

Servo-hydraulic Universal Testing Machine | HUT Type A

Load Frame Configuration:

4 or 6 column, servo-controlled hydraulic

Capacity:

200kN, 300kN, 500kN, 600kN, 1000kN, 2000kN

Test Space:

Dual zone (tension on top, compression on bottom)

Typical specimens:

Fasteners, rebar, chain, welds, castings

Frame

1. **Lead screw driven crosshead to adjust the test space**
2. High-Stiffness 6-column load frame design incorporates 3-position crosshead, adjustable specimen positioning, precision guide columns, thick crosshead and base beam minimizes load frame stored energy while producing reliable, stable, accurate load, strain and modulus values.
3. Ergonomically designed load frames ensure safety, reduce operator fatigue, and provide the highest level of flexibility.
4. Standard Dual Zone Test Space for reducing setup time
5. "Quick Return" hydraulic valve for higher throughput
6. Automatic limit checking for crosshead position, overload, over temperature, over voltage, etc.
7. The system can return automatically, the oil cylinder can return the original position via manual or automatically after finishing testing
8. Positive specimen holding is ensured by the wedge action of hydraulic operated grips
9. Imported encoder mounted on the seat is for position measurement of crosshead with high accuracy
10. Imported servo valve provides high stability and reliability

Load cell

1. Use strain gauge load cell technology to measure the force being applied to specimen. The load cell is located in the lower grip and is used to directly measure tensile force.
2. High precise load cell measures and captures sensitively tension and compression force, high accuracy load measurement resolution reaches 1/350000 with no steps.
3. Famous brand load cell ensures high precision and repeatability.



Servo-hydraulic Universal Testing Machine | HUT Type A

Various frames to satisfy your test needs from low force to high force



Full complement of test accessories

Extensive range of accessories to meet test requirements in almost any application or industry: rebar, fasteners, chain, welds, castings, concrete and other building materials

- Tension grip
- Compression fixture
- Flexure fixture
- Rock shear fixture
- Concrete split fixture
- Fastener tension grip
- Extensometer
- Automatic extensometer
- others



Servo-hydraulic Universal Testing Machine | HUT Type A

Controlling system – DTC-350

1. Closed loop control of stress, strain and displacement.

Control loops can switch automatically and smoothly. Control algorithm adopts advanced neural element self-adapting PID. Neural element has ability of close to any non-linear function , simple structure and learning algorithm. It can adapt changing of control object by changing its own synapse weighting and distinguish parameter on line, rebuild object model on line.



2. Control system based on DSP

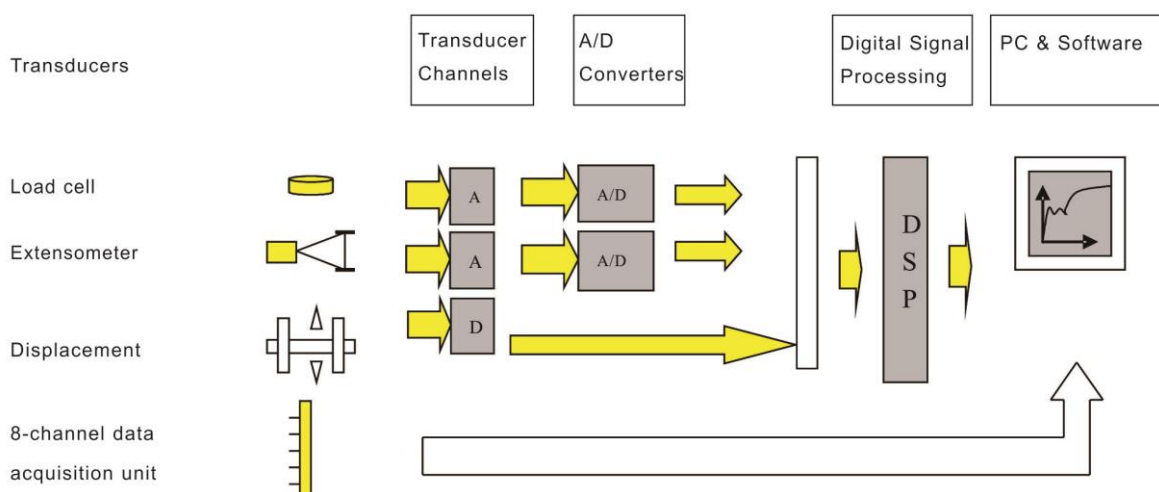
DSP, the professional CPU and RISC, is used as control chip of the products. The chip has many functions, such as 40MIPS, 32 bit fixed point, vector control, A/D exchange, position capturing , etc. It is a CPU widely used in industry controlling and suitable to be IC of our products.

