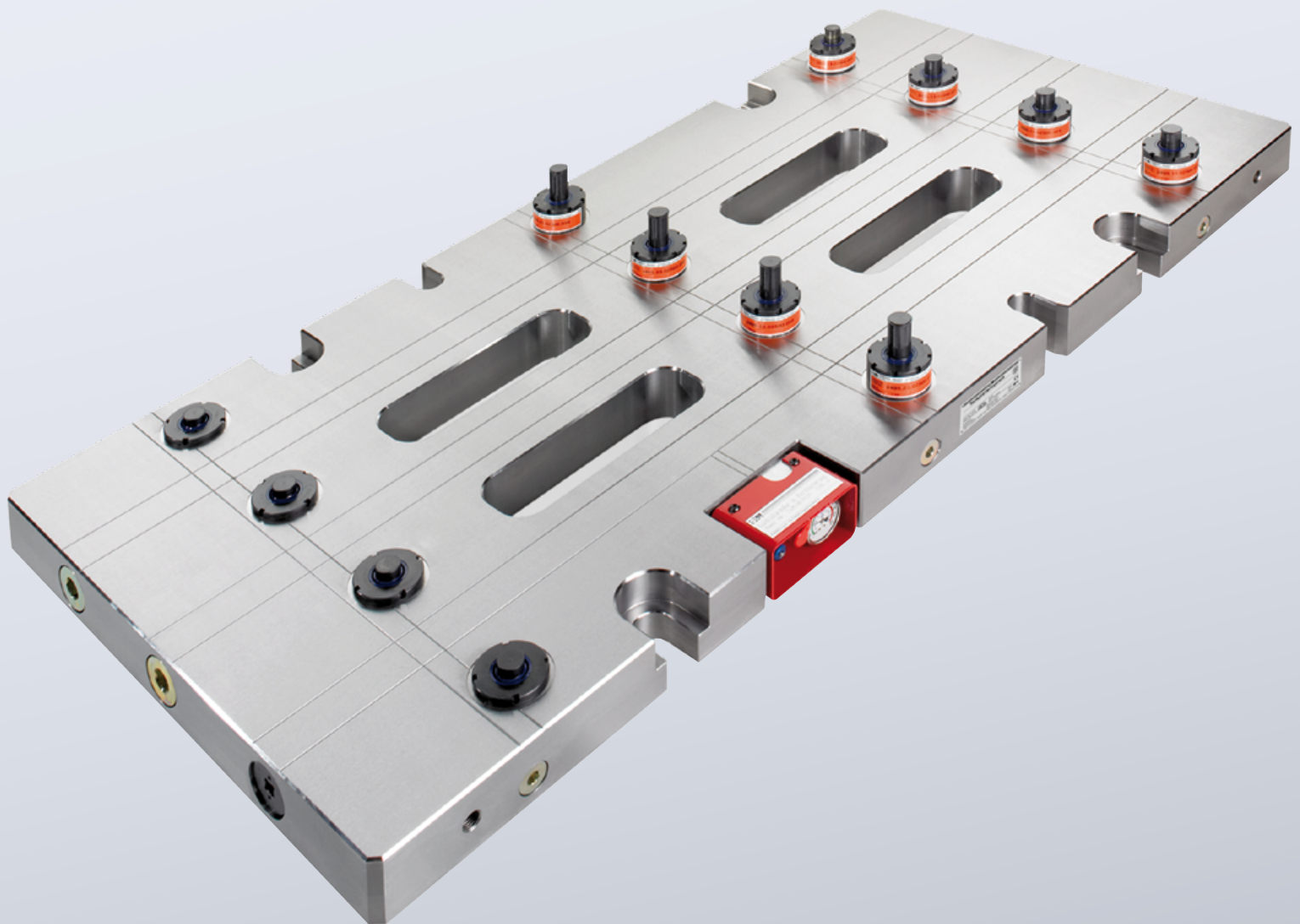


# MANIFOLDSYSTEMS



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# COMPOSITE PLATES



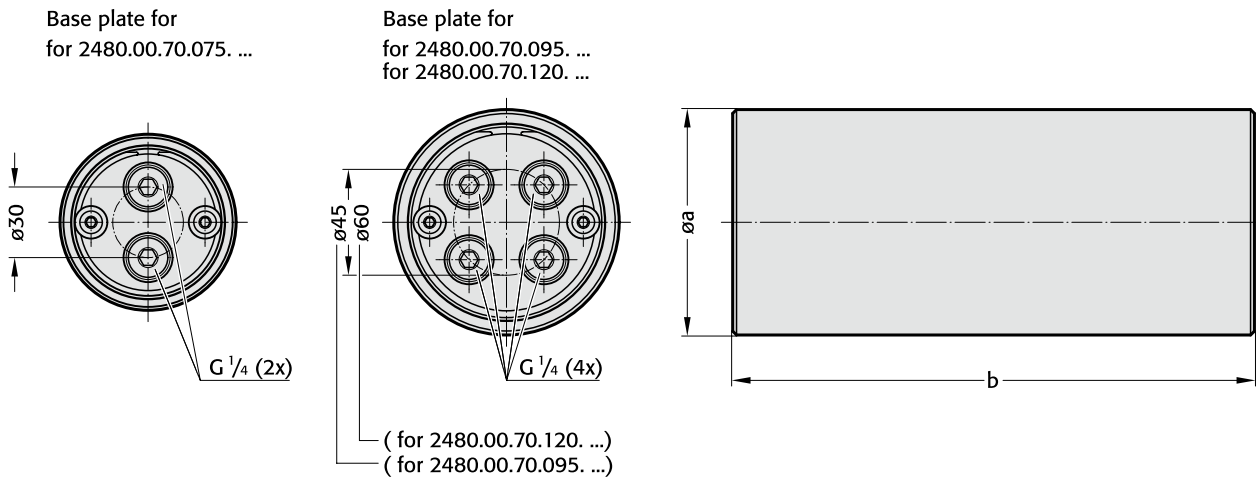
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# GAS SPRINGS - ACCESSORIES



# PRESSURE RESERVOIR FOR REDUCED PRESSURE RISE

2480.00.70.



## Description:

The pressure reservoir and its base plates are manufactured from the same high grade steel as FIBRO gas springs. The advantage of including a pressure reservoir in the system is that in operation the gas pressure rises to a lesser extent. Apart from the purely technical pressure factors, a reduced pressure rise is beneficial to the service life of the system.

## Function:

The pressure reservoir has two or four mounting holes with G<sup>1</sup>/<sub>4</sub>" at both sides, which are designed for connection to the control fitting or gas spring.

## Note:

If a pressure reservoir is to be installed, we recommend the 24°-cone-system, which ensures that the gas flow is not inhibited. Mounting clamps should be ordered separately. At least 2 are required for each pressure reservoir, see following pages.

## 2480.00.70. Pressure reservoir

Order No.	Volume in l [litres]	Ø a	b
2480.00.70.075.0170	0,25	75	170
2480.00.70.075.0250	0,50	75	250
2480.00.70.075.0410	1,0	75	410
2480.00.70.095.0300	1,0	95	300
2480.00.70.095.0500	2,0	95	500
2480.00.70.095.0700	3,0	95	700
2480.00.70.095.0900	4,0	95	900
2480.00.70.120.0360	2,0	120	360
2480.00.70.120.0615	4,0	120	615
2480.00.70.120.1125	8,0	120	1125

## Ordering Code (example):

Pressure reservoir	=	2480.00.70.
Øa = 75 mm	=	075.
b = 170 mm	=	0170
Order No.	=	2480.00.70.075.0170

Gas spring size/daN	Piston rod surface/dm <sup>2</sup>
.00500	0,031
.00750	0,049
.01500	0,102
.03000	0,196
.05000	0,332
.07500	0,503
.10000	0,709

## Calculating the isothermic increase in pressure\*

(\*by approximation)

Pressure build-up =		$\frac{V_a + (n \times V_g^{1})}{V_a + (n \times (V_g^{1}) - \text{Hub} \times A)}$
V <sub>a</sub>	[l]	Volume of pressure reservoir, see table
V <sub>g<sup>1</sup></sub>	[l]	Gas volume of gas springs, corresponding spring type
		1) Note: For the design, gas volume of the spring type, please contact FIBRO!
Stroke	[dm]	Stroke length of gas springs, corresponding to spring type
A	[dm <sup>2</sup> ]	Piston surface of gas springs, see table
n		Number of gas springs

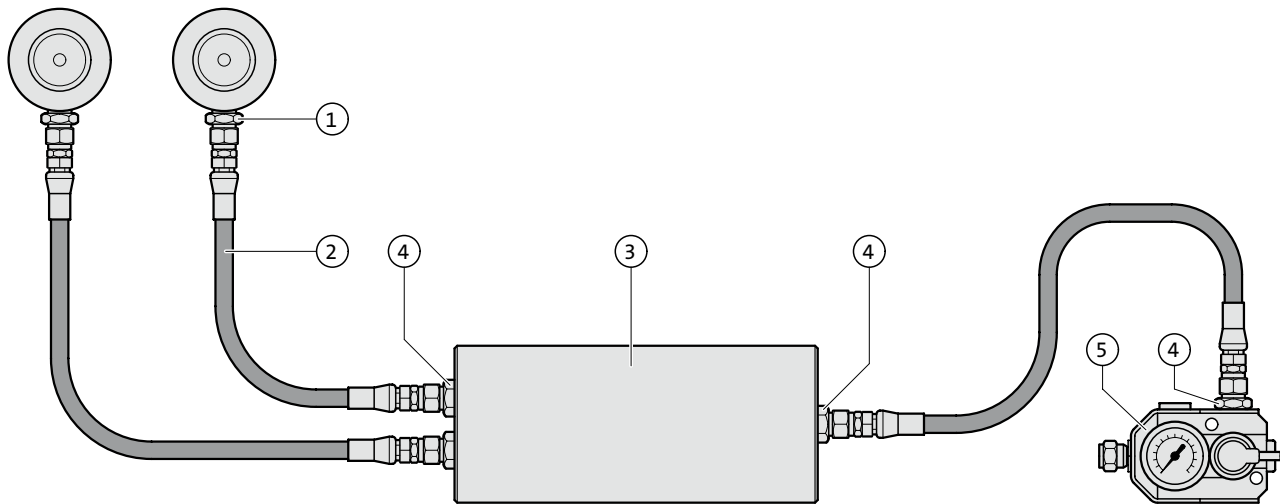
## Calculation example:

10 gas springs, type 2480.13.05000.050 with a travel of 50 mm (0,5 dm) are connected to a system with an 8 litres pressure reservoir.

$$\text{Pressure build-up} = \frac{8 \text{ l} + (10 \times 0,51 \text{ l})}{8 \text{ l} + (10 \times (0,51 \text{ l} - 0,5 \text{ dm} \times 0,332 \text{ dm}^2))} = 1,145$$

# PRESSURE RESERVOIR FOR REDUCED PRESSURE RISE

2480.00.70. Installation example: 24° cone hose system

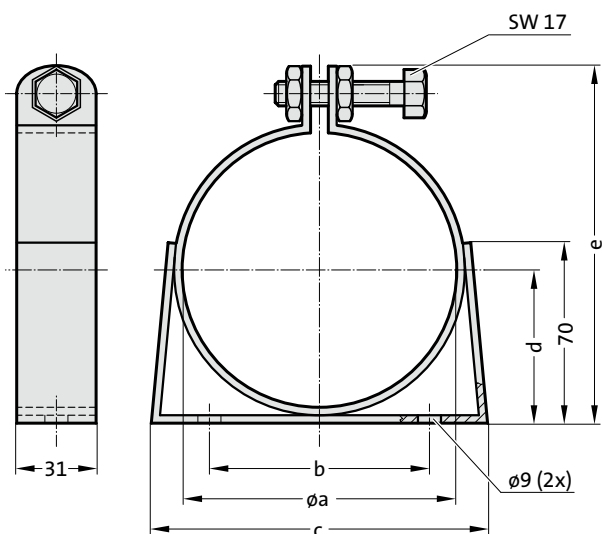


Item No.	Quantity	Description	Order No.
1	2	Screw connection G1/8 G1/8	2480.00.26.03
2	3	24°-cone-hose	2480.00.25.01.□ □ □ □
3	1	Pressure reservoir	2480.00.70. □ □ □ □ □ □ □ □
4	4	Screw connection G1/4	2480.00.26.04
5	1	Control fitting	2480.00.31.01



## MOUNTING CLAMP FOR PRESSURE RESERVOIR

2480.00.70.



### Description:

The mounting clamp is a rubber coated galvanised sheet steel ring and is used for mounting the FIBRO pressure reservoir.

### Attention:

At least 2 fixing clamps are required per pressure reservoir.  
If the pressure tank is to be mounted vertically, it should be seated on a robust base.

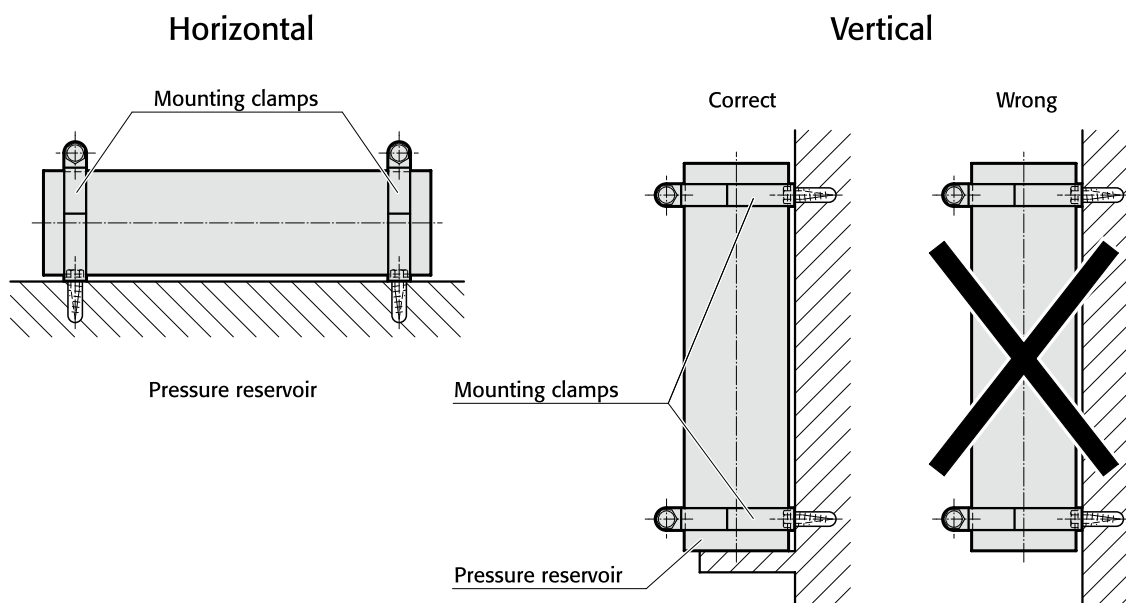
### Ordering Code (example):

Mounting clamp for pressure reservoir (1 Quantity)	=	2480.00.70.
$\varnothing a = 75 \text{ mm}$	=	075
Order No.	=	2480.00.70.075

### 2480.00.70. Mounting clamp for pressure reservoir

Order No.	$\varnothing a$	b	c	d	e
2480.00.70.075	75	80	105	41,5	102
2480.00.70.095	95	100	145	51,5	122
2480.00.70.120	120	100	145	64	147

### Installation options:



# GAS SPRINGS - CONNECTOR SYSTEMS

## GENERAL

Connecting gas springs in one more systems enables the user to monitor gas spring pressure from outside the tool, to adjust it if necessary, to fill it and to drain it. The connector system has many advantages including ease of maintenance, reliability and improvement in the quality of gas spring use in the tool. FIBRO offers four different systems for hose connections for gas springs: Minimes system, Compression fitting system, JIC system (24° flare) and Micro connector system.

The hoses, screwed connectors and other components are selected to meet the most stringent standards and undergo a series of tests including service life, static steel and robustness after repeated assembly and disassembly..

---

### Minimes-system 2480.00.23./24.

- + Small external hose diameter Ø5 mm
- + Small bending radius Rmin = 20
- + High pressure resistance
- + Vibration-proof measurement couplings
- + Connector with valve
- + No tools needed for connecting hose to adapter, and disconnecting
- ± Swaged non-detachable hose fitting
- Not for use with a pressure reservoir

#### Technical data:

Hose:	Polyamide 11, black, dimpled
Hose fittings:	Free cutting steel, zinc-plated
Measuring couplings:	Free cutting steel, zinc-plated
Adapter:	Steel, burnished
Max. permi. pressure:	630 bar
Temperature range:	0–100°C

#### Recommended application:

Most commonly used system for all gas springs with G<sup>1</sup>/<sub>8</sub> gas connection.

Not suitable for use with a pressure reservoir due to small internal diameter (reduced flow volume).

---

### Cutting ring system 2480.00.10.

- + Assemble on-site system
- + Reusable hose fitting
- + High pressure resistance
- ± Suitable for connecting to a pressure reservoir under certain conditions
- Larger bending radius Rmin = 40
- Not suitable for gas springs with M6 connection thread
- Extra time required for preparing hose and fitting it

#### Technical data:

Hose:	Polyurethane/polyamide, black, dimpled
Hose fittings:	Steel, zinc-plated
Adapter:	Steel, zinc-plated
Max. permi. pressure:	380 bar
Temperature range:	0–100°C

#### Recommended application:

For all gas springs with G<sup>1</sup>/<sub>8</sub> gas connection.

Mainly used for self-assembly in small numbers.

