the gas spring in a vice or clamp outside of the die. Never strike the rod with a hammer to test for pressure; damage can result.



**DADCO**

43850 Plymouth Oaks Blvd. • Plymouth, MI • 48170 • USA  
 734.207.1100 • 800.323.2687 • fax 734.207.2222 • www.dadco.net

The global leader in nitrogen gas spring technology