



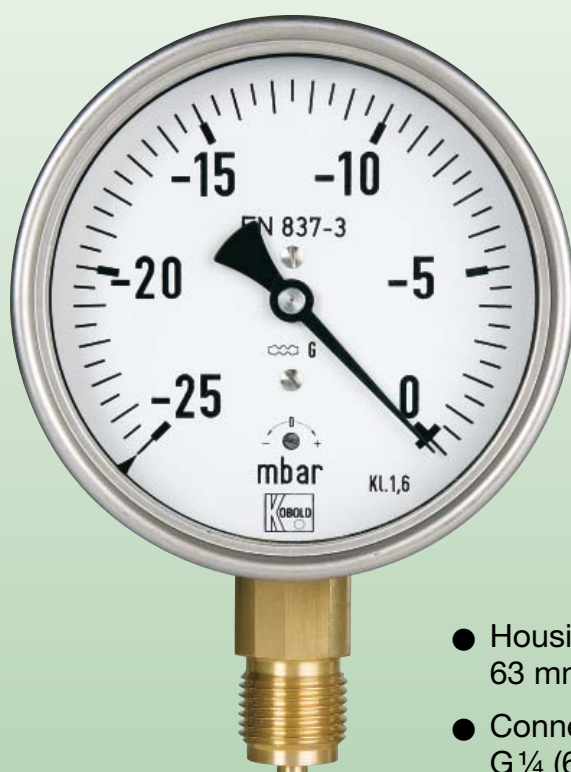
## Capsule Element Pressure Gauges

according to EN 837-3 · for Low Positive/  
Negative Pressures in Gaseous Media



measuring  
•  
monitoring  
•  
analysing

MAN-K



- Housing:  
63 mm, 80 mm, 100 mm, 160 mm
- Connection:  
G 1/4 (63 mm housing)  
G 1/2 (80, 100, 160 mm housing)
- Material  
Housing: stainless steel  
Connection:  
brass or stainless steel
- Measuring ranges:  
-10 ... 0 mbar ... -600 ... 0 mbar  
0 ... 10 mbar ... 0 ... 600 mbar
- Accuracy class: 1.6



P1

KOBOLD companies worldwide:

ARGENTINA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHILE, CHINA, COLOMBIA, CZECHIA,  
DOMINICAN REPUBLIC, EGYPT, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDO-  
NESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, ROMANIA, SINGAPORE,  
SOUTH KOREA, SPAIN, SWITZERLAND, TAIWAN, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

KOBOLD Messring GmbH  
Nordring 22-24  
D-65719 Hofheim/Ts.  
Head Office:  
+49(0)6192 299-0  
+49(0)6192 23398  
info.de@kobold.com  
www.kobold.com



## Capsule Element Pressure Gauges according to EN 837-3 for Low Positive/Negative Pressures in Gaseous Media Model MAN-K

### Application

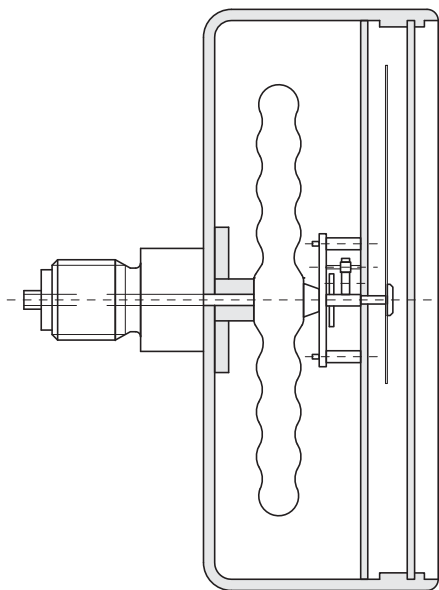
The KOBOLD pressure gauges with capsule elements are being used to measure low positive/negative pressures in gaseous media. All stainless steel pressure gauges with capsule element are manufactured by using high-quality stainless steel and are therefore suitable for use with corrosive gases.

All the pressure gauges comply with general international guidelines and take account of standard as well as application-specific requirements. They are the result of the over 70 years experience we have in building pressure gauges.

### Measuring principle

The capsule system consists of two half capsule elements which are soldered together. The element makes a defined stroke when subjected to pressure. A special measuring mechanism converts this movement into pointer-rotation.

