Model MMW-1A Computer Control Friction and Wear Testing Machine

Application:

The machine can simulate rolling, sliding and rolling & sliding combined movement under the certain contact pressure to complete point, line and plane simulating tests. It can be used to evaluate the friction and wear performance of lubricant, metal, plastics, coating, rubber, ceramics etc. It can not only satisfy the needs of traditional petrochemical industry to research, develop and inspect the various kinds of intermediate & high grade hydraulic oil, combustion engine oil and gear oil, but also can simulate evaluation to new material development and new technology research under dry condition.

Features:

The machine adopts process control principle, and combines industrial control computer with the configuration software technology and internet technology; Apply incorporate structure design, integrate embedded industry computer, configuration software, acquisition module and executor as a whole to control the test process, all test operations can be completed at the main interface of the computer; It features flexible configuration control mode, multiple friction couplings, wide speed adjusting range, simulating high temperature circumstances, and high automation.

Standards:

ASTM D-2266, D-3702, D-4172, ASTM G99

Specifications

Model	**MMW-1A**
Load range	10~1000N (stepless)
Relative error of load indicating value	More than 20% of max test force ≤ ±1% Less than 20% of max test force ≤ ± 1.5N

Friction torque measuring range	2.5N.mm
Relative error of friction torque indicating	±2 %
Rotate speed range of spindle (r/min)	1～2000r/min, linear velocity up to over 4 m/s.
	When use decelerating device: 0.05～20
Test medium	oil, water, slurry, abrasive etc.
Temperature control range	Room temperature - 200 ℃
Max. distance between spindle of the machine and lower friction coupling plate	>75mm
Time control range	10s～9999min
Testing revolution control range	0-999 999 999 revolution randomly set
Computer & data processing range	Apply industrial control computer and configuration software to control the machine and test process, display different parameters in real time, record friction-time curve and temperature-time curve automatically. Control: load, time, temperature, test duration. Curves: Temperature-Time, Friction- torque and Time etc. Data can be printed by Excel.
Power	1 phase, 220V, 50Hz.
Dimension (mm)	900x760x1650
Weight (kg)	800

Standard Configuration:

1. Load cell I set

Load cell measure the load to guarantee the accuracy and stability.

2. AC servo driving system & loading system 1 set

AC servo driving system uses the Panasonic servo system to enhance the stability, and loading system uses the

step motor with small volume.

3. Computer & software **1 set**

Computer: Dell or lenovo,

Software: English Version (For details, please refer Annex-1)

4. Media box 1 set

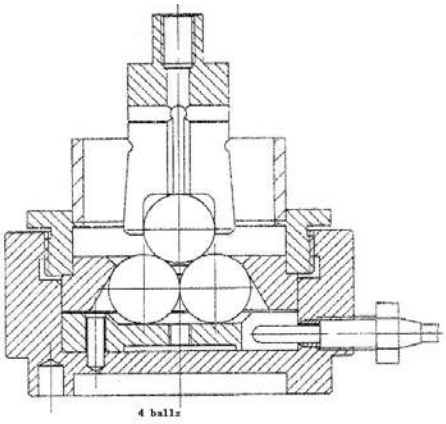
For evaluating the friction and wear performance of different media or material, a media box is needed to install on the support below, add the different media under different temperature and load to evaluate the media or material.

5. Temperature control and measurement system 1 set

In order to evaluate the friction and wear performance of different material under certain temperature, the machine equips the system of temperature control and measurement.

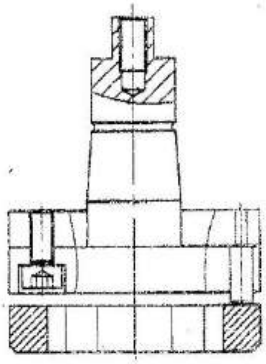
6. Four ball friction couple 1 set

Four Ball Wear Measure friction and wear preventive characteristics of lubricants in sliding applications; rotating ball loaded against three stationary balls. Three point contact ASTM D-2266 D-4172



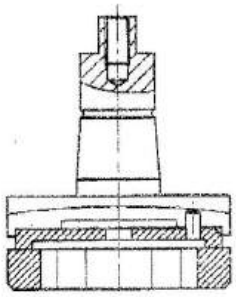
7. Pin-On Disc friction couple 1 set

(Single Pin or 3-Pin) Evaluates coatings, lubricants and materials; rotating hemispherical pin loaded against stationary flat disc Wide commercial and laboratory use



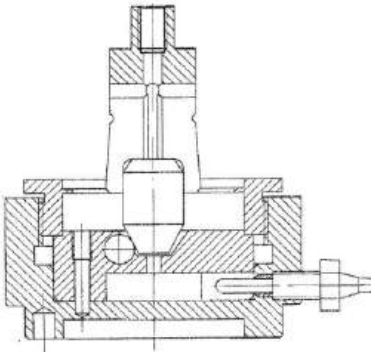
8. Thrust Washer 1 set

Thrust Washer Evaluates wide variety of materials, lubricants and coatings, including plastics; rotating thrust washer axially loaded against stationary flat washer ASTM D-3702

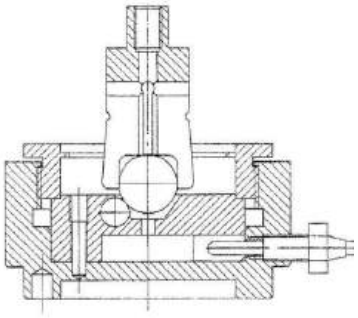


Optional accessories:

1. Pin on tri-pole (cylinder on cylinder)



2. Ball on 3-pole (ball on cylinder)



2.3 Microscope 1 pc.

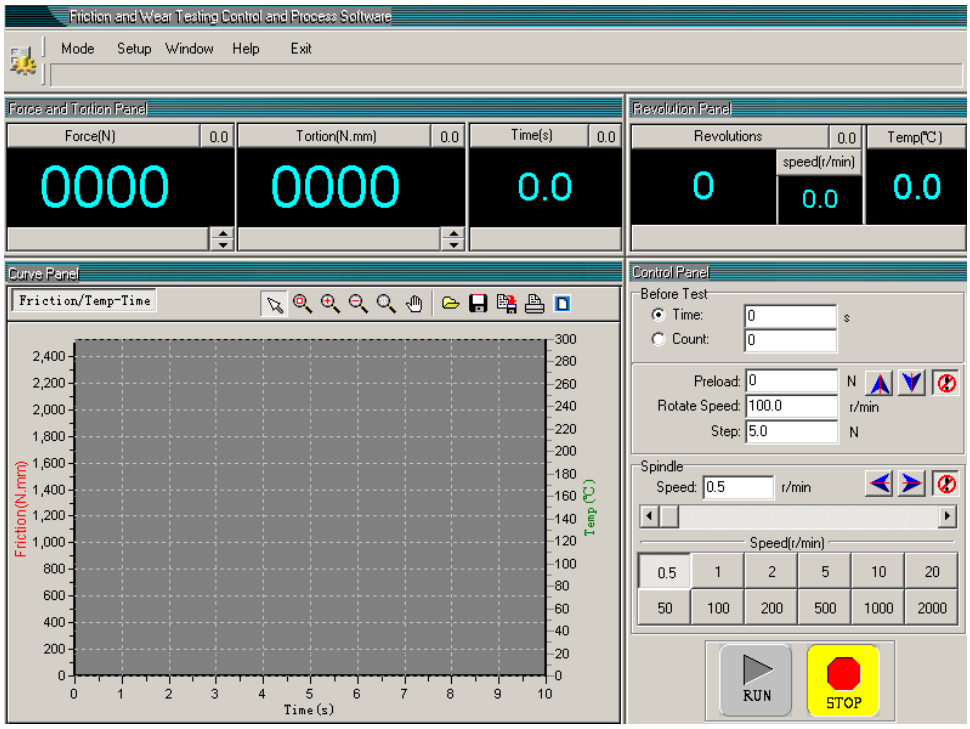
ANNEX-1: Software Introduction

1. Software Features:

- Load close-loop control, data processing with data analysis
- Software design aims to rapidity and convenience of test operation.
- Software is managed by multi levels, and expert user can use all system parameters, which combined the flexibility of software usage and safety & reliability of the system.
- Offer test reports, which can be stored, printed and re-analyzed.
- Assorted test curves
- Compatible with different commercial printers
- Control system is based on software system, so upgrade is easy.

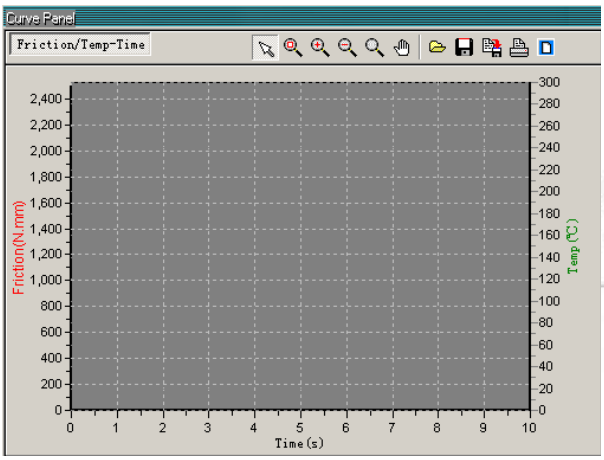
2. Compact main interface

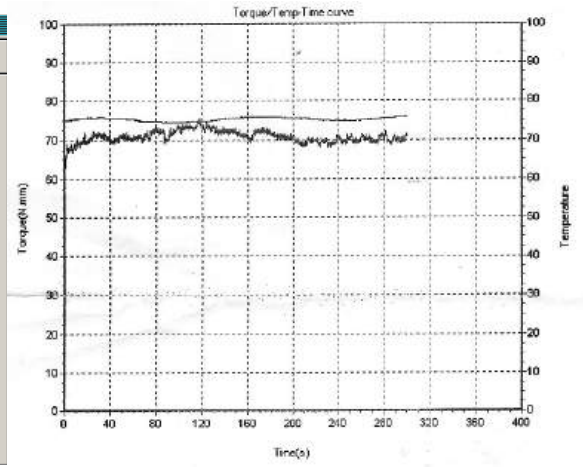
Main Interface is the control center of program, it manages the switch between function window and system mode, and the basic information of specimen and test controlling state will display on the interface as below diagram.



3. Support multiple test curves

It generally show Friction torque-time and temperature-time curves, and it cal also add different test curves as customer's request.





4. Visual test report

Report

Preload(N)	147	Spindle speed(r/min)	1200
Time(s)	300.4	Revolutions	6003
Temp(°C)	75.8	Friction of average(N.mm)	70.7