WANCE®
Do Our Best for Your Test

Servo-hydraulic Universal Testing Machine | SHT5000P series

Test type

- Slip & Tensile Strength
- Permanent Elongation & Tensile Strength
- Static Tension Test
- Static Compression Test
- Cyclic Tension & Compression Test

Test standards

- AC 133
- ISO 15835-1, ISO 15835-2
- BS 8110: PART 1: 1997 3.12.8.16.2
- BS4482
- BS4483
- BS4449
- ASTM A 1034: 10.5, 10.7
- Others.....

Description

This series of servo-hydraulic universal testing machine is designed with up-mounted actuator structure. Bidirectional differential cylinder provides bidirectional control of tension and compression in one single space. Advanced side action hydraulic tensile grips provide high gripping performance for high strength and high hardness materials without any initial gripping force.

Clearance-free structure and actuator up and down to adjust the test space offers easy operation and high efficiency. This machine is mainly used for tensile test of metallic materials. It provides closed loop control of constant force, constant displacement and constant extension, smoothly switching among them.

Test results can be automatically calculated and be able to printed and exported.

Load Frame Configuration: 4 columns, servo-controlled hydraulic

Capacity: 600kN, 1000kN, 2000kN

Test Space: Single zone

Typical specimens: Fasteners, rebar, chain, welds, castings

Features

Load frame

1. Single zone design ensures all types of tests finish in one space. Compact and reasonable design is ergonomic and effectively reduces labor intensity.
2. Upper actuator features excellent axis alignment, good shock absorption and easy to adjust test space.
3. Advanced side action hydraulic tensile grips provide high gripping performance for high strength and high hardness materials without any initial gripping force.
4. Long travel double-acting cylinder can accommodate different specimen size. One-body forging piston and rod, and imported sealing components, ensure perfect sealing, high accuracy and repeatability.
5. Robust and high-accuracy guidance protects cylinder from lateral force, improving the working life of sealing components.
6. “I” shape force transducer features excellent linerity and stability with ultra measurement accuracy.
7. High precision encoder provides with high accuracy of displacement measurement and control.
8. Imported servo valve offers fast response and high-accuracy control, and easy to maintain.
9. Equipped famous brand motor features high efficiency, energy-saving, high shaft-torque, good performance, low noise, low shaking, high reliability and easy to maintain.

Main cylinder

- Piston rod is Nickel and Chrome plated, with strong anti-corrosion and anti-wearing ability.
- Extra thick rod ensures high stiffness to resist lateral loading.
- Piston and rod are one-body forging with strong impact resistance.
- Sealing components are U shape and double sealing ring, ensuring zero leakage.
- Guidance wearing ring is applied to ensure high resistance to lateral force and low friction.
- Main cylinder matching with differential circuit allows fast return of piston.
- Zero clearance and pre-loading connection between piston rod and upper grip guarantees high reliability.
- WANCE uses most advanced Piston / guide sleeve copper melting process as wearing ring, with service life five times than polymer material.

Side action hydraulic grip

- Side-load dampening reduces the risk of grip damage when testing slightly bent or irregularly shaped specimens such as rebar or wire rod
- Opposing jaw faces repeatedly self-center during specimen clamping reducing testing time and eliminating the need to resynchronize the grip faces between tests
- Tensile tests on a wide range of materials including: steel rod and plate, machined rounds and flats, reinforcement bar, 3- and 7-wire strand, conveyor belt, and wood products

