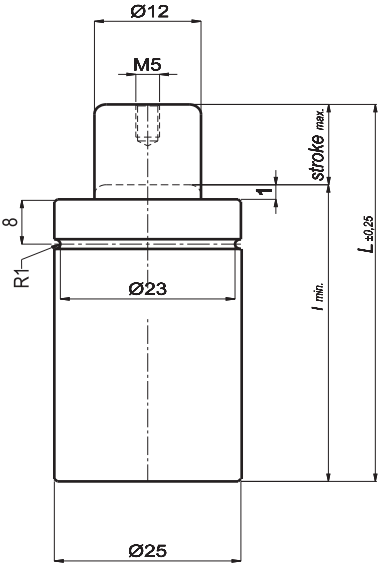
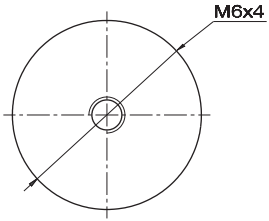
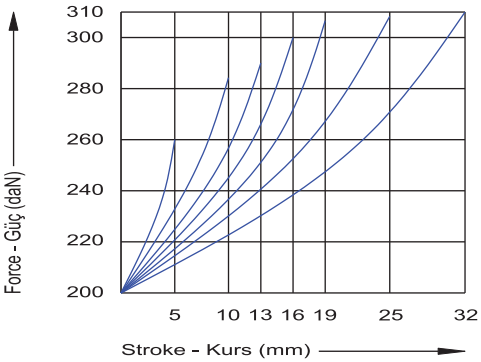
BS 200 SERİSİ

PED 97/23/EC



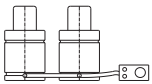


MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 200-5	5	35	40	200
BS 200-10	10	40	50	
BS 200-13	13	43	56	
BS 200-16	16	46	62	
BS 200-19	19	49	68	
BS 200-25	25	55	80	
BS 200-32	32	62	94	



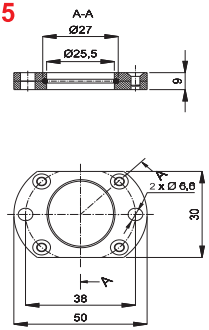
Max. dolum basıncı : 150 bar
Min. dolum basıncı : 25 bar
Max. çalışma hızı : 1,6 m/s.
Kullanılacak gaz : Azot
Çalışma sıcaklığı : 0°C ile +80°C

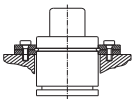
BS 200 MODELİNDE SERİ BAĞLANTI
Bu modelde seri bağlantı yapılamamaktadır.



Güvenal GTH

Y25

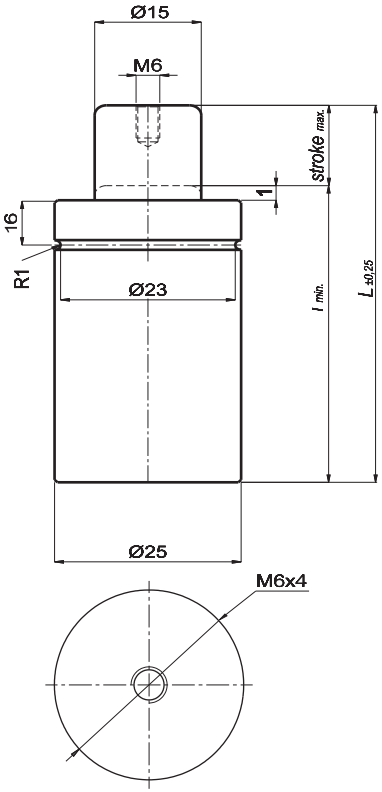




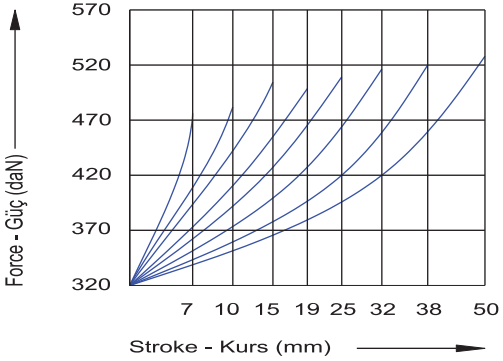
Y25

BS 320 SERİSİ

PED 97/23/EC

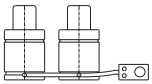


MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 320-7	7	37	44	320
BS 320-10	10	40	50	
BS 320-15	15	45	60	
BS 320-19	19	49	68	
BS 320-25	25	55	80	
BS 320-32	32	62	94	
BS 320-38	38	68	106	
BS 320-50	50	80	130	

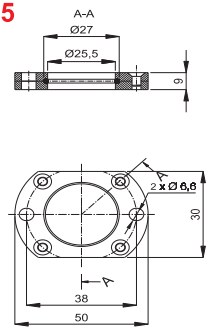


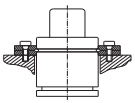
Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 320 MODELİNDE SERİ BAĞLANTI
Bu modelde seri bağlantı yapılamamaktadır.



Y25

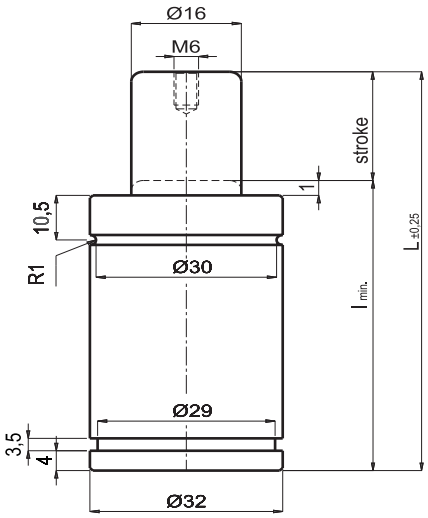


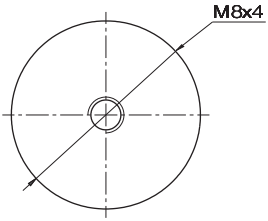


Y25

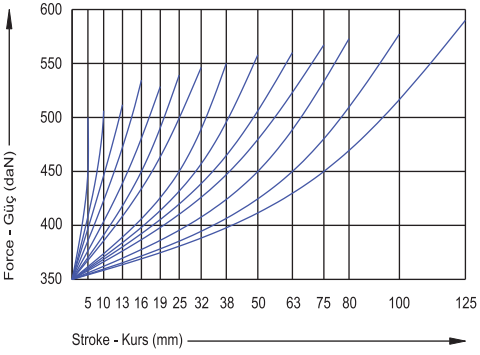
BS 350 SERİSİ

PED 97/23/EC



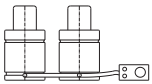


MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 350-5	5	35	40	350
BS 350-10	10	40	50	
BS 350-13	13	43	56	
BS 350-16	16	46	62	
BS 350-19	19	49	68	
BS 350-25	25	55	80	
BS 350-32	32	62	94	
BS 350-38	38	68	106	
BS 350-50	50	80	130	
BS 350-63	63	93	156	
BS 350-75	75	105	180	
BS 350-80	80	110	190	
BS 350-100	100	130	230	
BS 350-125	125	155	280	



Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

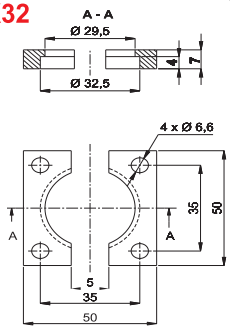
BS 350 MODELİNDE SERİ BAĞLANTI
Bu modelde seri bağlantı yapılamamaktadır.



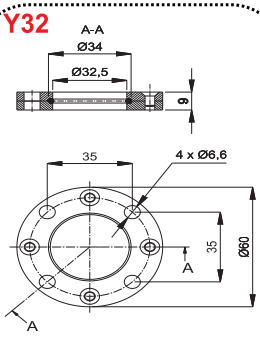
TUTUCULAR

BS 350

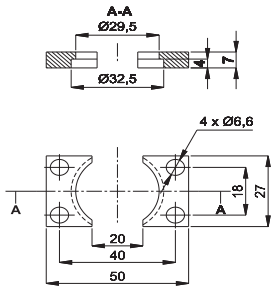
K32



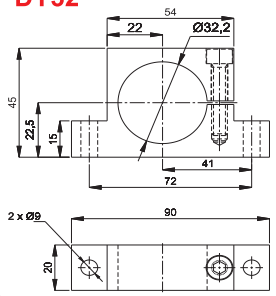
Y32



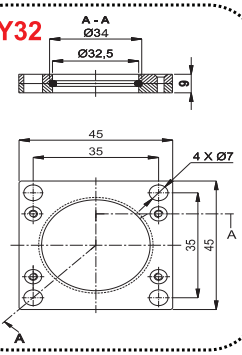
K2-32

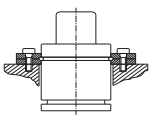


DY32

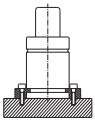


KY32

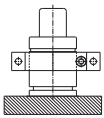




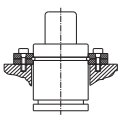
Y32



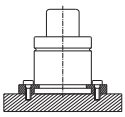
K32



DY32



KY32

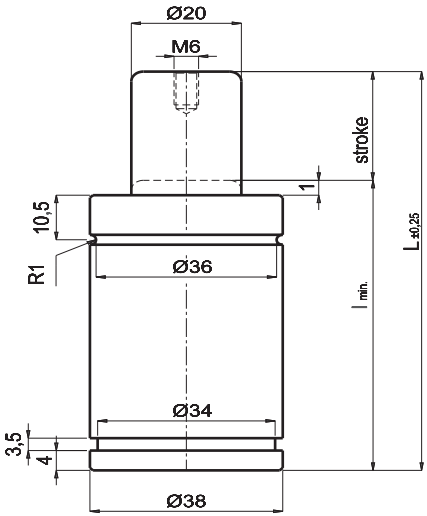


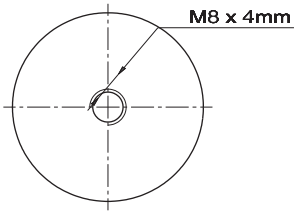
K2-32

Güvenal GTH

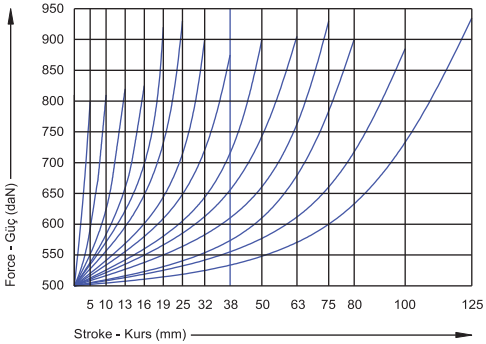
BS 500 SERİSİ

PED 97/23/EC



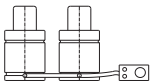


MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 500-5	5	35	40	500
BS 500-10	10	40	50	
BS 500-13	13	43	56	
BS 500-16	16	46	62	
BS 500-19	19	49	68	
BS 500-25	25	55	80	
BS 500-32	32	62	94	
BS 500-38	38	68	106	
BS 500-50	50	80	130	
BS 500-63	63	93	156	
BS 500-75	75	105	180	
BS 500-80	80	110	190	
BS 500-100	100	130	230	
BS 500-125	125	155	280	



Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 500 MODELİNDE SERİ BAĞLANTI
Bu modelde seri bağlantı yapılamamaktadır.

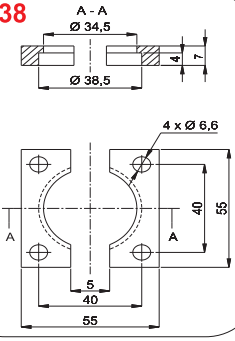


Güvenal GTH

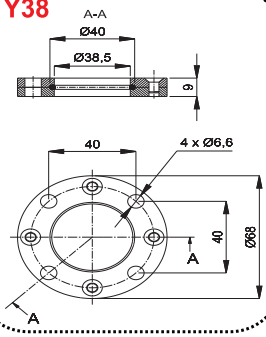
TUTUCULAR

BS 500

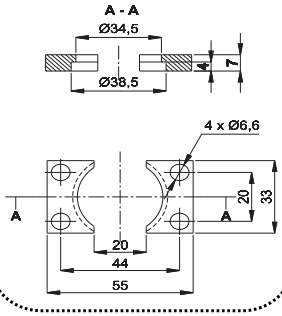
K38



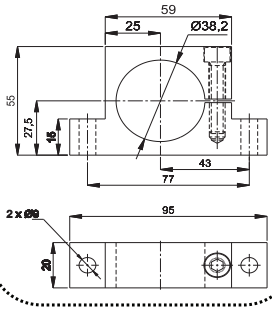
Y38



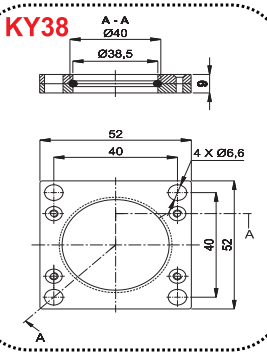
K2-38

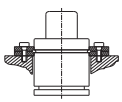


DY38

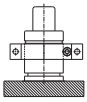


KY38

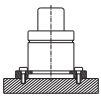




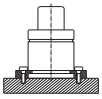
Y38



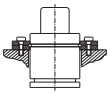
DY38



K38



K2-38

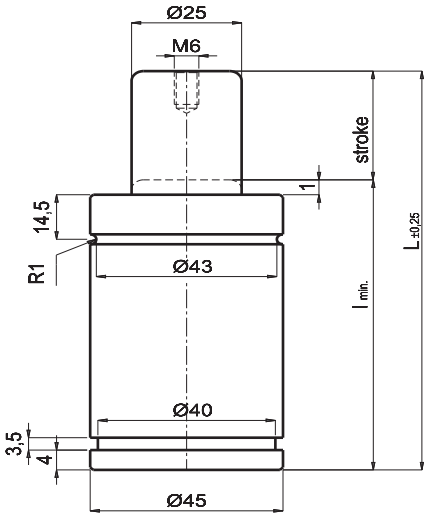


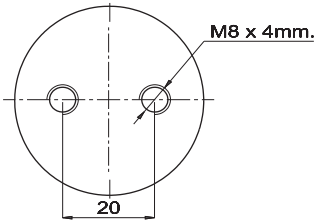
KY38

Güvenal GTH

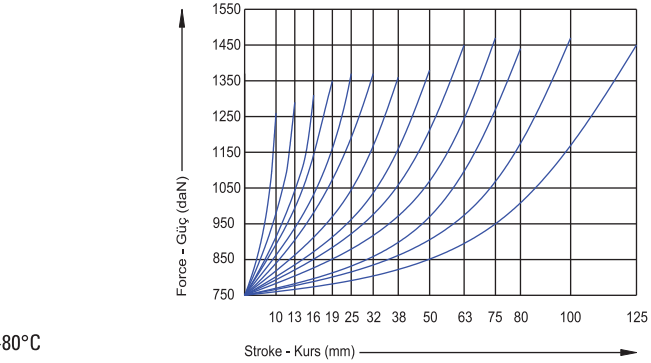
BS 750 SERİSİ

PED 97/23/EC





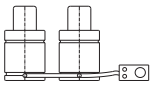
MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 750-10	10	42	52	750
BS 750-13	13	45	58	
BS 750-16	16	48	64	
BS 750-19	19	51	70	
BS 750-25	25	57	82	
BS 750-32	32	64	96	
BS 750-38	38	70	108	
BS 750-50	50	82	132	
BS 750-63	63	95	158	
BS 750-75	75	107	182	
BS 750-80	80	112	192	
BS 750-100	100	132	232	
BS 750-125	125	157	282	



Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 750 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BS 750-50-SB

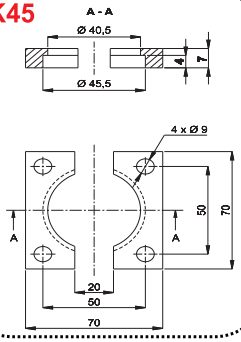


Güvenal GTH

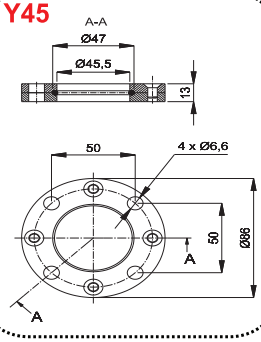
TUTUCULAR

BS 750

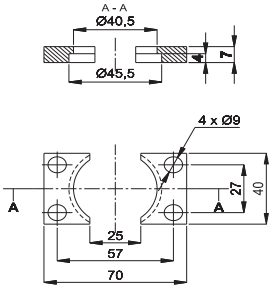
K45



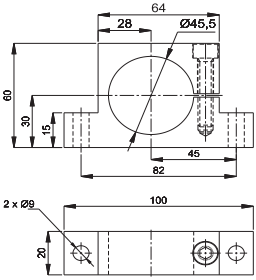
Y45



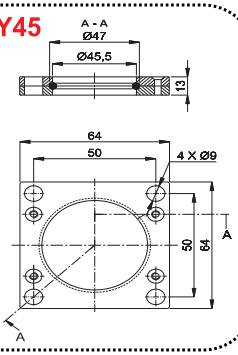
K2-45



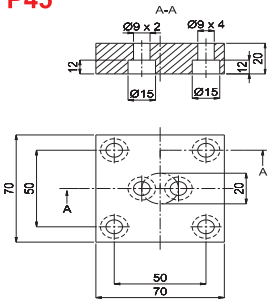
DY45



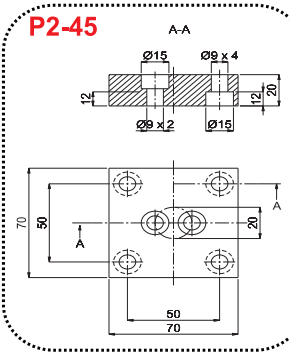
KY45

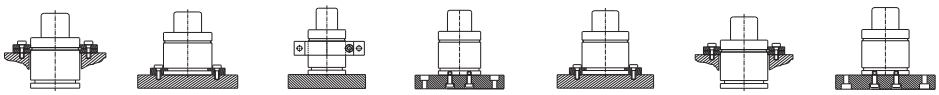


P45



P2-45



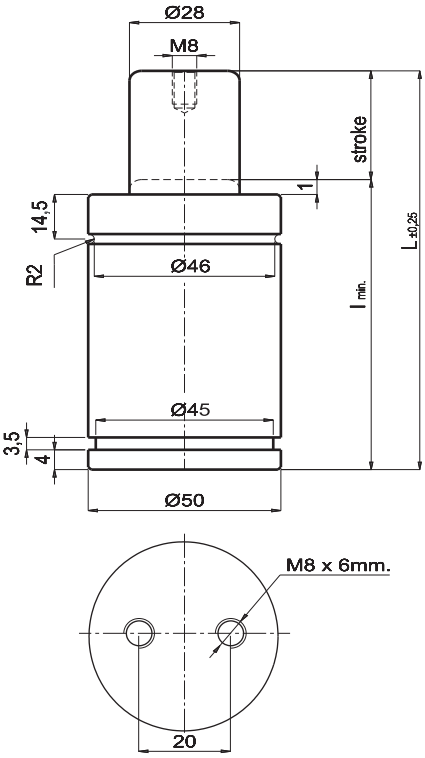


Y45 K45 DY45 P2-45 K2-45 KY45 P45

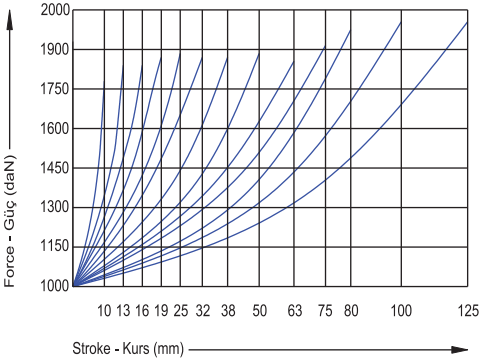
Güvenal GTH

BS 1000 SERİSİ

PED 97/23/EC



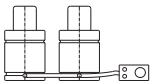
MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 1000-10	10	48	58	1000
BS 1000-13	13	51	64	
BS 1000-16	16	54	70	
BS 1000-19	19	57	76	
BS 1000-25	25	63	88	
BS 1000-32	32	70	102	
BS 1000-38	38	76	114	
BS 1000-50	50	88	138	
BS 1000-63	63	101	164	
BS 1000-75	75	113	188	
BS 1000-80	80	118	198	
BS 1000-100	100	138	238	
BS 1000-125	125	163	288	



Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 1000 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BS 1000-50-SB

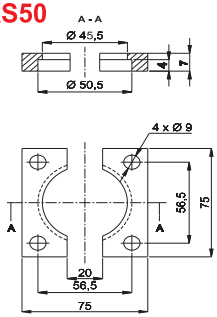


Güvenal GTH

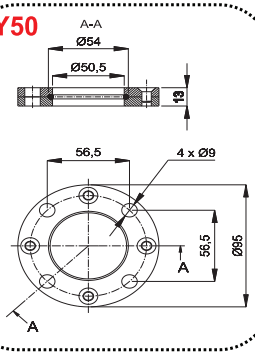
TUTUCULAR

BS 1000

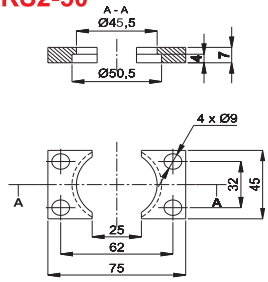
KS50



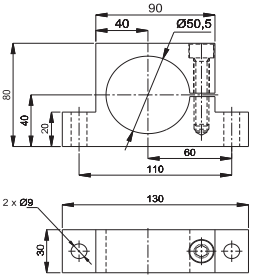
Y50



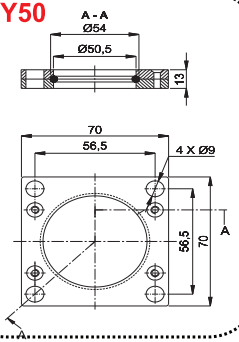
KS2-50



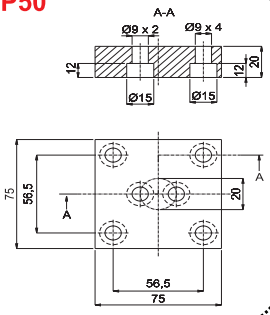
DY50



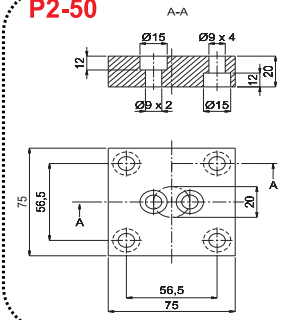
KY50

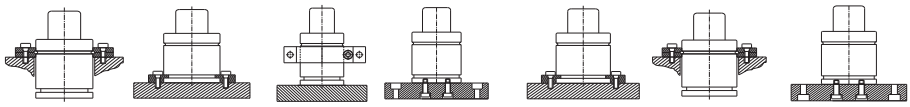


P50



P2-50



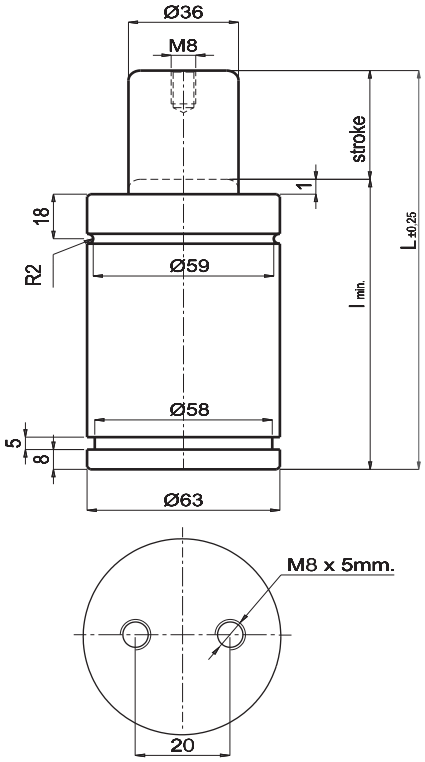


Y50 KS50 DY50 P2-50 KS2-50 KY50 P50

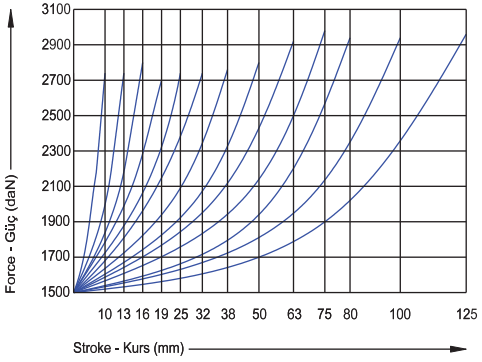
Güvenal GTH

BS 1500 SERİSİ

PED 97/23/EC



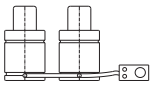
MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 1500-10	10	54	64	1500
BS 1500-13	13	57	70	
BS 1500-16	16	60	76	
BS 1500-19	19	63	82	
BS 1500-25	25	69	94	
BS 1500-32	32	76	108	
BS 1500-38	38	82	120	
BS 1500-50	50	94	144	
BS 1500-63	63	107	170	
BS 1500-75	75	119	194	
BS 1500-80	80	124	204	
BS 1500-100	100	144	244	
BS 1500-125	125	169	294	



Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 1500 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BS 1500-50-SB

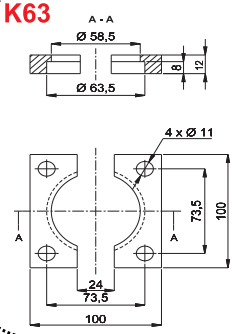


Güvenal GTH

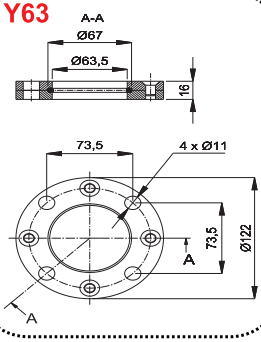
TUTUCULAR

BS 1500

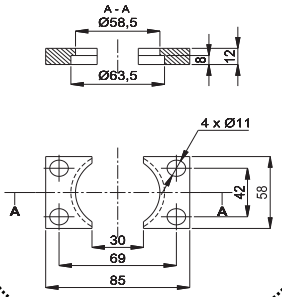
K63



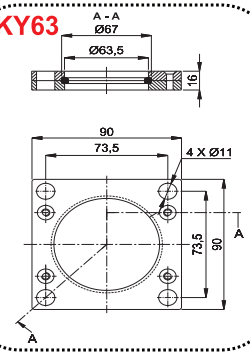
Y63



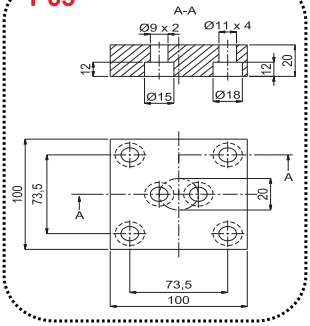
K2-63



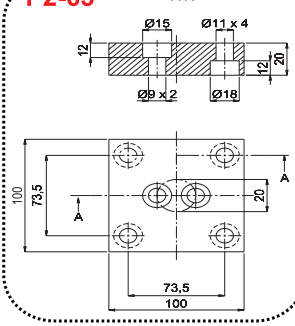
KY63

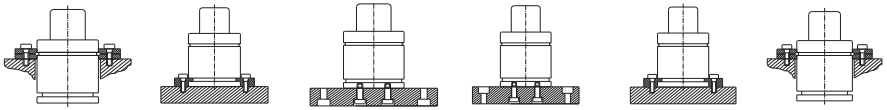


P63



P2-63



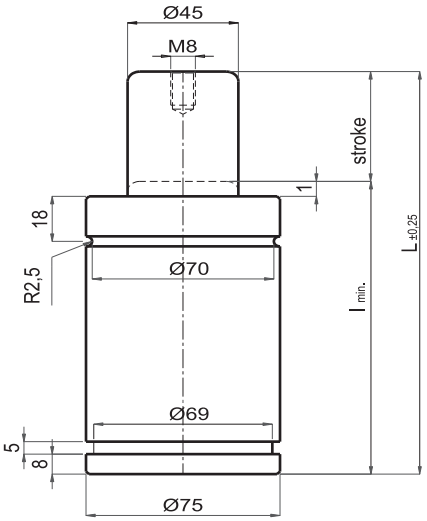


Y63 K63 P63 P2-63 K2-63 KY63

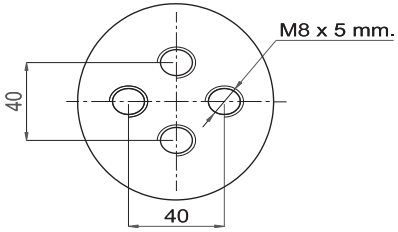
Güvenal GTH

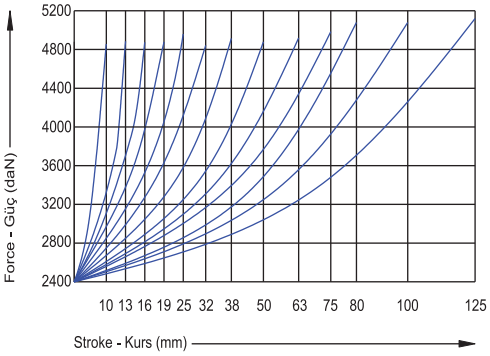
BS 2400 SERİSİ

PED 97/23/EC



MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 2400-10	10	55	65	2400
BS 2400-13	13	58	71	
BS 2400-16	16	61	77	
BS 2400-19	19	64	83	
BS 2400-25	25	70	95	
BS 2400-32	32	77	109	
BS 2400-38	38	83	121	
BS 2400-50	50	95	145	
BS 2400-63	63	108	171	
BS 2400-75	75	120	195	
BS 2400-80	80	125	205	
BS 2400-100	100	145	245	
BS 2400-125	125	170	295	

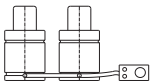




Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 2400 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BS 2400-50-SB

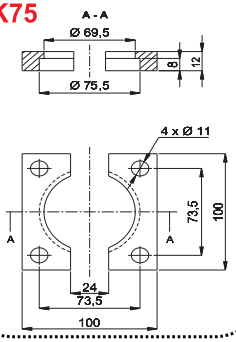


Güvenal GTH

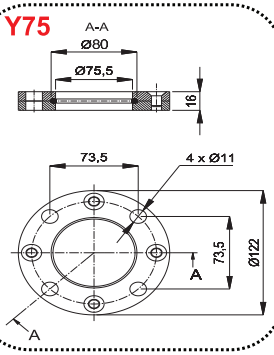
TUTUCULAR

BS 2400

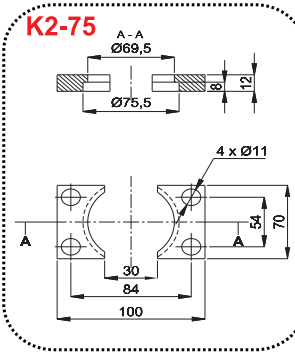
K75



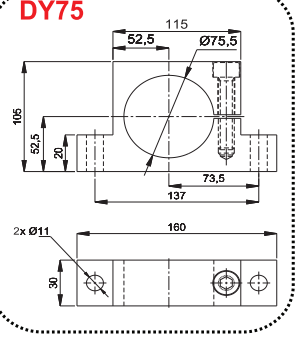
Y75



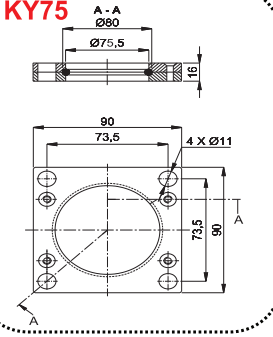
K2-75



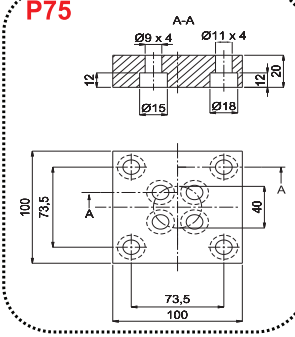
DY75



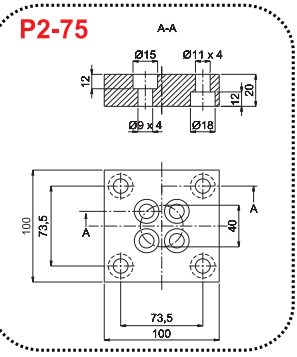
KY75

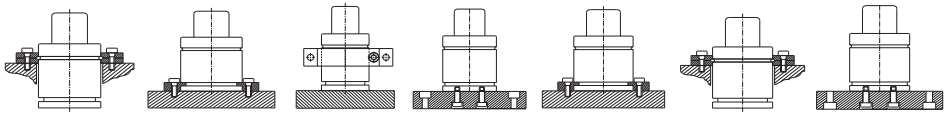


P75



P2-75



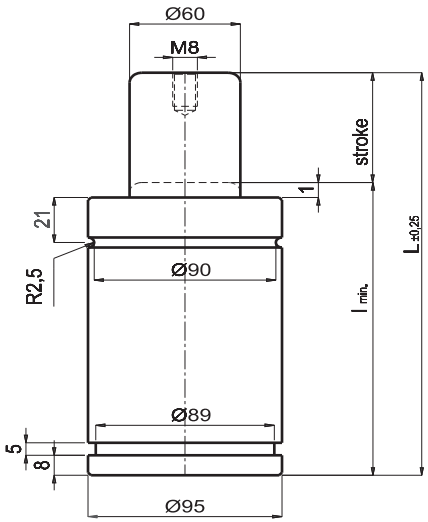


Y75 K75 DY75 P2-75 K2-75 KY75 P75

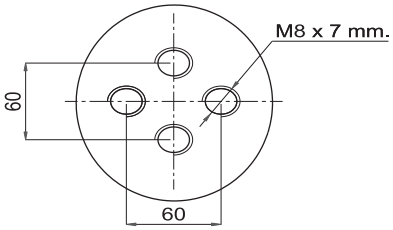
Güvenal GTH

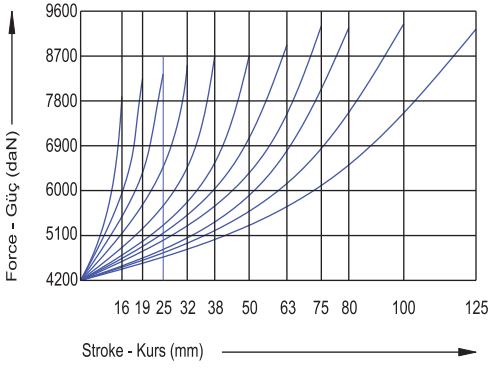
BS 4200 SERİSİ

PED 97/23/EC



MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 4200-16	16	81	97	4200
BS 4200-19	19	84	103	
BS 4200-25	25	90	115	
BS 4200-32	32	97	129	
BS 4200-38	38	103	141	
BS 4200-50	50	115	165	
BS 4200-63	63	128	191	
BS 4200-75	75	140	215	
BS 4200-80	80	145	225	
BS 4200-100	100	165	265	
BS 4200-125	125	190	315	

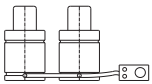




Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 4200 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BS 4200-50-SB

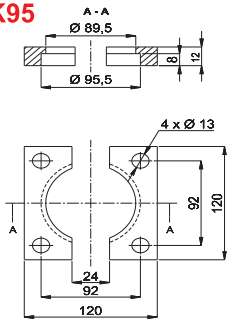


Güvenal GTH

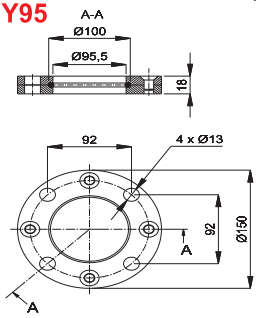
TUTUCULAR

BS 4200

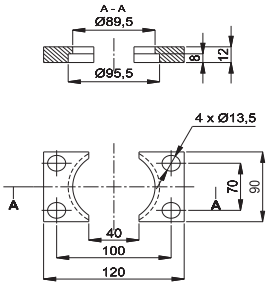
K95



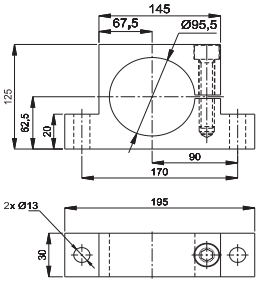
Y95



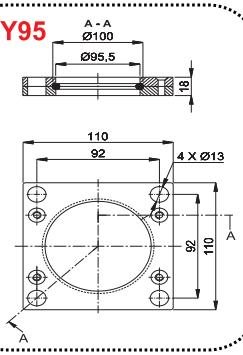
K2-95



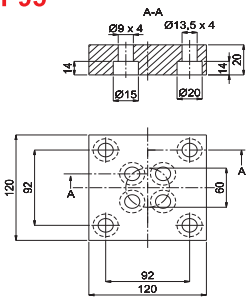
DY95



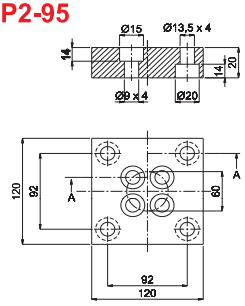
KY95

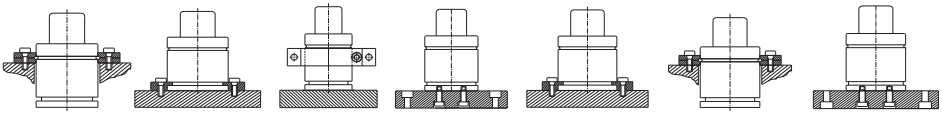


P95



P2-95



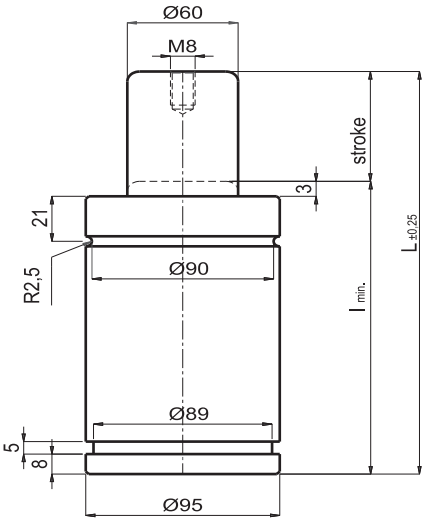


Y95 K95 DY95 P95-2 K2-95 KY95 P95

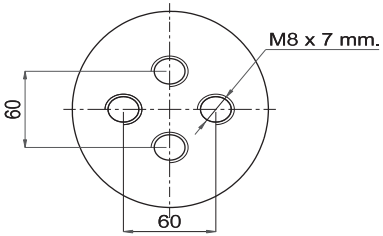
Güvenal GTH

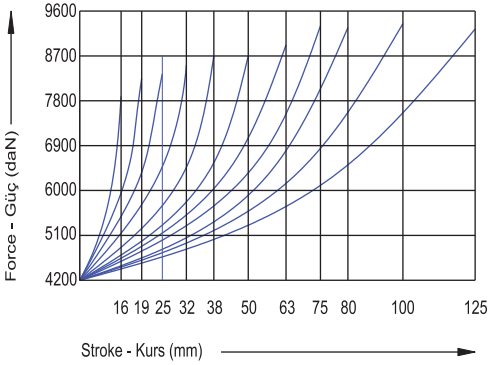
BSF 4200 SERİSİ

PED 97/23/EC



MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BSF 4200-16	16	74	90	4200
BSF 4200-19	19	77	96	
BSF 4200-25	25	83	108	
BSF 4200-32	32	90	122	
BSF 4200-38	38	96	134	
BSF 4200-50	50	108	158	
BSF 4200-63	63	121	184	
BSF 4200-75	75	133	208	
BSF 4200-80	80	138	218	
BSF 4200-100	100	158	258	
BSF 4200-125	125	183	308	

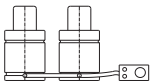




Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BSF 4200 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BSF 4200-50-SB

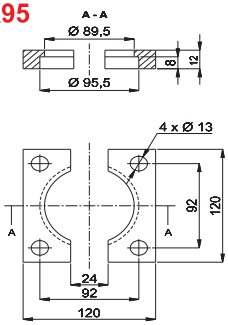


Güvenal GTH

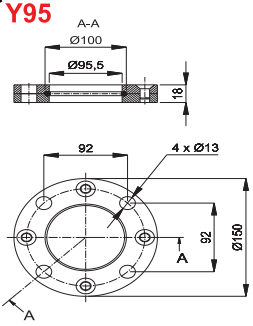
TUTUCULAR

BSF 4200

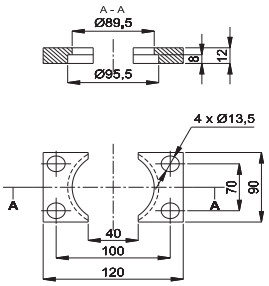
K95



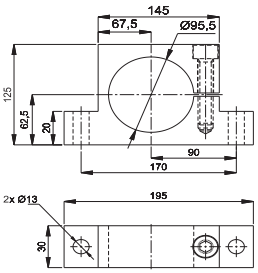
Y95



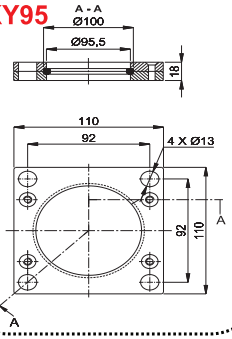
K2-95



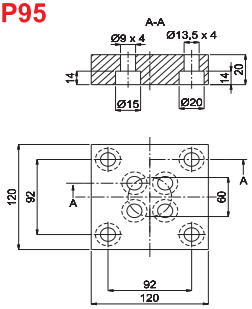
DY95



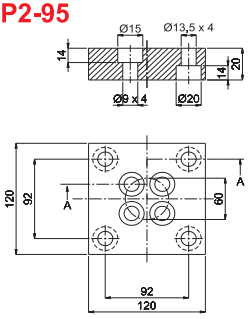
KY95

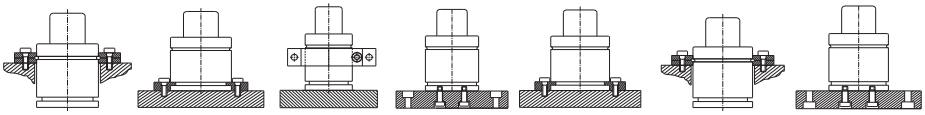


P95



P2-95



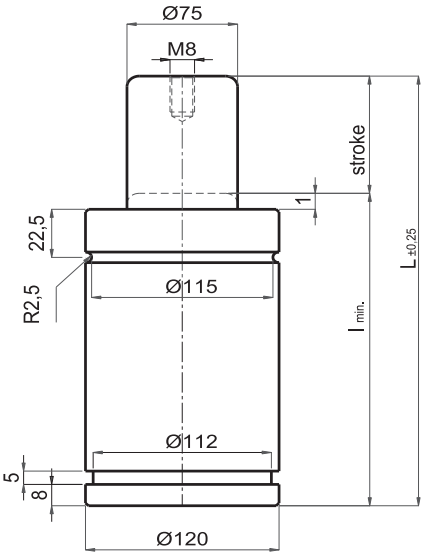


Y95 K95 DY95 P2-95 K2-95 KY95 P95

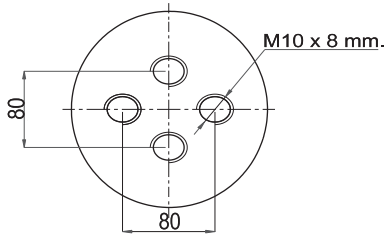
Güvenal GTH

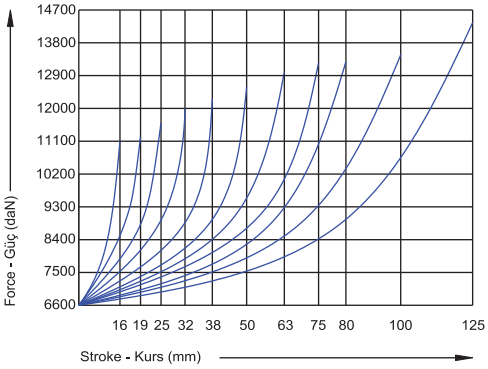
BS 6600 SERİSİ

PED 97/23/EC



MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 6600-16	16	91	107	6600
BS 6600-19	19	94	113	
BS 6600-25	25	100	125	
BS 6600-32	32	107	139	
BS 6600-38	38	113	151	
BS 6600-50	50	125	175	
BS 6600-63	63	138	201	
BS 6600-75	75	150	225	
BS 6600-80	80	155	235	
BS 6600-100	100	175	275	
BS 6600-125	125	200	325	

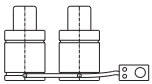




Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 6600 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BS 6600-50-SB

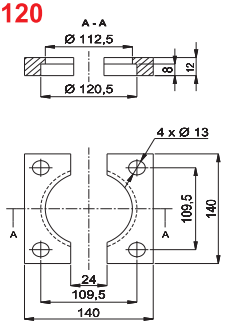


Güvenal GTH

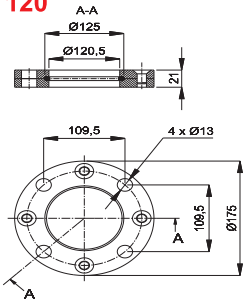
TUTUCULAR

BS 6600

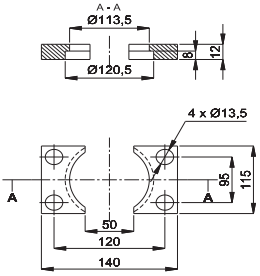
K120



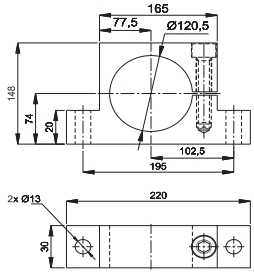
Y120



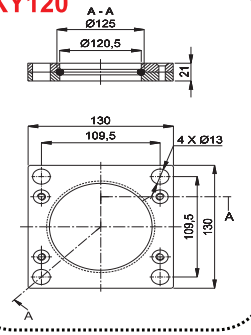
K2-120



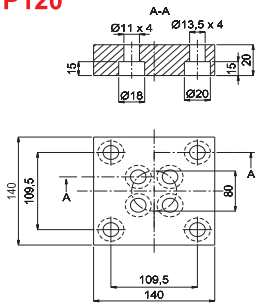
DY120



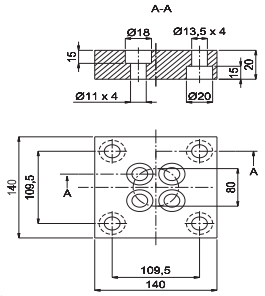
KY120

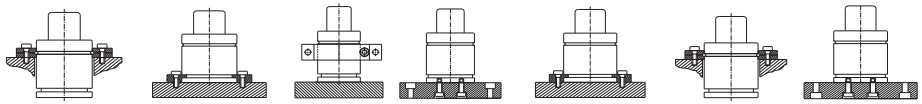


P120



P2-120



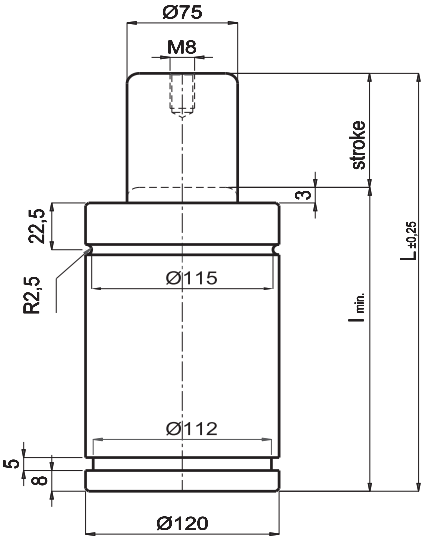


Y120 K120 DY120 P2-120 K2-120 KY120 P120

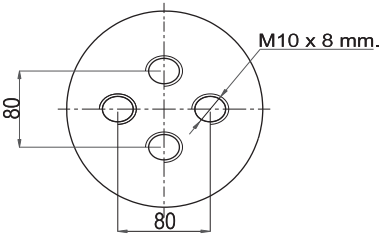
Güvenal GTH

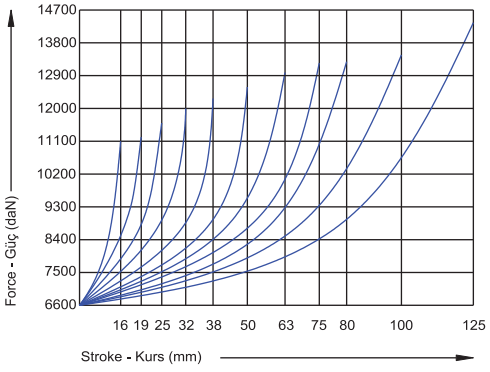
BSF 6600 SERİSİ

PED 97/23/EC



MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BSF 6600-16	16	84	100	6600
BSF 6600-19	19	87	106	
BSF 6600-25	25	93	118	
BSF 6600-32	32	100	132	
BSF 6600-38	38	106	144	
BSF 6600-50	50	118	168	
BSF 6600-63	63	131	194	
BSF 6600-75	75	143	218	
BSF 6600-80	80	148	228	
BSF 6600-100	100	168	268	
BSF 6600-125	125	193	318	

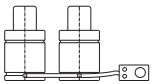




Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BSF 6600 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BSF 6600-50-SB

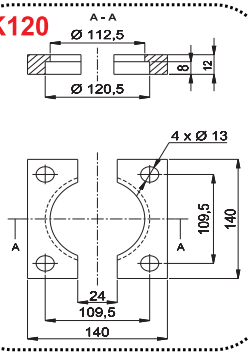


Güvenal GTH

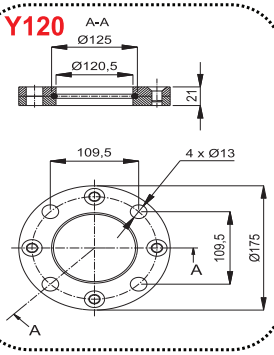
TUTUCULAR

BSF 6600

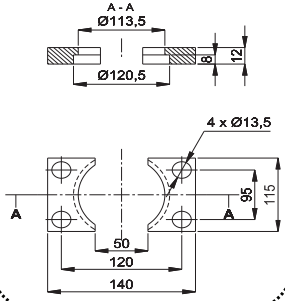
K120



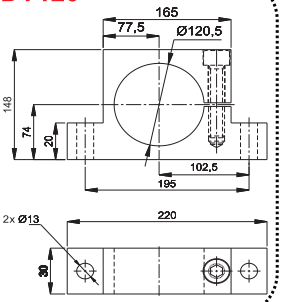
Y120



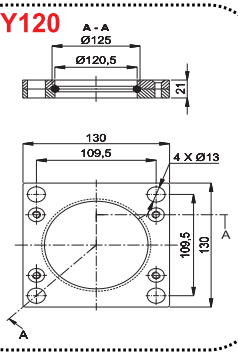
K2-120



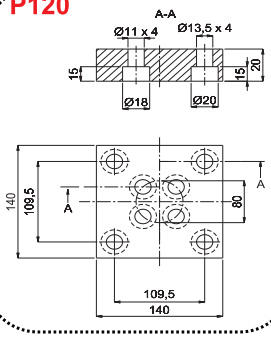
DY120



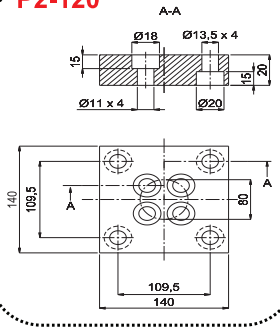
KY120

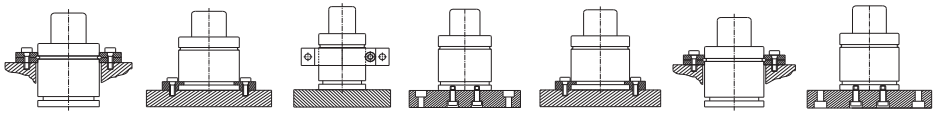


P120



P2-120



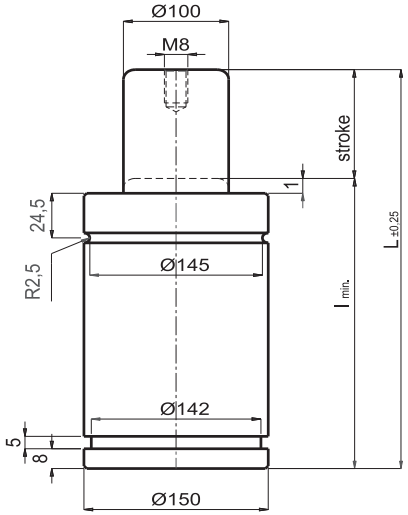


Y120 K120 DY120 P2-120 K2-120 KY120 P120

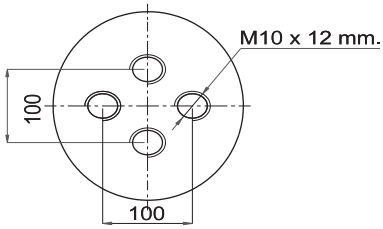
Güvenal GTH

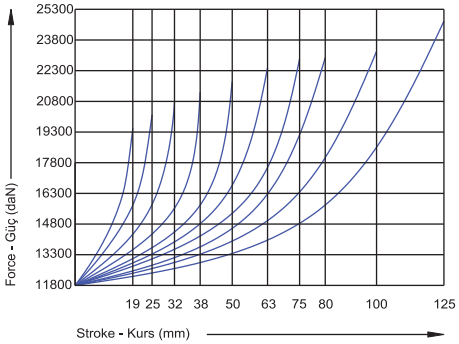
BS 11800 SERİSİ

PED 97/23/EC



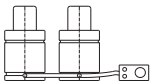
MODEL	KURS stroke max. mm.	l min. mm.	L mm.	daN
BS 11800-19	19	97	116	11800
BS 11800-25	25	103	128	
BS 11800-32	32	110	142	
BS 11800-38	38	116	154	
BS 11800-50	50	128	178	
BS 11800-63	63	141	204	
BS 11800-75	75	153	228	
BS 11800-80	80	158	238	
BS 11800-100	100	178	278	
BS 11800-125	125	203	328	





Max. dolum basıncı	: 150 bar
Min. dolum basıncı	: 25 bar
Max. çalışma hızı	: 1,6 m/s.
Kullanılacak gaz	: Azot
Çalışma sıcaklığı	: 0°C ile +80°C

BS 11800 MODELİNDE SERİ BAĞLANTI
Gazlı yaylar seri bağlanacak ise l.min. ölçüsüne 10 mm eklenecektir.
(Gazlı yayın tam boyu 10 mm. artacaktır.)

