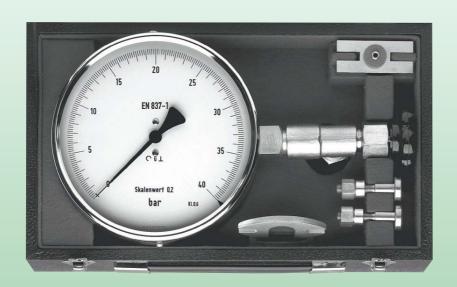


Bourdon Tube Test Pressure Gauges

according to EN 837-1







- Housing: 160 mm, 250 mm
- Connection: G ½
- Material
 Housing: aluminium, steel black, stainless steel
 Connection: brass, stainless steel
- Measuring ranges: from 0...0.6 bar to 0...2500 bar and vacuum
- Accuracy class: 0.6 or 0.25
- Options: damping liquid, contacts, special ranges



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KOBOLD Messring GmbH Nordring 22-24 D-65719 Hoffneim/Ts. ☎+49(0)6192 299-0 Fax +49(0)6192 23398 E-Mail: info.de@kobold.com

Internet: www.kobold.com

Model: MAN-F



Application

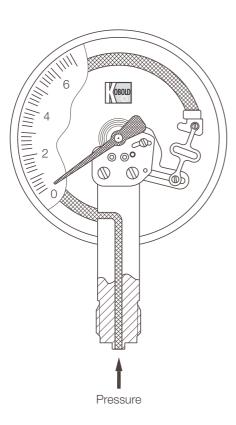
These test pressure gauges are manufactured to the very highest standards and are used to test pressures of tanks, pipes fittings and in laboratories.

Measuring principle

The precision test pressure gauges habe a high-grade measuring element. The pressure proprtional elastic deformation of the Bordon tube is transmitted through a low friction movement to the knife edge pointer.

With the help of the scale on the dial you can read the current pressure at measuring element.

Unifilar drawing



Housing

Following housing diameter are available: 160 mm, 250 mm.

The housing material is stainless steel, aluminium or steel, black painted.

Installation

The gauges are most often installed straight into the customer's screw necks. The fine pressure gauge in carrying case is assembled using the accessories supplied (valve etc.).

Connection

The gauges are supplied with a $G^{1/2}$ connecting thread as standard. The connection is made of brass or stainless steel. The gauges can be used with non aggressive gaseous or liquid, but not with highly viscous or crystallizing media. Other connection types are available on request.

Measuring ranges

The measuring ranges are graduated according to DIN recommendations and lie between 0,6 bar and 2500 bar. Other scales with measuring ranges in PSI, Pa or with your company logo are available on request.

Damping liquid

Pressure gauges with liquid filling are used in locations with high alternating dynamic loads, strong vibrations and pulses. The filling ensures easy readability through steady pointer movement even when subjected to extreme loading and heavy vibration. The lubricating effect of the glycerine also keeps wear to a minimum. Glycerine is always used as a matter of principle. In gauges with a contact or an electrical measuring transducer, liquid paraffin is used as a non-conductive alternative.

Silicon fillings of various viscosities are also optionally available. Please note, that not all precision type devices can be filled with liquid.

Contacts

For monitoring the system pressure gauges can be fitted up to 2 limit contacts.

Inductive contacts are also available. (see Chapter Contact Device).

