

User manual

Electrical pneumatic comparator

HS316



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(water) pressure gauge

 If you use the item to calibrate oil(water) pressure gauges, maybe oil(water) will enter into it and that couldn't generate pressure anymore. Meanwhile that may pollute the gauges under test. (We supply oil and gas separator which avoid oil/water).

⑥ No pressure in the system when remove gauge

 This action can cause damage to person if the system has pressure.

Labelling

Huxin Instrument(Beijing)Co.,Ltd.	•	Manufacturer	
Model	HS316	•	Model
Product	Electrical pneumatic comparator	•	Product name
Range	(0~25)bar	•	Pressure ranges
No.	140126033	•	Serial number
Date	2014.01	•	Date of manufacture

Claim

Safety

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1. Summary

HS316 Electrical pneumatic comparator adopts Gas-Gas push principle, the extra air sources give active power to pre-pressure for the whole calibrating system. This instrument is easy to operate and very rapidly generate the required testing pressure, providing precise pressure control, only needs less than 5s to stabilize the pressure. Following the points above mentioned, Its main feature is in saving both effort and time, which is very suitable to do heavy & repeat calibration work in industries of oil & gas, metallurgy, power etc.

Functions

HS316 is an ideal solution in the laboratory for calibrating pressure transmitters, pressure gauge, pressure switches & other industrial pressure instruments.

Characteristics

- Fast stability, labor saving, simple operation
- Steady servo control
- Non-leaking, convenient clean

2. Technical Specification

Model: HS316 Electrical pneumatic comparator

Pressure range: (0~25)bar

Media: Air

Stability speed: Within 5s each point

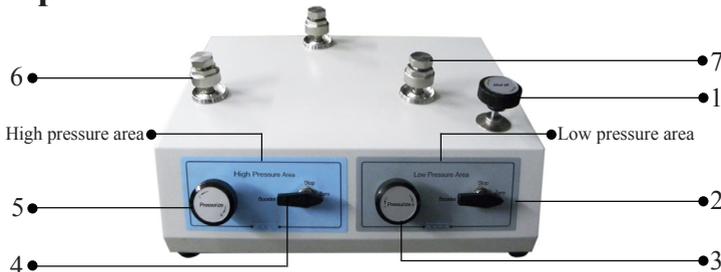
Package: Specialized cartons and foam wrap

Output: M20×1.5(3pcs Female)

Dimension: 450mm×350mm×135mm

Net weight: 14kg

3. Components



① Shut-off valve

Cut off the connection of low pressure control system before the high pressure boosted.

② Switching (low pressure area)

Boost & release pressure of low pressure area or shut off low pressure area pressurize valve state.

③ Pressurize valve (low pressure area)

Please turn it clockwise“+” in low pressure area to realize prepressing function,decrease pressure by turning it anti-clockwise“-”.

④ Switching (high pressure area)

Boost & release pressure of high pressure area or shut off high pressure area pressurize valve state.

⑤ Pressurize valve (high pressure area)

After prepressing in low pressure area,if you still want to get higher pressure, please turn it clockwise“+”,turn it anti-clockwise to decrease pressure“-”.

⑥ Output

There are three outputs.One is designed for standard gauge,the others for gauge under test.

⑦ Plug

Tighten it up when not in use.

4. Operation

4.1.Operation preparation

A Open the air compressor and provide pressure until it close automatically(we had adjusted the demand pressure value before shipping).The store pressure is about 10bar, the supply pressure system is more than 7bar ,the air compressor start automatically.

B The air compressor must keep in a normal working and output pressure value is more than 7 bar, or it affects the sensitivity of the pressurize valve.
(If clients have the air sources more than 7bar, you may not order it).

4.2.Calibration steps below

Take pressure gauge 25bar as example.

A Put HS316 on level position,turn the pressurize valve ⑤ & ③ anti-clockwise until can't rotate any more(do it lightly)and then rotate switching ④ & ② to "Zero" position, and open shut-off valve ① anti-clockwise.

B Remove plugs of the output,install the standard gauge and gauge under test.Record zero data.

- C** Rotate switching(low pressure area) ② to "Booster" position,turn the pressurize valve(low pressure area) ③ clockwise to do low pressure calibration.
- D** Then continue to turn the pressurize valve(low pressure area) ③ clockwise until can't rotate any more,and then rotate switching(low pressure area) ② to "Stop" position, and close the shut-off valve ① clockwise.
- E** Rotate switching(high pressure area) ④ to "Booster" position,and turn the pressurize valve(high pressure area) ⑤ clockwise very slowly to calibrate points you needed.Record the data.
- i** Remarks :you need to rotate the pressurize valve(high pressure area) ⑤ very slowly. At the first beginning, the pressure values will not change obviously, that means high pressure system is balancing the system resistance.It is normal state.
Above from A to E is the positive stroke calibration.
- F** When you do the loop calibration, you need to rotate the pressurize valve(high pressure area) ⑤ anti-clockwise very slowly,and calibrate points you needed.Record data.
- G** At last,rotate switching(high pressure area) ④ to "Zero" position. At this time ,the pressure value of high pressure area will release completely.
- H** Open shut-off valve ① anti-clockwise, and then rotate switching(low pressure area) ② to "Booster" position, and turn the pressurize valve(low pressure area) ③ anti-clockwise,and calibrate points you needed.Record the data.
- I** Rotate switching(low pressure area) ② to "Zero" position.at last,the system pressure value is zero.

i Remark:

1. Don't install the gauges with corrosive or other impurity,or it has an effect on lifespan and functions.
2. The air compressor must keep in a normal working condition.The output pressure should be more than 7 bar,or it affects the sensitivity of the pressurize valve.

NOTES:

1. There must be no pressure in the system when removing pressure gauge.
2. Replace the O-rings regularly.
3. The working media is air.Please don't mix with other liquid.
4. The item is non-oil instrument,don't mix with liquid.

5. Troubleshooting

There may be some faults of HS316 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 O-ring seal is loose or damaged	Replace the O-ring
	There is large damage on the sealing faces of gauge under test	Check the sealing faces
It couldn't generate pressure when calibrate low pressure	The air compressor is off	Check air compressor
	The gauge under test has huge capacity or there is leakage.	Change gauges under test
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 gauge under test has problem. Otherwise there is problem with device or standard gauge. Check the standard gauge and device separately	Replace standard gauge or gauge under test
	There is insufficient pressure of air compressor	Adjust the output pressure (about 7bar)
Maximum pressure is not attained	Prepressing is not enough	Increasing prepressing times
	There is insufficient pressure of air compressor	Adjust the output pressure (about 7bar)

6. Maintenance

6.1. If this equipment will be in idle for a long time, please put on the plugs and use dust sheets. It could prevent dust entering into system.

6.2. If HS316 needs to take a long distance transport, please put on all plugs. It is necessary to pack with specialized cartons and foam wrap.

6.3. The air compressor should release all pressure during transport and long-term storage.

6.4. This is non-oil instrument. Don't calibrate oil(water) gauge.

7. 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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