

DADCO®

Nitrogen Gas Springs

UT Series



- Up to 95 kN of force on contact
- UltraPak® cartridge for long life
- Operates self-contained or linked





The global leader in nitrogen gas spring technology

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.



UT Series

This series consists of five models and provides force up to 95 kN on contact. Each model comes standard with a G 1/8 charging port for consistent link capability using the Zip (CNOMO) Fittings and 90.705 hose. Optionally, the UT.1000 and UT.2600 models are available with a pressure indicator installed for quick monitoring at a glance during operation.

Model	Diameter	Maximum Force on Contact
UT.1000	50 mm	9.24 kN
UT.2600	75 mm	23.86 kN
UT.4600	95 mm	42.41 kN
UT.6600	120 mm	66.27 kN
UT.9600	150 mm	95.43 kN

High Quality Construction

To ensure their exceptionally long service life, DADCO's UT Series Gas Springs have high quality construction features. UT gas spring models are built with a one-piece piston rod and utilize a double lip rod seal for excellent load capacity and resistance to wear.

Adjustable Force

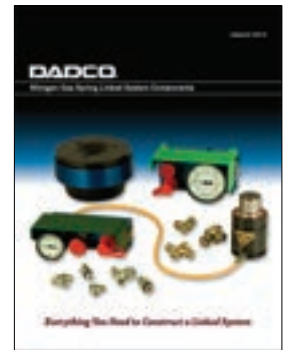
For convenience, self-contained cylinders usually are delivered pre-charged to the desired force and ready to install. If force adjustment is ever needed, a filling/draining port is located in the cylinder for safe, easy access.

UltraPak® Technology

The UT Series incorporates superior gas spring technology into DADCO's **UltraPak®** cartridge. The **UltraPak®** employs advanced materials to reduce the rod cartridge profile while increasing performance. The **UltraPak®** is comprised of a rod wiper, rod seal and guide arranged to extend life, retain lubrication, exclude contaminants, and provide excellent wear characteristics. When coupled with DADCO's superior finished piston rod, the **UltraPak®** is the ultimate sealing system in compact height gas springs.

Numerous Piping Options

Many customers have recognized the benefits of piping gas springs to monitor, control, and adjust force from outside the die. DADCO offers a wide selection of hoses, fittings, control panels and equipment to simplify the piping process. For additional information request the Nitrogen Gas Spring Linked Components Catalog.



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.

Rapid Delivery

DADCO's modern 11,600 m² main production facility as well as satellite facilities permit the fastest deliveries in the industry. Products are available both directly and through a network of trained distributors providing worldwide support.

Warranty

DADCO warrants its UT Series Nitrogen Gas Springs to be free from defects in workmanship or materials for a period of one year from date of manufacture.

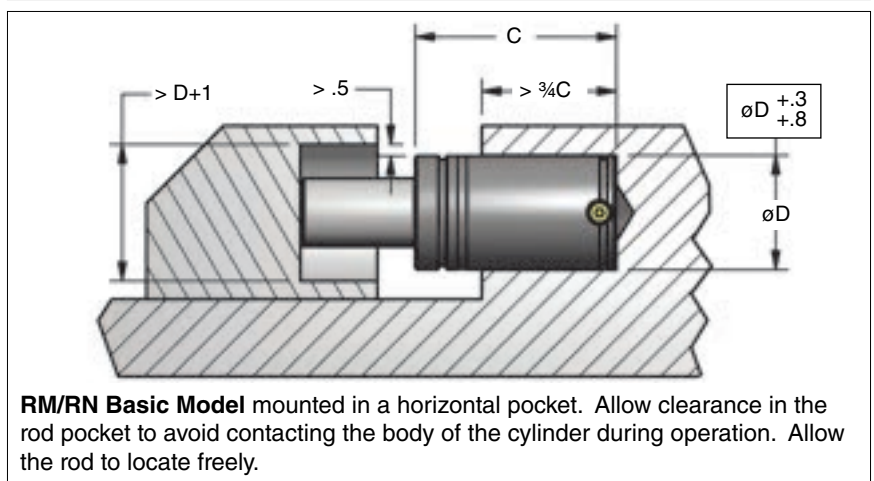
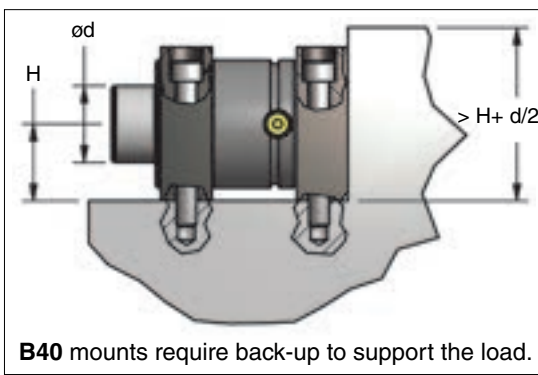
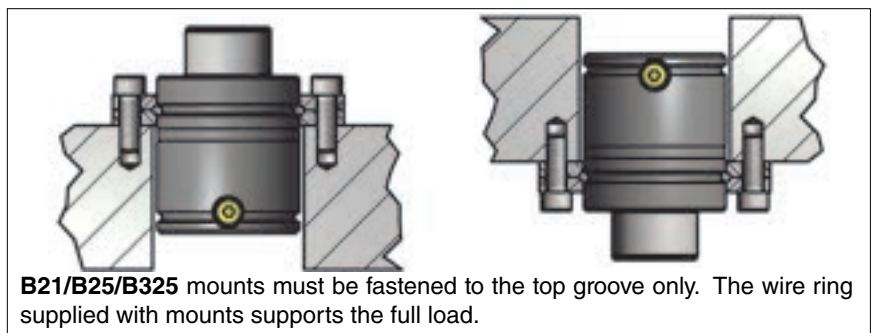
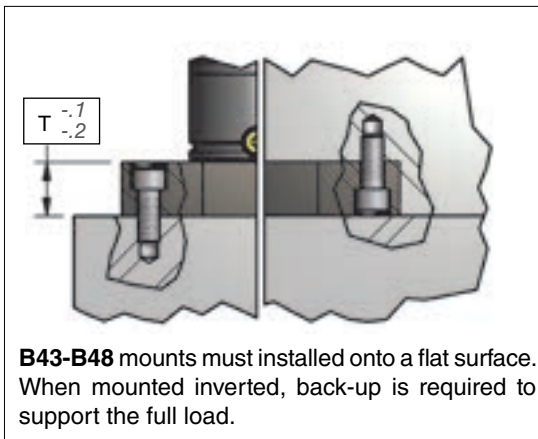
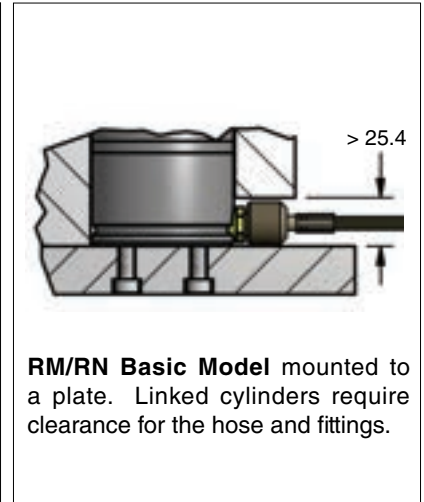
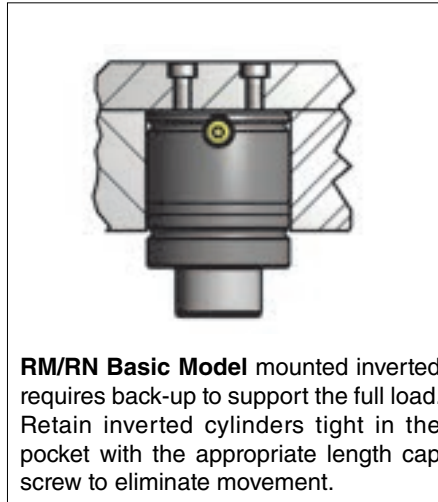
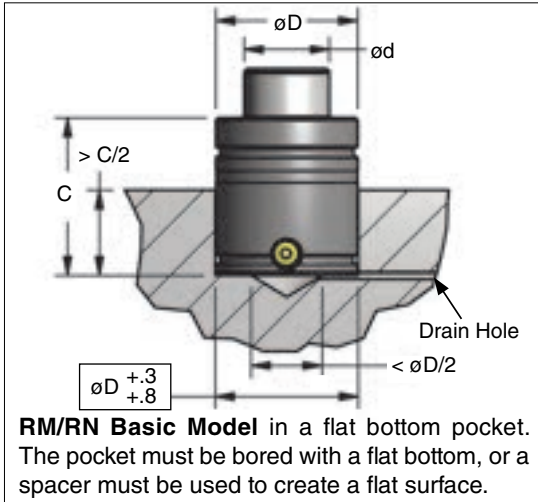
CAD Templates On-line



