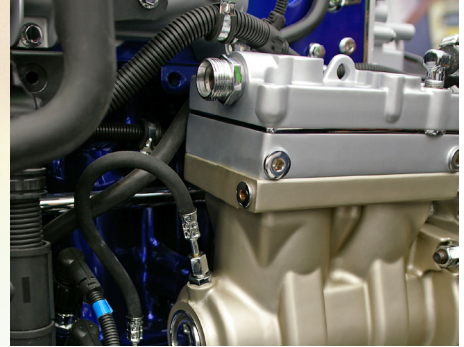
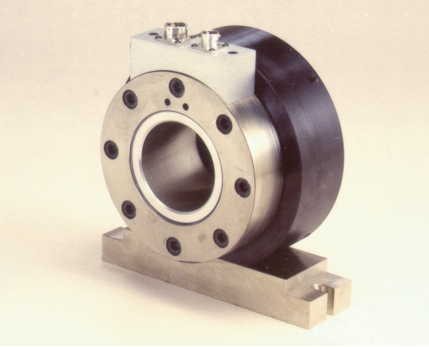




## SERIES FT9000 & FTA9000

# FASTENER TESTING LOAD CELLS

## FOR TENSION AND TORQUE-TENSION

- Fastener tension load cell capacities range from 3.3 to 112 klbf (15 to 500 kN)
- Fastener Torque-Tension load cell capacities range from 4.5 to 405 klbf (20 to 1 800 kN)
- Uses standard Skidmore-Wilhelm plates
- Slotted base allows fast and easy securing to existing test fixtures

## APPLICATIONS

- Measure/analyze threaded fastener characteristics
- Perform laboratory evaluation of fastener tension & thread torque characteristics
- Measure fastener tension and/or thread friction torque during rundown operations
- Test special devices (such as locknuts, serrated underheads, etc.)
- Measure effects of materials, surface finishes, platings, and coatings

PCB's Load & Torque Division's RS Technologies Series FT9000 & FTA9000 Fastener Tension and Fastener Torque-Tension Load Cells use a full bridge strain gage design. This complete line of fastener testing load cells provides a signal proportional to the tension developed in a test fastener when the tightening torque is applied. In addition, the fastener torque-tension version, also referred to as a research head, measures the thread torque (pitch torque plus thread friction torque) at the same time. The tension or torque-tension output signals from either type of load cell are read using conventional strain gage readout device or recorded by a data acquisition system. These load cells serve as an integral part of a torque-tension fastener test system when used with a torque-angle sensor and a suitable data acquisition instrument; Model 962 Portable Transient Data Recorder is recommended.

| COMMON SPECIFICATIONS                                                               |                                                        |
|-------------------------------------------------------------------------------------|--------------------------------------------------------|
| Output ( $\pm 10\%$ )                                                               | 2.0 mV/V FS                                            |
| Non-linearity                                                                       | $\pm 0.25\%$ FS                                        |
| Overload Capacity                                                                   | 150% FS                                                |
| Hysteresis                                                                          | $\pm 0.25\%$ FS                                        |
| Excitation Voltage                                                                  | Calibrated at 10 VDC,<br>usable 5 to 20 VDC or VAC RMS |
| Bridge Resistance                                                                   | 350 Ohms, Full Bridge, Bonded Strain Gage              |
| Supplied Accessories                                                                |                                                        |
| Shunt Calibration Resistor, Clamp Assembly, A2LA Accredited Calibration Certificate |                                                        |

| SERIES FT9000 TENSION LOAD CELLS |                    |                |
|----------------------------------|--------------------|----------------|
| Model                            | Capacity           | Tabletop Slide |
| 059810-01153                     | 3372 lbf (15 kN)   | Single         |
| 059810-01253                     | 5620 lbf (25 kN)   | Single         |
| 059810-01104                     | 22.5 klbf (100 kN) | Single         |
| 059810-01304                     | 67.5 klbf (300 kN) | Single         |
| 059810-01504                     | 112 klbf (500 kN)  | Single         |

