Product Series
Gas Springs

KALLER®
The Safer Choice

Gas Springs

F_{INIT} < 7,500

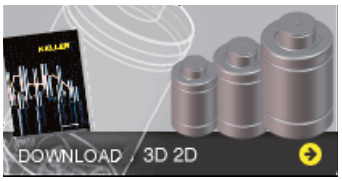
Would you like to order this product?
All available information at www.kaller.com.

AUTOMATION · PRESSES · TOOLING

KALLER is the AP&T standard for gas springs and gas link systems. In the Downloads section you will find the first choice shown in green. If use of components beyond standard is required, please contact the R&D Manager or the person responsible for the CAD Library.

GREEN: Preference 1. The items that are “first choice” for AP&T.

UNCOLORED: Items that are not provided with AP&T can be used after consulting AP&T.



Symbol for KALLER CAD
Click to download appropriate CAD file

Gas Spring - contents

About gas springs

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GENERAL

KALLER gas springs are designed to meet customer expectations for reliability, safety and service lifetime. The design, manufacture and testing of KALLER gas springs has been approved according to the European Pressure Equipment Directive (97/23/EC).

The Pressure Equipment Directive (PED) replaces all previous European legislation governing the design, manufacture and testing of pressure vessels.
Manufacturing relies on the very latest production methods and equipment at our modern facilities in Tranås, Sweden.
Strömsholmen AB, the designers and manufacturers of KALLER gas springs, has been ISO 9001 approved since 1994 and ISO 9000:2000 and PED (97/23/EC) approved since 2002. The company is the world's premiere and leading manufacturer of nitrogen gas springs for the metal stamping industry.

KALLER worldwide guarantee

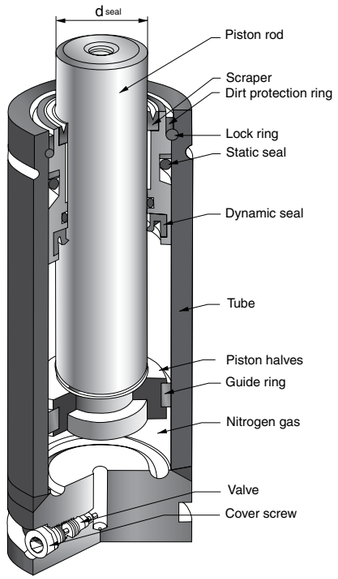
The worldwide service life guarantee for KALLER products is valid for a specified number of strokes within 2 years after purchase. The product should be used according to the specifications and recommendations presented in our User Guides, product and service literature. In case of misuse or mechanical damage, the guarantee will cease to be valid.

Gas springs:
1 million strokes (max. 100,000 stroke meters).

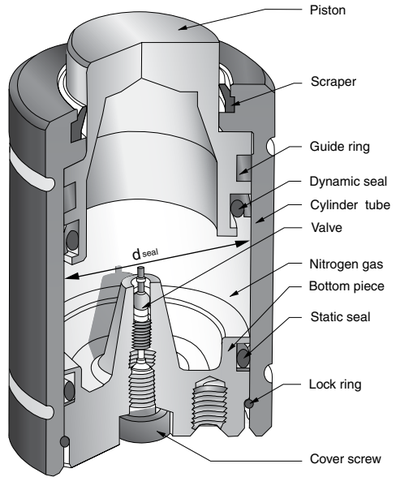
Controllable gas springs, Flex Cam and other products:
500,000 strokes.

Main groups of gas springs

KALLER gas springs can be divided into two main groups, namely Piston Rod Sealed and Bore Sealed. The two basic designs are depicted below:



Piston Rod Sealed gas spring



Bore Sealed gas spring

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Overview of models
The following is an overview of our Tool & Die family of gas springs:

EP Series:
Non-repairable. These Ejector Pin gas springs are color coded and fully adjustable with either an M16 or M24 threaded body.

Forces:	40 N to 1,700 N 9 lbf to 382 lbf
Stroke lengths:	10 mm to 125 mm
Max. strokes/min.:	~100 (at 20°C)

R Series:
Non-repairable, color coded and fully adjustable gas springs with Ø12, Ø15 and Ø19 mm outer body diameters.

Forces:	60 N to 900 N 13 lbf – 202 lbf
Stroke lengths:	7 mm to 125 mm
Max. strokes/min.:	~100 – 150 (at 20°C)

Mini Series:
Color coded and fully adjustable gas springs with Ø25, Ø32 and M28×1.5 small outer body diameters.

Forces:	280 N to 2,000 N 63 lbf to 450 lbf
Stroke lengths:	10 mm to 125 mm
Max. strokes/min.:	~80 – 100 (at 20°C)

CU4 Series:
These Super Compact gas springs are bore sealed, providing a high amount of force while having small outer body diameters.

Forces:	4,250 N to 183,000 N 950 lbf to 41,140 lbf
Stroke lengths:	6 mm to 65 mm
Max. strokes/min.:	~100 (at 20°C)

Power Line – XG Series:
Our short and most powerful Rod Sealed gas springs offer a great deal of force in a very compact body.

Forces:	3,600 N to 66,300 N 810 lbf to 14,905 lbf
Stroke lengths:	10 mm to 125 mm
Max. strokes/min.	~15 – 100 (at 20°C)
Max. strokes/min.	~15-100 (at 20°C)

Power Line – X Series:
A short and strong Rod Sealed gas spring with tapped base mounting holes and side charging port for hose system connection.

Forces:	1,700 N to 200,000 N 382 lbf to 44,960 lbf
Stroke lengths:	7 mm to 125 mm
Max. strokes/min.	~15 – 100 (at 20°C)

Power Line – TX Series:
A crossover between our standard TU Series and our Power Line X Series.

Forces:	9,200 N to 95,000 N 2,075 lbf to 21,400 lbf
Stroke lengths:	13 mm to 300 mm
Max. strokes/min.	~15 – 100 (at 20°C)

TL Series:
KALLER's TL Series ranges from model sizes 750 to 7500, with the same features and technology as the TU Series.

Forces:	7,400 N to 75,000 N 1,665 lbf to 16,860 lbf
Stroke lengths:	25 mm to 300 mm
Max. strokes/min.:	~15 – 40 (at 20°C)

TU Series:
KALLER's standard series and the world's first gas spring range. Dimensions conform to the ISO 11901 gas spring standard.

Forces:	2,650 N to 100,000 N 600 lbf to 23,830 lbf
Stroke lengths:	10 mm to 300 mm
Max. strokes/min.:	~15 – 40 (at 20°C)

TUS Series:
KALLER's TUS Series was designed for increasing press speeds. Dimensions conform to the ISO 11901 gas spring standard.

Forces:	7,500 N to 75,000 N 1,665 lbf to 16,860 lbf
Stroke lengths:	25 mm to 300 mm
Max. strokes/min.:	~15 – 40 (at 20°C)

K Series:
Short height version of the TU Series with tapped base mounting holes and side charging port for hose system connection.

Forces:	5,000 N to 15,000 N 1,124 lbf to 3,372 lbf
Stroke lengths:	6 mm to 125 mm
Max. strokes/min.	~30 (at 20°C)

MT Series
Mould Temp gas springs are compact and powerful piston rod sealed gas springs, which can be used in temperatures up to 120°C.

Forces:	420 N to 10,000 N 94 lbf to 2,090 lbf
Stroke lengths:	10 mm to 80 mm
Max. strokes/min.:	~20 (up to 80°C)

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LCF (Low Contact Force) gas spring information

The LCF Series makes up the future generation of nitrogen gas springs. This innovative gas spring series is engineered to address the major problems facing metal stampers today: excessive shock loads, high noise levels and extreme pad/blank-holder bounce, all factors that lead to high press maintenance costs and noise pollution. The LCF series reduces shock loads by as much as 50 % compared to standard gas springs. They deliver a gradual force build-up and smooth acceleration so there's less impact on gears and bearings and less wear on drive components.
The payoff is reduced press maintenance.

The LCF Series lowers noise levels significantly, with a higher reduction in sound pressure level compared to standard gas springs. Its lesser impact force results in these lower noise levels and makes these springs a cost effective alternative to erecting noise enclosures.
The payoff is a quieter, safer and healthier working environment.

The LCF Series decreases pad/blank-holder bounce, allowing improved part transfer efficiency, increased production rates and reduced scrap. A gradual force increase and return result in smoother pad/blank-holder operation.
The payoff is higher production rates.

Because LCF gas springs mount directly to the die and are independent from the press, all benefits travel with the tool.
Standard features:

- 100 % interchangeable with standard ISO gas springs (i.e. our TU Series)
- Retrofits in existing dies
- Charged and rebuilt like standard gas springs
- Drop-in, flange mount, or base plate mounting
- Can be hosed together
- Can be incorporated into press cushions

Speed Control™ – SPC gas spring information

Speed Control™ gas springs have been designed to reduce or eliminate blank holder bounce and are the latest addition to our range of problem-solving Kaller products.

Speed Control™ gas springs work by slowing down the speed at which the blank holder travels just before it reaches its start position.
This is achieved by damping the Speed Control's piston rod return speed to 0.4 m/s during the last 30 mm of piston rod travel.

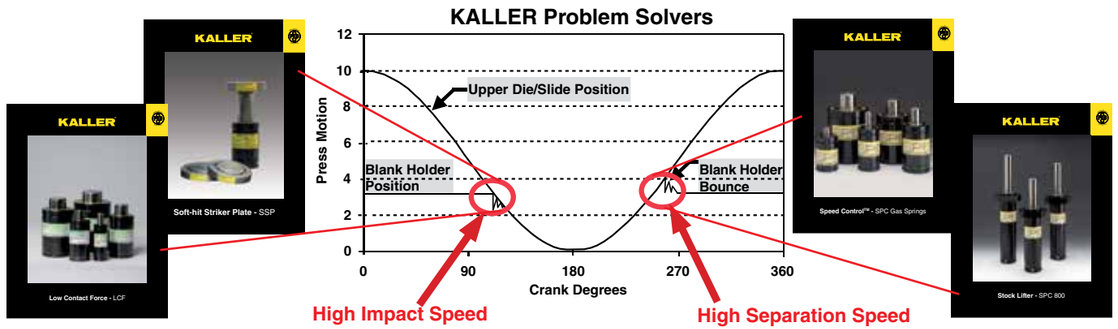
Blank holder bounce often occurs as a result of an excessive press stroke return speed, commonly associated with special link-drive presses.

The height of the blank holder lift depends on the speed that the blank holder is traveling at when its supporting gas springs reach their fully extended positions. At this point, the inertia of the blank holder causes it to lift up from its supporting gas springs.

If we assume that at this separation point the only force acting on the blank holder is gravity, then we can calculate the theoretical height the blank holder will lift, at various separation speeds:

Separation speed [m/s]	Theoretical lift [mm]
0.5	13
0.8	33
1.0	50
1.6	130

In reality, however, there are other factors that affect the blank holder causing these theoretical lift heights to either increase or decrease.



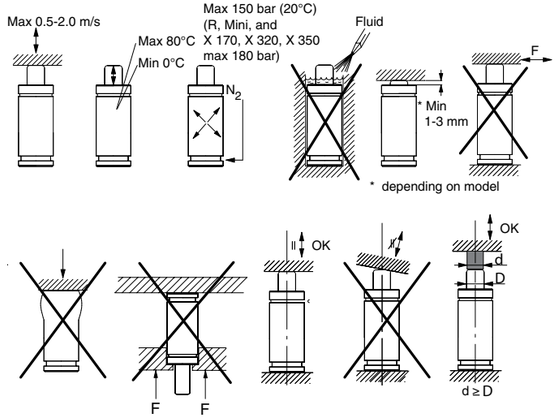
1

USER INFORMATION

Mounting instructions

To achieve the best possible service life and safety from the gas spring, the following instructions must be followed. The gas spring is intended for use in tool and machine applications.

- Secure the gas spring to the tool/machine whenever possible, using the threaded hole(s) in the base of the gas spring or a suitable flange.
- Do not use the threaded hole in the piston rod top for mounting purposes. It is only to be used when servicing the gas spring.
- Do not use the gas spring in such a way that the piston rod is released freely from its compressed position, as this could cause internal damage to the gas spring.
- Depending on the model, the maximum allowed stroke speed is from 0.5 to 2.0 m/s (see catalogue).
- Make sure the gas spring is mounted parallel to the direction of the compression stroke.
- Ensure the contact surface of the piston rod top is perpendicular to the direction of the compression stroke and is sufficiently hardened.
- Do not subject the gas spring to side loads.
- Protect the piston rod against mechanical damage and contact with fluids.
- Ensure the entire contact surface of the piston rod/piston is used.



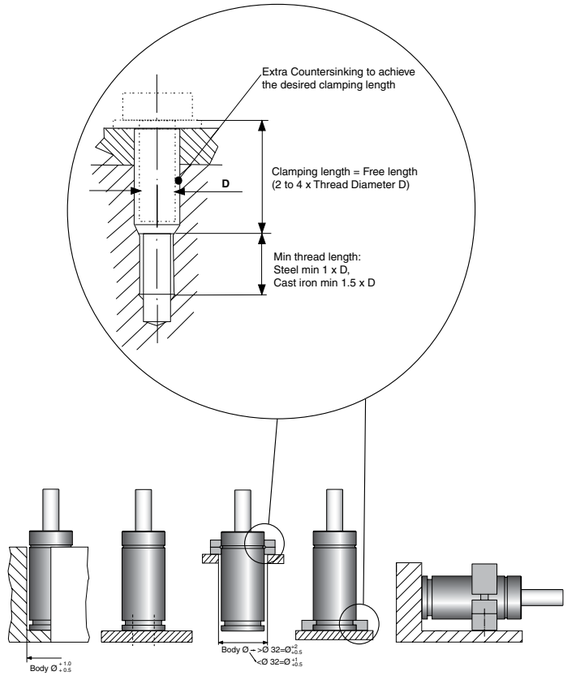
Mounting of gas springs

When mounting the gas spring in the tool/machine, certain specifications must be adhered to in order to assure that the mount/flange does not come loose:

- Screws must have a free length (clamping length) of 2 to 4 × the thread diameter and a thread depth of at least 1 × the thread diameter in steel and 1.5 × the thread diameter in cast iron.
- If the free length cannot be achieved in any other way, the screw holes must be countersunk.
- Always use a torque wrench to tighten to the correct torque.

Thread	**Torque** (screw class 8.8 acc. to ISO 898-1)
M6	10 Nm
M8	24 Nm
M10	45 Nm
M12	80 Nm
M16	160 – 200 Nm

- Make sure the bottom of the spring is always supported.



CAUTION!
Do not modify the product in any way. For more information, please contact Strömsholmen (www.kaller.com) or your local KALLER distributor.

About gas springs

Stroke length

The nominal stroke (defined as S in the catalog tables) that may be utilized fully in all KALLER gas springs. However, in normal operation the recommendation is not to use the full stroke length. This is to prevent the spring from being “over-stroked” as a result of changes to the tool or mishaps in the tool.
We do not recommend utilizing the last 5 mm or 10 % of the nominal stroke length.

Maximum charging pressure

The maximum charging pressure (at 20°C) stated for the different gas springs should not be exceeded as it may affect the safety of the product.

Operating temperature

Exceeding the gas spring’s recommended max. operating temperature will shorten the service life of the gas spring.

Recommended maximum strokes/ minute

The values given for each gas spring in the catalog apply for “normal” press tool applications. The lower limits given apply to the longer stroke lengths, while the higher values apply to short stroke springs. These values are based on a fully utilized stroke. If only a portion of the stroke is used, the number of strokes per minute can be increased.
For further information, please contact your local distributor.

Maximum piston rod velocity

The maximum piston rod velocity is not to be exceeded because it may infringe on safety and can affect gas spring performance.

Service interval

If correctly installed and used, the following minimum service interval of the KALLER gas springs, except model MT, is recommended.

Stroke lengths up to and including 50 mm:
after 1 million strokes.
Stroke lengths above 50 mm:
after 100,000 stroke meters.

The number of stroke meters is calculated as:
Used stroke (in meters) × 2 × number of strokes.

Service information

All KALLER gas springs can be serviced except the following models: EP3 16, EP2 24, EPS2 24, R12, R15, R19, CU 420, X 170, X 320, X 2400-16 and MT 16, MT 24 Series.

Repair Kits and Tool Kits are available for all other models. Service instructions are included in the Repair Kits.

Caution! Only specially trained personnel with thorough knowledge about the products should perform maintenance. Mistakes made during assembly and charging may infringe on safety and/or have a detrimental effect on the service life of the product.

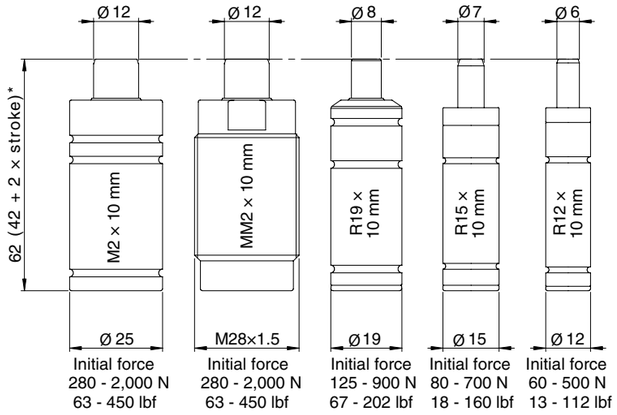
Your local distributor can help you with training. (Instructional service videos on CD-ROM and DVD are also available.)

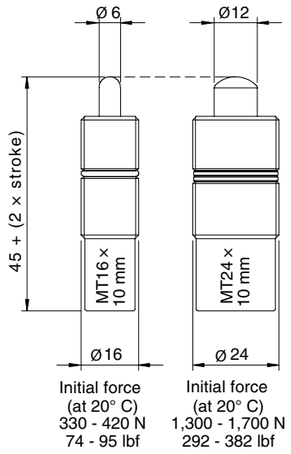
CAD files

To make it easier for tool designers to design with our gas springs, KALLER products are available as both 2D and 3D CAD files/models. These are available for download on our web site (www.kaller.com) or can be ordered from your local distributor on CD.

Notes

Overview - $F_{INIT} \leq 2500$

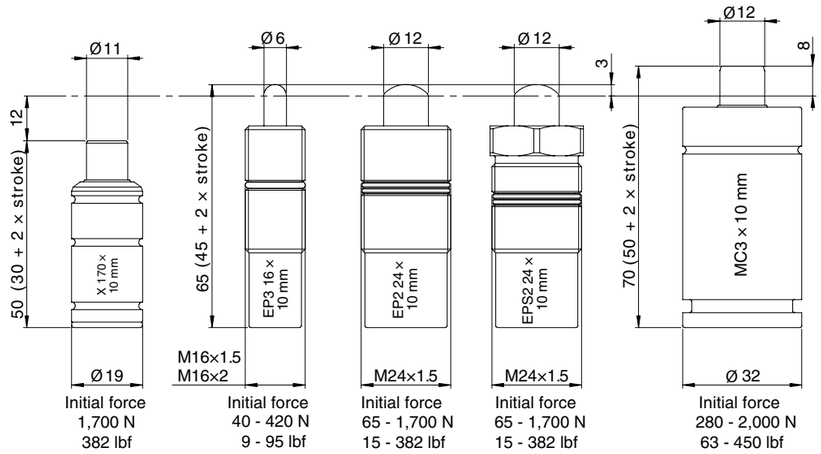




* Total length for M2 stroke length 63.5 mm and longer is 45 + (2×Stroke)

* Total length for R12, R15 and R19 stroke length 63.5 mm and longer is 45 + (2×Stroke)

* Total length for X 170 stroke length 75 mm and longer is 35 + (2×Stroke)



$F_{INIT} < 2500$

EP3 16

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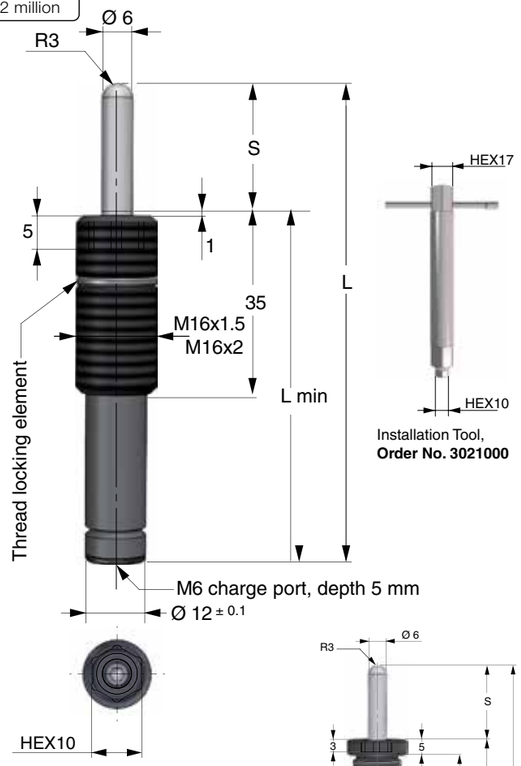
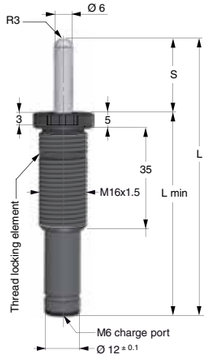
2 million



Installation Tool,
Order No. 3021000



Also available with shoulder as per GM-Standard. Contact your local distributor or Strömsholmen AB for more information.

EP3 16 gas springs (Ejector Pin with an M16 thread) are available in M16x1.5 and M16x2 thread size.

For each thread size, six models are available. Five preset models (Purple, Green, Blue, Red & Yellow) and one adjustable model (Black), whose pre-charging pressure is 5-10 bar, intended for the customer to adjust the gas charge pressure.

They are all color-coded to help identify the force rating and can be adjusted and re-charged to meet individual force requirements.

How to order

EP3 16x1.5 - 10 - Blue

Model:

Thread: x1.5 = M16x1.5
x2 = M16x2

Stroke Length (mm)
(10, 20, 30, 40, 50, 60, 70, 80, 100, 125)

Force: Purple, Green, Blue, Red, Yellow, Black

Model	Initial Force at +20°C		Color	Charging pressure (bar)	End force at + 20°C, at full stroke	
	in N	in lbf			in N	in lbf
EP3 16x2	40	9	Purple	12	64	14
EP3 16x1.5/x2	57	13	Green	20	91	20
EP3 16x1.5/x2	110	25	Blue	40	180	40
EP3 16x1.5/x2	210	47	Red	75	335	75
EP3 16x1.5/x2	420	95	Yellow	150	670	150
EP3 16x1.5/x2 XX*	40-420	9-95	Black	12-150	64-670	14-150

* Force to be set by the customer. Delivered with a pre-charge of 5-10 bar.

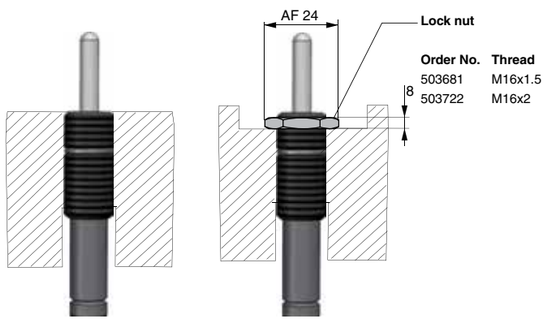
S Stroke	L ±0.25	L min	Gas vol. (l)	Weight (kg)
10	65	55	0.002	0.06
20	85	65	0.003	0.07
30	105	75	0.003	0.07
40	125	85	0.004	0.08
50	145	95	0.005	0.08
60	165	105	0.005	0.09
70	185	115	0.006	0.10
80	205	125	0.006	0.11
100	245	145	0.008	0.11
125	295	170	0.010	0.13

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 12 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ± 0.3%/°C
Recommended max strokes/min .... ~ 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black Oxide
Repair kit..... Non-repairable

Mounting Possibilities



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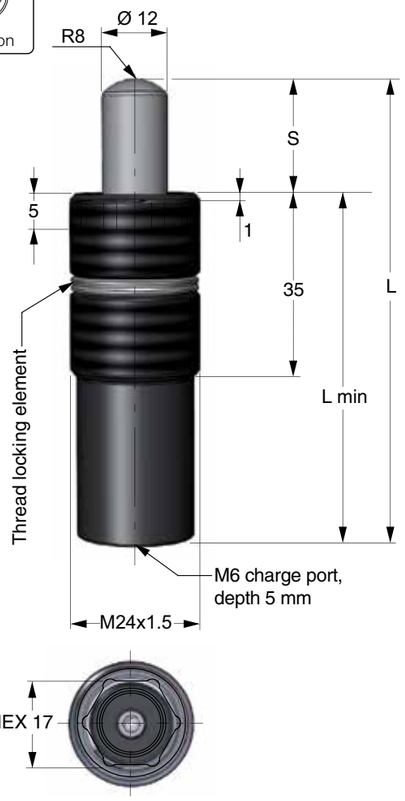
EP2 24

2 million



Installation Tool,
Order No. 3021000

EP2 24 (Ejector Pin with an M24 thread). Four preset models are available. Each model is color-coded for easy identification of force rating. If needed, these models can be re-charged or adjusted to meet individual force requirements.

A special model (black), which is delivered with a pre-charge of 5 to 10 bar, is also available and is intended for adjustment to the desired force.

Model	Initial Force at +20°C		Colour	Charging pressure (bar)	End force at + 20°C, at full stroke	
	in N	in lbf			in N	in lbf
EP2 24	230	52	Green	20	390	90
EP2 24	450	101	Blue	40	800	180
EP2 24	850	191	Red	75	1500	340
EP2 24	1700	382	Yellow	150	2900	650
EP2 24 XX*	65-1700	52-382	Black	6-150	110-2900	25-650

* Force to be set by the customer. Delivered with a pre-charge of 5-10 bar.

S Stroke	L ±0.25	L min	Gas vol. (l)	Weight (kg)
10	65	55	0.003	0.13
20	85	65	0.006	0.15
30	105	75	0.008	0.17
40	125	85	0.011	0.19
50	145	95	0.012	0.21
60	165	105	0.014	0.23
70	185	115	0.017	0.25
80	205	125	0.019	0.27
100	245	145	0.024	0.31
125	295	170	0.030	0.35

How to order

EP2 24 -10 -Red

Model:

Force: Green, Blue, Red, Yellow, Black

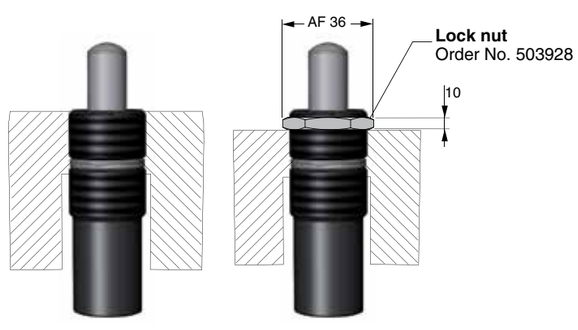
Stroke Length (mm)
(10, 20, 30, 40, 50, 60, 70, 80, 100, 125)

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 6 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ± 0.3%/°C
Recommended max strokes/min .... ~ 30-80 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit..... Non-repairable

Mounting Possibilities



EPS2 24

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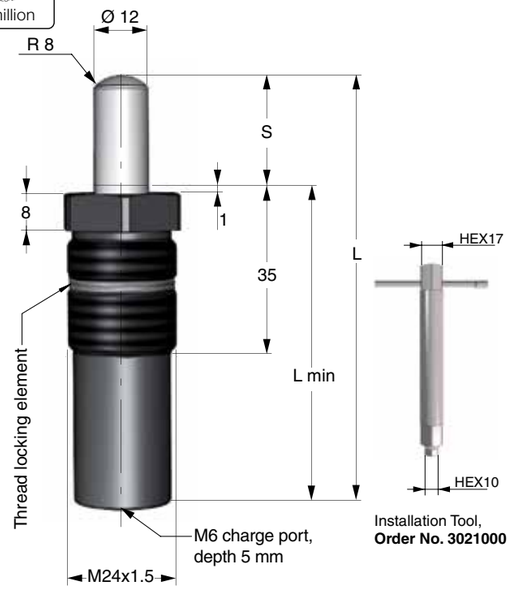
2 million

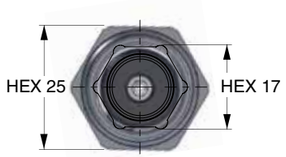


EPS2 24 (Ejector Pin Special with an M24 thread).
It is available with six pre-set models. Each model is color-coded for easy identification of force rating. If needed, these models can be re-charged or adjusted to meet individual force requirements.

Also available is a model (black) which is delivered with a pre-charge of 5 to 10 bar, intended to be adjusted to the desired force.

Model	Initial Force at +20°C		Colour	Charging pressure (bar)	End force at + 20°C, at full stroke	
	in N	in lbf			in N	in lbf
EPS2 24	65		Orange	6	110	25
EPS2 24	110		Purple	10	190	45
EPS2 24	230	52	Green	20	390	90
EPS2 24	450	101	Blue	40	800	180
EPS2 24	850	191	Red	75	1500	340
EPS2 24	1700	382	Yellow	150	2900	650
EPS2 24 XX*	65-1700	52-382	Black	6-150	25-650	110-2900

* Force to be set by the customer. Delivered with a pre-charge of 5-10 bar.



S Stroke	L ±0.25	L min	Gas vol. (l)	Weight (kg)
10	65	55	0.005	0.14
16	77	61	0.006	0.15
20	85	65	0.007	0.16
25	95	70	0.008	0.17
30	105	75	0.010	0.18
38	121	83	0.011	0.19
40	125	85	0.012	0.20
50	145	95	0.014	0.21
60	165	105	0.017	0.23
70	185	115	0.019	0.25
80	205	125	0.022	0.27
100	245	145	0.026	0.31
125	295	170	0.032	0.36

How to order

EPS2 24-10-Green

Model:

Force: Orange, Purple, Green, Blue, Red,Yellow, Black

Stroke Length (mm)
(10, 16, 20, 25, 30, 38, 40, 50, 60, 70, 80, 100, 125)

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 6 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ± 0.3%/°C
Recommended max strokes/min .... ~ 30-80 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit..... Non-repairable

Mounting Possibilities

Notes

R12

The R series was named because the tube is Roll-formed and therefore permanently closed, making these springs non-repairable.

R series springs are available with Ø12, Ø15, and Ø19 mm tube diameters and with stroke lengths up to 125 mm.

There are 4 color-coded models, all with preset forces. An adjustable model (black) is also available. It can be ordered either set to a specific charge pressure or it can be adjusted by customers with the appropriate charging equipment and training.

How to order

R12 - 7- Blue

Model: R12

Stroke Length (mm)
(7, 10, 12.7, 15, 19, 25, 38.1, 50, 63.5, 75, 80, 100, 125)

Force: Green
Blue
Red
Yellow
Black, state desired force in N

Model	Force in N at +20°C	Force in lbf at +20°C	Color	Charging pressure (bar)
	Initial	Initial		
R12	130	29	Green	45
R12	250	56	Blue	90
R12	380	85	Red	135
R12	500	112	Yellow	180
R12 XX*	60-500	13-112	Black	20-180

*Force to be set by the end user. Delivered with a pre-charge of 5-10 bar.

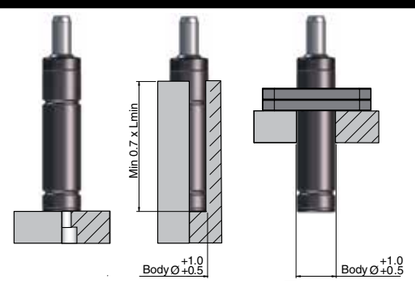
S Stroke	End force in N at + 20°C*				End force in lbf at + 20°C*				L ±0.25	L min	Gas vol. [l]	Weight [kg]
	R12	R12	R12	R12	R12	R12	R12	R12				
7	149	299	448	597	34	67	101	134	56	49	0.001	0.03
10	158	317	475	634	36	71	107	143	62	52	0.001	0.03
12.7	164	329	493	657	37	74	111	148	67.4	54.7	0.001	0.03
15	168	335	503	670	38	75	113	151	72	57	0.002	0.03
19	172	344	517	689	39	77	116	155	80	61	0.002	0.04
25	177	354	530	707	40	80	119	159	92	67	0.002	0.04
38.1	183	365	548	730	41	82	123	164	118	80	0.003	0.04
50	185	371	556	742	42	83	125	167	142	92	0.004	0.05
63.5	197	395	592	789	44	89	133	178	172	108.5	0.005	0.06
75	197	394	591	788	44	89	133	178	195	120	0.006	0.06
80	207	414	620	827	47	93	139	186	205	125	0.006	0.07
100	204	409	613	817	46	92	138	184	245	145	0.008	0.07
125	202	405	607	810	45	91	137	182	295	170	0.010	0.09

Basic Information

For general information, see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 180 bar (at 20°C)
Min. charging pressure..... 20 bar (at 20°C)
Operating temperature..... 0 to +80°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min..... ~40 – 100 (at 20°C)
Max. piston rod velocity..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair Kit ..... Non-repairable

Mounting Possibilities



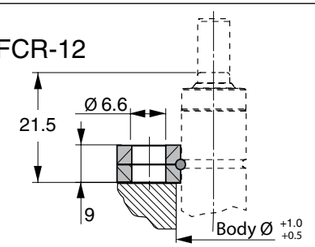
Base mount B
only to be used for strokes 7-25 mm

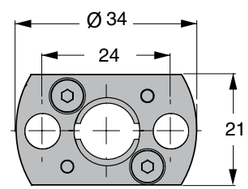
Drop - in

Top mount FCR-12

FCR-12

Order No: FCR-12





We reserve the right to add, delete or modify components without notification.

All dimensions are stated in mm.
All dimensions are nominal unless tolerance is stated.

R15

The R series was named because the tube is Roll-formed and therefore permanently closed, making these springs non-repairable.

R series springs are available with Ø12, Ø15, and Ø19 mm tube diameters and with stroke lengths up to 125 mm.

There are 4 color-coded models, all with preset forces. An adjustable model (black) is also available. It can be ordered either set to a specific charge pressure or it can be adjusted by customers with the appropriate charging equipment and training.

How to order

R15 - 7 - Red

Model: R15

Stroke Length (mm)
(7, 10, 12.7, 15, 19, 25, 38.1, 50, 63.5, 75, 80, 100, 125)

Force: Green, Blue, Red, Yellow, Black, state desired force in N

Model	Force in N at +20°C	Force in lbf at +20°C	Color	Charging pressure (bar)
	Initial	Initial		
R15	180	40	Green	45
R15	350	80	Blue	90
R15	500	115	Red	135
R15	700	160	Yellow	180
R15 XX*	80-700	18-160	Black	20-180

S Stroke	End force in N at + 20°C*				End force in lbf at + 20°C*				L ±0.25	L min	Gas vol. (l)	Weight (kg)
	R15	R15	R15	R15	R15	R15	R15	R15				
7	216	432	648	865	49	97	146	195	56	49	0.001	0.05
10	224	447	671	895	50	101	151	201	62	52	0.001	0.05
12.7	228	457	685	914	51	103	154	206	68	55	0.001	0.05
15	232	463	695	927	52	104	156	209	72	57	0.002	0.05
19	236	471	707	943	53	106	159	212	80	61	0.002	0.05
25	240	480	720	961	54	108	162	216	92	67	0.002	0.06
38.1	258	516	774	1032	58	116	174	232	118.2	80.1	0.003	0.07
50	258	516	774	1033	58	116	174	232	142	92	0.004	0.08
63.5	273	546	819	1092	61	123	184	246	172	108.5	0.005	0.09
75	270	541	811	1082	61	122	182	243	195	120	0.006	0.10
80	270	539	809	1079	61	121	182	243	205	125	0.006	0.11
100	267	534	802	1069	60	120	180	240	245	145	0.008	0.12
125	265	531	796	1062	60	119	179	239	295	170	0.010	0.14

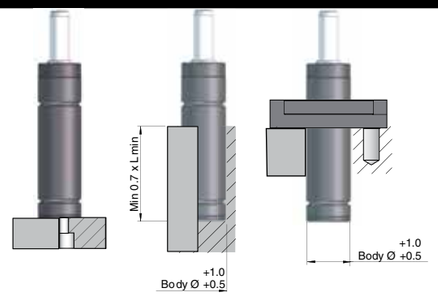
*Force to be set by the end user. Delivered with a pre-charge of 5-10 bar.

Basic Information

For more information, see “About gas springs”, 2.1
Pressure medium .....Nitrogen
Max. charging pressure .....180 bar
Min. charging pressure .....20 bar
Operating temperature .....0 to +80°C
Force increase by temperature.....±0.3 %/°C
Recommended max. strokes/min. ..... ~100 – 150 (at 20°C)
Max. piston rod velocity .....1.6 m/s

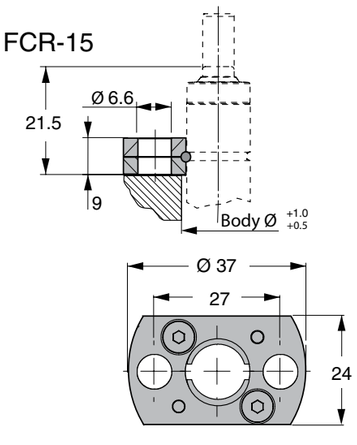
Rod surface .....Nitrided
Tube surface .....Black oxide
Repair Kit.....Non-repairable

Mounting Possibilities



R15 Mounts

FCR-15
Order No: FCR-15



R19

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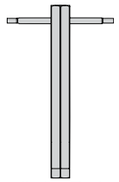


Installation Tool
for threaded sleeve
Order No. 3020618

The R series get their name from the fact their tube is roll formed and therefore permanently closed, making them non-repairable.
R series springs are available with Ø 12, Ø 15, and Ø 19 mm tube diameters and with stroke lengths up to 125 mm. There are 4 color-coded models, whose forces are preset. An adjustable model (black) is also available, that can be ordered to a specific charge pressure or adjusted by customers with the appropriate charging equipment and training.

How to order **R19 - 7 -Yellow**

Model: R19
Stroke Length (mm) (7, 10, 15, 25, 38.1, 50, 63.5, 80, 100, 125)
Force: Green, Blue, Red, Yellow, Black, state desired force in N

Model	Force in N at +20°C	Force in lbf at +20°C	Color	Charging pressure (bar)
	Initial	Initial		
R19	300	67	Green	60
R19	500	112	Blue	100
R19	700	157	Red	140
R19	900	202	Yellow	180
R19 XX *	125-900	67-202	Black	25-180

*Force to be set by the end user. Delivered with a pre-charge of 5-10 bar.

TM sleeve, M24 x 1.5
Order No. 3020615-M24

TI sleeve, UNC 1"- 8
Order No. 3020615-UNC1

S Stroke	End force in N at + 20°C* R19	R19	R19	R19	End force in lbf at + 20°C* R19	R19	R19	R19	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
7	530	880	1200	1600	119	199	270	360	56	49	0.003	0.07	
10	470	780	1100	1400	105	175	247	315	62	52	0.003	0.08	
15	440	730	1000	1300	99	164	225	292	72	57	0.004	0.08	✓
25	420	700	980	1300	94	157	220	292	92	67	0.006	0.08	✓
38.1	410	690	970	1200	92	155	218	270	118.2	80.1	0.009	0.10	✓
50	410	680	960	1200	92	152	216	270	142	92	0.011	0.12	✓
63.5	410	680	950	1200	92	152	214	270	172	108.5	0.014	0.13	✓
80	410	680	950	1200	92	152	214	270	205	125	0.018	0.14	✓
100	410	670	940	1200	92	152	214	270	245	145	0.022	0.17	
125	410	670	940	1200	92	152	214	270	295	170	0.027	0.20	

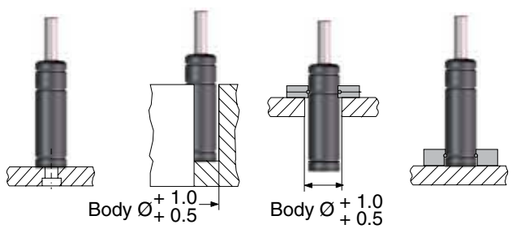
*at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ± 0.3%/°C
Recommended max strokes/min .... ~ 100-150 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... Non-repairable

Mounting Possibilities



Base mount B
only to be used for strokes 7-25 mm

Drop - in

Top mount FCR

Foot mount BF-19
only to be used for strokes 7-25 mm

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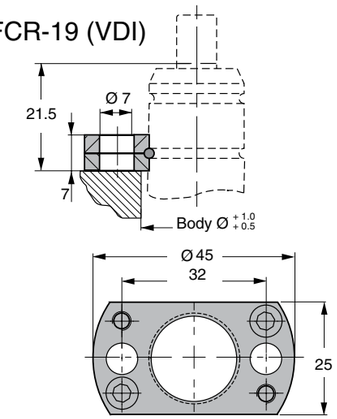
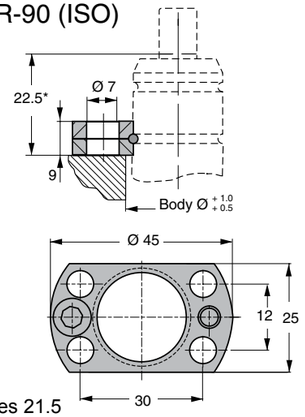
R19 Mounts

FCR-19
Order No: FCR-19 (VDI)

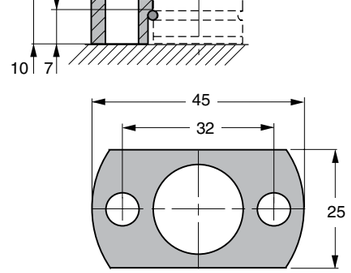


FCR-90
Order No: FCR-90 (ISO)



* **Note!** ISO Specifies 21.5

BF-19
Order No: BF-19



M2

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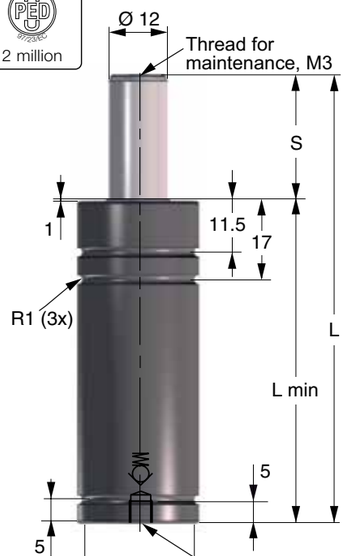


The M2 is available in four preset models, with initial forces from 500 to 2000 N. The body of the spring and the mount are designed to meet the ISO-dimension found in ISO 11901 as well as in VDI 3003. Each spring is color-coded for easy identification of force rating.

We also offer a model with adjustable force (black) that can be customised to meet individual force requirements. The adjustable model may be set to desired pressure when ordered from us or by customers with charging equipment.

The M2 spring can in many cases directly replace mechanical die springs of 25 mm (1 inch) diameter.

All M2 springs can be repaired and recharged. The spring can be attached to the tool, using a mount (FCR or SM). The M6 thread in the base of the spring is used for charging and is also a mounting option.

Model	Force in N at +20°C	Force in lbf at +20°C	Color	Charging pressure (bar)
	Initial	Initial		
M2	500	110	Green	45
M2	1000	225	Blue	90
M2	1500	340	Red	135
M2	2000	450	Yellow	180
M2 XX*	280-2000	63-450	Black	25-180

*Force to be set by the end user. Delivered with a pre-charge of 5-10 bar.

S Stroke	End force in N at + 20°C*				End force in lbf at + 20°C*				L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
	M2	M2	M2	M2	M2	M2	M2	M2					
10	770	1530	2300	3060	173	344	689	689	62	52	0.005	0.14	
12.7	770	1530	2300	3070	173	344	690	690	67.4	54.7	0.006	0.15	
15	770	1540	2310	3070	173	346	690	690	72	57	0.007	0.16	✓
16	770	1540	2310	3070	173	346	690	690	74	58	0.007	0.16	
25	770	1540	2310	3080	173	346	692	692	92	67	0.010	0.18	✓
38.1	770	1540	2320	3090	173	346	695	695	118.2	80.1	0.015	0.20	✓
50	770	1540	2320	3090	173	346	695	695	142	92	0.019	0.22	✓
63.5	760	1520	2270	3020	171	342	679	679	172	108.5	0.024	0.26	✓
80	760	1520	2280	3040	171	342	683	683	205	125	0.029	0.30	✓
100	760	1520	2290	3050	171	342	686	686	245	145	0.036	0.33	✓
125	760	1530	2290	3060	171	344	689	689	295	170	0.044	0.39	✓

*at full stroke

How to order

M2 -10 - Green

Model

Stroke Length (mm)
(10, 12.7, 15, 16, 25, 38.1, 50, 63.5, 80, 100, 125)

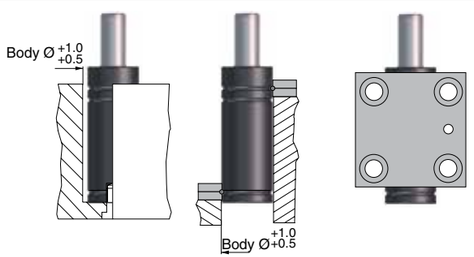
Force:
Green
Blue
Red
Yellow
Black, state desired force in N

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 80-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3016385

Mounting Possibilities



Base mount
Drop - In, B

Top mount
FCR

Body mount
SM-150

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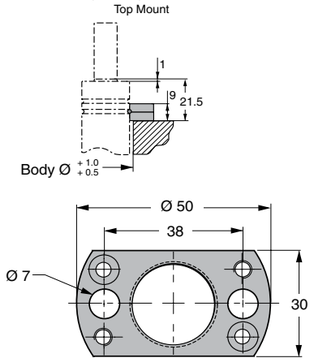
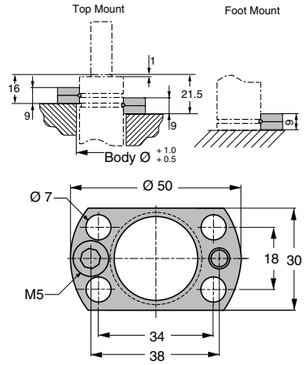
M2 Mounts

FCR-25
Order No: FCR-25 (VDI)

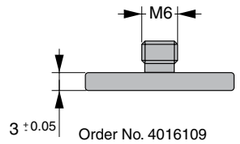


FCR-150
Order No: FCR-150 (ISO)

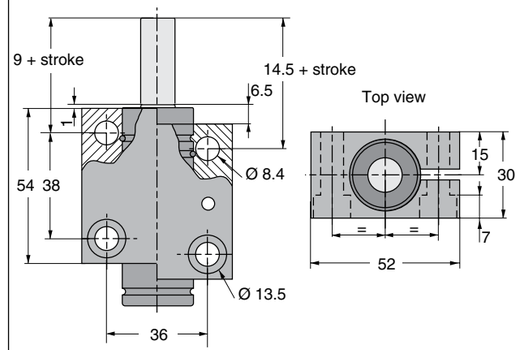


Note! For M2 L and L min are 3 mm shorter for 10 to 50 mm stroke compared to older version of Mini Spring (called M).

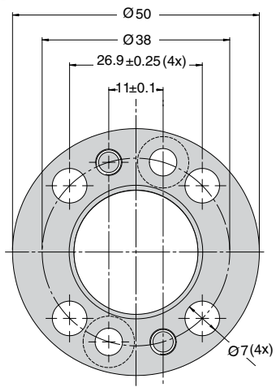
To obtain the correct total length when replacing the older version (M) when using Drop in, or FCR as foot mount, a 3 mm distance should be used (Order No. 4016109, see picture below).



SM-150
Order No: SM-150



FC-150
Order No: FC-150



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MM2

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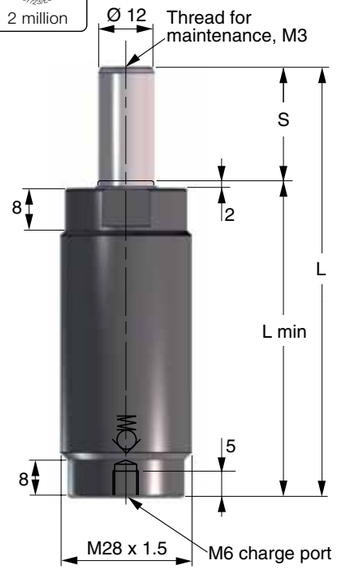
2 million



The MM2 is a version of the M2 spring with a threaded body, (M28 x 1.5). All internal parts and technical data are the same as for M2 springs (with the exception of strokes 63.5 to 125 whose total lenghts are 3 mm shorter). Each spring is color-coded for easy identification of force rating.

We also offer a model with adjustable force (black) that can be customised to meet individual force requirements. The adjustable model may be set to desired pressure when ordered from us or by customers with charging equipment.

All MM2 springs can be repaired and recharged.

For locking the spring in the tool a lock nut is available.

Model	Force in N at +20°C Initial	Force in lbf at +20°C Initial	Color	Charging pressure (bar)
MM2	500	110	Green	45
MM2	1000	225	Blue	90
MM2	1500	340	Red	135
MM2	2000	450	Yellow	180
MM2 XX *	280-2000	63-450	Black	25-180

*Force to be set by the end user. Delivered with a pre-charge of 5-10 bar.

S Stroke	End force in N at + 20°C* MM2	MM2	MM2	MM2	End force in lbf at + 20°C* MM2	MM2	MM2	MM2	L ±0.25	L min	Gas vol. (l)	Weight (kg)
10	770	1530	2300	3060	173	344	517	689	62	52	0.005	0.14
12.7	770	1530	2300	3070	173	344	517	690	67.4	54.7	0.006	0.15
15	770	1540	2310	3070	173	346	519	690	72	57	0.007	0.16
16	770	1540	2310	3070	173	346	519	690	74	58	0.007	0.16
25	770	1540	2310	3080	173	346	519	692	92	67	0.010	0.18
38.1	770	1540	2320	3090	173	346	522	695	118.2	80.1	0.015	0.20
50	770	1540	2320	3090	173	346	522	695	142	92	0.019	0.22
63.5	760	1520	2270	3020	171	342	510	679	169	105.5	0.024	0.26
80	760	1520	2280	3040	171	342	513	683	202	122	0.029	0.30
100	760	1520	2290	3050	171	342	515	686	242	142	0.036	0.33
125	760	1530	2290	3060	171	344	515	689	292	167	0.044	0.39

*at full stroke

How to order

MM2 -10 - Black

Model

Stroke Length (mm)
(10, 12.7, 15, 16, 25, 38.1, 50, 63.5, 80, 100, 125)

Force:
Green
Blue
Red
Yellow
Black, state desired force in N

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 80-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3016385

Mounting Possibilities

Thread mount
FRM

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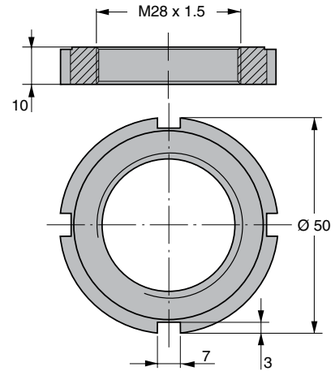
MM2 Mounts

FRM-150
Order No. FRM-150



MC3

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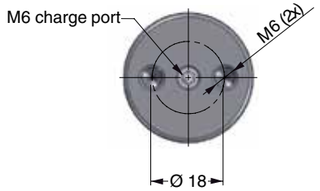


How to order

MC3 -10 - Red

Model

Stroke Length (mm)
(10, 12.7, 16, 25, 38.1, 50, 63.5, 80, 100, 125)

Force:
Green
Blue
Red
Yellow
Black, state desired force in N

The MC3 spring is based on the M2 spring, using the same piston rod and internal components. The body of the spring and the mount are designed to meet the ISO dimension found in ISO 11901 as well as in VDI 3003.

Each spring is color-coded for easy identification of force rating. We also offer a model with adjustable force (black) that can be customized to meet individual force requirements. The adjustable model may be set to the desired pressure when ordered from us or by customers with charging equipment.

The spring can be attached to the tool, using an FC-MC or FFC-MC mount. The M6 thread in the base of the spring is used for charging and is also a mounting option.

Model	Force in N at +20°C	Force in lbf at +20°C	Color	Charging pressure (bar)
	Initial	Initial		
MC3	500	110	Green	45
MC3	1000	225	Blue	90
MC3	1500	340	Red	135
MC3	2000	450	Yellow	180
MC3 *	280-2000	63-450	Black	25-180

*Force to be set by the end user. Delivered with a pre-charge of 5-10 bar.

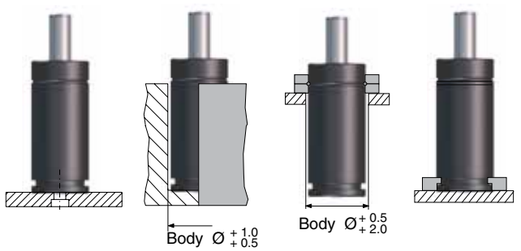
S Stroke	End force in N at + 20°C* MC3	MC3	MC3	MC3	End force in lbf at + 20°C* MC3	MC3	MC3	MC3	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
10	770	1530	2300	3060	173	344	517	688	70	60	0.005	0.30	✓
12.7	770	1530	2300	3070	173	344	517	690	75.4	62.7	0.006	0.31	
16	770	1540	2310	3070	173	340	519	690	82	66	0.007	0.33	✓
25	770	1540	2310	3080	173	340	519	692	100	75	0.010	0.38	✓
38.1	770	1540	2320	3090	173	340	522	695	126.2	88.1	0.015	0.43	
50	770	1540	2320	3090	173	340	522	695	150	100	0.019	0.48	✓
63.5	760	1520	2270	3020	171	342	510	679	177	113.5	0.024	0.54	
80	760	1520	2280	3040	171	342	513	683	210	130	0.029	0.62	✓
100	760	1520	2290	3050	171	342	515	686	250	150	0.036	0.71	
125	760	1530	2290	3060	171	342	515	688	300	175	0.044	0.83	

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 80-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3016385

Mounting Possibilities



Base mount B | **Drop -in** | **Top mount FC-FCS** | **Foot mount FFC-MC**

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We reserve the right to add, delete or modify components without notification.

All dimensions are stated in mm.
All dimensions are nominal unless tolerance is stated.

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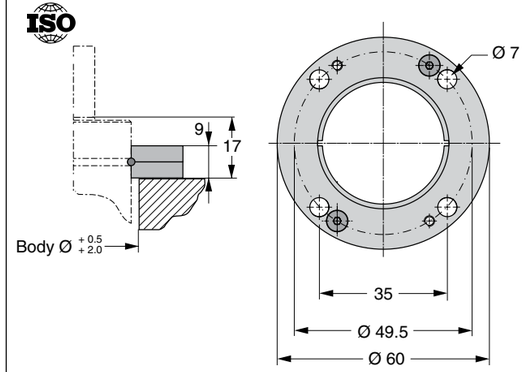
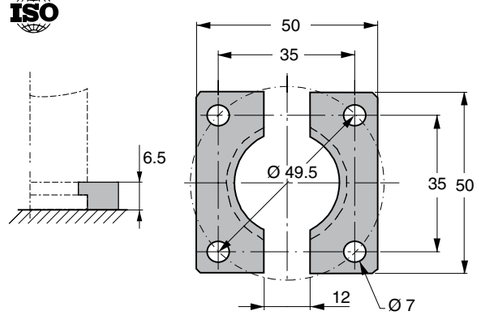
MC3 Mounts

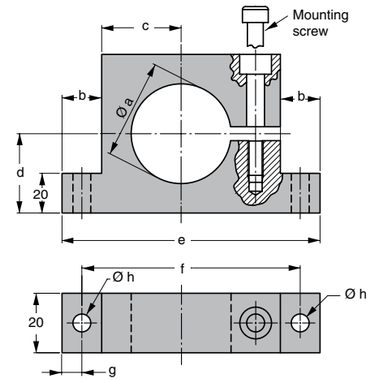
FC-MC-150
Order No. FC-MC-150



FFC-MC-150
Order No. FFC-MC-150

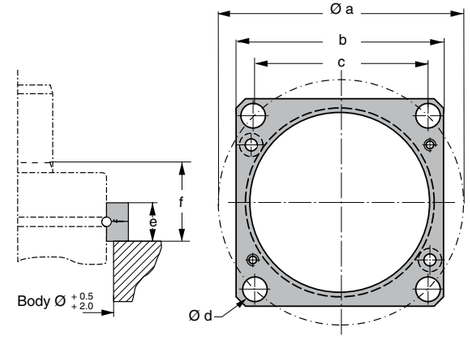


S-MC



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-MC	32.1	18	22	22.5	90	72	9	8.5

FCS-32



Order No.	Ø a	b	c	Ø d	e	f
FCS-32	49.5	45	35	7	9	16

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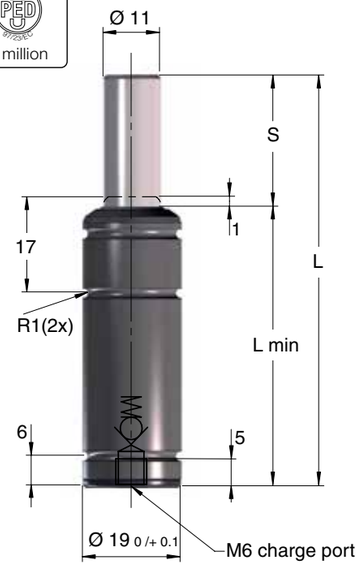
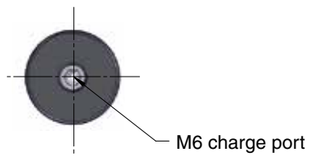
X 170

2 million





The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

The Power Line springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

The X 170 has a bottom port for gas charging that can also be used to connect to a gas link system.

The X 170 has an upper ISO Standard C-groove and a lower C-groove, which together with a threaded bottom hole offer various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 180 bar/+20°C Initial	Force in N at 180 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 170-007	7			44	37	0.002	0.06
X 170-010	10			50	40	0.002	0.06
X 170-015	15			60	45	0.004	0.07
X 170-019	19			68	49	0.005	0.07
X 170-025	25			80	55	0.006	0.08
X 170-038	38	1700	2800	106	68	0.009	0.09
X 170-050	50			130	80	0.012	0.10
X 170-063	63			156	93	0.015	0.12
X 170-075	75			185	110	0.018	0.13
X 170-080	80			195	115	0.019	0.14
X 170-100	100			235	135	0.024	0.16
X 170-125	125			285	160	0.030	0.19

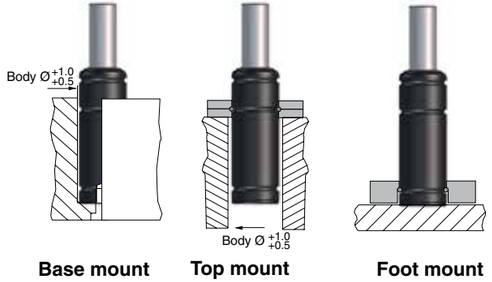
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar (at 20° C)
Min. charging pressure ..... 25 bar (at 20° C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 40-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit ..... Non-repairable

Mounting Possibilities



Base mount
Drop - in, B
only to be used for strokes 7-25 mm

Top mount
FCR

Foot mount
BF-19
only to be used for strokes 7-25 mm

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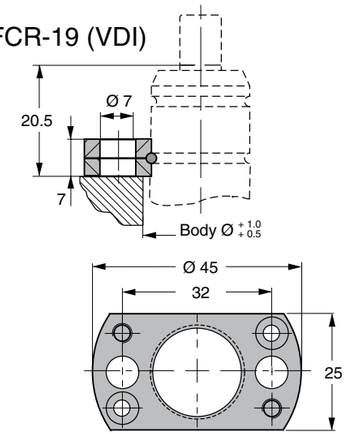
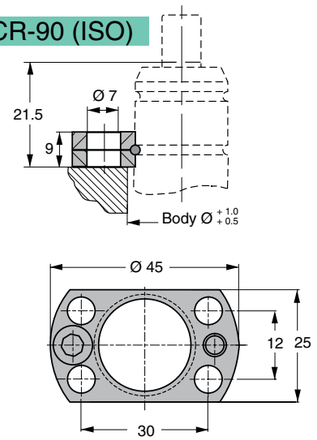
X 170 Mounts

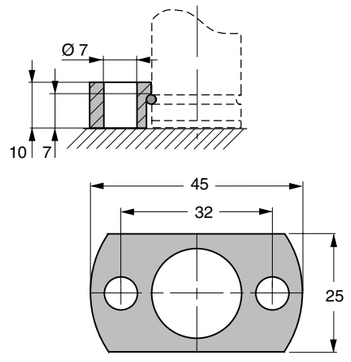
FCR-19
Order No: FCR-19 (VDI)



FCR-90
Order No: FCR-90 (ISO)



BF-19
Order No: BF-19



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MT 16

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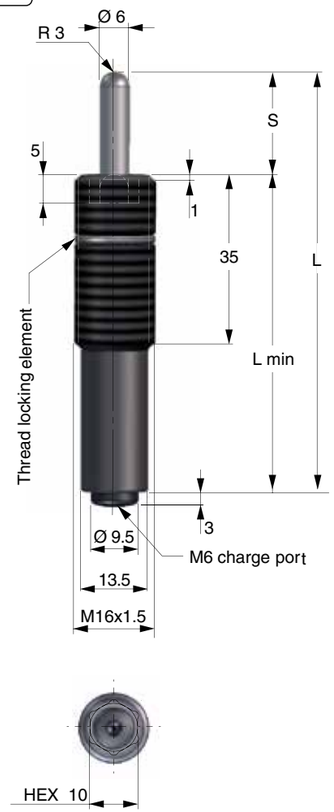
2 million



Mould Temp gas springs have been engineered to withstand higher working temperatures, like those commonly associated with plastic molding tools. Mould Temp gas springs are compact and powerful piston rod sealed gas springs, which can be used at working temperatures up to 120°C.

