

User manual
Hydraulic Comparator
HS705



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 water pressure gauge



Only provide pressure for oil gauge. If you use the item to calibrate water pressure gauges, maybe water will enter into it and that couldn't generate pressure anymore. Meanwhile that may pollute the gauges under test.

⑥ Store the item with pressure



If this equipment will be in idle for a long time, please close the relieve valve and provide pressure about 2bar. In order to avoid the air enter into the item inside, that will affect the system stability when you use it next time.

Labelling

Huaxin Instrument(Beijing)Co.,Ltd.		Manufacturer
Model	HS705	Model
Product	Hydraulic comparator	Product name
Range	(0-700)bar	Pressure range
No.	140164011	Serial number
Date	2014.01	Date of manufacture

Claim

Safety

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1. Summary

HS705 Hydraulic comparator adopts advanced stainless steel and aluminum alloy special process. The lead screw design makes the high pressure operation more easy and save labor, the F-adjust valve adjust the exact pressure value. A detachable oil cup is easy to clean and maintenance, user could check the work medium timely from the transparent oil cover. Two standard pressure outputs are easy to connect gauges under test without using the wrenches. It widely calibrates pressure instruments in field and laboratory.

Functions

HS705 provides pressure for calibrating pressure gauges, such as pressure (different pressure) transducers, precision pressure gauges, general pressure gauges and other pressure gauges. It can be widely used in power, chemical, petrol, metallurgy, metering, military industry, etc.

Characteristics

- Compact dimension, light weight
- Portable structure
- Pressure range to 700bar
- Easy operation, saving labor
- Fast connection, quick pressurizing
- Increasing pressure easily, convenient maintenance
- The appearance is simple & beautiful

2. Technical Specification

Model: HS705 Hydraulic comparator

Generated pressure range: (0~600)bar, (0~700)bar

Working media: 25# transformer oil

Adjust resolution: 0.001bar (0.1kPa)

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

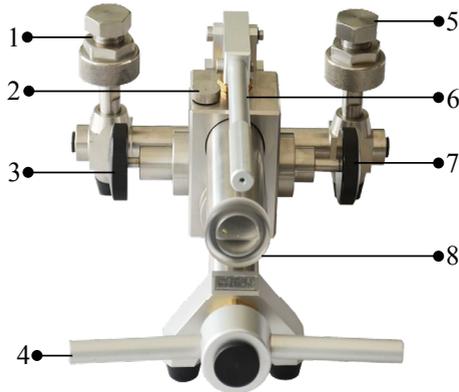
Output interface connection: M20×1.5 Female

Package: Carrying black bag. Specialized cartons and foam wrap (optional)

Dimensions: 210L×210W×140H (mm)

Weight: 2.6kg

3. Components



① Output

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

② Ventilation nut

Unscrew the nut before use; tighten it up during storage and transport.

③ F-adjust valve

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

④ Lead Screw

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

⑤ Plugs

Tighten it up when not in use, it could prevent oil-leaking by blocking the output.

⑥ Hand pump

Generate pressure about 20-30bar by running the hand pump up and down repeatedly. Hand pump will realize prepressure function.

⑦ Relieve valve

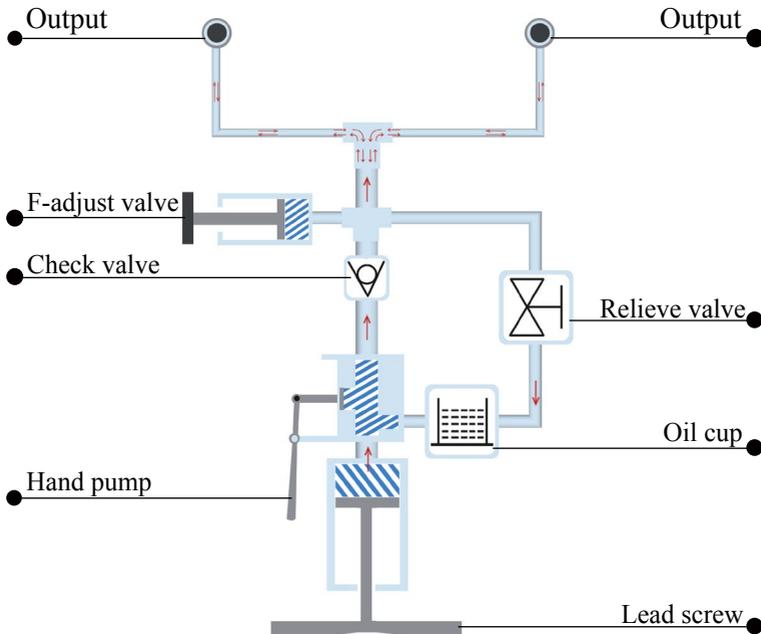
Have to close before pressure generation (clockwise). Slowly open it to relieve the pressure (anti-clockwise).

