

SANTAM

Materials Testing Equipment



STD-1500

With Pneumatic Wedge Grips



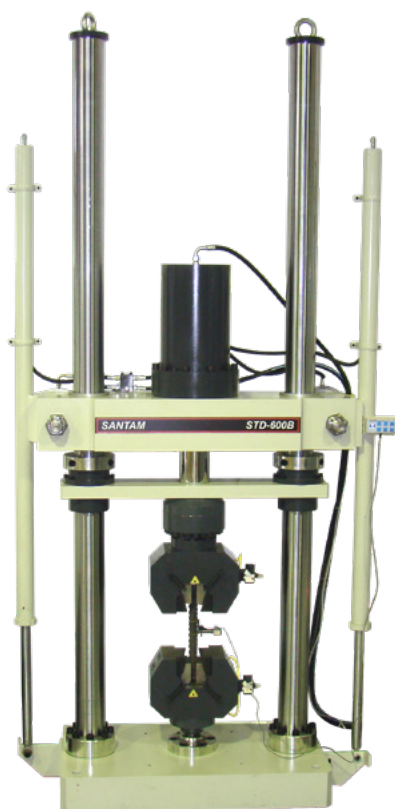
Universal Testing Machine
Electro-Hydraulic Operation
STD Series



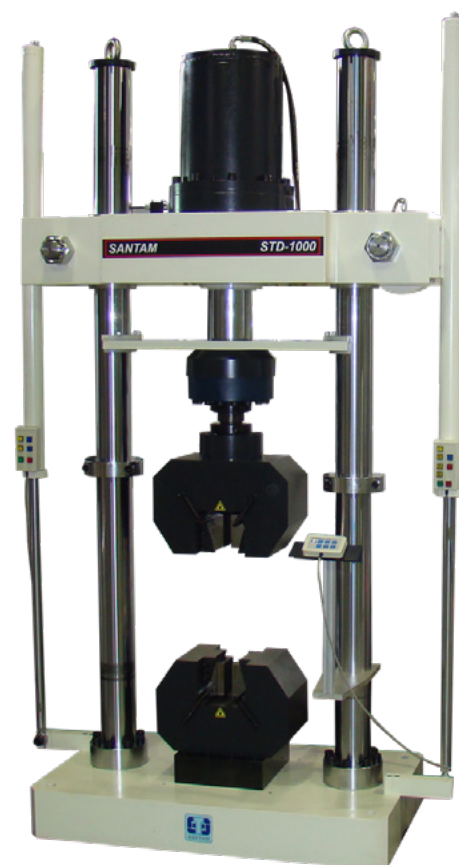
Low Cost , High Performance



STD-600
Pneumatic Wedge Grips



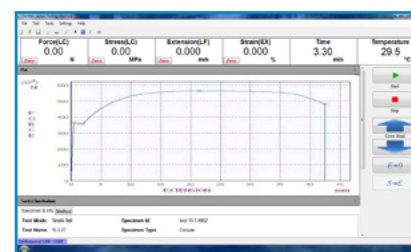
STD-600B
Pneumatic Wedge Grips



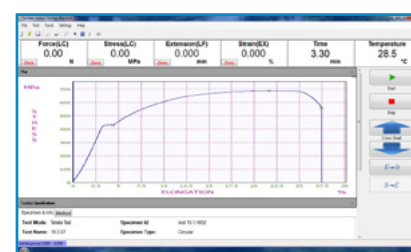
STD-1000
Hydraulic Wedge Grips

Features

- ASTM A370 , E8M , E9-09 , E-209 , C39M , C1609M ISO 6892-1/2, 13314
- Electro hydraulic operating mechanism – servo driver
- Load cell to read the load
- Capable of carrying out tensile, compression, bend, and shear tests (as well as special tests such as bolts and nuts, ...)
- Measuring the load by means of load cell (attached to grip) for high precision (instead of measuring by oil pressure)
- Various load cells, extensometers, grips, and different fixtures based on test type and requirements
- Precise control upon loading rate specially at low speeds 0.01~200mm/min
- Advanced loading control system with AC server, and accurate feedback from displacement (closed loop)
- Capable of defining types of tests with different loadings (displacement rate, strain, force and stress) as well as the required reports
- Low noise with low power loss (consuming power according to the loaded power value)
- Equipped with modern hydraulic unit inside the computer table