---

### 24°-cone-system 2480.00.25./26.

- + Suitable for connecting to a pressure reservoir
- + Wide range of connection adapters
- + Vibration-proof (O-ring seal)
- + High pressure resistance
- ± Swaged non-detachable hose fitting
- Larger bending radius Rmin = 40
- Not suitable for gas springs with M6 connection thread

#### Technical data:

Hose:	Polyurethane/polyamide, black, dimpled
Hose fittings:	Steel, zinc-plated
Adapter:	Steel, zinc-plated
Max. permi. pressure:	315 bar
Temperature range:	0–100°C

#### Recommended application:

For all gas springs with G<sup>1</sup>/<sub>8</sub> gas connection.

Mainly used for connection to pressure reservoir.

---

### Connector system, 24° conus micro 2480.00.27./28.

- + small external hose diameter Ø5 mm
- + flexible pipe: small bending radius Rmin = 20 mm
- + pipe: Min. bending radius = 12 mm (3x da)
- + high pressure resistance
- + small connection fitting
- + vibration-proof due to O-ring seal
- + swaged non-detachable hose fitting
- not for use with a pressure reservoir
- limited suitability for gas springs with thread connection G<sup>1</sup>/<sub>8</sub>

#### Technical data:

Hose:	Polyamide 11, black, dimpled
Hose adapter:	Free cutting steel, zinc-plated
Adapter:	Steel, zinc-plated
Max. permi. pressure:	475 bar
Temperature range:	0 to +80°C
Conduit:	Steel
External conduit diameter (da):	Ø4 mm
Internal conduit diameter (di):	Ø2 mm
max. dynamic pressure:	430 bar
Temperature range:	0 to +100°C

#### Recommended application:

For gas springs with M6 gas connection.

Not suitable for use with a pressure reservoir due to small internal diameter (reduced flow volume).

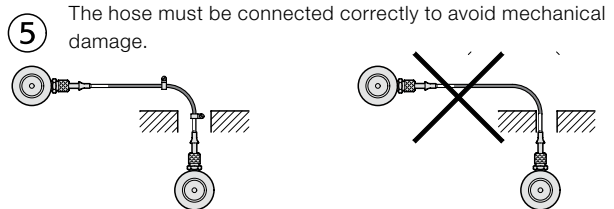
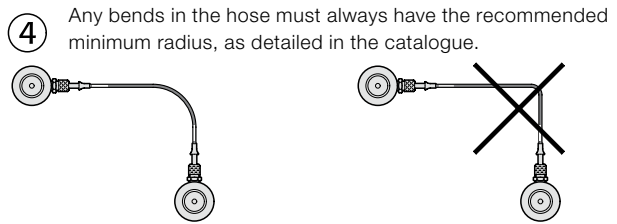
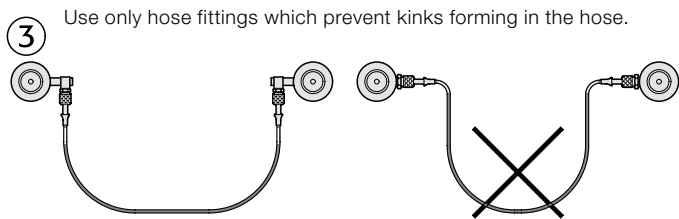
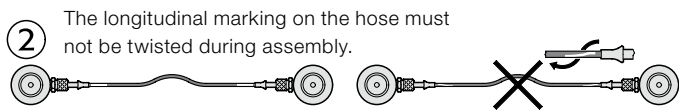
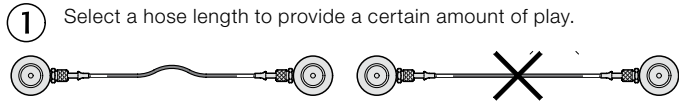
Note: Pipe system, 24° conus micro for higher temps on request.

# INSTRUCTIONS FOR HOSE ASSEMBLY

## MOUNTING ARRANGEMENT FOR GAS SPRINGS

### IN THE MINIMESS SYSTEM

Never exceed the maximum pressures and temperatures for the hoses. Ensure that all hoses and adaptors are perfectly clean prior to assembly. The sheathing of the hoses must be perforated so that they can be used for pressurised gas. We recommend the use of the 24° cone hose system if pressure vessels are used to avoid restricting gas flow. Follow the instructions below to ensure functionality and maximum service life for the hose connection:



Refer to DIN 20066 for further details on installing hose connections.

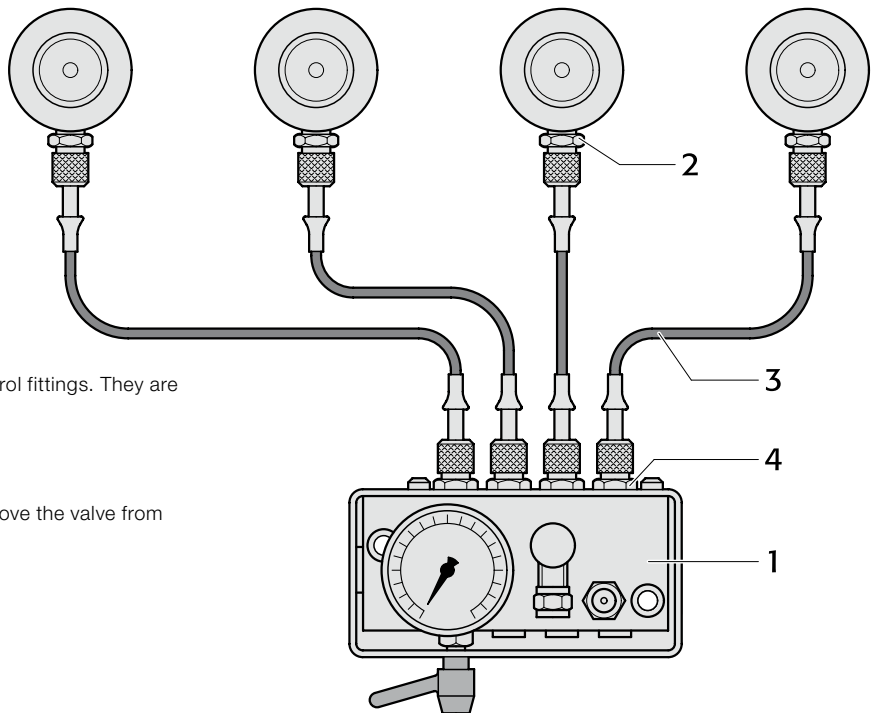
#### Attention!

Any modifications whatsoever to the product are prohibited.

For further information refer to the FIBRO Gas Spring Catalogue, visit [www.fibro.com](http://www.fibro.com) or contact your FIBRO agent.

#### 2480. Connection 1:

Direct connection for group



#### Function:

Each spring is connected via a direct wire to the control fittings. They are not interconnected and form a pressure zone.

See control fittings 2480.00.30

#### Note:

When installing gas springs in the system always remove the valve from the gas spring.

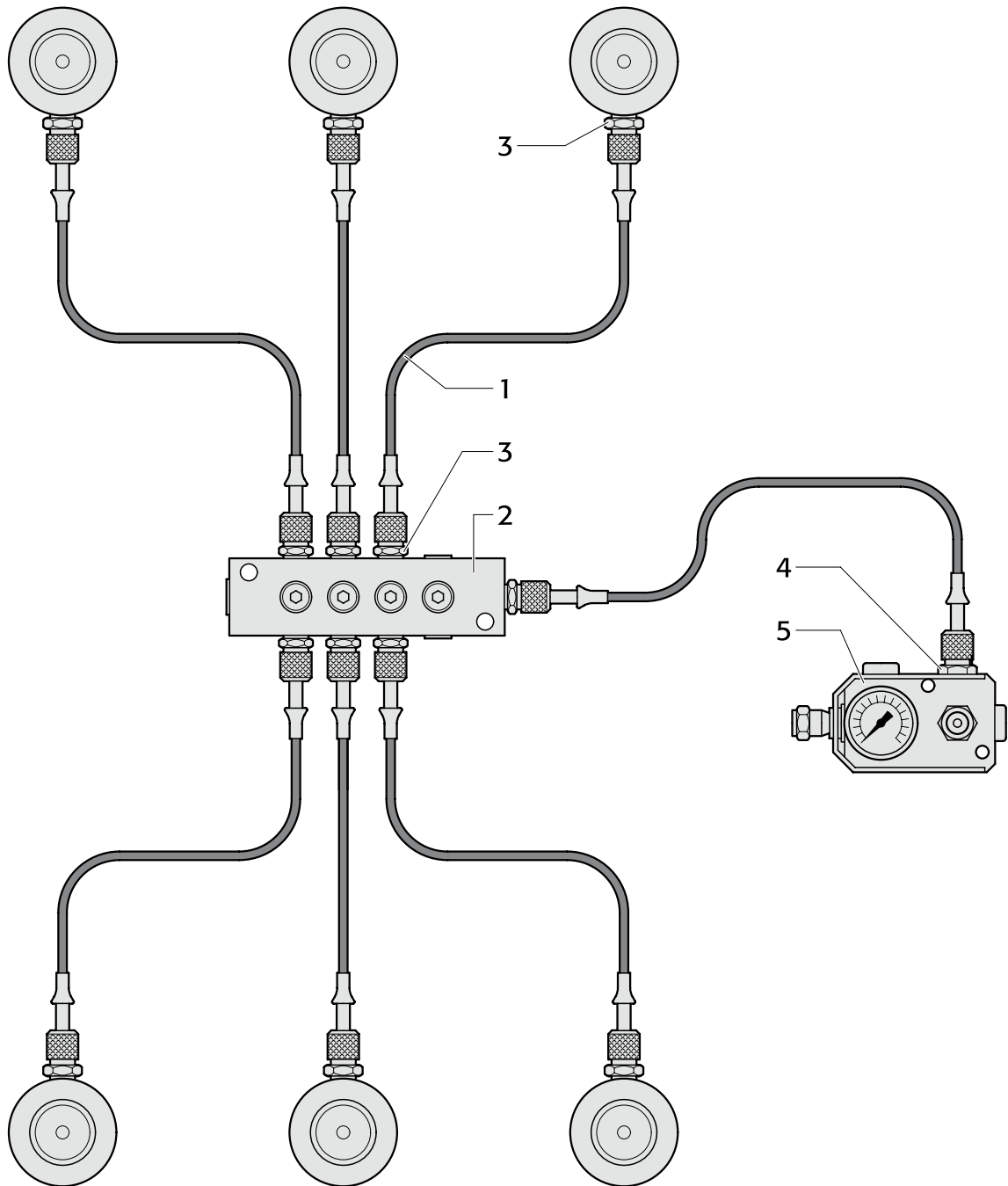
Item No.	Term	Quantity	Order No.	Note
1	Control fitting	1	2480.00.30.01	Optionally with diaphragm pressure switch 2480.00.30.02
2	Gauging coupling	4	2480.00.24.01	
3	Gauging hose	4	2480.00.23.□□.□□□	Type of connection and length as required
4	Gauging coupling	4	2480.00.24.02	



# MOUNTING ARRANGEMENT FOR GAS SPRINGS IN THE MINIMESS SYSTEM

## 2480. Connection 2:

Group series connection



### Function:

The springs are interconnected and there is just one test line to the control fitting.

### Note:

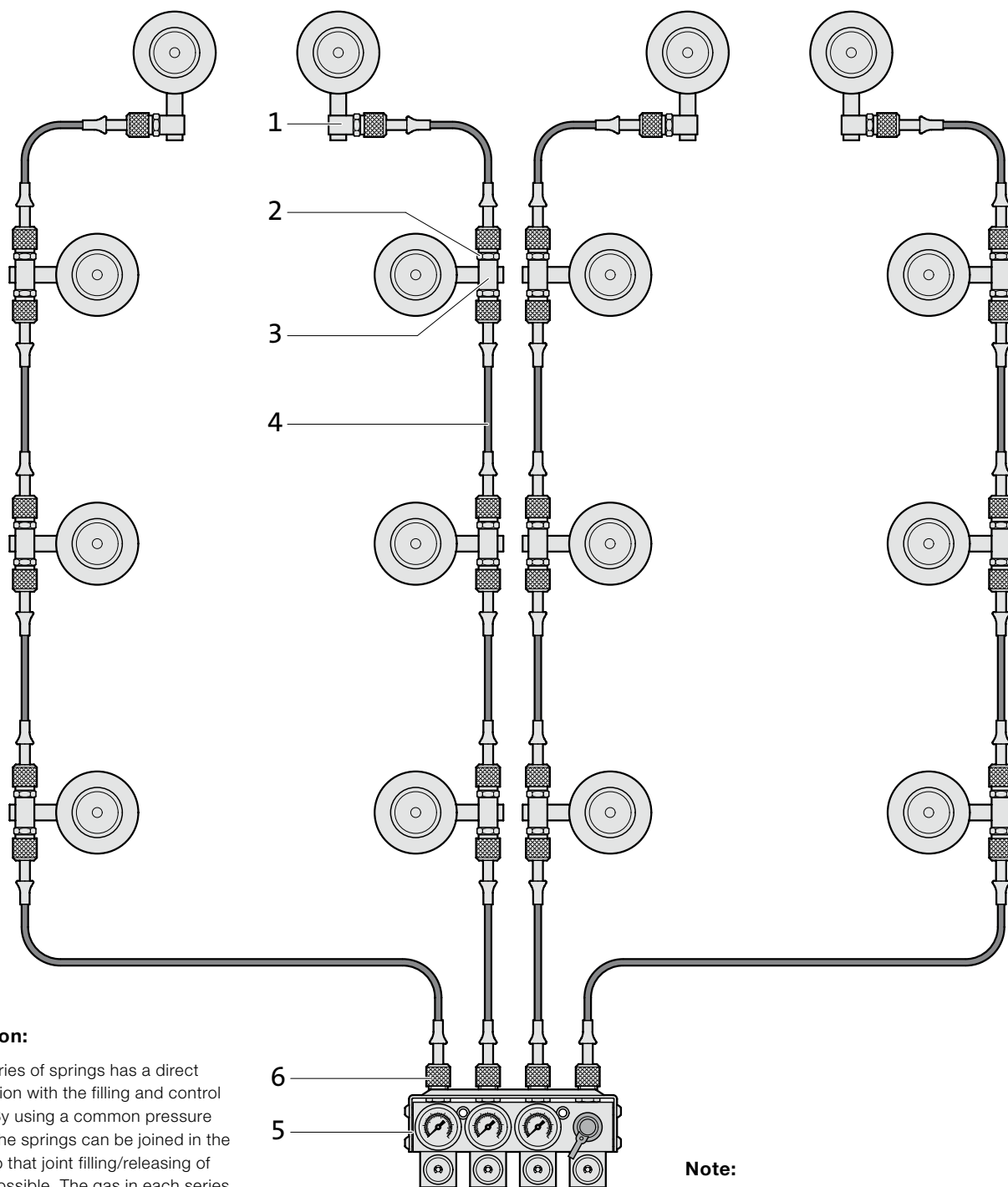
When installing gas springs always remove the valve from the gas spring.

Item No.	Term	Quantity	Order No.	Note
1	Gauging hose	7	2480.00.23.□□.□□□	Type of connection and length as required
2	Distributor	1	2480.00.24.33	
3	Gauging coupling	13	2480.00.24.01	
4	Gauging coupling	1	2480.00.24.02	
5	Control fitting	1	2480.00.31.01	

# MOUNTING ARRANGEMENT FOR GAS SPRINGS IN THE MINIMESS SYSTEM

## 2480. Connection 3:

Multiple connections with independent functioning



### Function:

Each series of springs has a direct connection with the filling and control fitting. By using a common pressure supply the springs can be joined in the fitting so that joint filling/releasing of gas is possible. The gas in each series of springs can also be filled/released or monitored individually.

See multi-way control fitting  
2480.00.39.05.04

### Note:

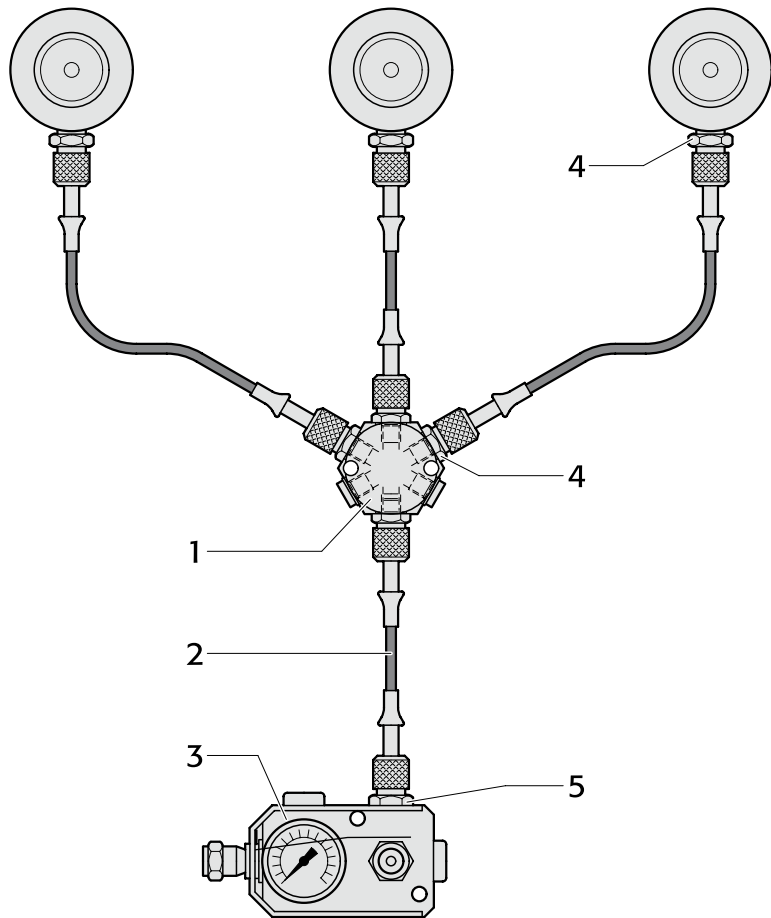
When installing gas springs always remove the valve from the gas spring.

