

## 10T Universal Testing Machine HTP-008



### The main function:

1. It is mainly suitable for testing metal and non-metal materials, such as rubber, plastic, wire and cable, optical fiber cable, safety belt, safety belt, leather belt composite material, plastic profile, waterproof coil, steel pipe, copper material, profile, spring steel, Bearing steel, stainless steel (and other high-hardness steel), castings, steel plates, steel strips, tension, compression, bending, shearing, peeling, tearing, two-point extension (an extensometer is required), etc. multiple tests.
2. This machine adopts mechanical and electrical integration design, mainly composed of load cell, transmitter, microprocessor, load driving mechanism, computer and color inkjet printer. It has a wide and accurate loading speed and force measurement range, and has high precision and sensitivity for the measurement and control of load and displacement. It can also perform constant-velocity loading and constant-velocity. , Transmitter, microprocessor, load driving mechanism, computer and color inkjet printer. It has a wide and accurate loading speed and force measurement range, and has high precision and sensitivity for load and displacement measurement and control. It can also perform constant-velocity loading and constant-velocity



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#### Main features:

1.Imported photoelectric encoder is used for displacement measurement, the controller adopts embedded single-chip microcomputer structure, built-in powerful measurement and control software, which integrates measurement, control, calculation and storage functions. It has the function of automatically calculating stress, elongation (extensometer needs to be added), tensile strength, elastic modulus, and automatically counts the results; automatically records the force value or elongation of the maximum point, breaking point, and specified point

2.The computer is used to dynamically display the test process and the test curve, and to process the data. After the test, the graph processing module can be used to enlarge the curve for data re-analysis and editing, and the report can be printed. The product performance has reached the international advanced level.

#### Technical Parameters:

Model	HTP-008
Maximum load	10000KG、20000KG, <b>Optional</b>
Accuracy class	Level 0.5
Effective force measurement range	0.4%~100% (Level 0.5)
Force measurement accuracy	± within 0.5% of the indicated value
Testing machine resolution	Maximum load 1/200000, There is no division of internal and external gears, and the resolution of the whole process remains unchanged
Load transducers	<b>Basic configuration:</b> one tension and pressure sensor (maximum load) <b>Extended configuration:</b> Multiple sensors can be added
Effective test width	400mm(( <b>can be widened according to customer requirements</b> ))
Effective Stretching Space	800mm ( <b>can be increased according to customer requirements</b> )
Test speed range	0.01~300mm/min
Displacement measurement accuracy	Within ±0.5% of indicated value



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Deformation measurement accuracy	Within $\pm 0.5\%$ of the indicated value ( <b>large or small deformation can be selected according to customer requirements</b> )
Test bench safety devices	Electronic limit protection
Test bench lifting device	Fast/slow two speed automatic control, jogging possible
Test bench return function	Manual or automatic, automatic or manual return to the initial position of the test at the highest speed after the end of the test
Overload protection	Above the maximum load by 10%, the machine is automatically protected
Fixture configuration	A set of tensile fixtures
Host size	900*600*2000mm(L*W*H)
dynamical system	Servo motor + high-precision ball screw
power supply	220V/50HZ、
power	1.5KW (according to different force requirements, standard equipped with different power motors)
Instrument net weight	(approximately) 400 kg
Standard accessories	A set of tensile fixtures Use a group of tools A copy of the instruction manual A copy of the warranty book
Shop accessories	1. Non-metallic large deformation device 2. Small deformation (gauge: 25, 50, 100mm)



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#### Machine accessories and configuration details

Testing machine host	1 set
Taiwan TECO servo motor	1 set
American force transmission high-precision load sensor	1pcs
Deceleration system	1 set
Taiwan TBI precision screw	1 set
Professional testing software based on Windows XP operating system	1 set
Branded computers	1 pcs
color inkjet printer	1 set
Tension and compression accessories	1 set
Random tools (provide special tools	1 set



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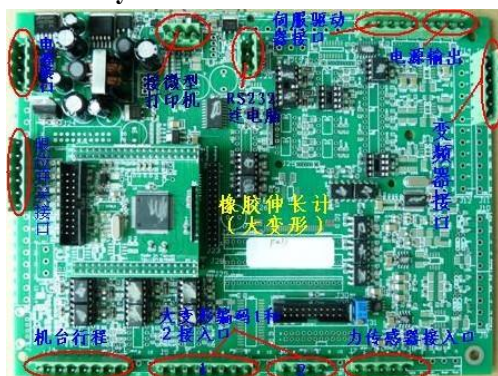
required for installation, maintenance and operation)	
Technical information (instruction manual, warranty card, certificate of conformity)	1 set

