

CMSUTM-4106-E Computer Control Electro-hydraulic Universal Testing Machine

1. Model and name

CMSUTM-4106-E Computer Control Electro-hydraulic
Universal Testing Machine

2. Usage

This machine adopts the electro-hydraulic servo technology, the automatic controlling of the testing force, displacement, speed by the microcomputer, and the full implementation of automation from the experimental data acquisition to processing and printing. It adopts cylinder down-setting host, mainly used for metal, nonmetal tensile, compression, bend and shear tests. It is applicable to metallurgy, construction, light industry, aviation, spaceflight, materials, universities and colleges, scientific research institutes and other fields. The test operation and data processing accord with GB/T228-2010, <Room-temperature Materials Mental Tensile Testing Method>.



3. Main Technical Parameter

1. The maximum test force: 1000KN
2. Accuracy Class: 0.5 Class
3. Number of Column: Six Column
4. Test Force measurement range: 2%~100%FS (Full Scale)
5. Test force and value error: $\pm 0.5\%$ of indicating value

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6. Test force resolution value: 1/300000
7. Test force acquisition rate: adjustable, max.1000Hz
8. Deformation Measurement Range:1%-100% of extensometer range
9. Deformation indication error:± 1% of indicating value
10. Deformation resolution:1/300000
11. Deformation acquisition rate: adjustable, max.1000Hz
12. Displacement Indication Error:± 1% of indicating value
13. Displacement Resolution: 0.01 mm
14. Displacement Range: 250mm
15. Displacement Movement Speed Range:0.01-80mm/min (Stepless Adjustable)
16. Max. Tensile Test Space:850mm
17. Clamping Method: Hydraulic
18. Round Sample Clamping Diameter:φ15-φ55mm
19. Flat Sample Clamping Diameter: 2-40mm
20. Width between two columns:650mm
21. Max. Compression Test Space:750mm
22. Pressure Plate Size:208mm
23. Bending Test Roller Space:450mm
24. Bending Test Branch Roller Width:140mm
25. Bending Test Roller Diameter: φ40mm
26. Host Dimension: (1064×866×2705)mm
27. Oil Source Dimension: (920x720x1820)mm
28. Weight: About 4600Kg
29. Voltage: 220V/60Hz/3Phase

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4. Performance characteristics

(1) Mechanical process structure

The host part adopts cylinder down-setting type, chain transmission and hydraulic clamping, tensile space located in the upper part of the host, compression, bend, shear test space between middle beams and the workbench in the host; Oil source part adopts hydraulic oil source.

1. The workbench and beams using cast steel materials, light pillar and screw use high-performance structural steel, light pillar with Cr40 quenched and tempered treatment, rigid, anti-rust.
2. The co-axiality between the upper lower chuck center line and the axial line of testing machine is 5%(Much better than the national standard of 12% requirements)
3. The cylinder adopts a special process, honing processing, gap seal, sealing strong, long service life;
3. Import of ATOS electro-hydraulic servo valve, imported the high pressure oil pump, low noise, smooth operation;
4. Oil source hose used for containing rubber hose steel wire cables, security seal does not leak;
5. Oil source using steel plate forming, surface plastic spraying processing, marble mesa, computers and printers can be placed clean and save space.

(2) Control and measurement system:

The machine control and measurement system absorb various types of advanced experience of the testing machine control, **all digital electro-hydraulic servo closed-loop control and measurement system, realized the constant stress, constant strain, constant speed test force, constant displacement, force keeping and displacement keeping etc control function. This system has multiple protection function, can realize to the testing machine overload, over-current, over-voltage, under-voltage, tachycardia, limit and other security protection.**

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The system is equipped with a dedicated monitoring and control software, the test data for statistical processing, automatic strike on the lower yield point, tensile strength, tensile strength, elastic modulus and elongation of each point, $\sigma_{0.2}$ etc data. Computer real-time display of force, displacement, strain and other parameters during the test, and the test curve dynamic display, and according to the different needs of the force - time, force - displacement, displacement - time curve mode switch can also output kinds of test curves and reports:

- 1, Hierarchical management of user rights, user login, open the appropriate action under the authority of functional modules;
- 2, Using the most advanced multi-threading technology to collect data rate, stability, and can automatically Immunity various sensor data processing, to avoid accidental capture of failure of control failure defects;
- 3, Has a powerful report editing features, test reports, prepared in accordance with the requirements and output the desired result, the data can also be used to save Word format, easy to edit;
- 4, Database management, automatically save all test data and curves, and has a curve to enlarge, compare and times read function for the laboratory network to provide a quality foundation.

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5. Configuration

NO.	Descriptions	Quantity	Remarks
1	The host Machine	One Set	Cylinder Down-setting
2	Electro- hydraulic Oil Sources	One Set	Desktop
3	Electro- hydraulic Valve	One	Imported ATOS
4	High-pressure Oil Pump	One	Imported
5	Load Cell	One	1000KN, imported
6	Hand Control Box	One	magnetic, can adsorption in frame at any position
7	Extensometer	One	Gauge Length:50mm; Deformation: 10mm
8	Special Data Acquisition Card	One	
9	Special Measurement and Control Software	One	
10	Commercial Brand Computer	One	Levono
11	Brand Printer	One	HP Color Inkjet A4
12	Tensile Fixture (Round Jaw)	One	Φ15-Φ30;
	Tensile Fixture (Round Jaw)	One	Φ30-Φ45
	Tensile Fixture (Round Jaw)	One	Φ45-Φ55
	Tensile Fixture (Flat Jaw)	One	2-20mm
	Tensile Fixture (Flat Jaw)	One	20-40mm
	Compression Fixture	One	205mm
	Bending Fixture	One	Pressure Head: Φ40mm
13	Foundation Bolt	Four	
14	Safety Device	One	