

# 微机电液伺服压力试验机2000KN

Microcomputer Electro-hydraulic Servo  
Compression Testing Machine

使用说明书 **Instruction Manual**



# English Version

## 1.Matters need attention

**Please read this manual carefully before using this equipment, and keep it for future reference purposes**

### The installation environment requirements

- ①Environment temperature 10 °C ~35 °C
- ②Relative humidity of not more than 80%
- ③No vibration, no corrosion, no strong electromagnetic interference environment
- ④The levelness should be no more than 0.2mm/1000mm
- ⑤There should be around 0.7m space, equipment must be reliably grounding.

### Power requirements

This equipment use 380v three-phase four-wire (in addition to the other tips) alternating current (AC), voltage stability, do not exceed  $\pm 10\%$  of the rated voltage,the allowable current of the sockets shall not exceed 10A.

### Hydraulic oil requirements

The equipment adopts standard hydraulic oil as the working fluid:

when the room temperature is higher than 25 °C,using No.68 anti-wear hydraulic oil .

when the room temperature is below 25 °C,using No.46 anti-wear hydraulic oil. In winter, when the room temperature is too low, after turning on the machine please preheating equipment (start the oil pump motor) for 10 minutes. When frequent using, hydraulic oil should be replaced half a year, whether the fuel tank and filter should be cleaning or not is decided by the pollution degree .

This equipment can not use engine oil, gasoline or other oil for instead. Failure of the hydraulic component due to the improper Oil , will not be included in the scope of warranty.

### About the emergency stop

In case of an emergency in the installation, operation, such as solenoid valves can not release, abnormal operation of motor, which may causes damage to the machine or injury of tester, please turn off the circuit breaker.

### Precision

Equipment is exactly calibrated before leaving the factory, do not adjust the calibration parameters. Measurement error increases due to unauthorized adjustment for the calibration parameters, will not be included in the scope of warranty. You can contact with local quality supervision department for calibration according to the equipment marking

accuracy class.

### **Maximum force**

Determine the measuring range of equipment according to the equipment label, measuring range is adjusted in factory, do not alter the range parameter, adjustment of the range parameters could result in equipment output force is so large that causes damage to the mechanical parts or output force is so small that can not reach the setting value, the damage of mechanical components due to unauthorized adjustment for range parameters , will not be included in the scope of warranty.

## **2.General introduction**

Microcomputer electro-hydraulic servo pressure testing machine is exploited and manufactured according to GB/T7671-1999 "test method (ISO)of cement mortar strength",GB/T16826-2008"the electro-hydraulic servo universal testing machine", GB/T50081-2019"ordinary concrete mechanics performance test methods"and other standards.

HYE series microcomputer electro-hydraulic servo pressure testing machine is loading with hydraulic and apply electro-hydraulic servo control technology for the compressive and flexural mechanics performance test of cement,mortar,brick,concrete and other building materials,display the loading force value,loading speed,loading curve.The test data is processed,stored and printed automatically,.

### **The features of HYE-2000microcomputer electro-hydraulic servo pressure testing machine:**

This series of testing machine adjusts space with electric screw,mainly used for compressive strength test of concrete,building materials and other materials.

### 3. Technical parameters

Model	HYE-2000
Maximum test force ( kN )	2000
Accuracy class	Class 1
Sensor type	Oil pressure
Space adjustment	Electric
Compression space(mm)	320
Piston stroke(mm)	80
Power(KW)	2.0
Size of upper platen(mm)	240 × 240
Size of lower platen(mm)	350 × 260
External dimension of host(mm)	700 × 430 × 1350
Weight ( kg )	1090

**Tips:If technical parameters changed,please refer to the real product.**

### 4. Installation and commissioning

#### Prepare installation tools

Check the accessories attached to the equipment according to the packing list, and check whether the accessories are complete

Prepare screwdriver, adjustable spanner and a set of inner six angle wrench

#### Fix the host

Fix the equipment according to the fixed parameters of the foundation with reference to the foundation drawing (see the parameters and instructions of the foundation drawing in the appendix of this manual for details)

#### The oil circuit connection

Fill the right amount of hydraulic oil according to the mark on the oil tank (wait at least 3 hours before officially use after filling the hydraulic oil , to facilitate the bubble discharge in the hydraulic oil by itself). After filling the hydraulic oil connect the host and the control cabinet with hose in accordance with the sign ,when installing the pipeline,one gasket must be put between pipeline and splice , and fasten the joint by wrench.

The unscrewed oil plug of the hose please be safekeeping, in order to avoid the loss and caused the inconvenience of moving machine in the future. When moving the equipment please tear down the pipelines and seal them by oil plug closely.

#### Electrical connection

Take down the the whole set of data lines, in accordance with the data line corresponding with the interface on the control cabinet.

Please connect the power cord in strictly accordance with the attached label. The null wire (line 4) of the three-phase four-wire power line is strictly prohibited from wrong connection

To connect the pressure sensor wire, open the cover at the upper back of the control cabinet, go through

the wire hole of the cabinet, and plug the pressure sensor into the pressure sensor jack of the controller. After installing the computer, connect one end of the communication line RS-232 to the controller communication serial port and the other end to the computer communication serial port.

Open the printer package and install the printer according to the installation instructions attached to the printer (this step is only applicable to models containing external printer);After the printer is installed and connected to the computer, place it in a convenient location (the printer driver is saved on the local disk of the computer and needs to be installed by yourself)

### **The first operation and commissioning**

After electrical installation finished, switch on the power of the equipment, turn on the equipment. Use the control panel to rise the upper platen some distance ,if the platen falls,you should immediately stop the operation and adjust the power phase sequence, then in accordance with the manual, operate the equipment with no-load, during the rising of the piston (can't exceed the maximum stroke),please observe if there is abnormal phenomenon, if it dose, you should uninstall and stop to check,remedy the trouble; if not, unloading until piston down to normal position, commissioning ends.

