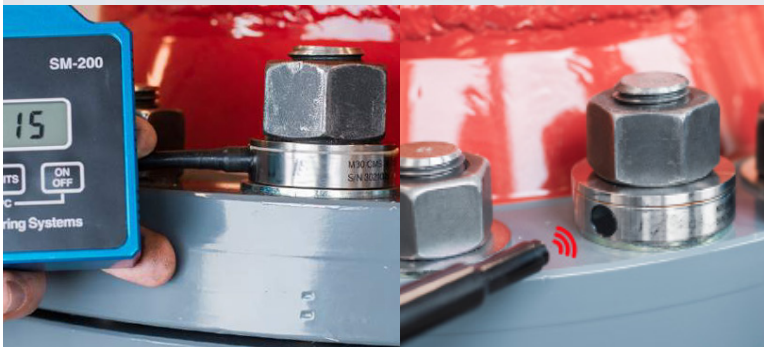


SERIES: **tensiondisc** Load Washer



TensionDisc low profile load washers are specially designed load sensors that monitor bolt loads in bolted joint assemblies. A simple hand-held reader, wired or infrared connection, allows for simple reading of the bolt load. The data can be exported via USB to a PC. Optional connectivity options allow for multiple uses of the data. The load washers are simple to use, accurate and reliable for long term use. The low profile allows fitting into a typical bolted assembly without making a big change to the bolt grip length.

Ideal for:

- Measuring Bolt Residual Load
- Torque/Load calibration
- Bolt tensioner load/pressure calibration

Versatile data connectivity

- Wired hand held reader (CMS)
- Infrared to hand held reader (PMS)
- RS-232/Analogue converter to PC
- IIoT Node (LoRa)
- Network with PDI

TensionDisc Specification

| | |
|---------------------|--|
| Cable Lengths | 1m standard, 5m and 10m optional |
| Temperature Range | -40° +80° C |
| Minimum load | 10% full scale load |
| Maximum load | 130% full scale load |
| Total accuracy | <5% full scale. Depending on bolt joint design |
| Linearity | <1.5% full scale |
| Hysteresis | <1% full scale |
| Creep | <0.1% full scale |
| Repeatability | <0.5% full scale |
| Sealing rating | IP66 |
| Material | Stainless steel 17-4Ph |
| Power supply | Powered through reader |
| Connection | M12 male 5 pole connector |
| Intrinsic safe code | II 2 G, EEx ib IIC T4 (upon special request) |

RS-232/Analogue Converter

Process data on PC or DAQ. With in-built relay to set alarm or switch off connected pump or tooling.



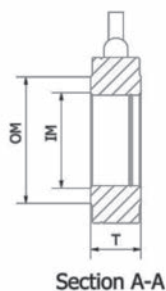
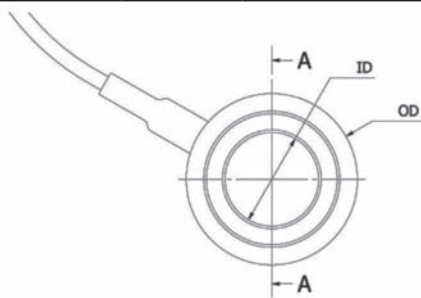
IIoT Node



The magnetic mounted IIoT node connects to LoRa network for remote monitoring. 10 year battery life for long-term monitoring of residual bolt load.

SERIES: tensiondisc Load Washer

| Bolt Thread Size | | Clearance Hole | Outside Diameter | Overall Thickness | Weight | Max Load | Load Resolution | Measuring Face ID | Measuring Face OD |
|------------------|--------|----------------|------------------|-------------------|--------|----------|-----------------|-------------------|-------------------|
| T | | ID | OD | A | W | L | r | IM | OM |
| inch | Metric | mm | mm | mm | kg | kN | kN | mm | mm |
| | M20 | 20.4 | 37 | 14 | 0.07 | 166 | 2 | 22 | 27.7 |
| | M22 | 22.4 | 40 | 14 | 0.09 | 208 | 2 | 24.2 | 31.4 |
| | M24 | 24.4 | 44 | 14 | 0.10 | 239 | 2 | 26.4 | 33.3 |
| | M27 | 27.4 | 50 | 14 | 0.14 | 315 | 3 | 29.7 | 38 |
| | M30 | 30.6 | 64.3 | 17 | 0.21 | 385 | 5 | 33 | 42.8 |
| | M33 | 33.6 | 68.4 | 17 | 0.22 | 480 | 5 | 36.3 | 46.6 |
| | M36 | 36.6 | 72.8 | 17 | 0.30 | 560 | 5 | 39.5 | 51.1 |
| | M39 | 39.6 | 78 | 17 | 0.30 | 670 | 5 | 42.9 | 55.9 |
| | M42 | 42.6 | 83 | 20 | 0.45 | 772 | 5 | 46.2 | 60 |
| | M45 | 45.6 | 87.6 | 20 | 0.51 | 905 | 10 | 49.5 | 64.7 |
| | M48 | 48.6 | 92 | 20 | 0.59 | 1018 | 10 | 52.3 | 69.5 |
| | M52 | 52.6 | 97.2 | 20 | 0.67 | 1221 | 10 | 57.2 | 74.2 |
| | M56 | 56.6 | 102 | 20 | 0.80 | 1406 | 15 | 61.5 | 78.7 |
| | M60 | 60.8 | 108 | 23 | 1.06 | 1647 | 20 | 66 | 83.4 |
| | M64 | 64.8 | 114 | 23 | 1.20 | 1794 | 20 | 70.4 | 88.2 |
| | M64HV | 64.8 | 120 | 23 | 1.31 | 2100 | 20 | 73.5 | 93 |
| | M72 | 72.8 | 124 | 23 | 1.36 | 2250 | 20 | 79.2 | 104 |
| | M72HV | 72.8 | 124 | 23 | 1.37 | 2500 | 20 | 78.4 | 110 |
| 7/8 | | 22.6 | 47.0 | 14 | 0.13 | 214 | 2 | 25.8 | 32.9 |
| 1 | | 25.8 | 52.0 | 14 | 0.16 | 280 | 2 | 29.0 | 37.1 |
| 1-1/8 | | 29.0 | 57.1 | 14 | 0.19 | 354 | 3 | 32.2 | 41.4 |
| 1-1/4 | | 32.3 | 67.0 | 17 | 0.29 | 437 | 5 | 35.5 | 45.7 |
| 1-3/8 | | 35.5 | 73.0 | 17 | 0.34 | 529 | 5 | 38.7 | 50.0 |
| 1-1/2 | | 38.7 | 78.0 | 17 | 0.39 | 629 | 5 | 41.9 | 54.3 |
| 1-5/8 | | 41.9 | 84.0 | 17 | 0.54 | 739 | 5 | 45.4 | 58.6 |
| 1-3/4 | | 45.1 | 86.0 | 20 | 0.61 | 857 | 10 | 48.9 | 63.6 |
| 1-7/8 | | 48.2 | 91.0 | 20 | 0.70 | 983 | 10 | 52.4 | 67.9 |
| 2 | | 51.4 | 98.0 | 20 | 0.82 | 1119 | 10 | 55.9 | 72.2 |
| 2-1/4 | | 57.8 | 108.8 | 23 | 1.16 | 1416 | 15 | 62.9 | 81.8 |
| 2-1/2 | | 64.3 | 116.6 | 23 | 1.29 | 1748 | 15 | 69.9 | 90.6 |
| 2-3/4 | | 70.8 | 124.0 | 23 | 1.37 | 2000 | 20 | 77.0 | 99.0 |



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