

BMS-300 / BMS-300E

Computerized Electronic Universal Testing Machine

OPERATIONAL MANUAL



1 Application

It is applicable for wide range of material for tension, compression, bending, and shearing and low cycle test. Suitable for metal, rubber, plastic, spring, textile, and components testing. It is widely used in the corresponding industries, research and development, test institutes and training centers etc.

2 Standard

ASTM, ISO, DIN, GB and other international standards.

3 Main Technical Parameters

Model	BMS-300	BMS-300E
Max. Load	300 KN	
Structure	Four-column Floor Model (Upper Is Compression And Lower Is Tensile)	
Control Method	Computer Automatic Control	
Load Accuracy	1 Class	0.5 Class
Load Range	2%~100% FS (6KN~300KN)	0.2%~100% FS (0.60KN~300KN)
Motor	Taiwan TECO AC Servo Motor	Panasonic Motor, Made In Japan
Sensor	High Precision Load Sensor, Made In China	Import Sensor, Made In USA
Resolution	1/300000	
Measuring Range Of Deformation	2%~100%	
Accuracy Indication Of Deformation	≤±0.5%	
Disp. Indicating Relative Error	≤±1%	
Displacement Resolution	0.04um	
Adjusting Range Of Control Rate Of Load	0.005~5%FS/S	
Control Precision Of Control Rate Of Load	When rate < 0.05% FS/s, the precision is within ± 2% of setting value; When rate ≥ 0.005%FS/s, the precision is within ± 1% of setting value.	
Adjustment Scope Of Deformation Rate	0.005~5%FN/S	
Accuracy Of Deformation Rate	Test Speed<0.05%FN/s, within the ±2% of the preset value, Test Speed≥0.05%FN/s, within the ±0.5% of the preset value.	
Adjusting Range Of Displacement Rate	0.05~200mm/min (Can be customized)	
Control Precision Of Displacement Rate	When rate < 0.5mm/min, within ± 1% of setting value; When rate ≥ 0.5mm/min, within ± 0.5% of setting value.	
Scope Of The Consistent Load Deformation And Displacement Control	0.5%~100%FS	
Accuracy Of The Consistent Load Deformation And Displacement Control	Preset value≥10%FN, within the ±0.1% of preset value; Preset value<10%FN, within the ±1% of preset value.	
Tensile Space	550mm (Can be customized)	
Compression Space	550mm (Can be customized)	
Effective Spacing	600mm (Can be customized)	
Load Cell Configuration	One PC (Max Load). More load cells can be added according to customer requirement.	
Extend Configuration	Large deformation extensometer, High or low temperature test chamber, High temperature oven.	
Power Supply	AC220V±10%,50Hz (Can be customized)	
Grips	Manual Grip / (Optional: Hydraulic Automatic Grip)	
Dimension	1050*700*2421mm	
Weight	1800 KG	

4 Main Unit Feature

- 4.1 Adopt floor structure, High Stiffness, lower for tensile, upper for compression、upper for tensile, lower for compression, double space. The beam is step less lifting.
- 4.2 Adopting ball screw drive, realize no clearance transmission, make sure the precision control of the test force and deformation speed.
- 4.3 The shield plate with limit mechanism used to control the beam moving range, in order to avoid sensor damaged due to the moving distance is too large.
- 4.4 The table, moving beams is made of high quality precision machining steel plate, not only reduce the vibration generated by specimen fracture, but also improve the stiffness.
- 4.5 Three columns of mandatory orientation, make the main unit rigidity much improved, to further ensure the repeatability of measurement.
- 4.6 Adopt bolt type grip installation, make the grip replace easier.
- 4.7 Adopt AC servo driver and AC servo motor, with stable performance, more reliable. Have over-current, over-voltage, over speed, overload protection device.

