



PB

PRECISION LOW PROFILE LOAD CELL

applications

- Tension and/or Compression
- Laboratory Measurements
- Materials Testing Machines
- Dynamic Measurements
- High Capacity Weighing

features

- 20,000 to 500,000 lbs. Capacities
- Compact Low Profile Design
- High Output - 4.0 mV/V
- Up to 0.05% Accuracy Class
- Low Extraneous Load Sensitivity
- High Frequency Response
- IP67 Environmental Sealing
- Alloy Tool Steel Construction
- Dual Bridge Versions Available
- Two Year Warranty

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Application Tip: *The Model PB1 is robust and versatile, designed for precision, high capacity tension and/or compression measurements.*

The PB Series is a high performance, low profile, bonded foil strain gage load cell constructed of alloy tool steel (PB1). The PB1 is designed to accurately measure tension and/or compression forces in capacities ranging from 20,000 lbs. to 500,000 lbs. The multiple shear web sensing design and precision ground base combine to produce excellent performance, a very low profile, and reduced sensitivity to eccentric and side loading effects. The high output and low deflection of the PB1 combine to yield a high dynamic response and superior output resolution for applications in structural analysis and materials testing. Dual bridge versions are available for redundancy and/or for discrete, simultaneous measurements. To achieve sealing ratings of IP67 (thoroughly sealed against airborne particles and the effects of immersion up to 1 meter.) proprietary, multi-redundant environmental barriers are incorporated, including sealed stainless steel covers to protect the strain gage area. The external surfaces are Glassguard™ protected. Optional cable assemblies are available with mating connectors, including durable polyurethane jacketed cables featuring a braided, tinned-copper shield for mechanical protection and to minimize the effects of common industrial electrical noise, e.g. RFI and EMI. Other options include high temperature versions, pull plates for tension loading applications, compression load buttons and shunt calibration. The attributes of the PB1 make it ideal for measurements in the laboratory, structures testing, materials testing, and for general high capacity force measurements where a rugged, low profile precision load cell solution is needed.

Innovative Measurement Solutions



performance

| | |
|--|---|
| Rated capacities ⁽¹⁾ (lbs.) | 20K, 30K, 50K, 75K, 100K 150K, 200K, 300K & 500K |
| Rated output (FSO) | 4 mV/V (nominal) |
| Combined error | ≤ 0.05 to 0.15% FSO (Capacity Dependent) |
| Non-linearity | ≤ 0.05 to 0.10% FSO (Capacity Dependent) |
| Hysteresis | ≤ 0.05 to 0.10% FSO (Capacity Dependent) |
| Non-repeatability | ≤ 0.01 to 0.03% FSO (Capacity Dependent) |
| Creep (30 minutes) | ≤ 0.03 % of load |
| Zero balance | ≤ 5 % FSO |
| Zero Return (30 minutes) | Better than 0.03 % FSO |
| Side Load Sensitivity | ≤ 0.25 % FSO |
| Eccentric Load Sensitivity | ≤ 0.25 % FSO |

⁽¹⁾ ("K" = thousand)

mechanical

| | |
|-------------------|--|
| Material: | Alloy tool steel; Heat-treated |
| Finish: | Glassguard™ coating; Multi-layer |
| Safe overload | Compression: 150% FSO Tension: 150% FSO Side load: 50% FSO |
| Ultimate overload | Compression: 300% FSO Tension: 300% Side load: 100% FSO |
| Deflection | ≤ .010" (.25mm) |
| Weight | See table below |

electrical

| | |
|-----------------------|--|
| Input impedance | 700 ohms (nominal) |
| Output impedance | 700 ohms (nominal) |
| Insulation resistance | >1000 Megohms @ 50VDC |
| Excitation Voltage | 10 V AC/DC (15 V maximum) |
| Cable Color code: | + Excitation (Pin A) + Sense (Pin B) - Excitation (Pin C) - Sense (Pin D) + Output (Pin E) - Output (Pin F) Shield (Pin G) |
| Connector type | MS3102E-14S-6P or equivalent |

