

# Computer Control Electronic Universal Testing Machine (Dual Space)

**Brand: JNG**

**Model: JG-1000**

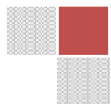
**Capacity: 10KN (1,000kgf)**



**(Photo for reference only)**

## **Application**

- This series electromechanical testing machines is designed according to ASTM, ISO, DIN, EN etc. standards. It is computer-controlled precision testing machine, suitable for extensive metallic & nonmetallic materials for tension, compression, bending, shearing and low cycle test etc. It features as high precision, high stability as well as high reliability. Equipped with PC system & printer, graph, test result display, data processing and printing can be done easily.
- Complete with modulus for metal, spring, textile, rubber, plastic and other material testing. It is widely used in many fields of such as industry factories, research & development, test institutes and training centers etc.



- It adopts rigid load frames, high accurate load weighting system, advanced PCIE measuring & control system and intuitive modular application software. Configured with extensive range of accessories for various applications, it can provide the optimal testing solutions for your individual application needs. With abundant experience of years of involvements in materials testing industry & application knowledge on all kinds of sectors, JNG is capable of configuring the exactly suitable solutions & more accurately test system to customer involving the choice of load frame, core measuring & control elements, software package, grip/fixture etc based on their specified test application and requirements.

## Standards

- Load meets or exceeds the following standards: ASTM E4, ISO7500-1, EN 10002-2, BS1610, DIN 51221.
- 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.

### **Metal:**

ASTM E8, ISO 6892, BS EN 10002-1, ASTM E21, ISO 783, EN ISO 7438, ISO 14589, ASTM F606

### **Plastics/ Composites:**

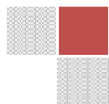
ASTM D638, EN ISO 6259, EN ISO 527-1, ISO 604, ASTM D695, ASTM D3846, EN ISO 844, EN ISO 13968, EN ISO 9969, etc.

### **Geo-textiles:**

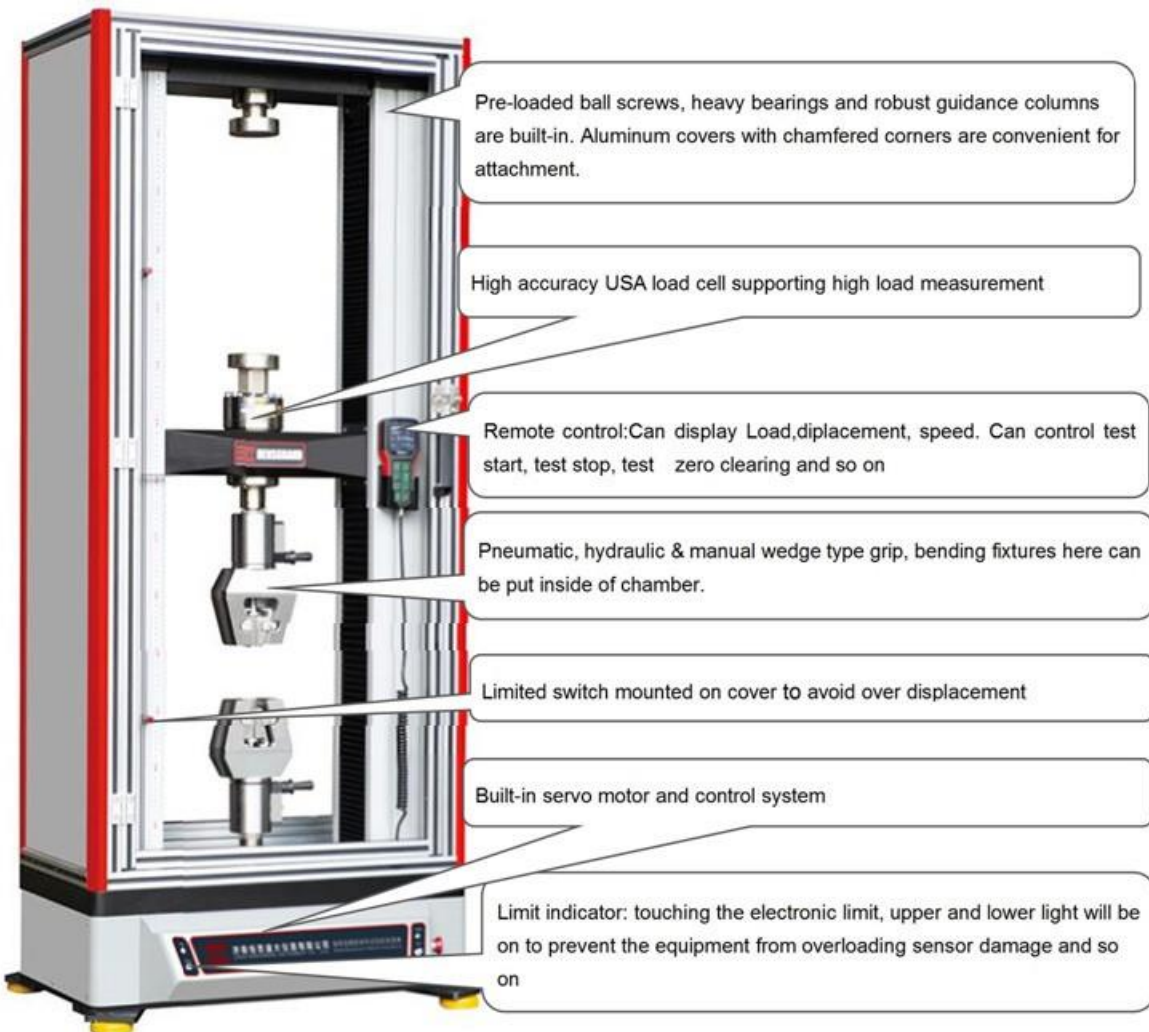
ASTM D3950, ASTM D 6775-02, BS EN ISO 10319, JBT8521(EN 1492-2).Rubber: ISO 37, ASTM D41