Item No.	Term	Quantity	Order No.	Note
1	Simple adaptor, short	4	2480.00.24.17	Choice of "long" or "very long" depending on the specific mounting arrangements.
2	Gauging coupling	28	2480.00.24.01	
3	Multiple adaptor	12	2480.00.24.11	Choice of "long" or "very long" depending on the specific mounting arrangements.
4	Gauging hose	16	2480.00.23.□□.□□□	Type of connection and length as required
5	Multiple control fitting	1	2480.00.39.05.04	
6	Gauging coupling	4	2480.00.24.01	

# MOUNTING ARRANGEMENT FOR GAS SPRINGS IN THE MINIMESS SYSTEM

## 2480. Connection 4.1:

Group series connection



### Function:

The springs are interconnected and there is just one test line to the control fitting.

### Note:

When installing gas springs always remove the valve from the gas spring.

Item No.	Term	Quantity	Order No.	Note
1	Coupling	1	2480.00.24.31	
2	Gauging hose	4	2480.00.23.□□.□□□	Type of connection and length as required
3	Control fitting	1	2480.00.31.01	
4	Gauging coupling	7	2480.00.24.01	
5	Gauging coupling	1	2480.00.24.02	

## 2480. Connection 4.2:

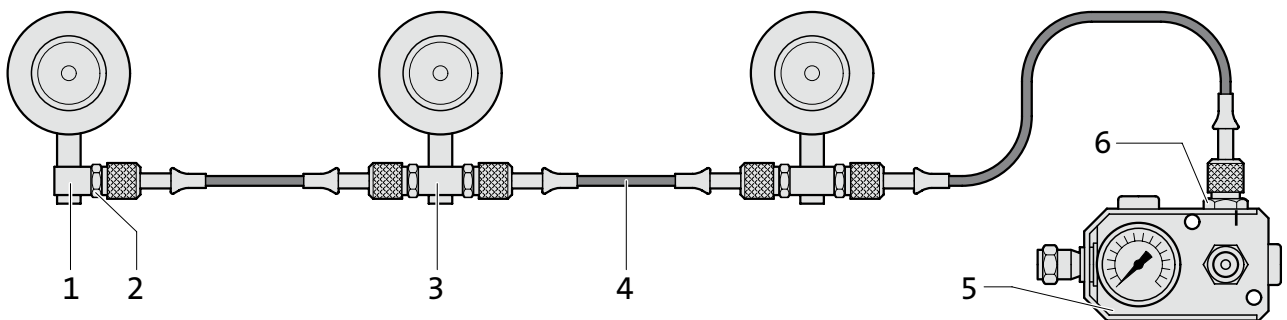
Group series connection

### Function:

The springs are interconnected and there is just one test line to the control fitting.

### Note:

When installing gas springs always remove the valve from the gas spring.

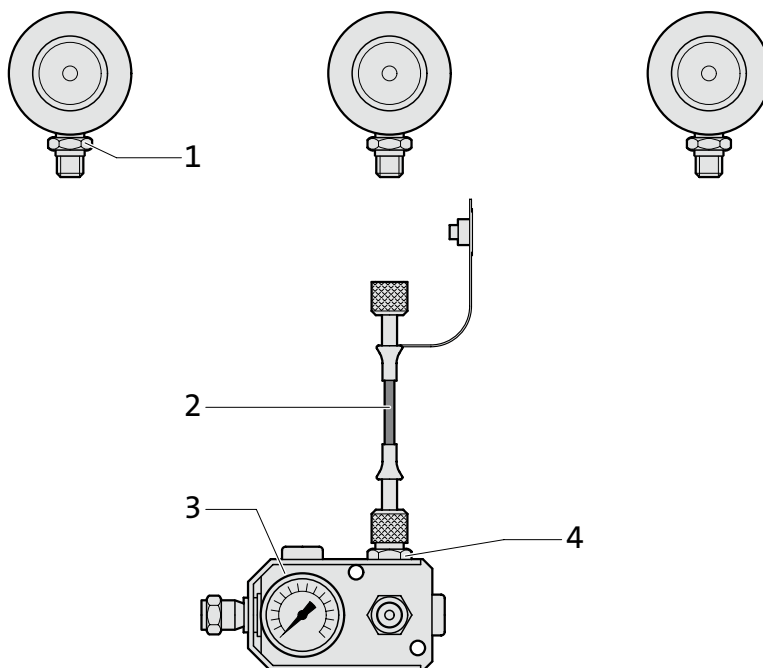


Item No.	Term	Quantity	Order No.	Note
1	Simple adaptor, short	1	2480.00.24.17	Choice of "long" or "very long" depending on the specific mounting arrangements.
2	Gauging coupling	5	2480.00.24.01	
3	Multiple adaptor	2	2480.00.24.11	Choice of "long" or "very long" depending on the specific mounting arrangements.
4	Gauging hose	3	2480.00.23.□□.□□□	Type of connection and length as required
5	Control fitting	1	2480.00.31.01	
6	Gauging coupling	1	2480.00.24.02	

## MOUNTING ARRANGEMENT FOR GAS SPRINGS IN THE MINIMESS SYSTEM

### 2480. Connection 5:

Independent test connection



### Function:

The springs work independently and have a gauging coupling (2480.00.24.01) with valve. If required the springs can be tested and pressure adjusted individually. A control fitting (2480.00.31.01) is used for the purpose.

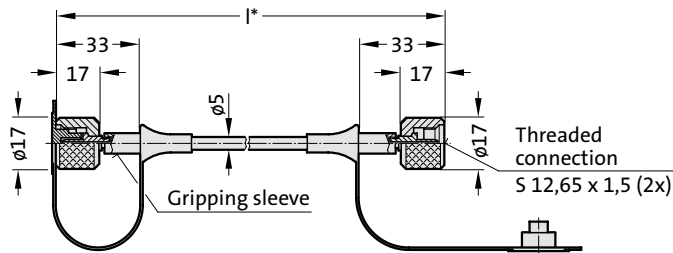
Item No.	Term	Quantity	Order No.	Note
1	Gauging coupling	3	2480.00.24.01	
2	Gauging hose	1	2480.00.23.□□□□	Type of connection and length as required
3	Control fitting	1	2480.00.31.01	
4	Gauging coupling	1	2480.00.24.02	

# GAS SPRING ACCESSORIES

## MINIMESS – COMPOUND THREADED JOINTS

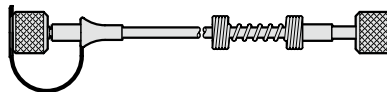
### 2480.00.23.01.

Gauging hose - both ends straight



### 2480.00.23.01.----.1

Antikink spiral, at one end



### 2480.00.23.01.----.2

Antikink spiral, at both ends



### 2480.00.23.01.

**Gauging hose both ends straight**

**Order example:**

Shortest factory length:

- 90 mm excl. bend protection
- 150 mm bend protection on one side
- 300 mm bend protection on both sides
- Minimum bending radius: R20

\*Measuring hose available in the following lengths:

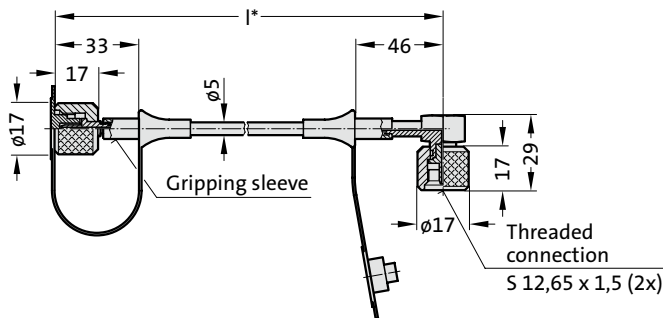
- 5 mm step range ≤ 1000 mm
- 10 mm step range > 1000 mm
- 100 mm step range > 4000 mm
- 500 mm step range > 6000 mm

**Ordering Code (example):**

Gauging hose both ends straight	= 2480.00.23.01.	Gauging hose both ends straight	= 2480.00.23.01.
l = 90 mm	= 0090	l = 90 mm	= 0090.
		Bend protection on one side	= 1

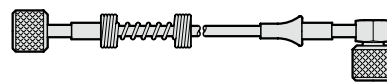
### 2480.00.23.02.

Gauging hose - one end straight 90°-angle



### 2480.00.23.02.----.1

Antikink spiral, at one end, straight



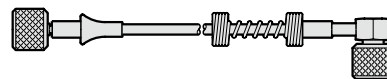
### 2480.00.23.02.----.2

Antikink spiral, at both ends



### 2480.00.23.02.----.3

Antikink spiral, at one end, 90°



### 2480.00.23.02.

**Gauging hose one end straight 90°-angle**

**Order example:**

Shortest factory length:

- 90 mm excl. bend protection
- 150 mm bend protection on one side
- 300 mm bend protection on both sides
- Minimum bending radius: R20

\*Measuring hose available in the following lengths:

- 5 mm step range ≤ 1000 mm
- 10 mm step range > 1000 mm
- 100 mm step range > 4000 mm
- 500 mm step range > 6000 mm

**Ordering Code (example):**

Gauging hose one end straight 90°-angle	= 2480.00.23.02.	Gauging hose one end straight 90°-angle	= 2480.00.23.02.
l = 90 mm	= 0090	l = 90 mm	= 0090.
		Bend protection on one side	= 1

# GAS SPRING ACCESSORIES

## MINIMESS – COMPOUND THREADED JOINTS

2480.00.23.03.

Gauging hose both ends 90°-angle

**Order example:**

Shortest factory length:

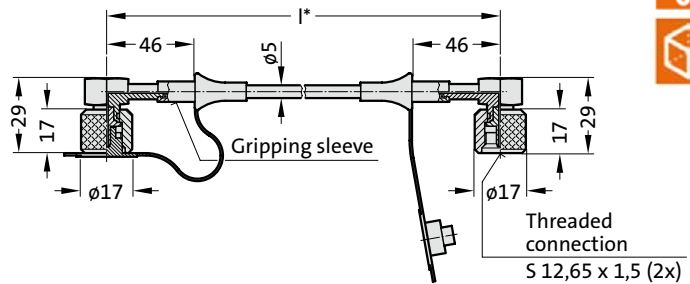
- 90 mm excl. bend protection
- 150 mm bend protection on one side
- 300 mm bend protection on both sides
- Minimum bending radius: R20

\*Measuring hose available in the following lengths:

- 5 mm step range ≤ 1000 mm
- 10 mm step range > 1000 mm
- 100 mm step range > 4000 mm
- 500 mm step range > 6000 mm

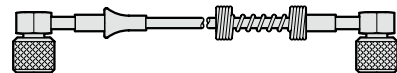
2480.00.23.03.

Gauging hose - both ends 90°-angle



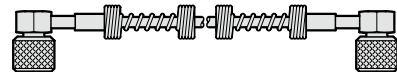
2480.00.23.03.----.3

Antikink spiral, at one end



2480.00.23.03.----.2

Antikink spiral, at both ends

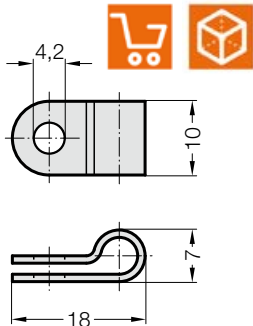


**Ordering Code (example):**

Gauging hose both ends 90°-angle	= 2480.00.23.03	Gauging hose both ends 90°-angle	= 2480.00.23.03.
l = 90 mm	= 0090	l = 90 mm	= 0090.
		Bend protection on one side	= 3

2480.00.23.12.01

Hose clamp for gauging hose DN2 (Ø5 mm)

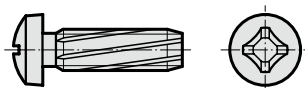


**Material:** Polyamide

**Note:** Supplied without screws

2192.50.04.012

Self-tapping screw A M4x12 DIN 7516



**Note:** self-tapping  
Diameter of hole for self-tapping screw = 3.6 mm

2480.00.23.13.

Anti-scuff spiral for subsequent installation over hoses and tubing



Order No.	l in mm
2480.00.23.13.0001	1000
2480.00.23.13.0002	2000
2480.00.23.13.0005	5000
2480.00.23.13.0010	10000

**Material:**

Polyamide

**Description:**

The anti-scuff spiral is used to protect against abrasion, is resistant to air, water, oil, hydraulic fluids petrol and other liquids.

Inner ø	7 mm
For hose external ø	max. 5-11 mm
Temperature range	-30°C up to +100°C

# GAS SPRING ACCESSORIES

## MINIMESS – COMPOUND THREADED JOINTS

Gauging coupling

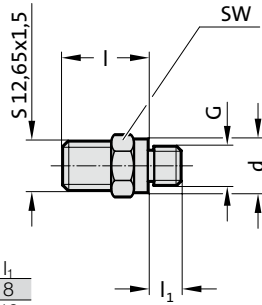
**2480.00.24.01 with valve**

**2480.00.24.03 without valve  
for connection to gas springs**

Gauging coupling

**2480.00.24.02 with valve**

**2480.00.24.04 without valve  
for connection to control fitting**



Order No.	G	d	SW	l	l <sub>1</sub>
2480.00.24.01	G 1/8	14	14	22	8
2480.00.24.02	G 1/4	19	19	21	10
2480.00.24.03	G 1/8	14	14	22	8
2480.00.24.04	G 1/4	19	19	21	10

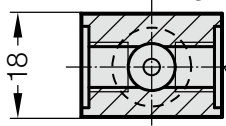
\*SW = spanner size



### Note:

The measuring coupling with valve is used for standard assembly layouts. Where the system requires frequent filling pressure changes (e.g. die drawing cushions), the measuring coupling is used without a valve.

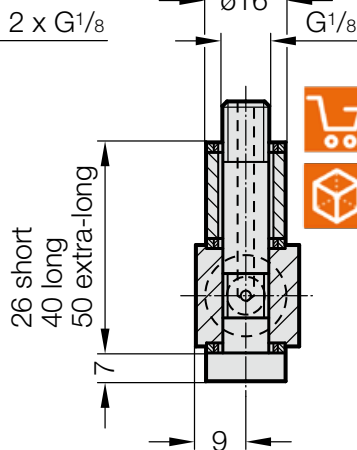
**2480.00.24.13 long**



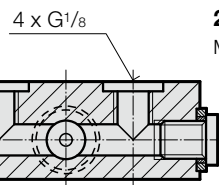
**2480.00.24.14 short**

**2480.00.24.15 extra-long**

Dual adapter



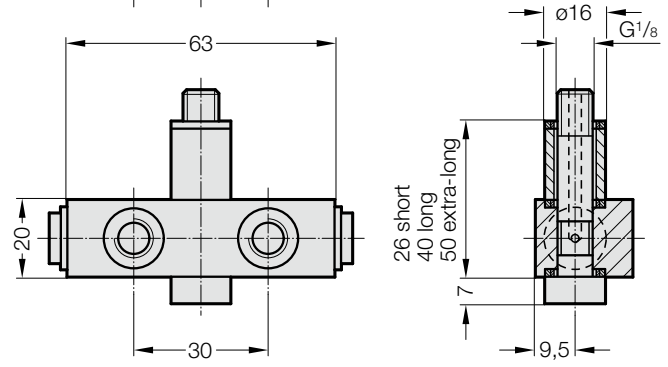
**2480.00.24.10 long**



**2480.00.24.11 short**

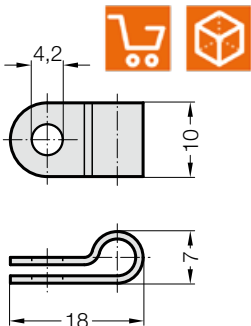
**2480.00.24.12 extra-long**

Multiple adapter



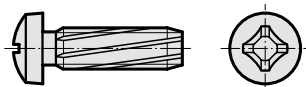
**2480.00.23.12.01**

Hose clamp for gauging hose  
DN2 (Ø5 mm)



**2192.50.04.012**

Self-tapping screw  
A M4x12 DIN 7516



**Material:** Polyamide

**Note:**  
Supplied without screws

**Note:**  
self-tapping  
Diameter of hole for self-tapping  
screw = 3.6 mm

**2480.00.23.13.**

Anti-scuff spiral  
for subsequent installation over hoses and tubing



Order No.	l in mm
2480.00.23.13.0001	1000
2480.00.23.13.0002	2000
2480.00.23.13.0005	5000
2480.00.23.13.0010	10000

**Material:**

Polyamide

**Description:**

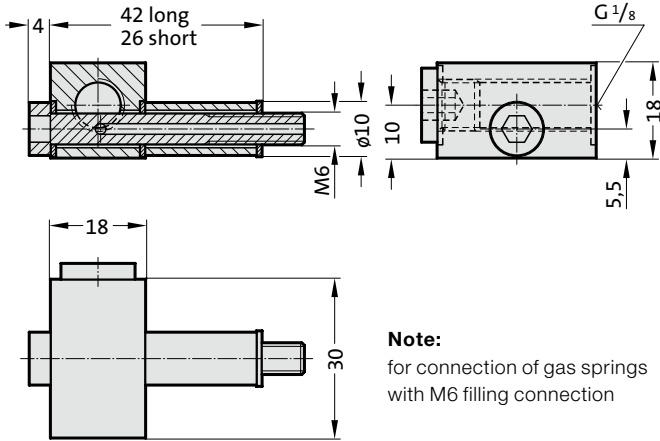
The anti-scuff spiral is used to protect against abrasion, is resistant to air, water, oil, hydraulic fluids petrol and other liquids.

