



## Diaphragm Pressure Gauges

according to EN 837-3  
for stringent demands



measuring  
•  
monitoring  
•  
analysing

### MAN-P



- Housing:  
100 mm, 160 mm
- Connection: G 1/2,  
open measuring flange  
DIN/ANSI
- Material: stainless steel
- Measuring ranges:  
-250 mbar ... +40 bar
- Option: filling liquid,  
contacts, ECTFE-coating,  
4 times overpressure,  
overpressure resistant  
compound filled



P1

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### Application

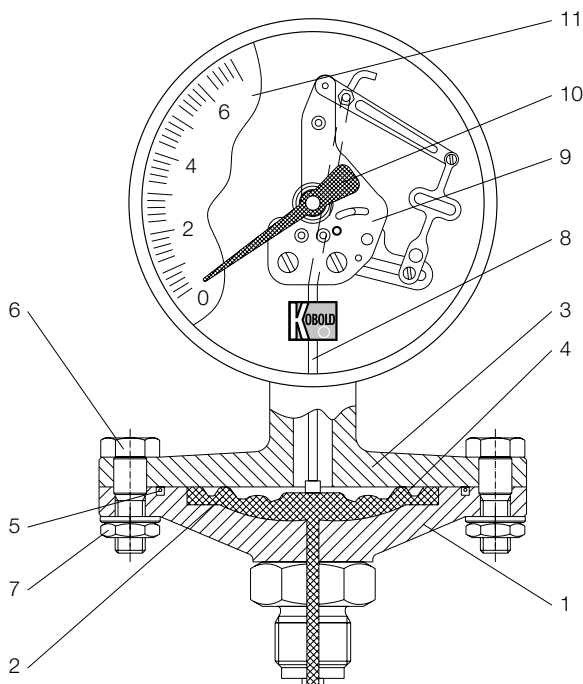
KOBOLD diaphragm pressure gauges are preferably used for media where Bourdon tube pressure gauges or pneumatic capsule gauges are challenged. Diaphragm pressure gauges have a relatively high actuating force. The annular clamped diaphragm is insensitive to jarring or vibration. An extremely high resistance to overpressure is achieved by underpropping the diaphragm.

With highly viscous, crystallising or strongly heterogeneous media, open process connections which ensure that the gauges are easy to clean, e. g. by flushing, are used. In processes with chemically aggressive media, diaphragm pressure gauges have a special material coating on the components in contact with the medium which protect them from corrosion.

### Measuring principle

A diaphragm built onto the edge is subjected to pressure from one side. The pressure bends the diaphragm and an indicator mechanism converts the amount it is bent into a corresponding movement of the pointer. The scale on the dial then shows the actual pressure. Because of the diaphragm's shape and the fact that it is mounted on the side means it is mechanically very stable, and consequently less susceptible to vibration than Bourdon gauges.

### Unifilar drawing



### Housing

The following housing diameters are available: 100 mm and 160 mm. The housing material is stainless steel.

### Installation

The gauges are most often installed straight into the customer's screw necks. Open measuring flanges for special operational conditions are available either as Norm or customer specifications.

### Connection

The gauges are supplied with a G $\frac{1}{2}$  connecting thread as standard. The connection is made of stainless steel. Various open flanges are available for viscous, crystallising, or soiled media. Other connection types, e.g.  $\frac{1}{2}$ " NPT are available on demand.

### Measuring ranges

The measuring ranges are graduated according to DIN recommendations and lie between -250 mbar and 40 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. Silicone fillings of various viscosities are also optionally available.

### Contacts

For monitoring the system pressure, gauges with 100 mm or 160 mm diameter can be fitted with up to four limit contacts. Slow action, magnetic spring, inductive and pneumatic contacts are also available (see Chapter »Contact Fittings for Pressure Gauges«)

### Fields of application

- Chemical and petrochemical industries
- Plastics and paper-manufacturing industries
- Food and beverage industries
- Machine and plant construction



