

SGW-10 series Computer control automatic four-ball friction tester specification

One.Product Description:

SGW-10 computer control automatic four-ball friction testing machine, in the form of slide friction, is used for the loading capacity evaluation of lubricants in the high pressure point contact condition. It can test the maximum nonseizure load P_B , sintered load P_D and composite wear value ZMZ of lubricants. The four-ball friction test machine can also be used as lubricant for long time wear resistance test, determination of friction coefficient, recording friction and temperature curve. It also can measure the dimension of the wear scar and display, measurement and recording the wear scar on the PC screen. The wear resistance of metallic materials or non-metallic materials can also be studied with special attachments.

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With many patents, our company has advanced R & D technology and keen innovation ability. The product has high precision, easy operation, easy maintenance and no oil source pollution.



Fig. 1 Appearance reference picture



Fig. 2 Wear spot measuring microscope

ASTM D 4172 Standard Test Method for wear resistance of lubricating fluid (four ball method)

ASTM D2266-01 Test method for friction and wear of lubricating oil (four-ball method)

ASTM D2783-2003 (2009) four-ball bearing capacity of four balls of lubricants

ASTM D2596-2010 Test method for extreme pressure performance of grease (four ball method)

GB/T 12583-98 Determination of extreme pressure performance of lubricants (four-ball machine method);

GB/T 3142, Determination of the carrying capacity of lubricants (four-ball method);

SH/T 0189, Determination of oil abrasion resistance (four-ball machine method);

SH/T 0202 , The method of determination of extreme pressure of grease (four-ball machine method);

SH/T0204, Determination of resistance to abrasion of grease (four-ball machine method).

Two. Technical parameters

| NO | Project | Parameter |
|-----|---|--------------|
| 1 | Test force | |
| 1.1 | Axial test force range | 40~10000N |
| 1.2 | Relative accuracy of test force display. | ±1% (0.5) |
| 1.3 | Accuracy of testing force display for a long time | ±1%F.S (0.5) |

| | | |
|-----------|---|---|
| 1.4 | Loading way | Full automatic loading (non-hydraulic, state related patent) |
| 2 | Friction torque | |
| 2.1 | Measuring range of friction torque. | 0~13500N.mm |
| 2.2 | Relative Accuracy of the friction torque display | ±2% |
| 3 | Spindle speed | |
| 3.1 | Spindle frequency conversion speed range. | 10~2000r/min |
| 3.2 | Accuracy of Spindle speed | ±5r/min |
| 4 | The oil box stroke | >45mm |
| 5 | Spindle bore taper. | 1: 7 |
| 6 | The heating system | |
| 6.1 | Heater working temperature range | Room temperature~250℃ |
| 6.2 | Accuracy of temperature | ≤2℃ |
| 7 | Testing machine control | |
| 7.1 | The control mode | Whole process touch screen control (dual function) |
| 7.2 | Test time display and control range | 1~99999s or 1-99999min |
| 7.3 | Test machine revolution display and control range | 999999999 |
| 7.4 | Test machine main motor | Taiwan TECO servo motor |
| 8 | A test oil quantity | About 10ml |
| 9 | Diameter of special standard steel ball for test | 12.7 |
| 10 | Test machine size (L×W×Hmm) | About 1160×750×1640 |
| 11 | Weight | About 400kg |
| 12 | Rated power of testing machine | 5.5KW |

