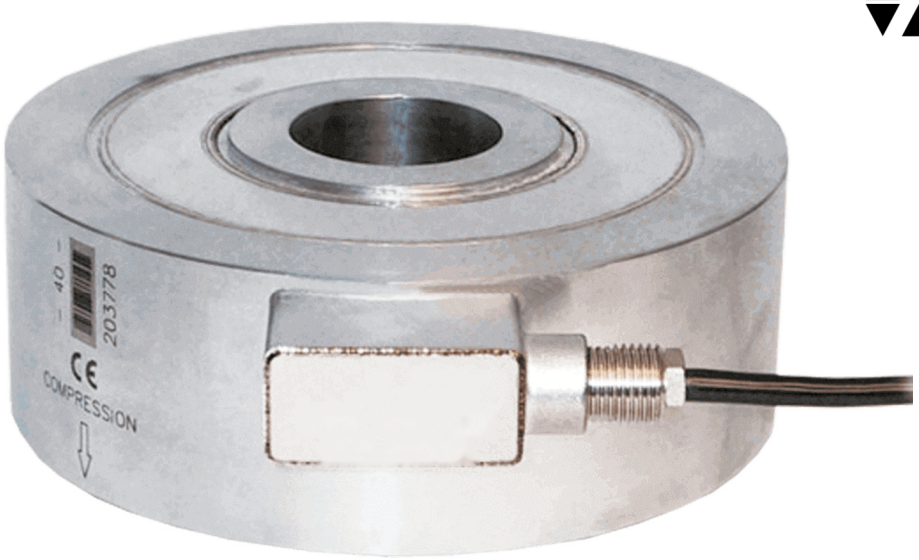
# AMPLIFIED RING FORCE TRANSDUCER

TENSION & COMPRESSION




- CAPACITY 10 ... 1000 KN
- 4 ... 20 MA · ± 5 V · ± 10 V
- STAINLESS STEEL · IP67
- RESPONSE FREQ. 2 KHZ

CE · RoHS COMPLIANT · IP67 · Stainless Steel · Fully Laser Welded · Dynamic Measurement · Analogsignal

## VERSIONS (OUTPUT)

| Output | Signal | Power supply | Load resistance |
|---|---|---|---|
| 4 ... 20 mA, 3-wire | 20 mA at nominal compression | 18 ... 28 V DC | 0 ... 470 Ω |
| ± 5 V | +5 V at nominal compression | 12 ... 28 V DC | min. 3 kΩ |
| ± 10 V | +10 V at nominal compression | 18 ... 28 V DC | min. 3 kΩ |

*Capacities 10, 25, 50, 100 kN (Ø 140), 250, 500 kN (Ø 165) and 750, 1000 kN (Ø 200). Higher response frequency and calibration in kg on request.*

# OVERVIEW

## Ring force transducer with built-in amplifier: standard signal 4 ... 20 mA, ± 5 V or ± 10 V, from 10 kN to 1000 kN.

The flat stainless steel ring is completely laser welded and protected to IP67. The amplifier delivers the standard signal directly at the transducer, with a response frequency of 2 kHz; power supply is 12 ... 28 V DC (4 ... 20 mA and ± 10 V: 18 ... 28 V DC). It is connected via a 5 m shielded cable, or optionally via an M12 connector.

**10 ... 1000 kN**
capacities

**4 ... 20 mA**
or ± 5 V, ± 10 V

**2 kHz**
response frequency

**IP67**
protection class

| MEASUREMENT |
| --- |
| capacity 10 ... 1000 kN |
| linearity ≤ ± 0.10 % / ≤ ± 0.20 % F.S. |
| dynamic load up to 75 % |
| response frequency 2 kHz |

| CONNECTION |
| --- |
| 4 ... 20 mA (3-wire), ± 5 V or ± 10 V |
| power supply 12 ... 28 V DC |
| 5 m cable, M12 connector option |
| stainless steel, IP67 |

