

## Mitech MAW-G Micro Control Series Steel Wire Tensile Testing Machine

### Overview

Mitech MAW-G micro control series of steel wire tensile testing machine, through the control of high-pressure pump to drive the screw movement, mainly for the prestressed steel strand tensile strength test and analysis. With manual and electro-hydraulic servo dual control mode, high precision gap sealing cylinder, digital processing, closed-loop control technology, it have stable performance, powerful, accurate data processing, strong structure, simple structure, high reliability, simple operation. It's widely used in metal and non-metallic processing industry, quality inspection departments, scientific research and other areas of higher education institutions and it's a necessary professional precision testing equipment for improve production efficiency and save production costs.

### Technical Parameters

Technical parameters	MAW-G	
	MAW-G600	MAW-G1000
Structural form	Gate type	
Maximum testing force (KN)	600	1000
Testing machine grade	Level 1 (Level 0.5)	
Force measuring range	4%-100% of the maximum testing force	
Relative error of displayed values	≤ ± 1% of the indicated value (± 0.5%)	
Force resolution	1/300000	
Deformation measuring device	Electronic extensometer	
Deformation indication relative error	≤ ± 1% of the indicated value (± 0.5%)	
Displacement measuring device	Photoelectric encoder	
Displacement indication relative error	≤ ± 1% of the indicated value (± 0.5%)	
Displacement resolution	0.01mm	

Beam adjustment speed	120mm/min	
Piston stroke	200mm	
Maximum piston speed	60mm/min	
Control mode	Three closed - loop control and programming control	
Protection function	Overload protection, limit protection.	
Effective tensile space	1100mm	
Clamping system	Hydraulic automatic clamping	
Column spacing	540mm	650mm
Stranded wire diameter	Φ 9-24mm	Φ 9-30mm
Size of upper and lower plates	204*204mm	
Main engine dimension	830*580*2550mm	1060*660*2950mm
Power	0.55kW	0.75kW
Dimension of oil source control cabinet	580*550*1280mm	
Power of oil source control cabinet	1.5kW	
Power supply	380V (Three-phase four-wire system)	
Weight	3000kg	4500kg

### Working Principle

The testing machine is a combination of testing machine technology and mechanical transmission technology, sensor technology, automatic control technology. It consists of drive system, control system, measurement system. The drive system is mainly used for the movement of the beam of the testing machine, and the speed of the beam can be controlled by changing the motor speed. The control system is operated by the console control testing machine, and the state of the testing machine and the test parameters can be obtained through the display screen. The measurement system utilizes sensors, signal amplifiers, photoelectric encoders, and data processing systems to perform force measurement, deformation measurement, beam displacement measurement. Drive system, control system, measurement system and other subsystems to

coordinate with each other to complete the material pull, pressure, bending and other mechanical performance testing.

## Features

- Widely used in metal and non-metallic processing industry, quality inspection departments, scientific research and other areas of higher education institutions;
- With computer-controlled digital full-digital electro-hydraulic digital valve drive precision hydraulic cylinder, it can automatic control the modes of the test force, displacement, deformation.
- Integral oil source design makes the whole structure more compact and reasonable, reducing the area occupied;
- Upper and lower jaws for the fully open structure, and the use of automatic hydraulic clamping system, easy to install samples, good stability;
- With the display test force, test force peak, test force rate and other functions;
- With the test force clear, peak hold, parameter settings, regardless of the whole file value measurement, calibration and fine-tuning and other functions;
- The relative accuracy is high with 5000-line photoelectric encoder.
- Adopt high-precision, high stability of the sensor, coupled with high-precision measurement and amplification system to ensure that the test force of high precision;
- Built-in controller to ensure that the test machine can be specimen deformation, test force and displacement of the closed-loop control;
- The machine has a limit protection for auto-stop that can prevent the collision in the middle of the beam caused by overload or even damage the sensor;
- Based on PCI technology built-in control card, can reduce the connection, improve the test real-time control and real-time acquisition function, improve product stability;
- Can choose the load sensor or oil pressure sensor, effectively improve the test range and force value accuracy;
- According to the size of the load can be automatically switched to the appropriate range to ensure the accuracy of measurement data;
- Zero, calibration, storage, etc without any analog adjustment link. The control circuit is highly integrated;
- After testing, the test data and the test curve are automatically saved for later retrieval;
- Can be batch test, the same parameters of the sample only a test set
- Consistent with GB, ISO, ASTM, DIN and other relevant domestic and foreign standards.

