WANCE®
Do Our Best for Your Test

Servo-hydraulic Compression Testing Machine | HCT Type A

Capacity

600kN, 1000kN, 2000kN, 3000kN

Functions

This series of compression testing machine is widely used for compression strength determination of cement, concrete and rock. Equipped with optional fixtures and measurement devices, it can be used for concrete splitting tensile test and flexure test.

Standards

BS EN 12390, CS1, ASTM C39, ASTM C109, AASHTO T22, GB/T 50081(Part 6)

Load frame

- **Compression space is adjusted by spacing block**
- Upper bearing plate for uniform loading on specimen
- Ergonomically designed load frames ensure safety, reduce operator fatigue, and provide the highest level of flexibility.
- "Quick Return" hydraulic valve for higher throughput
- Automatic limit checking for overload, over temperature, over voltage, etc.
- The system can return automatically, the oil cylinder can return the original position via manual or automatically after finishing testing

Spacing block

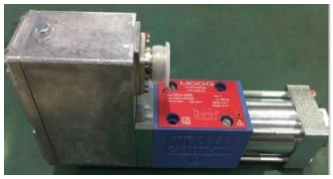
- Imported encoder mounted on the seat is for position measurement of piston with high accuracy
- Imported servo valve provides high stability and reliability

Hydraulic power unit

- Equipped with SUN Cartridge logic valve in the hydraulic system of the equipment, it can be smart regulation of system pressure. The pressure servo technology can guarantee that the system pressure is always only higher than the cylinder pressure 2MPa, when the test force is low, the pump output pressure is lower, when the test force increases, pump output pressure increases the proportion too.

- The differential pressure is adjustable to ensure no shaking during test, thus saving energy and reducing heating
- Low noise: NACHI Japan gear pump, combined with our technology of HPU production, its noise is not more than 70dB, improving the working conditions of workers.

- Easy installation and maintenance: The hydraulic unit is designed with semi-open structure. Rear cover opens two doors, easy maintenance and parts replacement.
- Stable, fast response and high control precision: The MOOG servo valve is directly driven by a high-impedance permanent magnet linear motor. Dynamic performance is not affected by pressure. Low power consumption when hydraulic zero and close to hydraulic zero. Standardized spool position detection signal, which can be used to obtain system operation and is very beneficial to valve maintenance.



- Low heating and good cooling: The unique pressure differential servo control technique makes the system heat significantly reduced. The hydraulic unit is designed with semi-open structure and air-cooling device. Cooling devices can start automatically or manually. The air-cooling motor automatically starts when the temperature reaches the preset value of oil temperature gauge, making the system in high temperature environment continue to work normally.
- High filtration precision: triple filter, the particle size is less than 5 microns before entering the servo valve, improving the service life of the servo valve and control accuracy, easier to maintain.
- Pressure overload protection: when the pressure exceeds the system rated pressure, relief valve will begin to overflow, to ensure the security of the entire system.
- Seal method: The hydraulic pipeline is made of imported products from the oil pipe to the joint. The pipeline adopts high-pressure hose ferrule-type cone sealing joint, the sealing effect is very good, and it can be disassembled many times.