Connection/Housing	Standard version				All stainless steel version			
	NG 100		NG 160		NG 100		NG 160	
 Back connection <b>MAN...</b>	 ...PF26W...	 ...PF76W...	 ...PG26W...	 ...PG76W...	 ...PF26...	 ...PF76...	 ...PG26...	 ...PG76...
Accuracy class	1.6				1.6			
Housing version	stainless steel 1.4301				stainless steel 1.4301			
Filling	-	glycerine*	-	glycerine*	-	glycerine*	-	glycerine*
Ring	stainless steel 1.4301				stainless steel 1.4301			
Pointer	aluminium, black anodised				aluminium, black anodised			
Movement	brass				stainless steel 1.4301			
Diameter measuring flange	100 mm (from 0.4 bar) / 160 mm (up to 250 mbar)				100 mm (from 0.4 bar) / 160 mm (up to 250 mbar)			
Window	instrument glass				instrument glass			
Measuring element	stainless steel 1.4571 / Duratherm				stainless steel 1.4571 / Duratherm			
Protection	IP 65	IP 67	IP 65	IP 67	IP 65	IP 67	IP 65	IP 67
Overrange protection	short time 1.3 times max. rating**				short time 1.3 times max. rating**			
Weight	see dimensions				see dimensions			
Ambient temperature	-20...+80°C				-20...+80°C			
Connection	stainless steel 1.4571				stainless steel 1.4571			
Thread connection	G ½ male with 10 mm boring				G ½ male with 10 mm boring			
Max. temperature of medium	80°C				80°C			
Contacts	max. 3, but < 60 mbar for inductive contacts only; 60/100 mbar max. 2 slow-action cont. (4 contacts on request)							
<b>Indicating range mbar</b>	<b>Code of indicating range</b>							
-16...0 mbar	..E6	..E6	..E6	..E6	..E6	..E6	..E6	..E6
-25...0 mbar	..E7	..E7	..E7	..E7	..E7	..E7	..E7	..E7
-40...0 mbar	..E8	..E8	..E8	..E8	..E8	..E8	..E8	..E8
-60...0 mbar	..E9	..E9	..E9	..E9	..E9	..E9	..E9	..E9
-100...0 mbar	..E0	..E0	..E0	..E0	..E0	..E0	..E0	..E0
-160...0 mbar	..E1	..E1	..E1	..E1	..E1	..E1	..E1	..E1
-250...0 mbar	..E2	..E2	..E2	..E2	..E2	..E2	..E2	..E2
0...16 mbar	..F8	..F8	..F8	..F8	..F8	..F8	..F8	..F8
0...25 mbar	..F9	..F9	..F9	..F9	..F9	..F9	..F9	..F9
0...40 mbar	..F0	..F0	..F0	..F0	..F0	..F0	..F0	..F0
0...60 mbar	..F1	..F1	..F1	..F1	..F1	..F1	..F1	..F1
0...100 mbar	..F2	..F2	..F2	..F2	..F2	..F2	..F2	..F2
0...160 mbar	..F3	..F3	..F3	..F3	..F3	..F3	..F3	..F3
0...250 mbar	..F4	..F4	..F4	..F4	..F4	..F4	..F4	..F4
<b>Indicating range bar</b>								
-0.4...0 bar	..AB	..AB	..AB	..AB	..AB	..AB	..AB	..AB
-0.6...0 bar	..AC	..AC	..AC	..AC	..AC	..AC	..AC	..AC
-1...0 bar	..AD	..AD	..AD	..AD	..AD	..AD	..AD	..AD
-1...+0.6 bar	..A0	..A0	..A0	..A0	..A0	..A0	..A0	..A0
-1...+1.5 bar	..A1	..A1	..A1	..A1	..A1	..A1	..A1	..A1
-1...+3 bar	..A2	..A2	..A2	..A2	..A2	..A2	..A2	..A2
-1...+5 bar	..A3	..A3	..A3	..A3	..A3	..A3	..A3	..A3
-1...+9 bar	..A4	..A4	..A4	..A4	..A4	..A4	..A4	..A4
-1...+15 bar	..A5	..A5	..A5	..A5	..A5	..A5	..A5	..A5
0...0.4 bar	..BA	..BA	..BA	..BA	..BA	..BA	..BA	..BA
0...0.6 bar	..B1	..B1	..B1	..B1	..B1	..B1	..B1	..B1
0...1 bar	..B2	..B2	..B2	..B2	..B2	..B2	..B2	..B2
0...1.6 bar	..B3	..B3	..B3	..B3	..B3	..B3	..B3	..B3
0...2.5 bar	..B4	..B4	..B4	..B4	..B4	..B4	..B4	..B4
0...4 bar	..B5	..B5	..B5	..B5	..B5	..B5	..B5	..B5
0...6 bar	..B6	..B6	..B6	..B6	..B6	..B6	..B6	..B6
0...10 bar	..B7	..B7	..B7	..B7	..B7	..B7	..B7	..B7
0...16 bar	..B8	..B8	..B8	..B8	..B8	..B8	..B8	..B8
0...25 bar	..B9	..B9	..B9	..B9	..B9	..B9	..B9	..B9
0...40 bar	..B0	..B0	..B0	..B0	..B0	..B0	..B0	..B0