Tensile test with Extensometer

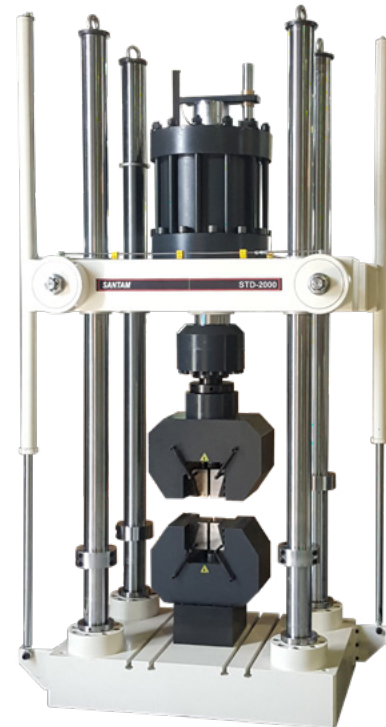


Tensile test without extensometer

Model Specifications	Capacity (TON)	Speed (mm/min)	Maximum Jack Stroke (mm)	Space between columns (mm)	Vertical test space travel (mm)	Description
STD-600	60	0.01~150	500	650	1000	Manually Crosshead Lift & Clamp
STD-600B	60	0.01~150	300	650	1000	Hydraulic Crosshead Lift & Clamp
STD-1000	100	0.01~150	300	700	1000	Hydraulic Crosshead Lift & Clamp
STD-1000M	100	0.01~150	300	1050	1000	Hydraulic Crosshead Lift & Clamp



STD-1500
with Hydraulic Wedge Grips



STD-2000
with Hydraulic Wedge Grips

Application

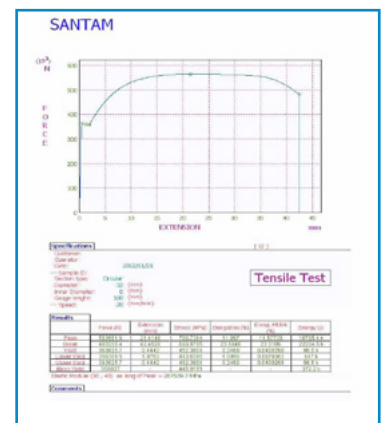
It is intended to carry out tensile test on various metal products (steel, ferrous, aluminum, cast iron, etc.) in high capacities with different shapes (belt, sheet, bar, pipe, bolt and nut, spring, etc.). This type of machine has wide range of application in different institutes and industrial centers (universities, research centers, steelmaking, pipes and profiles, casting, chain making, welding electrode manufacturing, steel rope/wire rope manufacturing, construction industry, insulator manufacturing, etc. Tensile and bending tests can also be carried out on types of construction and composite materials (concrete, stone, brick, rebar, etc.).

Universal Testing Machine, STD series

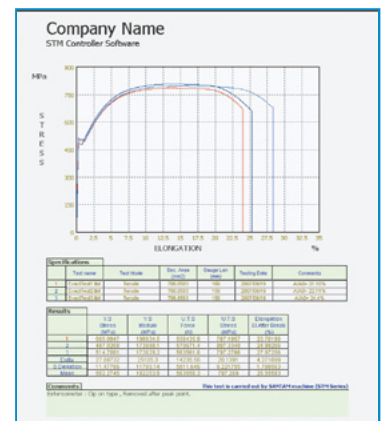
This machine is designed to carry out tensile, pressure, bend, shear, bolts and nuts test on different materials with high stiffness modulus such as metal-based materials, composites, construction and building materials.

Test machines, STD series, compared to its counterparts with servo electromechanical operating mechanism (power transmission via ball screw) has lower costs. Meanwhile, STD series has the capabilities of its counterparts in unidirectional loading (tensile and compression), and can provide the user with all necessary facilities (individual grips and load cell, precision speed control system), accuracy and efficiency of the machine.

Despite the fact that the power transmission system of the machine is of hydraulic type, but the defects of the ordinary hydraulic ones (with unidirectional jacks) are not visible; it can guarantee the loading rate at very low speeds (0.01mm/min) with its advanced control system (closed loop).