Features:

- For applications up to 120°C
- Fully adjustable charge pressure
- Various mounting possibilities using our standard mounts as well as bottom threaded holes
- MT 16 and MT 24 have threaded upper cylinders for easy and adjustable mounting
- M6 gas ports that can be connected to the special high temp version of our Micro EO24™ Hose and Tube system for remote pressure control

Max. working temp. interval	Max. strokes per minute (spm)	Max. charge pressure at 20°C (bar)	Force per temperature		
			Spring temp.	Initial force (N)	End force* (N)
0 - 80°C	20	150	80°C (20°C)	510 (420)	810 (670)
80 - 100°C	15	125	100°C (20°C)	450 (355)	720 (570)
100 - 120°C	10	115	120°C (20°C)	435 (325)	700 (520)

Order No.	S Stroke	Initial Force in N at 150 bar/+20°C	Initial Force in lbf at 150 bar/+20°C	L ±0.25	L min	Gas vol. (l)	Weight (kg)
MT 16-010	10	420	95	65	55	0.002	0.06
MT 16-020	20			85	65	0.003	0.07
MT 16-030	30			105	75	0.003	0.07
MT 16-040	40			125	85	0.004	0.08
MT 16-050	50			145	95	0.005	0.09
MT 16-060	60			165	105	0.006	0.10
MT 16-070	70			185	115	0.007	0.11
MT 16-080	80			205	125	0.008	0.11

* = at full stroke

Basic Information

For general information, see “About Gas Springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... See table above
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 - +120°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min. ..... See table above
Max. piston rod velocity ..... 1.0 m/s
Service life (0 to 80°C) ..... 1,000,000 strokes
or ..... 100,000 stroke meters*
Service life (80 to 120°C) ..... 500,000 strokes
or ..... 50,000 stroke meters*

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit ..... Non-repairable

Mounting Possibilities

Thread mount
Lock nut available
M16x1.5 503681

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MT 24

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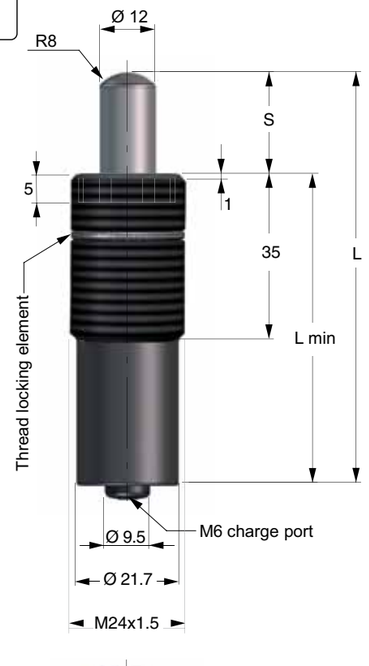
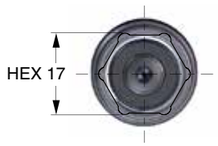
The Safer Choice

2 million





Mould Temp gas springs have been engineered to withstand higher working temperatures, like those commonly associated with plastic moulding tools. Mould Temp gas springs are compact and powerful piston rod sealed gas springs, which can be used at working temperatures up to 120°C.

Features:

- For applications up to 120°C
- Fully adjustable charge pressure
- Various mounting possibilities using our standard mounts as well as bottom threaded holes
- MT 16 and MT 24 have threaded upper cylinders for easy and adjustable mounting
- M6 gas ports can be connected to the special high temp version of our Micro EO24™ Hose and Tube system for remote pressure control

Max. working Temp. Interval	Max strokes per Minute (spm)	Max charge pressure at 20°C (bar)	Force per temperature		
			Spring temp.	Initial force (N)	End force* (N)
0 - 80°C	20	150	80°C (20°C)	2040 (1700)	3250 (2700)
80 - 100°C	15	125	100°C (20°C)	1800 (1415)	2880 (2250)
100 - 120°C	10	115	120°C (20°C)	1750 (1300)	2800 (2080)

Order No.	S Stroke	Initial Force in N at 150 bar/+20°C	L ±0.25	L min	Gas vol. (l)	Weight (kg)
MT 24-010	10	1700	65	55	0.003	0.13
MT 24-020	20		85	65	0.006	0.15
MT 24-030	30		105	75	0.008	0.17
MT 24-040	40		125	85	0.011	0.19
MT 24-050	50		145	95	0.012	0.21
MT 24-060	60		165	105	0.014	0.23
MT 24-070	70		185	115	0.017	0.25
MT 24-080	80		205	125	0.019	0.27

* = at full stroke

Basic Information

For general information, see “About Gas Springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... See table above
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 – +120°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min. ..... See table above
Max. piston rod velocity ..... 1.0 m/s
Service life (0 to 80°C) ..... 1,000,000 strokes
or ..... 100,000 stroke meters*
Service life (80 to 120°C) ..... 500,000 strokes
or ..... 50,000 stroke meters*

Rod & tube surface ..... Nitrided
Repair kit ..... Non-repairable

Mounting Possibilities

Thread mount
Lock nut available
M24x1.5 503928

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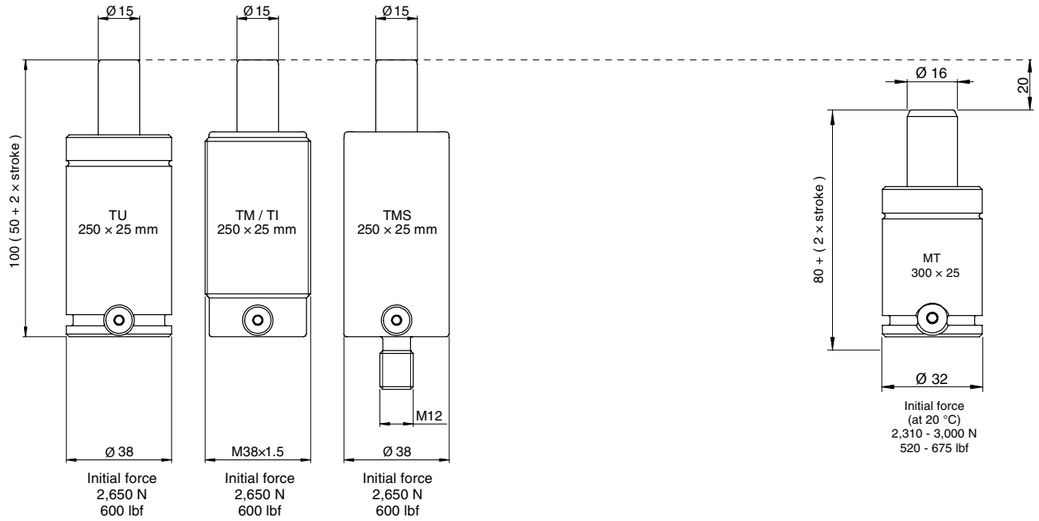
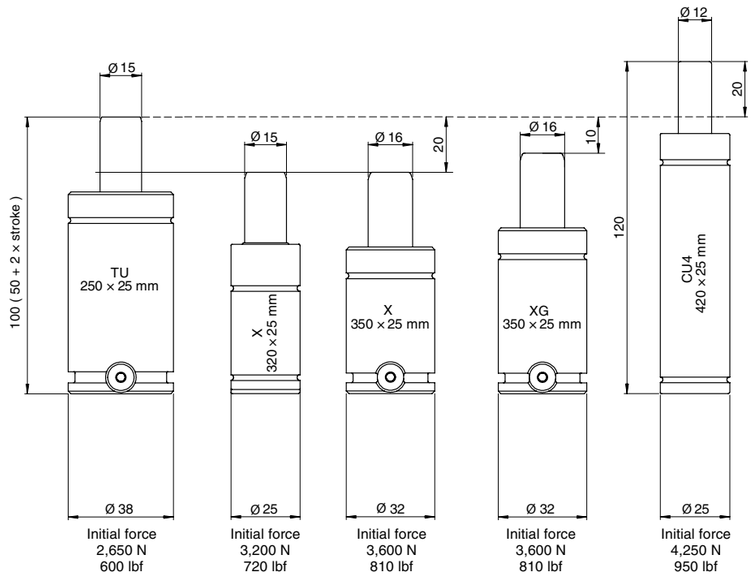
Overview - 2500 ≤ F_{INIT} < 5000



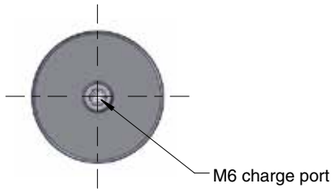


2500 ≤ F_{INIT} < 5000

CU4 420

2 million

This is the smallest member of the CU4 family. As with the rest of the CU4 springs it has a very high force compared to its outer diameter.



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
CU 420-006	6	4250	7000	56	50	0.003	0.13
CU 420-010	10		6900	70	60	0.005	0.15
CU 420-016	16		6900	91	75	0.008	0.18
CU 420-025	25		6900	120	95	0.011	0.22
CU 420-032	32		7600	140	108	0.021	0.24
CU 420-040	40		7600	165	125	0.026	0.27
CU 420-050	50		7600	195	145	0.032	0.31

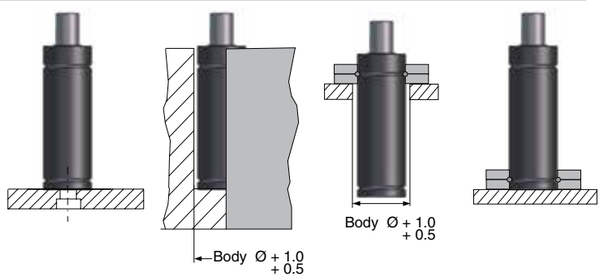
* = at full stroke

Basic Information

For general information, see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature..... 0 to +80°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min.... 50 ~ 100 (at 20°C)
Max. piston rod velocity..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit..... Non-repairable

Mounting Possibilities



Base mount B
only to be used for strokes 7-25 mm

Drop - in

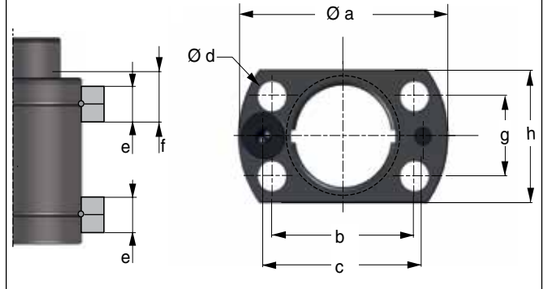
Top mount FCR, FC

Foot mount FCR

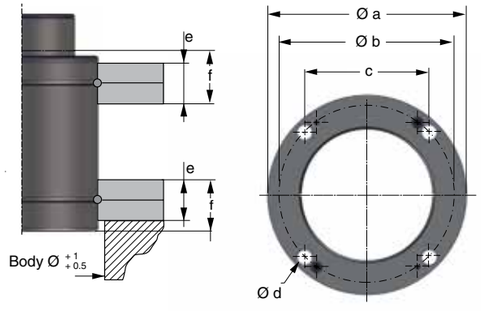
CU4 420 Mounts

FCR-150

Order No: FCR-150



FC



X 320

2 million

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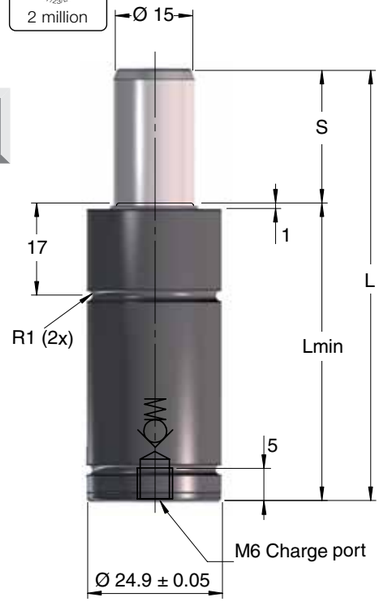
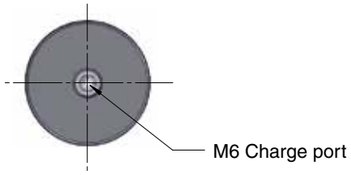
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

The Power Line springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

The X 320 has a bottom port for gas charging that can also be used to connect to a gas link system.

The X 320 has an upper ISO Standard C-groove that together with a threaded bottom hole offers various mounting possibilities using our standard mounts.





Order No.	S Stroke	Force in N at 180 bar/+20°C Initial	Force in N at 180 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 320-007	7	3200	4800	44	37	0.004	0.10
X 320-010	10		4900	50	40	0.005	0.11
X 320-015	15		5100	60	45	0.007	0.12
X 320-019	19		5100	68	49	0.009	0.13
X 320-025	25		5200	80	55	0.011	0.14
X 320-038	38**		5300	106	68	0.017	0.16
X 320-050	50**		5300	130	80	0.022	0.18
X 320-063	63**		5300	156	93	0.028	0.21
X 320-075	75**		5300	185	110	0.034	0.24
X 320-080	80**		5300	195	115	0.036	0.25
X 320-100	100**		5300	235	135	0.044	0.29
X 320-125	125**		5300	285	160	0.055	0.33

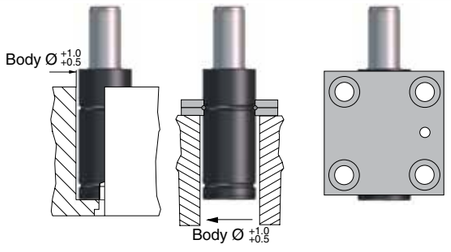
*= at full stroke.

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar (at 20° C)
Min. charging pressure ..... 25 bar (at 20° C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 40-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit ..... Non-repairable

Mounting Possibilities



Base mount
Drop - in, B
only to be used for strokes 7-25

Top mount
FCR, FC

Body mount
SM

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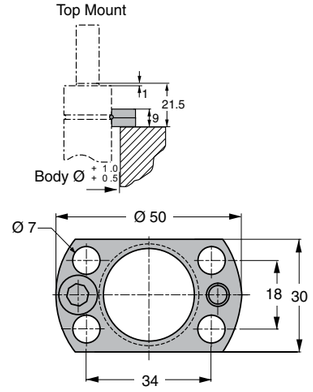
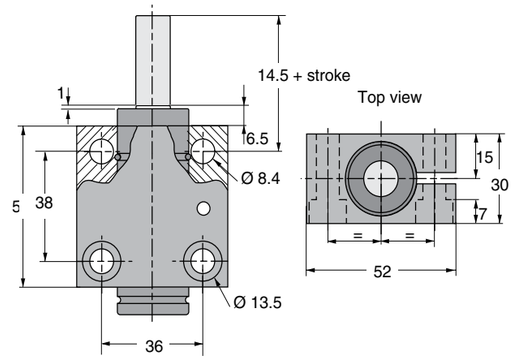
X 320 Mounts

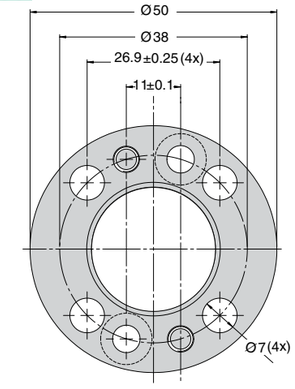
FCR
Order No: FCR-150



SM
Order No: SM-150



FC-150
Order No: FC-150



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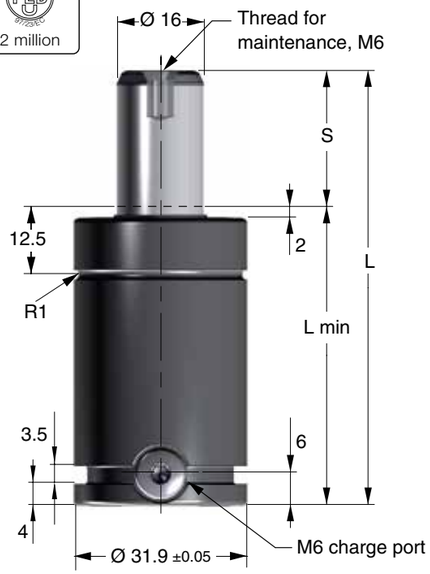
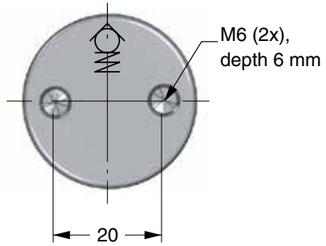
X 350

2 million





The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a gas link system.

An upper C-groove, lower U-groove together with two M6 threaded holes allow various mounting possibilities using our standard mounts.

F	Order No.	S Stroke	Force in N at 180 bar/+20°C Initial	Force in N at 180 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
	X 350-010	10	3600	5900	50	40	0.01	0.17
	X 350-013	13		5200	56	43	0.01	0.18
	X 350-016	16		5300	62	46	0.01	0.19
	X 350-019	19		5600	68	49	0.01	0.20
	X 350-025	25		5500	80	55	0.02	0.22
	X 350-032	32		5500	94	62	0.02	0.24
	X 350-038	38		5500	106	68	0.03	0.26
	X 350-050	50		5600	130	80	0.03	0.29
	X 350-063	63		5500	156	93	0.04	0.33
	X 350-075	75		5500	180	105	0.05	0.37
	X 350-080	80		5500	190	110	0.05	0.39
	X 350-100	100		5500	230	130	0.06	0.45
	X 350-125	125		5500	280	155	0.08	0.53

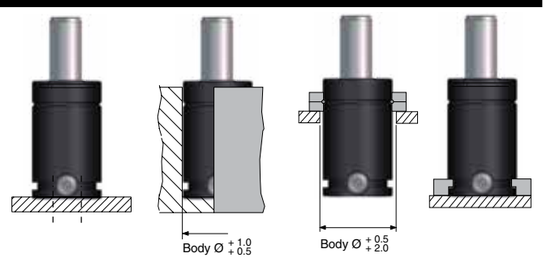
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018845

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount FFC**

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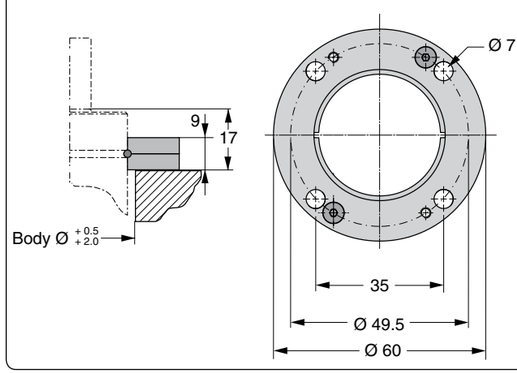
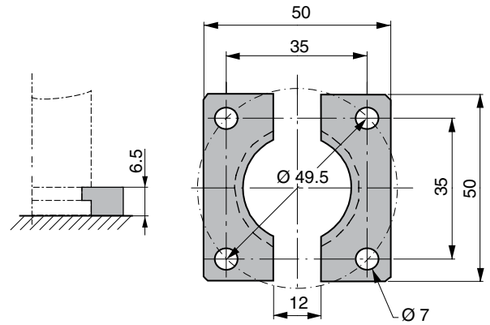
X 350 Mounts

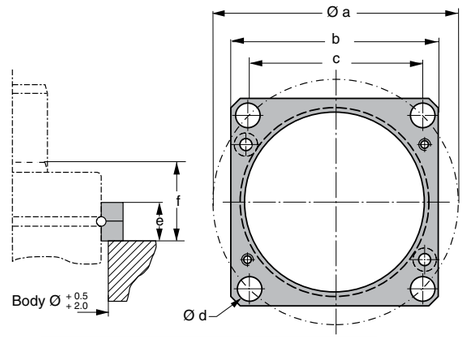
FC
Order No. FC-MC-150



FFC
Order No. FFC-MC-150



FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-32	49.5	45	35	7	9	17

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XG 350

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The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3,500 N up to 66,000 N and stroke lengths between 10 and 125 mm.

There is a side and a bottom port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M6 threaded holes allow various mounting possibilities using our standard mounts.

Valve Plug
Installation Tool,
XG 350 - XG 750
Order No. 3022974

Order No.	S Stroke	Force in N at 180 bar/+20°C Initial	Force in N at 180 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 350-010	10		5900	60	50	0.01	0.23
XG 350-013	13		5200	66	53	0.01	0.23
XG 350-016	16		5300	72	56	0.01	0.24
XG 350-019	19		5600	78	59	0.01	0.25
XG 350-025	25		5500	90	65	0.02	0.27
XG 350-032	32		5500	104	72	0.02	0.29
XG 350-038	38	3600	5500	116	78	0.03	0.31
XG 350-050	50		5600	140	90	0.03	0.35
XG 350-063	63		5500	166	103	0.04	0.39
XG 350-075	75		5500	190	115	0.05	0.43
XG 350-080	80		5500	200	120	0.05	0.44
XG 350-100	100		5500	240	140	0.06	0.50
XG 350-125	125		5500	290	165	0.08	0.58

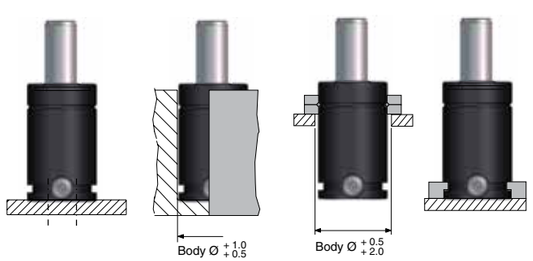
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 180 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018845

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount FFC**

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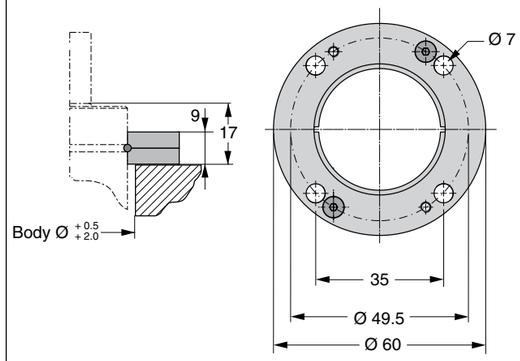
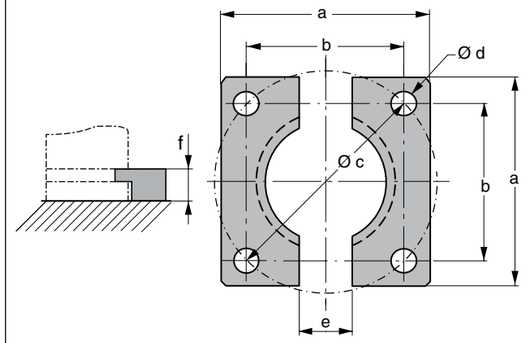
XG 350 Mounts

FC
Order No. FC-MC-150

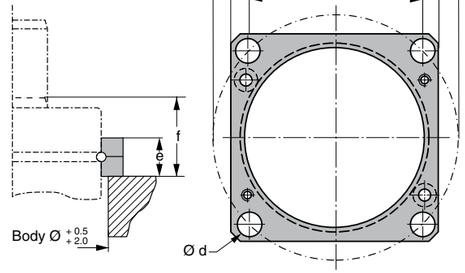


FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-XG-350	55	40	56.6	7	18	6.5

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-32	49.5	45	35	7	9	17

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TU 250

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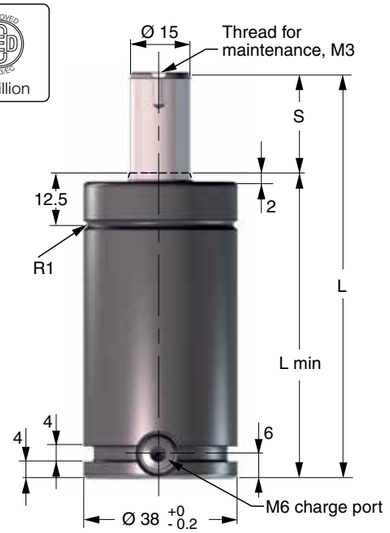
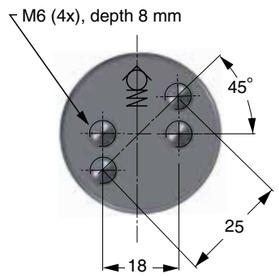




The TU line constitutes our standard line of gas springs. Sizes 250 to 10000 conform to the ISO 11901 gas spring standard as well as VDI 3003.

The total length L is 50 mm + (2 × stroke).

Order No.	S Stroke	Force in Nat 150 bar/+20°C Initial	Force in Nat 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO 11901
TU 250-010	10	2650	3500	70	60	0.011	0.40	√
TU 250-013	12.7		3500	75.4	62.7	0.013	0.42	
TU 250-016	16		3500	82	66	0.016	0.43	√
TU 250-025	25		3500	100	75	0.023	0.48	√
TU 250-038	38.1		3500	126.2	88.1	0.032	0.54	
TU 250-050	50		3500	150	100	0.041	0.60	√
TU 250-064	63.5		3500	177	113.5	0.051	0.67	
TU 250-080	80		3500	210	130	0.062	0.75	√
TU 250-100	100		3500	250	150	0.077	0.85	
TU 250-125	125		3500	300	175	0.096	0.97	

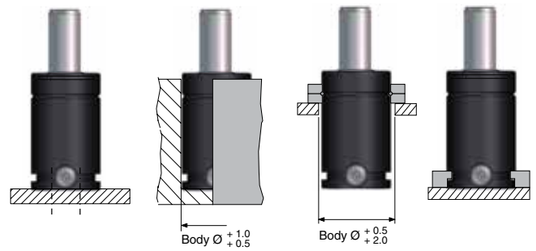
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 50 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 80-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3016873

Mounting Possibilities



Base mount B | **Drop -in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note! For dimensions on mounting possibilities K-250 refer to Chapter 3.

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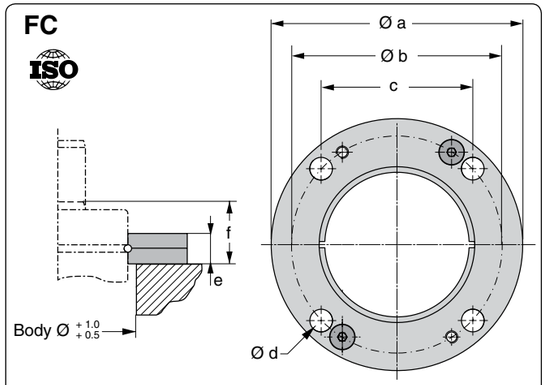
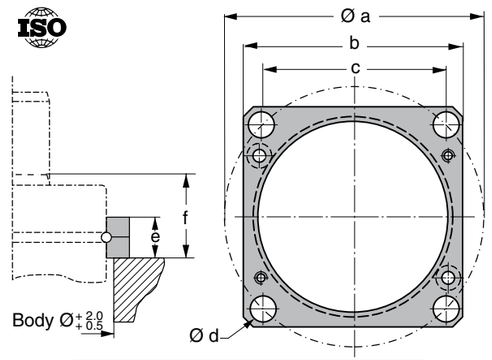
TU 250 Mounts

FC



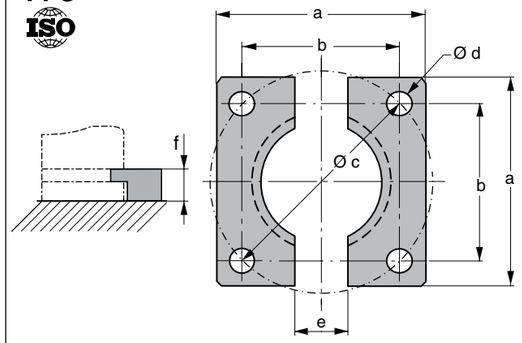
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-250	68	56.5	40	7	9	17

FCS



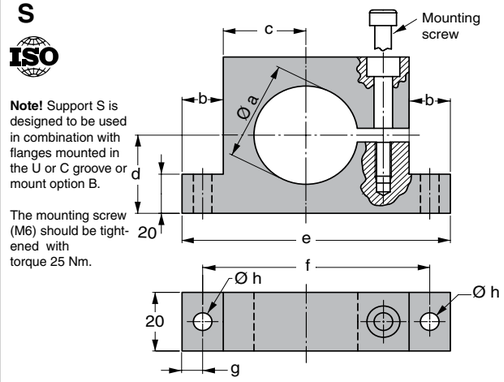
Order No.	Ø a	b	c	Ø d	e	f
FCS-250	56.5	52	40	7	9	17

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-250	55	40	56.6	7	12	6.5

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mount option B.

The mounting screw (M6) should be tightened with torque 25 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-250	38.1	18	24	27.5	95	77	8	9

Note! For dimensions on mounting possibilities K-250 refer to Chapter 3.

TM/TI 250

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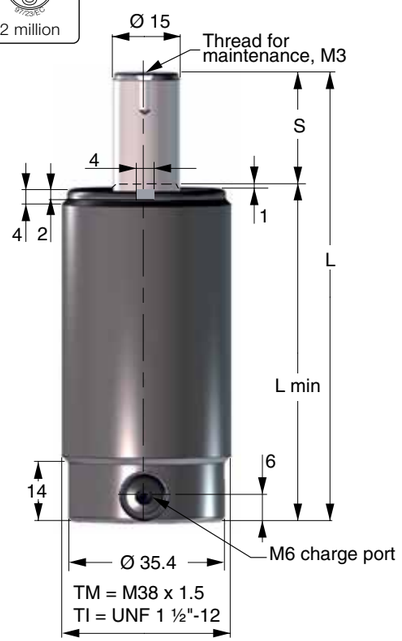
2 million



The TM and TI are threaded body 250 springs with the same length as the TU 250.

The TM spring has an M38 × 1.5 metric thread.

The TI spring has a UNF 1½-12 inch thread.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TM/TI 250-013	12.7	2650	3400	75.4	62.7	0.015	0.37
TM/TI 250-025	25		3400	100	75	0.024	0.42
TM/TI 250-038	38.1		3400	126.2	88.1	0.033	0.47
TM/TI 250-050	50		3400	150	100	0.042	0.52
TM/TI 250-064	63.5		3500	177	113.5	0.052	0.57
TM/TI 250-080	80		3500	210	130	0.063	0.64
TM/TI 250-100	100		3500	250	150	0.078	0.72

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 50 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 80-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 2013691-0250

Mounting Possibilities

Lock nut
FRM, FRI

Top mount
FTM

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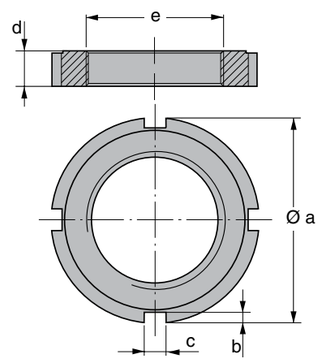
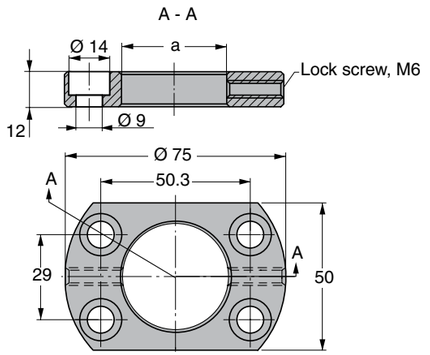
TM/TI 250 Mounts

FRM/FRI



Order No.	Ø a	b	c	d	e
FRM-250	58	3.5	8	11	M38 x 1.5
FRI-250	58	3.5	8	11	UNF 1 ½-12

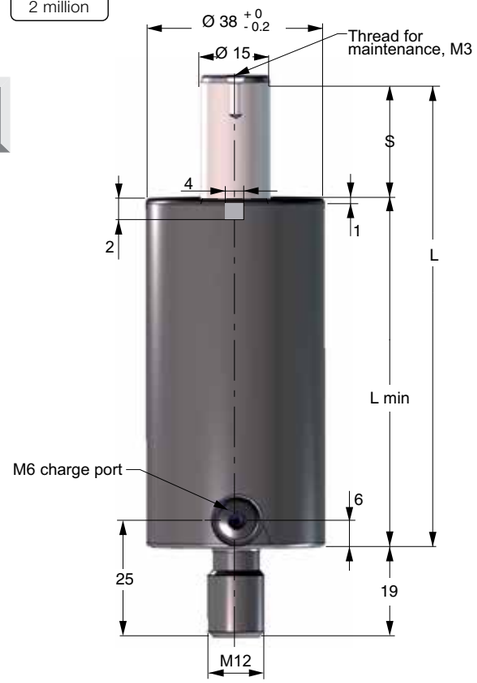
FTM



Order No.	a
FTM-250	M38 x 1.5

TMS 250

2 million



The TMS are 250 springs equipped with a threaded stud for mounting.

The TMS (Tube Metric Stud) has a M12 thread.

It has the same basic length as the TU 250 spring.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TMS 250-013	12.7	2650	3400	75.4	62.7	0015	0.45
TMS 250-025	25		3400	100	75	0.024	0.50
TMS 250-038	38.1		3400	126.2	88.1	0.033	0.55
TMS 250-050	50		3400	150	100	0.042	0.60
TMS 250-064	63.5		3500	177	113.5	0.052	0.65
TMS 250-080	80		3500	210	130	0.063	0.70
TMS 250-100	100		3500	250	150	0.078	0.80

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 50 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 80-100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 2013691-0250

Mounting Possibilities

Thread mount

Notes

MT 300

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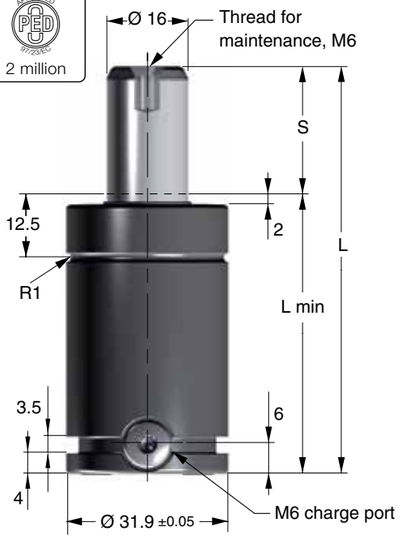
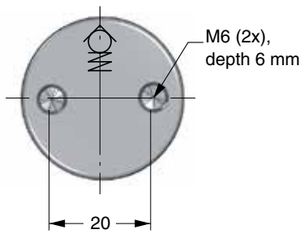




Mould Temp gas springs have been engineered to withstand higher working temperatures, like those commonly associated with plastic molding tools. Mould Temp gas springs are compact and powerful piston rod sealed gas springs, which can be used at working temperatures up to 120°C.

Features:

- For applications up to 120°C
- Fully adjustable charge pressure
- Various mounting possibilities using our standard mounts as well as bottom threaded holes
- M6 gas ports can be connected to the special high temp version of our Micro EO24™ Hose and Tube system for remote pressure control

Max. working temp. interval	Max. strokes per minute (spm)	Max. charge pressure at 20°C (bar)	Force per temperature		
			Spring temp.	Initial force (N)	End force* (N)
0 – 80°C	20	150	80°C (20°C)	3,630 (3,000)	5,550 (4,600)
80 – 100°C	15	125	100°C (20°C)	3,200 (2,510)	4,900 (3,850)
100 – 120°C	10	115	120°C (20°C)	3,100 (2,310)	4,750 (3,540)

* = at full stroke

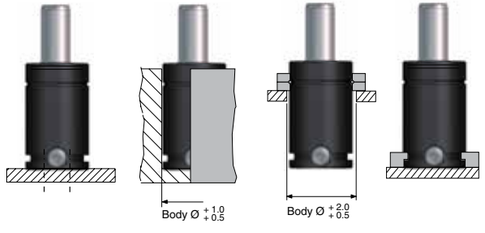
Order No.	S Stroke	Initial Force in N at 150 bar/+20°C	L ±0.25	L min	Gas vol. (l)	Weight (kg)
MT 300-010	10	3000	50	40	0.01	0.17
MT 300-013	13		56	43	0.01	0.17
MT 300-016	16		62	46	0.01	0.19
MT 300-019	19		68	49	0.01	0.20
MT 300-025	25		80	55	0.02	0.21
MT 300-032	32		94	62	0.02	0.23
MT 300-038	38		106	68	0.03	0.25
MT 300-050	50		130	80	0.03	0.29
MT 300-063	63		156	93	0.04	0.33
MT 300-075	75		180	105	0.05	0.36
MT 300-080	80		190	110	0.05	0.38

Basic Information

For general information, see “About Gas Springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... See table above
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 – +120°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min. ..... See table above
Max. piston rod velocity ..... 1.0 m/s
Service life (0 to 80°C) ..... 1,000,000 strokes
or ..... 100,000 stroke meters*
Service life (80 to 120°C) ..... 500,000 strokes
or ..... 50,000 stroke meters*

Rod & tube surface ..... Nitrided
Repair kit 3022687

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount FFC, MC**

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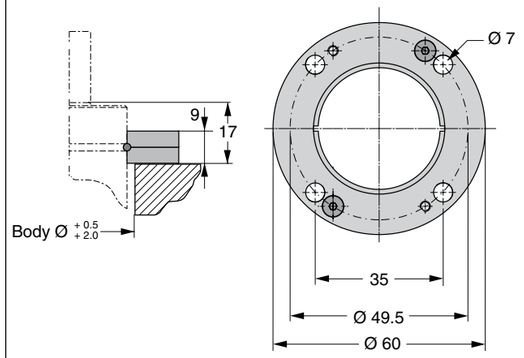
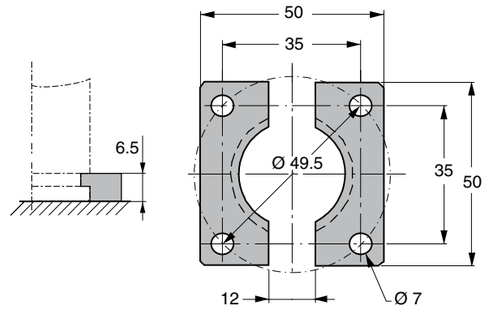
MT 300 Mounts

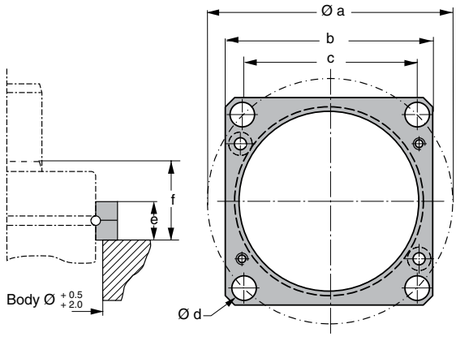
FC
Order No. FC-MC-150



FFC
Order No. FFC-MC-150

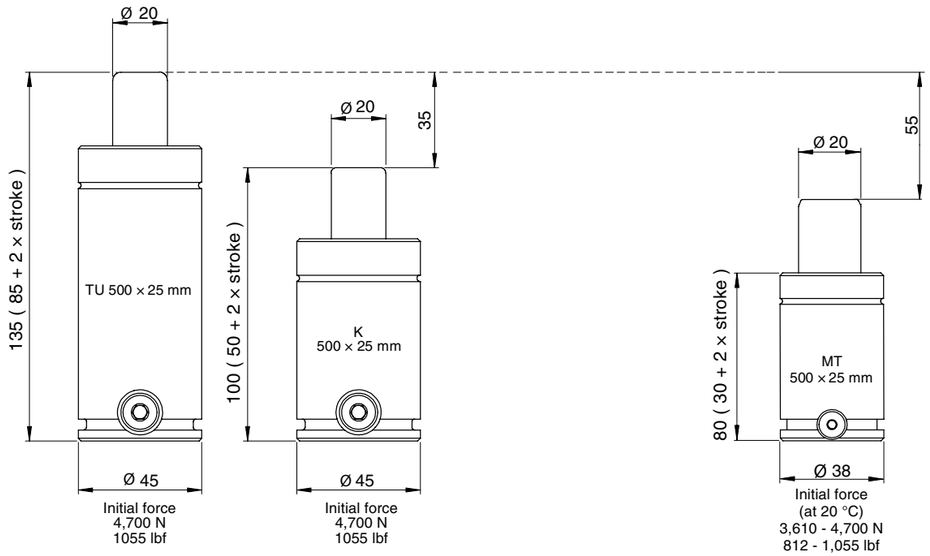


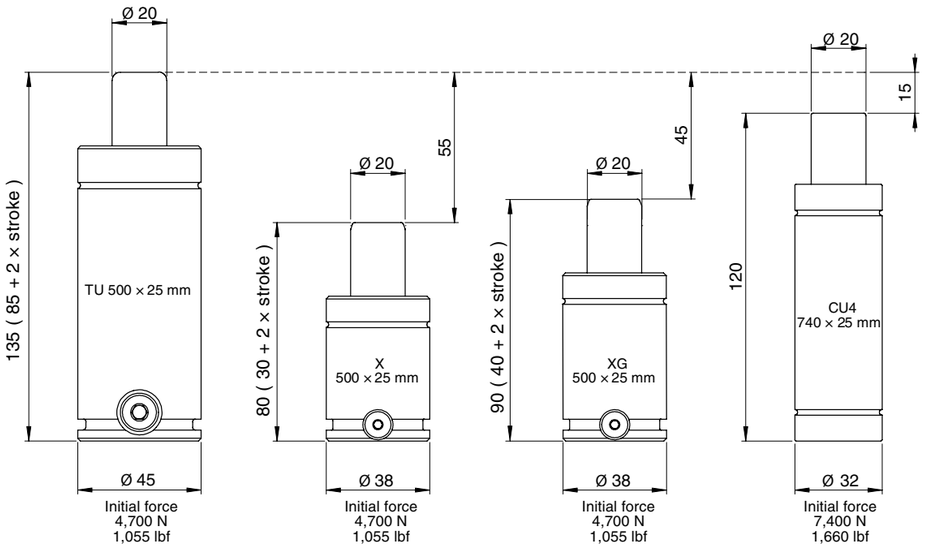
FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-32	49.5	45	35	7	9	17

Overview - 5000 ≤ F_{INIT} < 7500





5000 ≤ F_{INIT} < 7500

CU4 740

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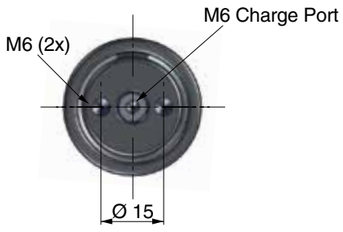


The CU4 gas springs are a very compact Bore Sealed gas springs, offering impressive force in a compact body.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU4 740-006	6		10,000		2,200	63	57	0.012	0.20
CU4 740-010	10		10,000		2,250	75	65	0.017	0.24
CU4 740-016	16		11,000		2,475	93	77	0.024	0.28
CU4 740-025	25	7,400	12,000	1,660	2,700	120	95	0.034	0.33
CU4 740-032	32*		12,000		2,700	140	108	0.042	0.37
CU4 740-040	40*		12,000		2,700	165	125	0.052	0.42
CU4 740-050	50*		12,000		2,700	195	145	0.063	0.48

* = Should always be attached to the tool using the tapped holes in the bottom or a flange

** = at full stroke

Basic Information

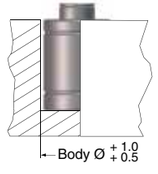
For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20° C)
Min. charging pressure ..... 25 bar (at 20° C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50-100 (at 20°C)
Max piston rod velocity ..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit ..... Non-repairable

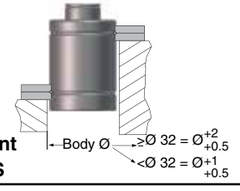
Mounting Possibilities

Base mount B

Drop-in



Top mount FC, FCS



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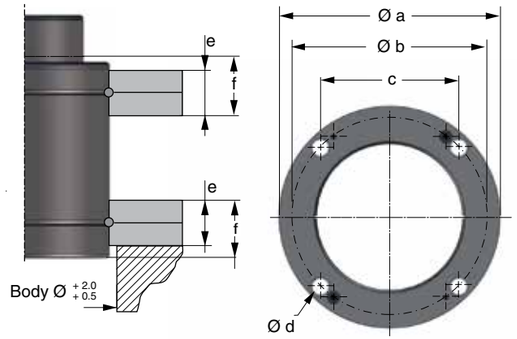
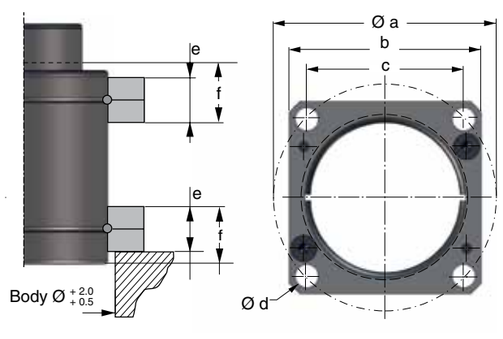
CU4 740 Mounts

FC



For model	Order No.	Ø a	Ø b	c	Ø d	e	f
CU4 740	FC-MC-150	60	49.5	35	7	9	16

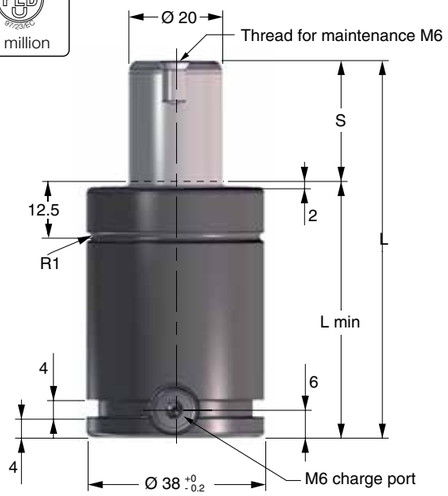
FCS

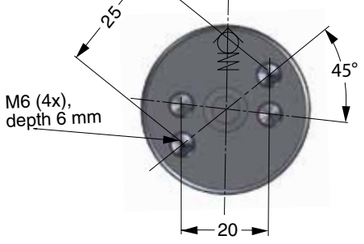


Order No.	Ø a	b	c	Ø d	e	f
FCS-32	49.5	45	35	7	9	16

X 500

2 million





The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M6 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in Nat 150 bar/+20°C Initial	Force in Nat 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 500-010	10	4700	7200	50	40	0.01	0.25
X 500-013	13		7100	56	43	0.01	0.26
X 500-016	16		7200	62	46	0.02	0.27
X 500-019	19		7400	68	49	0.02	0.29
X 500-025	25		7300	80	55	0.03	0.31
X 500-032	32		7200	94	62	0.03	0.34
X 500-038	38		7200	106	68	0.04	0.36
X 500-050	50		7200	130	80	0.05	0.41
X 500-063	63		7200	156	93	0.06	0.46
X 500-075	75		7100	180	105	0.07	0.50
X 500-080	80		7100	190	110	0.08	0.52
X 500-100	100		7100	230	130	0.10	0.60
X 500-125	125		7100	280	155	0.12	0.69

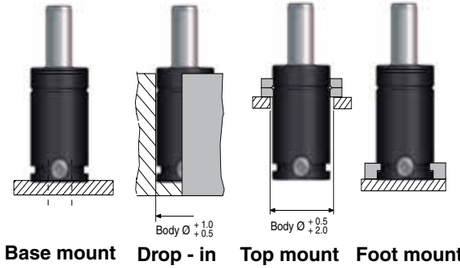
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018846

Mounting Possibilities

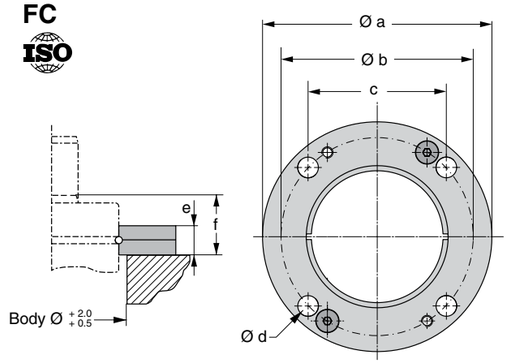


Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

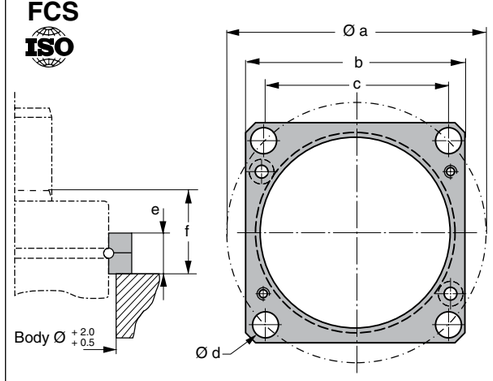
X 500 Mounts

FC



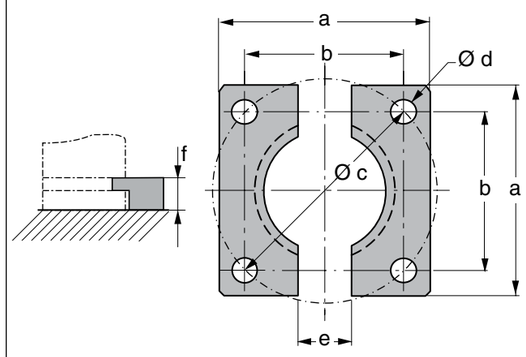
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-250	68	56.5	40	7	9	17

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-250	56.5	52	40	7	9	17

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-250	55	40	56.6	7	12	6.5

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

XG 500

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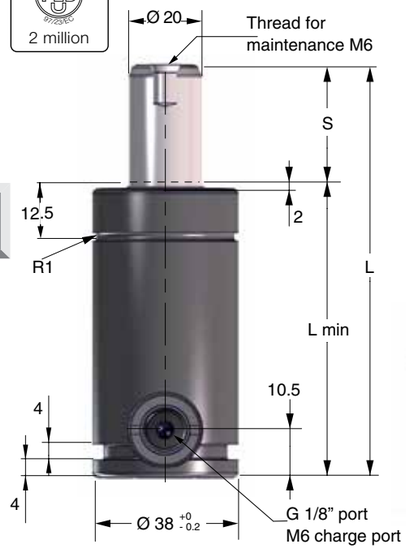


Valve Plug
Installation Tool,
XG 350 - XG 750
Order No. 3022974

The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3500 N up to 66000 N and stroke lengths between 10 and 125 mm.

There is a side port for gas charging that also can be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M6 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in Nat 150 bar/+20°C Initial	Force in Nat 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 500-010	10		7200	60	50	0.01	0.33
XG 500-013	13		7100	66	53	0.01	0.34
XG 500-016	16		7200	72	56	0.02	0.36
XG 500-019	19		7400	78	59	0.02	0.37
XG 500-025	25		7300	90	65	0.03	0.39
XG 500-032	32		7200	104	72	0.03	0.42
XG 500-038	38	4700	7200	116	78	0.04	0.44
XG 500-050	50		7200	140	90	0.05	0.49
XG 500-063	63		7200	166	103	0.06	0.54
XG 500-075	75		7100	190	115	0.07	0.58
XG 500-080	80		7100	200	120	0.08	0.60
XG 500-100	100		7100	240	140	0.10	0.68
XG 500-125	125		7100	290	165	0.12	0.77

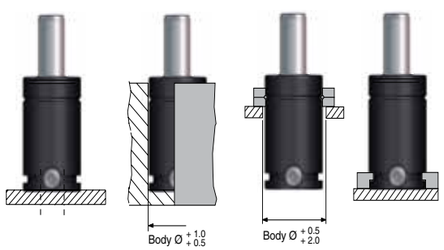
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018846

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount K, FFC**

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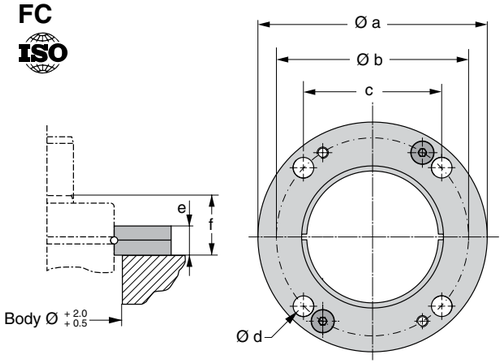
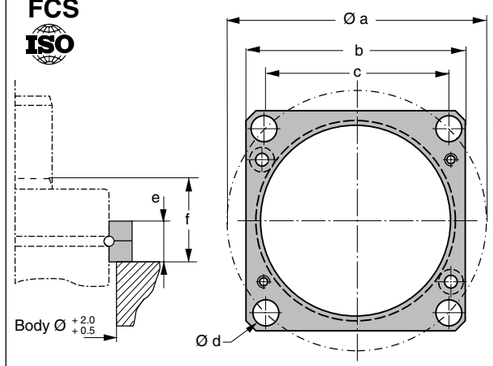
XG 500 Mounts

FC



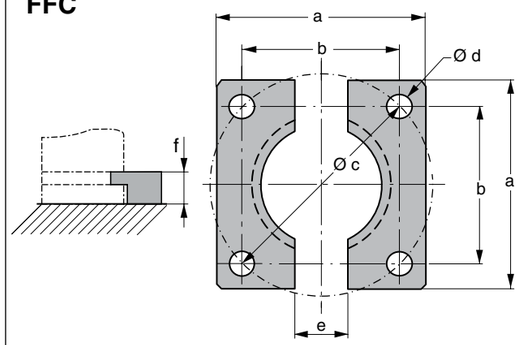
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-250	68	56.5	40	7	9	17

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-250	56.5	52	40	7	9	17

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-XG-500	55	40	56.6	7	19	6.5

Note! For dimensions on mounting possibility K refer to Chapter 3.

K 500

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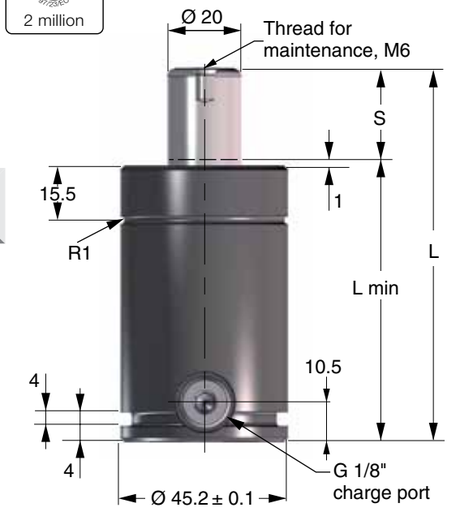
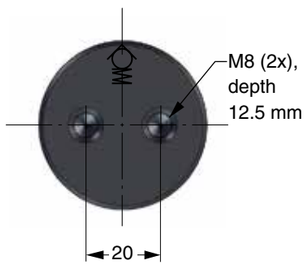




This is a short height hoseable spring with an initial force of 4,700 N.

The K 500 has a total length of 50 mm + (2 × stroke). This spring is 35 mm shorter than the TU 500. Mounting options are the same as for the TU 500.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
K 500-006	6	4700	5600	62	56	0.02	0.50
K 500-013	12.7		5900	75.4	62.7	0.03	0.54
K 500-019	19		6100	88.1	69.05	0.04	0.59
K 500-025	25		6100	100	75	0.04	0.62
K 500-038	38.1		6200	126.2	88.1	0.06	0.71
K 500-050	50		6300	150	100	0.07	0.78
K 500-064	63.5		6300	177	113.5	0.09	0.88
K 500-080	80		6600	210	130	0.11	0.98
K 500-100	100		6600	250	150	0.12	1.12
K 500-125	125		6600	300	175	0.15	1.28

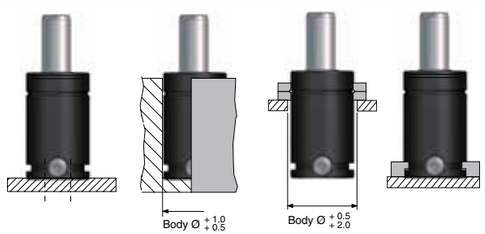
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3t 20°C)
Recommended max strokes/min ... ~ 40 - 80 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3017230-0500

Mounting Possibilities



Base mount B, MP | **Drop -in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

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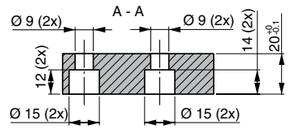
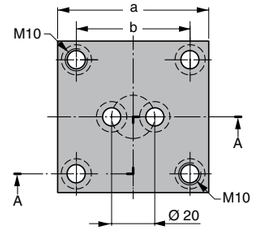
K 500 Mounts

MP

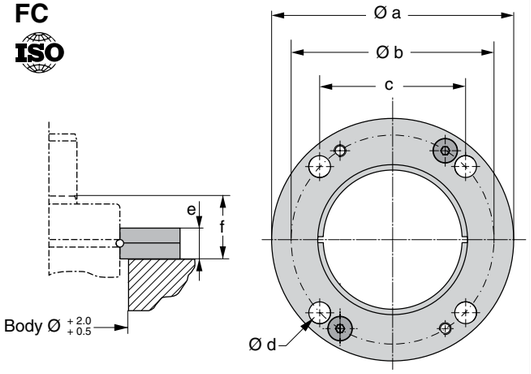


Note! Comes complete with screws to mount gas spring.



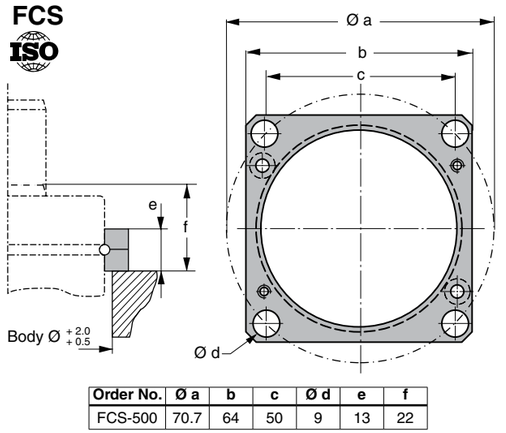
Order No.	a	b
MP-500	70	50

FC



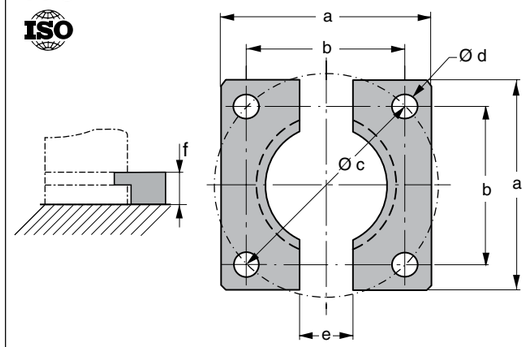
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-500	86	70.7	50	9	13	22

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-500	70.7	64	50	9	13	22

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-500	70	50	70.7	9	20	6.5

Note! For dimensions on mounting possibilitie K-500 refer to Chapter 3.