## Load Frame




- The frames all incorporate human factor considerations in the design to ensure safety, reduce operator fatigue, and provide the highest level of flexibility. Extremely robust crosshead guidance is incorporated in all frame designs providing the highest level of lateral crosshead stiffness.
- **Load cell** is with high accuracy interchangeable for all frames allowing each frame to operate full capacity.
- **High accuracy:** The preloaded precision ball-screw with high speed & low noise ensures high speed and position measurement accuracy and less noise.
- **High stiffness:** The load frame is with 4 columns and heavy duty pre-loaded bearings. Preloaded ball screws, precision guidance columns, and a symmetrical drive system improve frame stiffness and alignment

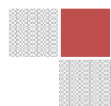


- **Safety features:** The testing machine stops automatically when the change in the test force exceeds a specified value during operations.
- **Over-Travel Limits:** Dual over-travel limits, located on the front console, help prevent crosshead overshooting and sensor overloads. A graduated rule along the column can be used to preset these limits to specific distances.
- **Large space in the working area:** The insides of columns provide wide space for the operator.
- **Over-stroke limiter:** The range of the crosshead movement mechanically limited.
- **Comfortable working area:** The wide legroom under the load unit provides a comfortable working area for attaching and removing jigs.



## Technical Specifications

Model	JG-1000
Capacity	1,000kgf
Load accuracy	Class 0.5
Testing load accuracy	±0.5%
Testing load range (FS)	0.2% ~ 100%
Load resolution	1/500,000FS
Deformation accuracy	≤±0.5% of 0.4% ~ 100% of rated capacity
Position resolution (µm)	0.025
Position accuracy	±0.02mm or 0.5% of displacement (whichever is greater)
Crosshead speed range	0.001 ~ 1000
Crosshead speed accuracy	±0.5% of set speed (zero or constant load)
Stroke (exclude the grips) (mm)	1100
Max. tensile testing space (mm)	770
Max. compression platen (mm)	1000
Test width (mm)	450
Compression platen (mm)	Ø98
Load cell	High-precision USA load cell offers high stiffness, high stability, and high linearity Overload protection, lateral loading protection, Bi-direction allows tension and compression test self-recognition (TEDS) function, Regular self-calibration
Position limit switch	Upper and lower lights
Power supply	AC220V ±10%, 50Hz/60Hz
Dimension (L x W x H : mm)	840 x 570 x 1850
Net weight (kg)	420
<p>Note:</p> <ul style="list-style-type: none"> <li> Extra wide and/or extra height frames are available.</li> <li> Power supply system is completely customizable.</li> <li> Tensile space, test width, and speed is completely customizable.</li> </ul>	



