

Gas springs

FIBRO Gas springs

The extensive range of FIBRO Gas springs constitutes an ideal supplement to and expansion of the traditional programmes of spring elements such as helical springs, disc springs and elastomer units. With their minimal space requirement, Gas springs close a gap where ever the accent is on accomodation of the utmost force component within a minimum of space – or where exceedingly large travel is demanded: FIBRO Gas springs take care of both demands, even in combination.

Their self-contained nitrogen charge makes FIBRO Gas springs completely autonomous devices. Feeder pipes or storage vessel are not required.

Monitoring of charge pressure, however, is necessary in certain special cases. Suitable equipment for in-situ pressure control can be found in the Accessories Section.

As long as all mounting detail is laid out with due circumspection, removal and installation of the units presents no problems whatsoever. Instructions are included with every delivery of Gas springs.

Application examples see at the end of chapter F.

Functioning

The pressure medium is a commercially available, environment-friendly nitrogen. FIBRO Gas springs have a standard charge pressure of max. 150 bar (180 bar). Depending on spring size and type, this pressure offers initial force ratings of 2 daN to 20,000 daN.

Pressure Build-Up

In operation the piston rod enters the spring space whose volume is progressively reduced. The resulting pressure rise can be plotted on the Gas Spring Diagram as a multiplication factor. The spring force is the product of initial force times that pressure-rise factor and can therefore be calculated easily.

Working temperature

The spring temperature should not exceed as per specified temperature (80°C - 120°C)

Charge pressure

Modification of charge pressure allows variation of the force rating and can be predetermined from the spring Diagram.

Installation

FIBRO Gas springs can be used in any installation position. Whether or not external forces act on them when at rest is of no consequence.



All FIBRO Gas springs meet the requirements of the Pressure Equipment Directive 2014/68/EU.

The Pressure Equipment Directive (2014/68/EU) has been ratified by the European Parliament and the Council of Europe. The requirements of the Pressure Equipment Directive came into force throughout the EU on 29 May 2002.

The directive defines pressure equipment as vessels, pipework, safety devices and pressure accessories. In terms of the Directive a vessel is a casing which is designed and manufactured to contain fluids under pressure.

It follows from this definition that nitrogen Gas springs of all sizes are deemed to be pressure vessels and must in this respect comply with the Pressure Equipment Directive (2014/68/EU) from 29 May 2002.

Gas springs

Maintenance

FIBRO Gas springs were designed for maintenance-free continual operation. It is recommended to oil the piston rod lightly from time to time.

Guide- and sealing elements can be exchanged easily and expeditiously. They are available as a kit. Each kit comes with detailed instructions for maintenance of FIBRO Gas springs.

Attention

When safety functions are triggered (overstroke, return stroke, or overpressure protection), the gas pressure springs can no longer be repaired!

Warning

FIBRO Gas springs may be charged only with commercial Grade 5.0 nitrogen gas.

Accessories

The accessories range for Gas springs comprises fastening devices, charge- and control units, screw connections for these, and connecting lines for compound installations.

FIBRO is not liable if fittings that are not original FIBRO fittings or fastening, accessory, and attachment parts that are not released by FIBRO are used.

Warning signs

These are available on request. The signs should be affixed near the springs in as prominent a position as possible.

WARNING

This tool is equipped with
Gas Springs with a max. pressure of
150 or 180 bar, depending on spring type.
Working pressure _____ bar.

**Read maintenance instructions
before working on gas springs.**

FIBRO

Business Area Standard Parts
D-74851 Hassmersheim · Postfach 1120
T +49 (0) 6266-73-0* · F +49 (0) 6266-73-237

Size 35x50 mm

Language	Order No
german	2480.00.035.050.1
english	2480.00.035.050.2
french	2480.00.035.050.3
italian	2480.00.035.050.4
spanish	2480.00.035.050.5
polish	2480.00.035.050.PL
czech	2480.00.035.050.CZ
turkish	2480.00.035.050.TR
chinese	2480.00.035.050.CN

WARNING

This tool is equipped with ____ Gas Springs with a
max. pressure of 150 or 180 bar, depending on spring type.

No.	pcs.	spring type	fill.press./bar	force/daN
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____

Read maintenance instructions **before** working on gas springs.

