MPJ -1G

Rolling contact fatigue wear testing machine

国家高新技术企业

Product

Proposal

Jinan HengXu Testing Machine Technology Co.,Ltd

MPJ - 1G Rolling Contact Fatigue Wear Testing Machine

One. Introduction:

Hengxu Testing Machine is a high-tech enterprise that integrates professional research and development, production, and sales. The company has passed the "**ISO9001** Quality Management System Certification" and has been awarded the titles of "National Authoritative Testing Standard Product" and "National Quality Service **AAA** Enterprise". The company has proprietary software HTMS control system and multiple national patented products. The company gathers top experts in material mechanics testing machine structural design, professional frictional testing technology solution research and design, specially appointed engineers, and laboratory testing equipment analysis to provide lasting impetus for the company's development.

The MPJ series rolling contact fatigue wear testing machine produced by the company adopts a friction pair motion form of double ring specimens rolling or sliding together to test the contact fatigue wear performance of materials under oil lubrication or dry friction conditions, which meets the testing requirements of relevant standards such as GB10622-89 Rolling Contact Fatigue Test Method for Metal Materials and YB/T 5345-2006 Rolling Contact Fatigue Test Method for Metal Materials.

This contact fatigue wear testing machine can study the material and process properties of gears, bearings, rollers, rails, and other components that fail due to contact fatigue wear. The testing machine adopts an automatic loading and stepless speed regulation working mode, and real-time collection and processing of test parameters such as load, speed, temperature, friction torque, friction coefficient, etc. are carried out through a computer and specialized software for test data processing. The test results are presented (or printed) in the form of data graphs and tables. In practical use, it is possible to adjust and select parameters such as load, speed, friction torque, time, temperature, friction pair material, roughness, hardness, etc. within a wide range to investigate the changes in fatigue wear performance of the sample under various influencing factors. The contact fatigue wear characteristics and comprehensive performance of the material can be evaluated based on the wear condition of the sample surface under different test parameters.

Two. Main technical specifications:

1. Load range of the specimen: 80N-10000/20000/30000 N (optional test force)
2. Relative error of load display: ± 1%
3. Long term loading maintenance error: ± 1%
4. Spindle motor power: 5KW (dual motor rolling ratio adjustable)
5. Speed: 1-2000 rpm
6. Speed control accuracy: ± 0.5%
7. Torque measurement range: 0~25N M
8. Relative error of torque display: ± 1%
9. Power supply: three-phase 380V 20A
10. Temperature measurement range: Room temperature~650 ℃ (non-contact measurement)
11. Temperature measurement accuracy: ± 1%
12. Diameter of upper and lower samples: 50~70mm (adjustable center distance)
13. Measurement parameters: load, friction torque, temperature, rotational speed, friction coefficient.
14. Draw chart curves: load-time, friction torque-time, temperature-time, speed-time, friction coefficient-time
15. Measurement time range: 0-9999 hours
16. Dimensions (L, W, H): about 1460 * 1200 * 1150 mm

Three. Introduction to Structural Principles

Hengxu Testing Machine adheres to the principles of "innovation and focus" and continuously launches new products. This series of contact fatigue wear testing machines has the characteristics of wider adjustment and adaptability, and is an innovative research and development of this series of equipment. It has the following

advantages:

1) The sample diameter has a wider range of adaptability. The friction specimen adopts parallel contact, with a wide front and rear space, overcoming the instability caused by the original rotating structure;

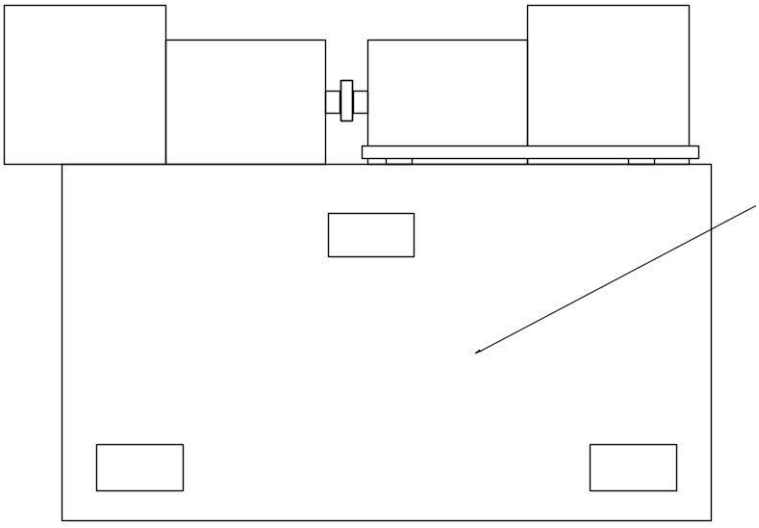
2) The loading adopts electronic transmission loading and closed-loop control, which maintains stable force value for a long time, and has low noise, environmental protection and no oil pollution;

