

AutomotiveLine

GASDRUCKFEDERN



BORDIGNON



WHERE
INNOVATION
HAPPENS.

INHALTSVERZEICHNIS

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Automotive line: Flexibilität und Leistungsfähigkeit für Werkzeugbauer weltweit.

Through our long-term and close collaboration with the manufacturers of the automotive market, we are familiar with their needs. That's why we have created a line of gas springs and accessories that combines performance, flexibility and optimization.

The Bordignon nitrogen gas springs, if properly used, will last more than 200,000,000 mm of total stroke in normal working conditions.



* ISO 9001 Zertifikat zum Download auf www.einspannzapfen.de



A pioneering approach extending the boundaries.

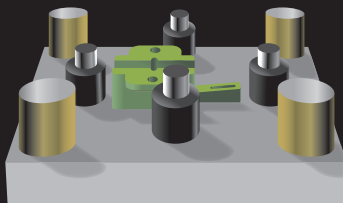
Starting 60 years ago, Bordignon succeeded in becoming the leading company in the reference market, developing new technological solutions applied to springs, nitrogen gas springs and solutions for press tools, dies and moulds.

Our vision about business investments aims to mainly focus on research and development, and at the same time it guarantees the highest standards of products quality and performance, thanks to highly specialised manpower and to the innovative technologies that characterise our production plants.

Kompakt & kraftvoll



Wire springs (low power)



Gas springs (high power)

Nitrogen gas springs offer many advantages over traditional wire springs: higher force, more compact dimensions (height and diameter), no pre-compression (pre-load) needed, no damage to the tool because of breakage, longer potential service life.

Reduction of die size translates into cost reduction and higher productivity, with advantages for both the die-maker and the die-user.



Lebensdauer, Zuverlässigkeit & Preis

The Bordignon "Automotive Line" nitrogen gas springs have been developed as a reliable, standard solution for the automotive industry. Part of their design and technology comes from the well-known Bordignon "High Performance Line" nitrogen gas springs and therefore they offer – at an advantageous price – superior performance and durability when compared to the other nitrogen gas springs on the market.

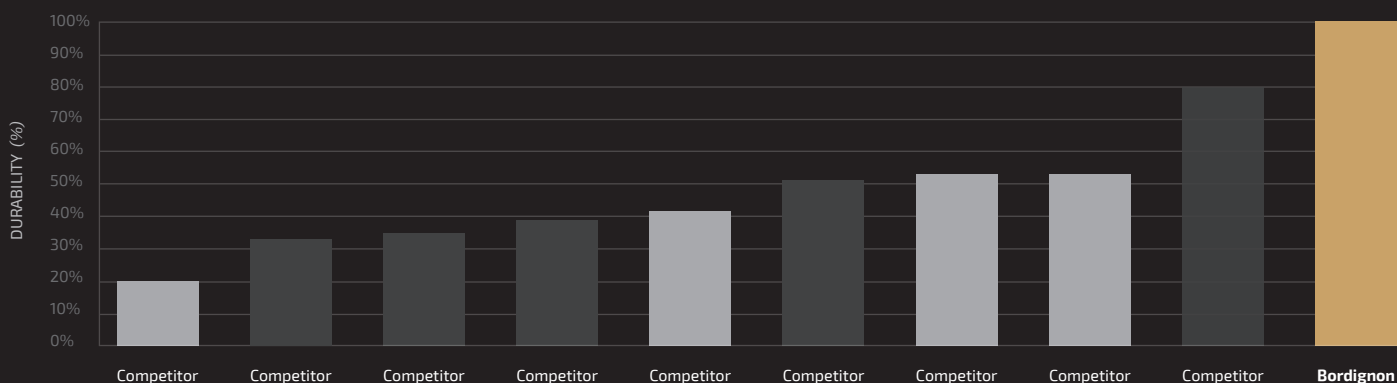
Die makers will appreciate the Bordignon "Automotive Line" nitrogen gas springs as a standard solution for the automotive industry (as well as for other fields/applications) and will be confident in a superior product reliability.

Die users will appreciate the Bordignon "Automotive Line" nitrogen gas springs for their superior durability, which translates into the reduction of production stops and costs.

The following graph shows a relative comparison between the service life of two Bordignon "Automotive Line" nitrogen gas springs series (AGS and TGS, taken as samples for all the other series) and the service life of the other four most durable nitrogen gas springs on the market (according to the tests performed by Bordignon*). The data have been collected from tests that were performed in several, different use conditions. In all these comparison tests, the Bordignon gas spring and the corresponding "non-Bordignon" model have always been tested in the same identical use conditions: the result is that, under the same use conditions, the service life of Bordignon nitrogen gas springs is from 1.2 up to 5 times longer than the service life of the other gas springs*.

DURABILITY UNDER THE SAME OPERATING CONDITIONS *

(The graph shows reference values)



* The results of the tests performed by Bordignon are freely available on request

■ Tests vs. Bordignon AGS

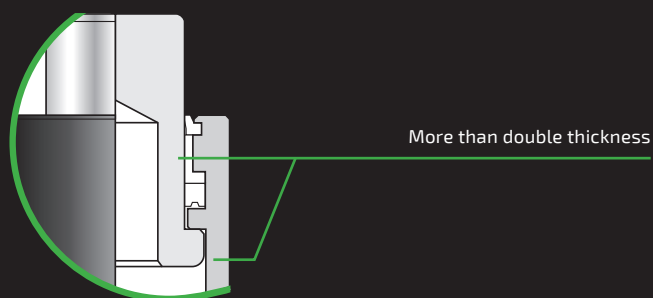
■ Tests vs. Bordignon TGS

Sicherheit & Zuverlässigkeit

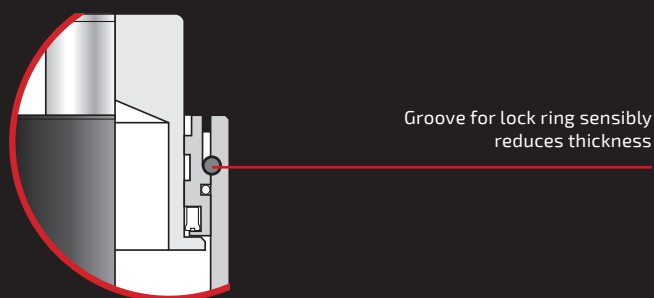
Sicherheit

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

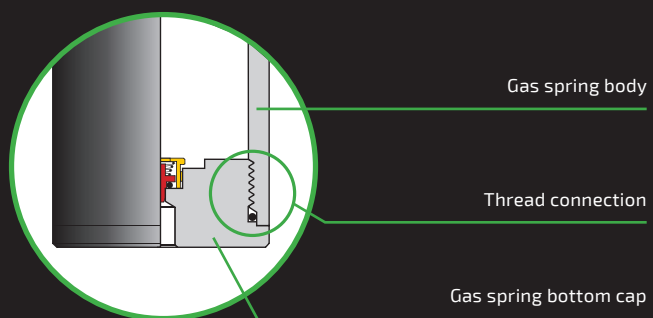


Other constructions - Several assembled components

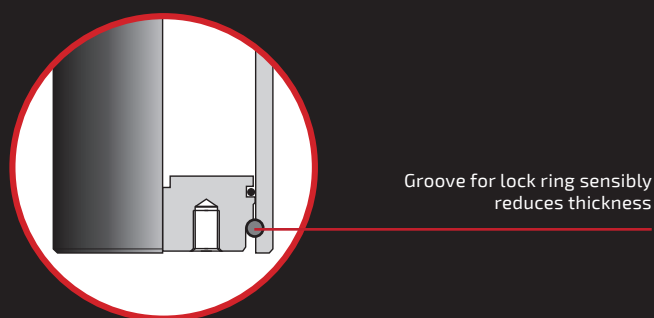


Bordignon gas spring components are coupled through thread connections, for the highest possible safety. Thread connections are standard in high pressure equipment around the world, such as waterjet cutting nozzles and ultra high pressure vessels (~10000 bar).

Bordignon construction - Body/bottom cap threaded junction

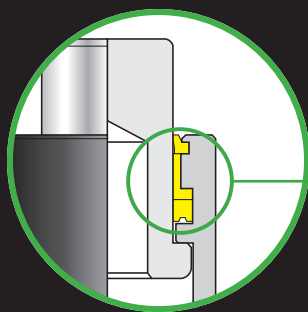


Other constructions - Body/bottom cap junction with lock ring



Zuverlässigkeit

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



Self-lubricating sealing system



FMEA & Sicherheit



ISO 11901-5



VDI 3003 Part 1

FMEA - Failure Mode and Effect Analysis

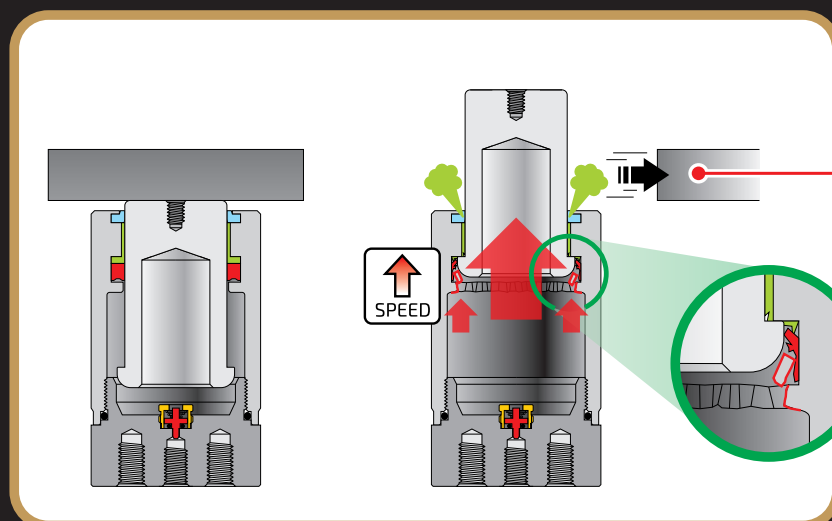
In addition to the reliable design and construction, Bordignon nitrogen gas springs have always been built with safety systems (tested) which minimize the possible risks arising from non-proper use, even in extreme situations, thus ensuring the highest safety level for the end user. The safety protections of the Bordignon nitrogen gas springs are in accordance with the **ISO 11901-5** and **VDI 3003 Part 1** reference standards.

Uncontrolled return stroke safety protection (piston rod free release)

It is possible that the piston rod of the nitrogen gas spring does not immediately follow the return stroke of the press: this can be caused by a jammed tool part or cam. As a result, when the jammed part is released, the piston rod of the nitrogen gas spring exceeds the permitted speed during the return stroke and the piston rod slams unchecked onto the final stop (return stroke of the rod pushing out the jammed parts without stamping counterforce).

In this case, Bordignon nitrogen gas springs are designed to vent the gas to the atmosphere – thereby depressurizing the gas spring – in the event that the maximum permitted piston rod speed is exceeded. This reduces the risks caused by the possible ejection of gas spring parts.

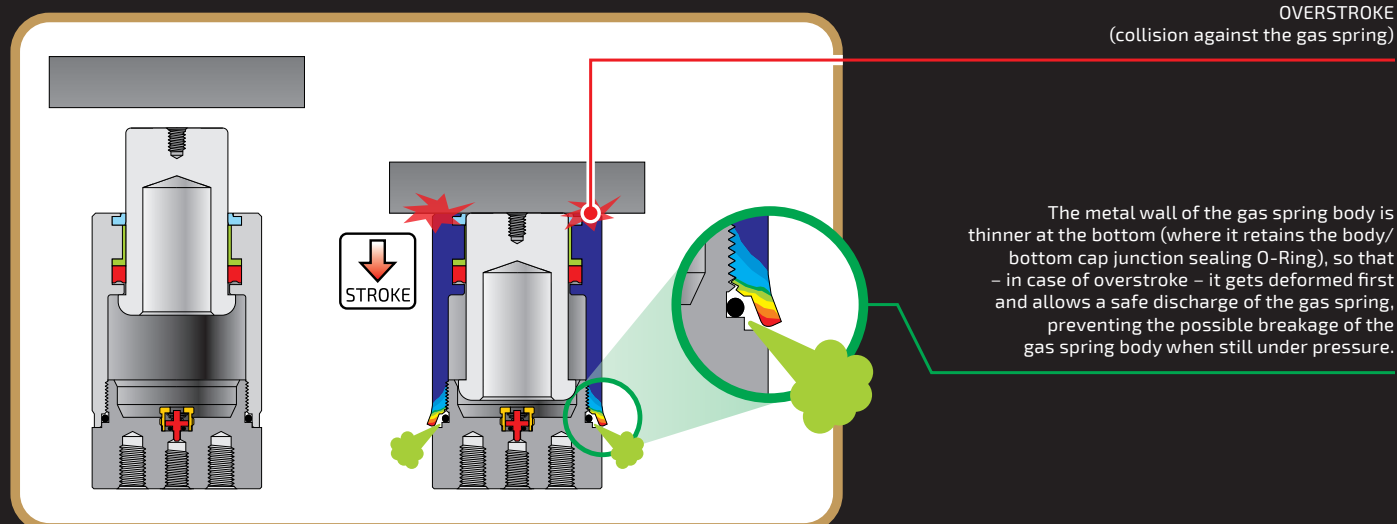
PISTON ROD FREE/UNCONTROLLED RELEASE (no press counterforce)



The piston rod mechanical stop (which is part of the gas spring body) is designed to break in case of excessive piston rod speed. The piston rod is safely retained inside the gas spring thanks to a secondary mechanical stop. This process damages the rod seal, so that the nitrogen gas leaks and the gas spring is discharged in complete safety.

Overstroke safety protection

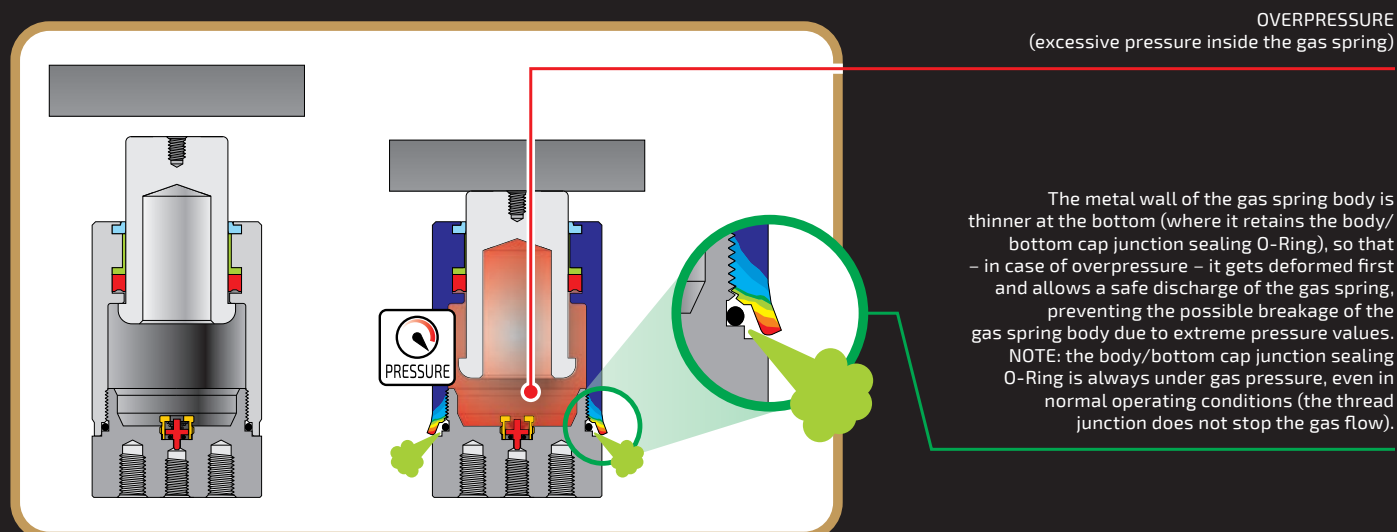
Overstroke occurs when the piston rod is pushed deeper into the gas spring body than nominal stroke. This could damage the gas spring. Bordignon nitrogen gas springs are designed to vent the nitrogen gas to the atmosphere in a controlled manner in the event of overstroke.



Overpressure safety protection

If the pressure inside the gas spring rises above the permitted limit, due to fluid penetration or incorrect charging, there is the risk of gas spring breakage.

Bordignon nitrogen gas springs are designed with an overpressure protection: when the overpressure protection system is triggered, the gas is vented to the atmosphere.



Einbaurichtlinien

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.

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.

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 (N₂).



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



Lubricate the piston rod with grease with disulfide molybdenum (MoS₂).



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).



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.

Informationen

- 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 $F_{\text{initial in table}}$:

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

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

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

- 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).

Katalogwegweiser

How to order (Gas Springs)

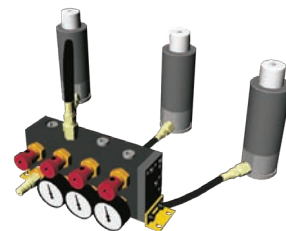
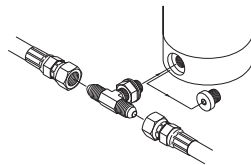
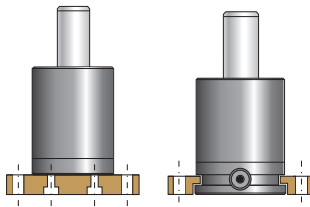
You order (example): **No. 8 AGS1000-25-A**

You receive: 8 pieces AGS series nitrogen gas springs, ready for use, diameter Ø 50 mm, stroke 25 mm, initial force 920 daN (other specifications on the AGS series pages).

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.



How to order (Accessories)

You order (example): **No. 1 AP01**

You receive: 1 piece AP01 control panel (see technical specifications on the dedicated page further on).



AP01

2D & 3D Technical drawings

Download various 2D & 3D file formats from
www.bordignon.com

Gasdruckfedern

für Pressen- und
Verbundwerkzeuge



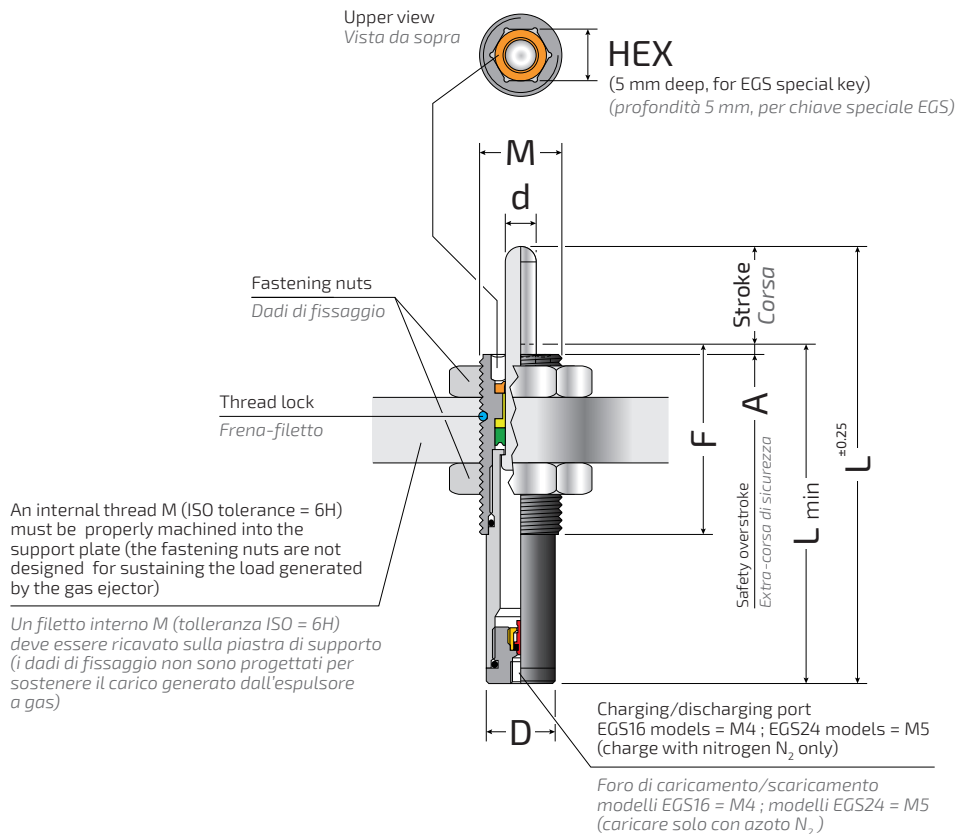
- One series of nitrogen gas ejectors in accordance to the VDI 3004 standard: EGS series
- Three series of nitrogen gas springs in accordance to the ISO 11901 and VDI 3003 standards: VGS (small diameters, standard forces), AGS (compact-height, high force), IGS (standard dimensions, standard force)
- One series of ultra-high power, compact-diameter nitrogen gas springs: TGS series
- Accessories for fixing (base plates, half-flanges, collar flanges, foot brackets, front supports)
- Accessories for linked system (hoses, fittings, control panels, pressure switches, safety valves, distribution blocks)
- Accessories for charging and discharging (charging and discharging set, charging adapters, discharging devices, booster)
- One series of OV nitrogen gas springs for "OV system" (alternative manifold system): AGS-OV (and related accessories)
- Other accessories (identifying plates, lubrication grease, initial force gauge)

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

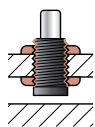


Technical notes

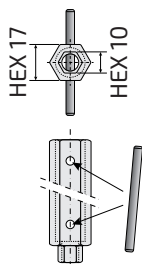
Important use instructions
in the dedicated catalogue section.



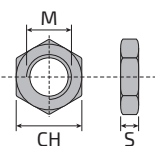
Fixing possibilities



threaded hole on the die plate



Modello Modello
Special key for installation
EGS-CH



Modello Modello	Description Descrizione	M	S mm	CH mm
EG-D-16	Fastening nut Dado di fissaggio	M16 x 1.5	8	24
EG-D-16-2		M16 x 2	8	24
EG-D-24		M24 x 1.5	10	36

SAFETY PROTECTIONS



UNCONTROLLED
RETURN SPEED /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPRESSIONE

Model	MAX Stroke mm	L min mm	L mm	M mm	F mm	A mm	d mm	D mm	HEX mm	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume l	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)

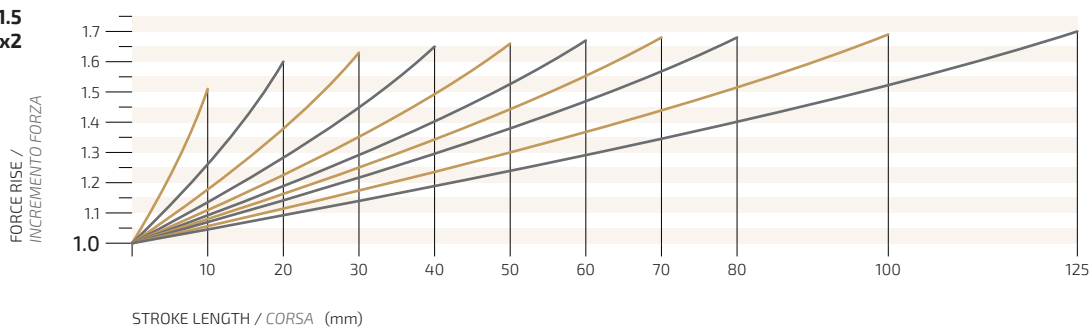
Basic code Codice base	Force code Codice forza	 bar (MPa)	 daN	 daN	Label color Colore etichetta	How to order Come ordinare
EGS16x1.5-...	4	12 (1.2)	4	See table above Vedi tabella sopra	 Purple / Viola	EGS16x1.5-50-42 EGS nitrogen gas ejector with M16x1.5 threaded body, 50 mm maximum available stroke length, 42 daN initial force (150 bar / 15.0 MPa charging pressure), yellow label.
	6	20 (2.0)	6		 Green / Verde	
	11	40 (4.0)	11		 Blue / Blu	
	21	75 (7.5)	21		 Red / Rosso	
	42	150 (15.0)	42		 Yellow / Giallo	
	(other / altra)	10 (1.0)-150 (15.0)	3-42		 Black / Nero	
EGS16x2-...	4	12 (1.2)	4	See table above Vedi tabella sopra	 Purple / Viola	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 / Verde	
	11	40 (4.0)	11		 Blue / Blu	
	21	75 (7.5)	21		 Red / Rosso	
	42	150 (15.0)	42		 Yellow / Giallo	
	(other / altra)	10 (1.0)-150 (15.0)	3-42		 Black / Nero	
EGS24x1.5-...	23	20 (2.0)	23	See table above Vedi tabella sopra	 Green / Verde	
	45	40 (4.0)	45		 Blue / Blu	
	85	75 (7.5)	85		 Red / Rosso	
	170	150 (15.0)	170		 Yellow / Giallo	
	(other / altra)	10 (1.0)-150 (15.0)	11-170		 Black / Nero	

ALL EGS MODELS ARE DISPOSABLE (REPAIR KIT NOT AVAILABLE)

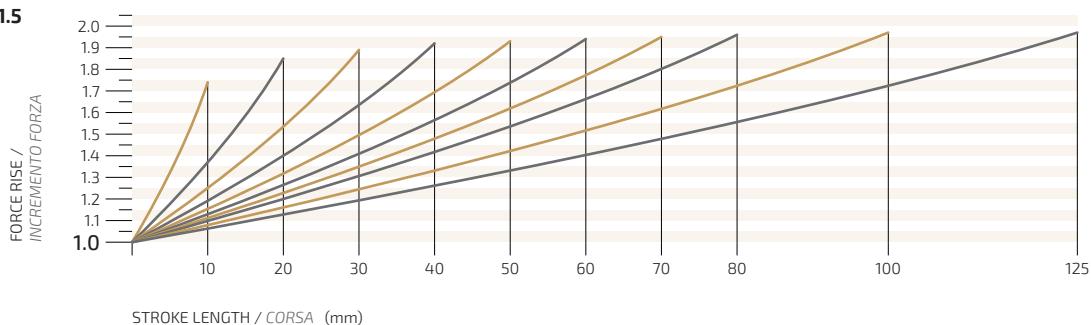
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

EGS16x1.5
EGS16x2



EGS24x1.5





VGS

50~200

COMPACT POWER

COMPACT HEIGHT



Technical notes

Important use instructions
in the dedicated catalogue section.



ISO 11901-1 VDI 3003 Part 2

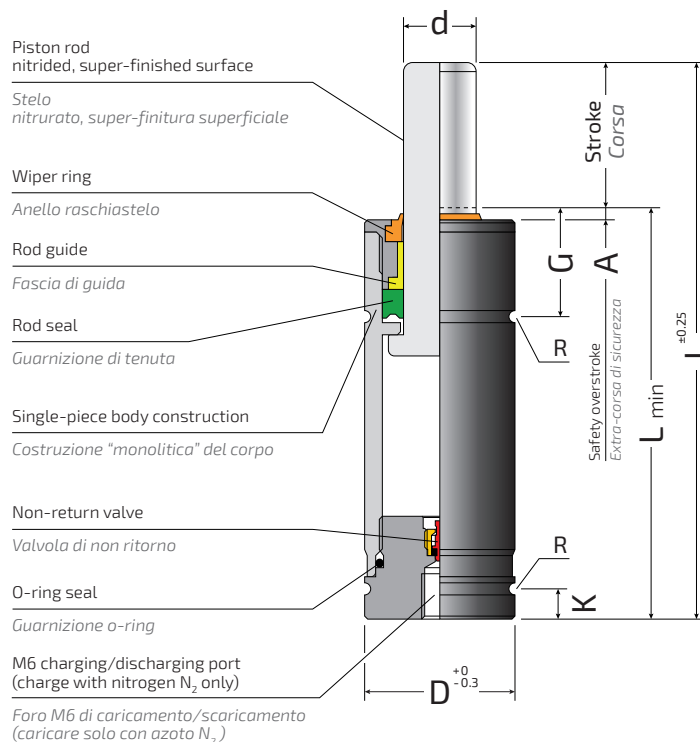


BORDIGNON
AUTOMOTIVE LINE

This gas spring series includes the models compliant with automotive standards.

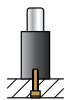
BMW	B2 4007	Nissan	K32D2-2400-50
FCA	075.90.50	PSA	E24.54.815.G
MB	B8 3180 220 000 002	VW	39D 878

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.