### Unifilar drawing



### Housing

The following housing diameters are available:

63 mm, 80 mm, 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. Depending on the required installation the instruments can be supplied with a panel clamp, triangular front ring or mounting flange. Optional gauge models with an installation border on the front are also available for installation into or onto control panels.

### Connection

The gauges with 63 and 80 mm housing diameter are supplied with a  $G\frac{1}{4}$  connecting thread as standard, gauges with housing diameter of 100 mm and above with  $G\frac{1}{2}$  connecting thread. The connection is made of brass or stainless steel. Other connection types are available on request.

### Measuring ranges

The measuring ranges of the various types are graduated according to DIN recommendations and lie between -10...0 mbar to -600...0 mbar and 0...+10 mbar to 0...+600 mbar. Other scales with measuring ranges in PSI, Pa or with your company logo are available on request.

### Damping liquid

Pneumatic capsule gauges cannot be supplied with damping fluid.




### Contacts

Pneumatic capsule gauges cannot be supplied with contacts.

### Fields of application

- Medical technology
- Filter status measurements
- Leak testing
- Air-conditioning technology
- Exhaust-gas measurements
- Gas production




## Technical Details

| Standard Capsule element pressure gauges for gases   |                           |                      |                      |                      |                      |                      |           |   |
|--|---------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|---|
| Connection/Housing   | NG 63                     |                      |                      | NG 80                | NG 100               |                      | NG 160    |   |
|  | Model                     |                      |                      |                      |                      |                      |           |   |
| Bottom connection  MAN-...                                | ..KD21..                  | ..KD21Y..            | ..KE22..             | ..KF22..             | ..KF22Y..            | ..KG22..             | ..KG22Y.. |   |
| Back connection  MAN-...                                  | ..KD23..<br>central       | ..KD23Y..<br>central | ..KE24..<br>central  | ..KF24..<br>central  | ..KF24Y..<br>central | ..KG24..<br>central  |           | - |
| Triangular front ring and clamp, Back connection  MAN-... | ..KD23K..<br>central      | -                    | ..KE24K..<br>central | ..KF24K..<br>central | -                    | ..KG24K..<br>central |           | - |
| Accuracy class   | 1,6                       |                      |                      |                      |                      |                      |           |   |
| Housing version  | stainless steel 1.4301    |                      |                      |                      |                      |                      |           |   |
| Filling  | without                   |                      |                      |                      |                      |                      |           |   |
| Ring   | stainless steel 1.4301    |                      |                      |                      |                      |                      |           |   |
| Pointer  | aluminium, black anodized |                      |                      |                      |                      |                      |           |   |
| Movement   | brass                     |                      |                      |                      |                      |                      |           |   |
| Throttle   | without                   |                      |                      |                      |                      |                      |           |   |
| Window   | instrument glass          |                      |                      |                      |                      |                      |           |   |
| Measuring element  | CuBe2                     |                      |                      |                      |                      |                      |           |   |
| Protection   | IP 43                     |                      |                      | IP 54                |                      |                      |           |   |
| Overrange protection (short time)  | 1.3 times                 | 10 times             | 1.3 times            | 1.3 times            | 10 times             | 1.3 times            | 10 times  |   |
| Weight   | see table                 |                      |                      |                      |                      |                      |           |   |