3) The force values of parallel structures have a wide range of adaptability. Old style equipment uses a rotating support shaft, which is cumbersome for self weight balance and has instability even at high starting points;

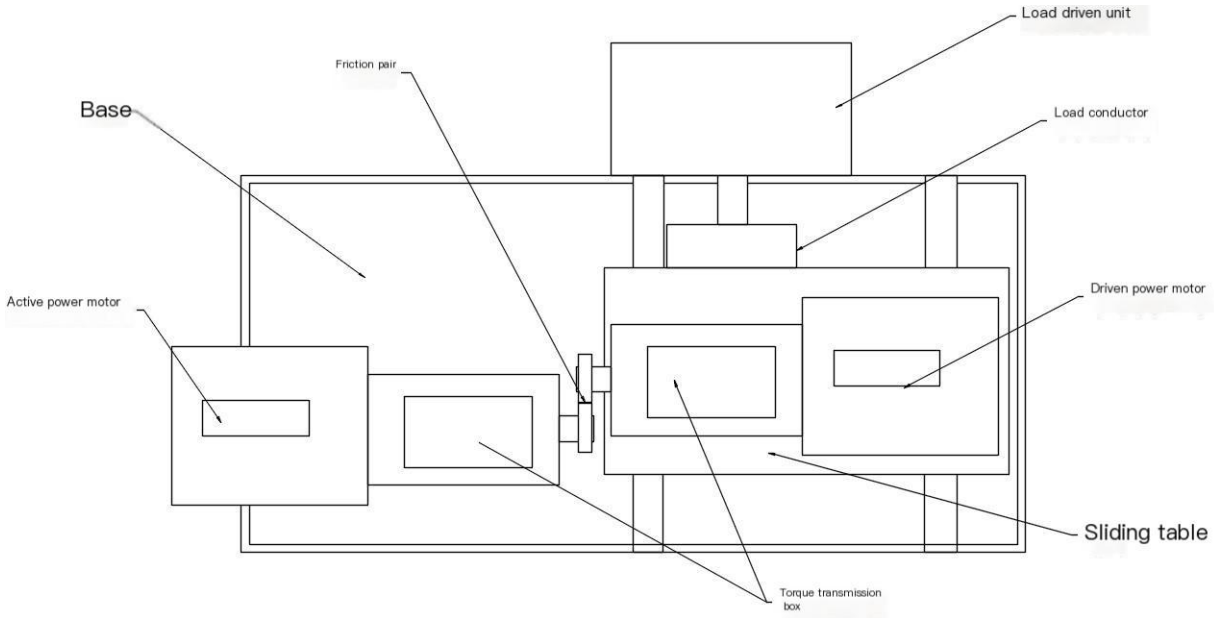
4) Using unequal power motors and flexible couplings to reduce the