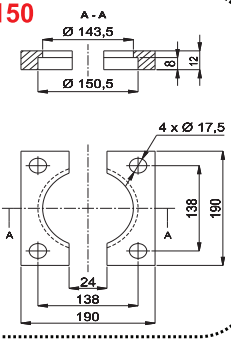


Siparişte gazlı yayların seri bağlantılı olduğunu belirtmek için gazlı yay kodunun sonuna SB eklenecektir.
ÖRNEK: BS 11800-50-SB

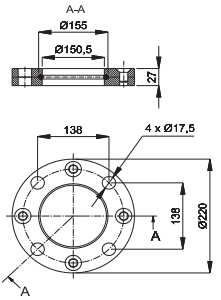
TUTUCULAR

BS 11800

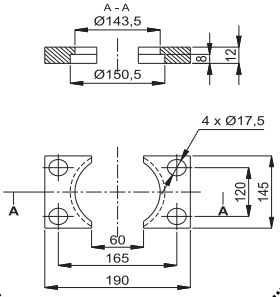
K150



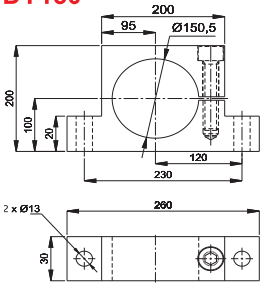
Y150



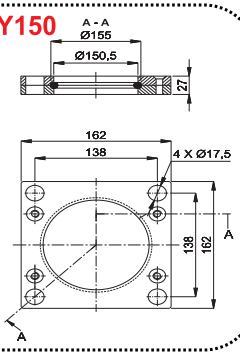
K2-150



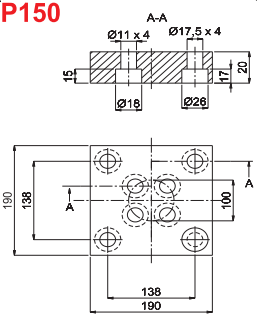
DY150



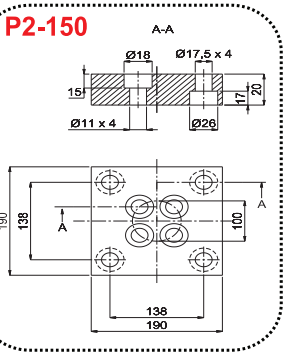
KY150

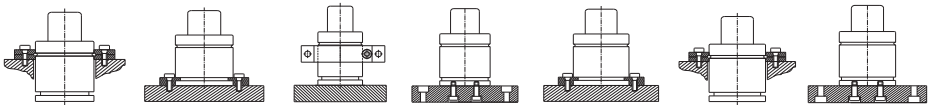


P150



P2-150





Y150 K150 DY150 P2-150 KS-150 KY150 P150

Güvenal GTH

BORDIGNON | Güvenal GTH

NITROGEN GAS SPRINGS

for DIES and MOULDS

MAXIMUM Safety Performance

FIELDS OF APPLICATION

Die-making
Hot Stamping
Injection Moulding
Die Casting
Forging Processes

EGS - VGS - AGS - TGS - IGS - VV - CHT - CSMHT

We are pleased to announce the launch of our partnership with Bordignon, a company well-known for its superior performance and safety systems in Gas Springs. This valuable collaboration enables us to offer unique performance in terms of sustainable quality, price/performance ratio, and safety with the addition of this new brand to our product range.

As the exclusive distributor and business partner in Türkiye, you can obtain Bordignon Gas Springs from us, either through our extensive stock options or with fast delivery times.

PED certified 2014/68/EU

All Bordignon gas springs offered by Güvenal comply with the Pressure Equipment Directive ***PED 2014/68/EU,*** which came into force in 2016. This directive defines and regulates high standards and safety requirements for pressure equipment. To ensure maximum safety during operation, the durability and functioning of the safety systems of all gas springs have been tested under both normal and heavy-duty conditions.

USE INSTRUCTIONS

NO

The threaded hole on the piston rod is for transport and maintenance purposes only.
Do not use it for fastening the nitrogen gas spring.

No side forces. Work stroke always perpendicular to the base of the nitrogen gas spring.

Avoid scratching and scoring on the piston rod.

Do not make mechanical work on the nitrogen gas spring.

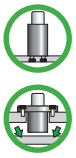
Do not disassemble the nitrogen gas spring.
Maintenance only by authorized people.
The authorization is given only after a class held by Bordignon.

Max impact and max release speed: 1.6 m/s (1 m/s for TGS series). Maximum number of working cycles per minute: see product tables with the technical specifications.

Do not freely release the piston rod.
The piston rod goes up together with the press.
If the screws used for the base-mounting are broken or deformed (stretched), find out the possible causes and eliminate them: there might have been free/uncontrolled releases of the piston rod.

Protect against liquid or solid contaminants.
The nitrogen gas springs are protected against contaminants by wiper ring. Do not use chemical products with low flash point (petrol, solvents alcohol, etc.). Clean only with a dry cloth.

YES



Always fasten the nitrogen gas spring at the base to a flat and clean support surface with high resistance screws. Gas springs with more than one threaded hole at the base: the center hole is for charging/discharging only. Use all the other holes at the base for fixing. Fixing with flange: fasten the flange to a flat and clean support surface with high resistance screws. A safety plate must be present under the gas spring.

Charge only with NITROGEN (N_2).

Hole for cylinder body Ø +1 mm. Draining hole for liquids.

Lubricate the piston rod with grease with disulfide molybdenum (MoS_2).

Operating temperature: MIN 0°C (32°F) - MAX 80°C (176°F). Do not heat.

Protect against solid contaminants with a metal bellow, liquid contaminants with a polymeric bellow. Fasten the protection bellow to the die plate.

When using nitrogen gas springs in a LINKED SYSTEM, make sure to request/order the gas springs "discharged, without valve" ("L-version").
Otherwise, to adapt a self-contained gas spring for a linked system, BEFORE installing any fittings and hoses: remove the side cap using a flat-end allen key (hexagonal key); discharge the gas spring completely using the proper ADS discharging device; remove the valve cartridge using a flat-end 3 mm allen key (hexagonal key).

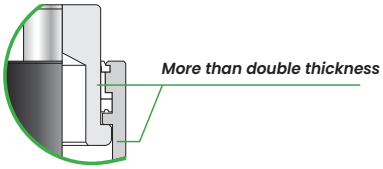
The products in this catalogue are designed for the use in press tools, dies and moulds. We can not take any responsibility for any not proper or different use.

IMPORTANT: periodically check for use instructions updates on our website. For possible additional use instructions not explicitly specified here, refer to the ISO 11901-5 standard. Pass the nitrogen gas springs use instructions to the end-user of the product.

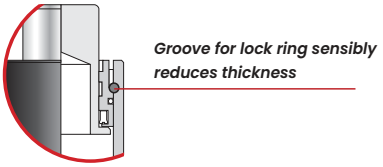
SAFETY & RELIABILITY / Why Bordignon?

Safety: Bordignon nitrogen gas springs have always been built with single ("monolithic") thick mechanical components, in order to ensure product integrity and maximum user's safety even under the most extreme wrong use conditions (collisions, etc.).

Bordignon construction - Single "monolithic" components

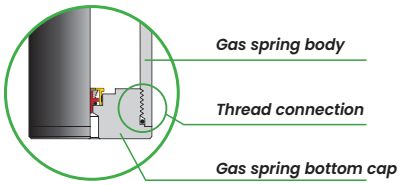


Other constructions - Several assembled components

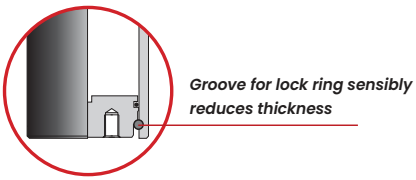


Important: Bordignon gas spring components are coupled through thread connections, for the highest possible safety. Thread connections are standard in high pressure equipment around the world, such as waterjet cutting nozzles and ultra high pressure vessels (~10000 bar).

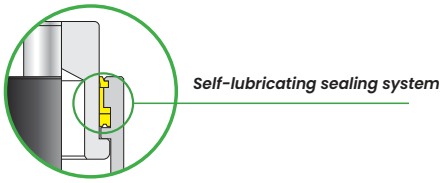
Bordignon construction - Body/bottom cap threaded junction



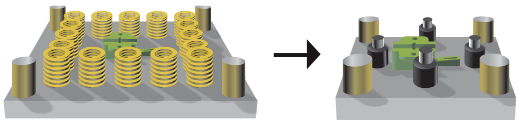
Other constructions - Body/bottom cap junction with lock ring



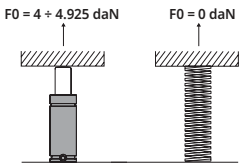
Reliability: All Bordignon nitrogen gas springs are self-lubricated, for millions of cycles, thanks to a solid lubricant.



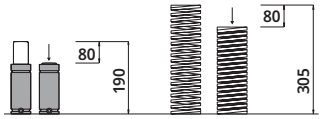
ADVANTAGES of USING GAS SPRINGS



"Less Space Needed for the Same Force"



+ Full initial force at the beginning of the stroke
+ No preload necessary



+ Smaller installation height but same stroke and same force

INFORMATION

- Stroke available at 100 %
- You might adjust the initial force with the charging and discharging set (model COMPL)
- Charging pressure: MIN 20 bar - MAX see table on catalogue
- Initial force increases by ~ 0.34% per each 1°C increase from the reference temperature of 20°C (room temperature, do not heat)
- How to calculate the charging pressure (bar) for initial forces (daN) lower than

• **Please note:** the final forces (forces at full stroke) indicated in the catalogue are reference values measured in static conditions. The actual final forces generated under use conditions may vary, since they depend on the specific parameters of the application, such as the working speed (cycles per minute).

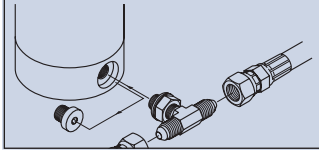
F initial in table:

$$\text{Charging pressure (bar)} = \frac{\text{F (daN) x max charging pressure (bar)}}{\textbf{F} \text{ initial in table}}$$

• How to calculate the force (daN) at intermediate strokes:

$$F = \text{Finitial} + \frac{\text{intermediate stroke}}{\text{max stroke}} \times (\textbf{F}_{\text{final}} - \textbf{F}_{\text{initial}})$$

Gas Spring Accessories Accessories for fixing, charging/discharging, linking to open system, etc. can be found in this catalogue further on.
ATTENTION: use Bordignon nitrogen gas springs with Bordignon accessories only.



2D & 3D Technical drawings Download various 2D & 3D file formats from www.guvenal.net

EGS

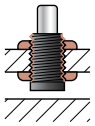
PED in accordance with 2014/68/EU

VDI

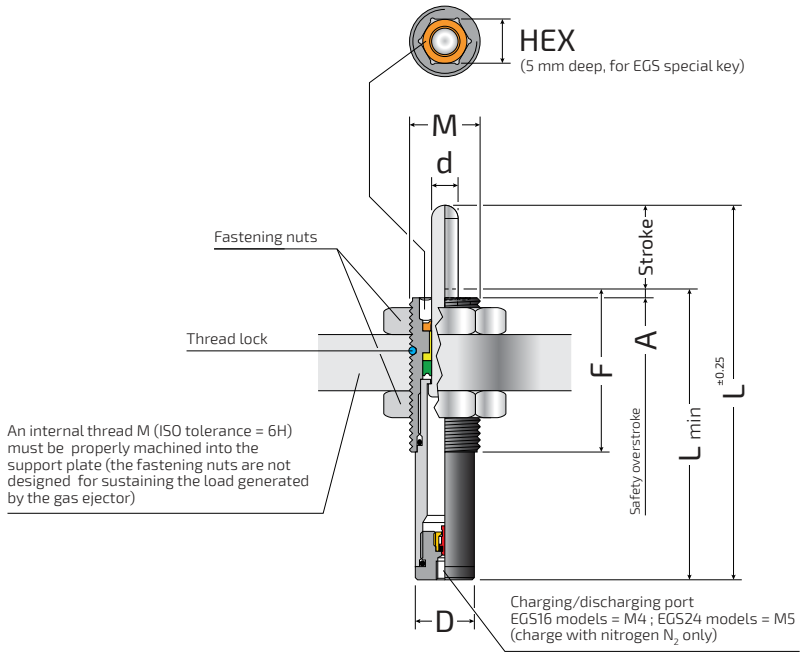
VDI 3004

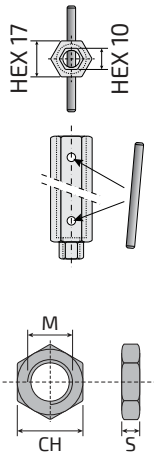
Nitrogen Gas Ejectors

EGS series nitrogen gas ejectors feature compact length and several standard forces to choose from. **EGS series** nitrogen gas ejectors are self-lubricated.



threaded hole on the die plate





Special key for installation

Order Code: **EGS-CH**

Order Code	Description	M	S	CH
EG-D-16	Fastening nut	M16 x 1.5	8	24
EG-D-16-2		M16 x 2	8	24
EG-D-24		M24 x 1.5	10	36

Springs

Safety Protections

This gas spring series includes the models compliant with automotive standards

Ford	W-DX35-60M
VW	39D 549

Continued on the next page

EGS Nitrogen Gas Ejectors

Order Code	MAX Stroke	L min	L	M	F	A	d	D	HEX	bar (MPa)	daN	daN		Cycles per minute MAX	Gas volume Litres	Weight kg
EGS16x1.5-10-...	10	55	65	M16 x 1.5	35	1	6	13.5	10	See table below		x	1.51	300	0.001	0.05
20-...	20	65	85										1.60	150	0.002	0.06
30-...	30	75	105										1.63	100	0.003	0.07
40-...	40	85	125										1.65	75	0.003	0.07
50-...	50	95	145										1.66	60	0.004	0.08
60-...	60	105	165										1.67	50	0.005	0.08
70-...	70	115	185										1.68	45	0.006	0.09
80-...	80	125	205										1.68	40	0.007	0.10
100-...	100	145	245										1.69	30	0.008	0.11
125-...	125	170	295										1.70	25	0.010	0.12
EGS16x2-10-...	10	55	65	M16 x 2	35	1	6	13.5	10	See table below		x	1.51	300	0.001	0.05
20-...	20	65	85										1.60	150	0.002	0.06
30-...	30	75	105										1.63	100	0.003	0.07
40-...	40	85	125										1.65	75	0.003	0.07
50-...	50	95	145										1.66	60	0.004	0.08
60-...	60	105	165										1.67	50	0.005	0.08
70-...	70	115	185										1.68	45	0.006	0.09
80-...	80	125	205										1.68	40	0.007	0.10
100-...	100	145	245										1.69	30	0.008	0.11
125-...	125	170	295										1.70	25	0.010	0.12
EGS24x1.5-10-...	10	55	65	M24 x 1.5	35	1	12	21.5	17	See table below		x	1.74	300	0.003	0.16
20-...	20	65	85										1.85	150	0.006	0.18
30-...	30	75	105										1.89	100	0.008	0.20
40-...	40	85	125										1.92	75	0.011	0.23
50-...	50	95	145										1.93	60	0.013	0.25
60-...	60	105	165										1.94	50	0.016	0.27
70-...	70	115	185										1.95	45	0.018	0.29
80-...	80	125	205										1.96	40	0.021	0.30
100-...	100	145	245										1.97	30	0.026	0.33
125-...	125	170	295										1.97	25	0.032	0.35

All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

Basic code	Force code	bar (MPa)	daN	daN	Label color	How to order
EGS16x1.5-...-	4	12 (1.2)	4	See table above	Purple	**EGS16x1.5-50-42** EGS nitrogen gas ejector with M16x1.5 threaded body,50 mm maximum available stroke length, 42 daN initial force (150 bar / 15.0 MPa charging pressure), yellow label. **EGS24x1.5-80-120** EGS nitrogen gas ejector with M24x1.5 threaded body,80 mm maximum available stroke length, 120 daN initial force (custom), black label.
	6	20 (2.0)	6		Green	
	11	40 (4.0)	11		Blue	
	21	75 (7.5)	21		Red	
	42	150 (15.0)	42		Yellow	
	(other)	10 (1.0)-150 (15.0)	3-42		Black	
EGS16x2-...-	4	12 (1.2)	4	See table above	Purple	
	6	20 (2.0)	6		Green	
	11	40 (4.0)	11		Blue	
	21	75 (7.5)	21		Red	
	42	150 (15.0)	42		Yellow	
	(other)	10 (1.0)-150 (15.0)	3-42		Black	
EGS24x1.5-...-	23	20 (2.0)	23	See table above	Green	
	45	40 (4.0)	45		Blue	
	85	75 (7.5)	85		Red	
	170	150 (15.0)	170		Yellow	
	(other)	10 (1.0)-150 (15.0)	11-170		Black	

ALL EGS MODELS ARE DISPOSABLE (REPAIR KIT NOT AVAILABLE)

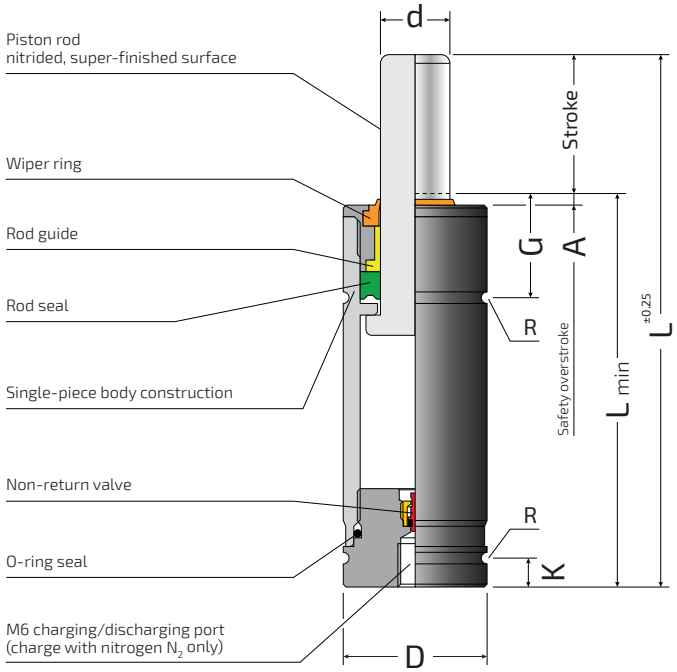
VGS

VDI 3003 Part 2

ISO 11901-1

VGS 50 ~ 200

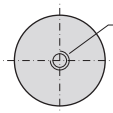
VGS series nitrogen gas springs feature standard dimensions for small diameters. With the VGS series nitrogen gas springs, Bordignon now ensures a great interchangeability and a superior reliability. VGS series nitrogen gas springs are self-lubricated.



COMPACT POWER

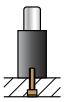
COMPACT HEIGHT

Gas spring base

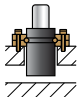


Ma
for charging / discharging for fixing

VGS50, VGS70, VGS90, VGS200



at the base with screw



with collar flange - **FL**

with collar flange (base)
FV for VGS90 only
FL for VGS200 only

All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

Basic code	Force code	bar (MPa)	daN	daN	Label color	How to order
VGS50-...-	13	45 (4.5)	13	See table on the right page	Green	**VGS90-50-90** VGS nitrogen gas spring with 19 mm body diameter, 50 mm maximum available stroke length, 90 daN initial force (180 bar 18.0 MPa charging pressure), yellow label. **VGS200-80-175** VGS nitrogen gas spring with 25 mm body diameter, 80 mm maximum available stroke length, 175 daN initial force (custom), black label.
	25	90 (9.0)	25		Blue	
	38	135 (13.5)	38		Red	
	50	180 (18.0)	50		Yellow	
	(other)	20 (2.0)-180 (18.0)	6-50		Black	
VGS70-...-	18	45 (4.5)	18	See table on the right page	Green	
	35	90 (9.0)	35		Blue	
	50	135 (13.5)	50		Red	
	70	180 (18.0)	70		Yellow	
	(other)	20 (2.0)-180 (18.0)	8-70		Black	
VGS90-...-	5	10 (1.0)	5	See table on the right page	Orange	
	10	20 (2.0)	10		Purple	
	30	60 (6.0)	30		Green	
	50	100 (10.0)	50		Blue	
	70	140 (14.0)	70		Red	
	90	180 (18.0)	90		Yellow	
	(other)	10 (1.0)-180 (18.0)	5-90		Black	
VGS200-...-	17	15 (1.5)	17	See table on the right page	Orange	
	28	25 (2.5)	28		Purple	
	50	45 (4.5)	50		Green	
	100	90 (9.0)	100		Blue	
	150	135 (13.5)	150		Red	
	200	180 (18.0)	200		Yellow	
	(other)	10 (1.0)-180 (18.0)	11-200		Black	

TABLE 1

Springs

Safety Protections

UNCONTROLLED RETURN SPEED

OVERSTROKE

OVERPRESSURE

This gas spring series includes the models compliant with automotive standards

BMW	B2 4007	**PSA**	E24.54.815.G
FCA	075.90.50	**Renault**	EM24.54.700
MB	B8 3180 220 000 002	**VW**	39D 878
Nissan	K32D2-2400-50		

Continued on the next page

VGS 50 ~ 200

Order Code	MAX Stroke	L min	L	D	d	G	A	R	K	Ma	bar (MPa)	daN	daN		Cycles per minute MAX	Gas volume Litres	Weight kg
VGS50-07-...	7	49	56	12 ±0.1	6	17	1	0.8	-	M6 x 6	See **Table 1** on the left page		x	1.50	300	0.001	0.03
10-...	10	52	62											1.50	300	0.001	0.03
13-...	12.7	54.7	67.4											1.60	235	0.001	0.03
15-...	15	57	72											1.60	200	0.001	0.03
19-...	19	61	80											1.70	160	0.002	0.03
25-...	25	67	92											1.70	120	0.002	0.03
38-...	38	80	118											1.80	80	0.003	0.04
50-...	50	92	142											1.80	60	0.004	0.05
63-...	63.5	108.5	172											1.80	50	0.005	0.06
75-...	75	120	195											1.80	40	0.005	0.06
80-...	80	125	205											1.80	40	0.006	0.07
100-...	100	145	245											1.90	30	0.007	0.08
125-...	125	170	295											1.90	25	0.008	0.09
VGS70-07-...	7	49	56	15 ±0.1	7	17	1	0.8	-	M6 x 6	See **Table 1** on the left page		x	1.43	300	0.001	0.04
10-...	10	52	62											1.50	300	0.001	0.05
13-...	12.7	54.7	67.4											1.50	235	0.002	0.05
15-...	15	57	72											1.57	200	0.002	0.05
19-...	19	61	80											1.57	160	0.002	0.05
25-...	25	67	92											1.64	120	0.003	0.06
38-...	38.1	80.1	118.2											1.71	80	0.004	0.07
50-...	50	92	142											1.71	60	0.005	0.08
63-...	63.5	108.5	172											1.71	50	0.007	0.09
75-...	75	120	195											1.71	40	0.008	0.10
80-...	80	125	205											1.71	40	0.008	0.10
100-...	100	145	245											1.79	30	0.010	0.12
125-...	125	170	295											1.79	25	0.013	0.14
VGS90-07-...	7	49	56	19 +0/-0.3	8	17	1	1	6	M6 x 8	See **Table 1** on the left page		x	1.39	300	0.002	0.07
10-...	10	52	62											1.39	300	0.002	0.07
13-...	12.7	54.7	67.4											1.44	235	0.003	0.08
15-...	15	57	72											1.44	200	0.003	0.08
25-...	25	67	92											1.50	120	0.005	0.09
38-...	38.1	80.1	118.2											1.50	80	0.007	0.11
50-...	50	92	142											1.50	60	0.009	0.12
63-...	63.5	108.5	172											1.50	50	0.012	0.14
80-...	80	125	205											1.50	40	0.015	0.15
100-...	100	145	245											1.50	30	0.019	0.17
125-...	125	170	295											1.50	25	0.023	0.20
VGS200-07-...	7	49	56	25 +0/-0.3	12	17	1	1	5	M6 x 9	See **Table 1** on the left page		x	1.43	300	0.004	0.12
10-...	10	52	62											1.48	300	0.005	0.13
13-...	12.7	54.7	67.4											1.50	235	0.006	0.13
15-...	15	57	72											1.53	200	0.006	0.14
16-...	16	58	74											1.53	190	0.007	0.14
25-...	25	67	92											1.55	120	0.010	0.16
38-...	38.1	80.1	118.2											1.60	80	0.014	0.19
50-...	50	92	142											1.60	60	0.018	0.20
63-...	63.5	108.5	172											1.60	50	0.024	0.23
80-...	80	125	205											1.60	40	0.029	0.26
100-...	100	145	245											1.60	30	0.036	0.30
125-...	125	170	295											1.63	25	0.044	0.34

REPAIR KIT

VGS50-... and VGS70-... MODELS ARE DISPOSABLE
(REPAIR KIT NOT AVAILABLE)

Gas Spring Code	Repair Kit Code
VGS90 - ...	KR / VGS 90
VGS200 - ...	KR / VGS 200

AGS

PED in accordance with 2014/68/EU

VDI

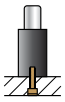
VDI 3003 Part 3

ISO

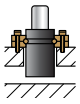
ISO 11901-3

AGS 170 ~ 320

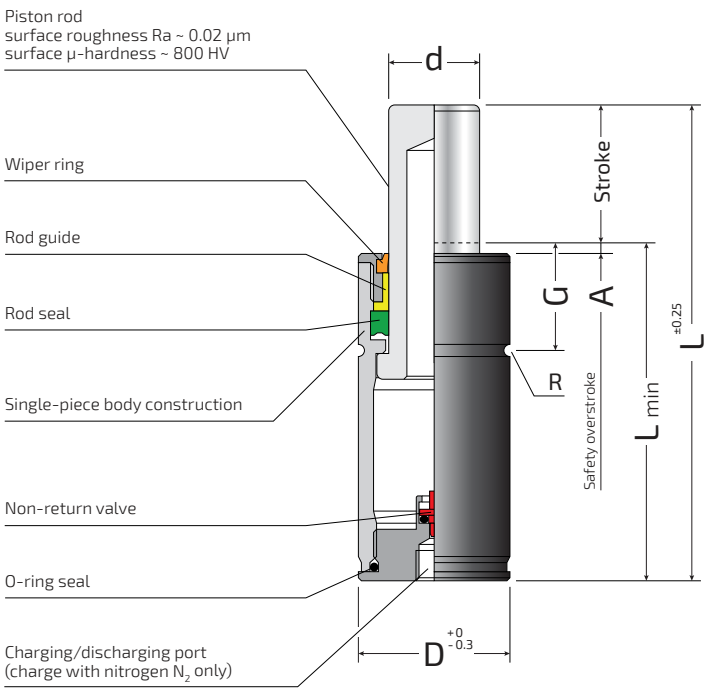
AGS series nitrogen gas springs are highly appreciated in the automotive industry thanks to the compact dimensions, the fixing and linking possibilities. With the AGS series nitrogen gas springs, Bordignon now ensures a great interchangeability and a superior reliability. AGS series nitrogen gas springs are self-lubricated.



at the base with screw



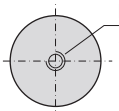
with collar flange - **FL**



COMPACT POWER

COMPACT HEIGHT

Gas spring base



Ma

for charging / discharging for fixing

AGS170, AGS320

Springs

Safety Protections

UNCONTROLLED RETURN SPEED

OVERSTROKE

OVERPRESSURE

This gas spring series includes the models compliant with automotive standards

BMW	B2 4005	**MB**	B8 3180 220 000 004
FCA	075.90.60	**VW**	39D 997

Continued on the next page

AGS 170 ~ 320

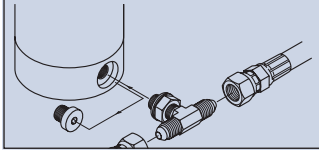
Order Code	MAX Stroke	L min	L	D	d	G	A	R	Ma	bar (MPa)	daN	daN	Cycles per minute max	Gas volume Litres	Weight kg
AGS170-07-A	7	37	44	19	11	17	1	1	M6 x 5	180 (18.0)	170	290	300	0.002	0.06
10-A	10	40	50									295	300	0.003	0.06
13-A	13	43	56									300	230	0.003	0.07
15-A	15	45	60									310	200	0.004	0.07
19-A	19	49	68									320	160	0.005	0.08
25-A	25	55	80									330	120	0.006	0.08
32-A	32	62	94									340	90	0.007	0.09
38-A	38	68	106									340	80	0.009	0.10
50-A	50	80	130									350	60	0.011	0.12
63-A	63	93	156									355	50	0.014	0.14
75-A	75	110	185									360	40	0.017	0.16
80-A	80	115	195									360	40	0.018	0.16
100-A	100	135	235									360	30	0.023	0.19
125-A	125	160	285									360	25	0.028	0.23
AGS320-07-A	7	37	44	25	15	17	1	1	M6 x 5	180 (18.0)	320	490	300	0.004	0.10
10-A	10	40	50									490	300	0.005	0.11
13-A	13	43	56									550	230	0.006	0.12
15-A	15	45	60									550	200	0.007	0.12
19-A	19	49	68									580	160	0.008	0.13
25-A	25	55	80									600	120	0.011	0.14
32-A	32	62	94									630	90	0.013	0.16
38-A	38	68	106									640	80	0.015	0.17
50-A	50	80	130									640	60	0.020	0.20
63-A	63	93	156									640	50	0.025	0.23
75-A	75	110	185									640	40	0.031	0.26
80-A	80	115	195									640	40	0.033	0.27
100-A	100	135	235									650	30	0.040	0.32
125-A	125	160	285									660	25	0.050	0.38

All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

REPAIR KIT

Gas Spring Code	Repair Kit Code
AGS170-...-A	KR / AGS170-A
AGS320-...-A	KR / AGS320-A

Gas Spring Accessories Accessories for fixing, charging/discharging, linking to open system, etc. can be found in this catalogue further on.
ATTENTION: use Bordignon nitrogen gas springs with Bordignon accessories only.



2D & 3D Technical drawings Download various 2D & 3D file formats from www.guvenal.net

AGS

PED in accordance with 2014/68/EU

VDI

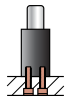
VDI 3003 Part 3

ISO

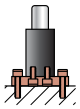
ISO 11901-3

AGS 320 ~ 2400

AGS series nitrogen gas springs are highly appreciated in the automotive industry thanks to the compact dimensions, the fixing and linking possibilities. With the AGS series nitrogen gas springs, Bordignon now ensures a great interchangeability and a superior reliability.
AGS series nitrogen gas springs are self-lubricated.



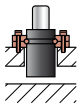
at the base with screws



with base-plate **BF, BFA, BFB for AGS750 ~ AGS2400**

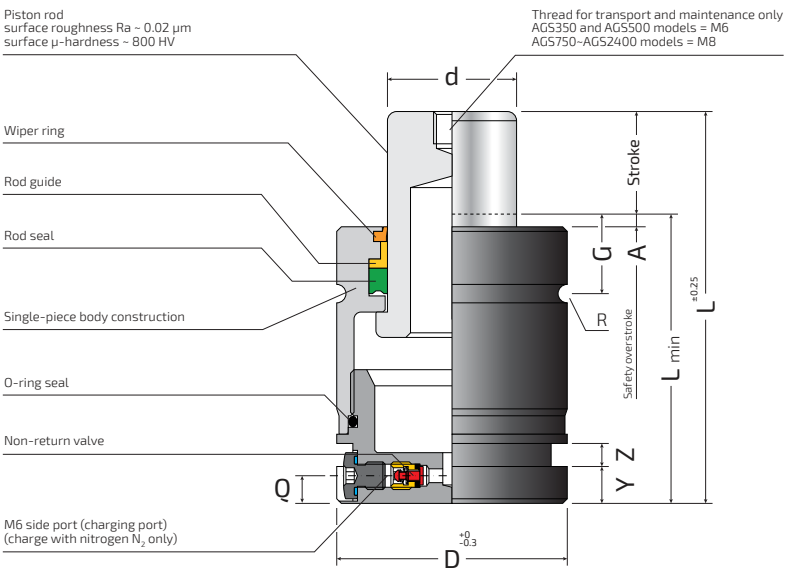
with half-flanges **SF, SFA**

with foot brackets **ST, STA for AGS500 ~ AGS2400**



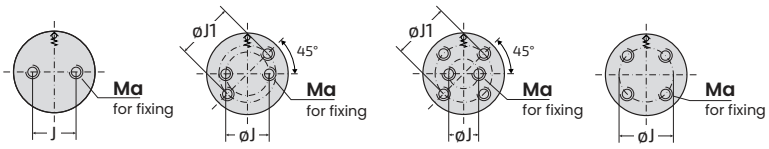
with collar flange **FL, FLQ**

with front support **FT, FTA (Not for all AGS models)**



COMPACT POWER — COMPACT HEIGHT

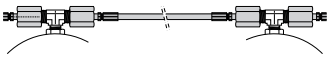
Gas spring base



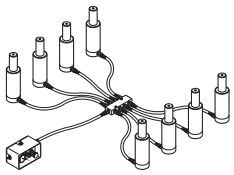
AGS350 AGS750, AGS1000 | **AGS500** | **AGS1500** | **AGS2400**

Linking To Open System

AGS 320 ~ 2400 - (M6 side port)



HOSES	ATM	ATNM
Gas Spring- Hose fittings	ARM	ARNM



ATTENTION! Follow the instructions in the "LINKED SYSTEM" section before connecting the gas springs.

Linking To "OV SYSTEM"

AGS350~AGS2400 models are also available as "OV-version" (without valve, for direct connection to alternative manifold system).

See dedicated catalogue section.

Safety Protections

UNCONTROLLED RETURN SPEED

OVERSTROKE

OVERPRESSURE

This gas spring series includes the models compliant with automotive standards

BMW	B2 4005	**Nissan**	K 32 H
FCA	075.90.60	**PSA**	E24.54.815.G
Ford	W-DX35-6204	**VW**	39D 997
MB	B8 3180 220 000 004		

Continued on the next page

AGS 350 ~ 2400

Order Code	MAX Stroke	L min	L	D	d	G	A	R	Y	Z	Q	Ma	J	J1	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume Litres	Weight kg
AGS350-10-A	10	40	50														570	300	0.006	0.19
13-A	13	43	56														570	230	0.007	0.20
16-A	16	46	62														580	190	0.009	0.21
19-A	19	49	68														580	160	0.011	0.22
25-A	25	55	80														580	120	0.015	0.24
32-A	32	62	94														590	90	0.019	0.26
38-A	38	68	106	32	16	12.5	2	1	4	4	6	M6 x 6 (2x)	20	-	180 (18.0)	360	590	80	0.022	0.28
50-A	50	80	130														590	60	0.029	0.32
63-A	63	93	156														590	50	0.037	0.36
75-A	75	105	180														590	40	0.044	0.40
80-A	80	110	190														590	40	0.047	0.42
100-A	100	130	230														590	30	0.059	0.49
125-A	125	155	280														610	25	0.074	0.58
AGS500-10-A	10	40	50														720	300	0.009	0.26
13-A	13	43	56														720	230	0.012	0.28
16-A	16	46	62														730	190	0.014	0.29
19-A	19	49	68														730	160	0.017	0.30
25-A	25	55	80														740	120	0.023	0.32
32-A	32	62	94														740	90	0.029	0.35
38-A	38	68	106	38	20	12.5	2	1	4	4	6	M6 x 6 (2x or 2x) *(2x o 2x)*	20	25	150 (15.0)	470	740	80	0.035	0.38
50-A	50	80	130														750	60	0.046	0.43
63-A	63	93	156														750	50	0.059	0.48
75-A	75	105	180														750	40	0.070	0.52
80-A	80	110	190														750	40	0.075	0.55
100-A	100	130	230														750	30	0.094	0.63
125-A	125	155	280														760	25	0.117	0.73
AGS750-10-A	10	42	52														1200	300	0.013	0.40
13-A	13	45	58														1230	230	0.017	0.42
16-A	16	48	64														1230	190	0.021	0.44
19-A	19	51	70														1250	160	0.025	0.45
25-A	25	57	82														1250	120	0.033	0.49
32-A	32	64	96														1250	90	0.042	0.53
38-A	38	70	108	45	25	16.5	2	1	4	4	6	M8 x 6 (2x)	20	-	150 (15.0)	740	1250	80	0.050	0.57
50-A	50	82	132														1250	60	0.066	0.64
63-A	63	95	158														1260	50	0.084	0.72
75-A	75	107	182														1260	40	0.100	0.79
80-A	80	112	192														1260	40	0.106	0.82
100-A	100	132	232														1260	30	0.133	0.95
125-A	125	157	282														1260	25	0.167	1.10
AGS1000-13-A	13	51	64														1540	230	0.02	0.57
16-A	16	54	70														1540	190	0.03	0.59
19-A	19	57	76														1560	160	0.03	0.61
25-A	25	63	88														1580	120	0.04	0.66
32-A	32	70	102														1580	90	0.05	0.71
38-A	38	76	114	50	28	17.5	3	2	8	5	6	M8 x 6 (2x)	20	-	150 (15.0)	920	1580	80	0.06	0.75
50-A	50	88	138														1580	60	0.08	0.84
63-A	63	101	164														1580	50	0.11	0.93
75-A	75	113	188														1580	40	0.13	1.02
80-A	80	118	198														1580	40	0.13	1.06
100-A	100	138	238														1600	30	0.17	1.21
125-A	125	163	288														1600	25	0.21	1.40
AGS1500-10-A	10	54	64														2220	300	0.03	0.96
13-A	13	57	70														2280	230	0.04	0.99
16-A	16	60	76														2300	190	0.05	1.02
19-A	19	63	82														2350	160	0.06	1.06
25-A	25	69	94														2390	120	0.08	1.12
32-A	32	76	108														2450	90	0.10	1.20
38-A	38	82	120	63	36	19	3	2	8	5	6	M8 x 6 (2x or 4x) *(2x o 4x)*	20	40	150 (15.0)	1530	2450	80	0.11	1.26
50-A	50	94	144														2500	60	0.15	1.39
63-A	63	107	170														2510	50	0.18	1.52
75-A	75	119	194														2530	40	0.22	1.65
80-A	80	124	204														2550	40	0.23	1.71
100-A	100	144	244														2580	30	0.29	1.92
125-A	125	169	294														2640	25	0.35	2.24
AGS2400-16-A	16	61	77														3800	190	0.07	1.54
19-A	19	64	83														3850	160	0.08	1.58
25-A	25	70	95														3900	120	0.11	1.68
32-A	32	77	109														4000	90	0.14	1.79
38-A	38	83	121														4050	80	0.16	1.89
50-A	50	95	145	75	45	21	3	2.5	8	5	6	M8 x 6 (4x)	40	-	150 (15.0)	2385	4100	60	0.21	2.09
63-A	63	108	171														4100	50	0.26	2.30
75-A	75	120	195														4150	40	0.31	2.49
80-A	80	125	205														4200	40	0.33	2.57
100-A	100	145	245														4200	30	0.41	2.90
125-A	125	170	295														4200	25	0.51	3.28

REPAIR KIT All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

Gas Spring Code	Repair Kit Code
AGS350-...-A	KR / AGS350-A
AGS500-...-A	KR / AGS500-A
AGS750-...-A	KR / AGS750-A

Gas Spring Code	Repair Kit Code
AGS1000-...-A	KR / AGS1000-A
AGS1500-...-A	KR / AGS1500-A
AGS2400-...-A	KR / AGS2400-A

"L-VERSION" (FOR LINKED SYSTEM)

When the AGS gas springs are to be used in a linked system, make sure to order the "L-version" by adding "-L" after the gas spring code. The "L-version" gas springs are supplied already discharged and without valve, ready for the connection to linked system.
Example: "**AGS1000-50-A-L**"

AGS

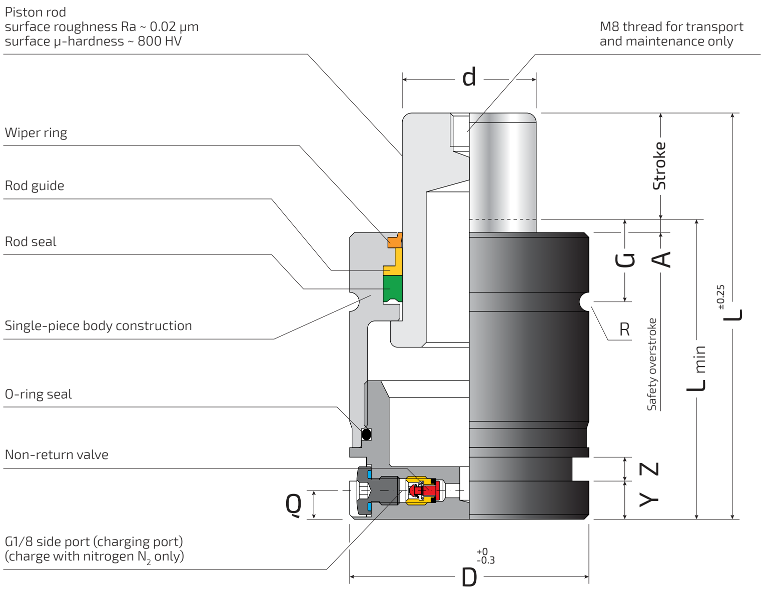
PED in accordance with 2014/68/EU

VDI
VDI 3003 Part 3

ISO
ISO 11901-3

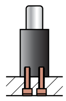
AGS 4200 ~ 20000

AGS series nitrogen gas springs are highly appreciated in the automotive industry thanks to the compact dimensions, the fixing and linking possibilities. With the AGS series nitrogen gas springs, Bordignon now ensures a great interchangeability and a superior reliability. AGS series nitrogen gas springs are self-lubricated.

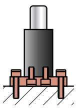


COMPACT POWER

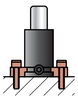
COMPACT HEIGHT



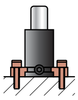
at the base with screws



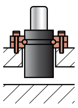
with base-plate
BF, BFA, BFB



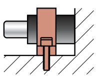
with half-flanges
SF, SFA



with foot brackets
ST, STA

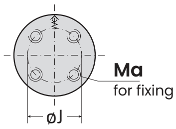


with collar flange
FL, FLQ



with front support
FT, FTA
(Not for all AGS models)

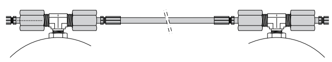
Gas spring base



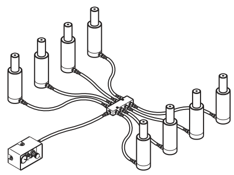
AGS 4200 ~ 20000

Linking To Open System

AGS 4200 ~ 20000 - (G1/8 side port)



HOSES	ATM	ATN	AT
Gas Spring- Hose fittings	ARM	ARN	AR



ATTENTION! Follow the instructions in the "LINKED SYSTEM" section before connecting the gas springs.

Linking To "OV SYSTEM"

AGS4200~AGS20000 models are also available as "OV-version" (without valve, for direct connection to alternative manifold system).
See dedicated catalogue section.

Safety Protections

UNCONTROLLED RETURN SPEED

OVERSTROKE

OVERPRESSURE

This gas spring series includes the models compliant with automotive standards

BMW	B2 4005	**MB**	B8 3180 220 000 004
FCA	075.90.60	**Nissan**	K 32 H
Ford	W-DX35-6204	**PSA**	E24.54.815.G
Mazda	PG 24D	**VW**	39D 997

Continued on the next page →

AGS 4200 ~ 20000

Order Code	MAX Stroke	L min	L	D	d	G	A	R	Y	Z	Q	Ma	J	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume Litres	Weight kg
AGS4200-16-A	16	74	90	95	60	24	3	2.5	8	5	10.5	M8 x 12 (4x)	60	150 (15.0)	4240	6800	190	0.13	3.13
19-A	19	77	96													6800	160	0.15	3.21
25-A	25	83	108													7000	120	0.19	3.37
32-A	32	90	122													7300	90	0.24	3.55
38-A	38	96	134													7300	80	0.28	3.69
50-A	50	108	158													7500	60	0.36	3.98
63-A	63	121	184													7500	50	0.45	4.30
75-A	75	133	208													7600	40	0.54	4.59
80-A	80	138	218													7700	40	0.57	4.72
100-A	100	158	258													7800	30	0.71	5.22
125-A	125	183	308													7900	25	0.88	5.85
AGS6600-16-A	16	84	100	120	75	25.5	3	2.5	8	5	10.5	M10 x 12 (4x)	80	150 (15.0)	6630	9400	190	0.22	5.67
19-A	19	87	106													9600	160	0.25	5.81
25-A	25	93	118													10100	120	0.31	6.08
32-A	32	100	132													10400	90	0.38	6.39
38-A	38	106	144													10500	80	0.44	6.66
50-A	50	118	168													10700	60	0.56	7.21
63-A	63	131	194													11200	50	0.69	7.79
75-A	75	143	218													11300	40	0.81	8.32
80-A	80	148	228													11300	40	0.86	8.53
100-A	CE 100	168	268													11400	30	1.07	9.45
125-A	CE 125	193	318													11500	25	1.32	10.57
AGS9500-19-A	19	97	116	150	90	27.5	3	2.5	8	5	10.5	M10 x 16 (4x)	100	150 (15.0)	9540	16000	160	0.35	10.85
25-A	25	103	128													16300	120	0.45	11.23
32-A	32	110	142													16500	90	0.56	11.69
38-A	38	116	154													16600	80	0.65	12.06
50-A	50	128	178													16800	60	0.85	12.84
63-A	CE 63	141	204													17000	50	1.05	13.67
75-A	CE 75	153	228													17000	40	1.24	14.45
80-A	CE 80	158	238													17100	40	1.32	14.77
100-A	CE 100	178	278													17100	30	1.64	16.05
125-A	CE 125	203	328													17200	25	2.04	17.67
AGS20000-19-A	19	129	148	195	130	33.5	3	2.5	8	8	15	M12 x 18 (4x)	120	150 (15.0)	19910	30400	160	0.90	23.29
25-A	CE 25	135	160													31600	120	1.08	23.92
32-A	CE 32	142	174													32600	90	1.29	24.66
38-A	CE 38	148	186													33300	80	1.47	25.30
50-A	CE 50	160	210													34400	60	1.83	26.55
63-A	CE 63	173	236													35100	50	2.22	27.91
75-A	CE 75	185	260													35600	40	2.58	29.17
80-A	CE 80	190	270													35800	40	2.73	29.69
100-A	CE 100	210	310													36400	30	3.33	31.80
125-A	CE 125	235	360													36900	25	4.08	34.42

CE

The gas spring models for which the CE symbol is indicated have an internal gas volume > 1 litre. They fall into Category II of the 2014/68/EU Pressure Equipment Directive (PED).