4

TU 500

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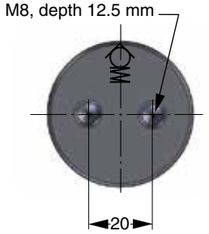
M8, depth 12.5 mm



The TU line constitutes our standard line of gas springs. Sizes 250 to 10000 conform to the ISO 11901 gas spring standard.

The TU 500 has a total length of 85 mm + (2 × stroke).

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO 11901
TU 500-010	10	4700	6000	105	95	0.023	0.93	
TU 500-013	12.7		6100	110.4	97.7	0.025	0.95	
TU 500-025	25		6400	135	110	0.038	1.04	√
TU 500-038	38.1		6500	161.2	123.1	0.051	1.13	
TU 500-050	50		6600	185	135	0.063	1.21	√
TU 500-064	63.5		6600	212	148.5	0.077	1.31	
TU 500-080	80		6700	245	165	0.093	1.43	√
TU 500-100	100		6700	285	185	0.114	1.57	
TU 500-125	125		6700	335	210	0.139	1.74	
TU 500-160	160		6700	405	245	0.175	1.99	

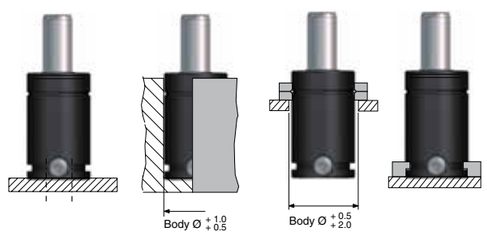
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 40-80 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 2013691

Mounting Possibilities



Base mount B, MP | **Drop -in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

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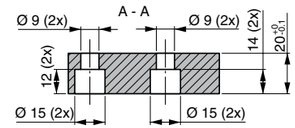
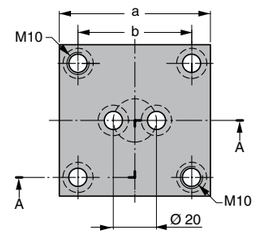
TU 500 Mounts

MP

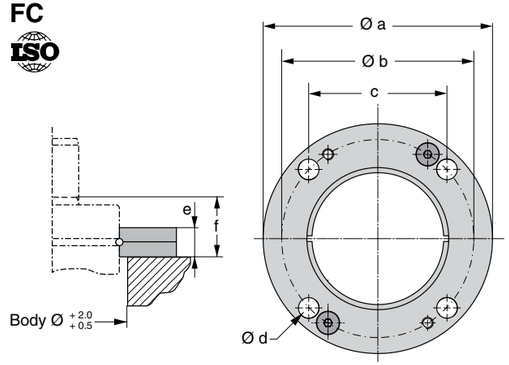


Note! Comes complete with screws to mount gas spring.



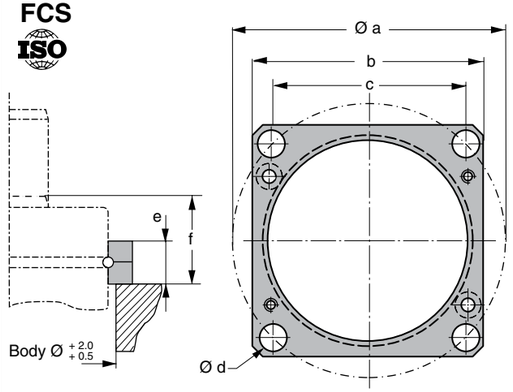
Order No.	a	b
MP-500	70	50

FC



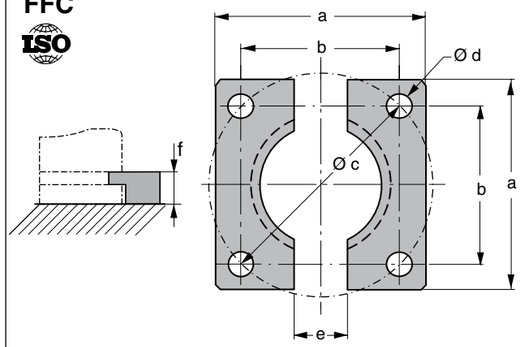
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-500	86	70.7	50	9	13	23

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-500	70.7	64	50	9	13	23

FFC



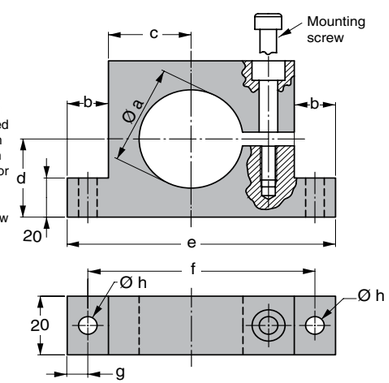
Order No.	a	b	Ø c	Ø d	e	f
FFC-500	70	50	70.7	9	20	6.5

Note! For dimensions on mounting possibilitiy K-500 refer to Chapter 3.

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mount option B.

The mounting screw (M8) should be tightened with torque 25 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-500	45.4	17	29	30	100	82	9	9

MT 500

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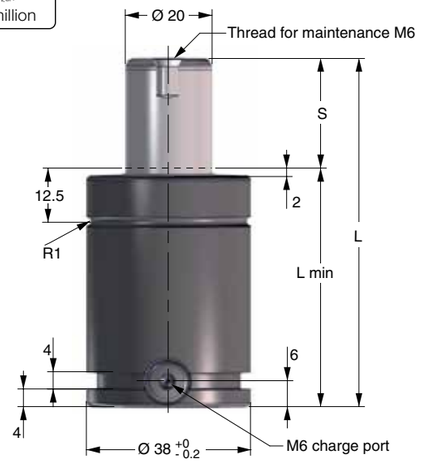
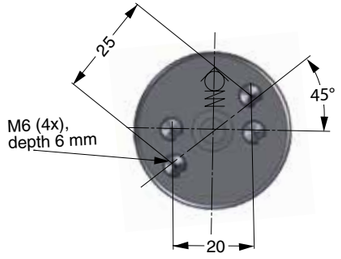
2 million





Mould Temp gas springs have been engineered to withstand higher working temperatures, like those commonly associated with plastic moulding tools. Mould Temp gas springs are compact and powerful piston rod sealed gas springs, which can be used at working temperatures up to 120°C.

Features:

- For applications up to 120°C
- Fully adjustable charge pressure
- Various mounting possibilities using our standard mounts as well as bottom threaded holes
- M6 gas ports can be connected to the special high temp version of our Micro EO24^{TM} Hose and Tube system for remote pressure control

Max. working temp. interval	Max. strokes per minute (spm)	Max. charge pressure at 20°C (bar)	Force per temperature		
			Spring temp.	Initial force (N)	End force* (N)
0 – 80°C	20	150	80°C (20°C)	5,680 (4,700)	8,690 (7,200)
80 – 100°C	15	125	100°C (20°C)	5,000 (3,930)	7,650 (6,010)
100 – 120°C	10	115	120°C (20°C)	4,850 (3,610)	7,420 (5,520)

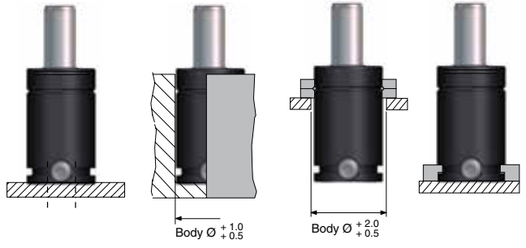
Order No.	S Stroke	Initial Force in N at 150 bar/+20°C	L ±0.25	L min	Gas vol. (l)	Weight (kg)
MT 500-010	10	4700	50	40	0.01	0.25
MT 500-013	13		56	43	0.01	0.26
MT 500-016	16		62	46	0.02	0.27
MT 500-019	19		68	49	0.02	0.28
MT 500-025	25		80	55	0.03	0.31
MT 500-032	32		94	62	0.03	0.34
MT 500-038	38		106	68	0.04	0.36
MT 500-050	50		130	80	0.05	0.40
MT 500-063	63		156	93	0.06	0.45
MT 500-075	75		180	105	0.07	0.50
MT 500-080	80		190	110	0.08	0.52

Basic Information

For general information, see “About Gas Springs”, 2.1

Pressure medium	Nitrogen
Max. charging pressure	See table above
Min. charging pressure	25 bar (at 20°C)
Operating temperature	0 – +120°C
Force increase by temperature	±0.3 %/°C
Recommended max. strokes/min.	See table above
Max. piston rod velocity	1.0 m/s
Service life (0 to 80°C)	1,000,000 strokes
or	100,000 stroke meters*
Service life (80 to 120°C)	500,000 strokes
or	50,000 stroke meters*
Rod & tube surface	Nitrided
Repair kit	3022688

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

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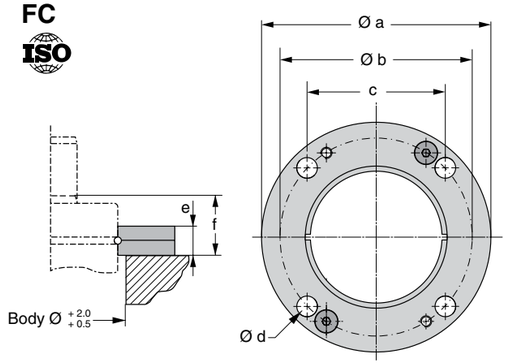
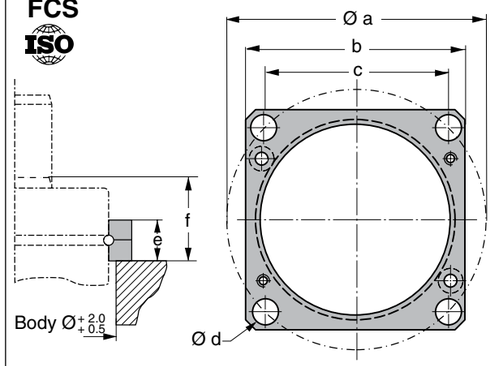
MT 500 Mounts

FC



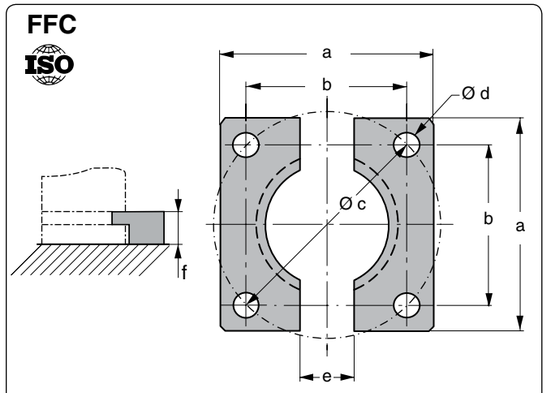
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-250	68	56.5	40	7	9	17

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-250	56.5	52	40	7	9	17

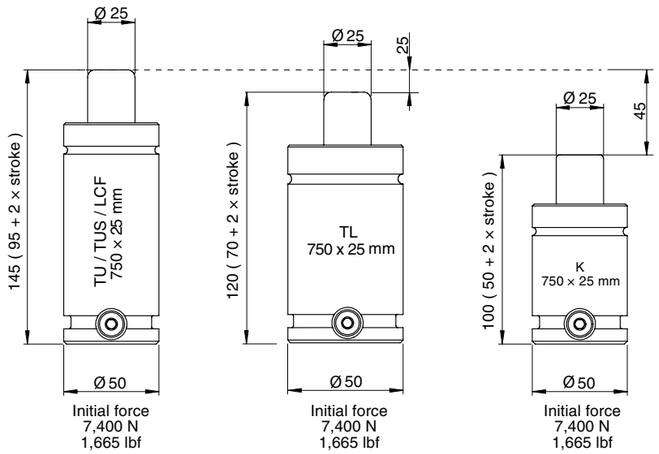
FFC

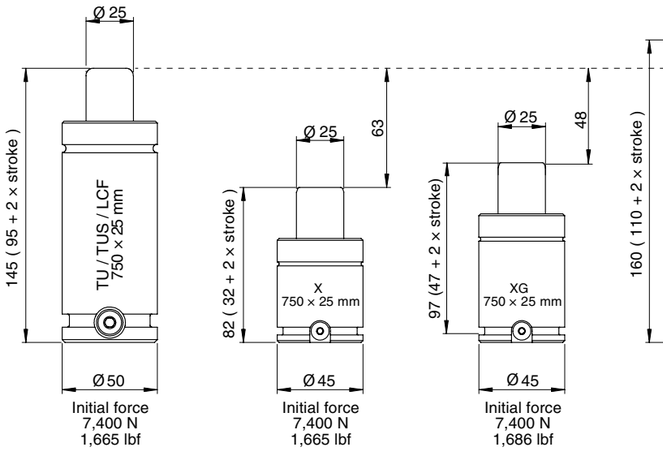


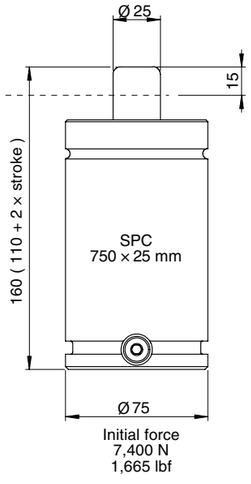
Order No.	a	b	Ø c	Ø d	e	f
FFC-250	55	40	56.6	7	12	6.5

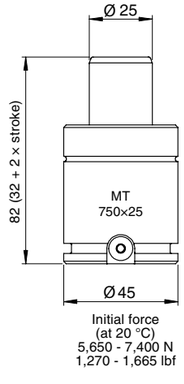
Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

Overview - 7500 ≤ F_{INIT} < 10000









7500 ≤ F_{INIT} < 10000

X 750

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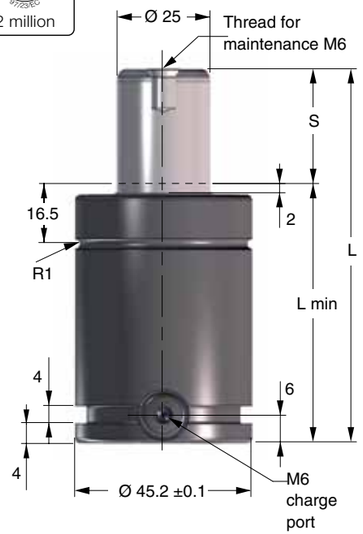
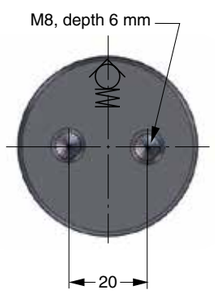
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M8 threaded holes allow various mounting possibilities using our standard mounts.





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 750-010	10	7400	12100	52	42	0.02	0.37
X 750-013	13		12100	58	45	0.02	0.39
X 750-016	16		12100	64	48	0.03	0.41
X 750-019	19		11700	70	51	0.03	0.41
X 750-025	25		11800	82	57	0.04	0.45
X 750-032	32		11800	96	64	0.05	0.50
X 750-038	38		11800	108	70	0.05	0.53
X 750-050	50		11800	132	82	0.07	0.61
X 750-063	63		11800	158	95	0.09	0.69
X 750-075	75		11900	182	107	0.10	0.77
X 750-080	80		11900	192	112	0.11	0.80
X 750-100	100		11900	232	132	0.13	0.93
X 750-125	125		11900	282	157	0.17	1.09

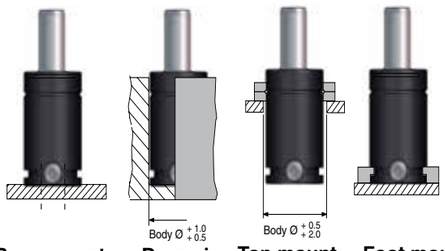
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3019903

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note! For dimensions on mounting possibility K-750 refer to Chapter 3.

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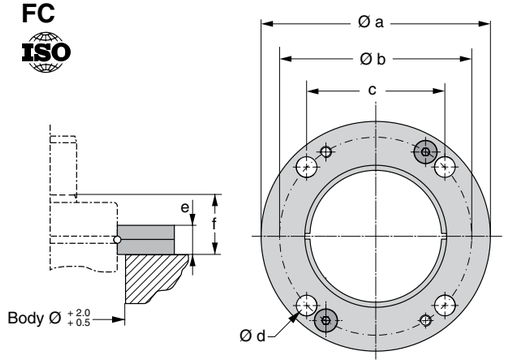
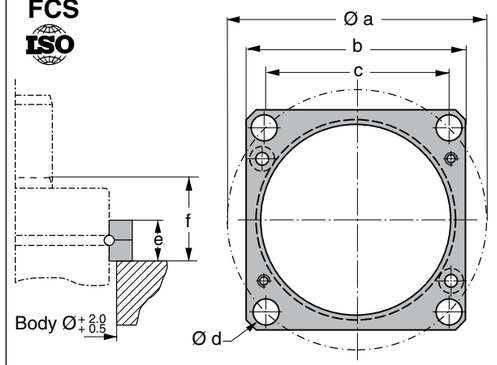
X 750 Mounts

FC



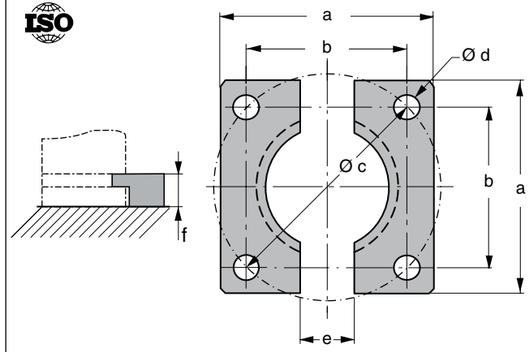
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-500	86	70.7	50	9	13	23

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-500	70.7	64	50	9	13	23

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-500	70	50	70.7	9	20	6.5

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

XG 750

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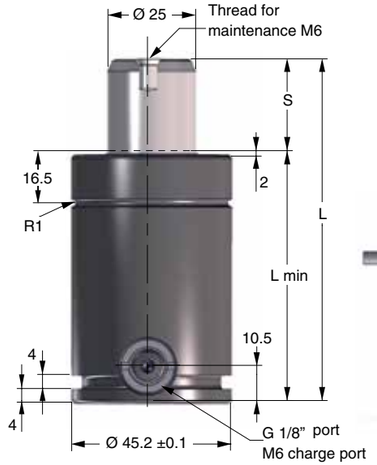
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3,500 N up to 66,000 N and stroke lengths between 10 and 125 mm.

There is a side and a bottom port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M8 threaded holes allow various mounting possibilities using our standard mounts.



Valve Plug
Installation Tool,
XG 350 - XG 750
Order No. 3022974

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 750-010	10		12100	67	57	0.02	0.55
XG 750-013	13		12100	73	60	0.02	0.55
XG 750-016	16		12100	79	63	0.03	0.57
XG 750-019	19		11700	85	66	0.03	0.58
XG 750-025	25		11800	97	72	0.04	0.62
XG 750-032	32		11800	111	79	0.05	0.66
XG 750-038	38	7400	11800	123	85	0.05	0.70
XG 750-050	50		11800	147	97	0.07	0.78
XG 750-063	63		11800	173	110	0.09	0.86
XG 750-075	75		11900	197	122	0.10	0.93
XG 750-080	80		11900	207	127	0.11	0.97
XG 750-100	100		11900	247	147	0.13	1.09
XG 750-125	125		11900	297	172	0.17	1.25

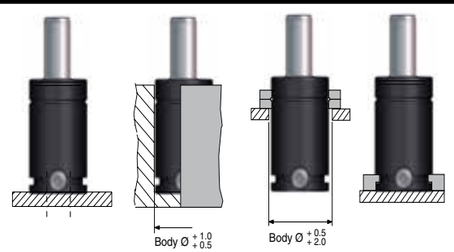
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3019903

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note!
For dimensions on mounting possibility K refer to Chapter 3.

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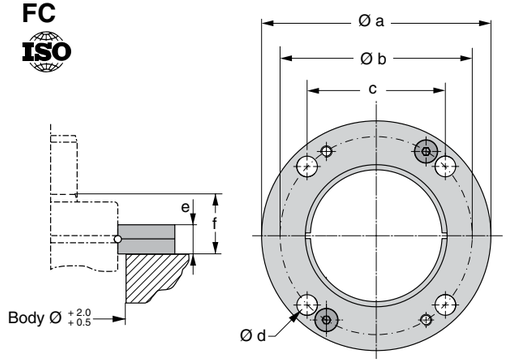
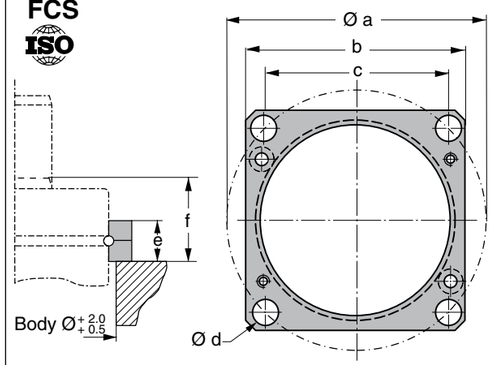
XG 750 Mounts

FC



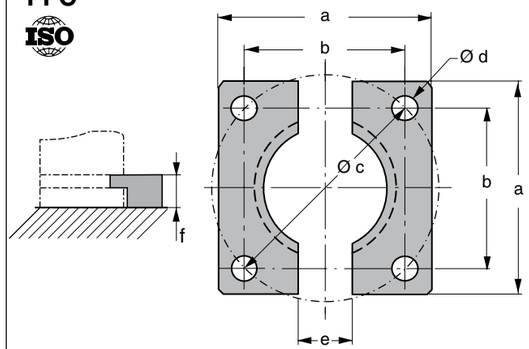
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-500	86	70.7	50	9	13	22

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-500	70.7	64	50	9	13	22

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-500	70	50	70.7	9	20	6.5

Note! For dimensions on mounting possibility K refer to Chapter 3.

TL 750

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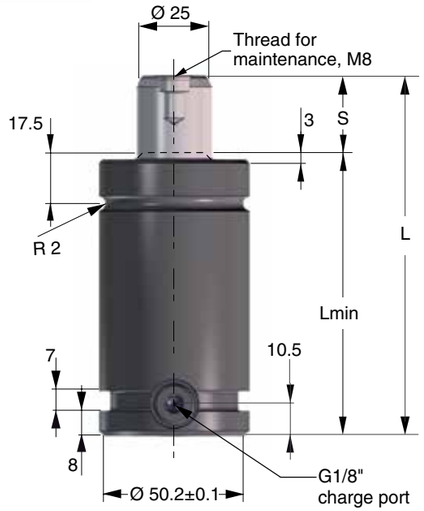
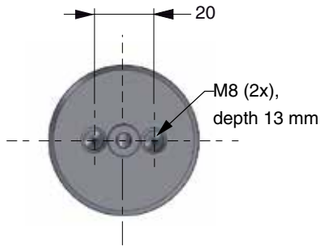




The TL series ranges from model sizes 750 to 7,500, with the same features and technology as the TU series.

At the same time, the TL gas spring is shorter than the corresponding TU gas spring by 25 mm, except TL 5000 and TL 7500, which are 37.5 mm and 50 mm shorter respectively. TL springs share the same TU mounting possibilities and stroke lengths, with exception of strokes 12.5, 37.5 and 62.5.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TL750-013	12.5		11400	95	82.5	0.03	0.97
TL 750-025	25		11700	120	95	0.04	1.08
TL 750-038	37.5		11800	145	107.5	0.06	1.20
TL 750-050	50		11900	170	120	0.08	1.32
TL 750-063	62.5		11900	195	132.5	0.09	1.42
TL 750-075	75		11900	220	145	0.31	1.53
TL 750-080	80		11900	230	150	0.11	1.58
TL 750-086	87.5		11900	245	157.5	0.35	1.65
TL 750-100	100	7300	11900	270	170	0.14	1.77
TL 750-113	112.5		12000	295	182,5	0.43	1.89
TL 750-125	125		12000	320	195	0.15	2.01
TL 750-138	137.5		12000	345	207.5	0.17	2.13
TL 750-150	150		12000	370	220	0.19	2.25
TL 750-160	160		12000	390	230	0.20	2.34
TL 750-175	175		12000	420	245	0.23	2.48
TL 750-200	200		12000	470	270	0.26	2.72
TL 750-225	225		12000	520	295	0.30	2.96
TL 750-250	250		12000	570	320	0.33	3.19

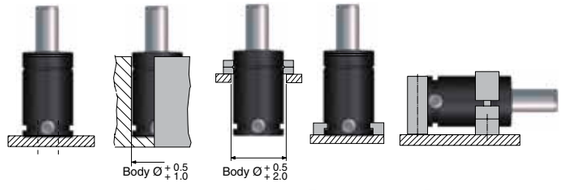
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3024118

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750 refer to Chapter 3.

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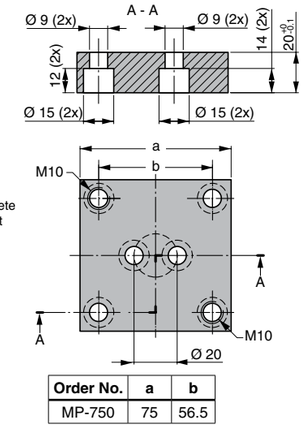
TL 750 Mounts

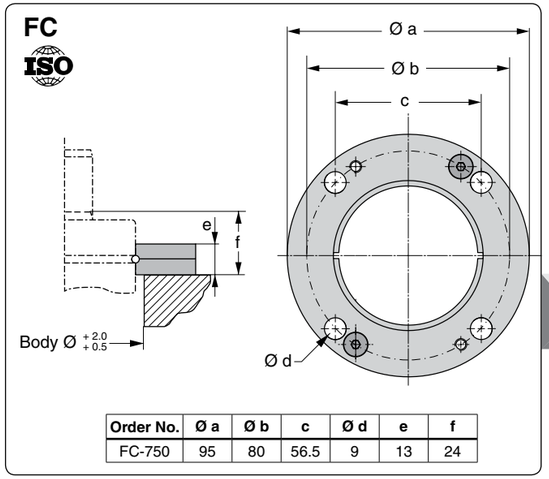
MP



Note! Comes complete with screws to mount gas spring.

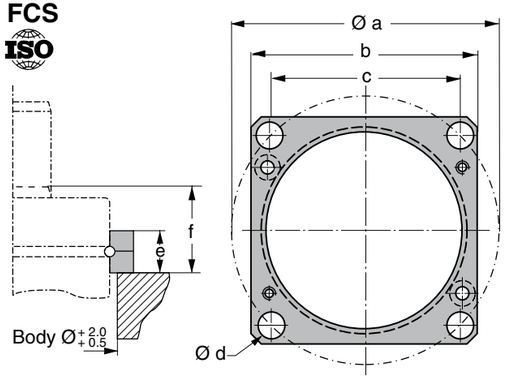
Order No.	a	b
MP-750	75	56.5

FC



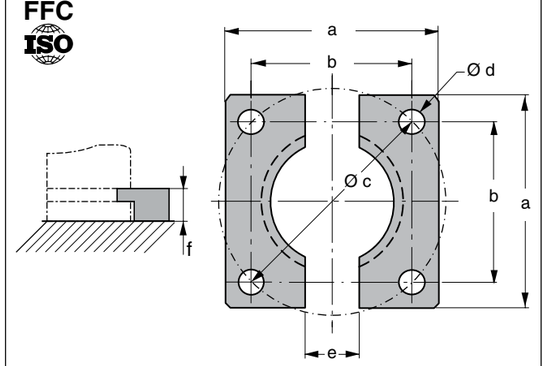
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	24

FCS



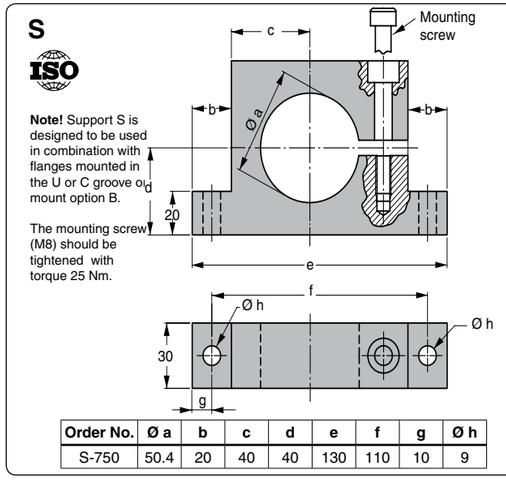
Order No.	Ø a	b	c	Ø d	e	f
FCS-750	80	70	56.5	9	13	24

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-750	75	56.5	80	9	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mount option B.

The mounting screw (M8) should be tightened with torque 25 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-750	50.4	20	40	40	130	110	10	9

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750, refer to Chapter 3.

K 750

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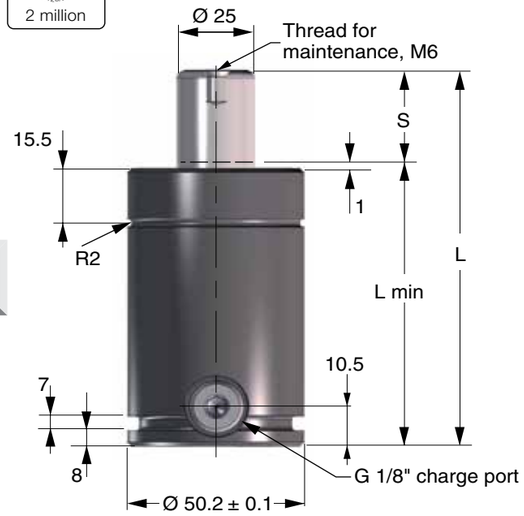
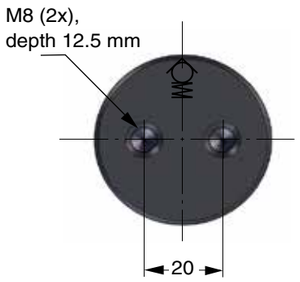


This is a short height hoseable spring with an initial force of 7,400 N.

The K 750 has a total length of 50 mm + (2 × stroke). This spring is 45 mm shorter than the TU 750. Mounting options are the same as for the TU 750.



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
K 750-006	6	7400	15000	62	56	0.01	0.68
K 750-013	12.7		13000	75.4	62.7	0.02	0.73
K 750-019	19		12000	88.1	69.05	0.03	0.80
K 750-025	25		11000	100	75	0.04	0.82
K 750-038	38.1		11000	126.2	88.1	0.06	0.92
K 750-050	50		11000	150	100	0.08	1.06
K 750-064	63.5		11000	177	113.5	0.10	1.12
K 750-080	80		11000	210	130	0.12	1.26
K 750-100	100		11000	250	150	0.15	1.39
K 750-125	125		11000	300	175	0.19	1.57

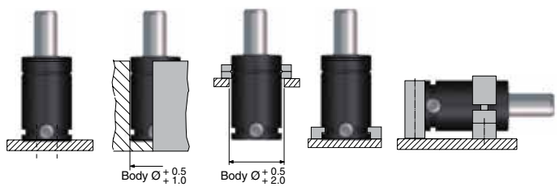
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3017230-0750

Mounting Possibilities

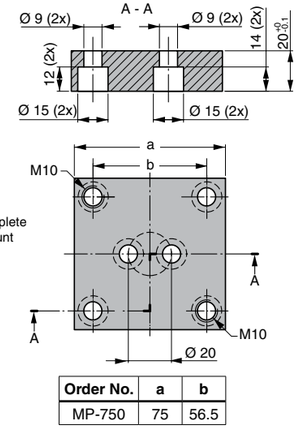


Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750 refer to Chapter 3.

K 750 Mounts

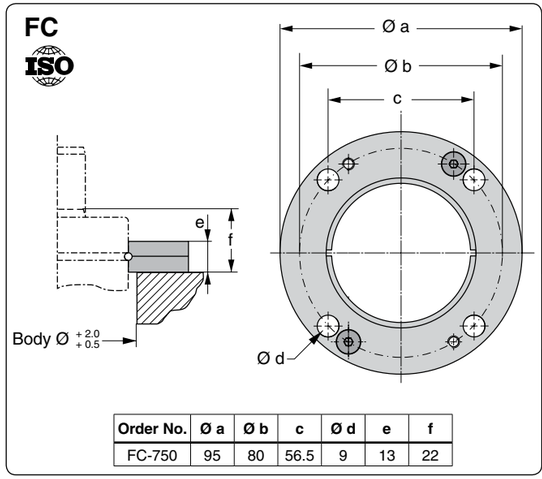
MP



Note! Comes complete with screws to mount gas spring.

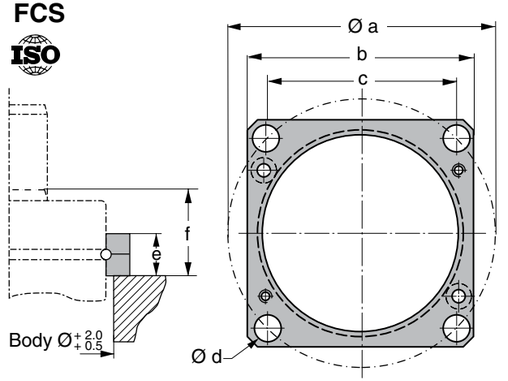
Order No.	a	b
MP-750	75	56.5

FC



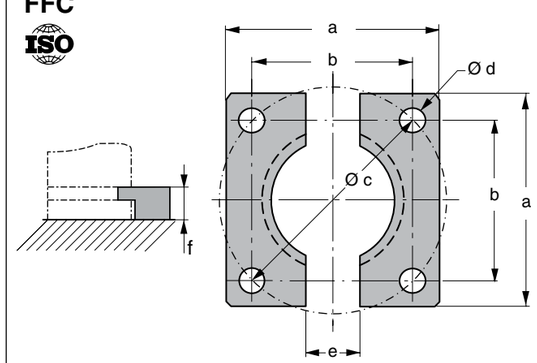
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	22

FCS



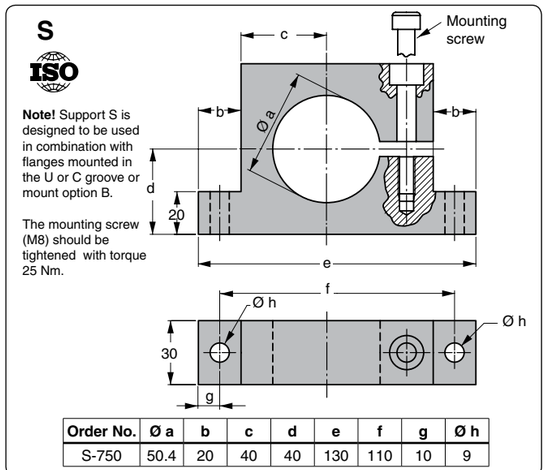
Order No.	Ø a	b	c	Ø d	e	f
FCS-750	80	70	56.5	9	13	22

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-750	75	56.5	80	9	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mount option B.

The mounting screw (M8) should be tightened with torque 25 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-750	50.4	20	40	40	130	110	10	9

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750, refer to Chapter 3.

TU 750

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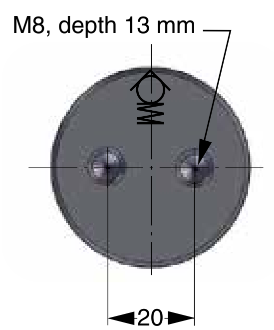
ISO

2 million



The standard line of gas springs is the TU line.
Sizes 250 to 10 000 correspond to the ISO 11901 standard for gas springs.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO 111901
TU 750-013	12.7	7400	12000	120.4	107.7	0.03	1.33	
TU 750-025	25		12000	145	120	0.04	1.44	√
TU 750-038	38.1		12000	171.2	133.1	0.06	1.57	
TU 750-050	50		12000	195	145	0.07	1.68	√
TU 750-064	63.5		12000	222	158.5	0.09	1.78	
TU 750-080	80		12000	255	175	0.11	1.94	√
TU 750-100	100		12000	295	195	0.14	2.13	√
TU 750-125	125		12100	345	220	0.17	2.37	√
TU 750-160	160		12100	415	255	0.21	2.70	√
TU 750-200	200		12100	495	295	0.26	3.08	
TU 750-250	250		12100	595	345	0.33	3.55	
TU 750-300	300		12100	695	395	0.39	4.03	

* = at full stroke

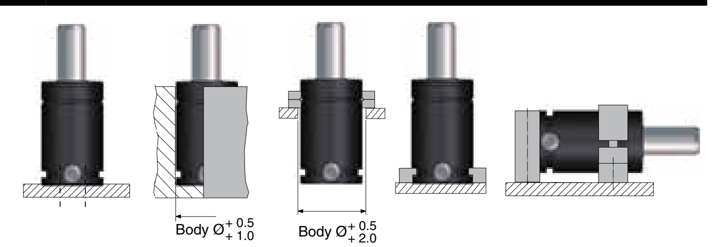
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium .... Nitrogen
Max. charging pressure .... 150 bar
Min. charging pressure......................... 25 bar
Operating temperature .... 0 to +80°C
Force increase by temperature .... ±0.3%/°C
Recommended max strokes/min .... ~ 15-40 (at 20°C)
Max piston rod velocity .... 1.6 m/s

Rod surface.. Nitrided
Tube surface .... Black oxide
*Repair kit 3019817

*Identified by circular rings on the top of tube, guide and rod.

Mounting Possibilities



Base mount	Drop - in	Top mount	Foot mount	Body mount
B, MP		FC, FCS, FCSC	K, FFC	FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750 refer to Chapter 3.

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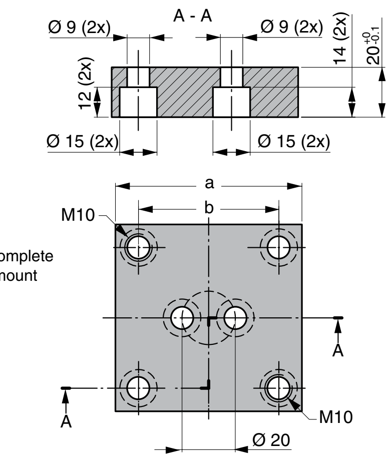
TU 750 Mounts

MP

ISO

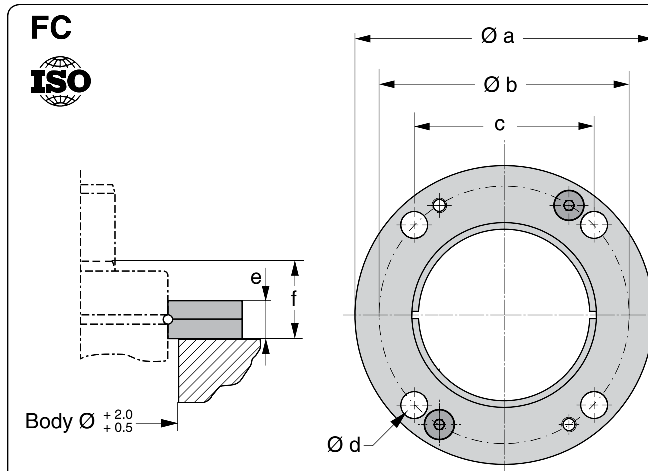


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-750	75	56.5

FC

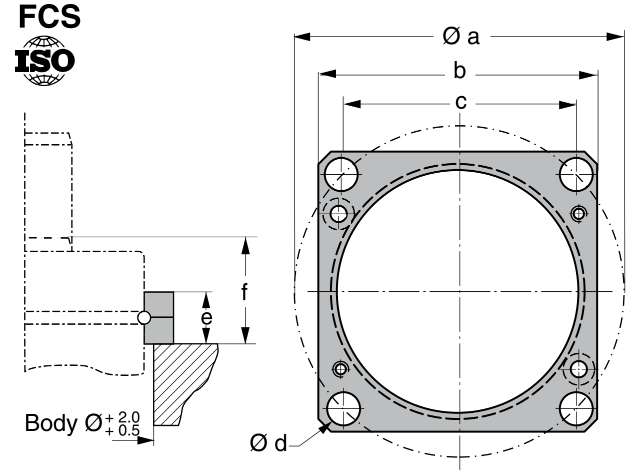
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	24

FCS

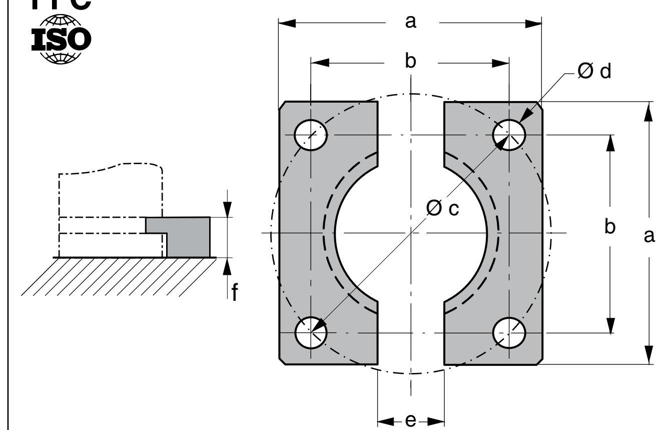
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-750	80	70	56.5	9	13	24

FFC

ISO



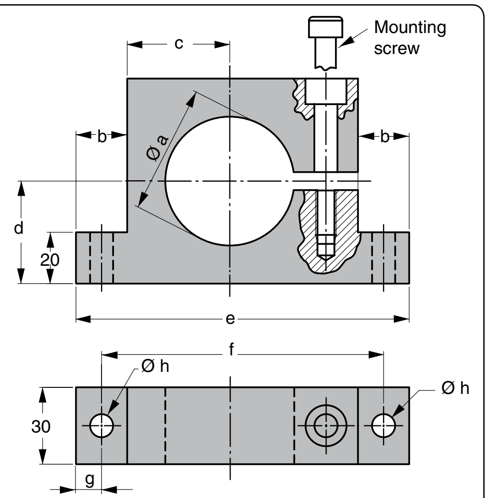
Order No.	a	b	Ø c	Ø d	e	f
FFC-750	75	56.5	80	9	24	12

S

ISO

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mount option B.

The mounting screw (M8) should be tightened with torque 25 Nm.

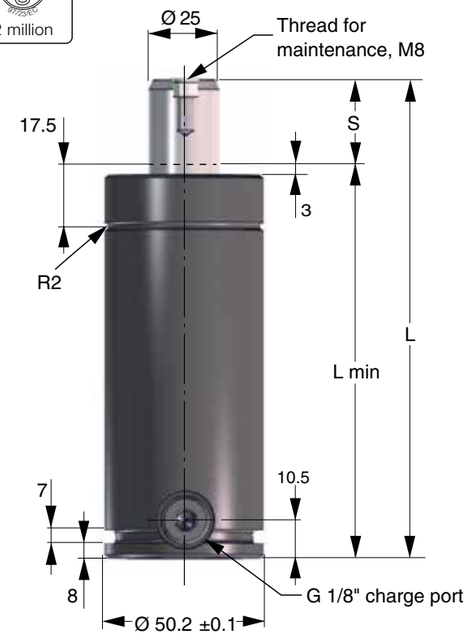


Order No.	Ø a	b	c	d	e	f	g	Ø h
S-750	50.4	20	40	40	130	110	10	9

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750, refer to Chapter 3.

TUS 750

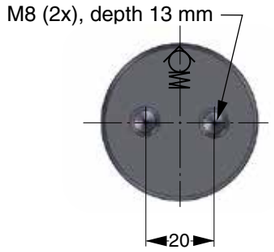
2 million



The TUS High Speed gas springs have been engineered to withstand press stroke speeds to a maximum of 2 m/s, which meets the safety requirements from the French automotive manufacturer Renault.

These gas springs are available in sizes from 750 to 7,500 and dimensions that conform to the ISO 11901 gas spring standard.

The TUS gas spring replaces TUR spring that has been phased out.



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TUS 750-025	25	7400	12000	145	120	0.04	1.44
TUS 750-050	50		12000	195	145	0.07	1.68
TUS 750-080	80		12000	255	175	0.11	1.94
TUS 750-100	100		12000	295	195	0.14	2.13
TUS 750-125	125		12100	345	220	0.17	2.37
TUS 750-160	160		12100	415	255	0.21	2.70
TUS 750-200	200		12100	495	295	0.26	3.08
TUS 750-250	250		12100	595	345	0.33	3.55
TUS 750-300	300		12100	695	395	0.39	4.03

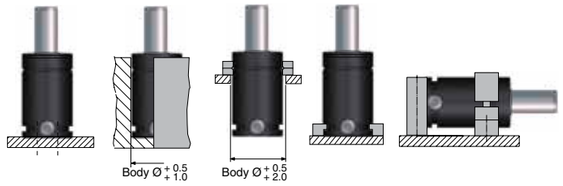
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 2 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3019277

Mounting Possibilities

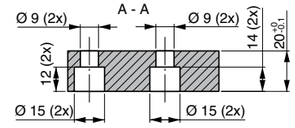


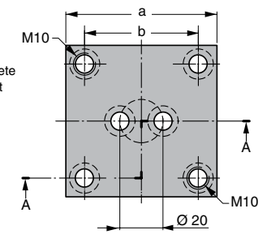
Base mount B, MP | **Drop -in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750 refer to Chapter 3.

TUS 750 Mounts

MP

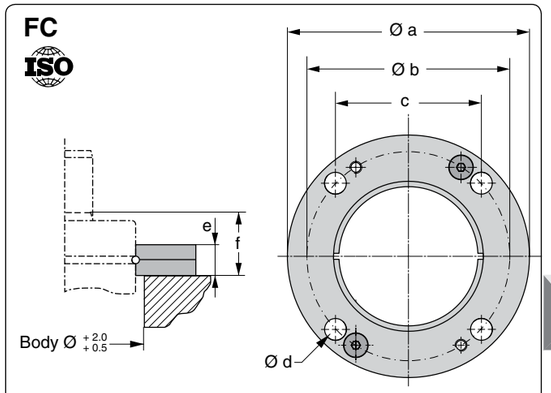




Note! Comes complete with screws to mount gas spring.

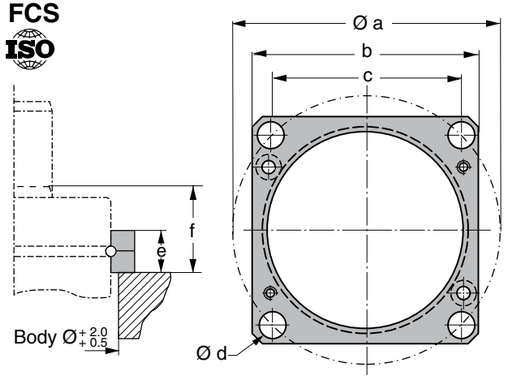
Order No.	a	b
MP-750	75	56.5

FC



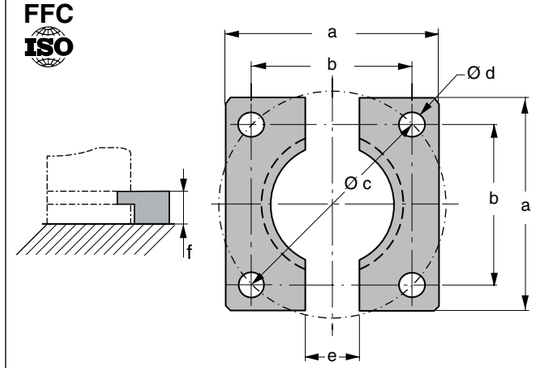
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	24

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-750	80	70	56.5	9	13	24

FFC



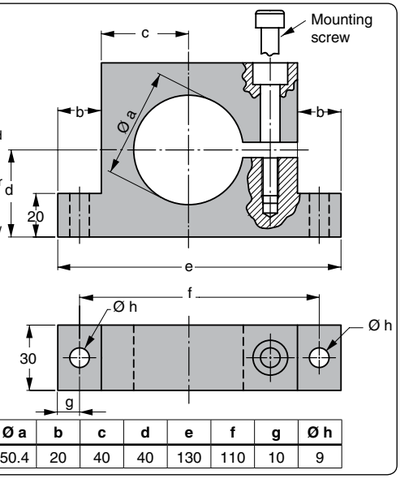
Order No.	a	b	Ø c	Ø d	e	f
FFC-750	75	56.5	80	9	24	12

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750, refer to Chapter 3.

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mount option B.

The mounting screw (M8) should be tightened with torque 25 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-750	50.4	20	40	40	130	110	10	9

LCF 750

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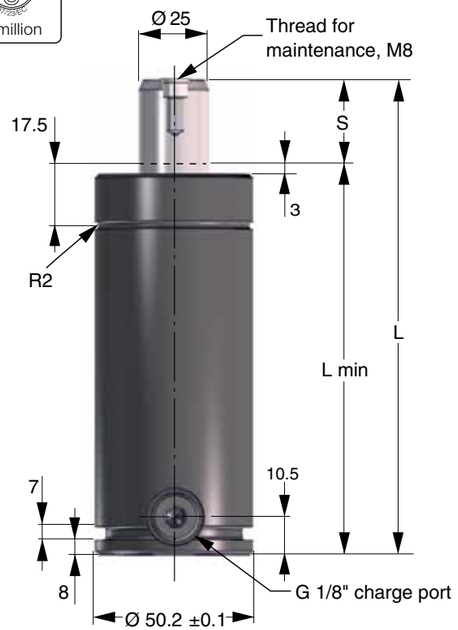
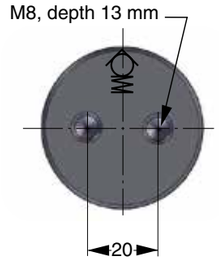
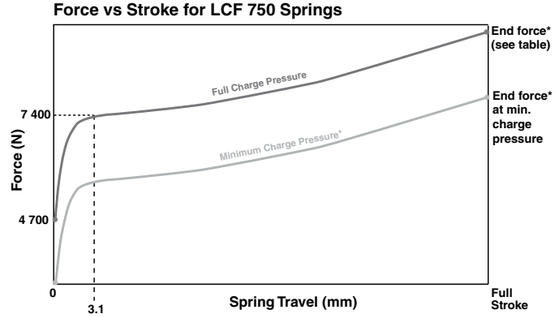
2 million





Low Contact Force (LCF) gas springs are designed to reduce excessive shock loads, high noise levels and extreme pad bounce, all factors that lead to high press maintenance costs and noise pollution.
For more information, see “About Gas Springs”, 2.1/4.

Force vs Stroke for LCF 750 Springs



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
LCF 750-013	12.7	7400	12000	120.4	107.7	0.03	1.30
LCF 750-025	25		12000	145	120	0.04	1.45
LCF 750-038	38.1		12000	171.2	133.1	0.06	1.50
LCF 750-050	50		12000	195	145	0.07	1.70
LCF 750-064	63.5		12000	222	158.5	0.09	1.75
LCF 750-080	80		12000	255	175	0.11	1.95
LCF 750-100	100		12000	295	195	0.14	2.15
LCF 750-125	125		12100	345	220	0.17	2.40
LCF 750-160	160		12100	415	255	0.21	2.70
LCF 750-200	200		12100	495	295	0.26	3.10
LCF 750-250	250		12100	595	345	0.33	3.60
LCF 750-300	300		12100	695	395	0.39	4.10

* = at full stroke

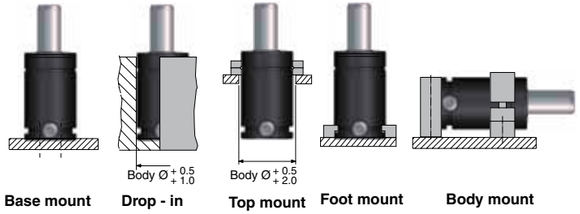
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 70 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
*Repair kit 3019377

*Identified by circular rings on the top of tube, guide and rod.

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC, | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750 refer to Chapter 3.

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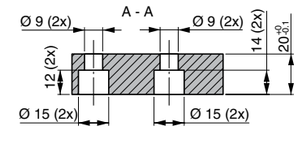
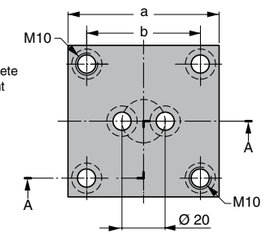
LCF 750 Mounts

MP

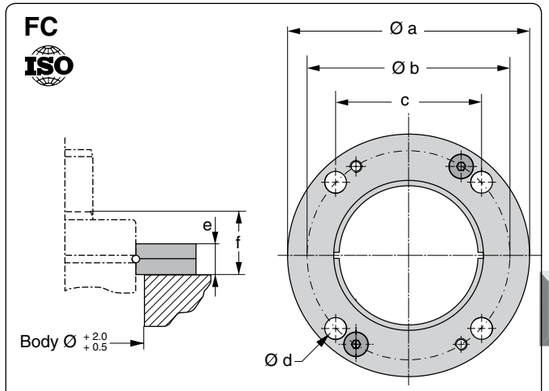




Note! Comes complete with screws to mount gas spring.

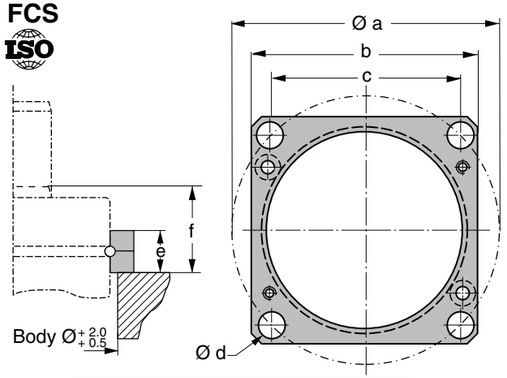
Order No.	a	b
MP-750	75	56.5

FC



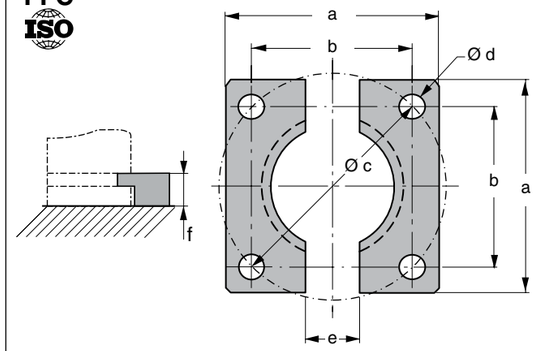
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	24

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-750	80	70	56.5	9	13	24

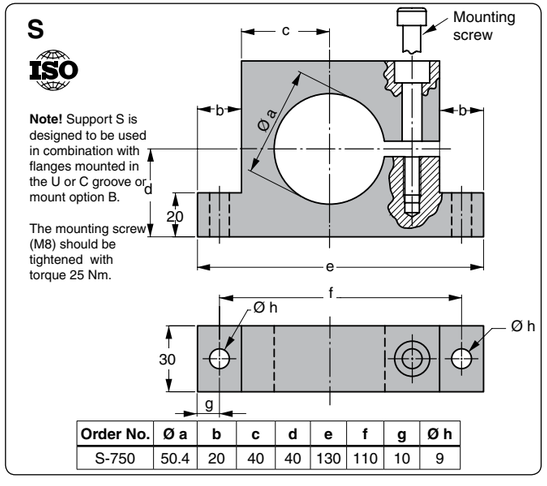
FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-750	75	56.5	80	9	24	12

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and FCSC-750, refer to Chapter 3.

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mount option B.

The mounting screw (M8) should be tightened with torque 25 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-750	50.4	20	40	40	130	110	10	9

SPC 750

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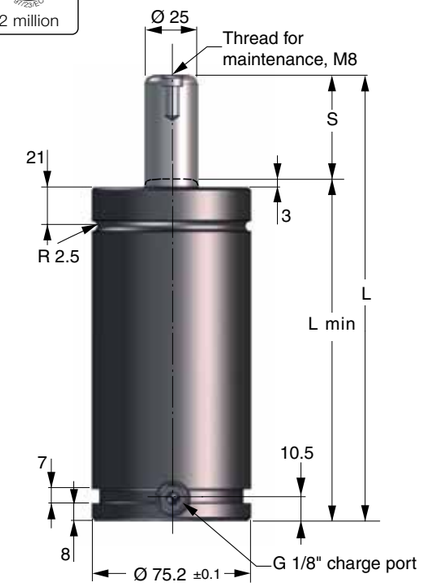
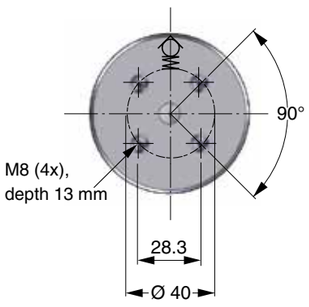
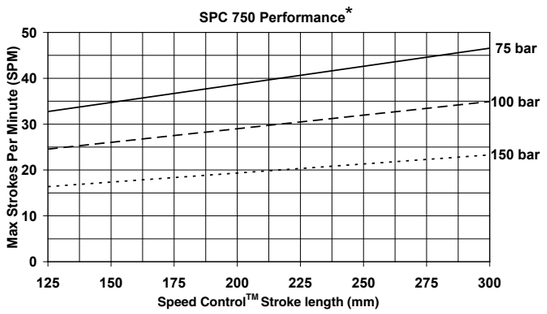






*At ambient room temperatures with free air flow

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
SPC 750-125	125	7400	8700	360	235	0.44	6.10
SPC 750-160	160			430	270	0.55	6.60
SPC 750-200	200			510	310	0.67	7.15
SPC 750-250	250			610	360	0.83	7.85
SPC 750-300	300			710	410	0.98	8.60

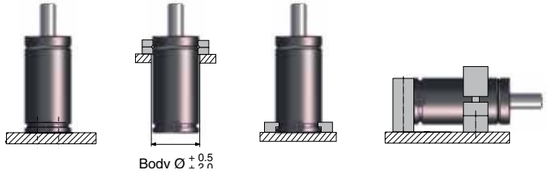
*at full stroke

Basic Information

For general information see “About gas springs” , 2.1
Pressure medium .....Nitrogen
Max. charging pressure .....150 bar (at 20°C)
Min. charging pressure .....25 bar (at 20°C)
Operating temperature .....0 to +80°C
Force increase by temperature.....±0.3%/°C
Recommended max strokes/min .....See chart
Dampening length .....≈ 30 mm
Dampening speed .....0.4 m/s

Rod surface .....Nitrided
Tube surface .....Black oxide
Repair kit 3021490

Mounting Possibilities



Base mount B, MP | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC,** | **Body mount FAC, SA, S**

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500 and FCSC-1500 refer to Chapter 3.

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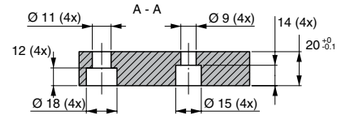
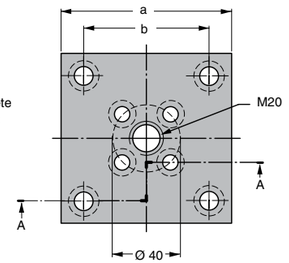
SPC 750 Mounts

MP

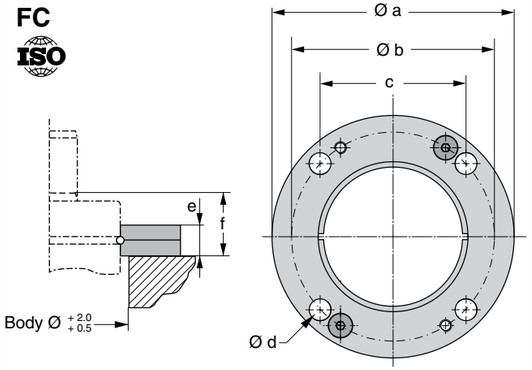


Note! Comes complete with screws to mount gas spring.



