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## ZM Series Force Transducers

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*NOTE: Not available in U.S.*

### FEATURES

- 500 N to 100 kN
- Low assembly dimensions
- Made of special steel
- Hermetically-sealed case (IP 67)



### DESCRIPTION

The transducers in the ZM series are designed for the measurement of static and dynamic pressure forces. They are characterised by their small dimensions. As they are manufactured in stainless steel with a high protection degree, they can be used everywhere without limitations. The sensor element is a diaphragm body fitted with metal foil strain gauges, that forms an hermetically sealed chamber filled with dry nitrogen. The transducers are fitted with the help of four screw taps on a flat surface.

Force is introduced with no transverse force over a hardened plate on the universal ball joint. As a standard, the transducers are supplied with a 1.5 m long connection cable with free ends. Moreover, these can be supplied with an integrated amplifier (model designation ZM-E). The output signals (0 to 10) V or (4 to 20) mA can be selected.

| Accuracy class *                 |                 | 0.5                                  | 0.2                 | 0.1           |
|----------------------------------|-----------------|--------------------------------------|---------------------|---------------|
| Nominal force (=F <sub>N</sub> ) | kN              | 0.5 / 1 / 2 / 5 / 10 / 20 / 50 / 100 |                     | 20 / 50 / 100 |
| Max. permissible force           | %F <sub>N</sub> |                                      | 150                 |               |
| Ultimate overload                | %F <sub>N</sub> |                                      | >300                |               |
| Max. transverse force/load       | %F <sub>N</sub> |                                      | 20                  |               |
| Reference temperature            | °C              |                                      | +23                 |               |
| Nominal temperature range        | °C              |                                      | -20 to +60          |               |
| Storage temperature range        | °C              |                                      | -30 to +70          |               |
| Enclosure protection (DIN 40050) |                 |                                      | IP 67               |               |
| Nominal sensitivity (=S)         | mV/V            |                                      | 1.000 ±0.005        |               |
| Zero tolerance band              | %S              |                                      | ≤3                  |               |
| Max. supply voltage              | V               |                                      | 10                  |               |
| Input resistance                 | Ω               |                                      | 380 ±30             |               |
| Output resistance                | Ω               |                                      | 352 ±1.5            |               |
| Insulation resistance            | Ω               |                                      | >5 ×10 <sup>9</sup> |               |
| Linearity error *                | %S              | ≤0.5                                 | ≤0.2                | 0.1           |
| Width of backlash *              | %S              | ≤0.5                                 | ≤0.2                | 0.1           |
| TC of zero per 10 K              | %S              | ≤0.5                                 | ≤0.2                | 0.1           |
| TC of sensitivity per 10 K       | %S              | ≤0.5                                 | ≤0.2                | 0.1           |
| Creepage error (30 min)          | %S              | ≤0.5                                 | ≤0.2                | 0.1           |

\* According to VDI 2637

## PIN CONNECTIONS

| Pin                   | To DIN |
|-----------------------|--------|
| Supply voltage (+)    | brown  |
| Supply voltage (-)    | yellow |
| Measuring voltage (+) | green  |
| Measuring voltage (-) | white  |
| Shield                | black  |
| Cable length          | 1.5 m  |

**Note** : In the ZM-E type cells, the pins for supply voltage (-) and measuring voltage (-) are interconnected internally.

