



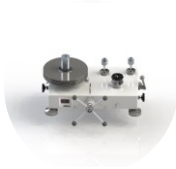
Industry Solutions

P01



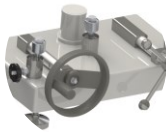
Digital pressure gauge

P03



Pressure calibrations

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Pressure source

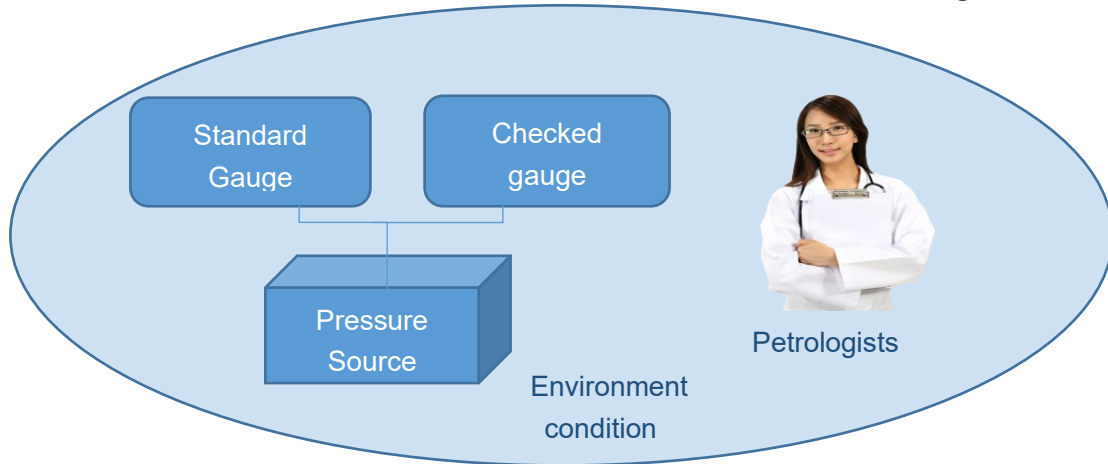
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Accessories

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Pressure Measurement Calibration Program



Calibration: Under specified conditions, a set of operations to determine the relationship between the indication value of a measuring instrument or measurement system, or the value represented by a physical gauge or standard substance, and the corresponding known value being measured. During this process, the pressure source provides a stable and consistent working pressure for the standard and the meter being checked. The standard instrument is a pressure measuring instrument that is traceable and has an accuracy level higher than that of the meter under test. It is used to determine the error of the value indicated by the meter under test.

No.1: Piston

Pressure Calibration



Piston pressure gauge is a standard pressure measuring instrument with high accuracy, high reproducibility and high reliability based on Pascal's law and hydrostatic equilibrium principle. It is a pressure standard with its own pressure source, and the calibration and verification process can be completed by directly installing the instrument under test.

It has the advantages of high accuracy, reproducibility and high reliability, is suitable as a standard equipment for laboratory.

No.2: Digital Pressure Gauge

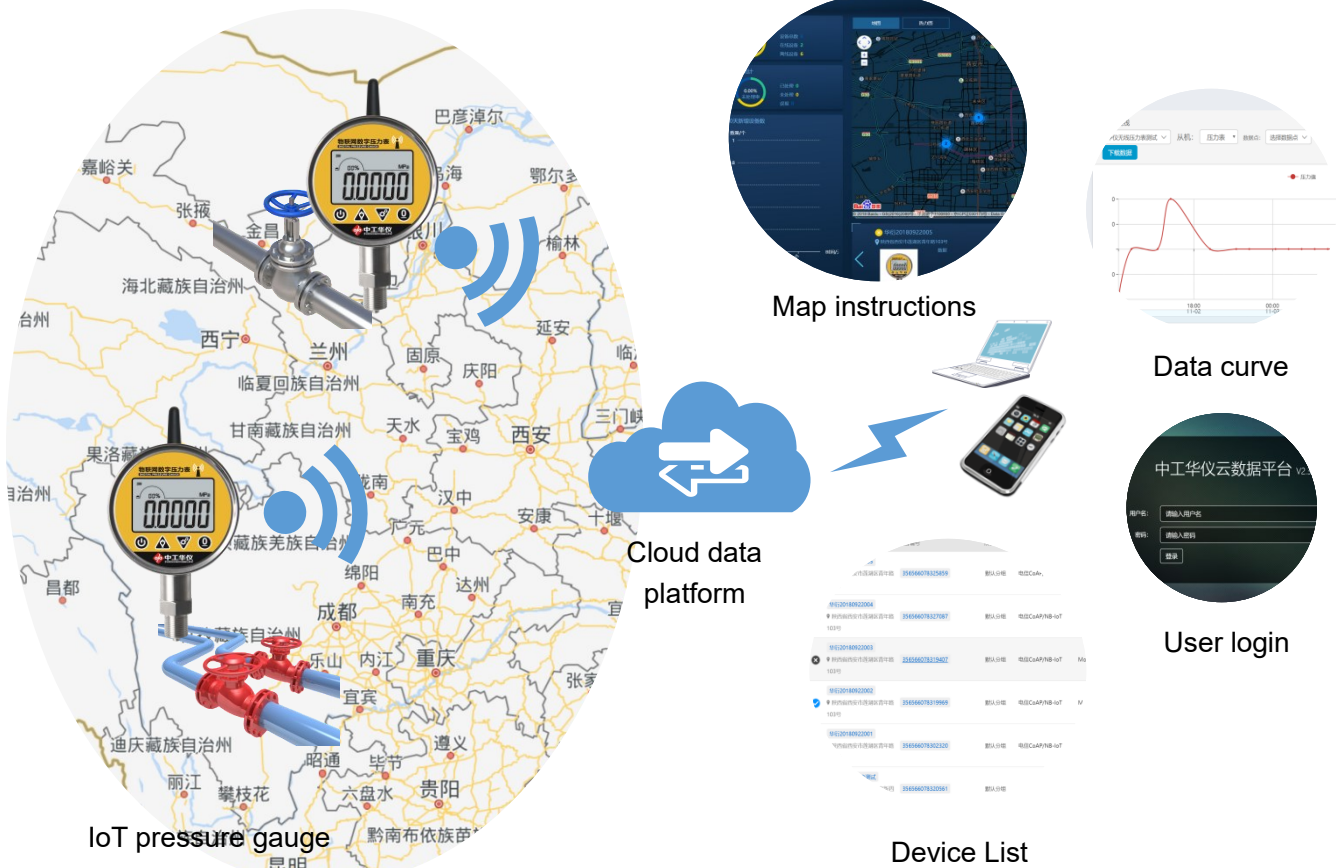
+Pressure Source



Pressure source provides stable and consistent working pressure for the standard and checked instrument. Pressure making range is from -0.1MPa to 500MPa. As to structure, it has desktop pressure source and portable pressure source, as to the working medium, it has air pressure source, water pressure source and oil pressure source. The digital pressure gauge is used as a standard, Its range is from -0.1~250MPa, and accuracy is 0.5, 0.2, 0.1, 0.05. The solution has the advantages of flexible working medium, easy to carry out, and on-site calibration.

Industry Solutions

Wireless Pressure Monitor System



IoT pressure gauge

Map instructions

Data curve

Cloud data platform

User login

Device List

The wireless pressure monitoring system is composed of HD-100N IoT digital pressure gauge, cloud data platform and terminal equipment. HD-100N IoT digital pressure gauge is responsible for collecting pressure data, and adopts the latest 4G LTE, NB-iot and other IoT technologies to upload the data to the cloud data platform. Realized pressure data real-time monitoring, data recording, over-limit alarm etc. functions. Users can monitor pressure data in real time through terminal devices such as computers, tablets, and mobile phones. The system is widely used in fields such as fire pipe network pressure monitoring, water service pipe network pressure monitoring, petrochemical pipeline pressure monitoring and so on.

