Mould Line
Gas Springs and Spring Plungers
- Temperatures up to 120 °C
- specially developed for mould making
Mould Line Gas Springs and Spring Plungers for Mould Making

FIBRO - The Safer Choice: Properties of the Gas Spring DS

Safety features

- P>max
- S>max
- V>max
- Flex Guide

Reliability features

- Standard safety features (FIBRO Safer Choice)²
- Safety piston rod
- Excess pressure protection
- Overstroke protection

FIBRO Training

For additional information, refer to the fold out page of the flyer or visit www.fibro.de

For all applications where lift movements are required parallel to mould opening, it is possible to use gas springs. The FIBRO Mould Line gas spring (FML), which was specially developed for mould making, is characterised by its high force, its small size, a long service life of at least 1,000,000 strokes and a constant operating temperature of 120 °C. Of course, the FML gas springs are approved as per the European Pressure Equipment Directive 97/23/EG.

Advantages of the FIBRO Mould Line series:

- Lower calibrating costs
- No lubrication required
- Maintenance-free up to 1,000,000 strokes¹
- Force variably adjustable
- For mould temperatures of up to 120 °C
- Approved as per the European Pressure Equipment Directive 97/23/EG
- Standard safety features (FIBRO Safer Choice)²

Safety piston rod
Excess pressure protection
Overstroke protection

By means of a pressure monitoring system, an impending failure can be recognised at an early point (prevention)

- No tool breakage, should the 2nd separation level lock (the plate comes to a standstill; after the removal of the jam, production can be resumed)

- Worldwide usage a million times over of FIBRO Gas Springs

- Cost savings: approximately 60–70%
  (e.g. compared to a latch-locking unit)

¹at 120 °C / 500,000 strokes
²depending on the spring type

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### Spring forces and stroke frequencies

<table>
<thead>
<tr>
<th>Operating temperature-interval (°C)</th>
<th>Max. stroke per minute (spm)</th>
<th>Max. charge pressure at 20°C (bar)</th>
<th>Initial-force (daN) at 20°C</th>
<th>Spring model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-80</td>
<td>20</td>
<td>150</td>
<td>3479.030.</td>
<td>20°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3479.032.</td>
<td>42</td>
</tr>
<tr>
<td>0-80</td>
<td></td>
<td></td>
<td>3487.12.00300.</td>
<td>170</td>
</tr>
<tr>
<td>80-100</td>
<td>15</td>
<td>125</td>
<td>3487.12.00500.</td>
<td>301</td>
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<td></td>
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<td>3487.12.00750.</td>
<td>471</td>
</tr>
<tr>
<td>100-120</td>
<td>10</td>
<td>115</td>
<td>3487.12.01000.</td>
<td>736</td>
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<td></td>
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<td>3487.12.01250.</td>
<td>781</td>
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<td>100-120</td>
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<td>3487.12.01500.</td>
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<td></td>
<td></td>
<td></td>
<td>3487.12.01750.</td>
<td>1113</td>
</tr>
</tbody>
</table>

Temperatur-depending force increased

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Mould Line Gas Springs and Spring Plungers for Mould Making

**Gas Springs 3487.12.**

![Diagram of Gas Spring 3487.12.]

<table>
<thead>
<tr>
<th>Order Number</th>
<th>Stroke max</th>
<th>Stroke min</th>
</tr>
</thead>
<tbody>
<tr>
<td>3487.12.00300.</td>
<td>50 56 62 68 80 094</td>
<td>40 43 46 49 55 062</td>
</tr>
<tr>
<td>3487.12.00500.</td>
<td>50 56 62 68 80 094</td>
<td>40 43 46 49 55 062</td>
</tr>
<tr>
<td>3487.12.00750.</td>
<td>52 58 64 70 82 096</td>
<td>42 45 48 51 57 064</td>
</tr>
<tr>
<td>3487.12.01000.</td>
<td>64 70 76 88 102</td>
<td>51 54 57 63 070</td>
</tr>
</tbody>
</table>

*on request

**Spring Plungers 3479.**

![Diagram of Spring Plunger 3479.]

<table>
<thead>
<tr>
<th>Order Number</th>
<th>Stroke max</th>
<th>Stroke min</th>
</tr>
</thead>
<tbody>
<tr>
<td>3479.030.</td>
<td>65 85 105 125 145 165 185 205 245 295</td>
<td>55 65 075 085 095 105</td>
</tr>
<tr>
<td>3479.032.</td>
<td>65 85 105 125 145 165 185 205 245 295</td>
<td>55 65 075 085 095 105</td>
</tr>
</tbody>
</table>

*on request

**Order Number (example):**


Spring Plunger = 3479.030. Spring force = 170 daN = 00170. Stroke = 50 mm = 050 Order Number = 3479.030.00170.050

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Dimensions for Gas Springs 3487.12.

