VERTEX

# ELECTRONIC UNIVERSAL TESTING MACHINE
## Model: ETM 50

# INTRODUCTION:

ETM series electromechanical testing machines offer force, displacement or deformation closed loop testing in tension, compression, flexure, shear, tear and peel etc. The machine can be equipped with a variety of accessories including: grips, fixtures, compression frames, thermal cabinets and extensometers covering all relevant applications as testing of rubber, plastics, foils, films, textiles, adhesives, paper, foods, foams, timber, wires or other metallic or non-metallic specimens and medical, electronic and other components. The load frames are rigid constructed, providing superior axial and lateral stiffness.

# STANDARDS:

Load meets or exceeds the following standards: ASTM E4, ISO7500-1, EN 10002-2, BS1610, DIN 51221, DIN-51223, DIN-51227, DIN-51228, UNE-7-474-92,
Strain measurement meets or exceeds the following standards: ASTM E83, ISO 9513, BS 3846, EN 10002-4. Safety: This machine shall conform to all relevant European CE Health and Safety Directives EN 50081-1, 580081-1, 73/23/EEC, EN 61010-1

# MAIN TECHNICAL PARAMETERS:

| Model | ETM 50 |
|---|---|
| **Measurement Parameters** | |
| Load Capacity | 50KN |
| Load measurement | Universal strain-gage load cell (tension-compression). Additional load cells can be installed |
| Load accuracy | Class 0.5 according to ISO 7500-1 - Meets ASTM E-4 |
| Measuring Range of test force | 0.2%-100%FS |
| Indicating error of test force | Within ±0.5% of indicating value |
| Load resolution | Capacity/ 500, 000 (fully auto scaling of single measurement range) |
| Deformation measuring range | 0.2%～100%FS |
| Deformation accuracy | ≤±0.5% |
| Deformation rate adjustment range | 0.02～5%FS |

| | |
|---|---|
| Displacement accuracy | Within ±0.5% of the value |
| Displacement resolution | 0.04μm |
| **Control Parameters** | |
| Adjustable range of force control rate | 0.001％～5％FS/s |
| Control accuracy of force control rate | When rate is less than 0.05%FS/s, within ±2% of setting value; When rate is no less than 0.05%FS/s, within ±0.5% of setting value. |
| Adjustable range of deformation rate | 0.005～5%FS/s |
| Control accuracy of deformation rate accuracy | When rate is less than 0.05%FS/s, within ±2% of setting value; When rate is no less than 0.05%FS/s, within ±0.5% of setting value. |
| Crosshead speed range | 0.001～1000mm/min |
| Crosshead speed accuracy | Within ±0.5% of the value |
| **Mainframe parameters** | |
| Testing space (Crosshead Travel) | 1500mm |
| Max. Tensile Testing Space | 1200mm |
| Test width | 1000mm |
| Power supply | AC220V±10%,50Hz/60Hz |
| Power consumption | 1kW |

## STANDARD ACCESSORIES:

| NO. | Part Name | Description | Qty. |
|---|---|---|---|
| 1 | Electronic universal testing machine host | | 3 |
| 1.1 | Frame of whole machine | 50KN, 4 column (up tensile, down compression) | |
| 1.2 | Ball screws | High-precision and zero clearance | 2 pieces |

| NO. | Part Name | Description | Qty. |
|---|---|---|---|
| **2** | **Control system and measuring system** | | |
| 2.1 | AC Servo Control system | Taiwan DELTA | 1set |
| 2.2 | Reducer gear | Japan BEITTO | 1set |
| 2.3 | Load sensor | 50KN Calibration within 0.5% accuracy | 1 pieces |
| | | 1KN Calibration within 0.5% accuracy | 1 pieces |
| 2.4 | Control system | Force, displacement and deformation closed loop control ,By USB contact computer | 1set |
| 2.5 | English operation software | Language supports: English, Other optional | 1set |
| 2.6 | Hand control box | with LCD screen, real-time display equipment | 1set |
| 2.7 | Computer | HP | 1set |
| 2.8 | Printer | HP color ink-jet A4 | 1set |
| **3** | **Clamps (can be customized according to customer's requirements)** | | |
| 3.1 | Manual Wedge tensile grip | Round Jaw size: Standard: Φ4-Φ9mm, Φ9-Φ14mm, Φ14-Φ20mm, Φ20-Φ25mm Flat Jaw size: 0-7mm,7-14mm, 14-20mm, 20-30mm | Each 1set |
| 3.2 | Compression test grip | Dia. of plate Φ100mm | 1set |

# PERFORMANCE AND CHARACTERISTICS:

## TECHNICAL STRUCTURE OF MECHANISM:

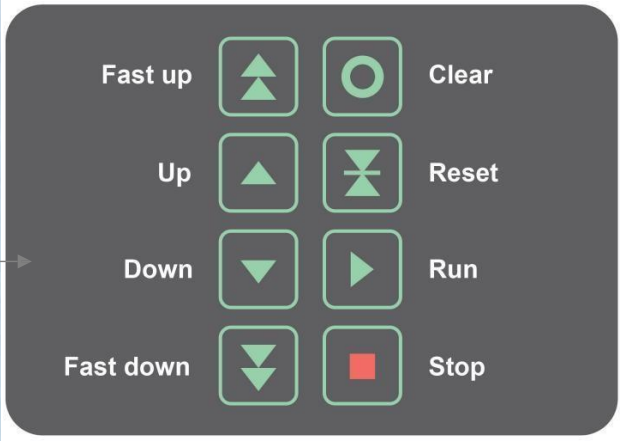
The main frame is mainly made of foundation, two fixed beams, one movable beam, four columns and two screws constitute a door frame structure. Transmission loading system adopts AC servo motor and synchronous cog belt speed reducer which drive high-precision ball screw and drive moving beam to realize loading. It has the characteristics of beautiful appearance, good stability, high rigidity, high control accuracy, high efficiency, low noise and energy saving and environmental protection.

