



Deadweight Testers

PRIMARY STANDARD

Deadweight Testers are the basic primary standard for the accurate measurement of pressure. Chandler Testers are used to measure the pressure exerted by a gas or liquid and can also generate a test pressure for the calibration of pressure gauges, electronic pressure calibrators, transducers, transmitters, recorders, etc. No other device can match the stability, repeatability and accuracy of the Deadweight Tester.

HIGH SENSITIVITY

When the weights are applied to the piston, the entire assembly is rotated slowly. This rotation minimizes frictional effects and permits vertical motion of the piston with extremely small variations in pressure. Measurements to 1/10 psi (1 kPa) can be made.

OPERATION

The Chandler Engineering Deadweight Tester utilizes the well proven piston system consisting of a vertically mounted precision lapped stainless steel piston and sleeve with a metal to metal seal. This superior design eliminates friction and oil leakage created by o-ring seals used in lower cost testers. A bubble level and adjustable feet are provided to enable the operator to level the instrument.

HIGH ACCURACY

Deadweight Testers blend ruggedness with high accuracy. Variations over time typical of strain gauges or spring gauges are eliminated. Their operation depends only on balancing known weights against the force exerted by an unknown pressure acting on a piston of precisely known area. The weights are applied manually until the piston is floating with no net vertical movement. Each piston's area is determined by comparison against a piston of known area traceable to the National Institute of Standards and Technology. The mass of the balancing weights is also traceable to NIST.



FEATURES

- ✓ **Accurate** - 0.05% of indicated pressure, traceable to the National Institute of Standards and Technology (NIST), 0.02% available
- ✓ **Reliable** - hardened stainless steel pistons and corrosion resistant materials.
- ✓ **Screw Pump** - allows fine pressure adjustments
- ✓ **Certificate of Calibration**
- ✓ **Gas or Liquid** pressure measurement
- ✓ **Repair Service** - spare parts available.



General Specifications

- Accuracy:** 0.05% of indicated pressure
- Certificate of Calibration:** Furnished for 0.05%
- Calibration Temperature:** 77°F (25°C)
Calibration based on std gravity of 980.665
- Calibration Meets:** MIL-C-45662A
- Temperature Limit:** 40° to 120°F (4° to 50° C)
- Humidity:** 0 to 95% RH
- Vibration:** Small amplitude, high frequency only
- Environment:** Minimize dust and corrosive atmosphere
- Piston Material:** Hardened Stainless Steel
- Pressure Tubing Material:** Stainless Steel
- Weight Material:** Brass
- Fill Fluid:** Non-toxic ISO Grade 68 Premium Oil, standard. Synthetic fluid optional

Options

- Stainless Steel Weights
- Dual Range Piston/Cylinder
- 0.02% Certificate of Calibration
- Oxygen Service Cleaning
- Oil Water Separator
- Metric Adapters
- Synthetic Operating Fluid for O2, Water or Steam Service
- Local Gravity Calibration

Furnished with every Deadweight

- Carrying Case with Instruction Manual
- Set of Weights
- Operating Fluid
- Gauge Pointer Remover
- Gauge Pointer Driver
- 1/4 in and 1/2 in NPT adapters
- Certificate of Calibration for 0.05% accuracy
- One Year Guarantee

Furnished with Precision Pressure STD Tester

- Vinyl dust Cover in Lieu of Carrying Case
- Wrench Set
- Spare-o-rings and Seals
- Electric Motor to spin Weights

Oil-Water Separators

Model 02-0071 – Rated for pressure of 5,000 psi (34,500 kPa) designed for use with Models 02-001 and Models 23-001 Deadweight Testers.

Model 05-0194 – Rated for pressure of 5,000 psi (34,500kPa) is a stand-alone unit. It can be used with the Chandler Deadweight Gauge or Tester. It come complete with inlet, outlet and drain valves. You will also receive 10 ft of 1/8 in diameter SS tubing for connection.

Model 05-0202 – Rated for 10,000 psi (69,000 kPa). It is similar to the Model 05-0194 and supplied complete with valves and SS tubing for connection.

Model 55-0036 – Rated for 6,000 psi (41,400 kPa) designed especially for use with the Model 55-100 Tester.