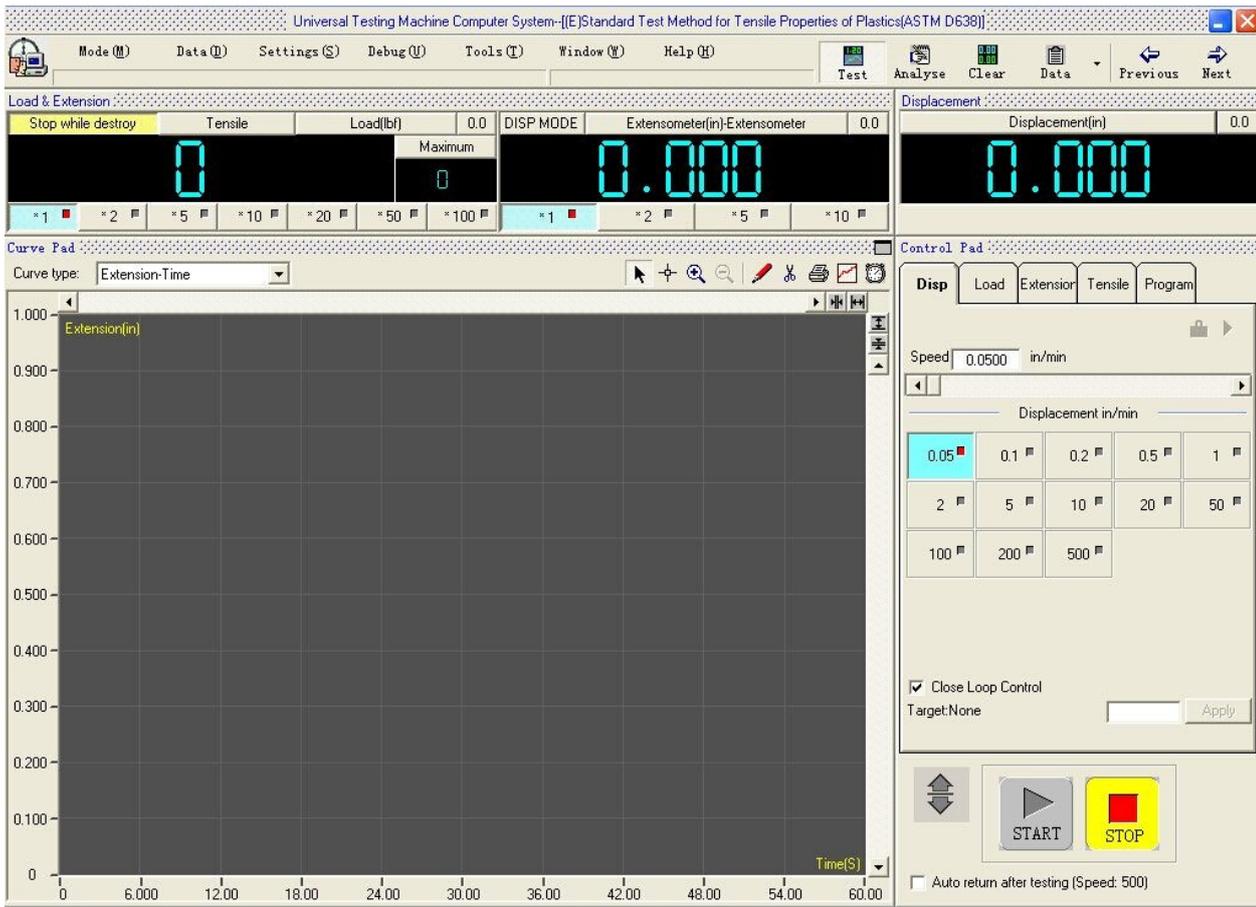
5 Software Function

- 5.1 Defined function: According to different types of users, different material properties, different test standards, different languages, flexible setting the test program to meet the test requirements.
- 5.2 Input Function: Entry specimen parameters before the test, you can single input sample parameter, you can also batch input sample parameters, you can modify the sample parameters before the test, the specimen parameters can be modified after the test, fully satisfy your operating habits.
- 5.3 Data processing query functions: Fully equipped data query function, print function, the export function to ensure the accuracy of the test data, reliability, real embody and reflect the nature and characteristics of the material test data.
- 5.4 Curve analysis function: All the material properties can be reflected by the data curve, so the powerful data curve analysis function can help you better mastery and understanding of the material test properties, which is your best helper to analyze the material.

