

# CW Hydraulic Dead Weight Tester v1.0

- LCD displays piston place, rotation speed, RH, temperature ;
- Piston float reminding light;
- Oil out by gravity ;



## Application

CW 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 JJG59-2022 "Liquid Piston Pressure Gauge" and JJG99-2022 "Weight" national meteorological verification regulations.

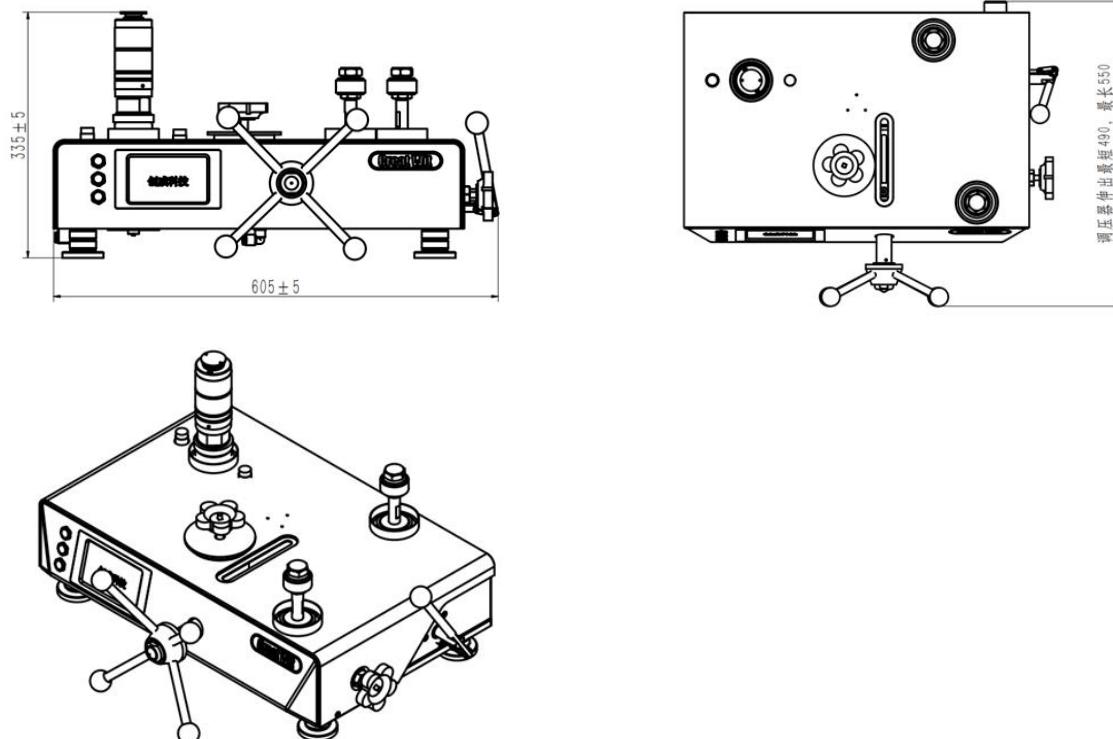
## Overview

### 1. 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.

## 2. 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 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. Weights

- Material: The weights are made of different materials according to different DWT accuracy and can be corrected according to the user's local gravity.

### 3. Base

- The capacity of the oil cup is 500ml, and the oil cup can be equipped with an oil filter device according to customer needs, so as to prevent impurities from entering the oil pipeline and causing the pressure gauge damaged;

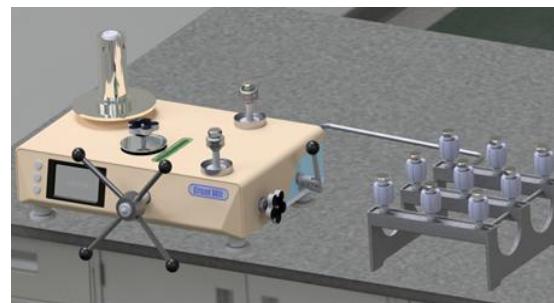
- When the piston floats to the proper position,

The edge of the front panel of the equipment will light up with a light strip to remind the user that the piston has begun to float, and the pressure



regulator needs to be slowly rotated to pressurize to prevent pressure overload;

- **Extensions connecting port**



- The piston system is an integrated modular design: easy to disassemble



- 5 inches touch screen can display some important parameters such as the current ambient temperature (accuracy  $\pm 1^{\circ}\text{C}$ ) and humidity (accuracy 5%), piston real-time speed, piston floating position, etc.





**Specification**

Model		CW-6T	CW-60T		CW-250T		CW-600T		CW-1000T			CW-1600T										
Range/MPa		0.06~0.6	0.1~6			0.5~25		1~60		1~100		2~100	2~160									
Max pressure/MPa		0.6	6			25		60		100		100	160									
Min pressure/MPa		0.06	0.1			0.5		1		1		2	2									
Area/cm <sup>2</sup>		1	0.5	0.2	0.2	0.1	0.1	0.05	0.1	0.05	0.05	0.05	0.05									
Piston and chassis	Weight/kg	0.6	0.5	0.2	1	0.5	1	0.5	1	0.5	1	1	1									
	Pressure/MPa	0.06	0.1	0.1	0.5	0.5	1	1	1	1	2	2	2									
Weight	Weight/kg	0.1;0.5	0.5;2.5	0.2;1	1;5	0.5;2.5	1;5	0.5;2.5	1;5	0.5;1;5	0.5;1;5	0.5;1;5	0.5;1;5									
	Pressure/MPa	0.01;0.05	0.1;0.5	0.1;0.5	0.1;0.5	0.5;2.5	0.5;2.5	1;5	1;5	1;5	1;2;10	1;2;10	1;2;10									
	Qty/piece	4;10	4;11	4;11	4;9	4;9;	4;11	4;11	4;19	1;4;9	1;4;9	1;4;15	1;4;15									
Total weight (with weights)/kg		41	65	47	85	60	95	65	135	85	85	115										
Media		Mixture of kerosene and transformer oil			Bis(2-ethylhexyl) sebacate																	
Weights material		Non-magnetic stainless steel(0.005%;0.01%;0.02%);45#carbon steel(0.05%)																				
Connection threads		M20×1.5																				
Accuracy		0.005%;0.01%;0.02%; 0.05%																				
Temperature and RH		0.005%、0.01%:(20±0.5)°C, RH<80%																				
		0.02%、0.05%:(20±2)°C, RH<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
Handle bars	4 bars	
10.mm hex wrench	1.pc	Disassemble piston base plug
Vent valve needle kit	1.set	
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)	50.pcs	For connection threads, measuring base and piston cylinder
O-rings(φ19×2.65)	10.pcs	For outlet plug and the calibration cylinder
O-rings(φ16×2.4)	5.pcs	For priming pump use
Operation manual	1.copy	
Certificate of quality	1.copy	
Catalog	1.copy	
Fiber filter paper	10.pcs	For cleaning the piston
Test report/calibration certificate (Optional)	1.copy	

**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.