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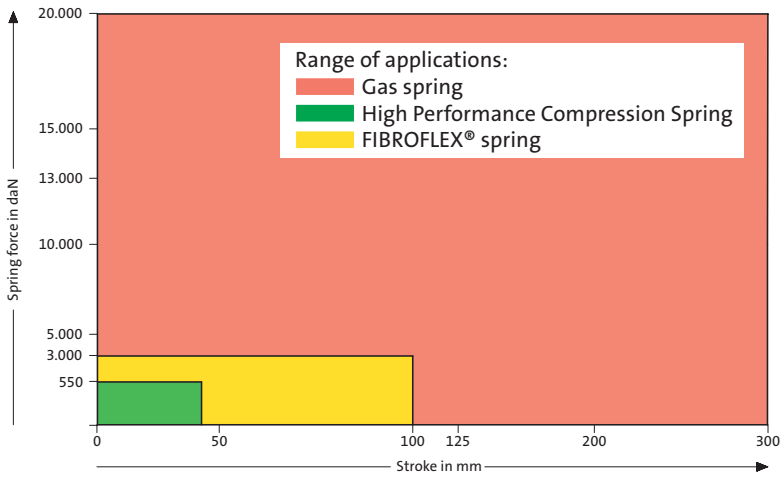
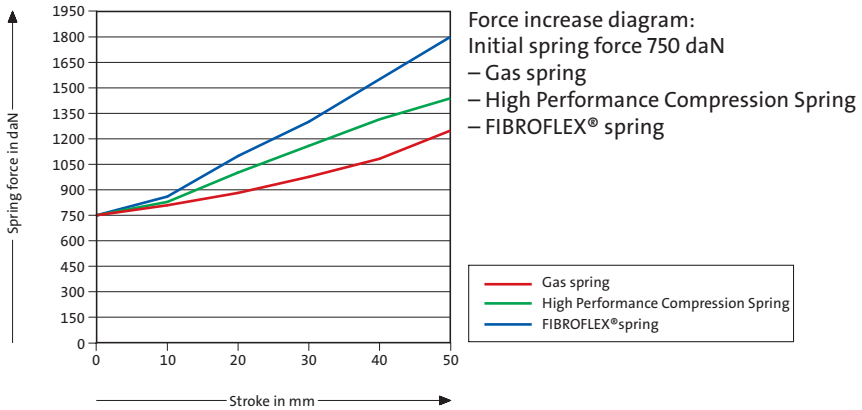
Size 75x105 mm

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spanish	2480.00.075.105.5
polish	2480.00.075.105.PL
czech	2480.00.075.105.CZ
turkish	2480.00.075.105.TR
chinese	2480.00.075.105.CN

Size 110x150 mm

Language	Order No
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english	2480.00.110.150.2
french	2480.00.110.150.3
italian	2480.00.110.150.4
spanish	2480.00.110.150.5
polish	2480.00.110.150.PL
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chinese	2480.00.110.150.CN

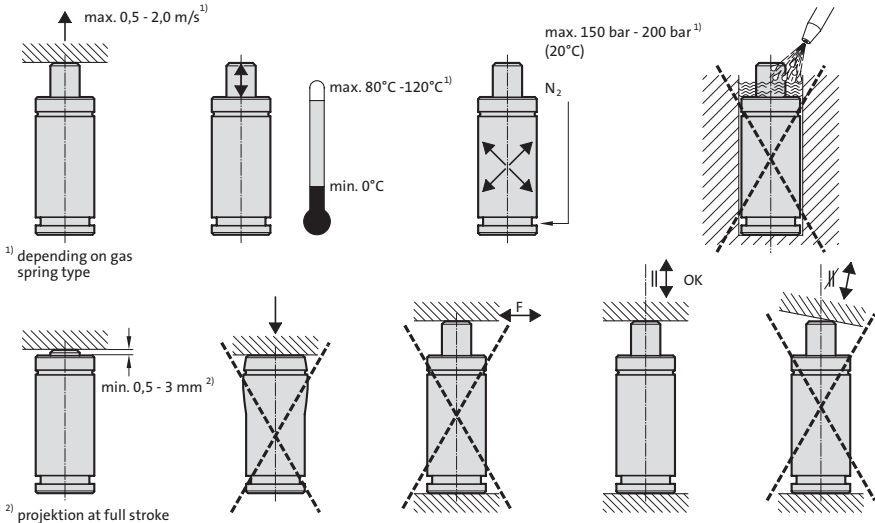
General overview of Gas springs - High Performance Compression Spring - FIBROFLEX® springs



Mounting directions for gas springs

To achieve the best possible service-life and safety from the gas spring, the directions below must be followed.