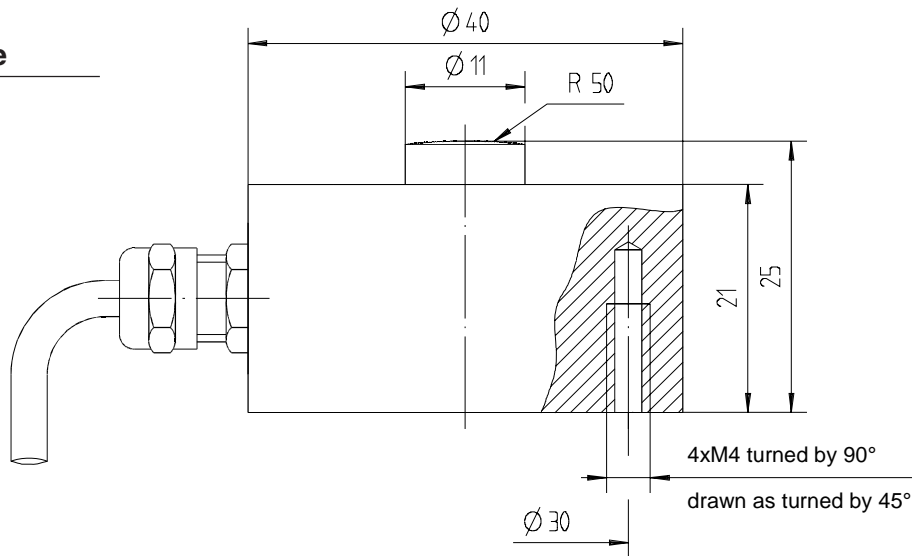
**ZM 0.5 kN to 10 kN**

**MODELS**

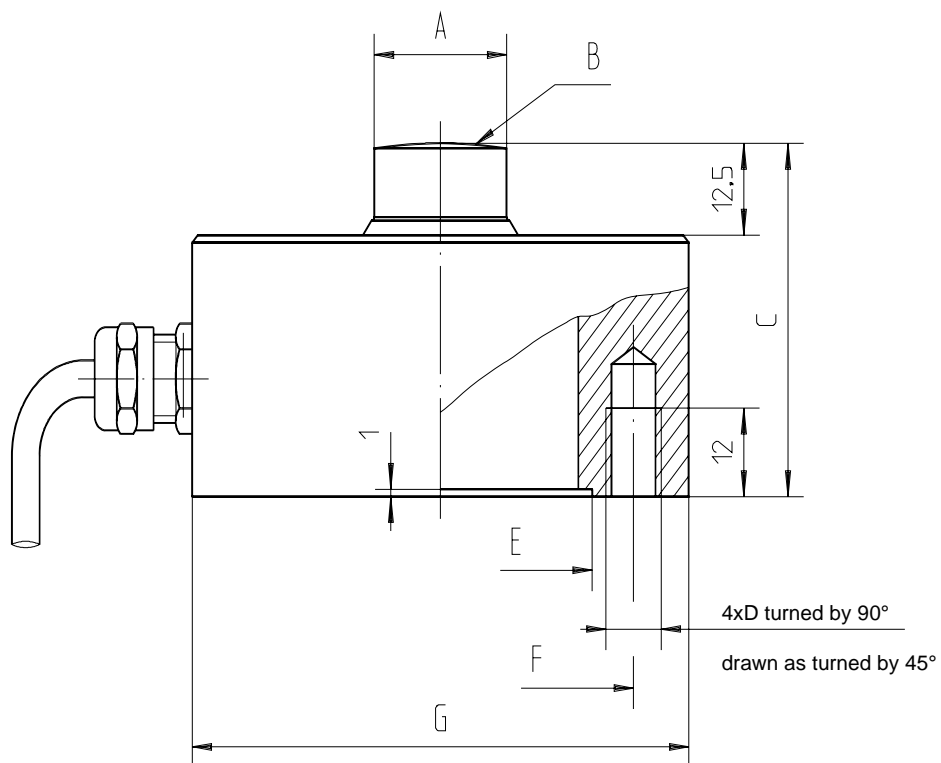
**Nominal force**

- 0.5 kN
- 1 kN
- 2 kN
- 5 kN
- 10 kN

Weight: 0.25 kg

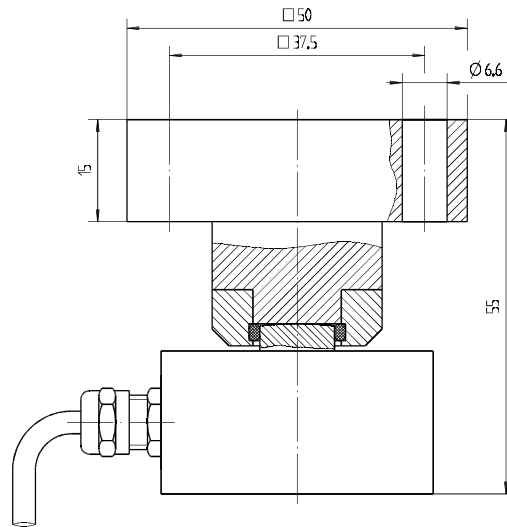


**ZM 20 kN to 100 kN**

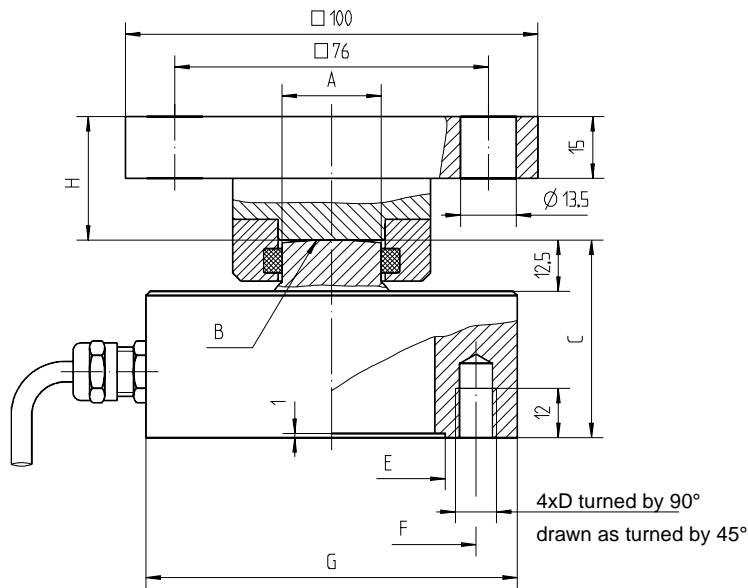


| Model          | A       | B    | C  | D   | E      | F   | G    | Weight |
|----------------|---------|------|----|-----|--------|-----|------|--------|
| ZM 20 kN/50 kN | Ø24-0.1 | R100 | 48 | M10 | Ø55 H8 | Ø70 | Ø90  | 1.8 kg |
| ZM 100 kN      | Ø32-0.1 | R160 | 60 | M12 | Ø68 H8 | Ø90 | Ø115 | 3.2 kg |

**ZM 0.5 kN to 10 kN with pendulum support, above AM 072**



**ZM 20 kN to 100 kN with pendulum support, above AM 070 (20 kN, 50 kN) or AM 071 (100 kN)**



| Model                      | A       | B    | C  | D   | E      | F   | G    | H  |
|----------------------------|---------|------|----|-----|--------|-----|------|----|
| ZM 20 kN/50 kN with AM 070 | Ø24-0.1 | R100 | 48 | M10 | Ø55 H8 | Ø70 | Ø90  | 30 |
| ZM 100 kN with AM 071      | Ø32-0.1 | R160 | 60 | M12 | Ø68 H8 | Ø90 | Ø115 | 30 |

