

**User manual**  
**Pneumatic Comparator**  
**HS720**



## Claim

- The operating instructions are parts of the products and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time.
- Skilled personnel must have carefully read and understood the operating instructions prior to beginning any work.
- The manufacturer's liability is void in the case of any damage caused by using the product contrary to its intended use, non-compliance with these operating instructions, assignment of insufficiently qualified skilled personnel or unauthorized modifications to the instrument.
- HUAXIN reserve the rights to change the contents or form of these operating instructions at any time without prior notice having been given.

## Safety information

### Symbol



.....warns you against actions that can cause injury to people or damage to the instrument.



..... points out useful tips, recommendations and information for efficient and trouble-free operation.

### Warning

In order to protect your products, your own and others safety, please read this manual carefully before your operation, otherwise it may cause trouble. Huaxin is not liable for any safety problems or damages caused by misuse or incorrect operation.

#### ① Operate by professional



The system must only be operated by trained and authorised personnel who know the manual and can work according to them.

#### ② Use the product only as specified



Any operation not included in the following instructions or outside the specifications must not be attempted.

#### ③ Please use non-damage goods



Don't use the product if it is damaged.

④ No disassemble



Disassembling may cause physical injury or equipment damage. Only qualified technicians are allowed to fix the equipment. Please call our service staff for repair instruction and guidance if there would be anything wrong.

⑤ Don't calibrate oil gauge



The item belongs to non-oil equipment, if you use this item to calibrate oil gauge, there will be oil left behind in the system, and it will not provide pressure. Meanwhile that may pollute air gauge.

⑥ Pay attention to reverse valve



If the item left idle, please operate the reverse valve once each month or the reverse valve will couldn't be use, at this time, please call our service clerk.

### Labelling

Huaxin Instrument(Beijing)Co.,Ltd.		Manufacturer.
Model	HS720	Model.
Product	Pneumatic comparator	Product name.
Range	(-0.95-140)bar	Pressure range.
No.	140102799	NO.
Date	2014.01	Date of manufacture.

## **Claim**

### **Safety**

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## 1. Summary

HS720 Pneumatic comparator is designed with a reverse valve, generated pressure from vacuum to 140bar. The F-adjust valve could accomplish 0.1mbar(10Pa) pressure resolution. The design of reverse valve makes the switch of vacuum and positive pressure more smooth. The shut-off valve can stabilize the value when calibrating. Two standard pressure outputs are easy to connect gauges under test without using the wrenches. It widely calibrates pressure instruments in the laboratory.

### Functions

HS720 provides pressure measurement for calibrating pressure (differential pressure) transmitter, precision pressure gauge, general pressure gauge and other pressure instruments. It can be extensively used in power, chemical, petrol, metallurgy, metering, military industry, etc.

### Characteristics

- Food grade stainless steel and hermetic technology in the military industry
- High precision, stable pressure generating, easy operation
- Wide pressurized range, high vacuum degree
- High reliability, Wide micro-adjusting range

## 2. Technical Specification

Model: HS720 Pneumatic comparator

Generated pressure range: (-0.95~140)bar

Working media: Air

Adjust resolution: 0.1mbar(10Pa)

Material: Stainless Steel/Aluminium for body; Stainless steel for outputs; Buna-N for seals

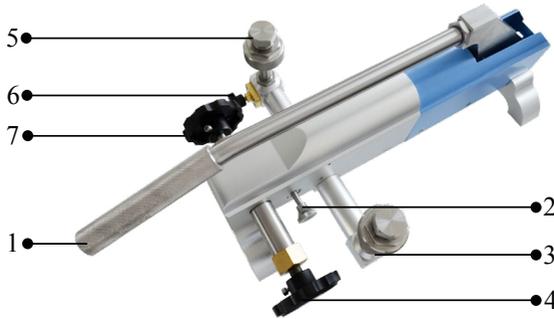
Output interface connection: M20×1.5 Female

Package: Specialized cartons and foam wrap

Dimensions: 400L×250W×150H(mm)

Weight: 6.5kg

### 3. Components



#### ① Hand pump

Use the hand pump up and down repeatedly to generate pressure.

