

# AMETEK® Model RK Deadweight Tester



- Accurate to  $\pm 0.015\%$**
- Optional DADT Doubles Accuracy**
- Multiple Ranges**
  - 4 to 1614" H<sub>2</sub>O
  - 1 to 300 PSIG
  - 1 to 2011 kPa
  - 10 to 4010 cm H<sub>2</sub>O
  - 1 to 112" Hg
  - 0.01 to 20 Bar
  - 0.01 to 20 kg/cm<sup>2</sup>
- Economical Self-Regulating Pressure Standard**
- NIST Traceable**

## PRODUCT DESCRIPTION

The AMETEK RK Pneumatic Deadweight Tester is a primary standard that produces a pressure by applying force (weight set) over area (the ceramic ball and nozzle). The RK tester is NIST traceable and accurate to  $\pm 0.05\%$  using stainless steel weights calibrated to international standard gravity at 980.665cm/sec<sup>2</sup>.  $\pm 0.025\%$  and  $\pm 0.015\%$  accuracy are also available.

The RK 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 RK tester features a cast-metal base with 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.

**Notes:**

For  $\pm 0.015\%$  testers,  $\pm 0.025\%$  accuracy below 30" H<sub>2</sub>O, 1 PSI, 7kPa, 100cm H<sub>2</sub>O or 0.07 Bar. Gravity 980.665 Gals cm/sec<sup>2</sup> or user's local gravity when specified. H<sub>2</sub>O (water column) models are calibrated to water at 68°F (20°C) but can be calibrated to water at 60°F.

## FUNCTIONAL SPECIFICATIONS

**Accuracy**

$\pm 0.05\%$ ,  $\pm 0.025\%$ ,  $\pm 0.015\%$  of indicated reading. Below 1PSI accuracy is  $\pm 0.025\%$ .

**Repeatability**

0.005% of output reading

**Temperature Coefficient**

0.00167% of output per °C based on 23°C

**Maximum Supply Pressure**

450 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"H<sub>2</sub>O output  
60 SCFH at 300 PSIG output

## PHYSICAL SPECIFICATIONS

**Connections**

0.125-inch NPT female

**Weight**

Tester Only ..... 18 to 31.5 lbs (8.2 - 14.3kg)  
Weights ..... 17.5 to 61.5 lbs (8.0 - 30.0kg)

**Shipping Dimensions (L x W xH)**

Tester ..... 15.0 x 9.5 x 8.0-inches  
(38.1 x 24.1 x 20.3 cm)  
Weights ..... 8.5 x 12.0 x 11.5-inches  
(21.6 x 30.5 x 29.2 cm)

## OPTIONAL EQUIPMENT

- DADT Digital Converter

## ORDERING INFORMATION

### MODEL RK PNEUMATIC DEADWEIGHTTESTER

Order Number	Description
	<b>Range, Weight Set Type and Accuracy</b>
	<b><i>1" H<sub>2</sub>O Minimum Increment, 4" H<sub>2</sub>O Carrier &amp; Ball Weight</i></b>
RK-100WC-	4 - 104" H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-100WC-1A	4 - 104" H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-100WC-1B	4 - 104" H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-300WC	4 - 314" H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-300WC-1A	4 - 314" H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-300WC-1B	4 - 314" H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-600WC	4 - 614" H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-600WC-1A	4 - 614" H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-600WC-1B	4 - 614" H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-1100WC	4 - 1114" H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-1100WC-1A	4 - 1114" H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-1100WC-1B	4 - 1114" H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-1600WC	4 - 1614" H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-1600WC-1A	4 - 1614" H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-1600WC-1B	4 - 1614" H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
	<b><i>1 PSI Minimum Increment, 1 PSI Carrier &amp; Ball Weight</i></b>
RK-50	1 - 51 PSI, stainless steel weight set, ±0.05% accuracy
RK-50-1A	1 - 51 PSI, stainless steel weight set, ±0.015% accuracy
RK-50-1B	1 - 51 PSI, stainless steel weight set, ±0.025% accuracy
RK-100	1 - 101 PSI, stainless steel weight set, ±0.05% accuracy
RK-100-1A	1 - 101 PSI, stainless steel weight set, ±0.015% accuracy
RK-100-1B	1 - 101 PSI, stainless steel weight set, ±0.025% accuracy
RK-200	1 - 201 PSI, stainless steel weight set, ±0.05% accuracy
RK-200-1A	1 - 201 PSI, stainless steel weight set, ±0.015% accuracy
RK-200-1B	1 - 201 PSI, stainless steel weight set, ±0.025% accuracy
RK-300	1 - 301 PSI, stainless steel weight set, ±0.05% accuracy
RK-300-1A	1 - 301 PSI, stainless steel weight set, ±0.015% accuracy
RK-300-1B	1 - 301 PSI, stainless steel weight set, ±0.025% accuracy
	<b><i>1 kPa Minimum Increment, 1 kPa and 2 kPa Carrier &amp; Ball Weight</i></b>
RK-200N	1 - 211kPa, stainless steel weight set, ±0.05% accuracy
RK-200N-1A	1 - 211kPa, stainless steel weight set, ±0.015% accuracy
RK-200N-1B	1 - 211kPa, stainless steel weight set, ±0.025% accuracy
RK-400N	1 - 411kPa, stainless steel weight set, ±0.05% accuracy
RK-400N-1A	1 - 411kPa, stainless steel weight set, ±0.015% accuracy
RK-400N-1B	1 - 411kPa, stainless steel weight set, ±0.025% accuracy
RK-800N	1 - 811kPa, stainless steel weight set, ±0.05% accuracy
RK-800N-1A	1 - 811kPa, stainless steel weight set, ±0.015% accuracy
RK-800N-1B	1 - 811kPa, stainless steel weight set, ±0.025% accuracy
RK-1200N	1 - 1211kPa, stainless steel weight set, ±0.05% accuracy
RK-1200N-1A	1 - 1211kPa, stainless steel weight set, ±0.015% accuracy
RK-1200N-1B	1 - 1211kPa, stainless steel weight set, ±0.025% accuracy
RK-2000N	1 - 2011kPa, stainless steel weight set, ±0.05% accuracy
RK-2000N-1A	1 - 2011kPa, stainless steel weight set, ±0.015% accuracy
RK-2000N-1B	1 - 2011kPa, stainless steel weight set, ±0.025% accuracy

