FISCHER MESS- UND REGELTECHNIK

Data Sheet

MA13 | Chemistry Bourdon-Tube Manometer

Main Features

- Noncorrosive materials
- Robust mechanical construction
- Can be equipped with limit signal transmitters or angular position measuring transducers.
- Available as safety model

Areas of Application

- Chemical industry
- Process engineering
- Mechanical and plant engineering
- Environmental technology

Design and Mode of Operation

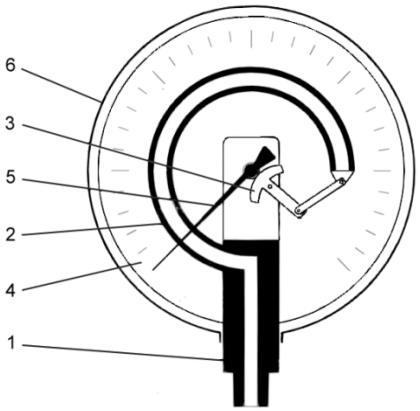
The MA13 manometer for overpressure and underpressure fulfils high technical requirements regarding corrosion resistance and robustness. It is suitable for the measurement of fluid and gaseous media that are not highly viscous or crystallizing.

The fluid or gas at the pressure to be measured is channeled into the meter through the connecting shank. This application of pressure causes the measuring element to deform elastically and thus to move. This movement, transformed by the motion train, deflects the needle proportionately to the pressure. Together with the motion train, needle and dial, the measuring element and the connecting shank comprise a physical unit. This makes the measuring system independent of forces acting on the housing. Internal arrester supports limit the needle deflection to 270°.

Accident prevention regulations and miscellaneous laws demand that certain processes have a safety meter. These requirements are fulfilled by the 'safety meter', the characteristics of which are:

- Housing rear panel can blow out
- Window made of laminated safety glass
- Break-proof separating plate between measuring element and dial
- Designation S3

Functional Schematic



1 Connecting shank
2 Measuring element
3 Motion train
4 Dial
5 Needle
6 Housing

FISCHER
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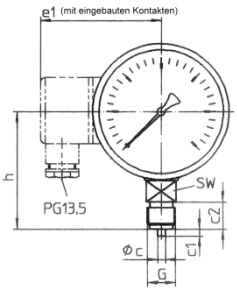
Technical Data

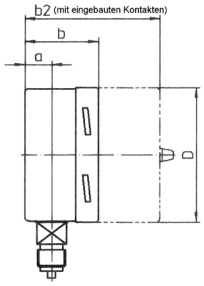
General	
Construction	The metermeets the requirements of DIN EN 837-1
Measuring ranges	0...0.6 bar to 0...600 bar (see ordering code)
Max. pressure load	1.3 x Upper range value (momentary)
Display accuracy	Class 1.0
Temperature error (at 20°C)	±0.3% / 10°C
Permissible ambient temperature	-25°C to 60°C
Permissible medium temperature	Max. 100°C
Measured value display	Round housing Ø 100 or 160 mm Safety housing Ø 100 or 160 mm
Protection class	IP65 in accordance with DIN 60 529
Permissible application temperature with static load with alternating load	 Scale upper value 0.9 x Scale upper value
Pressure Connections	
Round housing	Connecting shanks G½ below Connecting shanks G½ rear
Safety manometer S3	Connecting shanks G½ below only
Materials	
Measuring system	CrNi steel 1.4571
Housing	CrNi steel 1.4301
Connecting shanks	CrNi steel 1.4571
Motion train	CrNi steel 1.4301
Dial	Aluminium
Needle	Aluminium
Additional Attachments	
Additional electrical attachments	Limit signal transmitters (mechanical sliding, snap action or inductive contacts) and capacitive angular position transducers with output signal proportional to the angular position can be built into a housing augmented by a corresponding bayonet ring connector. Refer to the data sheet KE for the additional electrical attachments.
Fluid charging	The housing can be filled with a damping fluid if the meter is to operate under aggravated operating conditions such as vibrations and extreme pressure fluctuations, or in order to avoid condensate formation if used out of doors.
Marker needle	Adjustable needle in the window for noting the limit values.
Trailing needle	The trailing needle is 'led' by the indicator needle. As there is no fixed connection between the two needles, one-off maximum values are stored. The trailing needle can be reset using an adjusting dial in the window.
Installation, Assembly	Pipe connection with screwed-on compression-type or compression fitting or directly screwed into the pipe connection with the use of appropriate connecting parts and sealants. Rear mounting frame for wall mounting or an MZ31 manometer bracket for panel mounting with a front ring.
Accessories	Adapters to different thread diameters, pipe connection threaded connections, soldered and welded nipples, manometer cut-off valves, siphons, capillary throttles, etc. Refer to data sheet MZ ...