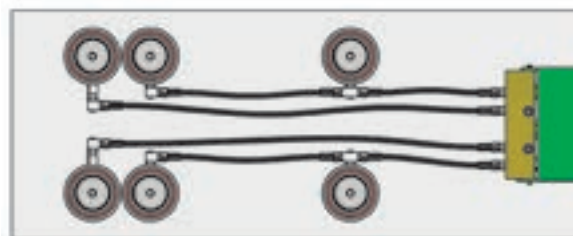
DADCO's entire product line is available on-line in solid models and 2D CAD formats. For more information, visit our website, www.dadco.net, or contact DADCO.

Installation 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 16. Cylinder and mount dimensions are shown on pages 4-13.

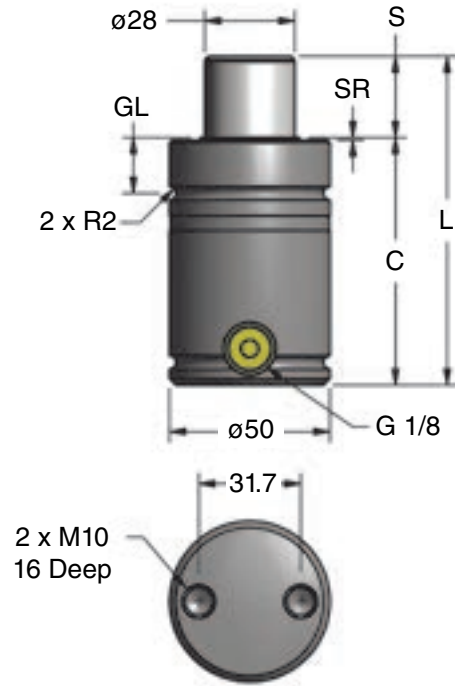


DADCO offers customized Sectional Mounting Systems, which are fabricated to customer specifications, leak tested and shipped ready to install. The drawing below shows six UT.2600 gas springs linked using DADCO's MINIFLEX® Y-705 hose, fittings and a Mini Control Panel.

