



Tension and Compression Force Transducers

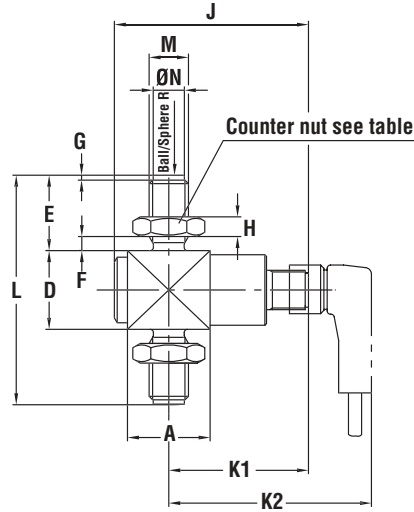
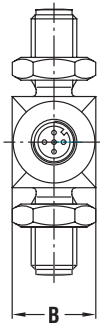


- **Compact design**
- **Stainless Steel construction**
- **Amplified output**
- **Sputtered thin film sensor for maximum repeatability and stability**
- **From 2 kN to 50 kN nominal loads**

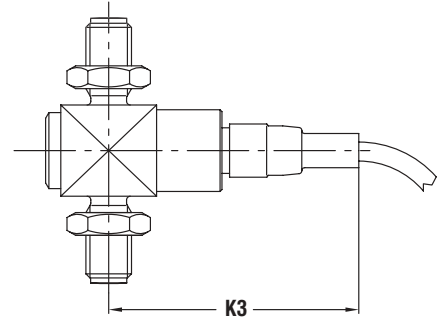
| Specifications | |
|-------------------------------------|---|
| Model | 3540 |
| Nominal Load F_{nom} | 2 / 3 / 5 / 10 / 20 / 30 / 50 kN |
| Limit Load | 150 % Full Scale |
| Fracture Load | > 300 % Full Scale |
| Permissible Oscillation | ± 80 % Full Scale Acc. To DIN 50100 |
| Output Signal C_n | 4mA to 20mA, two wire or three wire; 0 – 10 Vdc, three wire |
| Accuracy | < ± 0.2 % C_n |
| Hysteresis | < ± 0.1 % C_n |
| Stability | < ± 0.1 % C_n at F_{nom} |
| Ambient temperature range | -20 ° C to 80 ° C (-4 ° F to 176 ° F) |
| Storage temperature range | -20 ° C to 100 ° C (-4 ° F to 212 ° F) |
| Temperature Effect – span – zero | < ± 0.01 % F_{nom} / ° F < ± 0.01 % F_{nom} / ° F |
| Vibration Effect | 20 g, 100h, 50Hz to 150Hz according to IEC68-2-6-Fc |
| Environmental Protection | IP 67 according to EN 60 529 /IEC 529 |
| Electrical Connection | M12 x 1 or cable |
| Power Supply | 0 Vdc to 10 Vdc for 4 mA to 20 mA output; 14 Vdc to 30 Vdc for 10 Vdc to 30 Vdc output |
| Current Consumption | 4 mA to 20 mA, signal 0 to 10 Vdc, 8 mA |
| Response time | < 1 ms (within 10 % to 90 % F_{nom}) |
| Noise Protection | CE compliant; RFI, EMI and ESD protected according to EN 61326 |
| Electrical protection | Short circuit, overvoltage and reverse polarity protection |
| Material | 17-4PH Stainless Steel |

