# FORCE TRANSDUCER

TENSION & COMPRESSION




- OUTPUT 4-20 mA · ±5 V · ±10 V
- LINEARITY AND HYSTERESIS:
  ≤ ±0.05 %FS (5 kN – 1 MN)
  ≤ ±0.10 %FS (2 MN – 5 MN)
- IP67 PROTECTION RATING

CE · RoHS COMPLIANT · REACH COMPLIANCE · Dynamic Measurement · Fully Laser Welded · IP67 · Stainless Steel · ISO 17025 ACCREDITED LABORATORY

## NOMINAL LOAD (FS)

| kg | kN | NET WEIGHT (kg) | LINEARITY / HYSTERESIS | RoHS |
|---|---|---|---|---|
| 500 | 5 | 1.6 | ≤ ±0.05 % | • |
| 1 000 | 10 | 1.6 | ≤ ±0.05 % | • |
| 2 500 | 25 | 1.6 | ≤ ±0.05 % | • |
| 5 000(1) | 50 | 1.6 | ≤ ±0.05 % | • |
| 5 000 | 50 | 2.45 | ≤ ±0.05 % | • |
| 10 000 | 100 | 2.45 | ≤ ±0.05 % | • |
| 20 000 | 200 | 5.8 | ≤ ±0.05 % | • |
| 30 000 | 300 | 5.8 | ≤ ±0.05 % | • |
| 50 000 | 500 | 6.8 | ≤ ±0.05 % | • |
| 75 000 | 750 | 16.5 | ≤ ±0.05 % | • |
| 100 000 | 1 000 | 16.5 | ≤ ±0.05 % | • |
| 200 000 | 2 000 | 35 | ≤ ±0.10 % | • |
| 300 000(2) | 3 000(2) | 63 | ≤ ±0.10 % | • |
| 500 000(2) | 5 000(2) | 63 | ≤ ±0.10 % | • |

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# TECHNICAL DATA

## PRECISION

| | |
|---|---|
| Rated Output ($C_n$) | 4-20 mA[3] (3 wires)<br>±5 V[3] or ±10 V[3] |
| Zero Balance | ± 1 % |
| Calibration tolerance | < ±0.1 % |
| Non-linearity | ≤ ±0.05 %FS (5 kN – 1 MN)<br>≤ ±0.10 %FS (2 MN – 5 MN) |
| Hysteresis | ≤ ±0.05 %FS (5 kN – 1 MN)<br>≤ ±0.10 %FS (2 MN – 5 MN) |
| Effect of transverse load (at 10 %FS) | ≤ ±0.030 %FS |
| Temperature coefficient on zero | ≤ ±0.028 %FS / 10 °C |
| Temperature coefficient on span | ≤ ±0.024 %FS / 10 °C |
| Compensated temperature range | –10 ... +40 °C |
| Operating temperature range | –10 ... +70 °C |
| Storage temperature range | –20 ... +80 °C |
| Reference Temperature | 23 °C |

## ELECTRICAL PROPERTIES

| | |
|---|---|
| Power supply (±5 V output) | 12 ... 24 V DC |
| Power supply (4-20 mA, ±10 V) | 18 ... 24 V DC |
| Max. power supply | 28 V DC |
| Insulation resistance | > 2 GΩ |
| Max. absorption (no load) | 30 mA |
| Load resistance (voltage output) | min. 3 kΩ |
| Load resistance (current output) | 0 ... 470 Ω |
| Response frequency | 0.5 ... 5 kHz |
| Cable diameter | 5.2 mm |
| Cable length | 5 m |