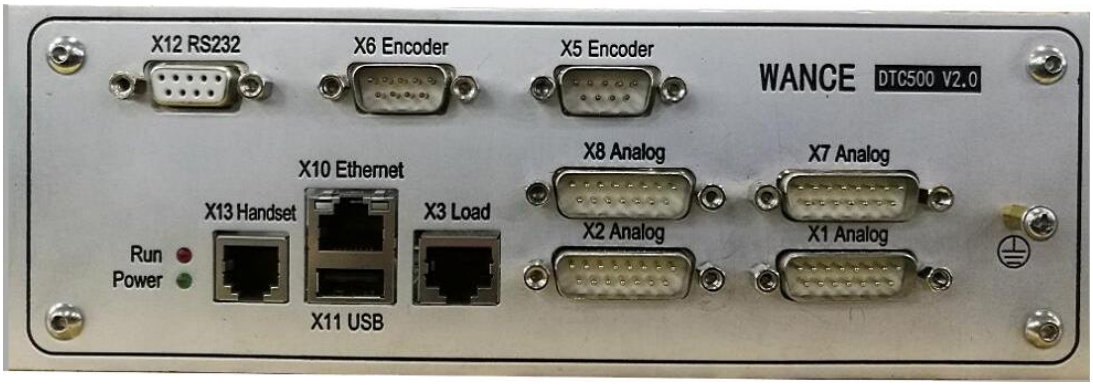
Load cell

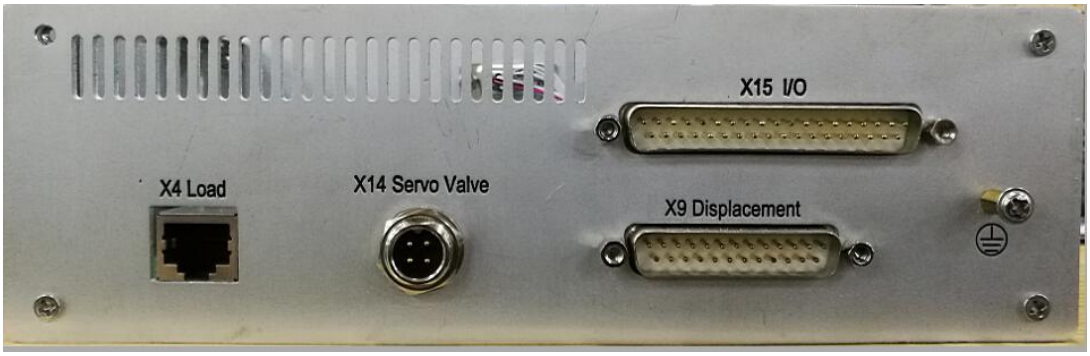
- Built-in load cell is assembled inside the piston for direct measurement with high accuracy
- High precise load cell measures and captures sensitively tension and compression force, high accuracy load measurement resolution reaches 1/500000 with no steps.
- American brand load cell ensures high precision and repeatability.

Controller

WANCE DTC-500 digital controller offers high speed and closed loop control of load, displacement and extension.

- Four-layer PCB layout, anti-resistance, high reliability;
- Connector with locking function, strong and durable, not easy to fall off, the interface layout is neat and reasonable, easy to plug and unplug;
- 6-channel 24 bit AD measurement channel;
- Up to 1200Hz sampling frequency;
- Up to 1200Hz closed loop control frequency;
- 20 bit resolution digital input;
- 3-channel high-speed digital acquisition, which is used to collect orthogonal pulse signals such as photoelectric encoder and grating ruler, with the highest signal acquisition frequency up to 4MHZ;
- Ethernet/USB interface mode is supported, and the transmission rate is greatly increased to support higher sampling frequency. Ethernet interface adopts special high-performance Ethernet interface chip and hardware logic gate circuit to realize complex TCP/IP protocol cluster, which has significant advantages such as high reliability and good security;
- TEDS function: transducer self-identification system, interface features can be set online by software, system structure is more reasonable;
- It has three closed-loop (force, extension and displacement) control functions, realizing all-digital three closed-loop control of force, extension and displacement. Each control loop can automatically switch between different control rings, and realize smooth transition when switching between different modes;
- Perfect limit protection, overload protection, emergency stop and other safety protection functions.





Port No.	Signal type	Remark
X1/X2/X7/X8	Input signal voltage: 0~2.5VDC Excitation voltage: +5VDC	Usually connect to extensometer or other gauges
X3 Load	Input signal voltage: 0~2.5VDC Excitation voltage: +5VDC	Connect to additional load cell
X4 Load	Input signal voltage: 0~2.5VDC Excitation voltage: +5VDC	Connect to built-in load cell
X5/X6	One-channel Quadrature signal Sampling frequency 2MHZ	Connect to long travel extensometer
X9 displacement	One-channel Quadrature signal Sampling frequency 2MHZ Output frequency 1MHZ	Connect to rotary encoder to measure displacement.
X10 Ethernet		Connect to PC Ethernet port via LAN cable for data communication
X11 USB		Connect to PC USB port via USB cable for data communication, driver is needed.
X12 RS232		For spare use
X13 Handset		Connect to machine remote control
X14 Servo Valve		Connect to servo valve
X15 I/O	Switching signal	Connect to input device, electromagnetic valve

Test software

Professional test software and controller software are running independently. Controller software can define transducer information such as connector number definition and calibration data, also calibration is processed in controller software

Compatible with Windows 7 to latest version, 32bit and 64bit

Built-in English language and end user can customize their own translation freely

User authorization management is easily to define software access for different level of operators, like lab manager, operator and others

Real-time display of transducer value, such as crosshead, load cell, and extensometer