Application areas:

- Test benches
- Control and adjustment of operating pressure-measuring gauges
- Laboratories
- Calibration centres, board of weights and measures

Fine pressure gauge in carrying case:

 On site verification of operating pressure measuring gauges



Technical Data

Connection/housing		Model									
Connection bottom M.	ANFG22	FG32	FG26	-	FG22Y	Fl12					
Connection eccentric back M.	ANFG24	FG34	-	-	-	-					
Connection lateral M.	AN	-	-	FG1B	-	-					
Accuracy class	0.6	0.6	0.6	0.6	0.25	0.6					
Diameter	160 mm	160 mm	160 mm	160 mm	160 mm	250 mm					
Housing material	st. steel	aluminium	st. steel	st. steel	st. steel	steel black					
Housing fillable	yes	yes	yes	no	no	no					
Ring	st. steel	steel black	st. steel	st. steel	st. steel	steel black					
Pointer				less steel 1.430							
Movement	brass	brass	st. steel	st. steel	st. steel	st. steel					
Throttle D=		om 60 bar 0.5 n			-						
Window	instrument glass	instrument glass	safety glass	safety glass	safety glass	safety glass					
Measuring element	CuBe	CuBe	st.st. 1.4571, from 400 bar Monel	stainless steel	CuBe from 100 bar st. st. 1.4571	CuBe from 100 ba st. st. 1.457					
Protection		IP 65			IP 54						
Overrange (rest / change / short time)		1.0 tim	nes / 0.9 times /	1.3 times of fu	ıll scale						
Weight (with contacts plus 0.3 kg)	1.0 kg	1.2 kg	1.0 kg	3.8 kg	1.3 kg	3.0 kg					
Ambient temperature	-20+60°C	-20+60°C	-20+80°C	-40+60°C	-40+60°C	-20+60°					
Connection	brass	brass	st. st. 1.4571, from 400 bar Monel	stainless steel	brass, from 1000 bar st. steel	brass, from 1000 bar st. steel					
Thread connection	G 1/2 AG	G 1/2 AG	G 1/2 AG	M20x1.5	G 1/2 AG	G 1/2 AG					
Max. temperature of media	80°C	60°C	80°C	200°C	60°C	60°C, from					
						100 bar: 100					
Contacts	max. 2 x	max. 2 x	max. 2 x	no	no	no					
	max. 2 x	max. 2 x			no						
Indicating range	max. 2 x	max. 2 x	Code of indi	cating range		no					
Indicating range -0.60 bar	-	-	Code of indi	cating range	AC	no AC					
Indicating range -0.60 bar -10 bar	- AD	- AD	Code of indi	cating rangeACAD	AC AD	AC					
-0.60 bar -10 bar -1+0.6 bar	AD	- AD A0	Code of indiACADAO	cating rangeACADAO	AC AD	AC					
-0.60 bar -10 bar -1+0.6 bar -1+1.5 bar	AD A0	AD A0	Code of indiACADA0A1	cating rangeACADA0	AC AD A0	ACADA0A1					
-0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar	AD A0 A1	AD A0 A1	Code of indiACADA0A1A2	cating rangeACADAOAOA1	AC AD A0 A1	ACADA0A1A2					
-0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar	- AD A0 A1 A2	- AD A0 A1 A2	Code of indiACADAOA1A2A3	cating rangeACADAOA1A2A3	AC AD A0 A1 A2	ACADA0A1A2A3					
-0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar	- AD A0 A1 A2 A3	- AD A0 A1 A2 A3	Code of indiACADA0A1A2A3	cating rangeACADAOA1A2A3	AC AD A0 A1 A2 A3	ACADA1A2A3A4					
-0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar	- AD A0 A1 A2 A3 A4	- AD A0 A1 A2 A3 A4	Code of indiACADA0A1A2A3A4	cating rangeACADA0A1A2A3A4	AC AD A0 A1 A2 A3 A4	ACADA1A2A3A4A4					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar	- AD A0 A1 A2 A3 A4	- AD A0 A1 A2 A3 A4	Code of indiACADA0A1A2A3	cating rangeACADA0A1A2A3A4B1	AC AD A0 A1 A2 A3 A4 A4	ACADA1A2A3A4					
-0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar	- AD A0 A1 A2 A3 A4	- AD A0 A1 A2 A3 A4	Code of indiACADA0A1A2A3A4A4	cating rangeACADA0A1A2A3A4	AC AD A0 A1 A2 A3 A4	ACADA1A2A3A4A4B1					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar	- AD A0 A1 A2 A3 A4 A4	ADA1A2A3A4A4A4B2	Code of indiACADA0A1A2A3A4A4	cating rangeACADA0A1A2A3A4A4B1	ACADA0A1A2A3A4A4B1	ACADA1A2A3A4A4B1B2					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01.6 bar	- AD A0 A1 A2 A3 A4 A4 - B2	ADA1A2A3A4A4A4B2B3	Code of indiACADA0A1A2A3A4A4B2	cating rangeACADA0A1A2A3A4A4B1B2B3	ACADA0A1A2A3A4A4B1B2B3	ACADA1A2A3A4A4B1B2B3					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 02.5 bar	- AD A0 A1 A2 A3 A4 A4 A4 - B2 B3	ADA1A2A3A4A4A4B2B3B4	Code of indiACADA0A1A2A3A4A4B2B3B4	cating rangeACADA0A1A2A3A4A4B1B2B3B4	ACADA0A1A2A3A4A4B1B2B3B4	ACADA1A2A3A4A4B1B2B3B4					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 02.5 bar 04 bar 06 bar 04 bar 06 bar 010 bar	ADA1A2A3A4A4A4B2B3B4B5B6B7	ADA0A1A2A3A4A4B2B3B4B5B6B7	Code of indiACADA0A1A2A3A4A4B2B3B4B5B6	cating rangeACADA0A1A2A3A4A4B1B2B3B4B5B6	ACADA0A1A2A3A4A4B1B2B3B4B5B6	ACADA1A2A3A4B1B2B3B4B5B6					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 02.5 bar 04 bar 06 bar 010 bar 010 bar 016 bar	