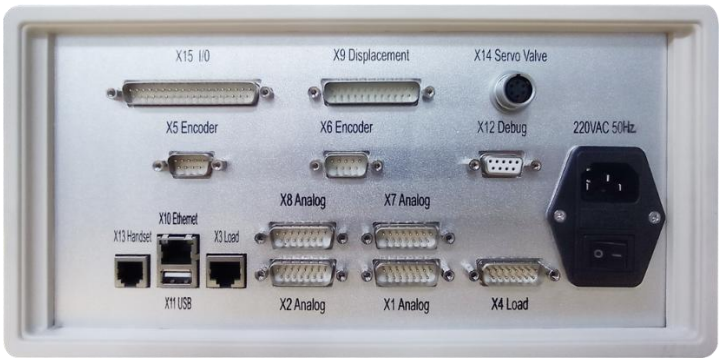
Hydraulic power unit

- Equipped with 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 1MPa, 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: gear pump combined with our technology of HPU production reduces noise, 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.
- 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: Piping lines are sealed with high-pressure hose sleeve type Cone fittings with excellent sealing performance, which can be repeated assembly and disassembly. Cylinder piston rod and piston seal are used with U- seals and dust ring , at the same time with high anti-lateral pressure and low friction rate of large-size guide ring , offering high ability to resist lateral force, thus to ensure cylinder of zero leakage and long service life.
- The system has two sets of differential circuit. One is for main cylinder, so that after the end of the test, the main cylinder piston can faster return to improve work efficiency. Another is for the clamping cylinder. Clamping cylinder allows fast and low pressure gripping the specimen. Only after samples are fully clamped, extra-high pressure can be supplied, avoiding damaging sample because of too high clamping force. After specimen is broken, high pressure will be automatically released. This design fully takes the efficiency and operational safety into account.

Controlling system – DTC-500

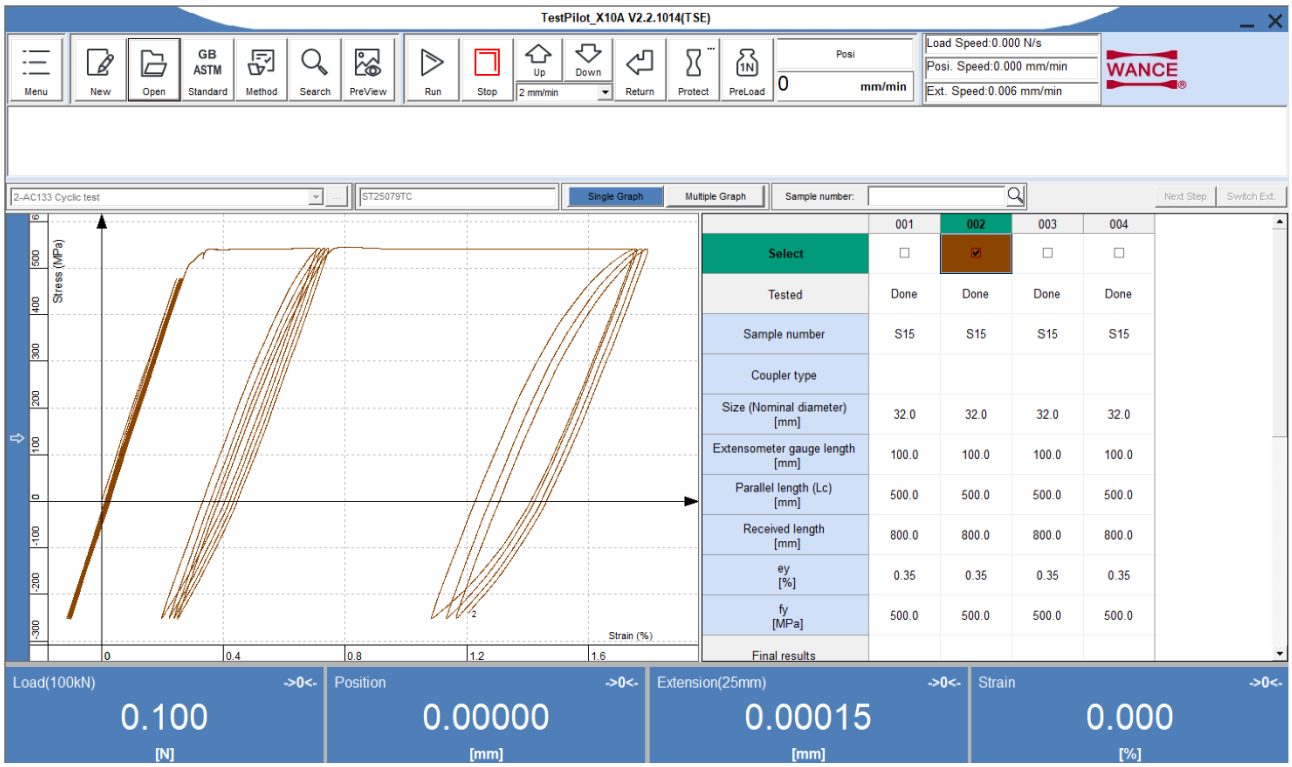
- Closed loop control of stress, strain and displacement.
- 1200Hz sampling frequency and closed-loop control frequency
- 1/500000 resolution
- 2 analogue channels for extensometer, 2 analogue channels for load cell
- Standard USB/Ethernet communication
- Over-load, over-current, over-voltage, over-speed, and over-travel protection



