FLUKE®

Calibration

6531 and 6532

E-DWT Electronic Deadweight Tester Kits

Technical Data

6531 6532

- Pressure ranges available to 200 MPa (30,000 psi)
- ± 0.02 % of reading total one-year accuracy, 0.025 % for two years
- Low torque variable volume allows for pressure generation and control up to 200 MPa (30,000 psi) with minimal physical effort
- Built-in priming system to fill system with test fluid and purge unwanted air to assure smooth operation
- Unique test port design eliminates the need for PTFE tape or wrenches. Adapters included for 1/8 in, 1/4 in, 3/8 in and 1/2 in NPT, 1/8 in, 1/4 in, 3/8 in and 1/2 in BSP, M20 x 1.5 and M14 x 1.5
- Compatible with a wide range of liquids, including water. Vacuum fill kit included to fill the E-DWT with any compatible test medium
- AutoTest™, AutoRange, ready/not ready indicator, onboard data capture and storage, overpressure alarm, RS-232 remote interface and other advanced features to simplify testing, improve safety and prevent calibration errors and damage to equipment
- Optional foot switch accessory allows hands-free data collection when running AutoTests
- Rechargeable battery pack and transport case options for field operation

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A powerful, complete hydraulic pressure calibration system to cover a wide workload

Fluke Calibration improved the hydraulic pressure calibration process with the introduction of E-DWT-H electronic deadweight tester. E-DWT-H is an electronic calibrator designed to deliver traditional hydraulic deadweight tester performance with digital measurement features and convenience. Some improvements offered by E-DWT-H include:

- No weights to load and unload, transport or send out for calibration
- Provides real-time pressure indication with no need to know and correct for local gravity or ambient temperature
- No piston-cylinder changes
- No significant sensitivity to level or vibration
- Able to set and read any pressure value exactly, no minimum increment limited by smallest available masses; perfect for applications that require setting a nominal pressure precisely on the device under test and measuring it, such as analog gauge calibration
- Operates in any unit of measure, switching easily from one unit to the next

The E-DWT-H is at home in metrology and calibration labs, on the production floor or in the field. It can operate with a wide selection of test mediums, including Sebacate calibration fluid, mineral oil, water and other liquids. ± 0.02 % of reading total one-year measurement uncertainty rivals the best laboratory deadweight testers.

High quality hardware allows easy system fill and prime, pressure generation and precise control up to 200 Mpa (30,000 psi). Premium performance is wrapped up into one compact, lightweight, transportable package. An optional battery/charger pack supports up to eight hours of operation away from line power, and an optional shipping/carrying case with handles and wheels allows for easy transport for field application. Learn more about E-DWT-H at **www.flukecal.com/e-dwt-h**.

High performance calibration made simple

Fluke Calibration electronic deadweight tester kits feature E-DWT-H configurations combined with the accessories needed for a complete calibration system. Model 6531 options feature E-DWT-H configurations with a single quartz reference pressure transducer (Q-RPT) to offer percent of reading performance from 10 % to 100 % of device full scale. Model 6532 options feature an additional Q-RPT to maximize workload coverage, with percent of reading performance from 1 % to 100 % of device full scale. An included vacuum fill kit allows the E-DWT to be filled with your choice of compatible fluid, while eliminating problematic air pockets from the test circuit. Also included is a test station adapter to mount just about any pressure device to be tested without using PTFE tape or wrenches. 6531 and 6532 kits provide all you need to perform high level hydraulic pressure calibration right out of the box.

Kit Model	E-DWT-H Configuration	0.02 % reading accuracy from/to	
		MPa	Psi
6531-7M	E-DWT-H A7M	0.7 to 7 MPa	100 to 1,000 psi
6531-14M	E-DWT-H A14M	1.4 to 14 MPa	200 to 2,000 psi
6531-20M	E-DWT-H A20M	2 to 20 MPa	300 to 3,000 psi
6531-40M	E-DWT-H A40M	4 to 40 MPa	600 to 6,000 psi
6531-70M	E-DWT-H A70M	7 to 70 MPa	1,000 to 10,000 psi
6531-140M	E-DWT-H A140M	14 to 140 MPa	2,000 to 20,000 psi
6531-200M	E-DWT-H A200M	20 to 200 MPa	3,000 to 30,000 psi
6532-70M	E-DWT-H A70M/A7M	0.7 to 70 MPa	100 to 10,000 psi
6532-140M	E-DWT-H A140M/A14M	1.4 to 140 MPa	200 to 20,000 psi
6532-200M	E-DWT-H A200M/A20M	2 to 200 MPa	300 to 30,000 psi

Table shows 6531 and 6532 0.02 % of reading coverage. From zero to the minimum pressure listed, accuracy is 0.02 % of the minimum pressure.

