

## MS11 || Contact Pressure Gauge (for heavy measuring conditions)

### Application

Contact pressure gauge, especially suited for heavy measuring conditions, e.g. in case of pressure shocks, vibration, numerous or exacting breaking capacity. The separated drive of the indication and switching function guarantees a high operation safety.

The pressure chamber and the measuring diaphragm are available in different materials to meet various requirements.

### Application Fields

- winning of drinking water
- process technology
- terotechnology
- water economy
- pneumatic transporter

### Construction and Operation

The measuring system is based on a rugged and uncomplicated diaphragm movement, suitable for overpressure and partial vacuum pressure measurements. In a state of equilibrium, the forces of the springs on both sides of the diaphragm are balanced. The pressure to be measured creates an unbalanced force at the diaphragm. This force moves the diaphragm system against the force of the springs for the measuring range until a new equilibrium is reached.

When subjected to excessive pressure, the diaphragm rests on metal supporting plates. A centre-mounted tappet transfers the motion of the diaphragm system to the indicator movement and to the initiating elements of the microswitches.

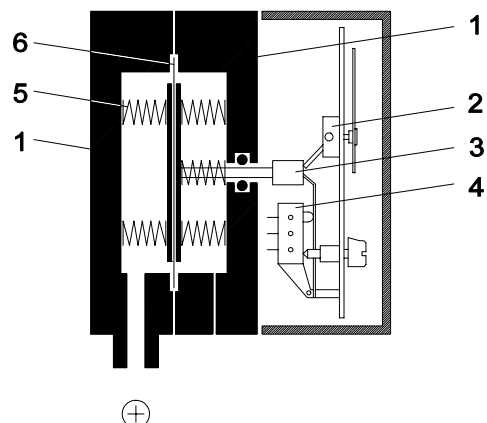
### Functional Scheme

1. Pressure chamber
2. Motion work
3. Tappet
4. Micro switches, operating elements
5. Measuring springs
6. Measuring diaphragm



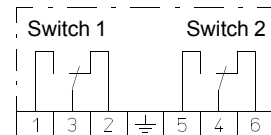
### Main Features

- 2 change-over microswitches
- high repeatability
- switching function independent of the indication
- vibration resistant
- long service life
- rugged diaphragm system
- all measuring ranges overpressure proof to 25 bar