Mounting instructions



- ▶ Secure the gas spring to the tool/machine whenever possible, using the threaded hole(s) in the base of the gas spring or a suitable flange. Never exceed the maximum torque values for the threads in the base of the gas spring: (M6 = 10 Nm; M8 = 24 Nm; M10 = 45 Nm; M12 = 80 Nm)
- ▶ The threaded hole in the piston rod top should not be used for mounting purposes. It is only to be used when carrying and servicing the gas spring.
- ▶ Do not use the gas spring in such a way that the piston rod is realised freely from its compressed position, as this could cause internal damage to the gas spring.
- ▶ Make sure the gas spring is mounted parallel to the direction of the compression stroke.
- ▶ Ensure the contact surface of the piston rod top is perpendicular to the direction of the compression stroke and is sufficiently hardened.
- ▶ The gas spring should not be subjected to the side loads.
- ▶ Protect the piston rod against mechanical damage and contact with fluids.
- ▶ We do not recommend the last 5 mm or 10% of the nominal stroke be utilised.
- ▶ The maximum charging pressure (at 20°C) must not be exceeded as it may effect the safety of the product.
- ▶ Exceeding the gas spring's recommended operating temperature will shorten the service-life of the gas spring.
- ▶ The entire contact surface of the piston rod / piston should be used.
- ▶ Do not remove bottom 2480./2497.00.20. from spring until all gas pressure has been discharged.

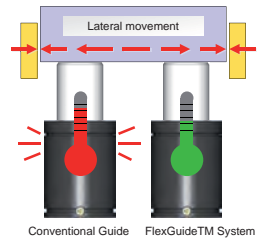
Gas springs – The Safer Choice

FIBRO reliability features



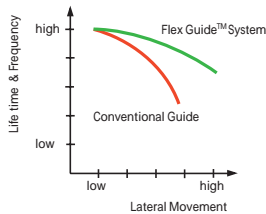
Flexible guides: The Flex Guide™ System

The Flex Guide™ System is a flexible guide in the gas spring which absorbs lateral movements of the piston rod. It minimises friction and lowers the operating temperature.



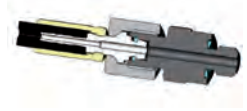
The benefits for you:

- ▶ Extended service life
- ▶ Increased stroke frequency, i.e. more strokes per minute



Safe hose connections: The Dual Seal™ System

The FIBRO Dual Seal™ System combines a metal seal with a soft elastomer seal. On hose connection systems, the system provides two leak-tight connections and prevents rotation.



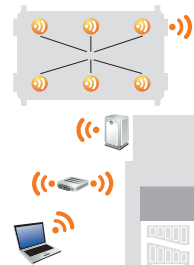
The benefits for you:

- ▶ Leak-tight connection, even under vibrations
- ▶ High process reliability
- ▶ Minimised tool down time
- ▶ Simple installation thanks to anti-rotation function



Wireless monitoring: The Wireless Pressure Monitoring (WPM) System

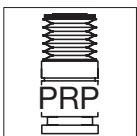
The optional Wireless Pressure Monitoring System (WPM) (patent pending) wirelessly monitors the pressure and temperature of FIBRO gas springs. Before a defective part is produced, the press operator receives a message from the WPM and can take appropriate action.



The benefits for you:

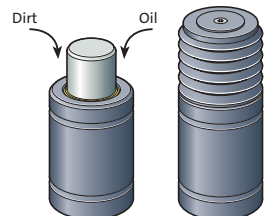
- ▶ Preventative quality assurance
- ▶ High process reliability
- ▶ Minimised tool down time
- ▶ Reduced maintenance and costs

Potential faults are individually displayed. As a result, service intervals can be extended. Maintenance and repair costs are reduced.



Protected piston rods: FIBRO Concertina Shrouds

The FIBRO Piston Rod Protection (patented) reliably protects the piston rods in gas springs against dirt, oil and emulsion. In this way, the system prevents damage to the piston rod surface and leaks at internal seals.