ADA1A2A3A4A4A4B2B3B4B5B6B7B8	ADA1A2A3A4A4B2B3B4B5B6B7B8	Code of indiACADA0A1A2A3A4A4B2B3B4B5B6B7B8	cating rangeACADA0A1A2A3A4A4B1B2B3B4B5B6B7	ACADA0A1A2A3A4A4B1B2B3B4B5B6B7B8	ACADA1A2A3A4B1B2B3B4B5B6B7B8					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 02.5 bar 04 bar 010 bar 010 bar 016 bar 010 bar 016 bar	ADA0A1A2A3A4A4A4B2B3B4B5B6B7B8B9	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9	Code of indiACADA0A1A2A3A4A4B2B3B4B5B6B7B8	cating rangeACADA0A1A2A3A4B1B2B3B4B5B6B7B8	ACADA0A1A2A3A4A4B1B2B3B4B5B6B7B8	ACADA1A2A3A4B1B2B3B4B5B6B7B8					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 02.5 bar 04 bar 010 bar 016 bar 010 bar 016 bar 010 bar 016 bar 010 bar 016 bar 010 bar	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0	Code of indiACADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0	cating rangeACADAOA1A2A3A4B1B2B3B4B5B6B7B8B9B0	ACADA0A1A2A3A4B1B2B3B4B5B6B7B8B9B0	ACADA1A2A3A4B1B2B3B4B5B6B7B8B9B0					
Indicating range -0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 02.5 bar 04 bar 010 bar 016 bar 016 bar 010 bar 016 bar 025 bar 040 bar 040 bar	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1	Code of indiACADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0	cating rangeACADAOA1A2A3A4B1B2B3B4B5B6B7B8B9B0	ACADA0A1A2A3A4B1B2B3B4B5B6B7B8B9B0	ACADA1A2A3A4B1B2B3B4B5B6B7B8B9B0					
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Indicating range -0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 01 bar 02.5 bar 04 bar 06 bar 010 bar 016 bar 025 bar 040 bar 060 bar 060 bar 0100 bar 060 bar	ADAOAOA1A2A3A4A4A4B8B8B8B8B8B8B9B0C1C2C3	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3	Code of indiACADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2	cating rangeACADAOA1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2	ACADA0A1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2	ACADA1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2					
Indicating range -0.60 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+9 bar -1+15 bar 00.6 bar 01 bar 01 bar 02.5 bar 04 bar 06 bar 010 bar 016 bar 016 bar 016 bar 017 bar 018 bar 019 bar	ADAOAOA1A2A3A4A4A4B2B3B4B5B6B7B8B9B9B0C1C2C3C4	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4	Code of indiACADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4	cating rangeACADAOA1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4	ACADA0A1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4	ACADA1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2					
Indicating range -0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+15 bar -1+15 bar 00.6 bar 01 bar 01 bar 01.6 bar 02.5 bar 04 bar 06 bar 010 bar 025 bar 040 bar 0100 bar 0100 bar	ADA0A1A2A3A4A4A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4C5	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4C5	Code of indiACADAOA1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4	cating rangeACADAOA1A2A3A4A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4	ACADA0A1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4C5	ACADA1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4					
Indicating range -0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+15 bar -1+15 bar 00.6 bar 01 bar 01.6 bar 02.5 bar 04 bar 06 bar 010 bar 010 bar 016 bar 010 bar 016 bar 010 bar 010 bar 016 bar 025 bar 010 bar 016 bar 025 bar 010 bar 016 bar 025 bar 010 bar 025 bar 040 bar 025 bar 040 bar	ADAOA1A2A3A4A4A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4C5C6	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4C5C6	Code of indiACADAOA1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4C5C6	cating rangeACADAOA1A2A3A4A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4C5C6	ACADAOAOA1A2A3A4A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4C5C6	ACADA1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4C5					
Indicating range -0.60 bar -10 bar -1+0.6 bar -1+1.5 bar -1+3 bar -1+5 bar -1+15 bar -1+15 bar 00.6 bar 01 bar 01 bar 01.6 bar 02.5 bar 04 bar 06 bar 010 bar 025 bar 040 bar 0100 bar 0100 bar	ADA0A1A2A3A4A4A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4C5	ADA0A1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4C5	Code of indiACADAOA1A2A3A4A4B2B3B4B5B6B7B8B9B0C1C2C3C4	cating rangeACADAOA1A2A3A4A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4	ACADA0A1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2C3C4C5	ACADA0A1A2A3A4B1B2B3B4B5B6B7B8B9B0C1C2C3					