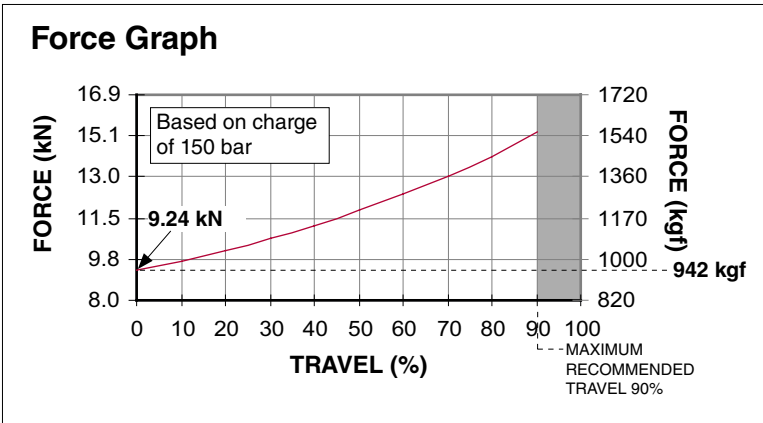


UT Series Nitrogen Gas Springs

UT.1000 - 9.2 kN / 1.0 ton



RM - Radius Groove



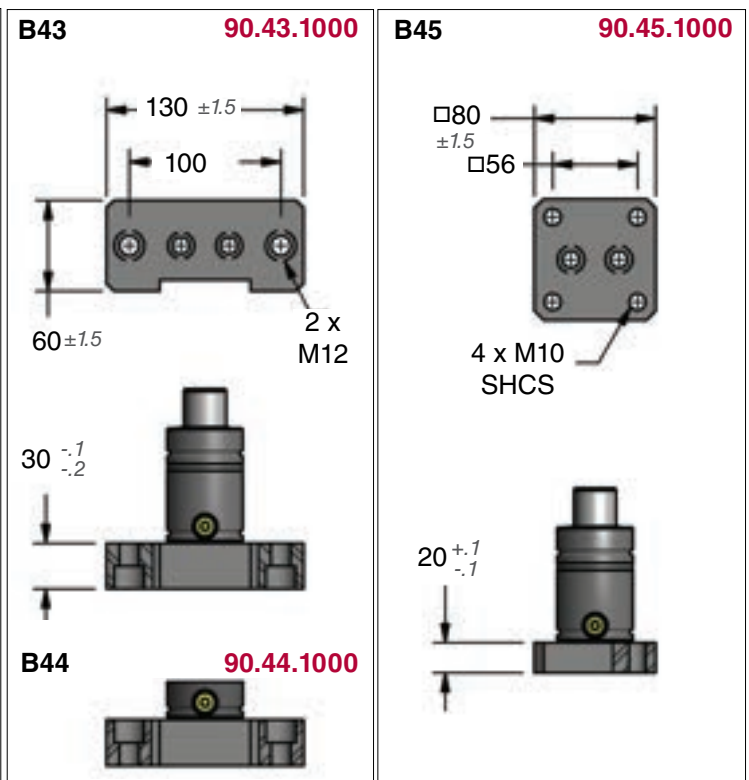
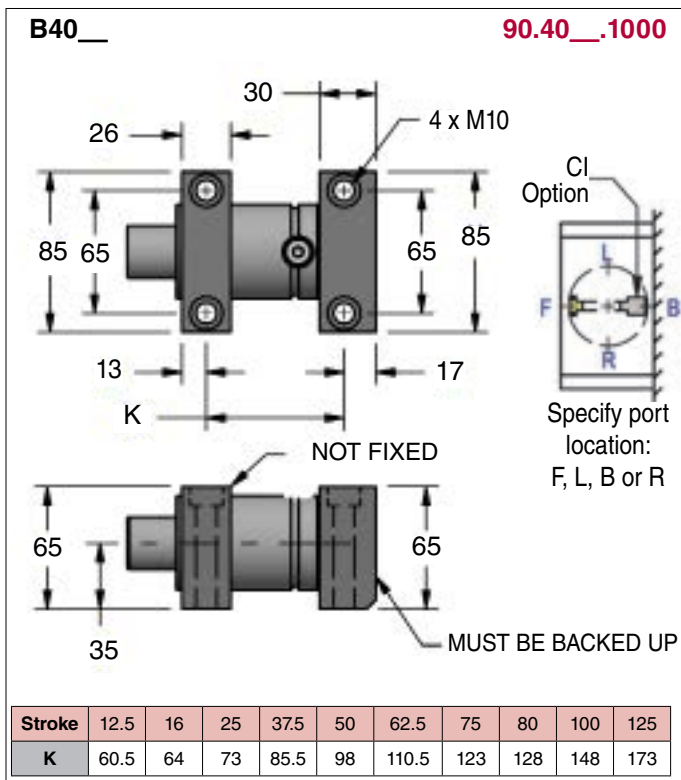
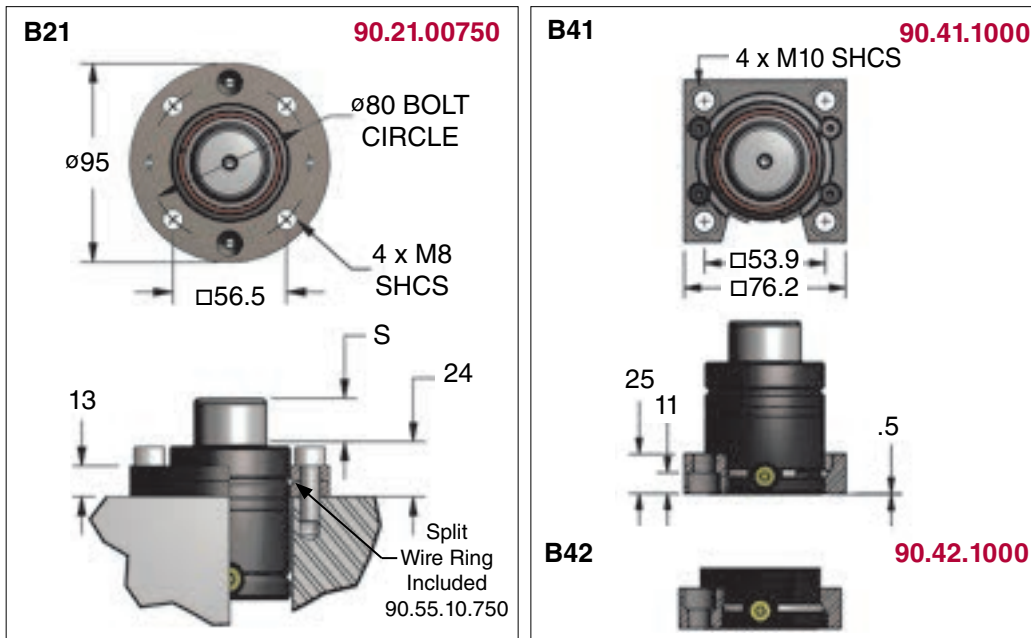
Part No.	S mm	On-Contact Force kN (kgf)	Max Force* kN (kgf)	C	L ±0.25	Pressure Increase* %	Weight kg	Part Number	SR	GL																																						
UT.1000.013	12.5	9.24 (942)	15.29 (1559)	64.5	77.0	65	0.79	UT.1000.016 – UT.1000.125	1.0	17.5																																						
UT.1000.016	16.0			68.0	84.0		0.82																																									
UT.1000.019	19.0			71.0	90.0		0.85																																									
• UT.1000.025	25.0			77.0	102.0		0.91	UT.1000.J38 UT.1000.J63	2.0	18.5																																						
UT.1000.032	32.0			84.0	116.0		0.97																																									
UT.1000.038	37.5			89.5	127.0		1.03																																									
• UT.1000.050	50.0			102.0	152.0		1.14	<table border="1"> <thead> <tr> <th colspan="4">On-Contact Force</th> </tr> <tr> <th>bar</th> <th>MPa</th> <th>kN</th> <th>kgf</th> </tr> </thead> <tbody> <tr> <td>150</td> <td>15.0</td> <td>9.24</td> <td>942</td> </tr> <tr> <td>125</td> <td>12.5</td> <td>7.70</td> <td>785</td> </tr> <tr> <td>100</td> <td>10.0</td> <td>6.16</td> <td>628</td> </tr> <tr> <td>75</td> <td>7.5</td> <td>4.62</td> <td>471</td> </tr> <tr> <td>50</td> <td>5.0</td> <td>3.08</td> <td>314</td> </tr> <tr> <td>25</td> <td>2.5</td> <td>1.54</td> <td>157</td> </tr> <tr> <td>20</td> <td>2.0</td> <td>1.23</td> <td>126</td> </tr> </tbody> </table>					On-Contact Force				bar	MPa	kN	kgf	150	15.0	9.24	942	125	12.5	7.70	785	100	10.0	6.16	628	75	7.5	4.62	471	50	5.0	3.08	314	25	2.5	1.54	157	20	2.0	1.23	126
On-Contact Force																																																
bar	MPa			kN	kgf																																											
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25	2.5	1.54	157																																													
20	2.0	1.23	126																																													
UT.1000.063	62.5	114.5	177.0	1.26																																												
• UT.1000.075	75.0	127.0	202.0	1.38																																												
UT.1000.080	80.0	132.0	212.0	1.42																																												
• UT.1000.100	100.0	152.0	252.0	1.61																																												
• UT.1000.125	125.0	177.0	302.0	1.84																																												

• Preferred Sizes

*Based on maximum recommended travel, 90% stroke

UT.1000 - 9.2 kN / 1.0 ton

Mount Options



Ordering Example:

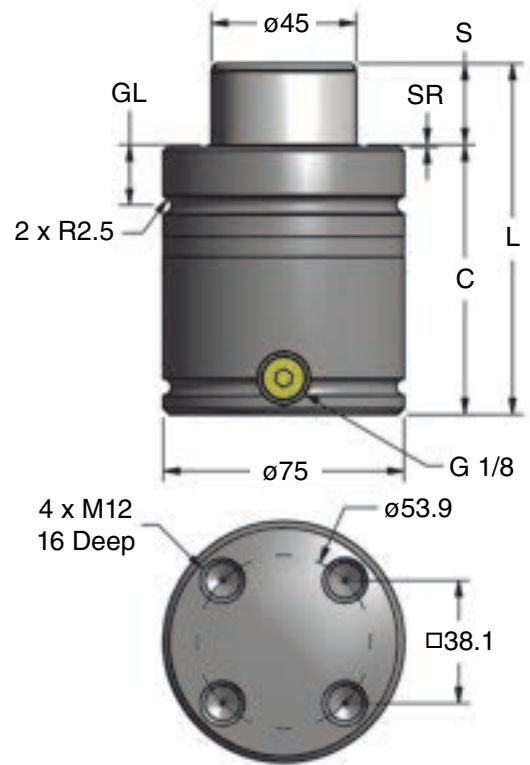
Model UT.1000	•	Stroke 025	•	Mount B21	•	Operating System C	•	Charging Pressure (bar) 150
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Part Number

RM: Radius Groove

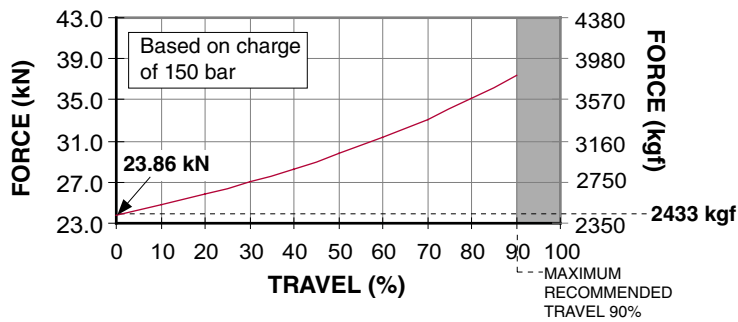
C: Self-contained
 FB: Open Flow Fitting (90.805.115)
 CI_: Self-contained with Indicator

15~150 bar (1.5~15 MPa)
 When not specified, default is 150 bar (15 MPa).



RN - Radius Groove

Force Graph



Part No.	S mm	On-Contact Force kN (kgf)	Max Force* kN (kgf)	C	L ± 0.25	Pressure Increase* %	Weight kg
UT.2600.016	16.0	23.86 (2433)	37.52 (3826)	75.0	91.0	57	2.01
UT.2600.019	19.0			78.0	97.0		2.06
• UT.2600.025	25.0			84.0	109.0		2.16
UT.2600.032	32.0			91.0	123.0		2.28
UT.2600.038	37.5			96.5	134.0		2.37
• UT.2600.050	50.0			109.0	159.0		2.58
UT.2600.063	62.5			121.5	184.0		2.79
• UT.2600.075	75.0			134.0	209.0		3.01
UT.2600.080	80.0			139.0	219.0		3.09
• UT.2600.100	100.0			159.0	259.0		3.43
• UT.2600.125	125.0			184.0	309.0		3.85

• Preferred Sizes

*Based on maximum recommended travel, 90% stroke

Part Number	SR	GL
UT.2600.016 – UT.2600.125	1.0	19.0
UT.2600.J38	2.0	20.0
UT.2600.J63		

