Standard Bourdon Tube Pressure Gauge

FISCHER
MESS- UND REGELTECHNIK

Type MA 11

Application

The standard pressure gauge MA11 for overpressure and vacuum can be used for liquid and gaseous media, except those having a high viscosity or are liable to crystallize.



Application Fields

- Machinery and terotechnology
- Hydraulic systems
- Pneumatic systems
- Heating installations and air conditioning
- Environmental technology

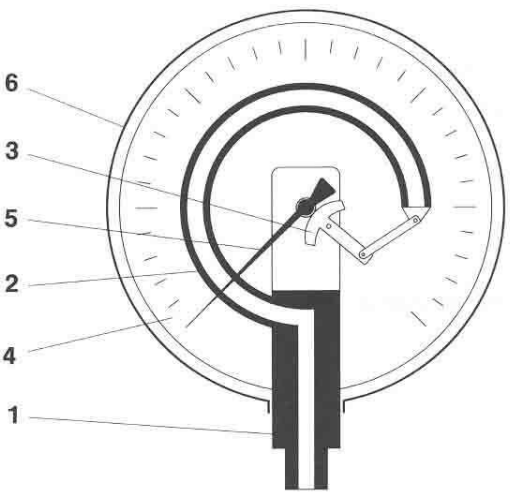
Construction and Operation

The measured pressure is transferred into the measuring element via the connection thread. Due to the pressure admission an elastic deformation occurs, leading to a movement of the measuring element.

This movement is converted into a pressure-proportional pointer deflection via the motion work. The measuring element and the connection thread is one construction, together with the motion work and the scale. Therefore the measuring system is autonomical against forces acting on the case.

Internal spring stops limit the pointer deflection up to 270 angular degrees.

Functional Diagram



1 Connection thread
2 Measuring element
3 Movement
4 Dial
5 Pointer
6 Case

Subject to technical changes

Technical Data

Measuring ranges	0 to 0.6 bar ... 0 to 600 bar acc. to DIN 16064 ref. to order code
Max. pressure load	1.3 x the measuring end value (for short time)
Accuracy	class 1.0 acc. to DIN 16005
Temperature fault / 20 °C	increasing per 10 °C + 0.3% falling per 10 °C – 0.3%
Ambient temperature	–25 °C to 60 °C
Media temperature	max. 60 °C (measuring ranges ≦ 40 bar) max. 100 °C (measuring ranges ≧ 60 bar)
Protection class	IP 54 acc. to DIN 40050
Perm. range of application	in case of permanent load: end value of scale in case of alternating load: 0.9fold end value of scale
Pressure connections	lower connection BSP ½" acc. to DIN 16288 back connection BSP ½" excentrical acc. to DIN 16288

Materials

Measuring system	brass / bronce (ranges ≦ 40 bar) brass / stainless steel CrNi 1.4571 (ranges ≧ 60 bar)
Case	steel, black lacquered
Movement	brass
Dial	aluminium
Pointer	aluminium

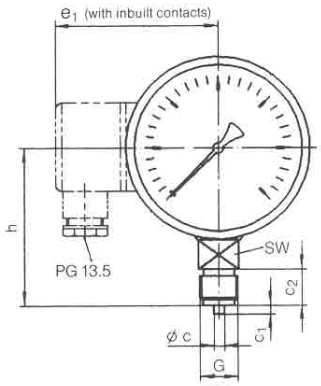
Optional Equipments

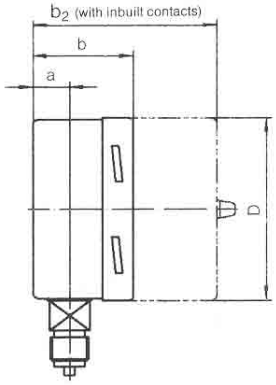
Electrical equipment	Contact modules / transducers (mechanical creep-, magnetic- or inductive contacts) as well as capacitive swing angle transformers with angle-proportional output signals can be integrated within the case which has been enlarged by means of an adequate high bayonet-type face ring. Electrical accessories acc. to datasheet KE ...
Liquid filling	In case of aggravated operating conditions like vibrations and pressure oscillations, or against condensation in case of outdoor-installation, the case can be filled with damping liquid.
Marking pointer	Adjustable pointer for signal marking behind the window.
Drag pointer	The drag pointer is carried by the measuring indicator. Between the two pointers does not exist a fixed connection, e.g. once reached maximum values are accumulated. Via an adjusting knob in the window the drag pointer can be readjusted.

Installation / Mounting	Screwed tube connection via cutting- or clamping ring connection or direct screwing to the tube by means of appropriate connecting parts and sealing materials. Wallmounting with back flange or gauge support MZ 31 ... Panelmounting via frontring.
Accessories	Couplings to further thread diameters, tube connecting screwing, solder- and welding fittings, shut-off valves, siphons, manifolds etc. acc. to datasheet MZ ...