## **5.Using method**

① Turn on the power on the equipment ,open the fence (Be sure to remove the reinforcement between the upper and lower platen before use), put the specimen on the center position of lower platen(or place the specimen by the supporting clamp), press the rise/fall button on the control panel to make the upper platen rise or fall,to make the upper platen move near to the specimen but not contact with each other.

② Press the pump button and controller button to turn on the pump and controller. Turn on the computer,log in software "TESTMASTER" and enter the control system, adjust the test parameters according to the test requirements(The using method of control system is shown in the "test machine software manual")

③ Close the fence,tare the force value,start test operation ,press the **RUN** button in the software until the lower platen rises slowly and the upper surface of specimen is near but not contact with the upper platen ,meantime tare the force value,the test proceed automatically. (The using method of control system is shown in the "test machine software manual")

④ After the test, the data is automatically recorded in the control system, and set the printed content in the control system software for data printing(the setting method of printer is shown in the "test machine software manual")

⑤ When test is finished,restore the equipment to its original state.Quit software, shut down the pump , the computer,the controller and main power,Wipe and clean the residue on the worktable and screw in time to avoid affecting the transmission parts of the equipment.

## **6.Daily maintenance**

① Each time before starting the machine please check if there is oil leakage (specific parts such as: pipeline, each control valve, oil tank), whether the bolt is fastened,whether the electrical is intact; check regularly, maintain the integrity of its components.

② When finishing each test the piston should be dropped to the lowest position, and clean residue in time, worktable for anti rust treatment.

③ Prevent from high-temperature, too wet, dust, corrosive medium, water erosion instrument.

④ It is a precision measuring equipment, should be persons in fixed positions for machine. people without training is strictly forbidden to operate the machine.When the host is running, the operator should not

stay away from the equipment. In the process of test loading or operating, if there is any abnormal situation or wrong operation, please immediately press the red emergency stop button and turn off the power.

- ⑤ Replace the hydraulic oil annually or cumulative after 2000 hours work .
- ⑥ Do not install other software in the computer, in order to avoid making the testing control system software run abnormally; prevent the computer from virus infection.
- ⑦ Often check the level change of the oil tank.
- ⑧ Any moment cannot hot plug the power line and signal line, otherwise it is easy to damage the control element.
- ⑨ During the test, please do not arbitrarily press the button on the control cabinet panel, operation box and the test software. Do not rise or fall the girder during the test. Do not put your hand into the test space during the test.
- ⑩ During the test, do not touch the equipment and all kinds of links, so as not to affect the accuracy of the data.
- ⑪ Check whether the line connecting of the controller is in good contact regularly, if it is loose, it should be fastened timely.
- ⑫ After the test if the equipment is not used for a long time, please shut down the main power, and in the stop process of the equipment operate the equipment for no-load regularly, in order to ensure when the equipment put into use again, all performance indexes are normal.

## **7. After-sales service**

When the equipment is abnormal or in trouble, please contact us by calling the unified national service hotline.

### **7.1 scope of service**

This equipment is under warranty for one year. During the warranty period, we provide free maintenance service in addition to the following conditions; after the warranty period, we provide paid maintenance services.

- ① Mechanical damage due to the maximum output force parameters unauthorized adjusted, not included in the scope of warranty.
- ② Hydraulic component fault due to improper hydraulic oil, not included in the scope of warranty.
- ③ Measurement error increases due to calibration parameter unauthorized adjusted, not included in the scope of warranty.
- ④ Mechanical damage due to objects left around the rotating parts such as motor, pump, screw and so on, not included in the scope of warranty.
- ⑤ Damage due to unauthorized change of electrical connection, not included in the scope of warranty.
- ⑥ Other damage due to users who operate the machine do not according to this manual or obviously improper use, not included in the scope of warranty.

## 7.2 Common Faults and Solutions of Testing machine

Phenomenon	Reason	Inspection and troubleshooting
Screen is not bright	1. Three-phase power is not energized	1.call a professional electrician to check the power
Pump does not start	1. The three-phase power is lack of phase, the voltage is not normal 2. The pump motor short-circuit damage	1.call a professional electrician to check the power 2. Replace the pump motor
No force values	1. Pressure sensor connector off 2. Digital meter damage 3. The pressure sensor is damaged	1. Reconnect 2. Replace the digital meter 3. Replace the pressure sensor
Can't reach full-scale	1. Hydraulic oil is not filled 2. pipeline interface oil leakage 3. The digital valve oil leakage or stuck	1. Fill hydraulic oil 2. Tighten the pipe interface 3. Replace the digital valve
Piston oil leakage	1. The machine is not put on a horizontal place, piston side is low 2.seal ring damage	1. Equipment required horizontal adjustment 2. Replace the seal ring
Piston can't rise	1.The initial opening of valve port is too small 2.Digital valve or reducing valve is stuck	1.Adjust the initial opening of valve port 2.Replace the digital valve or reducing valve
Piston rises too fast	1.The initial opening of digital valve port is too big	1.Turn down the initial opening of digital valve port
Mid girder can not rise and fall	1.Girder reducer damage 2. The two screws is imbalance	1.Replace the girder reducer 2. Please contact the factory for repair
Unusual noise of pump	Pump and motor connection screw loose	Tighten the screws