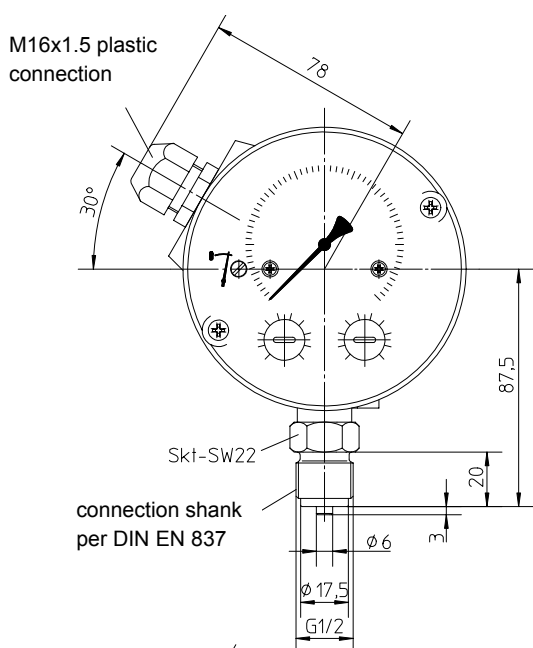


## Specifications

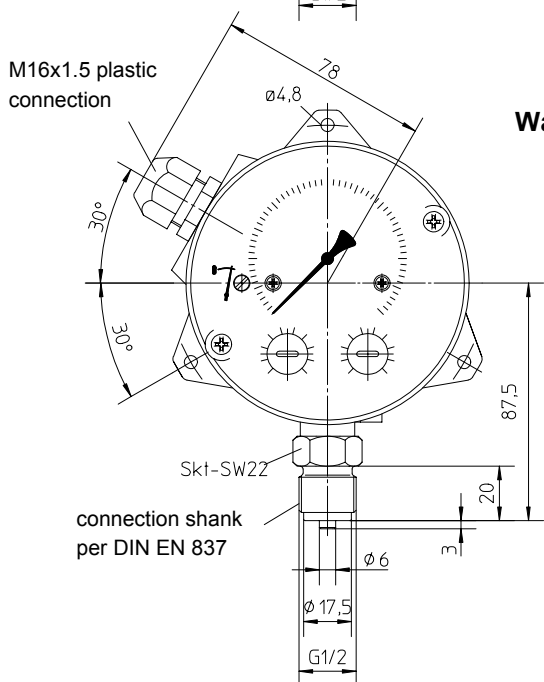
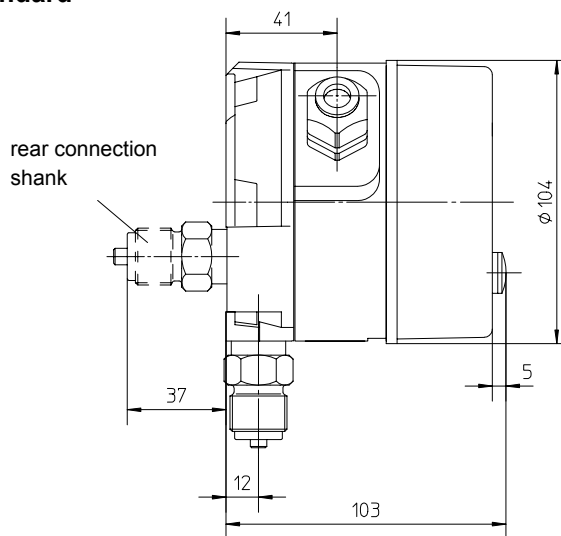
|                              |  |  |
|------------------------------|--|--|
| <b>General</b>               |  |  |
| Measuring range              | 0 ... 400 mbar up to 0 ... 25 bar (s. Ordering Code)   |  |
| Nominal pressure             | 25 bar   |  |
| Max. pressure                | overpressure proof to nominal pressure (all measuring ranges), safe against negative pressure                                |  |
| Perm. ambient temperature    | -10 ... +70°C  |  |
| Perm. media temperature      | 70°C   |  |
| Degree of protection         | IP54 per DIN EN 60529  |  |
| Mounting position            | vertical, pressure port downward (rear)  |  |
| Accuracy                     | ± 1.6% FS  |  |
| Adjustment of zero point     | located in the dial  |  |
| <b>Measuring System</b>      |  |  |
| Measuring ranges ≤ 16 bar    | diaphragm measuring system, diaphragm of reinforced elastomere   |  |
| Measuring range 0-25 bar     | diaphragm measuring system, diaphragm of DURATHERM®  |  |
| <b>Switching Points</b>      |  |  |
| Output contacts              | 1 or 2 micro switches, 1-pole changing contacts  |  |
| Setting of switching points  | adjustable by reference value scale<br>smallest adjustable value: approx. 5% FS  |  |
| Switching hysteresis         | approx. 2.5% of FS   |  |
| Load / contact               | $U_{\sim \max.} = 250 \text{ V AC}$ $I_{\max.} = 5 \text{ A}$<br>$U_{= \max.} = 30 \text{ V DC}$ $I_{\max.} = 0.4 \text{ A}$ | $P_{\max.} = 250 \text{ VA}$<br>$P_{\max.} = 10 \text{ W}$ |
| <b>Electrical Connection</b> | prewired numbered cable, cable terminal box, 7-pole plug connection  |  |
| <b>Pressure Connection</b>   | connection shank G½ B DIN EN 837   |  |
| <b>Materials</b>             |  |  |
| Pressure chamber             | aluminium GkAlSi10(Mg), varnished black<br>aluminium GkAlSi10(Mg) HART-COAT®<br>stainless steel 1.4305                       |  |
| Measuring diaphragm          | diaphragm and gaskets of NBR or Viton®<br>diaphragm of DURATHERM® Ni Cr Co-alloy   |  |
| Materials, media             | stainless steel 1.4310, 1.4305   |  |
| Materials, housing           | macrolon   |  |
| Weight                       | pressure chamber of Al = 1.2 kg, pressure chamber of 1.4305 = 3.5 kg   |  |
| <b>Approval</b>              | type examination according to the rules of 'Germanischer Lloyd' possible   |  |
| CE marking                   | according to applicable regulations  |  |
| <b>Mounting</b>              |  |  |
| pipe mounting:               | connection shank per DIN EN 837<br>bottom or rear pressure connection  |  |
| wall mounting:               | 3 fastening elements, bottom pressure connection   |  |
| panel mounting:              | with front ring ø 132 mm, bottom or rear pressure connection<br>(accessory DZ11)   |  |



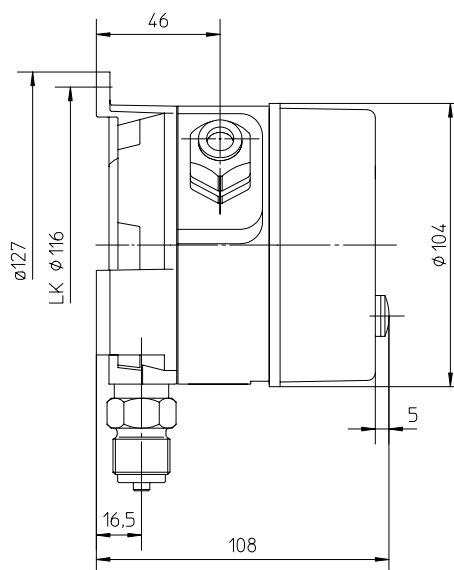
**Dimensions** (all units in mm unless stated otherwise)