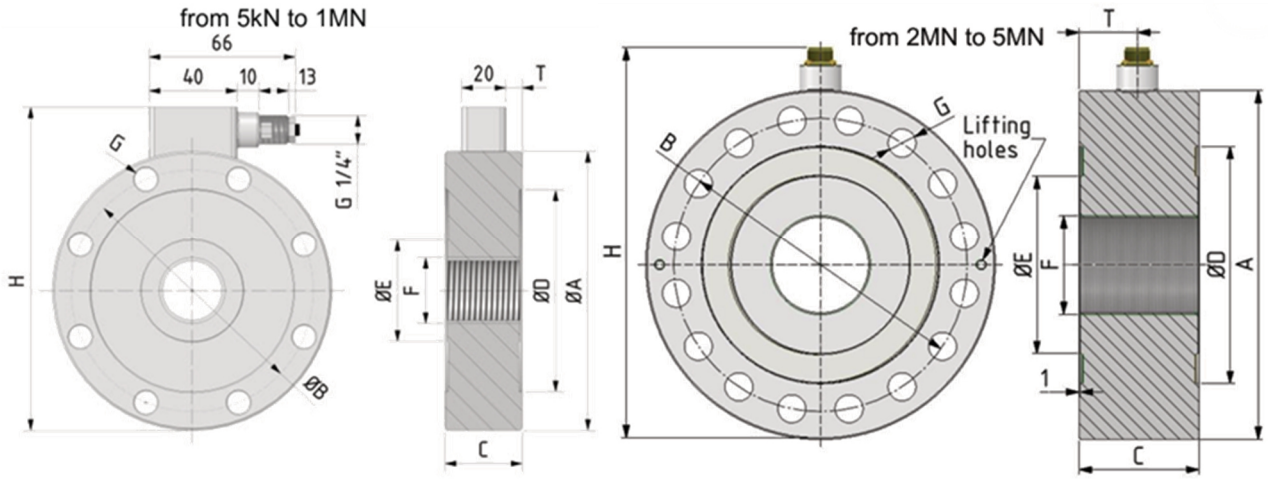
## MECHANICAL PROPERTIES

| | |
|---|---|
| Material | STAINLESS STEEL |
| Deflection at FN | ~ 0.06 ... 0.23 mm |

## MECHANICAL LIMITS

| | | |
|---|---|---|
| Service load | 120 %FS | Load without any permanent deformation or change in calibration. |
| Safe overload | 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 (side) | 100 %FS | Maximum lateral or shear load that can be applied (e.g. due to misalignment or friction). |
| Max. permissible dynamic load | 75 %FS[4] | For cyclic or oscillating loads, the amplitude should not exceed this load to prevent fatigue failure. |

# DIMENSIONS (mm)




| Load | Ø A | B | C | Ø D | Ø E | F | G | N°G | H | T |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 – 50 kN | 100 | 86 | 35 | 72 | 32 | M20 x 1.5 | 9 | 6 | 121 | 7.5 |
| 50 – 100 kN | 127 | 110 | 35 | 92 | 47 | M30 x 2 | 10.5 | 8 | 149 | 7.5 |
| 200 – 300 kN | 165 | 138 | 50 | 108 | 62 | M42 x 3 | 17 | 12 | 188 | 15 |
| 500 kN | 165 | 138 | 60 | 108 | 62 | M42 x 3 | 17 | 12 | 188 | 20 |
| 750 kN – 1 MN | 230 | 185 | 80 | 145 | 98 | M60 x 3 | 25 | 12 | 254 | 30 |
| 2 MN | 300 | 250 | 100 | 198 | 132 | M100 x 3 | 25 | 16 | 339 | 50 |
| 3 MN | 350 | 294 | 120 | 238 | 178 | M100 x 3 | 28 | 16 | 389 | 60 |
| 5 MN | 350 | 294 | 130 | 238 | 178 | M100 x 3 | 28 | 16 | 389 | 65 |

(1) The force transducer 50 kN Ø100 is guaranteed in TENSION up to 25 kN.

(2) The force transducers 3 MN and 5 MN are guaranteed in TENSION up to 2.5 MN.

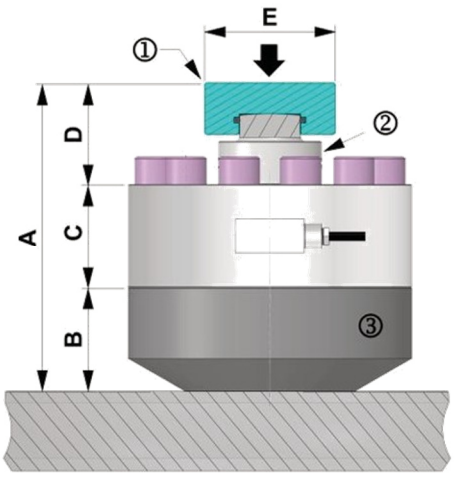
(3) Tests and calibrations performed in COMPRESSION with the transducer mounted on a bearing support with correctly tightened clamping screws.

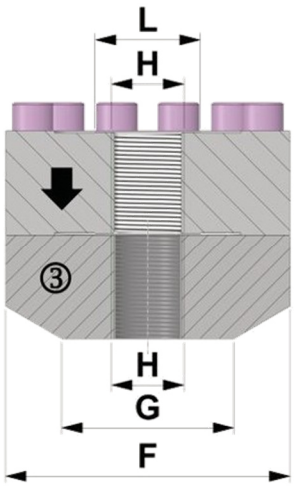
(4) The dynamic load must be applied to the transducer central thread and not to the external fixing rim.

Fixing screws, class 12.9 (tightening torque): 5–50 kN Ø100 M8 (40 Nm) · 50–100 kN M10 (70 Nm) · 200–500 kN M16 (368 Nm) · 750 kN–2 MN M24 (460 Nm) · 3–5 MN M27 (1500 Nm).