# TECHNICAL DATA

## PRECISION

| | |
|---|---|
| Linearity | ≤ ± 0.10 % F.S. (10 … 100 kN) · ≤ ± 0.20 % F.S. (250 … 1000 kN) |
| Sensitivity tolerance | < ± 0.1 % |
| Temperature effect on zero (10 °C) | ≤ ± 0.028 % F.S. |
| Temperature effect on sensitivity (10 °C) | ≤ ± 0.024 % F.S. |
| Response frequency | 2 kHz (higher on request) |

## MECHANICAL PROPERTIES

| | |
|---|---|
| Material | stainless steel, completely laser welded |
| Sizes | Ø 140 mm (10 … 100 kN) · Ø 165 mm (250, 500 kN) · Ø 200 mm (750, 1000 kN) |
| Displacement at nominal load | ≈ 0.17 · 0.20 · 0.25 mm |
| Weight | ≈ 4.1 · 5.5 · 8.3 kg |
| Contact surfaces | hardness ≥ 40 HRC, roughness Ra ≤ 1.6 |
| Protection class (EN 60529) | IP67 |

## ELECTRICAL PROPERTIES

| | |
|---|---|
| Amplified output | 4 … 20 mA (3-wire) · ± 5 V · ± 10 V |
| Nominal power supply | 12 … 28 V DC (± 5 V) · 18 … 28 V DC (4 … 20 mA, ± 10 V) |
| Max. absorption | max. 30 mA |
| Load resistance, voltage | min. 3 kΩ |
| Load resistance, current | 0 … 470 Ω |
| Cable | PVC 105 °C, shielded, Ø 5.3 mm, conductors 0.14 mm², 5 m |

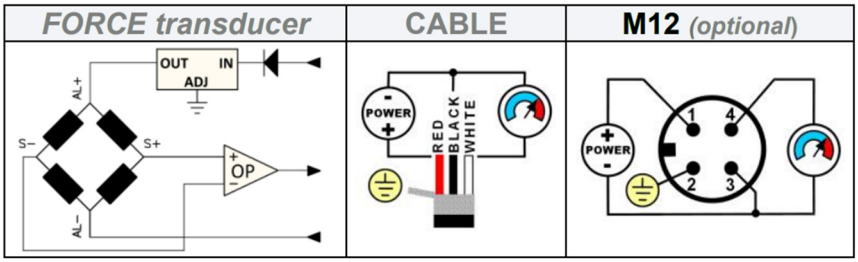
## TEMPERATURE

| | |
|---|---|
| Reference temperature | +23 °C |
| Nominal temperature range | –10 … +40 °C |
| Service temperature | –10 … +70 °C |
| Storage temperature | –20 … +80 °C |

## MECHANICAL LIMITS (REFERRED TO NOMINAL LOAD)

| | | |
|---|---|---|
| Service load | 120 %FS | Load without any permanent deformation or change in calibration. |
| Max. permissible load | 150 %FS | The highest static load that may be applied once or briefly without mechanical damage. |
| Breaking load | > 300 %FS | Load at which permanent deformation or mechanical failure (fracture) occurs. |
| Max. transverse load | 100 %FS | Maximum lateral or shear load that can be applied (e.g. due to misalignment or friction). |
| Max. permissible dynamic load | 75 %FS | For cyclic or oscillating loads, the amplitude should not exceed this load to prevent fatigue failure. |