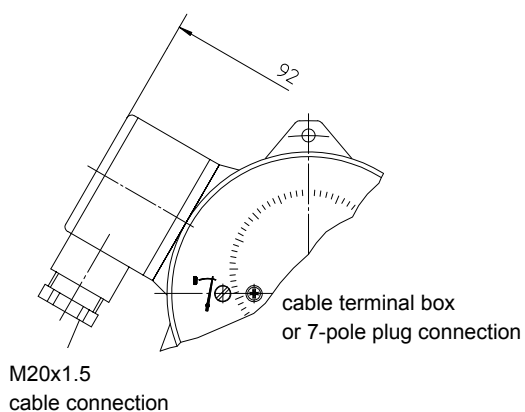
**MS11  
Standard**



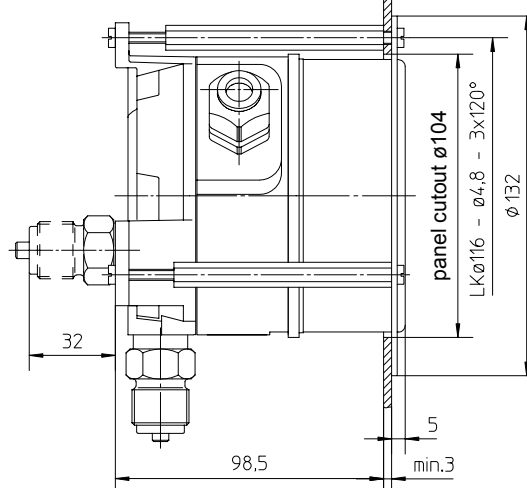
**MS11  
Wall mounting**



**Electrical connections**



**MS11 Panel mounting**



## Ordering Code

### Contact Pressure Gauge

MS11

|  |  |  |  |   |  |  |  |
|--|--|--|--|---|--|--|--|
|  |  |  |  | 0 |  |  |  |
|--|--|--|--|---|--|--|--|

#### Measuring Range

|                       |   |   |  |  |  |  |  |
|-----------------------|---|---|--|--|--|--|--|
| 0 ... 400 mbar.....>  | 8 | 3 |  |  |  |  |  |
| 0 ... 0.6 bar.....>   | 0 | 1 |  |  |  |  |  |
| 0 ... 1 bar.....>     | 0 | 2 |  |  |  |  |  |
| 0 ... 1.6 bar.....>   | 0 | 3 |  |  |  |  |  |
| 0 ... 2.5 bar.....>   | 0 | 4 |  |  |  |  |  |
| 0 ... 4 bar.....>     | 0 | 5 |  |  |  |  |  |
| 0 ... 6 bar.....>     | 0 | 6 |  |  |  |  |  |
| 0 ... 10 bar.....>    | 0 | 7 |  |  |  |  |  |
| 0 ... 16 bar.....>    | 0 | 8 |  |  |  |  |  |
| 0 ... 25 bar.....>    | 0 | 9 |  |  |  |  |  |
| -0.6 ... 0 bar.....>  | 3 | 0 |  |  |  |  |  |
| -1 ... 0 bar.....>    | 3 | 1 |  |  |  |  |  |
| -1 ... +0.6 bar.....> | 3 | 2 |  |  |  |  |  |
| -1 ... +1.5 bar.....> | 3 | 3 |  |  |  |  |  |
| -1 ... +3 bar.....>   | 3 | 4 |  |  |  |  |  |
| -1 ... +5 bar.....>   | 3 | 5 |  |  |  |  |  |
| -1 ... +9 bar.....>   | 3 | 6 |  |  |  |  |  |

#### Membrane /

|            |  |   |
|------------|--|---|
| NBR        | NBR (all ranges up to 16 bar).....>    | N |
| Viton®     | Viton® (all ranges up to 16 bar).....> | V |
| DURATHERM® | NBR (range 0-25 bar only).....>        | D |
| DURATHERM® | Viton® (range 0-25 bar only).....>     | E |

#### Gasket

#### Pressure Chamber

|                                  |   |
|----------------------------------|---|
| Aluminium.....>                  | A |
| Aluminium HART-COAT®.....>       | D |
| Chrome-nickel-steel 1.4305.....> | W |

#### Type

|  |   |
|--|---|
| Bottom pressure connection G½ B.....>                                | 0 |
| Rear pressure connection G½ B.....>                                  | H |
| Wall mounting, pressure connection G½ B.....>                        | B |
| Front ring for panel mounting, bottom pressure connection G½ B.....> | G |
| Front ring for panel mounting, rear pressure connection G½ B.....>   | L |

#### Switching Elements

|                                 |   |
|---------------------------------|---|
| 1 adjustable micro switch.....> | A |
| 2 adjustable micro switch.....> | B |

#### Electrical Connection

|                                      |   |
|--------------------------------------|---|
| 1 m numbered cable, prewired.....>   | 1 |
| 2.5 m numbered cable, prewired.....> | 2 |
| 5 m numbered cable, prewired.....>   | 5 |
| Cable terminal box.....>             | K |
| 7-pole plug connection.....>         | W |