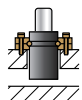


Fixing possibilities

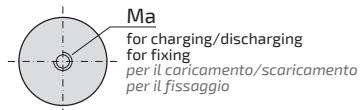
GAS SPRING BASE



at the base
with screw



with collar flange
FL



**VGS50, VGS70,
VGS90, VGS200**



with collar flange (base)

FV
for VGS90 only

FL
for VGS200 only

SAFETY PROTECTIONS



UNCONTROLLED
RETURN SPEED /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPRESSIONE

Model	MAX Stroke mm	Lmin mm	L mm	D mm	d mm	G mm	A mm	R mm	K mm	Ma	 bar (MPa)	 daN	 daN	Cycles per minute MAX	Gas volume l	Weight kg
VGS50-07-...	7	49	56	12	6	17	1	0.8	-	M6 x 6	 See table below <i>Vedi tabella sotto</i>	 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	7	17	1	0.8	-	M6 x 6	 See table below <i>Vedi tabella sotto</i>	 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	8	17	1	1	6	M6 x 8	 See table below <i>Vedi tabella sotto</i>	 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	12	17	1	1	5	M6 x 9	 See table below <i>Vedi tabella sotto</i>	 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

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

Tutti i modelli di espulsori a gas in questa tabella sono in accordo con l'Articolo 4.3 della Direttiva Apparecchi a Pressione (PED) 2014/68/UE

Basic code	Force code	 bar (MPa)	 daN	 daN	Label color	How to order
VGS50-...	13	45 (4.5)	13	See table above	Green / Verde	
	25	90 (9.0)	25		Blue / Blu	
	38	135 (13.5)	38		Red / Rosso	
	50	180 (18.0)	50		Yellow / Giallo	
	(other / altra)	20 (2.0)-180 (18.0)	6-50		Black / Nero	
VGS70-...	18	45 (4.5)	18	See table above	Green / Verde	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.
	35	90 (9.0)	35		Blue / Blu	
	50	135 (13.5)	50		Red / Rosso	
	70	180 (18.0)	70		Yellow / Giallo	
	(other / altra)	20 (2.0)-180 (18.0)	8-70		Black / Nero	
VGS90-...	5	10 (1.0)	5	See table above	Orange / Arancione	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.
	10	20 (2.0)	10		Purple / Viola	
	30	60 (6.0)	30		Green / Verde	
	50	100 (10.0)	50		Blue / Blu	
	70	140 (14.0)	70		Red / Rosso	
VGS200-...	90	180 (18.0)	90	See table above	Yellow / Giallo	
	(other / altra)	10 (1.0)-180 (18.0)	5-90		Black / Nero	
	17	15 (1.5)	17		Orange / Arancione	
	28	25 (2.5)	28		Purple / Viola	
	50	45 (4.5)	50		Green / Verde	
VGS200-...	100	90 (9.0)	100	See table above	Blue / Blu	
	150	135 (13.5)	150		Red / Rosso	
	200	180 (18.0)	200		Yellow / Giallo	
	(other / altra)	10 (1.0)-180 (18.0)	11-200		Black / Nero	

REPAIR KIT / KIT DI RIPARAZIONE

Gas spring code	Repair kit code
VGS90-...	KR/VGS90
VGS200-...	KR/VGS200

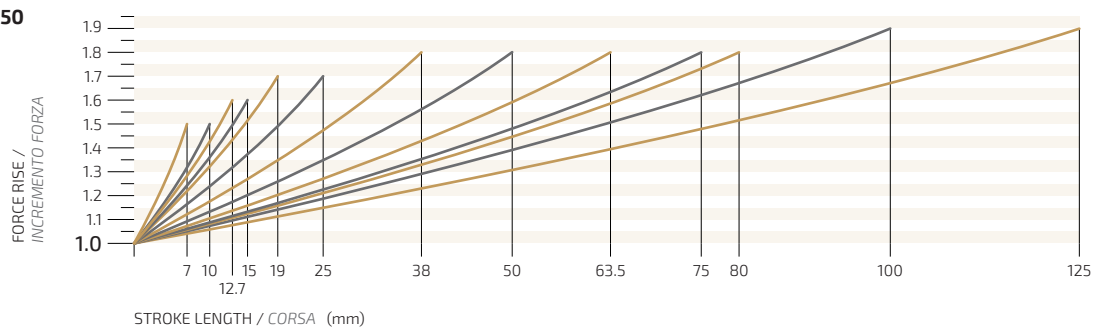
VGS50-... AND VGS70-... MODELS ARE DISPOSABLE (REPAIR KIT NOT AVAILABLE)

Download repair instructions from www.bordignon.com

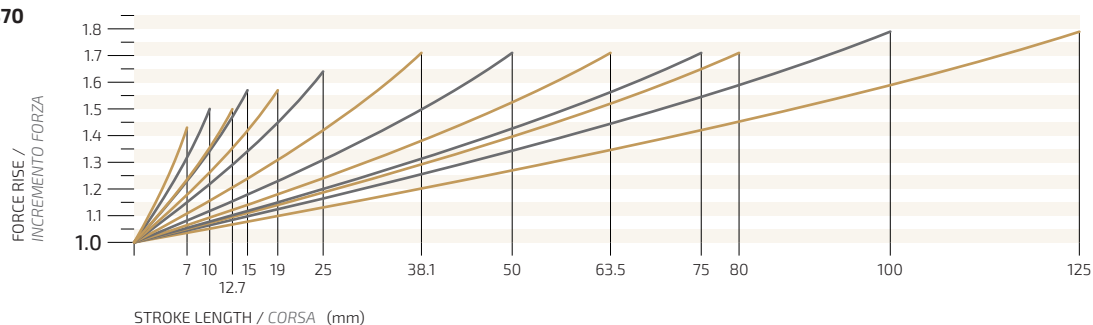
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

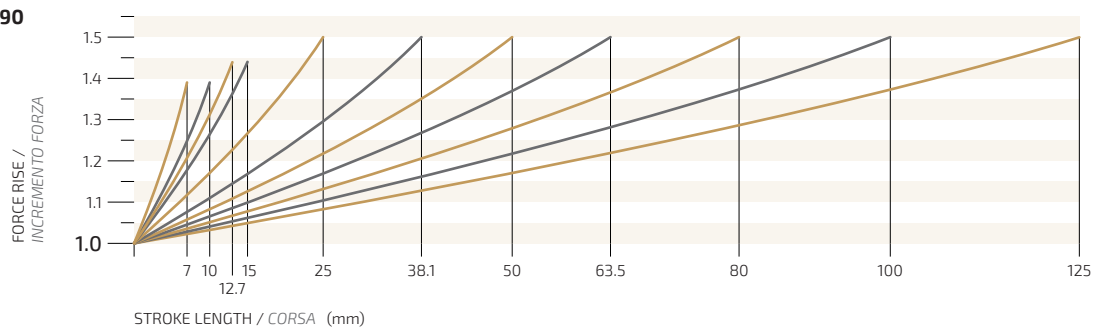
VGS50



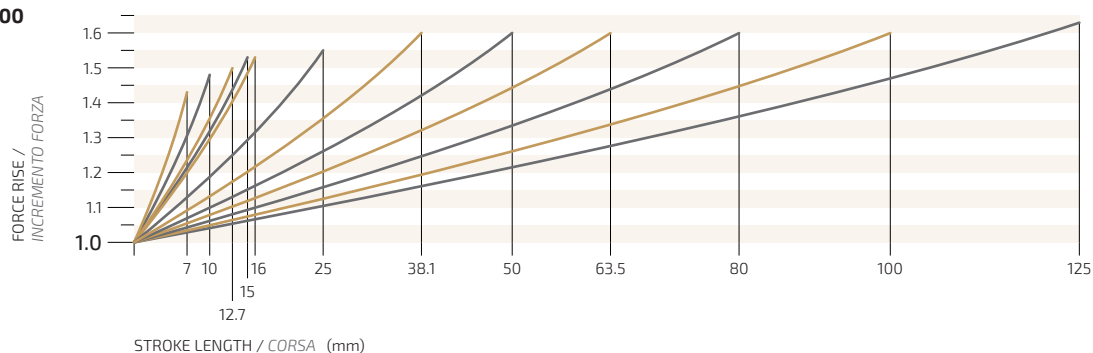
VGS70



VGS90



VGS200





Technical notes

Important use instructions
in the dedicated catalogue section



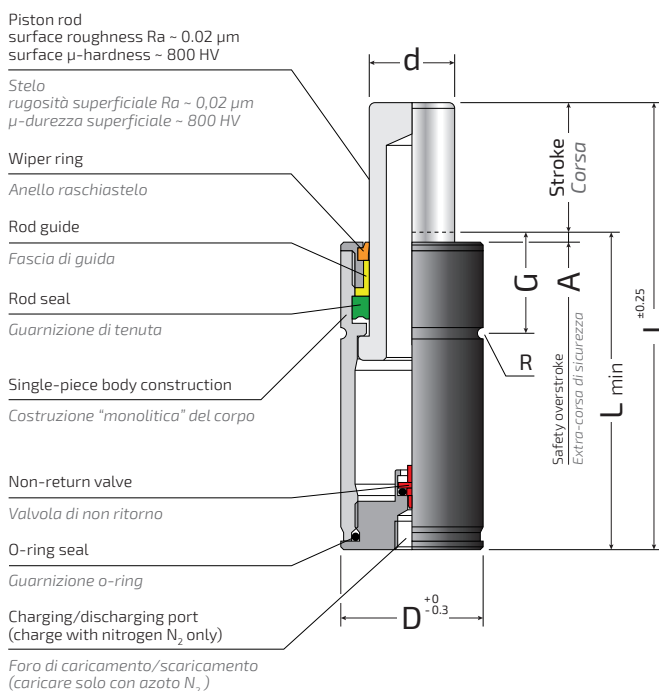
ISO 11901-3 VDI 3003 Part 3



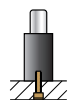
This gas spring series includes the models compliant with automotive standards.

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

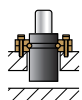
AGS series nitrogen gas springs are highly appreciated in the automotive industry thanks to the compact dimensions, the fixing and linking possibilities. With the AGS series nitrogen gas springs, Bordignon now ensures a great interchangeability and a superior reliability. AGS series nitrogen gas springs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



Fixing possibilities

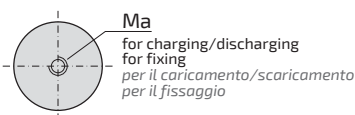


at the base
with screw



with collar flange
FL

GAS SPRING BASE



AGS170, AGS320

SAFETY PROTECTIONS



UNCONTROLLED
RETURN SPEED /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPRESSIONE



BORDIGNON
AUTOMOTIVE LINE

AGS 170-320



Model	MAX Stroke mm	Lmin mm	L mm	D mm	d mm	G mm	A mm	R mm	Ma	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume l	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 spring models in this table are in accordance with Article 4.3 of the 2014/68/EU Pressure Equipment Directive (PED)

REPAIR KIT

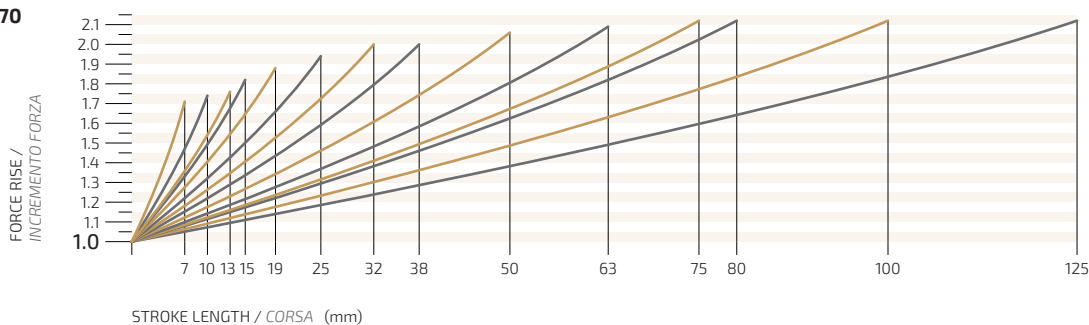
Gas spring code	Repair kit code
AGS170-...-A	KR/AGS170-A
AGS320-...-A	KR/AGS320-A

Download repair instructions from www.bordignon.com

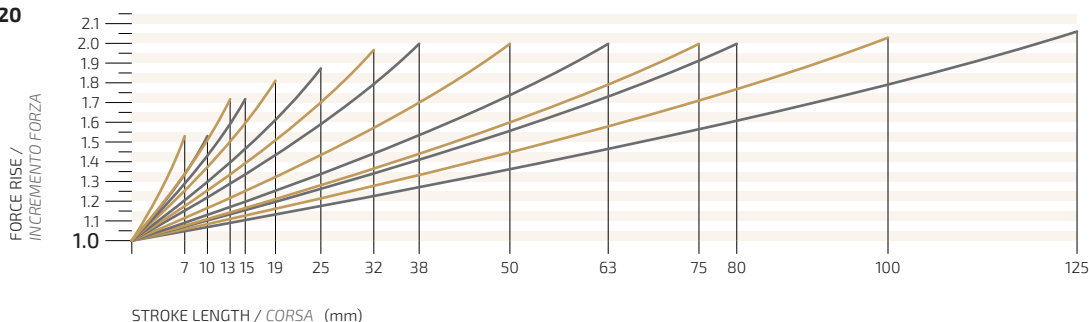
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

AGS170



AGS320



BMW	B2 4005	Nissan	K 32 H
FCA	075.90.60	PSA	E24.54.815.G
Ford	W-DX35-6204	Renault	EM24.54.700
MB	B8 3180 220 000 004	VW	39D 997

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.



Piston rod surface roughness Ra ~ 0.02 µm
surface µ-hardness ~ 800 HV

Stelo
rugosità superficiale Ra ~ 0,02 µm
µ-durezza superficiale ~ 800 HV

Wiper ring

Anello raschiastelo

Rod guide

Fascia di guida

Rod seal

Guarnizione di tenuta

Single-piece body construction

Costruzione "monolitica" del corpo

O-ring seal

Guarnizione o-ring

Non-return valve

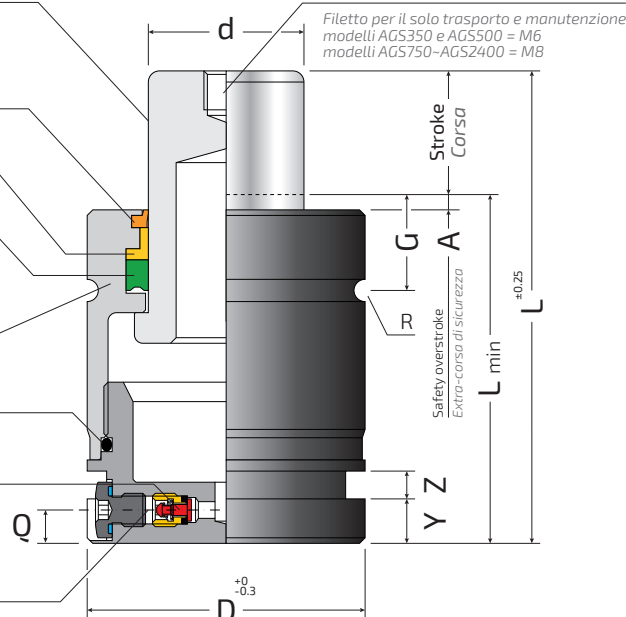
Valvola di non ritorno

M6 side port (charging port)
(charge with nitrogen N₂ only)

Foro laterale M6 (foro di caricamento)
(caricare solo con azoto N₂)

Thread for transport and maintenance only
AGS350 and AGS500 models = M6
AGS750-AGS2400 models = M8

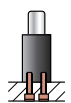
Filetto per il solo trasporto e manutenzione
modelli AGS350 e AGS500 = M6
modelli AGS750-AGS2400 = M8



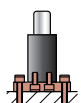
Technical notes

Important use instructions
in the dedicated catalogue section.

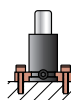
Fixing possibilities



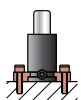
at the base
with screws



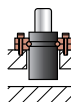
with base-plate
BF, BFA, BFB
for AGS750 ~ AGS2400



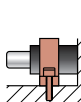
with half-flanges
SF, SFA



with foot brackets
ST, STA
for AGS500 ~ AGS2400

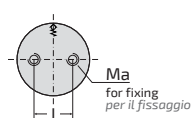


with collar flange
FL, FLQ

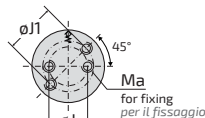


with front support
FT, FTA
(Not for all AGS models)

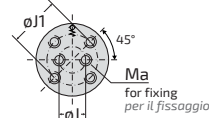
GAS SPRING BASE



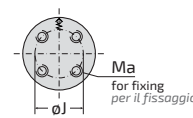
**AGS350, AGS750,
AGS1000**



AGS500



AGS1500



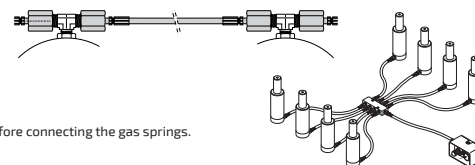
AGS2400

LINKING TO OPEN SYSTEM

	AGS350-AGS2400 (M6 side port / foro laterale M6)	
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 /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPRESSIONE



BORDIGNON
AUTOMOTIVE LINE



AGS 350~2400

AGS 350~2400																Cycles per minute MAX	Gas volume l	Weight kg																	
Model	MAX Stroke mm	Lmin mm	L mm	D mm	d mm	G mm	A mm	R mm	Y mm	Z mm	Q mm	Ma	J mm	J1 mm	bar (MPa)				daN	daN															
AGS350	-10-A	10	40	50	32	16	12.5	2	1	4	4	6	M6 x 6 (2x)	20	-	180 (18.0)	360	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														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	38	20	12.5	2	1	4	4	6	M6 x 6 (2x or 2x) (2x o 2x)	20	25	150 (15.0)	470	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	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	45	25	16.5	2	1	4	4	6	M8 x 6 (2x)	20	-	150 (15.0)	740														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	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														50	28	17.5	3	2	8	5	6	M8 x 6 (2x)	20	-	150 (15.0)	920	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	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	63	36	19	3	2	8	5	6	M8 x 6 (2x or 4x) (2x o 4x)	20	40	150 (15.0)	1530														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	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														75	45	21	3	2.5	8	5	6	M8 x 6 (4x)	40	-	150 (15.0)	2385	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	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																											

All the gas spring 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 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"**

REPAIR KIT

Gas spring code	Repair kit code
AGS350-...-A	KR/AGS350-A
AGS500-...-A	KR/AGS500-A
AGS750-...-A	KR/AGS750-A
AGS1000-...-A	KR/AGS1000-A
AGS1500-...-A	KR/AGS1500-A
AGS2400-...-A	KR/AGS2400-A

Download repair instructions from www.bordignon.com

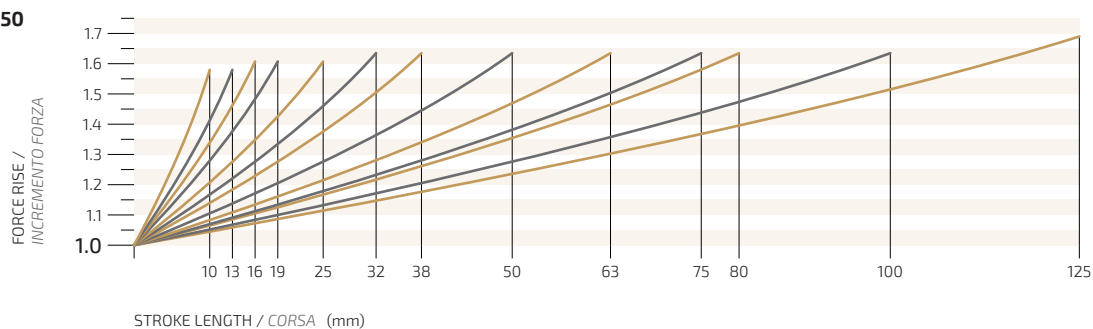


AGS 350~2400

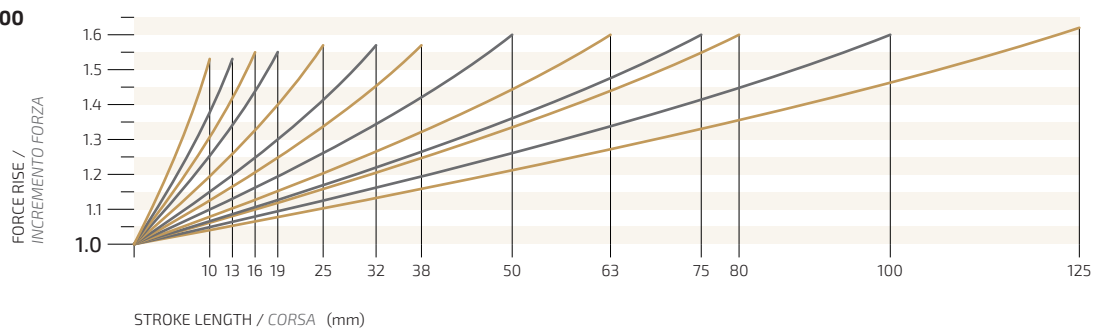
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

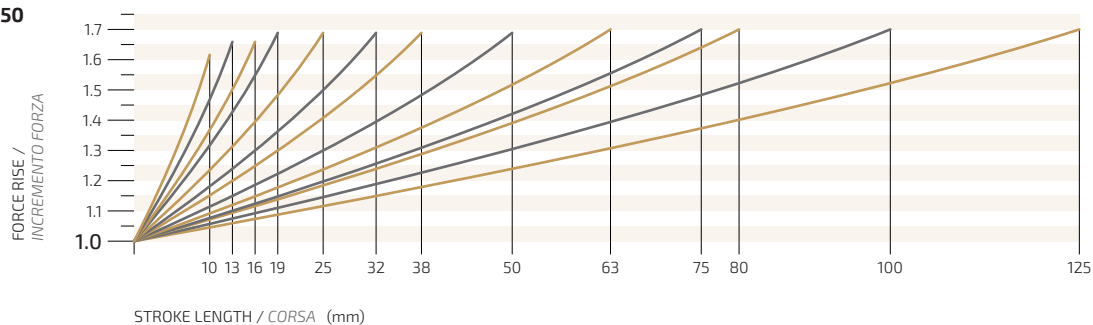
AGS350



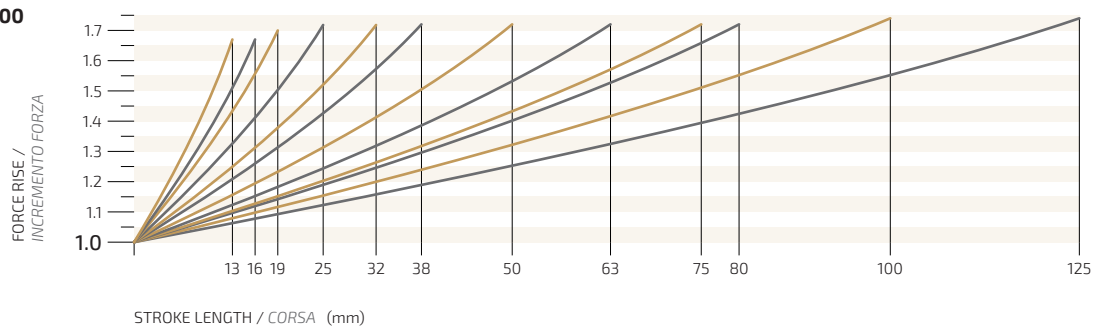
AGS500



AGS750



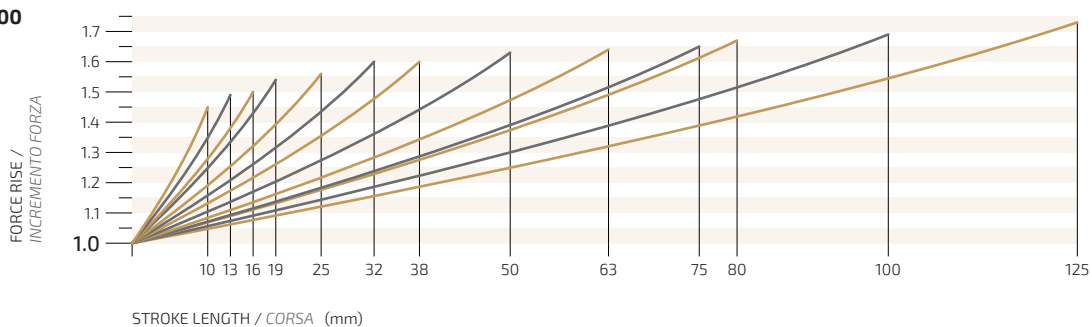
AGS1000



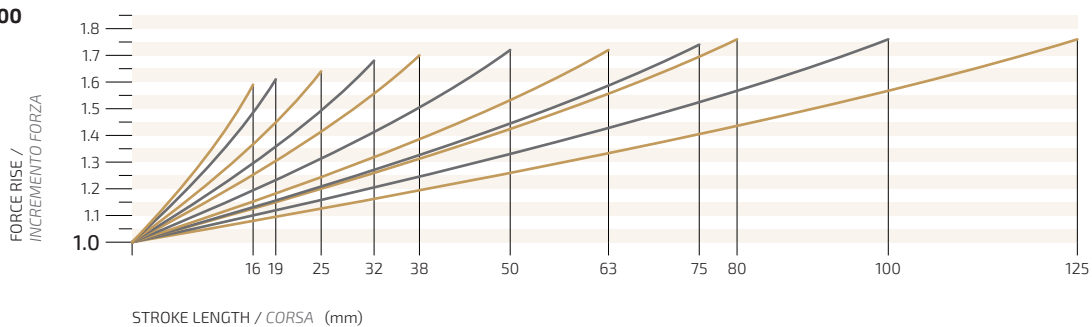
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

AGS1500



AGS2400





Technical notes

Important use instructions
in the dedicated catalogue section.



ISO 11901-3 VDI 3003 Part 3

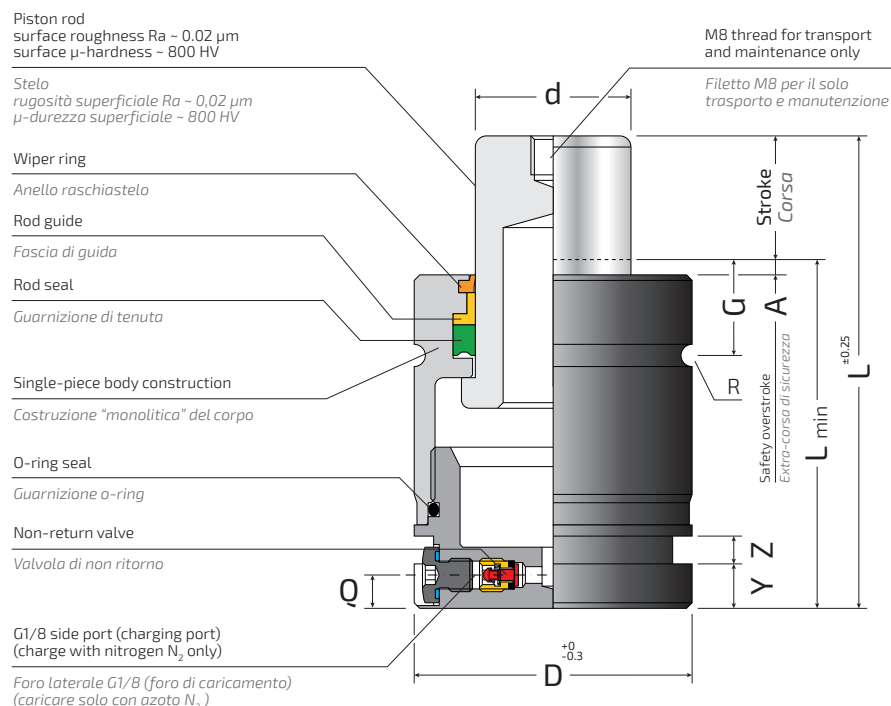


This gas spring series includes the models compliant with automotive standards.

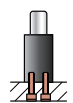
BMW	B2 4005	Nissan	K 32 H
FCA	075.90.60	PSA	E24.54.815.G
Ford	W-DX35-6204	Renault	EM24.54.700
Mazda	PG 24D	VW	39D 997
MB	B8 3180 220 000 004		

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.

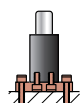
AGS series nitrogen gas springs are self-lubricated.