## CONTROL AND MEASURE SYSTEM:

This machine adopts the advanced EDCH 550 full digital closed loop control system to control and measure and adopts computer to process testing course and dynamic display of testing curve and data processing. After testing, you can enlarge the curve to process reanalysis and editing of data through figure processing module. The performance of product reaches to international advanced level.

1. Realize special displacement, deformation and speed closed loop control. During the testing process, you can change the testing speed and testing method flexibly to make testing project more flexible and richer.
2. Multi-layer protection: including software and hardware protections and realizing overloading, over-current, overpressure, under-voltage, over speed, limiting and other safety protection ways for testing machine.
3. Three high-speed 24-bits A/D switching channel, the effective code value resolution can reach up to plus or minus 1/300000 and realize inside or outside invariable grade and invariable resolution in whole course.
4. Adopting USB data transmission is steady and reliable and the ability of anti-jamming is strong.
5. Adopting three pulse signal catch channel (three pulse signals are respectively one displacement and two big deformation signal) and the most advanced quadruple frequency technology at present to enlarge effective pulse quantity four times and improve resolution of signal, maximum catching frequency is 5MHz.


**Advanced HAND-HELD REMOTE UNIT**
Can display Load, displacement, speed.
The testing machine is equipped with a hand control box for the operator to manually operate the testing machine and adjust the moving beam and grips to the optimal position.




"Fast Up" button: Press this key, the moving beam will rise quickly according to the set speed.
"Up" button: Press this key and the moving beam will rise slowly at the set speed.
"Down" button: Press this key, the moving beam will slow down at the set speed.
"Fast Down" button: Press this key, the moving beam will move down quickly according to the set speed.
"Clear" button: Press this key to clear the test force and displacement value.
“Reset” button: Press this key to reset the moving beam of the host.
"Run" button: Press this key to start the test.
"Stop" button: Press this key, the

# SOFTWARE INSTRUCTION:

1. Full digital control the whole measuring and control system adopts the special controller, which can achieve the digital adjustment of zero point and gain of load, deformation and displacement, and it's easy to operate and possesses the high reliability.
2. Possess the functions of storage, setting and loading for various kinds of parameters, which make it convenient to connect multiple transducers with one load frame.
3. Realize the close-loop control, and show the reference curve during the executive operator adjusting the close-loop parameters, so the user can observe the close-loop effect caused by the parameters.
4. Perfect graphic function to complete the functions of the reappearance, amplification, reduction, self-adaptation, lapping of the curves, display and print the curve at the appointed range, observe the coordinate of the test point.
5. Data processing supports automatic analysis and graphic man-machine mutual processing, which is convenient to check and compare the test results.
6. Multilevel identity management

Multilevel identity management, different identity has different functions, which not only makes the operation quick by ordinary operator, but also protect the system effectively.

Based on the database, test data is stored by form of text file, which is convenient for the user to inquire about and utilize the various kinds of commercial report forms to reprocess the test data, meanwhile transfer the data to the internet conveniently.

**Multi controlling channels**

Displacement control, force control, deformation control, stress control, strain control, constant stress, constant strain etc.

**Test standard:** provide users with the necessary applications to the test, covering GB, ASTM, DIN, JIS, BS ... and other testing standard specification

**Report**

Output and print report: Excel, word, template test report, can be edited customize To show test information, including test person, test standard, test curve, test max load etc can add your company LOGO and company name, easy to edit.

# OPTIONAL OTHER TEST GRIP:


Wedge Tensile Grip


Wedge Tensile Grip


Wedge Tensile Grip

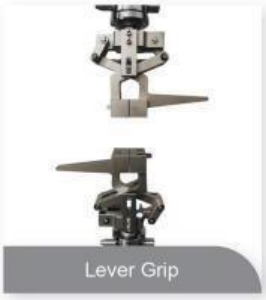

Corrugated Tensile Grip

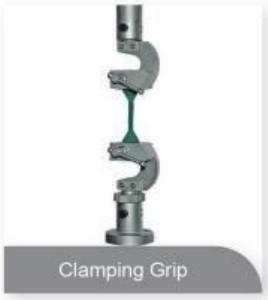

Clamping Grip


Clamping Grip


Single Eccentric Gear Grip


Double Eccentric Gear Grip


Lever Grip


Clamping Grip


Winding Tensile Grip


Wire Winding Tensile Grip


90°Peel Grip


Rollers Peel Grip


Winding Tensile Grip


Compression Grip

Three Point Bending Grip

Foure Point Bending Grip

Foure Point Bending Grip

Shear Grip

Pneumatic Side Grip

Pneumatic Side Grip

Single Eccentric Gear Grip

Pneumatic Wire Winding Grip

Pneumatic Side Grip

Pneumatic Winding Grip

Pneumatic Wire Winding Grip

Pneumatic Wire Winding Grip

220mm Width Pneumatic Grip

Pneumatic Side Grip

Hydraulic Wedge Automatic Grip

Hydraulic double-sided Grip

https://www.vertexmachines.com/ +91 93234 05785 info@vertexmachines.com