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An Interworld Highway, LLC Company

FLUKE ®
Calibration

P3800 Series

High Pressure Hydraulic Deadweight Testers

Models P3830, P3840 and P3860

Technical Data

Features

- Three models available in ranges from 30 000 psi to 60 000 psi (2 000 bar to 4 000 bar)
- Two accuracy classes available; 0.02 % or 0.015 % of Reading
- Select nominal increments in psi, bar, or MPa pressure units
- ISO/IEC 17025 accredited calibration certificate standard
- PressCal software
- P3000 Series available for pressure/vacuum ranges and hydraulic pressures to 20 000 psi (1 400 bar) and below

The Pressurements P3800 Series is the culmination of over 50 years experience in the design and manufacture of primary pressure standards. With features and options designed to improve accuracy, increase reliability, and simplify operation, the P3800 Series can be used to calibrate virtually any high pressure sensing device including transducers, transmitters, gauges or pressure switches.

Instrument base

The Instrument base includes all items required for operation. A high quality hand pump is coupled to a 7 to 1 intensifier, allowing the operator to easily generate high pressure in the system. An oil reservoir is included so the pump to be recharged when calibrating large volume devices. A Test Station is provided for connecting the Device under Test to the P3800 Series. Adjustable feet and the level vial allow the operator to insure the instrument is level to achieve the ultimate performance. A Piston Float Reference allows the operator to determine when the piston is in the ideal, “mid float” position.

Piston/cylinder

The piston/cylinder is the “heart” of the deadweight tester. P3800 Series pistons are manufactured from tungsten carbide which provides excellent long term stability, durability, and extremely low coefficients for temperature and pressure.

Weight sets

Standard weight masses are series 3 non-magnetic stainless steel. Each mass is marked with the serial number of the instrument and the nominal pressure value. Select either psi, bar or MPa pressure units. PressCal software can be used to support additional pressure units.

Gravity correction

Gravity varies significantly with geographical locations. Each instrument can be calibrated to local gravity a no additional cost. If unspecified, instruments are calibrated to standard gravity at 980.665 cm/s^2.

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Specifications

Pressure ranges	
P3830	500 psi to 30 000 psi, or 40 bar to 2 000 bar, or 4 MPa to 200 MPa
P3840	500 psi to 40 000 psi, or 40 bar to 2 600 bar, or 4 MPa to 260 MPa
P3860	500 psi to 60 000 psi or 40 bar to 4 000 bar or 4 MPa to 400 MPa
Accuracy	Standard accuracy is 0.02 % of Reading*. Optional accuracy of 0.015 % of Reading is available. ISO/IEC 17025 accredited calibration certificate is standard *Accuracy is based on % of Reading from 10 % to 100 % of the piston range when used in accordance with the corrections found on the calibration certificate. Below 10 %, ± (accuracy class) x 10 % of the piston range.
Materials of construction	
Standard weight material	Series 3 non-magnetic, austenitic, stainless steel Density: 7.8 g/cP^3
Piston material	Tungsten carbide with nickel binder
Cylinder material	Tungsten carbide with cobalt binder
Thermal coefficient of expansion	11 ppm/°C
General	
Test port adaptors	3/4-16 UNF; 9/16 in – 18 UNF (Autoclave); 3/8 in BSP; 1/2 in BSP and 3/4 in BSP
Weight	30 Kg (66 lb) Instrument base only
Dimensions (W x D x H)	455 mm X 340 mm X 478 mm (18 in X 13.5 in X 19 in)
Reservoir volume	235 cm^3 (14.3 in^3)
Intensifier ratio	7 to 1
Seal materials	Nitrile
Operating fluid	Sebacate, our reference 3069551

Ordering information

Models:

P3830-BAR High Pressure Hydraulic Deadweight Tester, 40 to 2 000 bar
P3830-PSI High Pressure Hydraulic Deadweight Tester, 500 to 30 000 psi
P3830-MPA High Pressure Hydraulic Deadweight Tester, 4 to 200 MPa

P3840-BAR High Pressure Hydraulic Deadweight Tester, 40 to 2 600 bar
P3840-PSI High Pressure Hydraulic Deadweight Tester, 500 to 40 000 psi
P3840-MPA High Pressure Hydraulic Deadweight Tester, 4 to 260 MPa

P3860-BAR High Pressure Hydraulic Deadweight Tester, 40 to 4 000 bar
P3860-PSI High Pressure Hydraulic Deadweight Tester, 500 to 60 000 psi
P3860-MPA High Pressure Hydraulic Deadweight Tester, 4 to 400 MPa

Options and accessories

A. Improved Accuracy Option with Software – PressCal Software is a Windows based software program that allows users to easily apply all necessary corrections, allowing for improved accuracy of 0.015%.

B. Fine Increment Weights – Additional small weights that allow for finer pressure increments
PPA9159-CAL For use with kPa, MPa, bar, or kgf/cm2 weight sets
PPA9608-CAL For use with psi weight sets

C. Conversion Weights – Allows for an instrument to be used in a pressure unit other than the pressure unit the instrument was ordered for.

Fluke Calibration.
Precision, performance, confidence.™

- Electrical
- RF
- Temperature
- ▶ Pressure
- Flow
- Software

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