| Ambient temperature  | -20 .. +60 °C             |                      |                      |                      |                      |                      |           |   |
| Connection   | brass                     |                      |                      |                      |                      |                      |           |   |
| Thread connection  | G ¼ male                  |                      | G ½ male             |                      |                      |                      |           |   |
| Max. temperature of medium   | 80 °C                     |                      |                      |                      |                      |                      |           |   |
| Contacts   | none                      |                      |                      |                      |                      |                      |           |   |
| Indicating range   | Code of indicating range  |                      |                      |                      |                      |                      |           |   |
| -10 ... 0 mbar   | -                         | -                    | -                    | ..E5                 | -                    | ..E5                 | -         |   |
| -16 ... 0 mbar   | -                         | -                    | ..E6                 | ..E6                 | -                    | ..E6                 | -         |   |
| -25 ... 0 mbar   | -                         | -                    | ..E7                 | ..E7                 | -                    | ..E7                 | -         |   |
| -40 ... 0 mbar   | ..E8                      | ..E8                 | ..E8                 | ..E8                 | ..E8                 | ..E8                 | ..E8      |   |
| -60 ... 0 mbar   | ..E9                      | ..E9                 | ..E9                 | ..E9                 | ..E9                 | ..E9                 | ..E9      |   |
| -100 ... 0 mbar  | ..E0                      | ..E0                 | ..E0                 | ..E0                 | ..E0                 | ..E0                 | ..E0      |   |
| -160 ... 0 mbar  | ..E1                      | ..E1                 | ..E1                 | ..E1                 | ..E1                 | ..E1                 | ..E1      |   |
| -250 ... 0 mbar  | ..E2                      | ..E2                 | ..E2                 | ..E2                 | ..E2                 | ..E2                 | ..E2      |   |
| -400 ... 0 mbar  | ..E3                      | ..E3                 | ..E3                 | ..E3                 | ..E3                 | ..E3                 | ..E3      |   |
| -600 ... 0 mbar  | ..E4                      | ..E4                 | ..E4                 | ..E4                 | ..E4                 | ..E4                 | ..E4      |   |
| 0 ... 10 mbar  | -                         | -                    | ..F7                 | ..F7                 | -                    | ..F7                 | -         |   |
| 0 ... 16 mbar  | -                         | -                    | ..F8                 | ..F8                 | -                    | ..F8                 | -         |   |
| 0 ... 25 mbar  | ..F9                      | -                    | ..F9                 | ..F9                 | -                    | ..F9                 | -         |   |
| 0 ... 40 mbar  | ..F0                      | ..F0                 | ..F0                 | ..F0                 | ..F0                 | ..F0                 | ..F0      |   |
| 0 ... 60 mbar  | ..F1                      | ..F1                 | ..F1                 | ..F1                 | ..F1                 | ..F1                 | ..F1      |   |
| 0 ... 100 mbar   | ..F2                      | ..F2                 | ..F2                 | ..F2                 | ..F2                 | ..F2                 | ..F2      |   |
| 0 ... 160 mbar   | ..F3                      | ..F3                 | ..F3                 | ..F3                 | ..F3                 | ..F3                 | ..F3      |   |
| 0 ... 250 mbar   | ..F4                      | ..F4                 | ..F4                 | ..F4                 | ..F4                 | ..F4                 | ..F4      |   |
| 0 ... 400 mbar   | ..F5                      | ..F5                 | ..F5                 | ..F5                 | ..F5                 | ..F5                 | ..F5      |   |
| 0 ... 600 mbar   | ..F6                      | ..F6                 | ..F6                 | ..F6                 | ..F6                 | ..F6                 | ..F6      |   |