System advantages:

- **Low operating costs:**

Adopt NB-iot network, free of wiring and network construction. Communication costs are low.

- **Wide network coverage:**

Network coverage nationwide, unlimited expansion, unlimited access locations

- **Strong network signal:**

Compared with LTE, NB-iot has a gain of 20dBm, which is suitable for application scenarios such as underground garages and deep wells.

- **Mobile push**

HD-100G Precision Digital Pressure Gauge

Application Description

- ❖ Adjusting and calibrating common pressure gauge, precision pressure gauge, sphygmomanometer;
- ❖ Precision pressure measuring;
- ❖ Scientific research experiment;

Main Character

- ❖ Wide range temperature compensation make measurement more accurate;
- ❖ Strict aging process, long-term stability and reliability;
- ❖ Large LCD screen, more intuitive for large font;
- ❖ Ultra-low power design, battery is more durable;
- ❖ High-speed pressure sampling up to 10 times per second. Pressure sampling period could adjust;
- ❖ Multiple pressure unit switching: mmH₂O、mmHg、inH₂O、inHg、kgf/cm²、psi、kPa、MPa、Pa、hPa、mbar、bar; Which can realize 11 pressure unit transform easily.
- ❖ Automatic Peak Records, record the max and min value during measuring;
- ❖ Support user pressure calibration, two-point (full range point, zero point) calibration, easy and fast operation;
- ❖ Power: Standard lithium battery ER18505, which is convenient for users to replace;

Using Environment

- ❖ Environment temperature: (-20~70) °C;
- ❖ Storage temperature: (-30~80) °C;
- ❖ Relative humidity: <95%RH;
- ❖ Atmospheric pressure: (86~106) kPa;

LCD Display

- ❖ Full-view LCD screen with no blind spots;
- ❖ High brightness backlight, easy to read with low illumination;
- ❖ 5 digits display with high resolution;
- ❖ Dynamic progress bar pressure indication and pressure percentage indication;

Power Supply

- ❖ Default: ER18505 Lithium battery powered;
- ❖ Optional: 5V、12V、24V powered, power adapter power supply;

Mounting Dimension

- ❖ Diameter: headφ100mm × 50mm, length 160mm;
- ❖ Thread: M20 × 1.5 G1/2 NPT1/2 (or According to customers' requirements) ;
- ❖ Weight: about 0.5kg;
- ❖ Mounting: Bottom. (Back with flange for optional);

Measuring Range

- ❖ -100Kpa~100MPa; (Between this range, 11 pressure unit transfer easily.)

Accuracy Class

- ❖ ±0.5%; ±0.2%; ±0.1%; ±0.05%; ±0.02%



HD-100N IoT Digital Pressure Gauge



Application

- ❖ Pipeline pressure monitoring in petrochemical industry;
- ❖ Water pressure monitoring of water pipe network;
- ❖ Water pressure monitoring of fire pipe network;
- ❖ Environmental monitoring;
- ❖ In-situ pressure measurement, free of wiring and free of manual reading;

Main Character

- ❖ Based on IoT technology, support NBiot, GPRS, 4G LTE etc. IoT connection methods;
- ❖ Deep network coverage, supporting scene applications such as basements;
- ❖ Provide pressure cloud data platform, users can monitor instrument data at any time;
- ❖ Provide large-screen map display, visual display of instrument position information;
- ❖ Provide data alarm function, push alarm information through WeChat or other methods;
- ❖ Users can modify the data reporting period remotely, which is convenient for users;
- ❖ Ultra-low power consumption, support battery power supply;
- ❖ Support configuration design to facilitate industrial control;
- ❖ Easy installation, plug it, it will run;
- ❖ Full-view LCD screen with no blind spots;
- ❖ Five digits indication, high resolution;
- ❖ Dynamic progress bar pressure indication and pressure percentage indication;

HD-100R Digital Pressure Controller

Application Description

Hydraulic pump control;

Water pump control;

Pressure audible alarm at the production site;

Automated production line;

Pneumatic component control;

Main Character

- ❖ The contact adopts power type relay, safe and reliable;
- ❖ Both upper and lower limit contacts include normally open or normally closed contacts;
- ❖ Strict EMC design, contact action does not interfere with other electronic equipment;
- ❖ Load protection function, user-adjustable for contact action time interval;
- ❖ Upper and lower thresholds, button adjustment, simple and convenient;
- ❖ Strict aging process, long-term stable and reliable;
- ❖ Large LCD screen, large fonts are more intuitive;
- ❖ Contact capacity: 250VAC 5A 30VDC 5A



HD-100T Transmission Remote Digital Pressure Gauge

Application Description

- ❖ Pressure transmitter applications;
- ❖ High-precision pressure control;
- ❖ Industrial pressure monitoring;
- ❖ PLC industrial control device;
- ❖ Automated production line;

Main Character

- ❖ Two-wire system (4 ~ 20) mA, reduce user wiring cost;
- ❖ Current output 16-bit high resolution;
- ❖ User-defined correspondence between current and pressure;
- ❖ High-speed pressure sampling, up to 10 times per second, and the sampling period can be adjusted by the user;
- ❖ Wide temperature compensation, more accurate measurement;
- ❖ Strict aging process, long-term stable and reliable;
- ❖ Large LCD screen, large fonts are more intuitive;



HD-100C Communication Digital Pressure Gauge

Application Description

- ❖ Remote transmission of pressure data;
- ❖ High-precision pressure control;
- ❖ Industrial pressure monitoring;
- ❖ PLC industrial control device;
- ❖ Automated industry;

Main Character

- ❖ Standard RS485 communication, multiple instruments can be networked;
- ❖ Standard MODBUS RTU communication protocol, convenient PLC connection;
- ❖ Original imported 485 chip, reliable communication and strong anti-interference ability;
- ❖ User-defined instrument slave address;
- ❖ User-defined communication rate;
- ❖ High-speed pressure sampling, up to 10 times per second, and the sampling period is user adjustable (9600bps 4800bps 2400bps)
- ❖ Wide temperature compensation, more accurate measurement;



HD-100A Airtight detection Digital Pressure Gauge

Application Description

- ❖ Workpiece air tightness detection;
- ❖ Pipeline burst pressure test;
- ❖ High-precision pressure measurement;
- ❖ Scientific research experiment;

Main Character

- ❖ Special air-tightness detection program, users can set the test time and leakage amount by themselves;
- ❖ The screen will prompt if the leakage is exceeded;
- ❖ Can be connected to the PC program to observe the pressure curve;
- ❖ Automatic peak record, save the highest-pressure value of burst test;
- ❖ High-speed pressure sampling, up to 10 times per second, to ensure the true record of pressure at the bursting point;
- ❖ Strict aging process, long-term stable and reliable;
- ❖ Large LCD screen, large fonts are more intuitive;



HD-100S Record Type Digital Pressure Gauge

Application Description

- ❖ Pressure monitoring area where wiring is not convenient;
- ❖ High-precision pressure measurement;
- ❖ Scientific research experiment;

Main Character

- ❖ LCD screen display, more convenient for users to use;
- ❖ High-resolution screen, display multiple records on the same screen, convenient for users to view;
- ❖ Large-capacity record storage, can store up to 10000 data;
- ❖ The recording period is adjustable, and can provide a variety of recording modes;
- ❖ Have PC-side software to import data;
- ❖ Reliable data storage, the memory can be refreshed cyclically for 100,000 cycles, and the data can be kept for more than 100 years;
- ❖ Wide temperature compensation, more accurate measurement;
- ❖ Large LCD screen, large fonts are more intuitive;



HD-100D Differential Digital Pressure Gauge

Application Description

- ❖ It is suitable for measuring the differential pressure of various liquid (gas) media in the process of industrial sectors such as chemical industry, chemical industry, metallurgy, electric power, nuclear power, etc.

