

## Servo Hydraulic Universal Testing Machine SHT4000G Series



SHT4000G series especially for tensile test of steel strand wire with extra-length columns.

### Configuration

SHT4000G series features servo hydraulic loading and motor driving system and a rugged six column construction for exceptional load frame rigidity .It is originally designed to meet exacting requirements of testing strand steel wire. It has dual testing space for tension test and compression test or other tests (need corresponding grips) of

other materials respectively. An adjustable lower crosshead quickly accommodates specimens of varying lengths. In the case of additional length of columns, the maximum testing space is adjustable to meet extra length specimens. Positive specimen holding is ensured by the wedge action of hydraulic operated grips. The machine has an operating range from 500kN to 1000kN and Maintains an accuracy of  $\pm 0.5\%$  of the displayed load from 1% to 100% of capacity (or  $\pm 1\%$  of the displayed load from 0.4% to 100% of capacity).

## Functions & Applications

SHT4000G series' systems are guaranteed to meet ISO 15579-2000, ISO679, ISO 7438-1985, ISO6892-1998, ISO4012, ISO10065 and other international and national specifications. SHT4000G series' systems can carry out tension test (especially for tension of steel strand wire ), compression test, bend test and shear test by three controlling ways including force control, deformation control and displacement control; and these three controlling ways can be switched

according to the preset condition, the systems can realize constant-rate loading, loading according to preset curve, testing with constant-rate displacement, testing with constant-rate deformation and so on.

With powerful testing software PowerTest, SHT4000G series' systems can acquire, dispose automatically testing data, display real-time stress-strain curve, load-deformation curve, load-time curve and other related curves, at the

same time, can save, output, print test report and data with customized format.

With knight after service of experienced experts and assistant controlling of powerful professional testing software

PowerTest, the machine can be widely used in ultimate R&D department, Universities and Academies, Quality control and Inspection department, calibration centers/laboratories and concerned industries etc.

## Key Features

1. Advanced servo-hydraulic valve with excellent pollution-resistance and high accuracy;
2. Hydraulic cells and accessories with high quality to ensure non-leakage and non-pollution of hydraulic system;
3. Various self-diagnosing functions such as self-detecting of overpressure, over-flow and over-high temperature;
4. Various protecting functions including protection of over-load, position-limited, over-voltage, and self-alarmed on non-pure oil and so on;
5. Adopting full-digital closed-loop controlling system to realize three closed-loop controlling requirement of load, deformation and displacement; and these three controlling ways can be switched smoothly and combined discretionarily;
6. Non-step loading system within capacity which is superior to loading system with step;
7. Testing space and working height complying to man-machine engineering, which offer easier and more convenient operation;
8. Special hydraulic loop to improve greatly returning rate of upper jaw and save testing time;
9. Tension testing space is between upper crosshead and lower crosshead and compression testing space is between lower crosshead and testing station to accomplish various tests.
10. Wedge grips with extra-length jaws ensure steady holding of specimens and avoid specimens' abrasion within jaws, then ensure specimens' rupture at the proper position.



Tensile test of strand steel

## Control System

SHT4000G series is supplied with closed-loop servo control capability conducted by DCS-300. This closed-loop control system constantly monitors the test in progress and regulates the testing rate to maintain preset conditions. This enables you to conduct tests automatically and ensures consistent testing control free from operator variability.



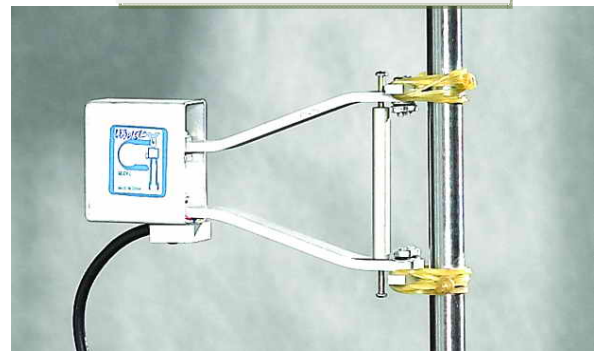
DCS-300 Controller

## Accessories

Either clip-on extensometer or video extensometer can be used for accurate extension measurement. Clip-on extensometer offers an option for cost effective budget. Video extensometer or long travel extensometer with accuracy of  $\pm 0.1\%$  of indicated value is available according to order. Extensometer can directly measure deformation of specimens by quartz-pole. It either measures separately thermal expansion strain of specimens or eliminates thermal expansion to avoid effecting deformation of specimen.

The video extensometer measures contact-free, and with high resolution, tensile and compression deformations

Clip-on extensometer



on all types of plastic, metals, rubber, composites, panels and foils. It is also suitable for determination of reduction-in width, and the yield strength in tensile tests according to EN 10002-1.

Wedge grips with extra-length jaws ensure steady holding of specimens and avoid specimens' abrasion within jaws, then ensure specimens' rupture at the proper position.

## Technical Specifications

Series	SHT4000G		
Models	4505G	4605G	4106G
Accuracy Level	1/0.5		
Load Capacity(kN)	500	600	1000
quantity of Column	6		
Distance between Columns(mm)	490	490	670
Maximum Tensile Space(mm)	1100	1100	1100
Maximum Compression Space (mm)	1000	1000	10000
Round specimen(mm)	Φ9.5-Φ15.2		Φ9.5Φ18
Dimension of Compression Platens(L×W )(mm)	Φ150		200×200
Ram Stroke (mm)	250		
Stroke Speed range(mm/min)	0-145		0-100
Crosshead Speed(mm/min)	270		320
Stress Speed	1 N/mm <sup>2</sup> / s – 30 N/mm <sup>2</sup> / s		
Strain Speed	0.00025/s-0.0025/s		
Dimension of Load Frame(L×W×H) (mm)	940×650×2940		1220×780×3100
Dimension of Hydraulic Power Station(L×W×H) (mm)	1150×600×900		
Total Power(KW)	4(380V)+2(220V)		
Weight(kg)	3000		5000

## Specifications

**Load measurement accuracy:** ± 1% of indicated load from 0.4% to 100% capacity(Grade 1); ± 0.5% of indicated load from 1% to 100% capacity(Grade0.5)

**Load measurement resolution:** 1/300000 of capacity, no steps in full loading range and keeping unchanged

**Displacement Measurement Accuracy:** ± 1% of indicated / ± 0.5% of indicated

**Displacement Resolution (mm):** 0.007

**Deformation Measurement Accuracy:** ± 1% of indicated / ± 0.5% of indicated

**Strain measurement accuracy:** ± 1% of indicated load from 0.4% to 100% capacity FS

**Strain Velocity Accuracy:** ± 1% / ± 0.5% of set

**Operating temperature range:** 0°C to 38°C

**Storage temperature range:** -10°C to 45°C

**Humidity range:** 10% to 90% non-condensing, web bulb method

**Power:** standard optional voltages 220/240VAC, 50-60 Hz; power must be free of spikes and surges exceeding 10% of the nominal voltage(CMT5000 needs voltage in 380V±10%)