## Loading Weight System (Standard)



- Loading weight system is the most critical aspect of mechanical testing. Accumulated great experience in selection of superior core loading weight system in terms of materials, design, construction technology and especially performance & accuracy.
- Cooperating with top-quality manufacturer of load cell, a special made customs design so that it can be optimized match with measuring & control system for most accurate test results. Measuring load can be from 0.4% to 100% of the rated capacity, Calibration within 0.5% accuracy can be carried out as per ASTM E4, ISO7500-1, EN 10002-2, BS1610, DIN51221 standards.
- This special load cell provides excellent immunity to impact and side forces, rugged & low-profile measuring body with strictly symmetrical design is optimally suited to ensure high endurance strength. Excellent linearity guarantees highly precise measurement, additional mechanical protection of the strain gage area. It can be set for protections of 105% over range protection, over load capacity of 150% without permanent zero shift and over load projection of 300% of the rated capacity without mechanical damage. This meets the stringent Weights and Measures requirements throughout Europe and the USA.

## Electronics And Control Part: Our Controller EDCH 550 (Standard)

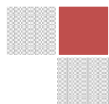


### Application:

EDCH 550 controller measurement and control software independently developed by our company. The measuring unit adopts high-precision load sensor, rotary photoelectric encoder (or AC servo motor encoder) and electronic extensometer, which can realize three closed-loop control of load, displacement and deformation of electronic universal testing machine, and can realize three kinds of control Smooth switching between modes has the characteristics of high control accuracy, reliability and stability.

### Main Performance Features:

- There are three analog input channels: 1 load, 1 electronic extensometer, and 1 expansion channel. All three channels use independent 24-bit A/D conversion



chips for high-precision data sampling, and the highest resolution can reach  $\pm 1/500000$ , the full resolution remains unchanged. There are up to 15 segments of linear compensation and correction functions, which greatly improves the measurement range and measurement accuracy of the sensor;

- It has three channels of photoelectric encoders and four frequency multiplication counting input channels: 1 channel of cable-pull displacement sensor, 2 channels of large deformation extensometer;
- It has 8 switch input interfaces: 8 switch input signals can be connected externally;
- The EDCH controller adopts 1-way USB plug-and-play (driver-free) communication interface (STC measurement and control card acquisition PCIE interface), realizes high-speed data communication with the PC, and realizes the functions of real-time uploading of collected data and real-time delivery of control instructions. , so as to achieve the purpose of real-time control of the testing machine by the PC;
- Multiple force sensors and multiple deformation sensors can be configured, and users can switch to use according to their needs;

### Specifications:



Sampling frequency upto 2.5kHz, 100 $\mu$ s steps, and 24bit A/D converter  
Communication and control processor VortexDX86, 800MHz

Load resolution  $\pm 25000,000$  steps, ranges from 1mV/V up to 640mV/V and  $\pm 10V$   
RS485 interface for external keyboard/display supports a maximum of four devices  
Drive interface  $\pm 10V$  ( $\pm 15$ bit) analogue command output, digital command output and safety functions  
PC communication via USB or Ethernet. Three iSI extension slots

- Internal socket for serial sensors
- Internal socket for synchronizing several EDCs
- Internal socket for servo valve amplifier

### Handheld Unit Controller (Standard)



- LCD Display, can quickly adjust the test space.



- It also has the functions of test start, test stop, test zero clearing and so on. It can display the running state of the equipment in real time, test data, make the sample clamping more convenient.

### Standard Accessories

Name	Description	Qty	Picture
Computer Control Electronic Universal Testing Machine, JG-1000	<ul style="list-style-type: none"> <li>• Max load: 30kN;</li> <li>• Class 0.5</li> <li>• USA Load Cell</li> <li>• TECO AC servo motor;</li> <li>• Speed: 0.001 ~ 1000mm/min;</li> </ul>	1 set	
Wedge Tensile Grip	Insert for flat specimen Thick: 0-6mm	1 set	
Compression Test Grip	Ø100mm	1 set	
Load Cell	<ul style="list-style-type: none"> <li>• Class 0.5,</li> <li>• Accuracy can be carried ASTM E4, ISO7500-1, EN 10002-2, BS1610, DIN 51221 standards.</li> </ul>	1 pc	
AC Servo Motor and Servo Speed Regulation and Control System	<ul style="list-style-type: none"> <li>• Low noise, high positioning accuracy</li> </ul>	1 suit	
Multichannel Controller	With Load, displacement, deformation measuring system, USB connection computer	1 set	
Test Software and Backup U Disk	HKTest 4.0: English	1 suit	
Handle Control Box	Digital display Test force, displacement, speed	1 suit	
Computer Set	Brand Computer HP color ink-jet A4	1 set	