### **Software salient features**

- 1. Support Chinese and English language interface switching**
- 2. Support functional navigation, the user enters the corresponding test function module according to the navigation interface**
- 3. Support various mechanical performance tests of metal materials, such as metal tensile, compression, bending, shearing and other tests**
- 4. Support the mechanical performance tests of various non-metallic materials, such as cement compression and flexural resistance, concrete compression resistance, rigid foam compression, etc.**
- 5. Support extended test function, users can add test items by themselves**
- 6. An independent open test project setting module, which can be set up by technicians, and the test operators can use the test project to do the test, which greatly reduces the professional level requirements and operation difficulty of the majority of test operators**
- 7. The test control process design, the user can view the test control steps at a glance, and the instruction types are rich**
- 8. The test data name can be modified and the test data display sequence can be adjusted to meet the user's special data output requirements**
- 9. Support custom additional test data items;**

- 10. Support custom additional test standards and test data processing;
- 11. Support statistical calculation of test data (mean, standard deviation, coefficient of variation);
- 12. Support curve analysis;
- 13. Support test traceability;
- 14. Support custom test report, using Word or Excel electronic form, easy to operate, simple to set, and can be printed or previewed;
- 15. The software has various equipment safety and test safety protection;
- 16. Detailed software help documentation

Hust Tony uses the latest control board for better sample rates



### Main features

1. The main controller adopts the most advanced 32-bit ARM processor in the 21st century, and its processing speed reaches the level of a Pentium-level general-purpose computer. Compared with the traditional 8-bit single-chip microcomputer measurement and control system, the overall performance is greatly improved, the operation speed is faster, and the control accuracy is higher.
2. The core device of data acquisition adopts the latest ultra-high-precision 24-bit AD in the United States, and the sampling rate can reach 2000 times per second, which can capture the instantaneous change process of power. And the original 6-point calibration technology is used to further improve the accuracy, and the force measurement accuracy is better than the national 0.5 level (the highest level) standard
3. The counting of the displacement encoder adopts 4 frequency doubling technology,

which increases the displacement resolution by 4 times, up to 0.0005mm

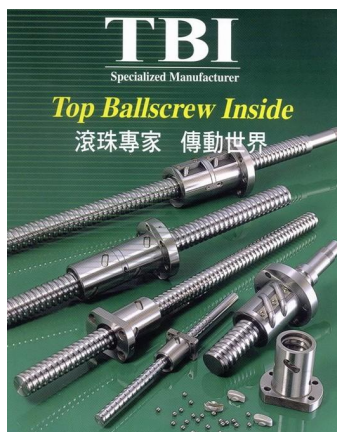
4. There are two output control modes of pulse and voltage, which can control any servo motor, variable frequency motor or DC motor with pulse or voltage control interface to achieve smooth stepless speed regulation. In addition, switching signal outputs such as rising, falling and stopping are available. It is used to directly drive external relays or solenoid valves, and can be used to control DC motors or pneumatic, hydraulic and other power devices

5. Advanced three closed-loop technology of speed, displacement and force can realize precise arbitrary waveform control

6. Rich interface expansion capability: up to 4 channels of 24-bit analog input, 3 channels of 16-bit analog output, 3 channels of pulse output, 3 channels of AB phase photoelectric encoder input, 9 channels of digital input, 8 channels of digital output, 1 USB interface, 1 RS232 interface, 1 RS485 interface, 4 LCD interfaces, 1 parallel micro-printer interface, 1 serial micro-printer interface, 1 8×4 matrix keyboard interface

7. All input and output interfaces adopt high-speed photoelectric isolation technology, which has strong anti-interference ability!

