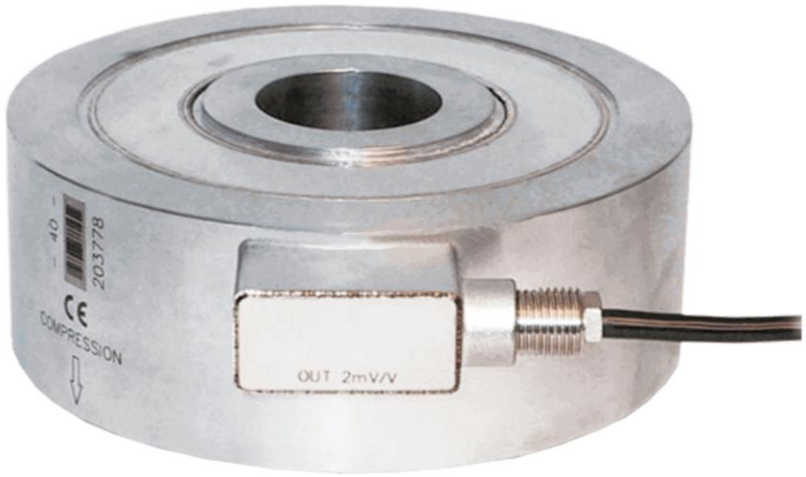
# RING FORCE TRANSDUCER

TENSION & COMPRESSION




- CAPACITY 10 ... 1000 KN
- SENSITIVITY 2 MV/V
- STAINLESS STEEL · IP67
- FULLY LASER WELDED

CE RoHS COMPLIANT IP67 Stainless Steel Fully Laser Welded Dynamic Measurement mV/V

## NOMINAL LOAD (FS)

| Capacity | Size Ø (mm) | Linearity F.S. | Displacement (mm) | Weight (kg) |
|---|---|---|---|---|
| 10 kN | 140 | ≤ ± 0.10 % | ≈ 0.17 | ≈ 4.1 |
| 25 kN | 140 | ≤ ± 0.10 % | ≈ 0.17 | ≈ 4.1 |
| 50 kN | 140 | ≤ ± 0.10 % | ≈ 0.17 | ≈ 4.1 |
| 100 kN | 140 | ≤ ± 0.10 % | ≈ 0.17 | ≈ 4.1 |
| 250 kN | 165 | ≤ ± 0.20 % | ≈ 0.20 | ≈ 5.5 |
| 500 kN | 165 | ≤ ± 0.20 % | ≈ 0.20 | ≈ 5.5 |
| 750 kN | 200 | ≤ ± 0.20 % | ≈ 0.25 | ≈ 8.3 |
| 1000 kN | 200 | ≤ ± 0.20 % | ≈ 0.25 | ≈ 8.3 |

*Displacement at nominal load. Calibration in kg on request.*

# OVERVIEW

## Ring force transducer of stainless steel from 10 kN to 1000 kN in three sizes, nominal sensitivity 2 mV/V.

The flat ring is completely laser welded and protected to IP67; the force is applied around the central through hole. It takes dynamic loads up to 75 % and transverse loads up to 100 % of the nominal load. It is connected via a 5 m shielded cable, or optionally via an M12 connector.

| 10 ... 1000 kN | 2 mV/V | ≤ ± 0.10 % | IP67 |
|---|---|---|---|
| capacities | nominal sensitivity | linearity from 10 kN | protection class |

| MEASUREMENT |
|---|
| capacity 10 ... 1000 kN |
| linearity ≤ ± 0.10 % / ≤ ± 0.20 % F.S. |
| dynamic load up to 75 % |
| nominal sensitivity 2 mV/V ± 0.1 % |

| DESIGN |
|---|
| stainless steel, completely laser welded |
| sizes Ø 140, 165, 200 mm |
| IP67 |
| 5 m cable, M12 connector option |

# TECHNICAL DATA

## PRECISION

| | |
|---|---|
| Linearity | ≤ ± 0.10 % F.S. (10 … 100 kN) · ≤ ± 0.20 % F.S. (250 … 1000 kN) |
| Temperature effect on zero (10 °C) | ≤ ± 0.028 % F.S. |
| Temperature effect on sensitivity (10 °C) | ≤ ± 0.024 % F.S. |

## 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

| | |
|---|---|
| Nominal sensitivity | 2 mV/V |
| Sensitivity tolerance | ≤ ± 0.1 % F.S. |
| Input resistance | 800 ± 20 Ω |
| Output resistance | 705 ± 2 Ω |
| Insulation resistance | > 5 GΩ |
| Zero balance | ≤ ± 1 % F.S. |
| Recommended supply voltage | 10 V |
| Nominal supply voltage | 1 … 15 V |
| Maximum supply voltage | 18 V |
| Cable | PVC 105 °C, shielded, Ø 5.3 mm, 4 conductors, 5 m |

