

FMT Load Washer Cell



- Washer Load Cell
- 20 to 320 kN [4 to 64 kLbf]
- Ranges Compatible with Screw Dimensions
- High Stiffness
- High Temperature on Request

DESCRIPTION

Measurement-Specialties' washer load cell, model FMT, is designed to measure clamping and screwing forces. The sensor design reduces the hysteresis and sensitivity variations associated with torque generated by friction during tightening. The FMT has a high stiffness and can be used in static and dynamic applications.

With many years of experience as a designer and manufacturer of sensors, Measurement-Specialties often works with customers to design or customize sensors for specific uses and testing environments.

To meet your needs we also offer complete turnkey systems. The matched components (sensor, power, amplifier and digital display) are formatted, calibrated and ready for immediate use.

FEATURES

- Full Scale Range: from 20 to 320 kN (4 to 64 kLbf)
- Compression
- For Static and Dynamic Applications
- Support Washer Provided

APPLICATIONS

- Monitoring Bolt Clamping for Bridges
- Process Control Equipment
- Robotics and Effectors
- Laboratory and Research
- Monitoring Bolt Clamping for Bridges

STANDARD RANGES

| Model | FMT6 | FMT8 | FMT10 | FMT12 | FMT14 |
|--------------------|------|------|-------|-------|-------|
| F.S. Ranges in N | 20K | 35K | 55K | 80K | 110K |
| F.S. Ranges in Lbf | 4K | 7K | 11K | 16K | 22K |

FMT Load Washer Cell

PERFORMANCE SPECIFICATIONS

Ambient Temperature: 20±1°C (unless otherwise specified)

PARAMETERS

| | |
|-------------------------------------|---|
| Operating Temperature Range (OTR) | -20 to 80 °C [-4 to 176 °F] |
| Compensated Temperature Range (CTR) | 0 to 60 °C [32 to 140 °F] |
| Zero Shift in CTR | <0.5% F.S. / 50°C [100 °F] |
| Sensitivity Shift in CTR | <2.10 ⁻⁴ / °C of reading [<1.10 ⁻⁴ / °F of reading] |
| Range (F.S.) | 0-20 kN to 320 kN [4 klbf to 64 klbf] |

Over-Range

| | |
|---------------------|------------|
| Without Damage | 1.5 x F.S. |
| Without Destruction | 3 x F.S. |

Accuracy

| | |
|-------------------------------------|----------------|
| Combined Non-Linearity & Hysteresis | From 1-5% F.S. |
|-------------------------------------|----------------|

Electrical Characteristics

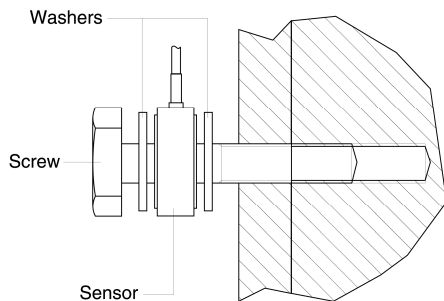
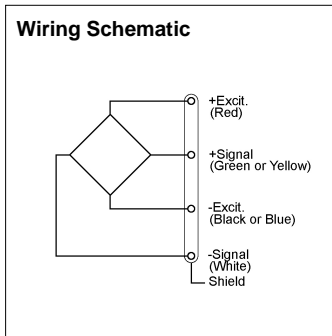
| Model | FMT |
|-----------------------------|-------------|
| Supply Outage | 10Vdc |
| F.S. Output | 1.5 - 2mV/V |
| Zero Offset | ±5% F.S. |
| Input Impedance/Consumption | 700Ω |
| Output Impedance | 700Ω |
| Insulation under 50Vdc | ≥100MΩ |

Notes

1. Electrical Termination: Shielded cable, standard length 2 m [6.5 ft] with strain relief spring
2. Materials: Body in stainless steel cover in aluminium alloy
3. Support Washer: Steel