## Software Instruction

Software refers to the software characteristics of the top manufacturers of testing machine in the world and proposals of various testing requirements from the end users, and combines all the advantages of former versions of software with lots of new features. Optimized software structure makes the testing operation easy, convenient and powerful. Main interface as following, Computer software interface, display test data, setup method, sample size



## Features

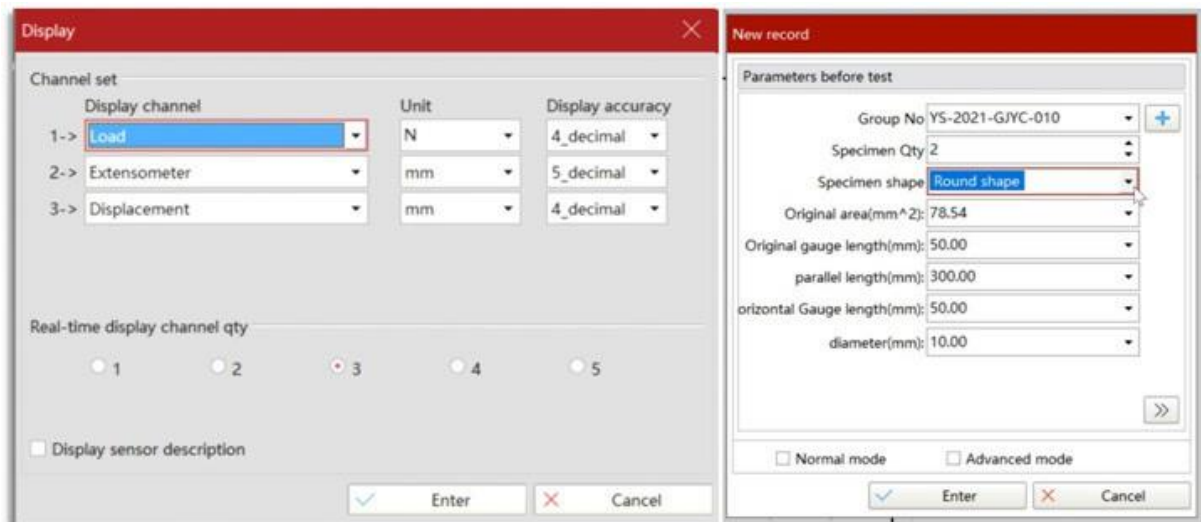
- Full digital control: The whole measuring and control system adopts the special controller, which can achieve the digital adjustment of zero point and gain of load, deformation and displacement, and it's easy to operate and possesses the high reliability.
- Possess the functions of storage, setting and loading for various kinds of parameters, which make it convenient to connect multiple transducers with one load frame.
- 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.
- 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.



- Data processing supports automatic analysis and graphic man-machine mutual processing, which is convenient to check and compare the test results.
- 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.

