

Product Description

Force Measurement Bolt KMB

Special Features

- Simple mounting even in confined spaces
- Easy retrofitted into existing machinery
- Measuring range from 0,4 to 250 kN
- Ø 12, 16, 20, 35 and 50 mm
- Fit in commercially available standard fork heads

Scope of Supply

Force sensor with fixed cable, (PVC), 5 m in length with straight receptacle as standard (Option T)

Variants:

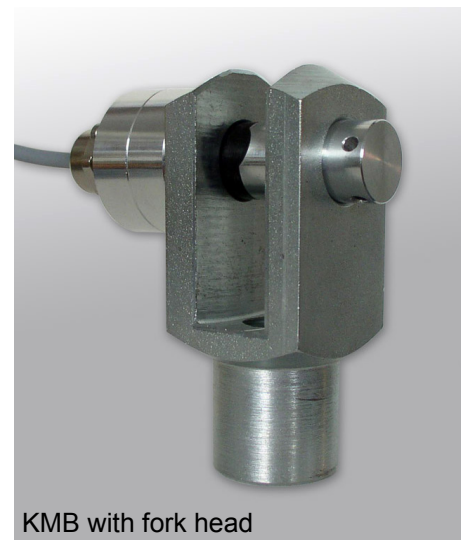
- **Option S:** Right angled cable plug connection

Accessories

- **Option F:** Use in potentially explosive atmospheres with connection variant T (Adaption Modul J-Box contained in the scope of supply)

Additional Accessories:

- **Option Z:** Pin for axial lock
- Systempartner Gabelköpfe: (Fork Heads)
mbo Oßwald GmbH & Co KG
D-97900 Kilsheim
Tel. (+49)0 9345-670-0
<http://www.mbo-oswald.de>



KMB with fork head

Application

The **force measurement bolt KMB** was specifically developed to capture tension and compression forces in machine parts equipped with standard fork heads, e.g. in conjunction with pneumatic and hydraulic cylinders.

The **KMB** can be used in all applications where such fork heads are either already available or can be easily retrofitted.

Simple and cost effective mounting of the **KMB** make it especially suitable for up-grading existing equipment.

Strain gauges applied to the active surfaces of the double shearing beam measure the acting forces.

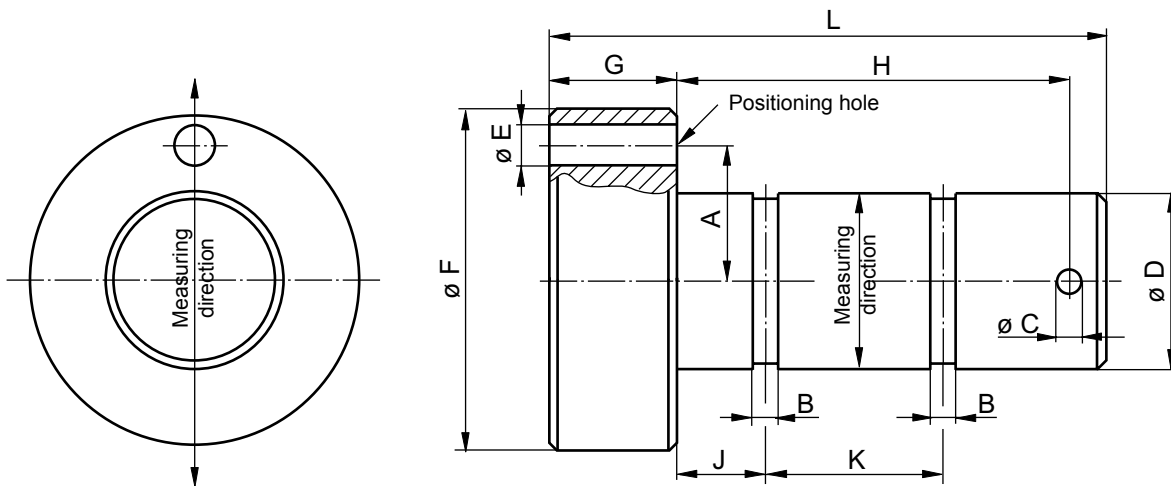
HAEHNE offers for all its sensors a corresponding range of amplifiers to condition the measuring signal and deliver the bridge voltage supply, e.g. the **MV 125** unit.

The signals at the output terminals of the amplifier are proportional to the acting shearing force. The signals can be digitally displayed or used as actual values in closed loop controls.