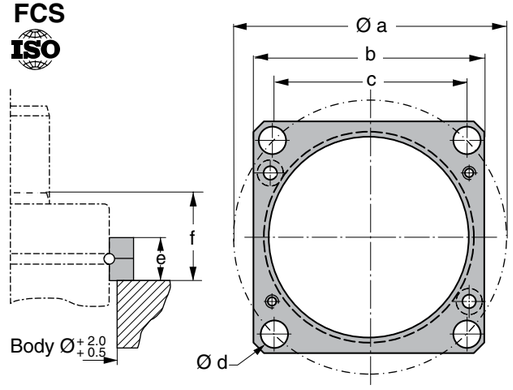
Order No.	a	b
MP-1500	100	73.5

FC



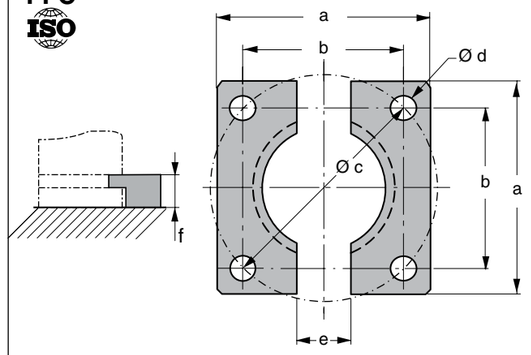
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC



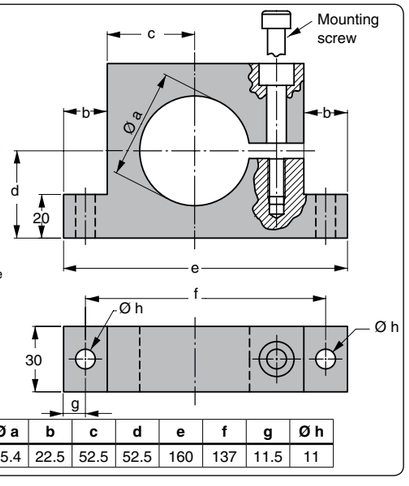
Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500 and FCSC-1500 refer to Chapter 3.

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M10) should be tightened with torque 52 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

MT 750

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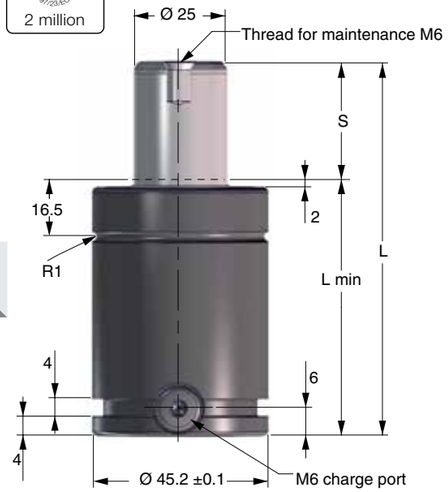
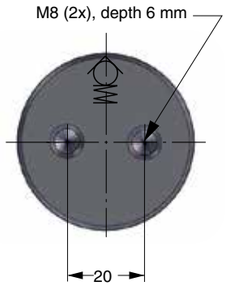


Mould Temp gas springs have been engineered to withstand higher working temperatures, like those commonly associated with plastic molding tools. Mould Temp gas springs are compact and powerful piston rod sealed gas springs, which can be used at working temperatures up to 120°C.

Features:

- For applications up to 120°C
- Fully adjustable charge pressure
- Various mounting possibilities using our standard mounts as well as bottom threaded holes
- M6 gas ports can be connected to the special high temp version of our Micro EO24™ Hose and Tube system for remote pressure control



* = at full stroke

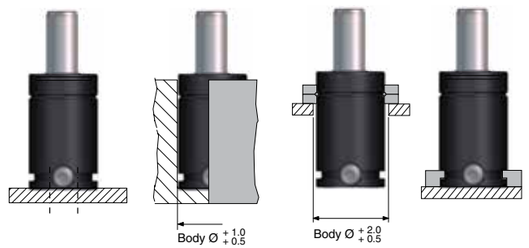
Order No.	S Stroke	Initial Force in N at 150 bar/+20°C	L ±0.25	L min	Gas vol. (l)	Weight (kg)
MT 750-010	10	7400	52	42	0.02	0.37
MT 750-013	13		58	45	0.02	0.39
MT 750-016	16		64	48	0.03	0.41
MT 750-019	19		70	51	0.03	0.41
MT 750-025	25		82	57	0.04	0.45
MT 750-032	32		96	64	0.05	0.50
MT 750-038	38		108	70	0.05	0.53
MT 750-050	50		132	82	0.07	0.61
MT 750-063	63		158	95	0.09	0.69
MT 750-075	75		182	107	0.10	0.77
MT 750-080	80		192	112	0.11	0.80

Basic Information

For general information, see “About Gas Springs”, 2.1

Pressure medium	Nitrogen
Max. charging pressure	See table above
Min. charging pressure	25 bar (at 20°C)
Operating temperature	0 – +120°C
Force increase by temperature	±0.3 %/°C
Recommended max. strokes/min.	See table above
Max. piston rod velocity	1.0 m/s
Service life (0 to 80°C)	1,000,000 strokes
or	100,000 stroke meters*
Service life (80 to 120°C)	500,000 strokes
or	50,000 stroke meters*
Tube & rod surface	Nitrided
Repair kit	3022686

Mounting Possibilities



Base mount B | **Drop - in** | **Top mount FC, FCS** | **Foot mount K, FFC**

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.

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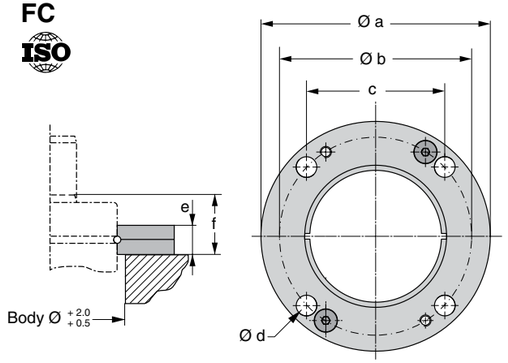
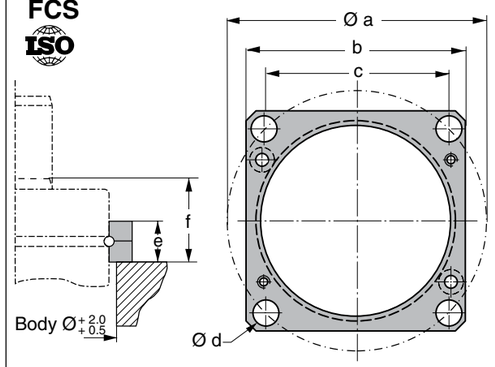
MT 750 Mounts

FC



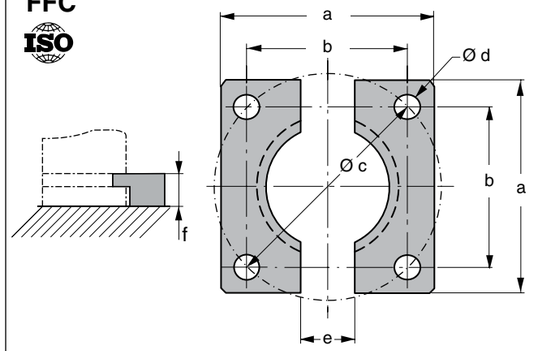
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-500	86	70.7	50	9	13	23

FCS



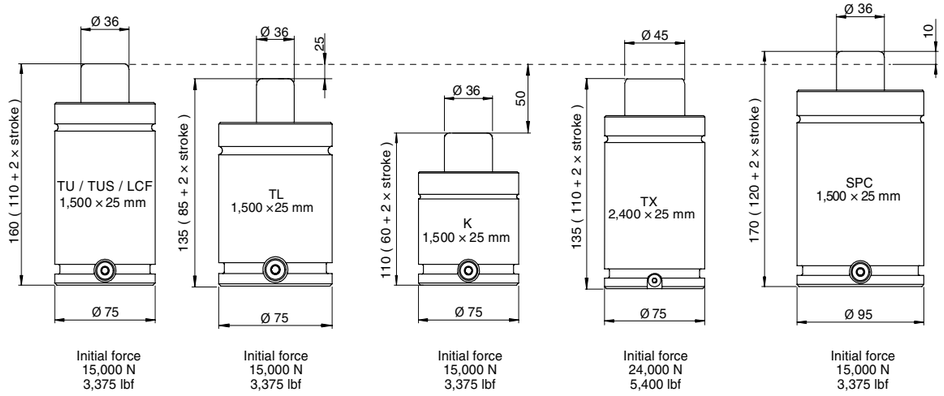
Order No.	Ø a	b	c	Ø d	e	f
FCS-500	70.7	64	50	9	13	23

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-500	70	50	70.7	9	20	6.5

Note! For dimensions on mounting possibility K-500 refer to Chapter 3.



$10000 \leq F_{INIT} < 25000$

CU4 1000

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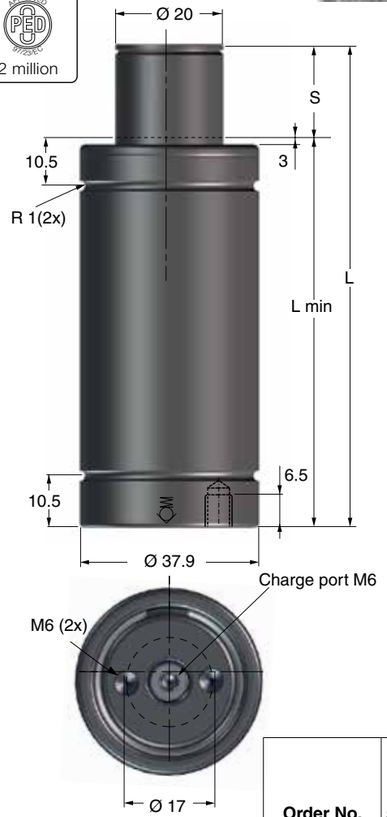


The CU4 gas spring is a very compact Bore Sealed gas spring with impressive force in a compact body.
The maximum frequency for the spring is 100 strokes/ minute.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

As an option, the CU4 springs can be delivered with a Side Port plate (SP) for applications where a sideport is needed (e.g., for use in hose systems).

Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU4 1000-006	6	10,600	16,000	2,400	3,595	61	55	0.014	0.33
CU4 1000-010	10		16,000			78	68	0.024	0.38
CU4 1000-016	16		16,000			100	84	0.036	0.44
CU4 1000-025	25		16,000			135	110	0.056	0.54
CU4 1000-032	32*		16,000			167	135	0.074	0.65
CU4 1000-040	40*		16,000			195	155	0.092	0.73
CU4 1000-050	50*		16,000			230	180	0.110	0.83

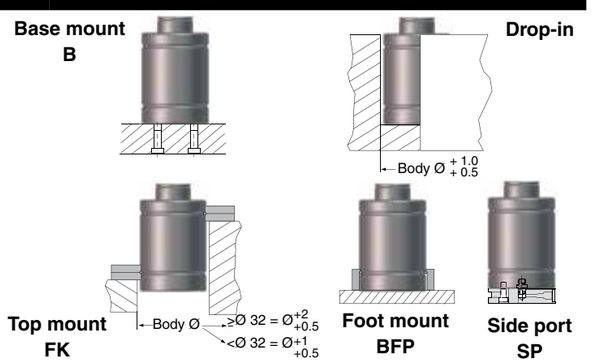
* = Should always be attached to the tool using the tapped holes in the bottom or a flange
** = at full stroke

Basic Information

For general information, see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature..... 0 to +80°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min.... ~100 (at 20°C)
Max. piston rod velocity..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair Kit CU4 1000..... 3024835
Repair Kit CU 1000..... 2014493-0100
Available until 12.31.2015

Mounting Possibilities



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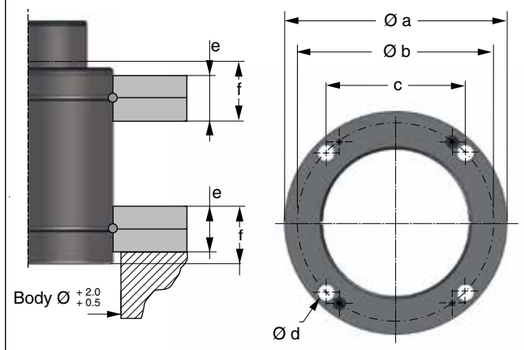
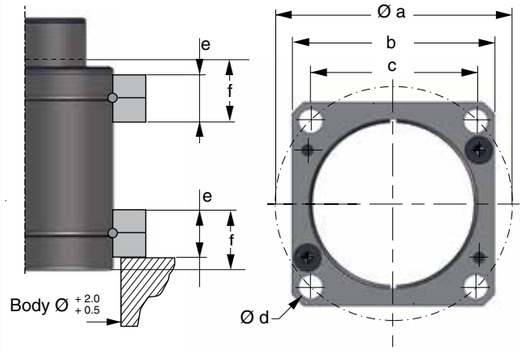
CU4 1000 Mounts

FC



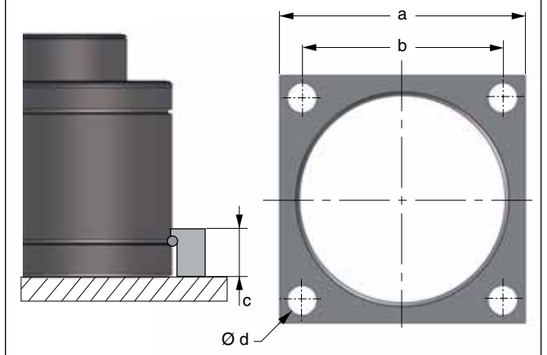
For model	Order No.	Ø a	Ø b	c	Ø d	e	f
CU4 1000	FC-250	68	56.5	40	7	9	15

FCS



For model	Order No.	Ø a	b	c	Ø d	e	f
CU4 1000	FCS-250	56.5	52	40	7	9	15

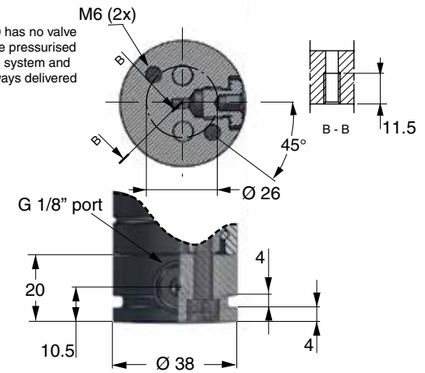
BFCU



For model	Order N0.	a	b	c	Ø d
CU4 1000	BFCU4-1000	52	40	14.5	7

SP

Note! SP-1000 has no valve and can only be pressurised through a hose system and is therefore always delivered uncharged.



For model	Order No.	For U-groove mounts on SP
CU4 1000	SP-1000	Refer to TU 250

CU4 1800

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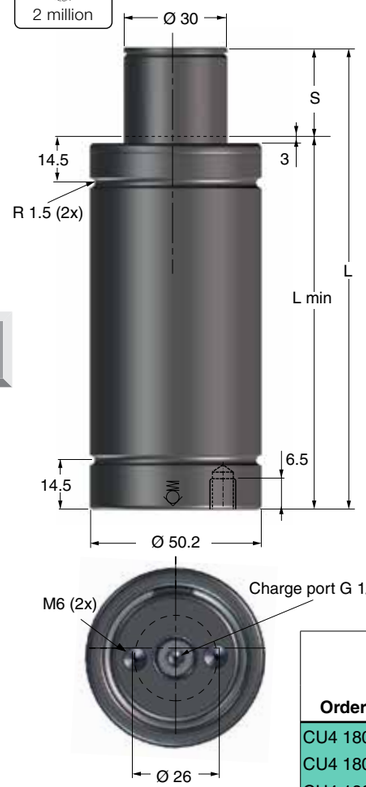


The CU4 gas spring is a very compact Bore Sealed gas spring with impressive force in a compact body.
The maximum frequency for the spring is 100 strokes/ minute.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

As an option, the CU4 springs can be delivered with a Side Port plate (SP) for applications where a sideport is needed (e.g., for use in hose systems).

Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU4 1800-006	6	18,000	24,000	4,050	5,395	66	60	0.030	0.60
CU4 1800-010	10		25,000		5,620	80	70	0.044	0.66
CU4 1800-016	16		25,000		5,620	106	90	0.072	0.79
CU4 1800-025	25		26,000		5,845	135	110	0.100	1.93
CU4 1800-032	32*		26,000		5,845	162	130	0.126	1.06
CU4 1800-040	40*		26,000		5,845	190	150	0.150	1.19
CU4 1800-050	50*		27,000		6,070	220	170	0.179	1.32
CU4 1800-065	65*		28,000		6,294	271	206	0.240	1.52

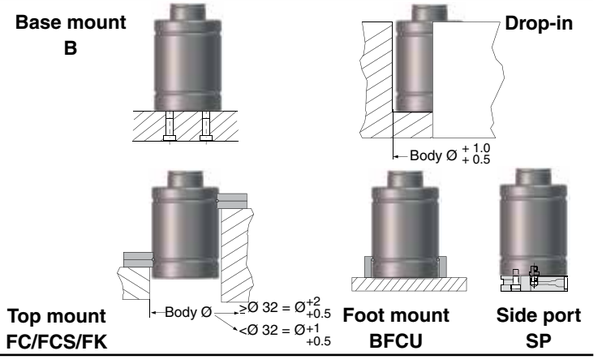
* = Should always be attached to the tool using the tapped holes in the bottom or a flange
** = at full stroke

Basic Information

For general information, see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature..... 0 to +80°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min.... ~100 (at 20°C)
Max. piston rod velocity..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair Kit CU4 1800..... 3024836
Repair Kit CU 1800..... 2014493-0180
Available until 12.31.2015

Mounting Possibilities



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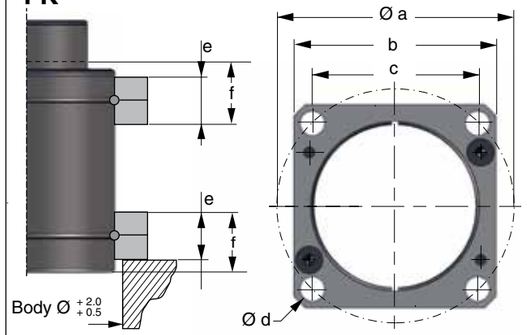
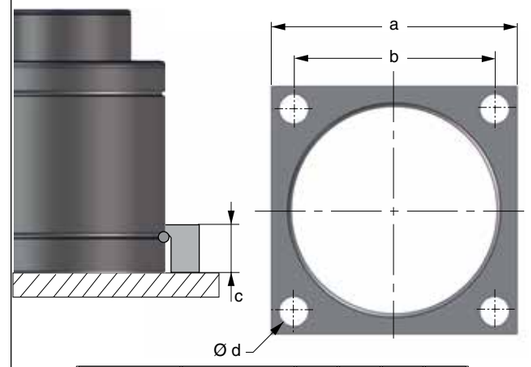
CU4 1800 Mounts

FK



For model	Order No.	Ø a	b	c	Ø d	e	f
CU4 1800	FK-1800	80	70	56.5	9	13	21

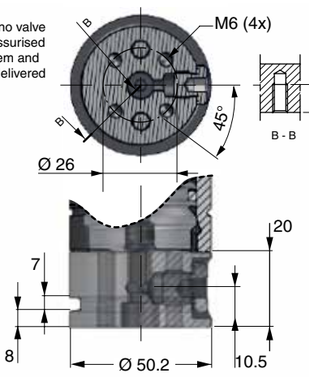
BFCU



For model	Order NO.	a	b	Ø c	d
CU4 1800	BFCU4-1800	70	56.5	9	19.5

SP

Note! SP-1800 has no valve and can only be pressurised through a hose system and is therefore always delivered uncharged.



For model	Order No.	For U-groove mounts on SP
CU4 1800	SP-1800	Refer to TU 750

X 1000 and XMS 1000

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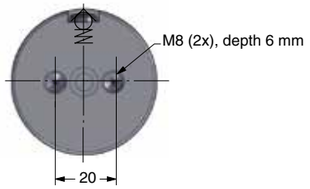


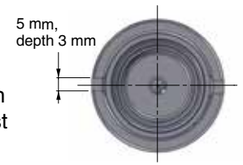
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

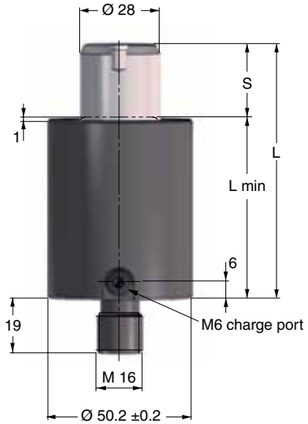
These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M8 threaded holes allow various mounting possibilities using our standard mounts.

The X 1000 model is also available equipped with an M16 threaded tap for mounting. When ordering this version **XMS 1000-xxx** must be stated on the order





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X/XMS 1000-013	13	9200	13800	64	51	0.03	0.50
X/XMS 1000-016	16		13800	70	54	0.04	0.52
X/XMS 1000-019	19		14000	76	57	0.04	0.54
X/XMS 1000-025	25		14200	88	63	0.05	0.59
X/XMS 1000-032	32		14300	102	70	0.06	0.64
X/XMS 1000-038	38		14500	114	76	0.07	0.70
X/XMS 1000-050	50		14600	138	88	0.09	0.79
X/XMS 1000-063	63		14700	164	101	0.11	0.89
X/XMS 1000-075	75		14700	188	113	0.13	0.99
X/XMS 1000-080	80		14800	198	118	0.14	1.03
X/XMS 1000-100	100		14800	238	138	0.17	1.19
X/XMS 1000-125	125		14800	288	163	0.21	1.39

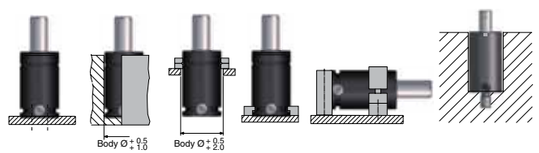
* = at full stroke

Basic Information

For general information, see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature..... 0 to +80°C
Force increase by temperature ..... ±0.3 %/°C
Recommended max. strokes/min.... ~50 to 100 (at 20°C)
Max. piston rod velocity..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3018847
Repair kit Part No .....

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM | **Thread mount**

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750, HM-750 and FCSC-750 refer to Chapter 3.

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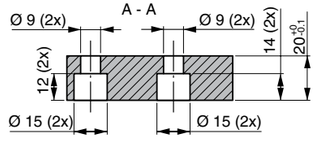
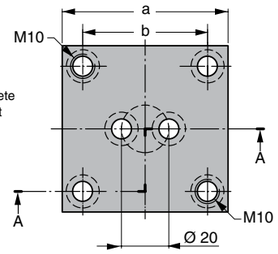
X 1000 Mounts

MP

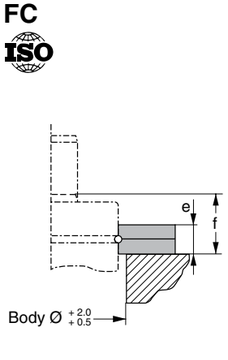




Note! Comes complete with screws to mount gas spring.

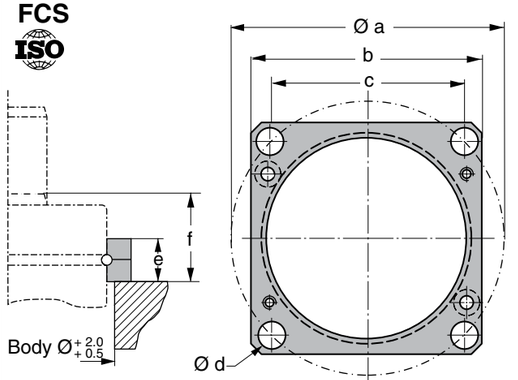
Order No.	a	b
MP-750	75	56.5

FC



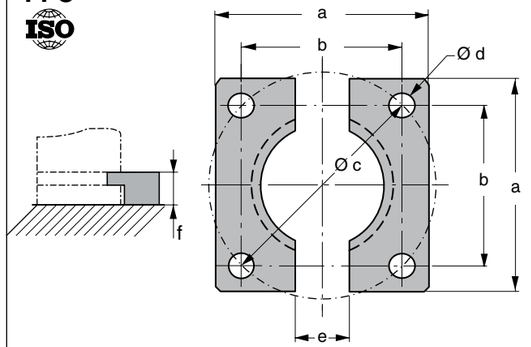
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	24

FCS



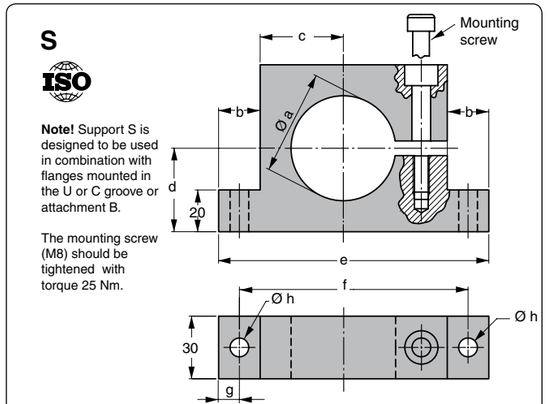
Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M8) should be tightened with torque 25 Nm.

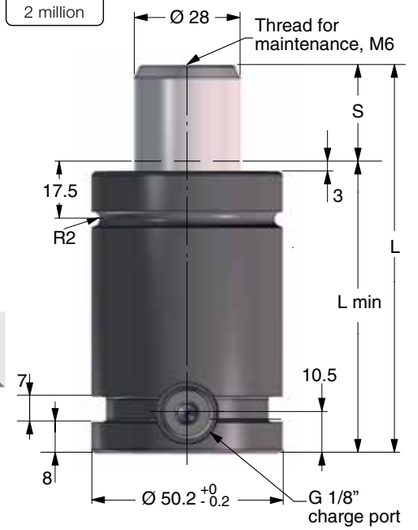
Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

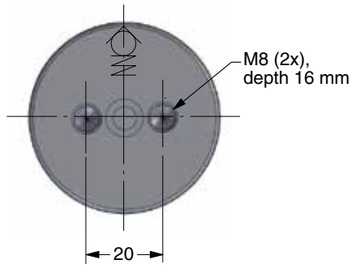
Note! For dimensions o n mounting possibilities K-750, FAC-750, SA-750, HM-750 and FCSC-750 refer to Chapter 3.

XG 1000

KALLER
The Safer Choice

2 million





The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3500 N up to 66000 N and stroke lengths between 13 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M8 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 1000-013	13	9200	13800	78	65	0.03	0.70
XG 1000-016	16		13800	84	68	0.04	0.72
XG 1000-019	19		14000	90	71	0.04	0.74
XG 1000-025	25		14200	102	77	0.05	0.79
XG 1000-032	32		14300	116	84	0.06	0.84
XG 1000-038	38		14500	128	90	0.07	0.89
XG 1000-050	50		14600	152	102	0.09	0.98
XG 1000-063	63		14700	178	115	0.11	1.09
XG 1000-075	75		14700	202	127	0.13	1.18
XG 1000-080	80		14800	212	132	0.14	1.22
XG 1000-100	100		14800	252	152	0.17	1.41
XG 1000-125	125		14800	302	177	0.21	1.60

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018847

Mounting Possibilities

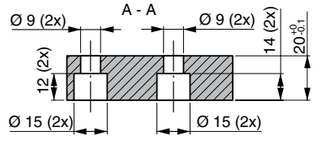
Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

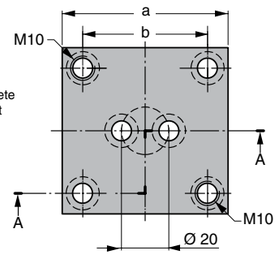
Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and HM-750 refer to Chapter 3.

KALLER
The Safer Choice

XG 1000 Mounts

MP

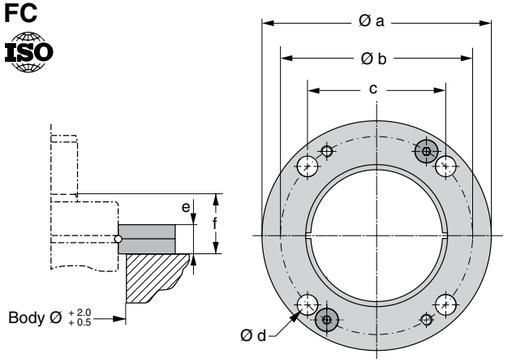




Note! Comes complete with screws to mount gas spring.

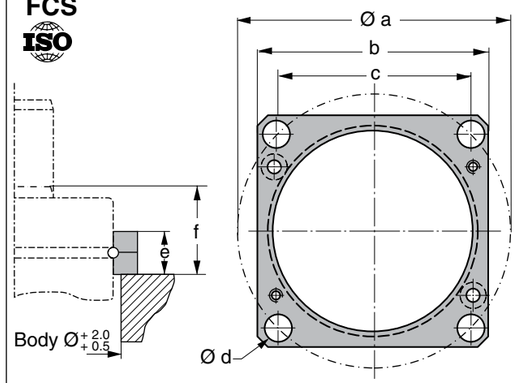
Order No.	a	b
MP-750	75	56.5

FC



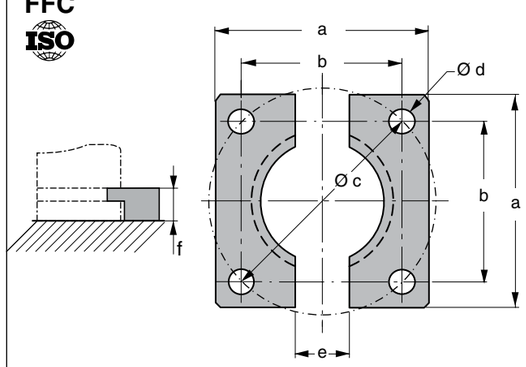
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	22

FCS



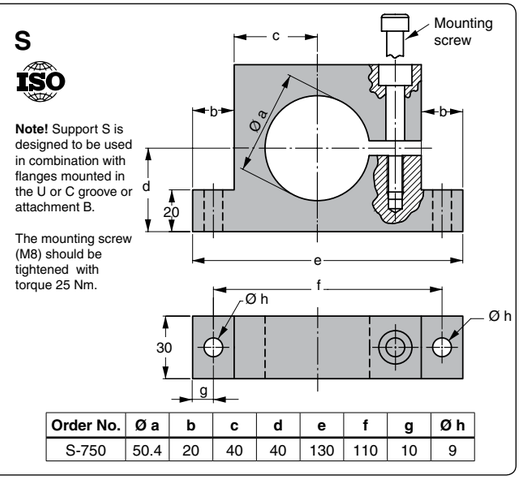
Order No.	Ø a	b	c	Ø d	e	f
FCS-750	80	70	56.5	9	13	22

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-750	75	56.5	80	9	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

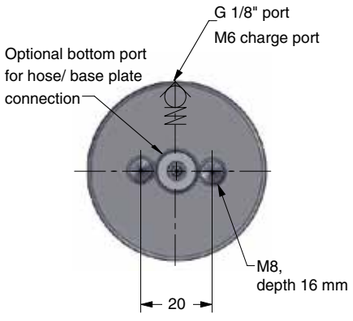
The mounting screw (M8) should be tightened with torque 25 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-750	50.4	20	40	40	130	110	10	9

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and HM-750 refer to Chapter 3.

TX 1000

2 million



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TX 1000-013	13		11200	121	108	0.06	1.17
TX 1000-025	25		12100	145	120	0.07	1.27
TX 1000-038	38		12800	171	133	0.09	1.32
TX 1000-050	50		13200	195	145	0.11	1.37
TX 1000-063	63		13500	221	158	0.13	1.58
TX 1000-750	75		13700	245	170	0.15	1.71
TX 1000-080	80		13800	255	175	0.16	1.73
TX 1000-100	100	9200	14100	295	195	0.19	1.90
TX 1000-125	125		14300	345	220	0.23	2.11
TX 1000-150	150		14500	395	245	0.27	2.32
TX 1000-160	160		14500	415	255	0.28	2.40
TX 1000-175	175		14600	445	270	0.30	2.53
TX 1000-200	200		14700	495	295	0.34	2.74
TX 1000-250	250		14800	595	345	0.42	2.16
TX 1000-300	300		14900	695	395	0.49	3.58

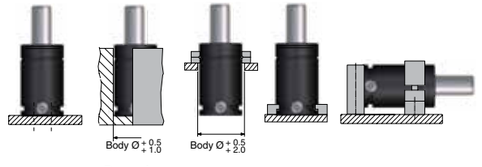
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3023788
Repair kit Part No .....

Mounting Possibilities

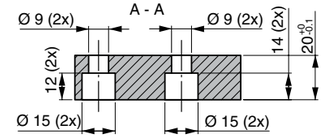


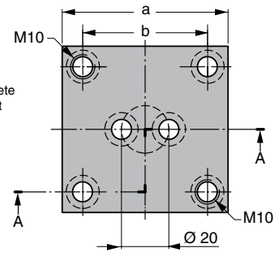
Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and HM-750 refer to Chapter 3.

TX 1000 Mounts

MP

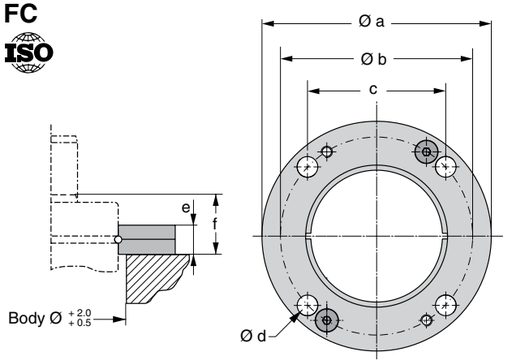




Note! Comes complete with screws to mount gas spring.

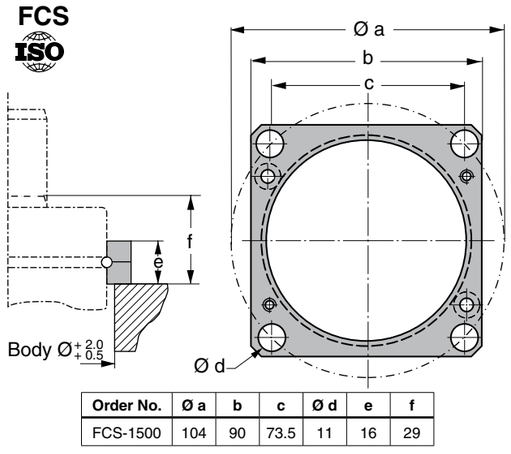
Order No.	a	b
MP-750	75	56.5

FC



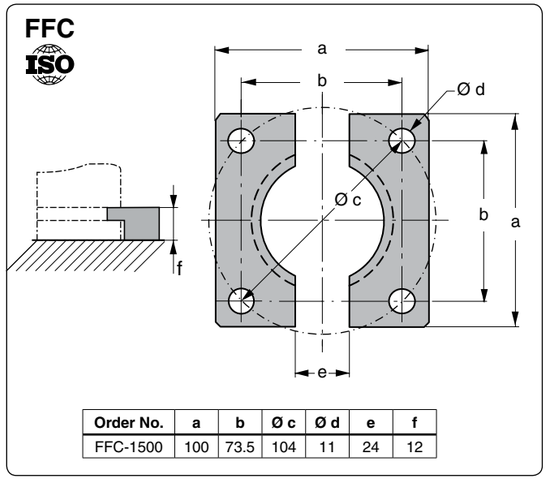
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	22

FCS



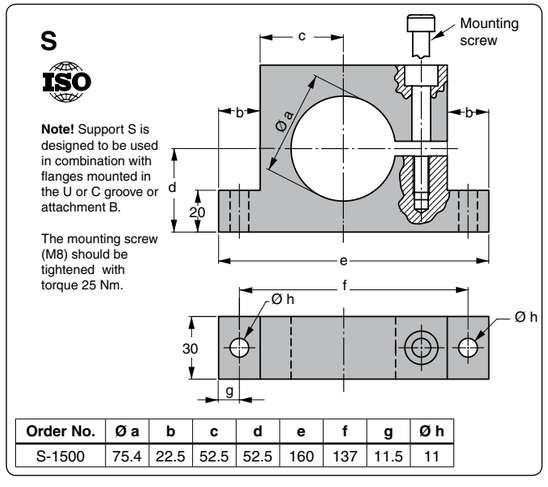
Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

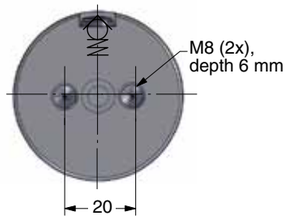
The mounting screw (M8) should be tightened with torque 25 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-750, FAC-750, SA-750 and HM-750 refer to Chapter 3.

X 1500

2 million



The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M8 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 1500-013	13	15000	24000	70	57	0.05	0.89
X 1500-016	16		24100	76	60	0.06	0.93
X 1500-019	19		24200	82	63	0.07	0.96
X 1500-025	25		24300	94	69	0.08	1.03
X 1500-032	32		23800	108	76	0.11	1.08
X 1500-038	38		23900	120	82	0.12	1.15
X 1500-050	50		24000	144	94	0.15	1.28
X 1500-063	63		24100	170	107	0.19	1.43
X 1500-075	75		24200	194	119	0.22	1.57
X 1500-080	80		24200	204	124	0.24	1.63
X 1500-100	100		24300	244	144	0.29	1.86
X 1500-125	125		24300	294	169	0.36	2.15

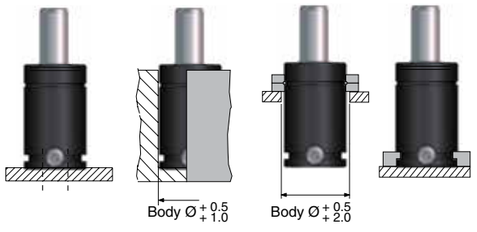
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3020434

Mounting Possibilities

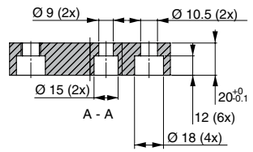


Base mount B, MPX
Drop -in
Top mount FCX, FCSX
Foot mount KX, FFX

Note! For dimensions on mounting possibility KX-1500 refer to Chapter 3.

X 1500 Mounts

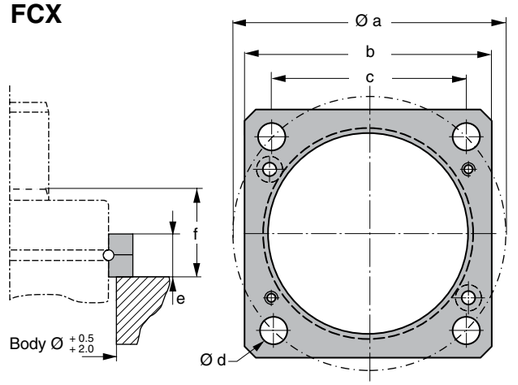
MPX



Note! Comes complete with screws to mount gas spring.

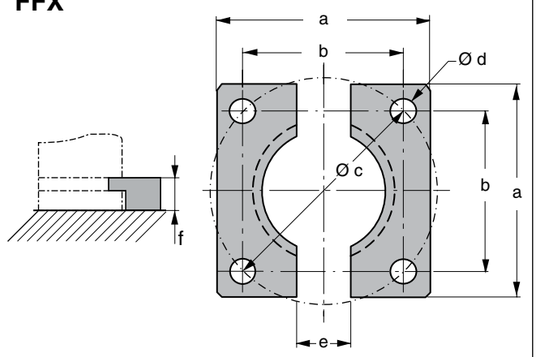
Order No.	a	b
MPX-1500	100	73.5

FCX



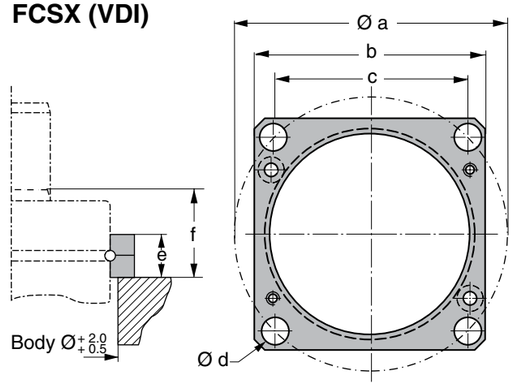
Order No.	Ø a	b	c	Ø d	e	f
FCX-1500	104	90	73.5	11	16	27

FFX



Order No.	a	b	Ø c	Ø d	e	f
FFX-1500	100	73.5	104	11	24	12

FCSX (VDI)



Order No.	Ø a	b	c	Ø d	e	f
FCSX-1500	90.5	80	64	11	16	27

Note! For dimensions on mounting possibility KX-1500 refer to Chapter 3.

XG 1500

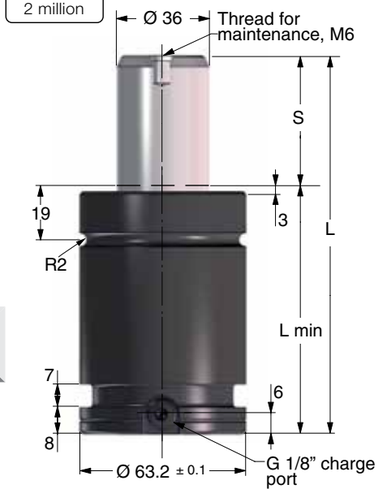
2 million

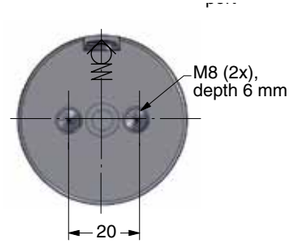
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3,500 N up to 66,000 N and stroke lengths between 13 and 125 mm.

There is a side and a bottom port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with two M8 threaded holes allow various mounting possibilities using our standard mounts.





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 1500-013	13		24000	78	65	0.05	0.9
XG 1500-016	16		24100	84	68	0.06	0.9
XG 1500-019	19		24200	90	71	0.07	1.0
XG 1500-025	25		24300	102	77	0.08	1.0
XG 1500-032	32		23800	116	84	0.11	1.1
XG 1500-038	38		23900	128	90	0.12	1.2
XG 1500-050	50	15000	24000	152	102	0.15	1.3
XG 1500-063	63		24100	178	115	0.19	1.4
XG 1500-075	75		24200	202	127	0.22	1.4
XG 1500-080	80		24200	212	132	0.24	1.4
XG 1500-100	100		24300	252	152	0.29	1.9
XG 1500-125	125		24300	302	177	0.36	2.2

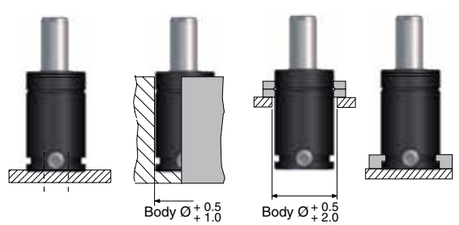
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 50 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3020434

Mounting Possibilities

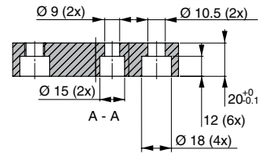


Base mount **B, MPX** | **Drop -in** | **Top mount** **FCX, FCSX** | **Foot mount** **KX, FFX**

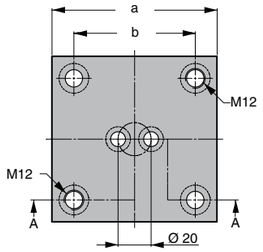
Note!
For dimensions on mounting possibility KX-1500 refer to Chapter 3.

XG 1500 Mounts

MPX

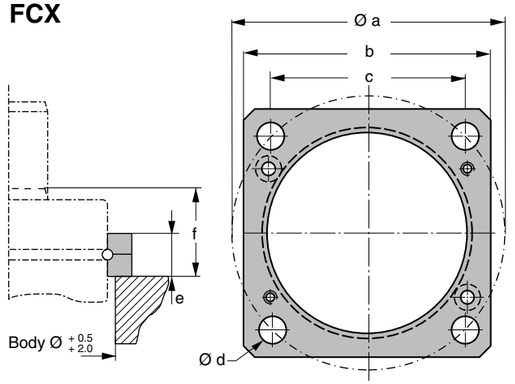


Note! Comes complete with screws to mount gas spring.



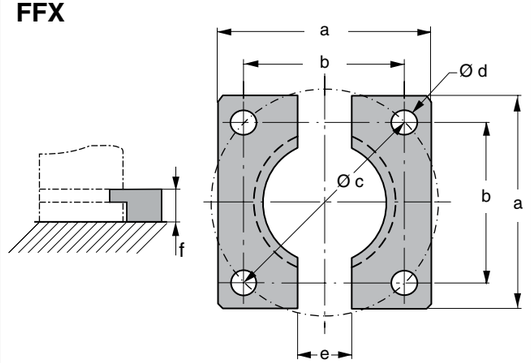
Order No.	a	b
MPX-1500	100	73.5

FCX



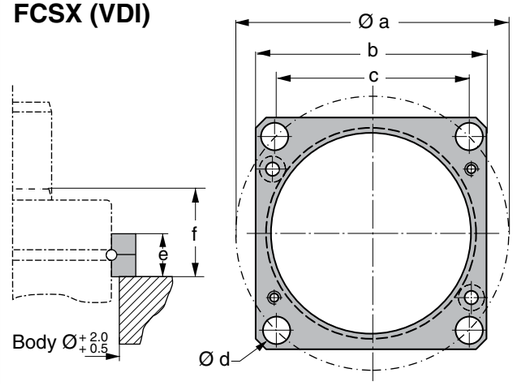
Order No.	Ø a	b	c	Ø d	e	f
FCX-1500	104	90	73.5	11	16	27

FFX



Order No.	a	b	Ø c	Ø d	e	f
FFX-1500	100	73.5	104	11	24	12

FCSX (VDI)



Order No.	Ø a	b	c	Ø d	e	f
FCSX-1500	90.5	80	64	11	16	27

Note! For dimensions on mounting possibility KX-1500 refer to Chapter 3.

X 2400

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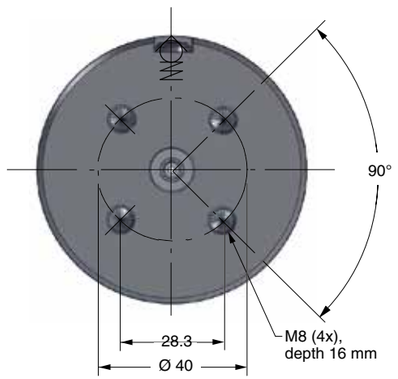


The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with four M8 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 2400-016	16		38300	77	61	0.09	1.34
X 2400-019	19		38500	83	64	0.10	1.38
X 2400-025	25		38700	95	70	0.13	1.45
X 2400-032	32		38600	109	77	0.16	1.56
X 2400-038	38		38400	121	83	0.18	1.65
X 2400-050	50	24000	39200	145	95	0.23	1.84
X 2400-063	63		39200	171	108	0.28	2.20
X 2400-075	75		39200	195	120	0.33	2.26
X 2400-080	80		39200	205	125	0.35	2.32
X 2400-100	100		39300	245	145	0.43	2.66
X 2400-125	125		39300	295	170	0.54	3.05

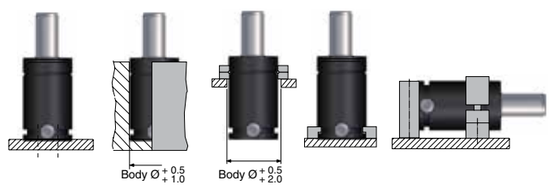
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 40 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018848
Repair kit Part No. .....
The X 2400-016 and X 2400-019 are not possible to repair.

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

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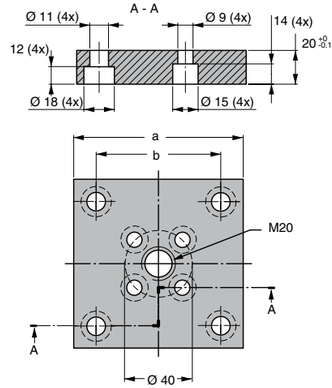
X 2400 Mounts

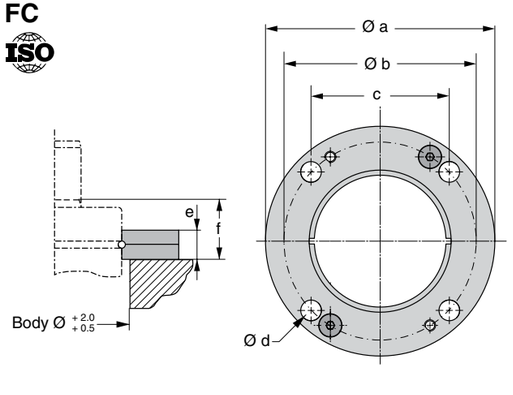
MP

Note! Comes complete with screws to mount gas spring.



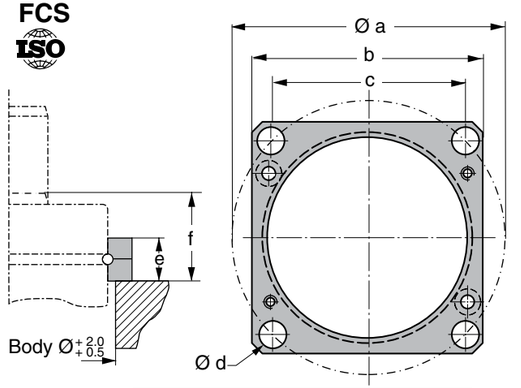
Order No.	a	b
MP-1500	100	73.5

FC



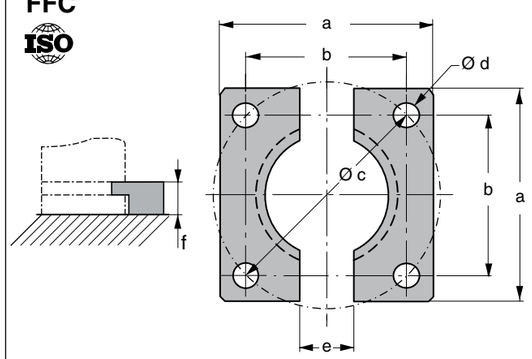
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC

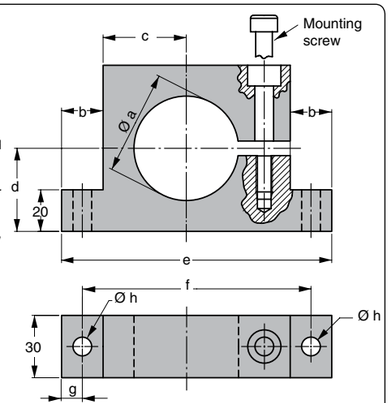


Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M10) should be tightened with torque 52 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

XG 2400

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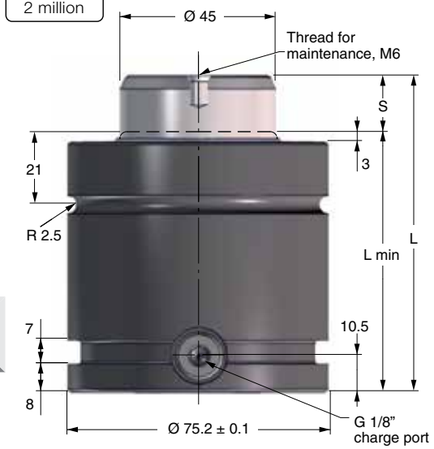
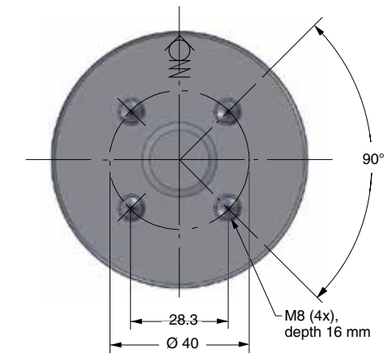
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3,500 N up to 66,000 N and stroke lengths between 10 and 125 mm.

There is a side and bottom port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with four M8 threaded holes allow various mounting possibilities using our standard mounts.





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 2400-016	16		38300	91	75	0.09	1.77
XG 2400-019	19		38500	97	78	0.10	1.82
XG 2400-025	25		38700	109	84	0.13	1.89
XG 2400-032	32		38600	123	91	0.16	2.00
XG 2400-038	38		38400	135	97	0.18	2.10
XG 2400-050	50	24000	39200	159	109	0.23	2.28
XG 2400-063	63		39200	185	122	0.28	2.56
XG 2400-075	75		39200	209	134	0.33	2.75
XG 2400-080	80		39200	219	139	0.35	2.83
XG 2400-100	100		39300	259	159	0.43	3.15
XG 2400-125	125		39300	309	184	0.54	3.54

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 40 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018848
The XG 2400-16 and XG 2400-19 are not possible to repair.

Mounting Possibilities

Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, FCSC-1500 and HM-1500 refer to Chapter 3.

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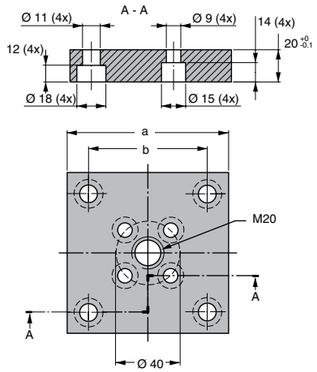
XG 2400 Mounts

MP

ISO

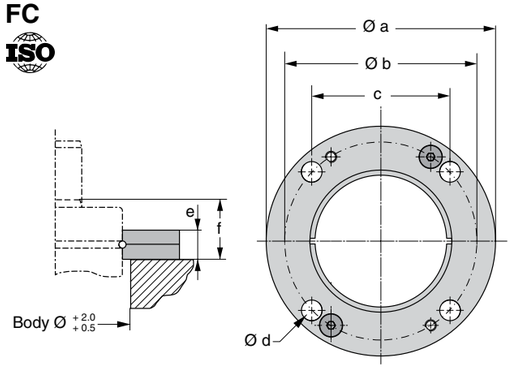
Note! Comes complete with screws to mount gas spring.



Order No.	a	b
MP-1500	100	73.5

FC

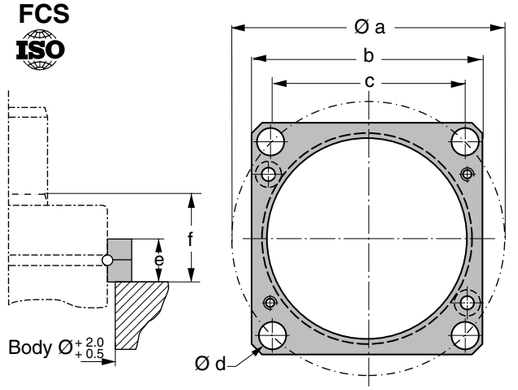
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS

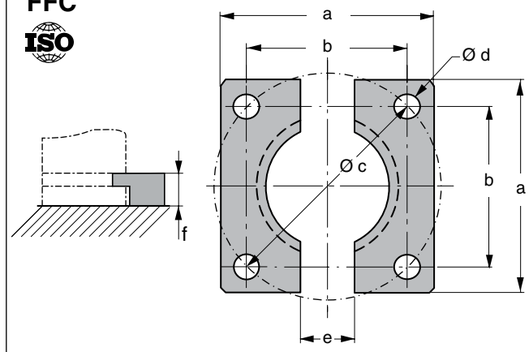
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC

ISO



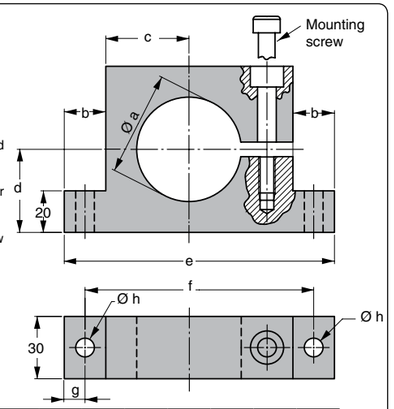
Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S

ISO

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M10) should be tightened with torque 52 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, FCSC-1500 and HM-1500 refer to Chapter 3.

6

TX 2400

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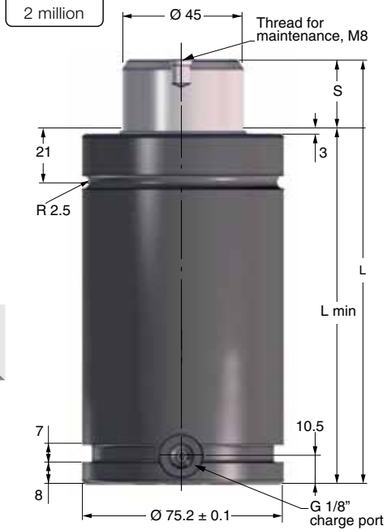

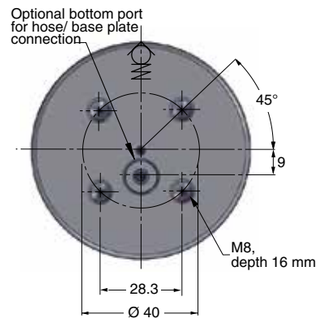

The Power Line – Heavy Duty series is a crossover between the standard TU Series and the Power Line X Series.

These gas springs are available with forces from 9,200 N up to 95,000 N and stroke lengths between 13 and 300 mm.

There is an optional bottom port for hose/base plate connection.

An upper C-groove, lower U-groove and bottom threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TX 2400-025	25		37100	160	135	0.23	3.1
TX 2400-038	38		37600	186	148	0.28	3.31
TX 2400-050	50		37900	210	160	0.33	3.5
TX 2400-063	63		38100	236	173	0.38	3.7
TX 2400-075	75		38300	260	185	0.43	3.89
TX 2400-080	80		38300	270	190	0.45	3.97
TX 2400-100	100		38500	310	210	0.53	4.29
TX 2400-125	125	24000	38700	360	235	0.63	4.68
TX 2400-150	150		38800	410	260	0.73	5.07
TX 2400-160	160		38800	430	270	0.77	5.23
TX 2400-175	175		38900	460	285	0.83	5.47
TX 2400-200	200		38900	510	310	0.93	5.86
TX 2400-250	250		39000	610	360	1.17	6.65
TX 2400-300	300		39100	710	410	1.33	7.44

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 40 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3022952
Repair kit Part No 3045847

Mounting Possibilities

Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, FCSC-1500 and HM-1500 refer to Chapter 3.

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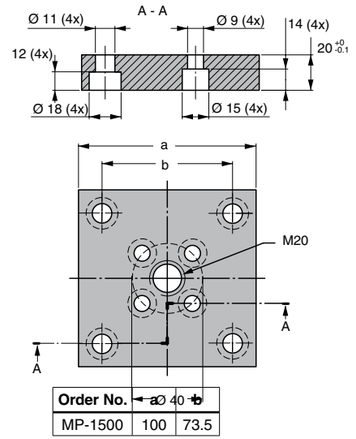
TX 2400 Mounts

MP

ISO

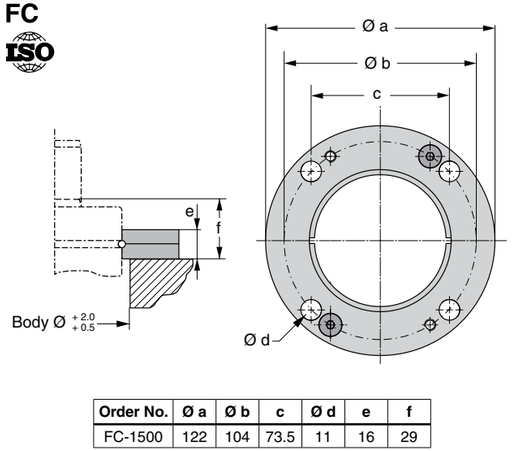
Note!
Comes complete with screws to mount gas spring.