**Capsule Element Pressure Gauges** according to EN 837-3  
for Low Positive/Negative Pressures in Gaseous Media Model MAN-K

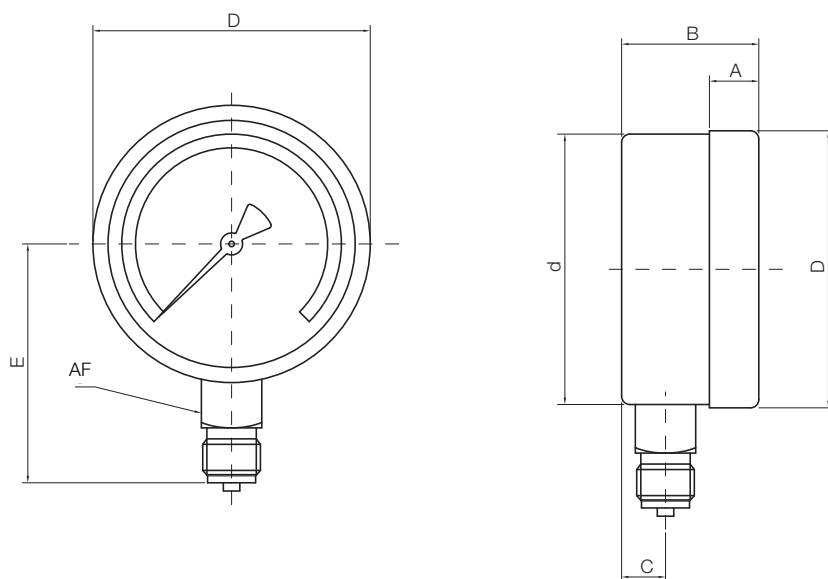
**Technical Details**

| All stainless steel capsule element pressure gauges for industrial applications  |   |                      |                      |
|--|---|----------------------|----------------------|
| Connection/Housing   | NG 63                                       | NG 100               | NG 160               |
|  | Typ   |                      |                      |
| Bottom connection<br> MAN-...                                   | ..KD25..                                    | ..KF26..             | ..KG26..             |
| Back connection<br> MAN-...                                     | ..KD27..<br>central                         | ..KF28..<br>central  | ..KG28..<br>central  |
| Triangular front ring and<br>clamp, back connection<br> MAN-... | ..KD27K..<br>central                        | ..KF28K..<br>central | ..KG28K..<br>central |
| Accuracy class   | 1,6   |                      |                      |
| Housing version  | stainless steel 1.4301                      |                      |                      |
| Filling  | ohne  |                      |                      |
| Ring   | stainless steel 1.4301                      |                      |                      |
| Pointer  | aluminium, black anodized                   |                      |                      |
| Movement   | stainless steel 1.4571                      |                      |                      |
| Throttle   | none  |                      |                      |
| Window   | safety glass                                |                      |                      |
| Measuring element  | stainless steel 1.4571                      |                      |                      |
| Protection   | IP 43                                       | IP 54                |                      |
| Overrange protection (short time)  | 1.0 times/0.9 times/1.3 times of full scale |                      |                      |
| Weight   | see table                                   |                      |                      |
| Ambient temperature  | -20 .. +80 °C                               |                      |                      |
| Connection   | stainless steel 1.4571                      |                      |                      |
| Thread connection  | G ¼ male                                    | G ½ male             |                      |
| Max. temperature of medium   | 80 °C                                       |                      |                      |
| Contacts   | none  |                      |                      |
| Indicating range   | Code of indicating range                    |                      |                      |
| -10 ... 0 mbar   | -   | -                    |                      |
| -16 ... 0 mbar   | -   | -                    |                      |
| -25 ... 0 mbar   | ..E7  | ..E7                 | ..E7                 |
| -40 ... 0 mbar   | ..E8  | ..E8                 | ..E8                 |
| -60 ... 0 mbar   | ..E9  | ..E9                 | ..E9                 |
| -100 ... 0 mbar  | ..E0  | ..E0                 | ..E0                 |
| -160 ... 0 mbar  | ..E1  | ..E1                 | ..E1                 |
| -250 ... 0 mbar  | ..E2  | ..E2                 | ..E2                 |
| -400 ... 0 mbar  | ..E3  | ..E3                 | ..E3                 |
| -600 ... 0 mbar  | ..E4  | ..E4                 | ..E4                 |
| 0 ... 10 mbar  | -   | -                    | ..F7                 |
| 0 ... 16 mbar  | -   | -                    | ..F8                 |
| 0 ... 25 mbar  | ..F9  | ..F9                 | ..F9                 |
| 0 ... 40 mbar  | ..F0  | ..F0                 | ..F0                 |
| 0 ... 60 mbar  | ..F1  | ..F1                 | ..F1                 |
| 0 ... 100 mbar   | ..F2  | ..F2                 | ..F2                 |
| 0 ... 160 mbar   | ..F3  | ..F3                 | ..F3                 |
| 0 ... 250 mbar   | ..F4  | ..F4                 | ..F4                 |
| 0 ... 400 mbar   | ..F5  | ..F5                 | ..F5                 |
| 0 ... 600 mbar   | ..F6  | ..F6                 | ..F6                 |