On-Contact Force

bar	MPa	kN	kgf
150	15.0	23.86	2433
125	12.5	19.88	2027
100	10.0	15.90	1622
75	7.5	11.93	1216
50	5.0	7.95	811
25	2.5	3.98	405
20	2.0	3.18	324

UT.2600 - 24 kN / 2.6 ton

UT Series Nitrogen Gas Springs

Mount Options

B21 90.21.01500

ø104 BOLT CIRCLE
4 x M10 SHCS
Split Wire Ring Included 90.55.1500

B325 90.325.2600

4 x M10 SHCS
Split Wire Ring Included 90.55.1500

B41 90.41.2600

4 x M12 SHCS
Split Wire Ring Included 90.55.1500

B45 90.45.2600

M16
4 x M12
Split Wire Ring Included 90.55.1500

B40__ 90.40__2600

4 x M12 CI Option
Specify port location: F, L, B or R
NOT FIXED
MUST BE BACKED UP

Stroke	16	19	25	32	37.5	50	62.5	75	80	100	125
K	69	72	78	85	90.5	103	115.5	128	133	153	178

B43 90.43.2600

M16
4 x M12
Split Wire Ring Included 90.55.1500

B47 90.47.2600

M16
6 x M12
Split Wire Ring Included 90.55.1500

B42 90.42.2600

B46 90.46.2600

B44 90.44.2600

B48 90.48.2600

Ordering Example:

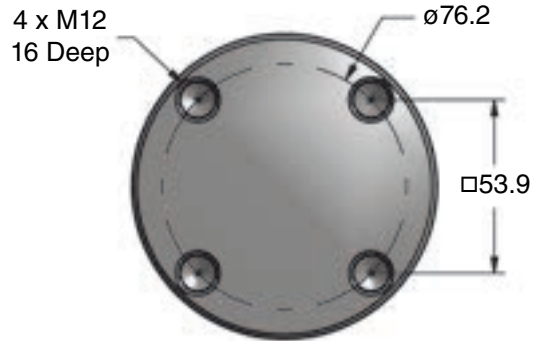
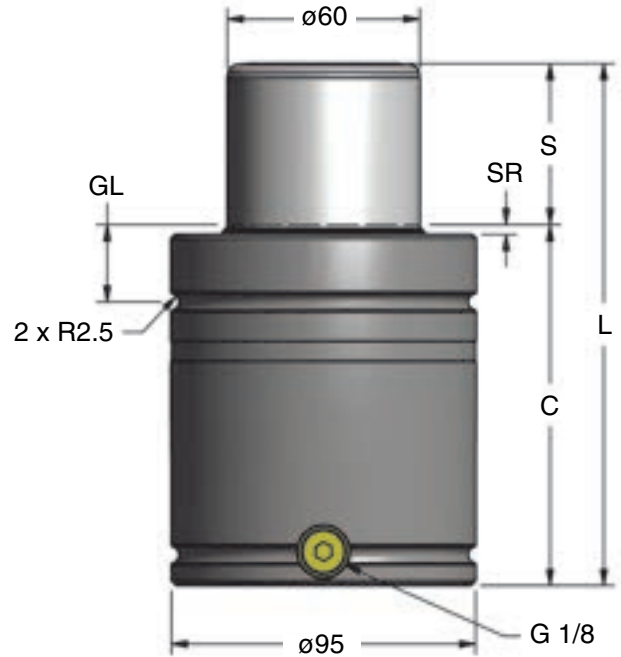
Model UT.2600	.	Stroke 025	.	Mount B21	.	Operating System C	.	Charging Pressure (bar) 150
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Part Number

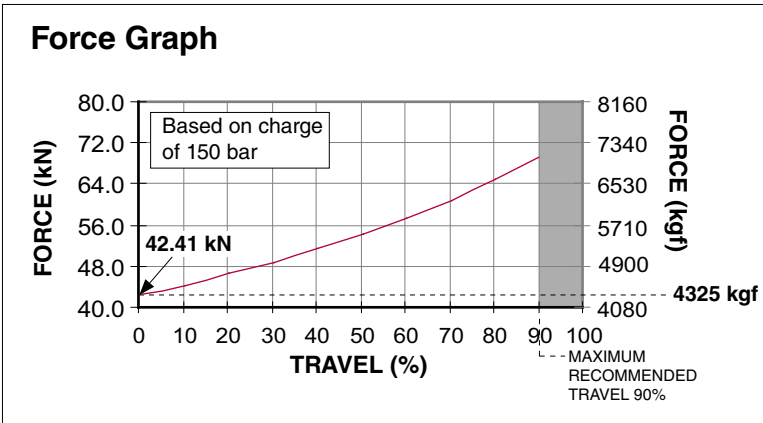
RN: Radius Groove

C: Self-contained
FB: Open Flow Fitting (90.805.115)
CI__: Self-contained with Indicator

15~150 bar (1.5~15 MPa)
When not specified, default is 150 bar (15 MPa).



RM - Radius Groove



Part No.	S mm	On-Contact Force kN (kgf)	Max Force* kN (kgf)	C	L ± 0.25	Pressure Increase* %	Weight kg
UT.4600.016	16.0	42.41 (4325)	69.34 (7070)	78.0	94.0	63	3.26
UT.4600.019	19.0			81.0	100.0		3.35
• UT.4600.025	25.0			87.0	112.0		3.52
UT.4600.032	32.0			94.0	126.0		3.73
UT.4600.038	37.5			99.5	137.0		3.89
• UT.4600.050	50.0			112.0	162.0		4.25
UT.4600.063	62.5			124.5	187.0		4.62
• UT.4600.075	75.0			137.0	212.0		4.98
UT.4600.080	80.0			142.0	222.0		5.13
• UT.4600.100	100.0			162.0	262.0		5.71
• UT.4600.125	125.0			187.0	312.0		6.44

Part Number	SR	GL
UT.4600.016 – UT.4600.125	3.0	24.0
UT.4600.J38	4.0	25.0
UT.4600.J63		

On-Contact Force

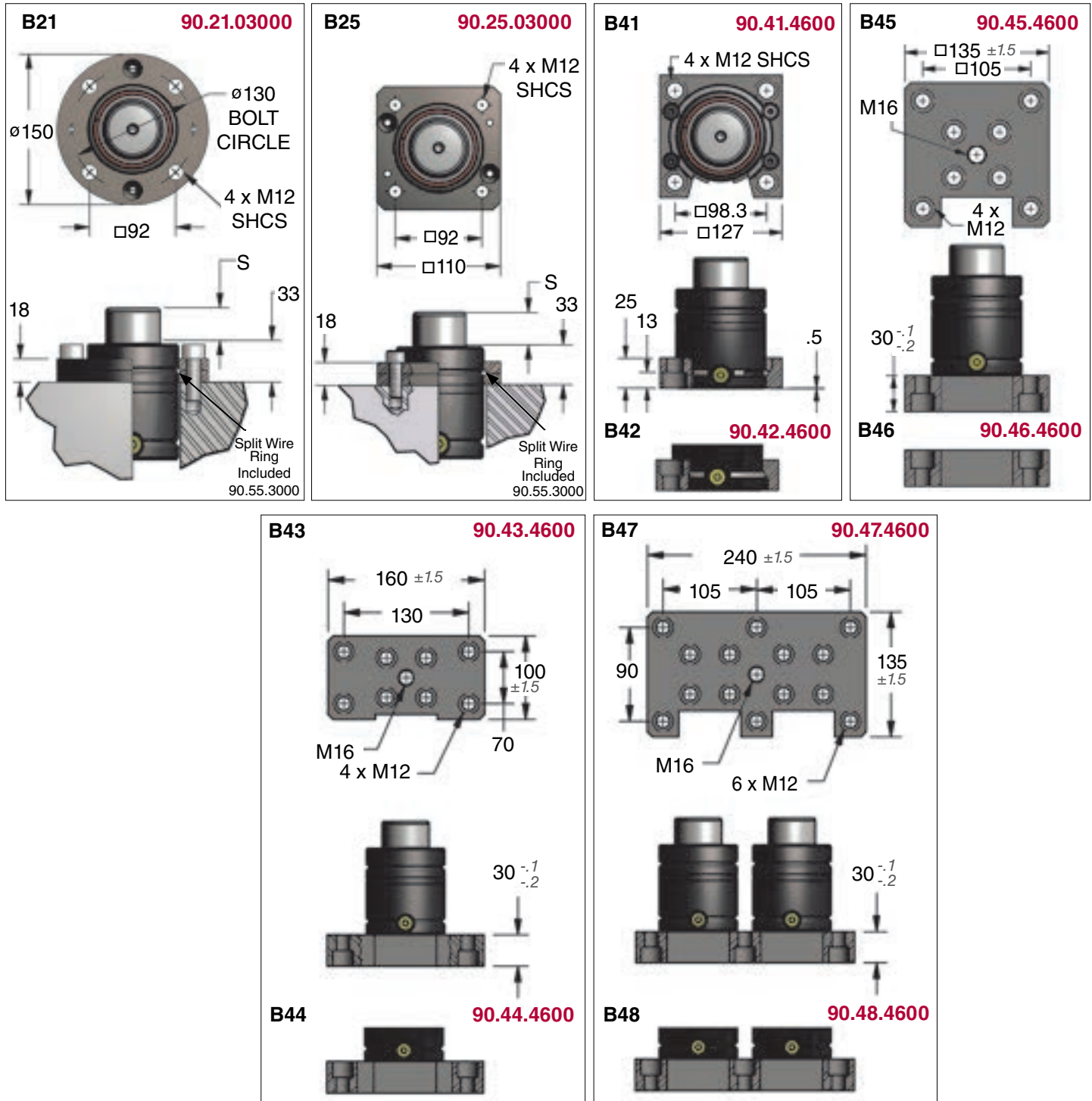
bar	MPa	kN	kgf
150	15.0	42.41	4325
125	12.5	35.34	3604
100	10.0	28.27	2883
75	7.5	21.21	2162
50	5.0	14.14	1442
25	2.5	7.07	721
20	2.0	5.65	577