Main Character

- ❖ Large LCD screen, large fonts are more intuitive;
- ❖ Wide temperature compensation, more accurate measurement;
- ❖ Strict aging process, long-term stable and reliable;
- ❖ Ultra-low power consumption design, the battery is more durable;
- ❖ Multiple pressure unit switching: mmH₂O、mmHg、inH₂O、inHg、kgf/cm²、psi、kPa、MPa、Pa、hPa、mbar、bar; Which can realize 11 pressure unit transform easily.
- ❖ Automatic Peak Records, record the max and min value during measuring;
- ❖ Support user pressure calibration, two-point (full range point, zero point) calibration, easy and fast operation;



HD-100K Tonnage Digital Pressure Gauge

Application Description

- ❖ Tonnage measurement in hydraulic industry;
- ❖ Tonnage monitoring of presses, punches, etc .;

Main Character

- ❖ The user can set the piston area of the hydraulic cylinder, the instrument automatically calculates the pressure according to the area and pressure, and the operation is flexible and convenient.
- ❖ Wide temperature compensation, more accurate measurement;
- ❖ Strict aging process, long-term stable and reliable;
- ❖ Ultra-low power consumption design, the battery is more durable;
- ❖ Multiple pressure unit switching: mmH₂O、 mmHg 、 inH₂O、 inHg 、 kgf/cm²、 psi、 kPa、 MPa、 Pa、 hPa、 mbar、 bar; Which can realize 11 pressure unit transform easily.
- ❖ Automatic Peak Records, record the max and min value during measuring;
- ❖ Support user pressure calibration, two-point (full range point, zero point) calibration, easy and fast operation;



Digital Pressure Gauge Conventional Pressure Range

Pressure Range	Accuracy①	Accuracy①	Accuracy①	Accuracy①	Media
(-100~0)kPa	0.05, G	0.1, G	0.2, G	0.5, G	②
(0~16)kPa	0.05, G	0.1, G	0.2, G	0.5, G	②
(0~25)kPa	0.05, G	0.1, G	0.2, G	0.5, G	②
(0~40)kPa	0.05, G	0.1, G	0.2, G	0.5, G	②
(0~60)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②
(0~100)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②
(0~160)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②
(0~250)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②
(0~400)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	③
(0~600)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	③
(0~1)MPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	③
(0~1.6)MPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	③
(0~2.5)MPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	③
(0~4)MPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	③
(0~6)MPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	③
(0~10)MPa	0.02,0.05, SG	0.1, SG	0.2, SG	0.5, SG	③
(0~16)MPa	0.02,0.05, SG	0.1, SG	0.2, SG	0.5, SG	③
(0~25)MPa	0.02,0.05, SG	0.1, SG	0.2, SG	0.5, SG	③
(0~40)MPa	0.02,0.05, SG	0.1, SG	0.2, SG	0.5, SG	③
(0~60)MPa	0.02,0.05, SG	0.1, SG	0.2, SG	0.5, SG	③
(0~100)MPa	0.02,0.05, SG	0.1, SG	0.2, SG	0.5, SG	③

G=Gauge pressure; SG=Sealed Gauge Pressure;

- ① Ensure accuracy temperature range (0 ~ 50) °C;
- ② Non-corrosive gas;
- ③ Non-corrosive liquid or gas.

Equivalent pressure unit is acceptable.

Digital Pressure Gauge Compound Pressure Range

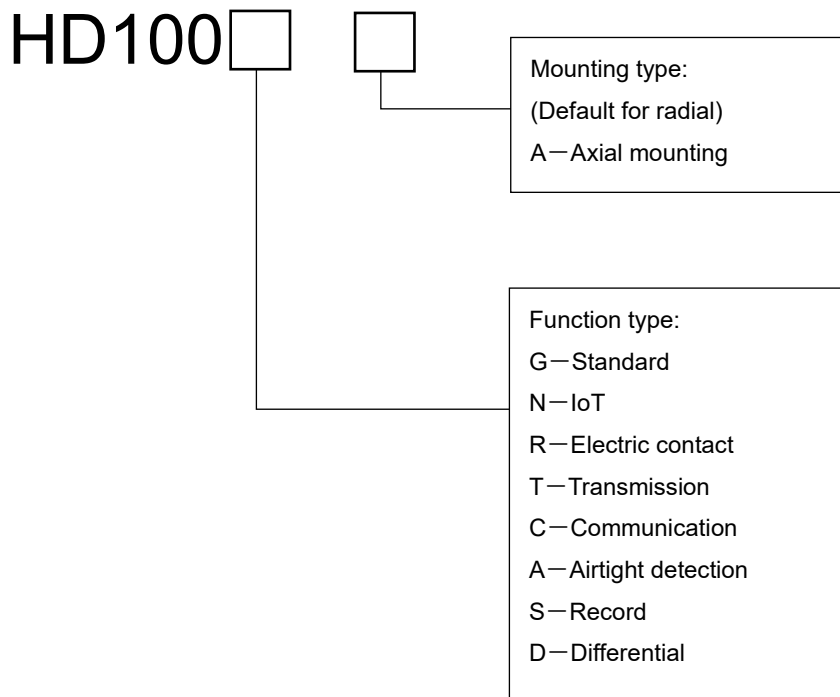
Pressure Range	Accuracy①	Accuracy①	Accuracy①	Accuracy①	Media
±16kPa	0.05, G	0.1, G	0.2, G	0.5, G	②
±25kPa	0.05, G	0.1, G	0.2, G	0.5, G	②
±40kPa	0.05, G	0.1, G	0.2, G	0.5, G	②
±60kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②
±100kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②
(-100~160)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②
(-100~250)kPa	0.02,0.05, G	0.1, G	0.2, G	0.5, G	②

G=Gauge pressure;

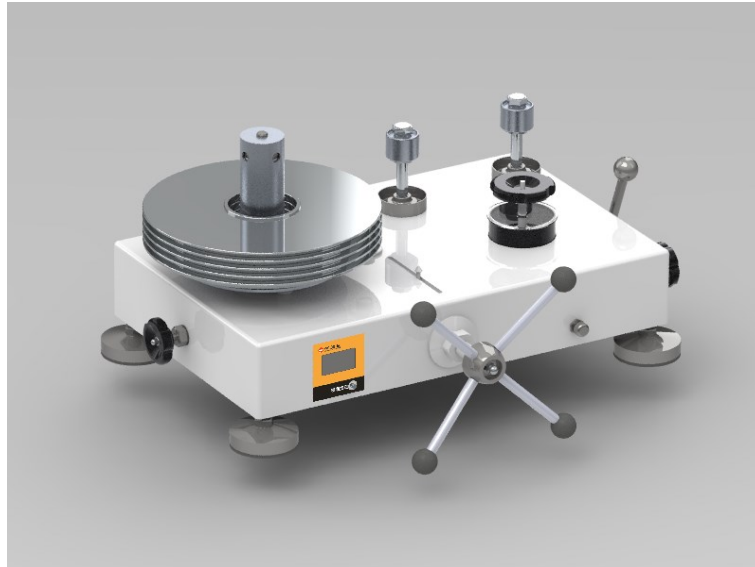
- ① Ensure accuracy temperature range (0 ~ 50) °C;
- ② Non-corrosive gas;
- ③ Non-corrosive liquid or gas.

Equivalent pressure unit is acceptable.

Selection chart



HP series piston pressure gauge



Description

- ❖ Piston pressure gauge is a high-accuracy pressure standard. It is a measuring instrument that uses the principle of hydrostatic balance (that is, the fluid pressure acting on the effective area of the piston is balanced with the gravity of the load). And generally, it consists of a piston system, special weights, and pressure calibrator.

