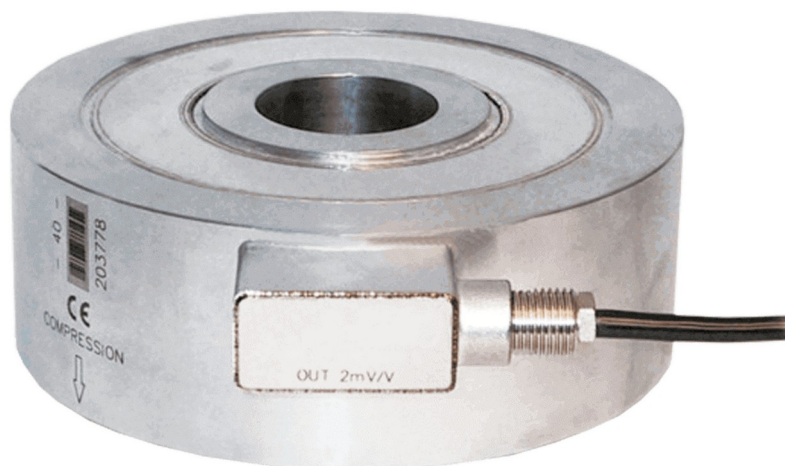
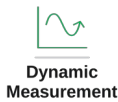


## RING FORCE TRANSDUCER

 COMPRESSION


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



## NOMINAL LOAD (FS)

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

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.

|                                                 |                                                  |                                                                          |                                             |
|-------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------|
| <div>10 ... 1000 kN</div> <div>capacities</div> | <div>2 mV/V</div> <div>nominal sensitivity</div> | <div><math>\leq \pm 0.10 \%</math></div> <div>linearity from 10 kN</div> | <div>IP67</div> <div>protection class</div> |
|-------------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------|

| MEASUREMENT                                                                             | DESIGN                                              |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------|
| <div>capacity 10 ... 1000 kN</div>                                                      | <div>stainless steel, completely laser welded</div> |
| <div>linearity <math>\leq \pm 0.10 \%</math> / <math>\leq \pm 0.20 \%</math> F.S.</div> | <div>sizes Ø 140, 165, 200 mm</div>                 |
| <div>dynamic load up to 75 %</div>                                                      | <div>IP67</div>                                     |
| <div>nominal sensitivity 2 mV/V <math>\pm 0.1 \%</math></div>                           | <div>5 m cable, M12 connector option</div>          |



## TECHNICAL DATA

## PRECISION

|                                           |                                                                                                       |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Linearity                                 | $\leq \pm 0.10 \% \text{ F.S. (10 ... 100 kN)} \cdot \leq \pm 0.20 \% \text{ F.S. (250 ... 1000 kN)}$ |
| Temperature effect on zero (10 °C)        | $\leq \pm 0.028 \% \text{ F.S.}$                                                                      |
| Temperature effect on sensitivity (10 °C) | $\leq \pm 0.024 \% \text{ F.S.}$                                                                      |

## MECHANICAL PROPERTIES

|                              |                                                                                                                                             |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Material                     | stainless steel, completely laser welded                                                                                                    |
| Sizes                        | $\varnothing 140 \text{ mm (10 ... 100 kN)} \cdot \varnothing 165 \text{ mm (250, 500 kN)} \cdot \varnothing 200 \text{ mm (750, 1000 kN)}$ |
| Displacement at nominal load | $\approx 0.17 \cdot 0.20 \cdot 0.25 \text{ mm}$                                                                                             |
| Weight                       | $\approx 4.1 \cdot 5.5 \cdot 8.3 \text{ kg}$                                                                                                |
| Contact surfaces             | hardness $\geq 40 \text{ HRC}$ , roughness $R_a \leq 1.6$                                                                                   |
| Protection class (EN 60529)  | IP67                                                                                                                                        |

## ELECTRICAL PROPERTIES

|                            |                                                                        |
|----------------------------|------------------------------------------------------------------------|
| Nominal sensitivity        | 2 mV/V                                                                 |
| Sensitivity tolerance      | $\leq \pm 0.1 \% \text{ F.S.}$                                         |
| Input resistance           | $800 \pm 20 \Omega$                                                    |
| Output resistance          | $705 \pm 2 \Omega$                                                     |
| Insulation resistance      | $> 5 \text{ G}\Omega$                                                  |
| Zero balance               | $\leq \pm 1 \% \text{ F.S.}$                                           |
| Recommended supply voltage | 10 V                                                                   |
| Nominal supply voltage     | 1 ... 15 V                                                             |
| Maximum supply voltage     | 18 V                                                                   |
| Cable                      | PVC 105 °C, shielded, $\varnothing 5.3 \text{ mm}$ , 4 conductors, 5 m |

