Sino Instruments
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User manual

Pneumatic Comparator

HS721

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 Pls 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 any more,meanwhile that may pollute air gauge.

⑥ Be careful when operate hand pump

Do not provide pressure over 15bar by hand pump.

⑦ Pay attention to reverse valve

Don't switch the reverse valve(positive/vacuum)when there is pressure inside the system.if you switch the reverse valve when the whole system have pressure,maybe the hand pump will spring up and cause personal hurt.

⑧ Operate reverse valve regularly

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

Labelling

Huaxin Instrument(Beijing)Co.,Ltd.	
Model	HS721
Product	Pneumatic comparator
Range	(-0.95-60)bar
No.	140165011
Date	2014.01

Manufacturer
Model
Product name
Pressure range
NO.
Date of manufacture

1. Summary

HS721 Pneumatic comparator is designed with a reverse valve, generated pressure from vacuum to 60bar.The F-adjust valve could accomplish 0.1mbar(10Pa) pressure resolution. Having 3 outputs with fast fittings,which is more effective to calibrate 2pcs under test pressure instruments together. A built-in gas-oil isolator keeps the pump from oil impurity avoid some unnecessary maintenance.Especially the lever lead screw design makes user operate in economize labor.It widely calibrates pressure instruments in the laboratory.

Functions

HS721 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:HS721 Pneumatic comparator
Generated pressure range: (-0.95~60)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:M20×1.5Female
Package:Specialized cartons and foam wrap
Dimensions:380L×380W×200H(mm)
Weight:13.85kg

3. Components

① Hand pump

Generating pressure about 10-12bar by running the hand pump up and down repeatedly. Hand pump will be work out pre-pressure function.

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 three outputs.one is designed for standard gague,the others for gauge under test.

④ F-adjust valve

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

⑤ Lead Screw

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

⑥ Plugs

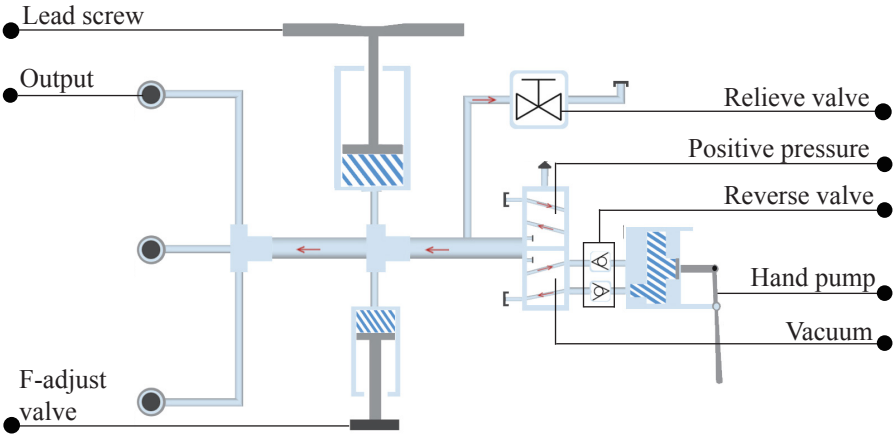
Tighten it up when not in use,it could prevent impurity entering into system.

⑦ Relieve valve

Have to close before pressure generation. Slowly open it to release the pressure.

4. Working principle

HS721 is composed of hand pump, lead screw,F-adjust valve,relieve valve, reverse valve and outputs,etc.The pressure gauge can be installed quickly,and easy to prepressurize by running hand pump up and down,then compress the work medium by turning lead screw clockwise(anti-clockwise),that could realize the pressure increasing(decreasing)secondary.Adjust the F-adjust valve to reach desired point more accurately.



5. Operation

For example(1):

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

A Put HS721 on the level;Turn the relieve valve anti-clockwise to open it and make sure the reverse valve is in positive pressure position.

B Connect the standard gauge and 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.Providing pressure about 9 bar by hand pump up and down,and then using lead screw make the pressure value close to the second calibration point(10bar). Turn the F-adjust valve to get exact value.

E Rotate the lead screw clockwise to make pressure value close to next calibration points, and adjust F-adjust valve to get exact values. Pressure rising & stabilize to 20bar,30bar,40bar, 50bar,60bar in turn. Meanwhile ,record the data.

F Loop calibration: Decrease pressure by turning lead screw anti-clockwise (or together with 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 and open the relieve 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 HS721 on the level; Turn the relieve valve anti-clockwise to open it and make sure the reverse valve is in vacuum position.

B Connect the standard gauge 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,and for lead screw,turn all the way in.

D Record 0bar record and close the relieve valve.Providing pressure by hand pump and leading screw let pressure near -0.2bar,then adjust the F-adjust valve to get exact pressure value.

D Use the hand pump,lead screw and F-adjust valve to calibrate other calibration points (-0.4bar,-0.6bar,-0.8bar).If the pressure value is up to -0.92bar,please create negative pressure by turning lead screw anti-clockwise until full.

F Loop calibration: Turning lead screw clockwise (or together with 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 and open the relieve valve to release the pressure.

H Change gauge under test and calibrate the next one.

Remark:

1.Hold the lead screw,turn in and out slowly to complete fine adjustment.
2.Please put on the plugs after all the tests have finished.
3.Above pictures are just for reference.

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.

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	The reverse valve (positive / vacuum) is not in the right position	Push/pull the reverse valve to the right position
The hand pump is up	There is impurity in the instrument	Disassembling and cleaning
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	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 guange 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 anytime time.Put on the plugs and close relieve valve.

7.2.If HS721 have to go 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 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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