Inner ø 7 mm  
For hose external ø max. 5-11 mm  
Temperature range -30°C up to +100°C

## GAS SPRING ACCESSORIES MINIMESS – COMPOUND THREADED JOINTS

2480.00.24.53 horizontal, long  
2480.00.24.54 horizontal, short

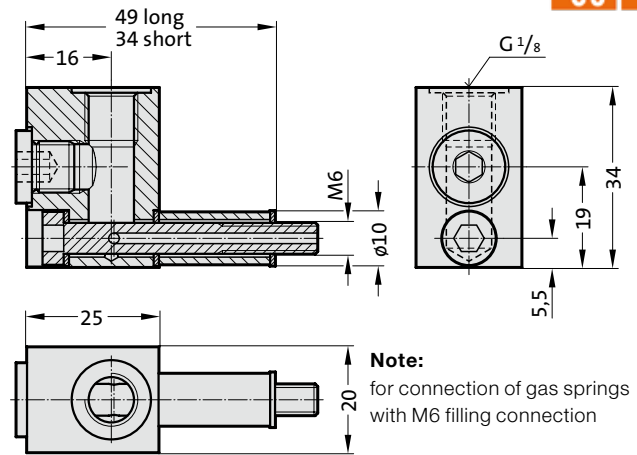
Double adapter



**Note:**  
for connection of gas springs  
with M6 filling connection

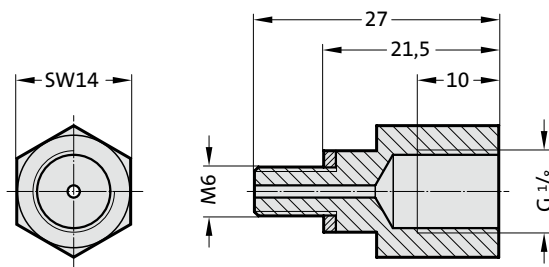
2480.00.24.56 vertical, long  
2480.00.24.57 vertical, short

Double adapter

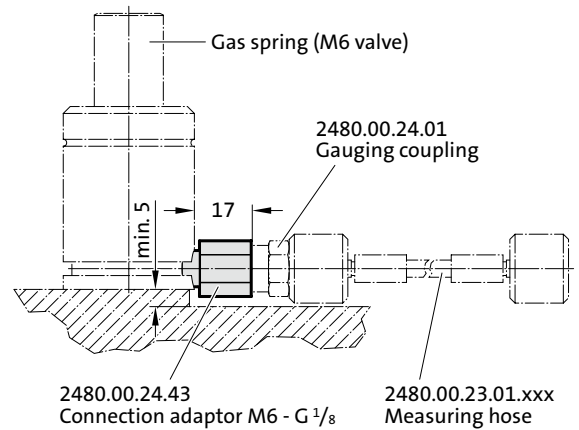


**Note:**  
for connection of gas springs  
with M6 filling connection

2480.00.24.43  
Connection fitting M6 - G<sup>1/8</sup>



Mounting example:



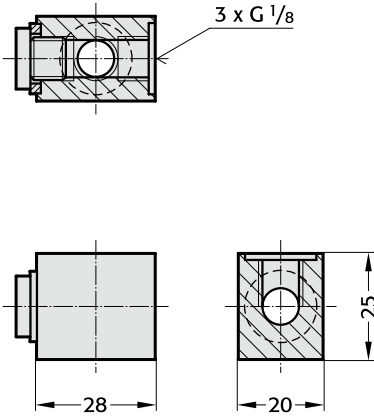


# GAS SPRING ACCESSORIES

## MINIMESS – COMPOUND THREADED JOINTS

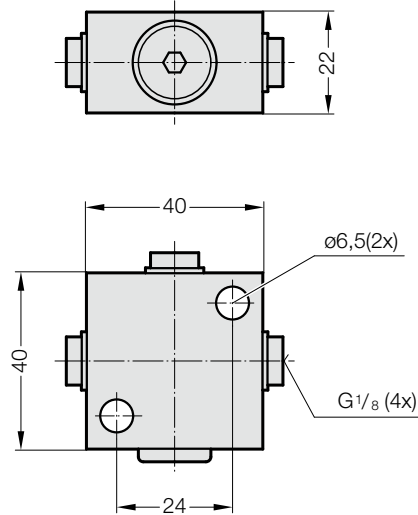
**2480.00.24.30**

Distributor block G1/8, 3 ports



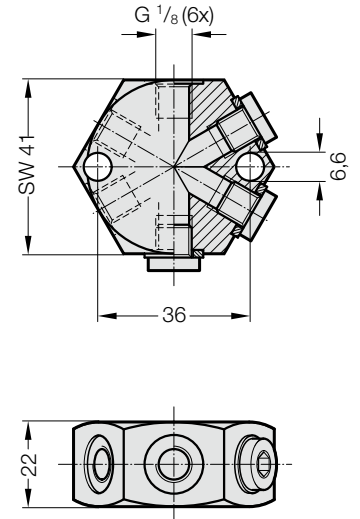
**2480.00.24.34**

Distributor block G1/8, 4 ports



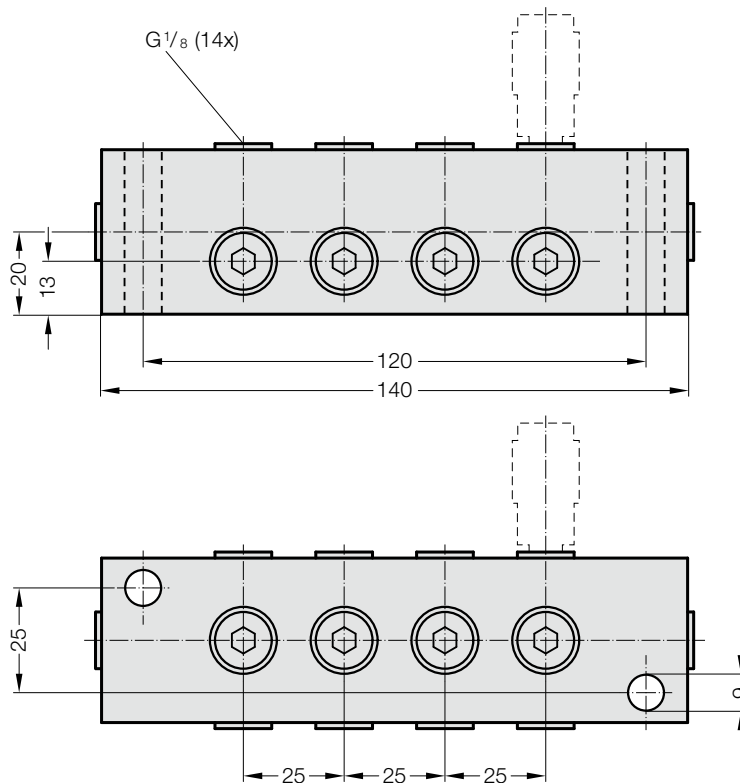
**2480.00.24.31**

Distributor block G1/8, 6 ports



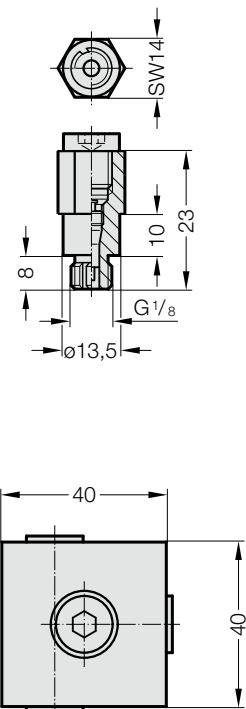
**2480.00.24.33**

Distributor G1/8, 14 ports



**2480.00.40**

Filling adapter

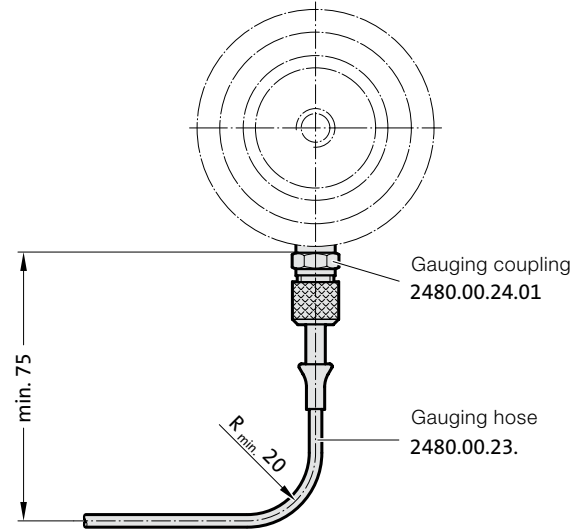
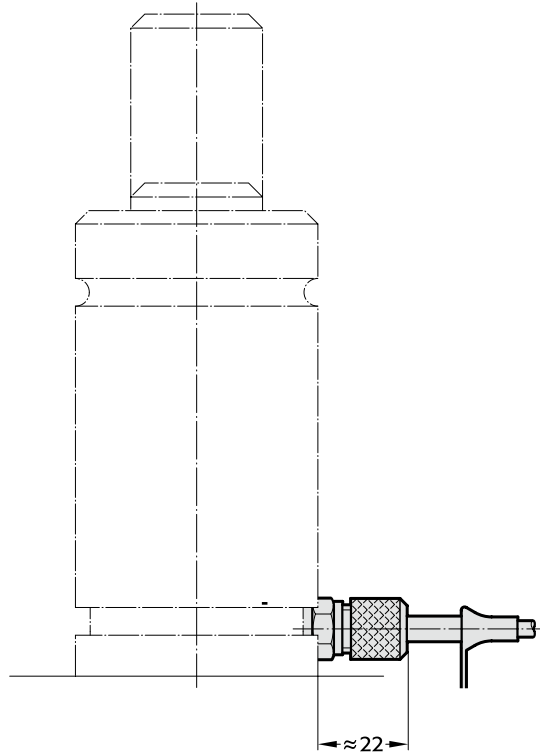


# GAS SPRING ACCESSORIES

## MINIMESS – COMPOUND THREADED JOINTS

2480.00.24.01

Gauging coupling with valve installed



2480.00.24.10 long

11 short

12 extra-long



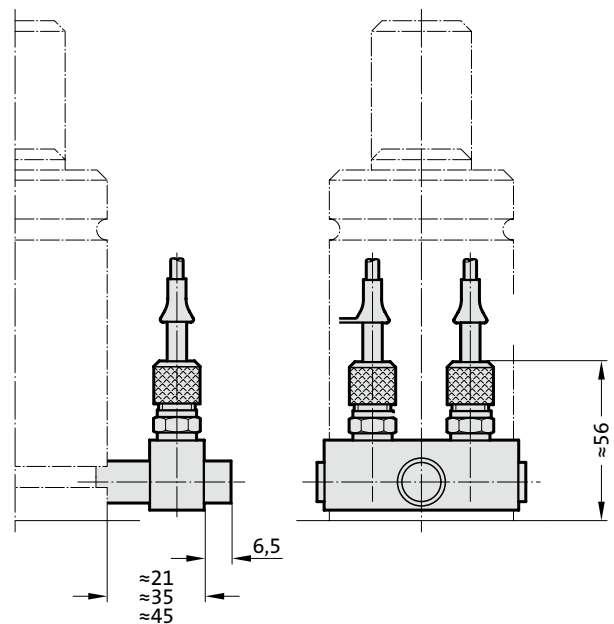
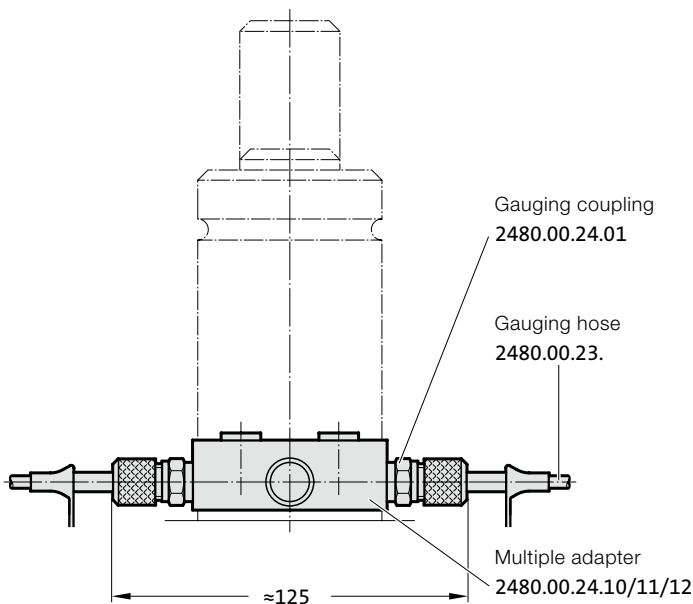
Multiple adapter with two gauging couplings

**Note:**

When installing or fitting a gauging coupling the valve must be removed from the gas spring.

Execution: Horizontal connection

Execution: Vertical connection

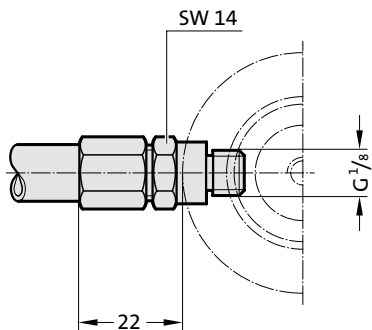


# GAS SPRING ACCESSORIES

## COMPRESSION FITTING - COMPOUND THREADED JOINTS

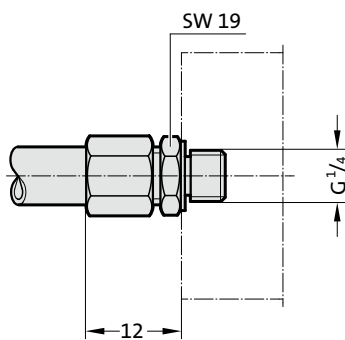
2480.00.10.01

Direct test connection to gas spring



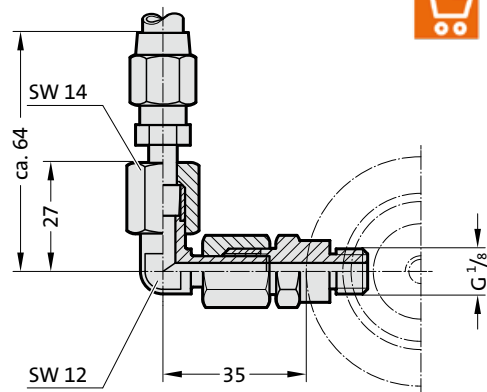
2480.00.10.03

Direct test connection to control fitting



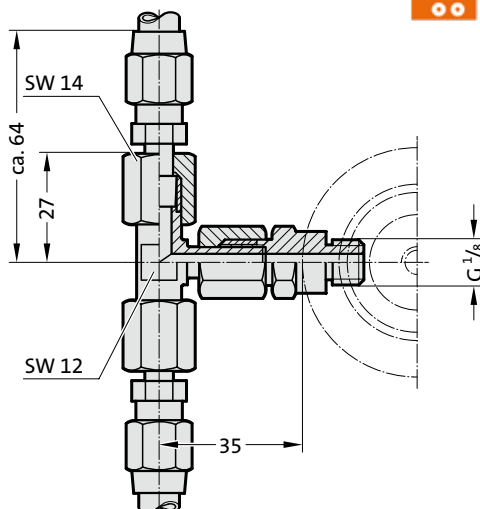
2480.00.10.10

Adjustable angular coupling



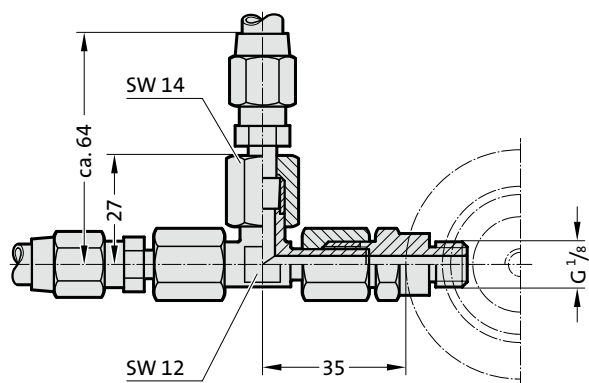
2480.00.10.11

Adjustable T-Coupling



2480.00.10.12

Adjustable L-Coupling

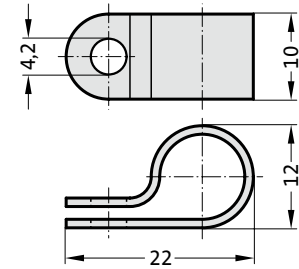


# GAS SPRINGS ACCESSORIES

## COMPRESSION FITTING – COMPOUND THREADED JOINTS

### 2480.00.10.20.12.01

Hose clamp for gauging hose  
DN4 (Ø 9 mm)

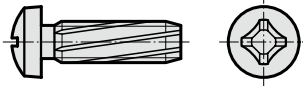


**Material:** Polyamide

**Note:**  
Supplied without screws

### 2192.50.04.012

Self-tapping screw  
A M4x12 DIN 7516



**Note:**  
self-tapping,  
Diameter of hole for self-tapping  
screw = 3.6 mm

### 2480.00.23.13.

Anti-scuff spiral  
for subsequent installation over hoses and tubing



Order No.	l in mm
2480.00.23.13.0001	1000
2480.00.23.13.0002	2000
2480.00.23.13.0005	5000
2480.00.23.13.0010	10000

**Material:**

Polyamide

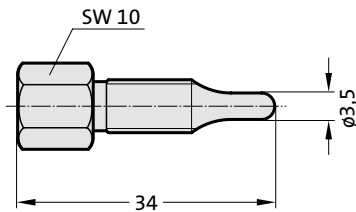
**Description:**

The anti-scuff spiral is used to protect against abrasion, is resistant to air, water, oil, hydraulic fluids petrol and other liquids.