Professional test software

This software features a large, growing host of 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. Selected by an operator at runtime, these methods are crafted to meet the specific test flow, analysis and reporting requirements of industry standards across a range of specimen and test types. Pre-packaged test methods are available in a wide selection of bundled sets, including: Polymers & Plastics, Metals, Construction Materials, Biomedical Products, Paper Products, Adhesives, foam, textiles and more.

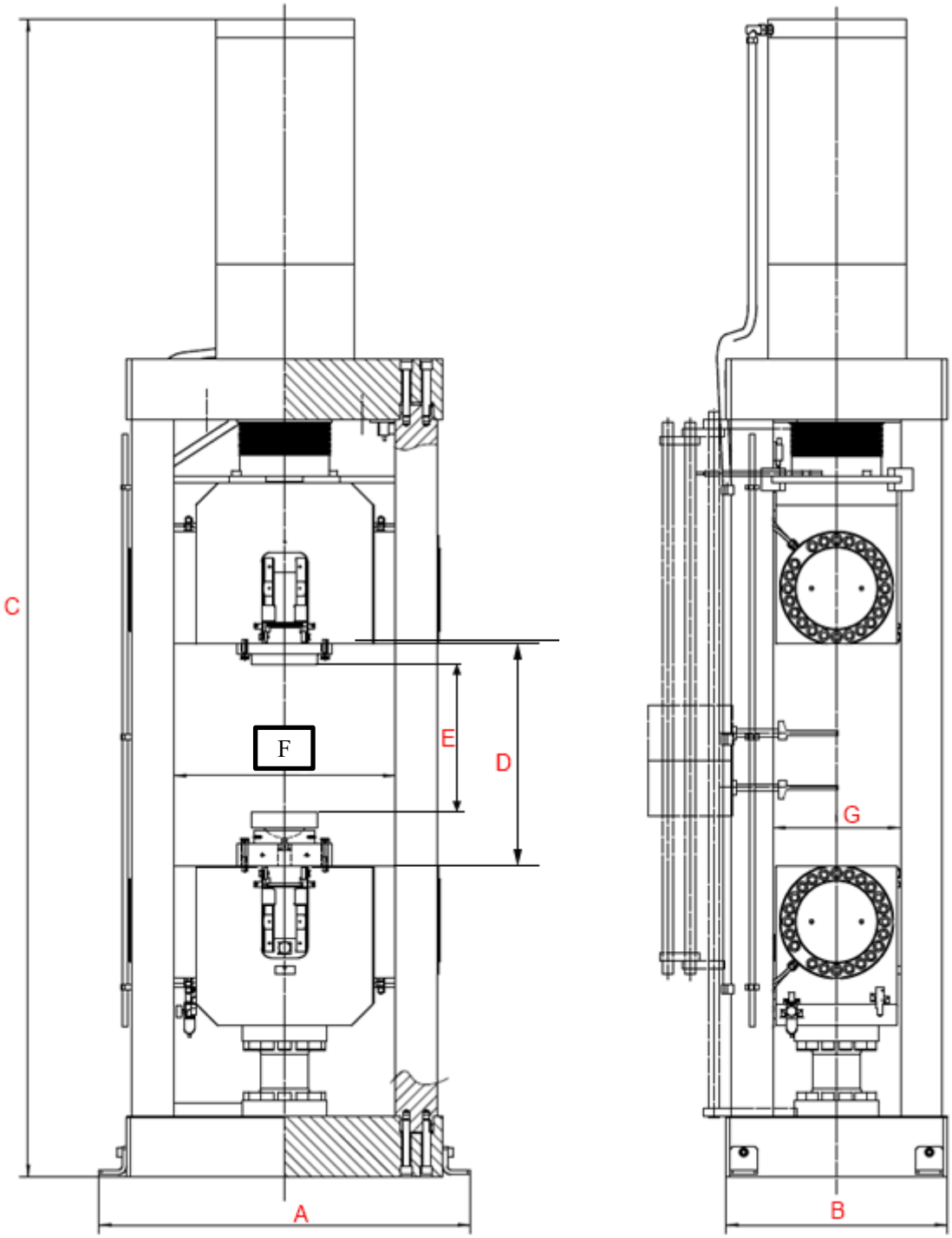
- Versatile, easy-to-use TestPilot software with a large and growing library of standards-compliant test methods (ASTM, ISO, DIN, EN, BS, and more)
- Modular design permits easy upgrading
- Plenty of test standards are built in the library of the software for routine tests.
- User configured report: user can preset report template and include necessary information, like company information, statistics, and etc. Test report can export to Excel or Word.
- Powerful graphic function: real time display curves, like displacement-load, stress-strain, displacement-time, load-times, and others
- Powerful analysis function can calculate typical value and display on the curve, like Fm, ReL, ReH, Rp.
- Measurement unit: Users can select SI, or others, like N, kN, Kgf, lbf, Mpa, and so on, user can define the unit by themselves using formula.