⑧ Oil cup

Store 25# transformer oil, turn the front cover anti-clockwise to change or fill oil.

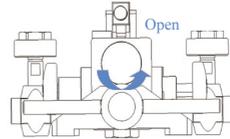
4. Working principle

HS705 is composed of hand pump, lead screw, F-adjust valve, relieve valve, oil cup 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.

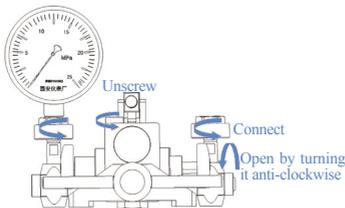


5. Operation

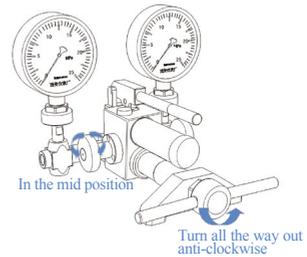
- A** Take pressure gauge 250bar(25Mpa)as example. (The calibration points:0bar 50bar 100bar 150bar 200bar 250bar)
Please fill the work medium (25# transformer oil) before calibration.The oil position should be at least 2/3 of the whole oil cup. Open the oil cup as the picture below.



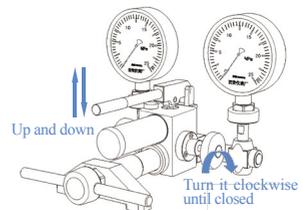
- B** Put HS705 on the level.Turn the relieve valve anti-clockwise to open it,unscrew ventilation nut.Remove the plug of the outputs,connect the standard gauge and the gauge under test to the two outputs.



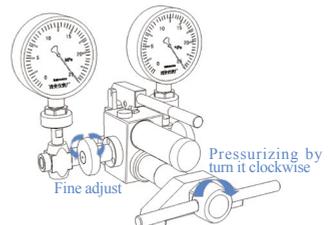
- C** Set F-adjust valve to the mid position,and for lead screw,turn all the way out.



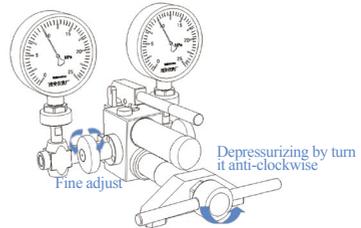
- D** Record 0bar record,and close the relieve valve:Providing pressure 20-30bar by turning hand pump up and down and stop pre-pressure.



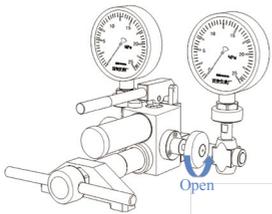
- E** Rotate the lead screw clockwise and adjust the F-adjust valve to get exact values. Pressure rising & stabilize to 50bar,100bar,150bar,200bar,250bar in turn,meanwhile,record the data.



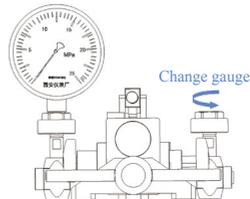
F Loop process: Decrease pressure by turning lead screw anti-clockwise (or together with relieve valve), and adjust the F-adjust valve to get exact values. Record the data when the pressure stabilize on 200bar, 150bar, 100bar, 50bar and so on.



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



H Change gauge under test and calibrate next one.



i Remark:

1. Hold the lead screw, turn in and out to complete fine adjustment.
2. Please put on the plugs after all the tests have been 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 working media of item is oil, please don't mix any other liquid.

6. Troubleshooting

There may be some faults of HS705 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
Oil 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
Hand pump couldn't generate pressure	No enough medium in oil cup	Add medium
	The internal O-ring is damaged	Replace the O-ring
	The gauge under test has huge capacity	Increase prepressing times
The pressure is instability,the standard gauge depressurized quickly	Check the instrument to make sure there is no leakage of oil.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

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,close relieve valve and put on the plugs.Provide pressure about 2bar by running the hand pump,then tighten the ventilation nut.

7.2.If HS705 needs to take a long distance transport,please put on all plugs to prevent leakage of oil.It is necessary to pack with specialized cartons and foam wrap.

7.3.Replace working medium regularly.

7.4.The working medium is 25[#]transformer oil or any oil that can be used for calibrating gauges.

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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