Real Tensile test Reporting Through Extensometer



Typical Report of Overlayer Option

Model Specifications	Capacity (TON)	Speed (mm/min)	Maximum Jack Stroke (mm)	Space between columns (mm)	Vertical test space travel (mm)	Description
STD-1200	120	0.01~150	300	700	700	Manually Crosshead Lift & Clamp
STD-1500	150	0.01~150	300	700	700	Hydraulic Crosshead Lift & Clamp
STD-2000	200	0.01~150	150	700	1000	Hydraulic Crosshead Lift & Clamp
STD-2000B	200	0.01~150	150	700	2000	Hydraulic Crosshead Lift & Clamp



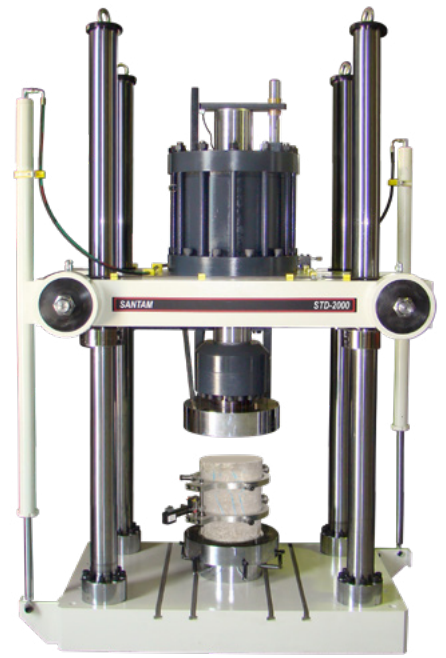
STD-600B
with Compression Platens Self Aligning



STD-600
with 3-Point Bending Fixture



STD-1000
with Compression Platens Self Aligning



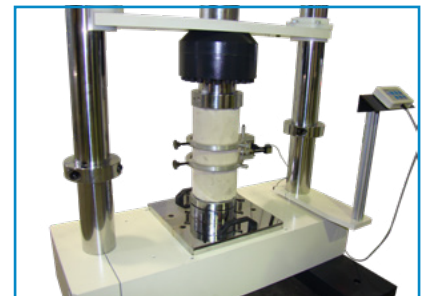
STD-1000
with Compression Platens Self Aligning

Usually, these features are just available in ultra precise servo electromechanical systems, but SANTAM designers enjoying high technical knowledge, as well as innovation could achieve this. Power control in this system is such that the energy for deforming the workpiece is consumed as much as it is required. Therefore, the machine performs the test almost noiseless, and its depreciation is considerably decreased.

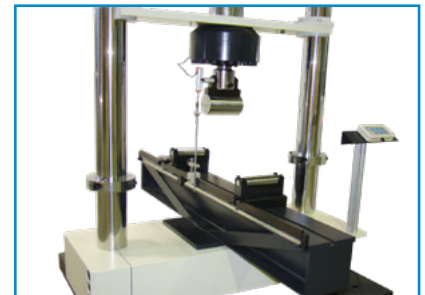
The load cell attached to the grip, measures the load applied to the specimen directly (instead of reading force from the oil pressure or from load cell with mechanical means), it senses any force change in the specimen and shows the real results.

Various low capacity load cells can be replaced and different extensometers, grips and fixtures can be mounted (on customer's request) to increase the machine capability to carry out different tests including tensile, compression, bend, shear, etc. according to international standards. Furnace can be offered for hot tests.

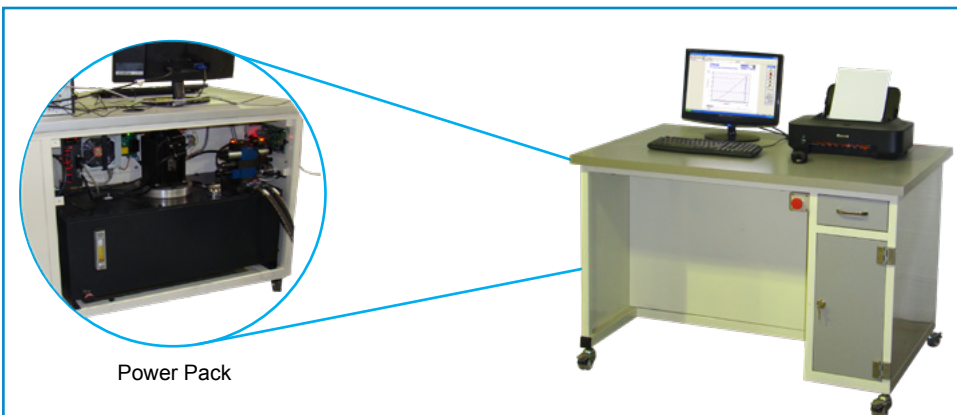
Regarding the machine special applications, capabilities such as increasing the stroke, hoist and hydraulic locking system can be added (on request) to increase the test scope automatically. Considering the mentioned capabilities, the distance between the grips can change automatically and rapidly (not during the test).