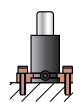
Fixing possibilities



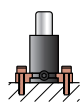
at the base
with screws



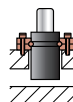
with base-plate
BF, BFA, BFB



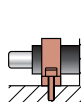
with half-flanges
SF, SFA



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

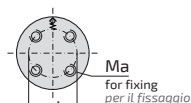


with collar flange
FL, FLQ



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

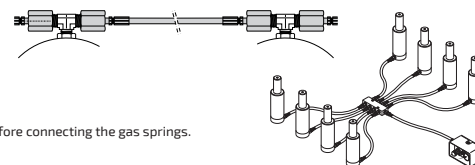
GAS SPRING BASE



AGS4200-AGS20000

LINKING TO OPEN SYSTEM

	AGS4200-AGS20000 (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 /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPPRESSIONE



BORDIGNON
AUTOMOTIVE LINE



AGS 4200~20000

AGS 4200~20000

Model	MAX Stroke mm	Lmin mm	L mm	D mm	d mm	G mm	A mm	R mm	Y mm	Z mm	Q mm	Ma	J mm	 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																
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																

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 other gas spring 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) / "VERSIONE L" (PER COLLEGAMENTO A SISTEMA)

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: **AGS6600-50-A-L**



REPAIR KIT / KIT DI RIPARAZIONE

Gas spring code Codice cilindro	Repair kit code Codice kit di riparazione
AGS4200-...-A	KR/AGS4200-A
AGS6600-...-A	KR/AGS6600-A
AGS9500-...-A	KR/AGS9500-A
AGS20000-...-A	KR/AGS20000-A

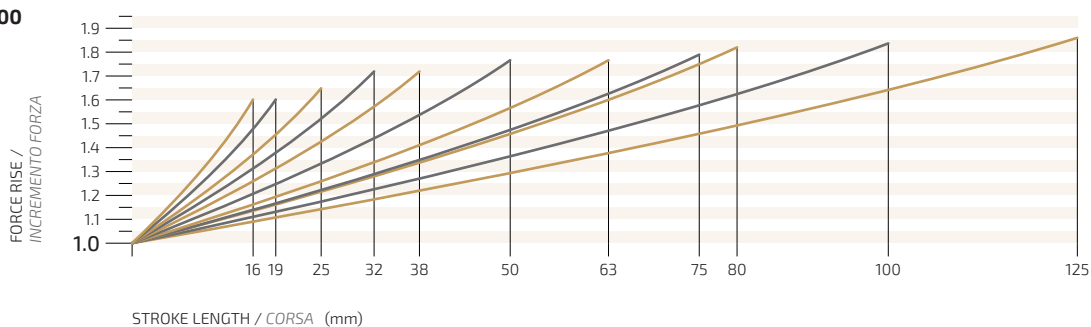
Download repair instructions from www.bordignon.com

AGS 4200~20000

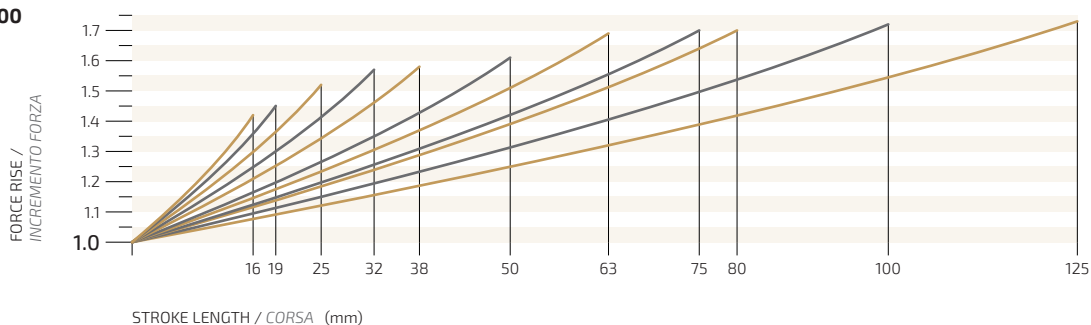
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

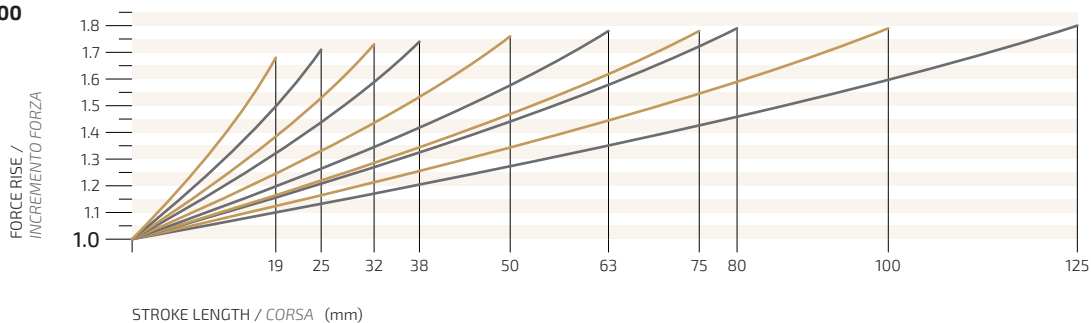
AGS4200



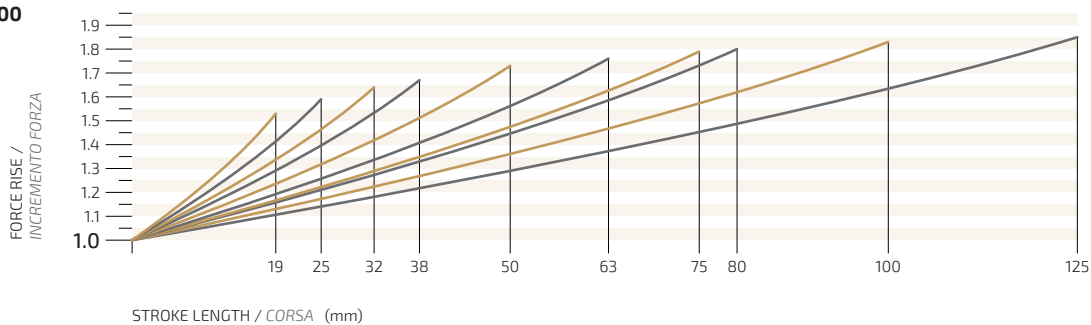
AGS6600



AGS9500



AGS20000



400~12000

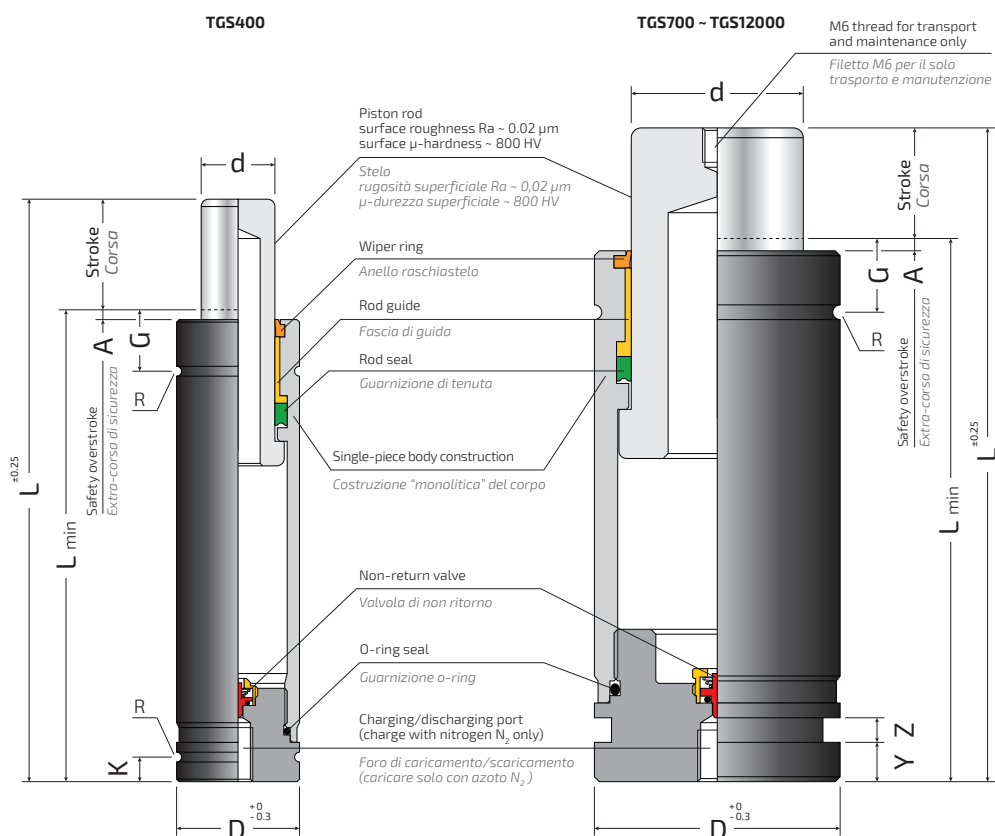
COMPACT POWER

COMPACT HEIGHT

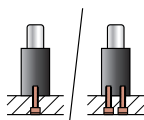


Technical notes / Note tecniche
Important use instructions
in the dedicated catalogue section.

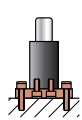
TGS series nitrogen gas springs feature high forces and compact diameters in a rod seal design. They ensure a great interchangeability (forces, dimensions and fixing possibilities) with the bore seal design nitrogen gas springs commonly available on the market, offering a higher performance (high number 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.



Fixing possibilities

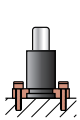


at the base
with screw(s)



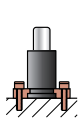
with base-plate

BF, BFA, BFB
for TGS5000 only



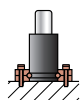
with half-flanges

SF, SFA
for TGS700~TGS12000



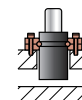
with foot brackets

ST, STA
for TGS1000~TGS12000



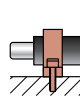
with collar flange (base)

FL
for TGS400 only



with collar flange

FL, FLA, FLO, FLOA

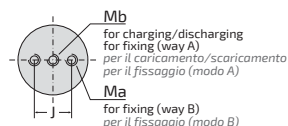


with front support

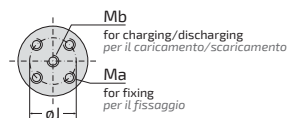
FT, FTA

(Not for all TGS models)

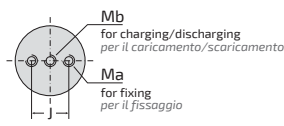
GAS SPRING BASE



TGS400



**TGS5000, TGS8000,
TGS12000**



**TGS700, TGS1000,
TGS2000, TGS3000**

SAFETY PROTECTIONS



UNCONTROLLED
RETURN SPEED /
VELOCITÀ DI RITORNO
NON CONTROLLATA

OVERSTROKE /
EXTRA-CORSAOVERPRESSURE /
SOVRAPRESSIONE

Model	MAX Stroke mm	Lmin mm	L mm	D mm	d mm	G mm	A mm	R mm	K mm	Y mm	Z mm	Ma mm	J mm	Mb	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume l	Weigh 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	50	210	260			22.5		2.5		8	5						16500	60	1.19	11.52
65-A	65	255	320			22.5		2.5		8	5						18000	45	1.59	13.27

- Without lower (square) groove
- Without upper (round) groove

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

REPAIR KIT / KIT DI RIPARAZIONE

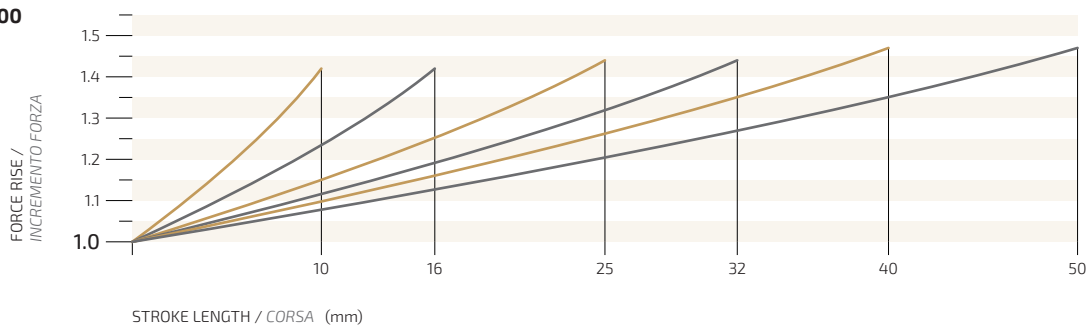
Gas spring code	Repair kit code
TGS400-...-A	KR/TGS400-A
TGS700-...-A	KR/TGS700-A
TGS1000-...-A	KR/TGS1000-A
TGS2000-...-A	KR/TGS2000-A
TGS3000-...-A	KR/TGS3000-A
TGS5000-...-A	KR/TGS5000-A
TGS8000-...-A	KR/TGS8000-A
TGS12000-...-A	KR/TGS12000-A

Download repair instructions from www.bordignon.com

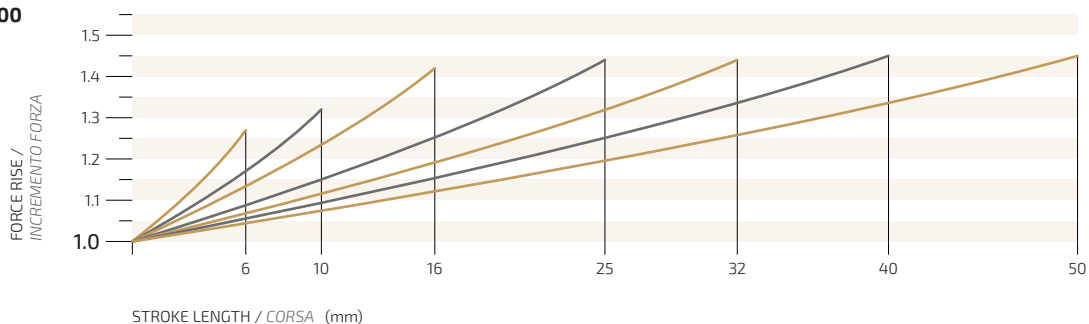
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

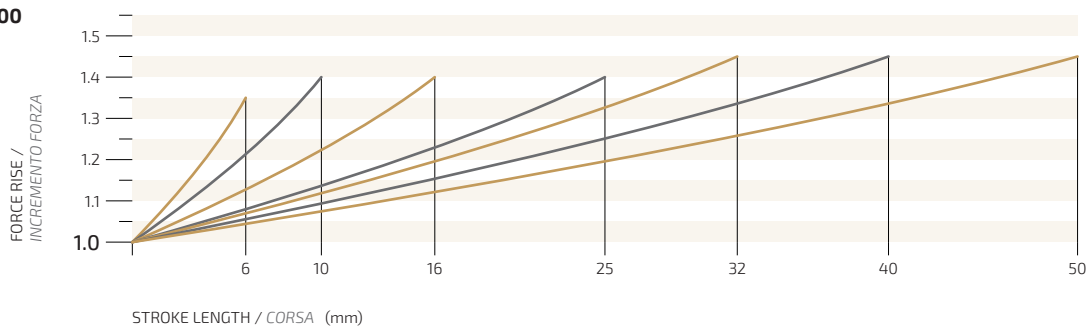
TGS400



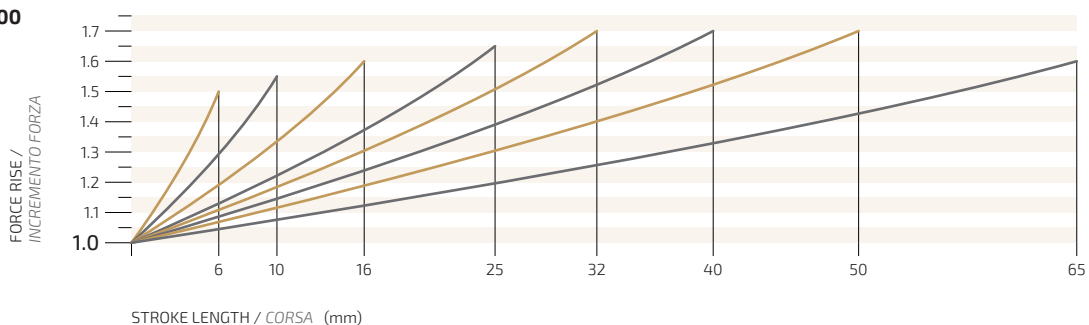
TGS700



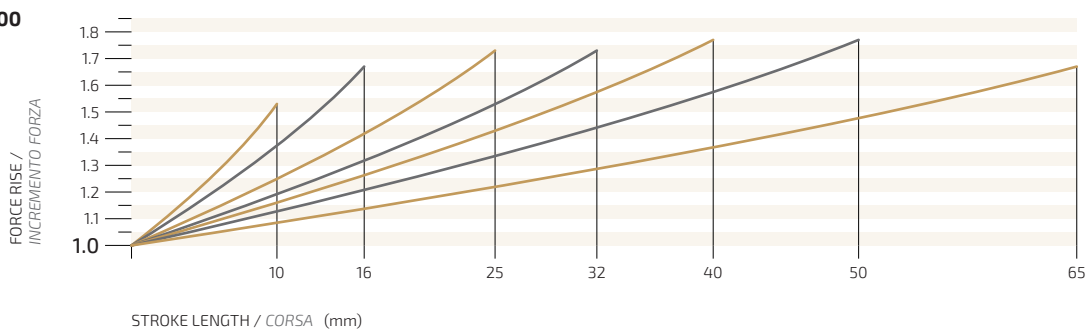
TGS1000



TGS2000



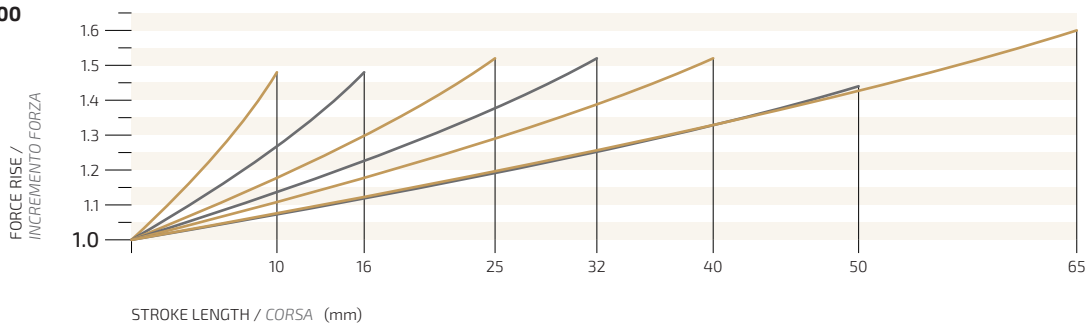
TGS3000



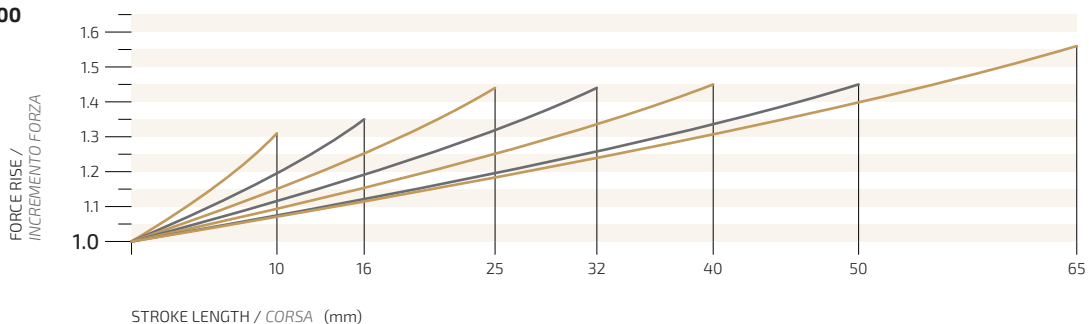
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

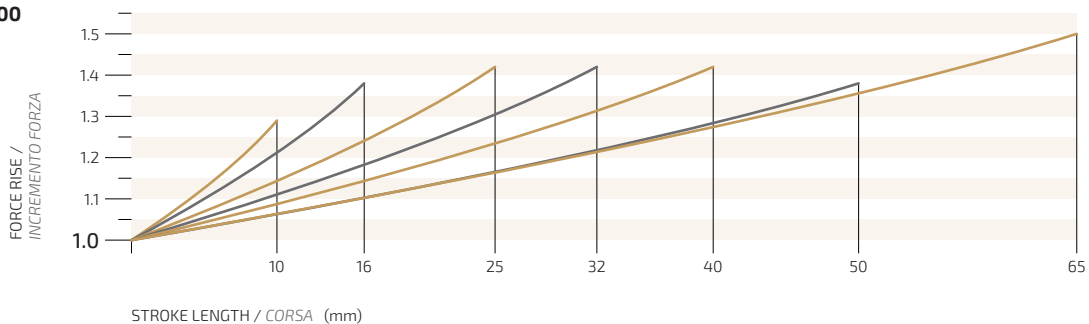
TGS5000



TGS8000



TGS12000



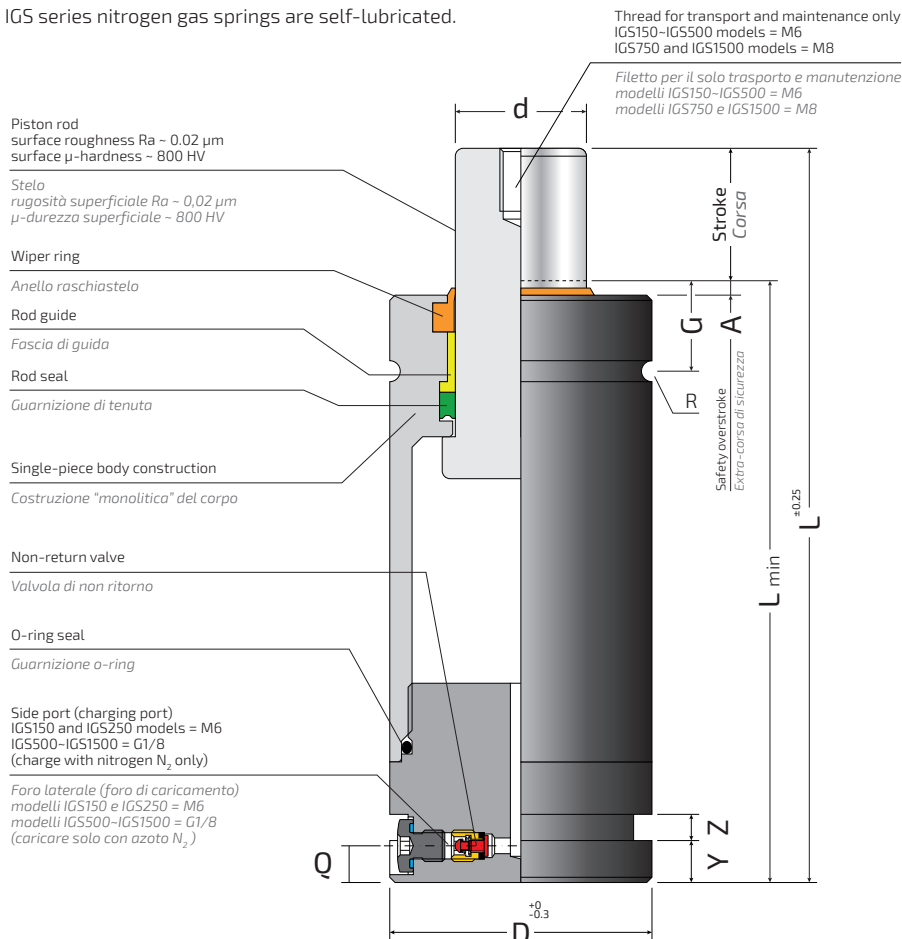
BMW	B2 4006	Nissan	K 32 S
FCA	075.90.55	PSA	E24.54.815.G
Ford	W-DX35-6203	Renault	EM24.54.700
Mazda	PG23D	Suzuki	SES-K 5404e
MB	B8 3180 220 000 001	VW	39D 878

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.

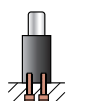
IGS series nitrogen gas springs are self-lubricated.



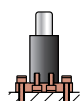
Technical notes / Note tecniche
Important use instructions
in the dedicated catalogue section.



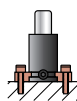
Fixing possibilities



at the base
with screws

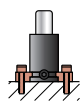


with base-plate
BF, BFA, BFB
for IGS500 - IGS1500



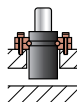
with half-flanges

SF, SFA



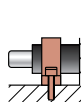
with foot brackets

ST, STA
for IGS250 - IGS1500



with collar flange

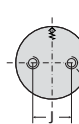
FL, FLQ



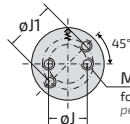
with front support

FT, FTA

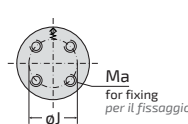
GAS SPRING BASE



**IGS150, IGS500,
IGS750**



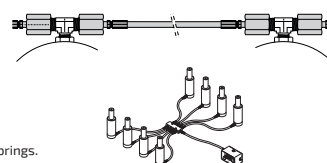
IGS250



IGS1500

LINKING TO OPEN SYSTEM / COLLEGAMENTO A SISTEMA

	IGS150-IGS250 (M6 side port / foro laterale M6)		IGS500-IGS1500 (G1/8 side port / foro laterale G1/8)		
Hoses Tubi	ATM	ATNM	ATM	ATN	AT
Gas spring-hose fittings Raccordi cilindro-tubo	ARM	ARNM	ARM	ARN	AR



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

SAFETY PROTECTIONS / PROTEZIONI DI SICUREZZA



UNCONTROLLED
RETURN SPEED /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPRESSIONE



REPAIR KIT / KIT DI RIPARAZIONE

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
IGS750-13 ~ IGS750-50	KR/IGS750-1
IGS750-63 ~ IGS750-300	KR/IGS750-2
IGS1500-13 ~ IGS1500-50	KR/IGS1500-1
IGS1500-63 ~ IGS1500-300	KR/IGS1500-2



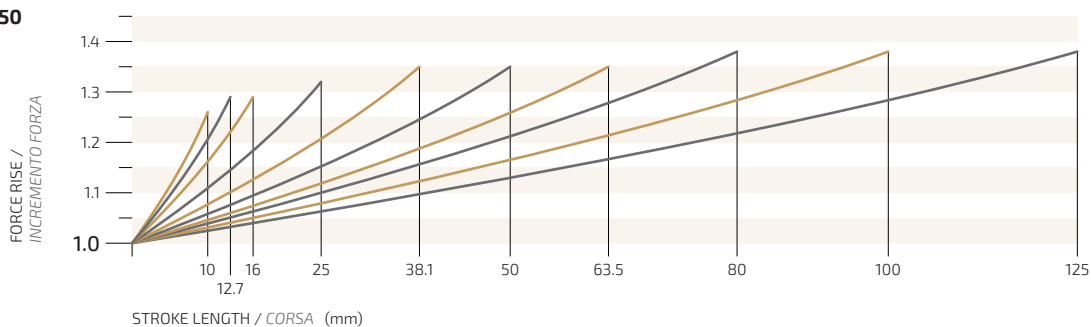
NITROGEN GAS SPRINGS FOR PRESS TOOLS, DIES AND MOULDS

IGS 150~1500

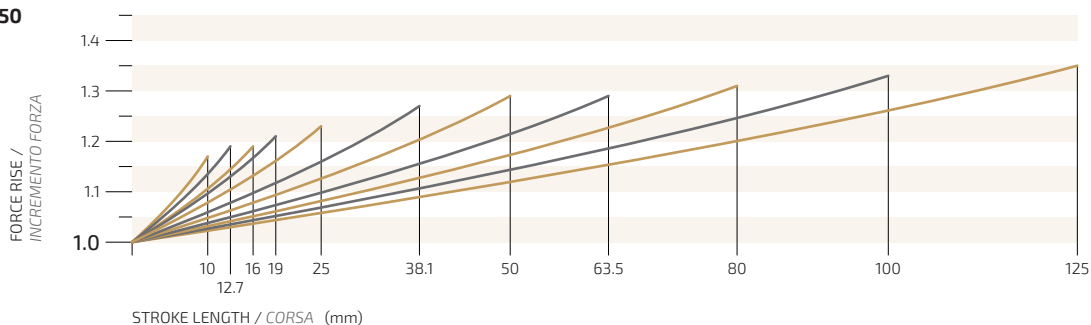
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

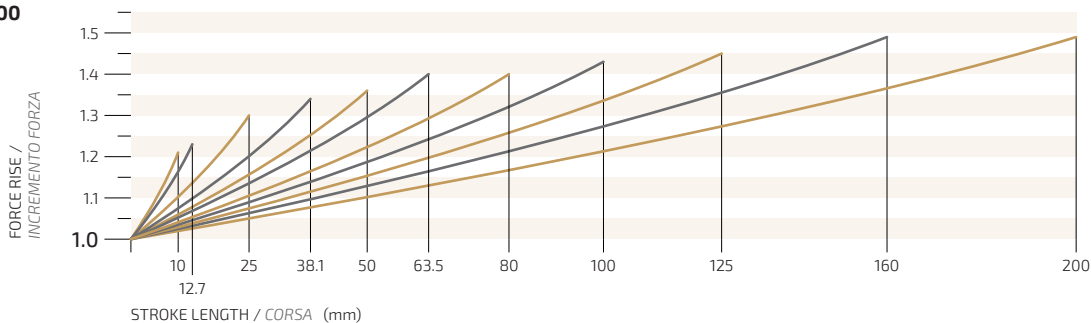
IGS150



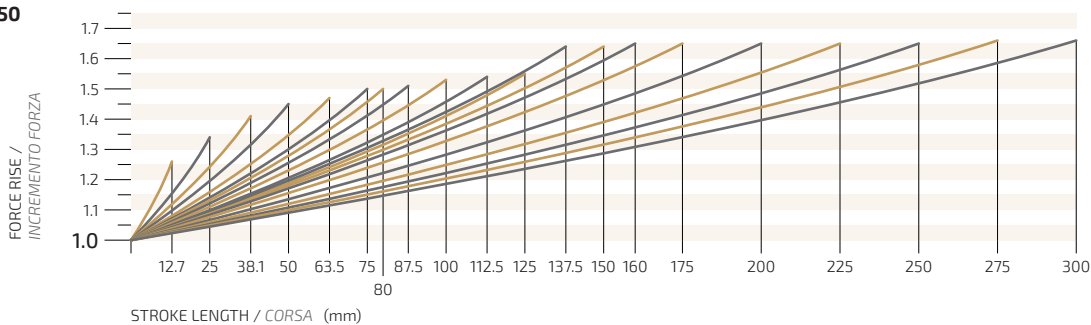
IGS250



IGS500



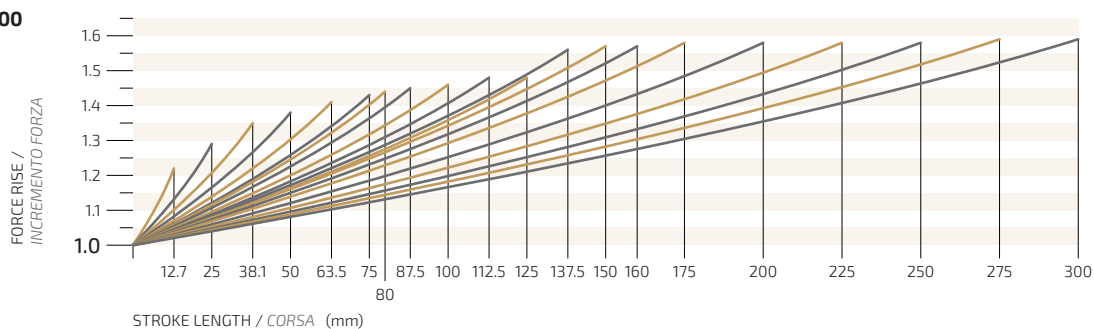
IGS750



FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

IGS1500



IGS

3000-10000

COMPACT POWER

COMPACT HEIGHT



ISO 11901-1

VDI 3003

This gas spring series includes the models compliant with automotive standards.