Measuring Range

- ❖ (0.04~0.6) MPa; (0.1~6) MPa; (1~60) MPa; (2~100) MPa;

Accuracy Class

- ❖ $\pm 0.05\%$; $\pm 0.02\%$; $\pm 0.01\%$; $\pm 0.005\%$

Piston System Material

- ❖ Piston rod: Tungsten carbide
- ❖ Piston cylinder: Tungsten carbide

Weight material

- ❖ Carbon steel ($\pm 0.05\%$ class); non-magnetic stainless steel ($\pm 0.02\%$ class; $\pm 0.01\%$ class; $\pm 0.005\%$ class);

Working medium

- ❖ Transformer oil and kerosene mixed oil or sebacate

Dimensions

- ❖ Length*Width*Height: (660 X 500 X 450) mm

Features

- ❖ The material of piston rod and piston cylinder is tungsten carbide, which has the characteristics of high strength, high hardness and low temperature linear expansion coefficient, which improves the wear resistance of the piston and extends the life of the piston.
- ❖ The change of the working position of piston adopts the liquid crystal display, and the observation is more intuitive.
- ❖ With real-time display of system pressure, users can intuitively grasp the speed of boost and buck (optional function).
- ❖ The piston system is of modular design, and the module can be unscrewed directly when it is sent for

inspection, without carrying a heavy mainframe.

- ❖ The piston has a sewage system, and oil containing impurities in the oil cup can be directly discharged through the sewage port.
- ❖ The special structure design of the pressurization system saves effort when pressurized.
Using aerospace-grade sealing materials, long-term reliable and no leakage.
- ❖ The high-pressure piston weight adopts the hanging basket structure, with low center of gravity and good stability.
- ❖ Using a quick pressure connector, it is easy to disassemble and install the inspected meter.
- ❖ All indicators are in full compliance with the national measurement verification regulations, (JJG59-2007 "Piston Pressure Gauge" and JJG99-2006 "Weight") and each one can issue a "Verification Certificate".

Model Configuration

Product Model		HP-6	HP-60	HP-600	HP-1000
Measuring range (MPa)		0.04~0.6	0.1~6	1~60	2~100
Nominal upper limit (MPa)		0.6	6	60	100
Nominal lower limit (MPa)		0.04	0.1	1	2
Measuring upper limit (MPa)		0.6	6	60	100
Measuring lower limit (MPa)		0.04	0.1	1	2
Nominal area of piston (cm ²)		1	0.5	0.05/0.1	0.05
Chassis And piston	Nominal Mass (kg)	0.4	0.5	0.5/1	1
	produced Pressure (MPa)	0.04	0.1	1	2
Dedicated Weight	Nominal Mass (kg)	0.1;0.5	0.5;2.5	0.5;2.5/1;5	0.5;2.5;5
	produced Pressure (MPa)	0.01;0.05	0.1;0.5	1;5	1;5;10
	Quantity (PCs)	6;10	4;11	4;11	3;1;9
Interface thread specification		M20 × 1.5	M20×1.5	M20×1.5	M20×1.5
Weight (kg)		45	52	55/85	100

HPG Series Ultra High Pressure Piston Manometer



Description

- ❖ Piston pressure gauge is a high-accuracy pressure standard. It is a measuring instrument that uses the principle of hydrostatic balance (that is, the fluid pressure acting on the effective area of the piston is balanced with the gravity of the load). And generally, it consists of a piston system, special weights, and pressure calibrator.

Measuring Range

- ❖ (2 ~ 160) MPa; (5 ~ 250) MPa;

Accuracy Class

- ❖ $\pm 0.05\%$; $\pm 0.02\%$; $\pm 0.01\%$; $\pm 0.005\%$

Piston System Material

- ❖ Piston rod: Tungsten carbide
- ❖ Piston cylinder: Tungsten carbide

Weight material

- ❖ Carbon steel ($\pm 0.05\%$ class); non-magnetic stainless steel ($\pm 0.02\%$ class; $\pm 0.01\%$ class; $\pm 0.005\%$ class);

Working medium

- ❖ Sebacate

Dimensions

- ❖ Length*Width*Height: (660 X 500 X 450) mm

Features

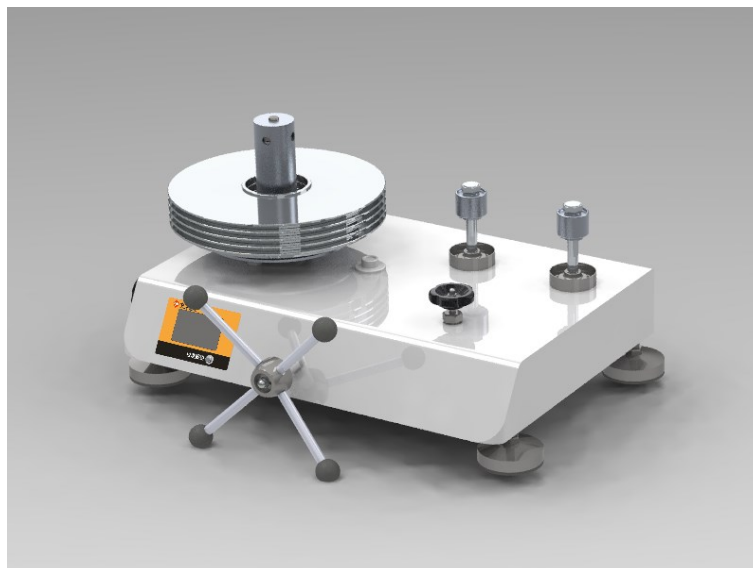
- ❖ The material of piston rod and piston cylinder is tungsten carbide, which has the characteristics of high strength, high hardness and low temperature linear expansion coefficient, which improves the wear resistance of the piston and extends the life of the piston.
- ❖ The change of the working position of piston adopts the liquid crystal display, and the observation is more intuitive.
- ❖ Optional display function, including working parameters such as temperature, displacement, time, speed, pressure, etc.
- ❖ The rotation of the piston is driven by a motor, which saves time and effort.

- ❖ The piston has a sewage system, and the oil in the oil cup can be directly discharged through the sewage port.
- ❖ The special structure design of the pressurization system saves effort when pressurized.
- ❖ Using aerospace-grade sealing materials, long-term reliable and no leakage.
- ❖ The hanging basket structure is adopted, with low center of gravity and good stability.
- ❖ Using a quick pressure connector, it is easy to disassemble and install the inspected meter.
- ❖ All indicators are in full compliance with the national measurement verification regulations, (JJG59-2007 "Piston Pressure Gauge" and JJG99-2006 "Weight") and each one can issue a "Verification Certificate".

Model Configuration

Product Model		HPG-1600	HPG-2500
Measuring range (MPa)		2~160	5~250
Nominal upper limit (MPa)		160	250
Nominal lower limit (MPa)		2	5
Measuring upper limit (MPa)		160	250
Measuring lower limit (MPa)		2	5
Nominal area of piston (cm ²)		0.05	0.025
Chassis And piston	Nominal Mass (kg)	1	1.25
	Produced Pressure (MPa)	2	5
Dedicated Weight	Nominal Mass (kg)	0.5;2.5;5	1.25;2.5;5
	Produced Pressure (MPa)	1;5;10	5;10;20
	Quantity (PCs)	3;1;15	1;2;11
Interface thread specification		M20×1.5	M20×1.5
Weight (kg)		55	100

HPQ series gas piston pressure gauge



Description

- ❖ The gas piston pressure gauge is a high-accuracy pressure standard. High-purity nitrogen is used as the working medium. During the measurement process, the additional error introduced is smaller due to the lower viscosity of the working medium, which further improves the sensitivity of the piston and makes the fluctuation of the output pressure value smaller and the repeatability better. At the same time, it is more convenient to verify the Oil Prohibition Meter.