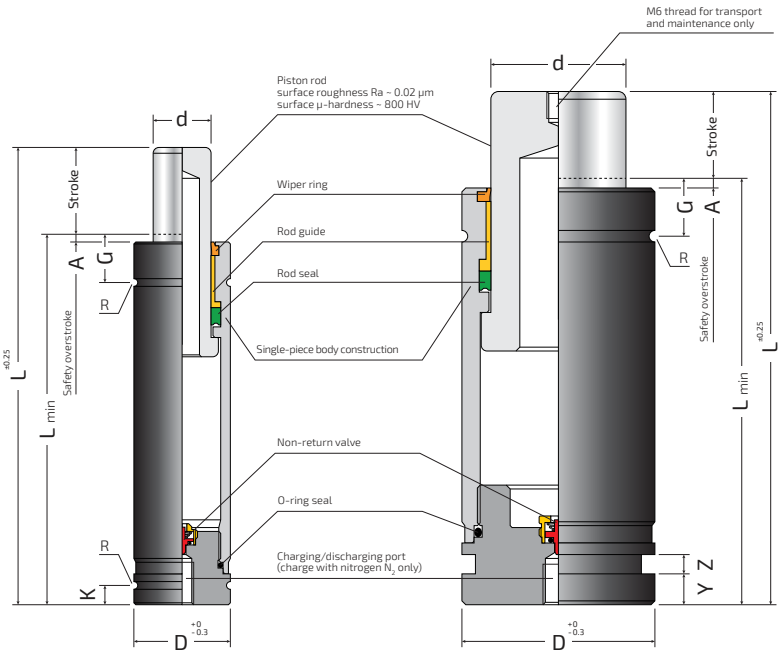
All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

REPAIR KIT

Gas Spring Code	Repair Kit Code
AGS4200-...-A	KR / AGS4200-A
AGS6600-...-A	KR / AGS6600-A
AGS9500-...-A	KR / AGS9500-A
AGS20000-...-A	KR / AGS20000-A

TGS

PED in accordance with 2014/68/EU



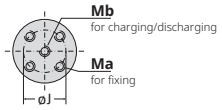
TGS 400 ~ 12000

TGS series nitrogen gas springs feature high forces and compact diameters in a rod seal design. They ensure a great interchangeability (forces, dimensions and fixing possibilities) with the bore seal design nitrogen gas springs commonly available on the market, offering a higher performance (high number of cycles per minute, self-lubrication, better protection against liquid contaminants) and reliability thanks to the rod seal design. TGS series nitrogen gas springs are self-lubricated.

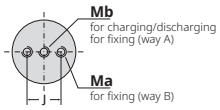
COMPACT POWER

COMPACT HEIGHT

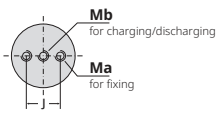
Gas spring base



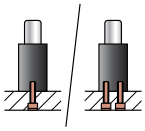
TGS400



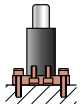
TGS700, TGS1000, TGS2000, TGS3000



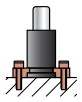
TGS5000, TGS8000, TGS12000



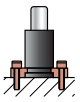
at the base
with screw(s)



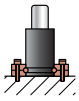
with base-plate
BF, BFA, BFB for TGS5000 only



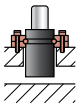
with half-flanges
SF, SFA for TGS700~TGS12000



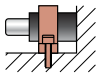
with foot brackets
ST, STA for TGS1000~TGS12000



with collar flange (base)
FL for TGS400 only



with collar flange
FL, FLA, FLQ, FLQA



with front support
FT, FTA (Not for all AGS models)

Springs

Safety Protections

UNCONTROLLED RETURN SPEED

OVERSTROKE

OVERPRESSURE

Continued on the next page

TGS 400 ~ 12000

Order Code	MAX Stroke	L min	L	D	d	G	A	R	K	Y	Z	Ma	J	Mb	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume Litres	Weight kg
TGS400-10-A	10	60	70	25	15	11.5	1	1	5	-	-	M5 x 6 (2x)	14	M6 x 11	204 (20.4)	360	510	300	0.006	0.18
16-A	16	75	91			11.5		1		-	-						510	190	0.011	0.20
25-A	25	95	120			11.5		1		-	-						520	120	0.018	0.24
32-A	32	108	140			11.5		1		-	-						520	90	0.022	0.26
40-A	40	125	165			11.5		1		-	-						530	75	0.028	0.30
50-A	50	145	195			11.5		1		-	-						530	60	0.035	0.33
TGS700-06-A	● 6	57	63	32	20	11.5	2	1	-	-	-	M6 x 8 (2x)	15	M4	210 (21.0)	660	840	300	0.008	0.27
10-A	● 10	65	75			11.5		1		-	-						870	300	0.014	0.29
16-A	16	77	93			11.5		1		4	3.5						940	190	0.018	0.33
25-A	25	95	120			11.5		1		4	3.5						950	120	0.030	0.38
32-A	32	108	140			11.5		1		4	3.5						950	90	0.038	0.42
40-A	40	125	165			11.5		1		4	3.5						960	75	0.049	0.46
50-A	50	145	195			11.5		1		4	3.5						960	60	0.062	0.51
TGS1000-06-A	● 6	55	61	38	25	10.5	2	1	-	-	-	M6 x 8 (2x)	17	M8	205 (20.5)	1000	1350	300	0.010	0.38
10-A	10	68	78			10.5		1		4	3.5						1400	300	0.016	0.46
16-A	16	84	100			10.5		1		4	3.5						1400	190	0.028	0.52
25-A	25	110	135			10.5		1		4	3.5						1400	120	0.049	0.63
32-A	32	135	167			10.5		1		4	3.5						1450	90	0.068	0.73
40-A	40	155	195			10.5		1		4	3.5						1450	75	0.084	0.81
50-A	50	180	230			10.5		1		4	3.5						1450	60	0.104	0.92
TGS2000-06-A	●● 6	60	66	50	35	-	2	-	-	-	-	M6 x 8 (2x)	26	M8	209 (20.9)	2000	3000	300	0.02	0.74
10-A	●● 10	70	80			-		-		-	-						3100	300	0.03	0.82
16-A	● 16	90	106			14.5		1.5		-	-						3200	190	0.05	1.02
25-A	25	110	135			14.5		1.5		8	5						3300	120	0.07	1.25
32-A	32	130	162			14.5		1.5		8	5						3400	90	0.10	1.39
40-A	40	150	190			14.5		1.5		8	5						3400	75	0.12	1.54
50-A	50	170	220			14.5		1.5		8	5						3400	60	0.15	1.70
65-A	65	206	271			14.5		1.5		8	5						3200	45	0.20	1.99
TGS3000-10-A	●● 10	75	85	63	45	-	2	-	-	-	-	M8 x 12 (2x)	34	M8	189 (18.9)	3000	4600	300	0.05	1.45
16-A	● 16	87	103			19		2		-	-						5000	190	0.07	1.62
25-A	25	105	130			19		2		8	5						5200	120	0.10	1.91
32-A	32	118	150			19		2		8	5						5200	90	0.14	2.07
40-A	40	135	175			19		2		8	5						5300	75	0.18	2.27
50-A	50	155	205			19		2		8	5						5300	60	0.23	2.52
65-A	65	191	256			19		2		8	5						5000	45	0.31	2.97
TGS5000-10-A	●● 10	70	80	75	58	-	2	-	-	-	-	M8 x 12 (4x)	40	M8	190 (19.0)	5000	7400	300	0.08	1.87
16-A	● 16	90	106			18		1.5		-	-						7400	190	0.12	2.33
25-A	25	110	135			18		1.5		8	5						7600	120	0.18	2.74
32-A	32	135	167			18		1.5		8	5						7600	90	0.27	3.05
40-A	40	160	200			18		1.5		8	5						7600	75	0.36	3.38
50-A	50	190	240			18		1.5		8	5						7200	60	0.47	3.78
65-A	65	208	273			18		1.5		8	5						8000	45	0.55	4.12
TGS8000-10-A	●● 10	80	90	95	75	-	2	-	-	-	-	M8 x 12 (4x)	52	M8	182 (18.2)	8000	10500	300	0.17	3.29
16-A	● 16	100	116			21		1.5		-	-						10800	190	0.25	3.94
25-A	25	120	145			21		1.5		8	5						11500	120	0.36	4.50
32-A	32	150	182			21		1.5		8	5						11500	90	0.54	5.05
40-A	40	170	210			21		1.5		8	5						11600	75	0.66	5.46
50-A	50	205	255			21		1.5		8	5						11600	60	0.88	6.14
65-A	65	214	279			21		1.5		8	5						12500	45	0.96	6.46
TGS12000-10-A	●● 10	90	100	120	90	-	2	-	-	-	-	M10 x 15 (4x)	68	M8	189 (18.9)	12000	15500	300	0.25	6.22
16-A	● 16	110	126			22.5		2.5		-	-						16500	190	0.35	7.45
25-A	25	130	155			22.5		2.5		8	5						17000	120	0.49	8.59
32-A	32	155	187			22.5		2.5		8	5						17000	90	0.70	9.48
40-A	40	180	220			22.5		2.5		8	5						17000	75	0.92	10.41
50-A	CE 50	210	260			22.5		2.5		8	5						16500	60	1.19	11.52
65-A	CE 65	255	320			22.5		2.5		8	5						18000	45	1.59	13.27

CE

The gas spring models for which the CE symbol is indicated have an internal gas volume > 1 litre. They fall into Category II of the 2014/68/EU Pressure Equipment Directive (PED).

All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

REPAIR KIT

Gas Spring Code	Repair Kit Code
TGS400-...-A	KR / TGS400-A
TGS700-...-A	KR / TGS700-A
TGS1000-...-A	KR / TGS1000-A
TGS2000-...-A	KR / TGS2000-A

Gas Spring Code	Repair Kit Code
TGS3000-...-A	KR / TGS3000-A
TGS5000-...-A	KR / TGS5000-A
TGS8000-...-A	KR / TGS8000-A
TGS12000-...-A	KR / TGS12000-A

● Without lower (square) groove

● Without upper (round) groove

IGS

PED in accordance with 2014/68/EU

VDI

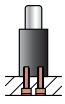
VDI 3003

ISO

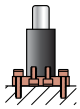
ISO 11901-1

IGS 150 ~ 1500

IGS series nitrogen gas springs feature standard dimensions and forces, as well as several fixing and linking possibilities. With the IGS series nitrogen gas springs, Bordignon now ensures a great interchangeability and a superior reliability. IGS series nitrogen gas springs are self-lubricated.



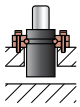
at the base
with screws



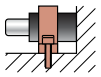
with base-plate
BF, BFA, BFB for IGS500 ~ IGS1500

with
half-flanges
SF, SFA

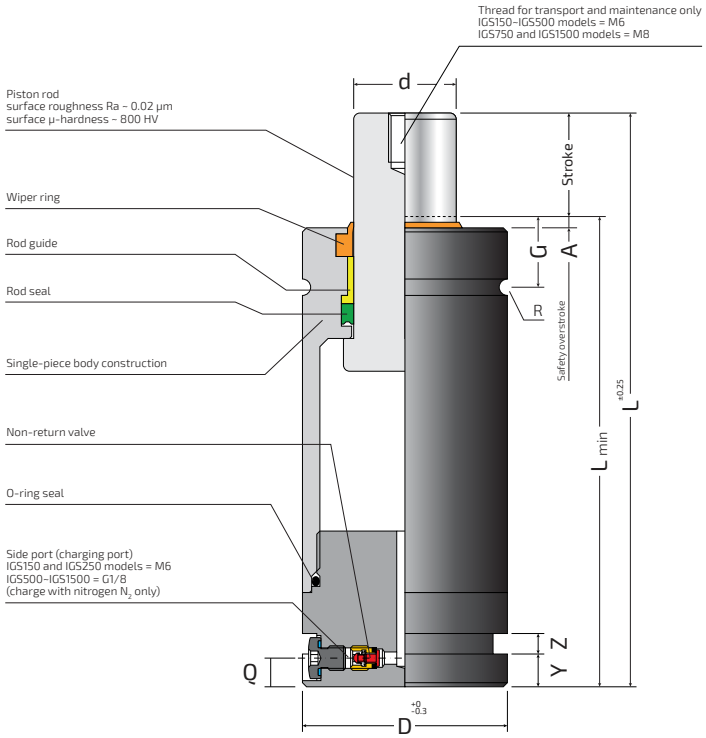
with foot brackets
ST, STA for IGS250 ~ IGS1500



with collar flange
FL, FLQ



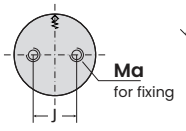
with front support
FT, FTA



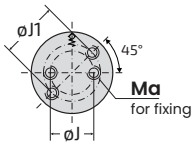
COMPACT POWER

COMPACT HEIGHT

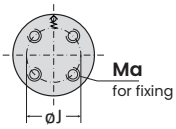
Gas spring base



IGS150,IGS500 IGS750

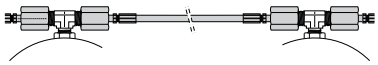


IGS250



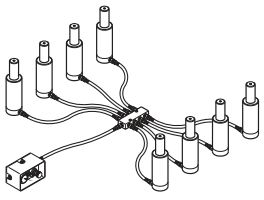
IGS1500

Linking To Open System



IGS150 ~ IGS250 - (M6 side port)

HOSES	ATM	ATNM
Gas Spring- Hose fittings	ARM	ARNM



IGS500 ~ IGS1500 - (G1/8 side port)

HOSES	ATM	ATN
Gas Spring- Hose fittings	ARM	ARN

ATTENTION! Follow the instructions in the "LINKED SYSTEM" section before connecting the gas springs.

Safety Protections

UNCONTROLLED RETURN SPEED

OVERSTROKE

OVERPRESSURE

This gas spring series includes the models compliant with automotive standards

BMW	B2 4006	**Nissan**	K 32 S
FCA	075.90.55	**PSA**	E24.54.815.G
Ford	W-DX35-6203	**Renault**	EM24.54.700
Mazda	PG23D	**Suzuki**	SES-K 5404e
MB	B8 3180 220 000 001	**VW**	39D 878

Continued on the next page

IGS 150 ~ 1500

Order Code	MAX Stroke	L min	L	D	d	G	A	R	Y	Z	Q	Ma	J	J1	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume Litres	Weight kg
IGS150-10	10	60	70	32	12	12.5	2	1	4	4	6	M6 x 11 (2x)	18	-	150 (15.0)	170	215	300	0.009	0.30
13	12.7	62.7	75.4														220	235	0.010	0.32
16	16	66	82														220	190	0.012	0.33
25	25	75	100														225	120	0.017	0.36
38	38.1	88.1	126.2														230	80	0.024	0.39
50	50	100	150														230	60	0.030	0.44
63	63.5	113.5	177														230	50	0.037	0.48
80	80	130	210														235	40	0.046	0.54
100	100	150	250														235	30	0.057	0.60
125	125	175	300														235	25	0.070	0.70
IGS250-10	10	60	70	38	15	12.5	2	1	4	4	6	M6 x 9 (2x or 2x) *(2x o 2x)*	18	25	150 (15.0)	260	305	300	0.029	0.30
13	12.7	62.7	75.4														310	235	0.031	0.31
16	16	66	82														310	190	0.034	0.33
19	19	69	88														315	160	0.037	0.34
25	25	75	100														320	120	0.042	0.37
38	38.1	88.1	126.2														330	80	0.052	0.43
50	50	100	150														335	60	0.062	0.48
63	63.5	113.5	177														335	50	0.074	0.54
80	80	130	210														340	40	0.087	0.61
100	100	150	250														345	30	0.104	0.66
125	125	175	300														350	25	0.125	0.83
IGS500-10	10	95	105	45	20	16.5	2	1	4	4	10.5	M8 x 13 (2x)	20	-	150 (15.0)	470	570	300	0.033	0.78
13	12.7	97.7	110.4														580	235	0.036	0.87
25	25	110	135														610	120	0.051	0.95
38	38.1	123.1	161.2														630	80	0.066	1.04
50	50	135	185														640	60	0.080	1.12
63	63.5	148.5	212														660	50	0.095	1.20
80	80	165	245														660	40	0.115	1.30
100	100	185	285														670	30	0.138	1.41
125	125	210	335														680	25	0.167	1.60
160	160	245	405														700	19	0.192	1.93
200	200	285	485														700	15	0.239	2.10
IGS750-13	12.7	107.7	120.4	50	25	17.5	3	2	8	5	10.5	M8 x 13 (2x)	20	-	150 (15.0)	740	930	235	0.05	1.16
25	25	120	145														990	120	0.07	1.26
38	38.1	133.1	171.2														1040	80	0.09	1.37
50	50	145	195														1070	60	0.10	1.47
63	63.5	158.5	222														1090	50	0.12	1.59
75	75	170	245														1110	40	0.14	1.70
80	80	175	255														1110	40	0.15	1.74
88	87.5	182.5	270														1120	35	0.16	1.80
100	100	195	295														1130	30	0.17	1.92
113	112.5	207.5	320														1140	27	0.19	2.03
125	125	220	345														1150	25	0.21	2.13
138	137.5	232.5	370														1210	22	0.21	2.36
150	150	245	395														1210	20	0.22	2.51
160	160	255	415														1220	19	0.24	2.60
175	175	270	445														1220	17	0.26	2.73
200	200	295	495														1220	15	0.30	2.94
225	225	320	545														1220	13	0.33	3.16
250	250	345	595														1220	12	0.37	3.31
275	275	370	645														1230	11	0.40	3.59
300	300	395	695														1230	10	0.44	3.81
IGS1500-13	12.7	122.3	135	75	36	21	3	2.5	8	5	10.5	M8 x 13 (4x)	40	-	150 (15.0)	1530	1870	235	0.13	3.01
25	25	135	160														1980	120	0.17	3.27
38	38.1	148.1	186.2														2060	80	0.21	3.51
50	50	160	210														2110	60	0.25	3.73
63	63.5	173.5	237														2160	50	0.29	3.97
75	75	185	260														2190	40	0.33	4.18
80	80	190	270														2200	40	0.35	4.27
88	87.5	197.5	285														2220	35	0.37	4.39
100	100	210	310														2240	30	0.41	4.63
113	112.5	222.5	335														2260	27	0.45	4.84
125	125	235	360														2270	25	0.49	5.08
138	137.5	247.5	385														2390	22	0.47	5.77
150	150	260	410														2400	20	0.51	5.99
160	160	270	430														2400	19	0.55	6.17
175	175	285	460														2410	17	0.59	6.45
200	200	310	510														2410	15	0.67	6.90
225	225	335	560														2420	13	0.75	7.35
250	250	360	610														2420	12	0.83	7.81
275	275	385	660														2430	11	0.92	8.26
300	300	410	710														2430	10	0.99	8.72

REPAIR KIT All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

Gas Spring Code	Repair Kit Code
IGS150-...	KR / IGS150
IGS250-...	KR / IGS250
IGS500-10 / IGS500-63	KR / IGS500-1
IGS500-80 / IGS500-200	KR / IGS500-2

Gas Spring Code	Repair Kit Code
IGS5750-13 / IGS750-50	KR / IGS750-1
IGS5750-63 / IGS750-300	KR / IGS750-2
IGS51500-13 / IGS1500-50	KR / IGS1500-1
IGS51500-63 / IGS1500-300	KR / IGS1500-2

"L-VERSION" (FOR LINKED SYSTEM)

When the IGS gas springs are to be used in a linked system, make sure to order the "L-version" by adding "-L" after the gas spring code. The "L-version" gas springs are supplied already discharged and without valve, ready for the connection to linked system.
Example: "**IGS750-50-L**"

IGS

PED In accordance with 2014/68/EU

VDI

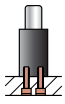
VDI 3003

ISO

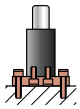
ISO 11901-1

IGS 3000 ~ 10000

IGS series nitrogen gas springs feature standard dimensions and forces, as well as several fixing and linking possibilities. With the IGS series nitrogen gas springs, Bordignon now ensures a great interchangeability and a superior reliability. IGS series nitrogen gas springs are self-lubricated.



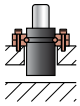
at the base
with screws



with base-plate
BF, BFA, BFB

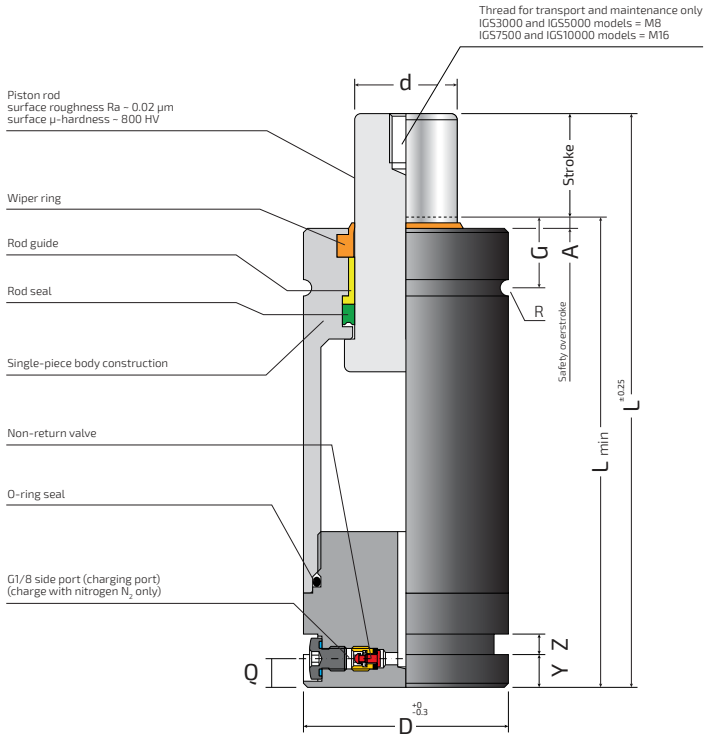
with
half-flanges
SF, SFA

with foot brackets
ST, STA
(Not for all IGS models)



with collar
flange
FL, FLQ

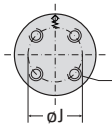
with front
support
FT, FTA
(Not for all IGS models)



COMPACT POWER

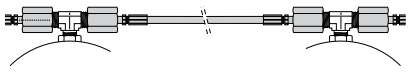
COMPACT HEIGHT

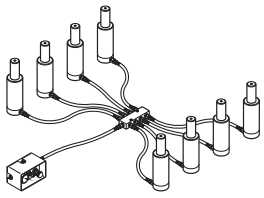
Gas spring base



IGS3000, IGS5000
IGS7500, IGS10000

Linking To Open System





IGS3000 ~ IGS10000 - (G1/8 side port)

HOSES	ATM	ATN	AT
Gas Spring- Hose fittings	ARM	ARN	AR

ATTENTION! Follow the instructions in the "LINKED SYSTEM" section before connecting the gas springs.

Safety Protections

UNCONTROLLED RETURN SPEED

OVERSTROKE

OVERPRESSURE

This gas spring series includes the models compliant with automotive standards

BMW	B2 4006	**Nissan**	K 32 S
FCA	075.90.55	**PSA**	E24.54.815.G
Ford	W-DX35-6203	**Renault**	EM24.54.700
Mazda	PG23D	**Suzuki**	SES-K 5404e
MB	B8 3180 220 000 001	**VW**	39D 878

Continued on the next page

IGS 3000 ~ 10000

Order Code	MAX Stroke	L min	L	D	d	G	A	R	Y	Z	Q	Ma	J	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume Litres	Weight kg
IGS3000-13	12.7	132.3	145	95	50	24	3	2.5	8	5	10.5	M8 x 13 (4x)	60	150 (15.0)	2945	3650	235	0.24	5.15
25	25	145	170													3850	120	0.30	5.58
38	38.1	158.1	196.2													4050	80	0.37	5.97
50	50	170	220													4200	60	0.43	6.33
63	63.5	183.5	247													4300	50	0.51	6.76
75	75	195	270													4400	40	0.57	7.10
80	80	200	280													4400	40	0.59	7.25
88	87.5	207.5	295													4450	35	0.63	7.49
100	100	220	320													4500	30	0.70	7.83
113	112.5	232.5	345													4550	27	0.76	8.21
125	125	245	370													4600	25	0.83	8.59
138	137.5	257.5	395													4900	22	0.80	9.72
150	150	270	420													4900	20	0.87	10.10
160	160	280	440													4900	19	0.92	10.42
175	175	295	470													4950	17	0.99	10.87
200	CE 200	320	520													4950	15	1.13	11.64
225	CE 225	345	570													5000	13	1.26	12.40
250	CE 250	370	620													5000	12	1.39	13.16
275	CE 275	395	670													5000	11	1.53	13.92
300	CE 300	420	720													5000	10	1.66	14.70
IGS5000-25	25	165	190	120	65	25.5	3	2.5	8	5	10.5	M10 x 16 (4x)	80	150 (15.0)	4980	6600	120	0.48	10.78
38	38.1	178.1	216.2													7000	80	0.58	11.52
50	50	190	240													7300	60	0.67	12.20
63	63.5	203.5	267													7600	50	0.77	13.00
75	75	215	290													7700	40	0.85	13.62
80	80	220	300													7800	40	0.89	13.91
88	87.5	227.5	315													7900	35	0.95	14.27
100	CE 100	240	340													8000	30	1.04	14.98
113	CE 112.5	252.5	365													8200	27	1.14	15.70
125	CE 125	265	390													8300	25	1.23	16.41
138	CE 137.5	277.5	415													8900	22	1.19	18.18
150	CE 150	290	440													8900	20	1.29	18.88
160	CE 160	300	460													9000	19	1.36	19.45
175	CE 175	315	490													9000	17	1.47	20.30
200	CE 200	340	540													9100	15	1.66	21.72
225	CE 225	365	590													9200	13	1.85	23.14
250	CE 250	390	640													9200	12	2.04	24.56
275	CE 275	415	690													9300	11	2.23	25.98
300	CE 300	440	740													9300	10	2.42	27.40
IGS7500-25	CE 25	180	205	150	80	27.5	3	2.5	8	5	10.5	M10 x 16 (4x)	100	150 (15.0)	7540	9300	120	1.15	15.72
38	CE 38.1	193.1	231.2													9700	80	1.32	16.73
50	CE 50	205	255													10000	60	1.47	17.69
63	CE 63.5	218.5	282													10300	50	1.64	18.74
75	CE 75	230	305													10500	40	1.79	19.65
80	CE 80	235	315													10600	40	1.86	20.04
88	CE 87.5	242.5	330													10700	35	1.95	20.52
100	CE 100	255	355													10900	30	2.11	21.55
113	CE 112.5	267.5	380													11000	27	2.27	22.48
125	CE 125	280	405													11200	25	2.43	23.52
138	CE 137.5	292.5	430													11800	22	2.33	26.50
150	CE 150	305	455													11900	20	2.49	27.53
160	CE 160	315	475													12000	19	2.62	28.33
175	CE 175	330	505													12000	17	2.82	29.49
200	CE 200	355	555													12200	15	3.14	31.47
225	CE 225	380	605													12300	13	3.46	33.43
250	CE 250	405	655													12400	12	3.78	35.39
275	CE 275	430	705													12500	11	4.10	37.36
300	CE 300	455	755													12600	10	4.43	39.33
IGS10000-25	CE 25	185	210	195	95	33.5	3	2.5	8	8	15	M12 x 18 (4x)	120	150 (15.0)	10600	12900	120	1.87	28.39
38	CE 38.1	198.1	236.2													13300	80	2.16	29.90
50	CE 50	210	260													13700	60	2.42	31.33
63	CE 63.5	223.5	287													14000	50	2.72	32.92
80	CE 80	240	320													14300	40	3.09	34.87
100	CE 100	260	360													14600	30	3.53	37.22
125	CE 125	285	410													14900	25	4.08	40.17
160	CE 160	320	480													15900	19	4.23	49.23
200	CE 200	360	560													16100	15	5.12	53.95
250	CE 250	410	660													16300	12	6.22	59.84
300	CE 300	460	760													17200	10	6.62	71.32

CE

The gas spring models for which the CE symbol is indicated have an internal gas volume > 1 litre. They fall into Category II of the 2014/68/EU Pressure Equipment Directive (PED).

All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

REPAIR KIT

Gas Spring Code	Repair Kit Code
IGS3000-13 ~ IGS3000-50	KR/IGS3000-1
IGS3000-63 ~ IGS3000-300	KR/IGS3000-2
IGS5000-25, IGS5000-38	KR/IGS5000-1
IGS5000-50 ~ IGS5000-300	KR/IGS5000-2

Gas Spring Code	Repair Kit Code
IGS7500-25, IGS7500-38	KR/IGS7500-1
IGS7500-50 ~ IGS7500-300	KR/IGS7500-2
IGS10000-25, IGS10000-38	KR/IGS10000-1
IGS10000-50 ~ IGS10000-300	KR/IGS10000-2

"L-VERSION" (FOR LINKED SYSTEM)

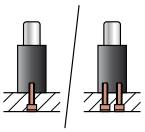
When the IGS gas springs are to be used in a linked system, make sure to order the "L-version" by adding "-L" after the gas spring code. The "L-version" gas springs are supplied already discharged and without valve, ready for the connection to linked system.
Example: "**IGS5000-50-L**"

VV

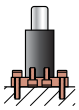
PED In accordance with 2014/68/EU

VV 170 ~ 2945

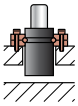
VV series nitrogen gas springs feature different dimensions and forces.
VV series nitrogen gas springs are self-lubricated.



at the base with screws

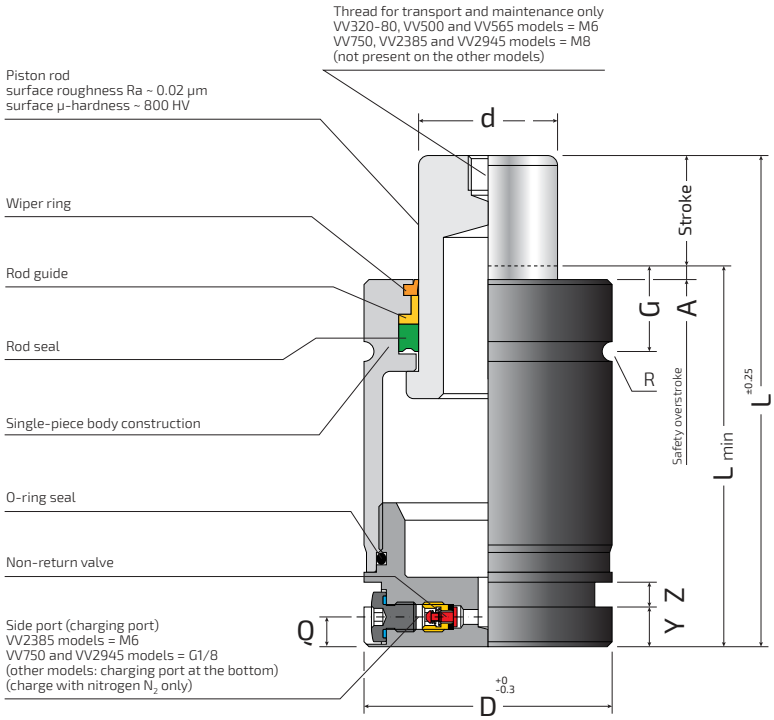


with base-plate
BF, BFA, BFB
for VV750 ~ VV2945

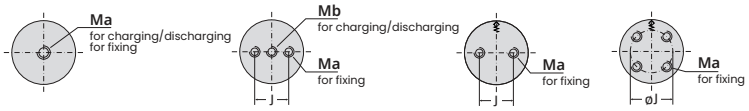


with collar flange
FL, FLQ
(Not for all VV models)

with front support
FT, FTA
(Not for all VV models)



Gas spring base



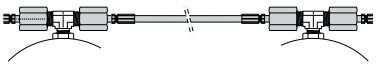
VV170, VV320-63/63 H

VV320-80, VV500-63, VV565-63

VV170

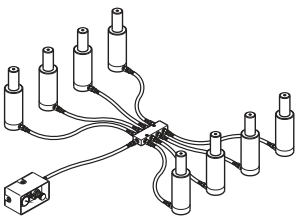
VV2385 VV2495

Linking To Open System



VV2385 - (M6 side port)

HOSES	ATM	ATNM
Gas Spring- Hose fittings	ARM	ARNM



VV750 / VV2945 - (G1/8 side port)

HOSES	ATM	ATN	AT
Gas Spring- Hose fittings	ARM	ARN	AR

ATTENTION! Follow the instructions in the "LINKED SYSTEM" section before connecting the gas springs.

Springs

Safety Protections

UNCONTROLLED RETURN SPEED
OVERSTROKE
OVERPRESSURE

Continued on the next page

VV 700 ~ 2945

Order Code	MAX Stroke	L min	L	D	d	G	A	R	Y	Z	Q	Ma	J	Mb	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume Litres	Weight kg
VV170-38	38	97	135	19	11	17	1	1	-	-	-	M6 x 10	-	-	180 (18.0)	170	275	80	0.011	0.14
50	50	110	160														285	60	0.014	0.17
63	63	127	190														285	50	0.017	0.18
VV320-63	63	127	190	25	15	17	1	1	-	-	-	M6 x 9	-	-	180 (18.0)	320	540	50	0.032	0.31
63H	63	145	208														500	50	0.038	0.33
VV320-80	80	125	205	32	15	-	2	-	-	-	-	M6 x 8 (2x)	18	M6	180 (18.0)	320	520	40	0.044	0.44
VV500-63	63	132	195	32	20	-	2	-	-	-	-	M5 x 8 (2x)	15	M6	160 (16.0)	500	830	50	0.058	0.48
VV565-63	63	142	205	32	20	-	2	-	-	-	-	M5 x 8 (2x)	15	M6	180 (18.0)	565	900	50	0.064	0.50
VV750-63	63	113	176	50	25	-	2	-	-	-	10.5	M8 x 13 (2x)	20	-	150 (15.0)	740	1280	50	0.085	1.40
80	80	130	210														1270	40	0.109	2.00
VV2385-80	80	128	208	75	45	21	3	2.5	-	-	6	M8 x 9 (4x)	40	-	150 (15.0)	2385	4250	40	0.33	2.48
100	100	148	248														4300	30	0.41	2.79
VV2945-63	62.5	182.5	245	95	50	-	3	-	-	-	10.5	M8 x 13 (4x)	60	-	150 (15.0)	2945	3950	50	0.70	5.16
80	80	138	218														4850	40	0.47	5.21
100	100	158	258														4850	30	0.60	5.09
125	125	183	308														4800	25	0.75	7.24

All the gas ejector models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

"L-VERSION" (FOR LINKED SYSTEM)

When the VV gas springs are to be used in a linked system, make sure to order the "L-version" by adding "-L" after the gas spring code.
The "L-version" gas springs are supplied already discharged and without valve, ready for the connection to linked system.
Example: "**VV750-80-L**"

REPAIR KIT

Gas Spring Code	Repair Kit Code
VV170-...	KR/VV170
VV320-63, VV320-63H	KR/VV320-63-63H
VV320-80	KR/VV320-80
VV500-63	KR/VV500

Gas Spring Code	Repair Kit Code
VV565-63	KR/VV565
VV750-...	KR/VV750
VV2385-...	KR/VV2385
VV2945-...	KR/VV2945

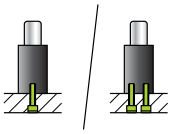
NEW

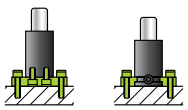
CHT

HIGH PERFORMANCE GAS SPRING

200°C
392°F
MAX TEMPERATURE

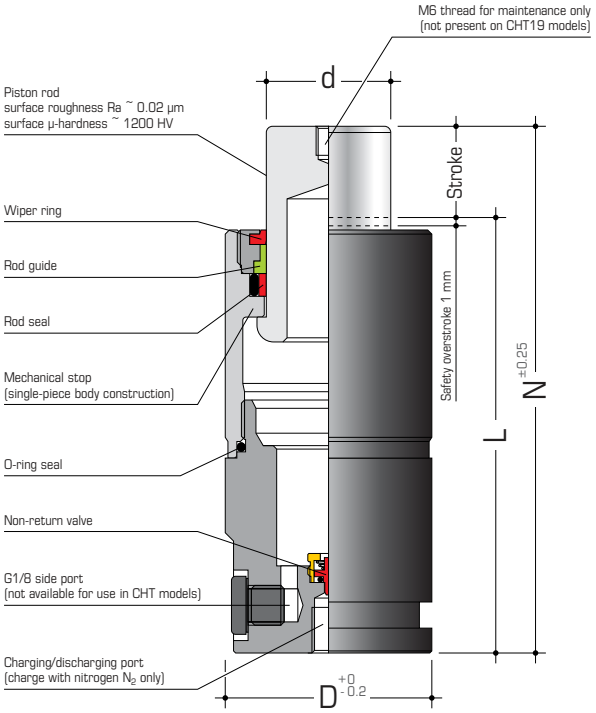
CHT series has been developed to work up to 200°C (392°F), for the most demanding high temperature applications.
The piston rod has to be lubricated with grease.





from D=50 mm

"Special Solutions for Hot Forming and Injection Moulding"

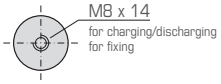
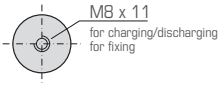
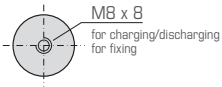
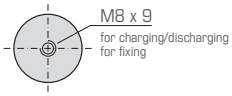
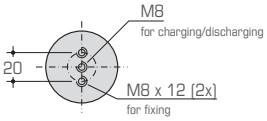
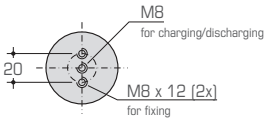
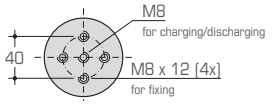
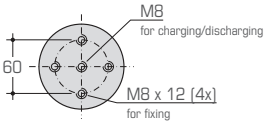
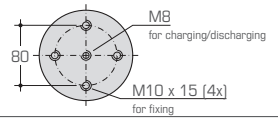


HOW TO ORDER

Important: it is necessary to contact our technical department in order to make sure that **CHT** gas springs are ok for the required application.
Our technical department will send you a dedicated form to be filled with the application data. (*) The maximum charging pressure (bar) depends on the use conditions (declared actual operating temperature). You will be informed about the maximum charging pressure if your application is approved by our technical department.

Please check the "USE INSTRUCTIONS" page.

Continued on the next page

CHT Order Code	MAX Stroke	L	N	D	d	bar (MPa)	daN	daN	Gas Spring Base
●● **CHT19**-10	10	70	80	19	10	"See the note on the previous page."	100	130	
●● 15	15	75	90					135	
●● 25	25	85	110					140	
●● 38	38	98	136					145	
●● 50	50	110	160					155	
●● 80	80	140	220					165	
●● **CHT25**-10	10	70	80	25	14	"See the note on the previous page."	200	250	
●● 15	15	75	90					270	
●● 25	25	85	110					290	
●● 38	38	98	136					320	
●● 50	50	110	160					330	
●● 80	80	140	220					350	
●● 125	125	185	310					370	
●● **CHT32**-10	10	60	70	32	18	"See the note on the previous page."	350	480	
●● 15	15	65	80					490	
●● 25	25	75	100					520	
●● 38	38	88	126					530	
●● 50	50	100	150					540	
●● 80	80	130	210					550	
●● 125	125	175	300					560	
●● 160	160	210	370					570	
●● **CHT38**-10	10	65	75	38	22	"See the note on the previous page."	500	650	
●● 15	15	70	85					700	
●● 25	25	80	105					750	
●● 38	38	93	131					780	
●● 50	50	105	155					800	
●● 80	80	140	220					820	
●● 125	125	185	310					840	
●● 160	160	220	380					860	
●● 200	200	260	460					880	
● **CHT50**-10	10	95	105	50	30	"See the note on the previous page."	1000	1250	
● 25	25	110	135					1400	
● 38	38	123	161					1500	
● 50	50	135	185					1550	
● 63	63	148	211					1600	
● 80	80	165	245					1650	
● 100	100	195	295					1700	
● 125	125	220	345					1720	
● 160	160	255	415					1730	
● 200	200	295	495					1750	
● 250	250	345	595					1770	
● **CHT63**-10	10	95	105	63	40	"See the note on the previous page."	1500	2200	
● 25	25	110	135					2400	
● 38	38	123	161					2500	
● 50	50	135	185					2600	
● 63	63	148	211					2650	
● 80	80	165	245					2700	
● 100	100	185	285					2750	
● 125	125	220	345					2800	
● 160	160	255	415					2850	
● 200	200	295	495					2900	
● **CHT75**-10	10	105	115	75	45	"See the note on the previous page."	2500	3400	
● 25	25	120	145					3800	
● 38	38	133	171					4200	
● 50	50	145	195					4300	
● 63	63	158	221					4400	
● 80	80	175	255					4450	
● 100	100	200	300					4500	
● 125	125	225	350					4550	
● 160	160	265	425					4650	
● 200	200	310	510					4800	
● **CHT95**-25	25	130	155	95	58	"See the note on the previous page."	4000	6200	
● 38	38	143	181					6500	
● 50	50	155	205					6700	
● 63	63	168	231					6800	
● 80	80	190	270					6900	
● 100	100	210	310					7000	
● 125	125	245	370					7150	
● **CHT120**-25	25	140	165	120	75	"See the note on the previous page."	6500	9100	
● 38	38	153	191					9700	
● 50	50	165	215					10000	
● 63	63	178	241					10400	
● 80	80	195	275					10700	

● Without G1/8 side hole and groove ● Available on request

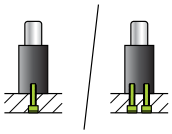
NEW

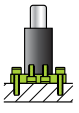
CSMHT

HIGH PERFORMANCE GAS SPRING

200°C
392°F
MAX TEMPERATURE

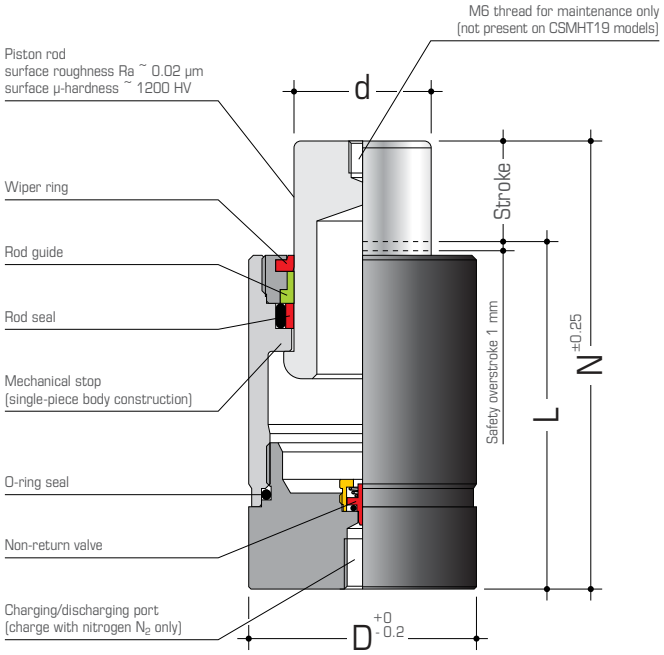
CSMHT compact series has been developed to work up to 200°C (392°F), for the most demanding high temperature applications. The piston rod has to be lubricated with grease.





from D=50 mm

"Special Solutions for Hot Forming and Injection Moulding"

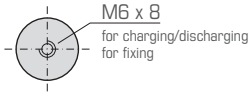
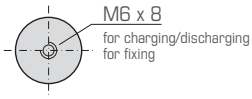
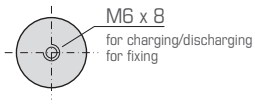
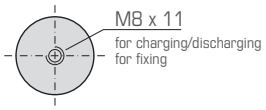
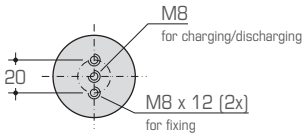
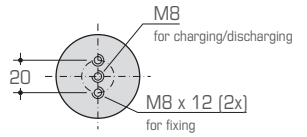
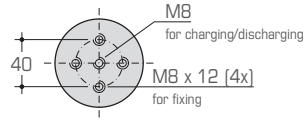
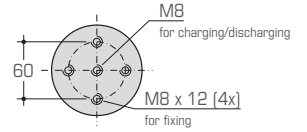
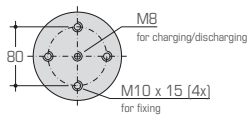


HOW TO ORDER

Important: it is necessary to contact our technical department in order to make sure that **CSMHT** gas springs are ok for the required application. Our technical department will send you a dedicated form to be filled with the application data. (*) The maximum charging pressure (bar) depends on the use conditions (declared actual operating temperature). You will be informed about the maximum charging pressure if your application is approved by our technical department.

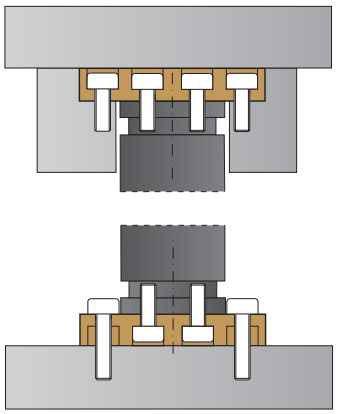
Please check the "USE INSTRUCTIONS" page.