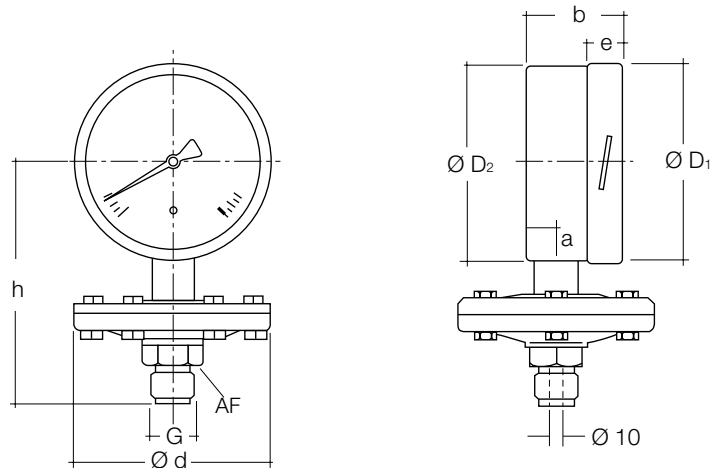
\* Special filling: Paraffin oil with higher temperatures (on request) or with contacts    \*\* 1.3 times <25 bar, 1.15 times >25 bar

**Options**

- Open measuring flange DIN 2501, DN 25, DN 50, DN 100
- Open measuring flange ANSI B 16.5 class 150, ¼", 1", 1 ¼", 1 ½", 2", 2 ½", 3"
- Open measuring flange ECTFE-coating DIN 2501, DN 25, DN 50
- Other measuring flanges or NPT connections on request
- Special materials for wetted parts
- Measuring spring welded
- Measuring spring PTFE-coated
- PTFE-coating
- 4-fold overpressure save
- Overpressure save effusion up to max. 40 bar

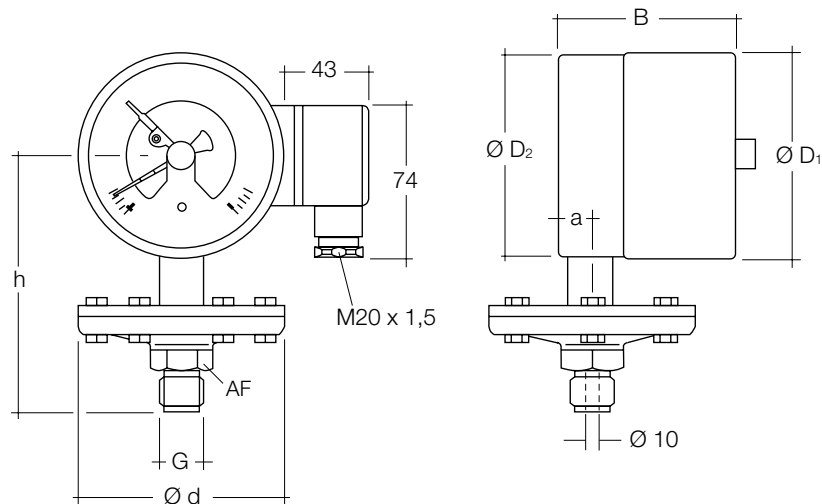
**Dimensions** [mm]

Standard version



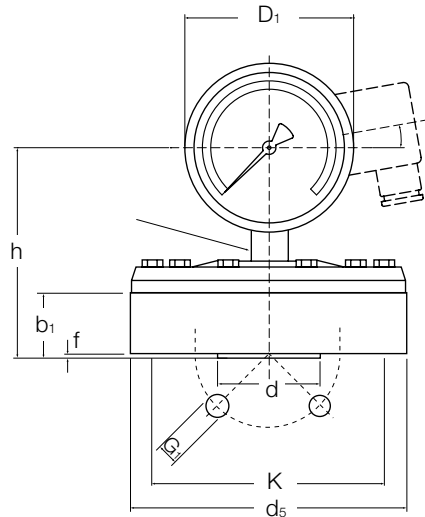
NG	Indicating range [bar]	Dimensions [mm]									Weight [kg]	
		d	a	b	D <sub>1</sub>	D <sub>2</sub>	e	G	h±2	AF	unfilled	filled
100	≤ 0.25	160	15,5	48	101	99	17.5	G ½	135	27	3.0	3.4
160				50	161	159			165		3.5	4.3
100	≥ 0.4	100	15,5	48	101	99	17.5	G ½	135	27	1.7	2.1
160				50	161	159			165		2.2	3.0

with Contact Device



NG	Indicating range [bar]	Dimensions [mm]									approx. Weight [kg]			
		Ø d	a	B ±1 with		D <sub>1</sub>	D <sub>2</sub>	G	h±2	AF	unfilled with		filled with	
				1+2 cont.	3 cont.						1+2 cont.	3 cont.	1+2 cont.	3 cont.
100	≤ 0.25	160	15.5	82	97	101	99	G ½	135	27	3.2	3.3	3.9	4.0
160				101	120	161	159		165		3.8	3.9	5.3	5.7
100	≥ 0.4	100	15.5	82	97	101	99	G ½	135	27	1.9	2.0	2.6	2.7
160				101	120	161	159		165		2.5	2.9	4.0	4.4