**Notes:**

For low pressure applications (inches or cm H<sub>2</sub>O), the pneumatic tester is calibrated to give noted accuracies referenced to 20°C per ISA recommended practices. Calibration to 60°F per AGA standards is available on special order.

## ORDERING INFORMATION

### MODEL RK PNEUMATIC DEADWEIGHTTESTER

Order Number Description

#### Range, Weight Set Type and Accuracy

##### *10cm H<sub>2</sub>O Minimum Increment, 10cm H<sub>2</sub>O Carrier & Ball Weight*

RK-500CM	10 - 510cm H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-500CM-1A	10 - 510cm H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-500CM-1B	10 - 510cm H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-1000CM	10 - 1010cm H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-1000CM-1A	10 - 1010cm H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-1000CM-1B	10 - 1010cm H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-2000CM	10 - 2010cm H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-2000CM-1A	10 - 2010cm H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-2000CM-1B	10 - 2010cm H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-3000CM	10 - 3010cm H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-3000CM-1A	10 - 3010cm H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-3000CM-1B	10 - 3010cm H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy
RK-4000CM	10 - 4010cm H <sub>2</sub> O, stainless steel weight set, ±0.05% accuracy
RK-4000CM-1A	10 - 4010cm H <sub>2</sub> O, stainless steel weight set, ±0.015% accuracy
RK-4000CM-1B	10 - 4010cm H <sub>2</sub> O, stainless steel weight set, ±0.025% accuracy

##### *0.1" Hg Minimum Increment, 1" Hg Carrier & Ball Weight*

RK-100H	1 - 112" Hg, stainless steel weight set, ±0.05% accuracy
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##### *0.01 Bar Minimum Increment, 0.01 Bar Carrier & Ball Weight*

RK-2B	0.01 - 2 Bar, stainless steel weight set, ±0.05% accuracy
RK-2B-1A	0.01 - 2 Bar, stainless steel weight set, ±0.015% accuracy
RK-2B-1B	0.01 - 2 Bar, stainless steel weight set, ±0.025% accuracy
RK-4B	0.01 - 4 Bar, stainless steel weight set, ±0.05% accuracy
RK-4B-1A	0.01 - 4 Bar, stainless steel weight set, ±0.015% accuracy
RK-4B-1B	0.01 - 4 Bar, stainless steel weight set, ±0.025% accuracy
RK-8B	0.01 - 8 Bar, stainless steel weight set, ±0.05% accuracy
RK-8B-1A	0.01 - 8 Bar, stainless steel weight set, ±0.015% accuracy
RK-8B-1B	0.01 - 8 Bar, stainless steel weight set, ±0.025% accuracy
RK-12B	0.01 - 12 Bar, stainless steel weight set, ±0.05% accuracy
RK-12B-1A	0.01 - 12 Bar, stainless steel weight set, ±0.015% accuracy
RK-12B-1B	0.01 - 12 Bar, stainless steel weight set, ±0.025% accuracy
20B	0.01 - 20 Bar, stainless steel weight set, ±0.05% accuracy
20B-1A	0.01 - 20 Bar, stainless steel weight set, ±0.015% accuracy
20B-1B	0.01 - 20 Bar, stainless steel weight set, ±0.025% accuracy

