

HDWT

Hydraulic Pressure Balance

Accuracy: up to 0.008% reading

The dead-weight tester HDWT is designed to calibrate pressure instruments: pressure transducers, transmitters, pressure gauges and switches. They consist of a pressure generator, a piston cylinder unit including a given "A" section and a set of weights with an accurate given value "m". The dead-weight testers HDWT is easy to operate.



General

The tester is equipped with an oil reservoir, a reservoir isolation valve and for pressure ranges ≥ 300 bar with a piston isolation valve for low pressure side of generator. The volume adjuster of the generator allows adjustment of pressure bringing to balance piston and weights. The generated pressure on the instrument is proportional to the value of the applied weights. Close valve "A" and open valve "B". Adjust the pressure you need until the piston and the weights are in equilibrium.

Technical Data:

Calibration fluid

- Mineral oil EP-150 measuring ranges ≤ 150 bar
- Mineral oil EP-1201, EP-1202,

EP-1203, EP-4000 measuring ranges > 150 bar

Type of material

Tube and fittings:

- Measuring ranges ≤ 120 bar (copper/brass)
- Measuring ranges > 120 bar (stainless steel 1.4404 (316L))

Frame: aluminium alloy

Case: polished stainless steel

Volume adjuster

Fixed with thrust-bearing (wearing rings and needle thrust bearings)

Levelling

A spirit level indicator and four adjustable integrated feet

Operating pressure port

1/2" BSP female with quick manual fastening (other options available)

Power rotation unit



Self-propelled spinning belt drive,
optional rest point indicator

Floating position indicator
optional contactless height control with
sensors, LED display

Piston-cylinder unit

Type of material

- Pressure ranges < 300 bar
(tempered special steel)
- Pressure ranges ≥ 300 bar:
tungsten carbide

Repeatability

$2 \cdot 10^{-6} \times p$

Set of weights

Type of material

- >100 mbar: Stainless steel
- < 100 mbar: light metal

Division

0.040 kg to 8 kg

Set of weights' value

4 kg to 80 kg

Marking & Engineering Units

bar, mbar, kPa, mmH₂O, kg/cm², inH₂O,
psi (please contact us for others)

Set of fractional weights

Type of material

light metal

Division

4 kg to 160 g

Scope of delivery

- pressure generator
- piston cylinder unit
- set of weights
- calibration report
- instruction manual

- 0.5 l fluid for HDWT

Options

- Dual piston cylinder unit
- Intermediate set of weights
- Motor driven weights (power supply 110 V or 220 V to be specified)
- Indicator for point of rest, contactless sensors with LED
- Other measuring units (please contact us)
- Other measuring ranges (please contact us)
- Calibration certificate by our EA authorized laboratory (Accredia, etc.)

Accessories

Oil bottle of 1 l, 2 l or 5 l

Higher accuracy (deluxe) 0.01% or 0.008% of reading

Weight adjustments according to local gravity

accessory kit including:

- 1 bag containing spare seals
- 1 adapter (bow)
- 1 set of quick-mount fittings (1/2" BSP; 1/4" BSP, 1/2" NPT, 1/4" NPT)
- 1 open-end wrench 27/30
- 1 Allen wrench
- 1 hammer
- 1 pointer punch
- 1 needle remover with two needles (0.8 mm and 1.5 mm)

carrying case for pressure generator (base) and piston cylinder unit

carrying cases for set of weights

set of adapters (15 adapters with their seals)

gauge cleaning pump and reservoir for



used oil
700 bar and 1200 bar viton membrane separator (for uses with different media or oxygen), a measurement uncertainty

of 20 mbar to be added, (optional butyl.), connection port 1/2" BSP, weight 6.5 kg.

Dual Piston Units:

Model	Measuring range in bar	Maximum permissible error (better than *)	Overall Weight	bar or kg/cm ²	
				Minimum No. of steps	No. of weights
HDWT-D-300	1 – 60 1 – 300 5 – 300	P < 60 bar $1.5 \cdot 10^{-4} \times P$ P ≥ 60 bar $1.5 \times 10^{-4} \times P$	47.6 kg	P < 60 bar 0.5 bar P ≥ 60 bar 2.5 bar	10
HDWT-D-600	1 – 60 1 – 600 10 – 600	P < 60 bar $1.5 \cdot 10^{-4} \times P$ P ≥ 60 bar $1.5 \times 10^{-4} \times P$	47.6 kg	P < 60 bar 50.5 bar P ≥ 60 bar 5 bar	10
HDWT-D-1200	1 – 60 1 – 1200 20 – 1200	P < 60 bar $1.5 \cdot 10^{-4} \times P$ P ≥ 60 bar $1.5 \times 10^{-4} \times P$	47.6 kg	P < 60 bar 0.5 bar P ≥ 60 bar 10 bar	10

*) Option: ±0.008% rdg. (over 10% of each range)

Model	Measuring range in bar	kPa		psi	
		Minimum No. of steps	No. of weights	Minimum No. of steps	No. of weights
HDWT-D-300	1 – 60 1 – 300 5 – 300	P < 6 MPa 500 kPa P ≥ 6 MPa 2500 kPa	10	P < 800 psi 5 psi P ≥ 805 psi 25 psi	12
HDWT-D-600	1 – 60 1 – 600 10 – 600	P < 6 MPa 500 kPa P ≥ 6 MPa 5000 kPa	10	P < 800 psi 5 psi P ≥ 805 psi 50 psi	12
HDWT-D-1200	1 – 60 1 – 1200 0 – 1200	P < 6 MPa 500 kPa P ≥ 6 MPa 10000 kPa	10	P < 800 psi 5 psi P ≥ 805 psi 100 psi	12

Model CI-X-13-090313-01
P-HDWT-E-0715-3



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