

Model PK II[®] Pneumatic Deadweight Tester

PRODUCT DESCRIPTION

The AMETEK[®] PK II Pneumatic Deadweight Tester is a primary standard that produces a pressure by applying force (weight set) over area (the ceramic ball and nozzle). The PK II tester is NIST traceable and accurate to $\pm 0.015\%$ using stainless steel weights calibrated to International standard gravity at 980.665 cm/sec^2 .

The PK II tester is self-regulating with accuracy independent of the operator. The tester utilizes a virtually frictionless ceramic ball floating on a layer of air within a stainless steel cylinder.

The PK II tester features a quick-leveling system for field or lab setup. The unit may also be mounted to an optional tripod for more convenient setup. The tester may be operated with the cover opened or closed. Weights are located in foam-protective slots in the case.



Special Calibrations/Local Gravity

The PK II testers are optionally available with an accuracy of $\pm 0.015\%$. Calibration to local gravity is available for all stainless steel models. Please provide gravity when ordering.

Gas Industry Models

Standard testers in inH_2O or cmH_2O are calibrated reference water columns at 20°C (68°F) per ISA recommended practices. Calibration to reference water columns at 60°F per AGA standards is available; note on order. Contact AMETEK for more details.

FEATURES

- Accuracy to $\pm 0.015\%$ of Indicated Reading
- Pressure Range $4'' \text{ H}_2\text{O}$ to 30 PSIG
- Economical Self-Regulating Pressure Standard
- Exceptional Performance and Safety Built-In
 - Floating Ball Operation
 - Self Regulating
- Rugged Ceramic Measuring Ball
 - Non-Contaminating Test Fluid
 - Closed Cover Operation
 - Ball Valves for Inlet and Outlet
 - Interchangeable Weights
 - Overhung Weight Carrier
- NIST Traceable

FUNCTIONAL SPECIFICATIONS

ACCURACY:

$\pm 0.05\%$, $\pm 0.025\%$, $\pm 0.015\%$ of indicated reading.

REPEATABILITY:

0.005% of output reading

TEMPERATURE COEFFICIENT:

0.00167% of output per $^\circ\text{C}$ based on 23°C

MAXIMUM SUPPLY PRESSURE:

100 PSIG Instrument quality air per ISA Quality Standard S 7.3.

MINIMUM SUPPLY PRESSURE:

30 PSIG or 150% of output pressure

FLOW RATE:

1 SCFH at $4'' \text{ H}_2\text{O}$ output
11 SCFH at 30 PSIG output

PHYSICAL SPECIFICATIONS

CONNECTIONS:

1/4-inch NPT female

WEIGHT:

Tester with weights 13 to 28 lbs (5.9 - 12.7 kg)

SHIPPING DIMENSIONS (L x W x H):

Small Case Tester 15.0 x 10.5 x 7.0-inches
(38.1 x 26.7 x 17.8 cm)

Large Case Tester 15.0 x 14.5 x 9.0-inches
(38.1 x 36.8 x 22.9 cm)

Notes:

Deadweight tester and deadweight gauge accuracy is expressed as "Percent of Indicated Pressure". A 1000 psi tester with an accuracy of $\pm 0.01\%$ of indicated pressure will have an allowable error of 0.1 psi at 10 psi, ± 0.1 psi at 100 psi and ± 1.0 psi at 1000 psi. Generally, deadweight testers are used only in the upper 90% of the range.



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Pneumatic Deadweight Tester

ORDERING INFORMATION

Model	Certified Range	Increment	W/C and Ball Output
PK2-20-SS	1 to 20 psi	1 psi	1 psi
PK2-30-SS	1 to 30 psi	1 psi	1 psi
PK2-2000GM-SS	25 to 2,000 g/cm ²	25 g/cm ²	25 g/cm ²
PK2-2010GMSS	10 to 2,000 g/cm ²	5 g/cm ²	10 and 25 g/cm ²
PK2-700MB-SS	10 to 700 mbar	20 mbar	20 mbar
PK2-2B-SS	0.02 to 2 bar	0.02 bar	0.02 bar
PK2-2B.01-SS	0.01 to 2 bar	0.005 bar	0.01 and 0.02 bar
PK2-200N-SS	2 to 200 kPa	2 kPa	2 kPa
PK2-201N-SS	1 to 200 kPa	0.5 kPa	1 and 2 kPa
PK2-250WC-SS	10 to 250 inH ₂ O	10 inH ₂ O	10 inH ₂ O
PK2-304WC-SS	4 to 304 inH ₂ O	1 inH ₂ O	4 inH ₂ O
PK2-404WC-SS	4 to 404 inH ₂ O	1 inH ₂ O	4 inH ₂ O
PK2-650WC-SS	10 to 650 inH ₂ O	10 inH ₂ O	10 inH ₂ O
PK2-654WC-SS	4 to 654 inH ₂ O	1 inH ₂ O	4 and 10 inH ₂ O
PK2-850WC-SS	10 to 850 inH ₂ O	10 inH ₂ O	10 inH ₂ O
PK2-854WC-SS	4 to 854 inH ₂ O	1 inH ₂ O	4 and 10 inH ₂ O
PK2-500CM-SS	10 to 500 cmH ₂ O	10 cmH ₂ O	10 cmH ₂ O
PK2-1000CM-SS	10 to 1,000 cmH ₂ O	10 cmH ₂ O	10 cmH ₂ O
PK2-1500CM-SS	10 to 1,500 cmH ₂ O	10 cmH ₂ O	10 and 25 cmH ₂ O
PK2-2000CM-SS	10 to 2,000 cmH ₂ O	10 cmH ₂ O	10 and 25 cmH ₂ O
PK2-MED	10 to 325 mmHg	5 mmHg	10 mmHg