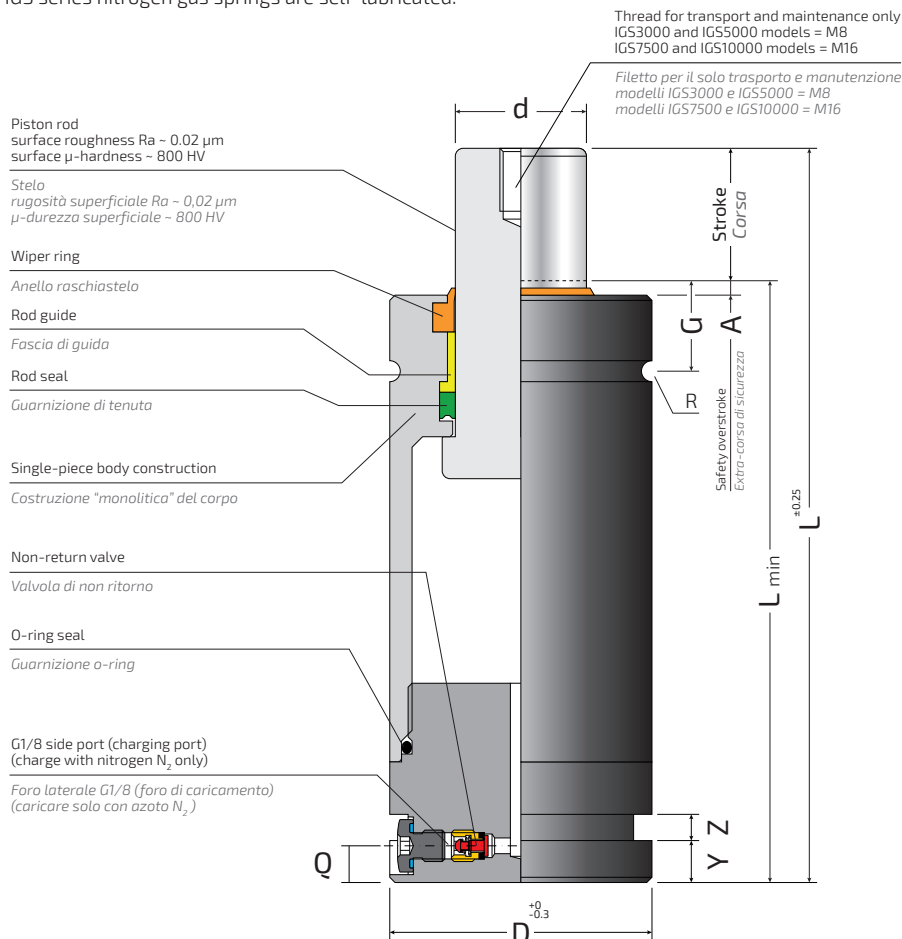
BMW	B2 4006	Nissan	K 32 S
FCA	075.90.55	PSA	E24.54.815.G
Ford	W-DX35-6203	Renault	EM24.54.700
Mazda	PG23D	Suzuki	SES-K 5404e
MB	B8 3180 220 000 001	VW	39D 878

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.

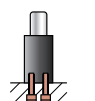


Technical notes

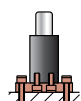
Important use instructions in the dedicated catalogue section.



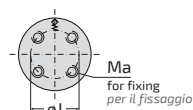
Fixing possibilities



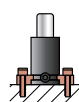
at the base
 with screws



with base-plate
BF, BFA, BFB

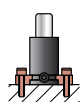


**IGS3000, IGS5000,
 IGS7500, IGS10000**



with half-flanges

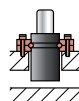
SF, SFA



with foot brackets

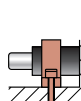
ST, STA

(Not for all IGS models)



with collar flange

FL, FLQ



with front support

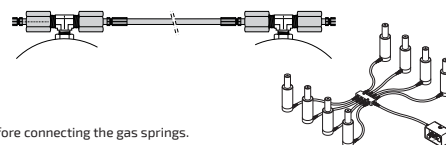
FT, FTA

(Not for all IGS models)

GAS SPRING BASE

LINKING TO OPEN SYSTEM

	IGS3000-IGS10000 (G1/8 side port / foro laterale G1/8)		
Hoses Tubi	ATM	ATN	AT
Gas spring-hose fittings Raccordi cilindro-tubo	ARM	ARN	AR



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

SAFETY PROTECTIONS



UNCONTROLLED
 RETURN SPEED /
 VELOCITÀ DI RITORNO
 NON CONTROLLATA



OVERSTROKE /
 EXTRA-CORSA



OVERPRESSURE /
 SOVRAPPRESSIONE



BORDIGNON
AUTOMOTIVE LINE



IGS 3000~10000

IGS 3000~10000																Cycles per minute MAX	Gas volume l	Weight kg		
Model	MAX Stroke mm	Lmin mm	L mm	D mm	d mm	G mm	A mm	R mm	Y mm	Z mm	Q mm	Ma	J mm	bar (MPa)	daN				daN	
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	200	320	520													4950	15	1.13	11.64
	225	225	345	570													5000	13	1.26	12.40
	250	250	370	620													5000	12	1.39	13.16
	275	275	395	670													5000	11	1.53	13.92
	300	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	100	240	340													8000	30	1.04	14.98
	113	112.5	252.5	365													8200	27	1.14	15.70
	125	125	265	390													8300	25	1.23	16.41
	138	137.5	277.5	415													8900	22	1.19	18.18
	150	150	290	440													8900	20	1.29	18.88
	160	160	300	460													9000	19	1.36	19.45
	175	175	315	490													9000	17	1.47	20.30
	200	200	340	540													9100	15	1.66	21.72
	225	225	365	590													9200	13	1.85	23.14
	250	250	390	640													9200	12	2.04	24.56
	275	275	415	690													9300	11	2.23	25.98
	300	300	440	740													9300	10	2.42	27.40
	IGS7500	-25	25	180													205	150	80	27.5
38		38.1	193.1	231.2	9700	80	1.32	16.73												
50		50	205	255	10000	60	1.47	17.69												
63		63.5	218.5	282	10300	50	1.64	18.74												
75		75	230	305	10500	40	1.79	19.65												
80		80	235	315	10600	40	1.86	20.04												
88		87.5	242.5	330	10700	35	1.95	20.52												
100		100	255	355	10900	30	2.11	21.55												
113		112.5	267.5	380	11000	27	2.27	22.48												
125		125	280	405	11200	25	2.43	23.52												
138		137.5	292.5	430	11800	22	2.33	26.50												
150		150	305	455	11900	20	2.49	27.53												
160		160	315	475	12000	19	2.62	28.33												
175		175	330	505	12000	17	2.82	29.49												
200		200	355	555	12200	15	3.14	31.47												
225		225	380	605	12300	13	3.46	33.43												
250		250	405	655	12400	12	3.78	35.39												
275		275	430	705	12500	11	4.10	37.36												
300		300	455	755	12600	10	4.43	39.33												
IGS10000		-25	25	185	210	195	95	33.5	3	2.5	8	8	15	M12 x 18 (4x)	120	150 (15.0)	10600			
	38	38.1	198.1	236.2	13300													80	2.16	29.90
	50	50	210	260	13700													60	2.42	31.33
	63	63.5	223.5	287	14000													50	2.72	32.92
	80	80	240	320	14300													40	3.09	34.87
	100	100	260	360	14600													30	3.53	37.22
	125	125	285	410	14900													25	4.08	40.17
	160	160	320	480	15900													19	4.23	49.23
	200	200	360	560	16100													15	5.12	53.95
	250	250	410	660	16300													12	6.22	59.84
	300	300	460	760	17200													10	6.62	71.32

☞ 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 other gas spring 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 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"**



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
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

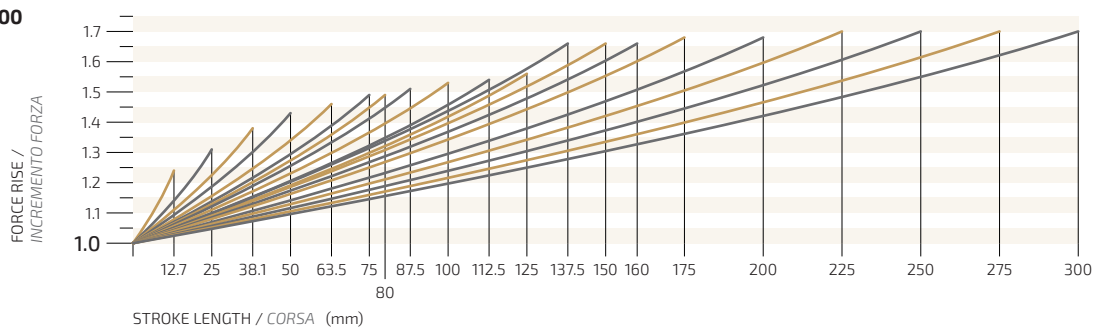
Download repair instructions from www.bordignon.com /

IGS 3000~10000

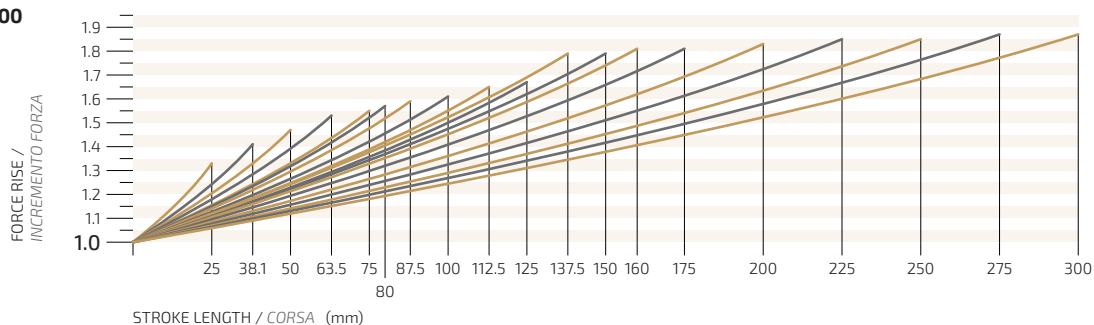
FORCE RISE VS. USED STROKE LENGTH CHARTS

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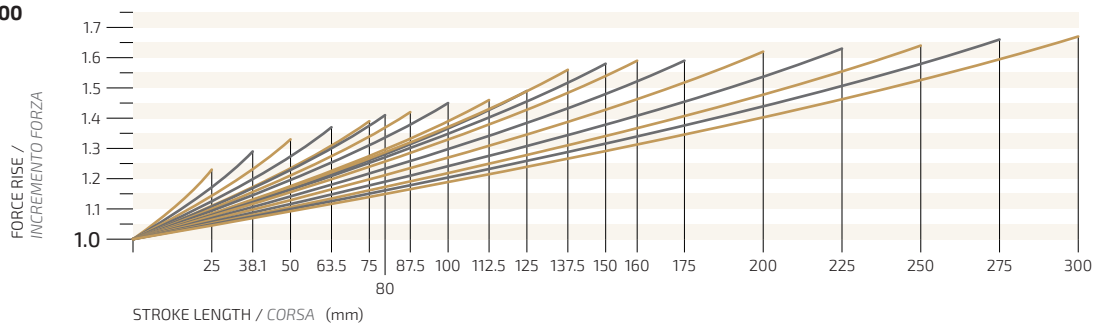
IGS3000



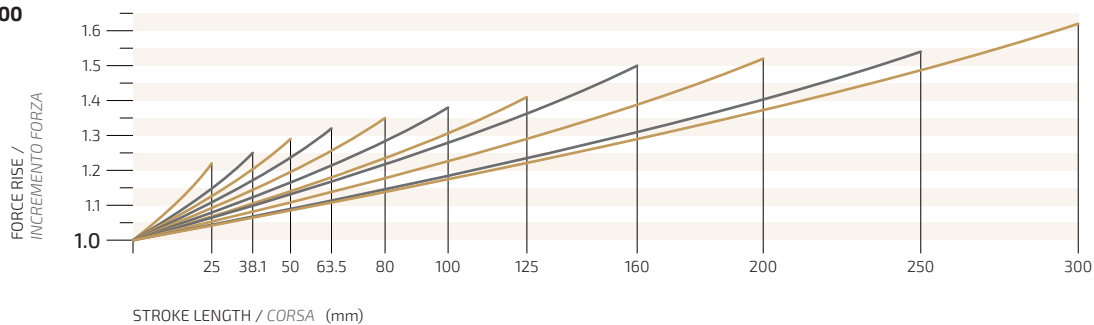
IGS5000



IGS7500



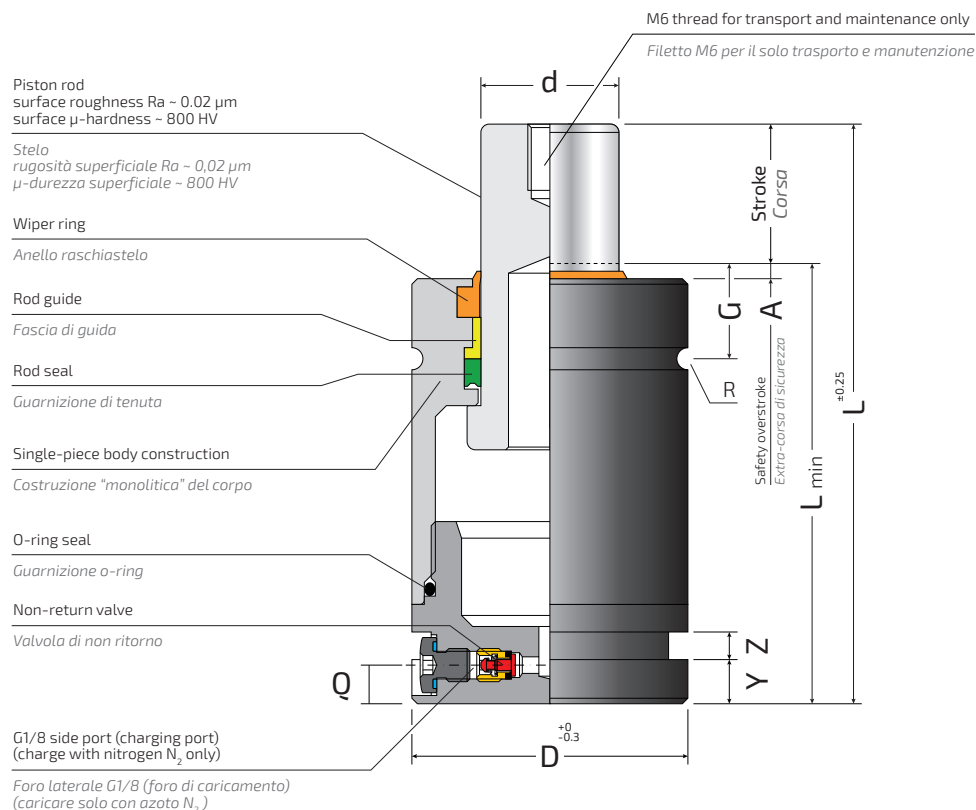
IGS10000





Technical notes / Note tecniche
Important use instructions
in the dedicated catalogue section.

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



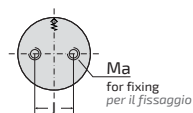
Fixing possibilities



at the base
with screws



with base-plate
BF, BFA, BFB



LGS500



with half-flanges
SF, SFA



with foot brackets
ST, STA



with collar flange
FL, FLQ

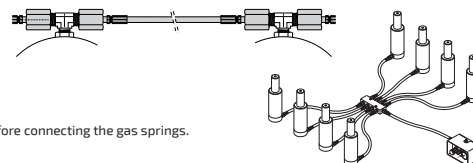


with front support
FT, FTA

GAS SPRING BASE

LINKING TO OPEN SYSTEM

	LGS500 (G1/8 side port / foro laterale G1/8)		
Hoses Tubi	ATM	ATN	AT
Gas spring-hose fittings Raccordi cilindro-tubo	ARM	ARN	AR



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

SAFETY PROTECTIONS



UNCONTROLLED
RETURN SPEED /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPRESSIONE

Model <i>Modello</i>	MAX Stroke mm	L min mm	L mm	D mm	d mm	G mm	A mm	R mm	Y mm	Z mm	Q mm	Ma	J mm	 bar (MPa)	 daN	 daN	Cycles per minute MAX	Gas volume l	Weight kg
LGS500-80	80	130	210	45	20	15.5	2	1	4	4	10.5	M8 x 13 (Zx)	20	150 (15.0)	470	700	40	0.097	0.89

All the gas spring 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) / "VERSIONE L" (PER COLLEGAMENTO A SISTEMA)

When the LGS 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: **"LGS500-80-L"**



REPAIR KIT / KIT DI RIPARAZIONE

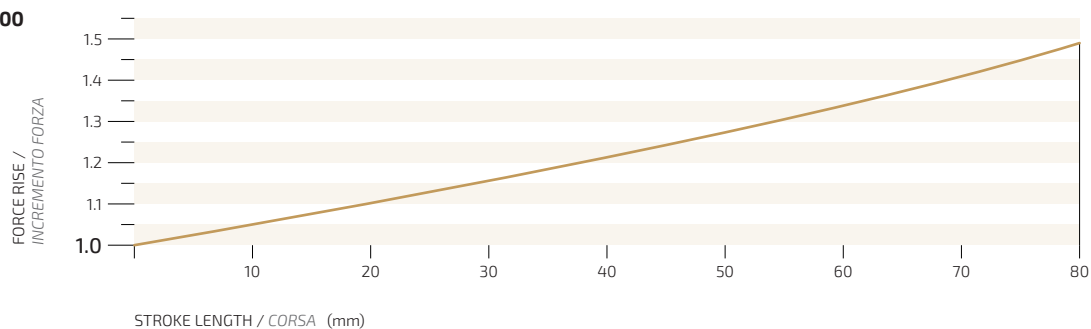
Gas spring code <i>Codice cilindro</i>	Repair kit code <i>Codice kit di riparazione</i>
LGS500-...	KR/LGS500

Download repair instructions from www.bordignon.com /

FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

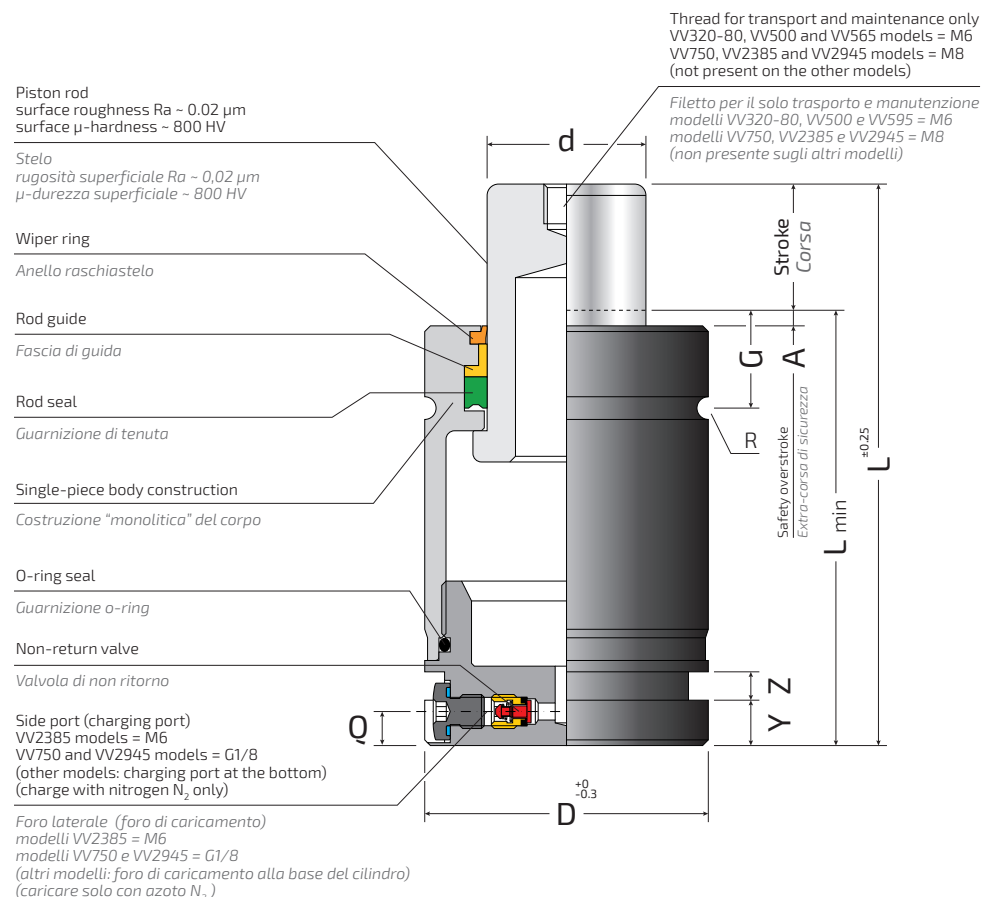
LGS500





VV series nitrogen gas springs feature different dimensions and forces.

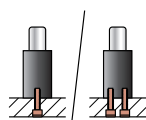
VV series nitrogen gas springs are self-lubricated.



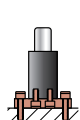
Technical notes

Important use instructions
in the dedicated catalogue section.

Fixing possibilities

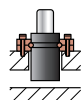


at the base
with screws



with base-plate

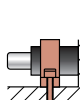
BF, BFA, BFB
for VV750 - VV2945



with collar flange

FL, FLQ

(Not for all VV models)

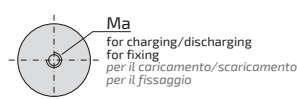


with front support

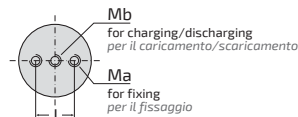
FT, FTA

(Not for all VV models)

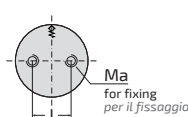
GAS SPRING BASE



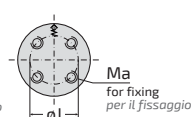
VV170, VV320-63/63H



**VV320-80, VV500-63,
VV565-63**



VV750



VV2385, VV2495

LINKING TO OPEN SYSTEM

	VV2385 (M6 side port)		VV750, VV2945 (G1/8 side port)		
Hoses	ATM	ATNM	ATM	ATN	AT
Gas spring-hose fittings	ARM	ARNM	ARM	ARN	AR



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

SAFETY PROTECTIONS



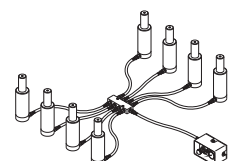
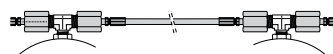
UNCONTROLLED
RETURN SPEED /
VELOCITÀ DI RITORNO
NON CONTROLLATA



OVERSTROKE /
EXTRA-CORSA



OVERPRESSURE /
SOVRAPPRESSIONE



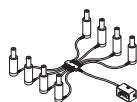
Model	MAX Stroke mm	Lmin mm	L mm	D mm	d mm	G mm	A mm	R mm	Y mm	Z mm	Q mm	Ma	J mm	Mb	bar (MPa)	daN	daN	Cycles per minute MAX	Gas volume l	Weight kg
VV170-38	38	97	135														275	80	0.011	0.14
50	50	110	160	19	11	17	1	1	-	-	-	M6 x 10	-	-	180 (18.0)	170	285	60	0.014	0.17
63	63	127	190														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 spring 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

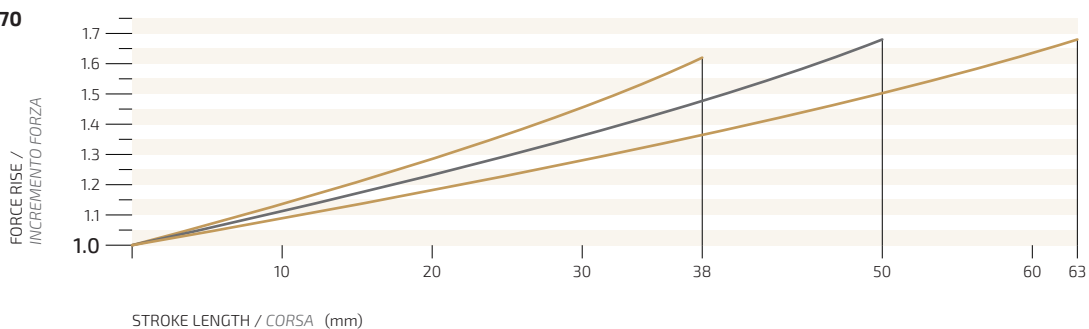
Gas spring code	Repair kit code
VV170-...	KR/VV170
VV320-63, VV320-63H	KR/VV320-63-63H
VV320-80	KR/VV320-80
VV500-63	KR/VV500
VV565-63	KR/VV565
VV750-...	KR/VV750
VV2385-...	KR/VV2385
VV2945-...	KR/VV2945

Download repair instructions from www.bordignon.com /

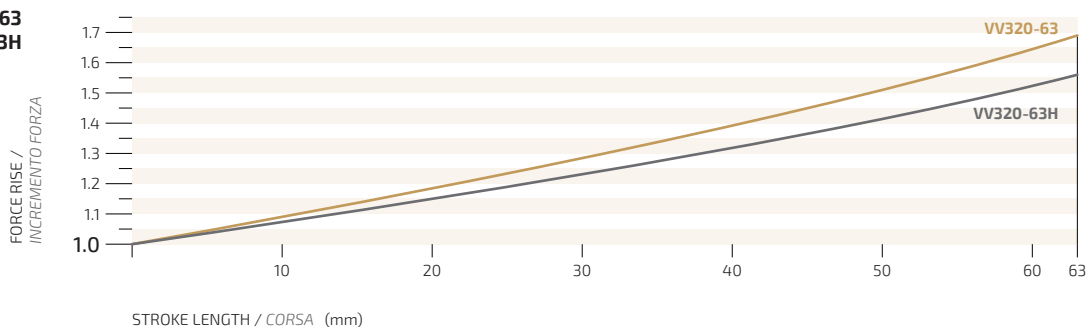
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

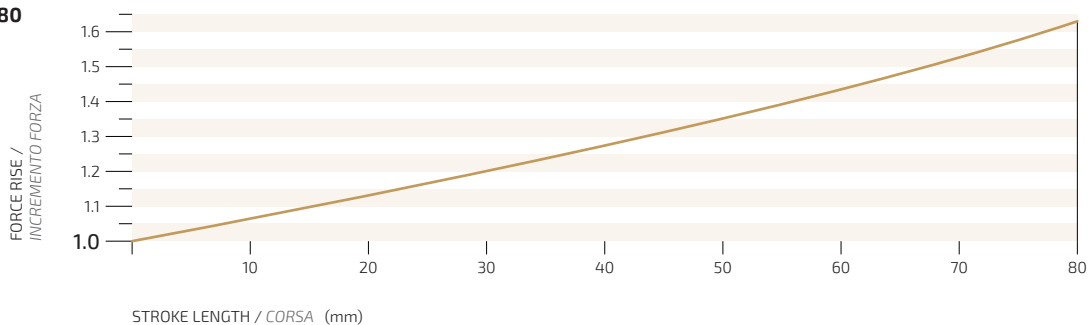
VV170



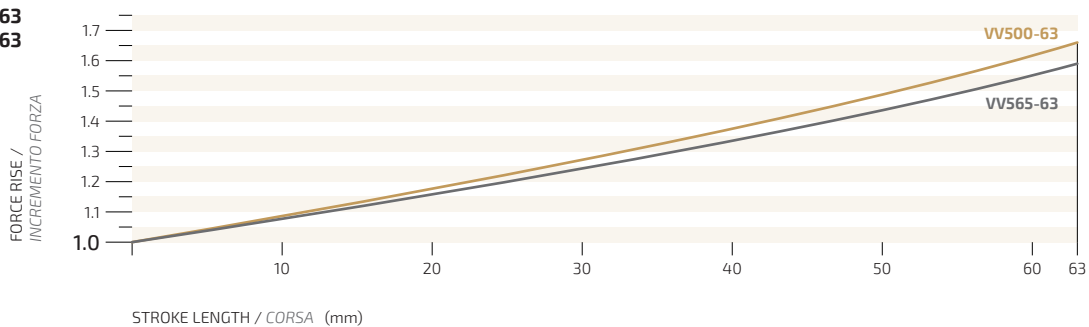
**VV320-63
VV320-63H**



VV320-80



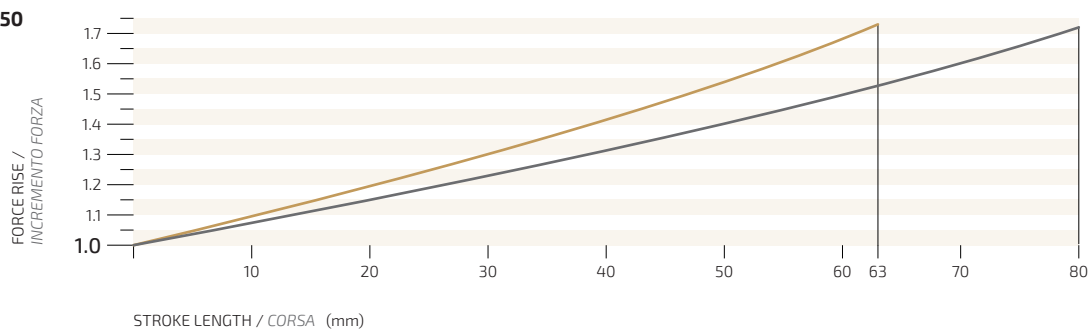
**VV500-63
VV565-63**



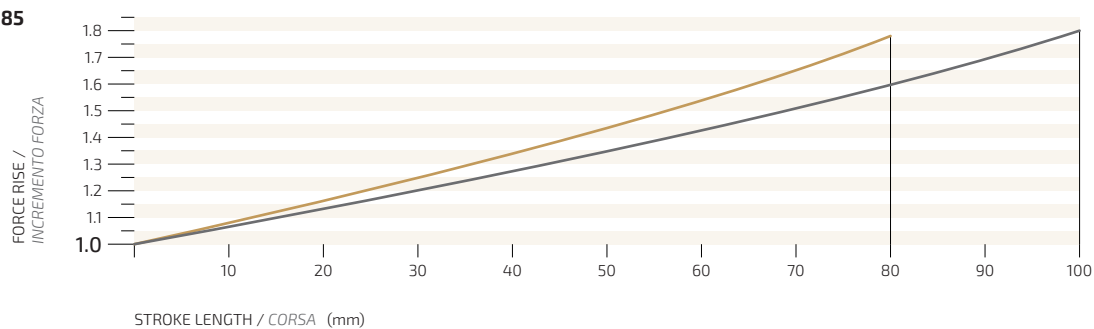
FORCE RISE VS. USED STROKE LENGTH CHARTS

The force curves in the charts below are obtained from reference values measured in static conditions. The actual 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).