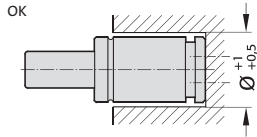


The benefits for you:

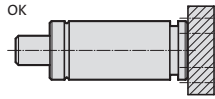
- ▶ Significantly longer service life for gas springs under harsh operating conditions

Mounting examples

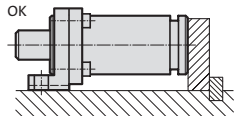
Mounting possibilities for gas springs are listed below.
For additional information on mounting, see the corresponding pages in the catalogue.



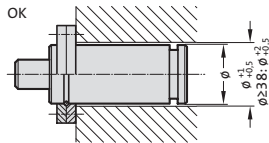
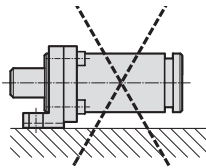
Screw mounted at the base



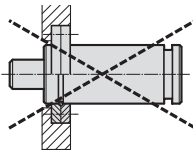
Screw mounted at the base with 2480.011.



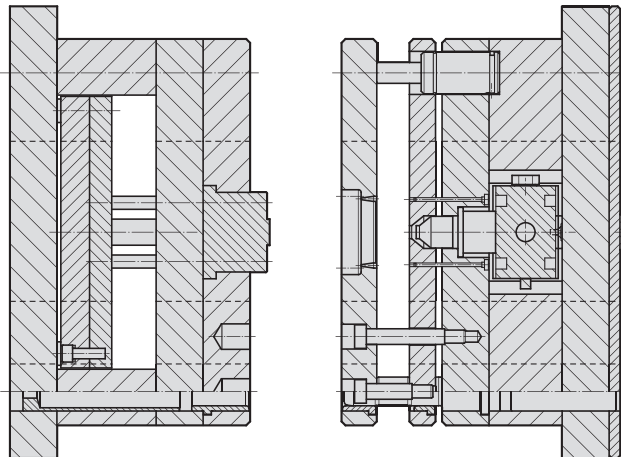
Fastened with 2480.044./045./047.



Fastened with 2480.055./057./064.



Installation principle:

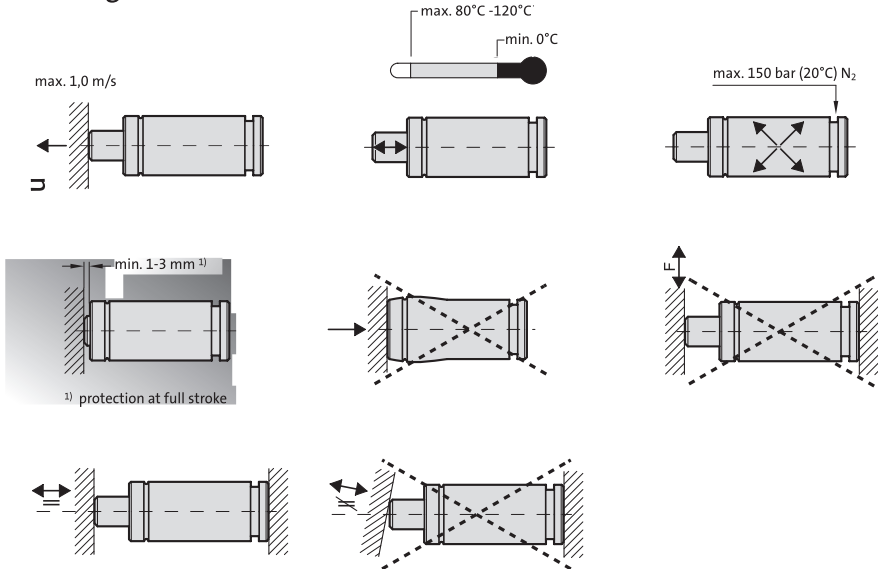


Mounting directions

FML Gas springs

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Mounting instructions



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- ▶ Protect the piston rod against mechanical damage and contact with fluids.
- ▶ We do not recommend the last 5 mm or 10% of the nominal stroke be utilised.
- ▶ The maximum charging pressure as a function of the working temperature must not be exceeded as it may effect the safety of the product.
- ▶ Exceeding the gas spring's recommended operating temperature will shorten the service-life of the gas spring.
- ▶ The entire contact surface of the piston rod / piston should be used.