



DWT Series

Hydraulic Dead Weight Testers



The Standard Everything Else Is Checked Against.

Seven hydraulic dead weight testers from 0.6 bar to 2500 bar, each named by its upper limit in bar, and each available in accuracy class 0.05, 0.02 or 0.01 percent of reading. A known mass on a piston of known area produces a known pressure; nothing else is measured, which is why a dead weight tester is a primary standard and a gauge is not.

The piston and cylinder are tungsten carbide, chosen for hardness and a low coefficient of thermal expansion, so wear is slow, deformation under pressure is negligible and the effective area stays put over years of use. Models from 250 bar upward run on diisooctyl sebacate for sensitivity at high pressure.

The four lowest models share the standard construction. The DWT-1000 and DWT-1600 add a pre-pressurising system to reach pressure quickly, and the DWT-2500 replaces the reference lines with a digital piston position indicator. Two M20 × 1.5 output ports are fitted throughout, and each instrument is supplied calibrated, with its weight set matched to its own piston.

KEY FEATURES

- Seven models, 0.6 bar to 2500 bar
- Class 0.05, 0.02 or 0.01 % of reading
- Tungsten carbide piston and cylinder
- Pre-pressurising on DWT-1000 and DWT-1600
- Digital piston position on DWT-2500
- Two M20 × 1.5 outputs · union nuts

IDEAL FOR

- Calibration laboratories
- Pressure transmitters and sensors
- Digital and precision pointer gauges
- Hydraulic and process plant workshops
- Reference standards for pressure calibrators

MODELS AND RANGES

Model	Range	Weights supplied	Each produces	Construction
Seven models · accuracy class 0.05, 0.02 or 0.01 % as ordered · 1 MPa = 10 bar				
DWT-6	0.6 to 6 bar (0.06 to 0.6 MPa)	6 × 0.102 kg, 10 × 0.51 kg	0.1 bar, 0.5 bar	Standard · 1 cm ² piston · mixed or transformer oil
DWT-60	1 to 60 bar (0.1 to 6 MPa)	4 × 0.51 kg, 11 × 2.55 kg	1 bar, 5 bar	Standard · 0.5 cm ² piston · mixed or transformer oil
DWT-250	5 to 250 bar (0.5 to 25 MPa)	4 × 0.51 kg, 9 × 2.55 kg	5 bar, 25 bar	Standard · 0.1 cm ² piston · sebacate
DWT-600	10 to 600 bar (1 to 60 MPa)	4 × 0.51 kg, 11 × 2.55 kg	10 bar, 50 bar	Standard · 0.05 cm ² piston · sebacate
DWT-1000	10 to 1000 bar (1 to 100 MPa)	4 × 0.51 kg, 11 × 2.55 kg, 4 × 5.1 kg	10 bar, 50 bar, 100 bar	Pre-pressurising system · 0.05 cm ² piston · sebacate
DWT-1600	20 to 1600 bar (2 to 160 MPa)	4 × 0.51 kg, 11 × 2.55 kg, 10 × 5.1 kg	10 bar, 50 bar, 100 bar	Pre-pressurising system · 0.05 cm ² piston · sebacate
DWT-2500	50 to 2500 bar (5 to 250 MPa)	3 × 0.255 kg, 4 × 0.5 kg, 6 × 2.5 kg, 9 × 5.1 kg	10 bar, 20 bar, 100 bar, 200 bar	Digital piston position indicator · 0.025 cm ² piston · sebacate

Accuracy class applies at 20 ± 2 °C with the temperature drifting no more than 0.5 °C during a measurement. Each weight is marked with the pressure it produces on its own instrument, and the plate and piston alone produce the lower limit of the range. The piston, cylinder, plate and weights of an instrument are calibrated together and carry one serial number; they are not interchangeable between instruments, even of the same model.



Weight stack loaded and a gauge under test. Reference lines on the column set the working position on DWT-6 to DWT-1600; the DWT-2500 has a digital piston position indicator instead.

WHAT'S IN THE BOX

- Dead weight tester, model as ordered
- Matched weight set in its case
- Two M20 × 1.5 output connections
- Working liquid for first fill
- Dust cover
- Operating manual and calibration certificate

BEFORE ORDERING · Choose the model by the highest pressure you need to generate, then the accuracy class by what you calibrate: class 0.05 covers most industrial gauges and transmitters, class 0.01 is for laboratory reference work. Tell us what the instrument will calibrate, since the level compensation and the working liquid depend on it. Adapters for other connection threads can be supplied.

GENERAL SPECIFICATIONS

Code	Item	Range
DWT-6	Hydraulic dead weight tester, 0.6 to 6 bar, standard construction	0.06 to 0.6 MPa
DWT-60	Hydraulic dead weight tester, 1 to 60 bar, standard construction	0.1 to 6 MPa
DWT-250	Hydraulic dead weight tester, 5 to 250 bar, standard construction	0.5 to 25 MPa
DWT-600	Hydraulic dead weight tester, 10 to 600 bar, standard construction	1 to 60 MPa
DWT-1000	Hydraulic dead weight tester, 10 to 1000 bar, with pre-pressurising system	1 to 100 MPa
DWT-1600	Hydraulic dead weight tester, 20 to 1600 bar, with pre-pressurising system	2 to 160 MPa
DWT-2500	Hydraulic dead weight tester, 50 to 2500 bar, with digital piston position indicator	5 to 250 MPa

PISTON AND CYLINDER

Tungsten carbide · precision ground · not to be dismantled by the user

WORKING LIQUID

DWT-6 and DWT-60: mixed or transformer oil, 9 to 12 cSt at 20 °C · DWT-250 and above: diisooctyl sebacate, 20 to 25 cSt · acid value 0.05 mg KOH/g or less

CONSTRUCTION

Standard on DWT-6 to DWT-600 · pre-pressurising system on DWT-1000 and DWT-1600 · digital piston position indicator on DWT-2500

ENVIRONMENT

Operating 20 ± 5 °C, air free of corrosive gases · storage 5 to 35 °C below 80% relative humidity

SPARES

Connection O-ring 12 × 2.4 mm · pump seal 17 mm cup with 17 × 2.4 mm O-ring to 600 bar, 9.5 (ID) × 2.4 mm at 1000 bar · DWT-1600 and DWT-2500 on request

OPERATING MANUAL

DWT Series Operating Manual, Issue 1, covers all seven models

ACCURACY

Class 0.05, 0.02 or 0.01 % of reading as ordered · reference conditions 20 ± 2 °C

OUTPUT CONNECTIONS

Two, M20 × 1.5, with union nuts · adapters to other threads on request

LEVEL COMPENSATION

By mass or by height · 0.9 g per cm on the DWT-6, 0.45 g per cm on the DWT-60 · union-nut instruments compensated at calibration

CALIBRATION

Supplied with a calibration certificate for its class · recalibrate after one year, then at two-year intervals if stable · traceable certification available

WEIGHTS

Marked in bar for their own instrument · handle with both hands, spin at 30 turns a minute or more

WARRANTY

1 year, subject to product registration with GPS LTD · service, calibration and repair available