Three.The difference between the models of SGW series automatic four-ball

friction tester

| Model | SGW-10A | SGW-10W | SGW-10Z |
|-------------------------------|--|---|--|
| Friction | 200N | 200N | 200N (Dual Sensor) |
| Scope of application | One machine dual use (true power does not decay) | One machine dual use (true strength without attenuation, with clamp protection function) | One machine dual use (true strength without attenuation, with clamp protection function) |
| Control system | HTMS Professional Edition Friction and Wear Special Software (including Wear Spot Imaging Analysis System) | HTMS Advanced Edition Friction and Wear Special Software (including Wear Spot Imaging Analysis System) | HTMS high-end friction and wear special software (including independent version of wear spot imaging analysis system) |
| Intelligent control | Follow standard steps step by step | One click fully automatic and fast locking of P _B range | One click fully automatic, fast P _B range locking, ladder programming control, curve stage average |
| Test System Protection | Equipped with multiple safety protections such as soft emergency stop, structural limit, time, friction, friction coefficient, overload, etc | Equipped with multiple safety protections such as soft emergency stop, structural limit, sensor bidirectional, time, test force jump, friction, friction coefficient, friction shaking, overload, etc | Equipped with multiple safety protections such as soft emergency stop, structural limit, sensor bidirectional, time, test force jump, friction, friction coefficient, friction jitter, overload, etc., with millisecond level protection, better protecting the motor and extending the service life of the sensor chuck |

And so on...Please consult the saler for details.

Four.Product advantage

The new type of friction and wear testing machine adopts new balance loading technology, force maintenance technology and new control technology. The test force is stable and reliable. The test force can be set by the operator on the computer interface. The parameters of the spindle speed, rotation, test force, friction torque, friction pair temperature and test time are controlled by the computer. The test data can be collected in real time and the corresponding test curves can be drawn, which can be stored and read at any time. Print out the test data or curves. The analysis of the advantages of the product is as follows:



1.Loading mode: This type of testing machine is a patent product of our company. Using double floating bearing technology, no gap guide technology and buffer cross balance technology are the guarantee of precision and stability of test force. The failure rate is low, the performance is stable and reliable after years of improvement, and the system error is reduced and the test is guaranteed. The accuracy of force and friction to track the measurement in real time;

2.The main structure: When the friction test is carried out, we should minimize the impact of the vibration of the motor and its accessory parts on the grinding mark. Therefore, we use the whole body, the thickening support plate, and the Taiwan East element servo motor drive the spindle, and the related transmission parts also use the imported precision bearings.

3.Electrical part:The equipment adopts the independent embedded industrial controller, the industrial metal touch screen, and collect the independent analysis module, which can effectively guarantee the effect of the high speed of the equipment or the violent vibration of the oil film rupture to the control part of the performance.

4. Wear spot measurement: It is easy to achieve the capture of the spots, the measurement and analysis of the friction surface topography, and the direct preservation of the grind spot images.

5.The software features

A.Software set P_B , P_D special monitoring function;

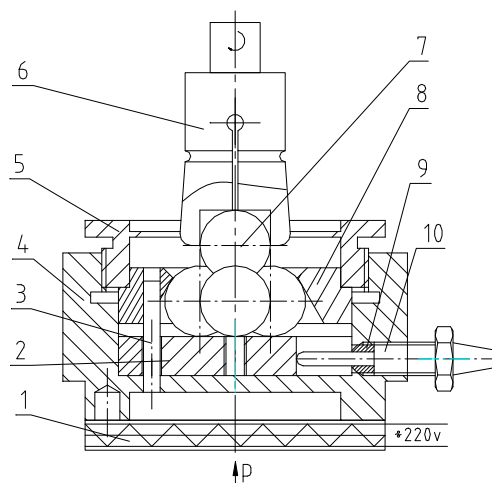
B. Use the HTMS special control system to collect test data in real time and draw relevant curves;

C. Optimized interface, each parameter can be independently preset, and all parameters can be set before the test.

D. The loading rate can be adjusted in section , enlarge the real-time curve and save the current image;

E. Test the original data to be saved, and export in general format to facilitate post-processing editing;

Five、 A brief introduction to the test machine friction



Four-ball friction pair

1—The heater 2—cushion 3—Cylindrical pin 4.The oil box 5—Locking screw ring 6—Collet chuck 7—Standard test steel ball (GB308-84) 8—Pressure ring 9—Soft aluminum pad 10Platinum thermal resistance sensor

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