**ORDERING INFORMATION FOR MECHANICAL ACCESSORIES**

**ZM 0,5 kN to 100 kN**

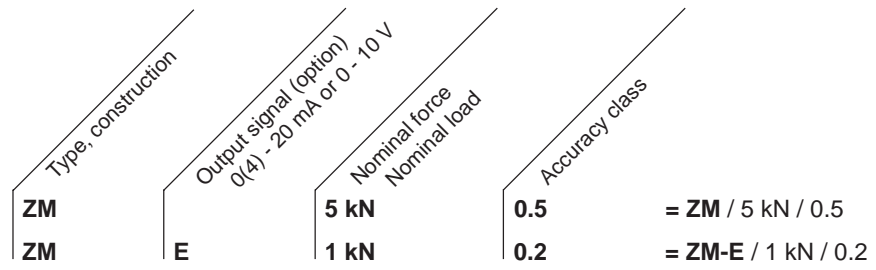
- AM 072 Pendulum support, above for ZM 0.5 kN to 10 kN
- AM 070 Pendulum support, above for ZM 20 kN to 50 kN
- AM 071 Pendulum support, above for ZM 100 kN

## ORDERING INFORMATION

### Explanation of Type Code (Ordering Example)

for Force Transducers

for Force Transducers with  
integrated amplifier



## SYSTEM OPTIONS

| Model No. | Product Description  | Ordering Number        |
|-----------|--|------------------------|
| LMU 112   | Load monitoring unit containing 2 level detectors, 1 current and 1 voltage O/Ps  | 224-112-000-XXX        |
| LMU 116   | Load monitoring unit containing 4 level detectors, taring and 4 summer functions | 224-116-000-XXX        |
| LMU 117   | Dual channel load monitoring unit (2 x LMU 112)                                  | 224-117-000-XXX        |
| AN 2000 C | Digital process monitor for strain gauge transducers                             | AN 2000 C /X/X/XX/XX/X |

*Due to the continual development of our products, we reserve the right to modify specifications without forewarning.*



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