



## **MPX-2G**

# **High temperature friction and wear testing machine**

# **Product proposal**

**Jinan HengXu Testing Machine Technology Co., Ltd**

## One.Product Introduction

Hengxu Testing Machine is a high-tech enterprise that integrates professional research and development, production, and sales. The company has been the first to pass the **ISO9001** quality management system certification and has been awarded the titles of "National Authoritative Testing Standard Product" and "National Quality Service AAA Level Enterprise". The company has independent property rights in software control systems - HTMS series testing machine measurement and control systems, and has multiple national patented products. The company gathers top material mechanics testing machine structural design experts, professional tribology testing technology solution research and design experts, specially hired engineers, and laboratory testing equipment analysis experts in the industry, providing lasting impetus for the company's development.



This testing machine is a proprietary product independently developed and designed by Hengxu Company. It adopts a bottom mounted rotating spindle, and the upper part adopts two loading methods: direct and indirect, effectively reducing testing force errors under small loads. During the test, various metal and non-metal materials (plastics, nylon, etc.) can be made into disc-pin or double-ring type, ring-disc type contact samples, and



subjected to end-face sliding friction tests on this machine to determine the wear resistance of various materials under selected loads and speeds. The friction coefficient of various materials can also be determined. This testing machine is suitable for comprehensive comparative studies of materials conducted by enterprise testing and research departments, and is also an efficient testing instrument for universities to carry out "tribology" teaching and research.



Mainframe appearance diagram (continuous innovation - for reference only)

## Two. Working principle and characteristics

This machine is designed for precision electromechanical integration. The lower auxiliary disk rotates under the drive of a motor, and the lower sample is fixed on the auxiliary disk. The upper sample is fixed on the guide post, and the force is applied to the friction pair through weight or lever loading. The precision friction measurement device is fixed on the



upper sample guide post, and the friction force is collected in real time when the sample rotates. This model of friction and wear testing machine adopts new manufacturing processes and control technologies. The test force is applied smoothly and reliably; the speed, number of revolutions, test force, friction torque, temperature of the friction pair, test time, etc. of the spindle are controlled simply and stably. The advantages of products produced by Hengxu are as follows:

1. Driving method: This type of testing machine is driven by a servo motor, which has strong controllability and low failure rate. After years of continuous improvement, its performance is stable and reliable, ensuring the accuracy of real-time tracking and measurement of test force and friction force;

2. Main structure: In order to reduce the impact of motor and accessory component vibration on wear marks during friction testing, we adopt a lower overall main body, thickened support plates, and precision bearings;

4. Control software: Software can generally achieve real-time collection. Our self-developed HTMS series specialized software (non material tensile testing machine modification software) can establish professional test plans according to different standards, and has the function of saving and exporting data tables.

5. Service Team: We are not only the manufacturer of this type of equipment (many manufacturers assemble it without precision according to old drawings), but also have an independent technical service department (more than 500 research institutes have cooperated with universities for years to research and develop friction and wear testing machines). We can analyze and solve specific problems in real time. At the same time, we invest in the Hengxu Testing

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Machine Research and Exhibition Center in the national new materials industry park, providing a stable base for the company's later research and development expansion (some companies have temporary leased factories, unlicensed production, safety hazards, quality and service cannot keep up).

**Three. Main technical specifications**

| Number | Name   | Technical indicators   |
|--------|--|--|
| 1      | Max load   | 20Kg   |
| 2      | Test force loading accuracy                      | 500g ± 10g; 20Kg ± 30g   |
| 3      | Spindle speed                                    | 1-2000rpm servo motor continuously variable speed                        |
| 4      | Max friction torque                              | 50N. M   |
| 5      | Dynamic display accuracy of friction force       | ± 0.002N   |
| 6      | Heating temperature of high-temperature furnace  | Room temperature~800 °C  |
| 7      | Temperature measurement accuracy                 | 0.2% F.S   |
| 8      | Dynamic display accuracy of friction coefficient | 0.2% F.S   |
| 9      | Friction Dual Ball (Pin) Size                    | Sample ball diameter Φ 6.35; Bolt diameter 5mm, length 10-15mm, optional |
| 10     | Sample size adjustable                           | Diameter: Φ 80mm, thickness 1-20mm, optional                             |
| 11     | Contact form                                     | Sales disc, ball disc type, expandable                                   |
| 12     | control mode                                     | Micro computer semi-automatic control                                    |
| 13     | External dimensions                              | 510x360x780  |
| 14     | weight   | 140kg  |
| 15     | Power  | 220V          50Hz 5A  |