| Technical Data | % Values based on nominal force |
|-------------------------------|-------------------------------------------------------------------------|
| Max. operating force | 160 % |
| Absolute max. force | 300 % |
| Lateral force | 100 % |
| Max. bridge supply voltage | 10 V DC |
| Nominal ambient temperature | +10 ... + 60 °C / 32... 140 °F |
| Operational temperature range | - 10 ... + 70°C / 14... 158 °F (Applications with fix mounted cable) |

| KMB | Nominal Force [kN] | | | | | | Nominal Rating [mV/V] | Fracture Force [%] | Nominal Resistance [Ω] | Material | Combined-Error [%] | | | |
|-----|--------------------|------|-----|-----|-----|---|-----------------------|--------------------|------------------------|-----------------|--------------------|-----|--|---|
| | 0,4 | 0,63 | 1 | 1,6 | 2,5 | 4 | | | | | | | | |
| 12 | 0,4 | 0,63 | 1 | 1,6 | | | 1 | 400 | 350 | aluminum | 2 | | | |
| 16 | 0,4 | 0,63 | 1 | 1,6 | 2,5 | 4 | | | | | 0,75 | 700 | | 1 |
| 20 | 1,6 | 2,5 | 4 | | | | | | | | | | | |
| 35 | 4 | 6,3 | | | | | 1 | 400 | 350 | stainless steel | 1 | | | |
| 16 | 6,3 | 10 | | | | | | | | | | | | |
| 20 | 6,3 | 10 | 16 | | | | | | | | | | | |
| 35 | 10 | 16 | 25 | 40 | 63 | | | | | | | | | |
| 50 | 100 | 160 | 250 | | | | 1,5 | | | | | | | |

Standard: Calibration in positive range



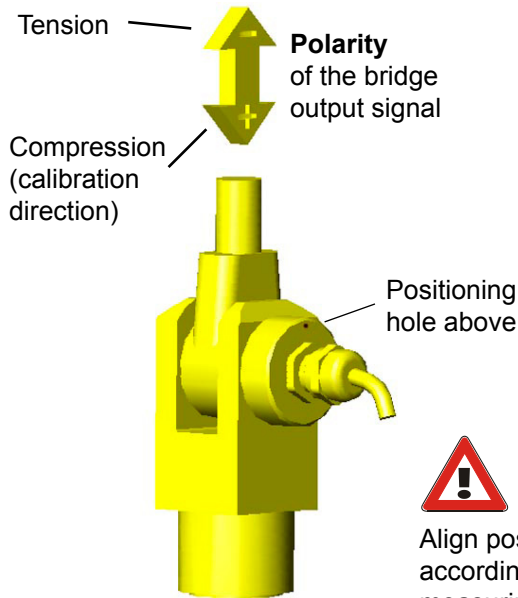
Dimensions in mm (1 mm = 0.03937 inches)

| KMB | ø D | ø F | G | ø E | A | ø C | H | L | J | K | B | Suitable Fork Head |
|-----|------|-----|----|------|------|-----|------|-----|------|------|-----|--------------------|
| 12 | 12f7 | 27 | 26 | 3 | 11,5 | 3 | 26 | 56 | 6 | 12 | 2 | G12 x XX |
| 16 | 16h7 | 32 | 20 | 3,2 | 13,2 | 3 | 35,5 | 60 | 8 | 16 | 6 | G16 x XX |
| 20 | 20f7 | 34 | 24 | 3,3 | 14 | 3 | 42 | 72 | 9,75 | 20,5 | 5,5 | G20 x XX |
| 35 | 35g6 | 65 | 25 | 8,2 | 25 | 5 | 77,5 | 110 | 17,5 | 35 | 8 | G35 X XX |
| 50 | 50g6 | 100 | 37 | 10,2 | 37,5 | 6 | 101 | 145 | 23 | 50 | 9 | G50 x XX |

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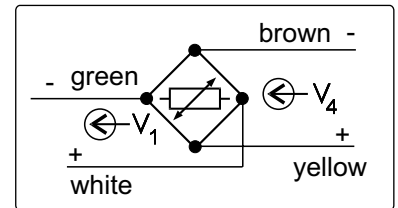
Installation Example



Attention:

Align positioning bore hole according to action line of the measuring direction. In order to obtain reverse polarity turn the KMB by 180° (positioning bore hole is at the bottom)

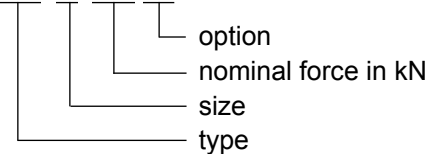
Sensor cable lead colors



V_1 : Bridge output signal
 V_4 : Bridge supply voltage

Ordering Example:

KMB35-25k-T



Connections and Enclosure Protections

| Option T | Option S |
|-----------------------------|----------------------------------------|
| Straight receptacle | Right angled cable plug connection |
| Protection IP 67 | Protection IP 50 |
| Protection as per DIN 40050 | |

| KMB | Option T | Option S |
|-----|----------|----------|
| 12 | T | - |
| 16 | T | - |
| 20 | T | - |
| 35 | T | S |
| 50 | T | S |

Exposion Protection

| Option F |
|---------------------------------------------------------|
| Use in potentially explosive atmospheres |
| With straight receptacle, (T) and blue sensor cable |
| Protection IP 67 |
| Protection as per DIN 40050 |

| KMB | Nominal Rating [mV/V] | |
|-----|-----------------------|------------------------------------------------------------|
| - | 0,75 ... 1,5 | Use J-Box for adjustment of zero point and nominal rating. |
| - | | |
| 20 | | |
| 35 | | |
| 50 | | |