• Preferred Sizes

*Based on maximum recommended travel, 90% stroke

UT.4600 - 42 kN / 4.3 ton

Mount Options



Ordering Example:

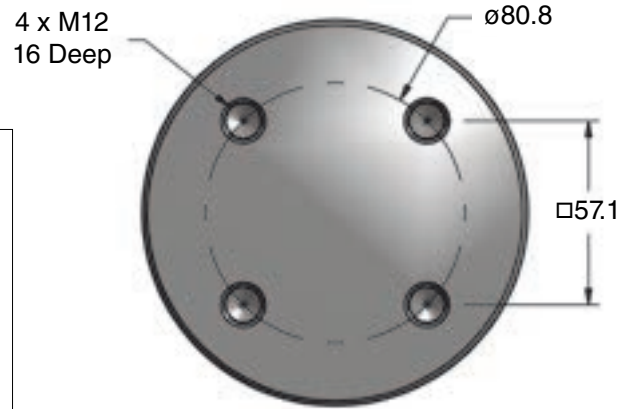
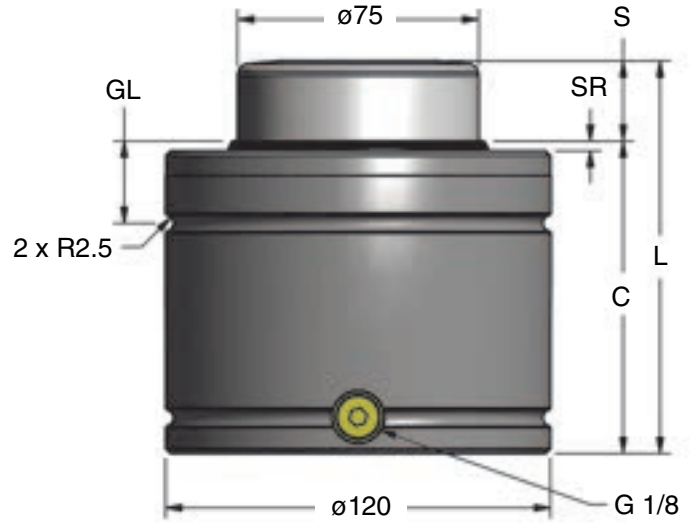
Model UT.4600	Stroke 025	Mount B21	Operating System C	Charging Pressure (bar) 150
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Part Number

RM: Radius Groove

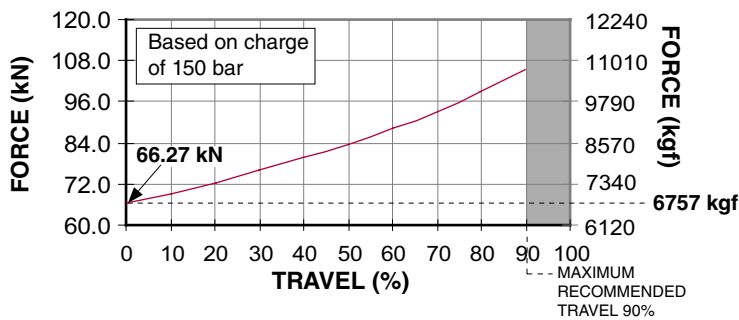
C: Self-contained
 FB: Open Flow Fitting (90.805.115)

15~150 bar (1.5~15 MPa)
 When not specified, default is 150 bar (15 MPa).



RM - Radius Groove

Force Graph



Part No.	S mm	On-Contact Force kN (kgf)	Max Force* kN (kgf)	C	L ±0.25	Pressure Increase* %	Weight kg
UT.6600.016	16.0	66.27 (6757)	104.14 (10619)	88.0	104.0	57	6.00
UT.6600.019	19.0			91.0	110.0		6.14
• UT.6600.025	25.0			97.0	122.0		6.41
UT.6600.032	32.0			104.0	136.0		6.73
UT.6600.038	37.5			109.5	147.0		6.98
• UT.6600.050	50.0			122.0	172.0		7.56
UT.6600.063	62.5			134.5	197.0		8.13
• UT.6600.075	75.0			147.0	222.0		8.70
UT.6600.080	80.0			152.0	232.0		8.93
• UT.6600.100	100.0			172.0	272.0		9.84
• UT.6600.125	125.0			197.0	322.0		10.99

• Preferred Sizes

*Based on maximum recommended travel, 90% stroke

Part Number	SR	GL
UT.6600.016 – UT.6600.125	3.0	25.5
UT.6600.J38 – UT.6600.J63	4.0	26.5

On-Contact Force

bar	MPa	kN	kgf
150	15.0	66.27	6757
125	12.5	55.22	5631
100	10.0	44.18	4505
75	7.5	33.13	3379
50	5.0	22.09	2252
25	2.5	11.04	1126
20	2.0	8.84	901

UT.6600 - 66 kN / 7.4 ton

Mount Options

B21 90.21.05000

ø155 BOLT CIRCLE
4 x M12 SHCS

Split Wire Ring Included 90.55.5000

B25 90.25.05000

4 x M12 SHCS

Split Wire Ring Included 90.55.5000

B41 90.41.6600

4 x M12 SHCS

Split Wire Ring Included 90.55.5000

B45 90.45.6600

4 x M16

Split Wire Ring Included 90.55.5000

B42 90.42.6600

B46 90.46.6600

B43 90.43.6600

4 x M16

B44/B44S 90.44.6600/90.44S.6600

4 x M16

Model	A	B	C	D
90.44.6600	200	90	160	130
99.44S.6600	180	70	140	120

B47 90.47.6600

6 x M16

B48 90.48.6600

Ordering Example:

Model	Stroke	Mount	Operating System	Charging Pressure (bar)
UT.6600	025	B21	C	150