※※ Product Upgrade Instructions

Hengxu Testing Machine adheres to "innovation and focus". MPX

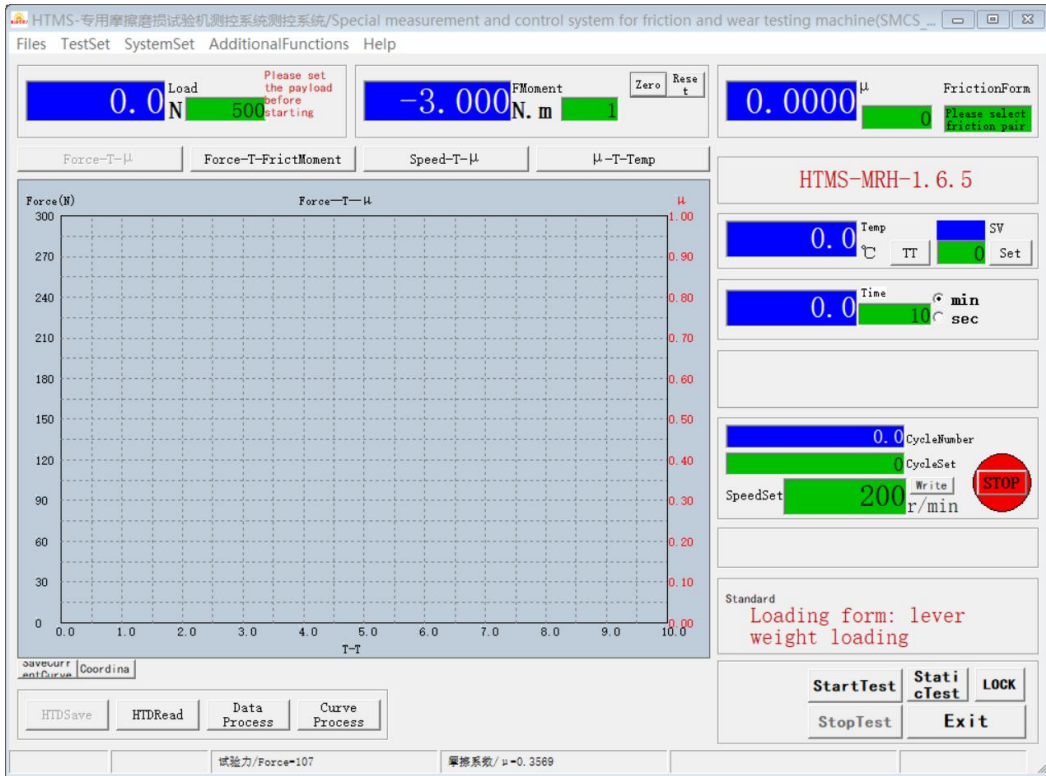


friction and wear testing machine has been tested by the market and has become an entry-level testing equipment for friction and wear research with stable performance, wide popularity, and high cost-effectiveness. Now, four major systems have been successfully upgraded at Hengxu Testing Machine - Technical Center. The details are as follows:

1. The loading system has added manual control function, making it more flexible and convenient to install sample weighing devices;
2. The addition of auxiliary units in the friction measurement system improves the accuracy of friction measurement several times, significantly improving measurement accuracy under micro loads;
3. Increase anti rebound arms to improve the reliability of equipment impact resistance and friction measurement;
4. The control system of the disc friction and wear testing machine has been upgraded to the professional version HTMS-9.1.1, making operation more convenient and measurement more accurate;

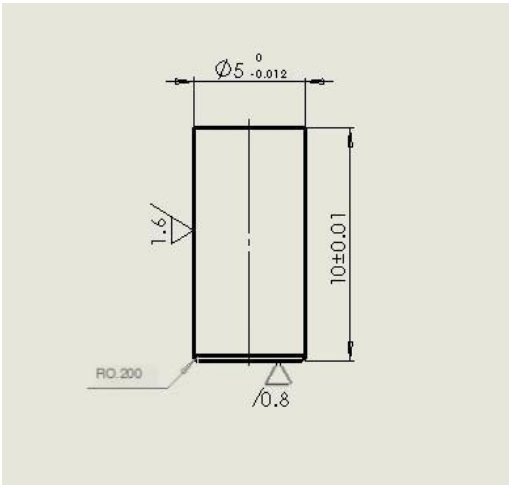
#### **Four、 Introduction to Testing Machine Operation**