	Standard		
SERIES	23	23	55
Max Pressure PSI	2,000	5,000	20,000
Min Pressure PSI	5	50	50
Dual Range Option	No	Yes	Yes
Motor Drive Option	No	No	No
Size Inches	19x6x13	22x8x14	22x14x8
Size CM	48x15x33	55x20x35	55x35x45
Weight Lbs**	32-85	60-90	114-250
Weight Kg**	15-38	27-40	50-110



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Deadweight Gauges

Gauges are used to measure the pressure exerted by a gas or liquid and cannot generate a test pressure. They are accurate to 0.1% of indicated pressure. This is a significant improvement over gauges that are accurate to 0.1% of full scale. Their portability means that they can be conveniently used to check line pressure, gas pressures at well heads, static pressures on orifice meters, and to measure pressures in many other industrial applications. They have been used for turbine testing in power generation plants.

General Specifications

Accuracy: 0.1% of indicated pressure

Certificate of Calibration: Furnished for 0.05%

Calibration Temperature: 77°F (25°C)

Calibration based on std gravity of 980.665

Calibration Meets: MIL-C-45662A

Temperature Limit: 40° to 120°F (4° to 50° C)

Humidity: 0 to 95% RH

Vibration: Small amplitude, high frequency only

Environment: Minimize dust and corrosive atmosphere

Piston Material: Hardened Stainless Steel

Pressure Tubing Material: Stainless Steel

Weight Material: Brass

Fill Fluid: Non-toxic ISO Grade 68 Premium Oil, standard. Synthetic fluid optional

Options

- Stainless Steel Weights
- Dual Range Piston/Cylinder
- 0.02% Certificate of Calibration
- Oxygen Service Cleaning
- Oil Water Separator
- Metric Adapters
- Synthetic Operating Fluid for O₂, Water or Steam Service
- Local Gravity Calibration

Furnished with every Gauge

- Carrying Case with Instruction Manual
- Set of Weights
- Operating Fluid
- Gauge Pointer Remover
- Gauge Pointer Driver
- 1/4 in and 1/2 in NPT adapters
- Certificate of Calibration for 0.05% accuracy
- One Year Guarantee

Motor Driven Models 05-125 and 05-155

All data and specifications subject to change without notice.

Principles of Operation

The unknown liquid or gas pressure is measured by connecting the gauge to the unknown and then balancing the force that the unknown exerts against a piston with a known area. Weights are applied manually as the vertical movement of the piston is observed while rotating. When no net vertical piston motion is seen, the pressure is determined by counting the calibrated weights used and adding the fixed weight.



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CHANDLER was the pioneer in Oil Well Cement Testing equipment more than 50 years ago. Today it is well recognized as the leader in instrumentation for testing oil well cements per API Spec 10 and in instrumentation for the Energy Industry. New products are a commitment from *Chandler Engineering*, and our development laboratory is continuously introducing new ideas and products.

Chandler Engineering supplies everything from simple glassware to complete mobile field laboratories for field testing of cement slurries per API Spec 10 and ASTM requirements. It is also recognized as the leader in instrumentation for field and laboratory analysis.

Pipeline and Industrial Instruments

- Ranarex Gas Gravimeters
- Hydraulic Pressure Testers and Gauges
- Liquid Densitometers
- Carle Gas Chromatographers
- Natural Gas Moisture Analyzers
- Natural Gas Chromatographers/BTU Analyzers

Drilling and Completion Instruments

- Cement Consistometers
- Cement Curing Chambers
- Compressive Strength Testers
- Corrosion Test Apparatus
- Portable Mud/Cement Laboratories
- Stirred Fluid Loss Cells
- Constant Speed Mixers
- Data Acquisition Systems
- Ultrasonic Cement Analyzer (UCA)
- Static Gel Strength Analyzer (SGSA)

Plus a full range of replacement parts and accessories for all our instruments.

Contact us for our latest catalog of Cement Testing Laboratory Equipment and other instruments for testing Oil Well Cements, Drilling Fluids, and Precision Physical Property Measurement Instrumentation for the Natural Gas Industry.

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