## ELECTRICAL CONNECTION



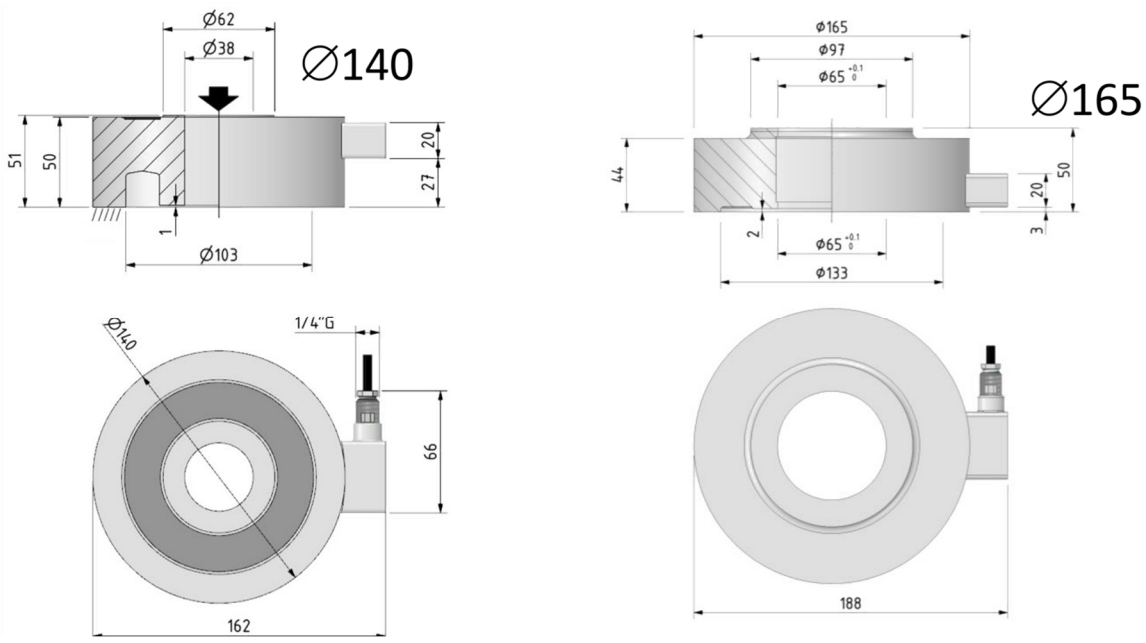

*M12 connector (option): pin 1 power +, pin 3 0 V, pin 4 output +, pin 2 earth. Shield connected to the body of the transducer. Protect power + by an external 100 … 200 mA fast-blow fuse.*

## ACCESSORIES AND OPTIONS

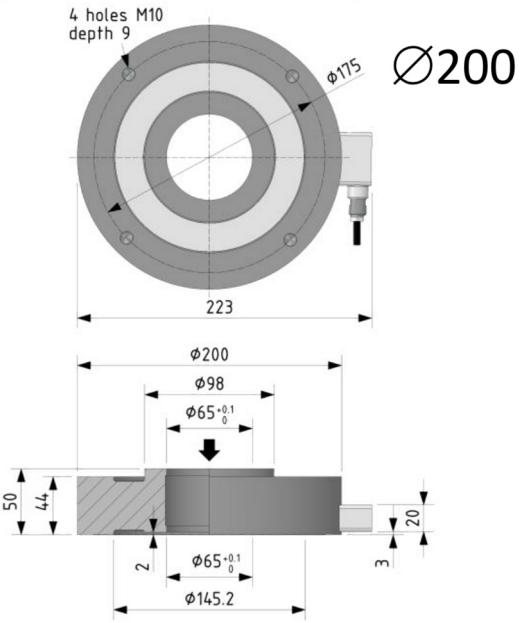
| | |
|---|---|
| M12 connector | direct output instead of cable |
| Connection cable | female M12 × 1, 5-pole, straight, PVC, shielded, 3 m |
| Calibration | in kg on request |

# DIMENSIONS (mm)

10 … 100 kN (Ø 140) · 250 … 500 kN (Ø 165)




750 … 1000 kN (Ø 200)




*Dimensions in mm. Ø 200: 4 holes M10, depth 9, on pitch circle Ø 175. The contact surfaces with the force transducer must have a hardness of at least 40 HRC and a roughness Ra ≤ 1.6.*

# COMPLIANCE AND CERTIFICATION

| | |
|---|---|
| Protection Rating | IP67 |
| Compliance | CE, RoHS |
| Calibration | Calibration in kg on request |

# OPTIONS (to be purchased separately)

## CONNM12MF

- Direct output connector **M12**



## CONNM12FV5

- Female 5 poles straight **M12x1** CONNECTOR complete PVC molded **CABLE**, shielded, length 3 m