Continued on the next page

CSMHT Order Code	MAX Stroke	L	N	D	d	bar (MPa)	daN	daN	Gas Spring Base
• **CSMHT19**-10	10	50	60	19	10	"See the note on the previous page."	100	130	
• 15	15	55	70					140	
• 25	25	65	90					150	
• 38	38	78	116					160	
• 50	50	90	140					165	
• 80	80	120	200					170	
• **CSMHT25**-10	10	50	60	25	14	"See the note on the previous page."	200	290	
• 15	15	55	70					340	
• 25	25	65	90					350	
• 38	38	78	116					370	
• 50	50	90	140					380	
• 80	80	120	200					390	
• 125	125	165	290					400	
• **CSMHT32**-10	10	55	65	32	18	"See the note on the previous page."	350	490	
• 15	15	60	75					500	
• 25	25	70	95					530	
• 38	38	83	121					550	
• 50	50	95	145					570	
• 80	80	125	205					580	
• 125	125	170	295					590	
• 160	160	205	365					600	
• **CSMHT38**-10	10	55	65	38	22	"See the note on the previous page."	500	720	
• 15	15	60	75					750	
• 25	25	70	95					780	
• 38	38	83	121					820	
• 50	50	95	145					830	
• 80	80	125	205					850	
• 125	125	170	295					860	
• 160	160	205	365					870	
• 200	200	245	445					880	
• **CSMHT50**-10	10	60	70	50	30	"See the note on the previous page."	1000	1600	
• 25	25	75	100					1630	
• 38	38	88	126					1670	
• 50	50	100	150					1690	
• 63	63	113	176					1700	
• 80	80	130	210					1710	
• 100	100	150	250					1720	
• 125	125	190	315					1730	
• 160	160	235	395					1740	
• 200	200	275	475					1750	
• 250	250	325	575					1760	
• **CSMHT63**-10	10	65	75	63	40	"See the note on the previous page."	1500	2200	
• 25	25	80	105					2400	
• 38	38	93	131					2500	
• 50	50	105	155					2550	
• 63	63	118	181					2600	
• 80	80	135	215					2650	
• 100	100	160	260					2700	
• 125	125	190	315					2750	
• 160	160	235	395					2800	
• 200	200	275	475					2900	
• **CSMHT75**-10	10	65	75	75	45	"See the note on the previous page."	2500	4000	
• 25	25	80	105					4500	
• 38	38	93	131					4650	
• 50	50	105	155					4700	
• 63	63	118	181					4730	
• 80	80	135	215					4740	
• 100	100	155	255					4750	
• 125	125	200	325					4760	
• 160	160	250	410					4800	
• 200	200	300	500					4950	
• **CSMHT95**-25	25	90	115	95	58	"See the note on the previous page."	4000	6900	
• 38	38	103	141					7050	
• 50	50	115	165					7150	
• 63	63	128	191					7180	
• 80	80	155	235					7200	
• 100	100	185	285					7250	
• 125	125	220	345					7400	
• **CSMHT120**-25	25	100	125	120	75	"See the note on the previous page."	6500	10300	
• 38	38	113	151					10900	
• 50	50	125	175					11200	
• 63	63	138	201					11400	
• 80	80	160	240					11500	

• Available on request

Fixing Base Plate **BF**



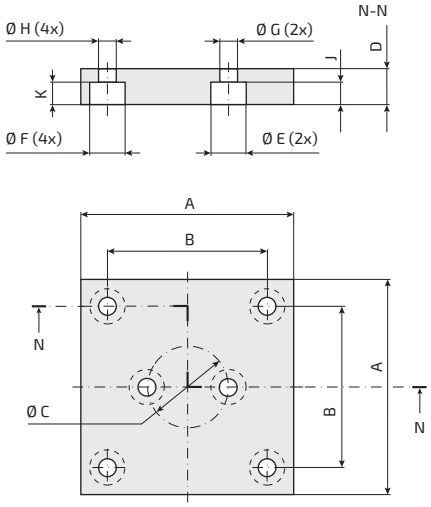


FIG. 1

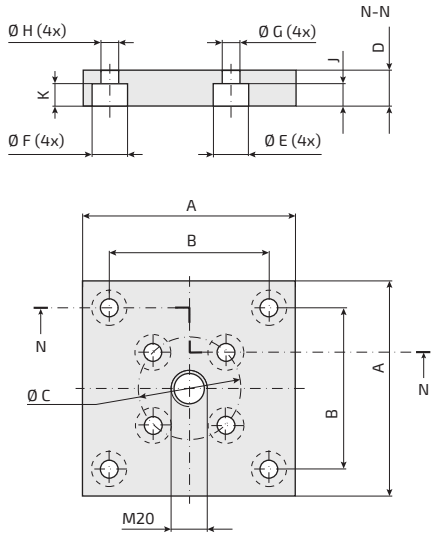


FIG. 2

Order Code	Reference to Standards	For models...	A	B	Ø C	D	Ø E	Ø F	Ø G	Ø H	J	K	FIG.
BF 45	ISO 11901-2, VDI 3003	AGS750, IGS500, LGS500	70	50	20	20	15	15	9	9	14	12	**1**
BF 50	ISO 11901-2, VDI 3003	AGS1000, AGS1500, IGS750, VV750	75	56.5	20	20	15	15	9	9	14	12	**1**
BF 63	ISO 11901-2	AGS1500	100	73.5	20	20	15	18	9	11	14	12	**1**
BF 75	ISO 11901-2, VDI 3003	AGS1500, AGS2400, IGS1500, TGS5000, VV2385	100	73.5	40	20	15	18	9	11	14	12	**2**
BF 95	ISO 11901-2, VDI 3003	AGS4200, IGS3000, VV2945	120	92	60	20	15	20	9	13.5	14	13	**2**
BF 120	ISO 11901-2, VDI 3003	AGS6600, IGS5000	140	109.5	80	20	18	20	11	13.5	15	13	**2**
BF 150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	190	138	100	25	18	26	11	17.5	15	17	**2**
BF 195	ISO 11901-2, VDI 3003	AGS20000, IGS10000	210	170	120	25	20	26	13.5	17.5	13	17	**2**

ISO **ISO 11901-2**

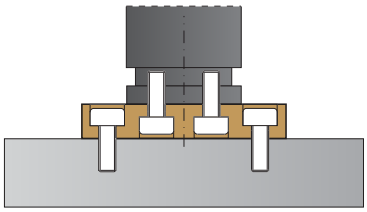
VDI **VDI 3003**

This gas spring series includes the models compliant with automotive standards

General Motors	90.25.04
PSA	E24.54.815.G
Renault	EM24.54.700

BF

Fixing Base Plate **BFA**



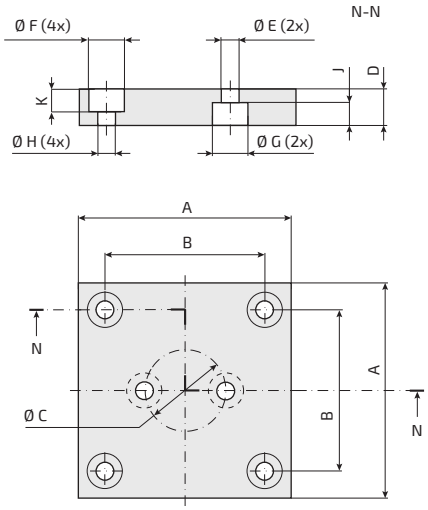


FIG. 1

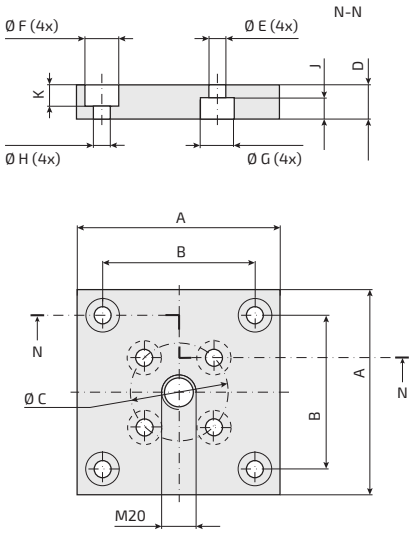


FIG. 2

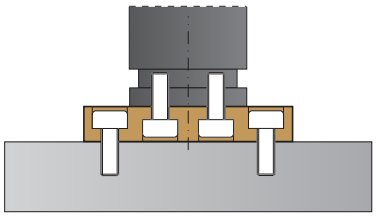
Order Code	Reference to Standards	For models...	A	B	Ø C	D	Ø E	Ø F	Ø G	Ø H	J	K	FIG.
BFA 45	-	AGS750, IGS500, LGS500	70	50	20	20	9	18	15	11	14	12	**1**
BFA 50	-	AGS1000, AGS1500, IGS750, VV750	75	56.5	20	20	9	18	15	11	14	12	**1**
BFA 75	-	AGS1500, AGS2400, IGS1500, TGS5000, VV2385	100	73.5	40	20	9	18	15	11	14	12	**2**
BFA 95	-	AGS4200, IGS3000, VV2945	120	92	60	20	9	20	15	13.5	14	13	**2**
BFA 120	-	AGS6600, IGS5000	140	109.5	80	20	11	20	18	13.5	15	13	**2**
BFA 150	-	AGS9500, IGS7500	190	138	100	25	11	26	18	17.5	15	17	**2**
BFA 195	-	AGS20000, IGS10000	210	170	120	25	13.5	26	20	17.5	15	17	**2**

This gas spring series includes the models compliant with automotive standards

Renault	EM24.54.700

BFA

Fixing Base Plate **BFB**



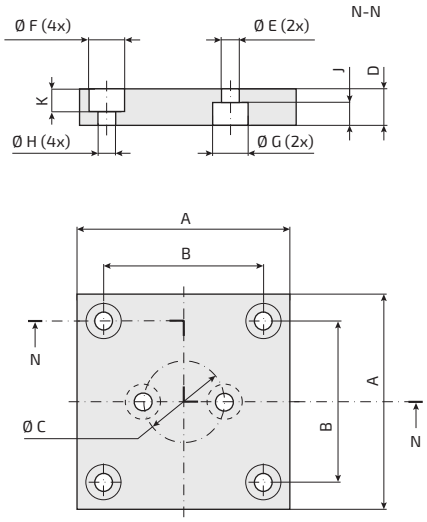


FIG. 1

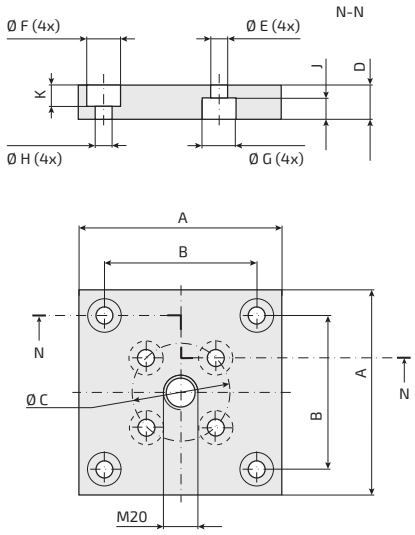


FIG. 2

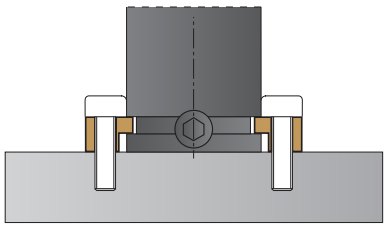
Order Code	Reference to Standards	For models...	A	B	Ø C	D	Ø E	Ø F	Ø G	Ø H	J	K	FIG.
BFB 45	-	AGS750, IGS500, LGS500	70	50	20	20	9	15	15	9	12	12	**1**
BFB 50	-	AGS1000, AGS1500, IGS750, VV750	75	56.5	20	20	9	15	15	9	12	12	**1**
BFB 63	-	AGS1500	100	73.5	20	20	9	18	15	11	12	12	**1**
BFB 75	-	AGS1500, AGS2400, IGS1500, TGS5000, VV2385	100	73.5	40	20	9	18	15	11	12	14	**2**
BFB 95	-	AGS4200, IGS3000, VV2945	120	92	60	20	9	20	15	13.5	14	13	**2**
BFB 120	-	AGS6600, IGS5000	140	109.5	80	20	11	20	18	13.5	15	13	**2**
BFB 150	-	AGS9500, IGS7500	190	138	100	20	11	20	18	13.5	15	13	**2**
BFB 195	-	AGS20000, IGS10000	210	170	120	25	13.5	26	20	17.5	15	17	**2**

This gas spring series includes the models compliant with automotive standards

BMW	B2 4009
MB	B8 0132 110 008 801
Renault	EM24.54.700

BFB

Fixing Half-flanges **SF**



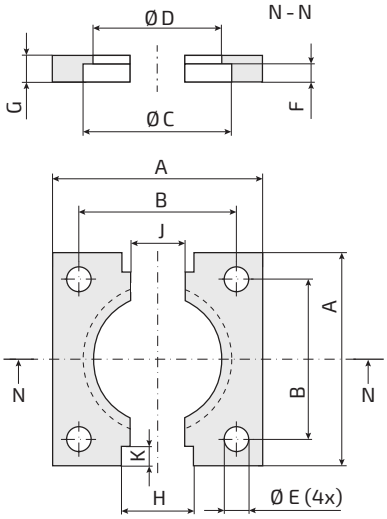


FIG. 1

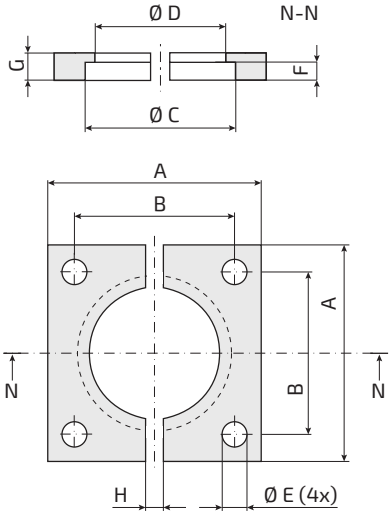


FIG. 2

Order Code	Reference to Standards	For models...	A	B	Ø C	Ø D	Ø E	F	G	H	J	K	FIG.
SF 32	-	AGS350, IGS150, TGS700	50	35	32.5	28.5	6.6	4	7	21	17	6.5	**1**
SF 38	-	AGS500, IGS250, TGS1000	55	40	38.5	34.5	6.6	4	7	21	17	6.5	**1**
SF 45	ISO 11901-2, VDI 3003	AGS750, IGS500, LGS500	70	50	45.5	41.5	9	4	7	20	-	-	**2**
SF 50	ISO 11901-2, VDI 3003	AGS1000, IGS750, TGS2000	75	56.5	50.5	44.5	9	8	12	24	-	-	**2**
SF 63	-	AGS1500, TGS3000	85	63.5	63.5	57.5	11	8	12	24	-	-	**2**
SF 63A	ISO 11901-2	AGS1500, TGS3000	100	73.5	64	57	11	8	12	24	-	-	**2**
SF 75	ISO 11901-2, VDI 3003	AGS2400, IGS1500, TGS5000	100	73.5	75.5	68.5	11	8	12	24	-	-	**2**
SF 95	ISO 11901-2, VDI 3003	AGS4200, IGS3000, TGS8000	120	92	95.5	88.5	13.5	8	12	24	-	-	**2**
SF 120	ISO 11901-2, VDI 3003	AGS6600, IGS5000, TGS12000	140	109.5	120.5	113.5	13.5	8	12	24	-	-	**2**
SF 150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	190	138	150.5	143.5	17.5	8	12	24	-	-	**2**
SF 195	ISO 11901-2, VDI 3003	AGS20000, IGS10000	210	170	195.5	188	17.5	8	13	24	-	-	**2**

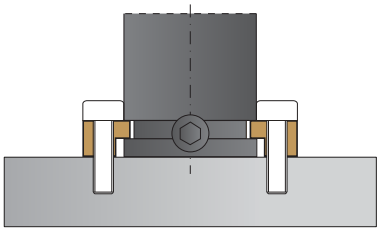
ISO 11901-2 VDI 3003

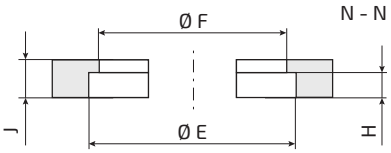
This gas spring series includes the models compliant with automotive standards

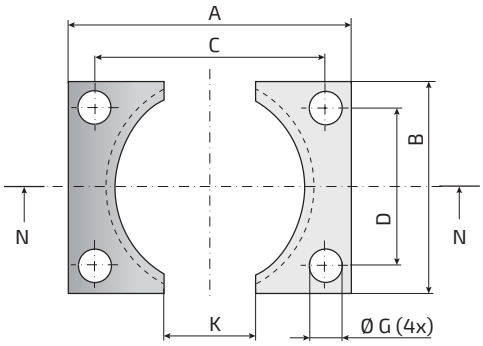
BMW	B2 4009	**MB**	B8 0138 100 000 001
FCA	075.90.90	**Renault**	EM24.54.700
Ford	W-DX35-62M	**VW**	39D 848
General Motors	90.25.01		

SF

Fixing Half-flanges SFA



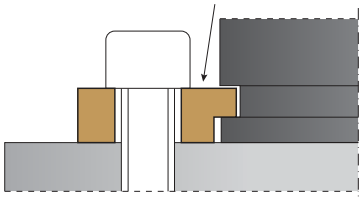




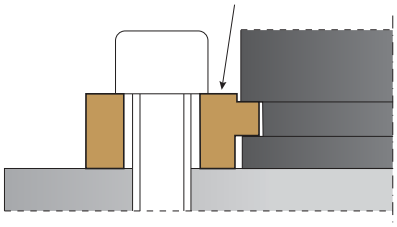
Order Code	Reference to Standards	For models...	A	B	Ø C	D	Ø E	Ø F	Ø G	Ø H	J	K
SFA 32	-	AGS350, IGS150, TGS700	50	27	40	18	32.5	28.5	6.6	4	7	20
SFA 38	-	AGS500, IGS250, TGS1000	55	33	44	20	38.5	34.5	6.6	4	7	20
SFA 45	-	AGS750, IGS500, LGS500	70	40	57	27	45.5	41.5	9	4	7	25
SFA 50	-	AGS1000, IGS750, TGS2000	75	45	62	32	50.5	44.5	9	8	12	25
SFA 63	-	AGS1500, TGS3000	85	58	69	42	63.5	57.5	11	8	12	30
SFA 75	-	AGS2400, IGS1500, TGS5000	100	70	84	54	75.5	68.5	11	8	12	30
SFA 95	-	AGS4200, IGS3000, TGS8000	120	90	100	70	95.5	88.5	13.5	8	12	40
SFA 120	-	AGS6600, IGS5000, TGS12000	140	115	120	95	120.5	113.5	13.5	8	12	50
SFA 150	-	AGS9500, IGS7500	190	145	165	120	150.5	143.5	17.5	8	12	60
SFA 195	-	AGS20000, IGS10000	210	190	185	165	195.5	188	17.5	8	13	80

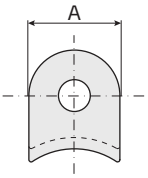
Fixing Foot Brackets ST

ST 38 - ST 45 - ST 195



ST 50 ~ 150





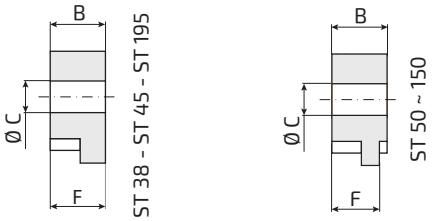


FIG. 1

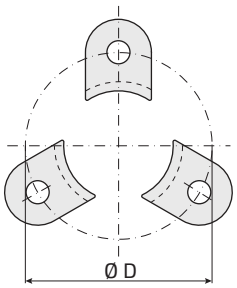
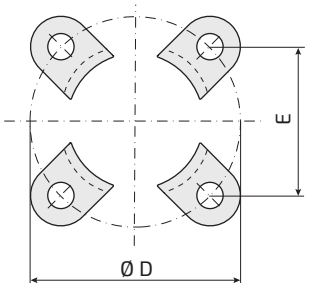


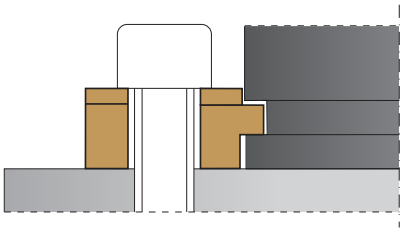
FIG. 2

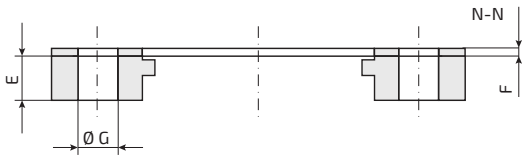


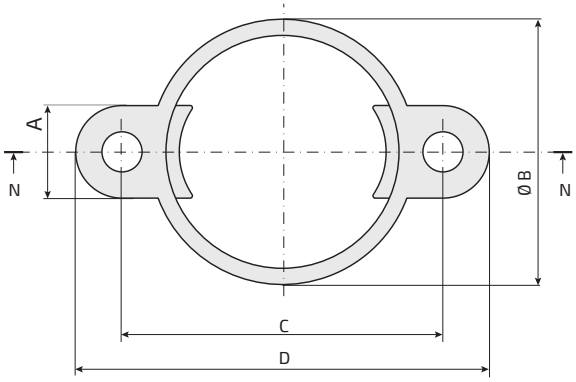
Order Code	Reference to Standards	For models...	A	B	C	Ø D	E	F	FIG.
ST 38	-	AGS500, IGS250, TGS1000	20	7	7	56.6	-	7	1
ST 45	-	AGS750, IGS500, LGS500	25	7	9	70.7	-	7	1
ST 50	-	AGS1000, IGS750, TGS2000	30	14.2	13	80	-	13	1
ST 63	-	AGS1500, TGS3000	30	14.2	13	92	65	13	2
ST 75	-	AGS2400, IGS1500, TGS5000	30	14.2	13	104	73.5	13	2
ST 95	-	AGS4200, IGS3000, TGS8000	40	14.2	17	130	92	13	2
ST 120	-	AGS6600, IGS5000, TGS12000	50	14.2	17	155	109.5	13	2
ST 150	-	AGS9500, IGS7500	50	14.2	21	195	138	13	2
ST 195	-	AGS20000, IGS10000	58	16	21	240	169	16	2

ST

Fixing Foot Brackets STA

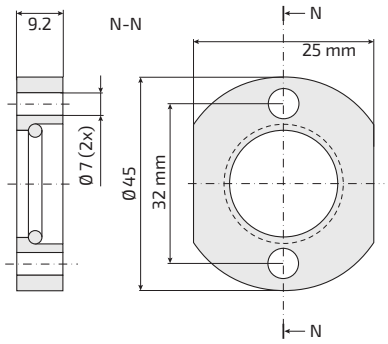




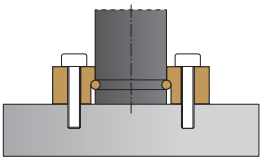


Order Code	Reference to Standards	For models...	A	Ø B	C	D	E	F	Ø G
STA 38	-	AGS500, IGS250, TGS1000	20	48	56.6	76.6	7	2.5	7
STA 45	-	AGS750, IGS500, LGS500	25	56	70.7	95.7	7	2.5	9
STA 50	-	AGS1000, IGS750, TGS2000	30	61	80	110	14.2	2.5	13
STA 63	-	AGS1500, TGS3000	30	73	92	122	14.2	2.5	13
STA 75	-	AGS2400, IGS1500, TGS5000	30	86	104	134	14.2	2.5	13
STA 95	-	AGS4200, IGS3000, TGS8000	40	106	130	170	14.2	2.5	17
STA 120	-	AGS6600, IGS5000, TGS12000	50	131	155	205	14.2	2.5	17
STA 150	-	AGS9500, IGS7500	50	170	195	245	14.2	2.5	21

FV 19 Collar flange (for base-fixing)

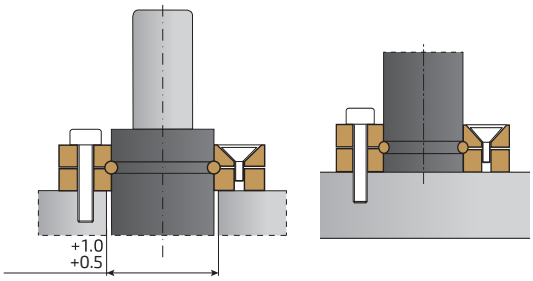


Fixing Possibilities

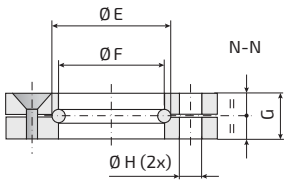


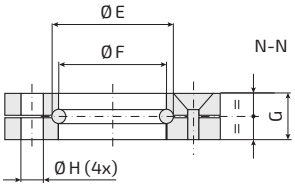
Collar Flange

FL 12 ~ 25



Body Ø





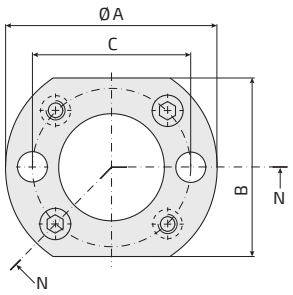


FIG. 1

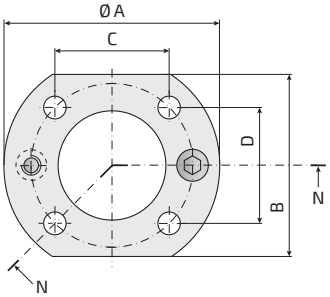


FIG. 2

Order Code	Reference to Standards	For models...	Ø A	B	C	D	Ø E	Ø F	G	Ø H	FIG.
FL 12	-	VGS50	34	21	24	-	13.6	12.5	9	6.6	**1**
FL 15	-	VGS70	37	24	27	-	16.6	15.5	9	6.6	**1**
FL 19 A	VDI 3003	AGS170, VGS90, VV170	44	25	32	-	21	19.5	9	6.6	**1**
FL 19 B	ISO 11901-2	AGS170, VGS90, VV170	44	25	30	12	21	19.5	9	6.6	**2**
FL 25 A	VDI 3003	AGS320, TGS400, VGS200, VV320-63/63H	50	30	38	-	27	25.5	9	6.6	**1**
FL 25 B	ISO 11901-2	AGS320, TGS400, VGS200, VV320-63/63H	50	30	34	18	27	25.5	9	6.6	**2**

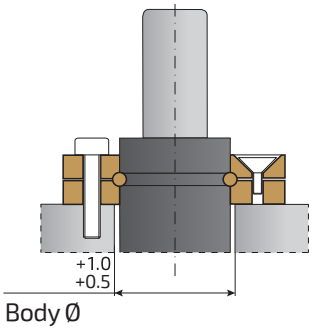
ISO 11901-2 **VDI 3003**

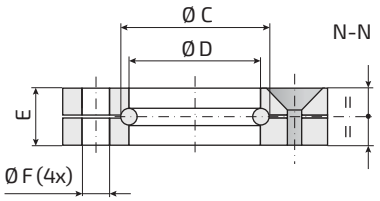
This gas spring series includes the models compliant with automotive standards

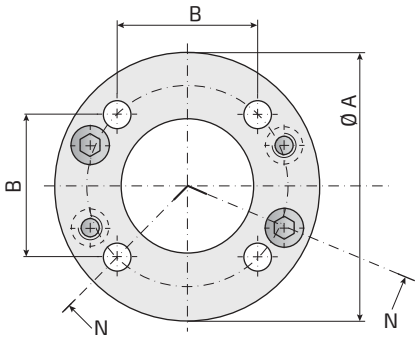
BMW	B2 4009	**MB**	B8 0134 400 008 801
FCA	075.90.75	**PSA**	E24.54.815.G
Ford	W-DX35-80M	**VW**	39D 848

FL

Collar Flange **FL 32 ~ 195**







Order Code	Reference to Standards	For models...	Ø A	B	Ø C	Ø D	E	Ø F
FL 32	ISO 11901-2, VDI 3003	AGS350, IGS150, TGS700	60	35	34	32.5	9	6.6
FL 38	ISO 11901-2, VDI 3003	AGS500, IGS250, TGS1000	68	40	40	38.5	9	6.6
FL 45	ISO 11901-2, VDI 3003	AGS750, IGS500, LGS500	86	50	47	45.5	13	9
FL 50	ISO 11901-2, VDI 3003	AGS1000, IGS750	95	56.5	54	50.5	13	9
FL 63	ISO 11901-2	AGS1500, TGS3000	122	73.5	67	63.5	16	11
FL 75	ISO 11901-2, VDI 3003	AGS2400, IGS1500, VV2385	122	73.5	80	75.5	16	11
FL 95	ISO 11901-2, VDI 3003	AGS4200, IGS3000	150	92	100	95.5	18	13.5
FL 120	ISO 11901-2, VDI 3003	AGS6600, IGS5000, TGS12000	175	109.5	125	120.5	21	13.5
FL 150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	220	138	155	150.5	27	17.5
FL 195	ISO 11901-2, VDI 3003	AGS20000, IGS10000	290	170	200	195.5	27	17.5

ISO **ISO 11901-2**

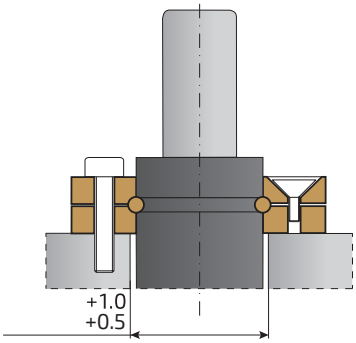
VDI **VDI 3003**

This gas spring series includes the models compliant with automotive standards

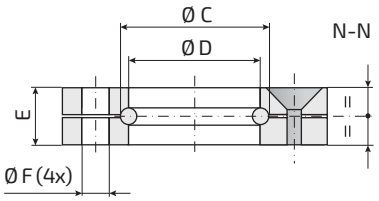
BMW	B2 4009	**MB**	B8 0134 300 000 001
FCA	075.90.80	**Renault**	EM24.54.700
General Motors	90.25.03		

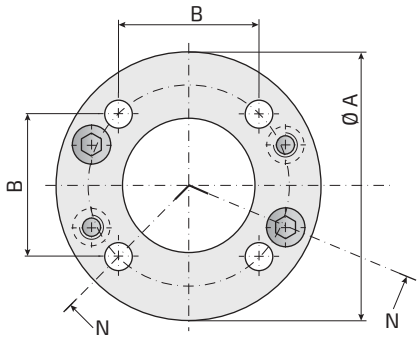
FL

Collar Flange **FLA**



Body Ø





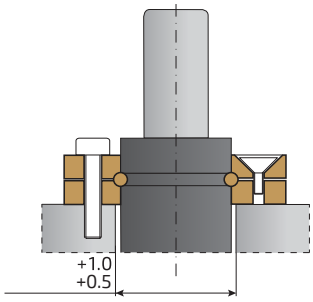
Order Code	Reference to Standards	For models...	Ø A	B	Ø C	Ø D	E	Ø F
FLA 50	-	TGS2000	95	56.5	53	50.5	13	9
FLA 75	-	TGS5000	122	73.5	78	75.5	16	11
FLA 95	-	TGS8000	150	92	98	95.5	18	13.5

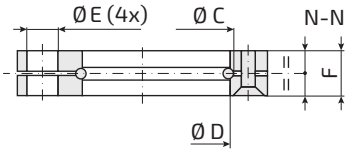
This gas spring series includes the models compliant with automotive standards

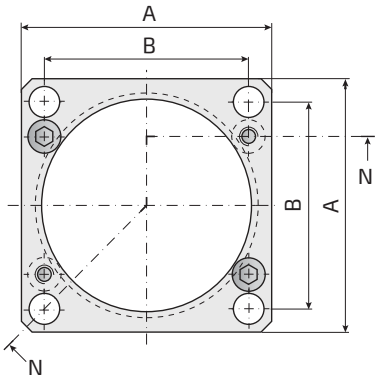
Renault	EM24.54.700

FLA

Collar Flange **FLQ**







Order Code	Reference to Standards	For models...	A	B	Ø C	Ø D	Ø E	F
FLQ 32	ISO 11901-2, VDI 3003	AGS350, IGS150, TGS700	45	35	34	32.5	6.6	9
FLQ 38	ISO 11901-2, VDI 3003	AGS500, IGS250, TGS1000	52	40	40	38.5	6.6	9
FLQ 45	ISO 11901-2, VDI 3003	AGS750, IGS500, LGS500	64	50	47	45.5	9	13
FLQ 50	ISO 11901-2, VDI 3003	AGS1000, IGS750	70	56.5	54	50.5	9	13
FLQ 63 A	ISO 11901-2, VDI 3003	AGS1500, TGS3000	80	64	67	63.5	11	16
FLQ 63 B	-	AGS1500, TGS3000	90	73.5	67	63.5	11	16
FLQ 75	ISO 11901-2, VDI 3003	AGS2400, IGS1500, VV2385	90	73.5	80	75.5	11	16
FLQ 95	ISO 11901-2, VDI 3003	AGS4200, IGS3000	110	92	100	95.5	13.5	18
FLQ 120	ISO 11901-2, VDI 3003	AGS6600, IGS5000, TGS12000	130	109.5	125	120.5	13.5	21
FLQ 150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	162	138	155	150.5	17.5	27
FLQ 195	ISO 11901-2, VDI 3003	AGS20000, IGS10000	210	170	200	195.5	17.5	27

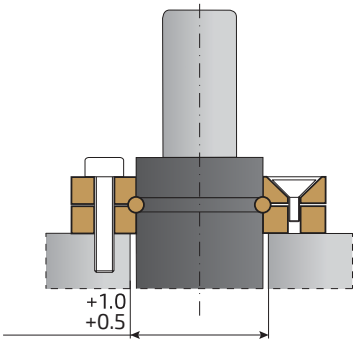
ISO 11901-2 **VDI 3003**

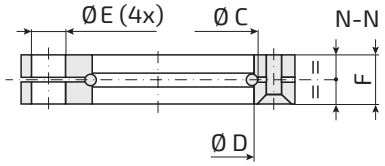
This gas spring series includes the models compliant with automotive standards

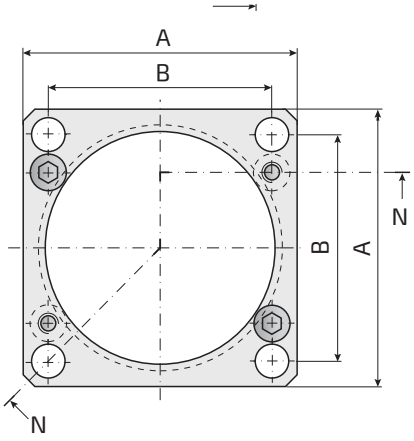
BMW	B2 4009	**General Motors**	90.25.02
FCA	075.90.85	**VW**	39D 848
Ford	W-DX35-62M		

FLQ

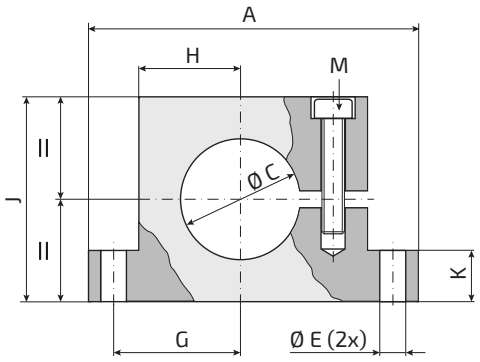
Collar Flange **FLQA**



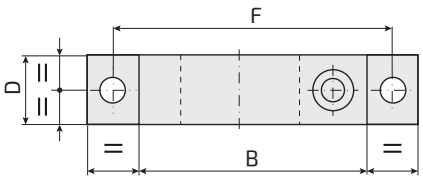




Order Code	Reference to Standards	For models...	Ø A	B	Ø C	Ø D	E	Ø F
FLQA 50	-	TGS2000	70	56.5	53	50.5	9	13
FLQA 75	-	TGS5000	90	73.5	78	75.5	11	16
FLQA 95	-	TGS8000	110	92	98	95.5	13.5	18

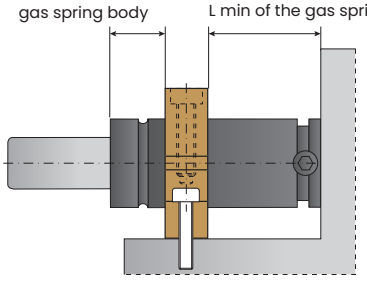


Front Support FT



MAX
0.5 x diameter of the gas spring body

MIN
1/3 (one third) of dimension L min of the gas spring



Dimension **MIN** must be respected to allow the over-pressure and over-stroke safety system to work properly (see dedicated catalogue section).

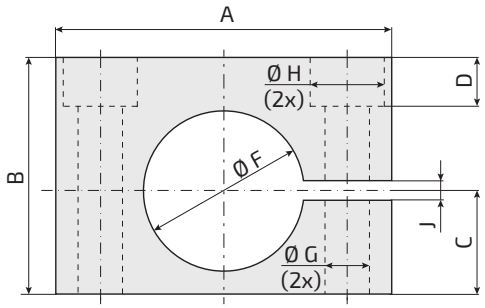
Order Code	Reference to Standards	For models...	A	B	Ø C	D	Ø E	F	G	H	J	K	M
FT 32	VDI 3003	AGS350, IGS150, TGS700, VV320-80, VV500, VV565	90	54	32	20	9	72	31	22	45	15	M8
FT 38	VDI 3003	AGS500, IGS250, TGS1000	95	59	38	20	9	77	34	25	55	15	M8
FT 45	VDI 3003	AGS750, IGS500, LGS500	100	64	45	20	9	82	37	28	60	15	M8
FT 50	ISO 11901-2, VDI 3003	AGS1000, IGS750, TGS2000, VV750	130	90	50	30	9	110	50	40	80	20	M8
FT 75	ISO 11901-2, VDI 3003	AGS2400, IGS1500, TGS5000, VV2385	160	115	75	30	11	137	63.5	52.5	105	20	M10
FT 95	ISO 11901-2, VDI 3003	AGS4200, IGS3000, TGS8000, VV2945	195	145	95	30	13.5	170	80	67.5	125	20	M12
FT 120	ISO 11901-2, VDI 3003	AGS6600, IGS5000, TGS12000	220	165	120	30	13.5	195	92.5	77.5	148	20	M12
FT 150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	260	200	150	30	13.5	230	110	95	200	20	M12

ISO 11901-2 VDI 3003

This gas spring series includes the models compliant with automotive standards

BMW	B2 4009	**PSA**	E24.54.815.G
General Motors	90.25.455		

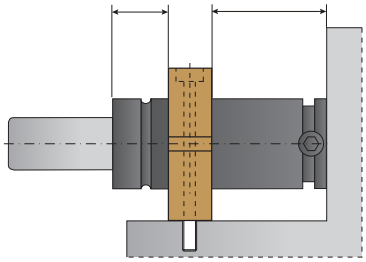
FT

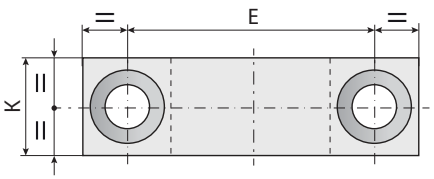


Front Support FTA

MAX
0.5 x diameter of the gas spring body

MIN
1/3 (one third) of dimension Lmin of the gas spring





Dimension **MIN** must be respected to allow the over-pressure and over-stroke safety system to work properly (see dedicated catalogue section).

Order Code	Reference to Standards	For models...	A	B	C	D	E	ØF	ØG	ØH	J	K
FTA 32	ISO 11901-2, VDI 3003	AGS350, IGS150, TGS700, VV320-80, VV500, VV565	68	48	20.9	10	50	32.5	9	15	4	20
FTA 38	ISO 11901-2, VDI 3003	AGS500, IGS250, TGS1000	74	54	23.9	16	54	38.5	9	15	4	20
FTA 45	ISO 11901-2, VDI 3003	AGS750, IGS500, LGS500	80	60	27.5	22	60	45.5	9	15	4	20
FTA 50	ISO 11901-2, VDI 3003	AGS1000, IGS750, TGS2000, VV750	90	70	30	25	68	50.5	11	18	5	30
FTA 63 A	ISO 11901-2, VDI 3003	AGS1500, TGS3000	108	82	36.5	27	84	63.5	11	18	5	30
FTA 63 B	-	AGS1500, TGS3000	105	80	40	11	80	63	10.5	17	10	30
FTA 75	ISO 11901-2, VDI 3003	AGS2400, IGS1500, TGS5000, VV2385	125	94	42	32	100	75.5	13.5	20	5	30
FTA 95	ISO 11901-2, VDI 3003	AGS4200, IGS3000, TGS8000, VV2945	140	115	52.5	33	115	95.5	13.5	20	5	30
FTA 120	ISO 11901-2, VDI 3003	AGS6600, IGS5000, TGS12000	170	140	65	58	145	120.5	13.5	20	7	30
FTA 150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	200	170	80	68	175	150.5	13.5	20	7	30

ISO 11901-2 **VDI 3003**

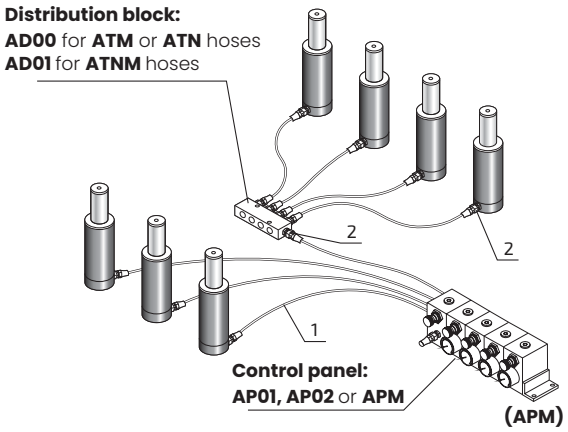
This gas spring series includes the models compliant with automotive standards

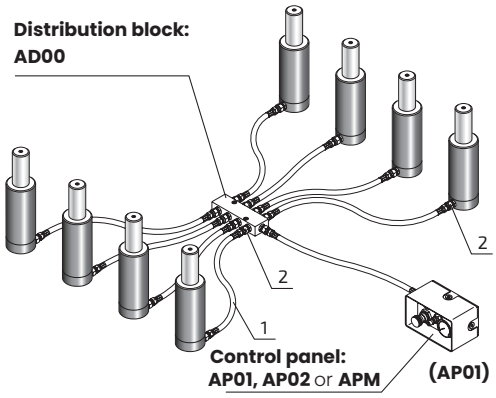
BMW	B2 4009	**General Motors**	90.25.07
FCA	075.90.95	**MB**	B8 ...
Ford	W-DX35-62M	**VW**	39D 848

FTA

LINKED SYSTEM

LINKED SYSTEM EXAMPLES





1- Hoses **ATM** or **ATNM**
2- Fitting **ARM** (for hoses ATM) or **ARN** (for hoses ATN) or **ARNN** (for hoses ATNM)

1- Hoses **AT**
2- Fittings **AR**

1 CHOOSE GAS SPRING MODEL

Gas spring models	Side port
AGS350~AGS2400	M6
IGS150, IGS250	
VV2385	
AGS4200~AGS20000	G1/8
IGS500~IGS10000	
LGS500	
VV750, VV2945	

2 CHOOSE HOSE MODEL

For gas springs with M6 side port

For gas springs with G1/8 side port

ATNM
Hose Ø 5 mm
(Micro-type)

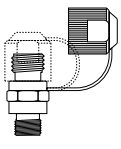
ATM
Hose Ø 5 mm
(Minimess-type)

ATN
Hose Ø 5 mm
(for small available spaces)

AT
Hose Ø 8 mm
(for big available spaces)

3 CHOOSE PROPER FITTINGS

ARNM
For hoses ATNM
Ø 5 mm



ARM
For hoses ATM
Ø 5 mm

ARN
For hoses ATN
Ø 5 mm

AR
For hoses AT
Ø 8 mm

LINKED SYSTEM

4

CHOOSE CONTROL PANEL MODEL

AP01
Standard

AP02
Compact

APM
Modular

... and other available models

5

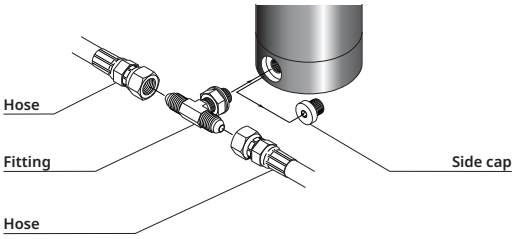
DISTRIBUTION BLOCKS (IF NEEDED)

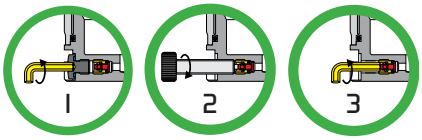
AD01

AD00

6

CONNECTING THE GAS SPRINGS





Discharge the gas spring and remove the valve before connecting to system

ATTENTION !
Follow the "USE INSTRUCTIONS" page before connecting the gas springs

7

CHARGING AND DISCHARGING

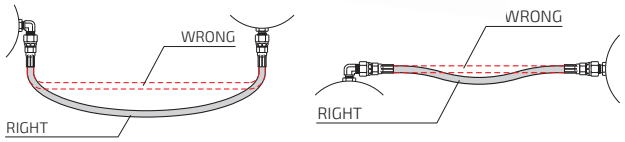
COMPL
Charging and discharging set (also for self-contained gas springs)

CUC01
Charging unit (also for self-contained gas springs) included in the complete set COMPL

AN-1/4
Charging adapter for the quick coupling on the control panels

Hoses ø5 mm and fittings (MINIMESS-type)

Assembly



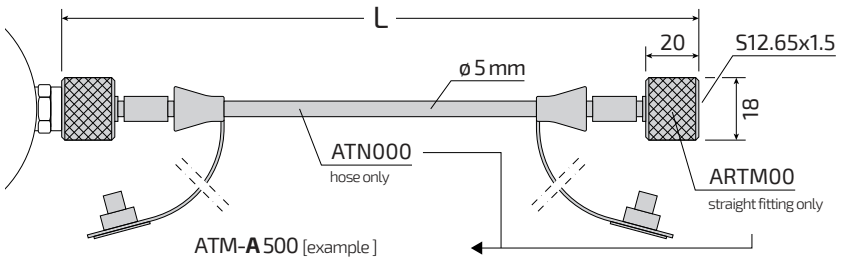
Flexible hose diameter 5 mm with fittings, for connecting nitrogen gas springs and manyother devices.

HOSE Mechanical specifications

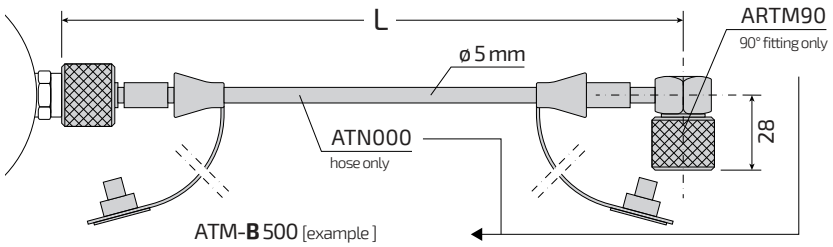
- Working temperature: -40 +100 °C
- Working pressure: max 630 bar
- Minimum bending radius: 20 mm
- Outside diameter: 5 mm

TECHNICAL NOTES

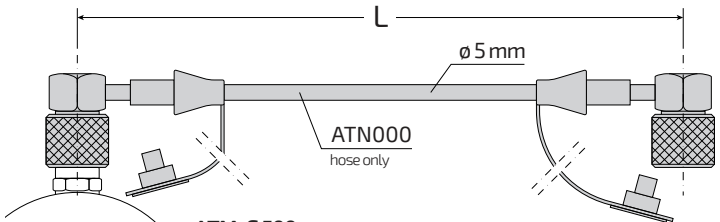
Choose the proper hose length considering the "Assembly" indications.



ATM-**A** 500 [example]
(hose complete with no. 2 crimped-on **straight** fittings, length L = 500 mm [example], ready for use)



ATM-**B** 500 [example]
(hose complete with no. 2 crimped-on fittings (**straight** + **90°**), length L = 500 mm [example], ready for use)



ATM-**C** 500 [example]
(hose complete with no. 2 crimped-on **90°** fittings, length L = 500 mm [example], ready for use)

ORDER HOSE cod. ATN000 (quantity in metres, for example: "ATN000 10 m") and FITTINGS cod. ARTM00/ARTM90 for SELF-CUTTING and SELF-CRIMPING

Length of standard hoses, fittings included (Different lengths can be prepared on request - Minimum lengths: see "L MIN")

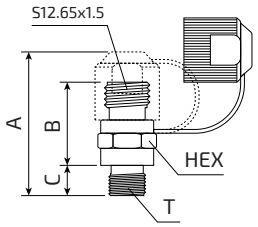
Order Code	L
ATM-.... 150	150
ATM-... 175	175
ATM-... 200	200
ATM-... 250	250
ATM-... 300	300
ATM-... 350	350
ATM-.... 400	400
ATM-... 500	500

Order Code	L
ATM-... 600	600
ATM-... 700	700
ATM-... 800	800
ATM-... 900	900
ATM-... 1000	1000
ATM-... 1500	1500
ATM-... 2000	2000

Order Code	L
ATM - A	90
ATM - B	95
ATM - C	105

*** No plastic caps for L < 150 mm**

Fittings for ATM Hoses (MINIMESS-type)

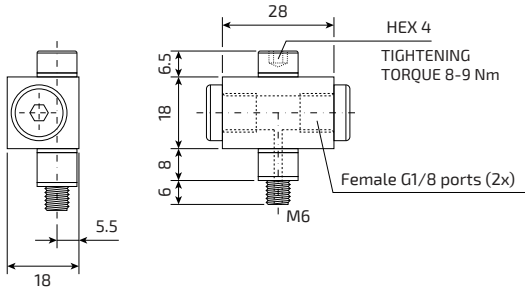


Fittings for linking gas springs, control panels and distribution blocks

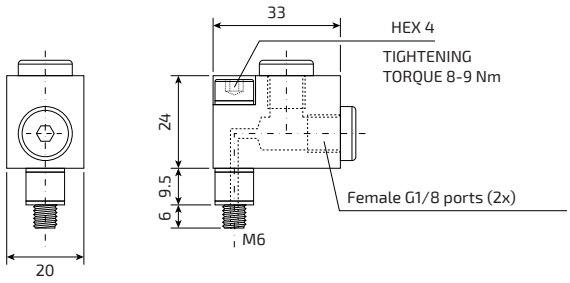
Order Code	A	B	C	T	HEX	Tightening torque	Non-return valve
ARM000-1/8	48	30	8	G1/8	14	ca. 18	NO
ARM000-1/8V	48	30	8	G1/8	14	ca. 18	YES
ARM000-1/4	43	21	12	G1/4	19	ca. 45	NO
ARM000-1/4V	43	21	12	G1/4	19	ca. 45	YES

ATTENTION ! Use fittings without non-return valve when connecting gas springs and other devices to open system (hose system).

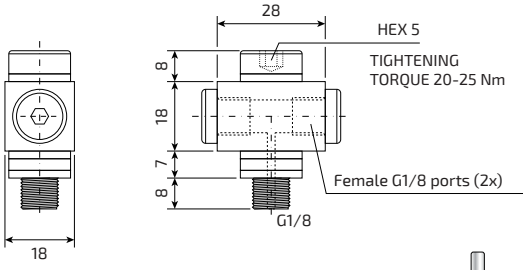
Order Code: ARM270 - M6



Order Code: ARM270R - M6

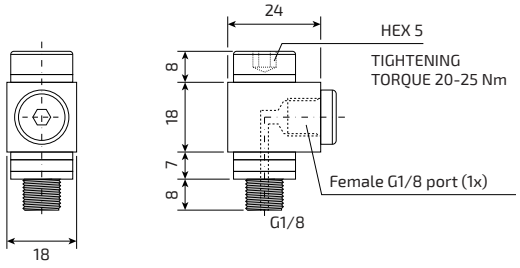


Order Code: ARM270 - 1/8

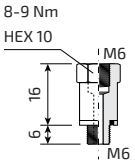


Extension fittings which may be needed in case of fixing with half-flanges

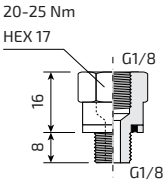
Order Code: ARM090 - 1/8



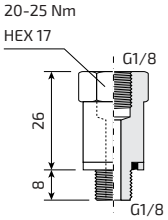
PL - M6



PL-1/8A

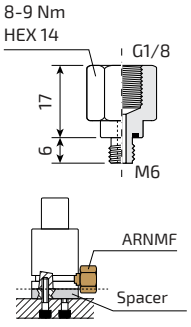


PL-1/8B



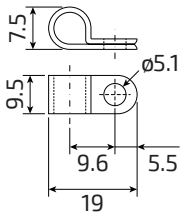
M6 to G1/8 side port converter

ARNMF



OTHER ACCESSORIES

Order Code: CFT-5



HOSE CLIP FOR HOSES Ø5 mm (10 pc. box)

Hoses ø 5 mm and fittings (MICRO-type)

Flexible hose diameter 5 mm with fittings, for connecting nitrogen gas springs and many other devices.

