

QY series Pneumatic Dead Weight Tester v1.0

Application

- ✓ Calibration laboratories
- ✓ Avionics/Aerospace equipment manufacturers
- ✓ Precision pressure sensor manufacturers
- ✓ Calibration service companies and service industry within 10MPa



QY pneumatic dead weight tester

Overview

1、 Principle

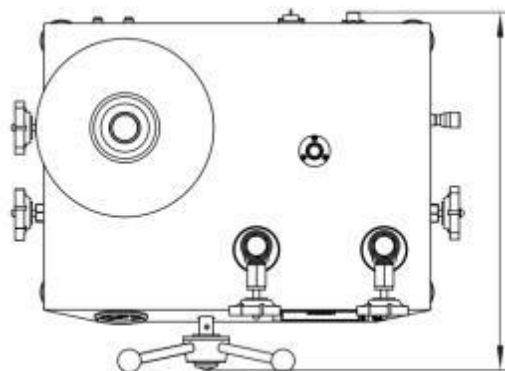
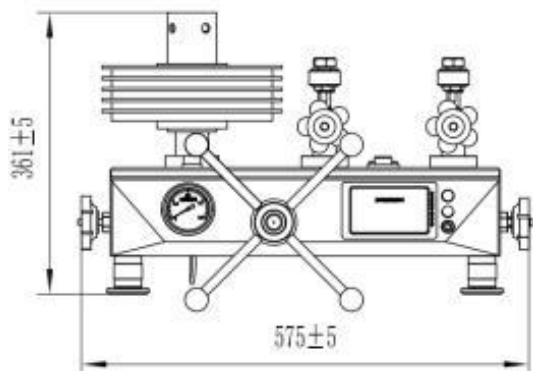
The functional principle of dead weight tester is based on the physical principle of $\text{pressure} = \text{force}/\text{area}(F/A)$.

Mass pieces placed on the top of a piston-cylinder system are the source of a precisely defined force. By producing a certain (counter) pressure inside the pressure balance equilibrium is achieved: the mass pieces, including the free-running piston of the piston-cylinder system, are floating, which will lead to a very accurate pressure at the test port.

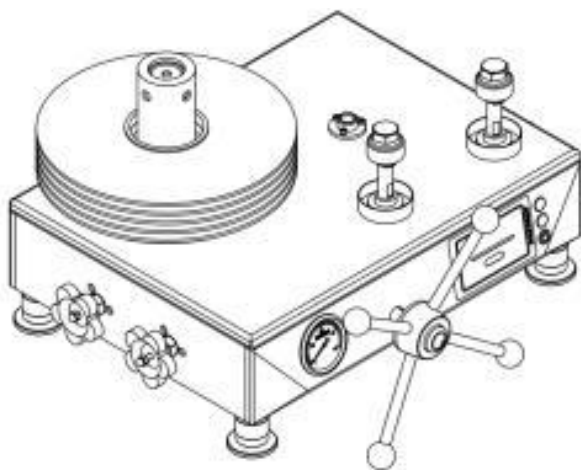
2. A reference instruments for lab use

QY series dead-weight testers or primary standards are the most accurate reference instruments for pressure, which can be used to calibrate digital pressure gauges, high accuracy analog gauges, pressure transmitters and so on. They comply with JJG1086-2013 "Pneumatic Piston Pressure Gauge" and JJG99-2022 "Weight" national meteorological verification regulations.

Dimensions



Pressure handle Adjustable length 465 ~ 630mm



Features

1、The piston cylinder system

- Material: Both the piston and cylinder are manufactured from tungsten carbide. The material, in comparison to other materials, has very low pressure and temperature coefficients of expansion, which results in a very good linearity for the effective area of the piston and a very high accuracy.
- Structure: The design of the piston-cylinder system is anti-break rod and anti-friction structure, and uses bearings to replace limit screws to avoid metal chips from friction to solve the piston system stuck problem.
- Module design: The piston assembly can be sent for calibration alone without carrying the base, reducing maintenance costs.

2. Efficient design

- Multiple safety protection mechanisms: The flow valve is adjusted to accurately control the gas flow, so as to prevent data fluctuation caused by the sudden rise of the piston. The stop valve can quickly isolate the tested system to ensure stable pressure during the loading or removing of weights.
- Simultaneous testing of two devices: The standard dual-connection port supports external expansion to realize more devices tested at the same time, and the efficiency is greatly improved.
- Digital display integration: temperature, displacement, speed, pressure and other parameters can be monitored and displayed in real time.

3 High purity gas medium

- Oil-free cleaning measurement: the working medium is high purity nitrogen or clean air, so as to avoid errors caused by viscosity of oil medium and significantly improve the sensitivity and accuracy of measurement.
- Approaching zero liquid level difference effect: gas medium can avoid the error caused by liquid level difference, ensure that the pressure transmission has no lag, and the measurement data is faster and more accurate.

4. Optimize stability and compatibility

- Basket weight structure: The weight is designed with a low center of gravity basket, which improves the stability when the piston is loaded and meets the requirements of high precision calibration. It can be equipped with kg and MPa weight.
- Ultimate pressure test: continuous operation test with full scale without attenuation of performance.
- Quick pressure connector: supports a variety of instrument connections, compatible with international standard threads, adaptability is strong, no raw material belts and other tools are required.

Specification

Model		QY-6	QY-25	QY-60	QY-70	QY-100
Range/MPa		0.04-0.6	0.1-2.5	0.1-6	0.1-7	0.1-10
Accuracy		0.005%、0.01%、0.02%、0.05%				
Media		High purity nitrogen or clean air				
Connection		M20×1.5				
Masses material		Non-magnetic stainless steel				
Masses	weight/kg	0.1;0.5	0.5;2.5	0.5;2.5	0.5;2.5	0.5;2.5
	Pressure/MPa	0.01;0.05	0.1;0.5	0.1;0.5	0.1;0.5	0.1;0.5
	Qty/piece	6;10	4.4	4;11	4 13	4;19
For calibration		PCU separately				
Temperature & humidity		0.005 级、0.01 级： (20±1) °C, (40%~80%) RH 0.02 级、0.05 级： (20±2) °C, (40%~80%) RH				

Services and accessories

1.Service support

- After-sales support: 1year warranty,48 hours response to maintenance.
- Customized services: more ranges user defined
- Technical support: operation video and online customer services

2.Accessories

Item	Quantity	Remark
Base	1unit	Packing case included
Weights set	1set	
Piston cylinder system	1set	
Power adapter	1pc	
O-rings($\phi 12 \times 2.5$)	20pcs	For connection threads&piston cylinder bottom
Operation manual	1copy	
Certificate of quality	1copy	
Catalog	1copy	
Fiber filter paper	10pcs	For cleaning the piston
Gas pressure reducer(G5/8)	1unit	Optional
Connection hose	1pc	
Test report/calibration certificate (Optional)	1.copy	

3、Packing information

The complete instrument is shipped in 3 cases: base, weights set and piston cylinder system.

Model	QY-6	QY-25	QY-60	QY-70	QY-100
Range/MPa	0.04-0.6	0.1-2.5	0.1-6	0.1-7	0.1-10
Net weight(masses incl.)/kg	35.6	42	59.2	64.5	79.5

Qualification certification and standards

- JJG1086-2013“pneumatic dead weight tester”, JJG 99-2022“weights”verification regulation.
- ISO 9001Quality management system certification

Note: The specifications given in this document represent the state of engineering at the time of publishing.
We reserve the right to make modifications to the specifications and materials.