#### ② Reverse valve(positive/vacuum)

Press the button in order to switch between positive pressure and vacuum. (Push the reverse is positive pressure calibration,pull for vaccum).

#### ③ Output

There are two outputs.one is designed for standard gauge,the other for gauge under test.

#### ④ F-adjust valve

To realize the fine adjustment of pressure value.(Turning in clockwise to increase pressure).

#### ⑤ Plugs

Tighten it up when not in use,it could prevent impurity entering into system.

#### ⑥ Relieve valve

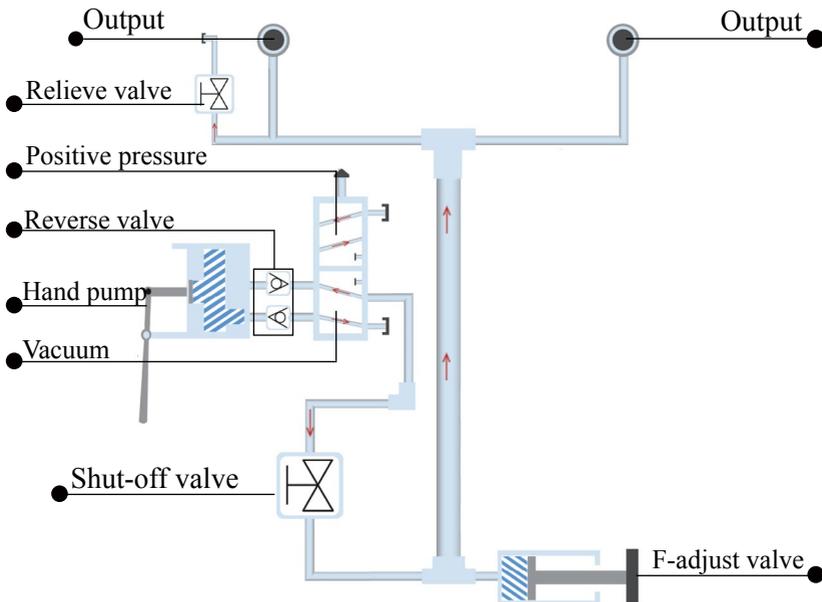
Have to close before pressure generation(clockwise).Slowly open it to release the pressure(anti-clockwise).

#### ⑦ Shut-off valve

Close it when calibrating,that can stabilize the pressure value.

## 4. Working principle

HS720 is composed of hand pump, F-adjust valve, relieve valve, reverse valve, shut-off valve, and output, etc. The pressure gauge can be installed quickly, and easy to generate pressure by running hand pump up and down. Fine adjust the F-adjust valve to reach desired point more accurately. Shut-off valve can realize the stabilization of system.



## 5. Operation

### For example(1):

Take pressure gauge 60bar as example (The calibration points:0bar,10bar, 20bar,30bar,40bar,50bar,60bar)

- A** Put HS720 on the level; Turn the relieve valve anti-clockwise to open it and make sure the reverse valve is in positive pressure position. And open the shut-off valve anti-clockwise.

- B** Connect the standard gauge and the gauge under test to the two output interfaces separately, it must firm in place. Otherwise, it will be leakage.
- C** Set F-adjust valve to the mid position.
- D** Record 0bar record and close the relieve valve. Providing pressure about 10bar by hand pump up and down. Turn the F-adjust valve to get exact value. and close the shut-off valve to make the value more stability.
- E** Then open the shut-off valve, and use the hand pump to make the value close to next standard point. Adjust F-adjust valve to get exact values and close the shut-off value again. Pressure rising & stabilize to 20bar, 30bar, 40bar, 50bar, 60bar in turn. Meanwhile, record the data.
- F** Loop calibration: Decrease pressure by relieve valve, and adjust the F-adjust valve to get exact values. Record the data when the pressure stabilize on 50bar, 40bar, 30bar, 20bar, 10bar and so on.
- G** Finish the loop calibration, open the relieve valve and shut-off valve to release the pressure.
- H** Change gauge under test and calibrate the next one.