HOSE Mechanical specifications

- Working temperature: -40 +100 °C
- Working pressure: max 630 bar
- Minimum bending radius: 20 mm
- Outside diameter: 5 mm

TECHNICAL NOTES

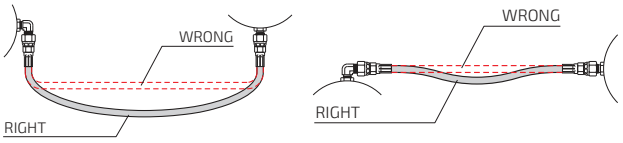
Calculating hose length:

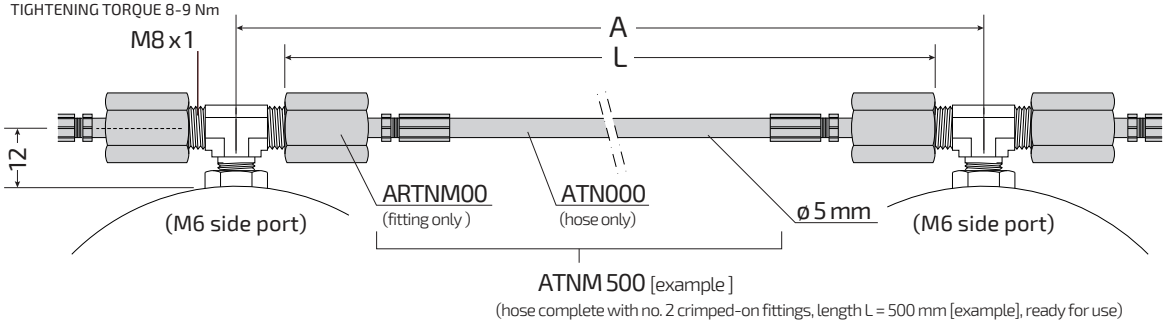
L = (A - 20) x 1.05 (dimensions in millimetres)

L = Hose length (fittings included)

A = Distance between gas springs to be connected

Assembly





ORDER HOSE cod. ATN000 (quantity in metres, for example: "ATN000 10 m") and FITTINGS cod. ARTNM00 for SELF-CUTTING and SELF-CRIMPING

Length of standard hoses, fittings included (Different lengths can be prepared on request - Minimum length L = 90 mm)

Order Code	A	L
ATNM 100	115	100
ATNM 125	139	125
ATNM 150	163	150
ATNM 175	187	175
ATNM 200	210	200
ATNM 250	258	250

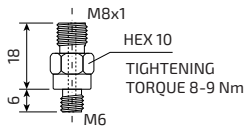
Order Code	A	L
ATNM 300	306	300
ATNM 350	353	350
ATNM 400	401	400
ATNM 500	496	500
ATNM 600	591	600
ATNM 700	687	700

Order Code	A	L
ATNM 800	782	800
ATNM 900	877	900
ATNM 1000	972	1000
ATNM 1500	1449	1500
ATNM 2000	1925	2000

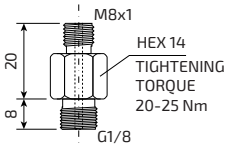
Fittings for ATNM hoses (MICRO-type)

Fittings for linking gas springs, control panels and distribution blocks

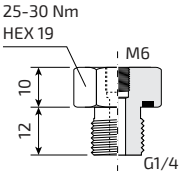
Order Code: ARNM000



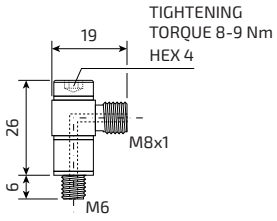
Order Code: ARNM000CP



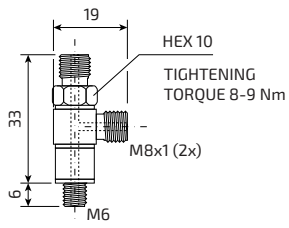
Order Code: ARNM00P



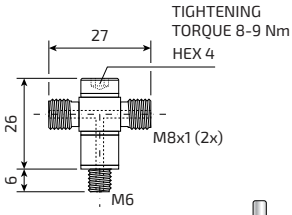
Order Code: ARNM090



Order Code: ARNM270R

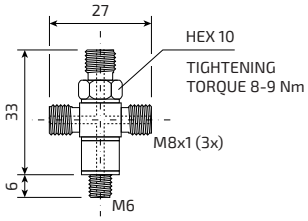


Order Code: ARNM270

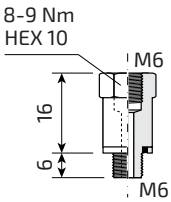


Extension fittings which may be needed in case of fixing with half-flanges

Order Code: ARNM360

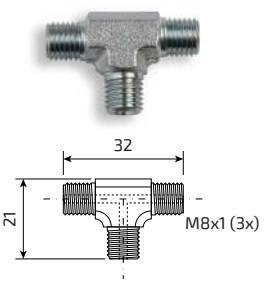


PL – M6

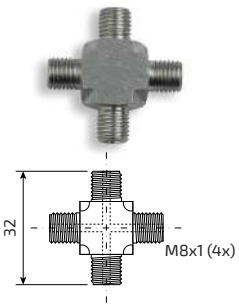


FITTINGS FOR HOSE-HOSE CONNECTION

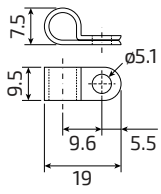
Order: ARNM270T



Order: ARNM360T



OTHER ACCESSORIES



HOSE CLIP
FOR HOSES ø5 mm
(10 pc. box)

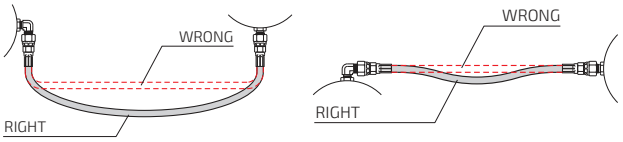
Hoses ø 5 mm and fittings

Flexible hose diameter 5 mm with fittings, for connecting nitrogen gas springs and many other devices.

HOSE Mechanical specifications

- Working temperature: -40 +100 °C
- Working pressure: max 630 bar
- Minimum bending radius: 20 mm
- Outside diameter: 5 mm

Assembly



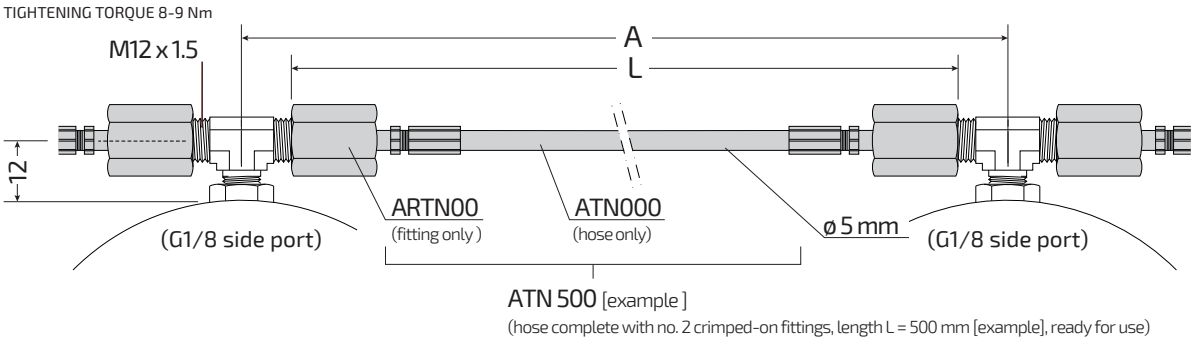
TECHNICAL NOTES

Calculating hose length:

L = (A - 25) x 1.05 (dimensions in millimetres)

L = Hose length (fittings included)

A = Distance between gas springs to be connected



ATN 500 [example]

(hose complete with no. 2 crimped-on fittings, length L = 500 mm [example], ready for use)

ORDER HOSE cod. ATN000 (quantity in metres, for example: "ATN000 10 m") and FITTINGS cod. ARTN00 for SELF-CUTTING and SELF-CRIMPING

Length of standard hoses, fittings included (Different lengths can be prepared on request - Minimum length L = 90 mm)

Order Code	A	L
ATN 100	120	100
ATN 125	144	125
ATN 150	168	150
ATN 175	192	175
ATN 200	215	200
ATN 250	263	250

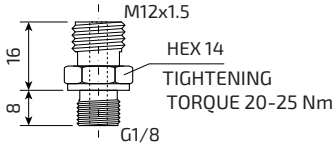
Order Code	A	L
ATN 300	311	300
ATN 350	358	350
ATN 400	406	400
ATN 500	501	500
ATN 600	596	600
ATN 700	692	700

Order Code	A	L
ATN 800	787	800
ATN 900	882	900
ATN 1000	977	1000
ATN 1500	1454	1500
ATN 2000	1930	2000

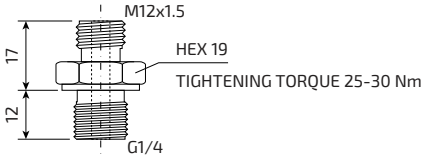
Fittings for ATN hoses

Fittings for linking gas springs, control panels and distribution blocks

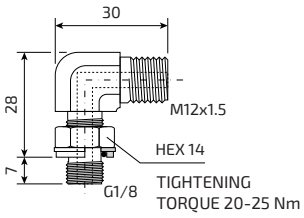
Order Code: ARN000



Order Code: ARN000 - 1/4



Order Code: ARN090



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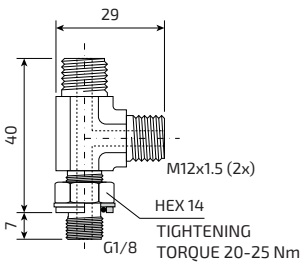

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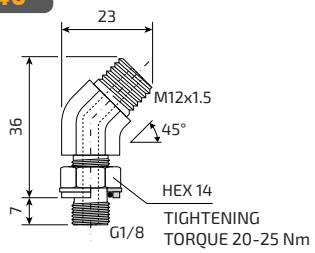
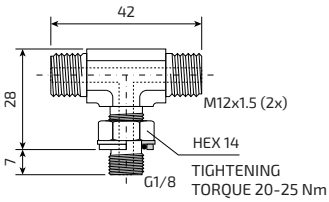
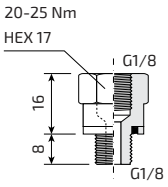


Extension fittings which may be needed in case of fixing with half-flanges

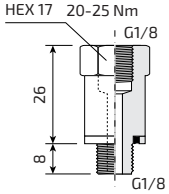
Order Code: ARN270



PL-1/8A

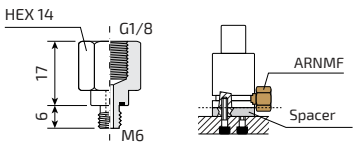


PL-1/8B



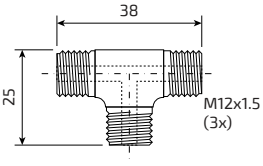
ARNMF

M6 to G1/8 side port converter

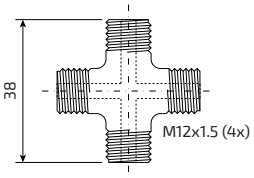


FITTINGS FOR HOSE-HOSE CONNECTION

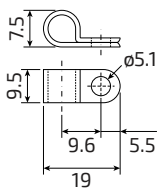
Order Code: ARN270T



Order Code: ARN360T



OTHER ACCESSORIES



HOSE CLIP FOR HOSES ø5 mm (10 pc. box)

Hoses ø 8 mm and fittings

Flexible hose diameter 8 mm with fittings, for connecting nitrogen gas springs and many other devices.

HOSE Mechanical specifications

- Working temperature: -40 +100 °C
- Working pressure: max 630 bar
- Minimum bending radius: 20 mm
- Outside diameter: 5 mm

TECHNICAL NOTES

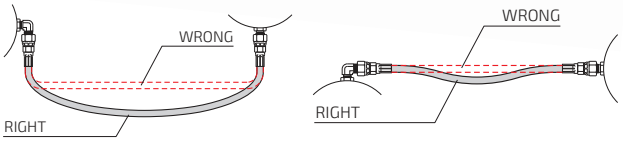
Calculating hose length:

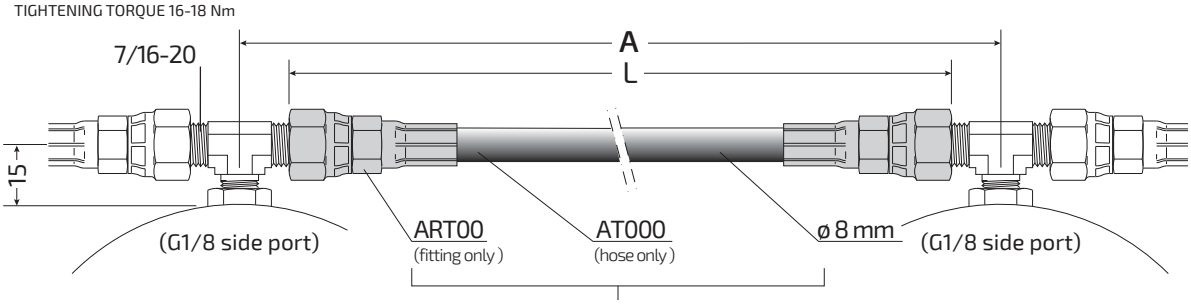
L = (A - 25) x 1.05 (dimensions in millimetres)

L = Hose length (fittings included)

A = Distance between gas springs to be connected

Assembly





AT 500 [example]

(hose complete with no. 2 crimped-on fittings, length L = 500 mm [example], ready for use)

ORDER HOSE cod. AT000 (quantity in metres, for example: "AT000 10 m") and FITTINGS cod. ART00 for SELF-CUTTING and SELF-CRIMPING

Length of standard hoses, fittings included (Different lengths can be prepared on request - Minimum length L = 90 mm)

Order Code	A	L
AT 125	144	125
AT 150	168	150
AT 175	192	175
AT 200	215	200
AT 250	263	250

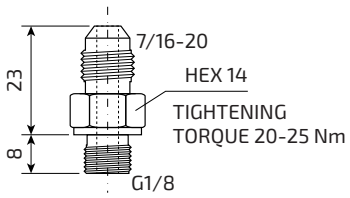
Order Code	A	L
AT 300	311	300
AT 350	358	350
AT 400	406	400
AT 500	501	500
AT 600	596	600
AT 700	692	700

Order Code	A	L
AT 800	787	800
AT 900	882	900
AT 1000	977	1000
AT 1500	1454	1500
AT 2000	1930	2000

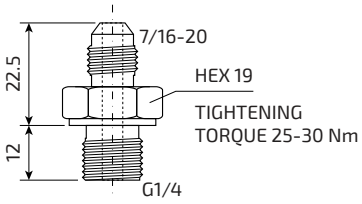
Fittings for AT hoses

Fittings for linking gas springs, control panels and distribution blocks

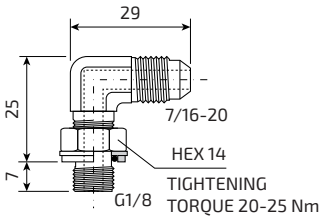
Order Code: AR000



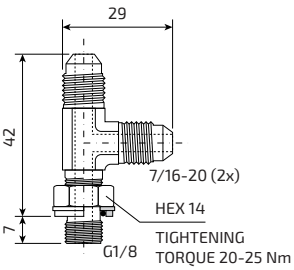
Order Code: AR000 - 1/4



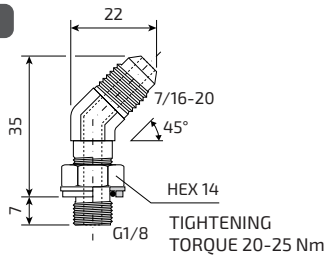
Order Code: AR090



Order Code:AR270R

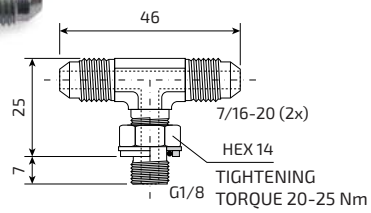


Order Code: AR045

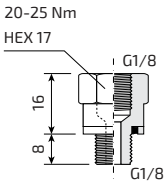


Extension fittings which may be needed in case of fixing with half-flanges

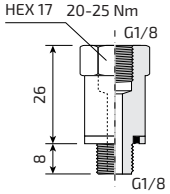
Order Code:AR270



PL-1/8A

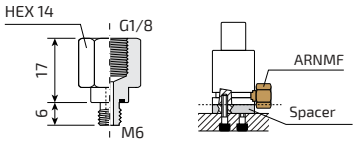


PL-1/8B



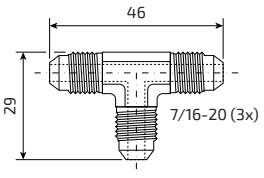
ARNMF

M6 to G1/8 side port converter

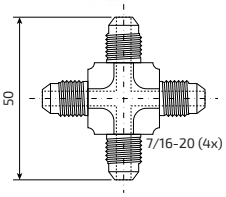


FITTINGS FOR HOSE-HOSE CONNECTION

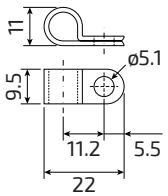
Order Code: AR270T



Order Code: AR360T



OTHER ACCESSORIES



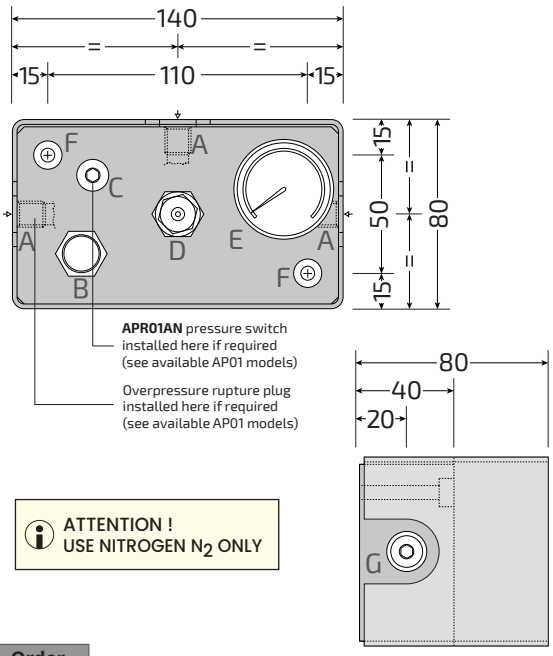
HOSE CLIP FOR HOSES ø8 mm (10 pc. box)

CONTROL PANEL AP01

This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

TECHNICAL NOTES

A – No. 3 connection ports (G1/8)
B – Discharging valve
C – Plug ready for safety pressure switch
D – Charging valve (use only with CUC01 or COMPL or BOOSTER)
E – Pressure gauge
F – No. 2 fixing holes for M6 hex-socket screws
G – The connection ports are plugged



ATTENTION ! USE NITROGEN N_2 ONLY

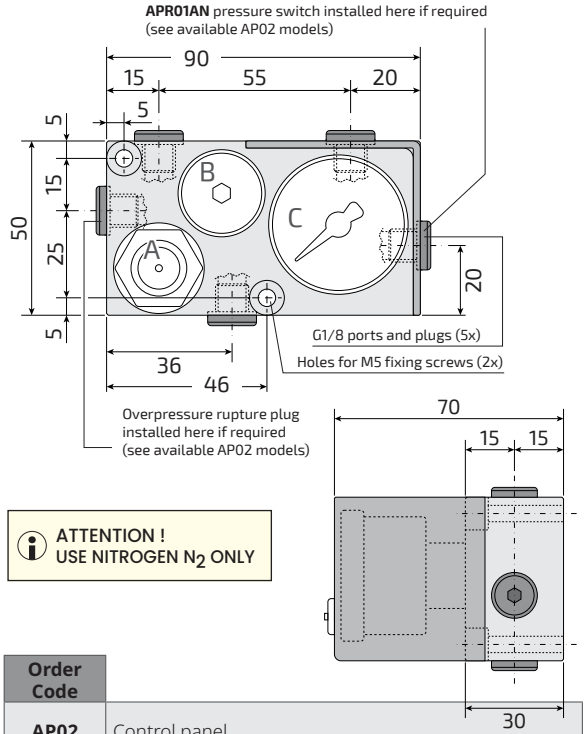
Order Code	
AP01	Control panel
AP01PAN	Control panel with APR01AN pressure switch (50-300 bar normally open)
AP01RP	Control panel with overpressure rupture plug
AP01F	Control panel with APR01AN pressure switch (50-300 bar normally open) and with overpressure rupture plug

CONTROL PANEL (COMPACT) AP02

This compact panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

TECHNICAL NOTES

A – Charging valve (use only with CUC01 or COMPL or BOOSTER)
B – Discharging valve
C – Pressure gauge
***** No. 2 fixing holes for M5 hex-socket screws
***** No. 5 connection ports (G1/8)
***** The connection ports are plugged



ATTENTION ! USE NITROGEN N_2 ONLY

Order Code	
AP02	Control panel
AP02PAN	Control panel (compact version) with APR01AN pressure switch (50-300 bar normally open)
AP02RP	Control panel (compact version) with overpressure rupture plug
AP02F	Control panel (compact version) with APR01AN pressure switch (50-300 bar normally open) and with overpressure rupture plug

Add "LOCK" after the control panel code to receive it with lockable discharging valve for Lockout-Tagout applications.
Order padlock (code: PADLOCK) separately (also usable with BRADY part no. 850821 padlock).
Example: "AP01FLOCK" = control panel AP01F with lockable discharging valve.

All models are available with safety valve VS500 already assembled (on request).

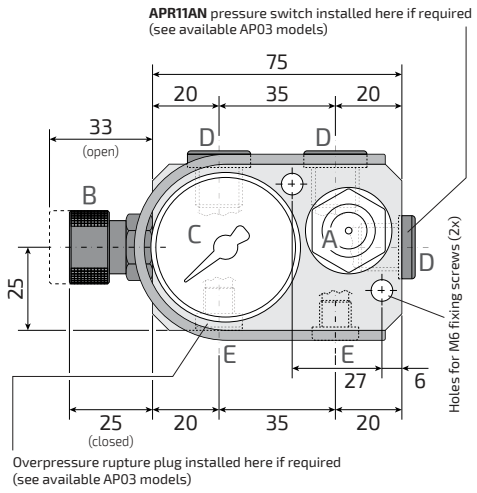
CONTROL PANEL (COMPACT) AP03

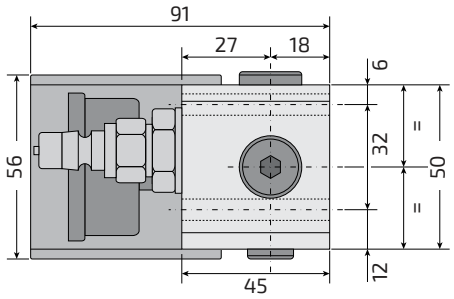
This compact panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

TECHNICAL NOTES

A – Charging valve (use only with CUC01 or COMPL or BOOSTER)
B – Discharging valve
C – Pressure gauge
D – No. 3 connection ports G1/4
E – No. 2 connection ports G1/8
***** The connection ports are plugged
***** No. 2 fixing holes for M6 hex-socket screws

ATTENTION !
USE NITROGEN N_2 ONLY





Order Code	
AP03	Control panel (compact version)
AP03PAN	Control panel (compact version) with APR11AN pressure switch (50-300 bar normally open)
AP03RP	Control panel (compact version) with overpressure rupture plug
AP03F	Control panel (compact version) with APR11AN pressure switch (50-300 bar normally open) and with overpressure rupture plug

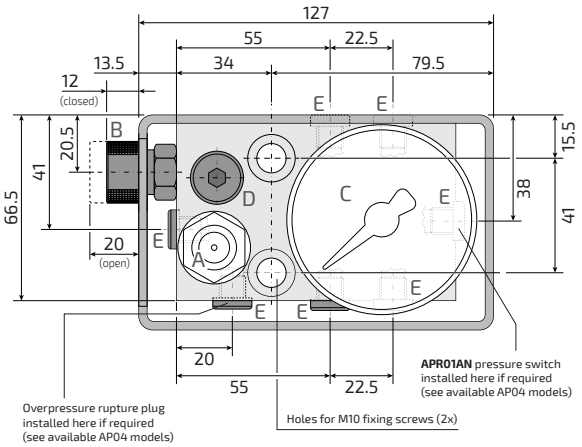
CONTROL PANEL AP04

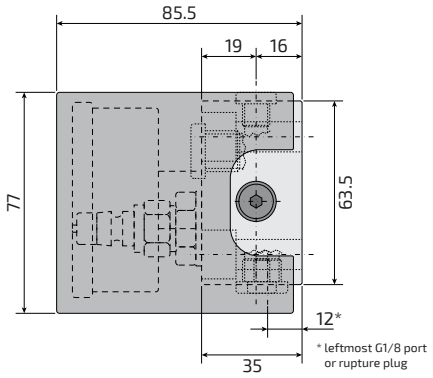
This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

TECHNICAL NOTES

A – Charging valve (use only with CUC01 or COMPL or BOOSTER)
B – Discharging valve
C – Pressure gauge
D – No. 1 connection port G1/4
E – No. 7 connection ports G1/8
***** The connection ports are plugged
***** No. 2 fixing holes for M10 hex-socket screws

ATTENTION !
USE NITROGEN N_2 ONLY





Order Code	
AP04	Control panel
AP04PAN	Control panel with APR01AN pressure switch (50-300 bar normally open)
AP04RP	Control panel with overpressure rupture plug
AP04F	Control panel with APR01AN pressure switch (50-300 bar normally open) and with overpressure rupture plug

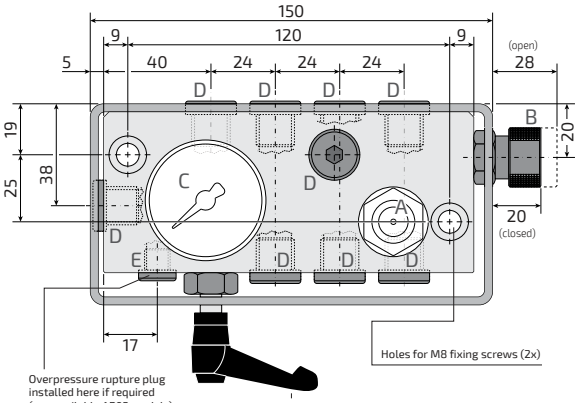
All models are available with safety valve VS500 already assembled (on request).

CONTROL PANEL AP05

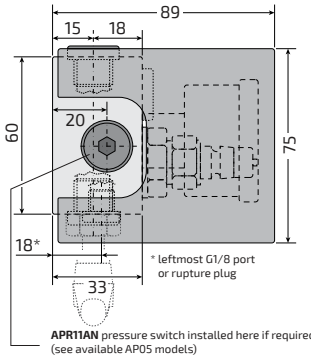
This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

TECHNICAL NOTES

A – Charging valve (use only with CUC01 or COMPL or BOOSTER)
B – Discharging valve
C – Pressure gauge
D – No. 9 connection ports G1/4
E – No. 1 connection port G1/8
***** The connection ports are plugged
***** No. 2 fixing holes for M8 hex-socket screws
***** Shut off valve for protecting the pressure gauge from pulsating pressure during operation



ATTENTION ! USE NITROGEN N_2 ONLY



Order Code	
AP05	Control panel
AP05PAN	Control panel with APR11AN pressure switch (50-300 bar normally open)
AP05RP	Control panel with overpressure rupture plug
AP05F	Control panel with APR11AN pressure switch (50-300 bar normally open) and with overpressure rupture plug

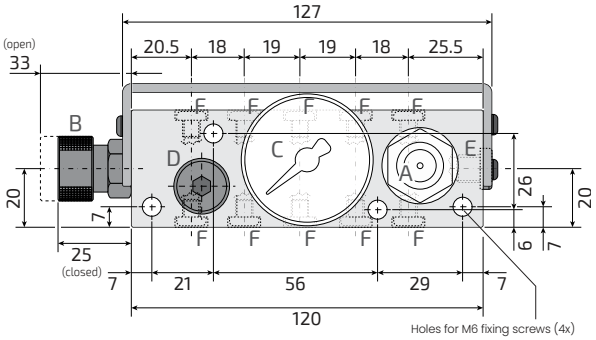
AP06

CONTROL PANEL (MICRO-TYPE PORTS)

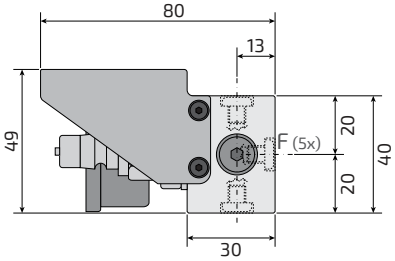
This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

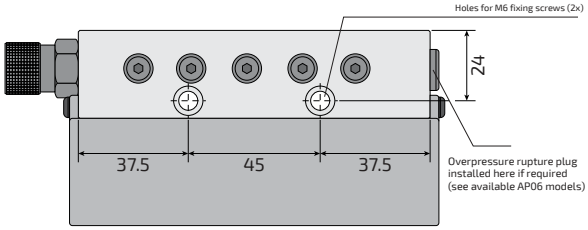
TECHNICAL NOTES

A – Charging valve (use only with CUC01 or COMPL or BOOSTER)
B – Discharging valve
C – Pressure gauge
D – No. 1 connection port G1/4
E – No. 1 connection port G1/8
F – No. 15 connection ports M6 (5x top, 5x bottom, 5x rear)
***** The connection ports are plugged
***** No. 6 (4x + 2x) fixing holes for M6 hex-socket screws



ATTENTION ! USE NITROGEN N_2 ONLY



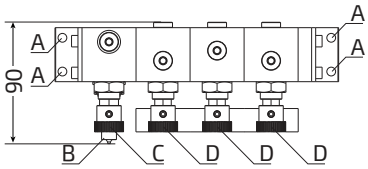


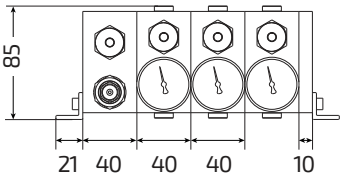
Order Code	
AP06	Control panel (MICRO-type ports)
AP02RP	Control panel (MICRO-type ports) with overpressure rupture plug

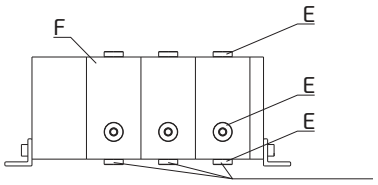
All models are available with safety valve VS500 already assembled (on request).

APM - MODULAR CONTROL PANEL

ATTENTION !
USE NITROGEN N_2 ONLY







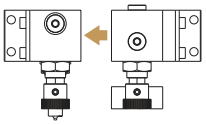
Overpressure rupture plugs (one for each module) installed here if required (see available APM models)

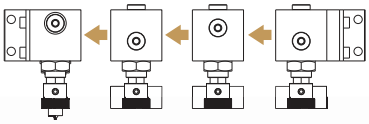
This panel allows to charge and discharge a nitrogen gas spring, or a nitrogen gas springs system, or multiple independent nitrogen gas springs systems, and to monitor the pressure. Each module can be charged at a different pressure.

TECHNICAL NOTES

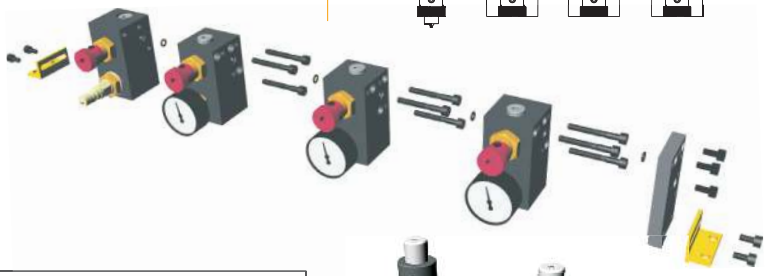
A - M5 fixing hole
B - Quick coupling for nitrogen N2 charging with charging set COMPL or CUC01 or BOOSTER
C - Discharging valve
D - Single-module charging or discharging valve (always turned off during use)
E - Connection ports (G1/8)
F - Each module may be connected with more nitrogen gas springs

It allows to check the pressure of each module separately
No limit as to the quantity of connectible modules

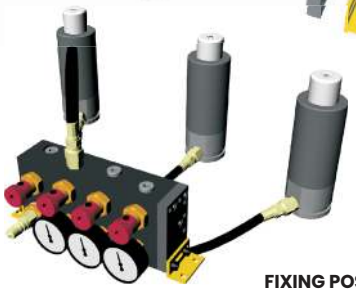




Order Code	EXPLANATION
APM1	Control panel with 1 module
APM2	Control panel with 2 modules
APM3	Control panel with 3 modules
APM4	Control panel with 4 modules
APMX	Control panel with X modules



Order Code	EXPLANATION
APM1RP	Control panel with 1 module, with overpressure rupture plug
APM2RP	Control panel with 2 modules, with 2 pcs. overpressure rupture plugs
APM3RP	Control panel with 3 modules, with 3 pcs. overpressure rupture plugs
APM4RP	Control panel with 4 modules, with 4 pcs. overpressure rupture plugs
APMXRP	Control panel with X modules, with X pcs. overpressure rupture plugs



FIXING POSSIBILITIES

USE INSTRUCTIONS

Nitrogen N_2 charging:
1 - Assemble modular control panel, fix it onto the die and connect the nitrogen gas springs.
2 - Turn off all the valves.
3 - Connect N_2 tank via the quick coupling, and turn it on slowly.
4 - Turn on slowly the valve of the module to be charged and turn it off once the required pressure is reached.
It allows to check the pressure of each module separately No limit as to the quantity of connectible modules
5 - Turn off the N_2 tank, then turn on the discharging valve.
6 - Disconnect the N_2 tank and turn off the discharging valve.
Nitrogen N_2 discharging:
1 - Turn on the discharging valve and then turn on the valve of the module to be discharged.
2 - Once the required pressure is reached, turn off both valves.

Safety pressure switches

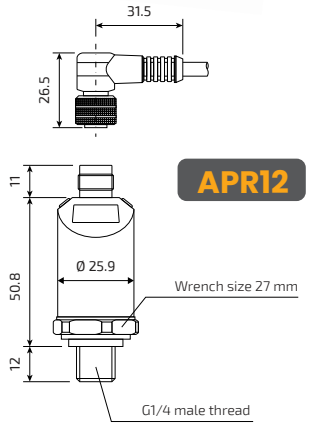
DIGITAL

Digital pressure switch that can be set from 6 to 600 bar, available for the assembly on control panels.

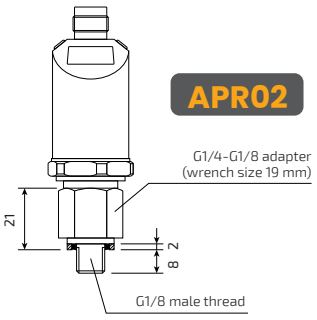
TECHNICAL NOTES

- No. 2 PNP transistor switching outputs
- Switching current: max 250 mA per output
- Technical data sheet on request

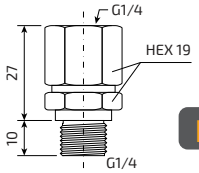
Order Code	Thread
APR02	G1/8
APR12	G1/4



TIGHTENING TORQUE 25-30 nm



TIGHTENING TORQUE 20-25 nm



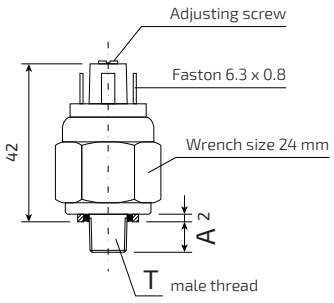
RGV14

Swivel fitting for pressure switch orientation (for APR02 model: install between pressure switch body and G1/4-G1/8 adapter - see drawing

ANALOG

Pressure switches, which can be set from 50 to 150-300 bar depending on model, available for the assembly on control panels.

Order Code	T	Tight. torque Nm	A mm	Range bar	Type	MAX voltage	MAX current
APR01A	G1/8	20-25	8	50-150	Normally open	48V ac/dc	0.5 A
APR01AN	G1/8	20-25	8	50-300	Normally open	48V ac/dc	0.5 A
APR11A	G1/4	25-30	10	50-150	Normally open	48V ac/dc	0.5 A
APR11AN	G1/4	25-30	10	50-300	Normally open	48V ac/dc	0.5 A



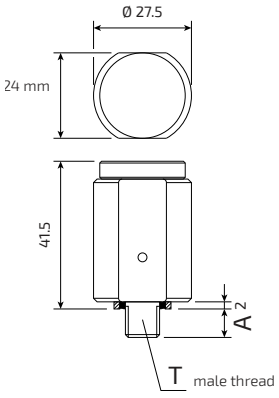
SAFETY VALVE

Overpressure safety valve, available for the assembly on control panels.

TECHNICAL NOTES

- Nominal activation pressure: 500 bar
- In case of valve activation, contact Bordignon for reparation

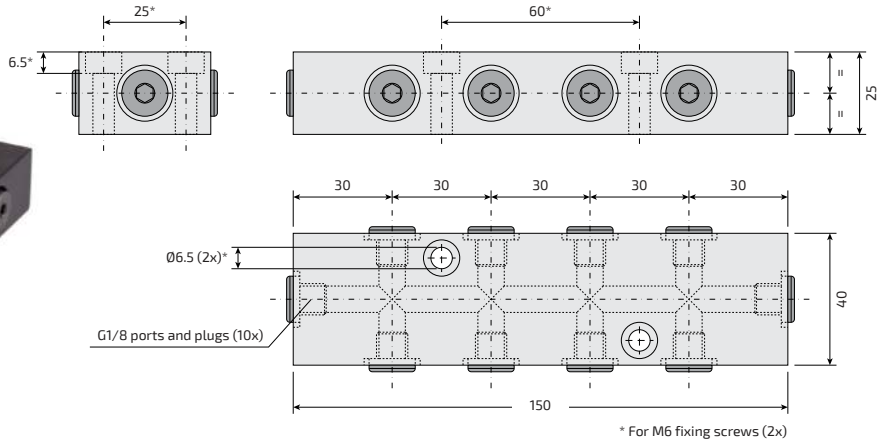
Order Code	T	Tight. torque Nm	A mm
VS500	G1/8	20-25	8
VS500-1/4	G1/4	25-30	10



DISTRIBUTION BLOCKS

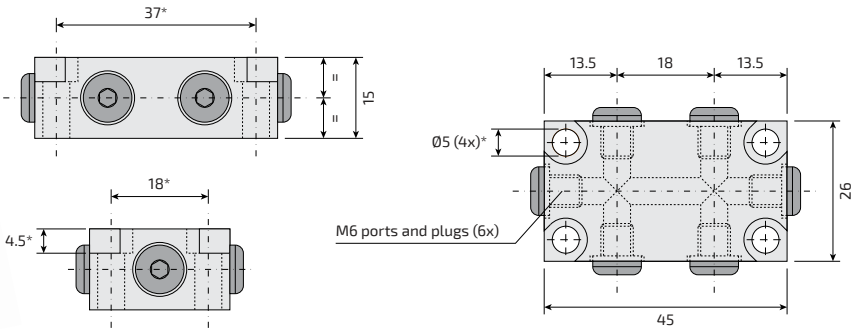
The distribution blocks allow several gas springs to be connected in a battery. Each block can connect several gas springs equipped with side port, and several blocks can be interconnected. Choose the proper fittings for hose connection.

AD00



* For M6 fixing screws (2x)

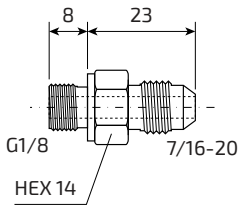
AD01



* For M4 fixing screws (4x)

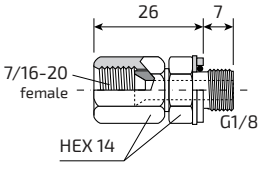
FITTINGS FOR CONNECTING SEVERAL DISTRIBUTION BLOCKS

Order Code: **AR000**



TIGHTENING TORQUE 20-25 Nm
(only for AD00 with G1/8 ports)

Order Code: **AR000G**



TIGHTENING TORQUE 20-25 Nm
(only for AD00 with G1/8 ports)

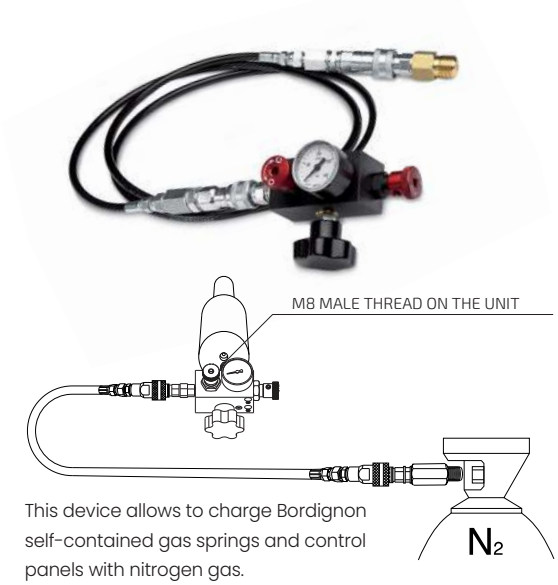
Charging and discharging set

Order Code: **COMPL**

Complete series of charging unit, charging adapters and discharging devices, for both self-contained gas springs and control panels

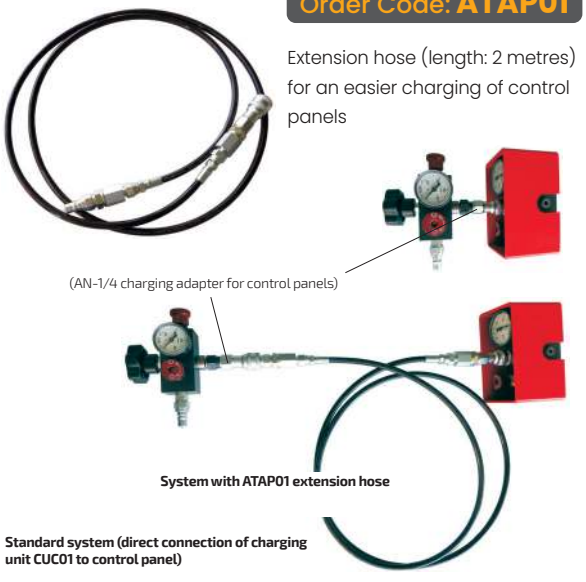
Charging unit

Order Code: **CUC01**



This device allows to charge Bordignon self-contained gas springs and control panels with nitrogen gas.

Order Code: **ATAP01**



Extension hose (length: 2 metres) for an easier charging of control panels

Charging adapters

Adapters for the nitrogen gas springs charging unit (only for gas springs with charging hole different from M8). Gas springs with charging hole M8 (not listed in table below) must be charged with CUC01 unit with no adapter.

	Order Coder	For gas spring models...	Control panels
M4 M8	AN-M4	EGS16, TGS700	-
M5 M8	AN-M5	EGS24	-
M6 M8	AN-M6	AGS170-AGS320, TGS400, VGS (all models) VV170, VV320-63/63H VV320-80, VV500, VV565	-
M6 M8	AN-M6/2	AGS350~AGS2400 IGS150-IGS250, VV2385	-
G1/8 M8	AN-1/8	AGS4200~AGS2000, IGS500~IGS10000 LGS500, VV750, VV2945	-
Quick coupling M8	AN-1/4	-	All models

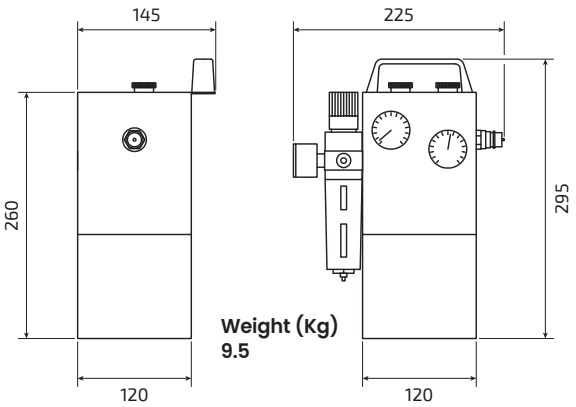
Discharging devices

Devices for discharging the nitrogen gas springs.

	Order Coder	For gas spring models...	Control panels
M4	ADS-M4/2	TGS700	-
M4	ADS-M4/3	EGS16	-
M5	ADS-M5/2	EGS24	-
M6	ADS-M6	TGS400	-
M6	ADS-M6/2	AGS170-AGS320	-
M6	ADS-M6/3	AGS350~AGS20000, IGS (all models) LGS500, VV750, VV2385, VV2945	-
M6	ADS-M6/4	VGS (all models), VV170, VV320-63/63H VV320-80, VV500, VV565	-
M8	ADS-M8	TGS1000~TGS12000	-

Booster for Nitrogen N_2

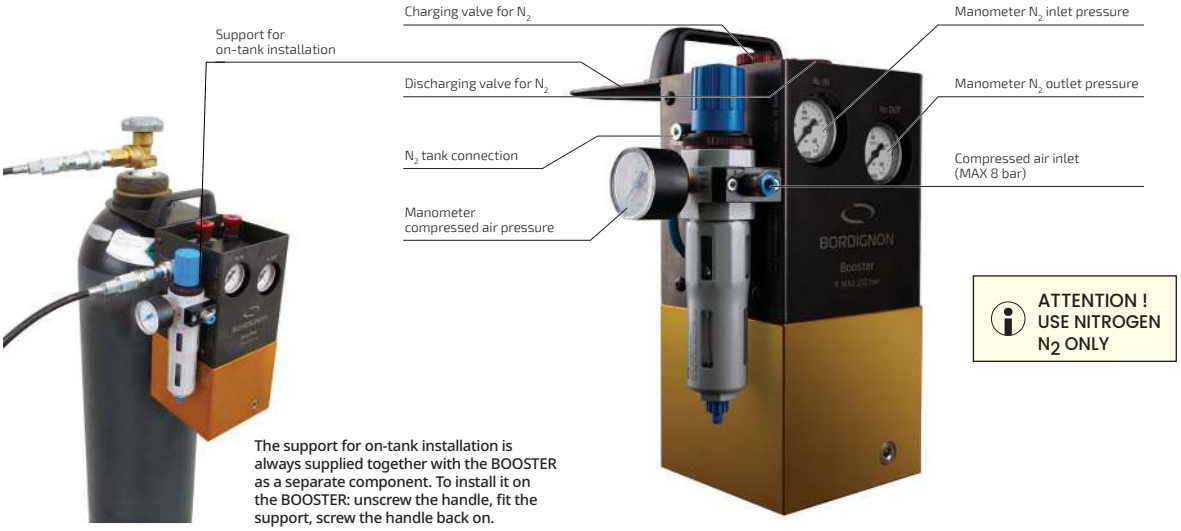
Order Code:
BOOSTER



Weight (Kg)
9.5

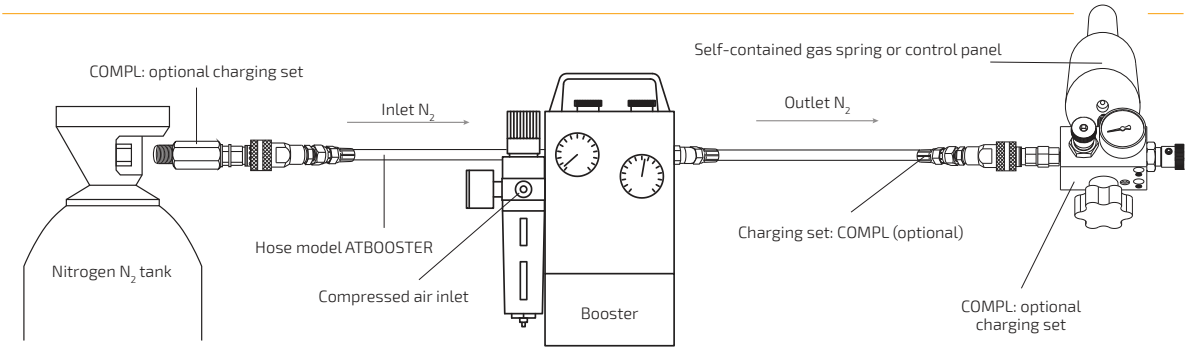
USE INSTRUCTIONS

- Connect nitrogen N_2 tank (with minimum pressure 20 bar) to the Booster.
- Connect Booster to the nitrogen gas spring (it's necessary to have the charging set mod. compl).
- Connect the compressed air (max pressure 8 bar; use lubricatedair when working continuously for more than 30 minutes).
- Turn off the discharging valve. • Turn on the charging valve of the Booster.
- Turn on the compressed air and slowly turn on nitrogen N_2 tank.
- When the nitrogen gas spring has reached the required pressure turn the charging valve off, turn on discharging valve and disconnect the nitrogen gas spring. • Once finished, turn off both the compressed air and the nitrogen N_2 tank.



ATTENTION ! USE NITROGEN N_2 ONLY

The support for on-tank installation is always supplied together with the BOOSTER as a separate component. To install it on the BOOSTER: unscrew the handle, fit the support, screw the handle back on.



Max reachable outlet nitrogen pressure in relation to the compressed air pressure			
Compressed air pressure (bar)	7	4	2
N_2 max outlet pressure (bar)	220	125	60

The Bordignon Booster is a pneumatic pump. By using compressed air, it increases the nitrogen N_2 pressure during the charging operation of gas springs for dies, in a safe and very precise way. Light and compact, the Bordignon Booster has a low compressed air consumption resulting in savings of time and costs.

OV GAS SPRING SYSTEM (ALTERNATIVE MANIFOLD)

Valveless nitrogen gas springs for an **alternative manifold connection ("OV system"):**

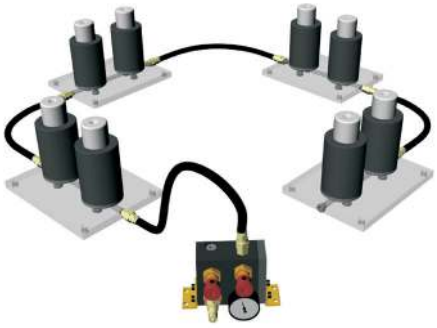
- Use of standard gas springs, fast delivery!
- Lower manufacturing and maintenance costs than traditional manifold plates and dedicated manifold gas springs
- More compact plate dimensions
- Simple gas spring fixing with through-plate screws
- OV gas springs available strokes, dimensions, and the other specifications not listed on the next page, are the same as the corresponding standard models.
  (example: the unlisted specifications of model AGS1000-50-A-OV are the same as model AGS1000-50-A)

TECHNICAL NOTES

- **OV gas springs use instructions:**
  - Mounting instructions on the next page
  - Use instructions, information and catalogue help: see dedicated catalogue section
  - Cycles per minute MAX: see specifications tables for the corresponding standard model
- **Plate material requirements:**
  - Resilience KV ≥ 27 J (at 0°C)
  - Elongation at break A ≥ 14%
  - Respect national regulations about pressure equipment
- Minimum plate thickness = 25 mm

A

B



USE EXAMPLES

A OV gas springs and OV control panel fixed on a single low-thickness plate, without connection hoses.

B OV gas springs fixed on smaller plates connected by hoses, and standard control panel connected by hose.

OV CONTROL PANELS & OTHER ACCESSORIES FOR OV SYSTEM

See further on in this catalogue.

PED in accordance with 2014/68/EU

This gas spring series includes the models compliant with automotive standards

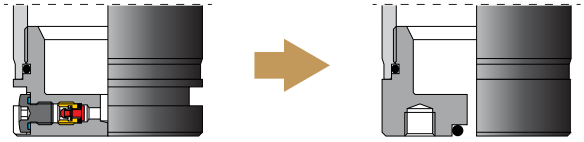
VW	39D 22100

Continued on the next page →

OV GAS SPRINGS

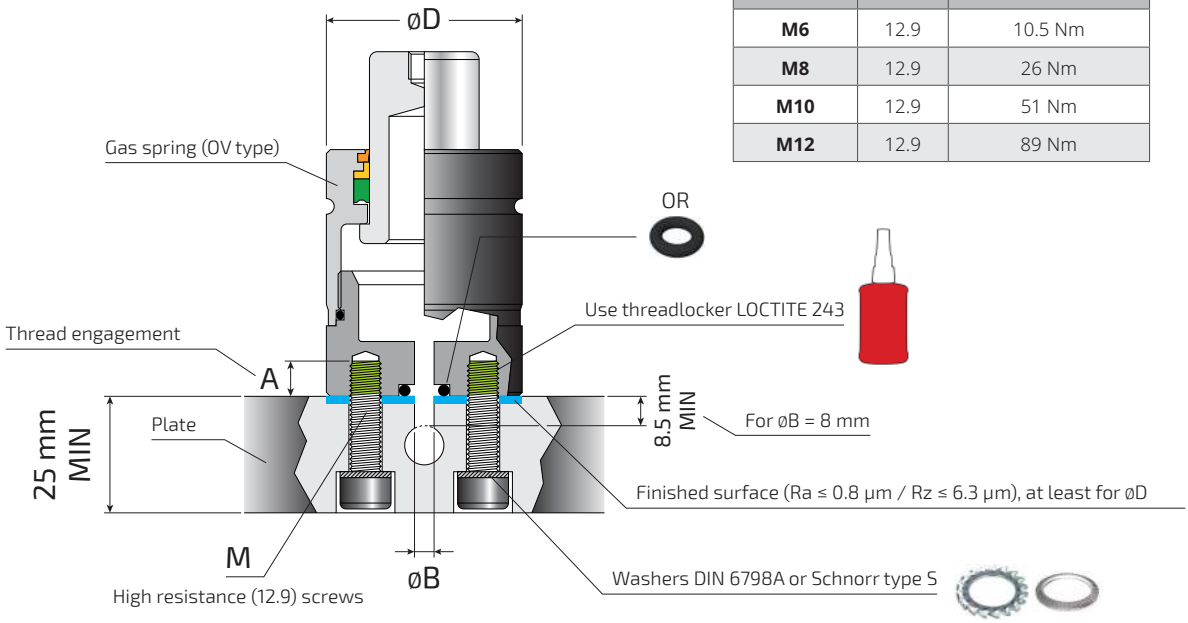
GENERAL FEATURES

In comparison with the corresponding standard models, OV gas springs are valveless (no side port) they have a bottom hole for direct connection (OR-sealed) to manifold plate, and they do not feature the bottom (square) groove.