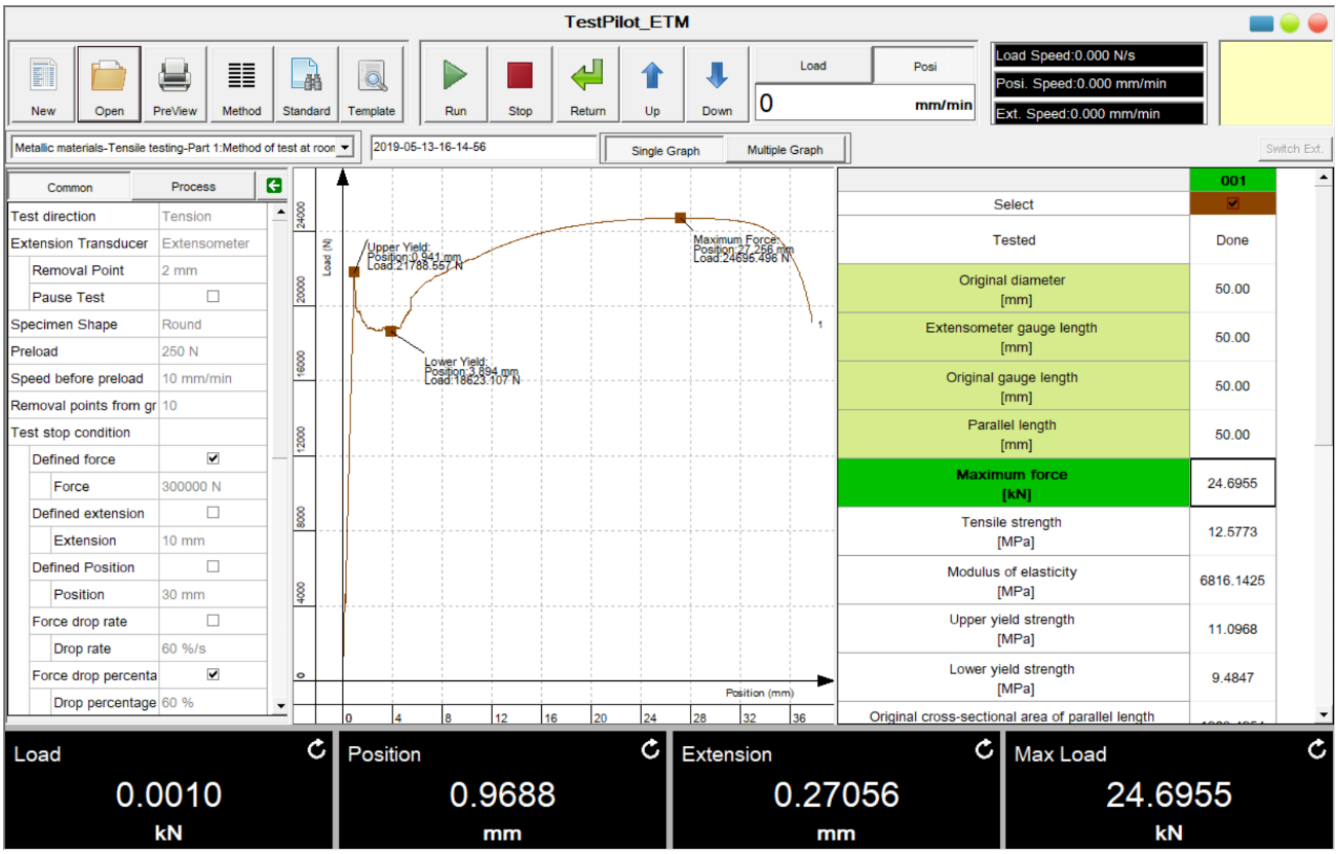
Multiple graph display, and Real-time plot and switch graph of force, position, extensometer, stress, strain, time, etc.

Pre-packaged test methods to help you quickly and efficiently meet the requirements of global test standards such as ASTM, ISO, DIN, EN, BS, and more

Intuitive expression for easy programming of testing standards and testing process

Testing report can be customized according to the requirement

Analysis can give typical test results like Young's modulus, Proof stress, Yield stress, stress, strain, Tensile strength, Elongation at break, compressive strength, bending strength, etc….



Specifications

Model	HCT605	HCT106	HCT206	HCT306
Type	A			
Capacity (kN)	600	1000	2000	3000
Calibration accuracy	Class 0.5			
Force accuracy	±0.5%			
Force range	1% ~ 100%FS			
Force resolution	1/500000FS			
Frame structure	One-body casting			
Column spacing (mm)	460	460	460	540
Maximum compression space (mm)	310	310	310	310
Platen adjustment	Spacing block			
Compression platens (mm)	Φ300	Φ300	Φ300	Φ300
Actuator (piston) stroke (mm)	70	70	70	70
Actuator (piston) maximum up speed (mm/min)	100	100	90	55
Force loading speed (kN/s)	0.02%~2%FS/s			
Frame dimension (L×W×H) (mm)	620×410×1540			700×530×1665
Power supply	3-phase 380VAC±10%, 50Hz			
Power consumption (kW)	4		5	
Hydraulic Power Unit dimension (L×W×H) (mm)	1150×600×920			
0il tank volume (L)	80	80	80	80
Total weight (kg)	2000	2000	2000	2500

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