

T9000

Pneumatic deadweight testers

- Ranges up to 2000 mbar/700 inH₂O
- Accuracy from 0.015% of reading
- Ceramic nozzle and ball for enhanced performance
- Overpressure protection
- Rugged, durable case
- Traceable to International Standards



Pneumatic deadweight testers

The floating ball deadweight tester is a highly accurate primary pressure standard ideally suited for portable calibrations. Combining unique design features and ease of maintenance, these instruments are the solution for many applications including gas measurement.

Operating Principle

This instrument uses the fundamental pressure principle where:

$$P = \frac{F}{A}$$

Pressure (P) is defined as the product of the downward force (F) of the weights when applied to the effective area (A) of the ball within the nozzle. System pressure from the internal flow regulator (pressure supply) causes the ball to float within the nozzle. As it begins to lift within the tapered section of the nozzle, gas escapes past the ball and returns through the dynamic stabilisation regulator (pressure output). The gas flow past the ball self-centres it, ensuring that there is no contact between ball and nozzle.

When weights are added or removed from the ball, it falls or rises, affecting the gas flow. This change is sensed by the flow regulator, which alters the pressure to bring the system back into equilibrium.

Features

The T9000 tester benefits from the following special design features, ensuring best performance and minimum maintenance cost:

- Ceramic nozzle and ball enabling
 - Wide operating temperature range.
 - Enhanced cold-weather service.
 - Reduced temperature sensitivity (0.00048%/°C).
- 30 bar overpressure protection prevents internal damage.
- Stainless steel weight carrier for better stability.
- Mass set and weight carrier designed for convenient calibration steps.
- Stainless steel leveling screws for better durability.
- Exhaust vent discharges outside instrument case, reducing contamination.
- Durable case, allowing operation with the lid closed to eliminate the effects of draught.
- Ease of maintenance features
 - Pipeline liquid contamination can be removed on-site, avoiding costly returns and failed site calibrations.
 - Air tanks are accessible for cleaning.
- Rigid manifold connections prevent internal damage.
- Tripod mountable.



Standard models available

Model	Pressure Range
T9010/1 T9010/2	15 to 250 mbar 5 to 100 inH ₂ O
T9020/1 T9020/2	15 to 500 mbar 5 to 250 inH ₂ O
T9030/1 T9030/2	15 to 1000 mbar 5 to 400 inH ₂ O
T9040/1 T9040/2	15 to 2000 mbar 5 to 700 inH ₂ O

Intermediate ranges are available.

Accuracy

Three accuracy classes are available.

0.050% of reading

0.025% of reading

0.015% of reading

Low pressure, high pressure option (Option L)

All the above models can be supplied with a 10 mbar/3 inH₂O starting pressure and 1 mbar/0.5 inH₂O fine increment weights.

inH₂O pressure unit

The T9000 can be supplied in any of the three standard water density factors.

inH₂O at 4°C - ISO

inH₂O at 60°F - AGA

inH₂O at 20°C - ISA

If unspecified, the instrument will be manufactured for inH₂O at 20°C.

Gravity

The T9000 can be manufactured to either user-defined local gravity or International Standard gravity. If unspecified, the instrument will be manufactured to 980.665 cm/s² (International Standard).

Specifications

GENERAL

Accuracy

0.05%, 0.025%, 0.015% of reading traceable to NPL, UK and NIST, USA including linearity, hysteresis, repeatability, and the reference standard

Temperature

Reference: 23°C

Temperature coefficient: 0.00048% of reading/°C

Operating range: 0 to 35°C

Gravity

As specified on order. If unspecified, then International Standard: 980.665 cm/s².

Instrument weight

7 kg to 12 kg

Instrument dimensions

36 x 26 x 15 cm (L x D x H)

STARTING PRESSURE

Standard: 15 mbar, 5 inH₂O

Optional: 10 mbar, 3 inH₂O

MINIMUM WEIGHT INCREMENT

Standard: 5 mbar, 5 inH₂O

Optional: 1 mbar, 0.5 inH₂O

GAS SUPPLY

Pressure

2.5 bar minimum, 7 bar maximum

Quality

ISA S7.3

Flow Rate

0.5-6 SCFH

MATERIALS OF CONSTRUCTION

Weight material

Series 3 non-magnetic, austenitic stainless steel

Ball material

ceramic

Nozzle material

ceramic

CONNECTION PORTS

Inlet: 1/4-inch NPTF

Outlet: 1/4-inch NPTF

Other products and services

Deadweight testers

A full range of primary standards for pressure from -1 to 4000 bar, also absolute and differential pressure models.

Comparison pumps

Used to check pressure measuring instruments against master test gauges or digital indicators.

Due to Pressurements' process of continuous improvement, specifications are subject to change without notice.



Pressurements Limited

Unit 22, Apex Business Centre,
Boscombe Road, Dunstable,
Beds. LU5 4SB, U.K.

Tel: +44 (0) 1582 471535

Fax: +44 (0) 1582 601185

Web site: www.pressurements.com

E-mail: sales@pressurements.com



www.sensor-ic.com/ TEL: 0755-83376489 FAX:0755-83376182 E-MAIL:szss20@163.com

Agent:

SUNSTAR 商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司，专业经营进口、国产名厂名牌电子元件，型号、种类齐全。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM 电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA 软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。商斯达实业公司拥有庞大的资料库，有数位毕业于著名高校——有中国电子工业摇篮之称的西安电子科技大学（西军电）并长期从事国防尖端科技研究的高级工程师为您精挑细选、量身订做各种高科技电子元器件，并解决各种技术问题。

更多产品请看本公司产品专用销售网站：

商斯达中国传感器科技信息网：<http://www.sensor-ic.com/>

商斯达工控安防网：<http://www.pc-ps.net/>

商斯达电子元器件网：<http://www.sunstare.com/>

商斯达微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

商斯达消费电子产品网：<http://www.icasic.com/>

商斯达实业科技产品网：<http://www.sunstars.cn/>

传感器销售热线：

地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-83370250 83376489 83376549 83607652 83370251 82500323

传真：0755-83376182 (0) 13902971329 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422

技术支持：0755-83394033 13501568376

欢迎索取免费详细资料、设计指南和光盘；产品凡多，未能尽录，欢迎来电查询。

北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号

TEL: 010-81159046 82615020 13501189838 FAX: 010-62543996

上海分公司：上海市北京东路 668 号上海赛格电子市场 2B35 号

TEL: 021-28311762 56703037 13701955389 FAX: 021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382