Measuring Range

- ❖ (0.1~4) MPa; (0.1~6) MPa; (0.1~7) MPa; (0.1~10) MPa;

Accuracy Class

- ❖ $\pm 0.05\%$; $\pm 0.02\%$; $\pm 0.01\%$; $\pm 0.005\%$

Piston System Material

- ❖ Piston rod: Tungsten carbide
- ❖ Piston cylinder: Tungsten carbide

Weight material

- ❖ Carbon steel ($\pm 0.05\%$ class); non-magnetic stainless steel ($\pm 0.02\%$ class; $\pm 0.01\%$ class; $\pm 0.005\%$ class);

Working medium

- ❖ High purity nitrogen

Dimensions

- ❖ Length*Width*Height: (660 X 500 X 450) mm

Features

- ❖ High-purity nitrogen is used as the working medium. During the measurement process, the additional error introduced is smaller due to the lower viscosity of the working medium, which further improves the sensitivity of the piston and makes the fluctuation of the output pressure value smaller and the repeatability better.
- ❖ The material of piston rod and piston cylinder is tungsten carbide, which has the characteristics of high strength, high hardness and low temperature linear expansion coefficient, which improves the wear resistance of the piston and extends the life of the piston.
- ❖ The rotation time of the piston is long, the friction force between the piston cylinder and the rod is small, and

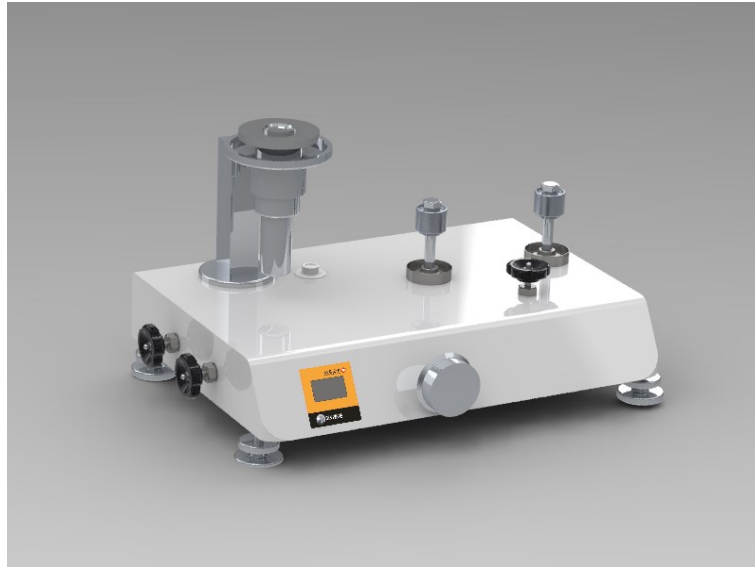
the output pressure value is more accurate.

- ❖ With real-time display of system pressure, users can intuitively grasp the speed of boost and buck (optional function).
- ❖ The change of the working position of piston adopts the liquid crystal display, and the observation is more intuitive.
- ❖ The high-pressure piston weight adopts the hanging basket structure, with low center of gravity and good stability.
- ❖ The weight has been corrected for pressure deformation coefficient and local gravity acceleration.
- ❖ All indicators are in full compliance with the national measurement verification regulations, (JJG1086-2013 "Gas piston pressure gauge" and JJG99-2006 "Weight") and each one can issue a "Verification Certificate".

Model Configuration

Product Model		HPQ-40	HPQ-60	HPQ-70	HPQ-100
Measuring range (MPa)		0.1~4	0.1~6	0.1~7	0.1~10
Nominal upper limit (MPa)		4	6	7	10
Nominal lower limit (MPa)		0.1	0.1	0.1	0.1
Measuring upper limit (MPa)		4	6	7	10
Measuring lower limit (MPa)		0.1	0.1	0.1	0.1
Nominal area of piston (cm ²)		0.5	0.5	0.5	0.5
Chassis And piston	Nominal Mass (kg)	0.5	0.5	0.5	0.5
	produced Pressure (MPa)	0.1	0.1	0.1	0.1
Dedicated Weight	Nominal Mass (kg)	0.5;2.5	0.5;2.5	0.5;2.5	0.5;2.5
	produced Pressure (MPa)	0.1;0.5	0.1;0.5	0.1;0.5	0.1;0.5
	Quantity (PCs)	4;7	4;11	4;13	4;19
Interface thread specification		M20 × 1.5	M20×1.5	M20×1.5	M20×1.5
Weight (kg)		45	52	55	100

HPK series gas piston pressure vacuum gauge



Description

- ❖ The gas piston pressure vacuum gauge is a high-accuracy pressure standard, which can verify the vacuum gauge and pressure gauge. High-purity nitrogen is used as the working medium. During the measurement process, the additional error introduced by the working medium becomes smaller due to the smaller viscosity, which further improves the sensitivity of the piston, making the output standard pressure value fluctuate less and have better repeatability.

Measuring Range

- ❖ (-0.1-0.25) MPa, (- 0.1-0.4) MPa, (- 0.1-0.6) MPa, (- 0.1-1) MPa;

Accuracy Class

- ❖ $\pm 0.05\%$; $\pm 0.02\%$; $\pm 0.01\%$; $\pm 0.005\%$

Piston System Material

- ❖ Piston rod: Tungsten carbide
- ❖ Piston cylinder: Tungsten carbide

Weight material

- ❖ Carbon steel ($\pm 0.05\%$ class); non-magnetic stainless steel ($\pm 0.02\%$ class; $\pm 0.01\%$ class; $\pm 0.005\%$ class);

Working medium

- ❖ High purity nitrogen

Dimensions

- ❖ Length*Width*Height: (660 X 500 X 450) mm

Features

- ❖ Using high-purity nitrogen as the working medium, during the measurement process, the additional error introduced is smaller due to the lower viscosity of the working medium, which further improves the sensitivity of the piston, making the output pressure value fluctuate less and repeatability better.
- ❖ The material of piston rod and piston cylinder is tungsten carbide, which has the characteristics of high strength, high hardness and low temperature linear expansion coefficient, which improves the wear resistance of the piston and extends the life of the piston.
- ❖ The rotation time of the piston is long, the friction force between the piston cylinder and the rod is small, and

the output standard pressure value is more accurate.

- ❖ With real-time display of system pressure, users can intuitively grasp the speed of boost and buck (optional function).
- ❖ The change of the piston position is compared according to the graduation line, with the highest graduation line and the lowest graduation line.
- ❖ The weight has been corrected for pressure deformation coefficient and local gravity acceleration.
- ❖ All indicators are in full compliance with the national measurement verification regulations of JJG1086-2013 "Gas Piston Pressure Gauge" and JJG99-2006 "Weight", and each one can issue a "Verification Certificate".

Model Configuration

Product Model		HPK-25	HPK-40	HPK-60	HPK-100
Measuring range (MPa)		-0.1~0.25	-0.1~0.4	-0.1~0.6	-0.1~1
Nominal upper limit (MPa)		0.25	0.4	0.6	1
Nominal lower limit (MPa)		-0.1	-0.1	-0.1	-0.1
Measuring upper limit (MPa)		0.25	0.4	0.6	1
Measuring lower limit (MPa)		-0.1	-0.1	-0.1	-0.1
Nominal area of piston (cm ²)		5	5	5	5
Chassis and piston	Nominal Mass (kg)	0.5	0.5	0.5	0.5
	produced Pressure (MPa)	0.01	0.01	0.01	0.01
Dedicated Weight	Nominal Mass (kg)	See user manual for details			
	produced Pressure (MPa)				
	Quantity (PCs)				
Interface thread specification		M20 × 1.5	M20×1.5	M20×1.5	M20×1.5
Weight (kg)		45	52	55	85

HPS Series Double Piston Pressure Vacuum Gauge



Description

The double piston pressure vacuum gauge is a measuring instrument that uses the principle of hydrostatic balance (that is, the fluid pressure acting on the effective area of the piston is balanced with the gravity of the load) to achieve force balance through a simple piston and a differential piston. It generally consists of two separate piston systems, special weights, and pressure calibrator.