Calibration Options

Model Suffix	Accuracy	Gravity	Data
NONE	±0.050% rdg (standard)	Standard or local gravity (specify on order)	None
-1B	±0.025% rdg (optional)	Standard or local gravity (specify on order)	None
-1A	±0.015% rdg (optional)	Standard or local gravity (specify on order)	None
/C	±0.050% rdg (standard)	Standard or local gravity (specify on order)	Yes
-1B/C	±0.025% rdg (optional)	Standard or local gravity (specify on order)	Yes
-1A/C	±0.015% rdg (optional)	Standard or local gravity (specify on order)	Yes

Fittings, Adapters, Unions, Plugs, Tubing, and Hoses

K-1082	Tubing kit (2) 30 in (76.2 cm) sections 1/4" NPT female x 1/4" NPT female)
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Tripod

K-1562	Tripod
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Tools

1GT-99	Gauge pointer puller set
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Model PK II®

Pneumatic Deadweight Tester

FEATURES

The PK II tester is a floating ball-type, pneumatic deadweight tester with many features designed to improve performance and safe operation when used according to the instrument's operating instructions. Listed are some of the inherent features of the AMETEK PK II Deadweight Tester.

Floating Ball

While in operation, the PK II tester's ball and weights float freely, supported only by a thin film of air which is virtually frictionless. This eliminates the necessity to rotate the weights during testing and allows the user to concentrate on the instrument calibration.

Self-Regulating

The instrument's built-in flow regulator automatically adjusts the input air flow to maintain the ball and weights in a float position. The regulator also compensates for variations in pressure from the air supply. These features eliminate the necessity of having to continually adjust the supply during the test.

Rugged Ceramic Measuring Ball

The floating ball/piston is manufactured from aluminum oxide ceramic - a material with near-diamond hardness. The ball, unlike steel and carbide pistons, may be dropped on hard surfaces without damage.

Quick Setup and Operation

The setup for the PK II tester is completed by simply connecting two tubes and adding the appropriate weights. Operation is fast and efficient with no valves to adjust and no regulation needed between set points. Pressure regulators are not required if the air supply is within the tester's operational requirements.

Non-Contaminating Test Fluid

The instrument's test fluid is Nitrogen or instrument quality air complying with the ISA Standard S7.3. This fluid is non-contaminating to virtually all processes, thus eliminating the need to clean instruments after calibration and before use.

Non-Contaminating Test Fluid

The PK II tester is designed for laboratory and portable use in the field. The instrument includes built-in tripod mounts. A tripod may be ordered separately.

Closed Cover Operation

The PK II tester is designed to operate with the cover closed, thus eliminating the effects of wind during field operation.

Ball Valves

AMETEK floating ball testers, such as the PK II tester, incorporate multi-position ball valves for both the inlet and outlet valve connections. These ensure trouble free operation that is both fast and efficient.

General Process Information for Calibrated Parts

- Local gravity values must be specified by customer in gals, cm/sec sec, or m/sec sec.
- Include serial number, accuracy, gravity, and model number of deadweight tester when ordering weight sets or calibrated parts.
- Masses for weights ordered separately, including tolerance, must be supplied by customer; unless combined with tester on same order.
- Calibrated parts may be made to archival data if requested on the purchase order.
- Calibrated parts are certified for physical dimension only (mass or area) and not for accuracy unless ordered with a new tester or the tester is returned for proper calibration of parts.
- PK II weight set changes and additions require a matching weight carrier and/or conversion ring for the proper incremental output values.

Certification of Accuracy and Traceability

A Certification of Accuracy and Traceability to NIST is included with every AMETEK floating ball-type deadweight tester. An optional Certification of Accuracy with area, mass and intrinsic correction factors is available.