General	
Power requirements	To RPM4-E-DWT: 12 V dc 1.2 A
	To ac to dc power supply: 100 V ac to 240 V ac, 50/60 Hz
Operating temperature range	10 °C to 40 °C (50 °F to 104 °F)
Storage temperature range	-20 °C to 70 °C (-4 °F to 158 °F) (must be above freezing point and below boiling point of test medium)
Relative operating humidity	0 % to 70 %
Relative storage humidity	0 % to 100 %
Weight	E-DWT with 1 Q-RPT: 12 kg (26 lb) approximate
	E-DWT with 2 Q-RPTs: 14 kg (30 lb) approximate
Dimensions	E-DWT footprint: 41.4 cm W x 37.1 cm D (16.3 in x 14.6 in)
	E-DWT height: 26.9 cm (10.6 in), 33.6 cm (13.2 in) to max variable volume handle height
Pressure range	Up to 200 MPa (30k psi), depending on configuration
Operating medium	All 6531 and 6532 E-DWT Kits are shipped dry, standard preparation. Can be filled with di-ethyl-hexyl sebacate, silicon oils, propylene glycol, fully fluorinated liquids, partially fluorinated liquids, isopropyl alcohol and distilled water or mineral oil.
Reservoir capacity	300 cc (18 in^3)
Variable volume displacement	3 cc (0.18 in^3), 200 MPa (30 000 psi) maximum
Filling and priming pump displacement	3.7 cc (0.23 in^3)
TEST pressure connection	DH500 female, 200 MPa (30k psi) maximum working pressure. Adapters included for 1/8 in, 1/4 in, 3/8 in and 1/2 in NPT, 1/8 in, 1/4 in, 3/8 in and 1/2 in BSP, M20 x 1.5 and M14 x 1.5. Adapter maximum working pressure is 140 MPa (20k psi). Note: DH500 is a gland and collar type fitting for 6 mm (1/4 in) coned and left hand threaded tubes equivalent to AE F250C, HIP HF4, 9/16-18 UNF, etc.
Pressure limits	Maximum working pressure: Range of RPM4-E-DWT monitor's Hi Q-RPT Maximum priming pump pressure: 700 kPa (100 psi) Maximum working pressure with Lo Q-RPT selected: Range of RPM4-E-DWT monitor's Lo Q-RPT
Communication ports	RS-232 (COM1, COM2)
Pressure measurement	
Warm up time	15 minute temperature stabilization recommended from cold power up
Normal operating temperature range	10 °C to 40 °C (50 °F to 104 °F)
Resolution	Default: 0.01 % of active range User adjustable to 1 ppm of Q-RPT maximum or 10 ppm of active AutoRange, whichever is larger
Precision[1]	± 0.018 % of reading or 0.0018 % of Q-RPT span, whichever is greater
Predicted Stability[2]	One year: ± 0.0075 % of reading
	Two year: ± 0.015 % of reading
Measurement uncertainty[3]	One year: ± 0.02 % of reading or 0.002 % of Q-RPT span, whichever is greater
	Two year: ± 0.025 % of reading or 0.0025 % of Q-RPT span, whichever is greater

1. Combined linearity, hysteresis, and repeatability. Precision does not include stability or calibration reference uncertainty.
2. Predicted Q-RPT measurement stability limit (k=2) assuming regular use of AutoZero function and short term stability between rezeroing.
3. Maximum deviation of the Q-RPT indication from the true value of applied pressure including precision, predicted stability with rezeroing, temperature effect from 10 °C to 40 °C and calibration uncertainty (assumes calibration reference uncertainty of ± 0.005 % of reading, k=2), combined and expanded (k=2) following the ISO "Guide to the Expression of Uncertainty in Measurement".

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Ordering information

6531-7M E-DWT-H A7M, 0.7 to 7 MPa, 100 to 1,000 psi
6531-14M E-DWT-H A14M, 1.4 to 14 MPa, 200 to 2,000 psi
6531-20M E-DWT-H A20M, 2 to 20 MPa, 300 to 3,000 psi
6531-40M E-DWT-H A40M, 4 to 40 MPa, 600 to 6,000 psi
6531-70M E-DWT-H A70M, 7 to 70 MPa, 1,000 to 10,000 psi
6531-140M E-DWT-H A140M, 14 to 140 MPa, 2,000 to 20,000 psi
6531-200M E-DWT-H A200M, 20 to 200 MPa, 3,000 to 30,000 psi
6532-70M E-DWT-H A70M/A7M, 0.7 to 70 MPa, 100 to 10,000 psi
6532-140M E-DWT-H A140M/A14M, 1.4 to 140 MPa, 200 to 20,000 psi
6532-200M E-DWT-H A200M/A20M, 2 to 200 MPa, 300 to 30,000 psi

Each kit contains:
E-DWT-H electronic deadweight tester with power supply and operating manual
Vacuum liquid fill kit
Test station quick-mount fitting
NPT adapters: 1/8 in, 1/4 in, 3/8 in and 1/2 in
BSP adapters: 1/8 in, 1/4 in, 3/8 in and 1/2 in
Metric adapters: M20 x 1.5 and M14 x 1.5

Accessories

Fluid Sebacate Sebacate oil, 1 quart
Case Rugged, wheeled, reusable molded shipping case
Battery Pack/Charger 12 V dc battery with charger
Foot Switch Remote [ENTER] foot switch
COMPASS for Pressure Software
Gold CarePlans One, three and five-year plans available
Silver CarePlans One, three and five-year plans available

Fluke Calibration. *Precision, performance, confidence.™*

Electrical | RF | Temperature | Pressure | Flow | Software

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