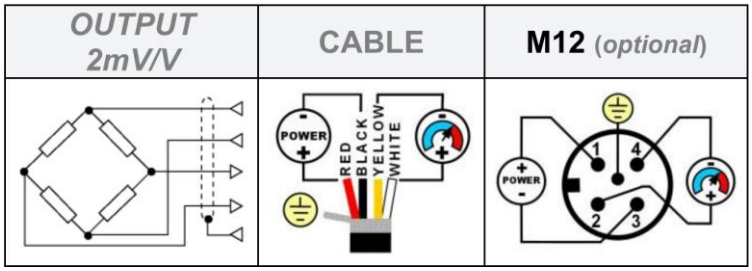
## TEMPERATURE

| | |
|---|---|
| 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



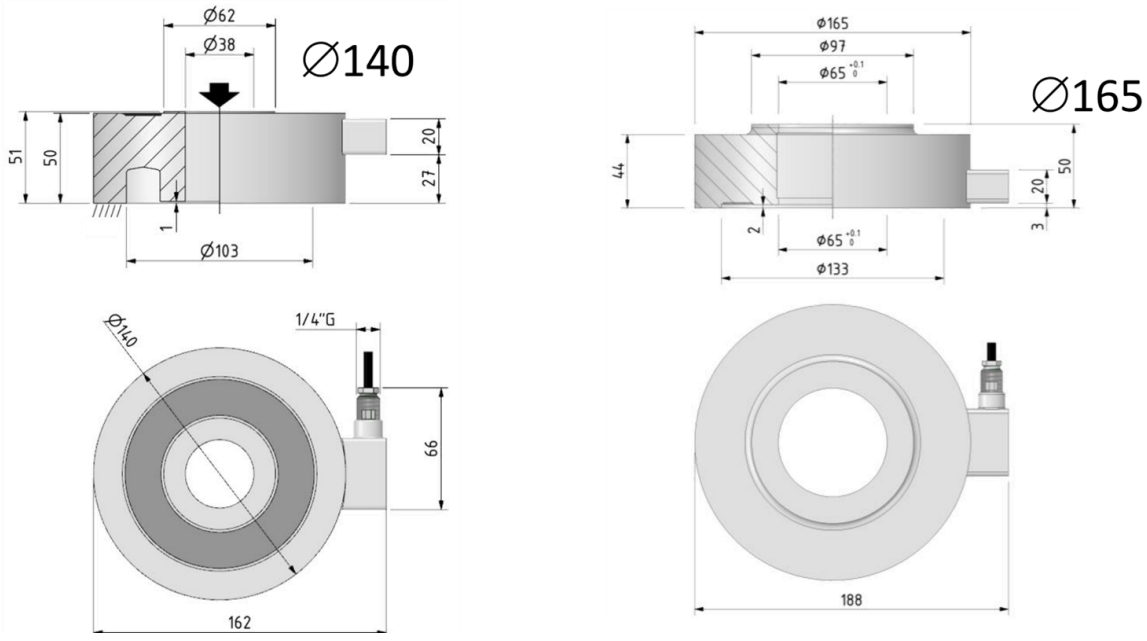

*Bridge, cable (red, black, yellow, white) and M12 connector (option). Shield connected to the body of the transducer.*

## ACCESSORIES AND OPTIONS

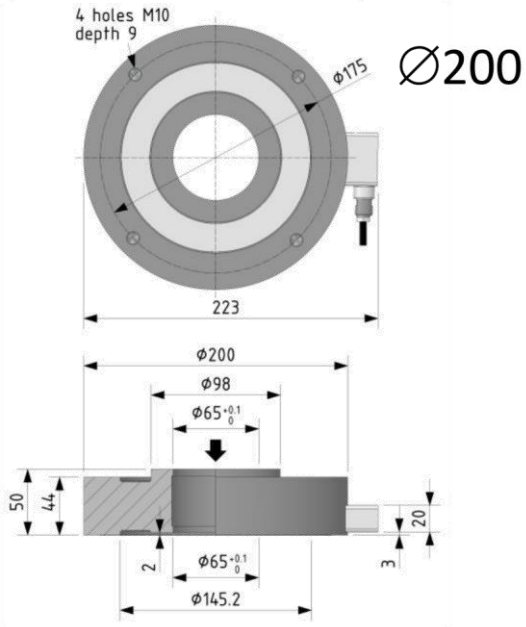
| | |
|---|---|
| M12 connector | direct output instead of cable |
| Connection cable | female M12 × 1, 5-pole, straight, PVC, shielded, 3 m |
| Calibration | in kg on request |

# 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