Inner ø 7 mm  
For hose external ø max. 5-11 mm  
Temperature range -30°C up to +100°C

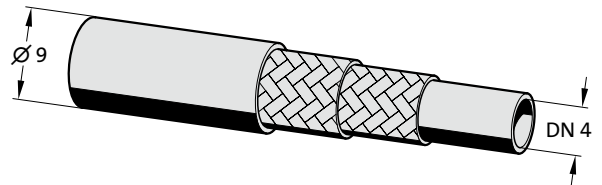
### 2480.00.54.01

Expansion punch for hosing



### 2480.00.10.20.

High-pressure hose

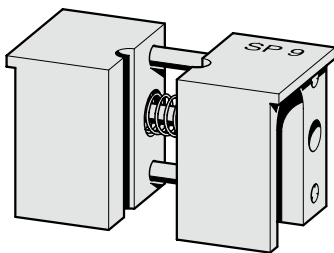


**Ordering Code (example):**

High-pressure hose = 2480.00.10.20.  
Length 10 m = 0010  
Order No. = 2480.00.10.20.0010

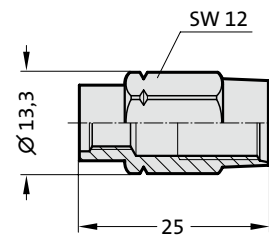
### 2480.00.54.02

Vice jaws for holding high-pressure hose



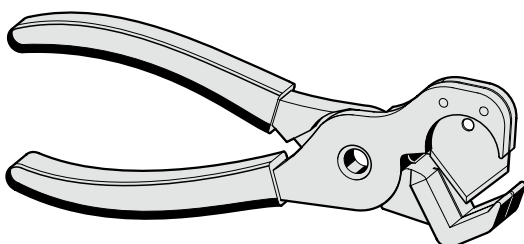
### 2480.00.10.21

Hose screw fitting (female)



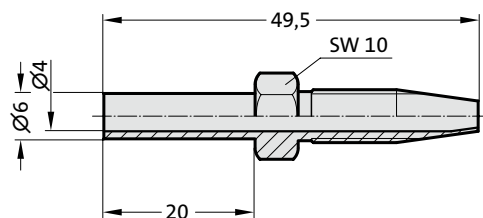
### 2480.00.54.03

Hose shears

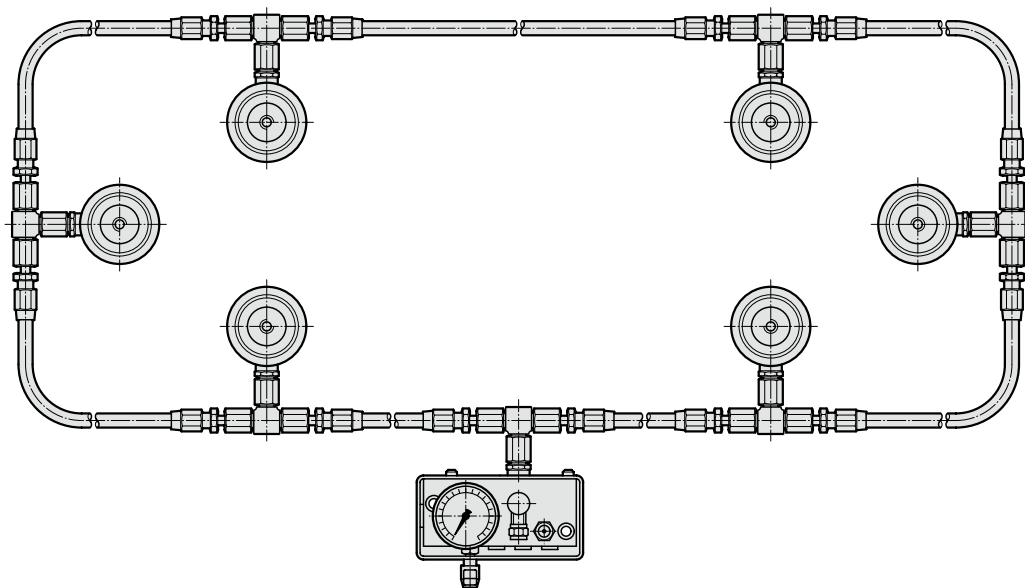
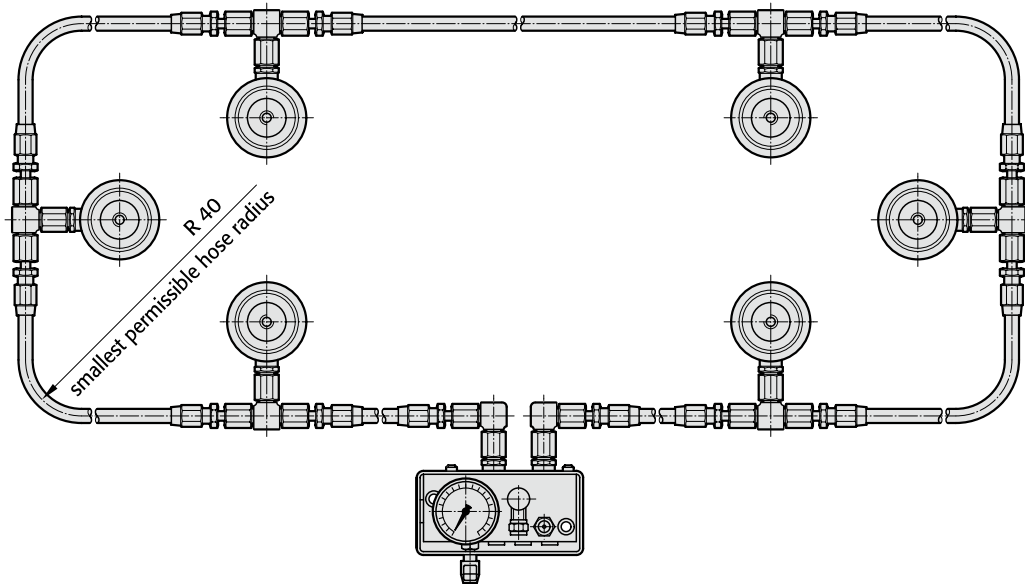
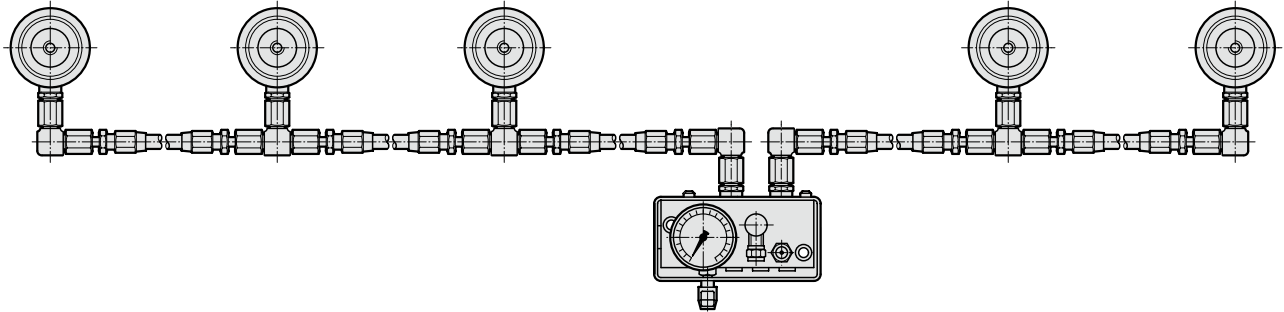


### 2480.00.10.22

Hose screw fitting (male) with flanged pipe socket



# ASSEMBLY ARRANGEMENT OF GAS SPRINGS IN SERIAL CONNECTION COMPRESSION FITTING



Note: When installing gas springs always remove the valve from the gas spring.

# GAS SPRING ACCESSORIES

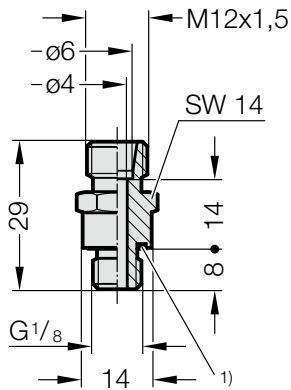
## 24°-CONE SCREW CONNECTIONS

### (DIN 2353 / DIN EN ISO 8434-1)

2480.00.26.03



Screw connection G<sup>1</sup>/<sub>8</sub>

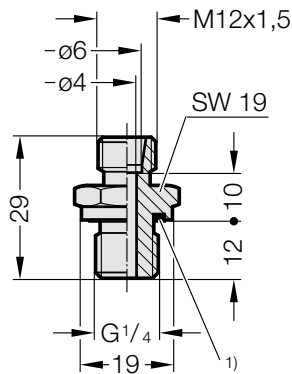


1) Eolastic-Seal ED

2480.00.26.04



Screw connection G<sup>1</sup>/<sub>4</sub>

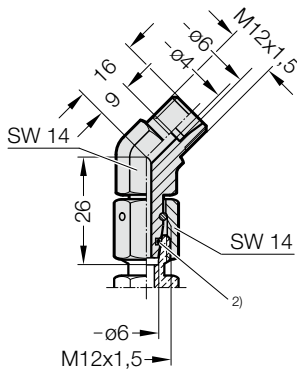


1) Eolastic-Seal ED

2480.00.26.21



Adjustable threaded joint  
45°, complete

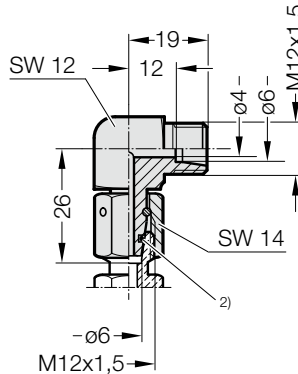


2) O-ring

2480.00.26.22



Adjustable threaded joint  
90°, complete

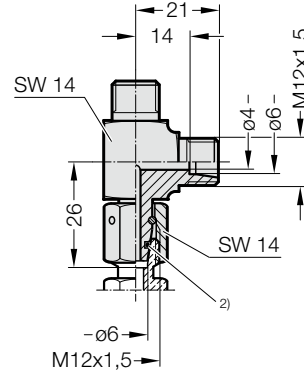


2) O-ring

2480.00.26.23



Adjustable L-Coupling,  
complete

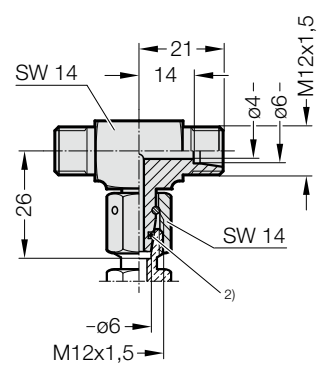


2) O-ring

2480.00.26.24



Adjustable T-Coupling,  
complete

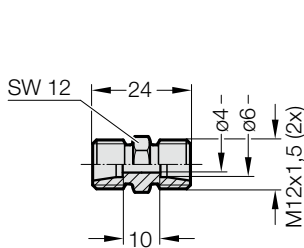


2) O-ring

2480.00.26.25



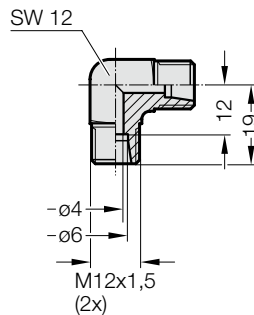
Adapter straight,  
hose to hose



2480.00.26.26



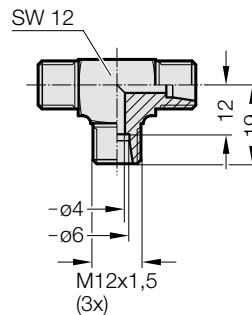
Adapter, 90°,  
hose to hose



2480.00.26.27



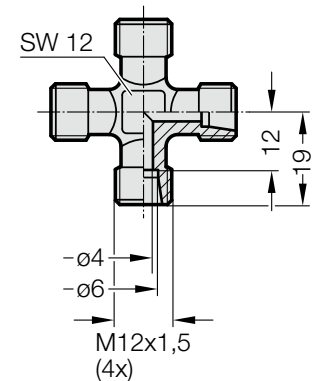
Adapter, T,  
hose to hose



2480.00.26.28



Adapter, K,  
hose to hose



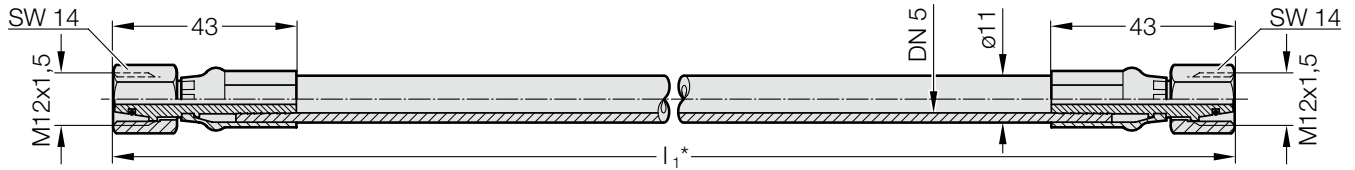
# GAS SPRING ACCESSORIES

## 24°-CONE CONNECTION HOSES

### (DIN 2353 / DIN EN ISO 8434-1)

2480.00.25.01.

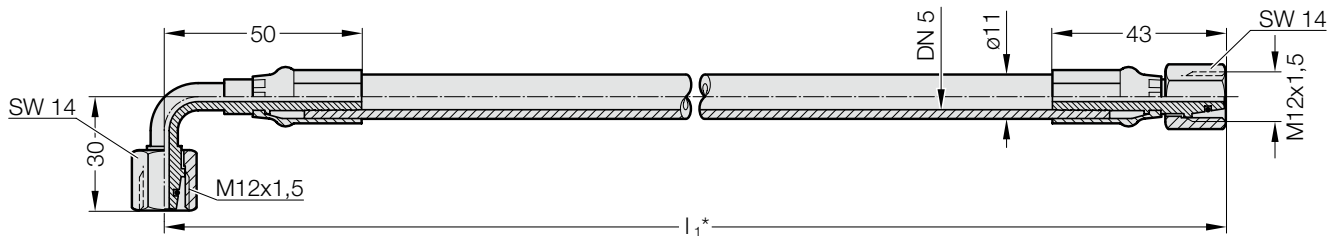
Hose – conical seals with union nuts and O-Ring (straight/straight)



Dimension  $l_1$  specified in the order, e.g. 765 mm gives order no. 2480.00.25.01.0765

2480.00.25.02.

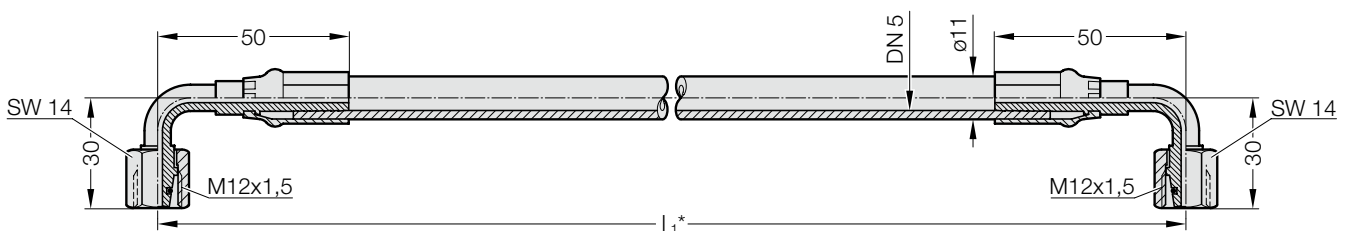
Hose – conical seals with union nuts and O-Ring (90° bend/straight)



Dimension  $l_1$  specified in the order, e.g. 765 mm gives order no. 2480.00.25.02.0765

2480.00.25.03.

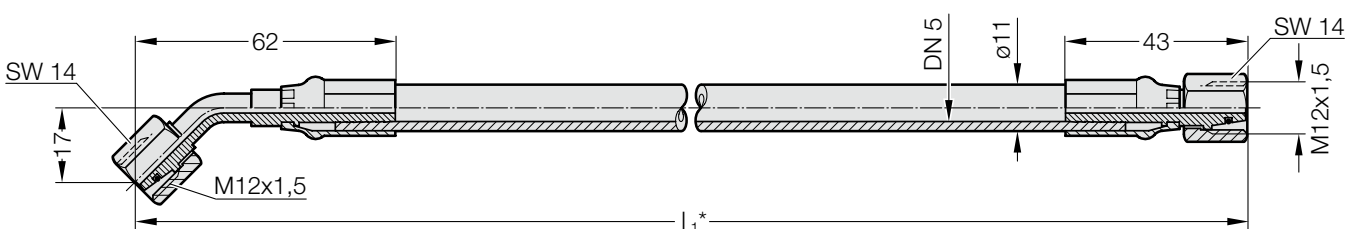
Hose – conical seals with union nuts and O-Ring (90° bend/both ends)



Dimension  $l_1$  specified in the order, e.g. 765 mm gives order no. 2480.00.25.03.0765

2480.00.25.04.

Hose – conical seals with union nuts and O-Ring (45° bend/straight)



Dimension  $l_1$  specified in the order, e.g. 765 mm gives order no. 2480.00.25.04.0765

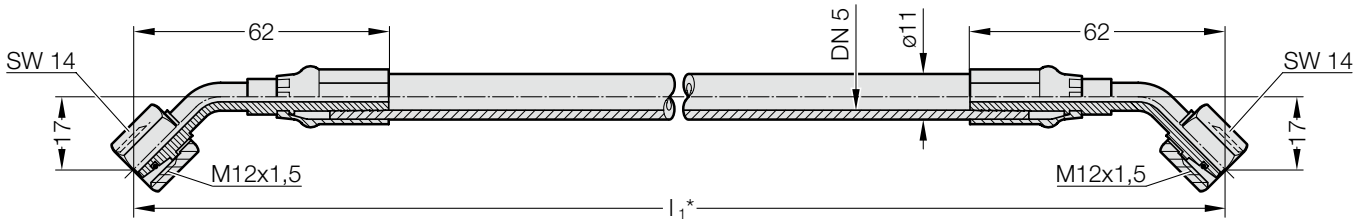
# GAS SPRING ACCESSORIES

## 24°-CONE CONNECTION HOSES

### (DIN 2353 / DIN EN ISO 8434-1)

2480.00.25.05.