Dimensions for Spring Plungers 3479.
Mould Line Gas Springs and Spring Plungers for Mould Making

Technical data:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure medium:</td>
<td>Nitrogen</td>
</tr>
<tr>
<td>max. charging pressure:</td>
<td>150 bar (at 20 °C)</td>
</tr>
<tr>
<td>min. charging pressure:</td>
<td>25 bar (at 20 °C)</td>
</tr>
<tr>
<td>Operating temperature:</td>
<td>0 ° to +120 °C</td>
</tr>
<tr>
<td>Temperaturabhängiger Kraftanstieg:</td>
<td>± 0.3%/°C</td>
</tr>
<tr>
<td>Recommended max. strokes/min.:</td>
<td>see table</td>
</tr>
<tr>
<td>Dampening length:</td>
<td>1.0 m/s</td>
</tr>
<tr>
<td>Piston rod speed, decelerated:</td>
<td>nitrided</td>
</tr>
<tr>
<td>Cylinder:</td>
<td>nitrided</td>
</tr>
<tr>
<td>Spare parts kit:</td>
<td>for all types of gas springs, not for 3479.</td>
</tr>
</tbody>
</table>

Note: For further informations see Section L in the Main Catalogue.

Installation options:

- Bottom mount
- Screw mounted at the base
- Top mount
- Mounting with external thread
- Hexagon nut

Installation:

Spare parts kit:
- 2480.004.00040.1 (M16x1,5)
- 2480.004.00170 (M24x1,5)
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 are:
• 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 are:
• 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 are:
• 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 (patent pending) 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 benefit is:
• Significantly longer service life for gas springs under harsh operating conditions

Energy saving: Gas spring DS
The Gas Spring DS will not be displaced by every stroke of the top tool. This saves the energy expenditure of the press for the whole stroke of the spring.

The benefits are:
• Significantly longer service life for the gas spring
• Minimised tool down time due to reduced wear
• Up to 70-80% less energy than “conventional” standard gas springs for tool spacing.
• Reduced maintenance and costs

FIBRO Training
Use FIBRO training programmes to learn about and implement the safety and reliability of FIBRO gas springs.

FIBRO - The Safer Choice
At FIBRO, safety and reliability are paramount. Particularly when it comes to our gas springs. With their unique range of safety features, FIBRO gas springs are the safest on the market.

PED approval for 2 million strokes
FIBRO gas springs are developed, manufactured and tested for a minimum of 2 million* full strokes in accordance with DGRL97/23/EG. The springs deliver this full performance at the maximum permissible limits in terms of filling pressure and operating temperature - even when combined with any of the various mounting types available.

* Calculation value for durability

The benefit is:
• Guaranteed safety and reliability for the entire service life of the spring. Repair kits and qualified training sessions available through FIBRO Service offer increased effectiveness and process reliability.

Overstroke protection
Conventional gas springs can burst in the event of an over-stroke. If this happens, parts flying around can become dangerous projectiles.

FIBRO gas springs are different: in the event of an over-stroke and depending on the spring type the patented protection system will ensure that either the cylinder wall of the gas spring is deformed in a predefined manner or the piston rod destroys a rupture bolt in the floor of the cylinder, thereby allowing the gas to escape into the atmosphere.

The benefit is:
• No risk of parts flying around in the event of an over-stroke.

Possible causes of triggering:
Lack of stroke limitations in the tool/machine and placing the piston rods under a load (e.g. sheet-metal holder, slide reset, etc.), double sheet, incorrect installation position, etc.

Return stroke protection
A particularly dangerous situation can arise with conventional gas springs if tool components become jammed and the pressure on the compressed piston rod is then abruptly released: in this case, the piston rod is then fired out of the cylinder like a missile.

FIBRO gas springs are different: special guides and a patented safety stop in the piston rods ensure your safety. If the speed is too high during the return stroke, the collar on the piston rod will automatically break. The integrated safety stop then destroys the seal, which allows the gas to escape into the atmosphere and the gas spring to become depressurised.

The benefit is:
• No risk of a piston rod firing out if the return stroke is too fast.

Possible causes of triggering:
Sudden loosening of jammed components, such as sheet-metal holder, slide, ejector, scraper function, etc.

Overpressure protection
Conventional gas springs can burst if the internal pressure rises above a maximum permitted value. If this happens, parts flying around can become dangerous projectiles.

FIBRO gas springs are different: the pressure rises above the maximum permitted value, the safety collar on the sealing set is automatically destroyed. The gas then escapes into the atmosphere and the gas spring is depressurised.

The benefit is:
• No risk of bursting parts in the event of overpressure.

Possible causes of triggering:
Incorrect filling (max. filling pressure 150 or 180 bar, nitrogen), instead of liquid operating material, etc.

The safety features mentioned here have been implemented – with few exceptions – on all FIBRO gas springs. Please refer to the relevant data sheets to check the current safety equipment which is provided with the gas spring you are interested in, or contact FIBRO GmbH directly for more information.