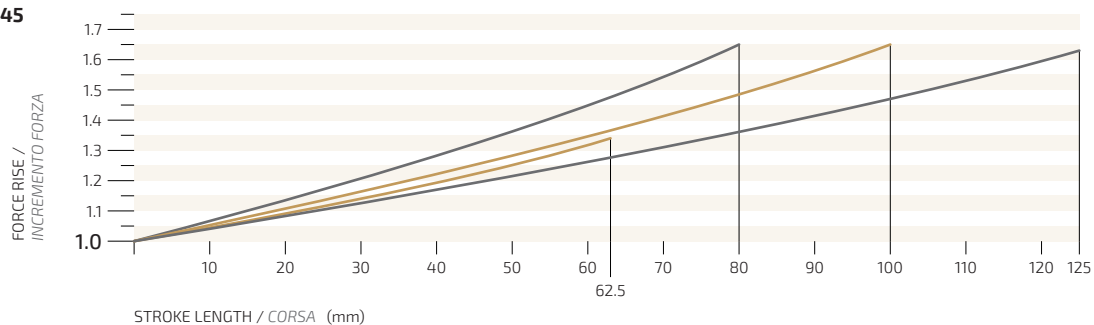
VV750



VV2385



VV2945



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

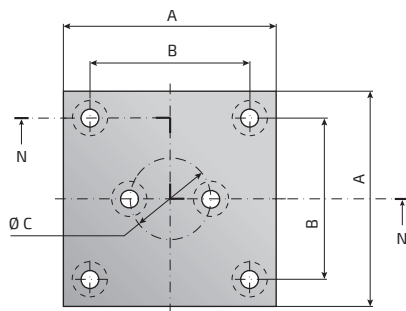
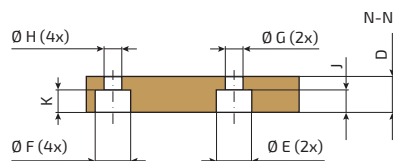


FIG. 1

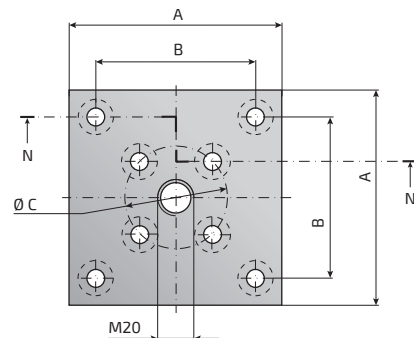
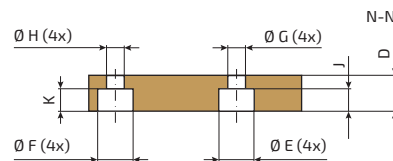
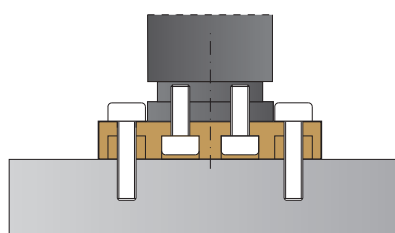
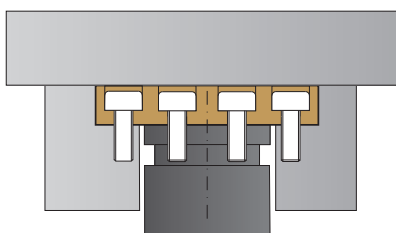


FIG. 2

Model	Reference to Standards	For models...	A mm	B mm	$\varnothing C$ mm	D mm	$\varnothing E$ mm	$\varnothing F$ mm	$\varnothing G$ mm	$\varnothing H$ mm	J mm	K mm	FIG.
BF 45	ISO 11901-2, VDI 3003	AGS750, IGS500, LG5500	70	50	20	20	15	15	9	9	14	12	1
50	ISO 11901-2, VDI 3003	AGS1000, AGS1500, IGS750, VV750	75	56.5	20	20	15	15	9	9	14	12	1
63	ISO 11901-2	AGS1500	100	73.5	20	20	15	18	9	11	14	12	1
75	ISO 11901-2, VDI 3003	AGS1500, AGS2400, IGS1500, TGS5000, VV2385	100	73.5	40	20	15	18	9	11	14	12	2
95	ISO 11901-2, VDI 3003	AGS4200, IGS3000, VV2945	120	92	60	20	15	20	9	13.5	14	13	2
120	ISO 11901-2, VDI 3003	AGS6600, IGS5000	140	109.5	80	20	18	20	11	13.5	15	13	2
150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	190	138	100	25	18	26	11	17.5	15	17	2
195	ISO 11901-2, VDI 3003	AGS20000, IGS10000	210	170	120	25	20	26	13.5	17.5	13	17	2

Fixing possibilities



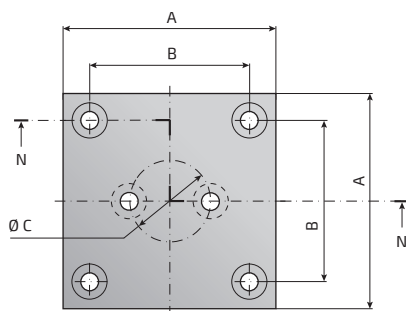
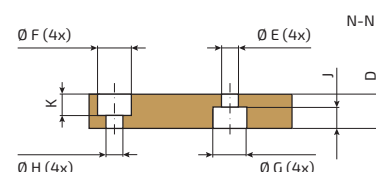
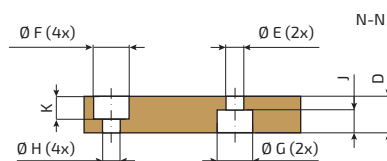


FIG. 1

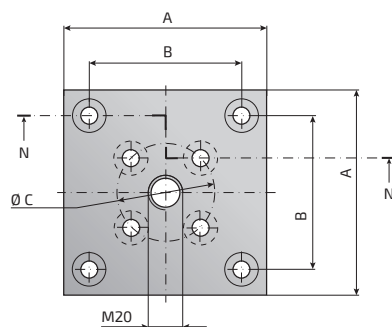
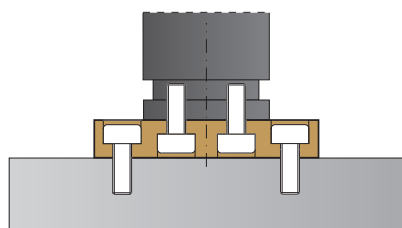


FIG. 2

Model	Reference to Standards	For models...	A mm	B mm	Ø C mm	D mm	Ø E mm	Ø F mm	Ø G mm	Ø H mm	J mm	K mm	FIG.
BFA 45	-	AGS750, IGS500, LG5500	70	50	20	20	9	18	15	11	14	12	1
50	-	AGS1000, AGS1500, IGS750, VV750	75	56.5	20	20	9	18	15	11	14	12	1
75	-	AGS1500, AGS2400, IGS1500, TGS5000, VV2385	100	73.5	40	20	9	18	15	11	14	12	2
95	-	AGS4200, IGS3000, VV2945	120	92	60	20	9	20	15	13.5	14	13	2
120	-	AGS6600, IGS5000	140	109.5	80	20	11	20	18	13.5	15	13	2
150	-	AGS9500, IGS7500	190	138	100	25	11	26	18	17.5	15	17	2
195	-	AGS20000, IGS10000	210	170	120	25	13.5	26	20	17.5	15	17	2

Fixing possibilities



BMW	BZ 4009
MB	BB 0132 110 008 801

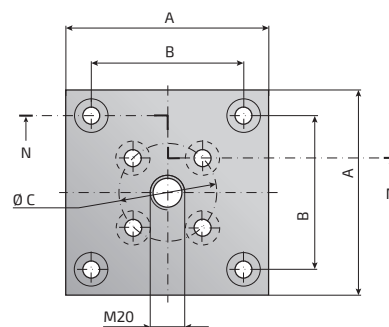
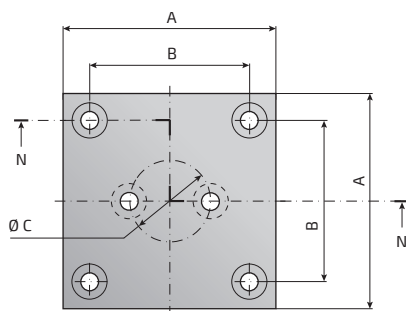
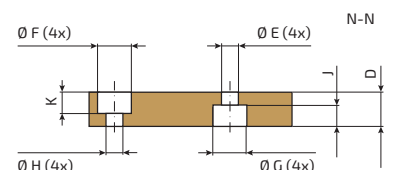
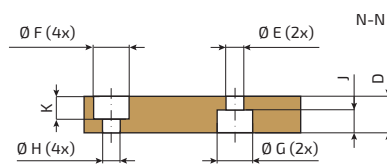
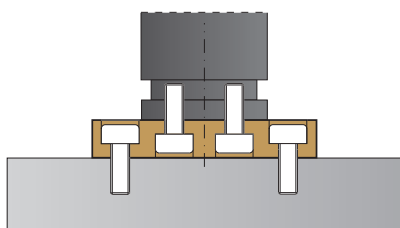


FIG. 1

FIG. 2

Model	Reference to Standards	For models...	A mm	B mm	Ø C mm	D mm	Ø E mm	Ø F mm	Ø G mm	Ø H mm	J mm	K mm	FIG.
BFB 45	-	AGS750, IGS500, LG5500	70	50	20	20	9	15	15	9	12	12	1
50	-	AGS1000, AGS1500, IGS750, VV750	75	56.5	20	20	9	15	15	9	12	12	1
63	-	AGS1500	100	73.5	20	20	9	18	15	11	12	12	1
75	-	AGS1500, AGS2400, IGS1500, TGS5000, VV2385	100	73.5	40	20	9	18	15	11	12	14	2
95	-	AGS4200, IGS3000, VV2945	120	92	60	20	9	20	15	13.5	14	13	2
120	-	AGS6600, IGS5000	140	109.5	80	20	11	20	18	13.5	15	13	2
150	-	AGS9500, IGS7500	190	138	100	20	11	20	18	13.5	15	13	2
195	-	AGS20000, IGS10000	210	170	120	25	13.5	26	20	17.5	15	17	2

Fixing possibilities



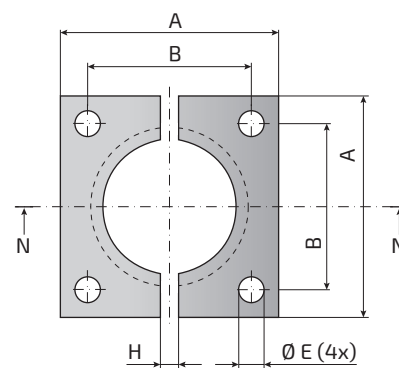
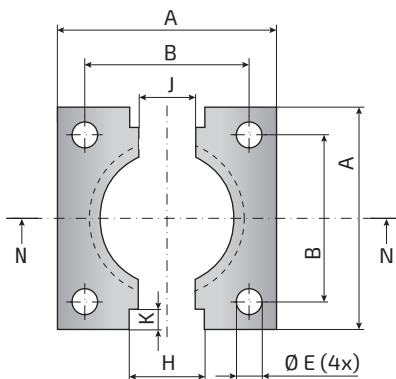
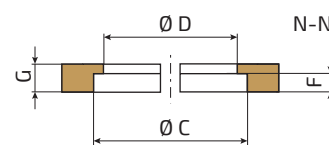
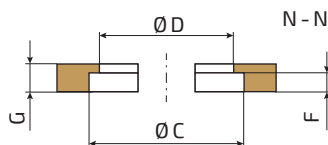
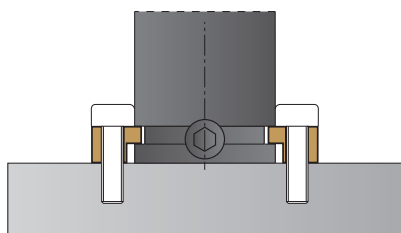


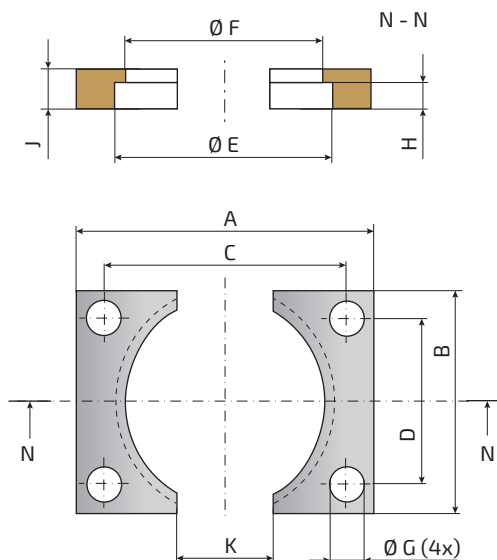
FIG. 1

FIG. 2

Model	Reference to Standards	For models... Per modelli...	A mm	B mm	Ø C mm	Ø D mm	Ø E mm	F mm	G mm	H mm	J mm	K mm	FIG.
SF 32	-	AGS350, IGS150, TGS700	50	35	32.5	28.5	6.6	4	7	21	17	6.5	1
38	-	AGS500, IGS250, TGS1000	55	40	38.5	34.5	6.6	4	7	21	17	6.5	1
45	ISO 11901-2, VDI 3003	AGS750, IGS500, LG5500	70	50	45.5	41.5	9	4	7	20	-	-	2
50	ISO 11901-2, VDI 3003	AGS1000, IGS750, TGS2000	75	56.5	50.5	44.5	9	8	12	24	-	-	2
63	-	AGS1500, TGS3000	85	63.5	63.5	57.5	11	8	12	24	-	-	2
63A	ISO 11901-2	AGS1500, TGS3000	100	73.5	64	57	11	8	12	24	-	-	2
75	ISO 11901-2, VDI 3003	AGS2400, IGS1500, TGS5000	100	73.5	75.5	68.5	11	8	12	24	-	-	2
95	ISO 11901-2, VDI 3003	AGS4200, IGS3000, TGS8000	120	92	95.5	88.5	13.5	8	12	24	-	-	2
120	ISO 11901-2, VDI 3003	AGS6600, IGS5000, TGS12000	140	109.5	120.5	113.5	13.5	8	12	24	-	-	2
150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	190	138	150.5	143.5	17.5	8	12	24	-	-	2
195	ISO 11901-2, VDI 3003	AGS20000, IGS10000	210	170	195.5	188	17.5	8	13	24	-	-	2

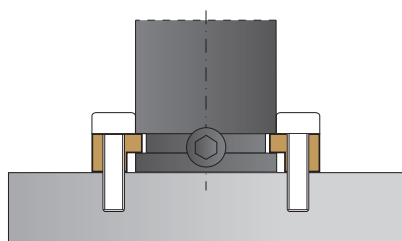
Fixing possibilities





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

Fixing possibilities



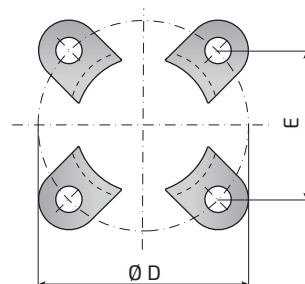
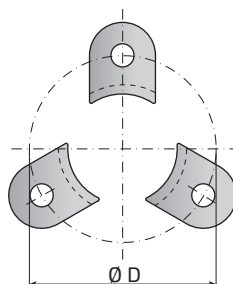
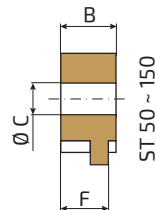
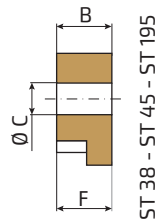
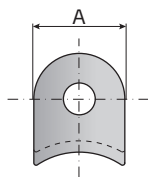
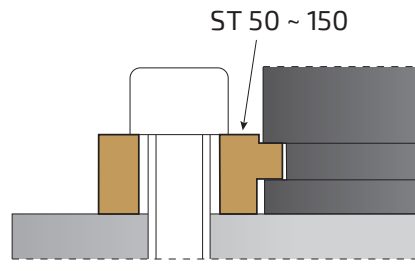
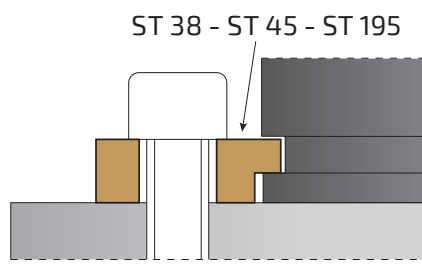


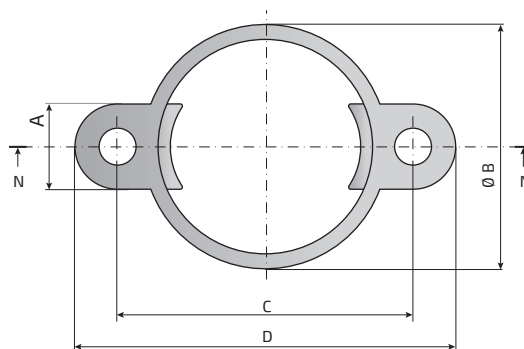
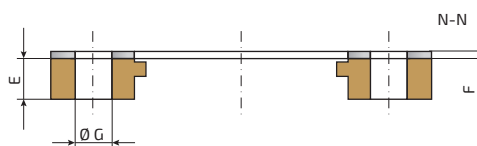
FIG. 1

FIG. 2

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

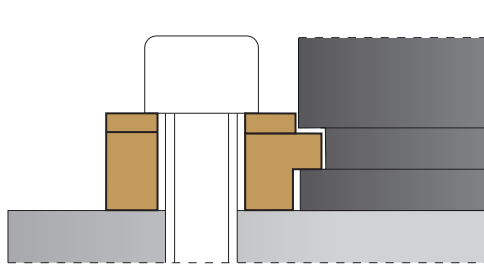
Fixing possibilities





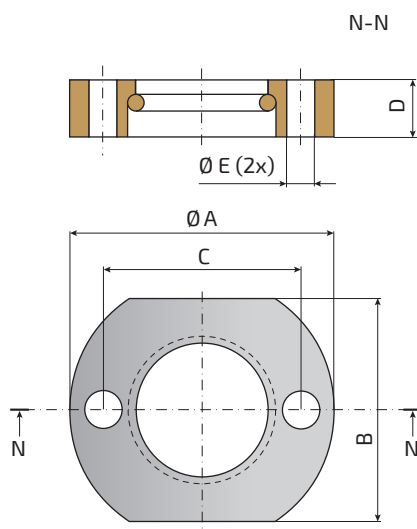
Model	Reference to Standards	For models...	A mm	Ø B mm	C mm	D mm	E mm	F mm	Ø G mm
STA 38	-	AGS500, IGS250, TGS1000	20	48	56.6	76.6	7	2.5	7
45	-	AGS750, IGS500, LGS500	25	56	70.7	95.7	7	2.5	9
50	-	AGS1000, IGS750, TGS2000	30	61	80	110	14.2	2.5	13
63	-	AGS1500, TGS3000	30	73	92	122	14.2	2.5	13
75	-	AGS2400,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

Fixing possibilities



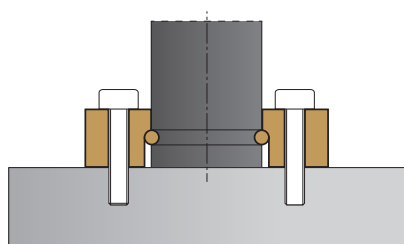
FV

Collar flange (for base-fixing)



Model	Reference to Standards	For models...	$\varnothing A$ mm	B mm	C mm	D mm	$\varnothing E$ mm
FV 19	-	VG590	45	25	32	9.2	7

Fixing possibilities



BORDIGNON
AUTOMOTIVE LINE
FL 12~25

Collar flange



ISO 11901-2



VDI 3003

This 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

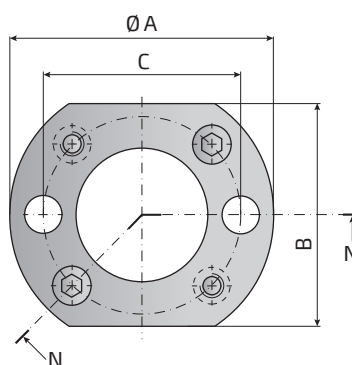
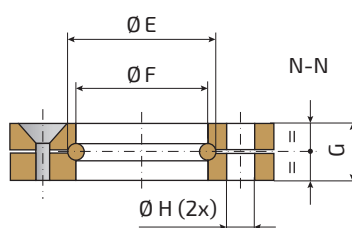


FIG. 1

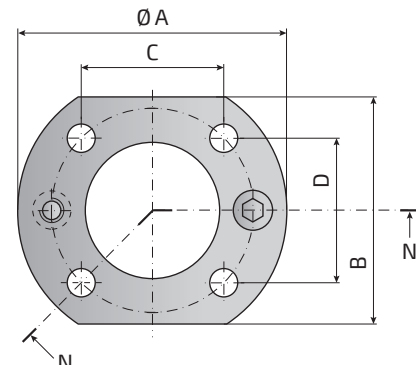
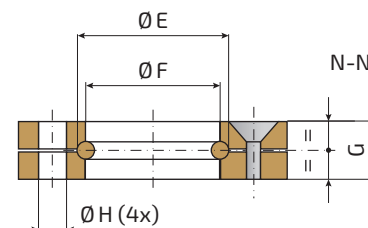
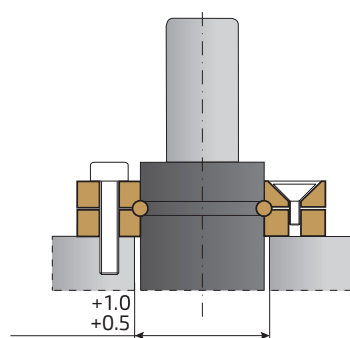


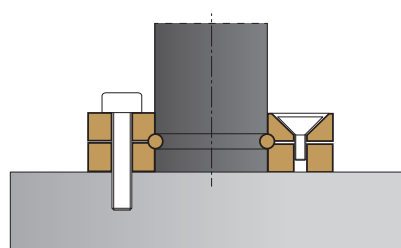
FIG. 2

Model	Reference to Standards	For models...	Ø A mm	B mm	C mm	D mm	Ø E mm	Ø F mm	G mm	Ø H mm	FIG.
FL 12	-	VG550	34	21	24	-	13.6	12.5	9	6.6	1
15	-	VG570	37	24	27	-	16.6	15.5	9	6.6	1
19 A	VDI 3003	AGS170, VGS90, VV170	44	25	32	-	21	19.5	9	6.6	1
19 B	ISO 11901-2	AGS170, VGS90, VV170	44	25	30	12	21	19.5	9	6.6	2
25 A	VDI 3003	AGS320, TGS400, VGS200, VV320-63/63H	50	30	38	-	27	25.5	9	6.6	1
25 B	ISO 11901-2	AGS320, TGS400, VGS200, VV320-63/63H	50	30	34	18	27	25.5	9	6.6	2

Fixing possibilities



Body Ø



(For VGS200 and TGS400 models only)

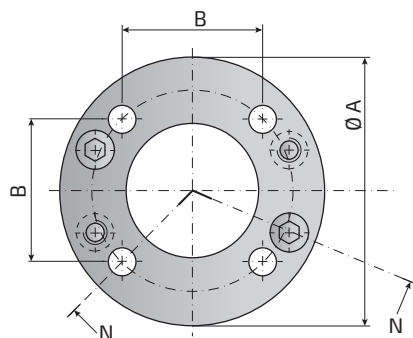
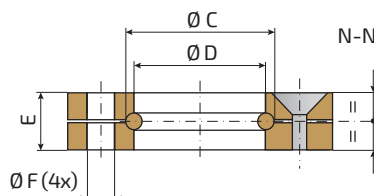
FL 32~195

Collar flange



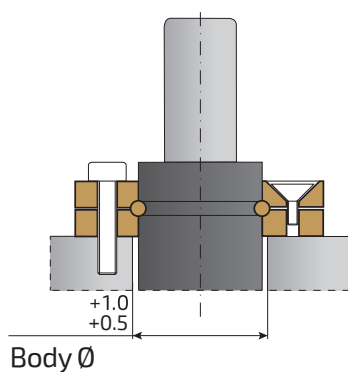
This series includes the models compliant with automotive standards.

BMW	B2 4009	General Motors	90.25.03
FCA	075.90.80	MB	B8 0134 300 000 001



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

Fixing possibilities

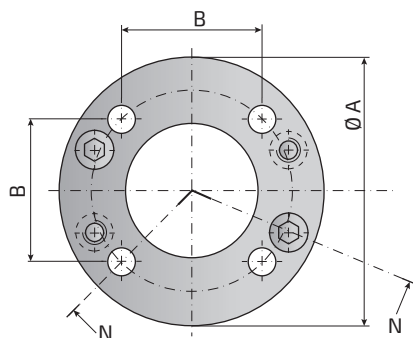
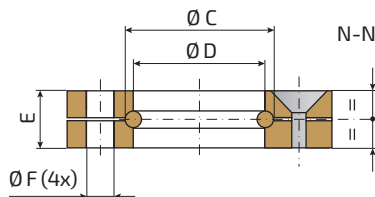




BORDIGNON
AUTOMOTIVE LINE

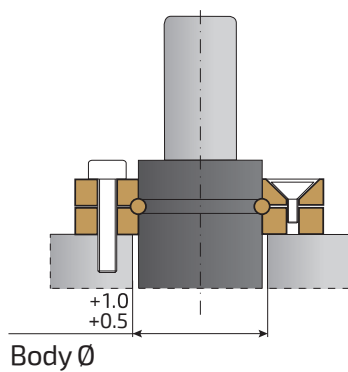
FLA

Collar flange



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

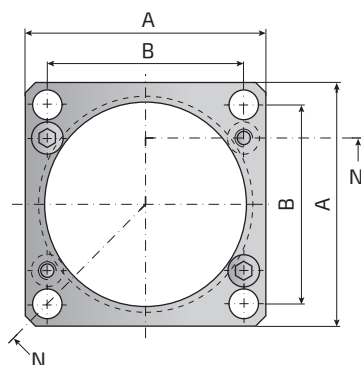
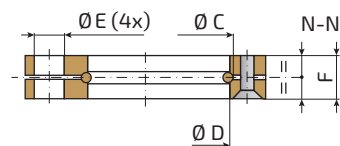
Fixing possibilities



This series includes the models compliant with automotive standards.