Order No.	a	b
MP-1500	100	73.5

FC

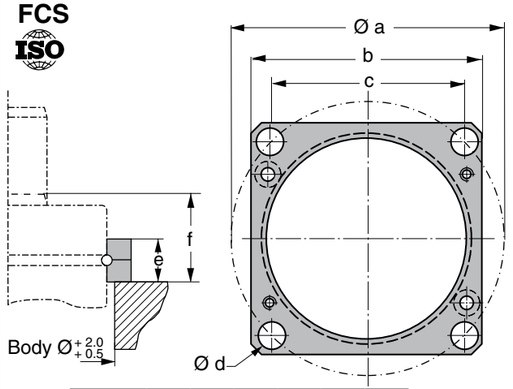
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS

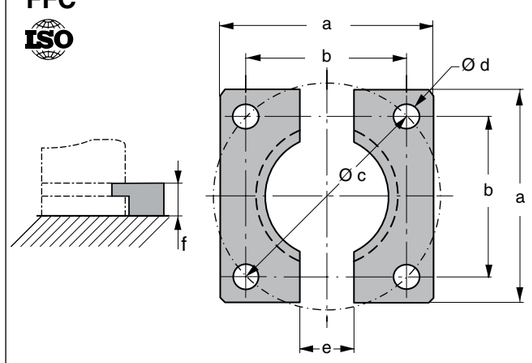
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC

ISO



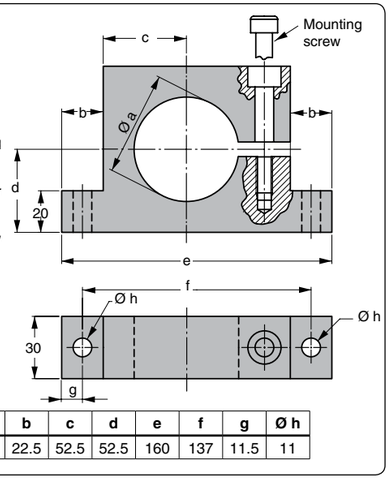
Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S

ISO

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M10) should be tightened with torque 52 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, FCSC-1500 and HM-1500 refer to Chapter 3.

TL 1500

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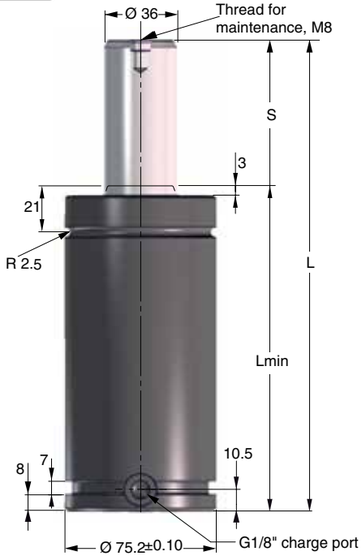
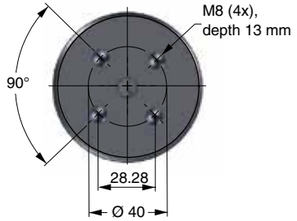
The TL Series ranges from model sizes 750 to 7,500, with the same features and technology as the TU series.

At the same time, the TL gas spring is shorter than the corresponding TU gas spring by 25 mm, except TL 5000 and TL 7500, which are 37.5 mm and 50 mm shorter respectively. TL springs share the same TU mounting possibilities and stroke lengths, with exception of strokes 12.5, 37.5 and 62.5.





Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force*	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
TL 1500-013	12.5		18,000		4,050	110	97.5	0.11	2.65
TL 1500-025	25		19,200		4,320	135	110	0.15	2.88
TL 1500-038	37.5		20,000		4,500	160	122.5	0.19	3.11
TL 1500-050	50		20,400		4,590	185	135	0.23	3.34
TL 1500-063	62.5		20,700		4,650	210	147.5	0.27	3.57
TL 1500-075	75		20,900		4,700	235	160	0.31	3.88
TL 1500-080	80		21,000		4,720	245	165	0.33	3.89
TL 1500-088	87.5		21,100		4,740	260	172.5	0.35	4.03
TL 1500-100	100	15,000	21,200	3,370	4,770	285	185	0.39	4.26
TL 1500-113	112.5		21,400		4,810	310	197.5	0.43	4.49
TL 1500-125	125		21,500		4,830	335	210	0.47	4.71
TL 1500-138	137.5		22,000		4,950	360	222.5	0.49	4.94
TL 1500-150	150		22,000		4,950	385	235	0.52	5.17
TL 1500-160	160		22,100		4,970	405	245	0.56	5.36
TL 1500-175	175		22,100		4,970	435	260	0.60	5.63
TL 1500-200	200		22,100		4,970	485	285	0.68	6.09
TL 1500-225	225		22,200		4,990	535	310	0.76	6.55
TL 1500-250	250		22,200		4,990	585	335	0.84	7.01

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3024144

Mounting Possibilities

Base mount B, MP | **Drop -in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC,** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

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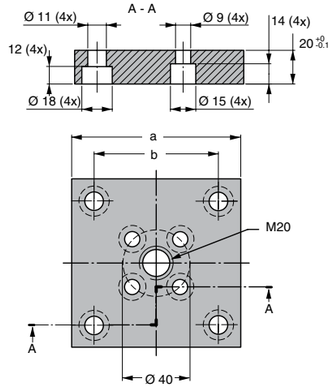
TL 1500 Mounts

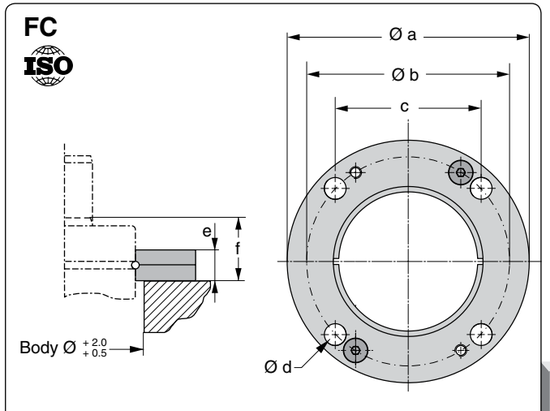
MP



Note! Comes complete with screws to mount gas spring.

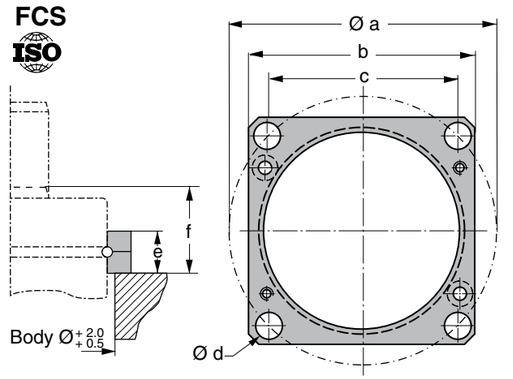
Order No.	a	b
MP-1500	100	73.5

FC



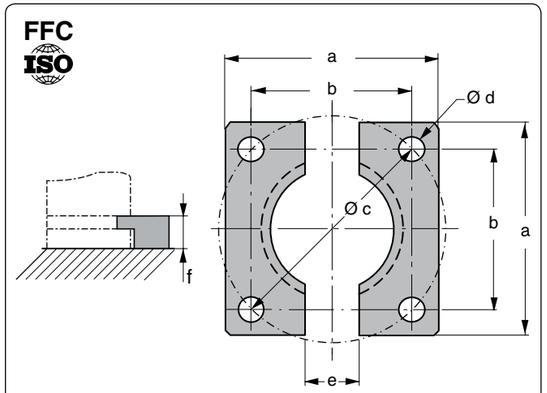
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS



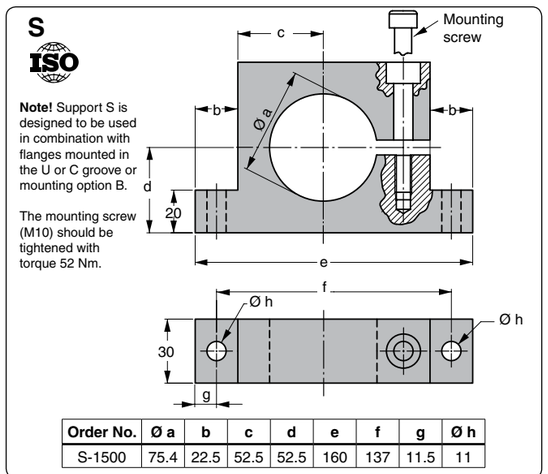
Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M10) should be tightened with torque 52 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

K 1500

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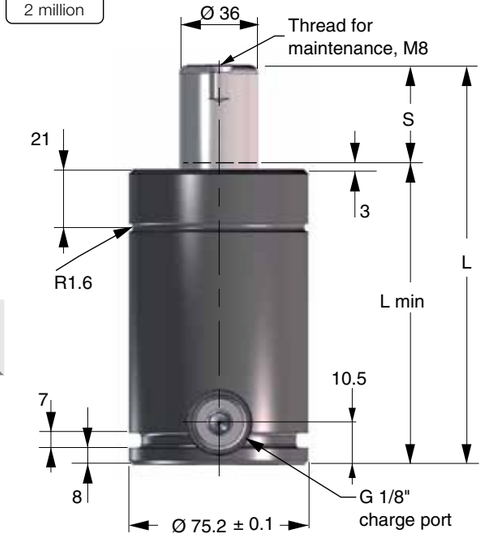
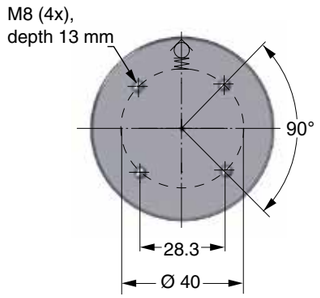
This is a short height hoseable spring with an initial force of 15,000 N.

The K 1500 has a total length of 60 mm + (2 × stroke). This spring is 50 mm shorter than the TU 1500.





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
K 1500-025	25	15000	24000	110	85	0.10	2.05
K 1500-038	38.1		23000	136.2	98.1	0.14	2.35
K 1500-050	50		23000	160	110	0.18	2.50
K 1500-064	63.5		23000	187	123.5	0.22	2.75
K 1500-080	80		23000	220	140	0.27	3.05
K 1500-100	100		23000	260	160	0.34	3.40

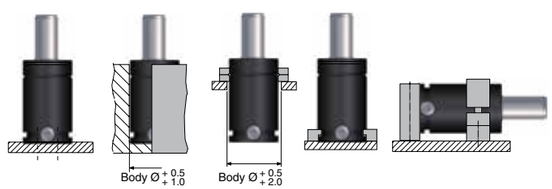
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit 3017230-1500

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FK,** | **Foot mount K, FFC** | **Body mount SA, S**

Note! For dimensions on mounting possibilities K-1500 and SA-1500 refer to Chapter 3.

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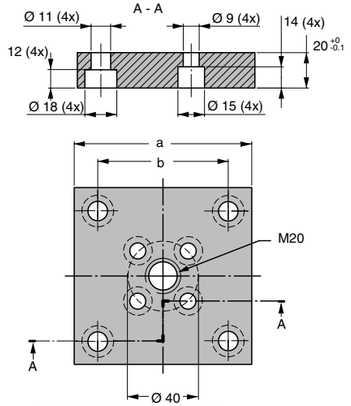
K 1500 Mounts

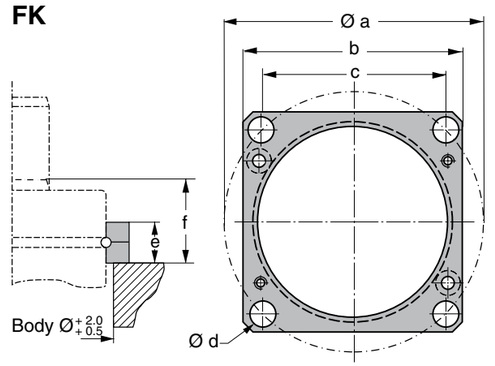
MP



Note! Comes complete with screws to mount gas spring.

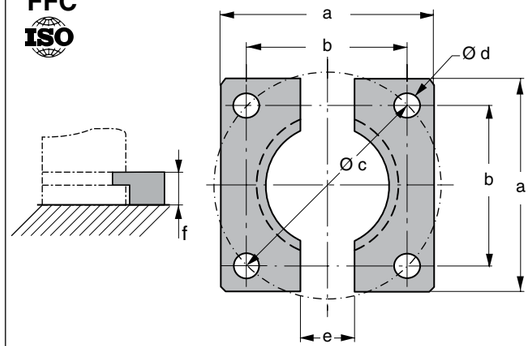
Order No.	a	b
MP-1500	100	73.5

FK



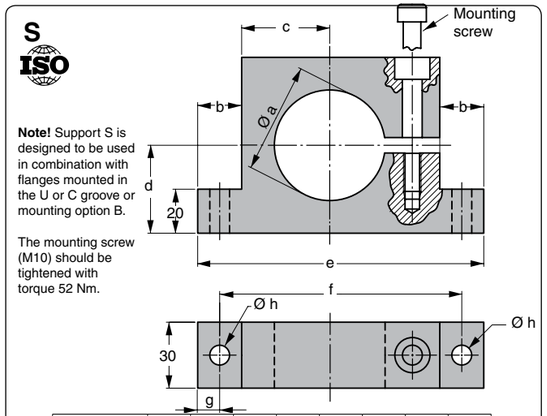
Order No.	Ø a	b	c	Ø d	e	f
FK-1500	104	90	73.5	11	16	29

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M10) should be tightened with torque 52 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500 and FCSC-1500 refer to Chapter 3.

TU 1500

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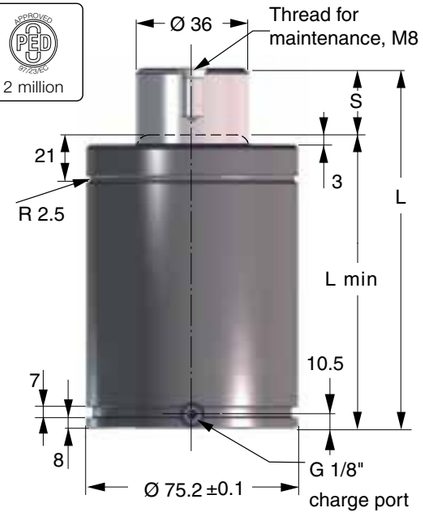
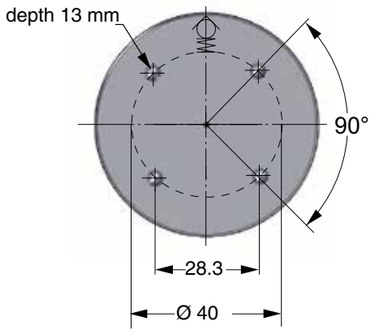




Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
TU 1500-025	25			160	135	0.10	3.65	√
TU 1500-038	38.1			186.2	148.1	0.15	3.89	
TU 1500-050	50			210	160	0.18	4.11	√
TU 1500-064	63.5			237	173.5	0.22	4.35	
TU 1500-080	80			270	190	0.28	4.66	√
TU 1500-100	100	15000	23000	310	210	0.34	5.02	√
TU 1500-125	125			360	235	0.42	5.48	√
TU 1500-160	160			430	270	0.53	6.12	√
TU 1500-200	200			510	310	0.68	6.86	
TU 1500-250	250			610	360	0.81	7.77	
TU 1500-300	300			710	410	0.96	8.69	

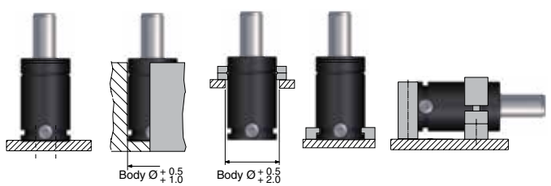
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 2014068-02
Repair kit Part No 3040924

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC,** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

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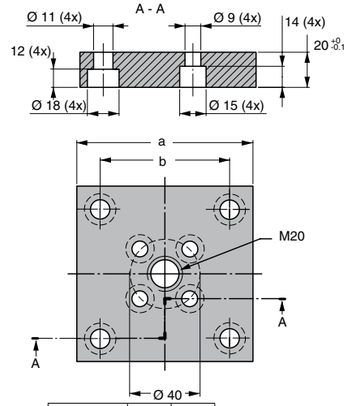
TU 1500 Mounts

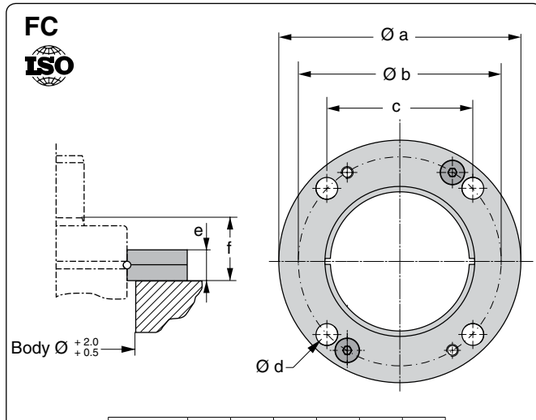
MP



Note! Comes complete with screws to mount gas spring.

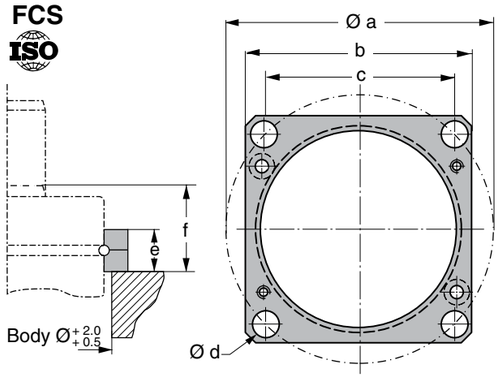
Order No.	a	b
MP-1500	100	73.5

FC



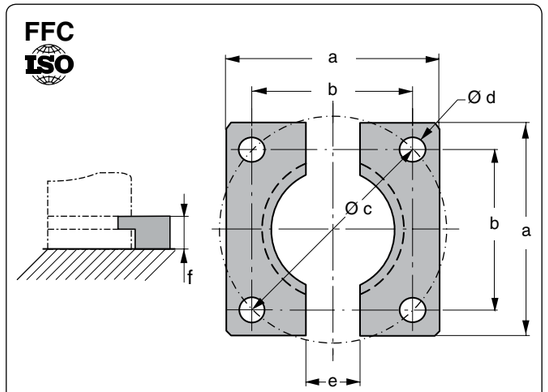
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS



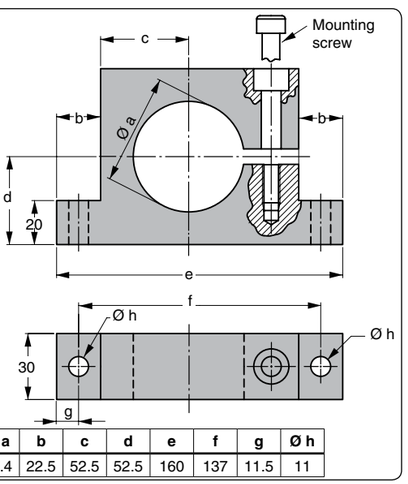
Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M10) should be tightened with torque 52 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

TUS 1500

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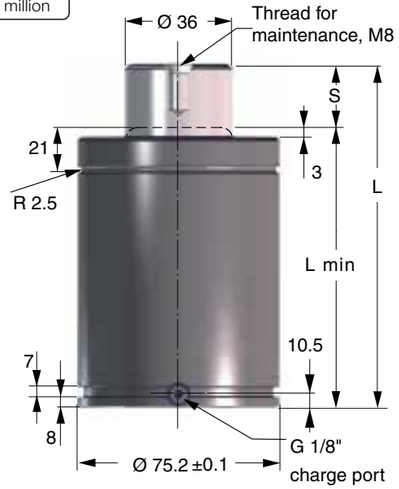
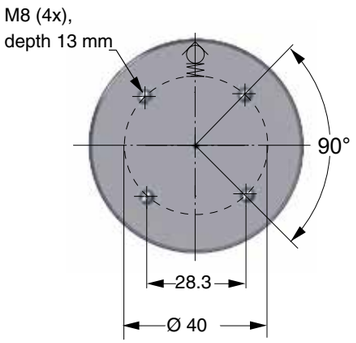
2 million



The High Speed gas springs (TUS) have been engineered to withstand press stroke speeds to a maximum of 2 m/s, which meet the safety requirements from the French automotive manufacturer Renault.

These gas springs are available in sizes from 750 to 7,500 and dimensions that conform to the ISO 11901 gas spring standard.

The TUS gas spring replaces the TUR spring that has been phased out.



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TUS 1500-025	25	15000	23000	160	135	0.10	3.75
TUS 1500-038	38.1		23000	186.2	148.1	0.15	3.95
TUS 1500-050	50		23000	210	160	0.18	4.15
TUS 1500-064	63.5		23000	237	173.5	0.22	4.40
TUS 1500-080	80		23000	270	190	0.28	4.70
TUS 1500-100	100		23000	310	210	0.34	5.10
TUS 1500-125	125		23000	360	235	0.42	5.55
TUS 1500-160	160		23000	430	270	0.53	6.25
TUS 1500-200	200		23000	510	310	0.68	6.90
TUS 1500-250	250		23000	610	360	0.81	7.80
TUS 1500-300	300		23000	710	410	0.96	8.90

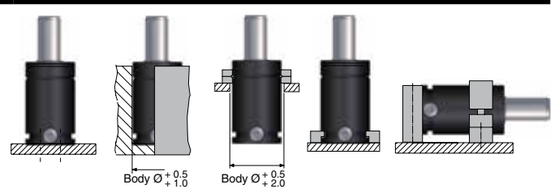
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 2 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3019278

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC, | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

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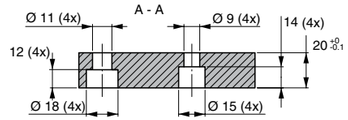
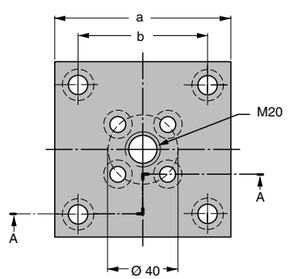
TUS 1500 Mounts

MP

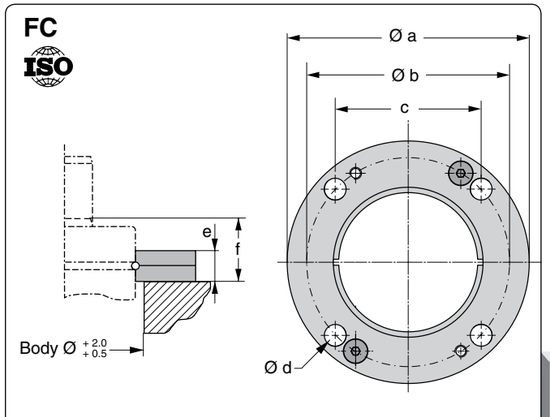




Note!
Comes complete with screws to mount gas spring.

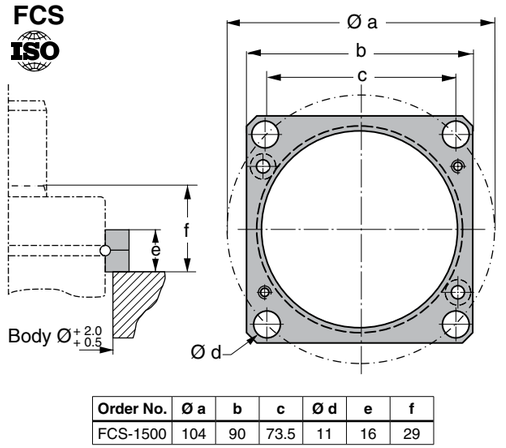
Order No.	a	b
MP-1500	100	73.5

FC



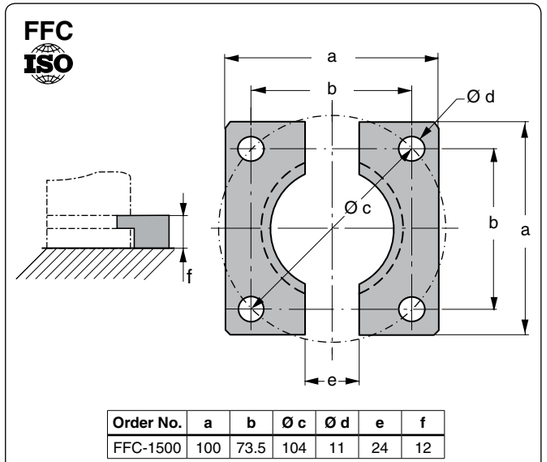
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS



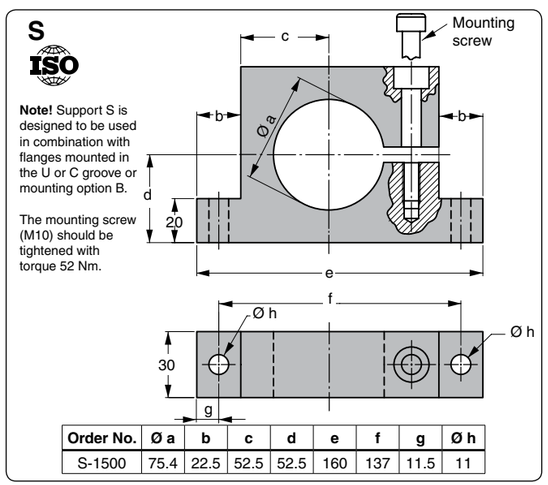
Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M10) should be tightened with torque 52 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

LCF 1500

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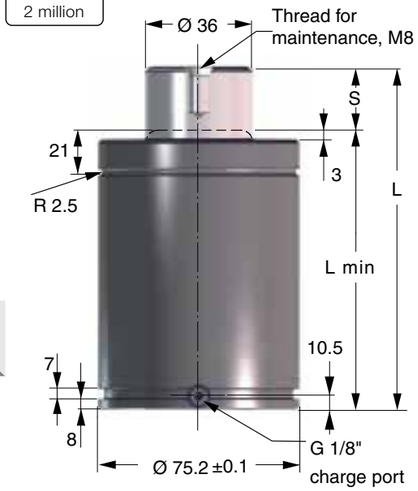
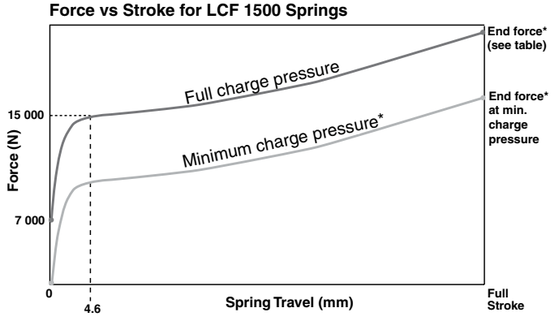


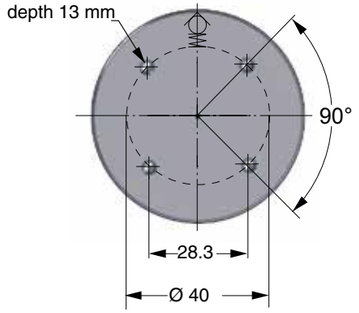
Low Contact Force (LCF) gas springs are designed to reduce excessive shock loads, high noise levels and extreme pad bounce, all factors that lead to high press maintenance costs and noise pollution.
For more information, see “About Gas Springs”, 2.1/4.

Force vs Stroke for LCF 1500 Springs



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
LCF 1500-025	25	15000	23000	160	135	0.10	3.75
LCF 1500-038	38.1		23000	186.2	148.1	0.15	3.95
LCF 1500-050	50		23000	210	160	0.18	4.15
LCF 1500-064	63.5		23000	237	173.5	0.22	4.40
LCF 1500-080	80		23000	270	190	0.28	4.70
LCF 1500-100	100		23000	310	210	0.34	5.10
LCF 1500-125	125		23000	360	235	0.42	5.55
LCF 1500-160	160		23000	430	270	0.53	6.25
LCF 1500-200	200		23000	510	310	0.68	6.90
LCF 1500-250	250		23000	610	360	0.81	7.80
LCF 1500-300	300		23000	710	410	0.96	8.90

* = at full stroke

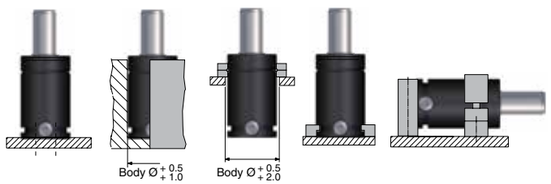


Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 105 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3019378

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC,** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

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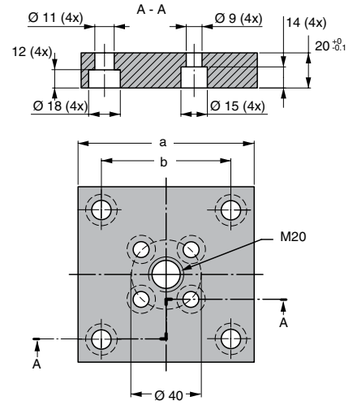
LCF 1500 Mounts

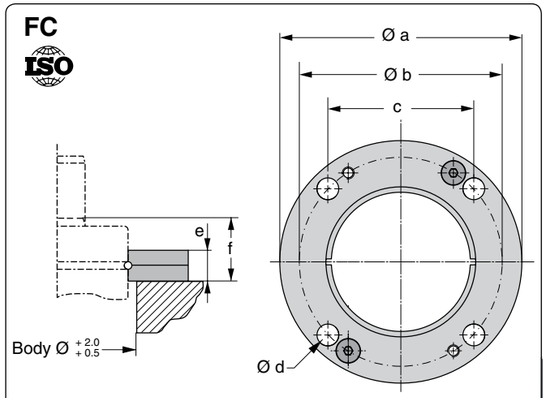
MP



Note!
Comes complete with screws to mount gas spring.

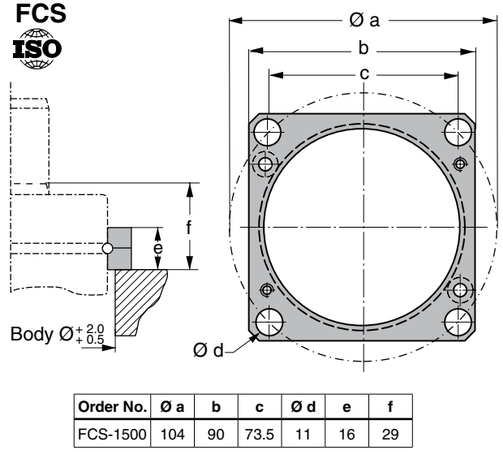
Order No.	a	b
MP-1500	100	73.5

FC



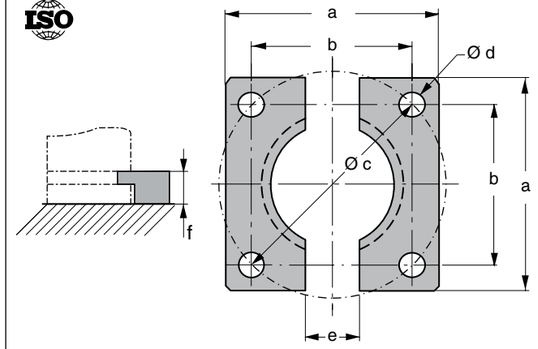
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-1500	122	104	73.5	11	16	29

FCS



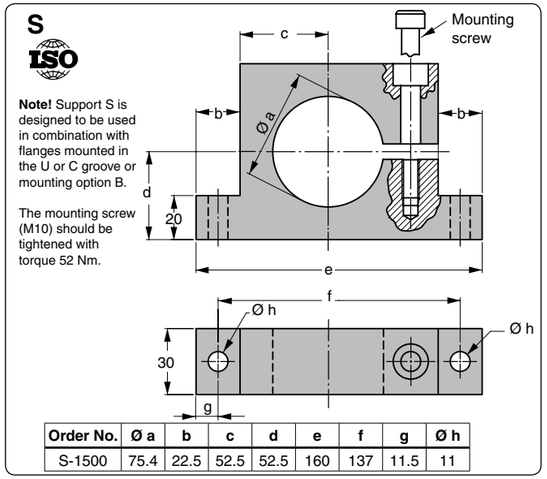
Order No.	Ø a	b	c	Ø d	e	f
FCS-1500	104	90	73.5	11	16	29

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-1500	100	73.5	104	11	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M10) should be tightened with torque 52 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-1500	75.4	22.5	52.5	52.5	160	137	11.5	11

Note! For dimensions on mounting possibilities K-1500, FAC-1500, SA-1500, HM-1500 and FCSC-1500 refer to Chapter 3.

SPC 1500

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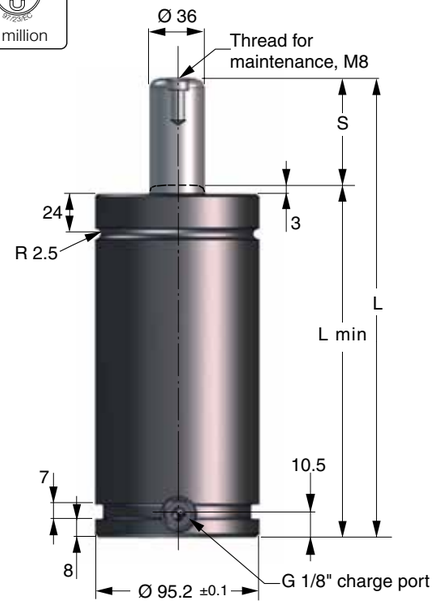
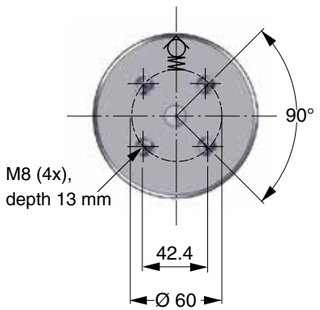


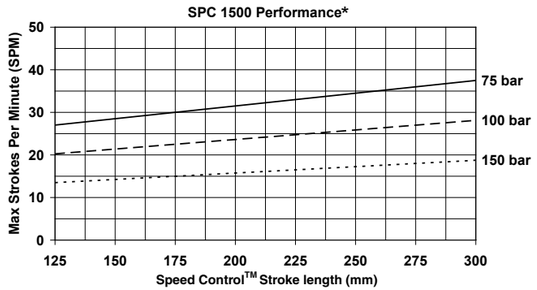


Speed Control™ – SPC gas springs have been engineered to eliminate blank holder bounce, commonly associated with increased return stroke speeds from link drive presses.

SPC gas springs have inbuilt return stroke **speed dampening**, which decelerates the last 30 mm of the piston rod stroke to 0.4 m/s, helping to bring the blank holder to a smooth stop.

Speed Control™ – SPC features:

- Eliminates blank holder bounce
- Increases productivity by increasing part transfer efficiency
- Easily retrofitted to existing dies
- Stroke lengths from 125 to 300 mm
- Linkable using a hose system



*At ambient room temperatures with free air flow

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
SPC 1500-125	125	15000	19000	370	245	0.73	7.60
SPC 1500-160	160			440	280	0.91	8.45
SPC 1500-200	200			520	320	1.11	9.43
SPC 1500-250	250			620	370	1.36	10.64
SPC 1500-300	300			720	420	1.62	11.86

*at full stroke

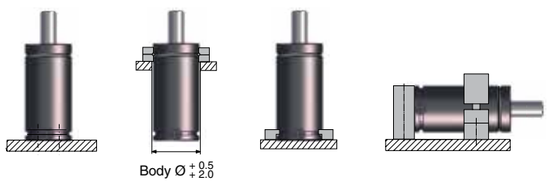
Basic Information

For general information see “About gas springs” , 2.1

Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature..... ±0.3%/°C
Recommended max strokes/min ..... See chart
Dampening length ..... ≈ 30 mm
Dampening speed ..... 0.4 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3021494

Mounting Possibilities



Base mount B, MP | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000 and FCSC-3000 refer to Chapter 3.

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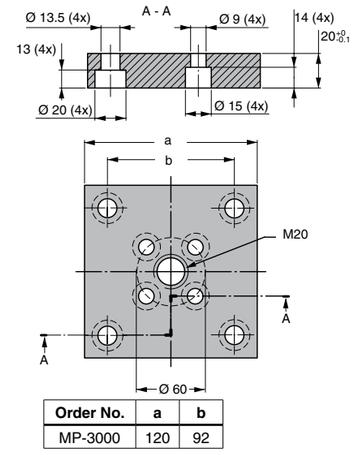
SPC 1500 Mounts

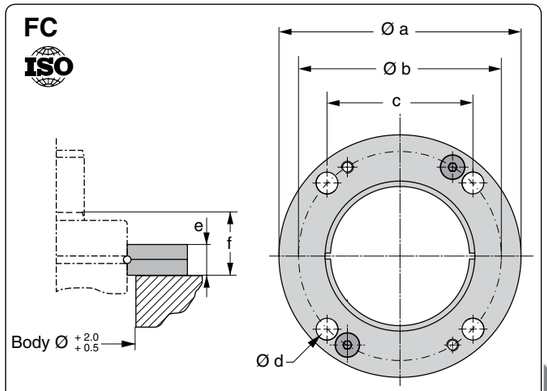
MP



Note! Comes complete with screws to mount gas spring.

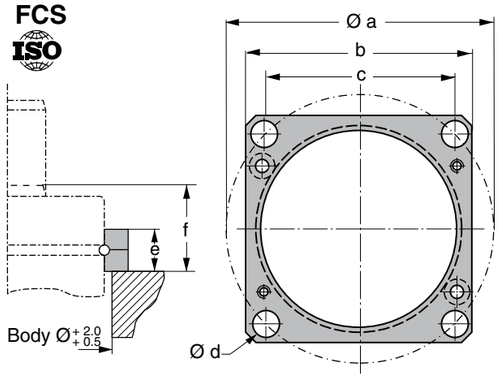
Order No.	a	b
MP-3000	120	92

FC



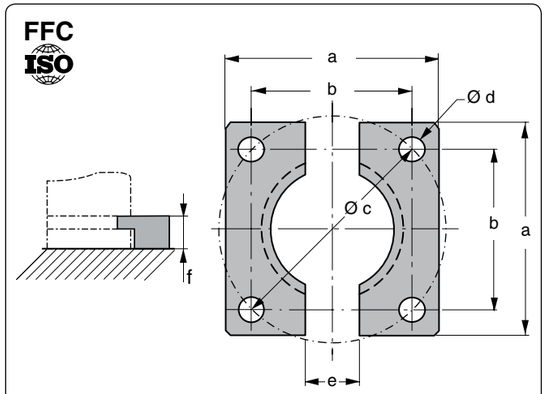
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS



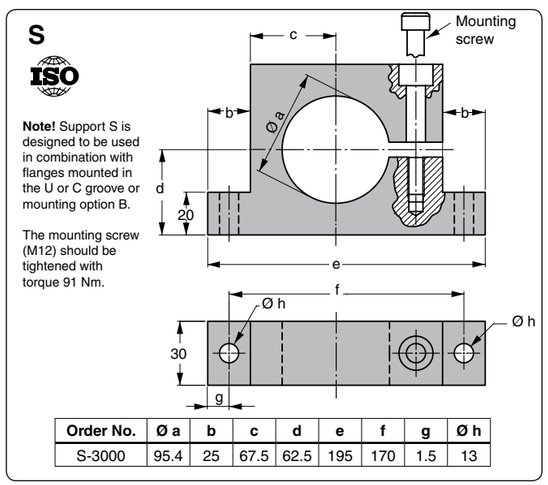
Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	1.5	13

Note! For dimension on mounting possibilities K-3000, FAC-3000, SA-3000 and FCSC-3000 refer to Chapter 3.

MT 1000

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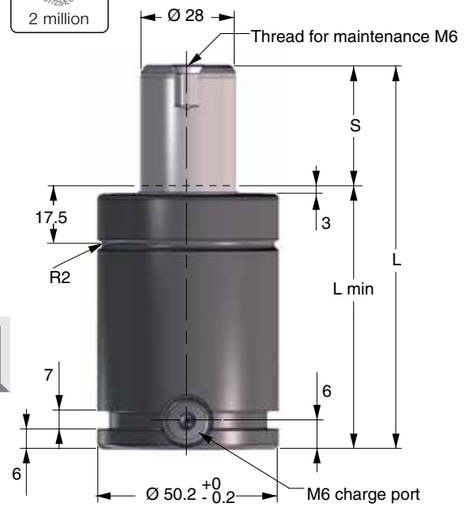
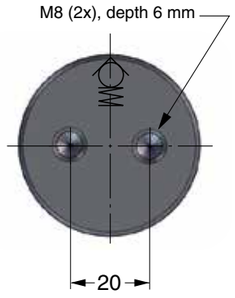




Mould Temp gas springs have been engineered to withstand higher working temperatures, like those commonly associated with plastic molding tools. Mould Temp gas springs are compact and powerful piston rod sealed gas springs, which can be used at working temperatures up to 120°C.

Features:

- For applications up to 120°C
- Fully adjustable charge pressure
- Various mounting possibilities using our standard mounts as well as bottom threaded holes
- M6 gas ports can be connected to the special high temp version of our Micro EO24™ Hose and Tube system for remote pressure control

Max. working temp. interval	Max. strokes per minute (spm)	Max. charge pressure at 20°C (bar)	Force per temperature		
			Spring temp.	Initial force (N)	End force* (N)
0 – 80°C	20	150	80°C (20°C)	11,130 (9,200)	17,500 (14,500)
80 – 100°C	15	125	100°C (20°C)	9,800 (7,700)	15,400 (12,100)
100 – 120°C	10	115	120°C (20°C)	9,500 (7,080)	14,900 (11,100)

* = at full stroke

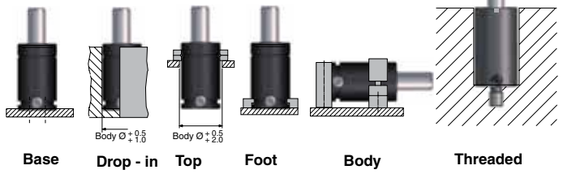
Order No.	S Stroke	Initial Force in N at 150 bar/+20°C	L ±0.25	L min	Gas vol. (l)	Weight (kg)
MT 1000-013	13	9200	64	51	0.03	0.52
MT 1000-016	16		70	54	0.04	0.54
MT 1000-019	19		76	57	0.04	0.56
MT 1000-025	25		88	63	0.05	0.61
MT 1000-032	32		102	70	0.06	0.66
MT 1000-038	38		114	76	0.07	0.71
MT 1000-050	50		138	88	0.09	0.81
MT 1000-063	63		164	101	0.11	0.91
MT 1000-075	75		188	113	0.13	1.02
MT 1000-080	80		198	118	0.14	1.05

Basic Information

For general information, see “About Gas Springs”, 2.1

Pressure medium	Nitrogen
Max. charging pressure	See table above
Min. charging pressure	25 bar (at 20°C)
Operating temperature	0 – +120°C
Force increase by temperature	±0.3 %/°C
Recommended max. strokes/min.	See table above
Max. piston rod velocity	1.0 m/s
Service life (0 to 80°C)	1,000,000 strokes
or	100,000 stroke meters*
Service life (80 to 120°C)	500,000 strokes
or	50,000 stroke meters*
Tube & rod surface	Nitrided
Repair kit	3022690

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S, HM** | **Threaded stud**

Note! For dimensions on mounting possibilities FCSC-750, K-750, FAC-750, SA-750 and HM-750 refer to Chapter 3.

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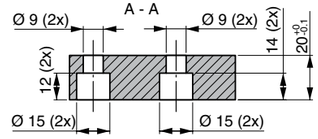
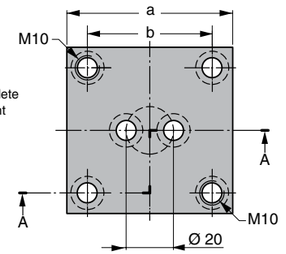
MT 1000 Mounts

MP

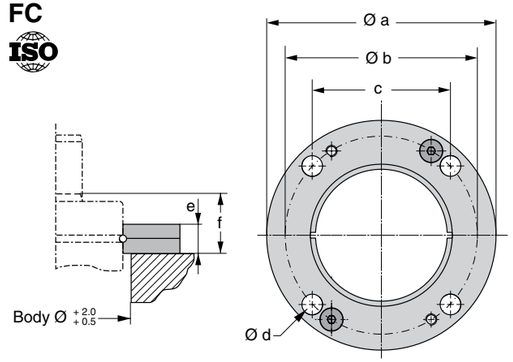




Note! Comes complete with screws to mount gas spring.

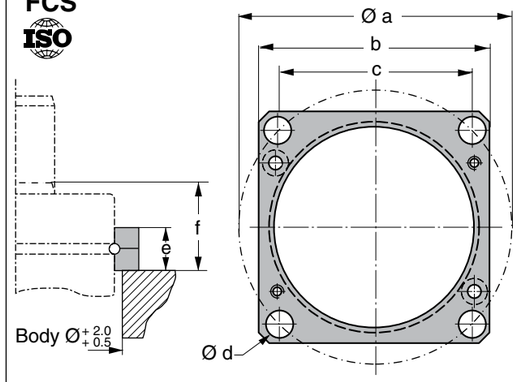
Order No.	a	b
MP-750	75	56.5

FC



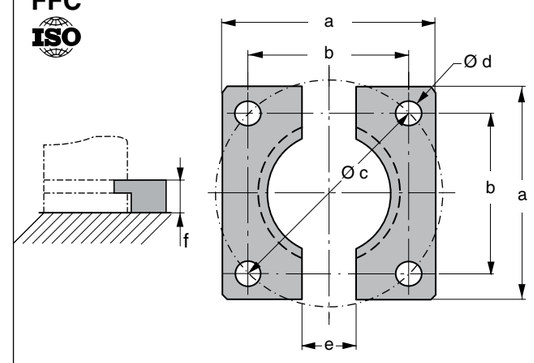
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-750	95	80	56.5	9	13	24

FCS



Order No.	Ø a	b	c	Ø d	e	f
FCS-750	80	70	56.5	9	13	24

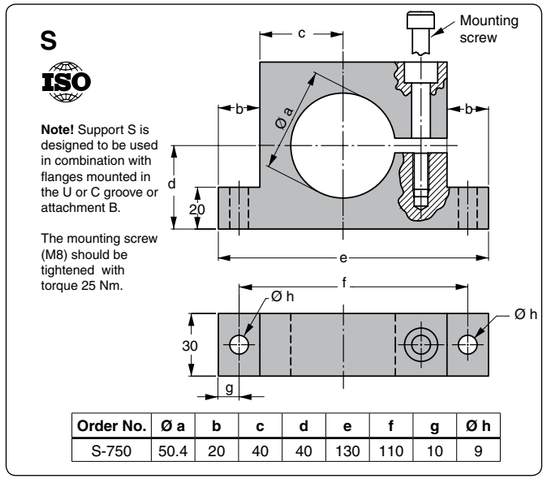
FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-750	75	56.5	80	9	24	12

Note! For dimensions on mounting possibilities FCSC-750, K-750, FAC-750, SA-750 and HM-750 refer to Chapter 3.

S

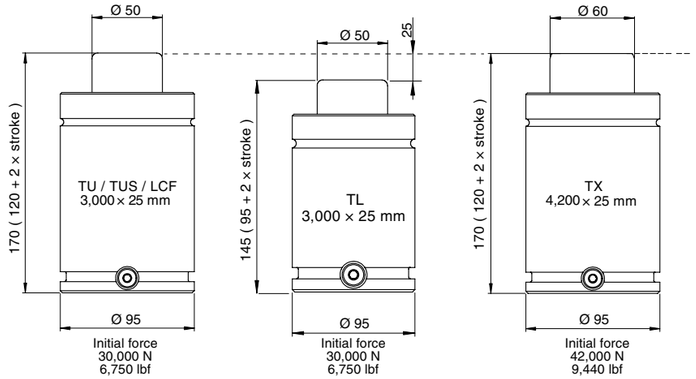


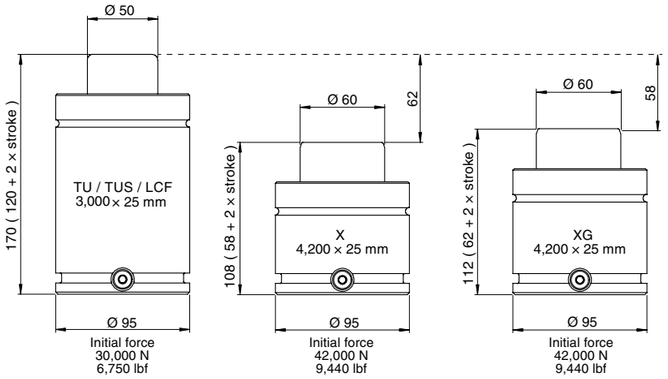
Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

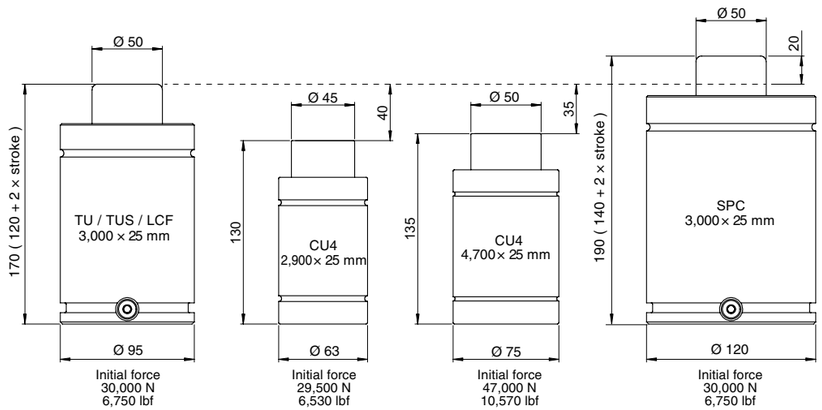
The mounting screw (M8) should be tightened with torque 25 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-750	50.4	20	40	40	130	110	10	9

Ove 000 ≤ F_{INIT} < 50000







25000 ≤ F_{INIT} < 50000

CU4 2900

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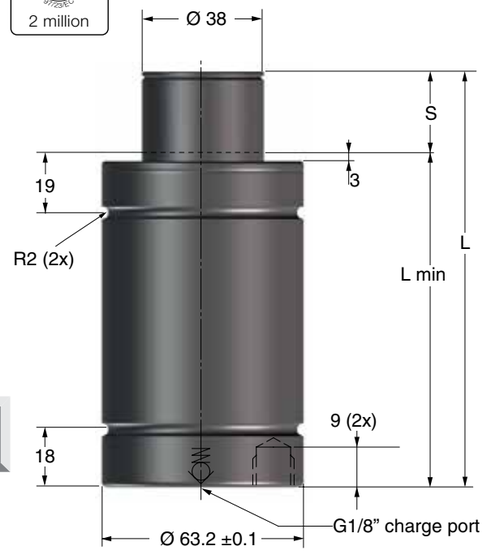
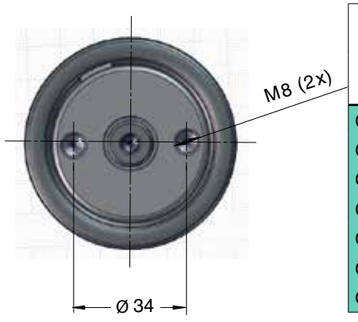


The CU4 gas spring is a very compact Bore Sealed gas spring with impressive force in a compact body.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

As an option, this CU4 spring can be delivered with a Side Port plate (SP) for applications where a sideport is needed (e.g., for use in hose systems).



Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU4 2900-010	10		40,000		8,990	85	75	0.08	1.14
CU4 2900-016	16		42,000		8,440	103	87	0.12	1.28
CU4 2900-025	25		45,000		10,120	130	105	0.16	1.49
CU4 2900-032	32*	29,500	46,200	6,630	10,340	150	118	0.20	1.64
CU4 2900-040	40*		47,200		10,570	175	135	0.24	1.83
CU4 2900-050	50*		45,000		10,120	205	155	0.29	2.06
CU4 2900-065	65*		47,000		10,570	256	191	0.35	2.39

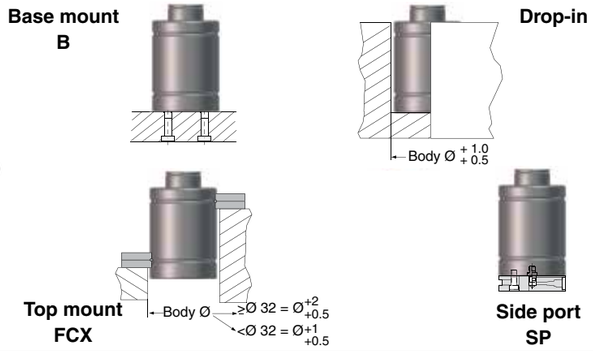
* = Should always be attached to the tool using the tapped holes in the bottom or a flange
** = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20° C)
Min. charging pressure ..... 25 bar (at 20° C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 80-100 (at 20°C)
Max piston rod velocity ..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit CU4 2900 3024837
Repair kit CU 2900 2014493-0290
Available until 12.31.2015

Mounting Possibilities



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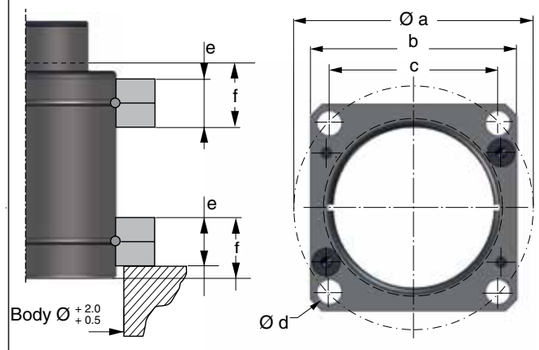
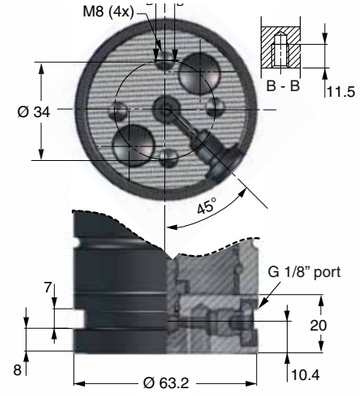
CU4 2900 Mounts

FCX



For Model	Order No.	Ø a	b	c	Ø d	e	f
CU4 2900	FCX-1500	104	90	73.5	11	16	27

SP



For model	Order No.	For U-groove mounts on SP
CU4 2900	SP-2900	Refer to X 1500

CU4 4700

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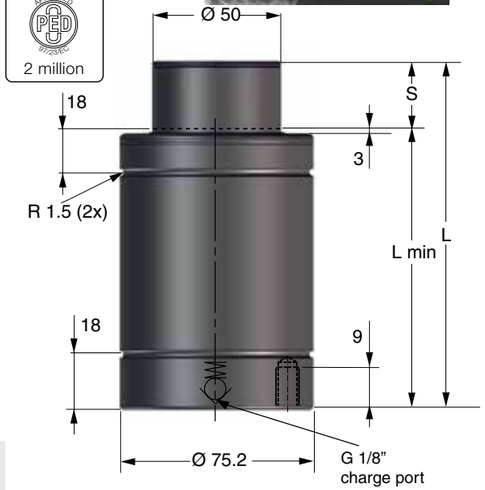
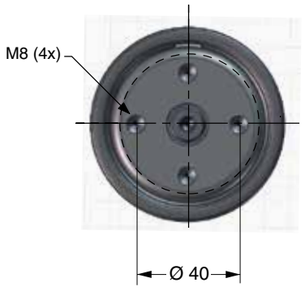




The CU4 gas spring is a very compact Bore Sealed gas spring with impressive force in a compact body.
The maximum frequency for the spring is 100 strokes/minute.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

As an option, the CU4 spring can be delivered with a Side Port plate (SP) for applications where a sideport is needed (e.g., for use in hose systems).

Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU 4700-010	10	47,000	67,000	10,570	15,100	80	70	0.10	1.55
CU 4700-016	16		66,000		14,800	106	90	0.17	1.79
CU 4700-025	25		68,000		15,300	135	110	0.24	2.05
CU 4700-032	32*		67,000		15,100	167	135	0.32	2.34
CU 4700-040	40*		67,000		15,100	200	160	0.41	2.65
CU 4700-050	50*		67,000		15,100	240	190	0.52	3.01
CU4 4700-065	65*		71,000		15,200	273	208	0.62	3.12

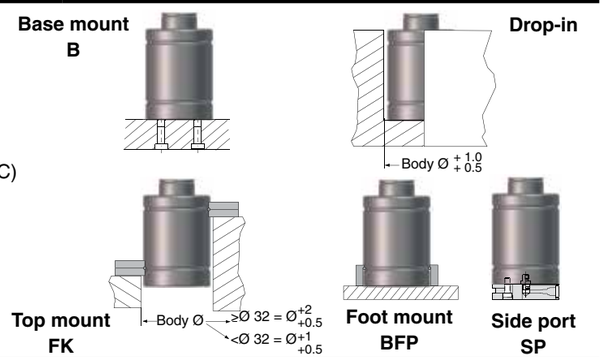
* Should always be attached to the tool using the tapped holes in the bottom or a flange
** at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min .... ~80 to 100 (at 20° C)
Max piston rod velocity ..... 0.8 m/s

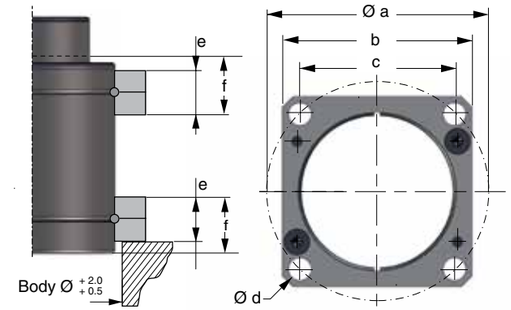
Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit CU4 4700 3024838
Repair kit CU 4700 2014493-0470
Available until 12.31.2015

Mounting Possibilities



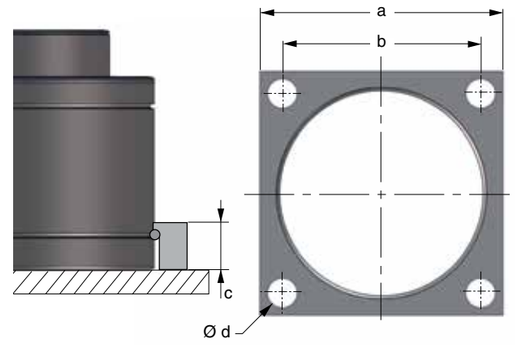
CU4 4700 Mounts

FK



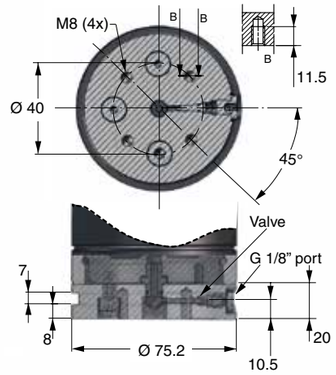
For model	Order No.	Ø a	Ø b	c	Ø d	e	f
CU4 4700	FK-1500	104	90	73.5	11	16	26

BFP



For model	Order No.	a	b	Ø c	d
CU4 4700	BFP-4700	90	73.5	24.5	11

SP



For model	Order No.	For U-groove mounts on SP
CU4 4700	SP-4700	Refer to TU 1500

X 4200

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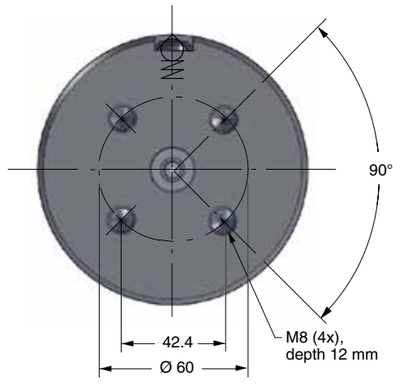
The Safer Choice



The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a sideport for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with four M8 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 4200-016	16	42000	61700	90	74	0.15	2.60
X 4200-019	19		63700	96	77	0.18	2.70
X 4200-025	25		60800	108	83	0.26	2.90
X 4200-032	32		64300	122	90	0.30	3.05
X 4200-038	38		65800	134	96	0.32	3.20
X 4200-050	50		67000	158	108	0.40	3.50
X 4200-063	63		67800	184	121	0.49	3.80
X 4200-075	75		68000	208	133	0.58	4.20
X 4200-080	80		68600	218	138	0.61	4.40
X 4200-100	100		69100	258	158	0.74	4.90
X 4200-125	125		69600	308	183	0.91	5.40

* = at full stroke

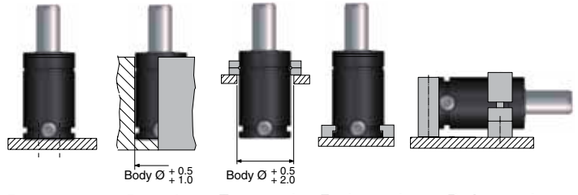
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 30 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018849

Repair kit. Part No. .....