This testing machine is a small pin plate friction and wear testing machine, which achieves microcomputer automatic control in terms of control. Domestic or imported components are selected in hardware, and the power switch is installed on the host. The main interface of the control system is as follows:

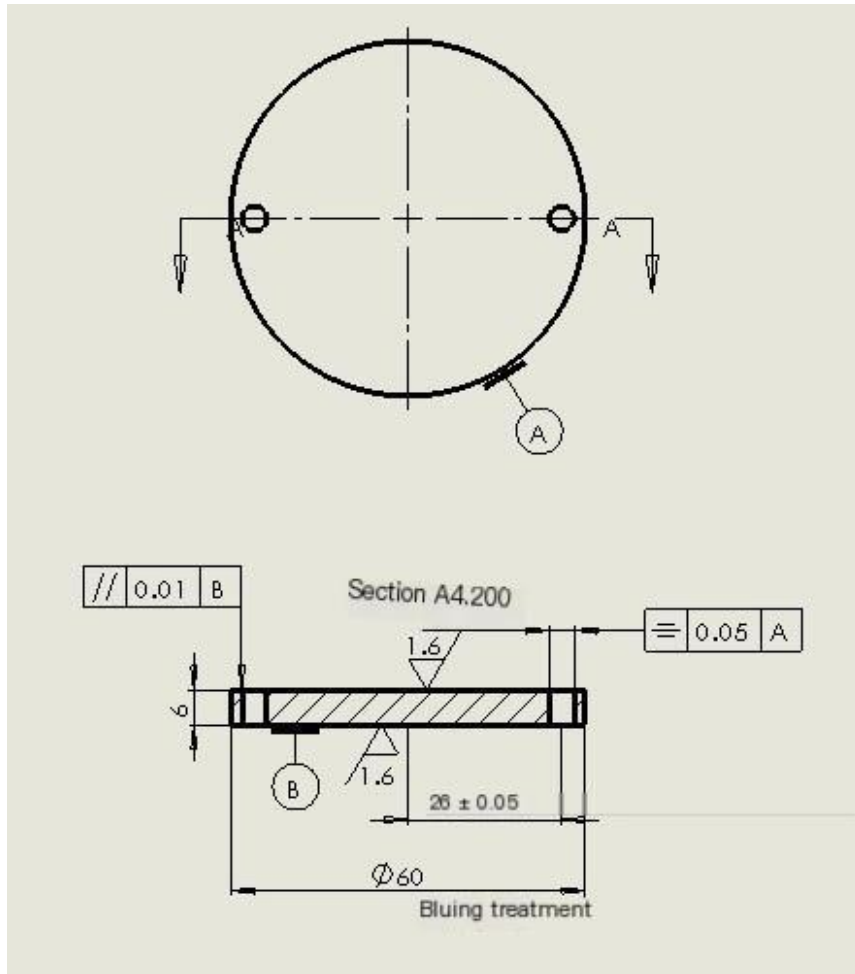


Experimental software operation main interface (HTMS dedicated panel function imitation must be investigated)

The system software supports real-time collection of friction force, supports over preset protection shutdown, supports real-time control of speed and time, supports curve zooming in and out, automatic generation of charts, and can perform various friction and wear research specific functions such as project editing and data saving.



Optional diameter of 5 or 10mm pin



Sample Pin and Sample Disc Reference Dimension

### Five. Installation and Debugging of Testing Machine

1. Space requirements: A regular solid and flat experimental table, covering an area of less than 1 square meter for the entire set;
2. Environmental requirements: A room temperature of 10 °C -35 °C, a relative humidity not exceeding 80%, and an environment free from vibration, corrosive media, and strong magnetic field interference;
3. Power requirements: ~220V, 10A, the voltage fluctuation range should not exceed 10% of the rated voltage, and the frequency fluctuation range should not exceed 2% of the rated frequency;

### Six. Confidentiality of Technical Intelligence and Information

1. This technical solution belongs to our company's technical information,





and users 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 information and materials provided by users.

### **Seven. After sales service**

The warranty period is one year from the date of acceptance, with lifelong maintenance and free service within one year. New machines are installed and debugged on site for free, and operators are trained for free.

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. The required components and accessories are supplied year-round;

3. Year-round technical support for products, providing solutions within 24 hours of product maintenance and repair,

If on-site resolution is required, arrive within 48 hours;

4. The software is upgraded for free for life.

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