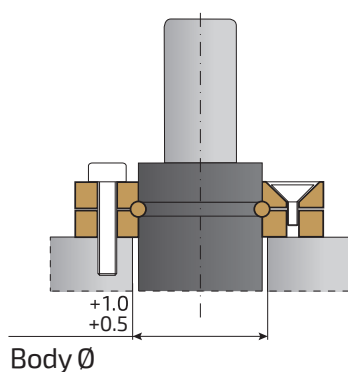


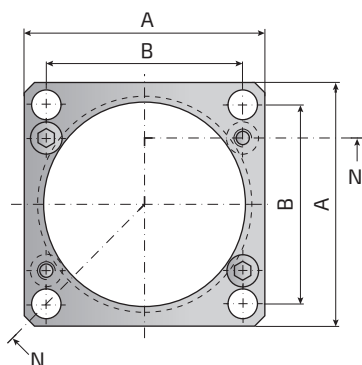
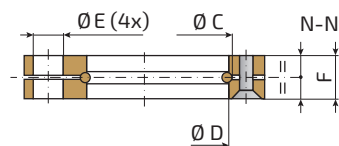
BMW	B2 4009	General Motors	90.25.02
FCA	075.90.85	VW	39D 848
Ford	W-DX35-62M		



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

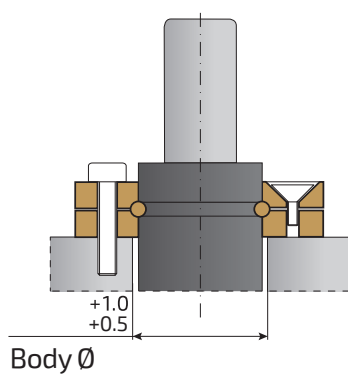
Fixing possibilities

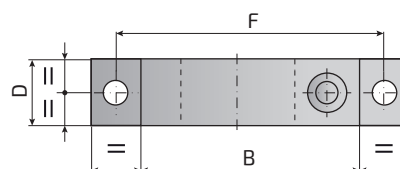
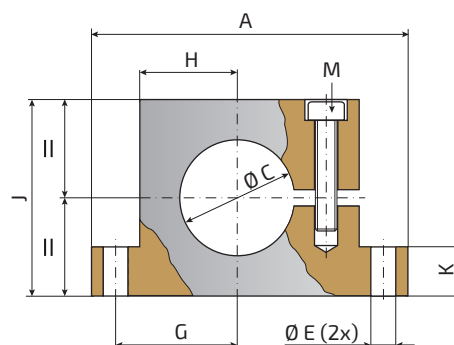
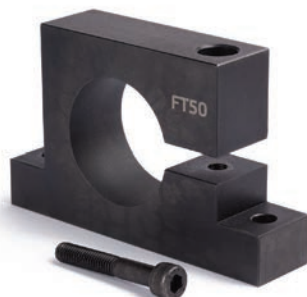




Model	Reference to Standards	For models...	A mm	B mm	Ø C mm	Ø D mm	Ø E mm	F mm
FLQA 50	-	TGS2000	70	56.5	53	50.5	9	13
75	-	TGS5000	90	73.5	78	75.5	11	16
95	-	TGS8000	110	92	98	95.5	13.5	18

Fixing possibilities



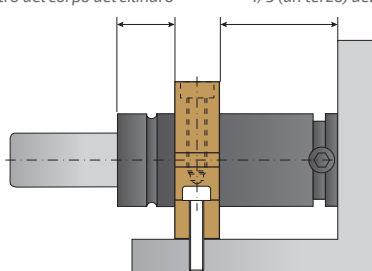


Model	Reference to Standards	For models...	A mm	B mm	Ø C mm	D mm	Ø E mm	F mm	G mm	H mm	J mm	K mm	M
FT 32	VDI 3003	AGS350, IGS150, TGS700, VV320-80, VV500, VV565	90	54	32	20	9	72	31	22	45	15	M8
38	VDI 3003	AGS500, IGS250, TGS1000	95	59	38	20	9	77	34	25	55	15	M8
45	VDI 3003	AGS750, IGS500, LG5500	100	64	45	20	9	82	37	28	60	15	M8
50	ISO 11901-2, VDI 3003	AGS1000, IGS750, TGS2000, VV750	130	90	50	30	9	110	50	40	80	20	M8
75	ISO 11901-2, VDI 3003	AGS2400, IGS1500, TGS5000, VV2385	160	115	75	30	11	137	63.5	52.5	105	20	M10
95	ISO 11901-2, VDI 3003	AGS4200, IGS3000, TGS8000, VV2945	195	145	95	30	13.5	170	80	67.5	125	20	M12
120	ISO 11901-2, VDI 3003	AGS6600, IGS5000, TGS12000	220	165	120	30	13.5	195	92.5	77.5	148	20	M12
150	ISO 11901-2, VDI 3003	AGS9500, IGS7500	260	200	150	30	13.5	230	110	95	200	20	M12

Fixing possibilities

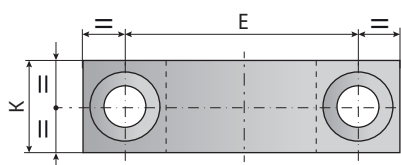
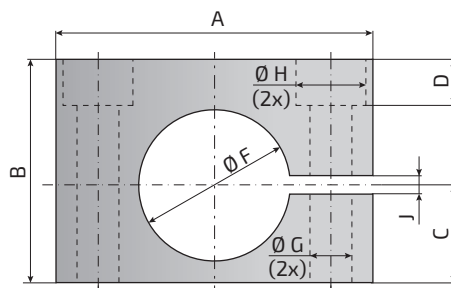
MAX
0.5 x diameter of the gas spring body
0,5 x diametro del corpo del cilindro

MIN
1/3 (one third) of dimension **Lmin** of the gas spring
1/3 (un terzo) della dimensione **Lmin** del cilindro



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

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

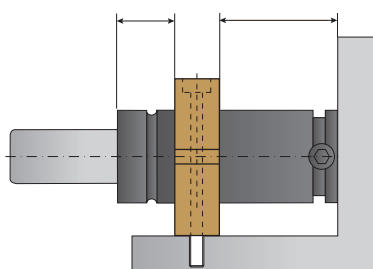


Model	Reference to Standards	For models...	A mm	B mm	C mm	D mm	E mm	Ø F mm	Ø G mm	Ø H mm	J mm	K mm
FTA 32	ISO 11901-2, VDI 3003	AGS350, IGS150, TGS700, VV320-80, VV500, VV565	68	48	20.9	10	50	32.5	9	15	4	20
38	ISO 11901-2, VDI 3003	AGS500, IGS250, TGS1000	74	54	23.9	16	54	38.5	9	15	4	20
45	ISO 11901-2,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

Fixing possibilities

MAX
0.5 x diameter of the gas spring body

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

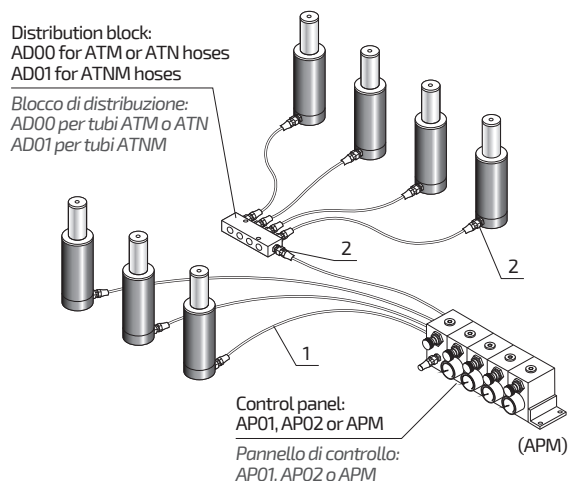


Dimension **MIN** must be respected to allow the over-pressure and over-stroke safety system to work properly (see dedicated catalogue section).

LINKED SYSTEM

LINKED SYSTEM EXAMPLES

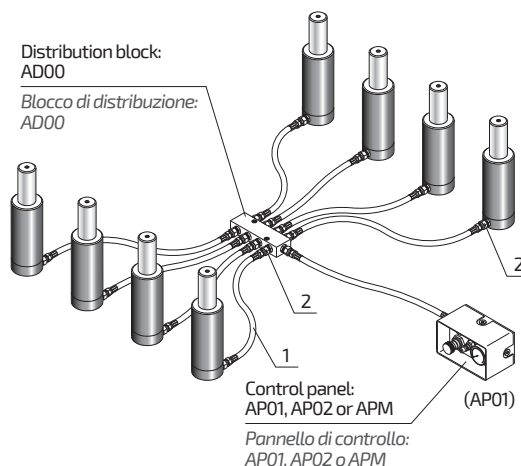
With Ø5 mm hoses



- 1 - Hoses ATM or ATN or ATNM / Tubi ATM o ATN o ATNM
2 - Fittings ARM (for hoses ATM) or ARN (for hoses ATN) or ARNM (for hoses ATNM)
Raccordi ARM (per tubi ATM) o ARN (per tubi ATN) o ARNM (per tubi ATNM)

With Ø8 mm hoses

Con tubi da Ø8 mm



- 1 - Hoses AT / Tubi AT
2 - Fittings AR / Raccordi AR

1 CHOOSE GAS SPRING MODEL



Gas spring models	Side port
AGS350-AGS2400	M6
IGS150, IGS250	
VV2385	
AGS4200-AGS20000	G1/8
IGS500-IGS10000	
LG5500	
VV750, VV2945	

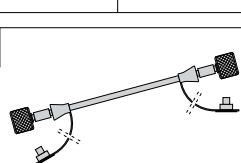
2 CHOOSE HOSE MODEL

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)

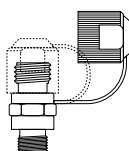


AT
Hose Ø 8 mm
(for big available spaces)

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

4

CHOOSE CONTROL PANEL MODEL



AP01
Standard



AP02
Compact



APM
Modular

... and other available models

5

DISTRIBUTION BLOCKS (IF NEEDED)



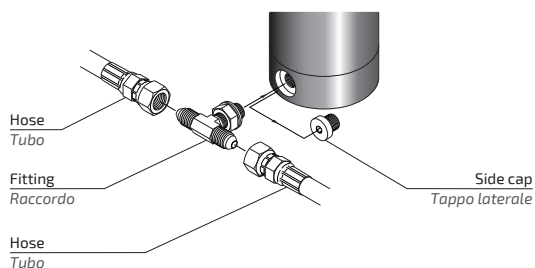
AD01



AD00

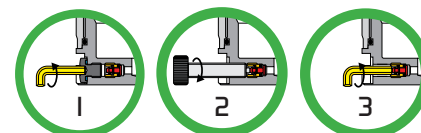
6

CONNECTING THE GAS SPRINGS



⚠ ATTENTION!

Follow the instructions on page 12 before connecting the gas springs



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

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 Ø 5 mm and FITTINGS (MINIMESS-TYPE)

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

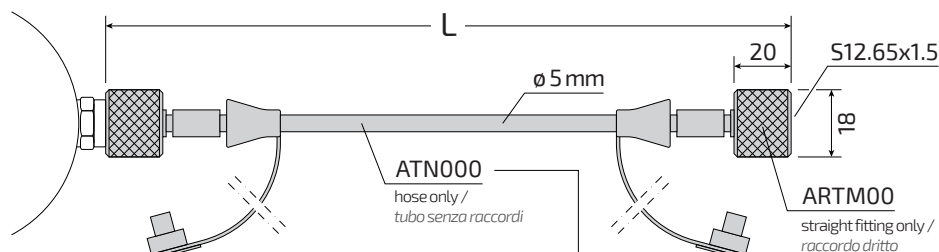
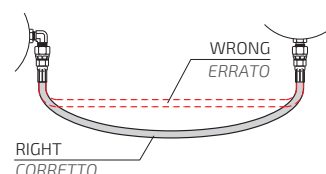
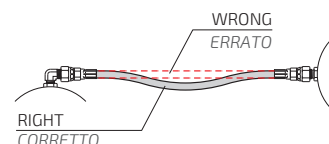
HOSE MECHANICAL SPECIFICATIONS

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

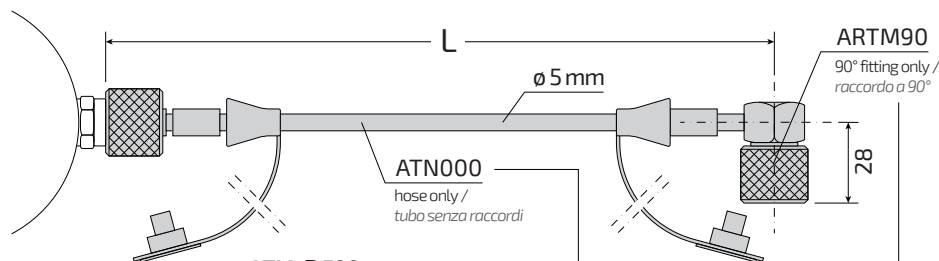
TECHNICAL NOTES

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

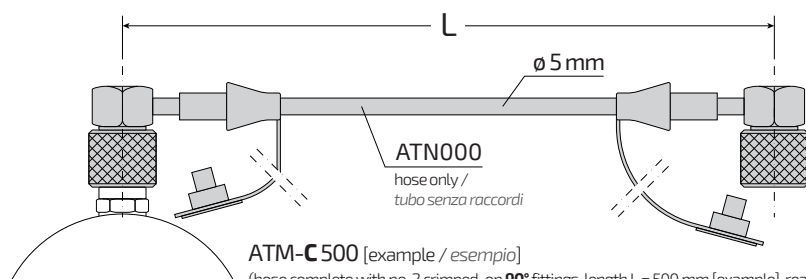
Assembly



ATM-A 500 [example / esempio]
(hose complete with no. 2 crimped-on **straight** fittings, length L = 500 mm [example], ready for use)
(tubo completo con n°2 raccordi **dritti** già crimpati, lunghezza L = 500 mm [esempio], pronto per l'uso)



ATM-B 500 [example / esempio]
(hose complete with no. 2 crimped-on fittings (**straight + 90°**), length L = 500 mm [example], ready for use)
(tubo completo con n°2 raccordi già crimpati (**dritto + 90°**), lunghezza L = 500 mm [esempio], pronto per l'uso)



ATM-C 500 [example / esempio]
(hose complete with no. 2 crimped-on **90°** fittings, length L = 500 mm [example], ready for use)
(tubo completo con n°2 raccordi **a 90°** già crimpati, lunghezza L = 500 mm [esempio], pronto per l'uso)

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

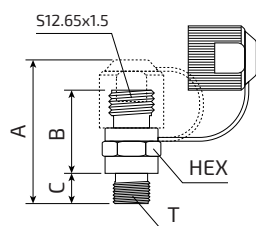
LENGTH OF STANDARD HOSES, FITTINGS INCLUDED (Different lengths can be prepared on request - Minimum lengths: see "L MIN")

Model	L mm	Model	L mm	Model	L mm	Models	L MIN* mm
ATM-... 150	150	ATM-... 400	400	ATM-... 1000	1000	ATM-A	90
ATM-... 175	175	ATM-... 500	500	ATM-... 1500	1500	ATM-B	95
ATM-... 200	200	ATM-... 600	600	ATM-... 2000	2000	ATM-C	105
ATM-... 250	250	ATM-... 700	700				
ATM-... 300	300	ATM-... 800	800				
ATM-... 350	350	ATM-... 900	900				

* No plastic caps for L < 150 mm

FITTINGS for ATM HOSES (MINIMESS-TYPE)

FITTINGS FOR LINKING GAS SPRINGS, CONTROL PANELS AND DISTRIBUTION BLOCKS



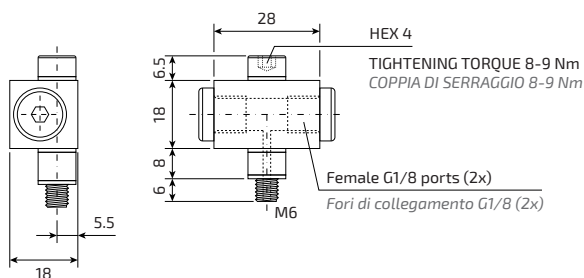
Model	A mm	B mm	C mm	T	HEX	Tightening torque	Non-return valve
ARM000-1/8	48	30	8	G1/8	14	ca. 18	NO
ARM000-1/8V	48	30	8	G1/8	14	ca. 18	YES
ARM000-1/4	43	21	12	G1/4	19	ca. 45	NO
ARM000-1/4V	43	21	12	G1/4	19	ca. 45	YES



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

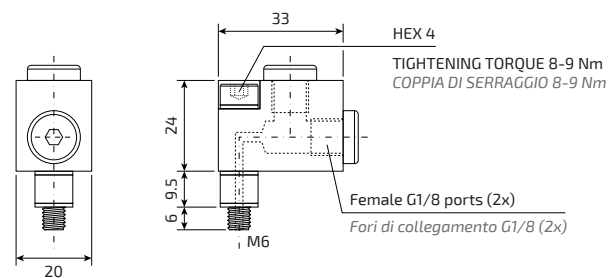
Model

ARM270-M6



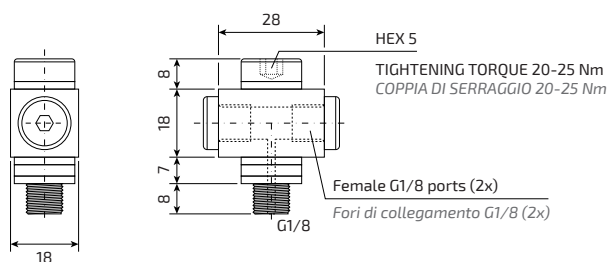
Model

ARM270R-M6



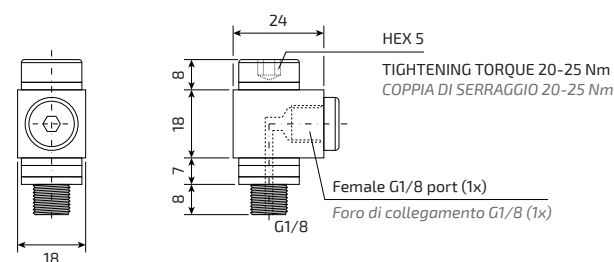
Model

ARM270-1/8



Model

ARM090-1/8



OTHER ACCESSORIES

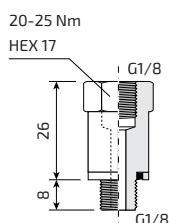
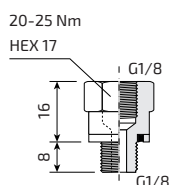
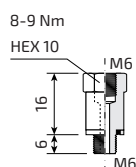
Extension fittings which may be needed in case of fixing with half-flanges



PL-M6

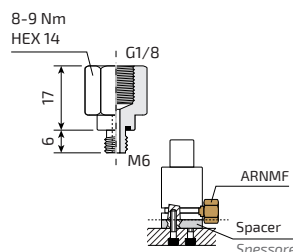
PL-1/8A

PL-1/8B



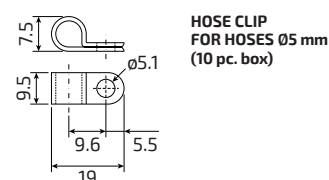
M6 to G1/8 side port converter

ARNMF



Model

CFT-5



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

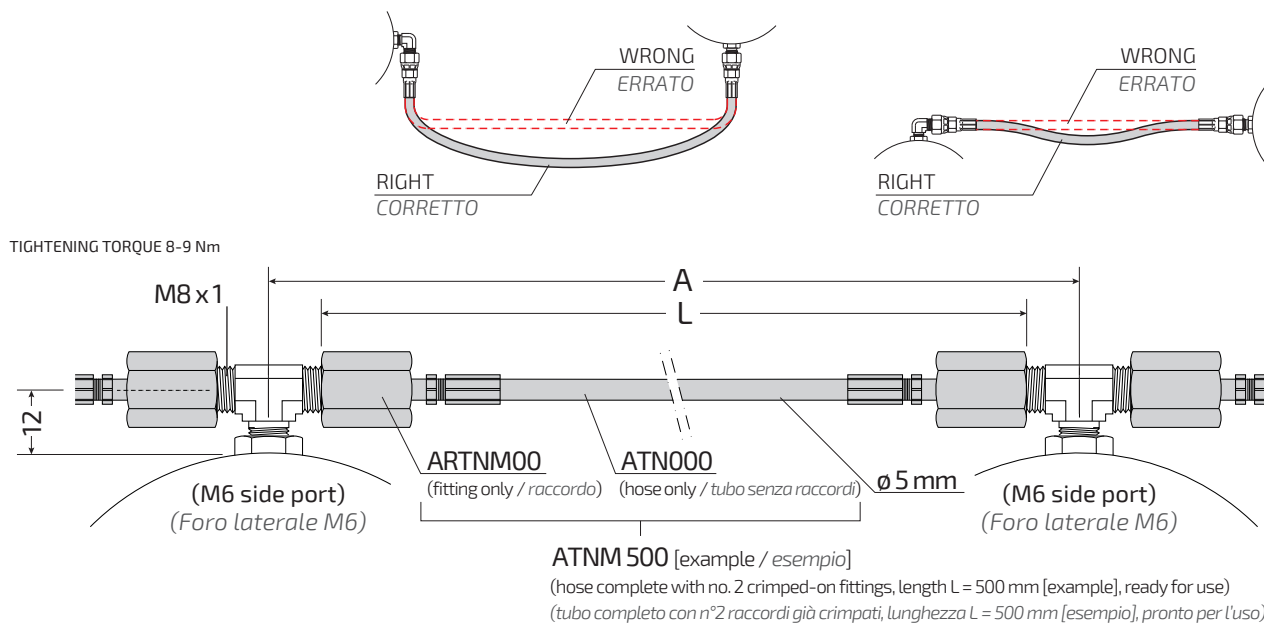
Calculating hose length:

$L = (A - 20) \times 1.05$ (dimensions in millimetres)

L = Hose length (fittings included)

A = Distance between gas springs to be connected

Assembly



ORDER HOSE cod. ATNM000 (quantity in metres, for example: "ATNM000 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)

Model	A mm	L mm	Model	A mm	L mm	Model	A mm	L mm
ATNM 100	115	100	ATNM 300	306	300	ATNM 800	782	800
ATNM 125	139	125	ATNM 350	353	350	ATNM 900	877	900
ATNM 150	163	150	ATNM 400	401	400	ATNM 1000	972	1000
ATNM 175	187	175	ATNM 500	496	500	ATNM 1500	1449	1500
ATNM 200	210	200	ATNM 600	591	600	ATNM 2000	1925	2000
ATNM 250	258	250	ATNM 700	687	700			



BORDIGNON
AUTOMOTIVE LINE

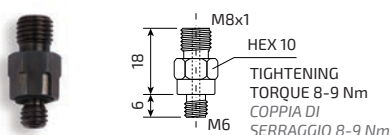


FITTINGS for ATNM HOSES (MICRO-TYPE)

FITTINGS FOR LINKING GAS SPRINGS, CONTROL PANELS AND DISTRIBUTION BLOCKS

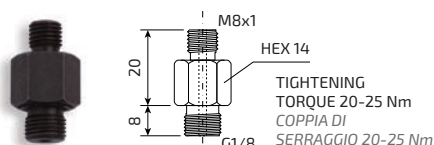
Model

ARNM000



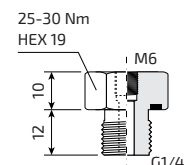
Model

ARNM000CP



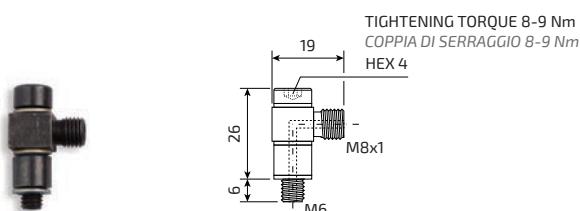
Model

ARNM00P



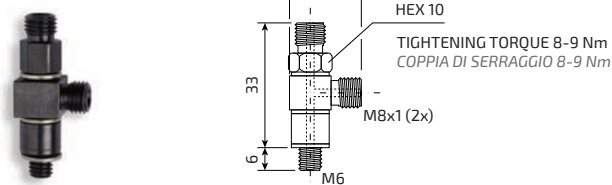
Model

ARNM090



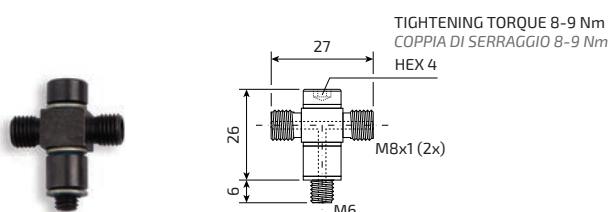
Model

ARNM270R



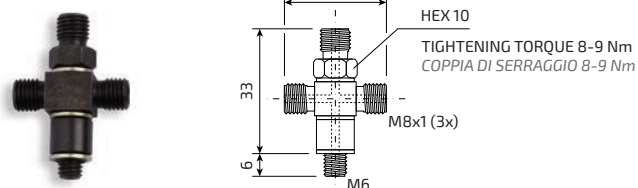
Model

ARNM270



Model

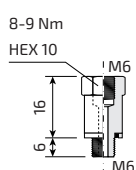
ARNM360



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



PL-M6



FITTINGS FOR HOSE-HOSE CONNECTION

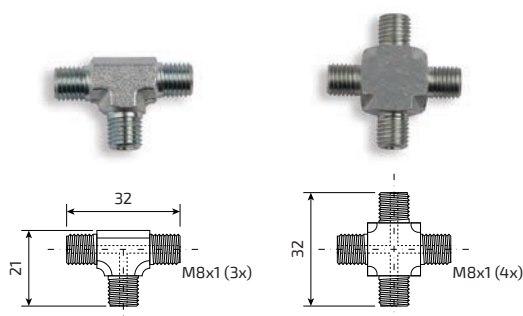
RACCORDI PER COLLEGAMENTO TUBO-TUBO

Model

ARNM270T

Model

ARNM360T

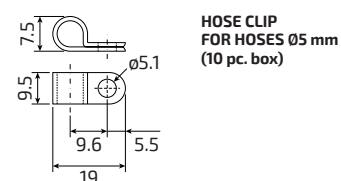


OTHER ACCESSORIES

ALTRI ACCESSORI

Model

CFT-5



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

TECHNICAL NOTES

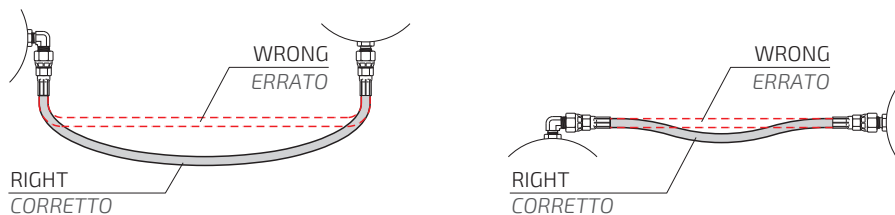
Calculating hose length:

$$L = (A - 25) \times 1.05 \text{ (dimensions in millimetres)}$$

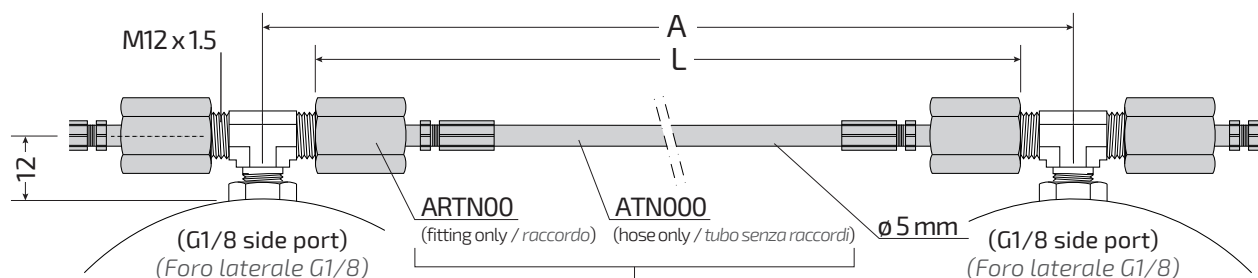
L = Hose length (fittings included)

A = Distance between gas springs to be connected

Assembly / Assemblaggio



TIGHTENING TORQUE 16-18 Nm



ATN 500 [example / esempio]

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

(tubo completo con n°2 raccordi già crimpati, lunghezza L = 500 mm [esempio], pronto per l'uso)

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)

Model	A mm	L mm	Model	A mm	L mm	Model	A mm	L mm
ATN 100	120	100	ATN 300	311	300	ATN 800	787	800
ATN 125	144	125	ATN 350	358	350	ATN 900	882	900
ATN 150	168	150	ATN 400	406	400	ATN 1000	977	1000
ATN 175	192	175	ATN 500	501	500	ATN 1500	1454	1500
ATN 200	215	200	ATN 600	596	600	ATN 2000	1930	2000
ATN 250	263	250	ATN 700	692	700			



BORDIGNON
AUTOMOTIVE LINE

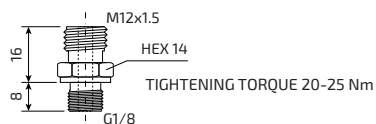


FITTINGS for ATN HOSES

FITTINGS FOR LINKING GAS SPRINGS, CONTROL PANELS AND DISTRIBUTION BLOCKS

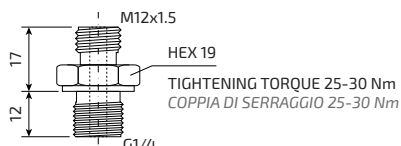
Model

ARN000



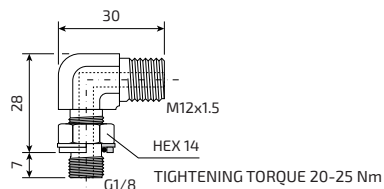
Model

ARN000-1/4



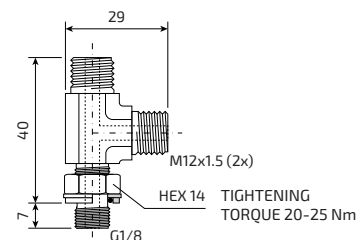
Model

ARN090



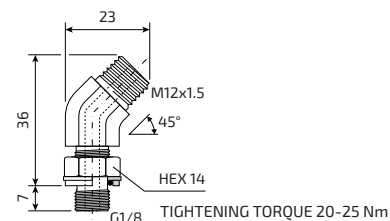
Model

ARN270R



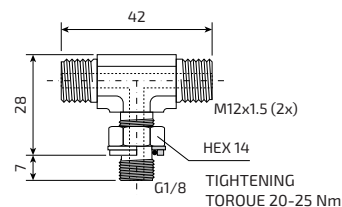
Model

ARN045



Model

ARN270



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



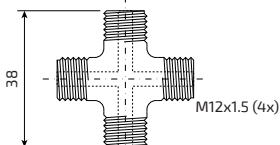
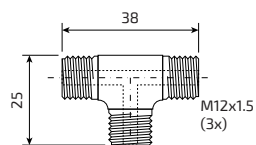
FITTINGS FOR HOSE-HOSE CONNECTION