### For example(2):

Take vacuum pressure gauge as example (The calibration points: 0bar, -0.2bar, -0.4bar, -0.6bar, -0.8bar, -0.95bar)

- A** Put HS720 on the level; Turn the relieve valve anti-clockwise to open it and make sure the reverse valve is in vacuum position. Open shut-off valve anti-clockwise.
- B** Connect the standard manometer and the gauge under test to the two output ports separately, it must firm in place. Otherwise, it will be leakage.
- C** Set F-adjust valve to the mid position.
- D** Record 0bar record and close the relieve valve. Providing pressure about -0.2bar. Adjust the F-adjust valve to get exact pressure value. Then close shut-off valve to stabilize the value.
- E** Open shut-off value before generating pressure. Use the hand pump and F-adjust valve to calibrate other standard point (-0.4bar, -0.6bar, -0.8bar, -0.95bar) in turn, close shut-off valve again. Record the data.
- F** Loop calibration: Turning the relieve valve, and adjust the F-adjust valve to get exact values. Record the data when the pressure stabilize on -0.8bar, -0.6bar, -0.4bar, -0.2bar and so on.
- G** Finish the loop calibration, open the relieve valve and shut-off valve to release the pressure.
- H** Change gauge under test. and calibrate the next one.

## NOTES:

1. There must be no pressure in the system when removing pressure gauge.
2. Replace the O-rings regularly.
3. The item is non-oil equipment. please don't mix any liquid.
4. The reverse valve should be switched the correct position before the pressure generating. Otherwise, that will leak and do not generate pressure
5. Please put on the plugs after all the tests have finished.

## 6. Troubleshooting

There may be some faults of HS720 mentioned below after long term use, the maintainer can analyse and eliminate problems by these methods. Make sure to release all pressure of system. It is forbidden to disassemble and repair the product with pressure.

Faults	Cause	Solution
Leakage	The reverse valve (positive / vacuum) is not in the right position	Push/pull the reverse valve to the right position
Hand pump couldn't generate pressure	The reverse valve (positive / vacuum) is not in the right position	Push/pull the reverse valve to the right position
The pressure is instability, the standard gauge depressurized quickly	Check the instrument to make sure there is no leakage of air. Otherwise the O-ring is damaged or there is connection loosening	Replace O-ring, or reassemble
	Pressurize without gauge under test. if the instrument doesn't leak pressure, this indicates problem with gauge under test. Otherwise there is problem with device or standard gauge. Check the standard gauge and device separately	Replace standard gauge or gauge under test

## **7. Maintenance**

7.1.If HS720 have to go a long distance transport,please close all sealing to prevent dust getting into device.It is necessary to pack with specialized cartons and foam warp.

7.2.The item belongs to non-oil equipment,It is forbidden to calibrate oil gauge.

## **8. Support**

The product specifications and other information contained this manual are subject to change without notice,if you have any questions,please call our services hotline:400 611 3558 or Tel:+86-10-62392087

## **HUAXIN Products series**

### **Digital Pressure Gauge**

HX601/HS108

### **Intelligent Pressure Calibrator**

HS602

### **Pressure Comparator**

HS700(-0.5-0.5)bar

HS701(-0.95-6)bar

HS702(-0.95-16/25)bar

HS703(-0.95-40/60)bar

HS720(0-140)bar

HS704 (0-160/250)bar

HS705/HS705A(0-600/700)bar

HS710/HS710A(0-600/700)bar

HS706(0-1600/2500)bar

### **Electrical Pressure Comparator**

HS318L(0-600)bar 5pcs output

HS316L(0-25)bar 5pcs output

HS317L(0-60)bar 5pcs output

HS315(-0.95-0)bar 2pcs output

HS316(0-25)bar 3pcs output

HS318(0-600)bar 3pcs output

### **Automatic Pressure Calibrator**

HS620(-0.1-1)bar,(-0.95-25)bar

### **Sphygomanometer Calibrator**

ME01 & ME02

### **Temperature Calibrator**

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