Part Number

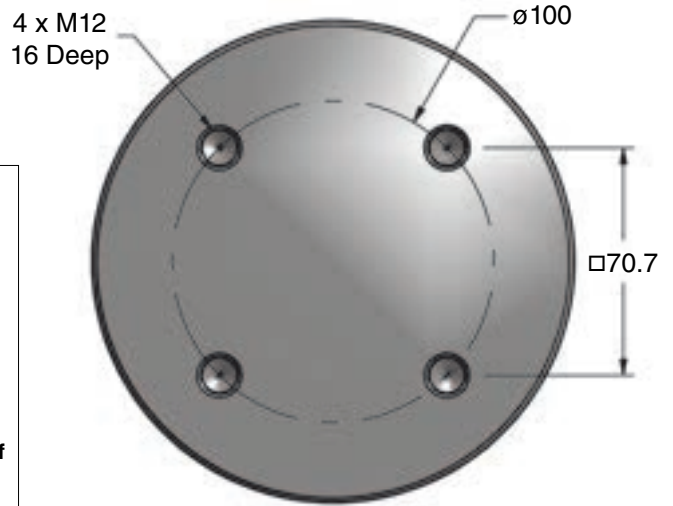
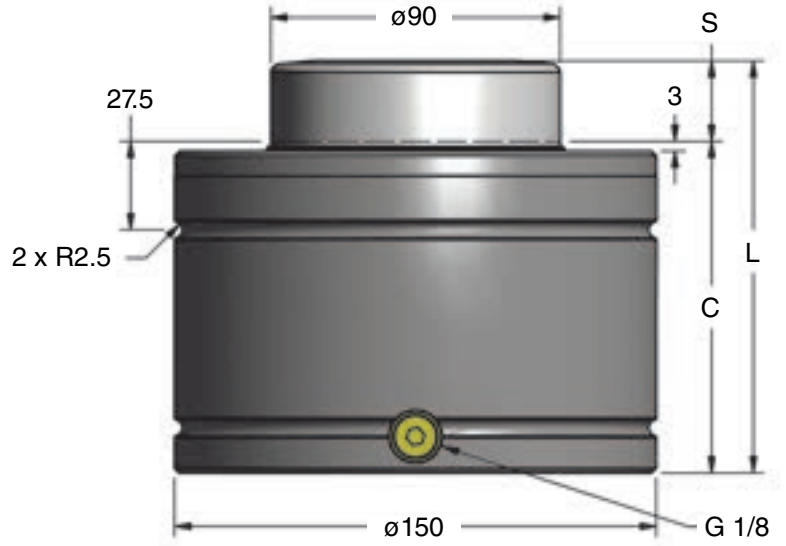
RM: Radius Groove

C: Self-contained
FB: Open Flow Fitting (90.805.115)

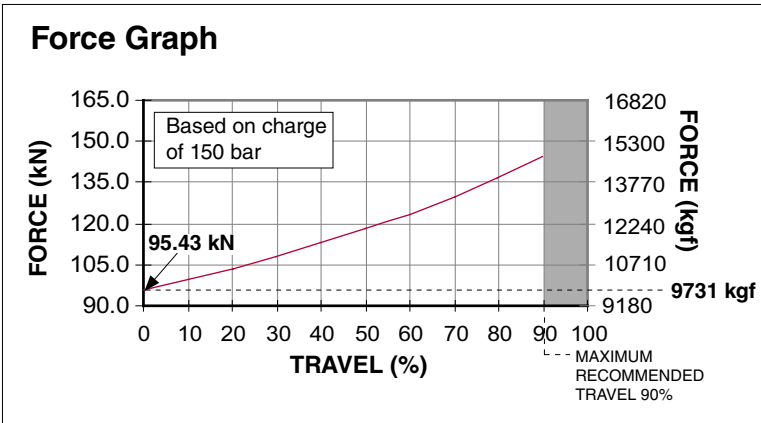
15~150 bar (1.5~15 MPa)
When not specified, default is 150 bar (15 MPa).

UT Series Nitrogen Gas Springs

UT.9600 - 95 kN / 10.7 ton



RM - Radius Groove



Part No.	S mm	On-Contact Force kN (kgf)	Max Force* kN (kgf)	C	L ±0.25	Pressure Increase* %	Weight kg
• UT.9600.025	25.0	95.43 (9731)	144.32 (14717)	103.0	128.0	51	10.68
UT.9600.032	32.0			110.0	142.0		11.17
UT.9600.038	37.5			115.5	153.0		11.55
• UT.9600.050	50.0			128.0	178.0		12.42
UT.9600.063	62.5			140.5	203.0		13.29
• UT.9600.075	75.0			153.0	228.0		14.16
UT.9600.080	80.0			158.0	238.0		14.51
• UT.9600.100	100.0			178.0	278.0		15.90
• UT.9600.125	125.0			203.0	328.0		17.64

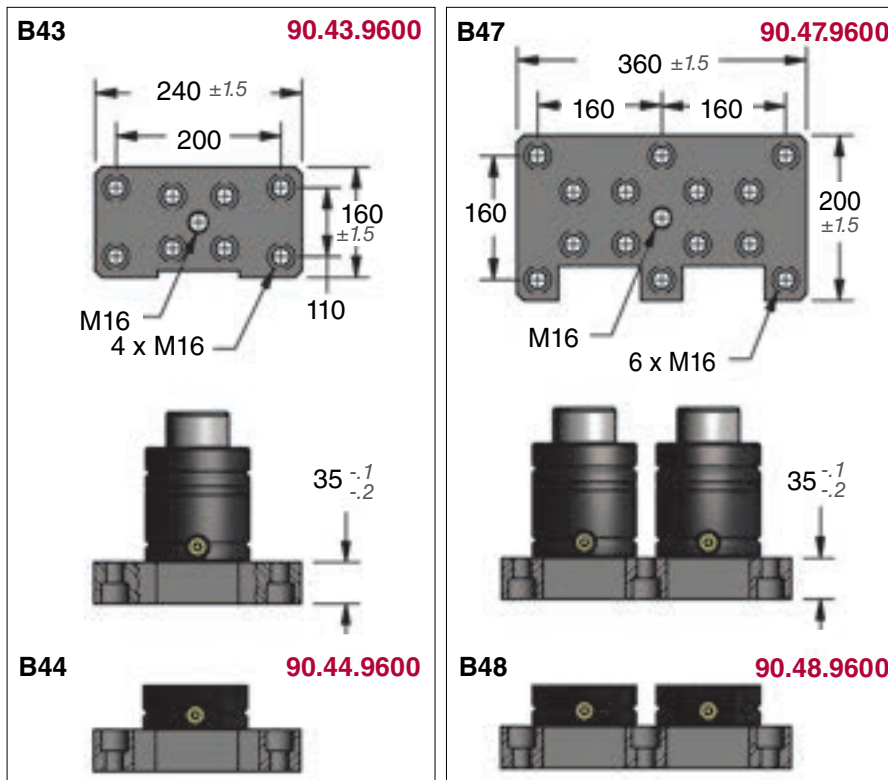
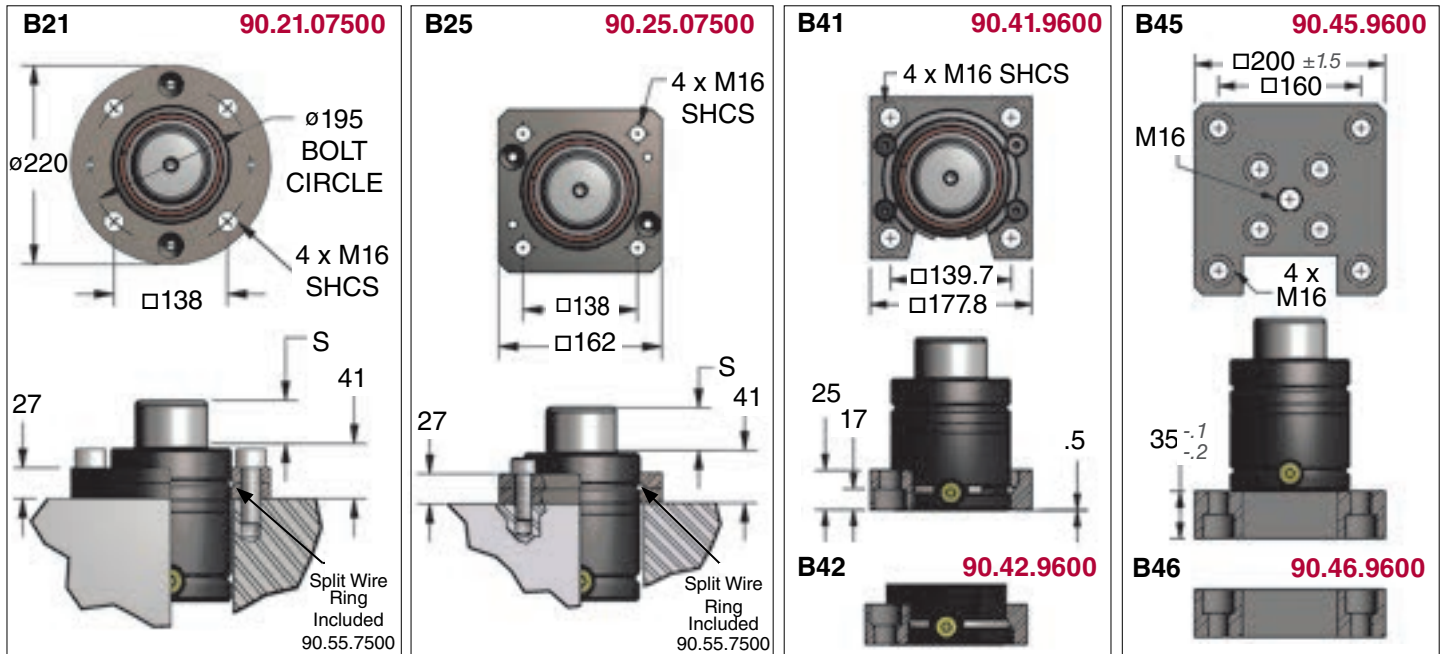
On-Contact Force			
bar	MPa	kN	kgf
150	15.0	95.43	9731
125	12.5	79.52	8109
100	10.0	63.62	6487
75	7.5	47.71	4865
50	5.0	31.81	3244
25	2.5	15.90	1622
20	2.0	12.72	1297