Self-Aligning Compression Grip CF600-165R



Bending Grip BF150-3P



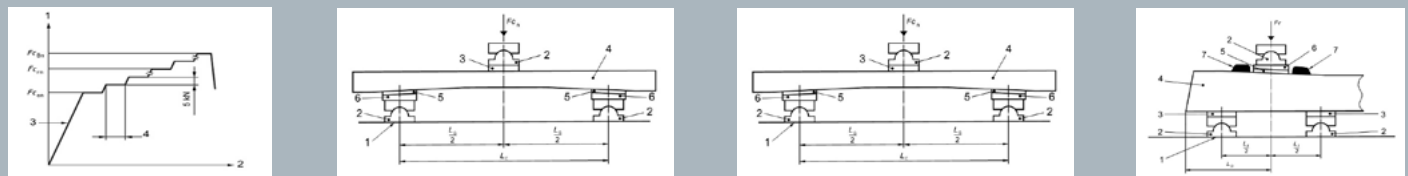
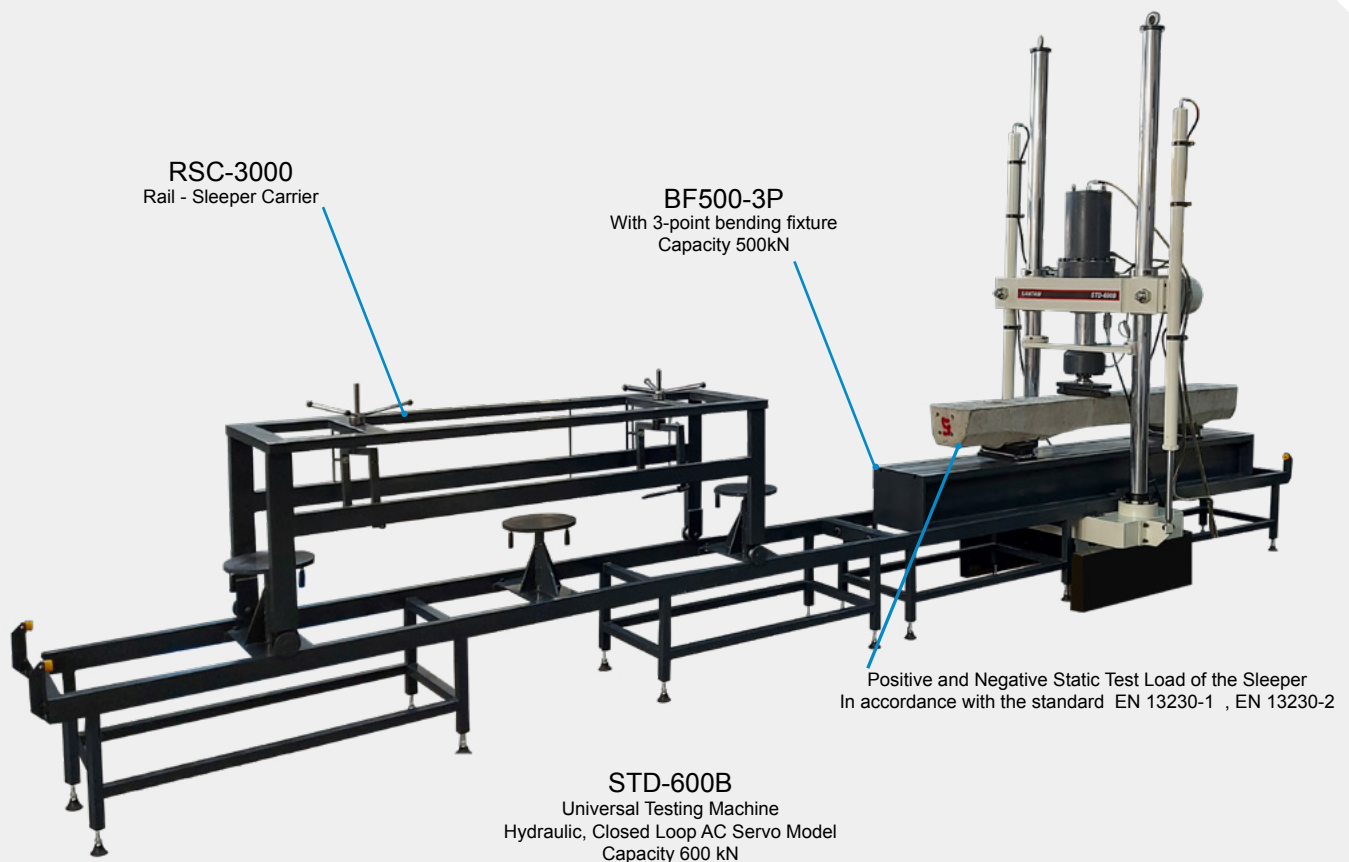
Power Pack