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

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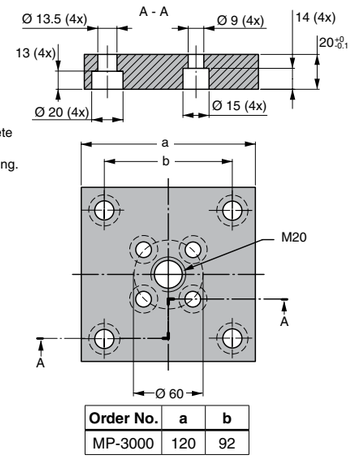
X 4200 Mounts

MP

ISO

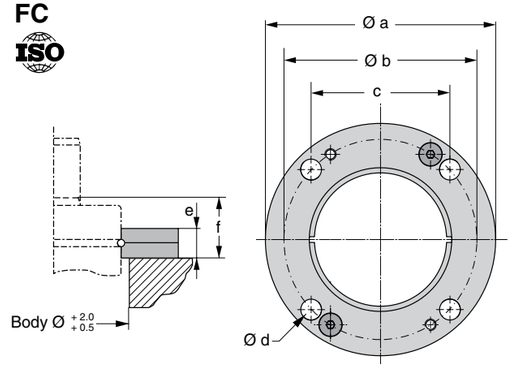


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-3000	120	92

FC

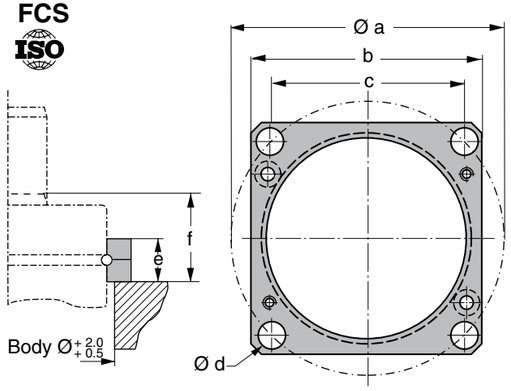
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS

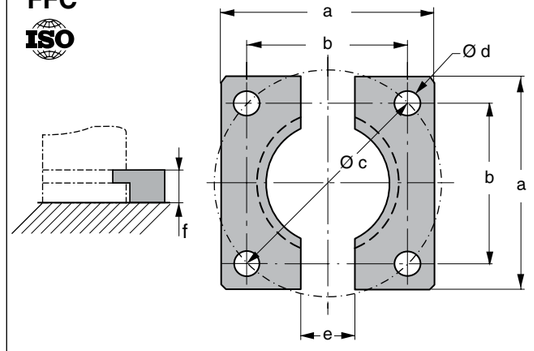
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC

ISO



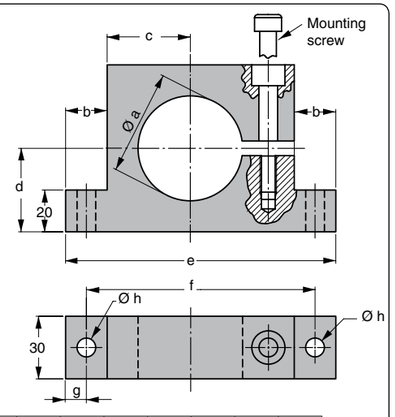
Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S

ISO

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M12) should be tightened with torque 91 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	12.5	13

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

XG 4200

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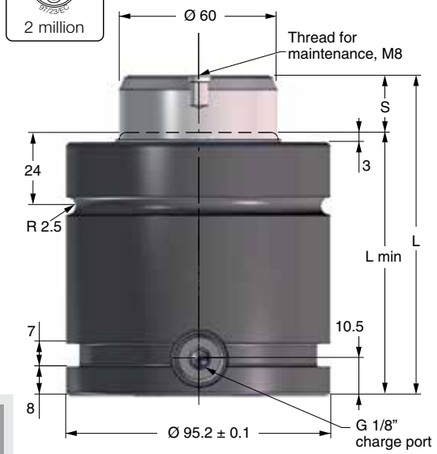

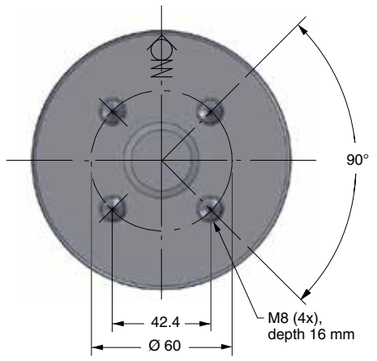

The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3,500 N up to 66,000 N and stroke lengths between 10 and 125 mm.

There is a side and bottom port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with four M8 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 4200-016	16		61700	94	78	0.15	2.81
XG 4200-019	19		63700	100	81	0.18	2.88
XG 4200-025	25		60800	112	87	0.26	2.96
XG 4200-032	32		64300	126	94	0.30	3.13
XG 4200-038	38		65800	138	100	0.32	3.28
XG 4200-050	50	42000	67000	162	112	0.40	3.57
XG 4200-063	63		67800	188	125	0.49	4.10
XG 4200-075	75		68000	212	137	0.58	4.20
XG 4200-080	80		68600	222	142	0.61	4.32
XG 4200-100	100		69100	262	162	0.74	4.81
XG 4200-125	125		69600	312	187	0.91	5.42

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 30 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3018849

Mounting Possibilities

Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

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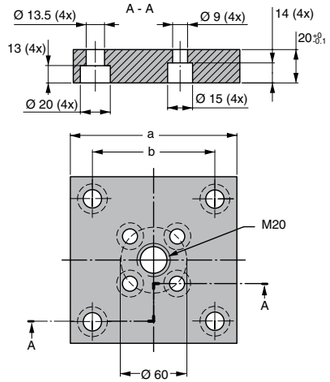
XG 4200 Mounts

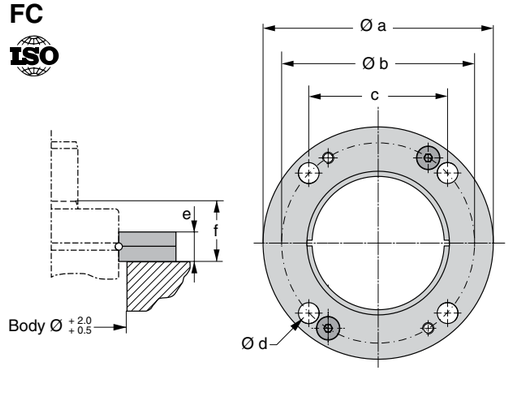
MP



Note! Comes complete with screws to mount gas spring.

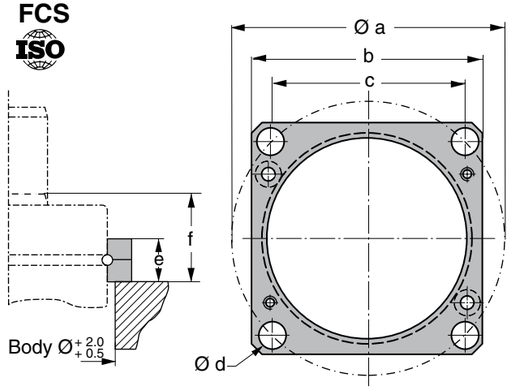
Order No.	a	b
MP-3000	120	92

FC



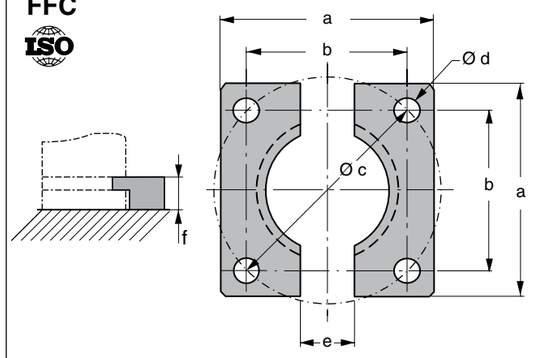
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS



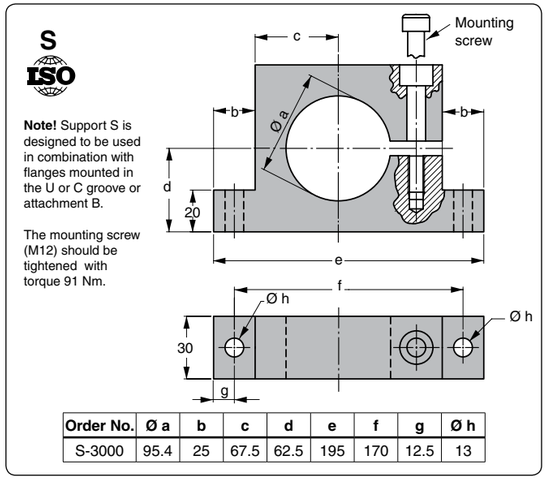
Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	12.5	13

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

TX 4200

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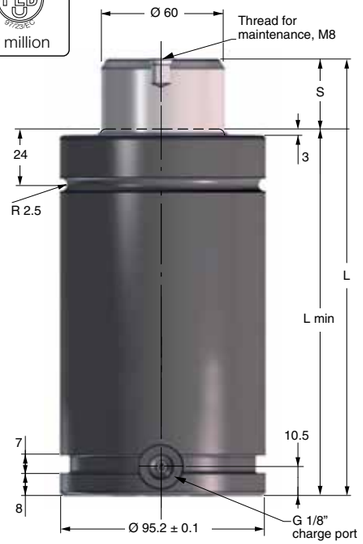
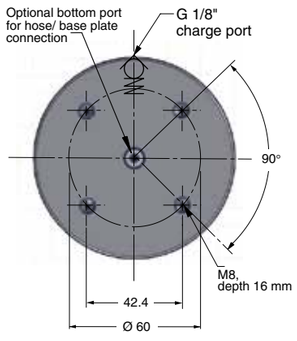




The Power Line - Heavy Duty series is a crossover between the standard TU Series and the Power Line X Series.

These gas springs are available with forces from 9,200 N up to 95,000 N and stroke lengths between 13 and 300 mm.

There is an optional bottom port for hose/base plate connection.

An upper C-groove, lower U-groove and bottom threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TX 4200-025	25	42000	52122	170	145	0.43	5.08
TX4200-038	38		55108	196	158	0.52	5.41
TX 4200-050	50		57207	220	170	0.60	5.71
TX 4200-063	63		58999	246	183	0.68	6.05
TX 4200-075	75		60336	270	195	0.76	6.35
TX 4200-080	80		60822	280	200	0.80	6.48
TX 4200-100	100		62455	320	220	0.93	6.99
TX 4200-125	125		63985	370	245	1.10	7.63
TX 4200-150	150		65142	420	270	1.27	8.27
TX 4200-160	160		65529	440	280	1.33	8.53
TX 4200-175	175		66047	470	295	1.43	8.91
TX 4200-200	200		66775	520	320	1.60	9.55
TX 4200-250	250		67873	620	370	1.93	11.08
TX 4200-300	300		68661	720	420	2.27	12.11

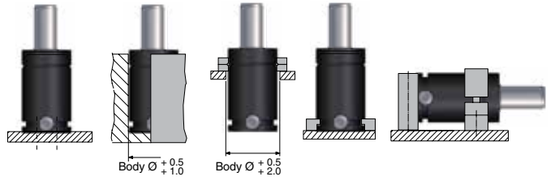
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 40 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3022953
Repair kit. Part No.....

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

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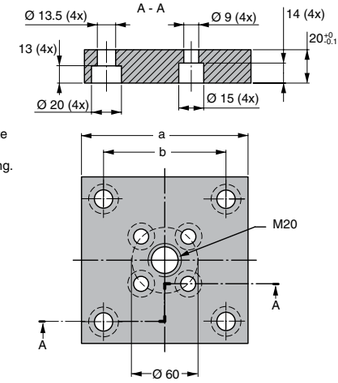
TX 4200 Mounts

MP

ISO

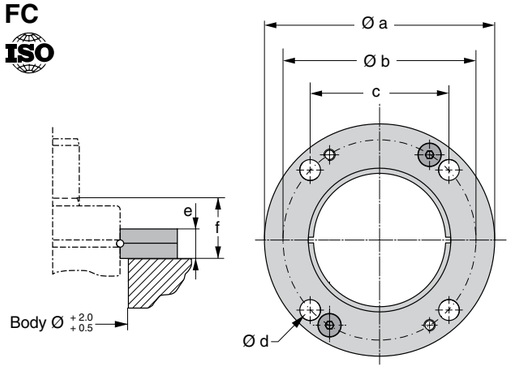


Note!
Comes complete with screws to mount gas spring.

Order No.	a	b
MP-3000	120	92

FC

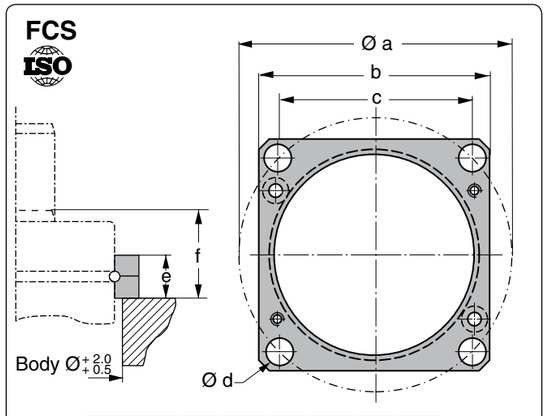
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS

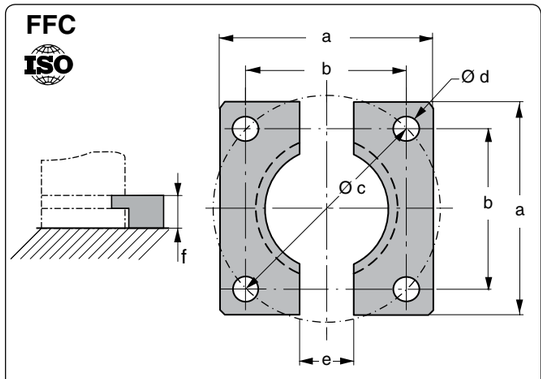
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC

ISO



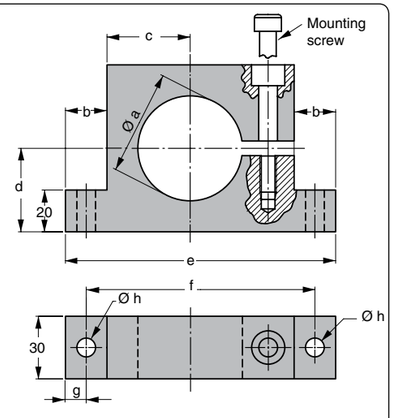
Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S

ISO

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or attachment B.

The mounting screw (M12) should be tightened with torque 91 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	12.5	13

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

TL 3000

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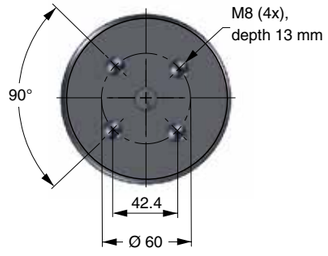


The TL Series ranges from model sizes 750 to 7,500, with the same features and technology as the TU series.

At the same time, the TL gas spring is shorter than the corresponding TU gas spring by 25 mm, except TL 5000 and TL 7500, which are 37.5 mm and 50 mm shorter respectively. TL springs share the same TU mounting possibilities and stroke lengths, with the exception of strokes 12.5, 37.5 and 62.5.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TL 3000-013	12.5	29500	38745	120	107.5	0.14	4.84
TL 3000-025	25		41826	145	120	0.21	5.24
TL 3000-038	37.5		43477	170	132.5	0.27	5.64
TL 3000-050	50		44382	195	145	0.33	6.03
TL 3000-063	62.5		45068	220	157.5	0.40	6.44
TL 3000-075	75		45486	245	170	0.46	6.83
TL 3000-080	80		45635	255	175	0.48	7.12
TL 3000-088	87.5		45832	270	182.5	0.52	7.24
TL 3000-100	100		46101	295	195	0.58	7.62
TL 3000-113	112.5		46317	320	207.5	0.65	8.02
TL 3000-125	125		46494	345	220	0.71	8.41
TL 3000-138	137.5		46641	370	232.5	0.77	8.84
TL 3000-150	150		46766	395	245	0.84	9.21
TL 3000-160	160		46853	415	255	0.89	9.53
TL 3000-175	175		46966	445	270	0.96	10.00
TL 3000-200	200		47118	495	295	1.09	10.79
TL 3000-225	225		47239	545	320	1.21	11.59
TL 3000-250	250		47337	595	345	1.34	12.38

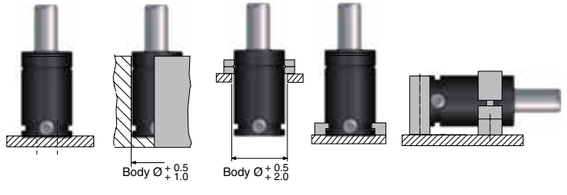
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3024171

Mounting Possibilities



Base mount B, MP | **Drop -in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

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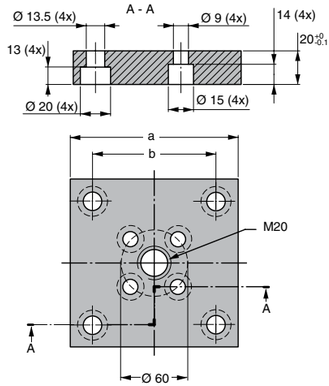
TL 3000 Mounts

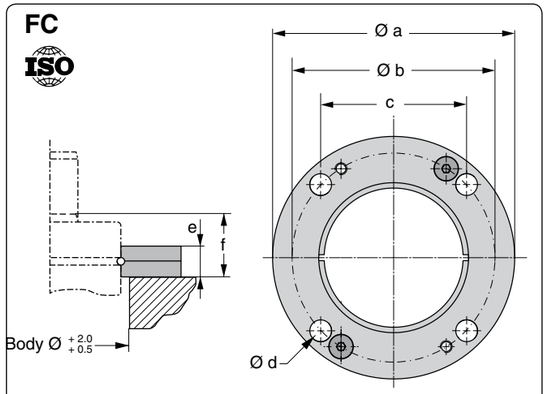
MP



Note!
Comes complete with screws to mount gas spring.

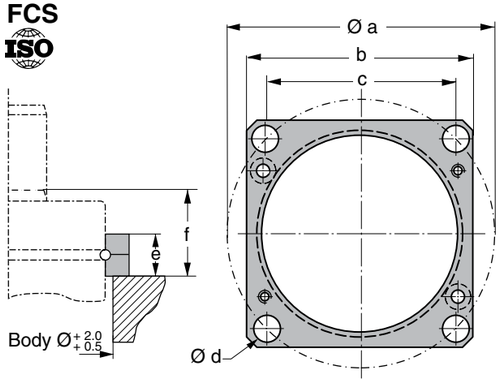
Order No.	a	b
MP-3000	120	92

FC



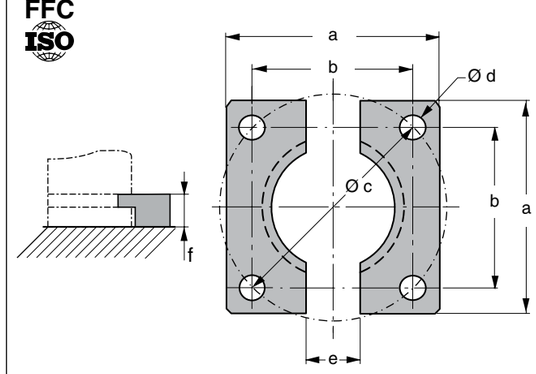
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS



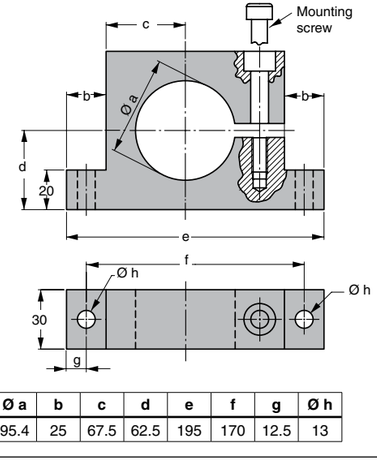
Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	12.5	13

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

TU 3000

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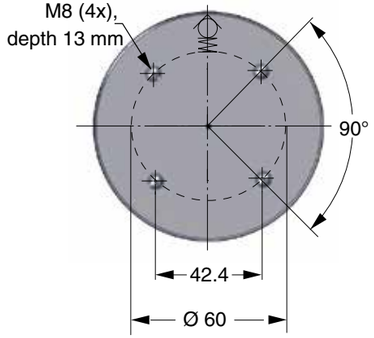
The Safer Choice

The TU line constitutes our standard line of gas springs. Sizes 250 to 10,000 conform to the ISO 11901 gas spring standard.



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
TU 3000-025	25	30000	42000	170	145	0.20	6.45	√
TU 3000-038	38.1		43000	196.2	158.1	0.26	6.87	
TU 3000-050	50		44000	220	170	0.32	7.25	√
TU 3000-064	63.5		45000	247	183.5	0.38	7.67	
TU 3000-080	80		46000	280	200	0.46	8.20	√
TU 3000-100	100		47000	320	220	0.56	8.83	√
TU 3000-125	125		47000	370	245	0.69	9.63	√
TU 3000-160	160		47000	440	280	0.87	10.74	√
TU 3000-200	200		48000	520	320	1.07	12.00	
TU 3000-250	250		48000	620	370	1.32	13.59	
TU 3000-300	300		48000	720	420	1.57	15.18	

* = at full stroke

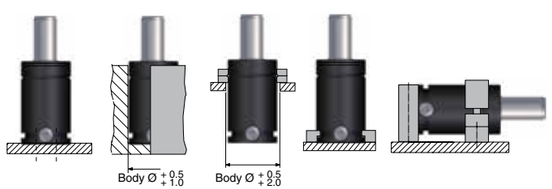
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
*Repair kit 3019025

*Identified by circular rings on the top of tube, guide and rod.

Mounting Possibilities



Base Mount B, MP | **Drop - In** | **Top Mount FC, FCS, FCSC** | **Foot Mount K, FFC,** | **Body Mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

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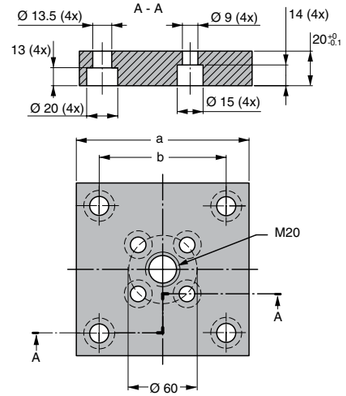
TU 3000 Mounts

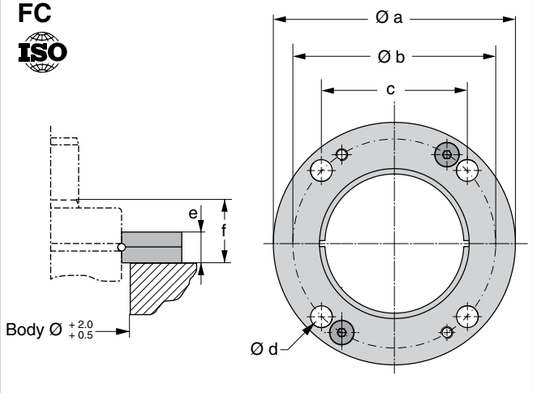
MP



Note! Comes complete with screws to mount gas spring.

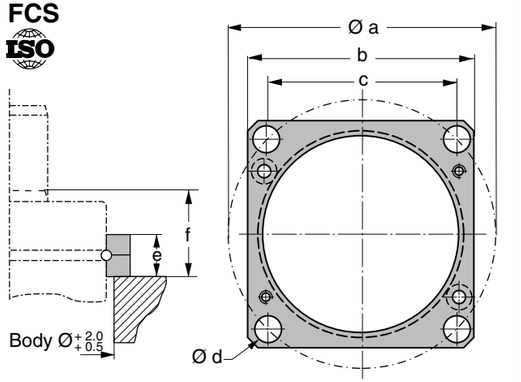
Order No.	a	b
MP-3000	120	92

FC



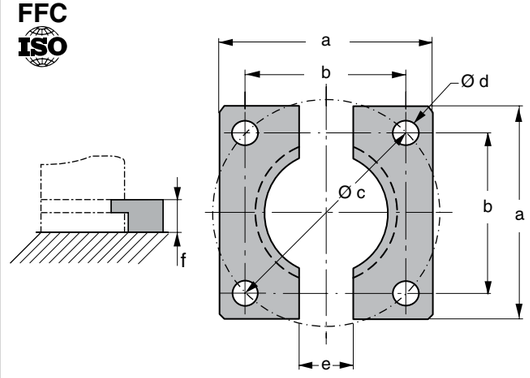
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS



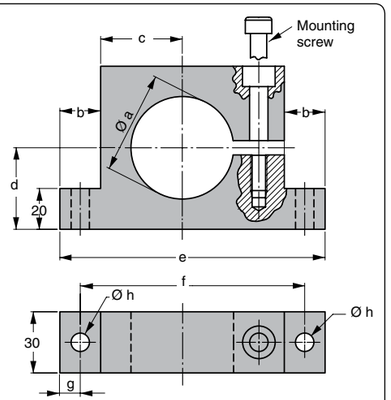
Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	12.5	13

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

TUS 3000

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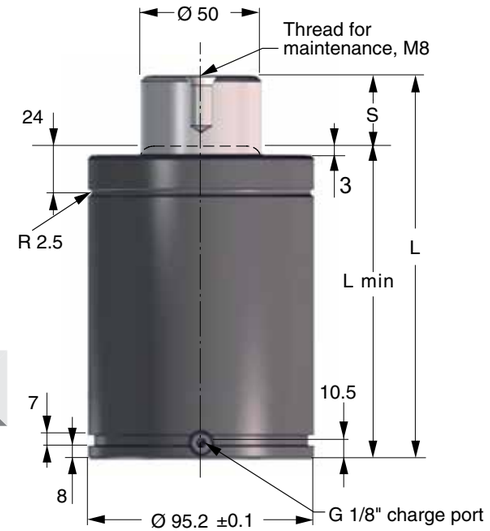
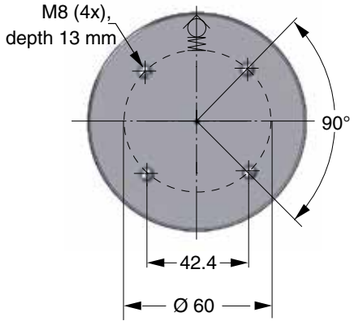
2 million





The High Speed gas springs (TUS) have been engineered to withstand press stroke speeds to a maximum of 2 m/s, which meet the safety requirements from the French automotive manufacturer Renault.

These gas springs are available in sizes from 750 to 7,500 and dimensions that conform to the ISO 11901 gas spring standard.

The TUS gas spring replaces the TUR spring that has been phased out.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TUS 3000-025	25	30000	42000	170	145	0.20	6.35
TUS 3000-038	38.1		43000	196.2	158.1	0.26	6.75
TUS 3000-050	50		44000	220	170	0.32	7.50
TUS 3000-064	63.5		45000	247	183.5	0.38	7.70
TUS 3000-080	80		46000	280	200	0.46	8.10
TUS 3000-100	100		47000	320	220	0.56	8.85
TUS 3000-125	125		47000	370	245	0.69	9.90
TUS 3000-160	160		47000	440	280	0.87	10.80
TUS 3000-200	200		48000	520	320	1.07	12.20
TUS 3000-250	250		48000	620	370	1.32	13.70
TUS 3000-300	300		48000	720	420	1.57	15.30

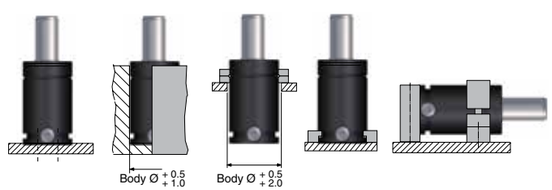
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 2 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3019279

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC, | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

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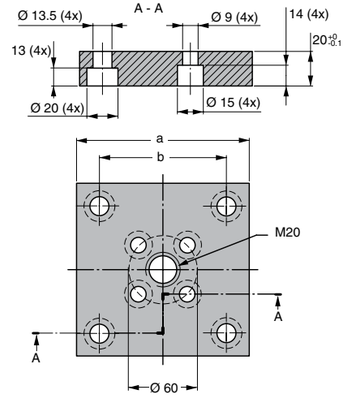
TUS 3000 Mounts

MP

ISO

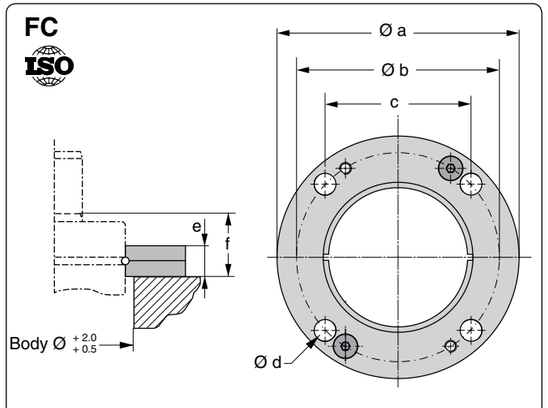


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-3000	120	92

FC

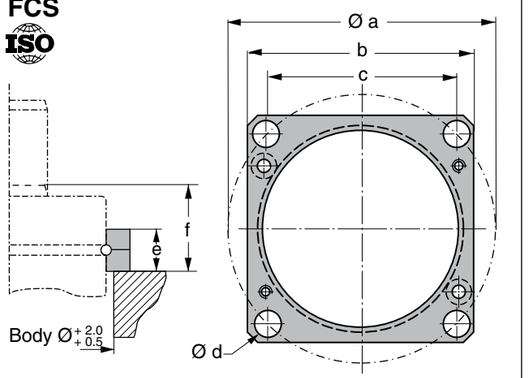
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS

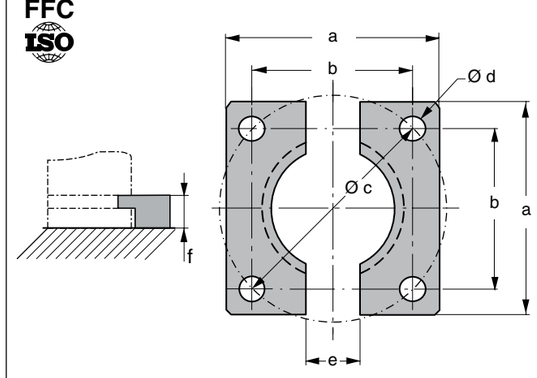
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC

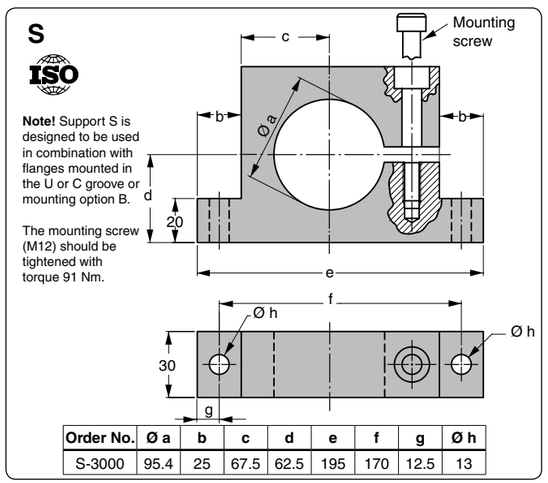
ISO



Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S

ISO



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	12.5	13

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

LCF 3000

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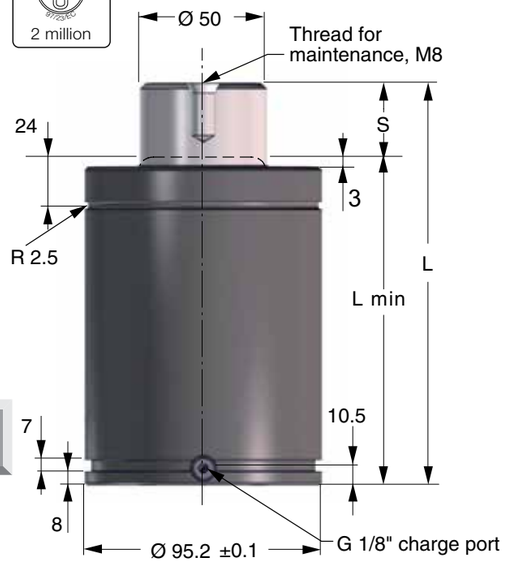

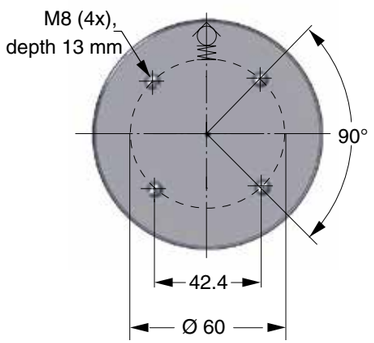

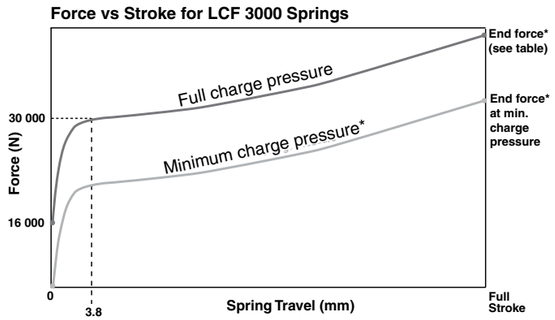

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
LCF 3000-025	25	30000	42000	170	145	0.20	6.35
LCF 3000-038	38.1		43000	196.2	158.1	0.26	6.75
LCF 3000-050	50		44000	220	170	0.32	7.50
LCF 3000-064	63.5		45000	247	183.5	0.38	7.70
LCF 3000-080	80		46000	280	200	0.46	8.10
LCF 3000-100	100		47000	320	220	0.56	8.85
LCF 3000-125	125		47000	370	245	0.69	9.90
LCF 3000-160	160		47000	440	280	0.87	10.80
LCF 3000-200	200		48000	520	320	1.07	12.20
LCF 3000-250	250		48000	620	370	1.32	13.70
LCF 3000-300	300		48000	720	420	1.57	15.30

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 70 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
* Repair kit 3019379

*Identified by circular rings on the top of tube, guide and rod.

Mounting Possibilities

Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC, | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

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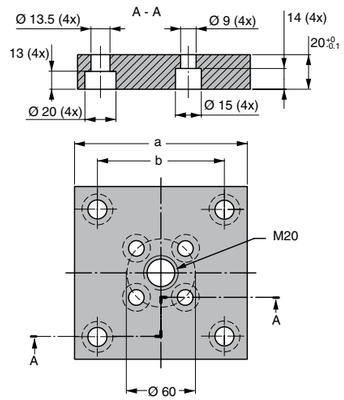
LCF 3000 Mounts

MP

ISO

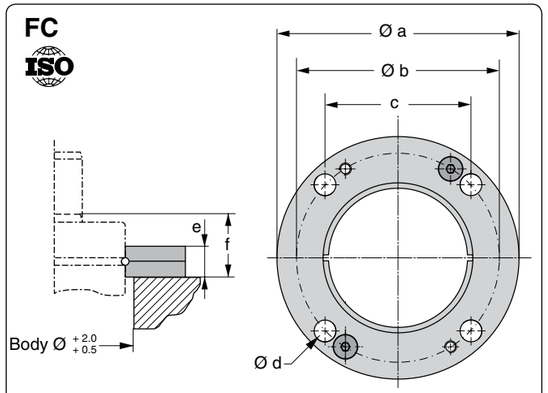


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-3000	120	92

FC

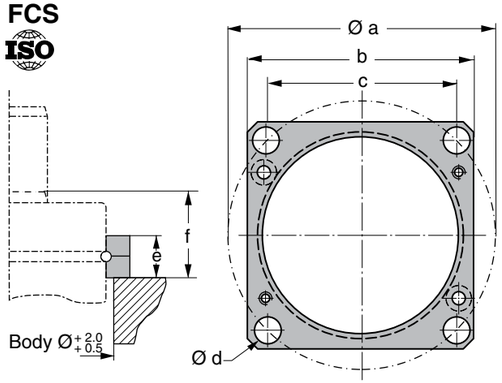
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-3000	150	130	92	13.5	18	33

FCS

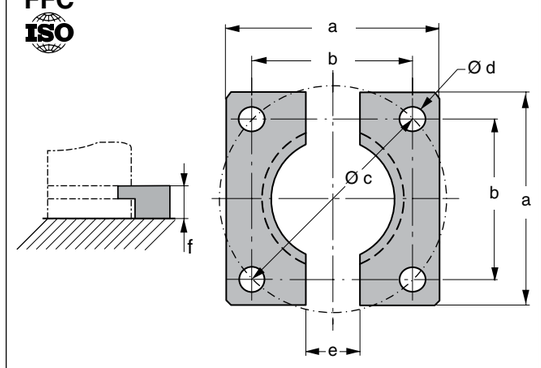
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-3000	130	110	92	13.5	18	33

FFC

ISO



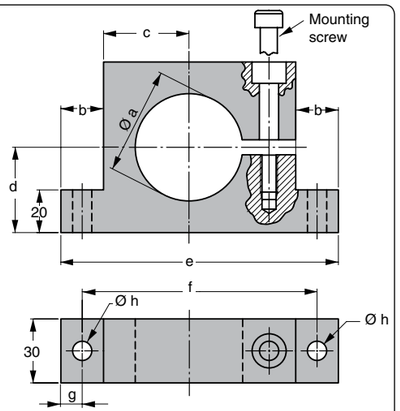
Order No.	a	b	Ø c	Ø d	e	f
FFC-3000	120	92	130	13.5	24	12

S

ISO

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.



Order No.	Ø a	b	c	d	e	f	g	Ø h
S-3000	95.4	25	67.5	62.5	195	170	12.5	13

Note! For dimensions on mounting possibilities K-3000, FAC-3000, SA-3000, HM-3000 and FCSC-3000 refer to Chapter 3.

7

SPC 3000

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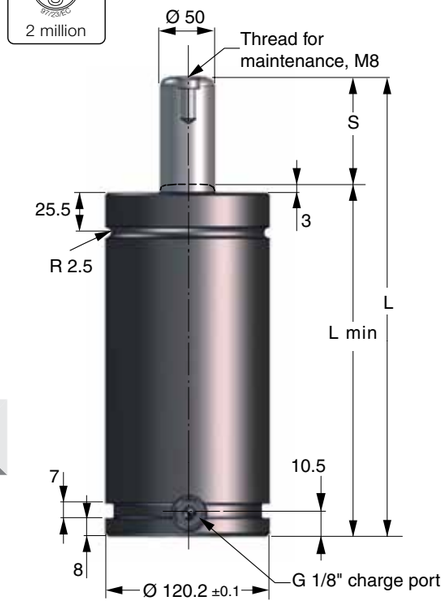
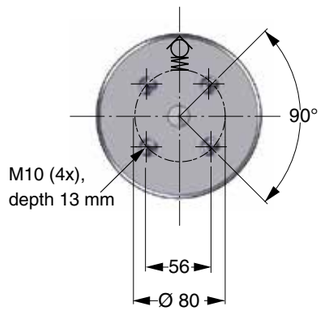


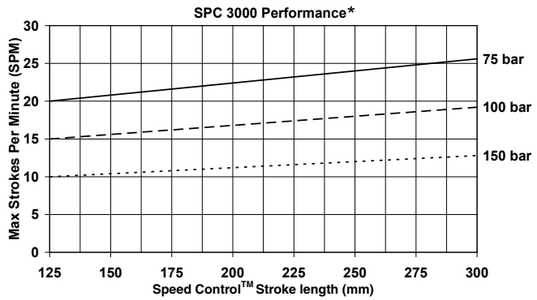


Speed Control™ – SPC gas springs have been engineered to eliminate blank holder bounce, commonly associated with increased return stroke speeds from link drive presses.

SPC gas springs have inbuilt return stroke **speed dampening**, which decelerates the last 30 mm of the piston rod stroke to 0.4 m/s, helping to bring the blank holder to a smooth stop.

Speed Control™ – SPC features:

- Eliminates blank holder bounce
- Increases productivity by increasing part transfer efficiency
- Easily retrofitted to existing dies
- Stroke lengths from 125 to 300 mm
- Linkable using a hose system



*At ambient room temperatures with free air flow

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
SPC 3000-125	125	30000	38000	390	265	1.15	10.64
SPC 3000-160	160		38000	460	300	1.43	11.30
SPC 3000-200	200		38000	540	340	1.74	12.06
SPC 3000-250	250		39000	640	390	2.14	13.00
SPC 3000-300	300		39000	740	440	2.53	13.95

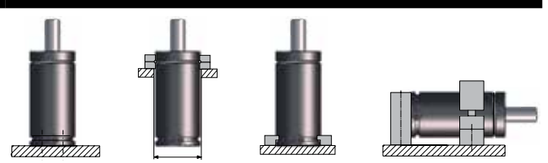
*at full stroke

Basic Information

For general information see “About gas springs” , 2.1

Pressure medium	Nitrogen
Max. charging pressure	150 bar (at 20°C)
Min. charging pressure	25 bar (at 20°C)
Operating temperature	0 to +80°C
Force increase by temperature	±0.3%/°C
Recommended max strokes/min	See chart
Dampening length	≈ 30 mm
Dampening speed	0.4 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	3021496

Mounting Possibilities



Base Mount B, MP | **Top Mount** FC, FCS, FCSC | **Foot Mount** K, FFC | **Body Mount** FAC, SA, S

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

KALLER
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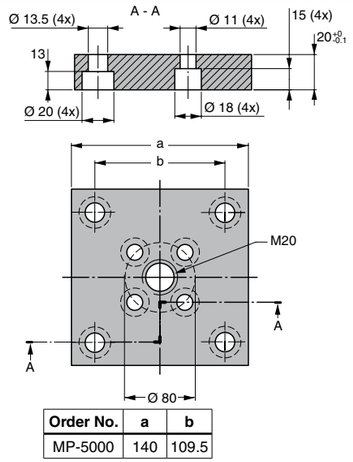
SPC 3000 Mounts

MP

ISO

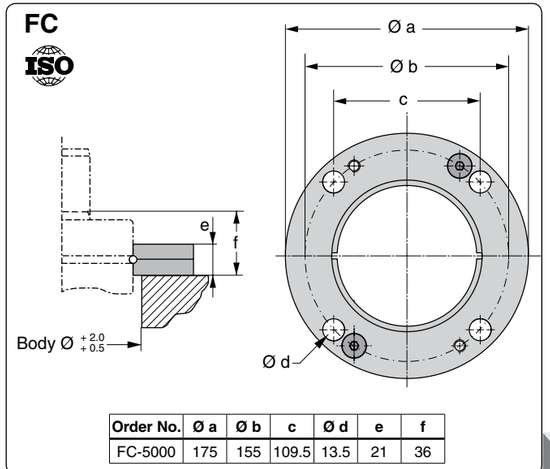


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-5000	140	109.5

FC

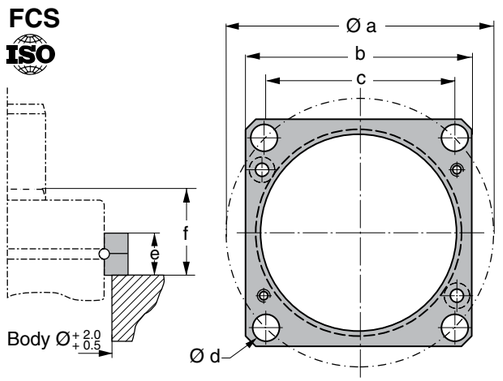
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS

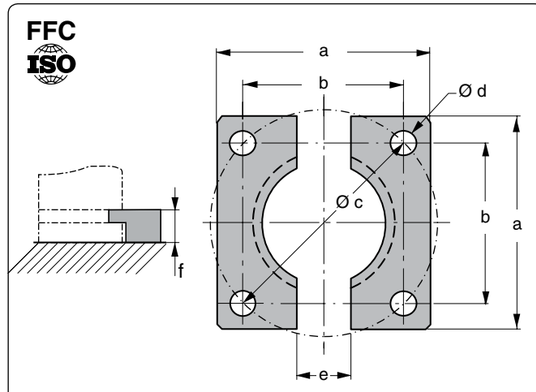
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC

ISO



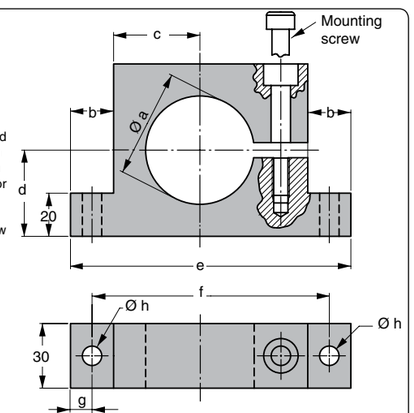
Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S

ISO

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

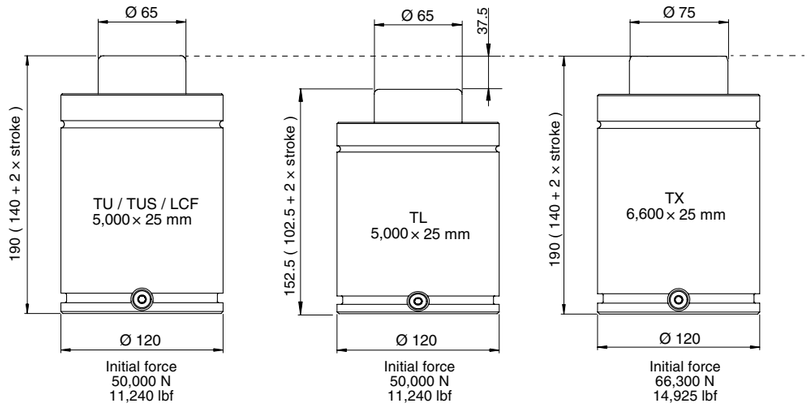
The mounting screw (M12) should be tightened with torque 91 Nm.

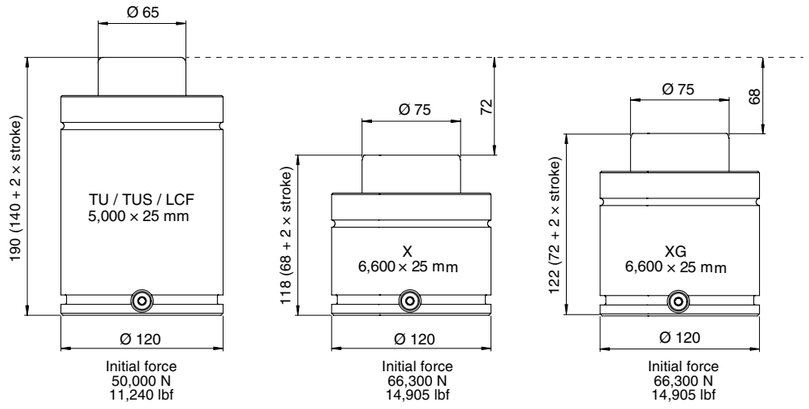


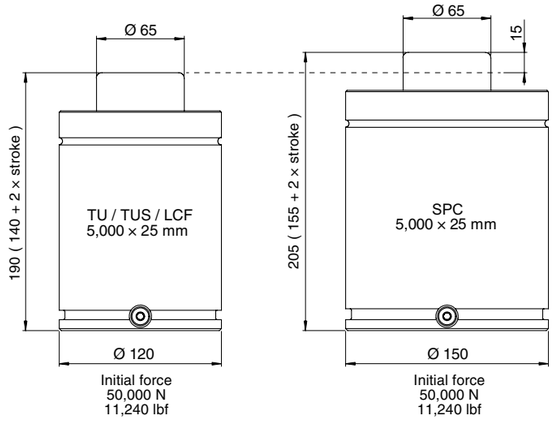
Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

Over…00 ≤ F_{INIT} < 75000







50000 ≤ F_{INIT} < 75000

X 6600

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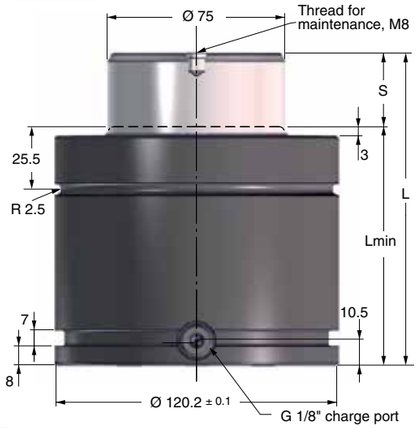
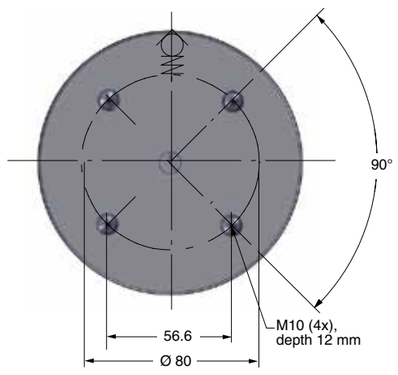




The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with four M10 threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 6600-016	16		89000	100	84	0.32	5.00
X 6600-019	19		91000	106	87	0.35	5.11
X 6600-025	25		93900	118	93	0.42	5.34
X 6600-032	32		96100	132	100	0.49	5.61
X 6600-038	38		98200	144	106	0.56	5.84
X 6600-050	50	66300	100600	168	118	0.69	6.31
X 6600-063	63		102400	194	131	0.83	6.81
X 6600-075	75		103400	218	143	0.90	7.27
X 6600-080	80		104100	228	148	1.01	7.46
X 6600-100	100		105400	268	168	1.23	8.23
X 6600-125	125		106500	318	193	1.50	9.19

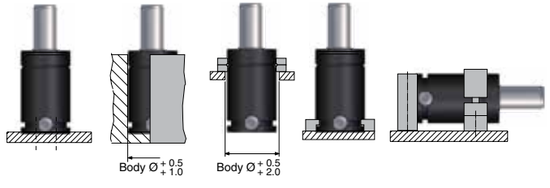
* = at full stroke

Basic Information

For general information, see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature..... 0 to +80°C
Force increase by temperature..... ±0.3 %/°C
Recommended max. strokes/min.... ≈ 30 to 100 (at 20°C)
Max. piston rod velocity..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3019912
Repair kit. Part No 3054851

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S**

Note! For dimensions on mounting possibilities K-5000, and FCSC-5000 refer to Chapter 3.

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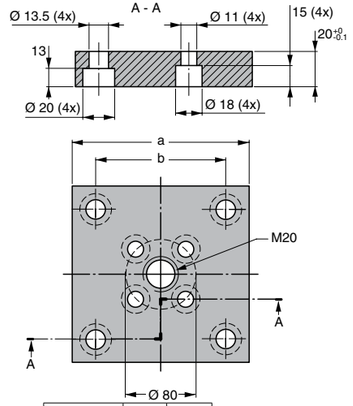
X 6600 Mounts

MP

ISO

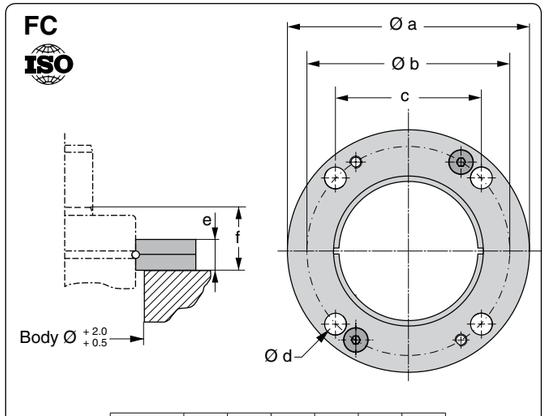


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-5000	140	109.5

FC

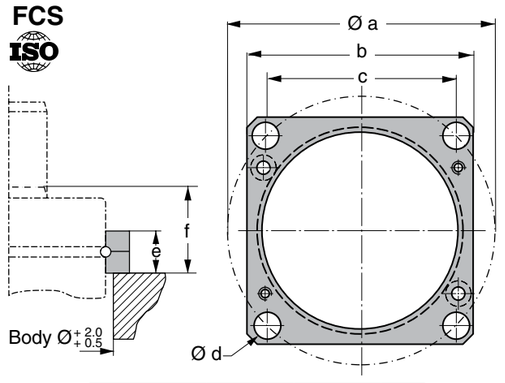
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS

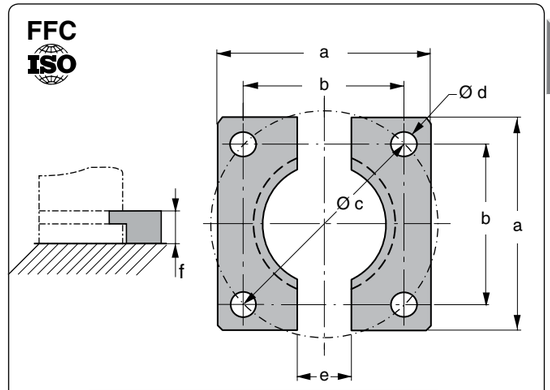
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC

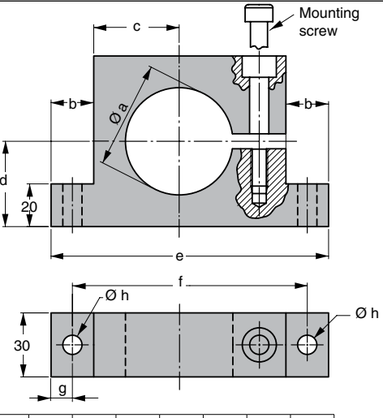
ISO



Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S

ISO



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K-5000, and FCSC-5000 refer to Chapter 3.

8

XG 6600

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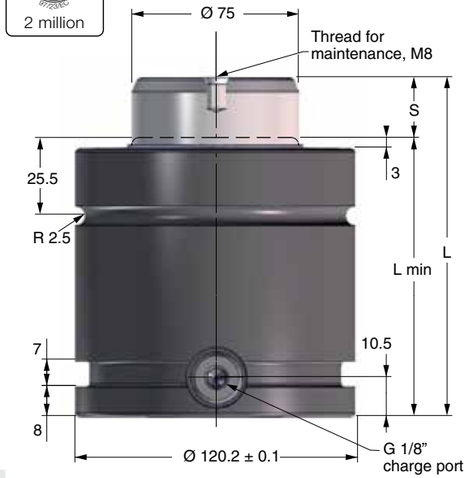
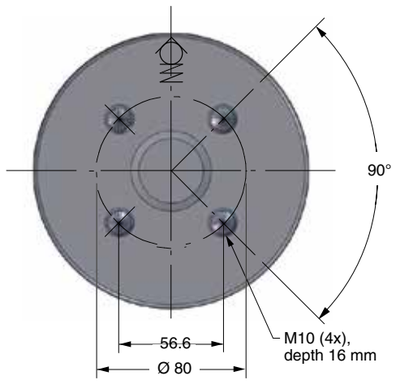
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 3,500 N up to 66,000 N and stroke lengths between 10 and 125 mm.

There is a side and a bottom port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with four M10 threaded holes allow various mounting possibilities using our standard mounts.





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
XG 6600-016	16		89000	100	84	0.32	4.97
XG 6600-019	19		91000	106	87	0.35	5.09
XG 6600-025	25		93900	118	93	0.42	5.31
XG 6600-032	32		96100	132	100	0.49	5.58
XG 6600-038	38		98200	144	106	0.56	5.81
XG 6600-050	50	66300	100600	168	118	0.69	6.22
XG 6600-063	63		102400	194	131	0.83	6.78
XG 6600-075	75		103400	218	143	0.90	7.05
XG 6600-080	80		104100	228	148	1.01	7.43
XG 6600-100	100		105400	268	168	1.23	8.20
XG 6600-125	125		106500	318	193	1.50	9.16

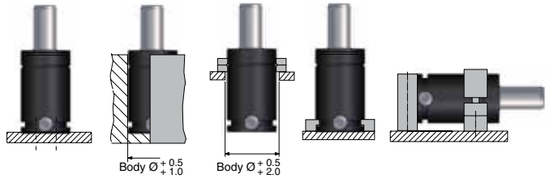
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 30 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3019912

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S**

Note! For dimensions on mounting possibilities K, FCSC, refer to Chapter 3.

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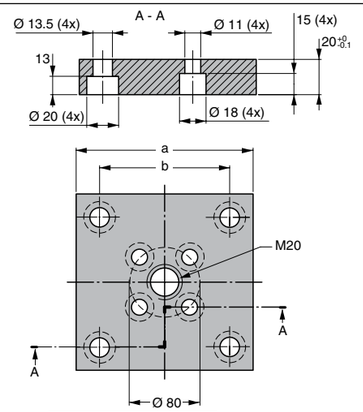
XG 6600 Mounts

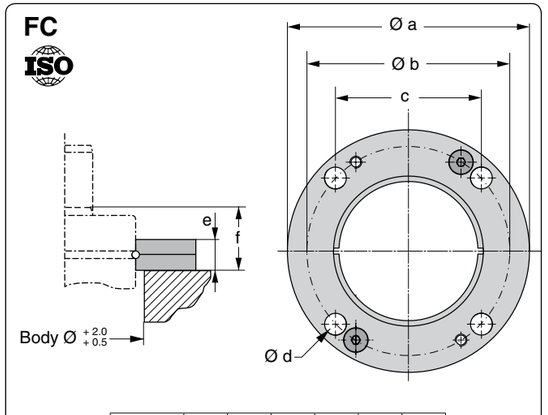
MP



Note! Comes complete with screws to mount gas spring.

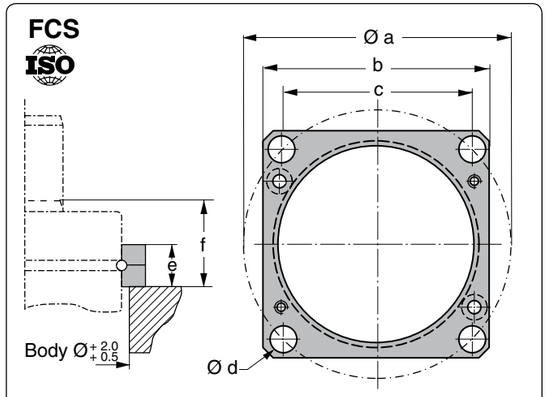
Order No.	a	b
MP-5000	140	109.5

FC



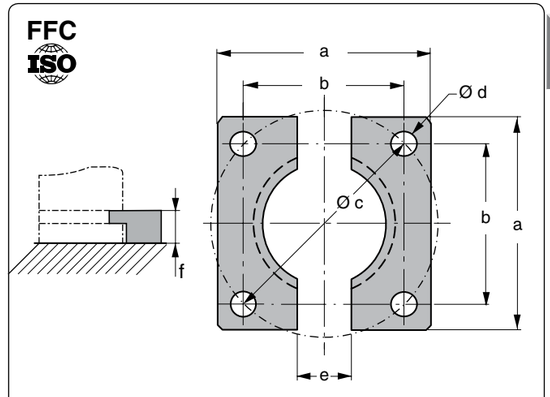
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS



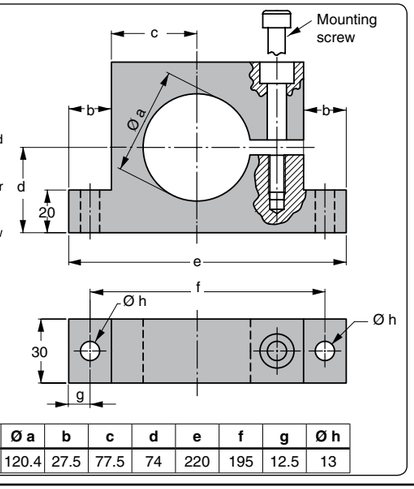
Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K and FCSC, refer to Chapter 3.