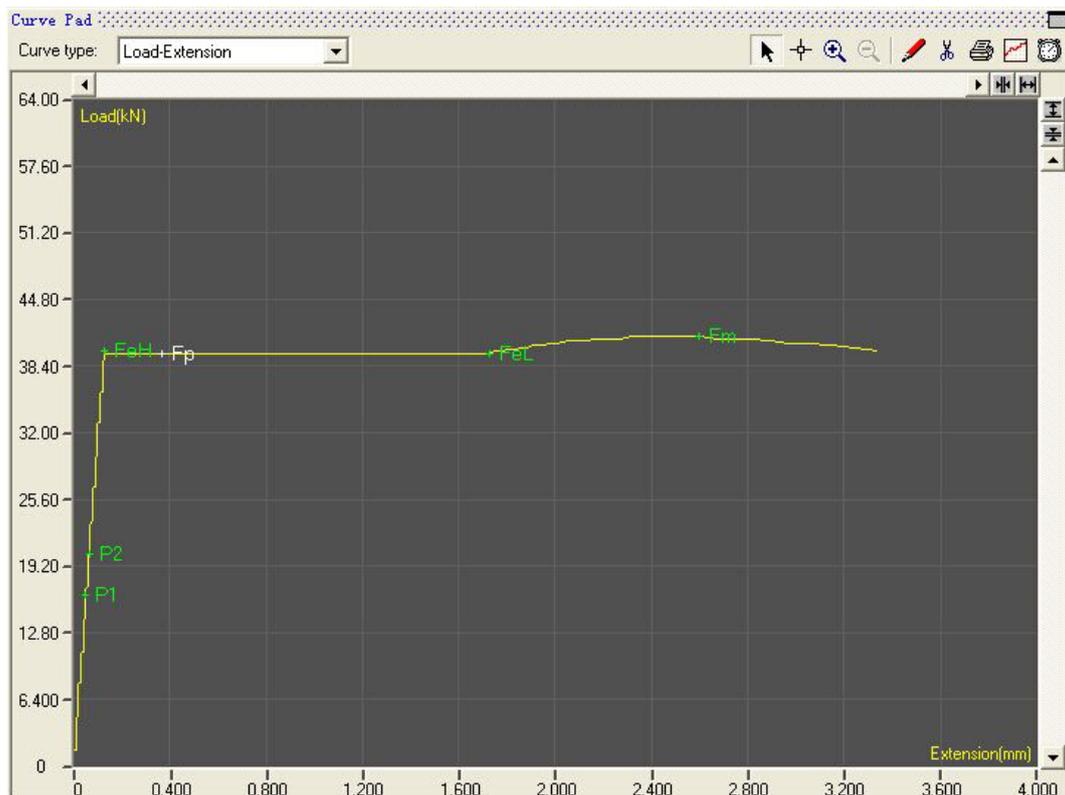
6 Software Feature

- 6.1 Auto zero clearing: When test begin to start, the system auto zero clearing.
- 6.2 Auto calibration: System can automatically realize the value accuracy of the calibration.
- 6.3 Auto return: Finish test, the cross beam will auto return to the starting position.
- 6.4 Auto gear shifting (when choose classify gear test): According to the load size automatically switch to the appropriate range, to ensure the accuracy of the test data.
- 6.5 Auto speed changing: The cross beam moving speed can auto change during the test process according to the preset program, also can manual change.
- 6.6 Auto saving: Adopting the database management way, the test data and curve automatically saved after the test.
- 6.7 Auto calculating: When finish test, automatic calculate elastic modulus, yield strength and the percentage elongation stress, etc. (Different test method, different analysis date.), can auto analyze, also be artificial correction analysis results, and improve the accuracy of the analysis.
- 6.8 Display way: Dynamic display of data and curves with the testing process.
- 6.9 Result comparison: Multiple test curve can use different color superposition, reproduced, enlarge, presenting comparison of a set of sample.
- 6.10 Curve choice: Can choose Stress-strain, force-displacement, force-time, displacement-time, and other curves to display and print; Can switch at any time to observe, zoom in and zoom out, horizontal or vertical movement, real-time high speed sampling.
- 6.11 Test standard: Integrated with about 40 kinds of national standard or test method, can meet the various test need of customers.
- 6.12 Test report: According to user required format to compile reports and can print bulk data.
- 6.13 Limit protection: With mechanical and Programmable two level limit protection function.
- 6.14 Overload protection: When the load exceeds the maximum file of 3-5%, automatic stop.
- 6.15 Other protection: With overload, over current, over voltage, displacement of the upper and lower limit and emergency stop protection function.