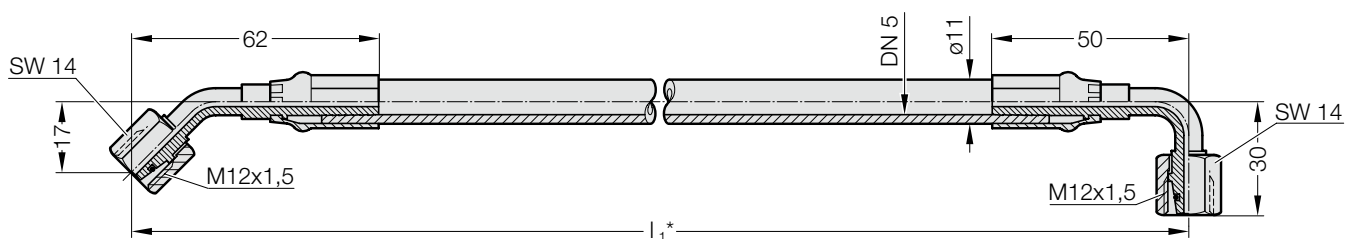
Hose – conical seals with union nuts and O-Ring (45° bend/both ends)



Dimension  $l_1$  specified in the order, e.g. 765 mm gives order no. 2480.00.25.05.0765

2480.00.25.06.

Hose – conical seals with union nuts and O-Ring (45° bend/ 90° bend)



Dimension  $l_1$  specified in the order, e.g. 765 mm gives order no. 2480.00.25.06.0765

#### Order example:

Shortest factory length: 140 mm  
Minimum bending radius: R40

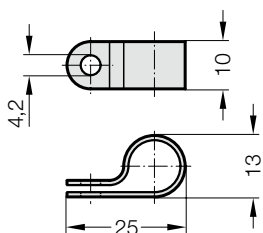
\*24°-cone connection hoses available in the following lengths:

- 5 mm step range = 1000 mm
- 10 mm step range > 1000 mm
- 100 mm step range > 4000 mm
- 500 mm step range > 6000 mm

#### 2480.00.25.12.01



Hose clamp for gauging hose  
DN5 (Ø11 mm)



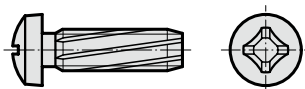
**Material:** Polyamide

**Note:**  
Supplied without screws

#### 2192.50.04.012



Self-tapping screw  
A M4x12 DIN 7516



**Note:**  
self-tapping,  
Diameter of hole for self-tapping  
screw = 3.6 mm

#### 2480.00.23.13.

Anti-scuff spiral  
for subsequent installation over hoses and tubing



Order No.	l in mm
2480.00.23.13.0001	1000
2480.00.23.13.0002	2000
2480.00.23.13.0005	5000
2480.00.23.13.0010	10000

Inner ø 7 mm max.  
For hose external ø 5-11 mm  
-30°C up to  
Temperature range +100°C

**Material:**

Polyamide

**Description:**



The anti-scuff spiral is used to protect against abrasion, is resistant to air, water, oil, hydraulic fluids petrol and other liquids.

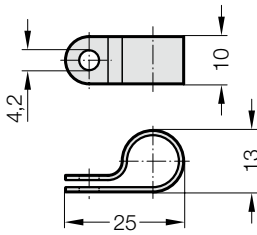


# GAS SPRINGS ACCESSORIES



## DIRECT CONNECTION DIMENSIONS

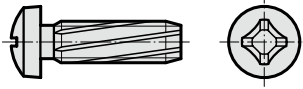
### 24°-CONE THREADED JOINT (DIN 2353 / DIN EN ISO 8434-1)

**2480.00.25.12.01**    
Hose clamp for gauging hose  
DN5 (Ø11 mm)





**Material:** Polyamide  
**Note:**  
Supplied without screws

**2192.50.04.012**    
Self-tapping screw  
A M4x12 DIN 7516



**Note:**  
self-tapping,  
Diameter of hole for self-tapping  
screw = 3.6 mm



**2480.00.23.13.**    
Anti-suff spiral  
for subsequent installation over hoses and tubing

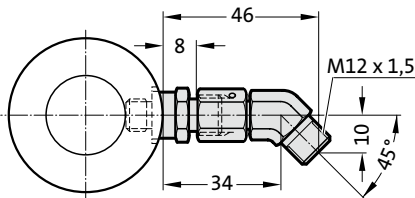




Order No.	l in mm
2480.00.23.13.0001	1000
2480.00.23.13.0002	2000
2480.00.23.13.0005	5000
2480.00.23.13.0010	10000

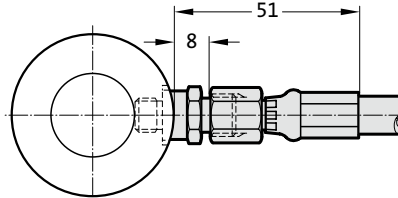
Inner ø 7 mm max.  
For hose external ø 5-11 mm  
-30°C up to  
Temperature range +100°C



**Material:**  
Polyamide  
**Description:**  
The anti-suff spiral is used to protect against abrasion, is resistant to air, water, oil, hydraulic fluids petrol and other liquids.

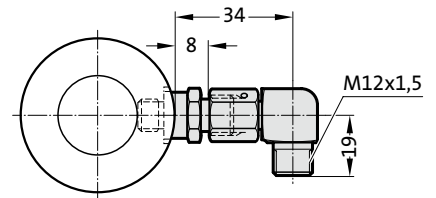
Direct connection  
with 45°-elbow adaptor  
2480.00.26.21  



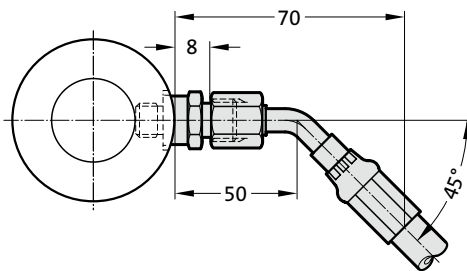
Direct connection  
hose straight  
adaptor 2480.00.26.03  



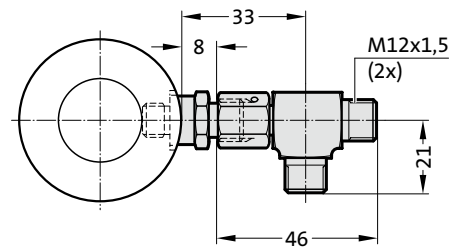
Direct connection  
with 90° elbow adapter  
2480.00.26.22  



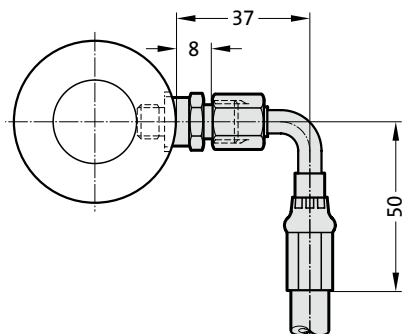
Direct connection  
45° hose with  
adaptor 2480.00.26.03  



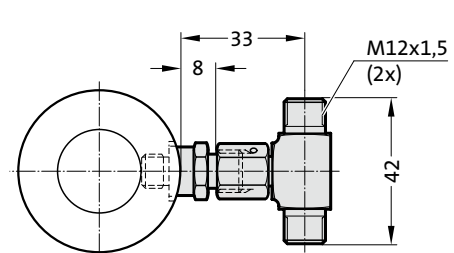
Direct connection  
with L-coupling  
2480.00.26.23  



Direct connection  
90° hose with  
adaptor 2480.00.26.03  



Direct connection  
with T-coupling  
2480.00.26.24  



# GAS SPRING ACCESSORIES

## CONNECTOR SYSTEM, 24° CONUS MICRO

2480.00.27.01

**M8x1 hose connector**

**Order example:**

Shortest factory length:

- 90 mm excl. bend protection
- 150 mm bend protection on one side
- 300 mm bend protection on both sides
- Minimum bending radius: R20

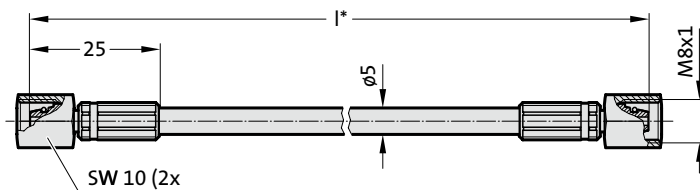
\*Measuring hose available in the following lengths:

- 5 mm step range ≤ 1000 mm
- 10 mm step range > 1000 mm
- 100 mm step range > 4000 mm
- 500 mm step range > 6000 mm

2480.00.27.01.

Connection hose, 24° conus micro, straight on both sides (connection hose, sealing cone with union nut and O ring)

Min. bending radius R20 mm



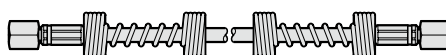
2480.00.27.01.....1

Antikink spiral, at one end



2480.00.27.01.....2

Antikink spiral, at both ends



**Ordering Code (example):**

M8x1 hose connector	=	2480.00.27.01	M8x1 hose connector	=	2480.00.27.01.
l = 90 mm	=	0090	l = 90 mm	=	0090.
			Bend protection on one side	=	1

2480.00.23.13.

Anti-scuff spiral  
for subsequent installation over hoses and tubing



Order No.	l in mm
2480.00.23.13.0001	1000
2480.00.23.13.0002	2000
2480.00.23.13.0005	5000
2480.00.23.13.0010	10000

Inner ø 7 mm max.  
For hose external ø 5-11 mm  
-30°C up to  
Temperature range +100°C

**Material:**

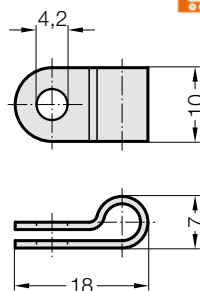
Polyamide

**Description:**

The anti-scuff spiral is used to protect against abrasion, is resistant to air, water, oil, hydraulic fluids petrol and other liquids.

2480.00.23.12.01

Hose clamp for gauging hose  
DN2 (Ø5 mm)



**Material:**

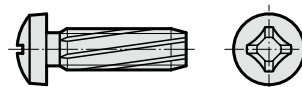
Polyamid

**Note:**

Supplied without screws

2192.50.04.012

Self-tapping screw  
A M4x12 DIN 7516



**Note:**

self-tapping, diameter of hole for self-tapping screw = 3.6 mm

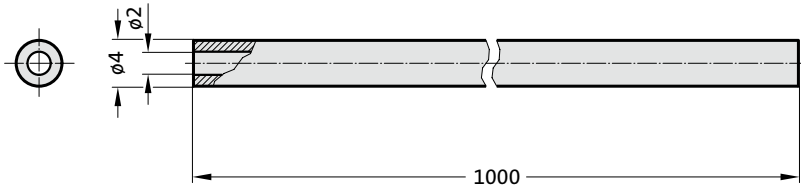
# GAS SPRING ACCESSORIES

## CONNECTOR SYSTEM, 24° CONUS MICRO

**2480.00.27.11**

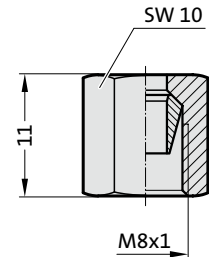
Pipe for 24° conus micro  
Delivered length: 1 m

Min. bending radius R12 mm (3 x external diameter)



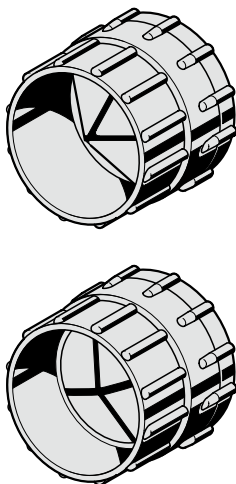
**2480.00.27.11.01**

Cutting ring screw connection, 24° cone micro



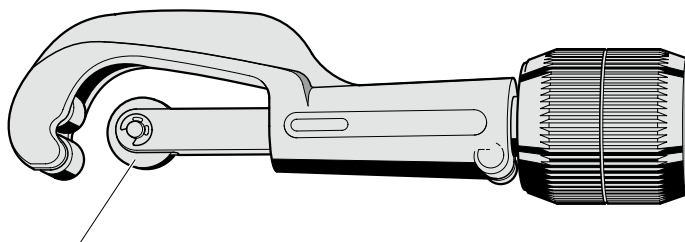
**2480.00.27.00.01**

Deburring tool for 24° conus micro



**2480.00.27.00.02**

Pipe cutter for 24° conus micro



**2480.00.27.00.02.1**

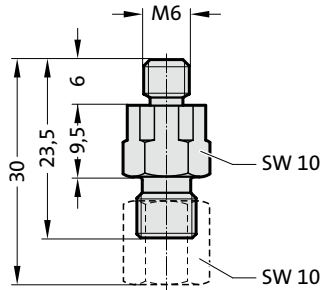
Replacement cutting wheel for pipe cutter

# GAS SPRING ACCESSORIES

## CONNECTOR SYSTEM, 24° CONUS MICRO

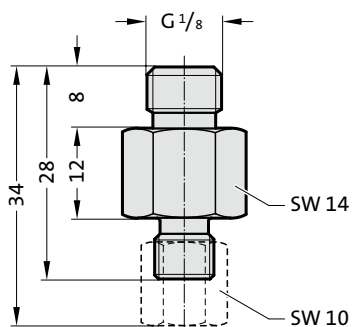
**2480.00.28.01**

Screw connection  
GE-M6-24° cone micro



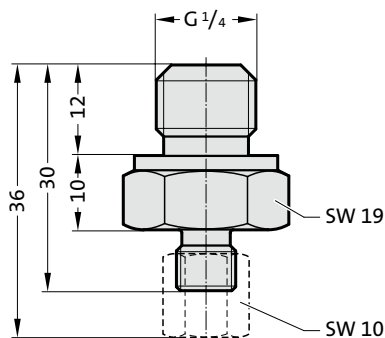
**2480.00.28.02**

Screw connection  
GE-G<sup>1</sup>/<sub>8</sub>-24° cone micro



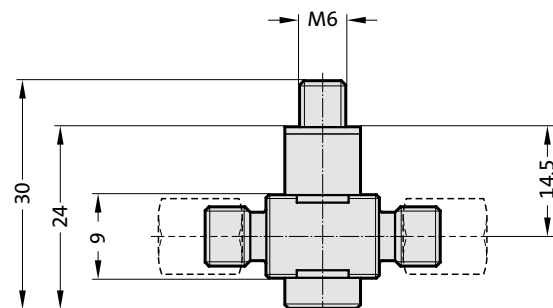
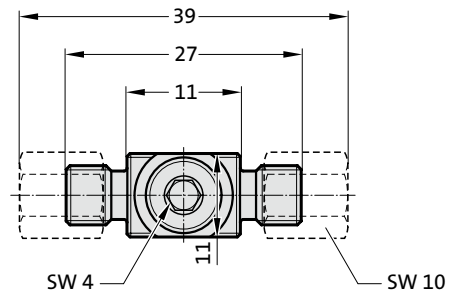
**2480.00.28.03**

Screw connection  
GE-G<sup>1</sup>/<sub>4</sub>-24° cone micro



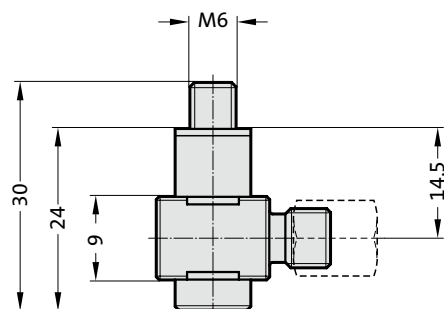
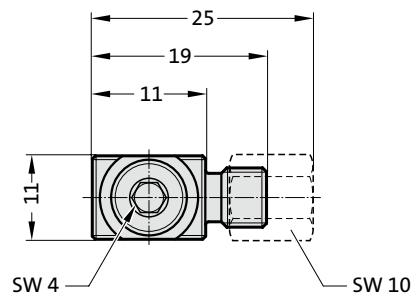
**2480.00.28.14**

Screw connection, T-24° conus micro



**2480.00.28.17**

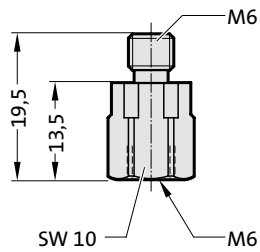
Screw connection, W-24° conus micro



## GAS SPRING ACCESSORIES CONNECTOR SYSTEM, MICRO

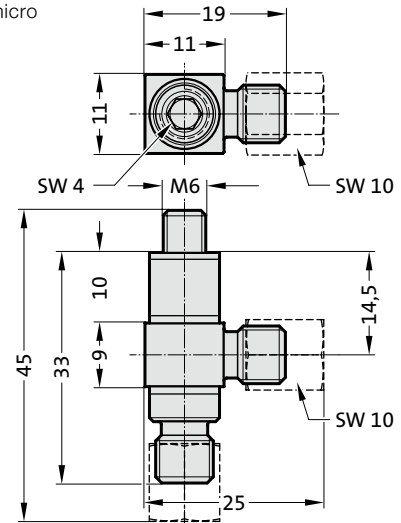
### 2480.00.22.06.06

Screw connection, GE-M6-M6 micro for connection to gas spring with divided wheel flange 2480.022.