Further options on request: back flange, front flange, safety glass instead of instrument glass, double scale, throttle, other threads

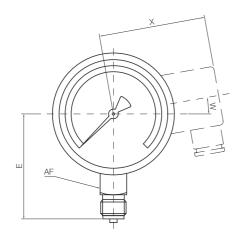


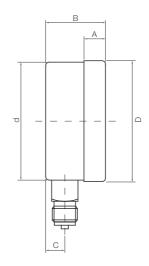
Dimensions

Bottom connection

Code	NG	Α	В	В	С	d	D	Е	AF	W	Х
			without contact	1 or 2 contacts							
MAN-FG 22/26	160 mm VA	21	50	101	15	159	162	117	22	0	118
MAN-FG 22Y	160 mm VA	17.5	49.5*	-	15.5	159	161	118	22	-	-
MAN-FG 32	160 mm Alu	-	48	101	18.5	160	-	115	27	25°	118
MAN-FI 12	250 mm	-	64.5**	-	17	250	-	165	22	-	-

^{*64.5} mm (up to 4 bar and from 1600 bar) \cdot **51.5 mm (for 6 bar up to 60 bar)





Back connection

Code	NG	Α	В	В	С	d	D	Е	AF	W	Х
			without contact	1 or 2 contacts							
MAN-FG 24	160 mm VA	21	50	101	34	159	162	32.5	17	0	118
MAN-FG 34	160 mm Alu	-	48	101	30	160	-	50	27	25°	118

