国家高新技术企业

MVF-1A Multi-function vertical friction and wear testing machine specification

One.Product Description：

The MVF-1A friction and wear testing machine is a friction form with rolling, sliding, or sliding rolling composite motion under a certain contact pressure. It has a stepless speed control system and can be used to evaluate the friction and wear performance of lubricants, metals, plastics, coatings, rubber, ceramics, and other materials under extremely low or high speed conditions. This testing machine has broad application prospects in various professional and technical fields of tribology, petrochemicals, machinery, energy, metallurgy, aerospace, various colleges and universities, research institutes, and other departments..Conformed standards:ASTM D-2266, D-3702, D-4172 ,G-99.

Two. Technical parameters

1、Test force

1.1 Axial test force range：10N～1000N（Stepless adjustable）

1.2 Relative Accuracy of test force display：below 100N:±2N，above 100N:±0.5%

1.3 Test force automatic loading rate：300N/min（automatic adjustable）

1.4 Loading mode: AC servo loading ,can set the precise guidance and the section loading

1.5 Relative Accuracy of test force when it automatically maintain: ±1%

2、Friction torque

2.1 Friction torque measuring range：2.5N.m

2.2 Relative Accuracy of friction torque display：±2%

2.3 Friction load sensors：300N

2.4 Friction arm distance.：50mm

3、Spindle stepless speed change range

3.1 Spindle conversion speed range：1-2000rpm（Optional acceleration and deceleration device）

3.2 Accuracy of Spindle speed：±1%

4、Test medium: oil, water, mud, abrasive, etc.

5、The heating system

5.1 Heater working temperature range：Room temperatur～260℃

5.2 Accuracy of temperature：±2℃

6. Holding mode of friction pair： No gap circumferential maintenance

7.Taper of the spindle of a test machine： 1：7

8.Maximum distance between the spindle of the test machine and the lower auxiliary disk ： ＞75mm

9.Test machine control system

9.1 Using industrial motherboard, touch screen control, HTMS professional friction and wear

software, using the principle of high stability modular integration, the test parameters can be set at one key, full automatic loading,the curve real-time tracks in the whole process, and can enlarge,edit and save curve at any time, curve auto optimization, can carry on single point collection;Real time recording data, autoly saving data when without power, can output shared data.

9.2 With upper limit protection and lower limit protection function, it has soft emergency stop protection. It can carry out time control, speed control and friction torque control.

9.3.Time display and control range of test machine：10s～9999min

9.4.Speed (cycle) display and control range of test machine：（1～99）$\times 10^5$

9.5.The maximum output torque of the main motor of a test machine：5N.m

10.Main body: adopt casting integrated mainframe, high strength welding frame.

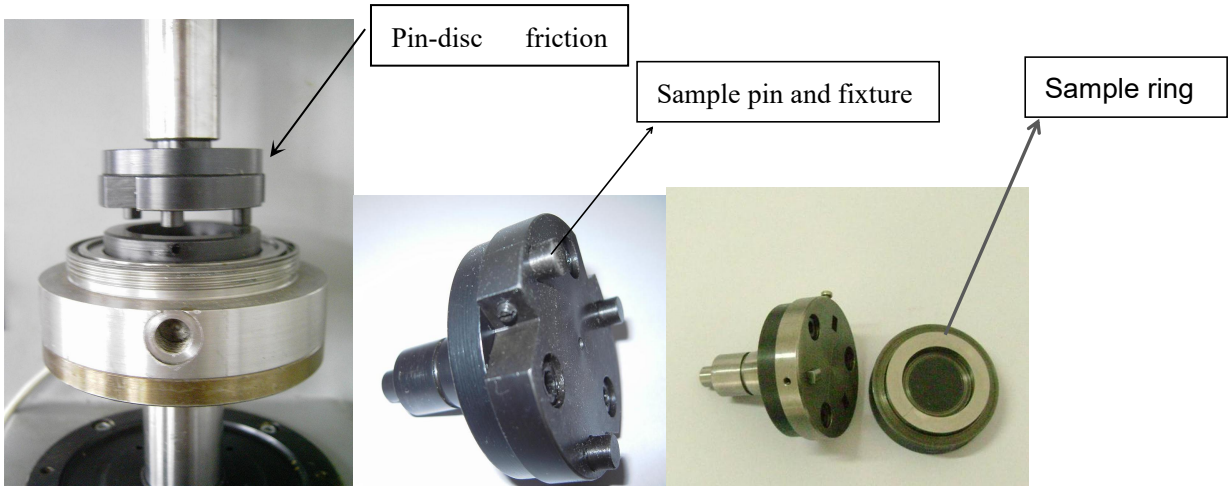
11.Test machine size（L×B×H）：860×740×1560mm