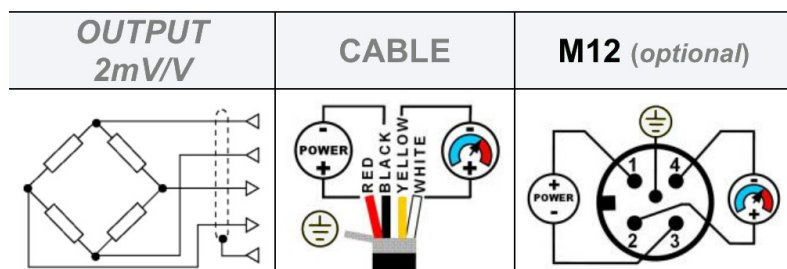
## TEMPERATURE

|                           |                |
|---------------------------|----------------|
| 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 %      |
| Max. permissible load         | 150 %      |
| Breaking load                 | $> 300 \%$ |
| Max. transverse load          | 100 %      |
| Max. permissible dynamic load | 75 %       |

## ELECTRICAL CONNECTION



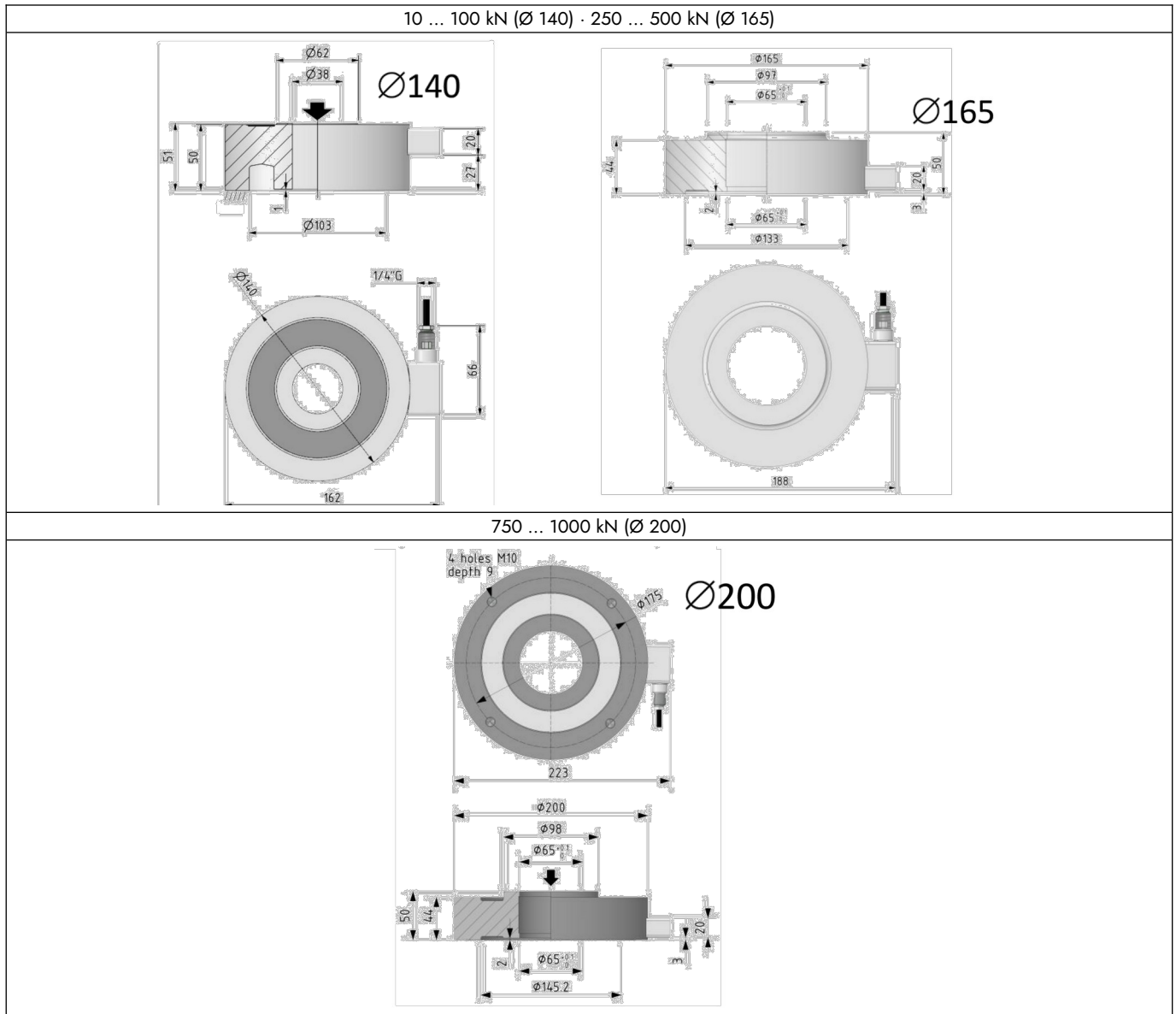
Bridge, cable (red, black, yellow, white) and M12 connector (option). Shield connected to the body of the transducer.

## ACCESSORIES AND OPTIONS

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



## DIMENSIONS (mm)



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  $R_a \leq 1.6$ .

## COMPLIANCE AND CERTIFICATION

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

