

User manual
Vacuum Comparator
HS700



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 Disassembling



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 pressure gauge



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

Labelling

Hua xin Instrument(Beijing)Co.,Ltd.		Manufacturer.
Model	HS700	Model.
Product	Vacuum Comparator	Product name.
Range	(-0.5-0.5)bar	Pressure range.
No.	14012813	Serial number.
Date	2014.01	Date of manufacture.

Claim

Safety

1.Summary	1
2.Technical Specification	1
3.Components	2
4.Working principle	2
5.Operation	3
6.Troubleshooting	5
7.Maintenance	5
8.Support	5

1. Summary

HS700 vacuum comparator is made from high quality and transparent plexiglass material. The operation of piston inside can be seen clearly. The whole structure is more intuitive and compact. This instrument is specially designed to generate micro pressure from -0.5bar to 0.5bar. The F-adjust valve could accomplish 0.01mbar (1Pa) pressure resolution. HS700 is a very stable micro pressure calibrator. The design of relieve valve makes the system return to zero pressure quickly. Two standard pressure outputs are easy to connect gauges under test without using the wrenches. The differential port also may connect gauges under test by hose. It widely calibrates micro pressure instruments in field and laboratory.

Functions

HS700 provides pressure measurement for calibrating micro pressure instruments in field and laboratory. It can be extensively used in power, chemical, petrol, metallurgy, metering, military industry, etc.

Characteristics

- Adopts high quality and transparent plexiglass material
- The whole structure is more intuitive and compact
- Simple operation, convenient maintenance
- Pressure resolution: 0.01mbar (1Pa)

2. Technical Specification

Model: HS700 vacuum comparator

Generated pressure range: (-0.5-0.5)bar

Working media: Air

Adjust resolution: 0.01mbar (1Pa)

Material: Body: Transparent plexiglass for body; Stainless steel for outputs; Buna-N for seals

Output interface connection: M20×1.5 Female

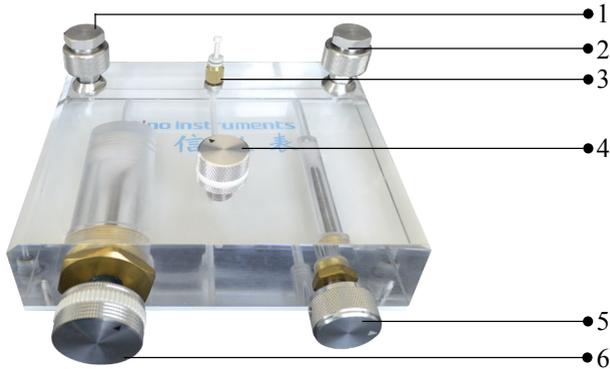
Differential port for connecting gauges under test by hose

Package: Specialized cartons and foam wrap

Dimensions: 260L×180W×60H(mm)

Weight: 2.55kg

3. Components



① Plugs

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

② Output

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

③ Differential port

It is used for connecting with differential pressure gauge.

④ Relieve valve

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

⑤ F-adjust valve

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

⑥ Lead Screw

Increase pressure by turning the lead screw clockwise, decrease pressure by turning the lead screw anti-clockwise.

4. Working principle

HS700 vacuum comparator is composed by lead screw, F-adjust valve, relieve valve, differential port, and output, etc. The pressure gauge can be installed quickly. Turn lead screw clockwise (anti-clockwise) to compress (pull) the

work medium. To increase or decrease pressure by changing volume of air. Adjust the F-adjust valve to reach desired point more accurately.

5. Operation

For example(1):

Take pressure gauge 0.5bar as example(The calibration points:0bar 0.1bar 0.2bar 0.3bar 0.4bar 0.5bar)

- A** Put HS700 on the level; Turn the relieve valve anti-clockwise to open it.
- B** Remove the plugs of outputs. 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, and for lead screw, turn all the way out.
- D** Record 0bar record, and close the relieve valve.
- E** Rotate the lead screw clockwise and adjust the F-adjust valve to get exact values. Pressure rising & stabilize to 0.1bar, 0.2bar, 0.3bar, 0.4bar, 0.5bar in turn, meanwhile, record the data.
- F** Loop calibration: Decrease pressure by turning lead screw anti-clockwise, and adjust the F-adjust valve to get exact values. Record the data when the pressure stabilize on 0.4bar, 0.3bar, 0.2bar, 0.1bar.
- G** Finish the loop calibration and open the relieve valve to release the pressure.
- H** Change gauge under test and calibrate next one.

For example(2):

Take vacuum pressure gauge as example(The calibration points:0bar -0.1bar -0.2bar -0.3bar -0.4bar -0.5bar)

- A** Put HS700 on the level; Turn the relieve valve anti-clockwise to open it.
- B** Remove the plugs of outputs. 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, and for lead screw, turn all the way in.
- D** Record 0bar record, and close the relieve valve.
- E** Rotate the lead screw anti-clockwise and adjust the F-adjust valve to get exact values. Pressure rising & stabilize to -0.1bar, -0.2bar, -0.3bar, -0.4bar, -0.5bar in turn, meanwhile, record the data.
- F** Loop calibration: Turn lead screw clockwise, and adjust the F-adjust valve to get exact values. Record the data when the pressure stabilize on -0.4bar, -0.3bar, -0.2bar, -0.1bar.

G Finish the loop calibration and open the relieve valve to release the pressure.

H Change gauge under test and calibrate next one.

i Remark:

1. Turn F-adjust valve slowly to complete fine adjustment.
2. Please take out gauges and put on the plugs after all the tests have been finished.

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.

6. Troubleshooting

There may be some faults of HS700 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	Relieve valve isn't closed when provide pressure	Close relieve valve again
	O-ring in the outputs is damaged	Check and replace O-ring
There is abnormal sound when operate lead screw	Missing lubricants	Adding lubricants
The pressure is instability ,the standard gauge depressurized quickly	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 this equipment will be in idle for a long time, please turn the lead screw clockwise till it could not move anymore. Put on the plugs and close relieve

valve.

7.2.If HS700 needs to take a long distance transport, please put on all plugs to prevent dust getting into device.It is necessary to pack with specialized cartons and foam wrap.

7.3.The item belongs to non-oil equipment,It is forbidden to calibrate oil gauge. Operate the lead screw and hand pump regularly.

8. Support

The product specifications and other information contained in 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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