HRB-3 Ring on Block Friction Testing Machine

国家高新技术企业

Product

Proposal

Jinan HengXu Testing Machine Technology Co., Ltd

TECHNICAL INFORMATION, DO NOT COMMUNICATE

One.Product Description

This new type of ring block abrasion testing machine is mainly aimed at the disadvantages of the old type of ring block abrasion testing machine for innovative upgrading, while referring to international products for transformation. The friction and wear properties of the samples were tested by means of line contact sliding rub. The working principle is as follows: the driving element is a standard rotating ring, and the passive element is a fixed rectangular block of standard size. The load carrying capacity of the lubricant and the friction and wear properties of the friction pair materials were evaluated by measuring the width of the strip wear marks on the rectangular block of the passive specimen under different loads, and the friction force and friction coefficient between the friction pair materials. The equipment has two main functions: 1. To evaluate the lubrication performance of various lubricants under the condition of immersion lubrication, such as the simulation evaluation of anti-scuffing performance of middle and high grade automobile gear oil; 2, can be used for a variety of hard alloy metal, metal, non-metallic materials and coating wear properties, PV wear resistance and other aspects of research.

The machine adopts a new type of frame structure, divided into two parts: the main machine and the control system, the main machine is controlled by the servo motor to load, the test parameters realize the unit setting, the operation is convenient, the test reading is accurate and reliable, The machine adopts split structure design, the computer, software, industrial control module, actuator group separately, complete the control of the entire experimental process, real-time acquisition of test data and can draw the corresponding test curve, can be arbitrarily stored, read, print out test data or curve.

Reference picture of product appearance

Two、Specification Data and Configurations

Specification Data
1.Maximum test force: 1000/3000/5000N 2.Test force accuracy:±0.5% 3.Maximum friction:200/300/500N 4.Friction accuracy:±1% 5.Spindle speed range:5-3000/5000rpm 6.Spindle speed error:±2rpm 7.Spindle rotation display range:0-9999999 8.Time display range:0-9999s or min 9.Spindle control mode:Servo control 10.Control software:HTMS Advanced Friction and Wear Control System 11.Loading mode:Servo automatic loading 12.Wear measurement:Real-time wear volume measurement 13.Wear accuracy:±0.01 14.Test oil temperature:Room temperature ∽ 1002 ℃ (HX-PID self-tuning temperature control system)

15.Temperature measurement accuracy:±2℃

16.Control system:

Standard: industrial motherboard, full touch screen control, load time rate programmable control, curve real-time acquisition, single point acquisition, universal data export;

High configuration: Advantech industrial control computer + NI data acquisition/servo control card (optional)

17.Size:1000×700×1700mm

18.Net weight:Frame:350kg;Control cabinet: 80kg

Three. Functions and features:

The main machine is mainly composed of spindle drive system, test oil chamber and temperature measuring device, friction measuring device, slow force and test force measuring device, etc. They are all installed on a welding machine base.

3.1 spindle drive system structure and working principle

The standard configuration of the friction pair in the form of a ring and block, test ring installed in the front of the spindle, with the spindle to a certain speed rotation. The main shaft is driven by a servo motor through an arc toothed belt, a driven belt pulley and a driving belt pulley. The motor is controlled by a computer and a servo driver, and its rotational speed is stepless in a certain range. According to the friction mechanism, the contact surface of the on-line contact material bears greater pressure, so the PV value of the material and the friction temperature rise can be studied. At the same time, the ring-bush wear test can be realized by changing the shape of block sample.

3.2 Test oil chamber and temperature measuring device

The wear test was carried out in a circular oil chamber. The upper part of the oil cavity body is an oil injection port, and the oil injection amount can be taken from the measuring cup with the accompanying, generally exceeding the friction surface. After the test is completed, the oil can be released from the oil nozzle below.

At room temperature test, the chamber door is transparent organic silicon glass, no need to replace at high temperature, you can clearly see the inside of the test. In high temperature test, a

heater is installed on the door of the stainless steel chamber to heat the test oil, and a platinum resistance sensor is installed under the chamber to measure the temperature of the test oil.

3.3 Friction measurement device

When the test ring rotates, and there is a certain pressure between the test block and the test ring, there will be friction between the two. This friction force acts on the friction sensor through the push rod, and then the friction force is collected and processed systematically, and finally displayed on the friction window of the control panel.

3.4 Test force application and measurement device

The test force is controlled by servo motor and upper computer controller. Through a set of precision mechanical structure, the force value is applied to the sample friction pair, which is stable and reliable.

The pressure between the test ring and the test block is measured by the test force sensor and displayed on the test force window of the control panel. The test force can be preset and feedback by the computer control system to realize automatic control.

3.5 Hengxu ring block testing machine advantages are as follows:

First ,adopt split structure, optimized design, high strength, strong load carrying capacity;

Second , the main body is separated, the use of circular cavity structure, precision machining technology, effectively reduce the vibration machine noise;

Third , the whole system adopts servo motor control, using high-power servo motor to ensure stable and reliable operation of high and low speed heavy load;

Fourth , the force sensor adopts 10,000 bit precision sensor, the force value is accurate and reliable;

Fifth ,the use of special HTMS friction and wear measurement and control software, real-time collection of test data, drawing curves, the parameters of the preset protection, test force internal shift adjustment, high dynamic accuracy;

Sixth ,professional and experienced friction and abrasion testing machine design team, for you to develop a detailed test program.

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