Model

ARN270T

Model

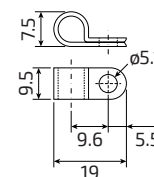
ARN360T



OTHER ACCESSORIES

Model

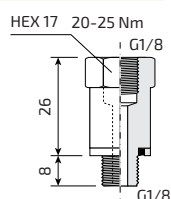
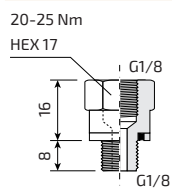
CFT-5



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

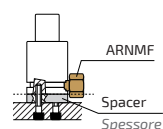
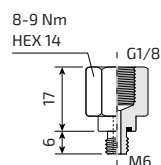
PL-1/8A

PL-1/8B



M6 to G1/8 side port converter

ARNMF



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: 40 mm
- Outside diameter: 8 mm

TECHNICAL NOTES

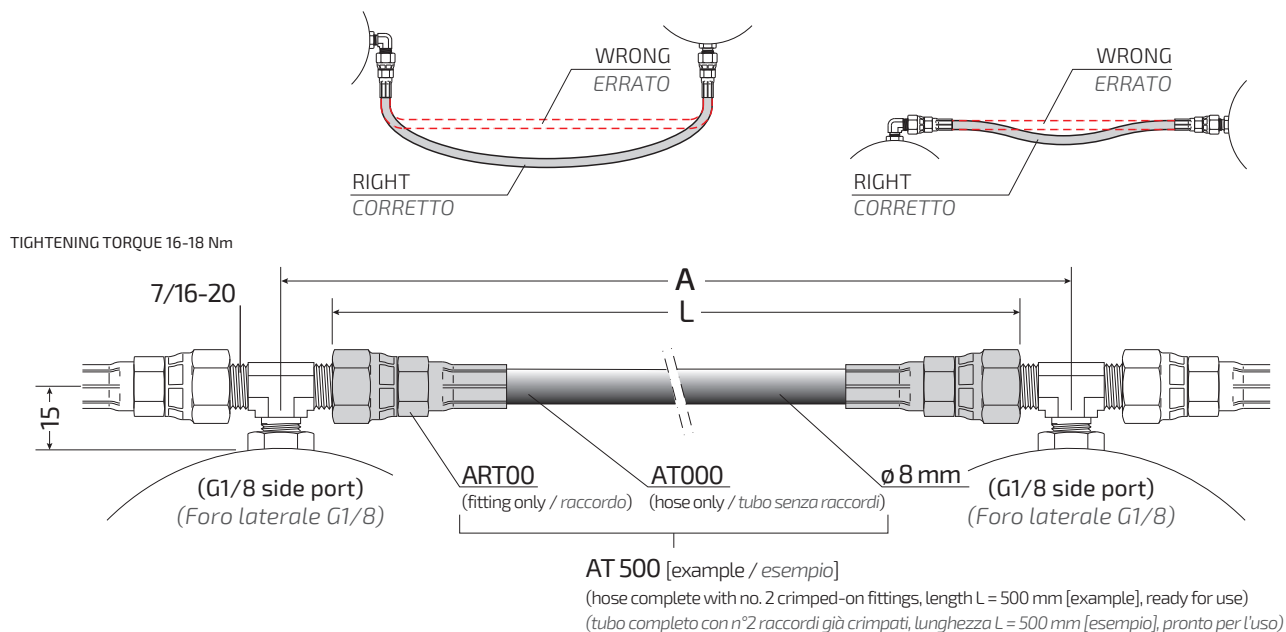
Calculating hose length:

$L = (A - 25) \times 1.05$ (dimensions in millimetres)

L = Hose length (fittings included)

A = Distance between gas springs to be connected

Assembly



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 = 125 mm)

Model	A mm	L mm	Model	A mm	L mm	Model	A mm	L mm
-	-	-	AT 300	311	300	AT 800	787	800
AT 125	144	125	AT 350	358	350	AT 900	882	900
AT 150	168	150	AT 400	406	400	AT 1000	977	1000
AT 175	192	175	AT 500	501	500	AT 1500	1454	1500
AT 200	215	200	AT 600	596	600	AT 2000	1930	2000
AT 250	263	250	AT 700	692	700			



BORDIGNON
AUTOMOTIVE LINE

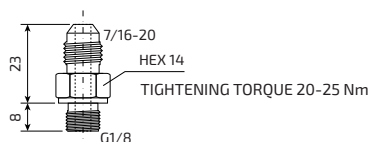


FITTINGS for AT HOSES

FITTINGS FOR LINKING GAS SPRINGS, CONTROL PANELS AND DISTRIBUTION BLOCKS

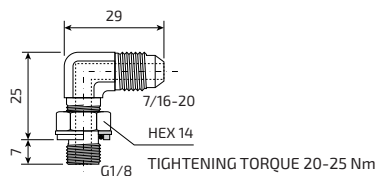
Model

AR000



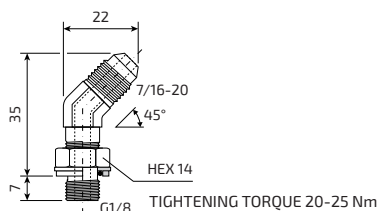
Model

AR090



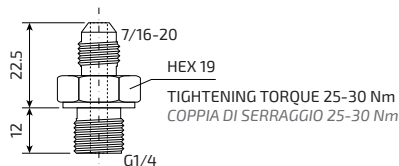
Model

AR045



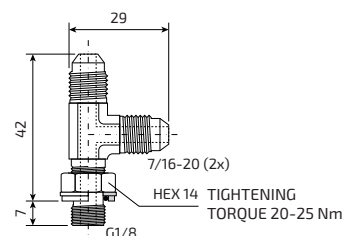
Model

AR000-1/4



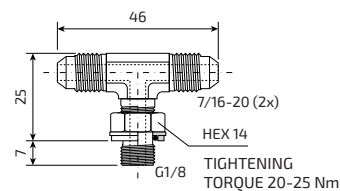
Model

AR270R



Model

AR270



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



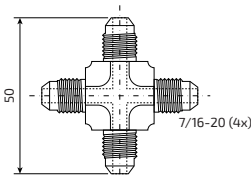
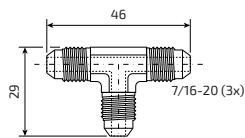
FITTINGS FOR HOSE-HOSE CONNECTION

Model

AR270T

Model

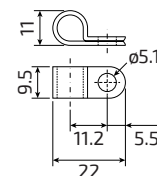
AR360T



OTHER ACCESSORIES

Model

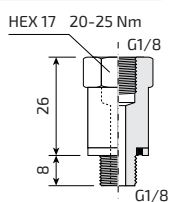
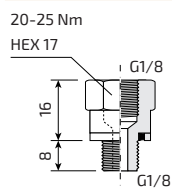
CFT-8



HOSE CLIP
FOR HOSES Ø8 mm
(10 pc. box)

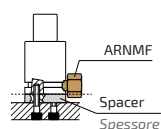
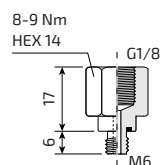
PL-1/8A

PL-1/8B



M6 to G1/8 side port converter

ARNMF



AP01

CONTROL PANEL



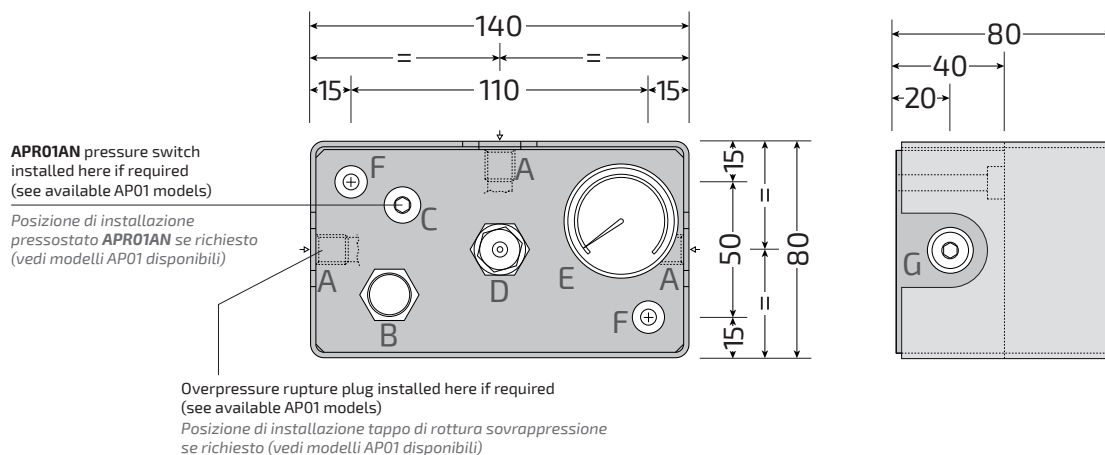
This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

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 N₂ ONLY

Dimensions



Model	
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



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).



BORDIGNON
AUTOMOTIVE LINE



AP02

CONTROL PANEL (COMPACT)



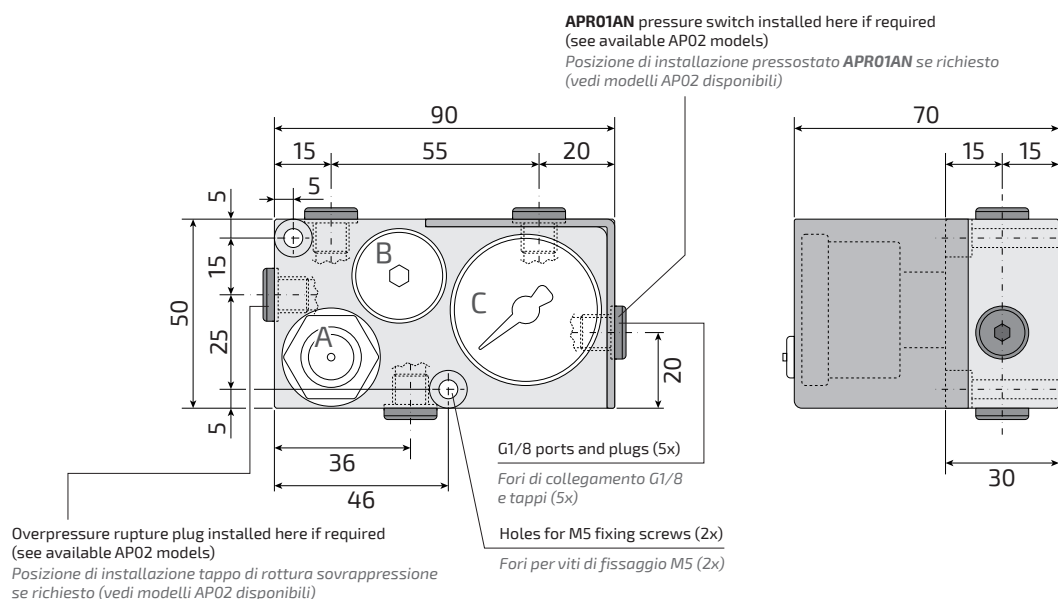
This compact panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

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 N₂ ONLY

Dimensions

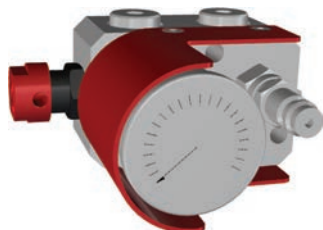


Model	
AP02	Control panel (compact version)
AP02PAN	Control panel (compact version) with APR01AN pressure switch (50-300 bar normally open)
AP02RP	Control panel (compact version) with overpressure rupture plug
AP02F	Control panel (compact version) with APR01AN pressure switch (50-300 bar normally open)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

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

AP03

CONTROL PANEL (COMPACT)



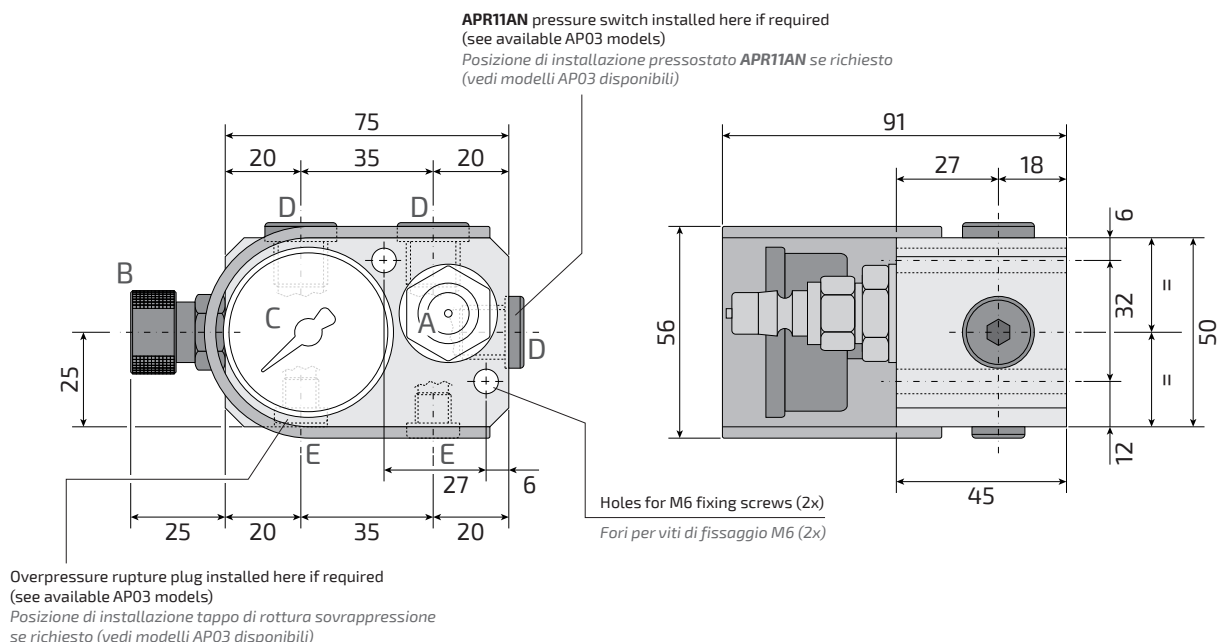
This compact panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

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 N₂ ONLY

Dimensions



Model	
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

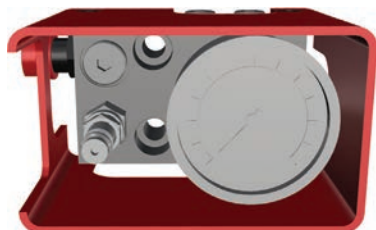
All models are available with safety valve VS500 already assembled (on request).



BORDIGNON
AUTOMOTIVE LINE



AP04 CONTROL PANEL



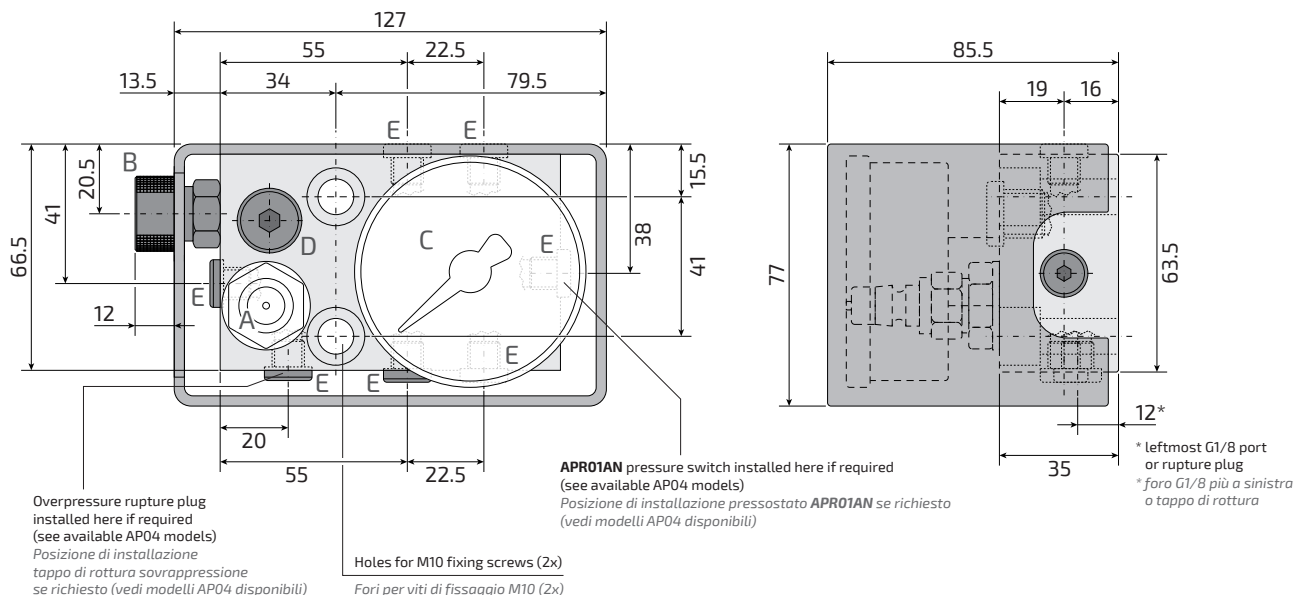
This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

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 N₂ ONLY

Dimensions



Model Modello	
AP04	Control panel
AP04PAN	Control panel with APRO1AN pressure switch (50-300 bar normally open)
AP04RP	Control panel with overpressure rupture plug
AP04F	Control panel with APRO1AN pressure switch (50-300 bar normally open) and with overpressure rupture plug

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

AP05

CONTROL PANEL



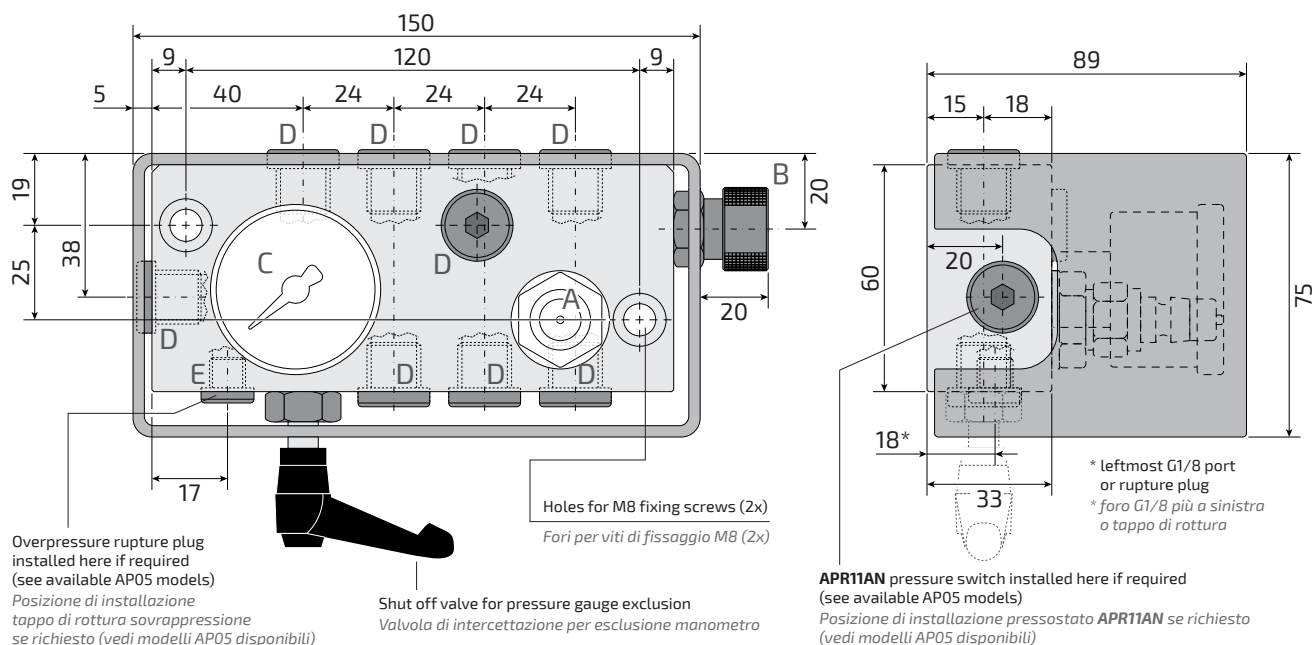
This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

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 N₂ ONLY

Dimensions



Model	
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

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



BORDIGNON
AUTOMOTIVE LINE



AP06

CONTROL PANEL (MICRO-TYPE PORTS)



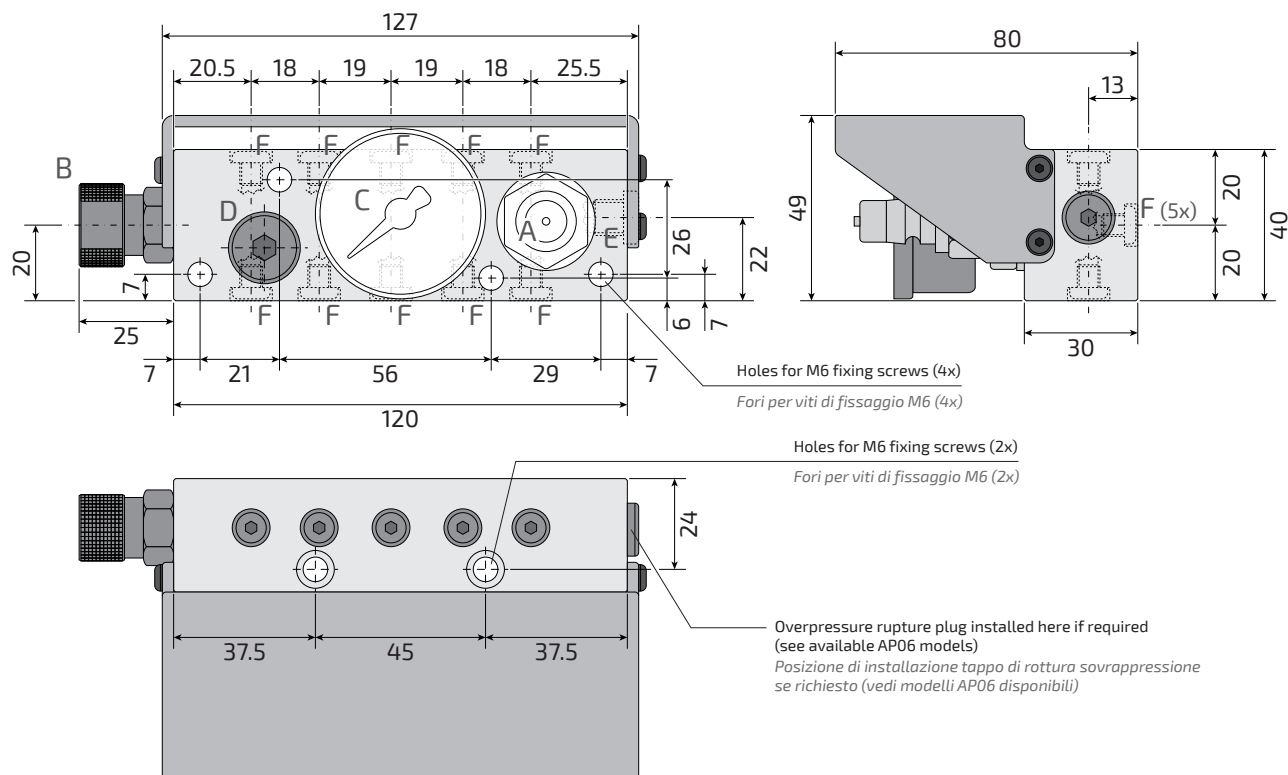
This panel allows to charge and discharge a nitrogen gas spring or a nitrogen gas springs system, and to monitor the pressure.

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 N₂ ONLY

Dimensions



Model	
AP06	Control panel (MICRO-type ports)
AP06RP	Control panel (MICRO-type ports) with overpressure rupture plug

APM MODULAR CONTROL PANEL



APM3



APM1

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

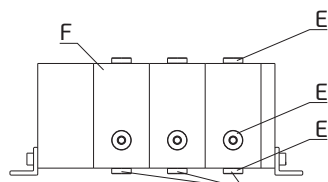
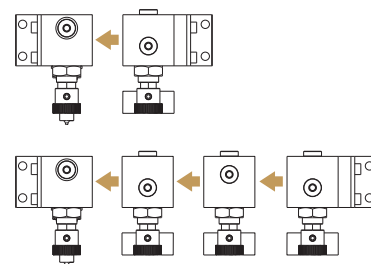
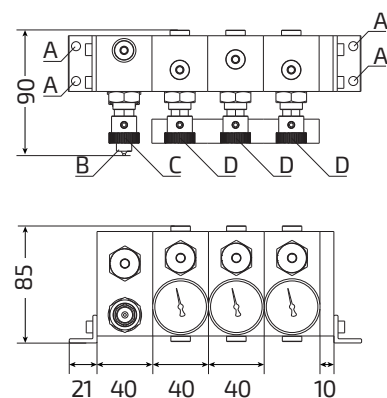
- A M5 fixing hole
- B Quick coupling for nitrogen N_2 charging with charging set COMPL or CUC01 or BOOSTER
- C Discharging valve
- D Single-module charging or discharging valve (always turned off during use)
- E Connection ports (G1/8)
- F Each module may be connected with more nitrogen gas springs

It allows to check the pressure of each module separately

No limit as to the quantity of connectible modules

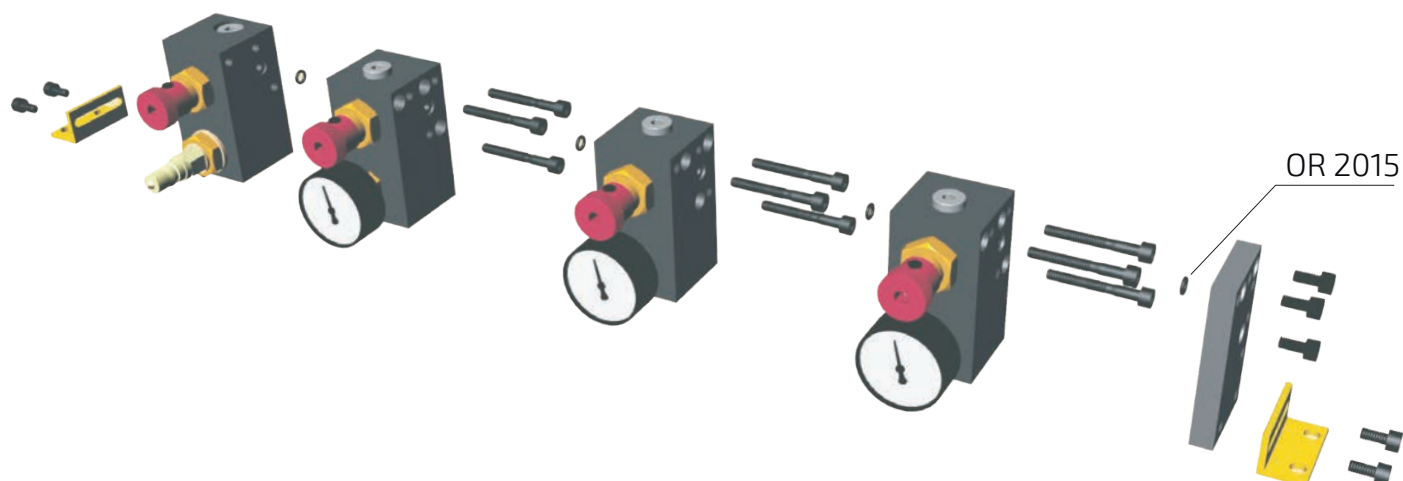
⚠ ATTENTION! USE NITROGEN N_2 ONLY

Dimensions

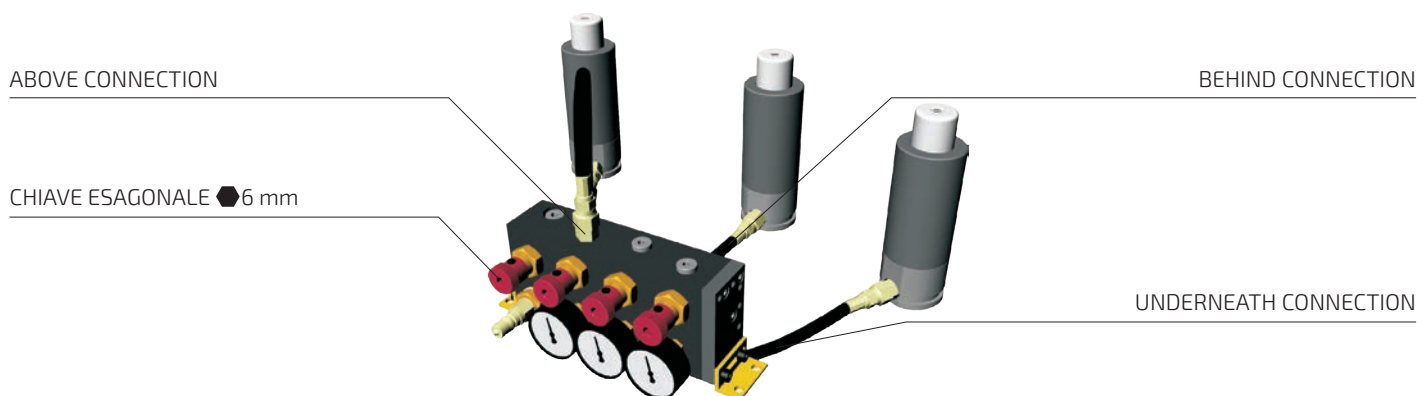


Overpressure rupture plugs (one for each module)
installed here if required
(see available APM models)
Posizione di installazione
tappi di rottura sovrappressione (uno per ogni modulo)
se richiesti (vedi modelli APM disponibili)

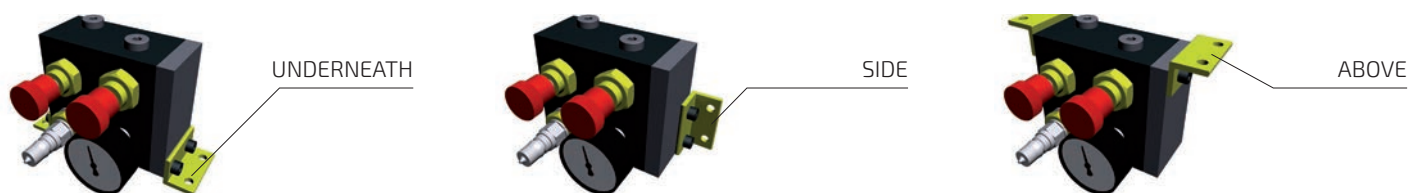
Model		Model	
APM1	Control panel with 1 module	APM1RP	Control panel with 1 module, with overpressure rupture plug
APM2	Control panel with 2 modules	APM2RP	Control panel with 2 modules, with 2 pcs. overpressure rupture plugs
APM3	Control panel with 3 modules	APM3RP	Control panel with 3 modules, with 3 pcs. overpressure rupture plugs
APM4	Control panel with 4 modules	APM4RP	Control panel with 4 modules, with 4 pcs. overpressure rupture plugs
APMX	Control panel with X modules	APMXRP	Control panel with X modules, with X pcs. overpressure rupture plugs



VARIOUS POSSIBILITIES FOR CONNECTING THE NITROGEN GAS SPRINGS



FIXING POSSIBILITIES



USE INSTRUCTIONS

Nitrogen N₂ 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 N₂ 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.

