

Servo-Hydraulic Universal Testing Machine SHT5000P Series 200kN-2000kN

Introduction

SHT5000P series are based on SANS SHT5000 series servo hydraulic testing system and improved with side action grips.

This series adopt international advanced side action grip technology and solve the problem of load dropping during large force test and high frequency batch test. Gripping force is auto controlled and stable for tensile test of high strength, high hardness materials, stranded wire, and other hard-to-clamp specimens.

Dual side action allows synchronous clamping specimens and ensures precise center alignment. This design can also eliminate lateral force on specimens before test which is common in wedge action grips.

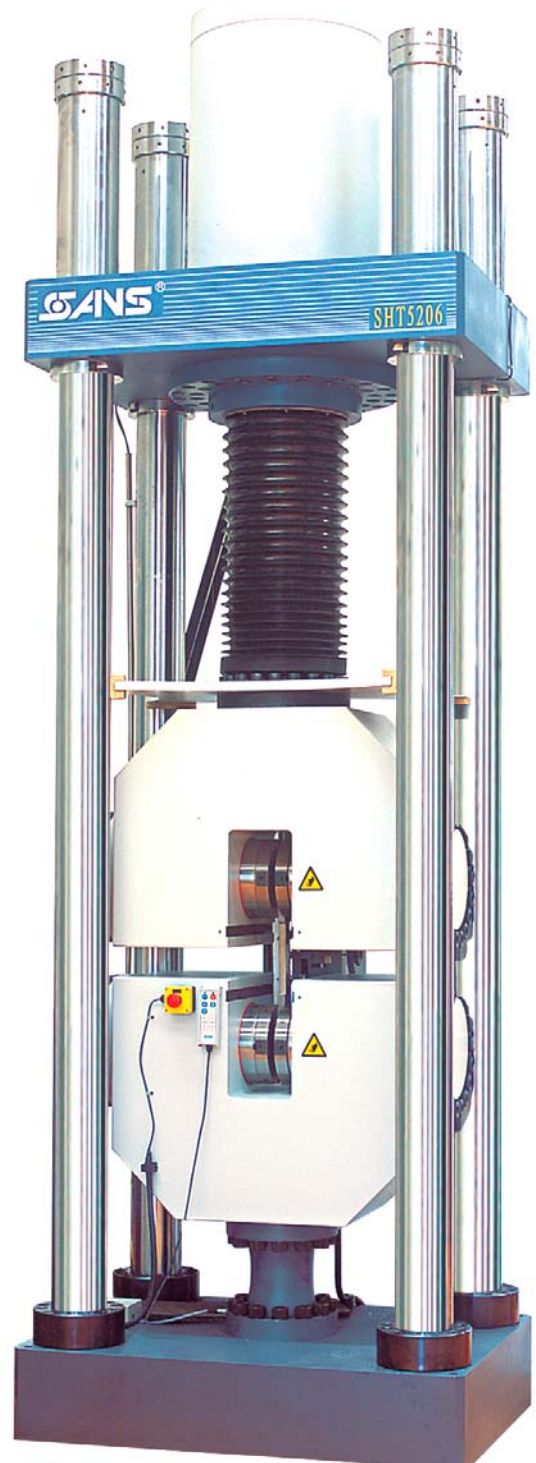


Fig.1 SHT5000P series

Configuration

Load frame

The SHT5000P series load frames are available in standard capacity from 200kN to 2000kN featuring single test space. The frames incorporate human factor considerations in the design to ensure safety, reduce operator fatigue, and provide the highest level of flexibility

Load cell

The SHT5000P series use strain gage load cell technology to measure the force being applied to specimen. The load cell is located under the lower grip and is used to directly measure both tensile and compressive forces. Unlike systems which incorporate a pressure transducer to measure force, the SHT5000P series does not require special systems to minimize frictional effects, to offset the weight of hydraulic oil in the cylinder and to ensure that the piston is not in contact with the cylinder bottom at the start of a test. These special systems require a number of additional parts leading to a more complicated design. The SHT5000P series design reduces part count leading to a load frame that is easy to maintain or decades.

DSP control technology

The SHT5000P series is integrated with SANS DCS-300 control electronics which use advanced DSP technology to ensure fast response, high accuracy. This technology provides the high speed processing power necessary to handle all machine control, data acquisition, limit checking and event detection tasks while freeing up the computer to act as the user interface and data storage medium.

The DCS-300 enable closed-loop control of load, extension and displacement with high accuracy.

Windows OS based Software-Powertest

The SHT5000P series is equipped with SANS Powertest to meet various needs.

Open programming function assure high flexibility to edit test sequences and reports, to satisfy wide ranges of tests.