• Preferred Sizes

*Based on maximum recommended travel, 90% stroke

UT.9600 - 95 kN / 10.7 ton

Mount Options



Ordering Example:

Model UT.9600	Stroke 025	Mount B21	Operating System C	Charging Pressure (bar) 150
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Part Number

RM: Radius Groove

C: Self-contained
 FB: Open Flow Fitting (90.805.115)

15~150 bar (1.5~15 MPa)
 When not specified, default is 150 bar (15 MPa).

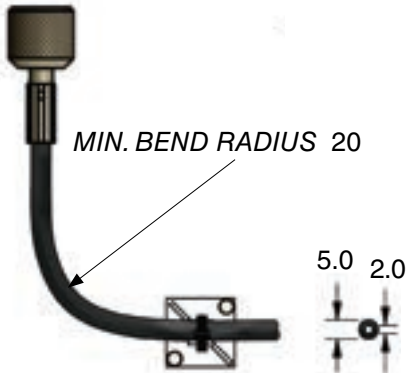
Request Linked System Components Catalog for a comprehensive list of components necessary to configure a linked system.

Hose and Hose Assemblies

MINIFLEX® 90.705 (Y-705) Hose

Length (mm)

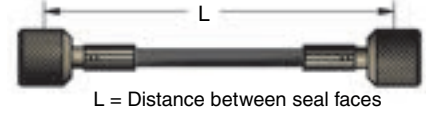
DADCO's MINIFLEX® hose is used to connect gas springs together as a linked system. MINIFLEX® hose is able to withstand high pressure and still maintain the flexibility necessary when linking gas springs.



Working Pressure	Burst Pressure
500 bar (50 MPa)	1940 bar (194 MPa)

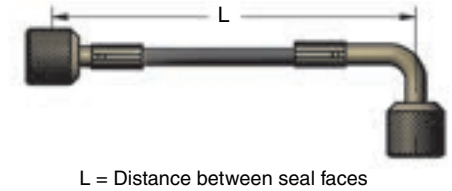
Hose Assembly with two 90.804.943 (B-943) Hose Adapters

90.705.B943.B943.____.L
L



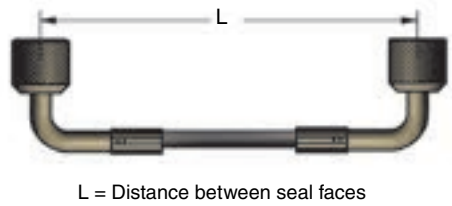
Hose Assembly with one 90.804.943 (B-943) Hose Adapter and one 90.804.959 (B-959) Hose Adapter

90.705.B943.B959.____.L
L



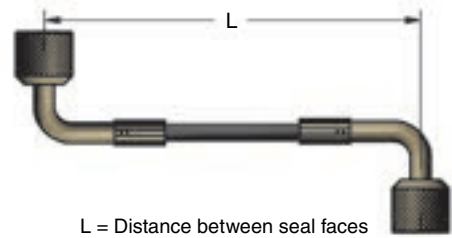
Hose Assembly with two 90.804.959 (B-959) Hose Adapters

90.705.B959.B959.____.C
L

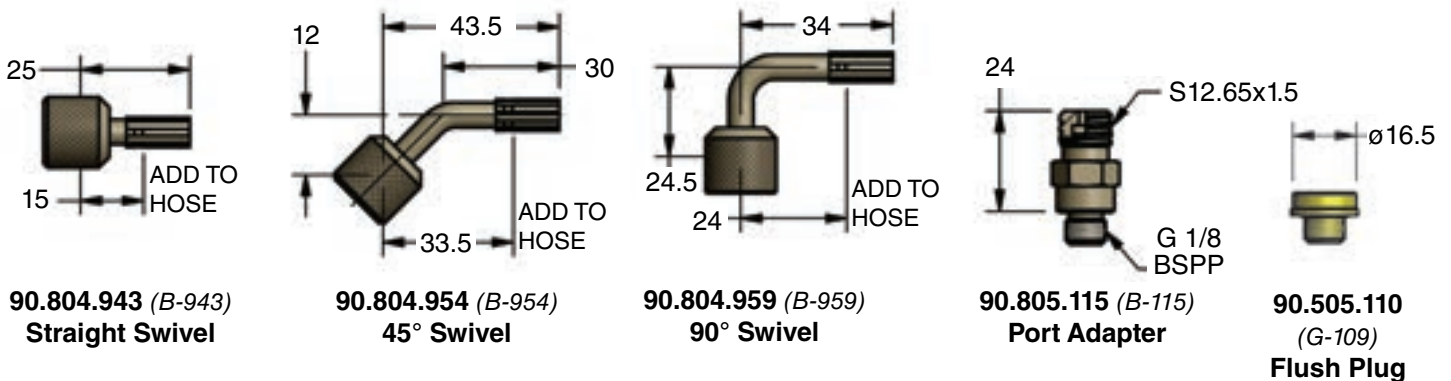


Hose Assembly with two 90.804.959 (B-959) Hose Adapters

90.705.B959.B959.____.S
L



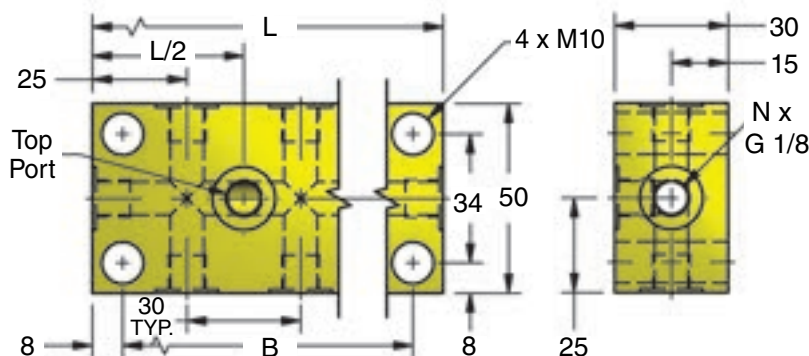
Hose and Port Adapters: Zip (CNOMO)



Distribution Block

90.412.07 / 90.412.09 / 90.412.10 / 90.412.12

The distribution block is used with a control panel to simplify piping to multiple cylinders.