Measuring Range

- ❖ (-0.1-0.25) MPa, (- 0.1-0.6) MPa, (- 0.1-1) MPa;

Accuracy Class

- ❖ $\pm 0.05\%$; $\pm 0.02\%$;

Piston System Material

- ❖ Piston rod: Tungsten carbide
- ❖ Piston cylinder: Tungsten carbide

Weight material

- ❖ Carbon steel ($\pm 0.05\%$ class); non-magnetic stainless steel ($\pm 0.02\%$ class);

Working medium

- ❖ Mixed oil of transformer oil and kerosene

Dimensions

- ❖ Length*Width*Height: (680 X 500 X 450) mm

Features

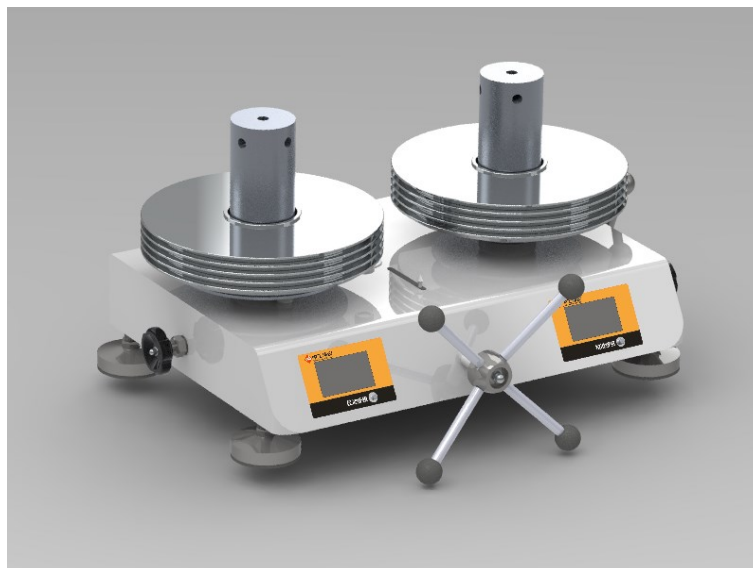
- ❖ It has two sets of piston systems, one set is vacuum piston and the other set is positive pressure piston, equipped with corresponding two sets of weights.
- ❖ The material of piston rod and piston cylinder is tungsten carbide, which has the characteristics of high strength, high hardness and low temperature linear expansion coefficient, which improves the wear resistance of the piston and extends the life of the piston.
- ❖ The change of the working position of the piston adopts the liquid crystal display, and the observation is more intuitive.
- ❖ The rotation of the piston is driven by a motor, which saves time and effort.

- ❖ The weight has been corrected for pressure deformation coefficient and local gravity acceleration.
- ❖ Optional display function, including working parameters such as temperature, displacement, time, speed, pressure, etc.
- ❖ All indicators are in full compliance with JJG 159-2008 "Dual Piston Pressure Vacuum Gauge Verification Regulations", JJG99-2006 "Weights", National Metrology Verification Regulations, and each can issue a "Verification Certificate"

Model Configuration

Product Model		HPS-25	HPS-60	HPS-100
Measuring range (MPa)		-0.1~0.25	-0.1~0.6	-0.1~1
Nominal upper limit (MPa)		0.25	0.6	1
Nominal lower limit (MPa)		-0.1	-0.1	-0.1
Measuring upper limit (MPa)		0.25	0.6	1
Measuring lower limit (MPa)		-0.1	-0.1	-0.1
Nominal area of piston (cm ²)		1/0.5	1/0.5	1/0.5
Chassis And piston	Nominal Mass (kg)	1/0.5	1/0.5	1/0.5
	produced Pressure (MPa)	0.1	0.1	0.1
Dedicated Weight		See user manual for details		
Interface thread specification		M20 × 1.5	M20×1.5	M20×1.5
Weight (kg)		48	52	58

HPZ series main and auxiliary piston pressure gauge



Description

- ❖ The main and auxiliary piston pressure gauge is a high accuracy pressure standard, which is mainly used for the verification of the piston area. It generally consists of a piston system, two sets of special weights, and a pressure calibrator.

Measuring Range

- ❖ (0.04 ~ 0.6) MPa ; (0.1 ~ 6) MPa ; (1 ~ 60) MPa ; (2 ~ 100) MPa.

Accuracy Class

- ❖ $\pm 0.05\%$; $\pm 0.02\%$; $\pm 0.01\%$; $\pm 0.005\%$

Piston System Material

- ❖ Piston rod: Tungsten carbide
- ❖ Piston cylinder: Tungsten carbide

Weight material

- ❖ Carbon steel ($\pm 0.05\%$ class); non-magnetic stainless steel ($\pm 0.02\%$ class; $\pm 0.01\%$ class; $\pm 0.005\%$ class);

Working medium

- ❖ Transformer oil and kerosene mixed oil or sebacate

Dimensions

- ❖ Length*Width*Height: (660 X 500 X 450) mm

Features

- ❖ The material of piston rod and piston cylinder is tungsten carbide, which has the characteristics of high strength, high hardness and low temperature linear expansion coefficient, which improves the wear resistance of the piston and extends the life of the piston.
- ❖ The change of the working position of piston adopts the liquid crystal display, and the observation is more intuitive.
- ❖ The weight has been corrected for pressure deformation coefficient and local gravity acceleration.
- ❖ Optional display function, including working parameters such as temperature, displacement, time, speed, pressure, etc.
- ❖ The piston system is of modular design, and the module can be unscrewed directly when it is sent for

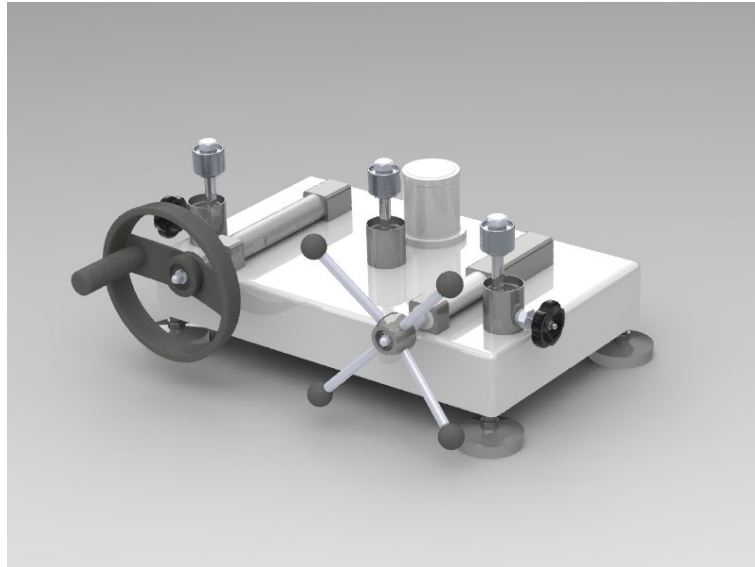
inspection, without carrying a heavy mainframe.

- ❖ It can be used for the verification of the piston pressure gauge, and can also be used as a high-precision pressure test standard. Optional kg weight and MPa weight.
- ❖ The high-pressure piston weight adopts a hanging basket structure with a low center of gravity and excellent stability.
- ❖ Using a quick pressure connector, it is easy to disassemble and install the inspected meter.
- ❖ All indicators are in full compliance with JJG59-2007 "Piston Pressure Gauge", JJG99-2006 "Weight", and national metrological verification regulations, and each can issue a "Verification Certificate".