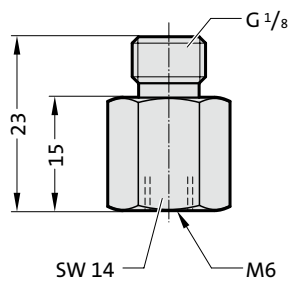
### 2480.00.28.15

Screw connection, L-24° conus micro



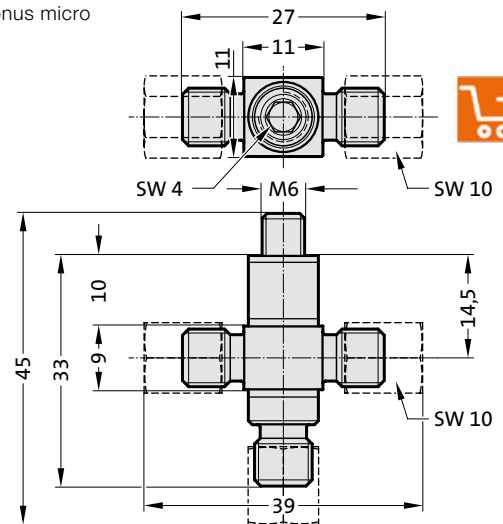
### 2480.00.22.18.06

Screw connection, GE-G<sup>1/8</sup>-M6 micro for 2480.00.28.14 / 2480.00.28.17



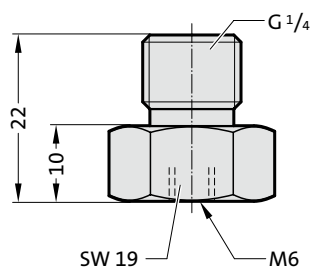
### 2480.00.28.16

Screw connection, K-24° conus micro



### 2480.00.22.14.06

Screw connection, GE-G<sup>1/4</sup>-M6 micro for 2480.00.28.14 / 2480.00.28.17

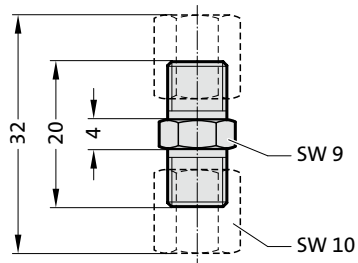


## GAS SPRING ACCESSORIES

### CONNECTOR SYSTEM 24° CONE MICRO

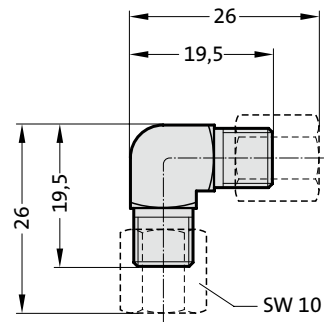
2480.00.28.25

Adapter, GE-24° cone micro  
hose – hose



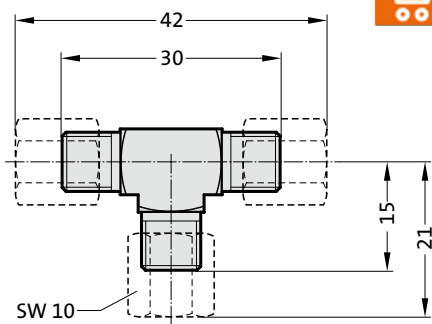
2480.00.28.26

Adapter, W-24° cone micro  
hose – hose



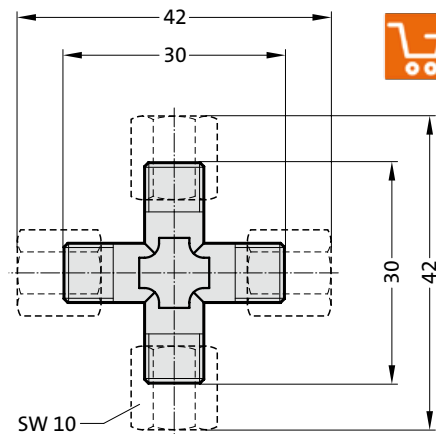
2480.00.28.27

Adapter, T-24° cone micro  
hose – hose



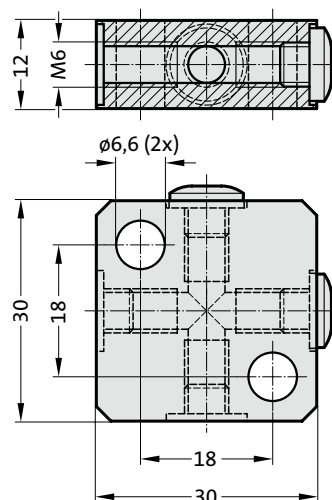
2480.00.28.28

Adapter, K-24° cone micro  
hose – hose



2480.00.28.34

Distributor block M6, 4 ports



# CONTROL FITTING WITHOUT PRESSURE RELIEF WITH PRESSURE RELIEF



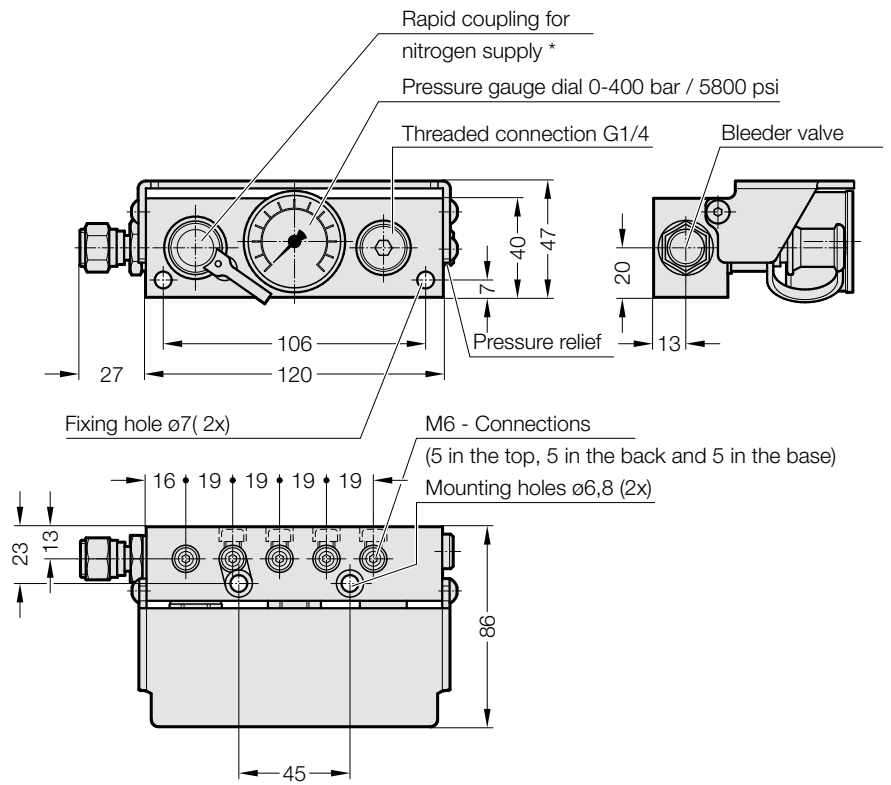
**Description:**

The micro control valve 2480.00.34.11.1/13.1 is used for continuous monitoring of the filling pressure of one or more gas springs (2 x 5 M6 connections, top, bottom and x 4 rear).

**Note:**

\* 2 m long filling hose  
Order no. 2480.00.31.02  
order separately

**2480.00.34.11.1 without pressure relief**  
**2480.00.34.13.1 with pressure relief**



# CONTROL FITTING



- 2480.00.30.01.1 without pressure switch, without pressure relief
- 2480.00.30.02.1 with pressure switch, without pressure relief
- 2480.00.30.03.1 without pressure switch, with pressure relief
- 2480.00.30.04.1 with pressure switch, with pressure relief

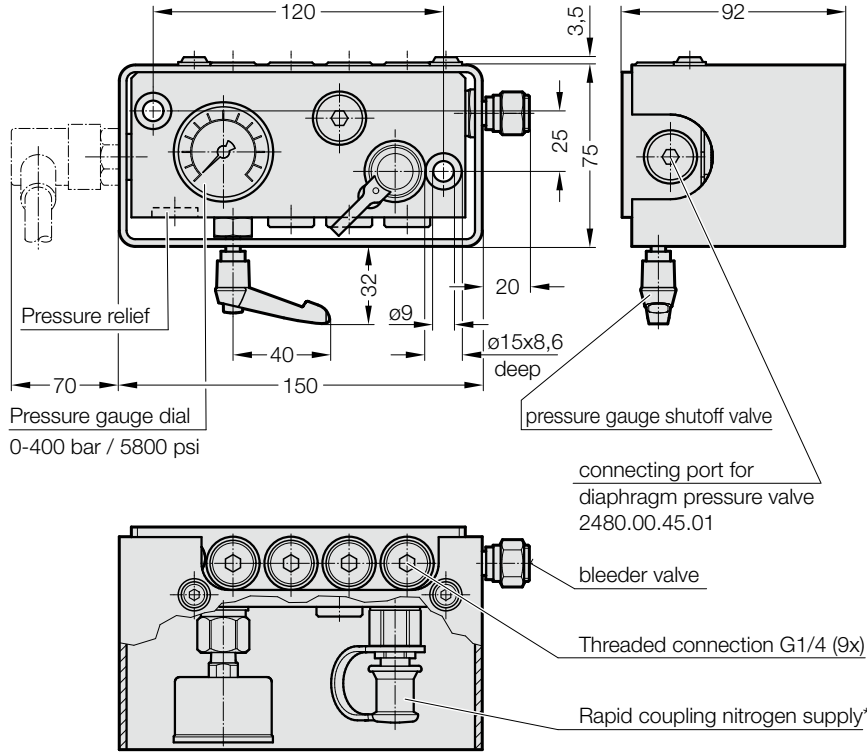
**Description:**

The control fitting 2480.00.30.01.1/02.1/03.1/04.1 serves to control the charge pressure of up to eight connected gas springs. Pressure checks during operation can be effected in two ways:

- a) via optical monitoring of the pressure gauge dial.
- b) via automatic monitoring with a diaphragm pressure switch. The switch will shut down the machine or trigger a signal.

**Note:**

The shut-off valve can be either open or closed during operation. Closing the pressure gauge shut-off valve ensures that no pressure pulsations from the gas springs act on the pressure gauge.  
 \* 2 m long filling hose  
 Order no. 2480.00.31.02 to be ordered separately



- 2480.00.31.01.1 without pressure switch
- 2480.00.31.06.1 with pressure switch
- 2480.00.31.07.1 without pressure switch and with pressure relief
- 2480.00.31.08.1 with pressure switch, with pressure relief

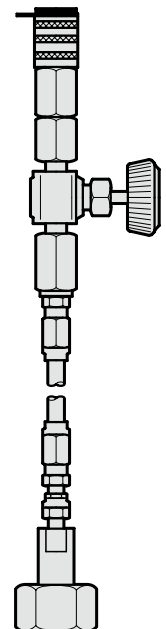
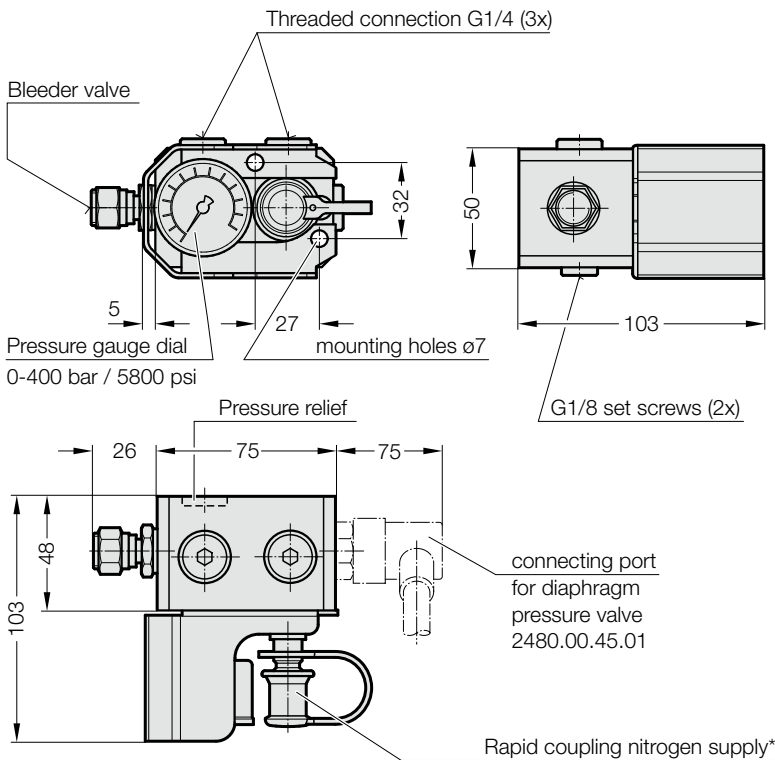


**Description:**

The control fitting 2480.00.31.01.1 performs the same function as the control armature 2480.00.30.01.1

**Note:**

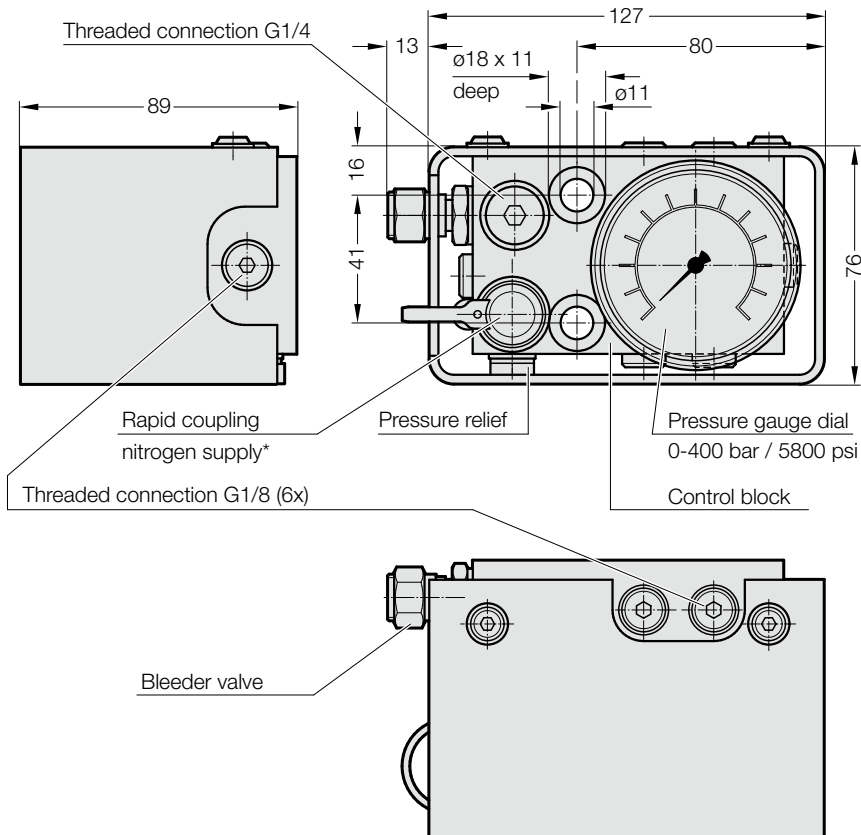
\* 2 m long filling hose  
 Order no. 2480.00.31.02 order separately





## CONTROL FITTING

### 2480.00.30.13.1 without pressure switch, with pressure relief



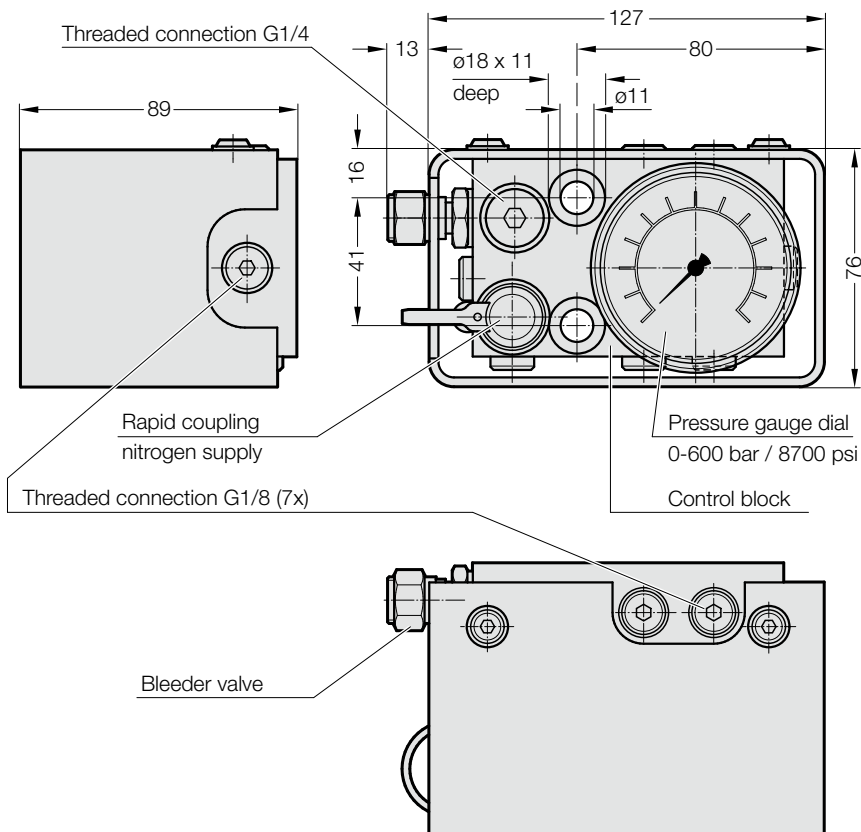
#### Description:

The control fitting 2480.00.30.13.1 is used to constantly monitor the filling pressure of one or more gas springs. The control fitting is equipped with rapid coupling for nitrogen supply and a bleeder valve. There are three G1/8 ports for simultaneous pressure checking at the control fitting. Measuring range from 0 - 400 bar / 5800 psi.