Software Interface:



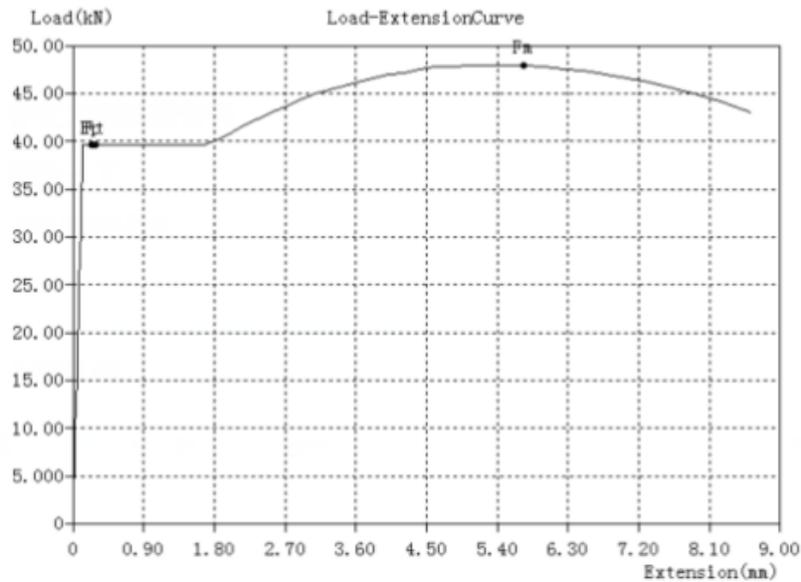
Load-extension, Force - time, force - displacement etc. more curve to choose.



Excel, word and template test report, and the report can be edited customized.

African Maritime Services (pty) Ltd.

SampleID	1	TestDate	2014-6-4
Operator		Type	Circle
Size(mm)	12	Ao(mm ²)	113.10
Lo(mm)	50	Lu(mm)	51
A(%)	2.0	Au(mm ²)	103
Z(%)	9.0	F _m (kN)	48.00
R _n (MPa)	425	F _{eH} (kN)	/
UYS(MPa)	/	F _{eL} (kN)	39.60
LYS(MPa)	350	F _p (kN)	39.60
R _p (MPa)	350	F _t (kN)	39.60
R _t (MPa)	350	E(GPa)	139.01

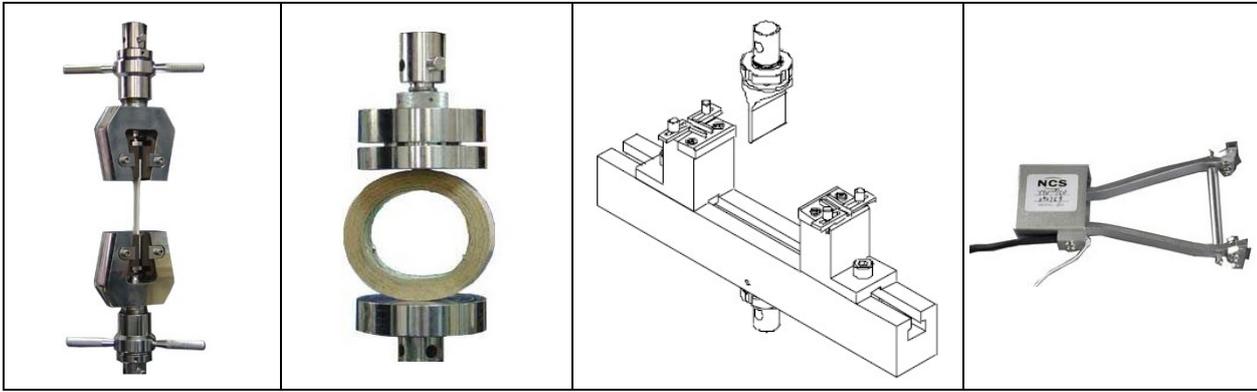


7 Configurations

- 7.1 High strength main unit-----1 set
- 7.2 High precision arc synchronous deceleration system-----1 suit
- 7.3 High precision ball screw-----2 pcs
- 7.4 BMS-300: Taiwan TECO AC Servo Motor and Control System-----1 suit
- 7.5 BMS-300E: Panasonic Motor-----1 suit**
- 7.5 BMS-300: High Precision Load Sensor-----1 pc
- 7.5 BMS-300E: USA Import Sensor-----1 pc**



- 7.6 Tensile fixture-----1 suit
- Round: Φ4-10mm, Φ10-16mm, Φ16-25mm, Flat: 0-9mm, 9-18mm, 18-27mm
- 7.7 Compression fixture -----1 suit
- 7.8 Bending fixture (Optional) -----1 suit**
- 7.9 Small deformation extensometer (Optional) -----1 suit**
- Gauge of Extensometer: 50mm, Deformation: 10mm**



- 7.10 HS-max test software-----1 suit
- 7.11 Lenovo computer-----1 set
- 7.12 HP printer-----1 set