Modular design provides powerful functions for user authority management, project edit, report template setting, curve analysis, and data export to Excel and Access, and built-in interface for calibration and certification

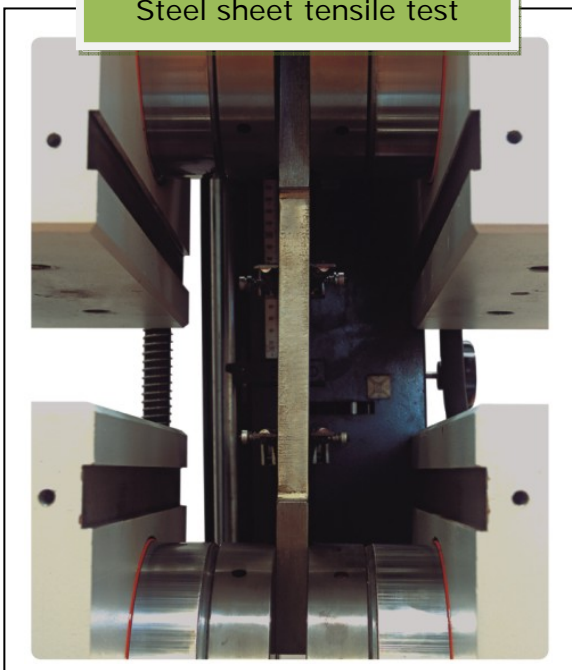
USB communication

Data exchange between control electronics and software is via USB with speed of 12Mb/s. It has advantages of fast and stable data transmission.

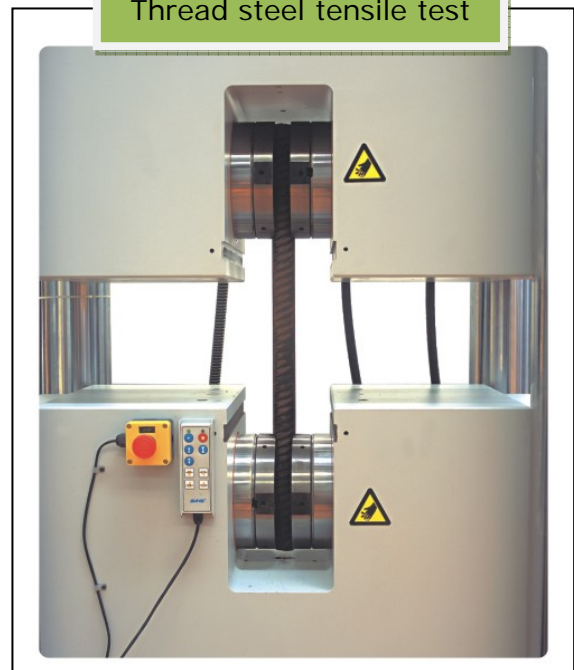
Applications

The SHT5000P series is suitable for proof or ultimate strength tests of specimens such as fasteners, chain, threaded end, shoulder end, wire, rod and sheet materials. With appropriate fixtures, the SHT5000P frame can also be used for compression, bend and shear testing.

Steel sheet tensile test



Thread steel tensile test



Steel rod tensile test



Stranded wire tensile test



Technical Specifications

Series	SHT5000P			
Models	SHT5205P SHT5305P	SHT5505P SHT5605P	SHT5106P	SHT5206P
Accuracy Level	1/0.5			
Load Capacity(kN)	200/300	500/600	1000	2000
Number of Column	2	4	4	4
distance between Columns(mm)	520	600x350	660x400	800x450
Maximum Tensile Space (mm)	400	600	680	800
Maximum Compression Space (mm)	300	470	550	550
Round Specimen Diameter (mm)	Φ10-Φ32	Φ10-Φ40	Φ15-Φ60	Φ15-Φ80
Flat Specimen Thickness(mm)	2-25	2-30	2-40	10-70
Compression Platens(mm)	Φ120	220×220	200×200	Φ300
Ram Stroke (mm)	400	580	680	800
Stroke Speed range (mm/min)	0-160	0-290	0-280	0-156
Stress Speed	1 N/mm ² / s – 30 N/mm ² / s			
Strain Speed	0.00025/s-0.0025/s			
Dimension of Load Frame(L×W×H)(mm)	940×610×2430	880×630×2980	980×720×3530	1220×880×4200
Dimension of Hydraulic Power Station(L×W×H)(mm)	Built-in	1210×610×1100	1500x620x1250	
Total Power(kW)	3	9	13	18
Weight(kg)	1600	3800	6500	9800

(1) Available according to order (2) available according to actual requirements

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): 0.004/0.0008

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

Strain measurement accuracy: ± 0.5% of indicated load from 1% 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%)