Options with connection flange according to DIN



NG	DN15 PN 10...40 <sup>1)</sup>	Dimensions [mm]						G <sub>1</sub>	h±2	Weight <sup>2)</sup> [kg]
		d <sub>5</sub>	k	d	b <sub>1</sub>	f				
100	≤ 0.25	160	65	15	30	3	4xM12	106	2.5	
160								138	2.5	
100	≥ 0.4	100	65	15	30	3	4xM12	106	0.9	
160								138	0.9	

NG	DN25 PN 10...40 <sup>1)</sup>	Dimensions [mm]						G <sub>1</sub>	h±2	Weight <sup>2)</sup> [kg]
		d <sub>5</sub>	k	d	b <sub>1</sub>	f				
100	≤ 0.25	160	85	25	30	3	4xM12	106	2.5	
160								138	2.5	
100	≥ 0.4	115	85	25	30	3	4xM12	106	1.3	
160								138	1.3	

NG	DN32 PN 10...40 <sup>1)</sup>	Dimensions [mm]						G <sub>1</sub>	h±2	Weight <sup>2)</sup> [kg]
		d <sub>5</sub>	k	d	b <sub>1</sub>	f				
100	≤ 0.25	160	100	32	30	3	4xM16	106	2.5	
160								138	2.5	
100	≥ 0.4	100	100	32	30	3	4xM16	106	2.1	
160								138	2.1	

NG	DN40 PN 10...40 <sup>1)</sup>	Dimensions [mm]						G <sub>1</sub>	h±2	Weight <sup>2)</sup> [kg]
		d <sub>5</sub>	k	d	b <sub>1</sub>	f				
100	≤ 0.25	160	110	40	30	3	4xM16	106	2.5	
160								138	2.5	
100	≥ 0.4	150	110	40	30	3	4xM16	106	2.5	
160								138	2.5	

<sup>1)</sup> Can be flanged on counter flange according to, Form D according to DIN 2526 sealing strip.

<sup>2)</sup> The weights given are additional masses that have to be added to the weight of the standard model (with G<sub>1/2</sub> A connection according to DIN 16 288).



Options with connection flange according to DIN

NG	DN50 PN 10...40 <sup>1)</sup>	Dimensions [mm]						h±2	Weight <sup>2)</sup> [kg]
		d <sub>s</sub>	k	d	b <sub>1</sub>	f	G <sub>1</sub>		
100	≤ 0.25	165	125	50	30	3	4xM16	106	2.8
160								138	2.8
100	≥ 0.4	165	125	50	30	3	4xM16	106	3.1
160								138	3.1

NG	DN65 PN 10...40 <sup>1)</sup>	Dimensions [mm]						h±2	Weight <sup>2)</sup> [kg]
		d <sub>s</sub>	k	d	b <sub>1</sub>	f	G <sub>1</sub>		
100	≤ 0.25	185	145	64	30	3	4xM16	106	3.6
160								138	3.6
100	≥ 0.4	185	145	64	30	3	4xM16	106	4.0
160								138	4.0

NG	DN80 PN 10...40 <sup>1)</sup>	Dimensions [mm]						h±2	Weight <sup>2)</sup> [kg]
		d <sub>s</sub>	k	d	b <sub>1</sub>	f	G <sub>1</sub>		
100	≤ 0.25	200	160	64	30	3	4xM16	106	4.3
160								138	4.3
100	≥ 0.4	200	160	64	30	3	4xM16	106	4.7
160								138	4.7

NG	DN100 PN 10/16 <sup>1)</sup>	Dimensions [mm]						h±2	Weight <sup>2)</sup> [kg]
		d <sub>s</sub>	k	d	b <sub>1</sub>	f	G <sub>1</sub>		
100	≤ 0.25	220	180	64	30	3	8xM16	106	5.4
160								138	5.4
100	≥ 0.4	220	180	64	30	3	8xØ18	106	5.8
160								138	5.8

NG	DN100 PN 25/40 <sup>1)</sup>	Dimensions [mm]						h±2	Weight <sup>2)</sup> [kg]
		d <sub>s</sub>	k	d	b <sub>1</sub>	f	G <sub>1</sub>		
100	≤ 0.25	235	190	64	30	3	8xM20	106	6.3
160								138	6.3
100	≥ 0.4	235	190	64	30	3	8xØ22	106	6.7
160								138	6.7

<sup>1)</sup> Can be flanged on counter flange according to, Form D according to DIN 2526 sealing strip.

<sup>2)</sup> The weights given are additional masses that have to be added to the weight of the standard model (with G½ A connection according to DIN 16 288).