12.Weight：about 550kg

Three. A summary of the friction pairs of the test machine

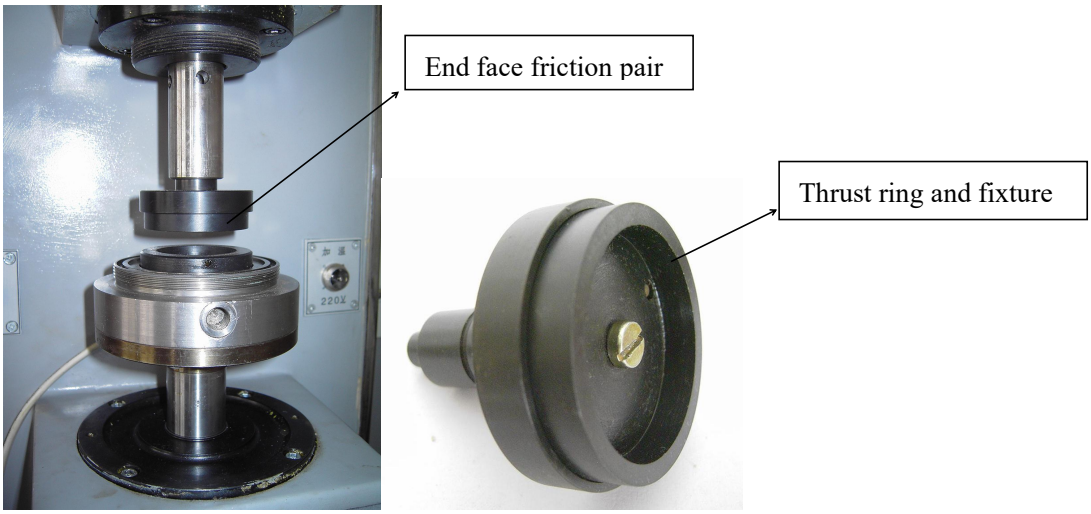
1.Pin on disc frictional test

The upper specimen for the pin-disk friction test is a cylindrical pin and the under specimen is a circular ring. The material can be processed into a ring or a coating test on the ring, and the material can be processed into a pin sample. The single pin friction test can be carried out in a small test force, and three pins test can be carried out at the same time too, and the friction pair pictures are as follows:



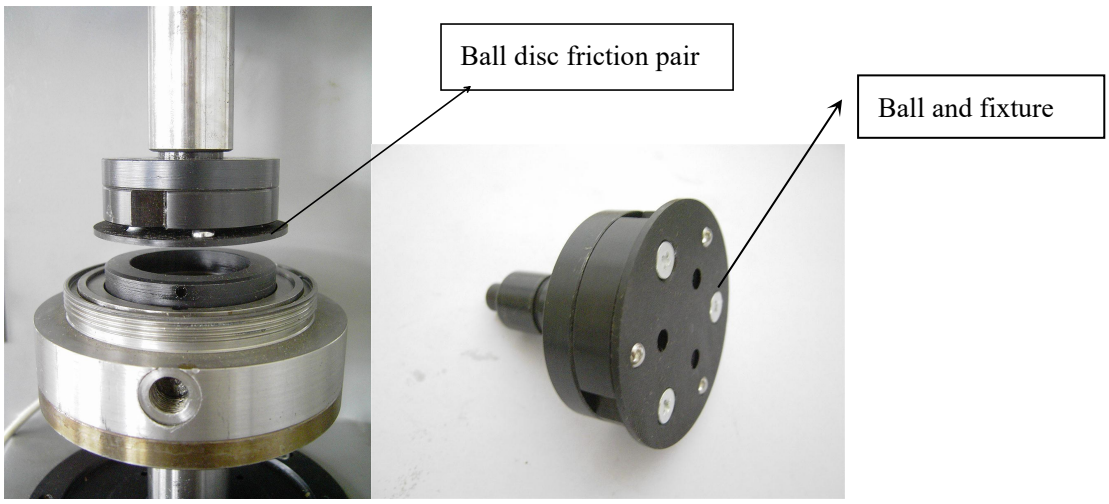
2.Thrust ring end face friction test

The friction and wear tests between the end faces of the materials can be carried out. The specimens of the studied materials can be processed into upper and lower samples.



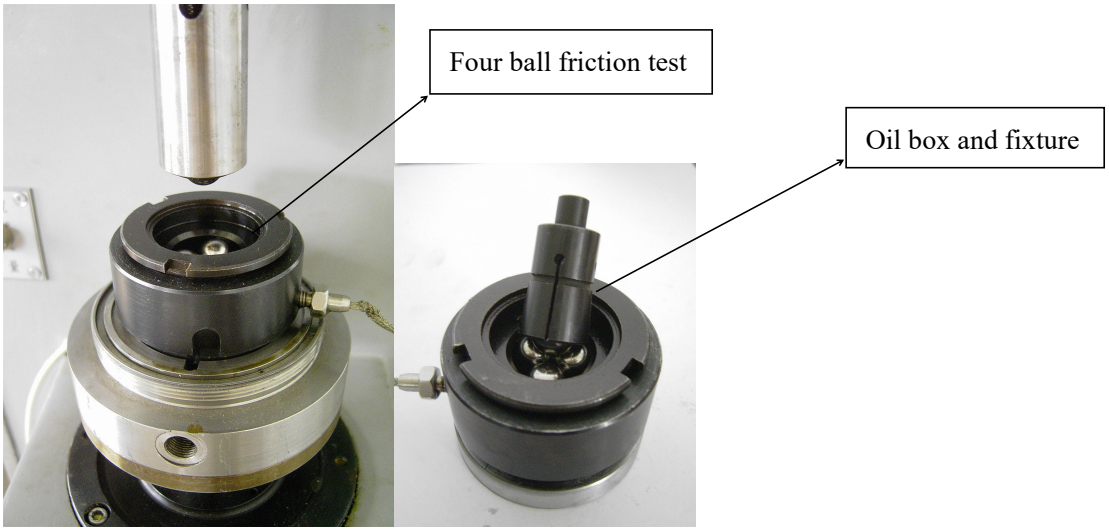
3.Ball on disc friction test

The upper specimen used standard steel ball frictes between the under specimen, and friction and wear properties of the material was tested by friction coefficient and wear amount.



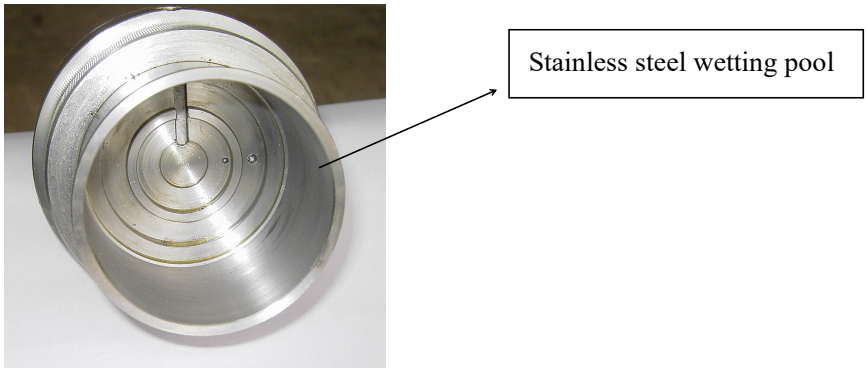
4.Four ball friction test

The four ball friction test is an effective way to evaluate the oil products. On the machine, the long ball grinding test can also be realized through the four ball friction pairs.



5.Lubricating oil wetting test

When the friction sample needs lubrication, it can carry out the wetting test of the lubricating oil and heat the oil at the same time. The wetting test is realized through the oil immersion pool.



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