

Nagman's

Precision DEAD WEIGHT TESTERS

◀ The Primary Pressure Standards ▶

◀ Table Top / Portable Models ▶



3000 / 6000 Series
Hydraulic Dead Weight Testers
(Oil operated)
(with Priming Pump & Ram Screw)



3000 / 6000 Series
Hydraulic Dead Weight Testers
(Oil operated) (with Hand Pump
& Vernier Adjustment)
Tripod Mounting Version



4000 / 7000 Series
Hydraulic Dead Weight Testers
(Oil operated) (with Hand
Pump & Vernier Adjustment)



5000 / 8000 Series
Pneumatic Dead Weight Testers
(Air / Gas operated)
(Pressure & Vacuum)



PHS 9000 Series
Portable Hydraulic Precision
Deadweight Testers



Motorized Model
Hydraulic / Pneumatic
Dead Weight Testers

Wide range of

Portable Temperature / Pressure / Signal Calibrators, Calibration Test Benches / Management Software
Calibration Services (Site / Lab Calibration) from NABL Accredited 'Centre for Calibration'.

More details from

NAGMAN INSTRUMENTS & ELECTRONICS (P) LTD.

– your partner in **Calibration** (Standards/Systems/Packages/Software/Services)

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Dead Weight Testers are the basic **Primary Standards** used worldwide for reliable & accurate measurement of pressure.

Nagman offers a comprehensive series of **Dead Weight Testers – Table Top & Portable - Hydraulic & Pneumatic – Single/Dual Piston – Very High, High & Medium Accuracy**, covering a wide variety of applications and ranges of pressure. These are **ideal for Calibrating Pressure Gauges, Transducers/ Transmitters, Transfer Standards, Recorders, Digital Calibrators etc.**

The heart of the Dead Weight Testers viz. the **Piston Cylinder** Assemblies (consisting of a vertically mounted precision lapped piston & micro-honed matching cylinder) are **manufactured to highest standards** – with choice of PCU Material to suit the Accuracy levels

The **accuracies** of these Dead Weight Testers are **guaranteed** by calibrating **the Piston** through ‘**Cross Floating**’ with a Master Piston of **80 ppm** uncertainty. The Balancing Masses are precision turned, trimmed & adjusted to very close tolerance with Precision Mass Balances of **10 ppm** uncertainty under controlled conditions to obtain the overall accuracy of the Dead Weight Tester. Accuracies are Traceable ultimately to NPL, India.

The **Tungsten Carbide / Hardened Stainless Steel / Special Steel Piston Cylinder Units** & rust free Phosphated Mild Steel / Stainless Steel/Brass Weights guarantee maintenance of calibration accuracies over years of extensive usage. These Dead Weight Testers can be calibrated to local gravity.

Table-top Models are available with **Ram Screw Pump** (for Fine Pressure Adjustment) or **Hand Pump** (for large volumes). Motorized option is also available.

The **High Precision (0.025% Accuracy) models** are direct substitutes for the expensive imported high accuracy models. The **Precision (0.05% Accuracy) Models** cater to the Accuracy conscious customer. The **Regular (0.1% Accuracy) Models** offer budget solutions still meeting most Calibration requirements.

TABLE TOP MODELS

Common Features

- Single & Dual Piston
- Priming Pump facility in Ram Screw design
- Vernier adjustment in hand pump design
- Bar / Kg/Cm² / PSI Units
- Calibrated to standard gravity or to user specified gravity on request.
- Adjustable feet & spirit level.
- **Motorized** option available.
- **Tripod Mounting option** available[†]

Standard Features

- | | |
|---|-----------------------------|
| 0.025% Accuracy Models | Improved Accuracy |
| <ul style="list-style-type: none"> • Standard Accuracy : 0.025% of indicated Pressure (Rdg.) • Tungsten Carbide Piston & Matching Cylinder. • Non-Magnetic Stainless Steel / Brass Weight Sets * • Calibration Certificates for (overall Accuracy) / PCU (Area) & Weights (Mass) issued by our NABL Accredited "CENTRE FOR CALIBRATION". | |
| 0.05% Accuracy Models | Guaranteed Precision |
| <ul style="list-style-type: none"> • Standard Accuracy : 0.05% of indicated Pressure (Rdg.) • Hardened Stainless Steel Piston & Matching Cylinder. • Non-Magnetic Stainless Steel / Brass Weight Sets * • NABL Traceable Calibration Certificates ** for (overall Accuracy) / PCU (Area) & Weights (Mass). | |
| 0.1% Accuracy Models | Budget Solutions |
| <ul style="list-style-type: none"> • Standard Accuracy : 0.1% of indicated Pressure (Rdg.) • Hardened Special Steel Piston & Matching Cylinder. • Phosphated Mild Steel Weights * • NABL Traceable Calibration Certificate** for overall Accuracy. • Lower Accuracy 0.1% F.S. or Enhanced Accuracy 0.05% F.S. Variant. • Stainless Steel Weight Set option also possible in this model – kindly consult us. | |