Dimensional Drawings

**M12 x 1 Connector
Version 2-30 kN**

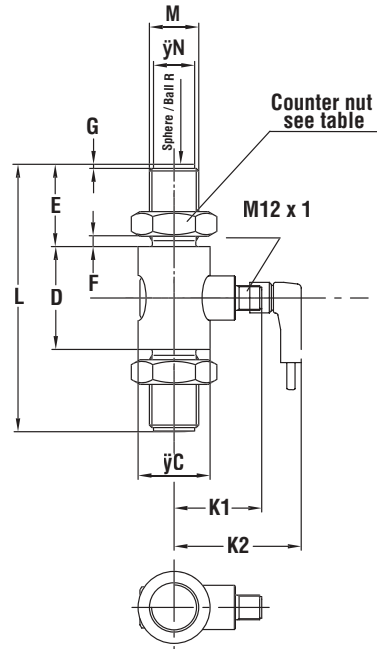
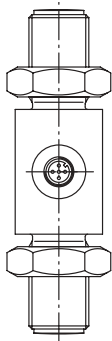


Cable Version

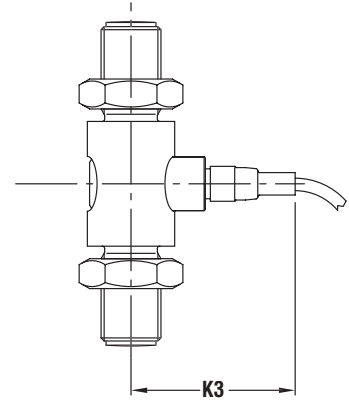


| Nominal Load | Unit | A | B | D | E | F | G | H | J | K1 | K2 | K3 | L | M | N-0,1 | Ball / Sphere R | MA (Nm) |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-----------------|---------|
| 2 kN | mm | 25.2 | 22 | 24 | 23 | 4.3 | 1.5 | 6 | 59.2 | 42.6 | 61.8 | 65.8 | 70 | M12 | 9.5 | 60 | 60 |
| | in | 0.99 | 0.87 | 0.95 | 0.91 | 0.17 | 0.06 | 0.24 | 2.33 | 1.68 | 2.43 | 2.59 | 2.76 | M12 | 0.37 | 2.36 | 2.36 |
| 5 kN | mm | 25.2 | 22 | 24 | 23 | 4.3 | 1.5 | 6 | 59.2 | 42.6 | 61.8 | 65.8 | 70 | M12 | 9.5 | 60 | 60 |
| | in | 0.99 | 0.87 | 0.95 | 0.91 | 0.17 | 0.06 | 0.24 | 2.33 | 1.68 | 2.43 | 2.59 | 2.76 | M12 | 0.37 | 2.36 | 2.36 |
| 10 kN | mm | 25.2 | 22 | 31 | 23 | 4.3 | 1.5 | 6 | 59.2 | 42.6 | 61.8 | 65.8 | 77 | M12 | 9.5 | 80 | 60 |
| | in | 0.99 | 0.87 | 1.22 | 0.91 | 0.17 | 0.06 | 0.24 | 2.33 | 1.68 | 2.43 | 2.59 | 3.03 | M12 | 0.37 | 3.15 | 2.36 |
| 20 kN | mm | 25.2 | 26 | 33 | 34 | 3.8 | 2 | 10 | 59.2 | 42.6 | 61.8 | 65.8 | 101 | M20 X | 17 | 100 | 300 |
| | in | 0.99 | 1.42 | 1.30 | 1.34 | 1.50 | 0.08 | 0.39 | 2.33 | 1.68 | 2.43 | 2.59 | 3.98 | M20 X | 0.67 | 3.94 | 11.81 |
| 30 kN | mm | 27.5 | 27.5 | 40 | 34 | 3.80 | 2 | 10 | 61.5 | 43.8 | 63 | 67 | 108 | M20 X | 17 | 120 | 300 |
| | in | 1.08 | 1.08 | 1.56 | 1.34 | 1.50 | 0.08 | 0.39 | 2.42 | 1.72 | 2.48 | 2.64 | 4.25 | M20 X | 0.67 | 4.72 | 11.81 |