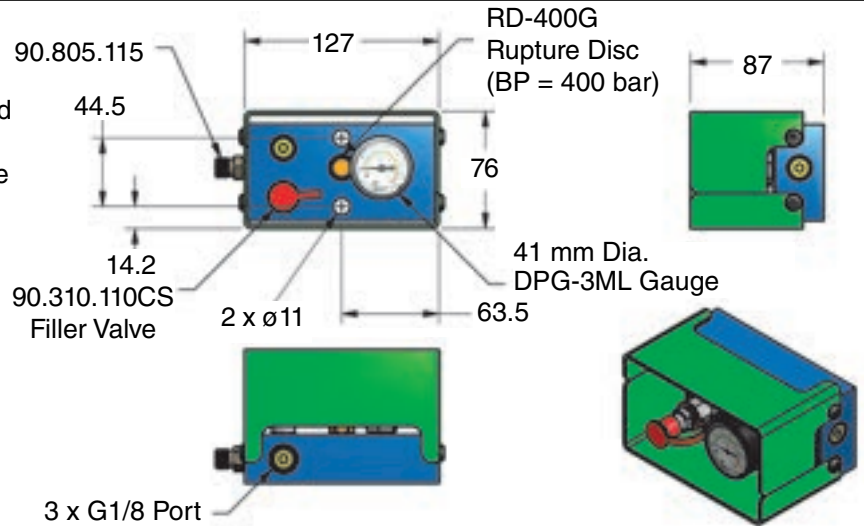
Model	N (Total Ports)	End Ports	Top Port	Side Ports	L	B
90.412.07	7	2	1	4	80	64
90.412.09	9	2	1	6	110	94
90.412.10	10	2	-	8	140	124
90.412.12	12	2	-	10	170	154

Linked Operations

Common Control Panel

90.416.A2B

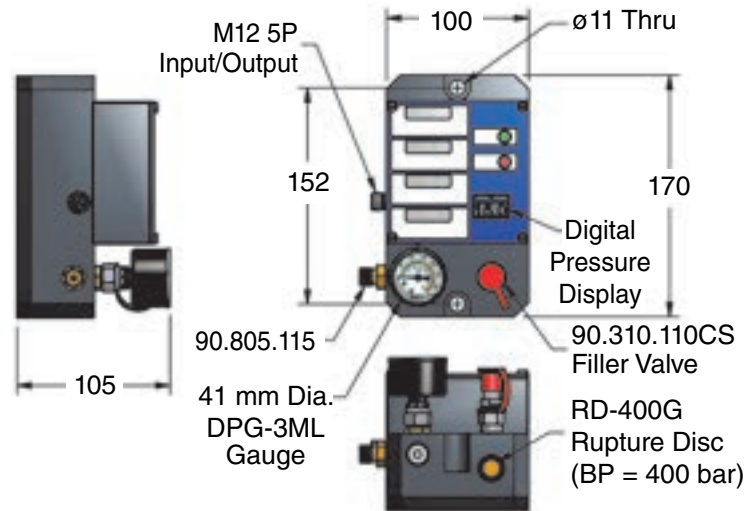
The DADCO Common Control Panel is used to fill, drain, and monitor the pressure of linked DADCO Nitrogen Gas Springs from outside the die. The panel consists of a high pressure gauge (MPa and bar), quick disconnect fill valve, and a rupture disk to prevent overpressurization.



Control Panel with Pressure Monitor

90.406.421 - Conforms to UL Standards

The DADCO Control Panel with Pressure Monitor is used to maintain the pressure of linked DADCO Nitrogen Gas Springs from outside the die. This panel includes a digital pressure sensor with programmable output to signal the press to stop running if pressure drops below a preset level. The control panel is outfitted with a high pressure gauge (MPa and bar), quick disconnect fill valve, and a rupture disk to prevent over pressurization. This panel conforms to Toyota standard number D-PACPS-B, and is Listed to applicable UL Standards and requirements by UL. Contact DADCO for more information.

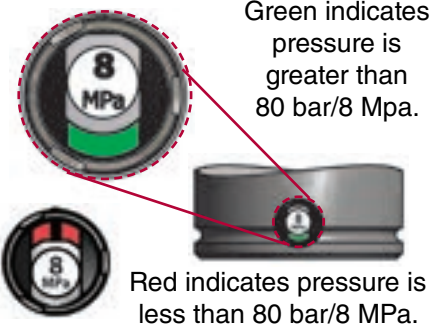


Pressure Indicator

90.243.___ (08 = 80 MPa, 10 = 100 MPa)

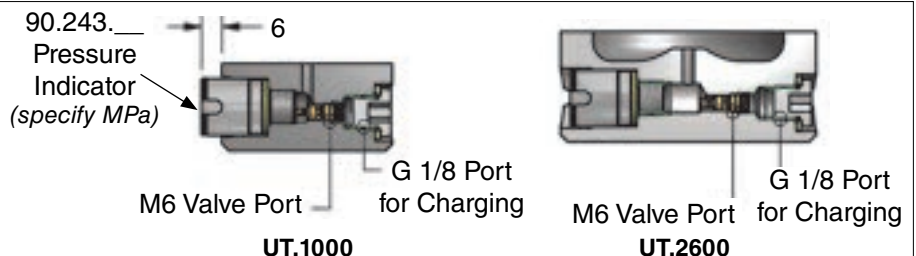
DADCO offers an optional pressure indicator for the UT.1000 and UT.2600 self-contained models. This indicator is preset and installed in a special G 1/8 port to designate that the gas spring pressure is above the preset value. The charging pressure must be a minimum of 20 bar/2 MPa above the preset value when the indicator is installed; refer to ordering example. The pressure indicator requires manual reset upon recharging. The UT.1000 and UT.2600 may be ordered with the port prepped for a pressure indicator to be installed; gas springs will be provided with a port plug (CIP option). Contact DADCO for more information.

Operation Example:



Pressure Indicator Removal Tool 90.243.RT

Use the Pressure Indicator Removal Tool to remove and install the Pressure Indicator.



Ordering Example:

Model	Stroke	Mount*	Pressure Indicator	Charging Pressure (bar)
UT.1000	025	B40F	CI08	100

Part Number
UT.1000 or UT.2600

CI08 = 8 MPa
CI10 = 10 MPa
CIP = Port only with plug

Must be charged at a minimum of 20 bar/2 MPa above preset pressure indicator value.

CAUTION

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

Operating Specifications

Charging Medium:	Nitrogen Gas	Operating Temperature:	4°C – 71°C
Charging Pressure:	15 – 150 bar (1.5 – 15 MPa)	Maximum Speed:	1.6 m/sec

Provide Stroke Reserve

- DADCO UT 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

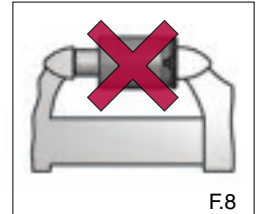
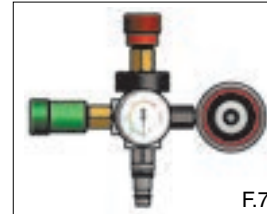
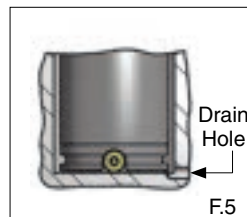
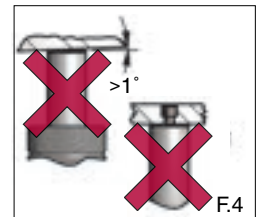
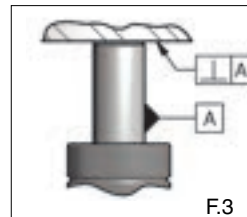
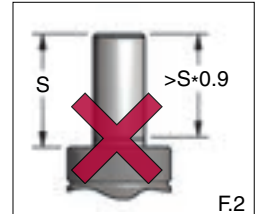
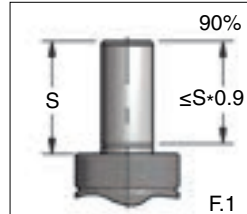
- Direct contact with certain die lubricants and cleaners should be avoided (F.6). Protect gas springs by providing adequate drainage in gas spring pockets (F.5).

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 (90.320.2), 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 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 the 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 G 1/8 port, (A.4). A wide variety of port adapters and fittings are available, contact DADCO for more information.