Standard Delivery

- Calibrated Weight Sets in wooden carrying case
- NABL Traceable Calibration Certificates **
- Operating Instructions
- Operating fluid (1 litre)
- Adaptors : 1/8, 1/4", 3/8", 1/2" BSP (NPT Adaptors are available on request)
- Tool box containing Pointer Puller (1 No.), Punch (1 No.), Screw Driver (1 No.), Spanner Set
- Dust cover cum carry case for Screw Pump design models.
- Set of spare seals.

* **Aluminium** Weights for the low / initial ranges.

** These Testers can also be calibrated – thro’ Cross Floating Technique - & certified by our **NABL** (equivalent to UKAS) accredited **"CENTRE FOR CALIBRATION"** at an additional cost – please consult us. 

[†] With **Tripod** Mounting option the Table top models can be used at site rendering ‘**portability**’.



TABLE TOP MODELS

3000 / 6000 SERIES HYDRAULIC DEAD WEIGHT TESTERS (OIL OPERATED)

(SCREW PUMP WITH BUILT-IN PRIMING PUMP *)

*Ideal for fine increments & for medium volume calibration
Ensures easy & controllable pressure generation)*

Accuracy			Piston	Pressure Range			Weight (Kgs.)
0.1%	0.05%	0.025%		/1 (BAR)	/2 (Kg/Cm ²)	/3 (PSI)	
†	†	†	Single				
H3000	H6000	H6600	SP - 35	0.5 to 35	5 to 500	14	
H3000	H6000	H6600	SP - 70	0.5 to 70	10 to 1000	26	
H3000	H6000	H6600	SP - 160	5 to 160	80 to 2500	8	
H3000	H6000	H6600	SP - 350	5 to 350	80 to 5000	14	
H3000	H6000	H6600	SP - 700	10 to 700	160 to 10000	26	
			Dual				
H3000	H6000	H6600	DP - 160	1 to 160	15 to 2500	8	
H3000	H6000	H6600	DP - 350	1 to 350	15 to 5000	14	
H3000	H6000	H6600	DP - 700	1 to 700	15 to 10000	26	

Dimensions : 460 x 360 mm; No. of Masses : 13 Nos; Instrument Weight : 21 Kgs.; * Priming Pump for 350 & 700 Bar/Kg/cm² ranges.

4000 / 7000 SERIES HYDRAULIC DEAD WEIGHT TESTERS (OIL OPERATED)

(HAND PUMP WITH VERNIER ADJUSTMENT)

- Serves large volume calibration requirements at higher pressures)

Accuracy			Piston	Pressure Range			Weight (Kgs.)
0.1%	0.05%	0.025%		/1 (BAR)	/2 (Kg/Cm ²)	/3 (PSI)	
†	†	†	Single				
H4000	H7000	H7600	SP - 160	5 to 160	80 to 2500	8	
H4000	H7000	H7600	SP - 350	5 to 350	80 to 5000	14	
H4000	H7000	H7600	SP - 700	10 to 700	160 to 10000	26	
			Dual				
H4000	H7000	H7600	DP - 160	1 to 160	15 to 2500	8	
H4000	H7000	H7600	DP - 350	1 to 350	15 to 5000	14	
H4000	H7000	H7600	DP - 700	1 to 700	15 to 10000	26	

Dimensions : 485 x 375 mm; No. of Masses : 13 Nos.; Instrument Weight : 16 Kgs.

5000 / 8000 SERIES PNEUMATIC DEAD WEIGHT TESTERS (AIR/GAS OPERATED)

(Single Piston Models only)

Accuracy			Pressure Range			Weight (Kgs.)
0.1%	0.05%	0.025%	/1 (BAR)	/2 (Kg/Cm ²)	/3 (PSI)	
Pressure only						
P5000-SP-20	P8000-SP-20	P8600-SP-20	0.5 to 20	5 to 300	12	
with built-in Hand Pump						
P5000-SP-35	P8000-SP-35	P8600-SP-35	0.5 to 35	5 to 500	14	
External Pressure Source required above 20 Bar Fine Adjustment Ram Screw built-in all models.						
Vacuum Conversion Kit (to suit above Models) *						
..... -VC -VC -VC	-30 to -1000	-25 to -750	12	

* External Vacuum source required.