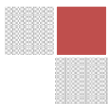
## Multi Controlling Channels

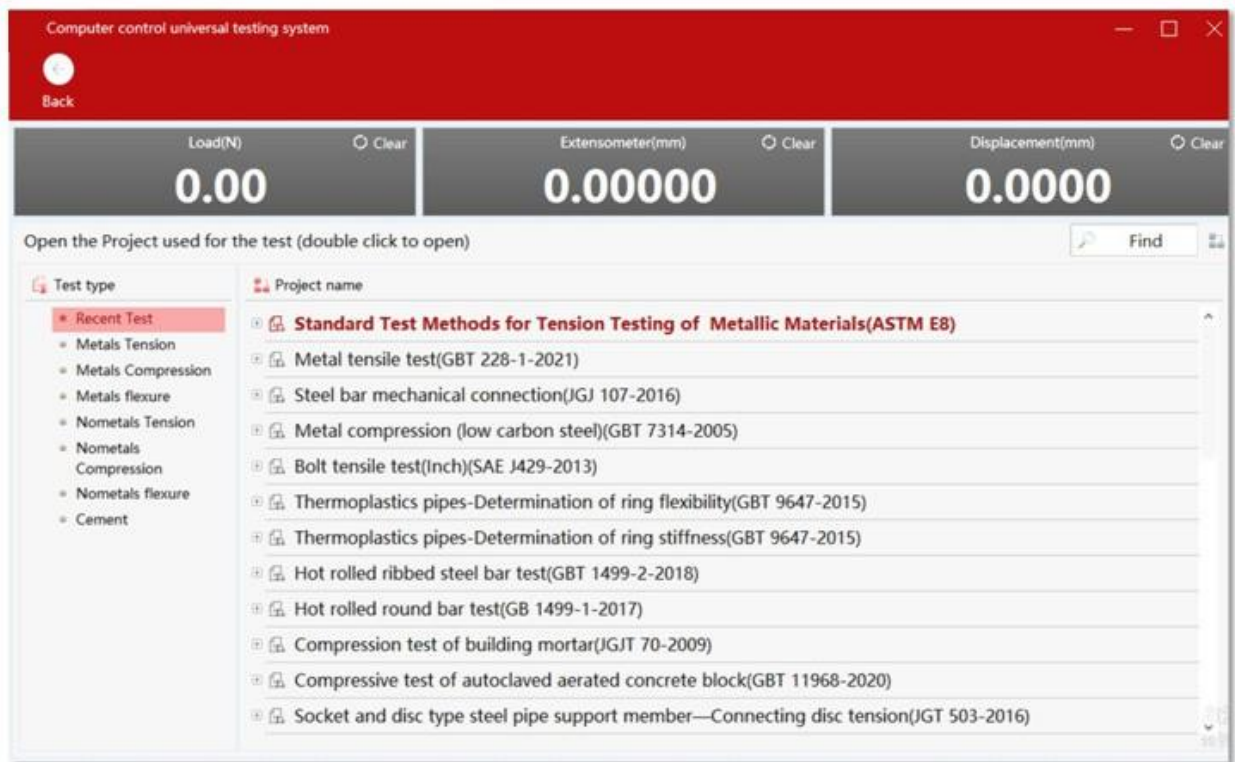
Displacement control, force control, deformation control, stress control, strain control, constant stress, constant strain etc.



## Test Standard

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





**Multi Measurement Units:**

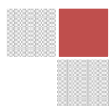
Load can be displayed in kN, lbf or kgf as selected by the operator.

**Multi Controlling Channels:**

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

**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.



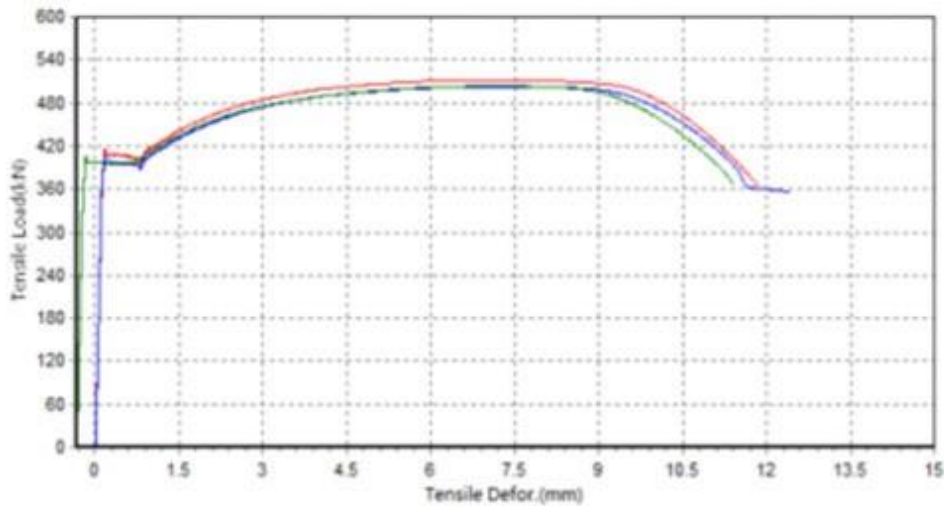
## TENSION REPORT

BatchNo:	<u>2019090707</u>	TestDate:	<u>2019-9-8 13:38</u>
Unit		Texture	
Norm		Temp	
Size(mm)		Area(mm <sup>2</sup> )	804.25

### Result Data

No.	MaxLoad (kN)	tensile strength (MPa)	Upper yield (kN)	Upper yield strength (MPa)	Lower yield (kN)	Lower yield strength (MPa)	Elongation (%)
1	511.89	637	414.88	516	398.5	496	24
2	502.43	625	406.16	505	388.12	493	24.5
3	503.75	626	407.07	506	394.87	491	25

Testing base ASTM E4



Remark			
principal		Review	
Tester		Print date	<u>2022-6-24 10:25</u>

