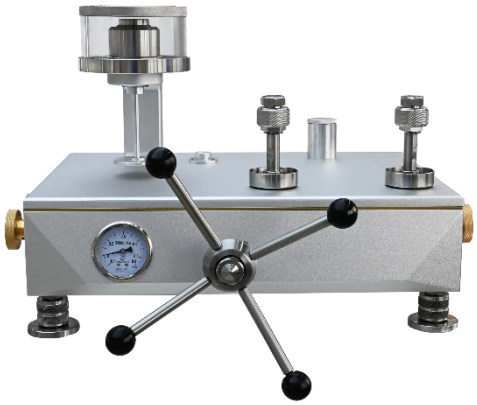
QTZ pneumatic dead weight tester V1.0

Application

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



QTZ pneumatic dead weight tester

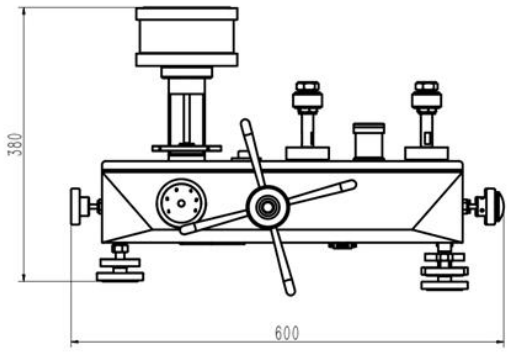
Overview

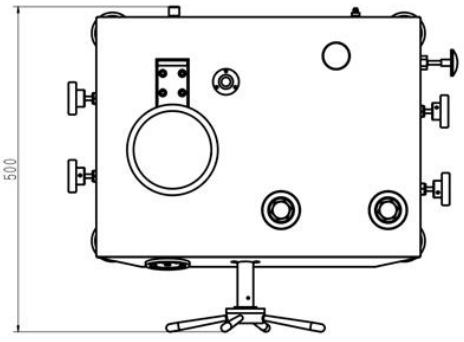
Principle

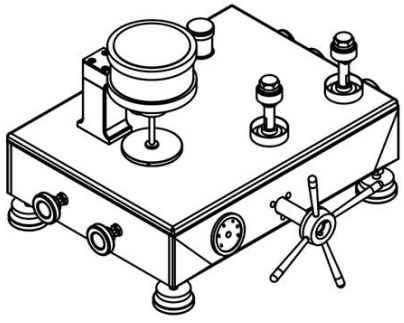
The functional principle of dead weight tester is based on the physical principle of pressure = force/area(F/A).

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.

Dimensions







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 only 1 unit base and piston system can do vacuum and positive pressure calibration both.
- Module design: The piston assembly can be sent for calibration alone without carrying the base, reducing maintenance costs.

2.Weight set

- Weight loading method: each weight has a number and needs to be loaded in order. Positive pressure uses a carrying plate to stack the weights, while negative pressure uses a load-bearing rod to lift the open weights
- Standard weights: Non-magnetic stainless steel, resistant to friction, pollution and easy to clean, and can maintain a constant weight for a long time. The weights are corrected by the local gravity. According to user needs, kg weights and MPa weights can be configured.

3.Base

- Double stop valve protection: featuring independent vacuum and positive pressure stop valves, this design enables both valves to close simultaneously, functioning as a pressure generator. It supports the simultaneous verification of two tested gauges, eliminating potential leakage. Furthermore, a multi-stage filter device minimizes dust ingress into the piston, preventing it from compromising measurement accuracy.
- Lightweight and scalability: featuring an aviation-grade aluminum alloy base for exceptional strength with minimal weight, while supporting robust multi-station expansion. Real-time monitoring of pressure adjustment data mitigates the risk of over-pressure.
- Fine adjustment and pressure stabilization technology features a built-in screw fine adjustment structure for robust sealing. When adjusting pressure, the screw does not extend, ensuring significant space savings.

Specification

Model		QTZ-1	QTZ-2.5	QTZ-4	QTZ-6	QTZ-10
Range/kPa		-100~100	-100~250	-100~400	-100~600	-100~1000
Min pressure /kPa		5	5	10	10	10
Resolution/kPa		5	5	10	10	10
Piston nominal area/cm²		5	5	2	2	2
Masses	Pressure /kPa	1;2;5;10;20	5;10;20;50	5;10;20;50;100	5;10;20;50;100	5;10;20;50;100
	Qty/piece	2.1;1;1;4	1;2;1;4	1;2;1;1;3	1;2;1;1;5	1;2;1;1;9
Masses material		Non-magnetic stainless steel				
Connection		M20×1.5				
Accuracy		0.005%/0.01%/0.02%/0.05%				
Temperature & humidity		0.005%、0.01%:(20±1)℃,40%～80% 0.02%、0.05%:(20±2)℃,40%～80%				
Power supply		AC 220V 50Hz				

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	1.unit	Packing case included
Weights set	1.set	Data is shown in the factory report
Piston cylinder system	1.set	
Power adapter	1.pc	
O-rings(φ12×2.5)	20.pcs	For connection threads
O-rings(φ36×2.5)	5.pcs	For piston cylinder
O-rings(φ42×2.5)	3.pcs	For positive pressure cover use
O-rings(φ115×2.5)	3.pcs	For vacuum pressure cover use
Operation manual	1.copy	
Certificate of quality	1.copy	
Catalog	1.copy	
Fiber filter paper	10.pcs	For cleaning the piston
Vacuum pump (incl. air hose φ8×5)	1.pc	Optional
Gas pressure reducer(G5/8)	1.unit	Optional
Connection hose	1.pc	
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		QTZ-1	QTZ-2.5	QTZ-4	QTZ-6	QTZ-10
Range/kPa		-100~100	-100~250	-100~400	-100~600	-100~1000
Weights (incl. weights)/kg	0.2cm^2	30	32	36	40	48
	5.cm^2	59	62	60	61	63

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.