#### Note:

\* 2 m long filling hose  
Order no. 2480.00.31.02  
order separately

### 2480.00.30.14.1 (600 bar) without pressure switch, without pressure relief



#### Description:

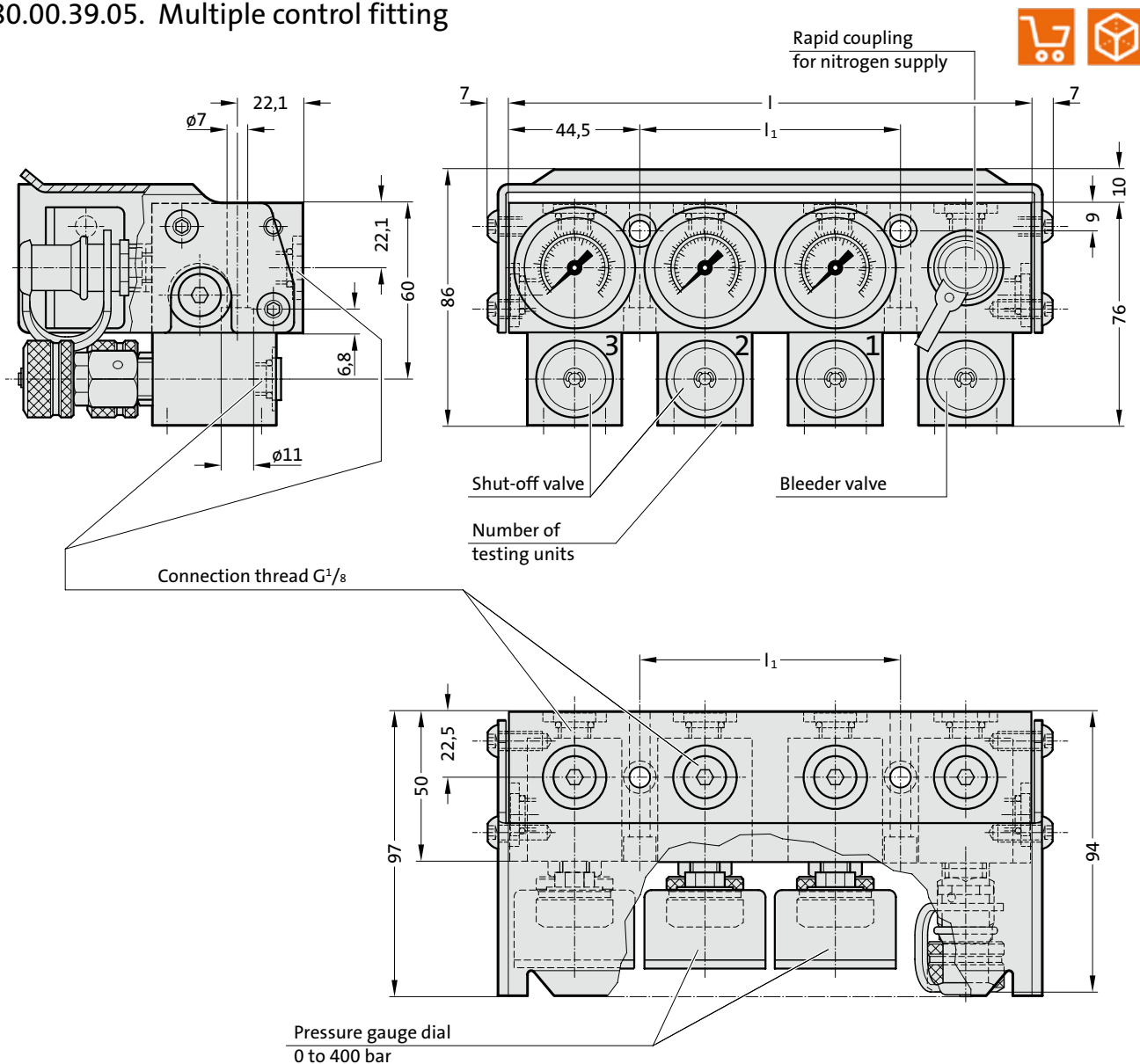
The control fitting 2480.00.30.14.1 is used for the constant monitoring of filling pressures > 150 bar of one or more gas springs. The control fitting is equipped with rapid coupling for nitrogen supply and a bleeder valve. There are three G1/8 ports for simultaneous pressure checking at the control fitting. Measuring range from 0-600 bar (8700 psi).

#### Note:

\* 2 m long filling hose  
Order no. 2480.00.31.02  
order separately

## MULTIPLE CONTROL FITTING

### 2480.00.39.05. Multiple control fitting



#### Description:

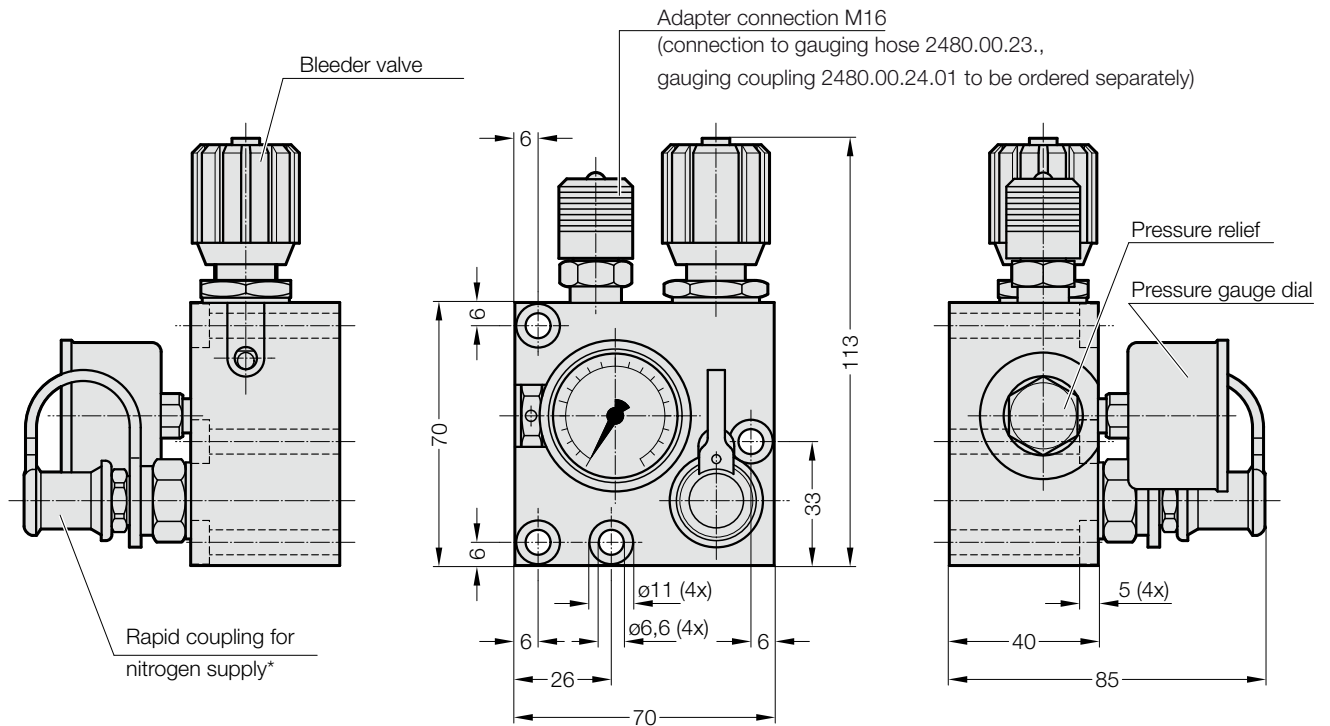
The multiple control fitting is required if it is necessary to check or set the filling pressure of each spring or spring assembly individually. The filling of the springs is done at a central position using the rapid coupling for nitrogen supply. Each testing unit is provided with three threaded connections for the optional hose connection. The cover protects against mechanical damages.

#### 2480.00.39.05. Multiple control fitting

Order No	Number of testing units	$l$	$l_1$
2480.00.39.05.02	2	133.5	44.5
2480.00.39.05.03	3	178	89
2480.00.39.05.04	4	222.5	133.5
2480.00.39.05.05	5	267	178
2480.00.39.05.06	6	311.5	222.5
2480.00.39.05.08	8	400.5	311.5
2480.00.39.05.10	10	489.5	400.5

# CONTROL FITTING

2480.00.31.11.1



**Description:**

The control fitting with pressure relief 2480.00.31.11.1 (Faure) is used for the continuous monitoring of the filling pressure of one or more gas pressure springs (one connection G1/8–M16). The pressure check during operation can be carried out by optical monitoring of the manometer display.

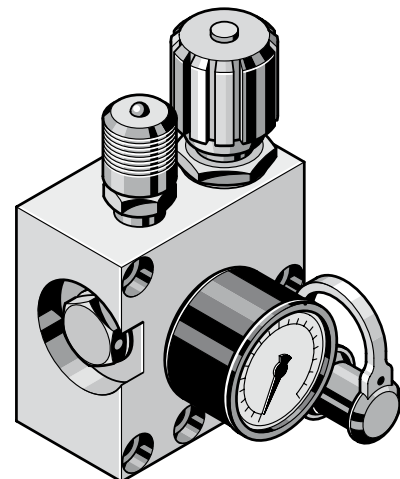
**Note:**

To connect measuring hose system 2480.00.23., remove M16 connection adapter and screw in the measuring coupling with valve 2480.00.24.01 (to be ordered separately).

With a composite arrangement of the gas springs, always remove the valve from the gas spring.

\* 2 m long filling hose

Order no. 2480.00.31.02 to be ordered separately



# DIAPHRAGM PRESSURE SWITCH ADAPTER BLOCK SCREW CONNECTION GE-G1/4-G1/8

## Technical data

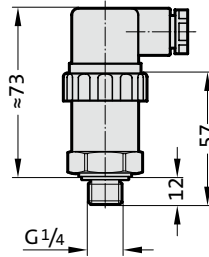
2480.00.45.01

## Diaphragm pressure switch

2480.00.45.02



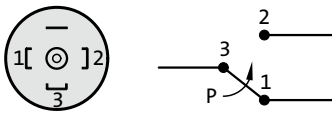
2480.00.45.01	
Setting range	20-250 bar
Tolerance	±5.0 bar
Overpressure protection	350 bar
max. voltage	250 V
2480.00.45.02	
Setting range	10-80 bar
Tolerance	±1.6 bar
Overpressure protection	350 bar
max. voltage	250 V



### Note:

For individual monitoring of springs  
see adapter 2480.00.45.10

Wiring diagram for diaphragm pressure switch

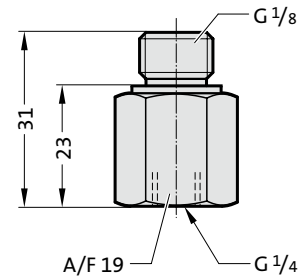
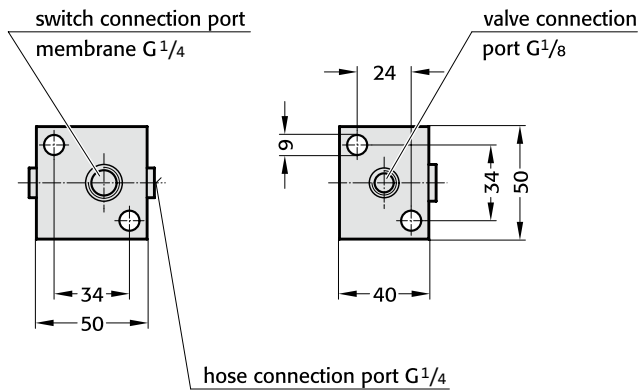


2480.00.45.10

2480.00.45.00.01.18.14

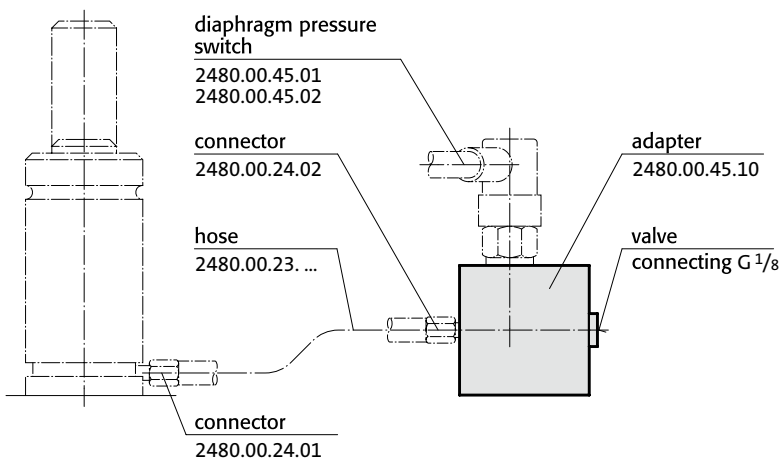


Screw connection GE - G 1/8 - G 1/4 for control  
valve with screw connection G 1/8



## Mounting example:

## Description:

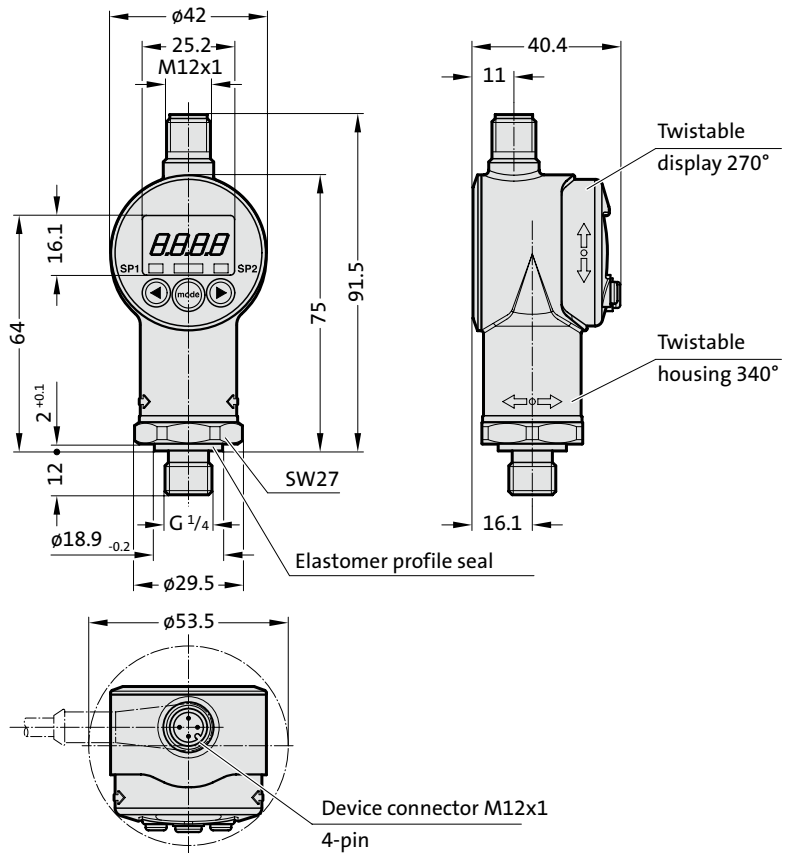


The adapter 2480.00.45.10, in combination with the diaphragm pressure switch 2480.00.45.01 or 2480.00.45.02, permits filling pressure monitoring similar to the control fittings 2480.00.30.02. When the filling pressure falls below a certain level, the diaphragm pressure switch issues a signal or switches the machine off.

# DIAPHRAGM PRESSURE SWITCH, DIGITAL



2480.00.45.05



## Pin assignment:

M12x1, 4-pin



Pin

1	+UB
2	Analogue
3	0 V
4	SP1

## Note:

2191.00.12.04.030 connecting cable, straight 3 m long, to be ordered separately.

## Description:

The diaphragm pressure switch, digital 2480.00.45.05 is a compact, electronic pressure switch with integrated digital display for relative pressure measurement in the high pressure range.

For this purpose, it has a stainless steel measuring cell with thin film strain gauge (DMS).

The device offers a switching output and a switchable analogue output signal (4 ... 20 mA resp. 0 ... 10 V).

## Advantages:

- 1 PNP transistor output, loadable up to 1.2 A
- Precision  $\leq \pm 1\%$  FS
- Switchable analogue output (4 ... 20 mA / 0 ... 10 V)
- 4-digit digital display
- Optimal alignment by twisting in two axes
- Switching direction of the switch outputs adjustable (opening or closing function)
- Value display in bar, psi or MPa or freely scalable, for example, force
- Easy handling via button programming
- Switching points and reset hysteresis independently adjustable

## Technical data:

### Input characteristics:

Measuring range	400 bar
Overload range	800 bar
Burst pressure	2000 bar
Mechanical connection	G1/4
Tightening torque	20 Nm
Media-contacting parts	Connection piece: Stainless steel seal: FPM (G1/4 A DIN 3852)

### Output parameters:

Precision according to DIN 16086	$\leq \pm 0.5\%$ FS typical
Limit point adjustment (display, analogue output)	$\leq \pm 1\%$ FS max.
Reproducibility	$\leq \pm 0.25\%$ FS max.
Temperature drift	$\leq \pm 0.025\%$ FS / °C max. Zero point $\leq \pm 0.025\%$ FS / °C max. range

### Analogue output:

Signal selectable:	4 ... 20 mA load max. 500 $\Omega$
	0 ... 10 V load min. 1 k $\Omega$

### Switching outputs:

Version	PNP transistor switching output
Switching current	max. 1.2 A
Operating temperature range	0° - 80 °C
CE mark	EN 61000-6-1 / 2 / 3 / 4
Protection class according to DIN 40050	IP67

### Setting ranges for the switching outputs:

Switching function	Measuring range	Switching point	Hysteresis	Increment*
Window function	Measuring range	Lower	Upper	Increment*
	in bar	Switching value	Switching value	in bar
	0 ... 400	in bar	in bar	in bar
		6.0 ... 392	9.0 ... 396	1

\* All areas specified in the table are adjustable in the grid of the step width.