8

TX 6600

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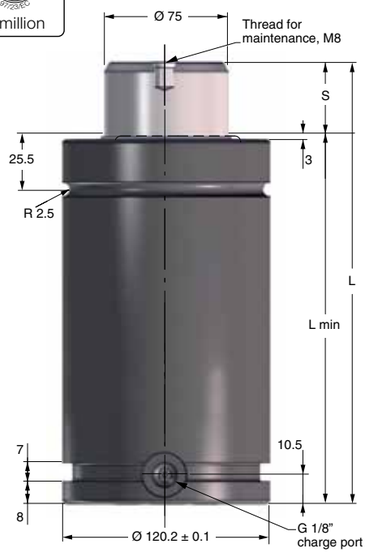
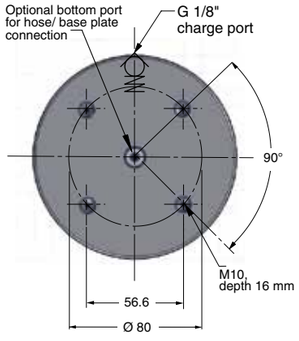




The Power Line - Heavy Duty series is a crossover between the standard TU Series and the Power Line X Series.

These gas springs are available with forces from 9,200 N up to 95,000 N and stroke lengths between 13 and 300 mm.

There is an optional bottom port for hose/base plate connection.

An upper C-groove, lower U-groove and bottom threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TX 6600-025	25		79558	190	165	0.73	9.28
TX 6600-038	38		83900	216	178	0.87	9.81
TX 6600-050	50		87032	240	190	1.00	10.30
TX 6600-063	63		89758	266	203	1.13	10.83
TX 6600-075	75		91822	290	215	1.26	11.32
TX 6600-080	80		92581	300	220	1.31	11.52
TX 6600-100	100		95155	340	240	1.53	12.33
TX 6600-125	125	66300	97607	390	265	1.79	13.35
TX 6600-150	150		99486	440	290	2.05	14.36
TX 6600-160	160		100121	460	300	2.16	14.77
TX 6600-175	175		100973	490	315	2.32	15.38
TX 6600-200	200		102179	540	340	2.58	16.40
TX 6600-250	250		104015	640	390	3.11	18.43
TX 6600-300	300		105346	740	440	3.64	20.46

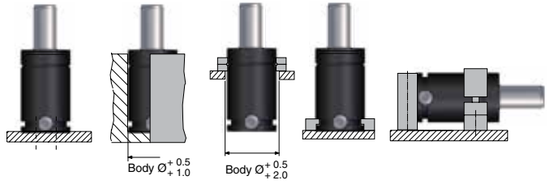
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 30 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3022954
Repair kit. Part No .....

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S**

Note! For dimensions on mounting possibilities K-5000 and FCSC-5000, refer to Chapter 3.

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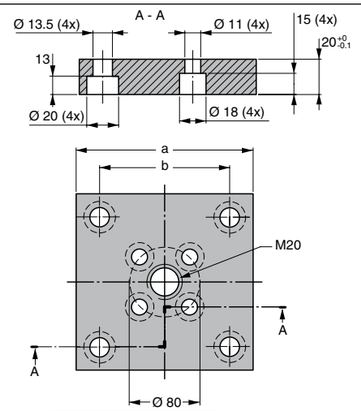
TX 6600 Mounts

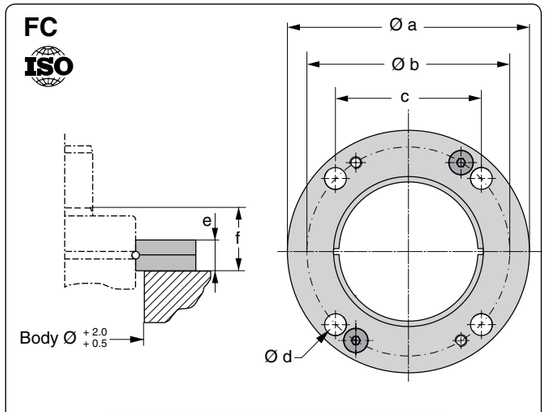
MP ISO



Note! Comes complete with screws to mount gas spring.

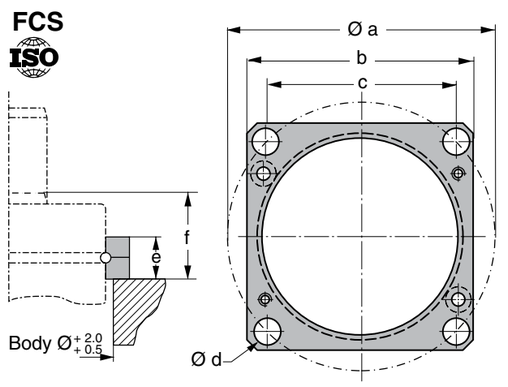
Order No.	a	b
MP-5000	140	109.5

FC ISO



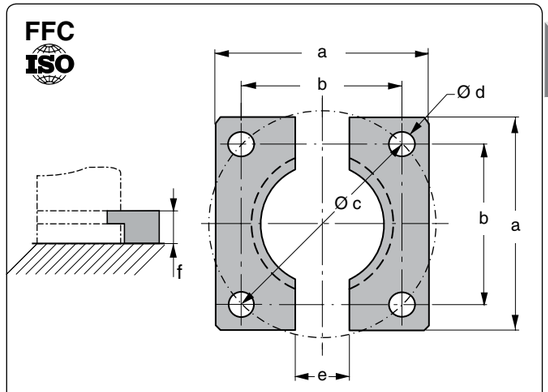
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS ISO



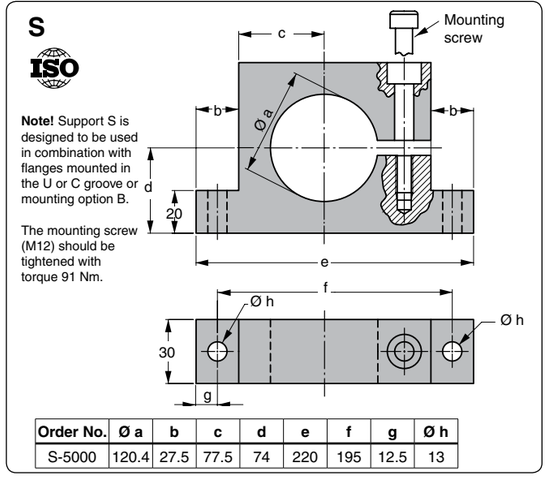
Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC ISO



Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S ISO



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K-5000 and FCSC-5000, refer to Chapter 3.

TL 5000

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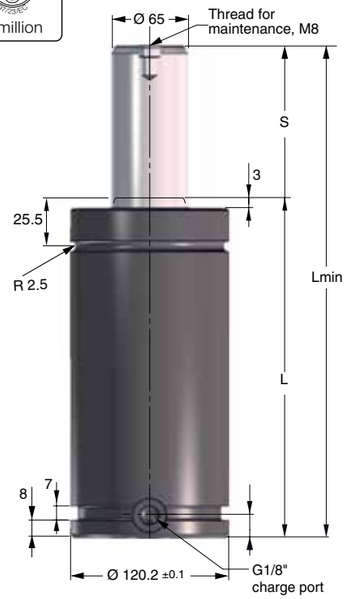
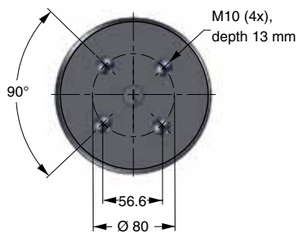




The TL Series ranges from model sizes 750 to 7,500, with the same features and technology as the TU series.

At the same time, the TL gas spring is shorter than the corresponding TU gas spring by 25 mm, except TL 5000 and TL 7500, which are 37.5 mm and 50 mm shorter respectively. TL springs share the same TU mounting possibilities and stroke lengths, with the exception of strokes 12.5, 37.5 and 62.5.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TL 5000-025	25		80088	152.5	127.5	0.2	9.04
TL 5000-038	37.5		81913	177.5	140	0.3	9.70
TL 5000-050	50		82817	202.5	152.5	0.4	10.35
TL 5000-063	62.5		83461	227.5	165	0.5	11.01
TL 5000-075	75		83839	252.5	177.5	0.6	11.67
TL 5000-080	80		83971	2625	182.5	0.7	11.93
TL 5000-088	87.5		84143	277.5	190	0.7	12.32
TL 5000-100	100		84374	302.5	202.5	0.8	12.98
TL 5000-113	112.5	50000	84556	327.5	215	0.9	13.64
TL 5000-125	125		84703	352.5	227.5	1.0	14.30
TL 5000-138	137.5		84825	377.5	240	1.1	14.96
TL 5000-150	150		84926	402.5	252.5	1.2	15.62
TL 5000-160	160		84997	422.5	262.5	1.3	16.14
TL 5000-175	175		85087	452.5	277.5	1.4	16.94
TL 5000-200	200		85209	502.5	302.5	1.6	18.25
TL 5000-225	225		85304	552.5	327.5	1.8	19.57
TL 5000-250	250		85381	602.5	352.5	2.0	20.89

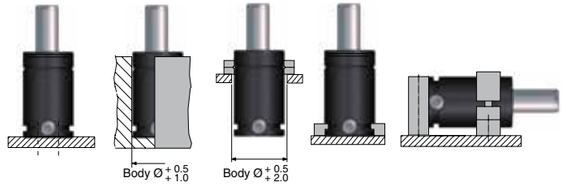
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3024178

Mounting Possibilities



Base mount B, MP | **Drop -in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

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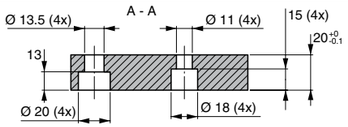
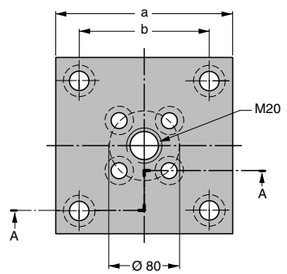
TL 5000 Mounts

MP

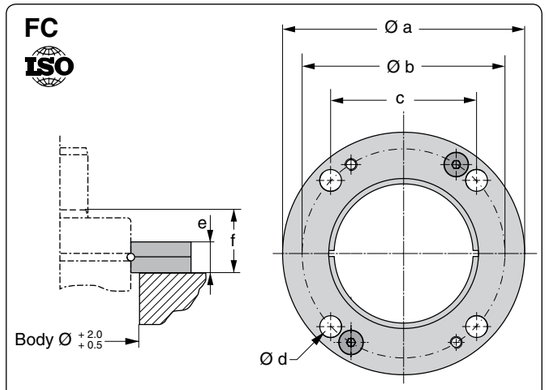




Note!
Comes complete with screws to mount gas spring.

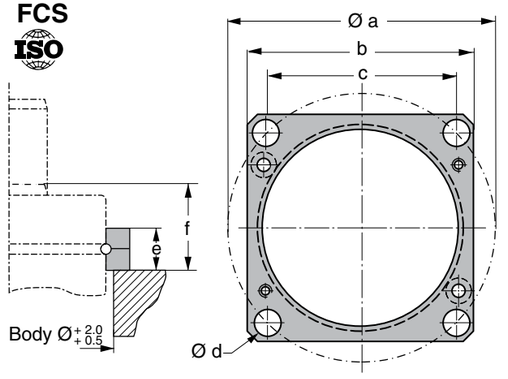
Order No.	a	b
MP-5000	140	109.5

FC



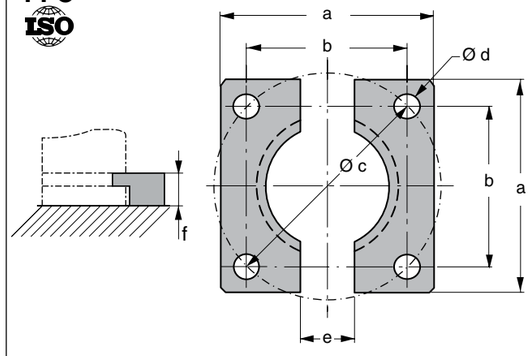
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS



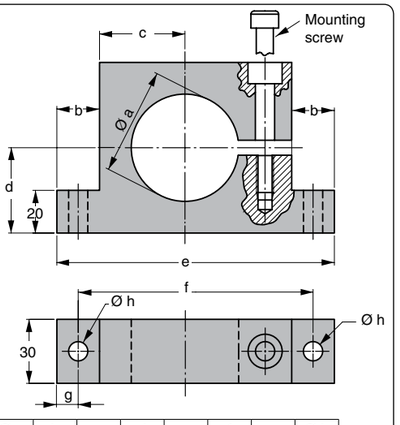
Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

TU 5000

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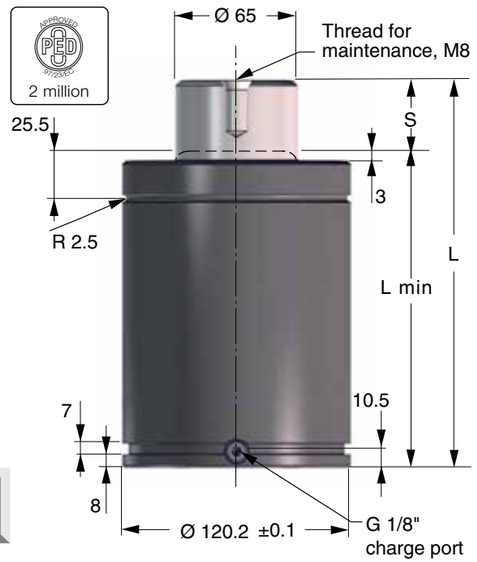
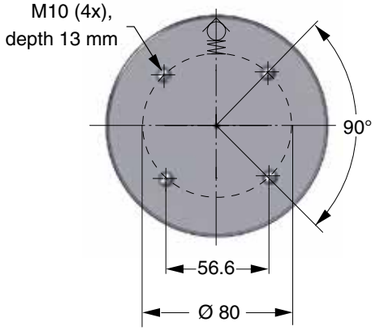




The TU line constitutes our standard line of gas springs. Sizes 250 to 10,000 conform to the ISO 11901 gas spring standard.

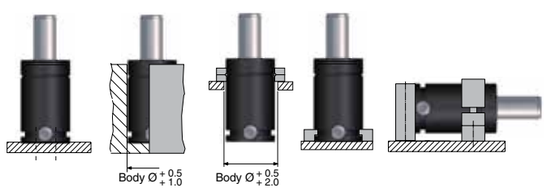
Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
TU 5000-025	25	50000	71000	190	165	0.32	12.40	√
TU 5000-038	38.1		75000	216.2	178.1	0.42	13.10	
TU 5000-050	50		77000	240	190	0.51	13.70	√
TU 5000-064	63.5		80000	267	203.5	0.60	14.40	
TU 5000-080	80		81000	300	220	0.73	15.30	√
TU 5000-100	100		82000	340	240	0.89	16.40	√
TU 5000-125	125		82000	390	265	1.09	17.70	√
TU 5000-160	160		83000	460	300	1.36	19.60	√
TU 5000-200	200		84000	540	340	1.68	21.70	
TU 5000-250	250		84000	640	390	2.07	22.40	
TU 5000-300	300		84000	740	440	2.46	27.10	

* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s
Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kits
* TU 5000 new version..... 3018876
Repair kit. Part No.....
Repair kit. Part No.....

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

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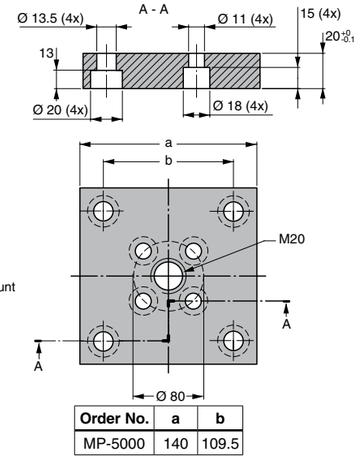
TU 5000 Mounts

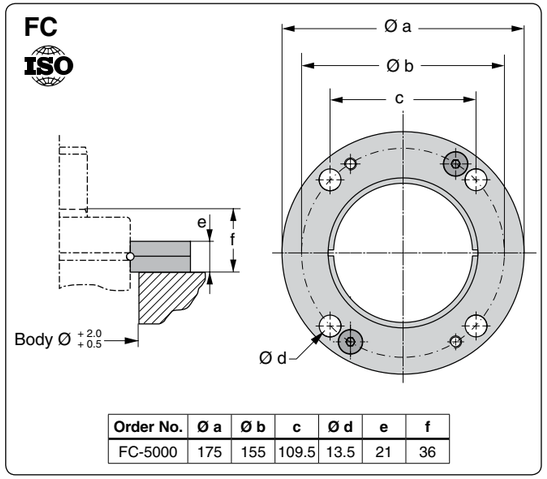
MP



Note! Comes complete with screws to mount gas spring.

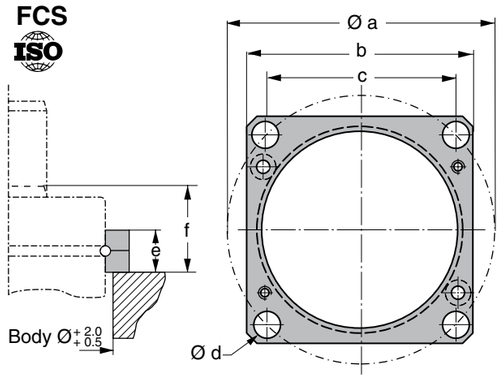
Order No.	a	b
MP-5000	140	109.5

FC



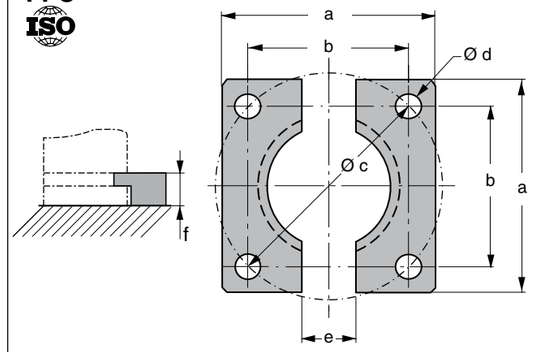
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS



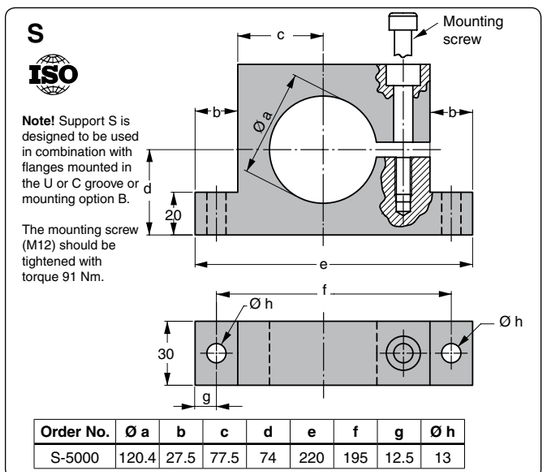
Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

TUS 5000

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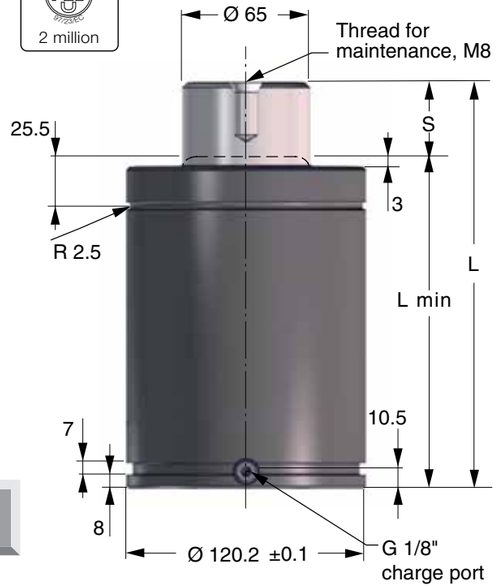
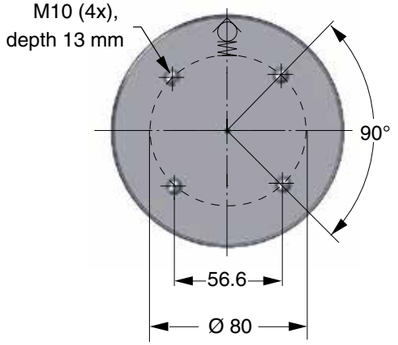
2 million





The High Speed gas springs (TUS) have been engineered to withstand press stroke speeds to a maximum of 2 m/s, which meet the safety requirements from the French automotive manufacturer Renault.

These gas springs are available in sizes from 750 to 7,500 and dimensions that conform to the ISO 11901 gas spring standard.

The TUS gas spring replaces the TUR spring that has been phased out.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TUS 5000-025	25	50000	71000	190	165	0.32	12.00
TUS 5000-038	38.1		75000	216.2	178.1	0.42	12.65
TUS 5000-050	50		77000	240	190	0.51	13.30
TUS 5000-064	63.5		80000	267	203.5	0.60	14.46
TUS 5000-080	80		81000	300	220	0.73	15.05
TUS 5000-100	100		82000	340	240	0.89	16.15
TUS 5000-125	125		82000	390	265	1.09	16.96
TUS 5000-160	160		83000	460	300	1.36	19.40
TUS 5000-200	200		84000	540	340	1.68	20.70
TUS 5000-250	250		84000	640	390	2.07	22.40
TUS 5000-300	300		84000	740	440	2.46	24.66

* = at full stroke

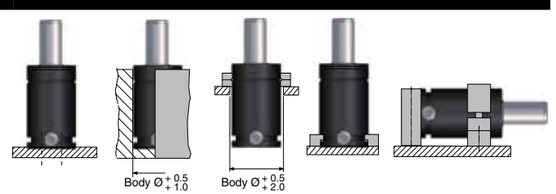
Basic Information

For general information see “About gas springs”, 2.1

Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 2 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3019280

Mounting Possibilities



Base mount B, MP | **Drop -in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC,** | **Body mount FAC, SA, S, HM**

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

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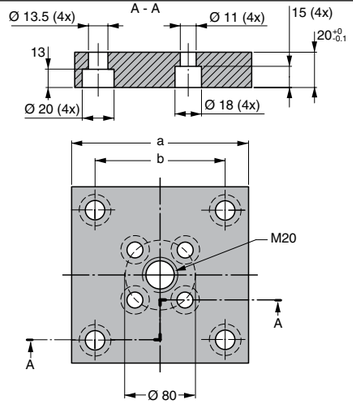
TUS 5000 Mounts

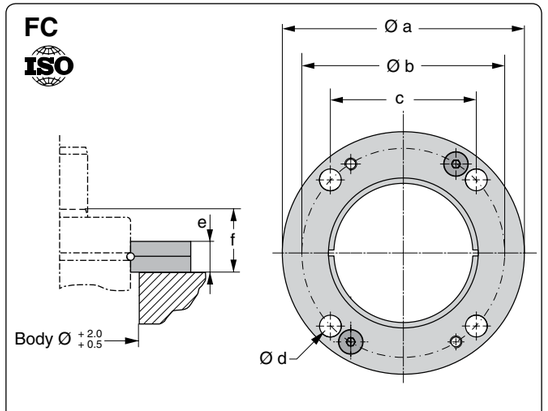
MP



Note!
Comes complete with screws to mount gas spring.

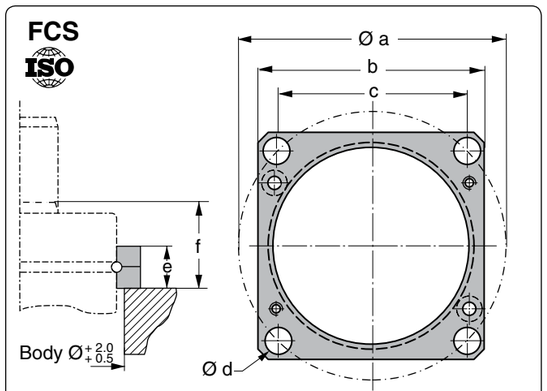
Order No.	a	b
MP-5000	140	109.5

FC



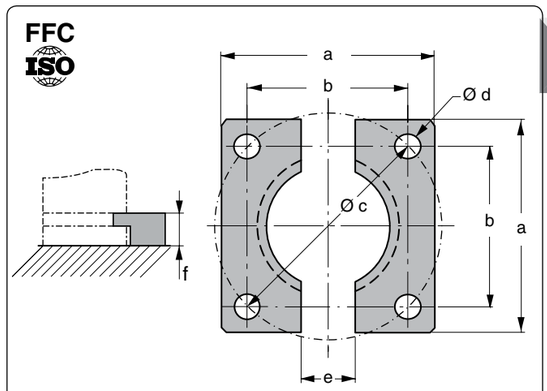
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS



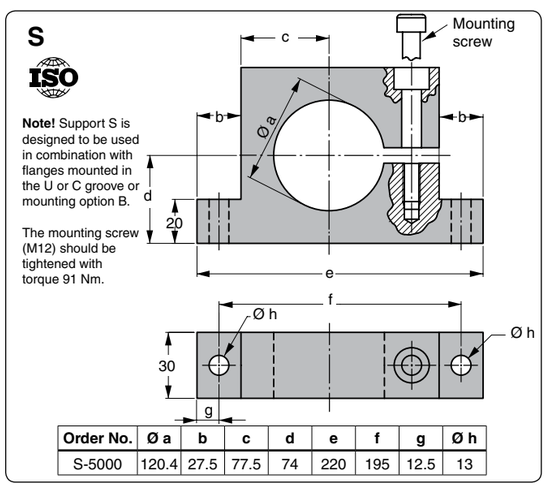
Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

LCF 5000

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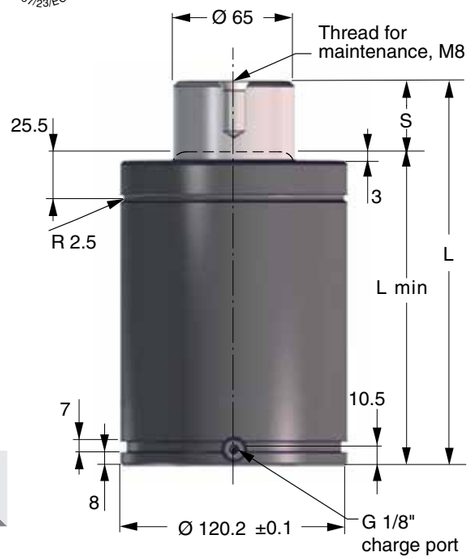
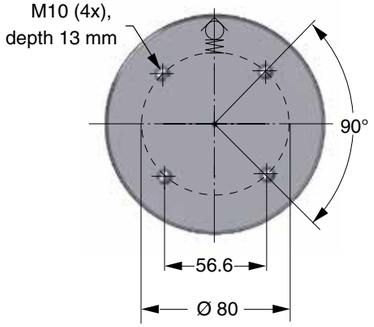
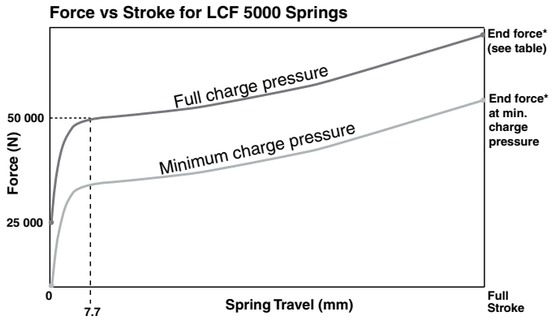
Low Contact Force (LCF) gas springs are designed to reduce excessive shock loads, high noise levels and extreme pad bounce, all factors that lead to high press maintenance costs and noise pollution.
For more information, see “About Gas Springs”, 2.1/4.







Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
LCF 5000-025	25	50000	71000	190	165	0.32	12.00
LCF 5000-038	38.1		75000	216.2	178.1	0.42	12.65
LCF 5000-050	50		77000	240	190	0.51	13.30
LCF 5000-064	63.5		80000	267	203.5	0.60	14.46
LCF 5000-080	80		81000	300	220	0.73	15.05
LCF 5000-100	100		82000	340	240	0.89	16.15
LCF 5000-125	125		82000	390	265	1.09	16.96
LCF 5000-160	160		83000	460	300	1.36	19.40
LCF 5000-200	200		84000	540	340	1.68	20.70
LCF 5000-250	250		84000	640	390	2.07	22.40
LCF 5000-300	300		84000	740	440	2.46	24.66

* = at full stroke

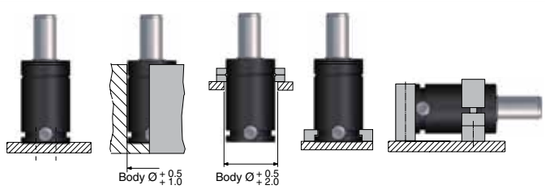
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 75 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s
Rod surface..... Nitrided
Tube surface ..... Black oxide

*Repair kit 3019380

*Identified by circular rings on the top of tube, guide and rod.

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

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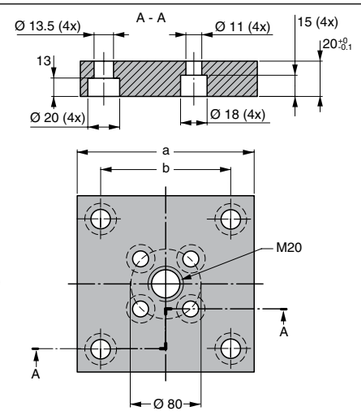
LCF 5000 Mounts

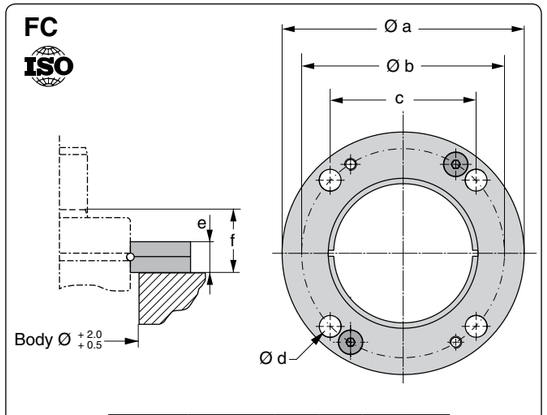
MP



Note! Comes complete with screws to mount gas spring.

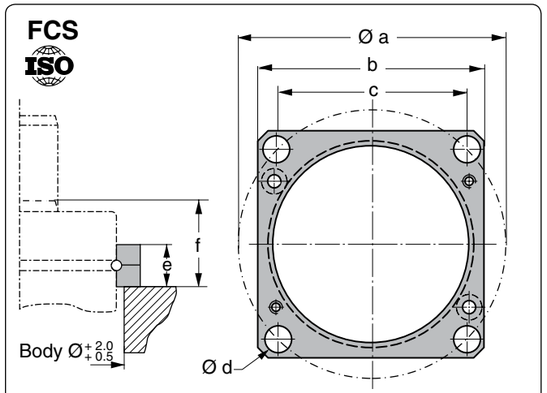
Order No.	a	b
MP-5000	140	109.5

FC



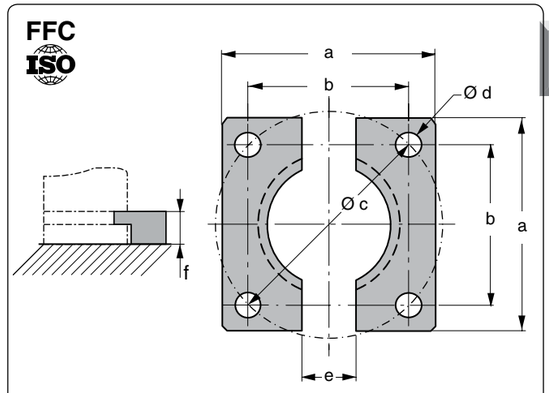
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-5000	175	155	109.5	13.5	21	36

FCS



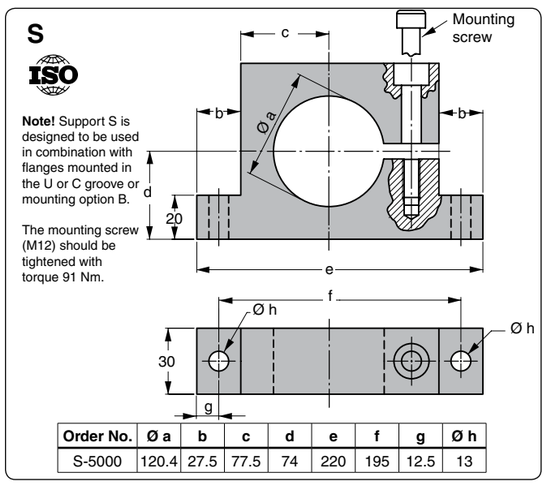
Order No.	Ø a	b	c	Ø d	e	f
FCS-5000	155	130	109.5	13.5	21	36

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-5000	140	109.5	155	13.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-5000	120.4	27.5	77.5	74	220	195	12.5	13

Note! For dimensions on mounting possibilities K-5000, FAC-5000, SA-5000 and FCSC-5000 refer to Chapter 3.

SPC 5000

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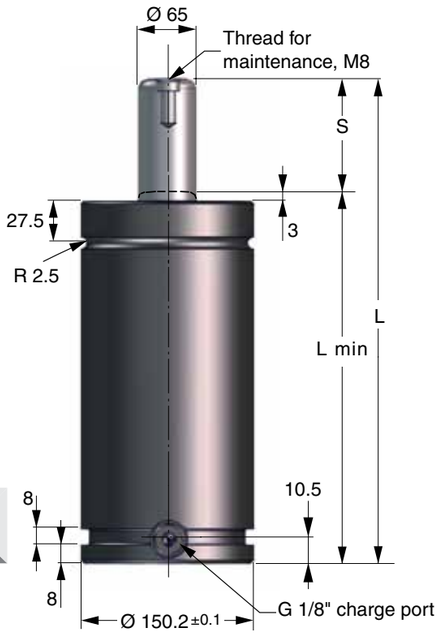
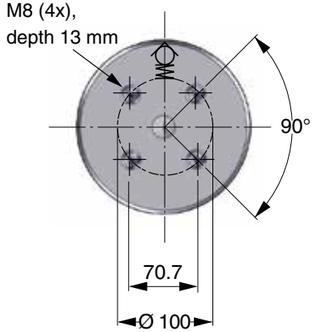


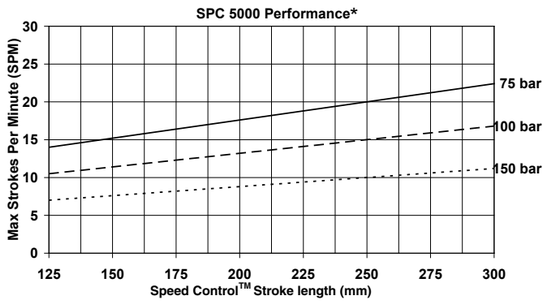


Speed Control™ – SPC gas springs have been engineered to eliminate blank holder bounce, commonly associated with increased return stroke speeds from link drive presses.

SPC gas springs have inbuilt return stroke **speed dampening**, which decelerates the last 30 mm of the piston rod stroke to 0.4 m/s, helping to bring the blank holder to a smooth stop.

Speed Control™ – SPC features:

- Eliminates blank holder bounce
- Increases productivity by increasing part transfer efficiency
- Easily retrofitted to existing dies
- Stroke lengths from 125 to 300 mm
- Linkable using a hose system



*At ambient room temperatures with free air flow

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
SPC 5000-125	125	50000	64000	405	280	1.90	26.35
SPC 5000-160	160		65000	475	315	2.33	28.75
SPC 5000-200	200		66000	555	355	2.82	31.50
SPC 5000-250	250		66000	655	405	3.43	34.93
SPC 5000-300	300		66000	755	455	4.05	38.37

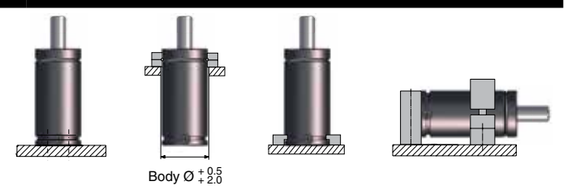
*at full stroke

Basic Information

For general information see “About gas springs” , 2.1

Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature..... ±0.3%/°C
Recommended max strokes/min ..... See chart
Dampening length ..... ≈ 30 mm
Dampening speed ..... 0.4 m/s
Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3021497

Mounting Possibilities



Base mount B, MP

Top mount FC, FCS, FCSC

Foot mount K, FFC

Body mount FAC, SA, S

Note! For dimensions on mounting possibilities K-7500, FAC-7500, SA-7500 and FCSC-7500 refer to Chapter 3.

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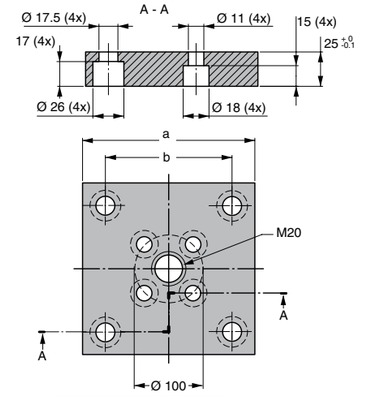
SPC 5000 Mounts

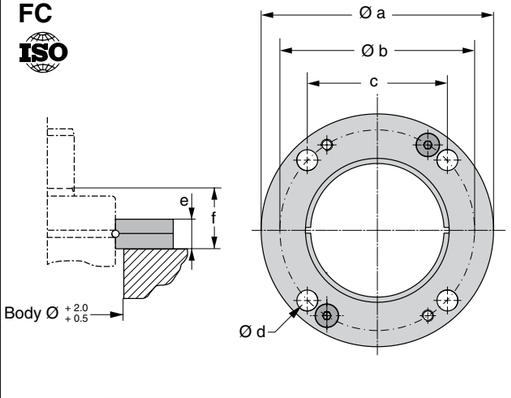
MP



Note! Comes complete with screws to mount gas spring.

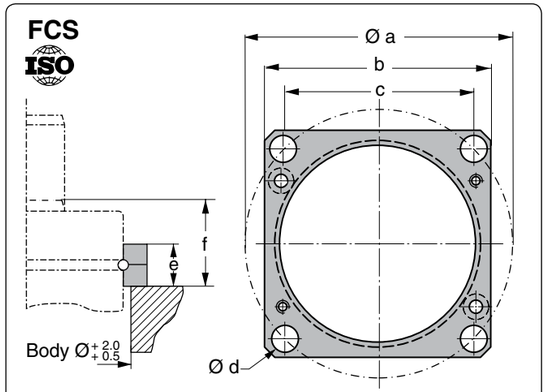
Order No.	a	b
MP-7500	190	138

FC



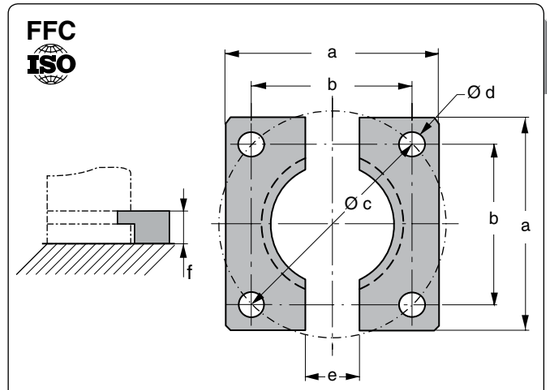
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-7500	220	195	138	17.5	27	41

FCS



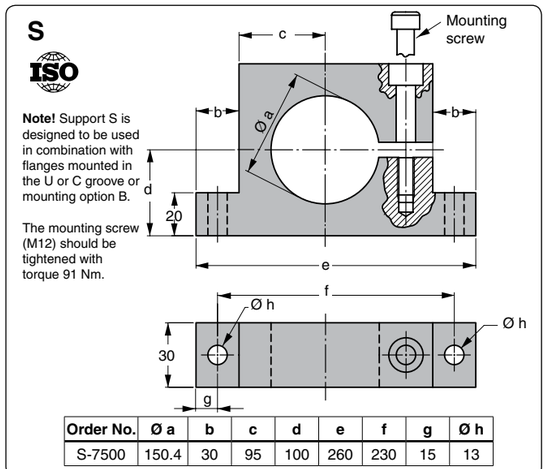
Order No.	Ø a	b	c	Ø d	e	f
FCS-7500	195	162	138	17.5	27	41

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-7500	190	138	195.2	17.5	24	12

S



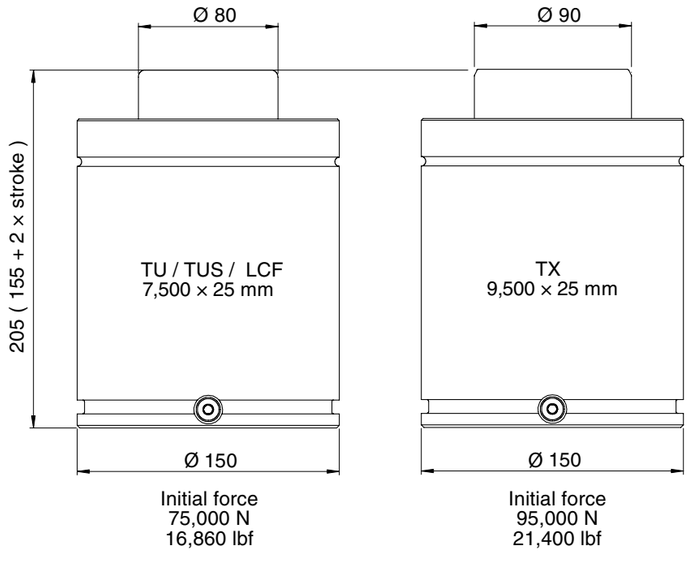
Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

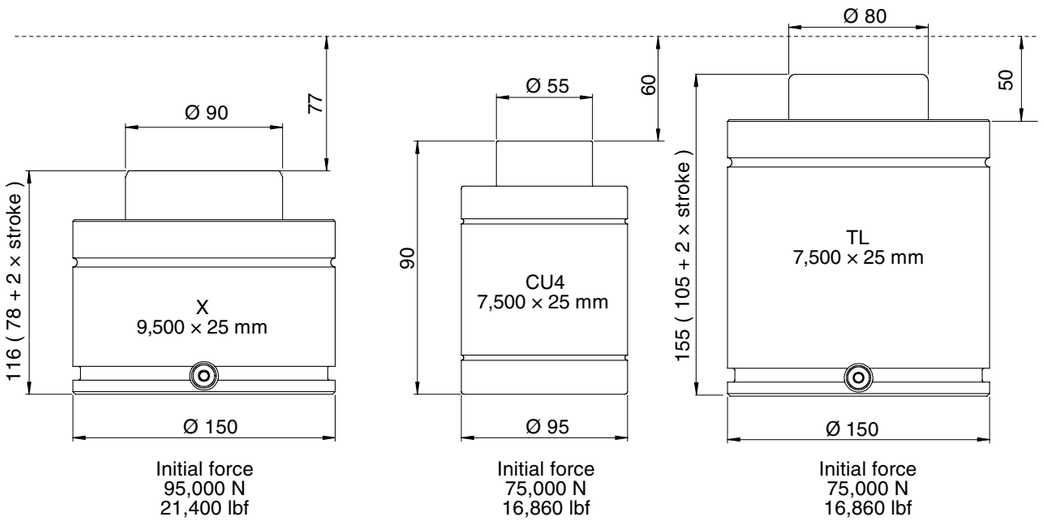
The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-7500	150.4	30	95	100	260	230	15	13

Note! For dimensions on mounting possibilities K-7500, FAC-7500, SA-7500 and FCSC-7500 refer to Chapter 3.

Overvie ≤ F_{INIT} < 100000





75000 ≤ F_{INIT} < 100000

CU4 7500

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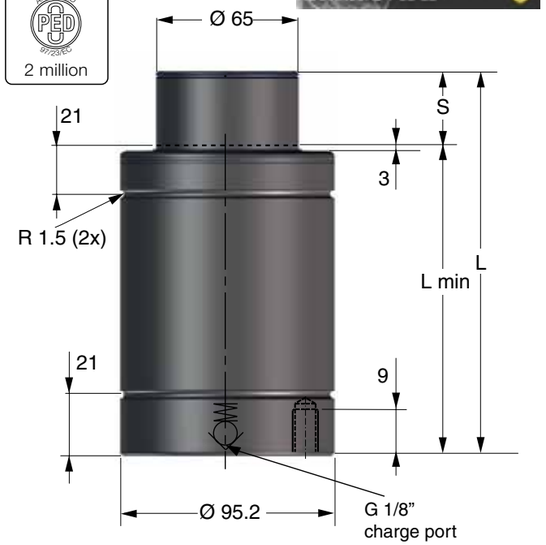
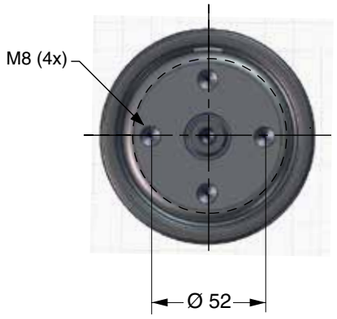
2 million





The CU4 gas spring is a very compact Bore Sealed gas spring with impressive force in a compact body.
The maximum frequency for the spring is 100 strokes/ minute.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

As an option, the CU4 spring can be delivered with a Side Port plate (SP) for applications where a sideport is needed (e.g., for use in hose systems).

Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU4 7500-010	10		98500		22,143	90	80	0.18	2.86
CU4 7500-016	16		100000		22,480	116	100	0.30	3.22
CU4 7500-025	25		104000		23,380	145	120	0.41	3.61
CU4 7500-032	32*	75,000	102000	16,860	22,930	182	150	0.57	4.14
CU4 7500-040	40*		104000		23,380	210	170	0.68	4.52
CU4 7500-050	50*		103000		23,155	255	205	0.87	5.15
CU4 7500-065	65*		111000		24,953	279	214	1.00	5.23

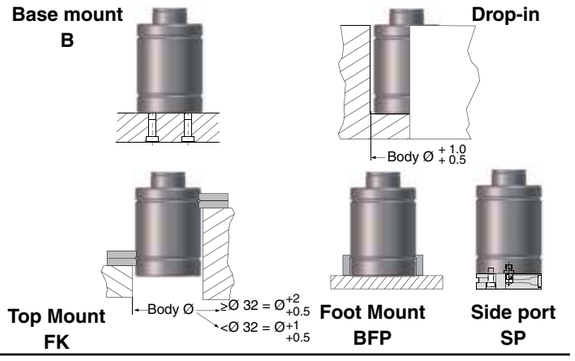
* Should always be attached to the tool using the tapped holes in the bottom or a flange
** at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min .... ~80 to 100 (at 20° C)
Max piston rod velocity ..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit CU4 7500 3024839
Repair kit CU 7500 2014493-0750
Available until 12.31.2015

Mounting Possibilities



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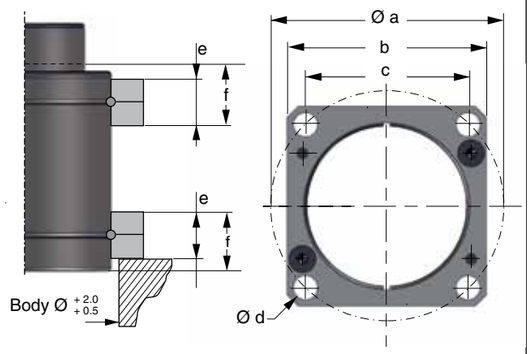
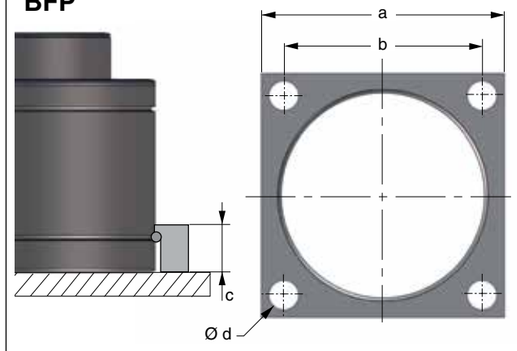
CU4 7500 Mounts

FK



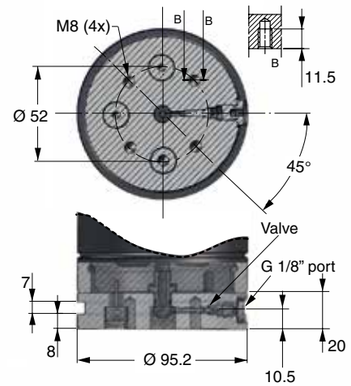
For model	Order No.	Ø a	Ø b	c	Ø d	e	f
CU4 7500	FK-3000	130	110	92	13.5	18	30

BFP



For model	Order No.	a	b	c	Ø d
CU4 7500	BFP-7500	110	92	27.5	13

SP



For model	Order No.	For U-groove mounts on SP
CU4 7500	SP-7500	Refer to TU 3000

X 9500

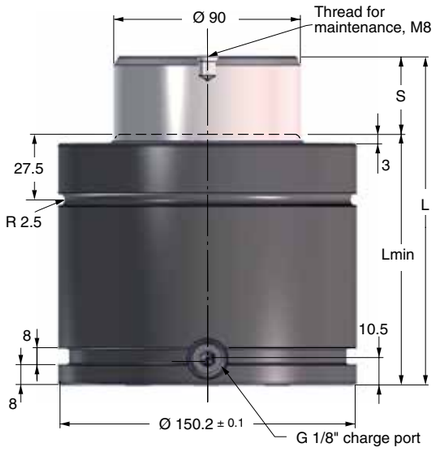
2 million

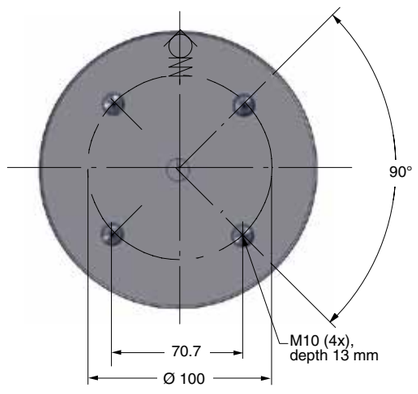
The Power Line Series includes our shortest and most powerful Piston Rod Sealed gas springs, offering impressive force in a very compact format.

These gas springs are available with forces from 1,700 N up to 200,000 N and stroke lengths between 7 and 125 mm.

There is a side port for gas charging that can also be used to connect to a hose system.

An upper C-groove, lower U-groove together with four M10 threaded holes allow various mounting possibilities using our standard mounts.





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 9500-019	19	95000	135000	116	97	0.49	9.86
X 9500-025	25		139000	128	103	0.58	10.23
X 9500-032	32		142000	142	110	0.70	10.67
X 9500-038	38		143000	154	116	0.80	11.04
X 9500-050	50		146000	178	128	0.99	11.79
X 9500-063	63		148000	204	141	1.20	12.05
X 9500-075	75		149000	228	153	1.39	12.28
X 9500-080	80		150000	238	158	1.47	12.38
X 9500-100	100		151000	278	178	1.79	12.78
X 9500-125	125		152000	328	203	2.20	13.27

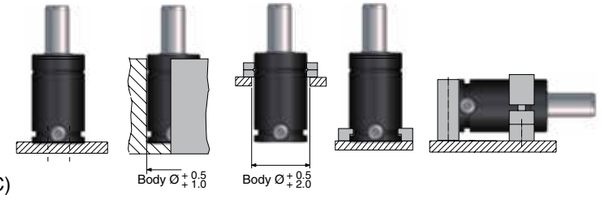
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 30 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3020614
Repair kit. Part No .....

Mounting Possibilities

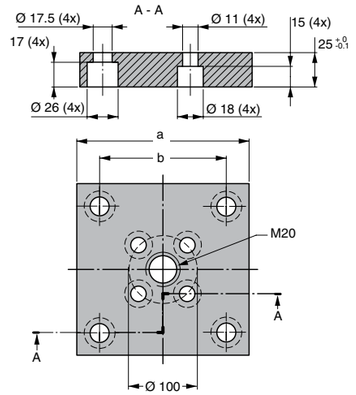


Base mount B, MP | **Drop - in** | **Top mount FC, FCS, FCSC** | **Foot mount K, FFC** | **Body mount S**

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

X 9500 Mounts

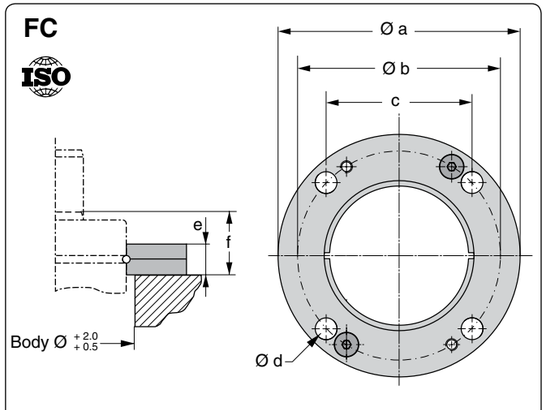
MP



Note! Comes complete with screws to mount gas spring.

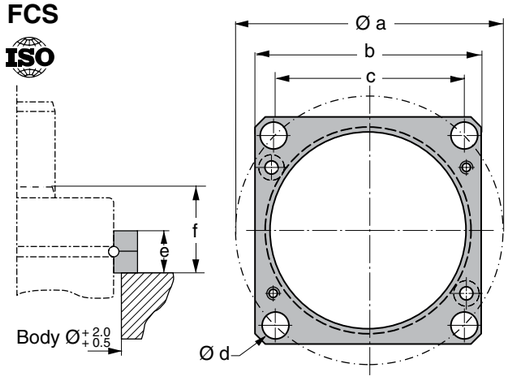
Order No.	a	b
MP-7500	190	138

FC



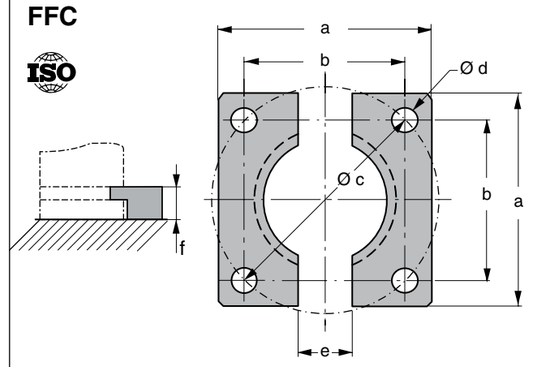
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-7500	220	195	138	17.5	27	41

FCS



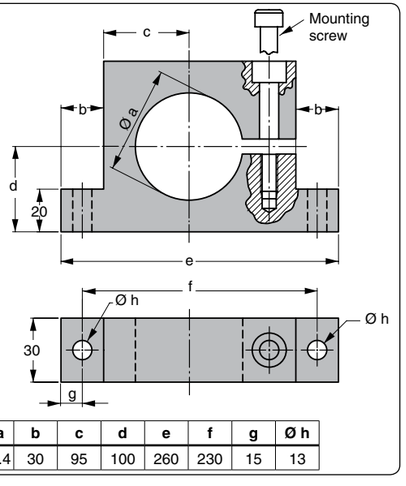
Order No.	Ø a	b	c	Ø d	e	f
FCS-7500	195	162	138	17.5	27	41

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-7500	190	138	195.2	17.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-7500	150.4	30	95	100	260	230	15	13

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

TX 9500

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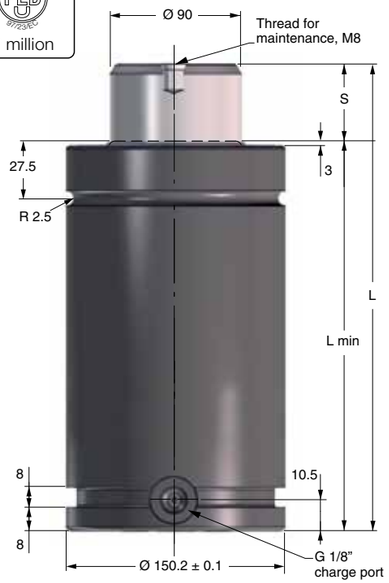
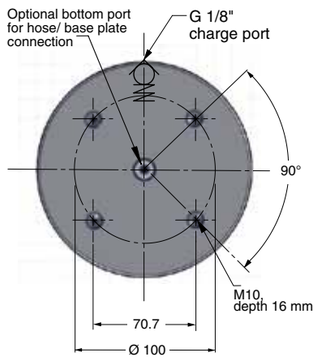
2 million





The Power Line - Heavy Duty series is a crossover between the standard TU Series and the Power Line X Series.

These gas springs are available with forces from 9,200 N up to 95,000 N and stroke lengths between 13 and 300 mm.

There is an optional bottom port for hose/base plate connection.

An upper C-groove, lower U-groove and bottom threaded holes allow various mounting possibilities using our standard mounts.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TX 9500-025	25		113185	205	180	1.09	16.86
TX 9500-038	38		119027	231	193	1.30	17.70
TX 9500-050	50		123252	255	205	1.49	18.48
TX 9500-063	63		126937	281	218	1.69	19.32
TX 9500-075	75		129734	305	230	1.88	20.10
TX 9500-080	80		130762	315	235	1.96	20.42
TX 9500-100	100		134256	355	255	2.28	31.72
TX 9500-125	125	95000	137591	405	280	2.67	23.35
TX 9500-150	150		140152	455	305	3.07	24.97
TX 9500-160	160		141017	475	315	3.23	25.62
TX 9500-175	175		142180	505	330	3.47	26.59
TX 9500-200	200		143826	555	355	3.86	28.21
TX 9500-250	250		146336	655	405	4.65	31.46
TX 9500-300	300		148158	755	455	5.44	34.70

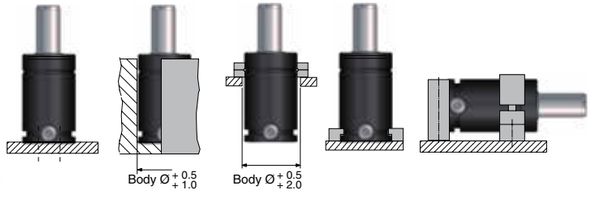
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 30 to 100 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3022901
Repair kit. Part No .....

Mounting Possibilities



Base mount **B, MP** | **Drop - in** | **Top mount** **FC, FCS, FCSC** | **Foot mount** **K, FFC** | **Body mount** **S**

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

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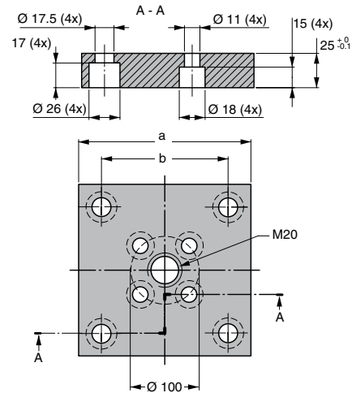
TX 9500 Mounts

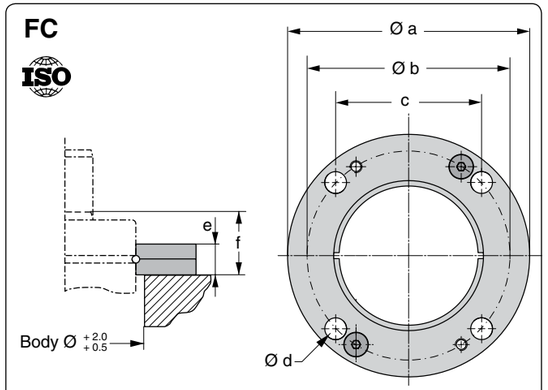
MP



Note! Comes complete with screws to mount gas spring.