Model Configuration

Product Model		HPZ-6	HPZ-60	HPZ-600	HPZ-1000
Measuring range (MPa)		0.04~0.6	0.1~6	1~60	2~100
Nominal upper limit (MPa)		0.6	6	60	100
Nominal lower limit (MPa)		0.04	0.1	1	2
Measuring upper limit (MPa)		0.6	6	60	100
Measuring lower limit (MPa)		0.04	0.1	1	2
Nominal area of piston (cm ²)		1	0.5	0.05/0.1	0.05
Chassis And piston	Nominal Mass (kg)	0.4	0.5	0.5/1	1
	produced Pressure (MPa)	0.04	0.1	1	2
Dedicated Weight	Nominal Mass (kg)	0.1;0.5	0.5;2.5	0.5;2.5/1;5	0.5;2.5;5
	produced Pressure (MPa)	0.01;0.05	0.1;0.5	1;5	1;5;10
	Quantity (PCs)	6;10	4;11	4;11	3;1;9
Interface thread specification		M20 × 1.5	M20×1.5	M20×1.5	M20×1.5
Weight (kg)		75	92	110/140	140

HT-11 desktop manual hydraulic source



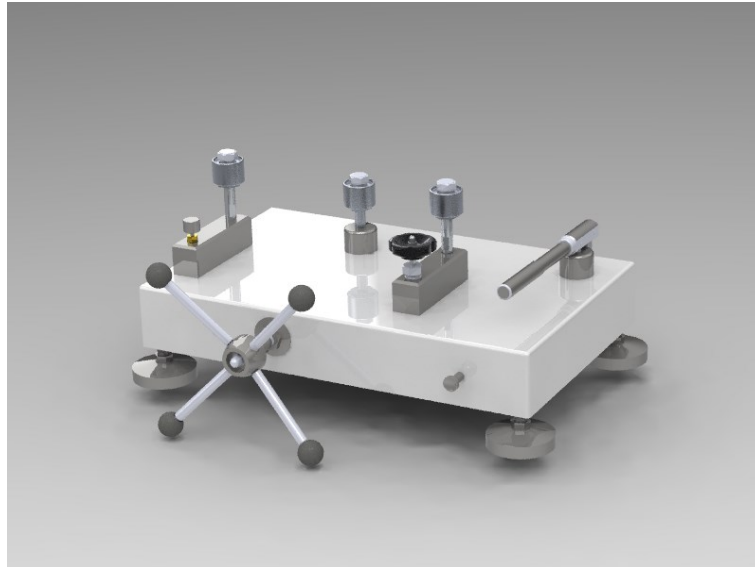
Description

HT-11 desktop hydraulic source is a pressure generating device during the pressure calibration process, which mainly used to verify pressure transmitters, precision pressure gauges, general pressure gauges and other pressure instruments. It has a simple structure, high reliability, easy operation and maintenance, and it is not easy to leak, and has a stable lifting pressure. Because of the spiral boost in design, the structure is simple and not easy to be polluted, so it is more durable. The sewage outlet is added, and it is more convenient for users to change the working medium.

Technical Data

- ❖ Pressure build range: (0~25) MPa (0~40) MPa (0~60) MPa (0~72) MPa (0~100) MPa (0~160) MPa (0~250) MPa (0~500) MPa
- ❖ Stability: 0.05% F.S
- ❖ Working medium: transformer oil
- ❖ Output port: M20*1.5
- ❖ Dimensions: 520mm*350mm*275mm
- ❖ Weight: 12kg

HT-12 desktop manual air pressure source



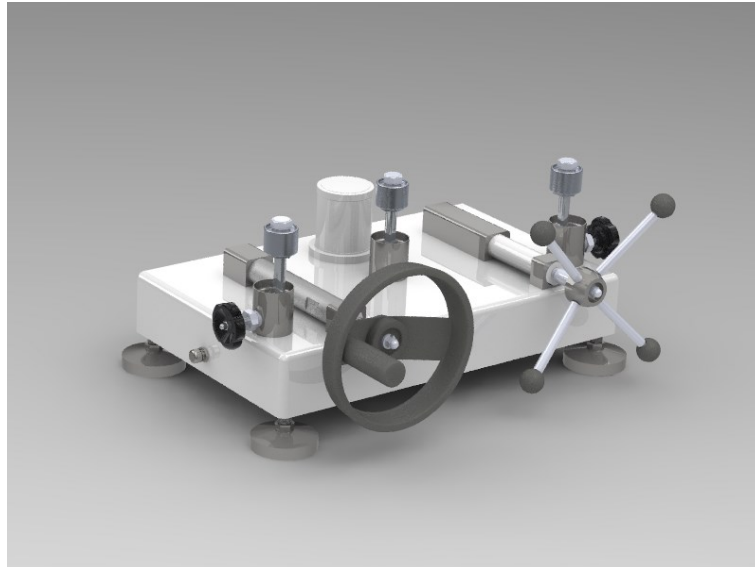
Description

The HT-12 desktop gas pressure source is a pressure generating device that integrates positive and negative pressure, and is composed of a manual pre-pressure system and a pressurization system. It can easily achieve a single pressurization to 6MPa. The product has a novel structural design, fast and stable lifting and lowering pressure, and saves time and effort in operation. Provide reliable and stable pressure output for pressure verification, calibration and pressure instrument production.

Technical Data

- ❖ Pressure making range (-0.1~4) MPa; (-0.1~6) MPa
- ❖ Stability: 0.05% F.S
- ❖ Working medium: air
- ❖ Output port: M20*1.5
- ❖ Dimensions: 520mm*350mm*275mm
- ❖ Weight: 11kg

HT-13 desktop manual water pressure source



Description

HT-13 desktop water pressure source is a pressure generating device in the process of pressure calibration, which mainly used to verify pressure transmitters, precision pressure gauges, general pressure gauges and other pressure instruments. It has a simple structure, high reliability, easy operation and maintenance, is not easy to leak, and has a stable lifting pressure. Because of the spiral boost in design, the simple structure and not easy to be polluted, so it is more durable. The sewage outlet is added, and it is more convenient for users to change the working medium. The pressure parts are made of stainless steel to prevent rust.

Technical Data

- ❖ Pressure range: (0~10) MPa (0~25) MPa (0~40) MPa (0~60) MPa (0~72) MPa (0~100) MPa
- ❖ Stability: 0.05% F.S
- ❖ Working medium: deionized water
- ❖ Output port: M20*1.5
- ❖ Dimensions: 520mm*350mm*275mm
- ❖ Weight: 12kg

HT-21 portable hydraulic source



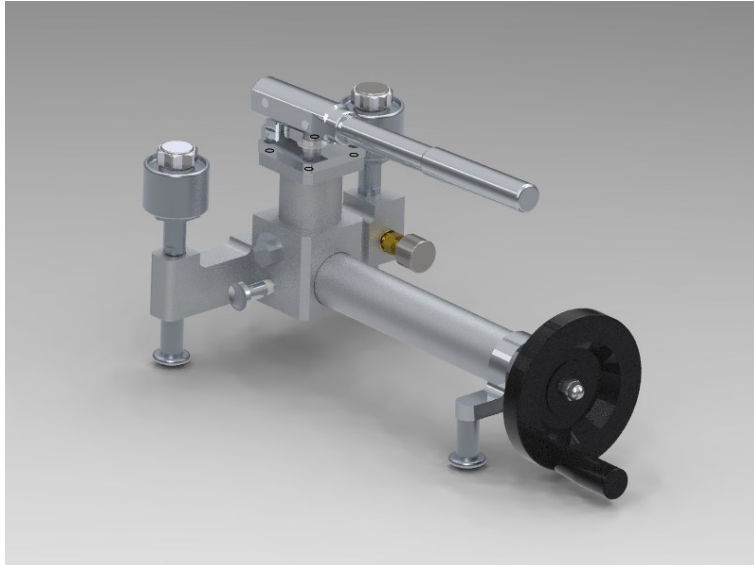
Description

HT-21 portable hydraulic source is used for pressure verification in laboratory or industrial field. Adopting transparent oil cup design, it has the characteristics of simple operation, stable lifting and lowering pressure, small adjustment fineness, convenient maintenance and not easy to leak. Because of the spiral boost in design, the structure is simple and not easy to be polluted, so it is more durable. The material is made of aviation aluminum, and the surface is anodized. It is lightweight and easy to carry.