Standard model — Corresponding OV model

Screw size	Class	Tightening torque
M6	12.9	10.5 Nm
M8	12.9	26 Nm
M10	12.9	51 Nm
M12	12.9	89 Nm



Order Code	Ø D (MIN)	Ø B ±0.1	M ●	A ●	OR NBR 90 Sh. A ●
AGS 350-...-A-**OV**	32	5	M6	6	2025-010 (6.07 x 1.78)
AGS 500-...-A-**OV**	38	5	M6	6	2025-010 (6.07 x 1.78)
AGS 750-...-A-**OV**	45	5	M8	6	2025-010 (6.07 x 1.78)
AGS 1000-...-A-**OV**	50	5	M8	6	2025-010 (6.07 x 1.78)
AGS 1500-...-A-**OV**	63	5	M8	6	2025-010 (6.07 x 1.78)
AGS 2400-...-A-**OV**	75	5	M8	6	2025-010 (6.07 x 1.78)
AGS 4200-...-A-**OV**	95	8	M8	12	112-613 (9.92 x 2.62)
AGS 6600-...-A-**OV**	120	8	M10	12	112-613 (9.92 x 2.62)
AGS 9500-...-A-**OV**	150	8	M10	16	112-613 (9.92 x 2.62)
AGS 20000-...-A-**OV**	195	8	M12	18	112-613 (9.92 x 2.62)

● The thread engagement length **A** is the maximum available thread depth. Do not use thread engagement lengths < **A** .

● Number and layout of the threaded holes on the gas springs base: see corresponding standard models.

● 1 pc. OR is supplied with each OV gas spring.

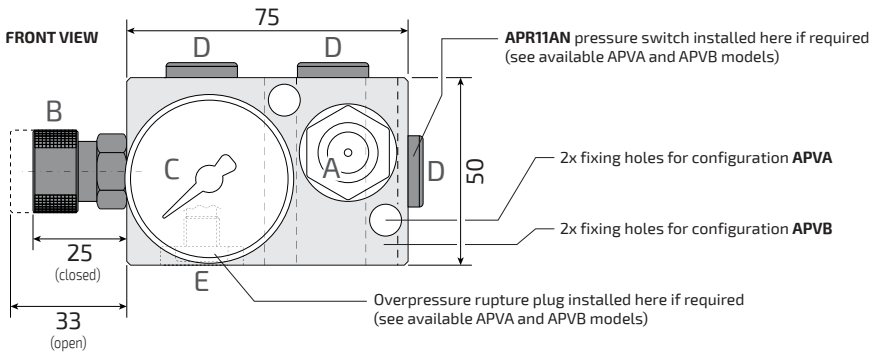
APVA / APVB CONTROL PANEL FOR OV SYSTEM

This panel allows to charge and discharge a manifold plate ("OV system" or other) using a direct-coupling to the plate (no need for hoses).

TECHNICAL NOTES

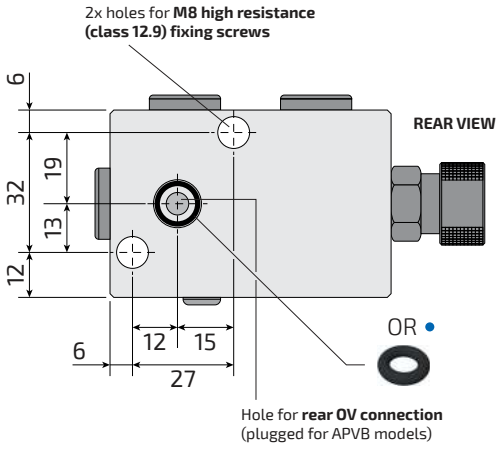
A Charging valve (use only with CUC01 or COMPL or BOOSTER)
B Discharging valve
C Pressure gauge
D No. 3 connection ports G1/4
E No. 1 connection port G1/8
- The connection ports are plugged
- No. 2 fixing holes for M8 high resistance (12.9) hex-socket screws

Configurations and Dimensions

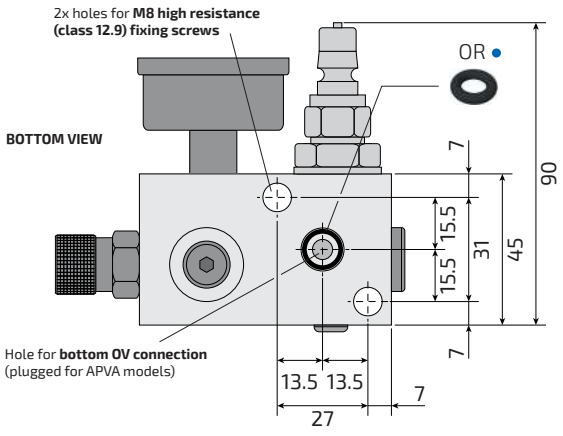


APVA / APVB

Configuration for model **APVA**



Configuration for model **APVB**



Order Code	All models are available with safety valve VS500 already assembled (on request).
APVA	Control panel for OV system with **rear** direct-connection to plate
APVB	Control panel for OV system with **bottom** direct-connection to plate
APVAPAN / APVBPAN	Control panel APVA or APVB with APR11AN pressure switch (50-300 bar normally open)
APVARP / APVBRP	Control panel APVA or APVB with overpressure rupture plug
APVAF / APVBF	Control panel APVA or APVB with APR11AN pressure switch (50-300 bar normally open) and with overpressure rupture plug

GAS SPRING TEST DEVICE

Code: **GST...**

Order Code: GST01	
Measuring range	0 - 10000 daN
Recommended F0 value	0 - 10000 daN
Max. Length	308 mm
Max. Diameter	95 mm
EN ISO 7500-1	CLASS 1 (±1%)
Power supply	100 - 240 VAC 50 - 60 Hz
L x P x H	400 x 250 x 1288
Weight	50 kg.

Order Code: GST02	
Measuring range	0 - 20000 daN
Recommended F0 value	0 - 20000 daN
Max. Length	328 mm
Max. Diameter	150 mm
EN ISO 7500-1	CLASS 1 (±1%)
Power supply	100 - 240 VAC 50 - 60 Hz
L x P x H	400 x 250 x 1309
Weight	103 kg.

The gas spring testing device is specially designed to check the nominal load values of gas springs. It determines whether there is a gas leak in the gas spring's internal mechanism by measuring the applied load and the initial force. The gas spring is placed on the plate located in the body.
It is compressed with the help of the lifting jack at the bottom. The applied force is measured in "kg" units using the force measuring device located on the compressed gas spring system. If the initial force of the preferred gas spring is suitable according to the catalog, it is then mounted in the area where it will be used.
Note: It is produced as a cabin type if request

Usage Scheme

The Gas spring lower body is placed on the plate

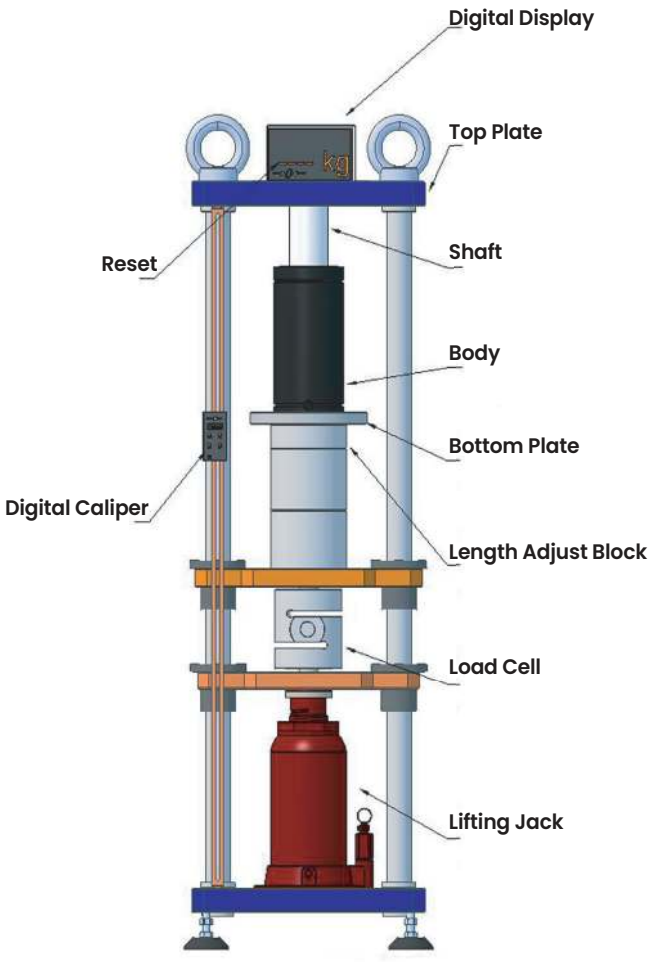
Reset digital display

The shaft is lifted with a lifting jack until it touches the upper plate

Reset is done on the caliper

After reseting 1 mm movement is given to the gas spring with lifting jack

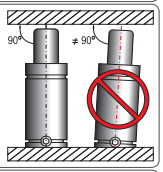
The value on the digital display is considered to be the initial power



Operating Instruction !

Do not use gas spring cylinders out of max. values specified.

Set up the gas spring in vertical position. Use it vertical.

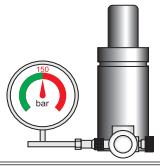


Do not apply any mechanical process on the body or the shaft.

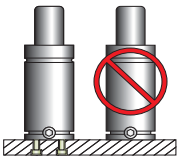
Please do not allow to become polluted the surface of the cylinder with solid and liquid contaminants.

Please do not charge the gas cylinder with any gas other than nitrogen / N2.

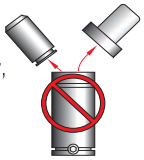
Do not charge gas cylinder with pressure over 150 bar.



Do not mount the gas cylinder without securing it.

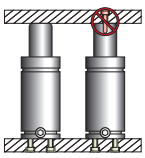


Do not demount the cylinder.
When compulsory, the gas cylinders can be used as reversed.

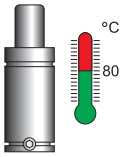


The gas cylinder should not be mounted / maintained other than the authorized personnel.

Do not use the hole on the shaft while securing the gas cylinder.

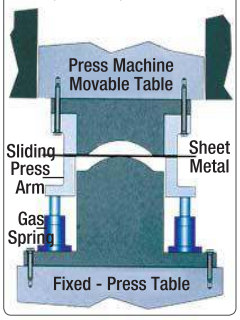


When using the gas cylinder, do not allow to exceed 80°C of the die temperature.

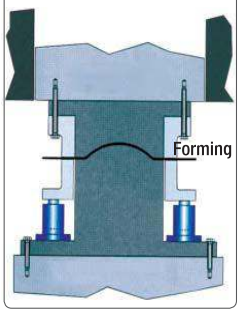


Gas Spring Controlled Tour / Cycle

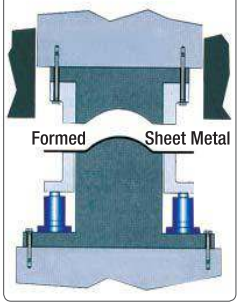
- Starting of running cycle
- Die gas spring is released



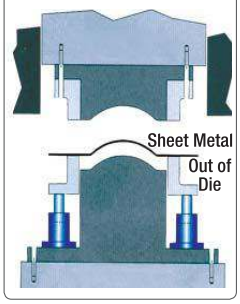
- Press die in closed position
- Gas springs in loading



- Press die in open position
- Gas springs are pending in closed position

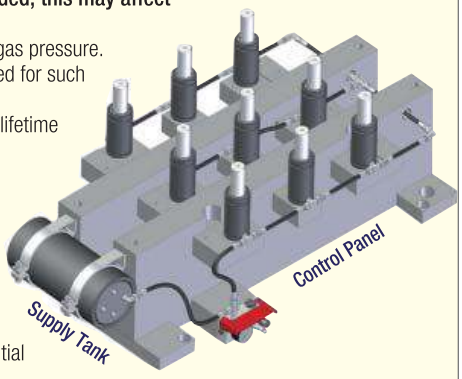


- Press die in open position
- Gas springs are released

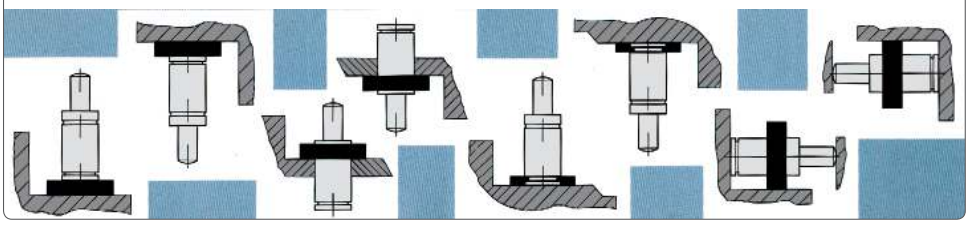


Guvenal - GTH Gas Springs: The gas springs are coded with colours according to their spring forces. All springs are designed independent on their spring forces. The reason that the forces are different from each other is that the gas is filled under different pressures. At the bottom of the spring, the pressure of the spring can be adjusted. All gas springs are delivered filled with nitrogen (N2) gas as a standard.
As per request; it is delivered empty for systems with series connection hoses. You can fill the gas.
To use the die gas springs safely and for a long time, follow the instructions below !

* During mounting gas spring into the hole, it should be inserted loosely (+1).
* They are designed with a stroke reserve between 1 to 3 mm. Thus, the nominal value can totaly be applied. However, it is recommended that 90% of the stroke value given should not be exceeded in order to avoid any stroke risk due to in-die changes and errors.
  Otherwise, it may cause damages / explosions, hazards in the cylinders.
* The thread tapped in the gas spring piston is not used for mounting purposes. The thread for repair purposes is for the maintenance of the thread at the top of the piston. Do not use this part.
* Do not allow the gas spring piston release suddenly. This causes damage to the gas spring.
* The gas springs should not be exposed to lateral loads.
* Ensure that the gas spring is inserted parallel to the forces to come.
* The working surface of the gas spring piston should be reinforced with a plate hardened enough.
* The gas spring piston should be protected from mechanical damages and liquids.
* **We do not recommend that the last 5 mm of the GTH gas spring strokes or 10% of the total stroke is used!**
* **The recommended filling pressure should not be exceeded; this may affect the safety of the gas spring.**
* In some special cases, it should be necessary to check the gas pressure. In such cases, the pressure measurement equipment required for such measurement should be used.
* Exceeding temperature value recommended will reduce the lifetime of the gas spring.
* The whole piston / working surfaces should be used.
* Do not exceed the max. pressure level recommended for each model when filling the spring.
* During discharging the gas spring, keep the gas flow in the opposite direction to the operator.
* Before disposing the gas spring ensure that all pressure remaining is completely discharged.
* When the gas springs are reversed, it is seen that a substantial improvement is achieved.



Mounting: GTH gas springs can be used in any mounting position as long as they are not affected by external forces. The gas springs should be placed to surface on flat and in vertical position, the surface should encountered the gas spring force. The gas springs should be fixed in the die or the machine securely. You can use the holes or flanges at the bottom of the gas springs. When connecting, do not exceed the torque value of these screws (M6 = 10 Nm - M8 = 24 Nm - M10 = 45 Nm - M12 = 80 Nm) If there is a vibration, retighten the screws according to their torque values.



Gas Spring Production Series Selection

Model	Stroke mm	Initial Force	Final Force	Cylinder Dia.	Piston Dia.	Length mm
KN 19	10 ~ 100	125 Kg.	250 Kg.	Ø 19	Ø 10	65 ~ 245
KN 25	10 ~ 125	150 Kg.	260 Kg.	Ø 25	Ø 12	65 ~ 295
SN 150	10 ~ 125	150 Kg.	200 Kg.	Ø 32	Ø 12	70 ~ 300
SN 250	10 ~ 125	250 Kg.	360 Kg.	Ø 38	Ø 15	70 ~ 300
SN 500	13 ~ 160	500 Kg.	725 Kg.	Ø 45	Ø 20	110 ~ 405
SN 700	13 ~ 300	750 Kg.	1230 Kg.	Ø 50	Ø 25	120 ~ 695
SN 1500	25 ~ 300	1500 Kg.	2250 Kg.	Ø 75	Ø 36	160 ~ 710
SN 3000	25 ~ 300	3000 Kg.	4800 Kg.	Ø 95	Ø 60	170 ~ 720
SN 5000	25 ~ 300	5000 Kg.	8500 Kg.	Ø 120	Ø 65	1190 ~ 740
SN 7500	25 ~ 300	7500 Kg.	12300	Ø 150	Ø 80	205 ~ 755
SN 10000	25 ~ 300	10000 Kg.	16000	Ø 195	Ø 95	210 ~ 760
Y 300	10 ~ 125	300 Kg.	550 Kg.	Ø 32	Ø 16	70 ~ 300
Y 500	10 ~ 125	500 Kg.	1050 Kg.	Ø 38	Ø 20	70 ~ 300
Y 7000	13 ~ 160	700 Kg.	1100 Kg.	Ø 45	Ø 24	110 ~ 405
Y 1000	13 ~ 300	1000 Kg.	1750 Kg.	Ø 50	Ø 30	120 ~ 695
Y 2400	13 ~ 300	2400 Kg.	4250 Kg.	Ø 75	Ø 45	160 ~ 710
Y 4200	13 ~ 300	4200 Kg.	7700 Kg.	Ø 95	Ø 60	170 ~ 720
Y 6600	13 ~ 300	6600 Kg.	12500	Ø 120	Ø 75	190 ~ 740
YO 200	5 ~ 50	200 Kg.	300 Kg.	Ø 25	Ø 12	40 ~ 130
YO 300	5 ~ 125	300 Kg.	550 Kg.	Ø 32	Ø 16	40 ~ 280
YO 500	5 ~ 125	500 Kg.	950 Kg.	Ø 38	Ø 20	40 ~ 280
YO 700	5 ~ 125	700 Kg.	1400 Kg.	Ø 45	Ø 24	50 ~ 282
YO 1000	5 ~ 125	1000 Kg.	2250 Kg.	Ø 50	Ø 30	58 ~ 288
YO 1500	5 ~ 125	1500 Kg.	2950 Kg.	Ø 63	Ø 36	64 ~ 294
YO 2400	10 ~ 125	2400 Kg.	4850 Kg.	Ø 75	Ø 45	55 ~ 170
YO 4200	16 ~ 125	4200 Kg.	8600 Kg.	Ø 95	Ø 60	97 ~ 315
YO 6600	16 ~ 125	6600 Kg.	13200	Ø 120	Ø 75	107 ~ 325
YO 11800	19 ~ 125	11800 Kg.	20500	Ø 150	Ø 100	116 ~ 328
MG 170	7 ~ 125	173 Kg.	280 Kg.	Ø 19	Ø 10	44 ~ 285
MG 320	7 ~ 125	320 Kg.	500 Kg.	Ø 25	Ø 15	44 ~ 285
MG 500	10 ~ 125	500 Kg.	770 Kg.	Ø 38	Ø 20	50 ~ 280
MG 750	10 ~ 125	750 Kg.	1200 Kg.	Ø 45	Ø 25	52 ~ 828
MG 1000	13 ~ 125	1000 Kg.	1550 Kg.	Ø 50	Ø 28	64 ~ 288
MG 1500	13 ~ 125	1500 Kg.	2400 Kg.	Ø 63	Ø 36	70 ~ 294
GC 420	6 ~ 50	420 Kg.	840 Kg.	Ø 25	Ø 12	56 ~ 195
GC 750	6 ~ 50	750 Kg.	1200 Kg.	Ø 25	Ø 20	63 ~ 195
GC 1000	6 ~ 50	1000 Kg.	1450 Kg.	Ø 32	Ø 20	61 ~ 230
GC 1800	6 ~ 50	1800 Kg.	2700 Kg.	Ø 32	Ø 30	66 ~ 220
GC 3000	10 ~ 50	3000 Kg.	4650 Kg.	Ø 50	Ø 38	85 ~ 205
GC 4700	10 ~ 50	4700 Kg.	6350 Kg.	Ø 75	Ø 50	80 ~ 240
GC 7500	10 ~ 50	7500 Kg.	10500	Ø 95	Ø 65	90 ~ 255
GC 12000	10 ~ 50	12000 Kg.	16200	Ø 120	Ø 80	100 ~ 260
GC 18500	10 ~ 50	18500 Kg.	26820	Ø 150	Ø 105	110 ~ 270

BUREAU VERITAS
CE 0062
PED 97/23/EC

Advantages of Nitrogen Die Gas Springs

* For the same operating range and force, advantages such as reducing die area at a height and more space in the dies according to wire die springs.
* No pre-loading. Easier and quicker mounting.
* Same force advantage at each contact point.
* The forces can be located at required points, advantage of monitoring the system pressure all the time.
* Maximum control on the parts when forming and designing.
* Using of gas cylinders in order to provide required real force, usage guarantee for specified forces, advantages of using flexibly for different force applications of the same cylinder, dynamism is ensured in any die solutions. All these advantages also provides economic saving.

GTH Gas Springs:
They are filled with N2 gas and they do not need an additional energy. They operate for a long time without any problem as long as they are mounted meticulously. You only need to lubricate the piston part occasionally.
Mounting / series connections should be made by the authorized personnel. They can be used in any mounting position unless it is affected by external forces.

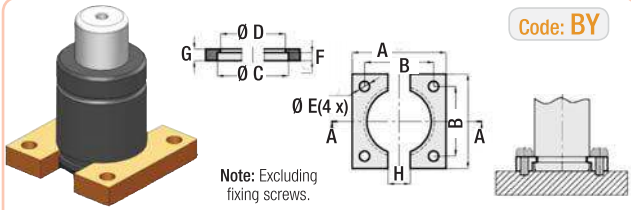
Guvenal - GTH Gas Springs produced in accord with the European Instructions and tested by our authorized engineers.

Guvenal - GTH Gas Springs are producing in Turkey

Model	Stroke mm	Initial Force	Final Force	Cylinder Dia.	Piston Dia.	Length mm
AD 500	6 ~ 125	500	700	45	20	62 ~ 300
AD 750	6 ~ 125	750	1150	50	25	62 ~ 300
AD 1500	25 ~ 100	1500	2300	75	36	110 ~ 260
AD 3000	25 ~ 100	3000	4600	95	50	120 ~ 270

Gas Spring Fixing Elements, Mounting

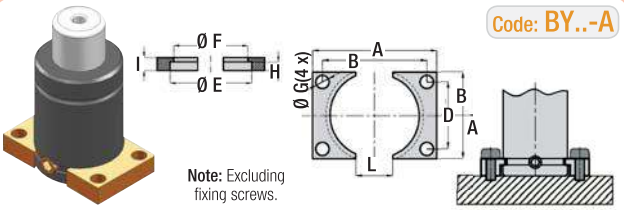
Code: BY



Note: Excluding fixing screws.

Order	Cylinder Ø	A	B	C	D	E	F	G	H
BY.32	Ø 32	50	35	32.5	28.5	6.6	4	7	5
BY.38	Ø 38	55	40	38.5	34.5	6.6	4	7	5
BY.45	Ø 45	70	50	45.5	41.5	9	4	7	20
BY.50	Ø 50	75	56.5	50.5	44.5	9	8	12	24
BY.63	Ø 63	85	63.5	63.5	57.5	11	8	12	24
BY.75	Ø 75	100	73.5	75.5	68.5	11	8	12	24
BY.95	Ø 95	120	92	95.5	88.5	13.5	8	12	24
BY.120	Ø 120	140	109.5	20.5	113.5	13.5	8	12	24
BY.150	Ø 150	190	138	150.5	143.5	17.5	8	12	24
BY.195	Ø 195	210	170	195.5	188	17.5	8	13	24

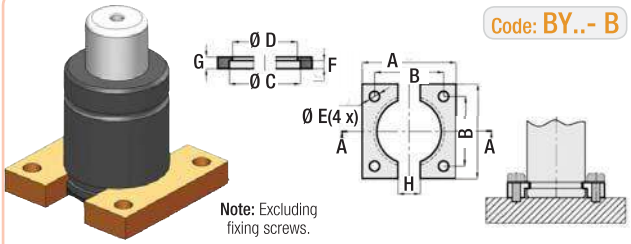
Code: BY..-A



Note: Excluding fixing screws.

Order	Cylinder Ø	A	B	C	D	E	F	G	H	I	L
BY.32-A	Ø 32	50	27	40	18	32.5	28.5	6.6	4	7	20
BY.38-A	Ø 38	55	33	44	20	38.5	34.5	6.6	4	7	20
BY.45-A	Ø 45	70	40	57	27	45.5	41.5	9	4	7	25
BY.50-A	Ø 50	75	45	62	32	50.5	44.5	9	8	12	25
BY.63-A	Ø 63	85	58	69	42	63.5	57.5	11	8	12	30
BY.75-A	Ø 75	100	70	84	54	75.5	68.5	11	8	12	30
BY.95-A	Ø 95	120	90	100	70	95.5	88.5	13.5	8	12	40
BY.120-A	Ø 120	140	115	120	95	120.5	113.5	13.5	8	12	50
BY.150-A	Ø 150	190	145	165	120	150.5	143.5	17.5	8	12	60
BY.195-A	Ø 195	210	190	185	165	195.5	188	17.5	8	12	80

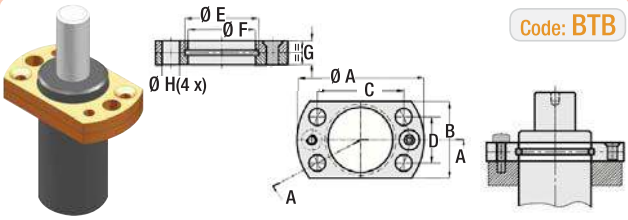
Code: BY..- B



Note: Excluding fixing screws.

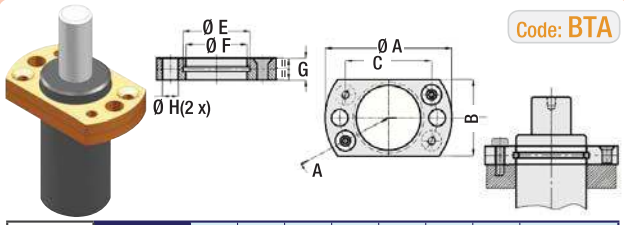
Order	Cylinder Ø	A	B	C	D	E	F	G	H
BY.32-B	32	50	35	32.5	28.5	6.6	4	7	12
BY.38-B	38	55	40	38.5	34.5	6.6	4	7	12
BY.63-B	63	100	73.5	64	57.5	11	8	12	24

Code: BTB



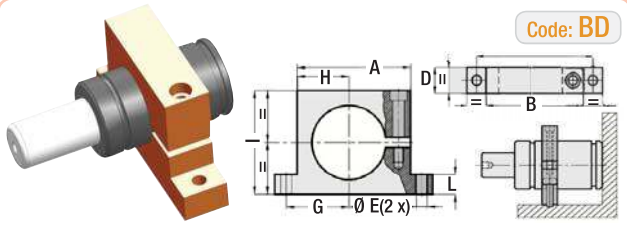
Order	Cylinder Ø	A	B	C	D	E	F	G	H	Ring
BTB.19	Ø 19	44	25	30	12	6.6	M4	19.5	9	Ø 2
BTB.25	Ø 25	50	30	34	18	6.6	M4	25.5	9	Ø 2

Code: BTA



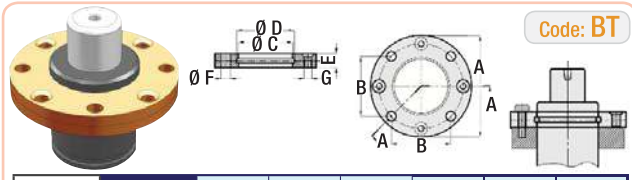
Order	Cylinder Ø	A	B	C	E	F	G	H	Ring
BTA.12	Ø 12	34	21	24	6.6	M3	13.7	9	Ø 1.6
BTA.15	Ø 15	37	24	27	6.6	M3	16.7	9	Ø 1.6
BTA.19	Ø 19	45	25	32	6.6	M4	19.5	9	Ø 2
BTA.25	Ø 25	50	30	38	6.6	M4	25.5	9	Ø 2
BTC.19	Ø 19	45	25	32	6.6	M3	19.5	7	Ø 2

Code: BD



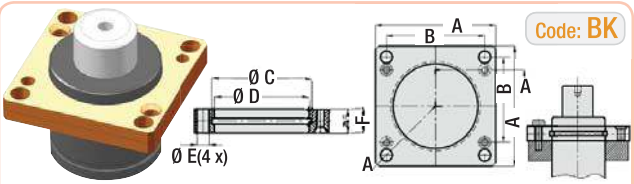
Order	Cylinder Ø	A	B	C	D	E	F	G	H	I	L	F
BD.32	32	90	54	32	20	9	72	31	22	45	15	M8
BD.38	38	95	59	38	20	9	77	34	25	55	15	M8
BD.45	45	100	64	45	20	9	82	37	28	60	15	M8
BD.50	50	130	90	50	30	9	110	50	40	80	20	M8
BD.75	75	160	115	75	30	11	137	63.5	52.5	105	20	M10
BD.95	95	195	145	95	30	13.5	170	80	67.5	125	20	M12
BD.120	120	220	165	120	30	13.5	195	92.5	77.5	148	20	M12
BD.195	195	260	200	195	30	13.5	230	110	95	200	20	M12

Code: BT



Order	Cylinder Ø	A	B	C	D	E	F
BT.32	32	60	35	34	32.5	9	7
BT.38	38	68	40	40	38.5	9	7
BT.45	45	86	50	47	45.5	13	9
BT.50	50	95	56.5	54	50.5	13	9
BT.63	63	122	73.5	67	63.5	16	11
BT.75	75	122	73.5	80	75.5	16	11
BT.95	95	150	92	100	95.5	18	13.5
BT.120	120	175	109.5	125	120.5	21	13.5
BT.150	150	220	138	155	150.5	27	17.5
BT.195	195	290	170	200	195.5	27	17.5

Code: BK

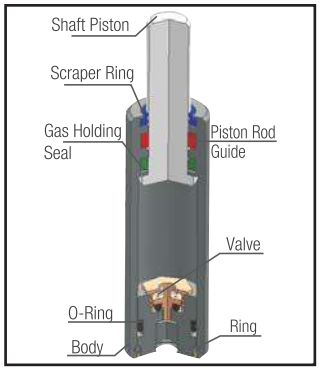


Order	Cylinder Ø	A	B	C	D	E	F	Ring	J
BK.32	32	45	35	9	32.5	7	M4	2	17
BK.38	38	52	40	9	38.5	7	M4	2	17
BK.45	45	64	50	13	45.5	9	M5	2	23
BK.50	50	70	56.5	13	50.5	9	M5	4	24
BK.63	63	90	73.5	16	63.5	11	M5	5	27
BK.75	75	90	73.5	16	75.5	11	M6	5	29
BK.95	95	110	92	18	95.5	13	M6	5	33
BK.120	120	130	109.5	21	120.5	13	M6	5	36
BK.150	150	162	138	27	150.5	17.5	M6	5	41
BK.195	195	210	170	27	195.5	17.5	M6	5	47
BK.63-1	63	80	64	16	63.5	11	M5	5	27

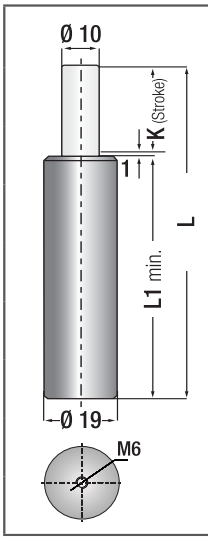
KN Series, Gas Spring - Mini & Low Force

Adjustable forces, maximum flexibility.
KN Series; In many series such as die fixtures ejector, shock absorber fixing and it is also used as die matrix remover. All gas springs are designed the same without depending on the spring forces. The reason that the forces are different is that they are filled with the gas in different pressures. The pressure of the spring can be adjusted at the bottom of the spring. Do not repair worn springs. The worn springs should be completely replaced.

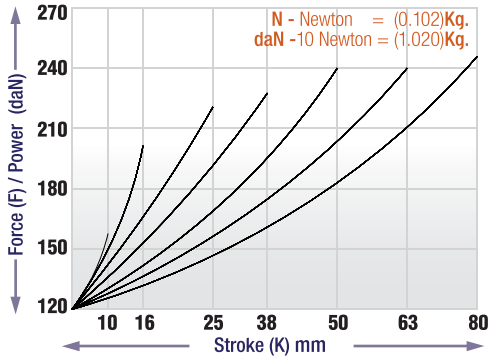
Max. Pressure: **150 Bar** - Max. Speed : **0.6 m/s** - Max. Temp. : **0-80^{0}C**



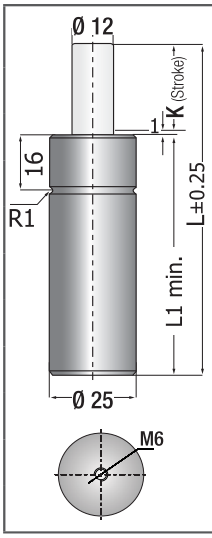
KN Series, Gas Spring - Mini & Low Force



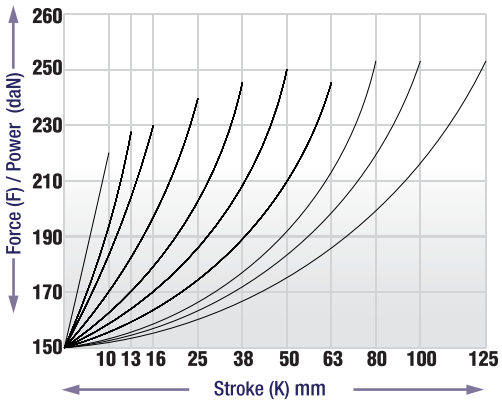
Order Model	Stroke (K) mm	L1 min.	L Length	Initial Force	Final Force	Weight Kg.
KN.19.10	10	55	65	120 Kg.	250 Kg.	0.09
KN.19.16	16	61	77			0.10
KN.19.25	25	70	95			0.11
KN.19.38	38	83	121			0.14
KN.19.50	50	95	145			0.15
KN.19.63	63	108	171			0.18
KN.19.80	80	125	205			0.20
KN.19.100	100	145	245			0.26



Note: According to the **20^{0}C** value calculated nominally, any variation at temperature can cause a change in gas pressure (**P**). In gas spring selection, a spring over the criteria must be selected. The usage criteria should be adjusted by assuming that the processed sheet metal quality may change.



Order Model	Stroke (K) mm	L1 min.	L Length	Initial Force	Final Force	Weight Kg.
KN.25.10	10	55	65	150 Kg.	260 Kg.	0.15
KN.25.13	13	59	71			0.16
KN.25.16	16	61	77			0.17
KN.25.25	25	70	95			0.19
KN.25.38	38	83	121			0.22
KN.25.50	50	95	145			0.25
KN.25.63	63	108	171			0.29
KN.25.80	80	125	205			0.33
KN.25.100	100	145	245			0.38
KN.25.125	125	170	295			0.45



Spring forces according to spring diagram

Stroke increase / spring force relocation

The pressure increase factor consider relocations, however you should consider the external effects.

Fixing with screw from the bottom is only recommended for stroke lengths up to 25m.
Mounting selections:
BT - BTA - BTB

Mounting at the housing
Volume
Ø
+1.0
+0.5

Bottom mount
M6

Supported
Ø
+1.0
+0.5

Gas Spring Mounting Examples:

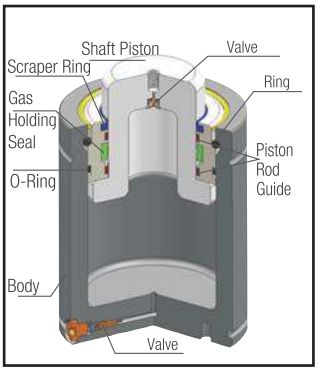
Mount gas springs directly via threaded holes at the bottom or by using fixing elements. Generally for other fitting position of gas springs that are completed their mounting by extractor with screw from bottom in compliance with your die, you can select fitting type specified at drawing.

All Gas Spring Cylinders: They are designed with a stroke reserve between 1 to 3 mm. Thus, the nominal value (stroke) can be totally implemented.
However, it is recommended not to exceed 90% of the stroke value in order to avoid an extra stroke risk caused by the changes or errors in the system.
Otherwise, it may cause irreparable damages to the cylinders and serious dangers for the personnel.

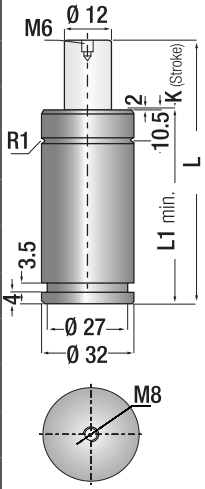
SN Series, Gas Spring - ISO 11901

Standard gas springs with series connection and wide selection. It can be connected to hose systems with wide selections among standard series in compliance with ISO 11901. Do not be confused about recommended maximum cycle/minute specified in diagrams for a certain type of product group and maximum speed. The force curves are especially related to stroke (20°C). So, the decrease in the gas volume and other factors are not taken into consideration. The wide connections and accessories for all kinds of applications are recommended when these standard series connection supply tanks are used.

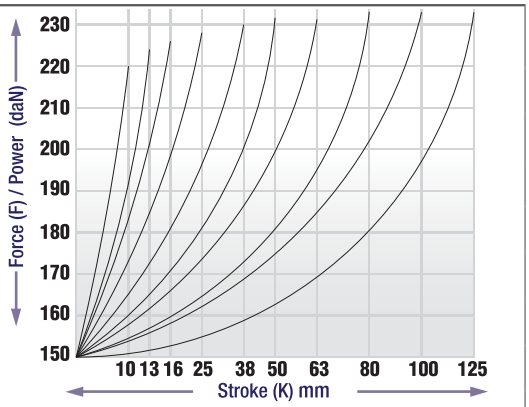
Max. Pressure: **150 Bar** - Max. Speed : **1.6 m/s** - Max. Temp. : **0-80°C**



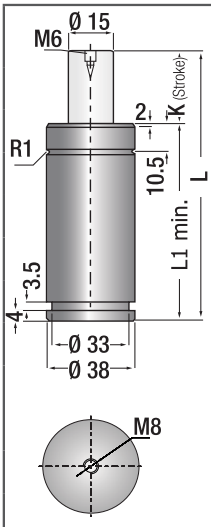
SN Series, Gas Spring - ISO 11901



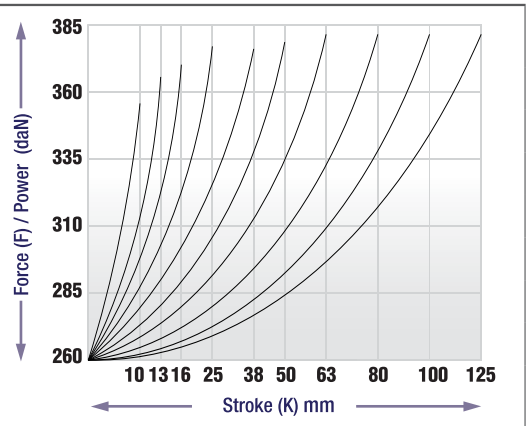
Order Model	Stroke (K) mm	L1 min.	L Length	Initial Force	Final Force	Weight Kg.
SN.150.10	10	60	70	150 Kg.	200 Kg.	0.28
SN.150.13	13	62.7	75			0.29
SN.150.16	16	66	82			0.30
SN.150.25	25	75	100			0.33
SN.150.38	38	88	126			0.36
SN.150.50	50	100	150			0.40
SN.150.63	63	113.5	177			0.44
SN.150.80	80	130	210			0.49
SN.150.100	100	150	250			0.55
SN.150.125	125	175	300			0.64



Pressure Increse: During operation, the piston of the gas spring inserts into the body and the volume of the gas inside gradually decreases. As a result, the pressure increase can be seen as the multiplication factor in the gas spring diagram. The spring force can be easily calculated by multiplying the initial force and the pressure increase factor.

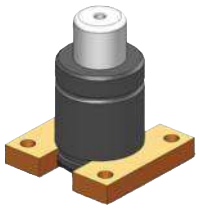


Order Model	Stroke (K) mm	L1 min.	L Length	Initial Force	Final Force	Weight Kg.
SN.250.10	10	60	70	250 Kg.	360 Kg.	0.40
SN.250.13	13	62.7	75			0.41
SN.250.16	16	66	82			0,43
SN.250.19	19	69	88			0.45
SN.250.25	25	75	100			0.48
SN.250.38	38	88	126			0.54
SN.250.50	50	100	150			0.60
SN.250.63	63	113.5	177			0.66
SN.250.80	80	130	210			0.74
SN.250.100	100	150	250			0.81
SN.250.125	125	175	300			0.98



Spring forces according to spring diagram

Adjusting filling pressure: It can be adjusted according to the spring force and determined by using spring diagram in advance.



Code: BY - BYB - BD

Code: BT

Bottom mount
M6

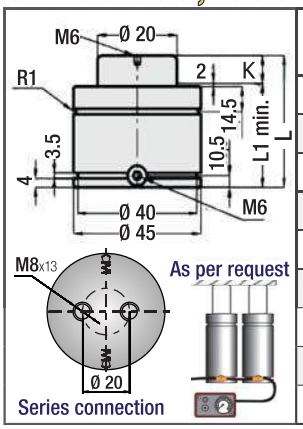
Mounting at the housing
Volume
Ø
+1.0
+0.5

SN.150 & SN.250 Mounting Recommendations:

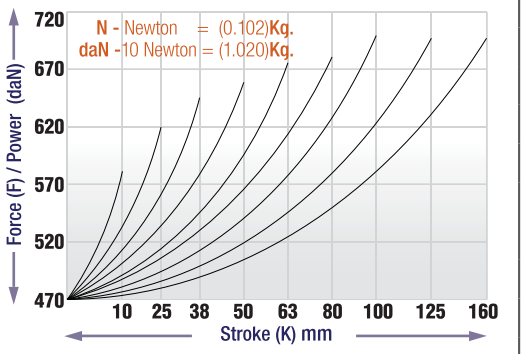
* The gas spring should be positioned on the surface.
* The spring force should be encountered by the surface.
* It is not recommended when the gas springs are connected each other.

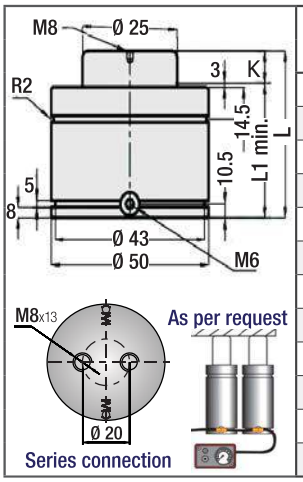
Gas Spring Usage Rules: The screw at the top of the piston head must not be used for mounting of gas spring! This screw is just for maintenance...
Wrong tapping causes wearing in sealing elements and shortening their lifetime. The gas spring should be mounted in parallel to the force to be applied.
The body bottom or retaining flange should be positioned vertically for the force. The surfaces that contacting the bottom and the piston should be hardened.

SN Series, Gas Spring - ISO 11901

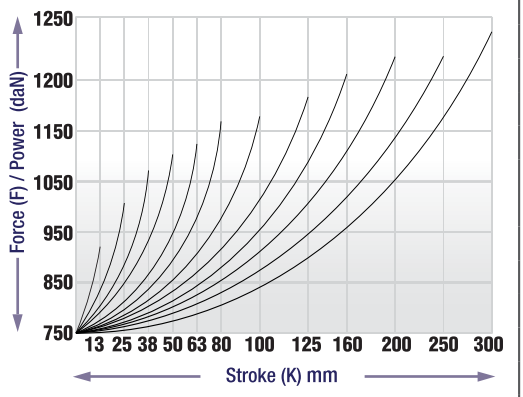


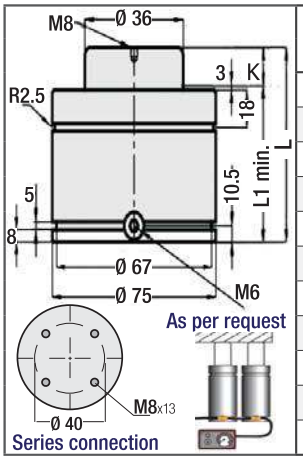
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
SN.500.13	13 mm	97.7	110.4	500 Kg.	725 Kg.	1.00
SN.500.25	25 mm	110	135			1.09
SN.500.38	38 mm	123	161			1.20
SN.500.50	50 mm	135	185			1.29
SN.500.63	63 mm	148.5	212			1.38
SN.500.80	80 mm	165	245			1.50
SN.500.100	100 mm	185	285			1.64
SN.500.125	125 mm	210	335			1.85
SN.500.160	160 mm	245	405			2.10



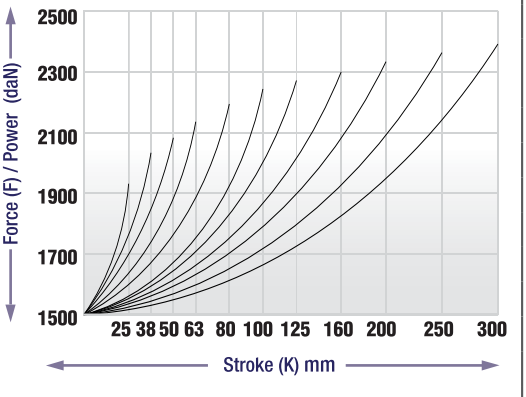


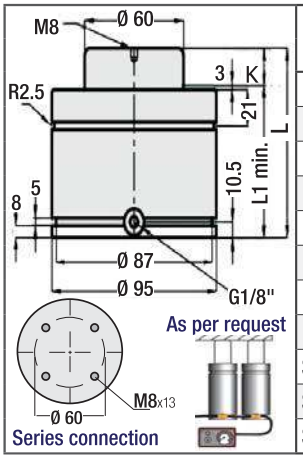
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
SN.750.13	13 mm	107.7	120	750 Kg.	1230 Kg.	1.28
SN.750.25	25 mm	120	145			1.38
SN.750.38	38 mm	133	171			1.48
SN.750.50	50 mm	145	195			1.58
SN.750.63	63 mm	158.5	222			1.69
SN.750.80	80 mm	175	255			1.82
SN.750.100	100 mm	195	295			1.99
SN.750.125	125 mm	220	345			2.19
SN.750.160	160 mm	255	415			2.52
SN.750.200	200 mm	295	495			2.92
SN.750.250	250 mm	345	595			3.40
SN.750.300	300 mm	395	695			3.90



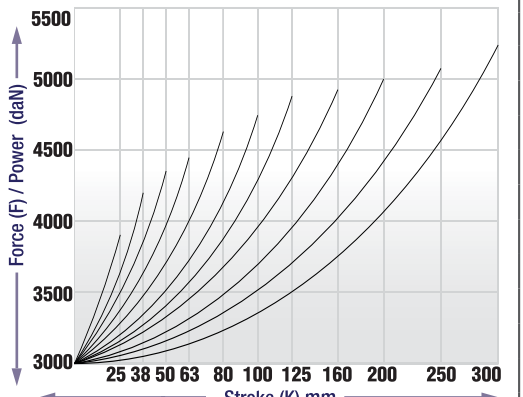


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
SN.1500.25	25 mm	135	160	1500 Kg.	2250 Kg.	3.47
SN.1500.38	38 mm	148	186			3.66
SN.1500.50	50 mm	160	210			3.84
SN.1500.63	63 mm	173.5	237			4.05
SN.1500.80	80 mm	190	270			4.30
SN.1500.100	100 mm	210	310			4.60
SN.1500.125	125 mm	235	360			4.98
SN.1500.160	160 mm	270	430			5.51
SN.1500.200	200 mm	310	510			6.14
SN.1500.250	250 mm	360	610			7.10
SN.1500.300	300 mm	410	710			8.05

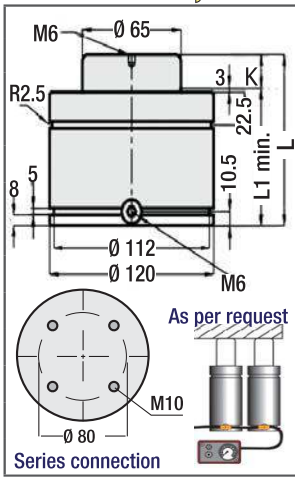




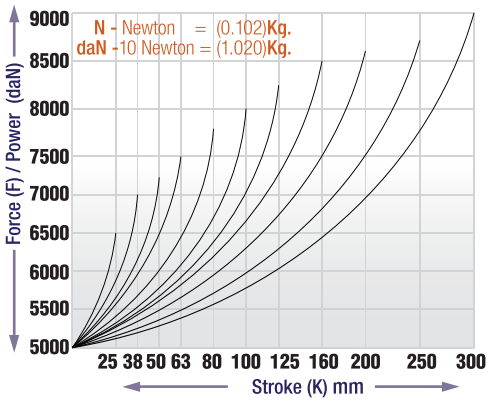
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
SN.3000.25	25 mm	145	170	3000 Kg.	4800 Kg.	6.00
SN.3000.38	38 mm	158	196			6.29
SN.3000.50	50 mm	170	220			6.57
SN.3000.63	63 mm	183.5	247			6.90
SN.3000.80	80 mm	200	280			7.30
SN.3000.100	100 mm	220	320			7.78
SN.3000.125	125 mm	345	370			8.38
SN.3000.160	160 mm	380	440			9.22
SN.3000.200	200 mm	320	520			10.19
SN.3000.250	250 mm	370	620			11.40
SN.3000.300	300 mm	420	720			12.84

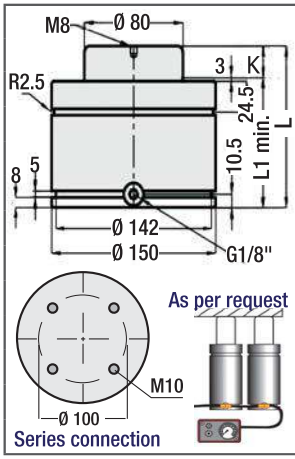


SN Series, Gas Spring - ISO 11901

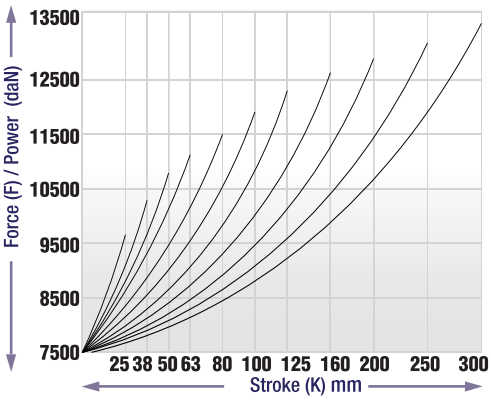


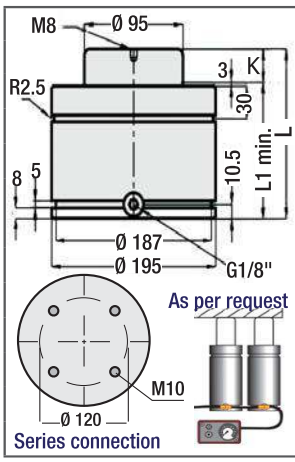
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
SN.5000.25	25 mm	165	190	5000 Kg.	8500 Kg.	11.07
SN.5000.38	38 mm	178	216			11.60
SN.5000.50	50 mm	190	240			12.08
SN.5000.63	63 mm	203.5	267			12.70
SN.5000.80	80 mm	220	300			13.28
SN.5000.100	100 mm	340	340			14.08
SN.5000.125	125 mm	365	390			15.10
SN.5000.160	160 mm	300	460			16.50
SN.5000.200	200 mm	340	540			18.10
SN.5000.250	250 mm	390	640			20.10
SN.5000.300	300 mm	440	740			22.12



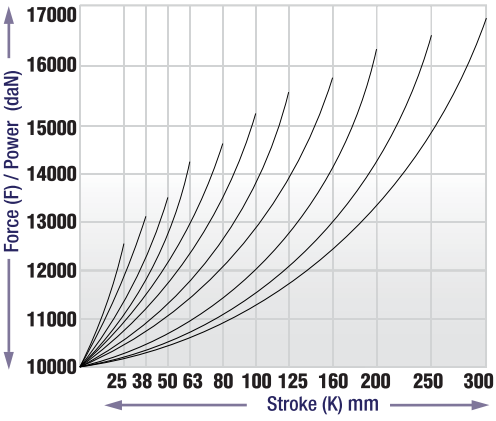


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
SN.7500.25	25 mm	180	205	7500 Kg.	12300 Kg.	19.10
SN.7500.38	38 mm	193	231			19.95
SN.7500.50	50 mm	205	255			20.70
SN.7500.63	63 mm	218.5	282			21.50
SN.7500.80	80 mm	235	315			22.50
SN.7500.100	100 mm	255	355			23.70
SN.7500.125	125 mm	280	405			25.20
SN.7500.160	160 mm	315	475			27.40
SN.7500.200	200 mm	355	555			29.80
SN.7500.250	250 mm	405	655			32.90
SN.7500.300	300 mm	455	755			35.90

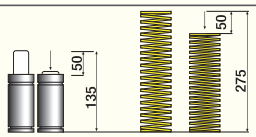




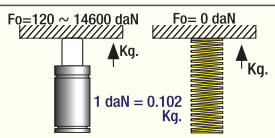
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
SN.10000.25	25 mm	185	210	10000 Kg.	16000 Kg.	35.09
SN.10000.38	38 mm	198	236			36.55
SN.10000.50	50 mm	210	260			37.89
SN.10000.63	63 mm	223.5	287			39.40
SN.10000.80	80 mm	240	320			41.24
SN.10000.100	100 mm	260	360			43.48
SN.10000.125	125 mm	285	410			46.28
SN.10000.160	160 mm	320	480			50.12
SN.10000.200	200 mm	360	560			55.15
SN.10000.250	250 mm	410	660			61.85
SN.10000.300	300 mm	460	760			68.54



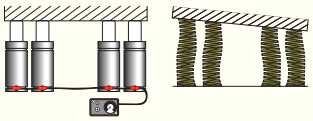
Gas Spring Usage Advantages



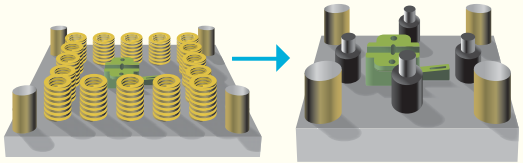
With the same operating stroke and force increase, the length is shortened. It provides length saving and spring structure advantage.