AC133 cyclic tension and compression test

Machine dimension

Model	Dimension (mm) A×B×C	Effective tensile space (mm) D	Maximum compression space(mm) E	Distance between columns (mm) F×G	Piston travel (mm)
SHT5605P	850×550×2900	600	500	500×350	580
SHT5106P	960×700×3540	700	600	660×400	680
SHT5206P	1340×800×4180	815	700	800×450	800



Specifications:

Model	SHT5605P	SHT5106P	SHT5206P
Capacity (kN)	600	1000	2000
Calibration accuracy	Class 0.5		
Force accuracy	Better than ±0.5%		
Force range	1% ~ 100%FS		
Displacement accuracy	Better than ±1%/±0.5%		
Extension range	1% ~ 100%FS		
Extension accuracy	Better than ±0.5%		
Extension resolution	1/500000 of max extension		
Position resolution (mm)	0.013		
Position accuracy	Better than ± 0.5% or 0.13mm, whichever is greater		
Actuator (piston) up speed (mm/min)	320	350	280
Actuator (piston) down speed (mm/min)	600	550	600
Force loading speed	0.02%-2% FS /s		
Column number	4	4	4
Distance between columns (mm)	505×345	660×400	800×450
Maximum tension space (mm)	600	700	815
Diameter of round specimens (mm)	Φ10- Φ20 Φ20- Φ45	Φ15- Φ30 Φ30- Φ60	Φ5- Φ15 Φ15- Φ40 Φ40- Φ100
Thickness of flat specimens (mm)	2-45	2-60	2-80
Compression platen	140x140	200×200	Φ240
Actuator (piston) stroke (mm)	580	680	800
Frame dimension (LxWxH) (mm)	850×550×2900	960×700×3540	1340×800×4180
Frame weight (kg)	4000	7500	8600
Hydraulic Power Unit dimension (LxWxH) (mm)	1520x660x1250		
Hydraulic Power Unit weight (kg)	600	600	800
Oil tank capacity (Liter)	450	500	500
Flow rate (L/min)	15	18	30
Anti-wear hydraulic oil	46#, L-HM46 or DTE-25 Brand: Mobile, Shell, Great wall, KUNLUN		
Power consumption (kW)	15.5	15.5	19.5
Power supply	3-phase, 5-line, AC380V, 50Hz		

WANCE®

Shenzhen Wance Testing Machine Co., Ltd.

Bldg.3, Yinjin Technology Industrial Park,

Fengjing South Road, Guangming, Shenzhen 518107, China

Tel: +86-755-23057280 Fax: +86-755-23057995

Email: sales@wance.net.cn www.wance.net