**M12 x 1 Connector
Version 50 kN**



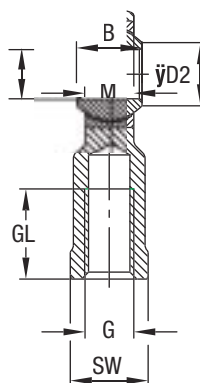
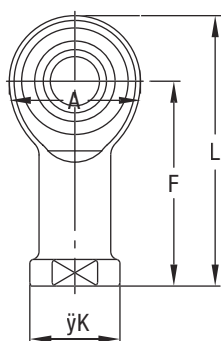
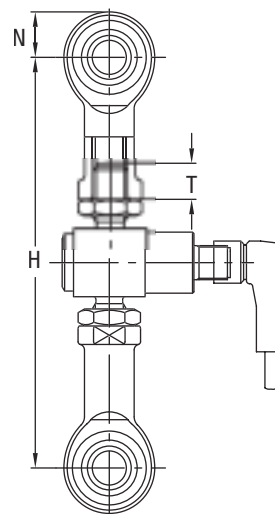
Cable Version



| Force | | C | D | E | F | G | H | K2 | K3 | L | M | N-01 | Sphere/ Ball R | MA (Nm) |
|-------|----|------|------|------|------|------|------|------|------|------|---------|------|----------------|---------|
| 50 kN | mm | 35 | 50 | 40 | 5 | 2 | 42.6 | 61.3 | 65.8 | 130 | M24 x 2 | 20 | 150 | 500 |
| | in | 1.38 | 1.97 | 1.57 | 0.20 | 0.47 | 1.68 | 2.41 | 2.59 | 5.12 | M24 x 2 | 0.79 | 5.906 | 19.685 |

Dimensional Drawings

| Nominal Load | | H | N | Minimum depth of screw down |
|--------------|----|--------------|------|-----------------------------|
| 2 kN | mm | 148 ± 3 | 50 | 9.5 |
| | in | 5.83 ± 0.12 | 1.97 | 0.37 |
| 5 kN | mm | 148 ± 3 | 50 | 9.5 |
| | in | 5.83 ± 0.12 | 1.97 | 0.37 |
| 10 kN | mm | 155 ± 3 | 50 | 9.5 |
| | in | 6.10 ± 0.12 | 1.97 | 0.37 |
| 20 kN | mm | 219 ± 4 | 77 | 16 |
| | in | 8.62 ± 0.16 | 3.03 | 0.63 |
| 30 kN | mm | 226 ± 4 | 77 | 16 |
| | in | 8.90 ± 0.16 | 3.03 | 0.63 |
| 50 kN | mm | 276 ± 4 | 74 | 19.5 |
| | in | 10.87 ± 0.16 | 2.91 | 0.77 |



| Nominal load in kN | | Weight in kg (oz) | A | B | D1 | D2 | F | G | GL | K | L | M | SW |
|--------------------|----|-------------------|------|------|------|------|------|---------|------|------|------|------|------|
| 2 kN to 10 kN | mm | 0.115 (4.06) | 32 | 16 | 12 | 15.4 | 50 | M12 | 22 | 22 | 66 | 12 | 19 |
| | in | 0.115 (4.06) | 1.26 | 0.63 | 0.47 | 0.61 | 1.97 | M12 | 0.87 | 0.87 | 2.60 | 0.47 | 0.75 |
| 20 kN to 30 kN | mm | 0.415 (14.64) | 50 | 25 | 20 | 24.3 | 37 | M20x1.5 | 33 | 34 | 102 | 18 | 32 |
| | in | 0.415 (14.64) | 1.97 | 0.99 | 0.79 | 0.96 | 1.46 | M20x1.5 | 1.30 | 1.34 | 4.02 | 0.47 | 1.26 |
| 50 kN | mm | 0.750 (26.46) | 60 | 31 | 25 | 29.6 | 94 | M20x2 | 42 | 42 | 124 | 22 | 36 |
| | in | 0.750 (26.46) | 2.36 | 1.22 | 0.95 | 1.17 | 3.07 | M20x2 | 1.65 | 1.65 | 4.88 | 0.87 | 1.42 |