## Dimensions

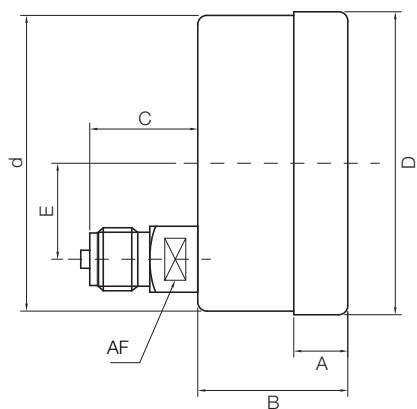
### Bottom connection

| Code            | NG     | A  | B    | C  | d   | D   | E    | AF |
|-----------------|--------|----|------|----|-----|-----|------|----|
| MAN-KE 21(Y)/25 | 63 mm  | 6  | 31   | 13 | 62  | 68  | 55   | 14 |
| MAN-KE 22       | 80 mm  | 5  | 43.5 | 16 | 80  | 84  | 76   | 22 |
| MAN-KF 22(Y)/26 | 100 mm | 17 | 48   | 15 | 100 | 101 | 86,5 | 22 |
| MAN-KG 22(Y)/26 | 160 mm | 21 | 50   | 15 | 159 | 162 | 117  | 22 |



### Anschluss hinten

| Code            | NG     | A  | B    | C  | d   | D   | E | AF |
|-----------------|--------|----|------|----|-----|-----|---|----|
| MAN-KD 23(Y)/27 | 63 mm  | 6  | 28   | 26 | 63  | 68  | 0 | 14 |
| MAN-KE 24       | 80 mm  | 5  | 43.5 | 35 | 80  | 84  | 0 | 22 |
| MAN-KF 24(Y)/28 | 100 mm | 17 | 49   | 36 | 100 | 101 | 0 | 22 |
| MAN-KG 24/28    | 160 mm | 21 | 50   | 34 | 159 | 162 | 0 | 22 |



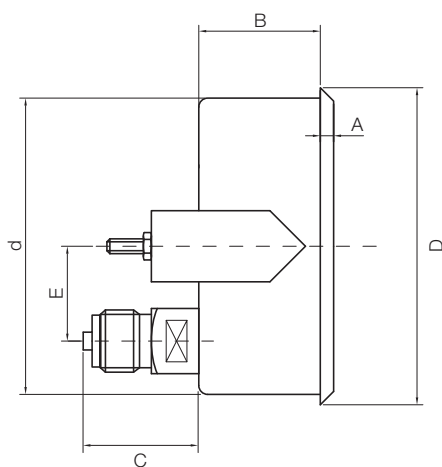


**Capsule Element Pressure Gauges** according to EN 837-3  
for Low Positive/Negative Pressures in Gaseous Media Model MAN-K

**Dimensions**

**Triangular front ring**

| Code          | NG     | A | B    | C  | d   | D   | E | AF |
|---------------|--------|---|------|----|-----|-----|---|----|
| MAN-KE 23/27K | 63 mm  | 6 | 26   | 26 | 62  | 68  | 0 | 14 |
| MAN-KE 24K    | 80 mm  | 5 | 43.5 | 35 | 80  | 84  | 0 | 22 |
| MAN-KF 24/28K | 100 mm | 5 | 41   | 36 | 101 | 107 | 0 | 22 |
| MAN-KG 24/28K | 160 mm | 5 | 45   | 30 | 160 | 162 | 0 | 22 |



**Weight**

| NG 63        |         |
|--------------|---------|
| Code         | Weight  |
| MAN-KD 21(Y) | 0.13 kg |
| MAN-KD 23(Y) | 0.14 kg |
| MAN-KD 23K   | 0.18 kg |
| MAN-KD 25    | 0.16 kg |
| MAN-KD 27    | 0.15 kg |
| MAN-KD 27K   | 0.19 kg |

| NG 100       |        |
|--------------|--------|
| Code         | Weight |
| MAN-KF 22(Y) | 0.6 kg |
| MAN-KF 24(Y) | 0.5 kg |
| MAN-KF 24K   | 0.6 kg |
| MAN-KF 26    | 0.6 kg |
| MAN-KF 28    | 0.5 kg |
| MAN-KF 28K   | 0.6 kg |

| NG 80      |        |
|------------|--------|
| Code       | Weight |
| MAN-KE 22  | 0.4 kg |
| MAN-KE 24  | 0.4 kg |
| MAN-KE 24K | 0.4 kg |

| NG 160       |        |
|--------------|--------|
| Code         | Weight |
| MAN-KG 22(Y) | 1.0 kg |
| MAN-KG 24(Y) | 1.0 kg |
| MAN-KG 24K   | 1.1 kg |
| MAN-KG 26    | 1.0 kg |
| MAN-KG 28    | 1.0 kg |
| MAN-KG 28K   | 1.1 kg |