For higher performance, easier and faster mounting is provided with a small pre-loading (0.5 - 1 mm).



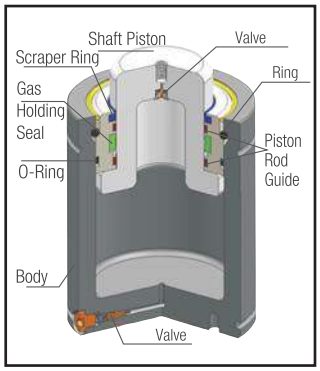
At each contact point, the same forces can be positioned continously and the system can be monitored in terms of pressure.



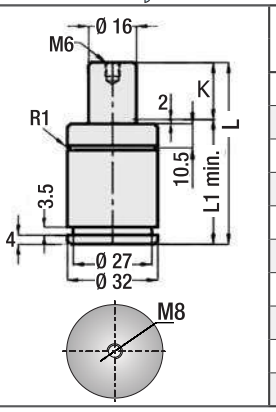
With the gas spring usage, the necessary application area, height, the occupied volume, the retainig spring number for pre-loading are decreased significanlty.

Y Series, Gas Spring - Space Saving

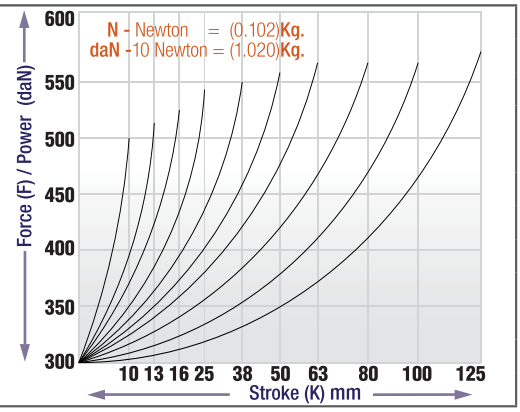
It may be connected to hose systems (after Y.500) and used in different measurements for space saving in SN / ISO series. Do not be confused about recommended maximum cycle/minute specified in diagrams for a certain type of product group and maximum speed. The force curves are especially related to stroke (20^{0}C). So, the decrease in the gas volume and other factors are not taken into consideration.
The wide connections and accessories for all kinds of applications are recommended when these standard series connection supply tanks are used. In gas spring selection, a spring over the criteria must be selected. The usage criteria should be adjusted by assuming that the processed sheet metal quality may change.
Max. Pressure: **150 Bar** - Max. Speed : **1.6 m/s** - Max. Temp. : **0-80^{0}C**

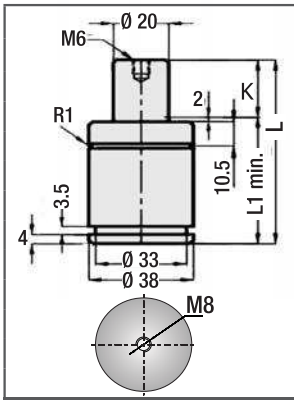


Y Series, Gas Spring - Space Saving

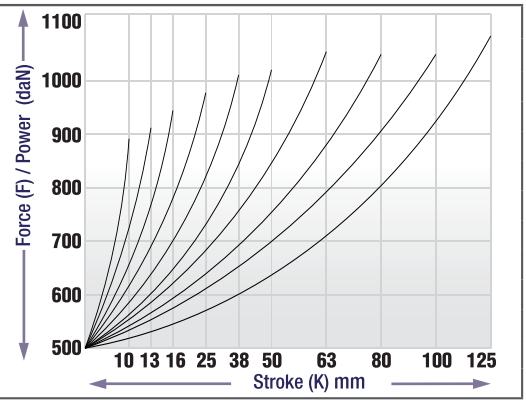


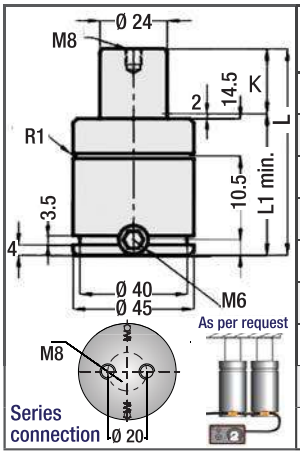
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
Y.300.10	**10** mm	60	70	300 Kg.	550 Kg.	0.29
Y.300.13	**13** mm	62.7	75			0.30
Y.300.16	**16** mm	66	82			0.31
Y.300.25	**25** mm	75	100			0.34
Y.300.38	**38** mm	88	126			0.38
Y.300.50	**50** mm	100	150			0.43
Y.300.63	**63** mm	113.5	177			0.48
Y.300.80	**80** mm	130	210			0.54
Y.300.100	**100** mm	150	250			0.61
Y.300.125	**125** mm	175	300			0.69



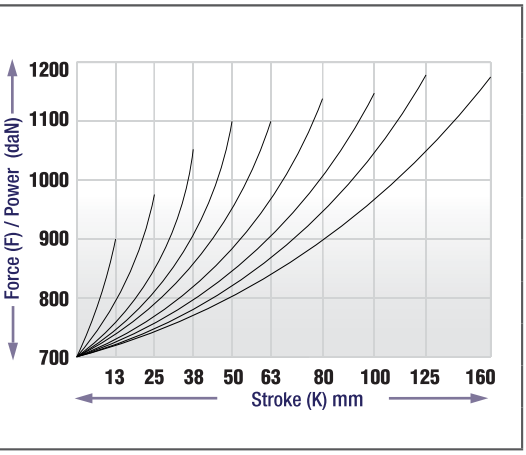


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
Y.500.10	**10** mm	60	70	500 Kg.	1050 Kg.	0.42
Y.500.13	**13** mm	62.7	75			0.43
Y.500.16	**16** mm	66	82			0.45
Y.500.19	**19** mm	69	88			0.48
Y.500.25	**25** mm	75	100			0.50
Y.500.38	**38** mm	88	126			0.56
Y.500.50	**50** mm	100	150			0.63
Y.500.63	**63** mm	113.5	177			0.70
Y.500.80	**80** mm	130	210			0.79
Y.500.100	**100** mm	150	250			0.89
Y.500.125	**125** mm	175	300			1.08

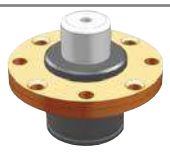




Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
Y.700.13	**13** mm	97.7	110	700 Kg.	1100 Kg.	0.69
Y.700.25	**25** mm	110	135			0.77
Y.700.38	**38** mm	123	161			0.86
Y.700.50	**50** mm	135	185			0.94
Y.700.63	**63** mm	148.5	212			1.03
Y.700.80	**80** mm	165	245			1.14
Y.700.100	**100** mm	185	285			1.51
Y.700.125	**125** mm	210	335			1.68
Y.700.160	**160** mm	245	405			1.92



For perpendicular type series / hose connection systems
Code: BY..A

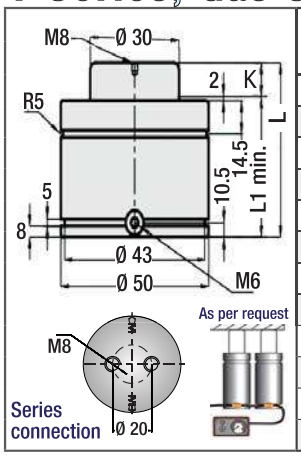


Code: BT - BK - BD

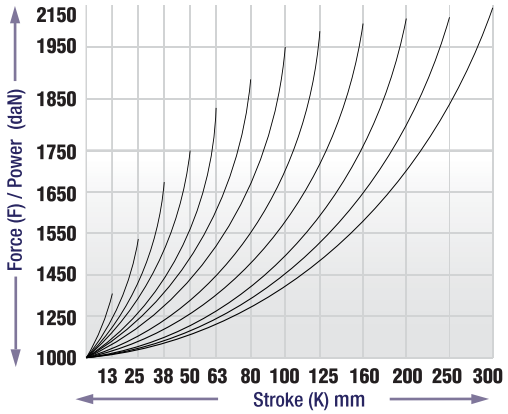
Bottom mount
M6

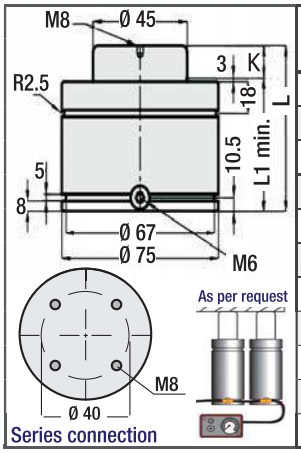
Mounting at the housing
Volume
Ø
+1.0
+0.5

Y Series, Gas Spring - Space Saving

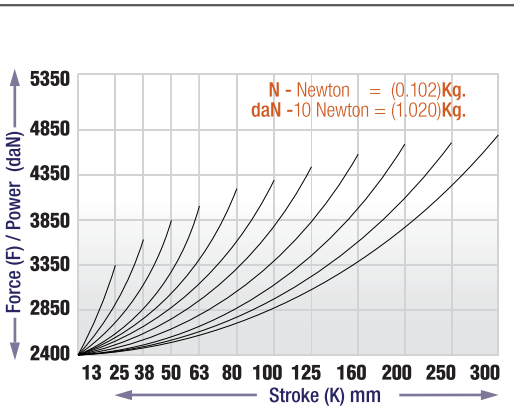


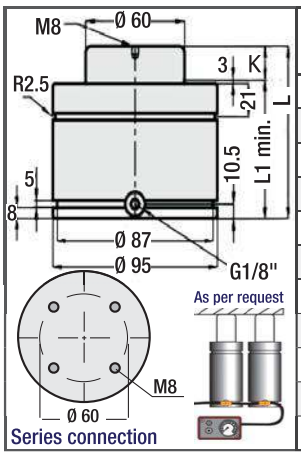
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
Y.1000.13	13 mm	107.7	120	1000 Kg.	1750 Kg.	0.97
Y.1000.25	25 mm	120	145			1.08
Y.1000.38	38 mm	133	171			1.19
Y.1000.50	50 mm	145	195			1.29
Y.1000.63	63 mm	158.5	222			1.40
Y.1000.80	80 mm	175	255			1.54
Y.1000.100	100 mm	195	295			1.90
Y.1000.125	125 mm	220	345			2.17
Y.1000.160	160 mm	255	415			2.47
Y.1000.200	200 mm	295	495			2.80
Y.1000.250	250 mm	345	595			3.22
Y.1000.300	300 mm	395	695			3.64



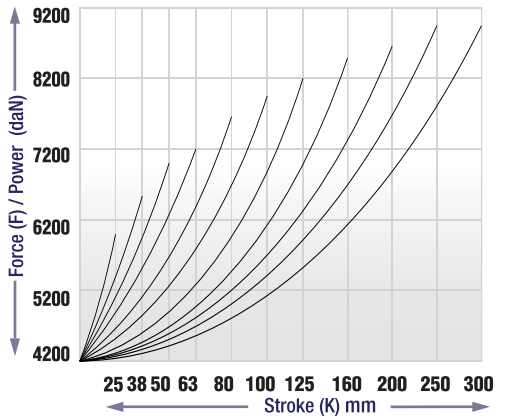


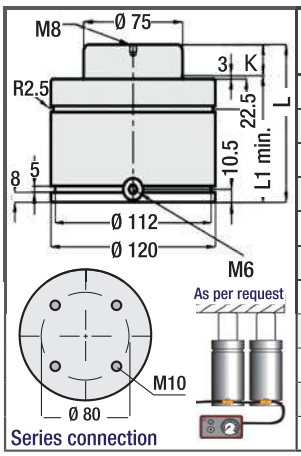
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
Y.2400.25	25 mm	135	160	2400 Kg.	4250 Kg.	2.50
Y.2400.38	38 mm	148	186			2.70
Y.2400.50	50 mm	160	210			2.90
Y.2400.63	63 mm	173.5	237			3.12
Y.2400.80	80 mm	190	270			3.39
Y.2400.100	100 mm	210	310			4.45
Y.2400.125	125 mm	235	360			4.86
Y.2400.160	160 mm	270	430			5.43
Y.2400.200	200 mm	310	510			6.08
Y.2400.250	250 mm	360	610			6.90
Y.2400.300	300 mm	410	710			7.72



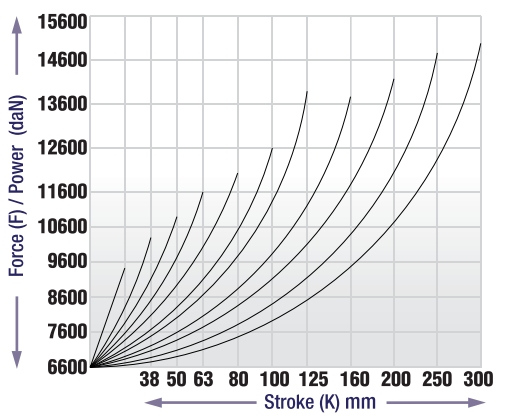


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
Y.4200.25	25 mm	145	170	4200 Kg.	7700 Kg.	4.29
Y.4200.38	38 mm	158	196			4.62
Y.4200.50	50 mm	170	220			4.93
Y.4200.63	63 mm	183.5	247			5.27
Y.4200.80	80 mm	200	280			5.57
Y.4200.100	100 mm	220	320			7.80
Y.4200.125	125 mm	245	370			8.50
Y.4200.160	160 mm	280	440			9.45
Y.4200.200	200 mm	320	520			10.55
Y.4200.250	250 mm	370	620			11.92
Y.4200.300	300 mm	420	720			13.29



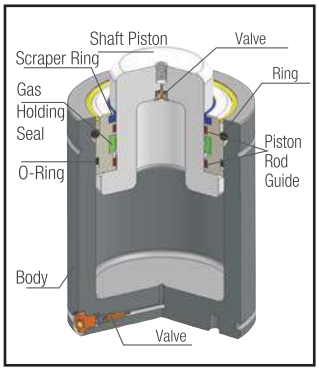


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
Y.6600.25	25 mm	165	190	6600 Kg.	12500 Kg.	8.10
Y.6600.38	38 mm	178	216			8.60
Y.6600.50	50 mm	190	240			9.10
Y.6600.63	63 mm	203.5	267			9.70
Y.6600.80	80 mm	220	300			10.30
Y.6600.100	100 mm	240	340			13.50
Y.6600.125	125 mm	265	390			14.50
Y.6600.160	160 mm	300	460			15.90
Y.6600.200	200 mm	340	540			17.50
Y.6600.250	250 mm	390	640			19.60
Y.6600.300	300 mm	440	740			21.70

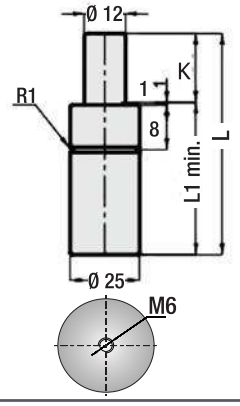


YO Series, Gas Spring - High Force

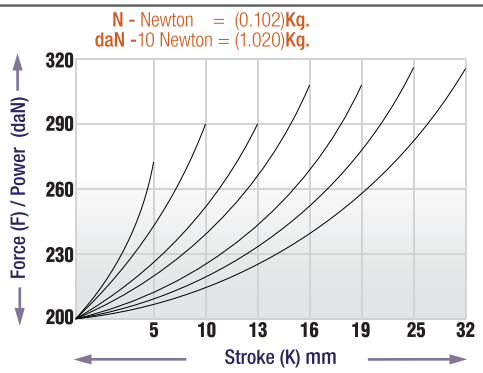
YO series are designed to save space and they provide minimum height as possible today with the highest forces. They can be connected in series to the hose systems. Wide connection range and accessories for all kinds of applications.
When filling / charging the gas spring, the maximum pressure level recommended for each model should not be exceeded (150 bar). This standard series connection is recommended when supply tanks are used. In gas spring selection, a spring over the criteria must be selected. The usage criteria should be adjusted by assuming that the processed sheet metal quality may change.
Max. Pressure: **150 Bar** - Max. Speed : **1.6 m/s** - Max. Temp. : **0-80^{0}C**



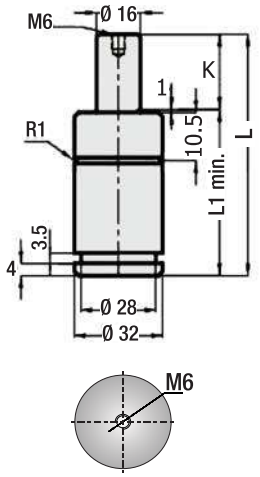
YO Series, Gas Spring - High Force



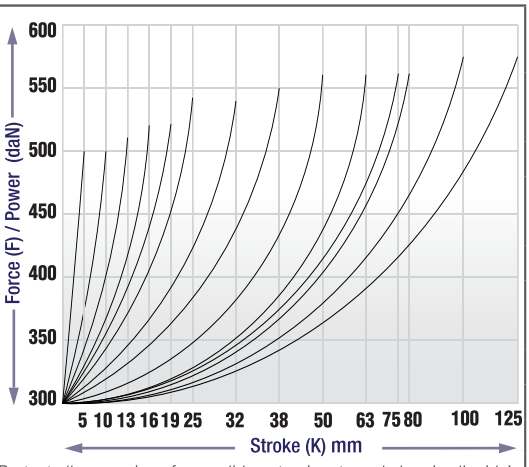
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.200.5	**5** mm	35	40	200 Kg.	300 Kg.	0.09
YO.200.10	**10** mm	40	50			0.10
YO.200.13	**13** mm	43	56			0.10
YO.200.16	**16** mm	46	62			0.11
YO.200.19	**19** mm	49	68			0.12
YO.200.25	**25** mm	55	80			0.13
YO.200.32	**32** mm	62	94			0.16
YO.200.38	**38** mm	71	106			0.19
YO.200.50	**50** mm	83	130			0.28



Pressure Increse: During operation, the piston of the gas spring inserts into the body and the volume of the gas inside gradually decreases. As a result, the pressure increase can be seen as the multiplication factor in the gas spring diagram. The spring force can be easily calculated by multiplying the initial force and the pressure increase factor.
Adjusting filling pressure: It can be adjusted according to the spring force and determined by using spring diagram in advance.
Spring forces according to spring diagram: The stroke increase / spring force replacement, pressure increase factor and replacements are considered, however you should take into consideration external effects. Lateral loads should not be applied on gas springs.
When press goes down, the lateral forces and the vibrations from the die should be checked.



Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.300.5	**5** mm	35	40	300 Kg.	550 Kg.	0.17
YO.300.10	**10** mm	40	50			0.18
YO.300.13	**13** mm	43	56			0.19
YO.300.16	**16** mm	46	62			0.20
YO.300.19	**19** mm	49	68			0.22
YO.300.25	**25** mm	55	80			0.25
YO.300.32	**32** mm	62	94			0.27
YO.300.38	**38** mm	68	106			0.29
YO.300.50	**50** mm	80	130			0.34
YO.300.63	**63** mm	93	156			0.39
YO.300.75	**75** mm	105	180			0.42
YO.300.80	**80** mm	110	190			0.45
YO.300.100	**100** mm	130	230			0.53
YO.300.125	**125** mm	155	280			0.68

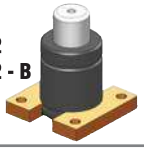


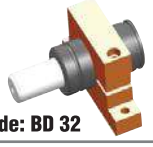
Protect all gas springs from solid contaminants and abrasive liquids! If it is not protected, clean the residue from the cylinders by using air stream regularly. When the cylinders are reversed, a significant improvement is obtained.

Bottom mount
M6

Mounting at the housing
Volume
Ø
+1.0
+0.5

Code: BY 32
Code: BY 32 - B





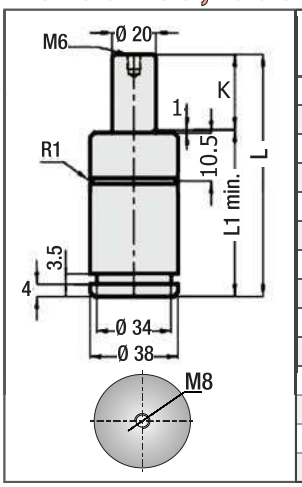
Code: BD 32

Code: BT 32

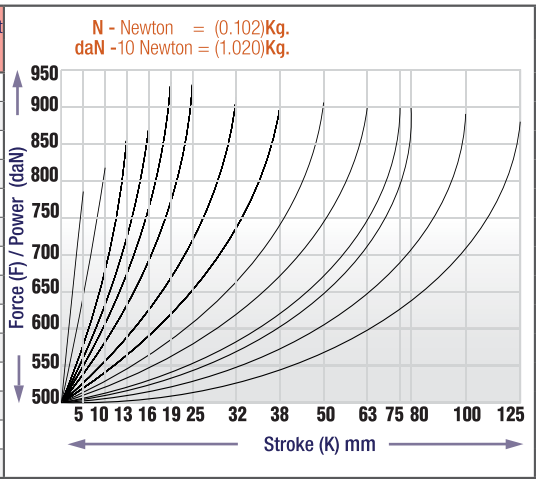
Code: BK 32

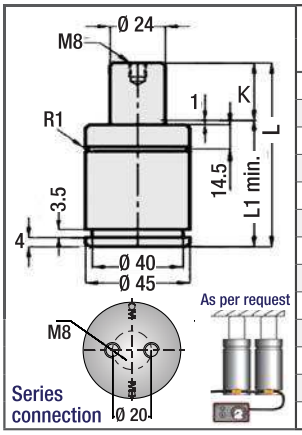
Mounting: The gas springs should be placed to surface on flat and in vertical position, the surface should encountered the gas spring force. Do not repair worn springs. The worn springs should be replaced.

YO Series, Gas Spring - High Force

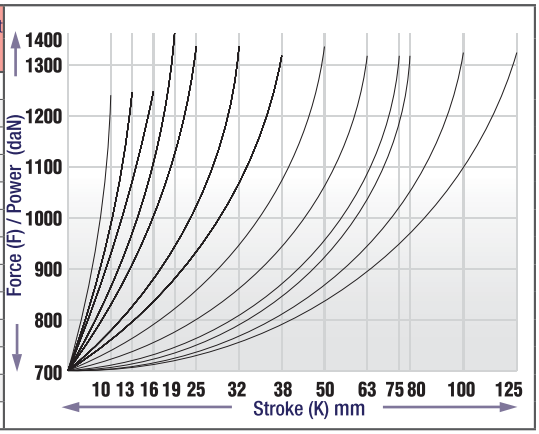


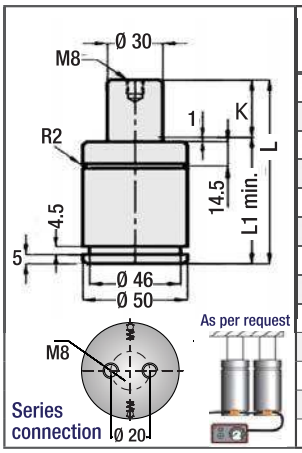
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.500.5	5 mm	35	40	500 Kg.	950 Kg.	0.25
YO.500.10	10 mm	40	50			0.27
YO.500.13	13 mm	43	56			0.29
YO.500.16	16 mm	46	62			0.31
YO.500.19	19 mm	49	68			0.33
YO.500.25	25 mm	55	80			0.36
YO.500.32	32 mm	62	94			0.40
YO.500.38	38 mm	68	106			0.44
YO.500.50	50 mm	80	130			0.50
YO.500.63	63 mm	93	156			0.57
YO.500.75	75 mm	105	180			0.61
YO.500.80	80 mm	110	190			0.66
YO.500.100	100 mm	130	230			0.77
YO.500.125	125 mm	155	280			0.90



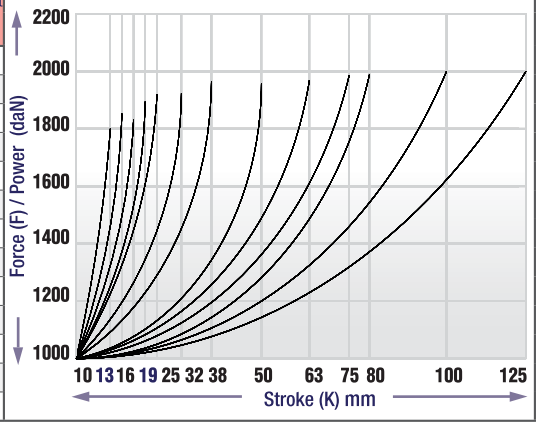


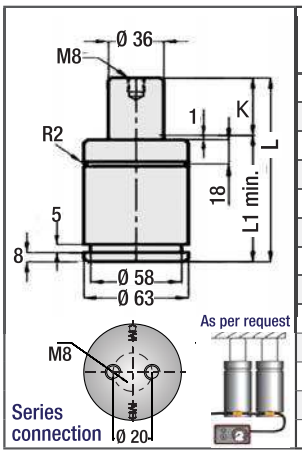
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.700.10	10 mm	42	52	700 Kg.	1400 Kg.	0.39
YO.700.13	13 mm	45	58			0.42
YO.700.16	16 mm	48	64			0.45
YO.700.19	19 mm	51	70			0.48
YO.700.25	25 mm	57	82			0.53
YO.700.32	32 mm	64	96			0.58
YO.700.38	38 mm	70	108			0.62
YO.700.50	50 mm	82	132			0.71
YO.700.63	63 mm	95	158			0.81
YO.700.75	75 mm	107	182			0.85
YO.700.80	80 mm	112	192			0.93
YO.700.100	100 mm	132	232			1.04
YO.700.125	125 mm	157	282			1.28



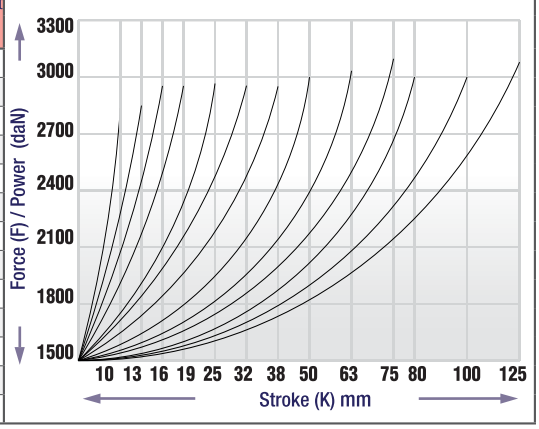


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.1000.10	10 mm	48	58	1000 Kg.	2250 Kg.	0.57
YO.1000.13	13 mm	51	64			0.59
YO.1000.16	16 mm	54	70			0.62
YO.1000.19	19 mm	57	76			0.65
YO.1000.25	25 mm	63	88			0.70
YO.1000.32	32 mm	70	102			0.77
YO.1000.38	38 mm	76	114			0.83
YO.1000.50	50 mm	88	138			0.94
YO.1000.63	63 mm	101	164			1.07
YO.1000.75	75 mm	113	188			1.16
YO.1000.80	80 mm	118	198			1.21
YO.1000.100	100 mm	138	238			1.43
YO.1000.125	125 mm	163	288			1.70

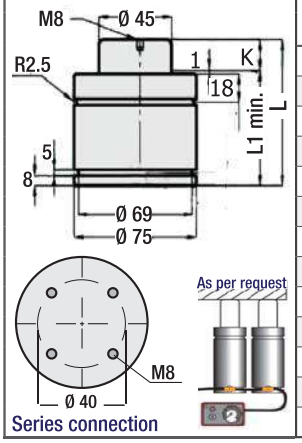




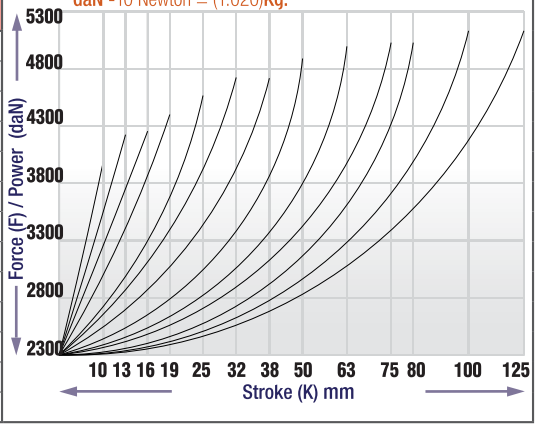
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.1500.10	10 mm	54	64	1500 Kg.	2950 Kg.	1.02
YO.1500.13	13 mm	57	70			1.05
YO.1500.16	16 mm	60	76			1.10
YO.1500.19	19 mm	63	82			1.15
YO.1500.25	25 mm	69	94			1.25
YO.1500.32	32 mm	76	108			1.35
YO.1500.38	38 mm	82	120			1.44
YO.1500.50	50 mm	94	144			1.61
YO.1500.63	63 mm	107	170			1.81
YO.1500.75	75 mm	119	194			1.90
YO.1500.80	80 mm	124	204			2.06
YO.1500.100	100 mm	144	244			2.38
YO.1500.125	125 mm	169	294			2.86

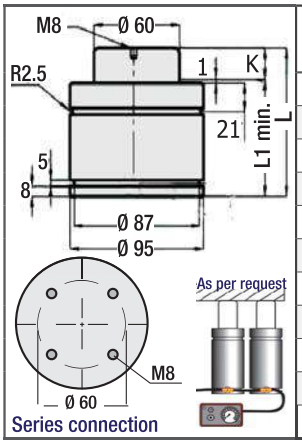


YO Series, Gas Spring - High Force

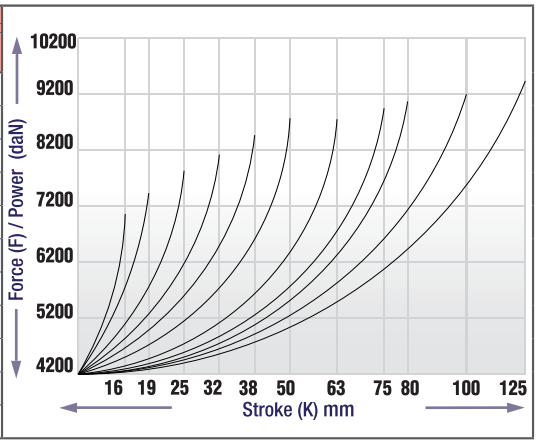


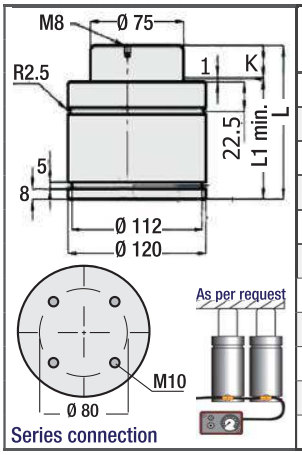
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.2400.10	10 mm	55	65	2400 Kg.	4850 Kg.	1.47
YO.2400.13	13 mm	58	71			1.52
YO.2400.16	16 mm	61	77			1.58
YO.2400.19	19 mm	64	83			1.65
YO.2400.25	25 mm	70	95			1.77
YO.2400.32	32 mm	77	109			1.93
YO.2400.38	38 mm	83	121			2.05
YO.2400.50	50 mm	95	145			2.30
YO.2400.63	63 mm	108	171			2.55
YO.2400.75	75 mm	120	195			2.75
YO.2400.80	80 mm	125	205			2.85
YO.2400.100	100 mm	145	245			3.28
YO.2400.125	125 mm	170	295			3.93



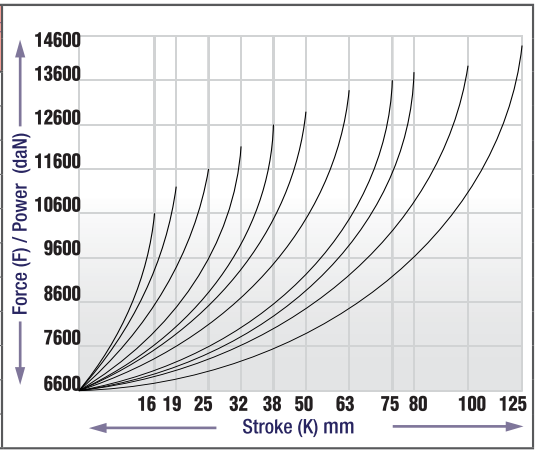


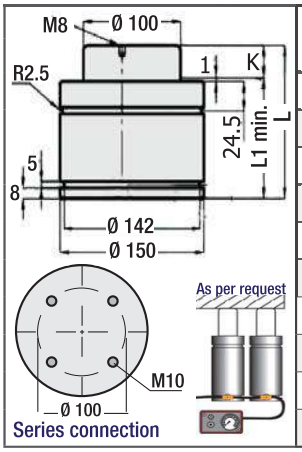
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.4200.16	16 mm	81	97	4200 Kg.	8600 Kg.	3.40
YO.4200.19	19 mm	84	103			3.45
YO.4200.25	25 mm	90	115			3.65
YO.4200.32	32 mm	97	129			3.82
YO.4200.38	38 mm	103	141			4.00
YO.4200.50	50 mm	115	165			4.44
YO.4200.63	63 mm	128	191			4.95
YO.4200.75	75 mm	140	215			5.20
YO.4200.80	80 mm	145	225			5.41
YO.4200.100	100 mm	165	265			6.00
YO.4200.125	125 mm	190	315			6.70



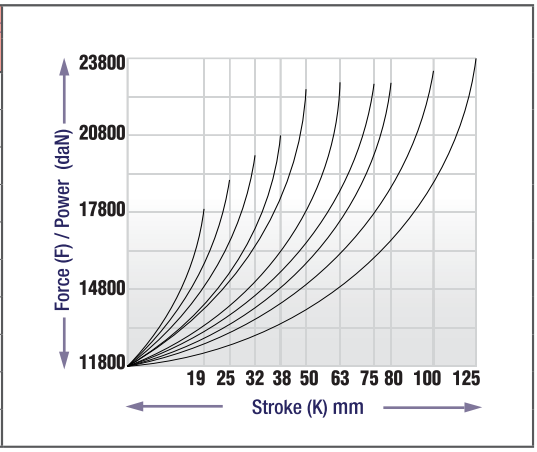


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.6600.16	16 mm	91	107	6600 Kg.	13200 Kg.	6.60
YO.6600.19	19 mm	94	113			6.65
YO.6600.25	25 mm	100	125			6.82
YO.6600.32	32 mm	107	139			7.18
YO.6600.38	38 mm	113	151			7.57
YO.6600.50	50 mm	125	175			8.18
YO.6600.63	63 mm	138	201			8.81
YO.6600.75	75 mm	150	225			8.95
YO.6600.80	80 mm	155	235			9.10
YO.6600.100	100 mm	175	275			10.70
YO.6600.125	125 mm	200	325			12.50





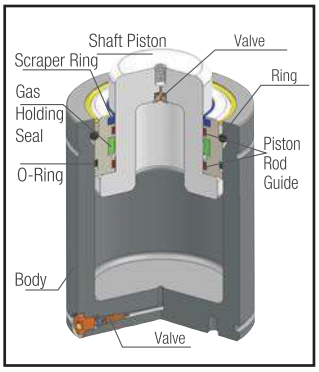
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
YO.11800.19	19 mm	97	116	11800 Kg.	20500 Kg.	9.57
YO.11800.25	25 mm	103	128			9.96
YO.11800.32	32 mm	110	142			10.41
YO.11800.38	38 mm	116	154			10.81
YO.11800.50	50 mm	128	178			11.59
YO.11800.63	63 mm	141	204			11.88
YO.11800.75	75 mm	153	228			12.21
YO.11800.80	80 mm	158	238			12.43
YO.11800.100	100 mm	178	278			13.51
YO.11800.125	125 mm	203	328			15.14



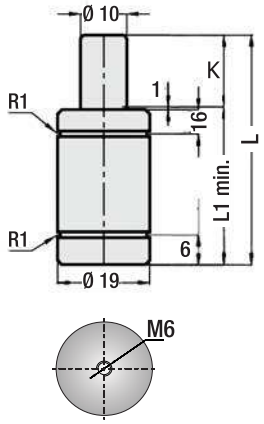
MG Series, Gas Spring - High Stroke Rates

High force - strong gas spring cylinders provide die cost reduction, wide stroke / stroke option adjustments with optimum bearing and the highest increased spring forces. Wide range of connections and accessories for all kinds of applications. When filling / charging the gas spring, the maximum pressure level recommended for each model should not be exceeded (150 bar). This standard series connection is recommended when supply tanks are used. In gas spring selection, a spring over the criteria must be selected. The usage criteria should be adjusted by assuming that the processed sheet metal quality may change.

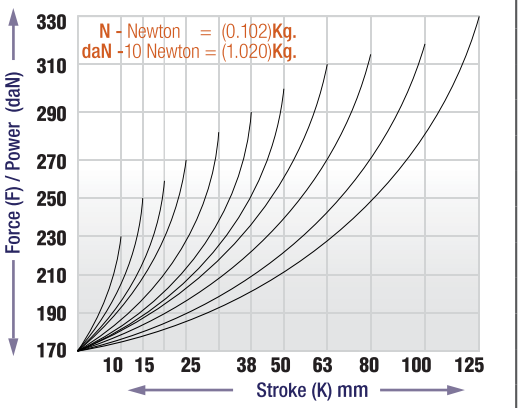
Max. Pressure: **150 Bar** - Max. Speed : **1.6 m/s** - Max. Temp. : **0-80^{0}C**



MG Series, Gas Spring - High Stroke Rates



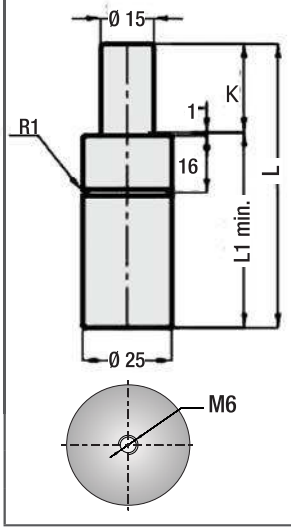
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
MG.170.07	**7** mm	37	44	170 Kg.	280 Kg.	0.06
MG.170.10	**10** mm	40	50			0.06
MG.170.15	**15** mm	45	60			0.07
MG.170.19	**19** mm	49	68			0.07
MG.170.25	**25** mm	55	80			0.08
MG.170.38	**38** mm	68	106			0.09
MG.170.50	**50** mm	80	130			0.10
MG.170.63	**63** mm	93	156			0.12
MG.170.75	**75** mm	110	185			0.14
MG.170.80	**80** mm	115	195			0.14
MG.170.100	**100** mm	135	235			0.17
MG.170.125	**125** mm	160	285			0.19



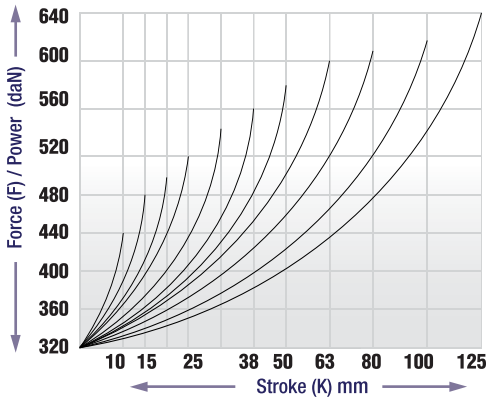
Bottom mount M6

Mounting at the housing
Ø
+1.0
+0.5

Code: BTA 25
Code: BTB 25



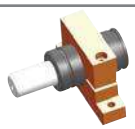
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
MG.320.07	**7** mm	37	44	320 Kg.	520 Kg.	0.10
MG.320.10	**10** mm	40	50			0.10
MG.320.15	**15** mm	45	60			0.11
MG.320.19	**19** mm	49	68			0.12
MG.320.25	**25** mm	55	80			0.13
MG.320.32	**32** mm	62	94			0.14
MG.320.38	**38** mm	68	106			0.15
MG.320.50	**50** mm	80	130			0.17
MG.320.63	**63** mm	93	156			0.19
MG.320.75	**75** mm	110	185			0.22
MG.320.80	**80** mm	115	195			0.23
MG.320.100	**100** mm	135	235			0.26
MG.320.125	**125** mm	160	285			0.30



Prefer for square flange fixing elements, non-rotating and gas springs are connected in series. If there is vibration during operation, retighten the screws meticulously.

Bottom mount M6

Code: BY 32
Code: BY 32 - B



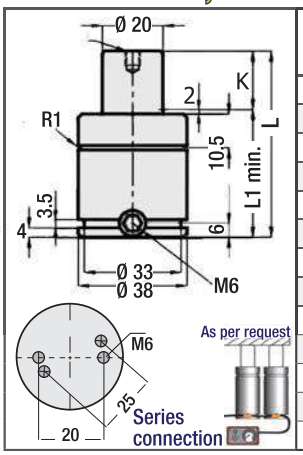
Code: BD 32

Code: BT 32

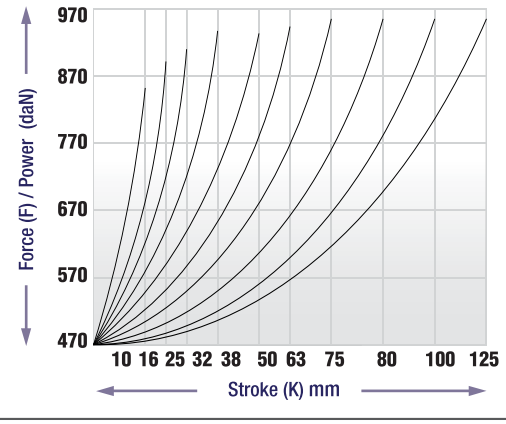
Code: BK 32

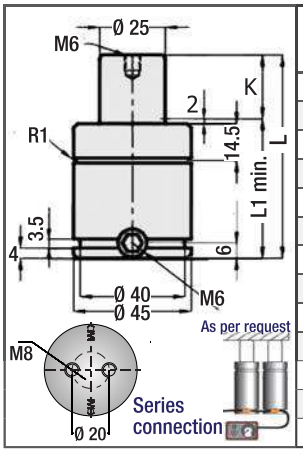
All Die Gas Spring Cylinders: They are designed with a stroke reserve between 1 to 3 mm. Thus, the nominal value (stroke) can be totally implemented. However, it is recommended not to exceed 90% of the stroke value in order to avoid an extra stroke risk caused by the changes or errors in the system. Otherwise, it may cause irreparable damages to the cylinders and serious dangers for the personnel.