environmental



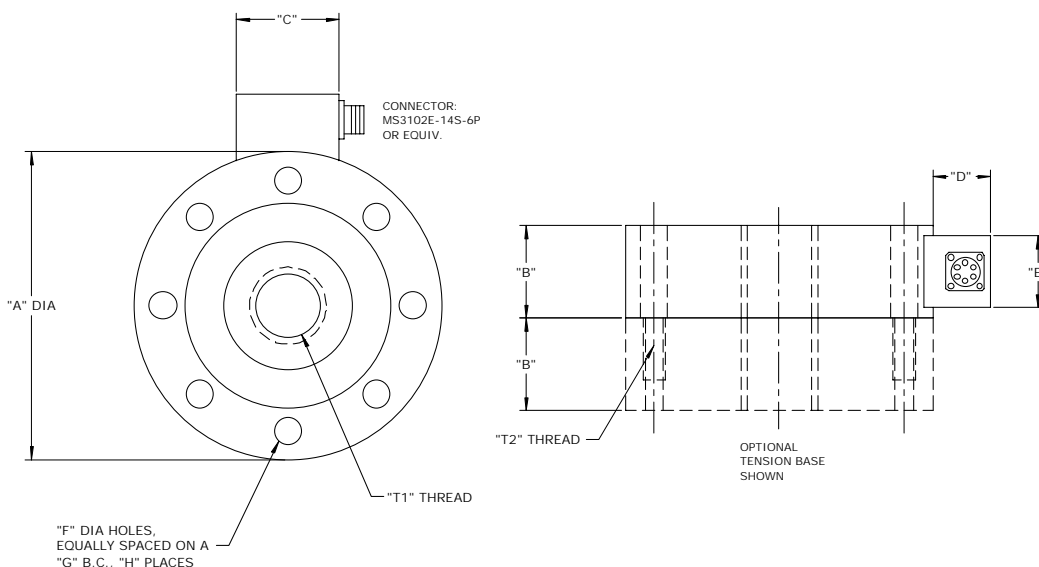
| | |
|--------------------------|--|
| Temperature, operating | 0 to +150 °F (-18 to +66°C) |
| Temperature, compensated | +15 to +115 °F (-9 to +46°C) |
| Temperature effects: | Zero < 0.0015% FSO/°F < 0.0027% FSO/°C |
| | Output < 0.0015% of Rdg./°F < 0.0027% Rdg./°C |
| Sealing | IP67; Multi-redundant |

options

Tension Pull Plates, Dual Bridge Version, Shunt Calibration, Mating MS Connectors, High Temperature Operation and Multi-Point Calibration.

dimensions

100%
CUSTOMER
SATISFACTION
GUARANTEED



DIMENSIONAL TAB BLOCK

| CAPACITY (LB) | "A" | "B" | "C" | "D" | "E" | "F" | "G" | "H" | "T1" | "T2" | WEIGHT (LB) |
|---------------|-------|------|------|------|------|------|--------|-----|--------------|------------|-------------|
| 20K - 50K | 6.00 | 1.80 | 2.00 | 1.25 | 1.50 | 0.53 | 4.875 | 8 | 1-1/2-12 UNF | 1/2-20 UNF | 8 |
| 75K - 100K | 9.00 | 2.50 | 2.00 | 1.25 | 1.50 | 0.66 | 7.750 | 12 | 2-12 UN | 5/8-18 UNF | 12 |
| 150K - 200K | 11.00 | 3.00 | 2.50 | 1.25 | 1.50 | 0.78 | 9.500 | 12 | 2-1/2-12 UN | 3/4-16 UNF | 19 |
| 300K - 500K | 14.00 | 4.25 | 3.50 | 1.25 | 1.50 | 1.03 | 11.750 | 12 | 3-1/2-8 UN | 1-14 UNS | 38 |