frictional vibration caused by sliding friction; The schematic diagram of

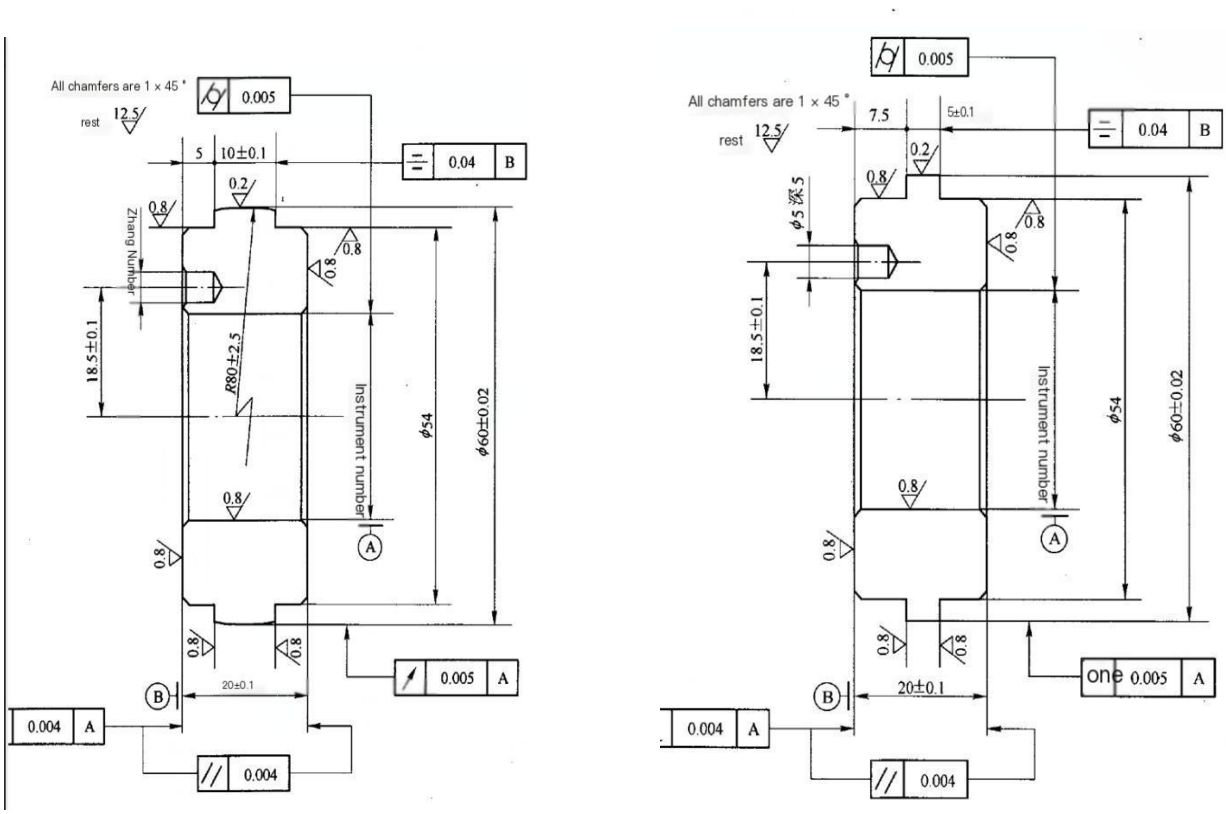
the structure is as follows:



Equipment Structure Reference View 1



Equipment Structure Reference View 2



Point contact Line contact

3.1 Loading method

The MPJ contact fatigue wear testing machine adopts a servo controlled automatic

loading structure, which has low noise and smooth loading, effectively overcoming the problems of large force fluctuations, loud noise, and oil source pollution in hydraulic loading tests under high loads.

3.2 Experimental method

The testing machine adopts a rolling contact (i.e. a pair of disc rollers as shown in the above figure) testing scheme. It has the characteristics of simple structure, few other influencing factors, and high contact accuracy. Two disc specimens are installed on the outer spindle of the left swing box and the right fixed box respectively, which facilitates the installation and unloading of the specimens.

3.3 dynamic system

The driving motor of this contact fatigue wear testing machine is a 5KW servo motor, which has the advantages of high speed regulation accuracy and constant torque output throughout the process. Three sets of D-grade high-precision bearings are installed on both main shafts of the two boxes to ensure that the main shafts have sufficient Stiffness and rotational accuracy.

3.4 Measurement and Control System

The measurement system can collect real-time test parameters such as torque, test force, temperature, etc., and output reports and curves, using HTMS advanced version friction and wear dedicated measurement and control software.

Four. Confidentiality of Technical Information and Data

1. This technical solution belongs to our company's technical information, and the user shall assume confidentiality obligations for the technical intelligence and information provided by us. Regardless of whether this solution is adopted or not, this clause shall remain valid for a long time;

2. We should also assume confidentiality obligations for the technical intelligence and information provided by users.

Five. After sales service

The warranty period starts from one year after passing the acceptance inspection, with lifelong maintenance and free service within one year. New machines can be installed and debugged on-site for free, and operators can receive free training.

1. The test equipment provided shall comply with the current national standards or industrial standards to ensure the technical progressiveness and reliability of the test equipment;

2. Annual supply of required parts and accessories;

3. Annual technical support for the product, providing solutions within **24** hours for product maintenance and repair. If the issue cannot be resolved The problem will arrive at the scene within **48** hours;

4. The software is free to upgrade for life.

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