FMT Load Washer Cell

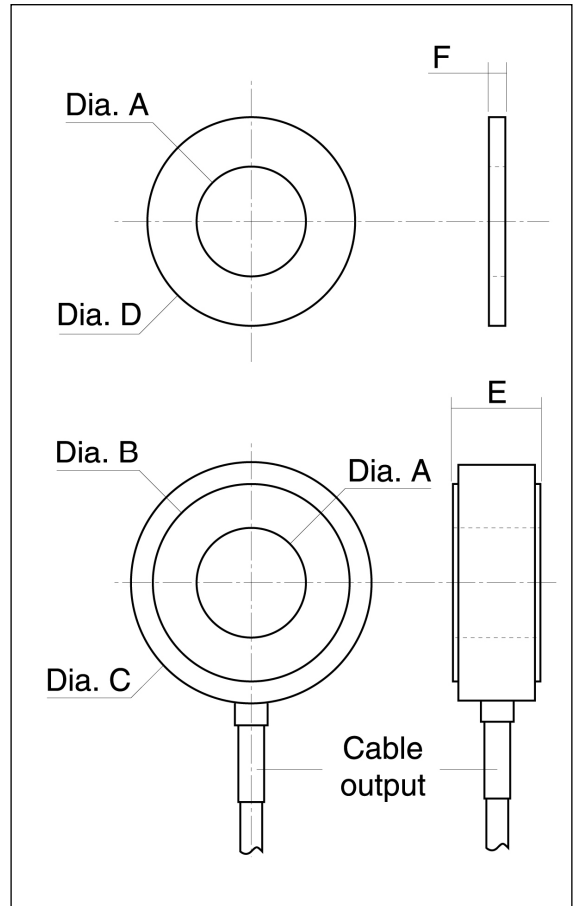
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



Tightening Torque:

Due to the FMT's small size and stiffness, a certain number of mounting precautions should be observed during installation:

- The force should be uniformly distributed over the surface of the sensor.
- Surfaces in contact with the sensor should be uniform and parallel.
- We recommend that washers (supplied by FGP Sensors) be mounted between the surfaces and the sensor so that the washers are crushed during tightening. This helps to distribute the force more evenly. Linearity response is function of this caution.



Dimensions in mm [inch]

| F.S. Ranges in N [Lbf] | Model | A | B | C | D | E | F |
|------------------------|--------|-------------|-------------|-----------|-------------|-------------|------------|
| 20K [4K] | FMT-6 | 6.1 [0.24] | 11 [0.43] | 18 [0.71] | 12.7 [0.50] | 6.5 [0.26] | 1.5 [0.06] |
| 35K [7K] | FMT-8 | 8.1 [0.32] | 14.5 [0.57] | 21 [0.83] | 19 [0.75] | 10 [0.39] | 1.5 [0.06] |
| 55K [11K] | FMT-10 | 10.1 [0.40] | 18 [0.71] | 25 [0.98] | 22 [0.87] | 11 [0.43] | 2 [0.08] |
| 80K [16K] | FMT-12 | 12.1 [0.48] | 22 [0.87] | 29 [1.14] | 25 [0.98] | 11.5 [0.45] | 2 [0.08] |
| 110K [22K] | FMT-14 | 14.1 [0.56] | 25.5 [1.00] | 32 [1.26] | 28 [1.10] | 12.5 [0.49] | 2 [0.08] |
| 140K [28K] | FMT-16 | 16.1 [0.63] | 29 [1.14] | 36 [1.42] | 32 [1.26] | 13.5 [0.53] | 3.2 [0.13] |
| 180K [36K] | FMT-18 | 18.1 [0.71] | 32.5 [1.28] | 39 [1.54] | 34 [1.34] | 15 [0.59] | 3.2 [0.13] |
| 220K [44K] | FMT-20 | 20.1 [0.79] | 36 [1.42] | 43 [1.69] | 38 [1.50] | 16 [0.63] | 3.2 [0.13] |
| 270K [54K] | FMT-22 | 22.1 [0.87] | 40 [1.57] | 48 [1.89] | 44 [1.73] | 17 [0.67] | 3.2 [0.13] |
| 320K [64K] | FMT-24 | 24.1 [0.95] | 43.5 [1.71] | 50 [1.97] | 48 [1.89] | 19 [0.75] | 3.2 [0.13] |

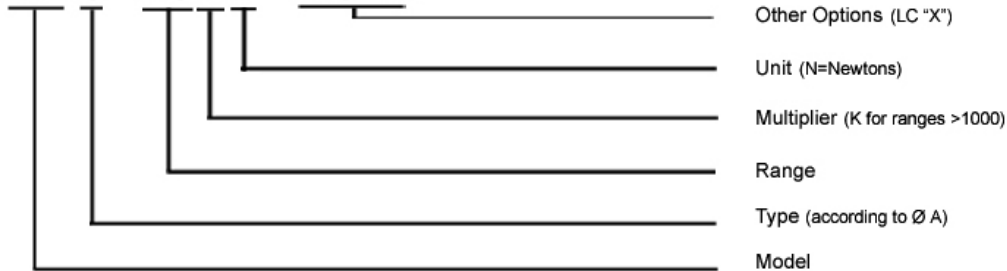
FMT Load Washer Cell

OPTIONS

LC "x" : Additional cable length in m (Note: "x" is customer input value)

ORDERING INFO

FMT6 - 20KN - /LC "X"



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