3. USB 1.1 communication

Data exchange between hardware and software via USB 1.1 interface and velocity of 12Mb/s. USB is main direction of development of communication, which has merits of high communication velocity, variety of communication mode(such as controlling , breaking, batch, real time ,etc.), and will be the main mode of communication.

4. Data acquisition system and position capturing system. Data acquisition system consists of 8 channels of 24 bit A/D exchange; effective resolution is 1/350000 with non-step in full range . Exchange velocity and gain are programmable on line. The products contain 3 channels of encoder position capturing system permitting photo-electric orthogonal code impulse. Frequency can reach 5 MHZ, which has functions of correcting, direction identifying and number-counting.

Control technology



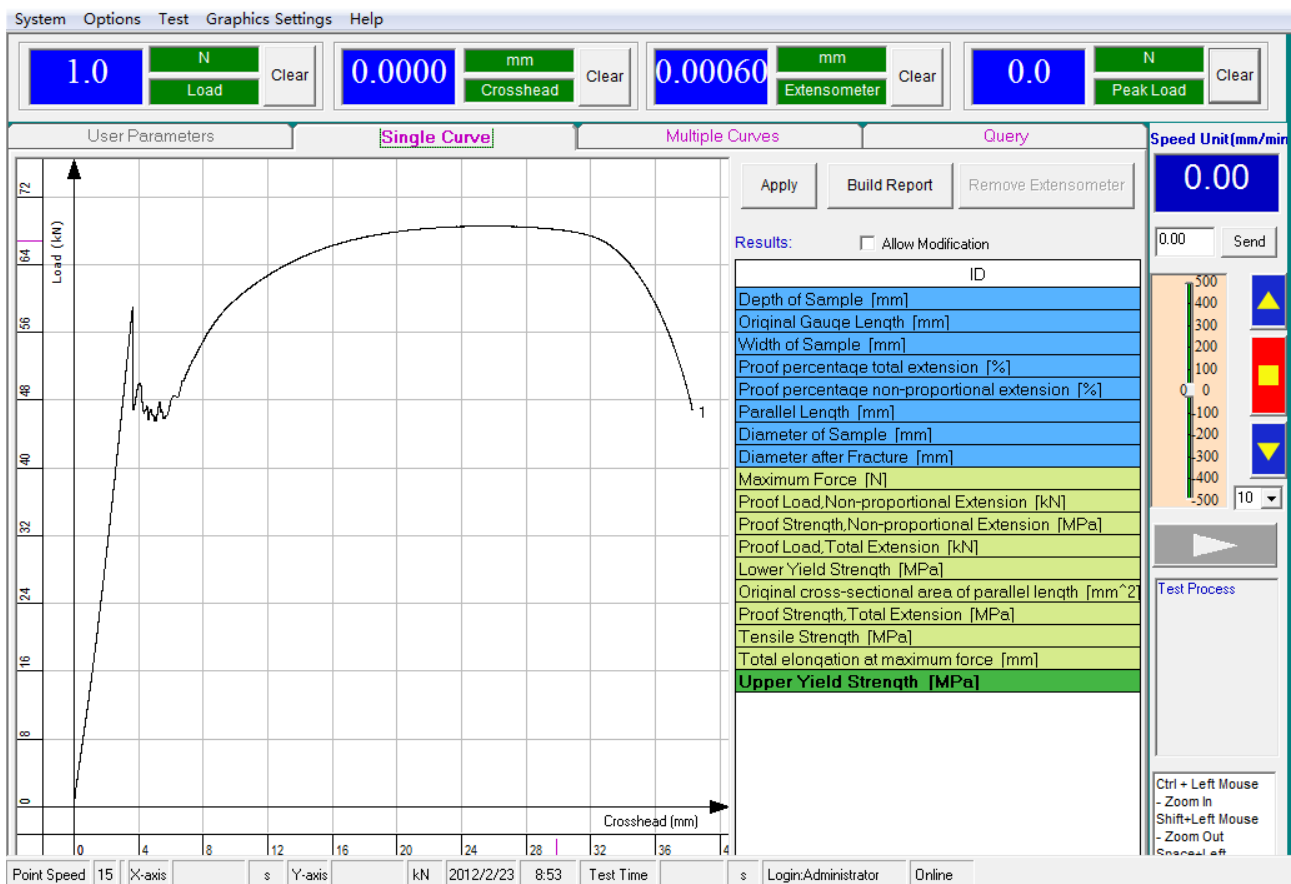
Servo-hydraulic Universal Testing Machine | HUT Type A

Powerful test software - TestPilot

-Two steps to start testing: select a project, press start

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.