Dimensions : 460 x 360 mm; No. of Masses : 11/13 Nos. (14 Nos. Vacuum Kit); Instrument Weight : 21 Kgs. (+ 12 Kg. with Vacuum Kit)

For other special ranges / units & for additional incremental / fractional weight sets etc, please consult us.

† For **Motorised** option add suffix 'M' to the Model No. (e.g. H6000M-SP-350-2)

PORTABLE MODELS

PHS 9000 SERIES – HYDRAULIC, PRECISION

The **PHS 9000 Series Deadweight Tester** is a fully **portable Hydraulic Precision Dead Weight Tester with 0.05% reading accuracy** specially designed for the **oil & gas** industry – for rugged field use. These deadweight testers are supplied with **certificates for overall accuracy, piston area and masses**.

Unique Features

- Model truly portable. The Dead Weight Tester is supplied fixed to a sturdy wooden box for carrying onto the field and can be conveniently and safely **operated without removing it from the wooden box**.
- Also, when not in use, weights can be stored - mounted firmly onto the dead weight tester base plate.
- Priming pump with oil reservoir (100 ml) enables priming operation and priming of oil into small volumes.
- Dual piston at medium and high pressures enables ultimate flexibility in measurement.
- Smaller weight intervals : 0.1 bar / 1 PSI possible.
- Dead weight testers can be supplied Calibrated to your local gravity value (please specify while ordering).

Ideal for the OIL & GAS Industry / PIPELINE Projects
Rugged field use

Additional Features

- ✓ Standard Calibration Accuracy : **0.05% of indicated Pressure** ^{††}
- ✓ Hardened stainless steel pistons and matching cylinder.
- ✓ Non-Magnetic Stainless Steel / Brass Weight Sets
- ✓ NABL Traceable Calibration Certificates for overall Accuracy / PCU (area) & Weights (masses)**.
- ✓ Vertical type Ram Screw (pump) for fine pressure adjustment. Horizontal type Ram Screw (Pump) / Hydraulic Hand Pump designs also possible.
- ✓ Levelling feet / Spirit Level provided
- ✓ Wooden box interior coated with oil proof paint – oil drain hole provided.
- ✓ Sturdy Wooden Carry box (approx. Dimensions : 560 x 400 x 320 mm)
- ✓ Gross Weight of Dead Weight Tester with Wooden Box: 50 to 70 Kgs.

Standard Delivery

- Dead Weight Tester with calibrated Weight Sets in a wooden box.
- NABL Traceable Calibration Certificates **
- Operating Instructions
- Operating fluid (1 litre)
- Adaptors : 1/8", 1/4", 3/8", 1/2" BSP (NPT Adaptors are available on request)
- Tool Set.
- Set of spare seals.

Specifications

ORDERING CODES (Standard Accuracy : 0.05% of reading) ^{††}

Models	Pressure Range			Weight (Kgs.) #
	/1 (BAR)	/2 (Kg/Cm ²)	/3 (PSI)	
Single Piston				
PHS 9000 – SP – 35	0.5 to 35	0.5 to 35	5 to 500	14
PHS 9000 – SP – 70	0.5 to 70	0.5 to 70	10 to 1000	26
PHS 9000 – SP – 160	5 to 160	5 to 160	80 to 2500	8
PHS 9000 – SP – 350	5 to 350	5 to 350	80 to 5000	14
PHS 9000 – SP – 700	10 to 700	10 to 700	160 to 10000	26
Dual Piston				
PHS 9000 – DP – 160	1 to 160	1 to 160	15 to 2500	8
PHS 9000 – DP – 350	1 to 350	1 to 350	15 to 5000	14
PHS 9000 – DP – 700	1 to 700	1 to 700	15 to 1000	26

No. of Masses for all Models : 13 Nos.

^{††} **Higher** Accuracy (0.025%) High Precision Models (with Tungsten Carbide PCU) & **Lower** Accuracy (0.1%) **Economy** Models also are available – Kindly consult us.

Other Special Pressure Ranges/Units, additional Incremental/Fractional Weights etc. also available. **K** indly consult us.



Optional Accessories available :

- ◆ **Master / Precision Pressure Gauges** (150 mm Dia) – with 0.25% Accuracy to all DIN Standard Ranges.
- ◆ **Liquid to Liquid / Liquid to Gas Separators, 2 Gauge Stands.**
- ◆ **Comparison Testers** (250 / 600 Bar) (with Hand Pump / Screw Pump, Vernier Adjustment) with **Precision Master / Pressure Gauges**, (0.25% Accuracy).