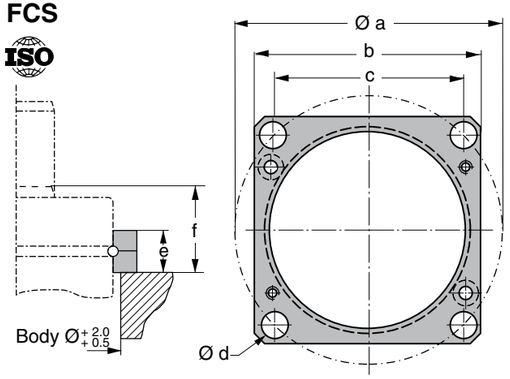
Order No.	a	b
MP-7500	190	138

FC



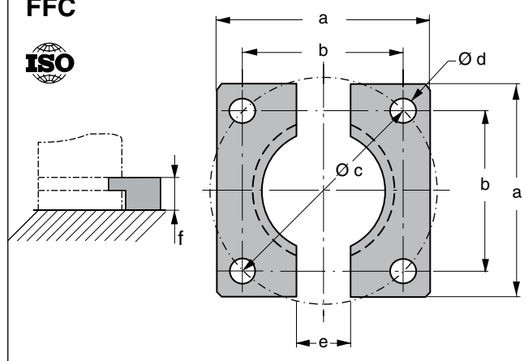
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-7500	220	195	138	17.5	27	41

FCS



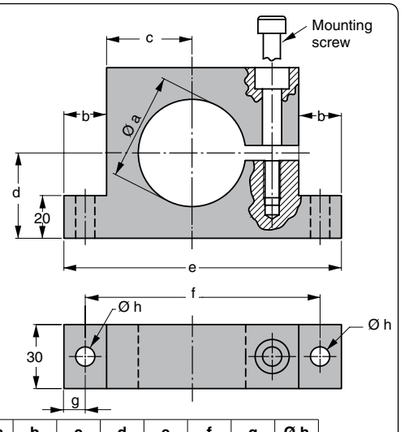
Order No.	Ø a	b	c	Ø d	e	f
FCS-7500	195	162	138	17.5	27	41

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-7500	190	138	195.2	17.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-7500	150.4	30	95	100	260	230	15	13

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

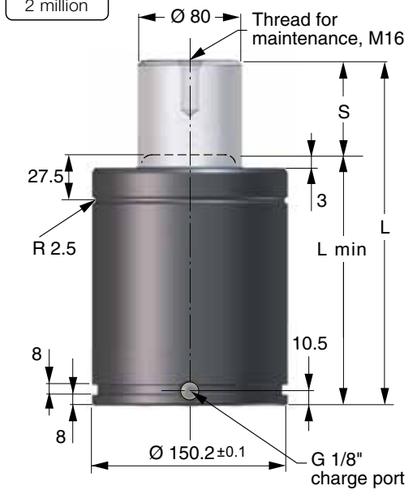
9

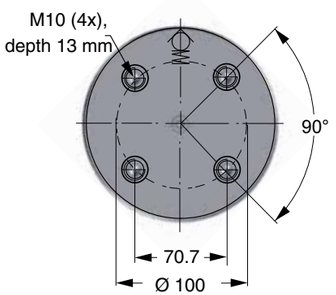
TL 7500

2 million

The TL series ranges from model sizes 750 to 7,500, with the same features and technology as the TU series.

At the same time, the TL gas spring is shorter than the corresponding TU gas spring by 25 mm, except TL 5000 and TL 7500, which are 37.5 mm and 50 mm shorter respectively. TL springs share the same TU mounting possibilities and stroke lengths, with exception of strokes 12.5, 37.5 and 62.5.





Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TL 7500-025	25		99,900		22,450	155	130	0.6	13.6
TL 7500-038	37.5		104,100		23,400	180	142.5	0.7	14.5
TL 7500-050	50		106,800		24,010	205	155	0.9	15.4
TL 7500-063	62.5		108,700		24,440	230	167.5	1.0	16.3
TL 7500-075	75		110,100		24,750	255	180	1.3	17.2
TL 7500-080	80		115,600		25,990	265	185	1.4	17.5
TL 7500-088	87.5		111,200		25,000	280	192.5	1.6	18.0
TL 7500-100	100		112,000		25,180	305	205	1.8	18.9
TL 7500-113	112.5	75,000	112,700	16,900	25,340	330	217.5	1.9	19.8
TL 7500-125	125		113,300		25,470	355	230	2.1	20.7
TL 7500-138	137.5		113,700		25,560	380	242.5	2.3	21.6
TL 7500-150	150		114,100		25,650	405	255	2.4	22.5
TL 7500-160	160		114,400		25,720	425	265	2.6	23.2
TL 7500-175	175		114,800		25,810	453	280	3.0	24.3
TL 7500-200	200		115,300		25,920	505	305	3.3	26.1
TL 7500-225	225		115,700		26,010	555	330	3.3	27.8
TL 7500-250	250		116,000		26,080	605	355	3.6	29.6

*= at full stroke

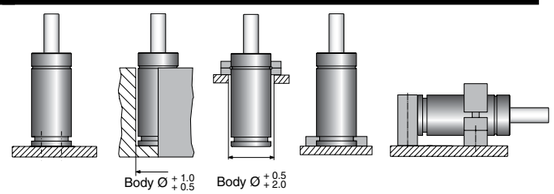
Basic Information

For general information see “About gas springs”, 2.1

Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3025027

Mounting Possibilities

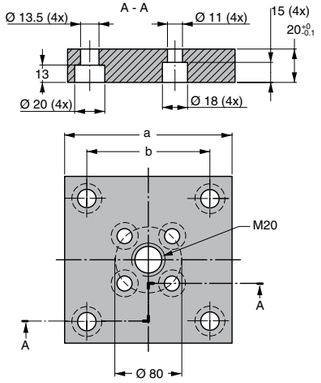


Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** FAC, SA, S, HM

Note! For dimensions on mounting possibilities K-7500 FAC-7500, SA-7500 and FCSC-7500 refer to Chapter 3.

TL 7500 Mounts

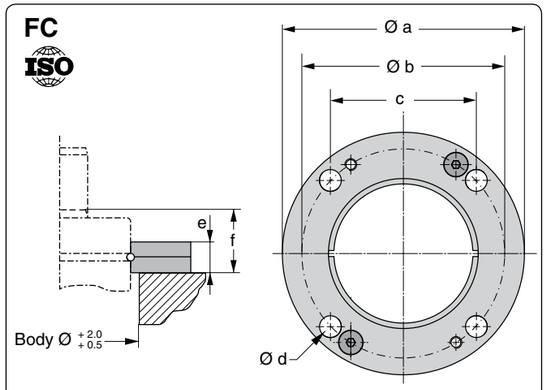
MP



Note! Comes complete with screws to mount gas spring.

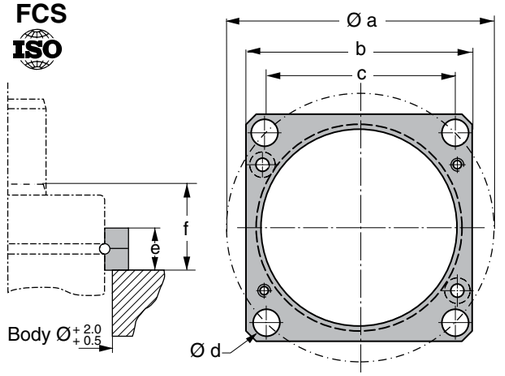
Order No.	a	b
MP-7500	190	138

FC



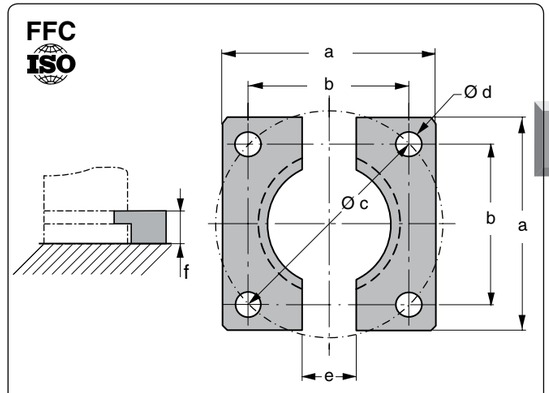
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-7500	220	195	138	17.5	27	41

FCS



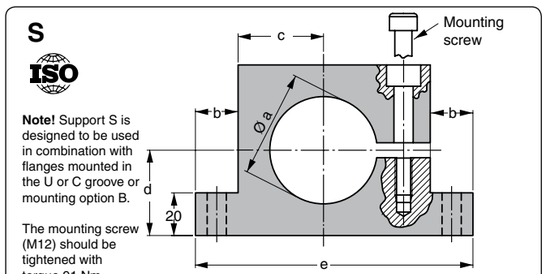
Order No.	Ø a	b	c	Ø d	e	f
FCS-7500	195	162	138	17.5	27	41

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-7500	190	138	195.2	17.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-7500	150.4	30	95	100	260	230	15	13

Note! For dimensions on mounting possibilities K-7500, FAC-7500, SA-7500 and FCSC-7500 refer to Chapter 3.

TU 7500

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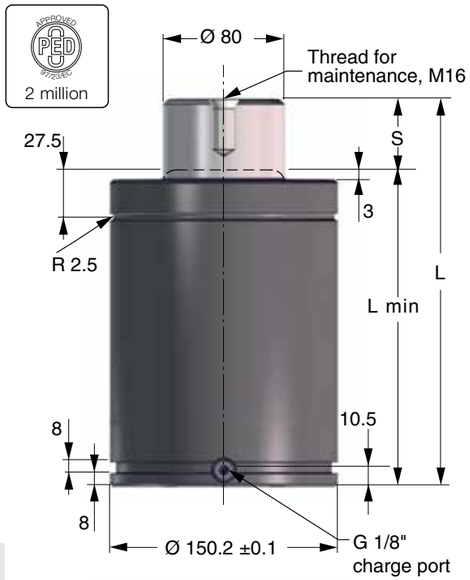
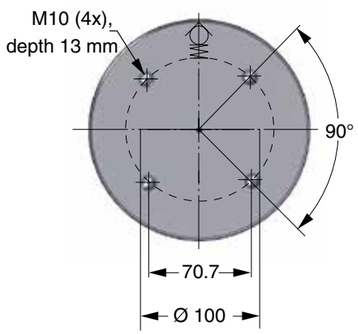




The TU line constitutes our standard line of gas springs. Sizes 250 to 10,000 conform to the ISO 11901 gas spring standard.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End Force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
TU 7500-025	25	75000	105000	205	180	0.51	20.30	√
TU 7500-038	38.1		110000	231.2	193.1	0.67	21.40	
TU 7500-050	50		113000	255	205	0.81	22.40	√
TU 7500-064	63.5		115000	282	218.5	0.98	23.50	
TU 7500-080	80		117000	315	235	1.18	24.80	√
TU 7500-100	100		119000	355	255	1.43	26.50	√
TU 7500-125	125		121000	405	280	1.74	28.50	√
TU 7500-160	160		122000	475	315	2.17	31.40	√
TU 7500-200	200		123000	555	355	2.66	34.70	
TU 7500-250	250		124000	655	405	3.27	38.80	
TU 7500-300	300		124000	755	455	3.88	42.90	

* = at full stroke

Basic Information

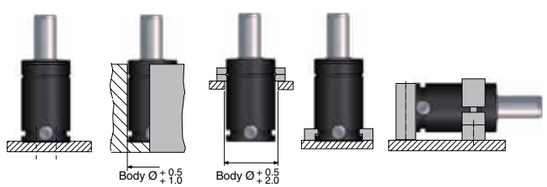
For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide

* Repair kit 3018877

*Identified by circular rings on the top of tube, guide and rod.

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC, | **Body mount** S

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

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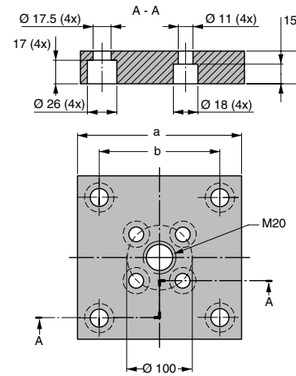
TU 7500 Mounts

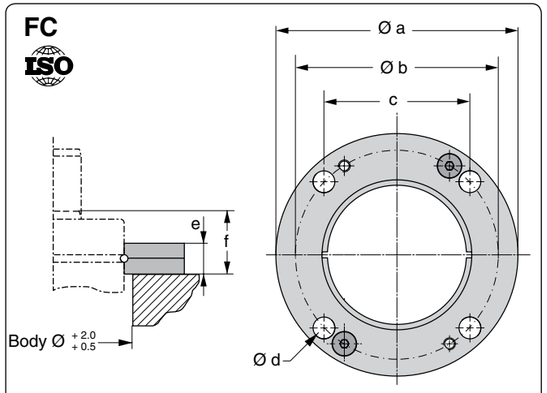
MP



Note! Comes complete with screws to mount gas spring.

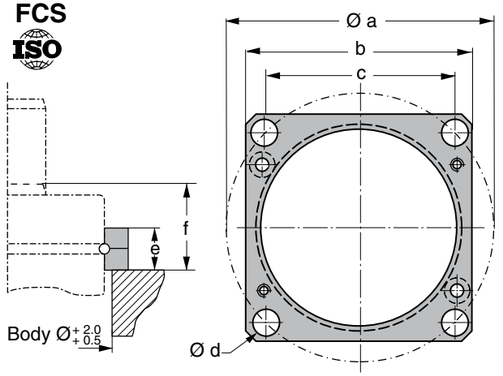
Order No.	a	b
MP-7500	190	138

FC



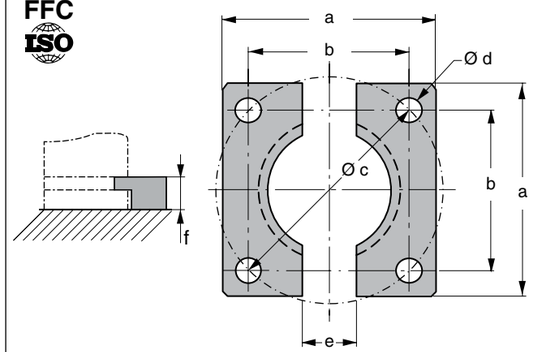
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-7500	220	195	138	17.5	27	41

FCS



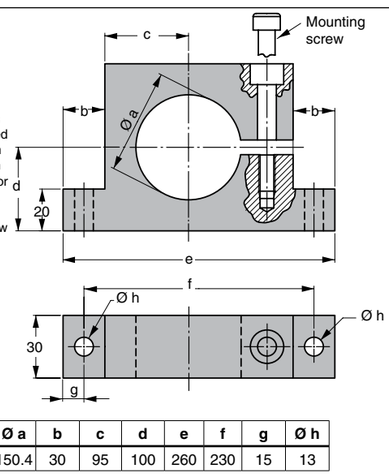
Order No.	Ø a	b	c	Ø d	e	f
FCS-7500	195	162	138	17.5	27	41

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-7500	190	138	195.2	17.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-7500	150.4	30	95	100	260	230	15	13

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

TUS 7500

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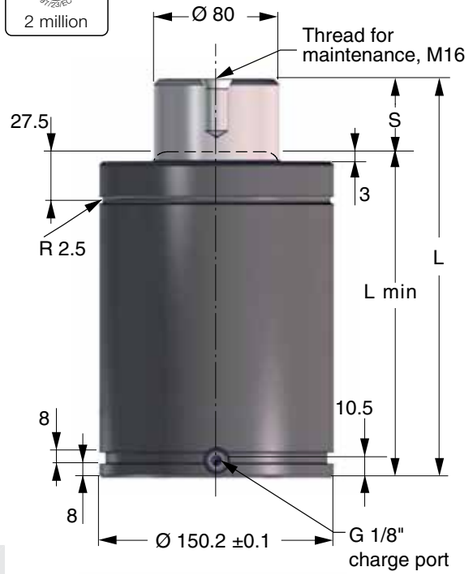
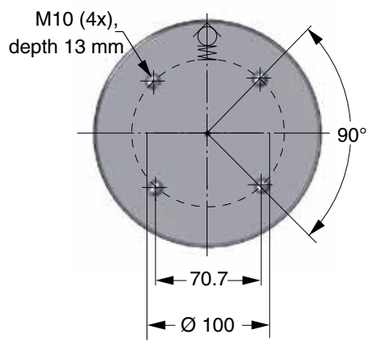




The High Speed gas springs (TUS) have been engineered to withstand press stroke speeds to a maximum of 2 m/s, which meet the safety requirements from the French automotive manufacturer Renault.

These gas springs are available in sizes from 750 to 7,500 and dimensions that conform to the ISO 11901 gas spring standard.

The TUS gas spring replaces the TUR spring that has been phased out.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End Force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
TUS 7500-025	25	75000	105000	205	180	0.51	19.40
TUS 7500-038	38.1		110000	231.2	193.1	0.67	20.47
TUS 7500-050	50		113000	255	205	0.81	21.25
TUS 7500-064	63.5		115000	282	218.5	0.98	22.56
TUS 7500-080	80		117000	315	235	1.18	23.91
TUS 7500-100	100		119000	355	255	1.43	25.56
TUS 7500-125	125		121000	405	280	1.74	27.61
TUS 7500-160	160		122000	475	315	2.17	30.48
TUS 7500-200	200		123000	555	355	2.66	33.76
TUS 7500-250	250		124000	655	405	3.27	37.87
TUS 7500-300	300		124000	755	455	3.88	41.97

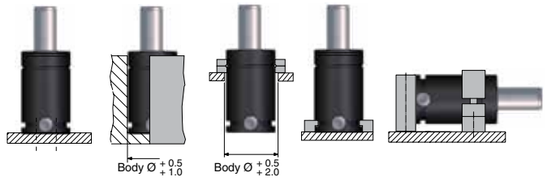
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 2 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide
Repair kit..... 3019281

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC | **Body mount** S

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

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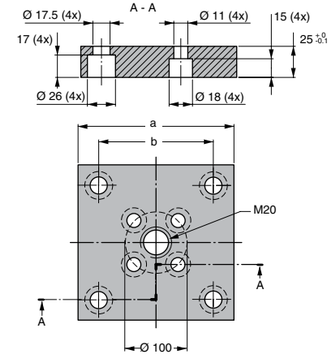
TUS 7500 Mounts

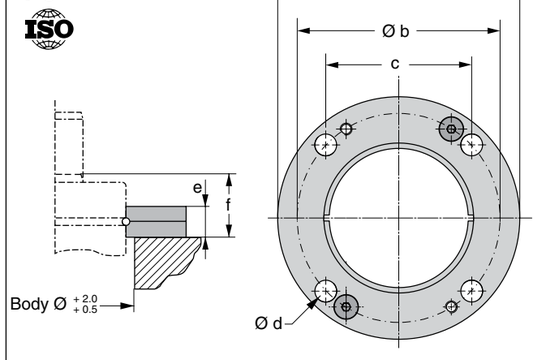
MP



Note! Comes complete with screws to mount gas spring.

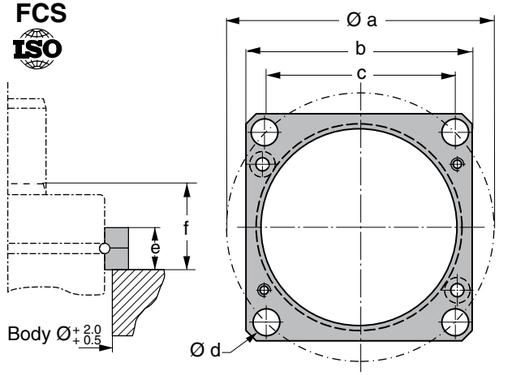
Order No.	a	b
MP-7500	190	138

FC



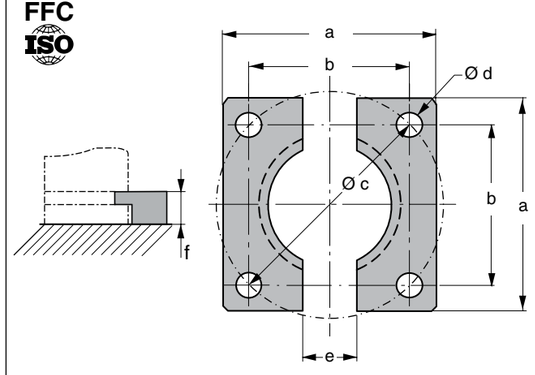
Order No.	Ø a	Ø b	c	Ø d	e	f
FC-7500	220	195	138	17.5	27	41

FCS



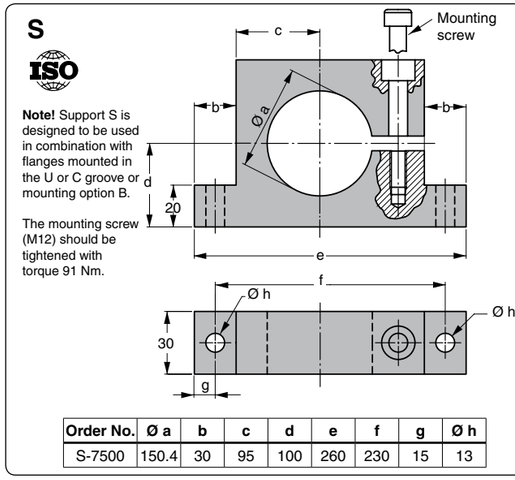
Order No.	Ø a	b	c	Ø d	e	f
FCS-7500	195	162	138	17.5	27	41

FFC



Order No.	a	b	Ø c	Ø d	e	f
FFC-7500	190	138	195.2	17.5	24	12

S



Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-7500	150.4	30	95	100	260	230	15	13

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

LCF 7500

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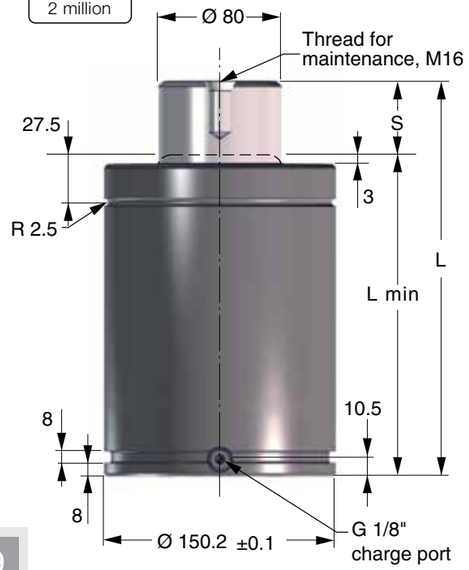
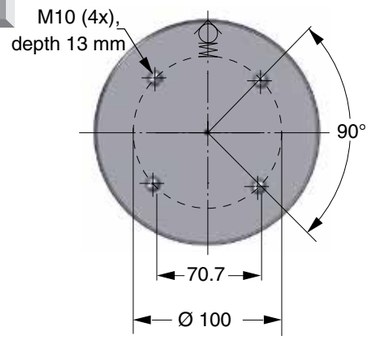
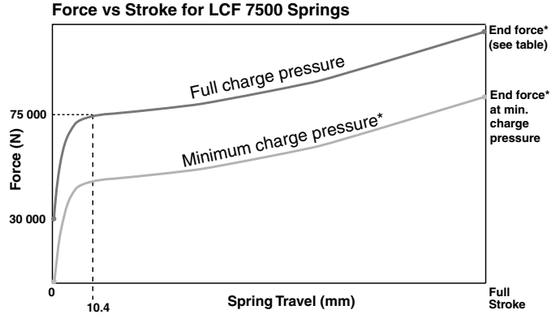




Low Contact Force (LCF) gas springs are designed to reduce excessive shock loads, high noise levels and extreme pad bounce, all factors that lead to high press maintenance costs and noise pollution.
For more information, see “About Gas Springs”, 2.1/4.

Force vs Stroke for LCF 7500 Springs



Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	End Force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
LCF 7500-025	25	75000	105000	205	180	0.51	19.40
LCF 7500-038	38.1		110000	231.2	193.1	0.67	20.47
LCF 7500-050	50		113000	255	205	0.81	21.25
LCF 7500-064	63.5		115000	282	218.5	0.98	22.56
LCF 7500-080	80		117000	315	235	1.18	23.91
LCF 7500-100	100		119000	355	255	1.43	25.56
LCF 7500-125	125		121000	405	280	1.74	27.61
LCF 7500-160	160		122000	475	315	2.17	30.48
LCF 7500-200	200		123000	555	355	2.66	33.76
LCF 7500-250	250		124000	655	405	3.27	37.87
LCF 7500-300	300		124000	755	455	3.88	41.97

* = at full stroke

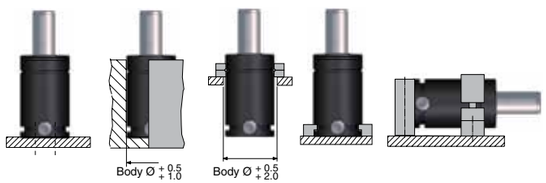
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 89 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ..... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s
Rod surface..... Nitrided
Tube surface ..... Black oxide

* Repair kit 3019381

*Identified by circular rings on the top of tube, guide and rod.

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FC, FCS, FCSC | **Foot mount** K, FFC, | **Body mount** S

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

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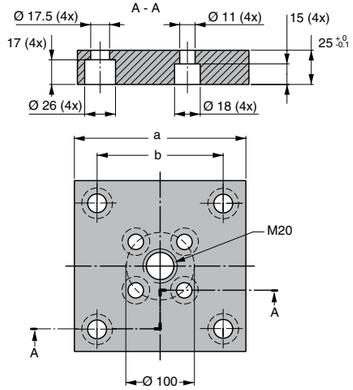
LCF 7500 Mounts

MP

ISO

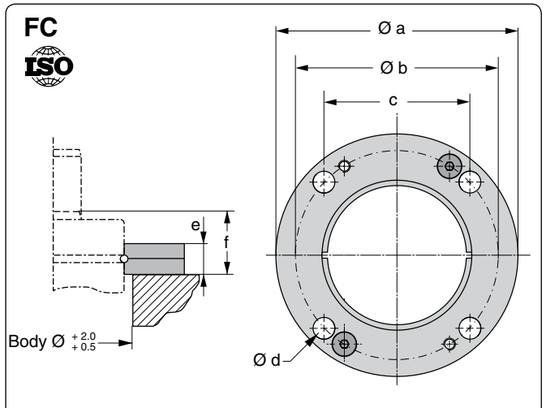


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-7500	190	138

FC

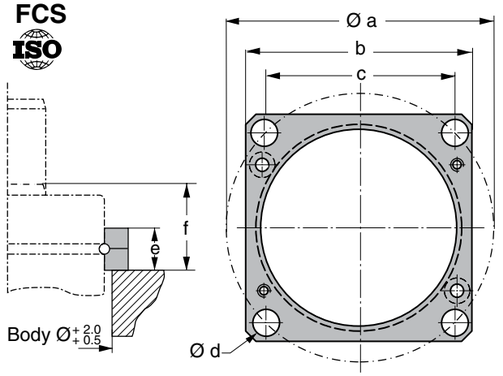
ISO



Order No.	Ø a	Ø b	c	Ø d	e	f
FC-7500	220	195	138	17.5	27	41

FCS

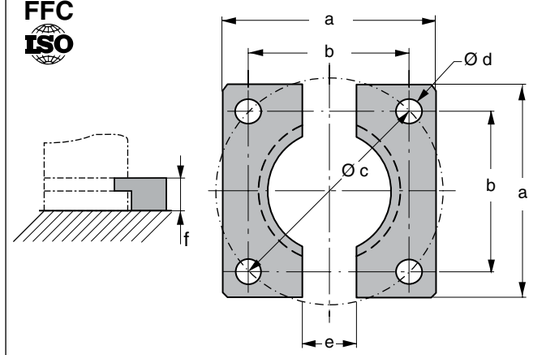
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-7500	195	162	138	17.5	27	41

FFC

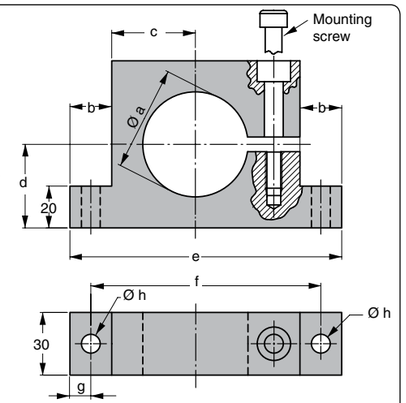
ISO



Order No.	a	b	Ø c	Ø d	e	f
FFC-7500	190	138	195.2	17.5	24	12

S

ISO



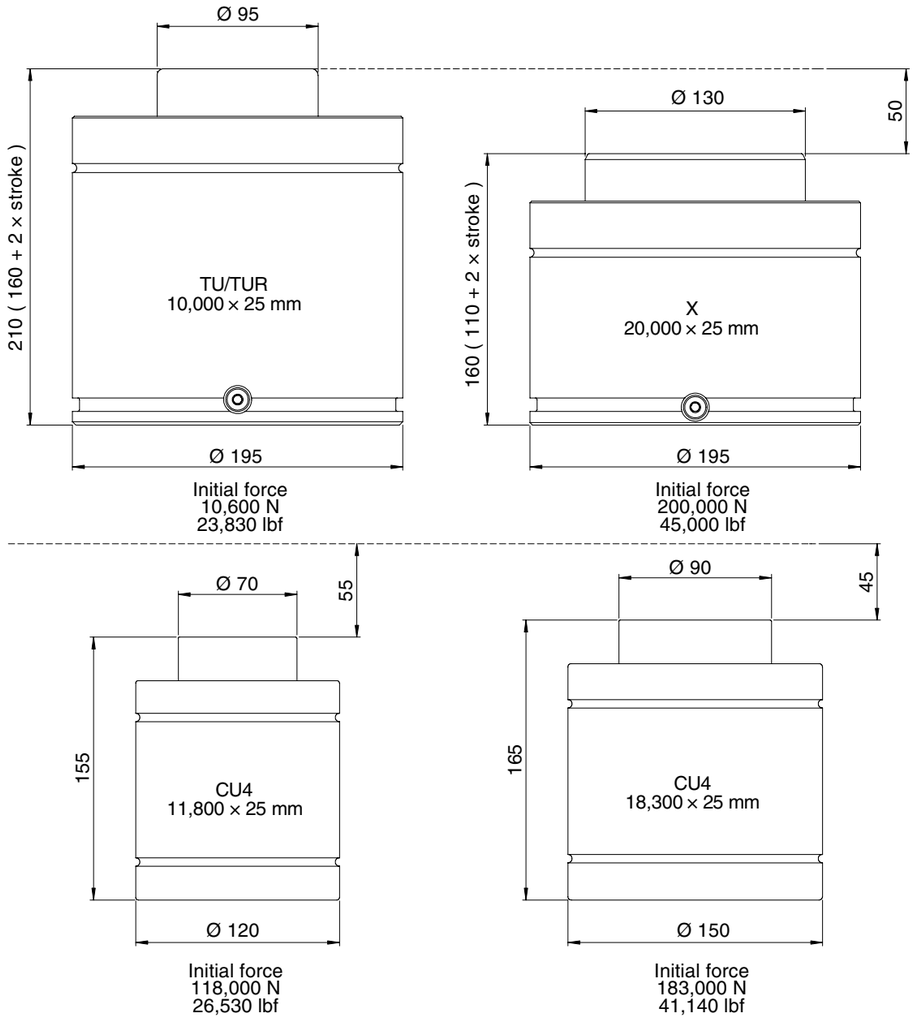
Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or mounting option B.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	b	c	d	e	f	g	Ø h
S-7500	150.4	30	95	100	260	230	15	13

Note! For dimensions on mounting possibilities K-7500 and FCSC-7500 refer to Chapter 3.

Overv $F_{INIT} \geq 100000$



$F_{INIT} \geq 100000$

CU4 11800

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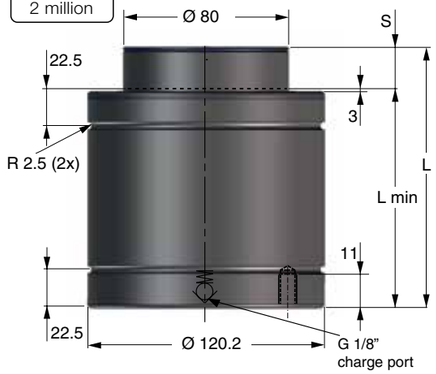
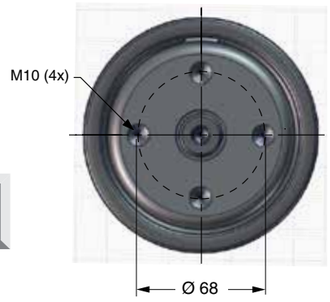


The CU4 gas spring is a very compact Bore Sealed gas spring with impressive force in a compact body.
The maximum frequency for the spring is 100 strokes/ minute.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

As an option, the CU4 spring can be delivered with a Side Port plate (SP) for applications where a sideport is needed (e.g., for use in hose systems).



Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU4 11800-010	10		150,000		33,700	100	90	0.33	4.95
CU4 11800-016	16		153,000		34,400	126	110	0.50	5.55
CU4 11800-025	25		160,000		36,000	155	130	0.68	6.17
CU4 11800-032	32*	118,000	165,000	26,530	37,100	187	155	0.88	6.90
CU4 11800-040	40*		160,000		36,000	220	180	1.00	7.65
CU4 11800-050	50*		161,000		36,200	260	210	1.35	8.55
CU4 11800-050	65*		163,000		36,600	320	255	1.90	9.56

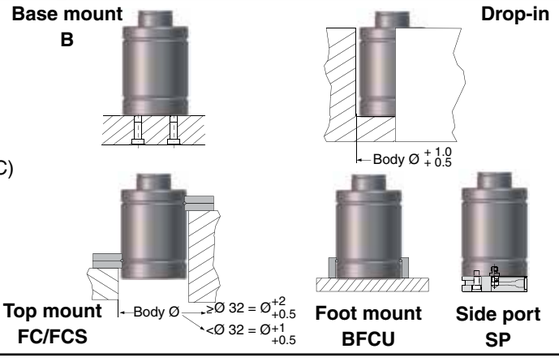
* Should always be attached to the tool using the tapped holes in the bottom or a flange
** at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min .... ~80 to 100 (at 20° C)
Max piston rod velocity ..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit CU4 11800 3024840
Repair kit CU 11800 2014493-1180
Available until 12.31.2015

Mounting Possibilities



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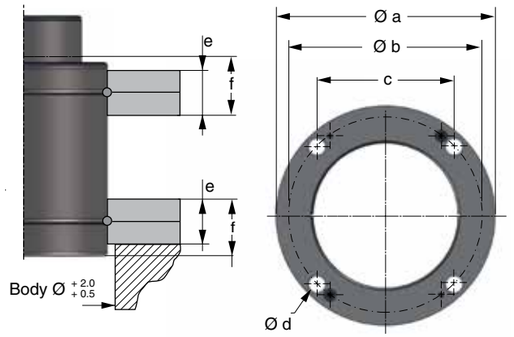
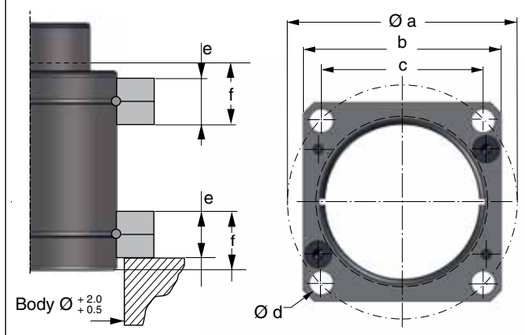
CU4 11800 Mounts

FC



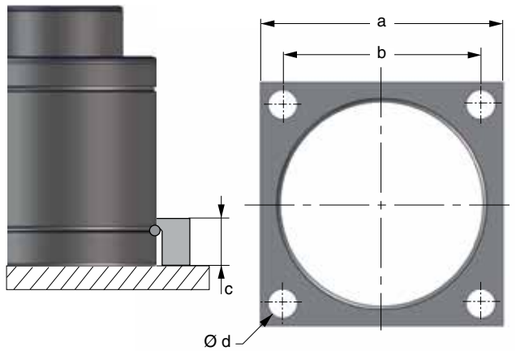
For model	Order No.	Ø a	Ø b	c	Ø d	e	f
CU4 11800	FC-5000	175	155	109.5	13.5	21	33

FCS



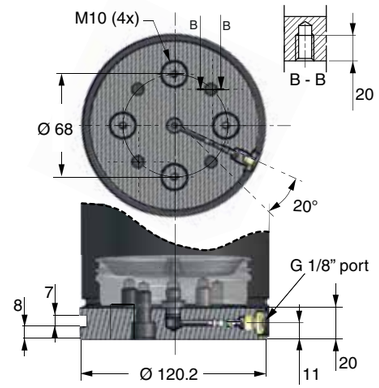
For model	Order No.	Ø a	b	c	Ø d	e	f
CU4 11800	FCS-5000	155	130	109.5	13.5	21	33

BFCU



For model	Order No.	a	b	Ø c	d
CU4 11800	BFCU-11800	130	109.5	29.5	13

SP



For model	Order No.	For U-groove mounts on SP
CU4 11800	SP-11800	Refer to TU 5000

10

CU4 18300

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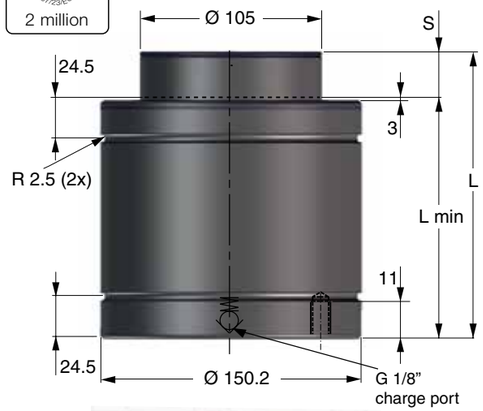
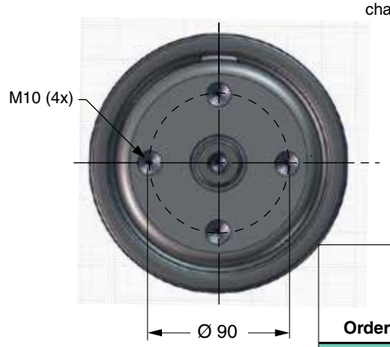




The CU4 gas spring is a very compact Bore Sealed gas spring with impressive force in a compact body.
The maximum frequency for the spring is 100 strokes/minute.

Springs with stroke lengths over 25 mm should always be attached to the tool, using a flange or the tapped holes in the bottom of the spring. We also recommend fixing of shorter stroke springs for optimal service life.

As an option, the CU4 spring can be delivered with a Side Port plate (SP) for applications where a sideport is needed (e.g., for use in hose systems).

Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	Force in lbf at 150 bar/+20°C Initial	Force in lbf at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
CU4 18300-010	10		227,000		51,000	110	100	0.56	8.78
CU4 18300-016	16		233,000		52,400	136	120	0.84	9.72
CU4 18300-025	25		244,000		54,900	165	140	1.13	10.71
CU4 18300-032	32*	183,000	244,000	41,140	54,900	197	165	1.45	11.88
CU4 18300-040	40*		244,000		54,900	235	195	1.86	13.28
CU4 18300-050	50*		248,000		55,800	270	220	2.19	14.50
CU4 18300-065	65*		253,000		56,900	323	258	2.90	16.30

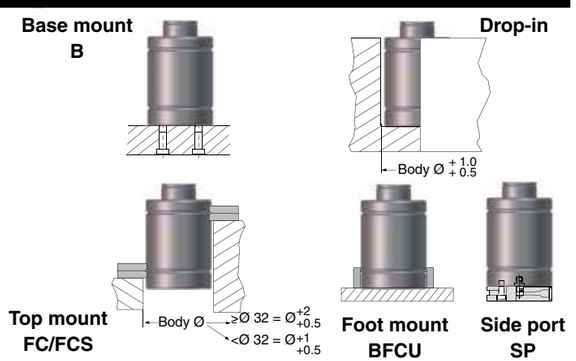
* Should always be attached to the tool using the tapped holes in the bottom or a flange
** at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium..... Nitrogen
Max. charging pressure..... 150 bar (at 20°C)
Min. charging pressure..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min .... ~80 to 100 (at 20° C)
Max piston rod velocity ..... 0.8 m/s

Rod surface..... Nitrided
Tube surface ..... Nitrided
Repair kit CU4 18300 3024841
Repair kit CU 18300 2014493-1830
Available until 12.31.2015

Mounting Possibilities



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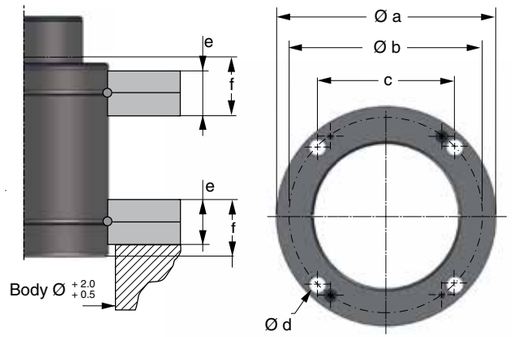
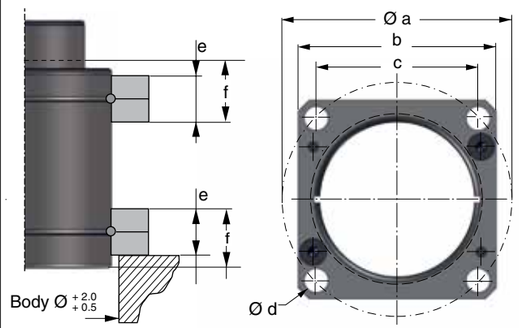
CU4 18300 Mounts

FC



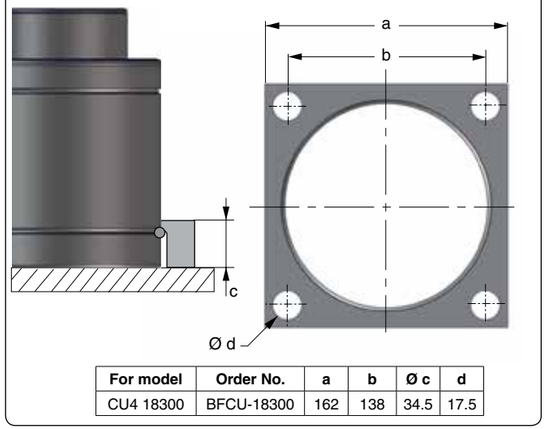
For model	Order No.	Ø a	Ø b	c	Ø d	e	f
CU4 18300	FC-7500	220	195	138	17.5	27	38

FCS



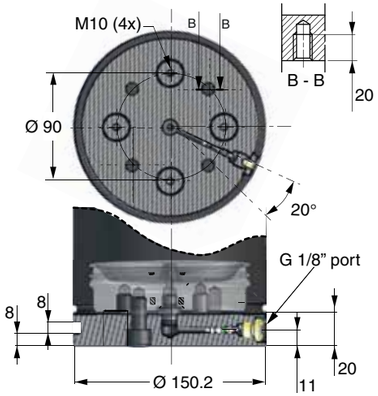
For model	Order No.	Ø a	b	c	Ø d	e	f
CU4 18300	FCS-7500	195	162	138	17.5	27	38

BFCU



For model	Order No.	a	b	Ø c	d
CU4 18300	BFCU-18300	162	138	34.5	17.5

SP



For model	Order No.	For U-groove mounts on SP
CU4 18300	SP-18300	Refer to TU 7500

TU 10000

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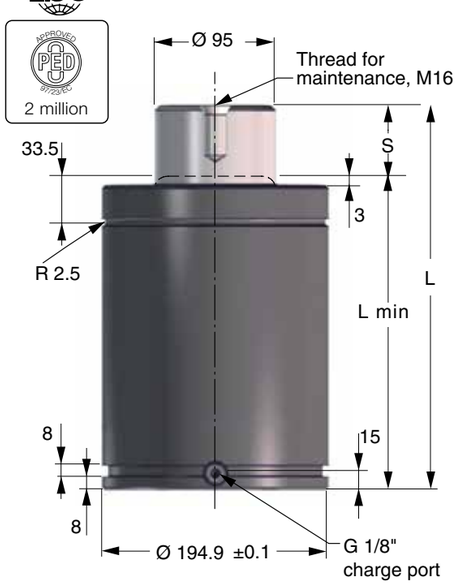
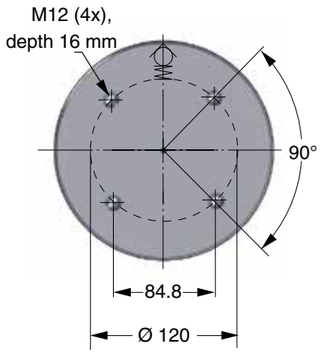




The TU line constitutes our standard line of gas springs. Sizes 250 to 10,000 conform to the ISO 11901 gas spring standard.

Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	L ±0.25	L min	Gas vol. (l)	Weight (kg)	ISO
TU 10000-025	25	106000	138000	210	185	0.87	35.90	
TU 10000-038	38.1		143000	236.2	198.1	1.13	37.60	
TU 10000-050	50		147000	260	210	1.37	39.20	√
TU 10000-064	63.5		150000	287	223.5	1.64	41.00	
TU 10000-080	80		152000	320	240	1.98	43.20	√
TU 10000-100	100		156000	360	260	2.38	45.80	√
TU 10000-125	125		157000	410	285	2.88	49.10	√
TU 10000-160	160		158000	480	320	3.59	53.70	√
TU 10000-200	200		160000	560	360	4.39	59.00	√
TU 10000-250	250		160000	660	410	5.40	65.60	√
TU 10000-300	300		160000	760	460	6.40	72.20	√

** = at full stroke

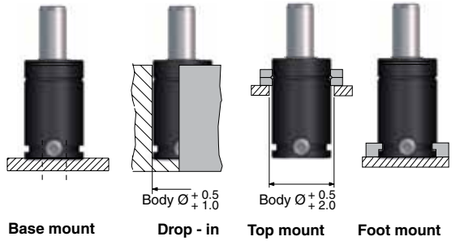
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide

Repair kit..... 3019037

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount** FCS | **Foot mount** K, FFC,

Note! For dimensions on mounting possibility K-10000 refer to Chapter 3.

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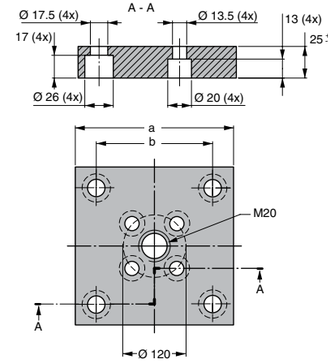
TU 10000 Mounts

MP

ISO

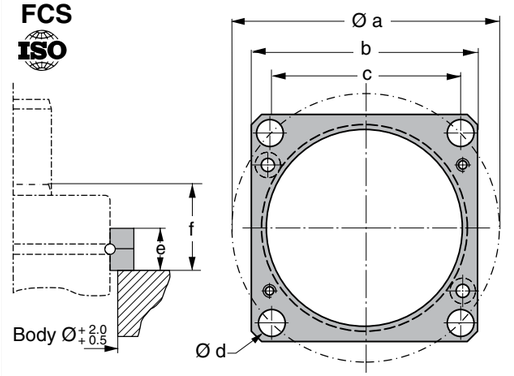


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-10000	210	170

FCS

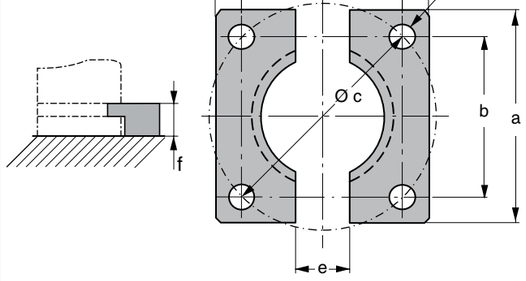
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-10000	240.4	210	170	17.5	27	47

FFC

ISO



Order No.	a	b	Ø c	Ø d	e	f
FFC-10000	210	170	240.4	17.5	24	13

Note! For dimensions on mounting possibility K-10000 refer to Chapter 3.

TUR 10000

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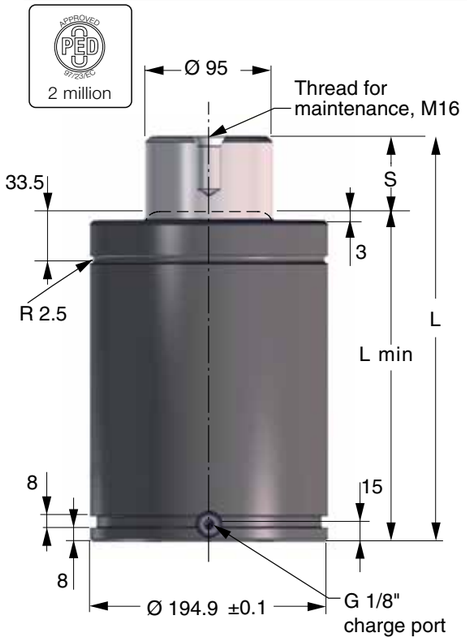
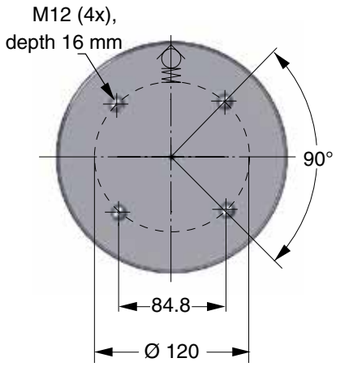


The TUR 10000 gas spring conforms to the ISO 11901-1 and the Renault automotive gas spring standards. In full compliance with the Renault requirements, it features an overstroke protection system.

For sizes 750 up to 7,500, please refer to the TUS High Speed gas springs.



Order No.	S stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force**	L ±0.25	L min.	Gas vol. (l)	Weight (kg)
TUR 10000-025	25		138,000	210	185	1.0	34.7
TUR 10000-038	38.1		143,000	236.2	198.1	1.2	36.4
TUR 10000-050	50		147,000	260	210	1.5	39.2
TUR 10000-064	63.5		150,000	287	223.5	1.8	39.8
TUR 10000-080	80		152,000	320	240	2.1	41.9
TUR 10000-100	100	106,000	156,000	360	260	2.5	44.6
TUR 10000-125	125		157,000	410	285	3.0	47.9
TUR 10000-160	160		158,000	480	320	3.7	53.4
TUR 10000-200	200		160,000	560	360	4.5	59.0
TUR 10000-250	250		160,000	660	410	5.5	65.5
TUR 10000-300	300		160,000	760	460	6.5	72.1

** = at full stroke

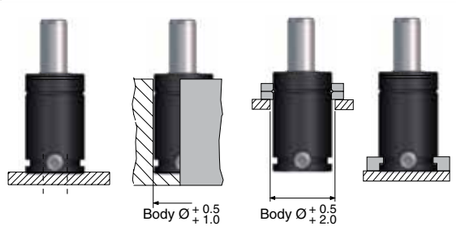
Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar
Min. charging pressure ..... 25 bar
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 15-40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface..... Nitrided
Tube surface ..... Black oxide

Repair kit..... 3019282

Mounting Possibilities



Base mount **B, MP** | **Drop - in** | **Top mount** **FCS** | **Foot mount** **K, FFC,**

Note! For dimensions on mounting possibility K-10000 refer to Chapter 3.

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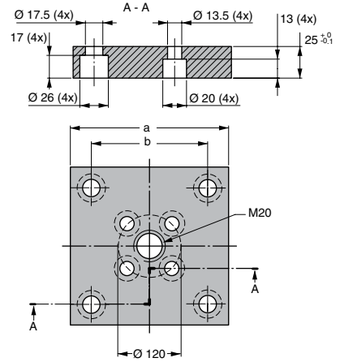
TUR 10000 Mounts

MP

ISO

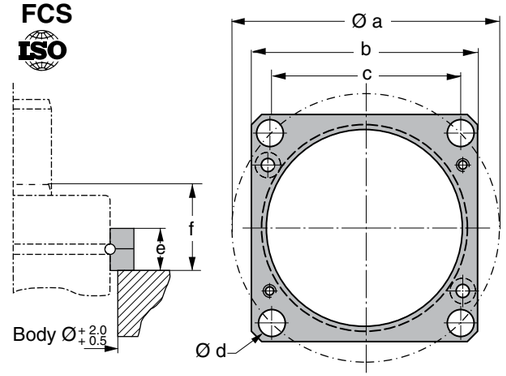


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-10000	210	170

FCS

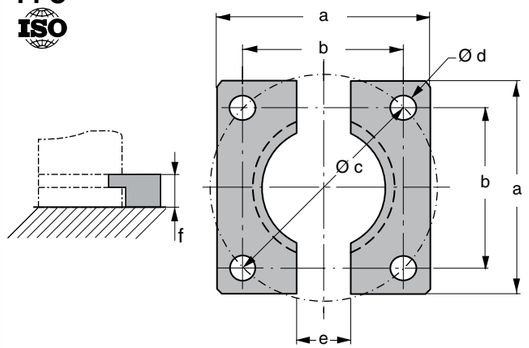
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-10000	240.4	210	170	17.5	27	47

FFC

ISO



Order No.	a	b	Ø c	Ø d	e	f
FFC-10000	210	170	240.4	17.5	24	13

Note! For dimensions on mounting possibility K-10000 refer to Chapter 3.

X 20000

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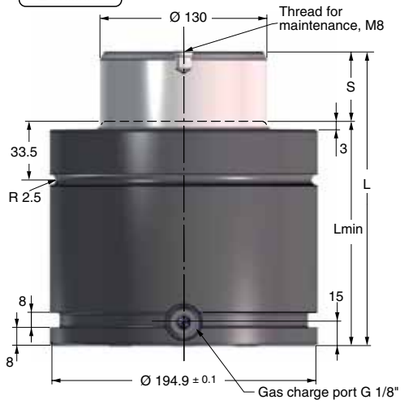
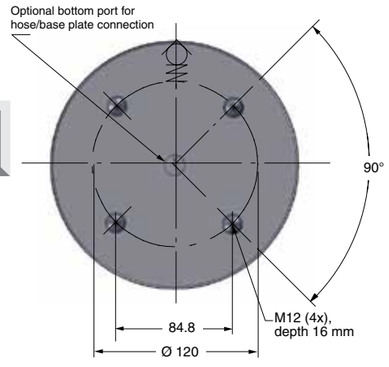




Order No.	S Stroke	Force in N at 150 bar/+20°C Initial	Force in N at 150 bar/+20°C End force*	L ±0.25	L min	Gas vol. (l)	Weight (kg)
X 20000-019	19	200000	259000	148	129	1.21	21.50
X 20000-025	25		270000	160	135	1.38	22.16
X 20000-032	32		280000	174	142	1.59	22.92
X 20000-038	38		287000	186	148	1.77	23.57
X 20000-050	50		298000	210	160	2.12	24.87
X 20000-063	63		307000	236	173	2.50	26.28
X 20000-075	75		313000	260	185	2.85	27.59
X 20000-080	80		315000	270	190	3.00	28.13
X 20000-100	100		323000	310	210	3.58	30.30
X 20000-125	125		330000	360	235	4.31	33.02

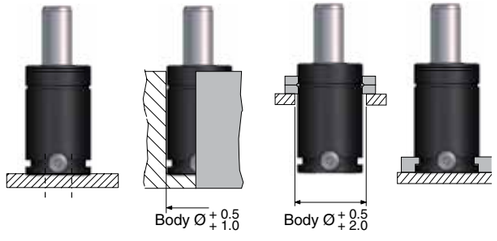
* = at full stroke

Basic Information

For general information see “About gas springs”, 2.1
Pressure medium ..... Nitrogen
Max. charging pressure ..... 150 bar (at 20°C)
Min. charging pressure ..... 25 bar (at 20°C)
Operating temperature ..... 0 to +80°C
Force increase by temperature ..... ±0.3%/°C
Recommended max strokes/min ... ~ 15 to 40 (at 20°C)
Max piston rod velocity ..... 1.6 m/s

Rod surface ..... Nitrided
Tube surface ..... Black oxide
Repair kit 3022902
Repair kit Part No 3054856

Mounting Possibilities



Base mount B, MP | **Drop - in** | **Top mount FCS,** | **Foot mount K, FFC**

Note!
For dimensions on mounting possibility K-10000 refer to Chapter 3.

KALLER
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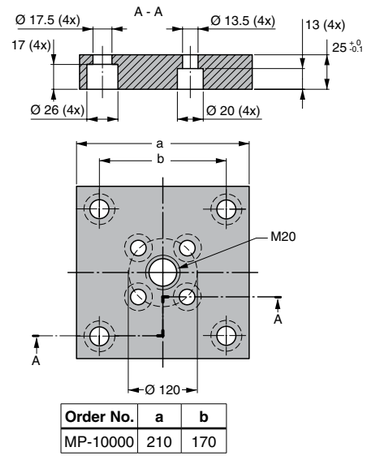
X 20000 Mounts

MP

ISO

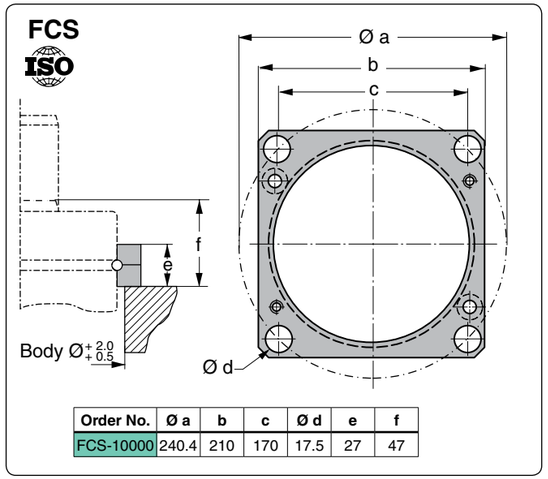


Note! Comes complete with screws to mount gas spring.

Order No.	a	b
MP-10000	210	170

FCS

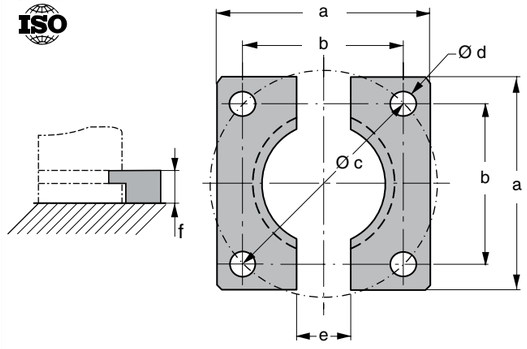
ISO



Order No.	Ø a	b	c	Ø d	e	f
FCS-10000	240.4	210	170	17.5	27	47

FFC

ISO



Order No.	a	b	Ø c	Ø d	e	f
FFC-10000	210	170	240.4	17.5	24	13

Note! For dimensions on mounting possibility K-10000 refer to Chapter 3.

Notes

Notes

Notes

The Safer Choice

Introduced in 1983, the KALLER gas spring technology quickly led to world-wide demand. The Safer Choice - Training, Safety and Reliability - has always been a KALLER top priority for providing the safer working environment. We recommend looking through all available KALLER features when selecting gas springs and gas or hose linked systems.

KALLER Training Program

TRAINING. Without doubt the KALLER Training Program is the best and most creative way to fully understand and appreciate the importance of the safety and reliability features.

PED approved for 2 million strokes

RELIABILITY. Our 2 million stroke PED approval ensures safer component cycle life.

Flex Guide™ System

RELIABILITY. Prolongs service life, life, allows more strokes per minute, and offers greater tolerance to lateral tool movements.

Dual Seal™ Link Systems

RELIABILITY. Fewer production interruptions due to leakage caused by vibration. Simplified installation thanks to the non-rotation feature.

Over-Stroke Protection System

SAFETY. When a gas spring is over-stroked, this helps reduce the risk of tool damage or injury.

Overload Protection System

SAFETY. Jammed cam or tool part being forced by gas springs? This will help reducing such risks.

Overpressure Protection System

SAFETY. Vents the spring if the internal gas pressure exceeds the maximum allowable limit to prevent accidents.

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