Technical Data

- ❖ Pressure range: (0~40) MPa (0~60) MPa
- ❖ Adjustment fineness: 0.1kPa
- ❖ Pressure transmission medium: transformer oil or deionized water (please specify when ordering)
- ❖ Pressure interface: M20*1.5 (2)
- ❖ Volume: 350mm*215m*162mm
- ❖ Weight: 3.9 kg

HT-22 portable air pressure source



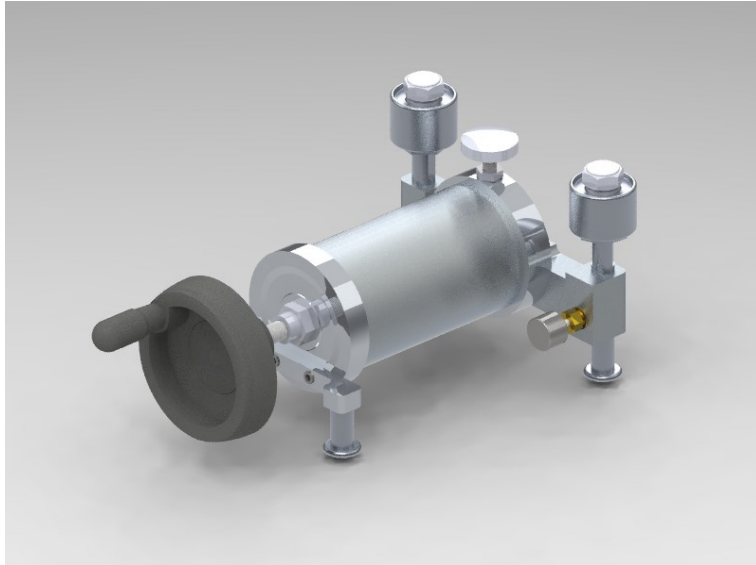
Description

The HT-22 portable air pressure source is used for pressure calibration in laboratories or industrial sites. It has the characteristics of simple operation, stable lifting and lowering pressure, small adjustment fineness, convenient maintenance and not easy to leak. The product is specially designed with a pollution cleaner, which can quickly clean the pollution in the pre-pressure pump, effectively solving the common problem that the check valve of the pre-pressure pump fails due to various impurities and cannot be pressurized normally. The material is made of aviation aluminum, and the surface is anodized. It is lightweight and easy to carry.

Technical Data

- ❖ Pressure building range: (-0.095~1) MPa, (-0.095~2.5) MPa, (-0.095~4) MPa, (-0.095~6) MPa
- ❖ Adjustment fineness: 10Pa
- ❖ Pressure transmission medium: air
- ❖ Pressure connection: M20*1.5 (2 pcs)
- ❖ Volume: 345mm*190mm*140mm
- ❖ Weight: 3.5 kg

HT-23 portable micro-pressure source










Description









HT-23 portable air pressure source is used for pressure calibration in laboratory or industrial field. It has the characteristics of simple operation, stable lifting and lowering pressure, small adjustment fineness, convenient maintenance and not easy to leak. The cylinder structure is used to create pressure, and the gas volume is large, and the pressure output is more stable. The material is made of aviation aluminum, and the surface is anodized. It is lightweight and easy to carry.

Technical Data

- ❖ Pressure build range: (0~40) KPa, (0~60) KPa, (-40~40) KPa, (-60~60) KPa,
- ❖ Adjustment fineness: 10Pa
- ❖ Pressure transmission medium: air
- ❖ Pressure connection: M20*1.5 (2 pcs)
- ❖ Volume: 345mm*190mm*140mm

Pressure calibration accessories

	Model	Name	Features
	HT-31A	Pressure adapter 38 pieces set	The M20 × 1.5 external thread is converted into a variety of threads with different specifications and different standards to meet the needs of most conversion connections.
	HT-31B	Pressure adapter 72 pieces set	The M20 × 1.5 external thread is converted into a variety of threads with different specifications and different standards to meet the needs of most conversion connections.
	HT-31C	Pressure adapter 48 pieces set	The M20 × 1.5 external thread is converted into a variety of threads with different specifications and different standards to meet the needs of most conversion connections.
	HT-31D	Pressure adapter 15 pieces set	The M20 × 1.5 external thread is converted into a variety of threads with different specifications and different standards to meet the needs of most conversion connections.
	HT-32A	Pressure connection hose 60MPa	Length: 1.5m; outer diameter: 6mm; Pressure range: (-0.1~60) MPa; Pressure transmission medium: non-corrosive gas or liquid; Connection method: M20 × 1.5 external thread M20 × 1.5 internal thread quick connector.
	HT-32B	Pressure connection hose 6MPa	Length: 1.5m; outer diameter: 6mm; Pressure range: (-0.1~6) MPa; Pressure transmission medium: non-corrosive gas or liquid; Connection method: M20 × 1.5 external thread M20 × 1.5 internal thread quick connector.
	HT-32C	Pressure connection hose 1MPa	Length: 1.5m; outer diameter: 6mm; Pressure range: (-0.1~1) MPa; Pressure transmission medium: non-corrosive gas or liquid; Connection method: M20 × 1.5 external thread M20 × 1.5 internal thread quick connector.

	Model	Name	Features
	HT-33A	Diisooctyl Sebacate	Working medium for piston pressure gauge, kinematic viscosity (at 20 °C) is 20-25 / mm ² · s ⁻¹ , acid value is not more than 0.05KOHmg. g ⁻¹ , complied with JJG-2007 "Piston Pressure Gauge Verification Regulation".
	HT-33B	No. 25 transformer oil	Mainly used for oil medium pressure source with low volatility and stable function, its working medium kinematic viscosity (at 20 °C) is 10.67 mm ² · s ⁻¹ .
	HT-33C	Transformer oil and kerosene mixed oil	Working medium for piston pressure gauge Working medium kinematic viscosity (at 20 °C) is 9-12 / mm ² · s ⁻¹ , acid value is not more than 0.05KOHmg. g ⁻¹ , in line with JJG-2007 "Piston Pressure Gauge Verification Regulations".
	HT-34	Pressure expansion device	It is mainly used to increase the number of tested instruments at one time, generally 4 or 9 quick meter connection. It can be used with pressure pumps, pressure controllers, pressure generators, etc., and it will be the ideal choice when you check pressure instruments in batches .
	HT-35	Thread cleaner	It is mainly used to remove the twine, raw tape and other sealing windings of the pressure thread connection of the pressure gauge. It is convenient for the pressure gauge to quickly connect and install with the equipment.
	HT-36	Oil-water isolator	Pressure range (0 ~ 60) MPa. It is made of all stainless steel and is isolated by a diaphragm, so that the same medium or different media can be absolutely isolated without worrying about mixing oil and water. The isolation membrane uses special oil-resistant materials to achieve true isolation of oil and water.
	HT-37	Gas-liquid isolator	Pressure range (0 ~ 6) MPa. Aluminum alloy material, to achieve the isolation of oil and gas, mainly used for gas medium calibration station to verify the situation of the oil meter. It is cleaned before leaving the factory to ensure oil-free, safe and convenient.
	HT-38	Oil filter	Pressure range (0 ~ 60) MPa. All stainless steel material, mainly used to filter impurities and dirt attached to the instrument under test, both gas and liquid media can be used. The filter element is installed inside and can be replaced regularly.