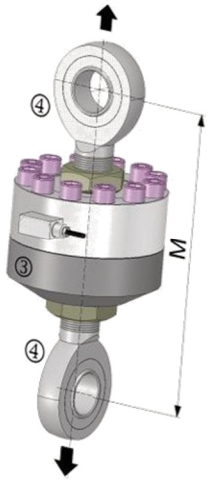
# APPLICATIONS

**COMPRESSION**




**TENSION**




**WARNING:**
Check that the fixing screws and the accessories are correctly tightened.

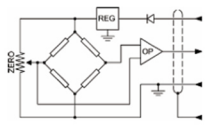
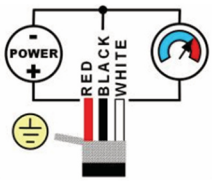
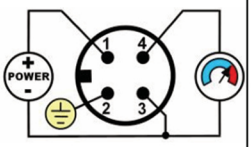
Accessories execution material:
from 5 to 200 kN
from 300 kN to 5 MN

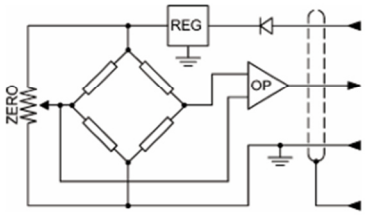
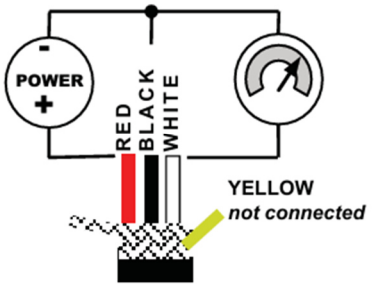
Stainless Steel
Rm ≥ 90 kg/mm²
Rm ≥ 130 kg/mm²

**Dimensions, mm**

| LLAB | A | B | C | D | E | F | G | H | L | M |
|---|---|---|---|---|---|---|---|---|---|---|
| 5, 10, 25, 50 kN | 108 | 37 | 35 | 36 | Ø57 | Ø100 | Ø70 | M20 x 1.5 | Ø32 | ~ 170 |
| 50, 100 kN | 108 | 37 | 35 | 36 | Ø76 | Ø127 | Ø100 | M30 x 2 | Ø47 | ~ 200 |
| 200 kN | 169 | 60 | 50 | 59 | Ø76 | Ø165 | Ø100 | M42 x 3 | Ø62 | ~ 224 |
| 300 kN | 169 | 60 | 50 | 59 | Ø76 | Ø165 | Ø100 | M42 x 3 | Ø62 | ~ 465 |
| 500 kN | 179 | 60 | 60 | 59 | Ø76 | Ø165 | Ø100 | M42 x 3 | Ø62 | ~ 513 |
| 750 kN, 1 MN | 252 | 85 | 80 | 87 | Ø126 | Ø230 | Ø180 | M60 x 3 | Ø98 | / |
| 2 MN | 309 | 85 | 100 | 124 | Ø129 | Ø300 | Ø250 | M100 x 3 | Ø132 | / |
| 3 MN | 384 | 120 | 120 | 144 | Ø168 | Ø350 | Ø330 | M100 x 3 | Ø178 | / |
| 5 MN | 394 | 120 | 130 | 144 | Ø168 | Ø350 | Ø330 | M100 x 3 | Ø178 | / |

# ELECTRICAL CONNECTIONS

| Transducer from 5 kN to 1 MN | CABLE* | MIL6M (optional) | M12 (optional) | OPTION with M12 |
|---|---|---|---|---|
|  |  | A = POWER+<br>B = 0 V / Signal -<br>C = Not connected<br>D = OUTPUT+<br>E = Not connected<br>F = EARTH |  | *Female 4 poles straight* ***M12x1*** *CONNECTOR complete PVC molded* ***CABLE****, shielded, length: 3m* |

| Transducer 2MN and 5MN | MIL7M | CABLE * |
|---|---|---|
|  | A = OUTPUT+<br>B = 0 V / Signal -<br>C = POWER+<br>D = Not connected<br>E = EARTH<br>F = Not connected<br>G = Not connected |  |

*PVC 105 °C shielded cable, Ø 5.2 mm, 4 tinned conductors 0.35 mm²

Protect POWER+ with an external 100 to 200 mA fast-blow fuse

# COMPLIANCE AND CERTIFICATION

| | |
|---|---|
| Protection Rating | IP67 |
| Compliance | CE, RoHS, REACH |
| Calibration | Factory-calibrated, ISO 17025 calibration available on request |
| HS-CODE | 9031.80.80 |
| Certifications (on request) | Calibration report or ACCREDIA certificate (compression, tension, bidirectional) |