MG Series, Gas Spring - High Stroke Rates

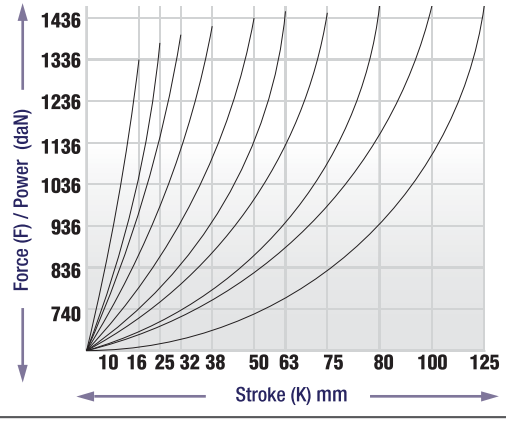


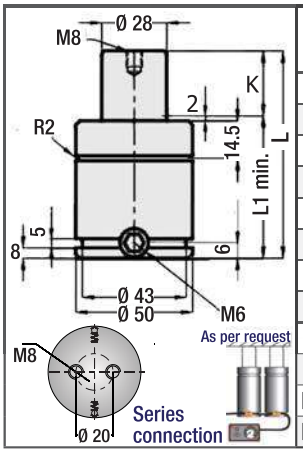
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
MG.500.10	**10** mm	40	50	500 Kg.	770 Kg.	0.24
MG.500.13	**13** mm	43	56			0.25
MG.500.16	**16** mm	46	62			0.26
MG.500.19	**19** mm	49	68			0.28
MG.500.25	**25** mm	55	80			0.31
MG.500.32	**32** mm	62	94			0.34
MG.500.38	**38** mm	68	106			0.37
MG.500.50	**50** mm	80	130			0.42
MG.500.63	**63** mm	93	156			0.48
MG.500.75	**75** mm	105	180			0.54
MG.500.80	**80** mm	110	190			0.56
MG.500.100	**100** mm	130	230			0.66
MG.500.125	**125** mm	155	280			0.77



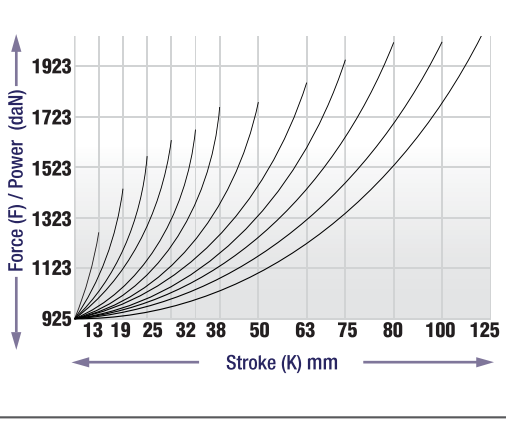


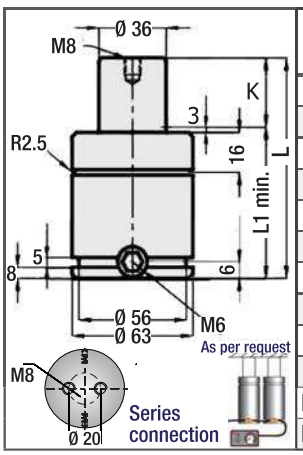
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
MG.750.10	**10** mm	42	52	750 Kg.	1200 Kg.	0.36
MG.750.13	**13** mm	45	58			0.38
MG.750.16	**16** mm	48	64			0.39
MG.750.19	**19** mm	51	70			0.41
MG.750.25	**25** mm	57	82			0.45
MG.750.32	**32** mm	64	96			0.50
MG.750.38	**38** mm	70	108			0.54
MG.750.50	**50** mm	82	132			0.61
MG.750.63	**63** mm	95	158			0.70
MG.750.75	**75** mm	107	182			0.77
MG.750.80	**80** mm	112	192			0.81
MG.750.100	**100** mm	132	232			0.93
MG.750.125	**125** mm	157	282			1.10



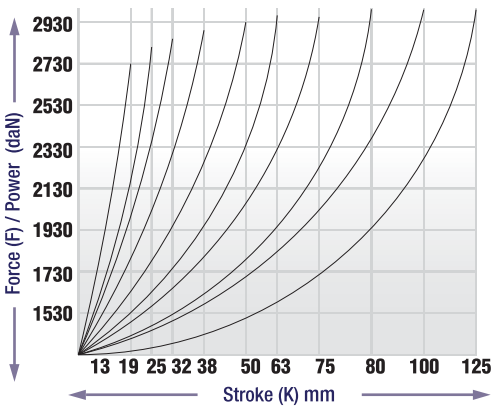


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
MG.1000.13	**13** mm	51	64	1000 Kg.	1550 Kg.	0.51
MG.1000.16	**16** mm	54	70			0.54
MG.1000.19	**19** mm	57	76			0.56
MG.1000.25	**25** mm	63	88			0.61
MG.1000.32	**32** mm	70	102			0.67
MG.1000.38	**38** mm	76	114			0.71
MG.1000.50	**50** mm	88	138			0.81
MG.1000.63	**63** mm	101	164			0.91
MG.1000.75	**75** mm	113	188			1.05
MG.1000.80	**80** mm	118	198			1.09
MG.1000.100	**100** mm	138	238			1.21
MG.1000.125	**125** mm	163	288			1.41



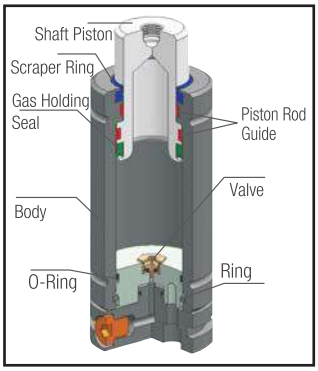


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
MG.1500.13	**13** mm	57	70	1500 Kg.	2400 Kg.	0.92
MG.1500.16	**16** mm	60	76			0.96
MG.1500.19	**19** mm	63	82			0.99
MG.1500.25	**25** mm	69	94			1.06
MG.1500.32	**32** mm	76	108			1.14
MG.1500.38	**38** mm	82	120			1.21
MG.1500.50	**50** mm	94	144			1.35
MG.1500.63	**63** mm	107	170			1.51
MG.1500.75	**75** mm	119	194			1.65
MG.1500.80	**80** mm	124	204			1.71
MG.1500.100	**100** mm	144	244			1.94
MG.1500.125	**125** mm	169	294			2.23

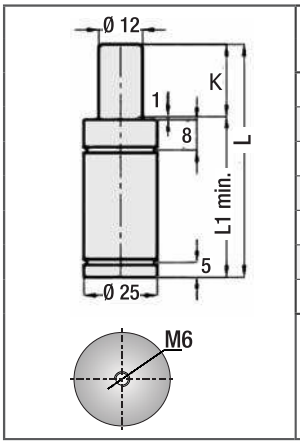


GC Series, Gas Spring - Super Pressure

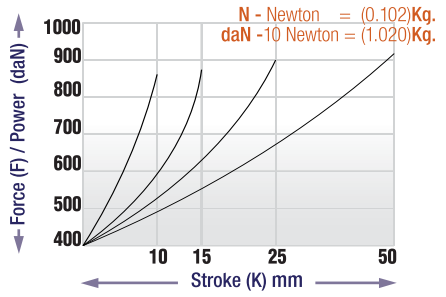
Compact super pressure gas springs: The series which has piston sealing for maximum force has the highest forces, high pressure but shorter lifetime. It can be connected in series to the hoses. Wide connection range and accessories for all kinds of applications.
When filling / charging the gas spring, the maximum pressure level recommended for each model should not be exceeded (150 bar).
This standard series connection is recommended when supply tanks are used. In gas spring selection, a spring over the criteria must be selected. The usage criteria should be adjusted by assuming that the processed sheet metal quality may change.
Max. Pressure: **150 Bar** - Max. Speed : **0.5 m/s** - Max. Temp. : **0-80^{0}C**



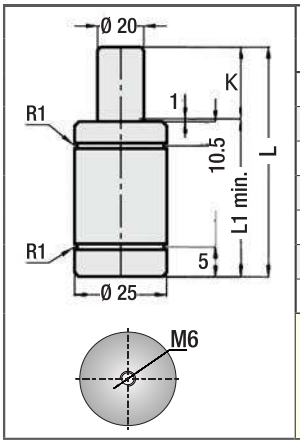
GC Series, Gas Spring - Super Pressure



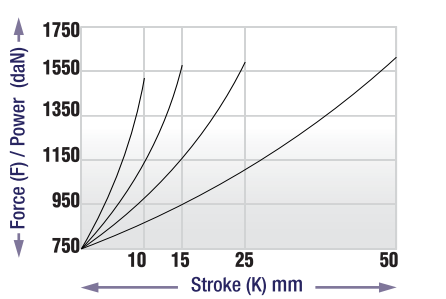
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.420.06	**6** mm	50	56	420 Kg.	840 Kg.	0.14
GC.420.10	**10** mm	60	70			0..16
GC.420.16	**16** mm	75	91			0.19
GC.420.25	**25** mm	95	120			0.23
GC.420.32	**32** mm	108	140			0.25
GC.420.40	**40** mm	125	165			0.28
GC.420.50	**50** mm	145	195			0.32



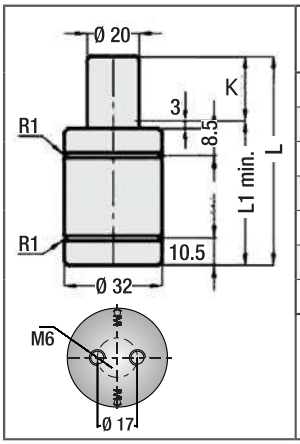
Pressure Increse: During operation, the piston of the gas spring inserts into the body and the volume of the gas inside gradually decreases. As a result, the pressure increase can be seen as the multiplication factor in the gas spring diagram. The spring force can be easily calculated by multiplying the initial force and the pressure increase factor.



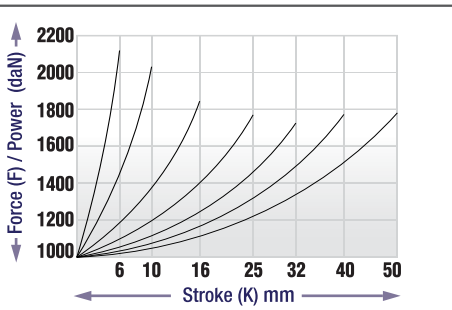
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.750.06	**6** mm	57	63	750 Kg.	1200 Kg.	0.23
GC.750.10	**10** mm	65	75			0.25
GC.750.16	**16** mm	77	93			0.28
GC.750.25	**25** mm	95	120			0.33
GC.750.32	**32** mm	108	140			0.37
GC.750.40	**40** mm	125	165			0.42
GC.750.50	**50** mm	145	195			0.47



Adjusting filling pressure: It can be adjusted according to the spring force and determined by using spring diagram in advance. Spring forces according to spring diagram: The stroke increase / spring force replacement, pressure increase factor and replacements are considered, however you should take into consideration external effects.
Lateral loads should not be applied on gas springs. When press goes down, the lateral forces and the vibrations from the die should be checked.



Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.1000.06	**6** mm	55	61	1000 Kg.	1450 Kg.	0.33
GC.1000.10	**10** mm	68	78			0.38
GC.1000.16	**16** mm	84	100			0.44
GC.1000.25	**25** mm	110	135			0.53
GC.1000.32	**32** mm	135	167			0.62
GC.1000.40	**40** mm	155	195			0.70
GC.1000.50	**50** mm	180	230			0.79



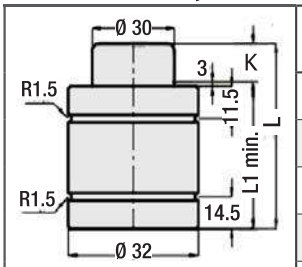
Bottom mount
M6

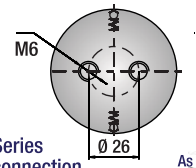
Mounting at the housing
Ø
+1.0
+0.5

Code: BY

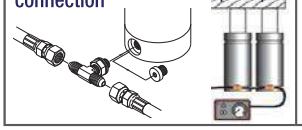
Code: BK

GC Series, Gas Spring - Super Pressure





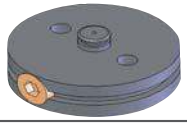
Series connection



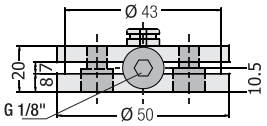
As per request

Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.1800.06	6 mm	60	66	1800 Kg.	2700 Kg.	0.62
GC.1800.10	10 mm	70	80			0.68
GC.1800.16	16 mm	90	106			0.80
GC.1800.25	25 mm	110	135			0.92
GC.1800.32	32 mm	130	162			1.05
GC.1800.40	40 mm	150	190			1.17
GC.1800.50	50 mm	170	220			1.30

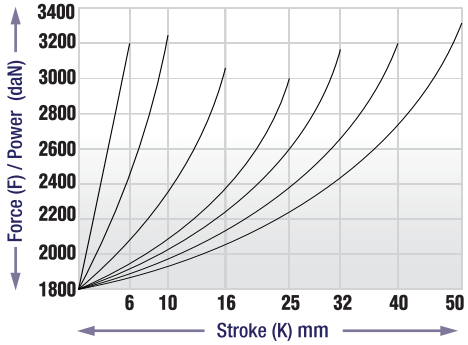
Base with valve

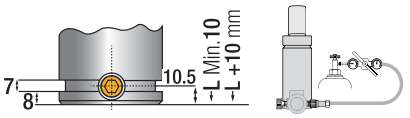


Series connection adapter

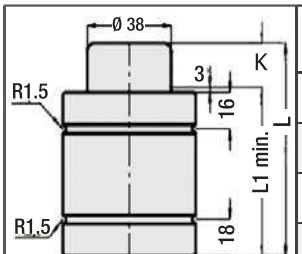


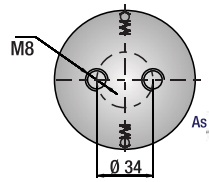
N - Newton = (0.102)Kg.
daN -10 Newton = (1.020)Kg.





Keep pressure level for each model !





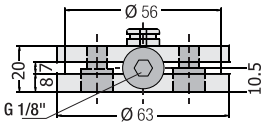
Series connection

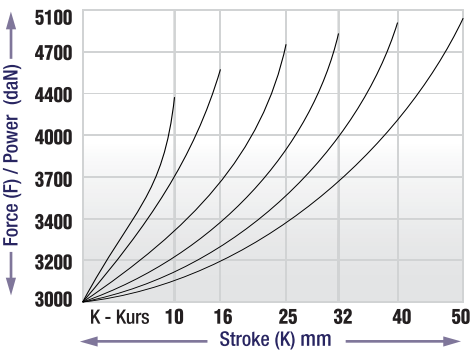
As per request

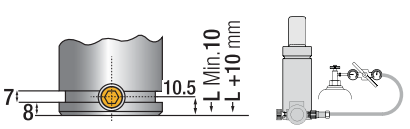
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.3000.10	10 mm	75	85	3000 Kg.	4650 Kg.	1.23
GC.3000.16	16 mm	87	103			1.35
GC.3000.25	25 mm	105	130			1.54
GC.3000.32	32 mm	118	150			1.68
GC.3000.40	40 mm	135	175			1.86
GC.3000.50	50 mm	155	205			2.07

Base with valve

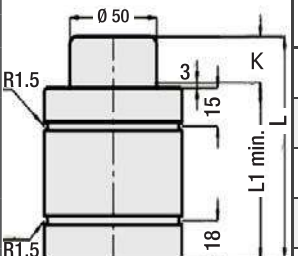
Series connection adapter

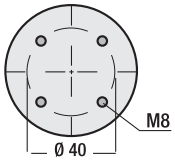






Keep pressure level for each model !





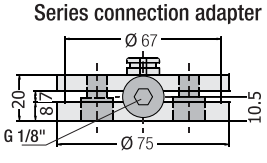
Series connection

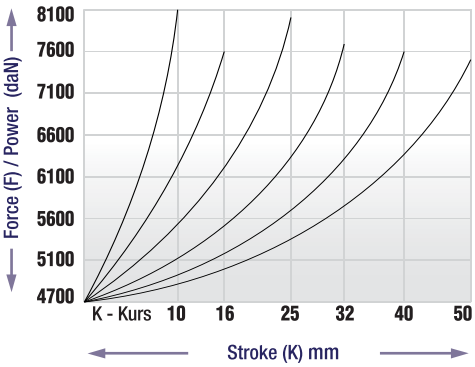
As per request

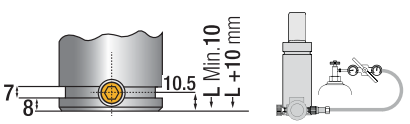
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.4700.10	10 mm	70	80	4700 Kg.	6350 Kg.	1.60
GC.4700.16	16 mm	90	106			1.83
GC.4700.25	25 mm	110	135			2.07
GC.4700.32	32 mm	135	167			2.37
GC.4700.40	40 mm	160	200			2.66
GC.4700.50	50 mm	190	240			3.01

Base with valve

Series connection adapter

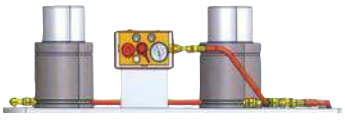




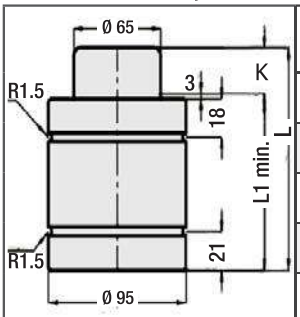


Keep pressure level for each model !

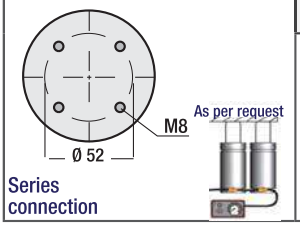
Valve inlets of the series connection cylinders;
Specify 1 or 2 valves when placing order!



GC Series, Gas Spring - Super Pressure

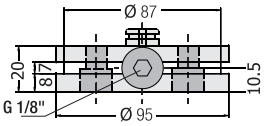


Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.7500.10	10 mm	80	90	7500 Kg.	10500 Kg.	2.87
GC.7500.16	16 mm	100	116			3.23
GC.7500.25	25 mm	120	145			3.62
GC.7500.32	32 mm	150	182			4.16
GC.7500.40	40 mm	170	210			4.54
GC.7500.50	50 mm	205	255			5.17

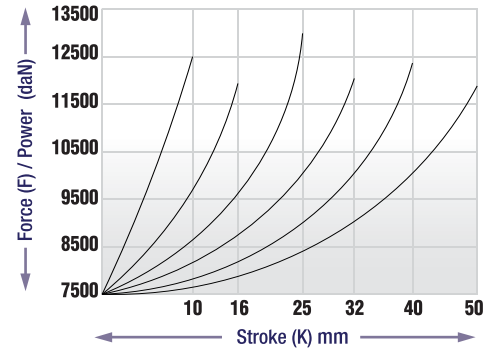


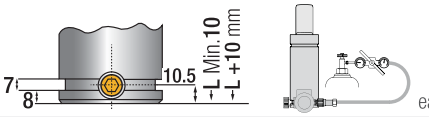
Base with valve

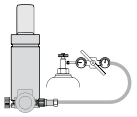
Series connection adapter



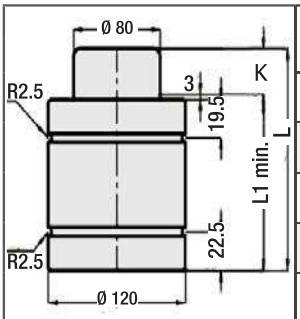
N - Newton = (0.102)Kg.
daN -10 Newton = (1.020)Kg.



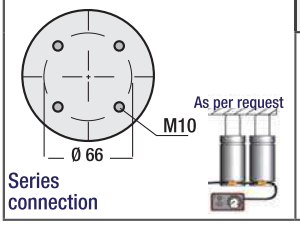




Keep pressure level for each model !

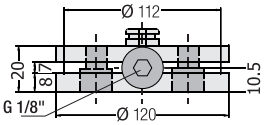


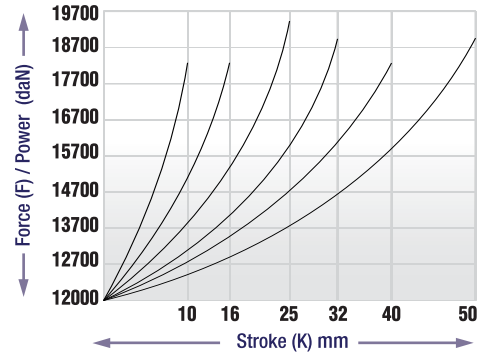
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.12000.10	10 mm	90	100	12000 Kg.	16200 Kg.	5.50
GC.12000.16	16 mm	110	126			6.10
GC.12000.25	25 mm	130	155			6.77
GC.12000.32	32 mm	155	187			7.54
GC.12000.40	40 mm	180	220			8.31
GC.12000.50	50 mm	210	260			9.25

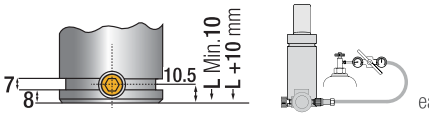


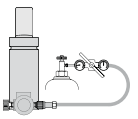
Base with valve

Series connection adapter

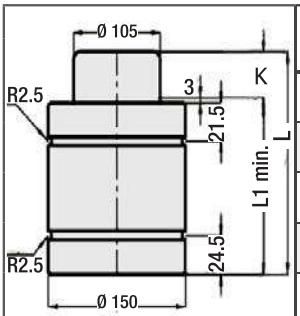




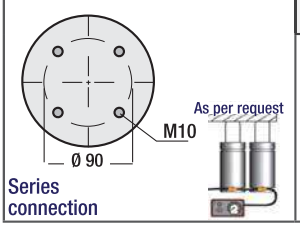




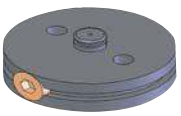
Keep pressure level for each model !



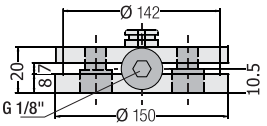
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
GC.18500.10	10 mm	100	110	18500 Kg.	26820 Kg.	9.23
GC.18500.16	16 mm	120	136			10.20
GC.18500.25	25 mm	140	165			11.22
GC.18500.32	32 mm	165	197			12.43
GC.18500.40	40 mm	195	235			13.85
GC.18500.50	50 mm	220	270			15.11

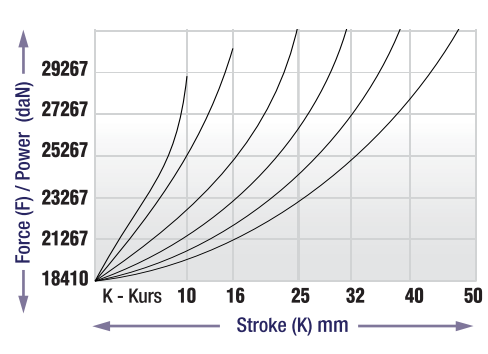


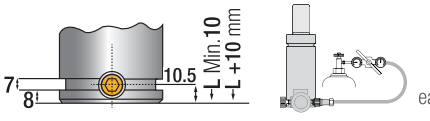
Base with valve

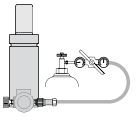


Series connection adapter

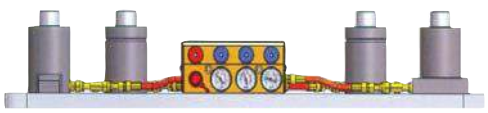




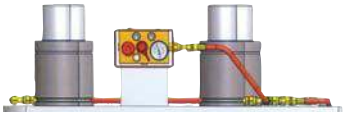




Keep pressure level for each model !

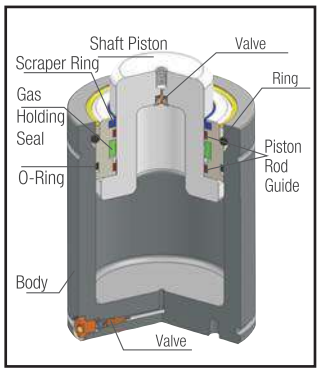


Valve inlets of the series connection cylinders;
Specify 1 or 2 valves when placing order!

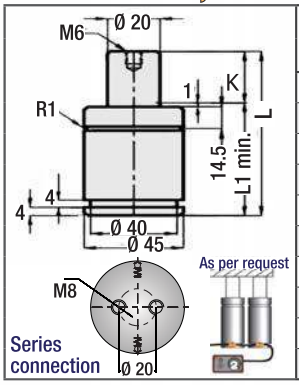


AD Series, Gas Spring - Low Profile

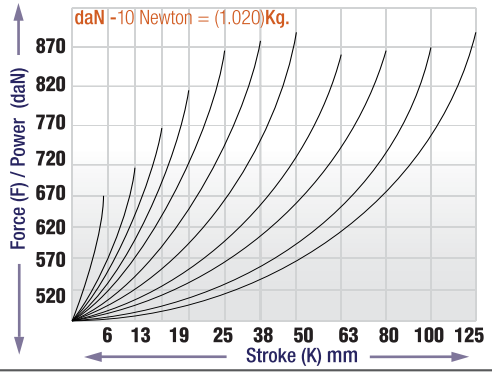
With its compact series features, requirement of protection from liquids, high stroke forces. 30% maximum pressure increase compared to the "Y Series" having similar sizes. Two layers of permanent lubrication. Ideal product for forming / shaping dies. It can be connected to the hose systems. Wide range of connection / fixing elements and accessories for all kinds of application. This standard series connection is recommended when supply tanks are used. In gas spring selection, a spring over the criteria must be selected. The usage criteria should be adjusted by assuming that the processed sheet metal quality may change. Do not repair the worn springs.
The worn springs should be replaced.
Max. Pressure: **150 Bar** - Max. Speed : **0.5 m/s** - Max. Temp. : **0-80^{0}C**

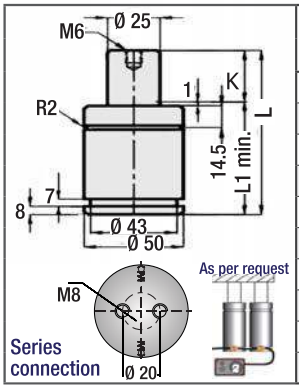


AD Series, Gas Spring - Low Profile

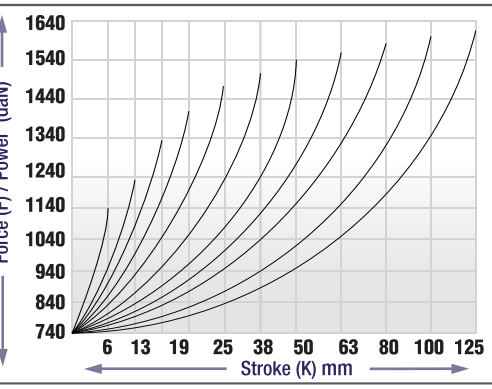


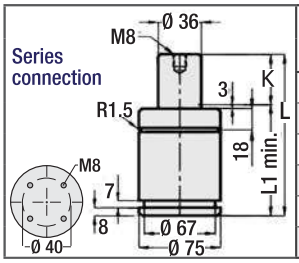
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
AD.500.06	6 mm	56	62	500 Kg.	700 Kg.	0.51
AD.500.13	13 mm	62.7	75			0.56
AD.500.19	19 mm	69	88			0.60
AD.500.25	25 mm	75	100			0.65
AD.500.38	38 mm	88	126			0.74
AD.500.50	50 mm	100	150			0.83
AD.500.63	63 mm	113.5	177			0.96
AD.500.80	80 mm	130	210			0.99
AD.500.100	100 mm	150	250			1.14
AD.500.125	125 mm	175	300			1.32



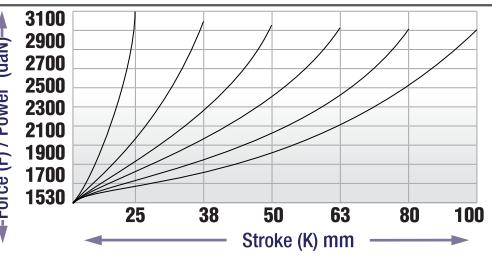


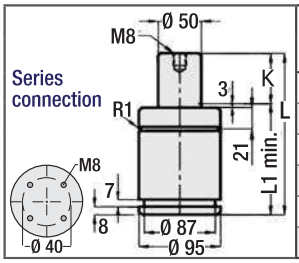
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
AD.750.06	6 mm	56	62	750 Kg.	1150 Kg.	0.59
AD.750.13	13 mm	62.7	75			0.65
AD.750.19	19 mm	69	88			0.70
AD.750.25	25 mm	75	100			0.76
AD.750.38	38 mm	88	126			0.80
AD.750.50	50 mm	100	150			1.00
AD.750.63	63 mm	113.5	177			1.10
AD.750.80	80 mm	130	210			1.70
AD.750.100	100 mm	150	250			1.96
AD.750.125	125 mm	175	300			2.07



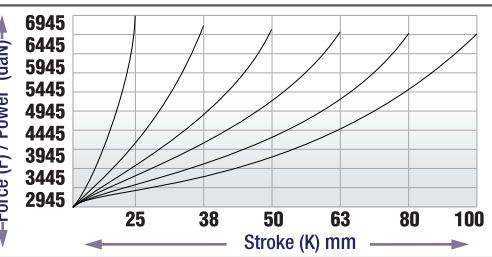


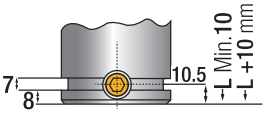
Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
AD.1500.25	25 mm	85	110	1500 Kg.	2300 Kg.	1.93
AD.1500.38	38 mm	99	136			2.18
AD.1500.50	50 mm	110	160			3.64
AD.1500.63	63 mm	123.5	187			3.91
AD.1500.80	80 mm	140	230			4.28
AD.1500.100	100 mm	160	260			4.72

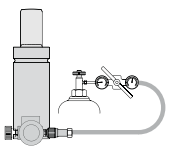




Order Model	Stroke (K) mm	L1 min.	L Length	Force Initial	Force Final	Weight Kg.
AD.3000.25	25 mm	95	120	3000 Kg.	4600 Kg.	4.07
AD.3000.38	38 mm	108	146			4.53
AD.3000.50	50 mm	120	170			5.16
AD.3000.63	63 mm	133.5	197			5.44
AD.3000.80	80 mm	150	230			6.05
AD.3000.100	100 mm	170	270			6.78

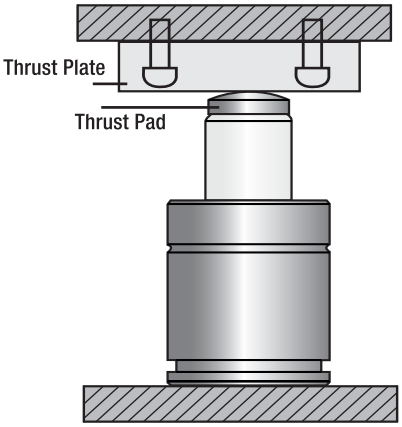


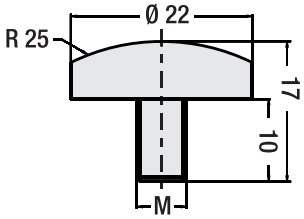




Keep pressure level for each model !

Mounting Example





Thrust Pad for Gas Springs

Code: HRM

Piston protection head (balancing / straightening)

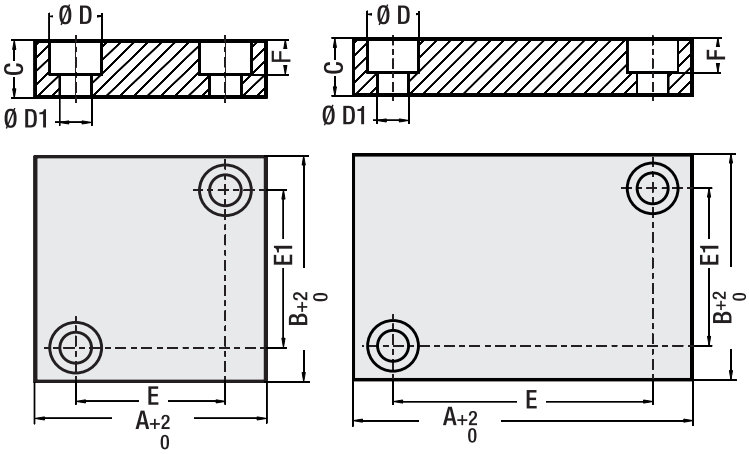
Order Code	M
HRM.6	M6 x 10
HRM.8	M8 x 10

It is a useful product which protects piston head and absorbs vibrations in the die. The hardened thrust pad reduces lateral pressure in cases of declined pressure or laterally replacing parts. The lateral load resistance of the gas springs is increased by using the thrust pads and the thrust plates together. It does that by reducing friction. Even though no thrust pad is used, a thrust plate will be very useful for your system.

Thrust Plate for Gas Springs

Code: EP

It reduces lateral pressure in cases of declined pressure or laterally replacing parts. The lateral load resistance of the gas springs is increased by using the thrust pads and the thrust plates together. It does that by reducing friction. Even though no thrust pad is used, a thrust plate will be very useful for your system.



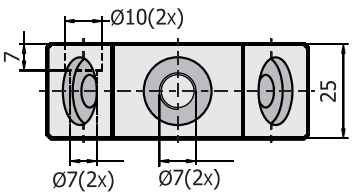
Order Code	A mm	B mm	C mm	Ø D	Ø D1	E	E1	F	Gas Spring Code
EP.40	40	40	15	15	9	21	21	10	SN:150-250-500 / Y:300-500 / YO:300-500 / G:40-75-100
EP.56	56	56	20	18	11	32	32	13	SN:750-1500 / Y:700-1000 / YO:700-1000-1500 / G:180
EP.71	71	71	20	18	11	48	48	13	SN:3000-5000 / Y:2400 / YO:2400-4200 / G:470-750
EP.50	50	25	12	11	7	32	8	8	SN:250 / Y:300 / YO:300
EP.55	55	30	12	11	7	40	14	8	SN:500 / Y:500 / YO:500 / G:40-75-100
EP.70	70	35	15	15	9	48	14	10	SN:750 / Y:700 / YO:700
EP.75	75	50	15	15	9	56	30	10	SN:1500 / Y:1000 / YO:1000-1500 / G:180
EP.85	85	60	15	15	9	66	40	10	SN:3000 / Y:2400 / YO:2400 / G:470
EP.100	100	80	20	18	11	72	56	12	SN:5000 / Y:4200 / YO:4200 / G:750
EP.110	110	100	20	18	11	85	45	12	SN:7500-10000 / Y:6600 / YO:6600-11800 / G:1200

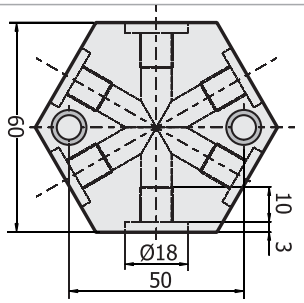
Note: We recommend using the thrust pad and the thrust plate combination in gas springs with wide stroke capacity.

Material: CK45
Surface Hardened

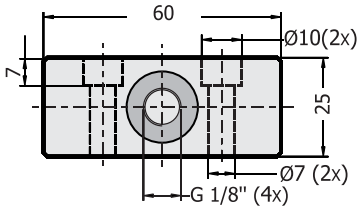
Gas Spring Distribution Blocks Code: DB

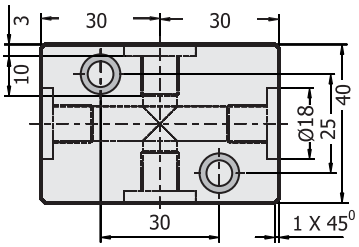
Order Code: DBC.6

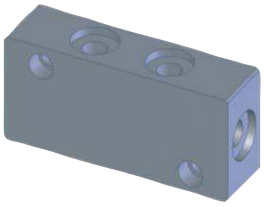




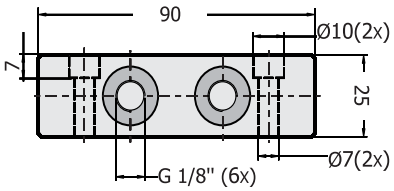
Order Code: DB.4

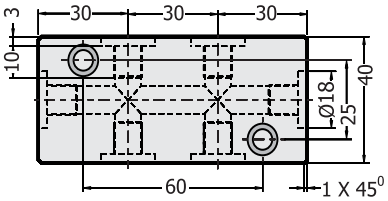


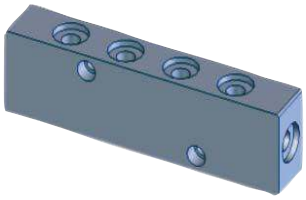




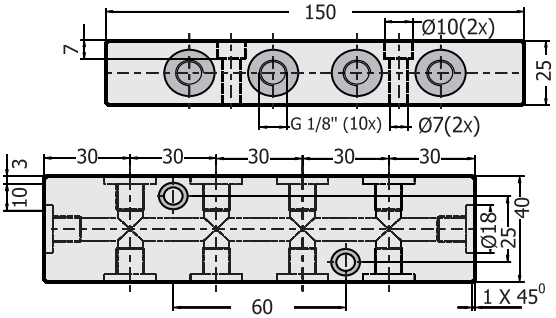
Order Code: DB.6

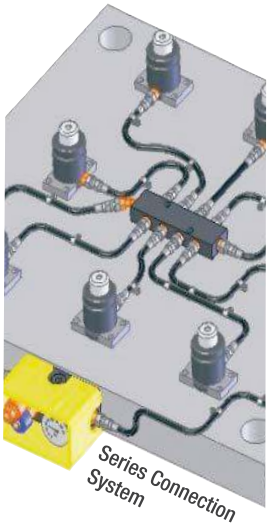


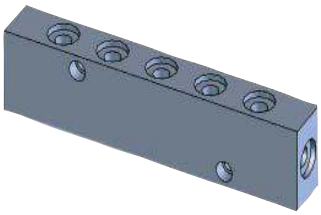




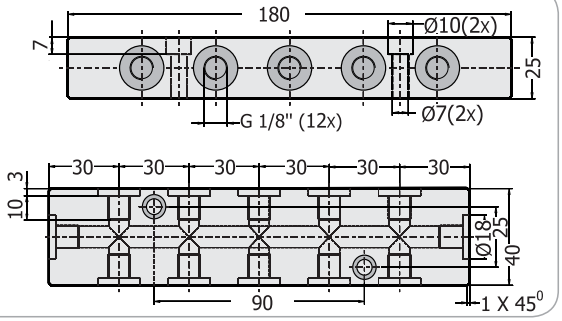
Order Code: DB.10



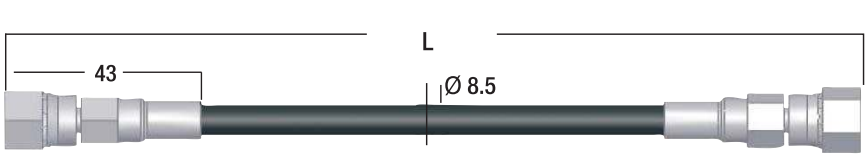


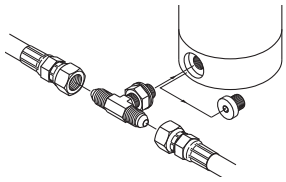


Order Code: DB.12



Material: CK 45 / Surface Hardened
"Custom-made production (material) as per request"



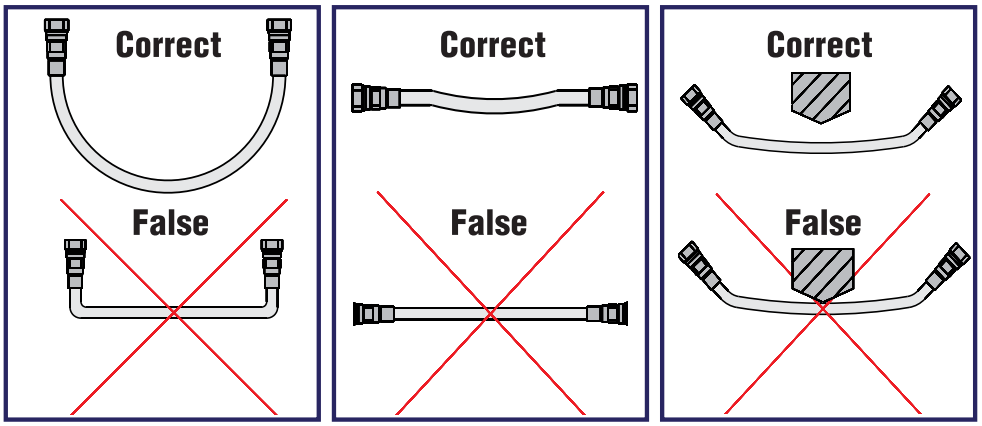


Hose for Gas Spring Distribution Blocks

Code: GHS

Order Code	L (Length) mm
GHS.180	180
GHS.200	200
GHS.300	300
GHS.400	400
GHS.500	500
GHS.630	630
GHS.800	800
GHS.1000	1000
GHS.1250	1250
GHS.1500	1500
GHS.2000	2000

Criteria for inserting hoses in a correct way:



System with hoses:

From SN.500 up to SN.1000

From Y.700 up to Y.6600

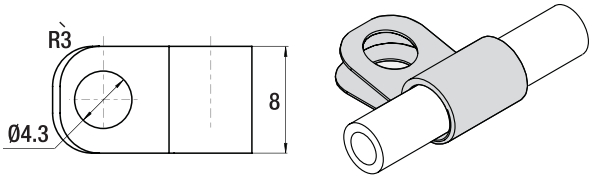
From YO.700 up to YO.11800

From G.180 up to G.1200

Before beginning this process, ensure that all pressure is discharged and piston is withdrawn completely. In cases that any mounting / inserted part is removed, ensure that control pressure is discharged completely over control panel.
Hoses should be stable in flat position in the system. (bending radius is 13 mm).
Working temperature: + 80^{0}C max.

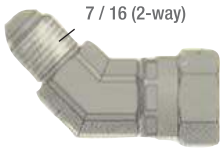
Hose Clamp

Order Code: HK



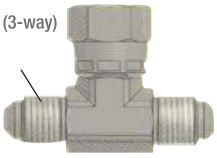
It is used as hose clamp in connection systems.

Gas Spring Fittings



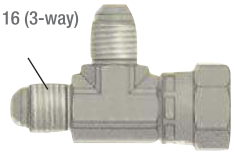
7/16''UNF

Order: SD.45



7/16''UNF

Order: SBT

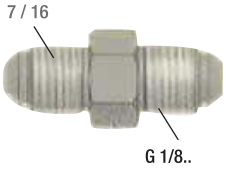


7/16''UNF

Order: SBYT

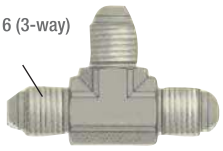
7/16''UNF

Order: SD 90



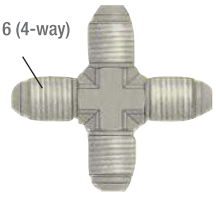
7/16''UNF - G1/8''

Order: DR



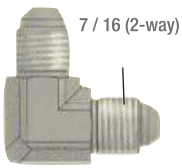
7/16''UNF

Order: DT



7/16''UNF

Order: DDB



7/16''UNF

Order: DD

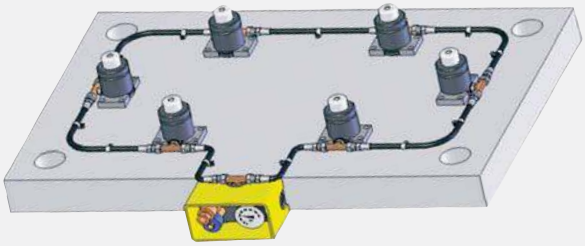
Liquid Sealant with Teflon (PTFE)

Thread & pipe sealant are sealed threaded bolts against water, oil, gas and chemicals safely.
* High quality sealant. * -55^{0}C / +150^{0}C heat protection.

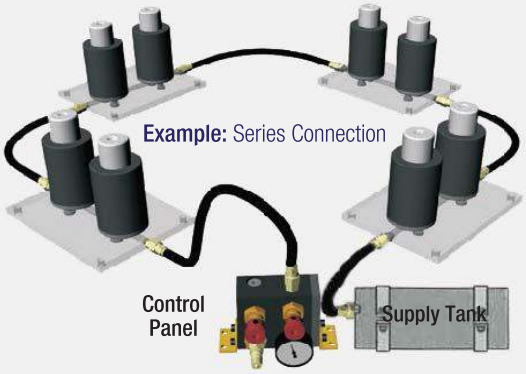
Order Code: W610511 Package: 50 ml.

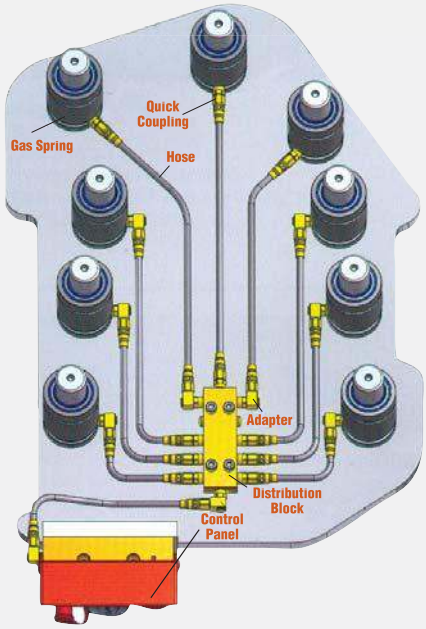
Serial Connection, Practical Examples

To make gas spring connection with a system, it enables to monitor gas spring pressure out of die and to adjust and correct it by increasing - reducing gas.



The springs are connected each other and there should be a control line to the distribution installation.





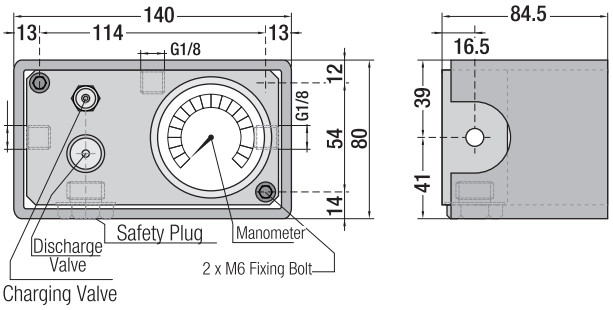
Each gas spring should have a direct connection to the distribution installation. The springs may be added to the installation by using a general pressure source. Hence, the gas filling / charging and discharging settings can be generally done. The springs in the series can be filled / charged and discharged individually.

Control Panel for Gas Spring

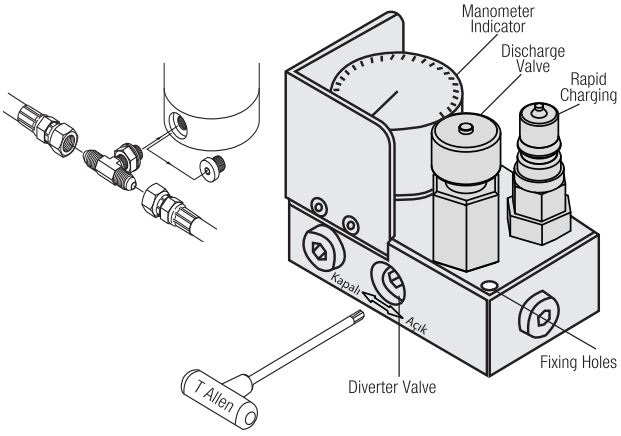
Order Code: KPA

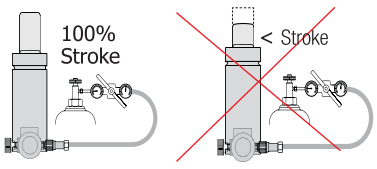
(series connection systems, router unit)

These standard products with wide connection and accessory options are used for all kind of applications that supply tanks are used.



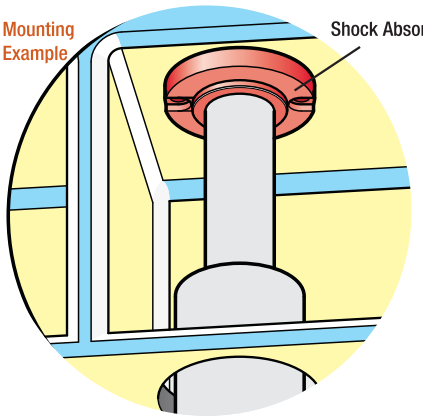
Standard control panel to change pressure, to adjust and to control connection system. It is consisted from manometer connected, steel plate, charging and discharge valves, 3 pieces outlet and steel casing that safety disc can be connected when desired.

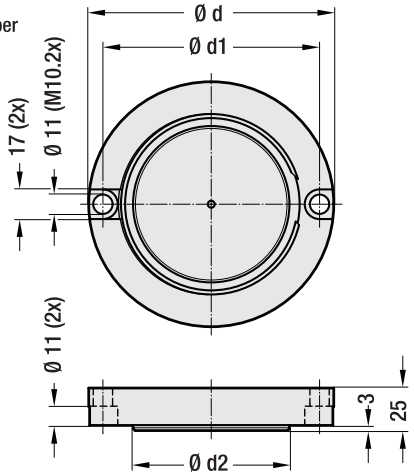




While controlling gas springs, you must remove gas spring valve!

While filling / charging, ensure that piston arm is 100% removed. In cylinders not having threaded hole on rod, to remove arm completely, first fill up to 5 bar (75 psi), and then fill up to required level..





Code: G113

Shock Absorbing for Gas Spring

(daN) 1 Newton : 0.102 Kg.

Order Code	Gas Spring Force F: (daN)	d	d1	d2
G113.58	750 - 1500	108	91	58
G113.92	> 1500 - 6600	143	126	92
G113.112	> 6600 - 10000	167	150	112

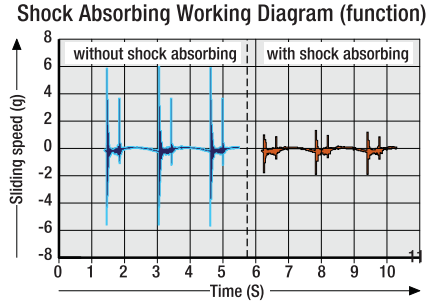
Shock absorbing thrust plates are designed to minimize main problems of dies. Specially designed shock absorbing unit has been developed to reduce following the issues.
- Excessive impact.
- High costs in terms of press maintenance and corresponding units.
- High noise levels.
- Low quality production risk.

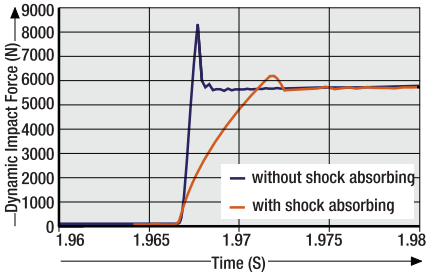
In case of using shock absorbing plates with gas springs:
- After maximum 3 mm shock absorbing stroke, gas spring shock absorbing pressure plate reaches its previous spring power.
- Shock absorbing thrust plate should be mounted between die plate and gas spring piston shaft.

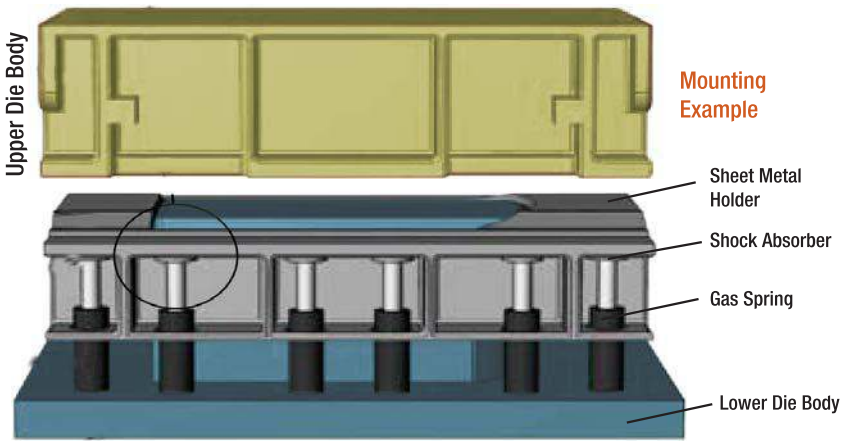
Working temperature: between 0° and 80°C.
Recommended stroke / minute: 20
Max. stroke speed: 1.6 m / s
Max. shock absorbing stroke: 3 mm

Material: Polyurethane
Steel (nitrided)

Shock Absorbing Working Diagram (function)







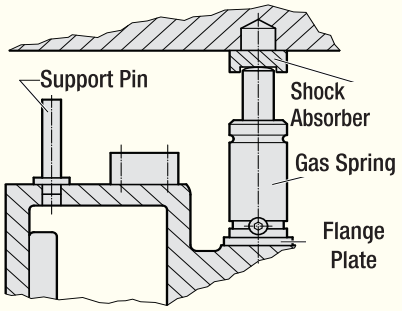
Application of Gas Springs

Using gas springs at large is becoming increasingly popular. Gas springs are mounted to both upper and lower body. The processes on the gas springs should be done after removing the die from the press. In application examples-1 & 2, special shock absorber is shown, these products placed to the place that gas spring will be pressed when die positioned in press and before stamping. During removing from press or storage period, upper die body stays on gas springs.

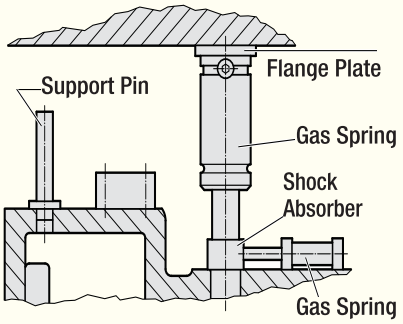
Support pins are for security after gas spring process. When dies are stacked, increased weight can cause crushing of springs, in this case, they are fitted on upper die support pins. When upper die is lifted, gas springs lift the upper body again. While preparing for production, springs enable reach various parts of dies. When die is mounted to press, support pins should be removed (before stamping).

In significant situations: Warning signs should be placed on the die. Gas springs within die may not be visible from the outside.

1 - Gas Spring Mounted to Lower Body



2 - Gas Spring Mounted to Upper Body



3 - Gas Spring Mounted to Upper Body