##### *0.01kg/cm<sup>2</sup> Minimum Increment, 0.01kg/cm<sup>2</sup> Carrier & Ball Weight*

RK-4M	0.01 - 4 kg/cm <sup>2</sup> , stainless steel weight set, ±0.05% accuracy
RK-4M-1A	0.01 - 4 kg/cm <sup>2</sup> , stainless steel weight set, ±0.015% accuracy
RK-4M-1B	0.01 - 4 kg/cm <sup>2</sup> , stainless steel weight set, ±0.025% accuracy
RK-8M	0.01 - 8 kg/cm <sup>2</sup> , stainless steel weight set, ±0.05% accuracy
RK-8M-1A	0.01 - 8 kg/cm <sup>2</sup> , stainless steel weight set, ±0.015% accuracy
RK-8M-1B	0.01 - 8 kg/cm <sup>2</sup> , stainless steel weight set, ±0.025% accuracy
RK-20M	0.01 - 20 kg/cm <sup>2</sup> , stainless steel weight set, ±0.05% accuracy
RK-20M-1A	0.01 - 20 kg/cm <sup>2</sup> , stainless steel weight set, ±0.015% accuracy
RK-20M-1B	0.01 - 20 kg/cm <sup>2</sup> , stainless steel weight set, ±0.025% accuracy

#### NIST Certification Data

/C Add suffix "/C" for optional NIST Traceable Calibration Data

**RK-1000CM-SS-1B/C**

#### Sample Order Number

RK Deadweight Tester with a 10 - 1010 cm H<sub>2</sub>O range (minimum increments- 10 cm H<sub>2</sub>O), 0.025% stainless steel weight set (10 and 25 cm H<sub>2</sub>O), supplied with NIST Data and protective carrying case

## MODEL RK PNEUMATIC DEADWEIGHT TESTER

### Optional Accessories

Order Number	Description
<b>RWS-.1WC</b>	Aluminum weight set, Converts 1" H <sub>2</sub> O units to 0.1" H <sub>2</sub> O increments
<b>RWS-.1</b>	Aluminum weight set, Converts 1 PSIG units to 0.1 PSIG increments
<b>RWS-.1KPA</b>	Aluminum weight set, Converts 1 kPa units to 0.1 kPa increments
<b>RWS-.1CM</b>	Aluminum weight set, Converts 10 cm H <sub>2</sub> O units to 1 cm H <sub>2</sub> O increments
<b>RWS-.001B</b>	Aluminum weight set, Converts 0.01 Bar units to 0.001 Bar increments
<b>RWS-.001M</b>	Aluminum weight set, Converts 0.01 kg/cm <sup>2</sup> units to 0.001 kg/cm <sup>2</sup>

Replacement weight sets are available for the RK Deadweight Tester. Please consult the Parts & Supplies Price Sheet.

<b>K-1562</b>	Tri-Pod for Tester
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<b>E80-612-1</b>	Model DADT with one (1) deadweight tester characteristics pre-programmed
<b>E80-612-2</b>	Model DADT with two (2) deadweight tester characteristics pre-programmed
<b>E80-612-3</b>	Model DADT with three (3) deadweight tester characteristics pre-programmed
<b>E80-612-4</b>	Model DADT with four (4) deadweight tester characteristics pre-programmed

#### 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,  $\pm 0.1$  psi at 100 psi and  $\pm 1.0$  psi at 1000 psi. Generally, deadweight testers are used only in the upper 90% of the range.



### AMETEK® DADT Deadweight Tester Digital Converter

The Model DADT Converter is a pre-programmed digital accessory which corrects for ambient conditions and inherent errors associated with any hydraulic or pneumatic deadweight tester applications- specific gravity of your location, masses of the weights, weight set buoyancy in the air which is effected by relative humidity and temperature effects. The instrument eliminates most measurement errors by calculating the NIST formula provided on Test III data. The Model DADT converter can automatically correct for these errors so that your hydraulic or pneumatic deadweight tester delivers an accuracy of  $\pm 0.0125\%$  or better.

## AMETEK TEST AND CALIBRATION INSTRUMENTS

AMETEK is a leading global manufacturer of electrical and electromechanical products for niche markets. Listed on the New York Stock Exchange (AME) since 1930, AMETEK's annual sales are approaching \$1 billion. Operations are in North America, Europe and Asia, with about one-third of sales to markets outside the United States.

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