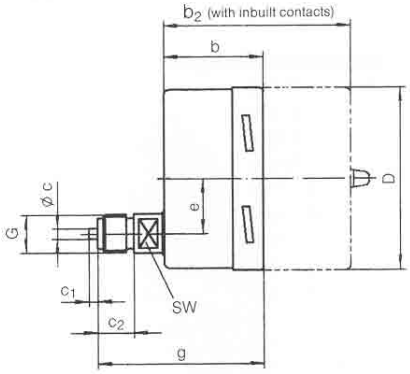
Dimensioned Drawings

Standard variant connection below

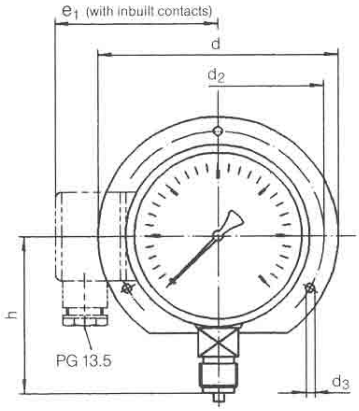


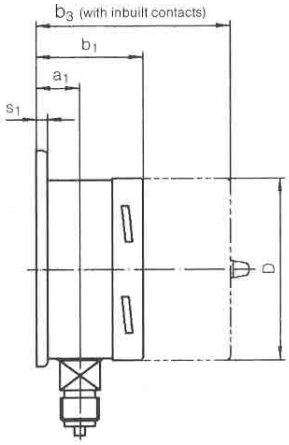


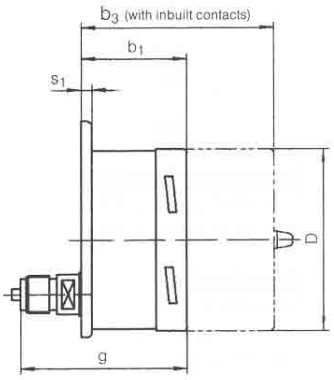
Back connection



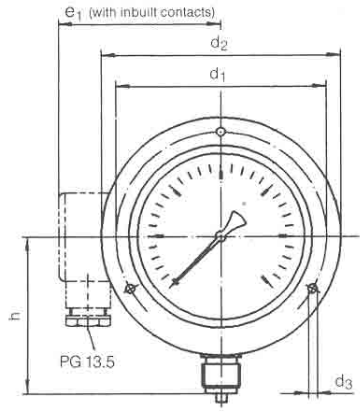
Variant with back flange

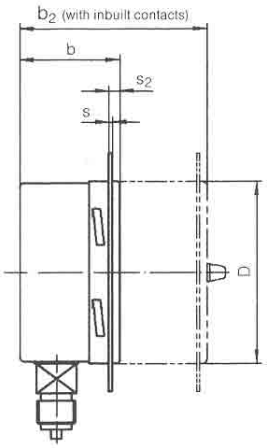


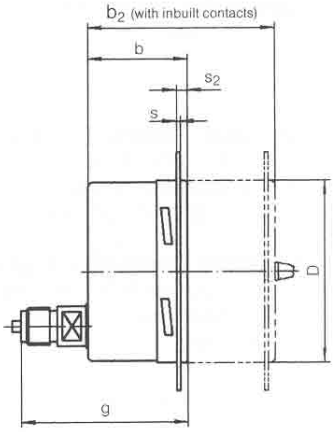




Variant with front ring







NG	D	a	a_1	b	b_1	b_2	b_3	c	c_1	c_2	d_1	d_2	d_3	e	e_1	g	G	h±1	s	s_1	s_2	SW	SW_1
100	101	20	23,5	55	58,5	103	106,5	6	5	20	116	132	4,8	30	89	97	G1/2A	87	2	6	6	22	17
160	161	15,5	19	50,5	54	98,5	102	6	5	20	178	196	5,8	52	119	92,5	G1/2A	118	2	6	6	22	17

Ordering Code

Standard Bourdon Tube Gauge Type MA11

					0	0				0

Measuring Ranges

0 – 0.6 bar	▷ 0 1
0 – 1.0 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 – 40 bar	▷ 1 0
0 – 60 bar	▷ 1 1
0 – 100 bar	▷ 1 2
0 – 160 bar	▷ 1 3
0 – 250 bar	▷ 1 4
0 – 400 bar	▷ 1 5
0 – 600 bar	▷ 1 6
– 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
– 1 ... 15 bar	▷ 3 7

Measuring Indication

Bayonet case ø 100	▷ D
Bayonet case ø 160	▷ E

Construction

Standard	▷ O
Front ring for panel mounting	▷ G
Back flange	▷ B

Pressure Connection

Thread BSP 1/2 below	▷ 8 2
Thread BSP 1/2 back	▷ 9 2

Optional: Liquid Filling

Without liquid filling	▷ 0
Damping liquid glycerine	▷ 1
Damping liquid in case of inbuilt contacts	▷ 2

Optional: Special Functions

Without special functions	▷ 0
Adjustable marking pointer	▷ 1
Readjustable drag pointer (measuring ranges ≧ 1 bar)	▷ 2

Optional: Contacts – Transducers

Without contacts / transducers	▷ 0
Inbuilt contacts acc. to datasheet KE ... (for measuring ranges ≧ 1 bar)	▷ 1
Inbuilt capacitive electrical position transducer acc. to datasheet KE ... (for measuring ranges ≧ 1 bar)	▷ 2

Klaus Fischer · Meß- und Regeltechnik GmbH · Bielefelder Str. 37 a · D-32088 Bad Salzuflen · Tel. (0 52 22) 9 74-0 · Fax (0 52 22) 71 70