Servo-hydraulic Universal Testing Machine | HUT Type A

Specifications:

Model	HUT205 HUT305	HUT505 HUT605	HUT106	HUT206	
Type	Type A				
Capacity (kN)	200 300	500 600	1000	2000	
Calibration accuracy	Class 1 / Class 0.5				
Force accuracy	Better than $\pm 1\% / \pm 0.5\%$				
Force range	1% ~ 100%FS				
Extension range	1% ~ 100%FS				
Extension accuracy	Better than $\pm 1\% / \pm 0.5\%$				
Extension resolution	1/350000 of max extension				
Actuator (piston) speed (mm/min)	0 ~ 180	0 ~ 140	0 ~ 90	0 ~ 70	
Force loading speed	0.02% ~ 2% FS /s				
Column number	4	6	6	6	
Column spacing (test space width) (mm)	405	430	430	640	
Maximum tension space (mm)	520	710	760	920	
Maximum compression space (mm)	520	700	630	750	
Diameter of round specimens (mm)	$\Phi 10 \sim \Phi 32$	$\Phi 10 \sim \Phi 40$	$\Phi 15 \sim \Phi 55$	$\Phi 15 \sim \Phi 70$	
Diameter of threaded steel (mm)	$\Phi 10 \sim \Phi 32$	$\Phi 10 \sim \Phi 36$	$\Phi 10 \sim \Phi 40$	$\Phi 20 \sim \Phi 50$	
Thickness of flat specimens (mm)	2 ~ 25	2 ~ 30	2 ~ 40	10 ~ 70	
Compression platens (mm)	$\Phi 120$	$\Phi 150$	200x200	$\Phi 240$	
Actuator (piston) stroke (mm)	150	250	250	250	
Frame dimension (length × width × height) (mm)	820x570x1955	940x650x2400	1020x670x2600	1370x820x3300	
Hydraulic Power Unit dimension (length × width × height) (mm)	1150x600x900				
Power consumption (kw)	5	6		8	
Power supply	3-phase, 5-line, AC380V, 50Hz				
Frame weight (kg)	1500	2500	3500	8000	
Optional bending fixture	Support span (mm)	30 ~ 350	30 ~ 400	30 ~ 400	60 ~ 500
	Bending nose diameter (Φ , mm)	3 ~ 65	3 ~ 200	3 ~ 300	3 ~ 300

Servo-hydraulic Universal Testing Machine | HUT Type A

Standard configurations:

Name	Description	Quantity	
Main machine	Load frame	Dual space, class 1	1 set
	Load cell	built-in the load frame	1 set
	Displacement encoder	NEMICON brand	1 set
	Motor and speed reducer		1 set
HPU	Oil tank	Volume: 75L	1 set
	Pump		1 set
	Servo Valve		1 set
	Valve manifold		1 set
	Cooling fan		1 set
	High pressure oil hoses		4 sets
Grips & Fixtures	Compression fixture		1 pair
	Hydraulic wedge action tensile grip		1 pair
Controller	Model: DTC-350	1 set	
Software	Testpilot, English version	1 set	
Extensometer	Gauge length: 100mm, max travel: 10mm	1 set	
Accessories	Maintenance tools	inner hexagon spanner 1 set Phillips screwdriver 1 set Open spanner 1 set	1 set
	Operation & Maintenance manual		1 set
	Software manual		1 set
	Warranty card		1 set
	Quality Certificate		1 set

Prepared by customer:

- The anti-wear hydraulic oil (N46, 75L) shall be purchased by customer at local market.
- The foundation work must be finished before UTM delivered 14 days.
- Computer and printer should be prepared by customer

Shipping information

Model	Crated dimension (mm)	Crated weight (kg)
HUT205/HUT305	2230X1000X940	1500
HUT505/HUT605	3610X1110X1040	2800
HUT106	2900X1240X1130	3700
HUT206	3400X1490X1270	7500
HPU (hydraulic power unit)	1430X850X1180	380