- 5 Turn off the N₂ tank, then turn on the discharging valve.
- 6 Disconnect the N₂ tank and turn off the discharging valve.

Nitrogen N₂ 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



ATTENTION!
USE NITROGEN N₂ ONLY

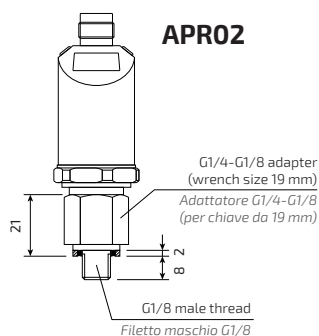
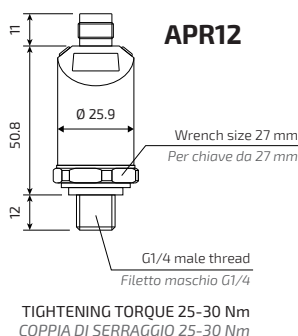
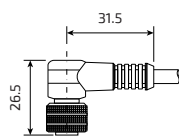
SAFETY PRESSURE SWITCHES

DIGITAL

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

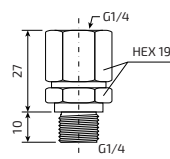
TECHNICAL NOTES

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



Model	Thread
APR02	G1/8
APR12	G1/4

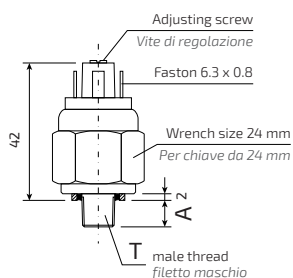
Model
RGV14



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.



Model	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

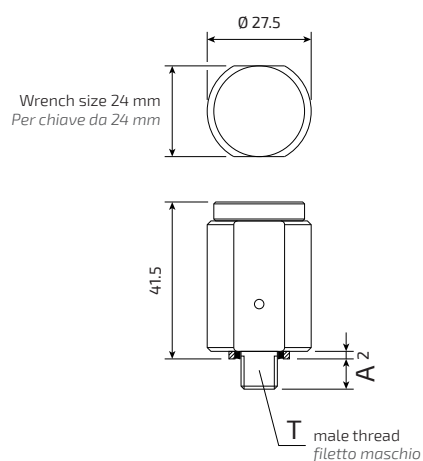


Overpressure safety valve, available for the assembly on control panels.

TECHNICAL NOTES

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

Dimensions



Model	T	Tightening 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.

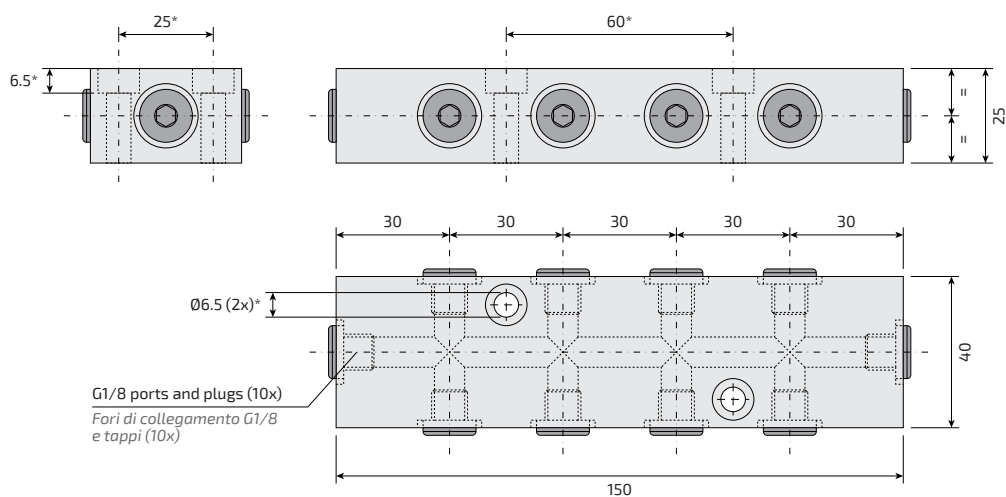
Each block can connect several gas springs equipped with side port, and several blocks can be interconnected.

Choose the proper fittings for hose connection.

Dimensions

Model

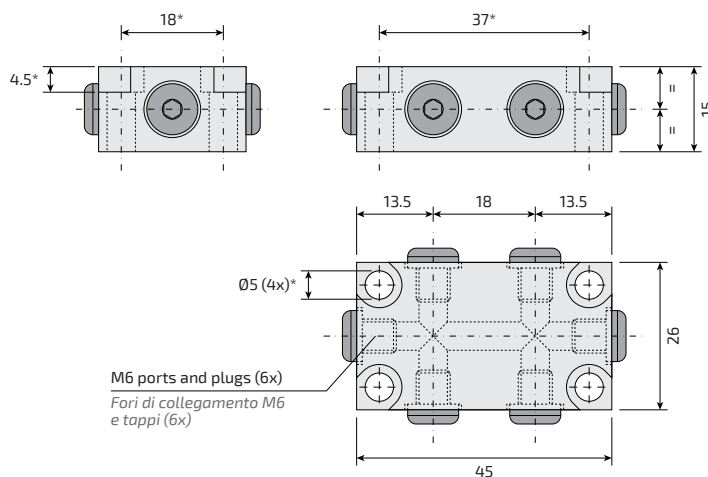
AD00



* For M6 fixing screws (2x) / Per viti di fissaggio M6 (2x)

Model

AD01



* For M4 fixing screws (4x) / Per viti di fissaggio M4 (4x)

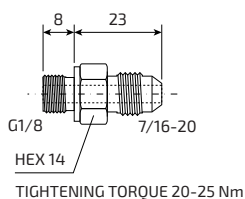
FITTINGS for CONNECTING SEVERAL DISTRIBUTION BLOCKS

Model

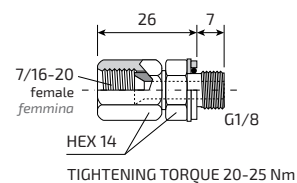
AR000

Model

AR000G



(only for AD00 with G1/8 ports)



(only for AD00 with G1/8 ports)

CHARGING and DISCHARGING SET



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

Model

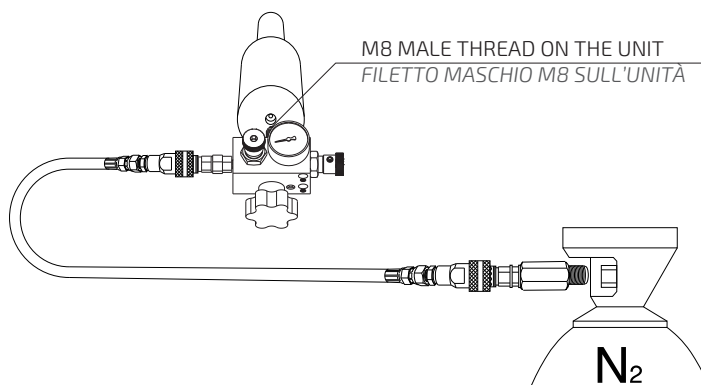
COMPL

CHARGING UNIT



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

Specifications



Model

CUC01



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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.

	Model	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-AGS20000, IGS500-IGS10000, LG5500, VV750, VV2945	-
 Quick coupling Aggancio rapido M8	AN-1/4	-	AP01, AP02, AP03, AP04, AP05, AP06, APM, APVA, APVB

DISCHARGING DEVICES

Dispositivi di scaricamento



Devices for discharging the nitrogen gas springs.

	Model	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), LG5500, 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 N₂



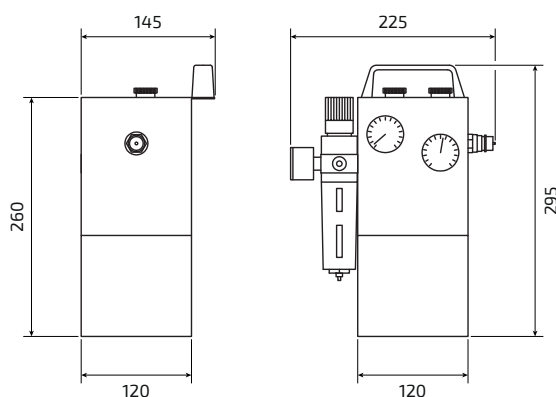
The Bordignon Booster is a pneumatic pump. By using compressed air, it increases the nitrogen N₂ pressure during the charging operation of gas springs for dies, in a safe and very precise way. Light and compact, the Bordignon Booster has a low compressed air consumption, resulting in savings of time and costs.

USE INSTRUCTIONS

- Connect nitrogen N₂ 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 lubricated air 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 N₂ 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 N₂ tank.

 **ATTENTION! USE NITROGEN N₂ ONLY**

Dimensions

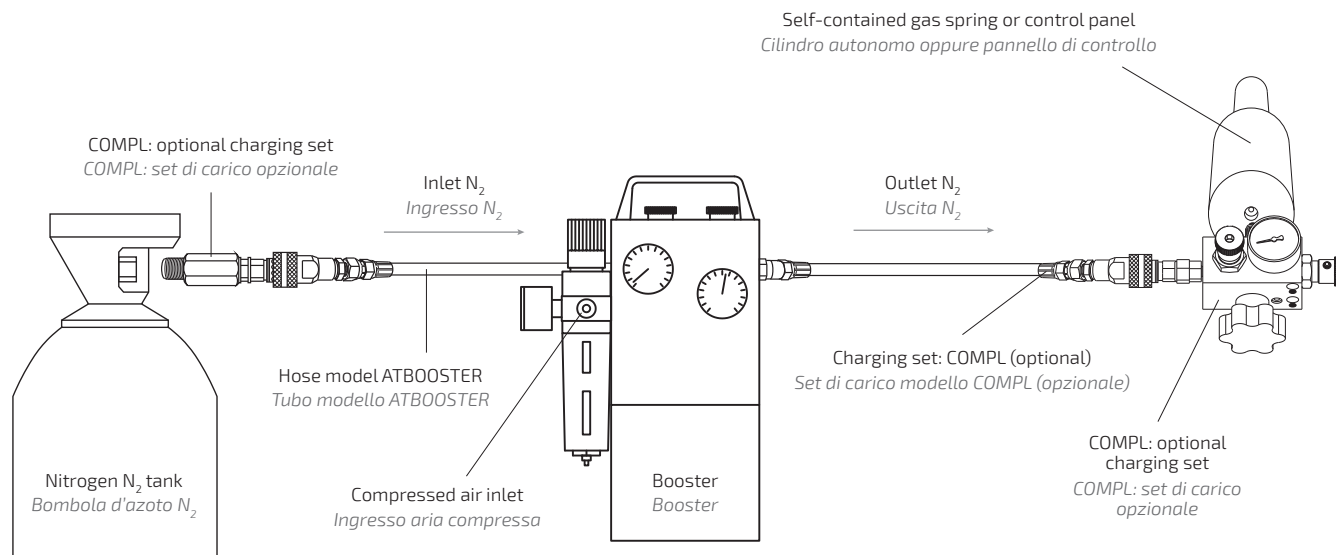


Model	Weight (kg)
BOOSTER	9.5

COMPONENTS



OPERATING SCHEME



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

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)

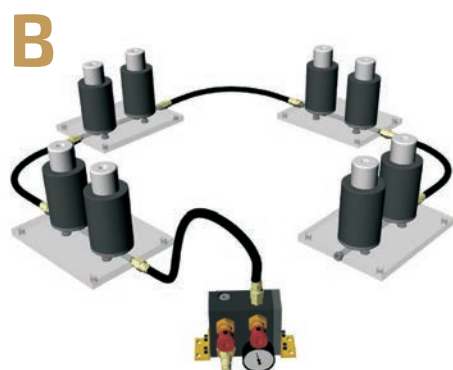
TECHNICAL NOTES

- **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 $\geq 14\%$
 - Respect national regulations about pressure equipment
- Minimum plate thickness = 25 mm



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.



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OV GAS SPRINGS



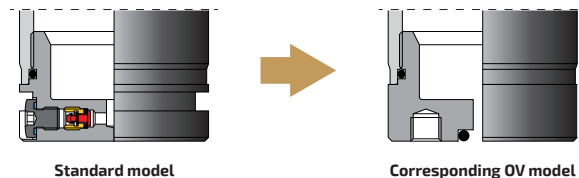
This gas spring series includes the models compliant with automotive standards.

VW 39D 22100

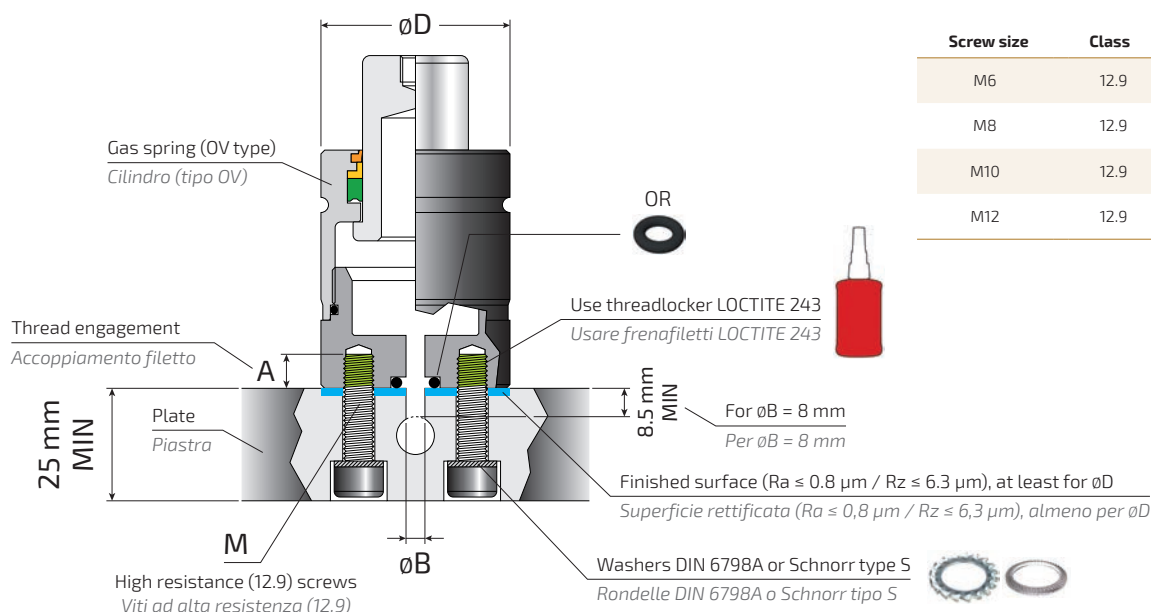


GENERAL FEATURES

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.



MOUNTING AND TECHNICAL SPECIFICATIONS



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

Models <i>Modelli</i>	Ø D (MIN) mm	Ø B ± 0.1 mm	M mm	A mm	OR NBR 90 Sh. A
AGS 350-...-A-OV	32	5	M6	6	2025 (6.07 x 1.78)
AGS 500-...-A-OV	38	5	M6	6	2025 (6.07 x 1.78)
AGS 750-...-A-OV	45	5	M8	6	2025 (6.07 x 1.78)
AGS 1000-...-A-OV	50	5	M8	6	2025 (6.07 x 1.78)
AGS 1500-...-A-OV	63	5	M8	6	2025 (6.07 x 1.78)
AGS 2400-...-A-OV	75	5	M8	6	2025 (6.07 x 1.78)
AGS 4200-...-A-OV	95	8	M8	12	112 (9.90 x 2.62)
AGS 6600-...-A-OV	120	8	M10	12	112 (9.90 x 2.62)
AGS 9500-...-A-OV	150	8	M10	16	112 (9.90 x 2.62)
AGS 20000-...-A-OV	195	8	M12	18	112 (9.90 x 2.62)

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

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

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

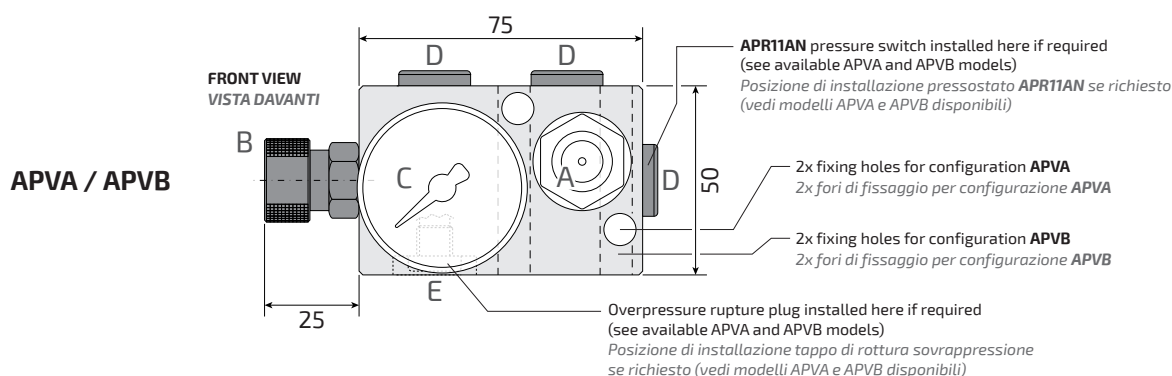
APVA / APVB

CONTROL PANEL FOR OV SYSTEM

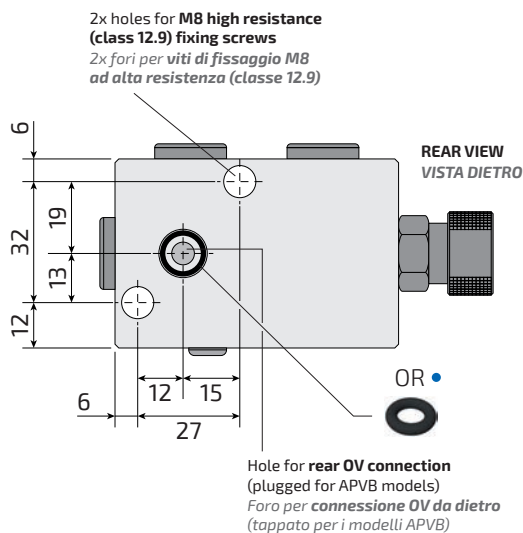


This panel allows to charge and discharge a manifold plate ("OV system" or other) using a direct-coupling to the plate (no need for hoses).

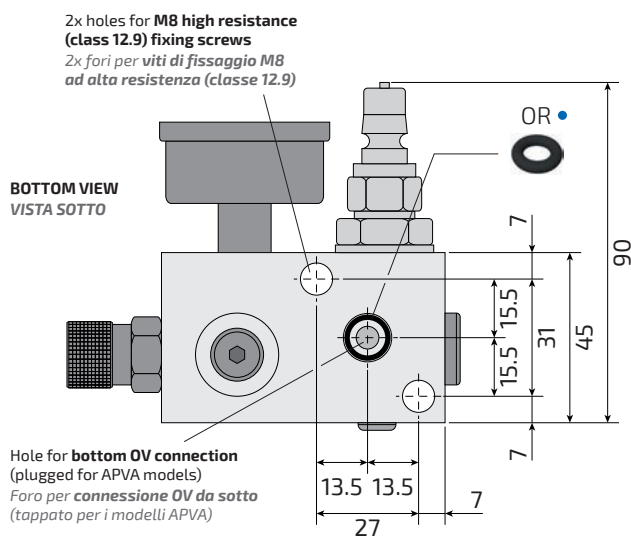
CONFIGURATIONS AND DIMENSIONS



Configuration for model APVA



Configuration for model APVB



Model	
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

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

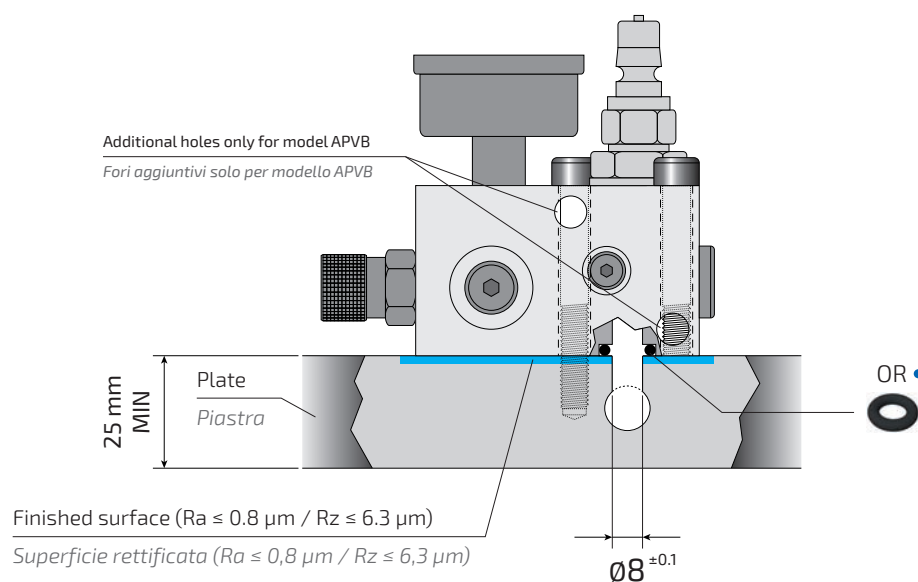
TECHNICAL NOTES

- 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

⚠ ATTENTION! USE NITROGEN N₂ ONLY

APVA MOUNTING

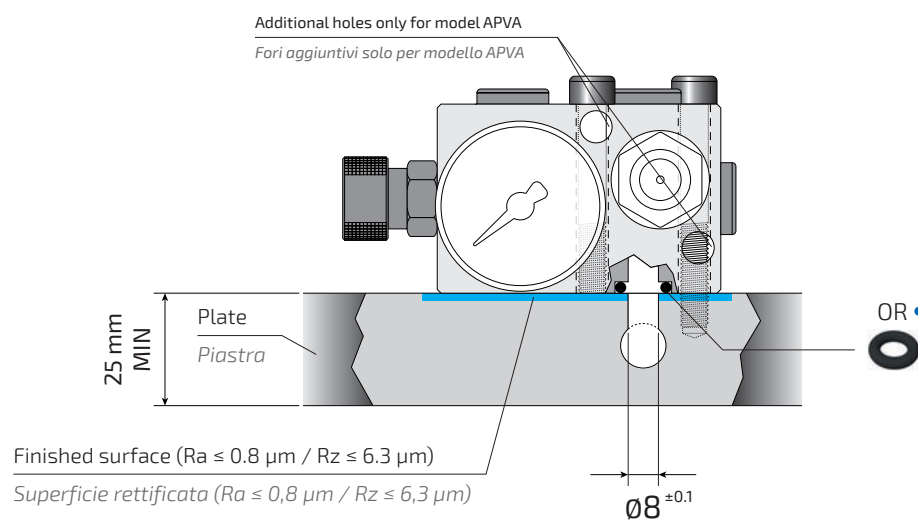
APVA



- 1 pc. OR NBR 90 Shore A model 2037-012 (9.25 x 1.78 mm) is supplied with the control panel

APVB MOUNTING

APVB



- 1 pc. OR NBR 90 Shore A model 2037-012 (9.25 x 1.78 mm) is supplied with the control panel

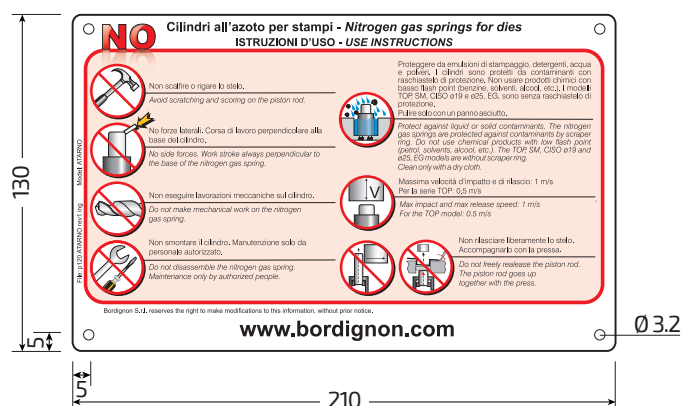
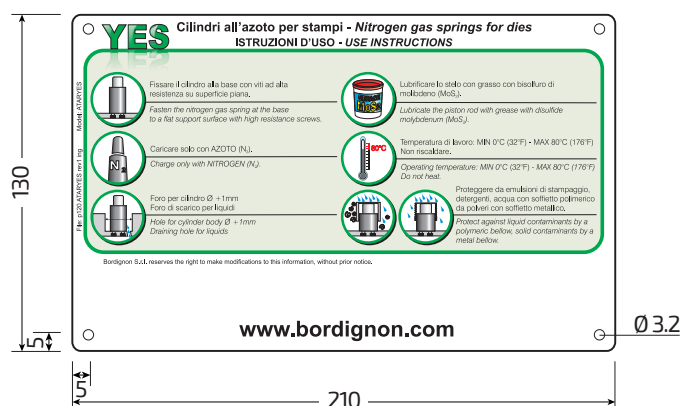
IDENTIFYING PLATE

Identifying plate to be used on the press tools, dies and moulds equipped with nitrogen gas springs.

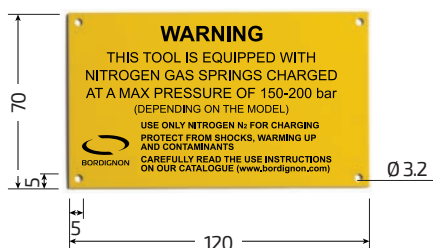
Different languages on request.

Different writings on request.

Model	Model
ATARYES	ATARNO



Model	Model	Model
ATAR EN	ATAR IT	ATAR DE



Model
ATAR CN





LUBRICATION GREASE



It is necessary to keep the piston rod lubricated for a longer life of the gas spring.

We can supply grease with molybdenum disulfide by can of 800 g.

Model

PLUB

DEVICE for the NITROGEN GAS SPRINGS INITIAL LOAD CHECK



This device is a load gauge for nitrogen gas springs.

This device is usually used to measure the initial force of nitrogen gas springs, in order to verify that they are actually charged.



Model	Description
AK2	HYDRAULIC FORCE-MEASURING DEVICE MAX 12000 daN
AH1000	LOAD CELL 100-1000 daN
AH4000	LOAD CELL 400-4000 daN
AH10000	LOAD CELL 1000-10000 daN



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* ISO 9001 certificate available for download on www.bordignon.com