### **Hust Tony adopts Taiwan TBI ball screw for better transmission accuracy**



### **Main features**



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1.High transmission efficiency The transmission efficiency of the ball screw pair is as high as 90% to 98%, which is 2 to 4 times that of the sliding screw pair, and can efficiently convert torque into thrust. Sensitive and stable transmission, small frictional resistance, good sensitivity, no vibration when starting, no crawling at low speed, micro-feeding can be controlled at  $\mu$  level

2.High positioning accuracy The temperature rise is small during the transmission process of the ball screw pair, the axial play and primary elastic deformation can be eliminated by preloading, and the screw can be pre-stretched to compensate for thermal elongation, so high positioning accuracy and Repeatability

3.Good precision retention, accurate raceway shape, minimal rolling friction and wear, good precision retention, reliability and service life

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5.Good synchronous performance The ball screw has the characteristics of high lead accuracy and good sensitivity

### **Hust Tony Adopt Japanese Tamagawa servo drive to better ensure correctness**



**1.Accuracy:** realize the closed-loop control of position, speed and torque; overcome the problem of stepping motor out of step;

**2.Speed:** high-speed performance is good, generally the rated speed can reach



2000~3000 rpm;

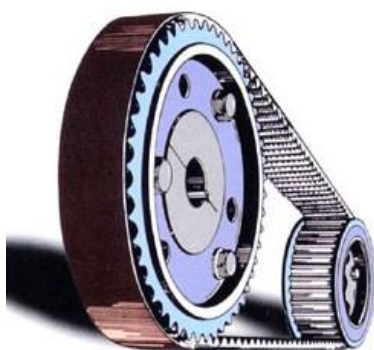
**3.Adaptability:** strong anti-overload ability, can withstand a load three times the rated torque, especially suitable for occasions with instantaneous load fluctuations and requirements for quick start;

**4.Stable:** low-speed operation is stable, and there will be no stepping operation phenomenon similar to that of stepping motors during low-speed operation. Suitable for occasions with high-speed response requirements;

**5.Timeliness:** The dynamic response time of motor acceleration and deceleration is short, generally within tens of milliseconds;

**6.Comfort:** heat and noise are significantly reduced.

### **Hust Tony Adopt professional processing technology to better ensure quality**



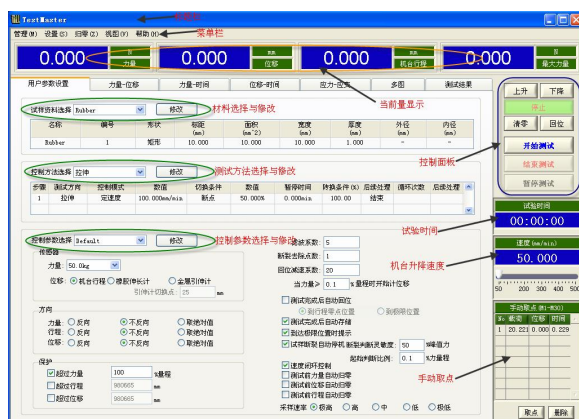
1. Precise processing technology ensures the cooperation of the beam, bearing and screw, reduces the error caused by processing, and further ensures the accuracy
2. The fuselage is treated with plastic spraying, and the fixtures are equipped with regular heat treatment process, which is durable and orthodox in appearance
3. The transmission mechanism in the bottom box of the whole machine is synchronous belt transmission. Compared with friction belt transmission, there is no relative slip between the pulley and transmission belt of synchronous belt transmission, which can ensure a strict transmission ratio. However, synchronous belt drives have higher requirements on center distance and dimensional stability.

4. Synchronous belt drive has the advantages of belt drive, chain drive and gear drive. Synchronous belt transmission Since the belt and the pulley rely on meshing to transmit motion and power, there is no relative slip between the belt and the pulley, which can ensure an accurate transmission ratio
5. Full computer testing machine measurement and control system

This measurement and control system is specially developed for tensile machines, presses, and electronic universal material testing machines. It is suitable for measuring the mechanical properties and related physical parameters of various materials under tension, compression, bending, shearing, tearing, peeling, puncture and other states. Can be used for tension, compression, three-point bending, four-point bending, shearing, tearing, peeling, puncture of finished shoes, carton holding pressure, foam cycle compression, spring tension and compression and various dynamic and static cycle tests

### Force-Displacement Curve:

### Test Results:



### Various curves:

### Unit selection:



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The screenshot shows the 'Unit' (单位) dialog box. It contains a table for setting units and precision for various parameters.

参数	单位	精度	参数	单位	精度
力量:	kgf	3	力量速率:	N/min	3
长度:	mm	3	应力速率:	MPa/s	3
时间:	s	3	应变速率:	%/min	3
应力:	kPa	3	应变:		3
力量/长度:	N/mm	3	百分比:		3
速度:	mm/min	3	其他:		3
面积:	mm²	3			
能量:	kgf·mm	3			
能量/面积:	kgf/mm	3			

Buttons: 确定 (OK), 取消 (Cancel)