| SERIES FTA9000 TORQUE-TENSION LOAD CELLS |                        |                           |                |
|------------------------------------------|------------------------|---------------------------|----------------|
| Model                                    | Thread Torque Capacity | Fastener Tension Capacity | Tabletop Slide |
| 059400-01024                             | 15 lbf-ft (20 Nm)      | 4.5 klbf (20 kN)          | Single         |
| 059500-01044                             | 44.3 lbf-ft (60 Nm)    | 9.0 klbf (40 kN)          | Single         |
| 059600-01104                             | 110.6 lbf-ft (150 Nm)  | 22.5 klbf (100 kN)        | Single         |
| 059625-01304                             | 590 lbf-ft (800 Nm)    | 67.4 klbf (300 kN)        | Single         |
| 059650-01604                             | 1475 lbf-ft (2000 Nm)  | 135 klbf (600 kN)         | Single         |
| 059720-01095                             | 2950 lbf-ft (4000 Nm)  | 202 klbf (900 kN)         | Dual           |
| 059740-01185                             | 5900 lbf-ft (8000 Nm)  | 405 klbf (1800 kN)        | Dual           |

| FASTENER TENSION & TORQUE-TENSION LOAD CELL PLATE SETS |               |              |                      |
|--------------------------------------------------------|---------------|--------------|----------------------|
| METRIC                                                 |               | ENGLISH      |                      |
| Model                                                  | Description   | Model        | Description          |
| 1000M4-30428                                           | M4 Plate Set  | 100008-02000 | #8 Plate Set         |
| 1000M6-30429                                           | M6 Plate Set  | 100010-02000 | #10 Plate Set        |
| 1000M8-30430                                           | M8 Plate Set  | 100250-02000 | 1/4 inch Plate Set   |
| 100M10-30431                                           | M10 Plate Set | 100313-02000 | 5/16 inch Plate Set  |
| 100M12-30432                                           | M12 Plate Set | 100375-02000 | 3/8 inch Plate Set   |
| 100M14-30433                                           | M14 Plate Set | 100438-02000 | 7/16 inch Plate Set  |
| 100M16-30434                                           | M16 Plate Set | 100500-02000 | 1/2 inch Plate Set   |
| 100M18-30435                                           | M18 Plate Set | 100563-02000 | 9/16 inch Plate Set  |
| 100M20-30436                                           | M20 Plate Set | 100625-02000 | 5/8 inch Plate Set   |
| 100M22-30438                                           | M22 Plate Set | 100750-02000 | 3/4 inch Plate Set   |
| 100M24-30439                                           | M24 Plate Set | 100875-02000 | 7/8 inch Plate Set   |
| 100M25-30437                                           | M25 Plate Set | 101000-02000 | 1 inch Plate Set     |
| 100M27-30440                                           | M27 Plate Set | 101125-02000 | 1-1/8 inch Plate Set |
| 100M30-30443                                           | M30 Plate Set | 101250-02000 | 1-1/4 inch Plate Set |
|                                                        |               | 101500-02000 | 1-1/2 inch Plate Set |

| RECOMMENDED ACCESSORIES |                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------|
| Model                   | Description                                                                          |
| 080962-01000            | Model 962 Portable Transient Data Recorder                                           |
| 097000-34149            | Cable Assembly, 2-ft coiled (9-ft straight),<br>DB-15P to PT06A-8-4S (Series FT9000) |
| 099404-34011            | Cable Assembly, 3-ft straight,<br>DB-15P to PT06A-8-4S (Series FT9000)               |
| 099404-30610            | Cable Assembly, 10-ft straight,<br>DB-15P to PT06A-8-4S (Series FT9000)              |
| 099404-30566            | Cable Assembly, 10-ft straight,<br>(2) DB-15P to PT06A-12-10S (Series FTA9000)       |
| 090970-31583            | Cable Assembly, 6-ft straight,<br>PT06A-8-4S to Pigtail Leads (Series FT9000)        |
| 090900-31163/TTLC       | Cable Assembly, 20-ft straight,<br>PT06A-12-10S to Pigtail Leads (Series FTA9000)    |
| 097000-0015P            | DB-15P Connector w/ Strain Relief & Thumbscrews                                      |
| 4242R-000600            | PT06A-8-4S(SR) Connector                                                             |
| 4242R-000630            | PT06A-12-10S(470) Connector                                                          |