## Scope of application

Widely used in metal, non-metallic and composite materials, pull, pressure, bending and other mechanical properties test.

## Applications

- Metal processing manufacturing quality control links
- Non-metallic processing industry quality control links
- Experimental teaching experiment in colleges and universities.
- Scientific research institutions of material analysis test
- Quality inspection departments quality testing links

## Working Conditions

- Operation Temperature: Ambient temperature ~ 45 °C ;
- Relative humidity: 20%~80%;
- In an environment free from vibration,no corrosive medium.
- Installed on a flat basis.
- Power supply voltage fluctuation does not exceed 10% of rated voltage.

## Configurations

	NO.	Name	QTY.	Remarks
Standard Configuration	1	Main unit (Clearance seal cylinder)	1	Contains sensor, limit
	2	Control system	1	
	3	Special oil source for servo control	1	
	4	Electro-hydraulic proportional servo valve	1	
	5	Dual Channel Programmable Amplifier	1	
	6	High precision oil pressure sensor	1	
	7	Photoelectric encoder	1	
	8	Flat jaws	1	0-15mm
	9	Round jaws	1	13-26mm, 26-40mm
	10	Extensometer	1	
	11	Computer	1	Including monitor
	12	Printer	1	HP A4 inkjet printer
Optional Configuration	1	Auxiliary		Customized to customer requirements

## Maintenance and care

- Test machine is a large precision instruments, should pay attention to water, moisture. Exposed workstations, upper and lower beam parts and attached parts should be coated with anti-rust oil to prevent rust;
- After a long idle time, at least once a week and move the upper and lower beams, so that the beam position, the mother often activities to prevent rust;
- Long-term frequent use may lead to oil reduction or deterioration, you can check the amount of oil every 1 to 3 months according to the use. If the oil level below the oil window, you need to add the same kind of hydraulic oil to the middle of the window; If deterioration, then unscrew the oil source after the lower oil nozzle will be released, replace the hydraulic oil;
- Frequent use of this equipment for tensile failure tests may cause some fasteners to loosen.

The following parts should always be checked for tightening:

- ① There are two pieces (total 8 blocks) in front and back of the upper crossbeam and the moving beam. The L type press plate (with the jaw board) is used to fix each pressing plate with 3 screws.
  - ② 6 screws at each end of the moving beam;
  - ③ The drive chain shall be checked every 6 months, and the position of the tension wheel shall be adjusted accordingly (Need to remove the main body under the hoarding).
- Depending on the environmental conditions and frequency of use, the following parts are lubricated every 3 to 6 months:
    - ① Screw and the base of the junction to 100 oil lubrication (need to remove the main body under the hoarding);
    - ② The screw drive chain is lubricated with butter (the lower part of the main body is to be removed)
    - ③ The screw thread is kept clean and lubricated with butter or molybdenum disulfide;
  - There are two jaws on the upper beam and the moving beam. It is an important part of the machine. It should always clear the debris on the contact surface of the jaw and the beam. Remove the pliers on the side of the moving beam, remove the jaws, and remove the contact surfaces of the jaws and beams with oil wipes. Apply a mixture of butter and graphite to the jaws. The fixing screw of the pressure plate;
  - Don't start the test to prohibit the click "start test" button, or easy to cause accidents;
  - When entering the program, if the abnormal tips or the default test force values are different from the past, do not test, refer to the troubleshooting method to exclude;
  - After the specimen is broken, if the program does not exit the test state, immediately click [Stop] to exit the test state;
  - After completing the test exit procedure, the cylinder must fall to the end to shut down the pump;
  - The software has overload protection function, when more than 0.2% of full scale will have a protective prompt, please press OK and stop the experiment
  - Don't disassemble the instrument without authorization, maintenance related matters please contact MITECH after-sale service department, 4000600280