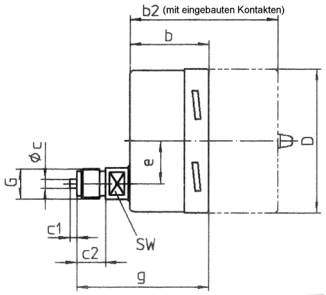
Dimensioned Drawings

Lower Connections *Rear Connections*

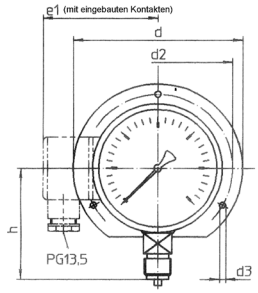
Standard Model

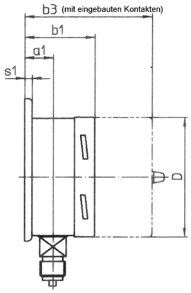


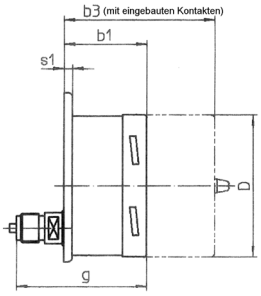




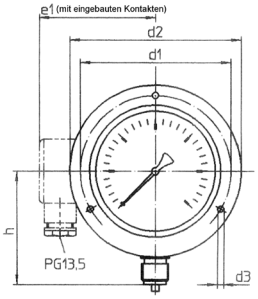
Model with Rear Connecting Bracket

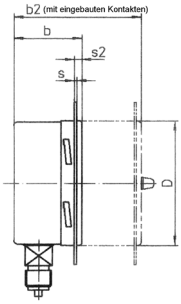


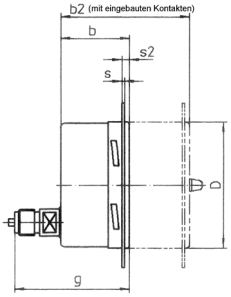




Model with Front Ring

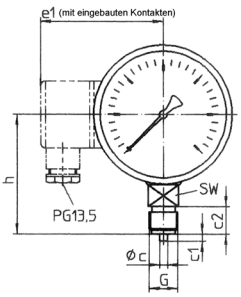


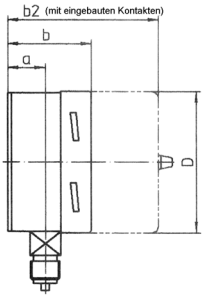


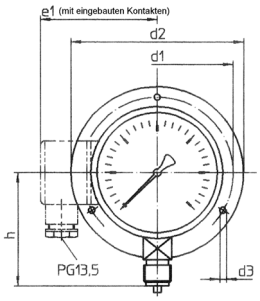


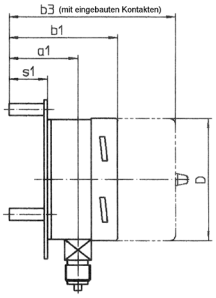
NG	D	a	a1	b	b1	b2	b3	c	c1	c2	d1	d2	d3	e	e1	g	G	h ± 1	s	s1	s2	SW	SW1
100	101	20	23,5	55	58,5	103	106,5	6	5	20	116	132	4,8	30	89	97	G1/2A	87	2	6	6	22	17
160	161	15,5	19	50,5	54	98,5	102	6	5	20	178	196	5,8	52	119	92,5	G1/2A	118	2	6	6	22	17

Safety Manometer S3









NG	D	a	a1	b	b1	b2	b3	c	c1	c2	d1	d2	d3	e1	G	h ± 1	s1	SW
100	101	27	57	60	90	108	138	6	5	20	116	132	4,8	89	G1/2A	87	32	22
160	161	40	70	78	108	126	156	6	5	20	178	196	5,8	119	G1/2A	118	32	22

Ordering Codes

Chemistry Bourdon-Tube Manometer

MA13 | | | | | | | 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

Measured Value Display

Bayonet ring housing Ø 100 mm	>	L
Bayonet ring housing Ø 160 mm	>	M
Safety meter S3 Ø 100 mm	>	0
Safety meter S3 Ø 160 mm	>	P

Mounting Form

Standard	>	0
Front ring for panel mounting	>	G
Rear mounting bracket	>	B

Pressure Connection

Connecting shanks G½ below	>	8 7
Connecting shanks G½ rear	>	9 7

1. **Additional Block - Fluid Filling**

No fluid filling	>	0
Glycerine damping fluid	>	1
Damping fluid for model with built-in contacts	>	2

2. **Additional Block - Special Function**

No special functions	>	0
Adjustable marker needle	>	1
Resettable trailing needle (measuring ranges ≥ 1 bar)	>	2

3. **Additional Block – Contacts - Transmitters**

No contacts/transmitters	>	0
Built-in contacts as per data sheet KE (measuring ranges ≥ 1 bar)	>	1
Built-in capacitive angular position transducers as per data sheet KE (measuring ranges ≥ 1 bar)	>	2

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