Unit Control



Low Profile Load Cell

Universal Testing Machine (Electro-Hydraulic Operation)



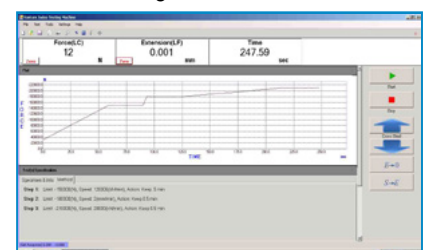
The powerful software of the machine, controls and recognizes the measuring tool, calibrates and defines the test and loading types (extension rate, strain, force, and stress), changes the measurement unit and draws online graphs; it can report and compare any information obtained from the pertaining graphs for the user such as:

- Obtaining different points on graph:
 - a) Classic points yield and proof stress, UTS (ultimate tensile strength), rupture, etc.
 - b) Filtered points (determining the point in certain extension, strain, force and stress)
 - c) Point and click
- Determining all properties for the above points (force, stress, elongation, strain, strain after rupture, strain energy, etc.), capability of comparing the results of several tests and their mean values, deviation, ultimate tensile and yield strength difference in the results, etc.

Capability of the machine in using extensometers leads to deleting all errors caused during extension measurement (errors are usually made by grips displacement; the errors caused by specimen slippage, mechanism deformation, wedges movement and so on, are measured as well), it can determine the exact amount of elastic modulus, yield stress, maximum elongation, etc.

Accessories

- Types of tensile grips (wedge and lateral) with different clamping
- Various self-aligning and fixed compression grips
- Types of 3-point and 4-point bend grips
- Different extensometers for tensile, compression, and bend tests
- Types of bolts and nuts



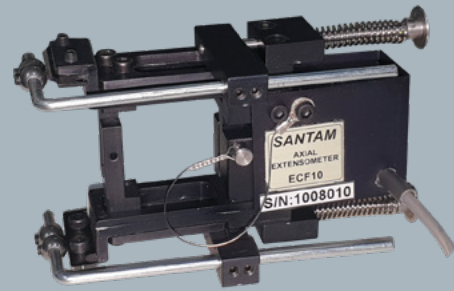
Static bending test of sleepers

Extensometer



ENA-800

Non Contact Automatic Servo Motion Extensometer
High Resolution
Minimum Gauge 15 mm
800 mm Travel



ECF10

Cross Flexure Design Extensometer Clip-on
High Resolution
Gauge-25 & 50
10 mm Travel



EHR10-C

Thickness Reduction Extensometer
High resolution, 10mm travel



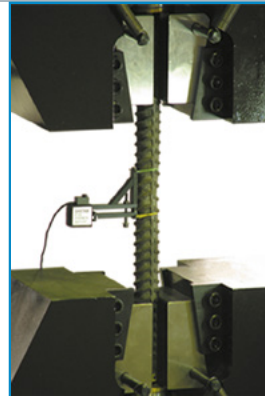
ECF10

Cross Flexure Design, clip-on extensometer
Gauge-25 & 50
High Resolution



EHR10-A

Clip-on extensometer
Variable Gauge
25,50,75, 100, 150, 200
High Resolution



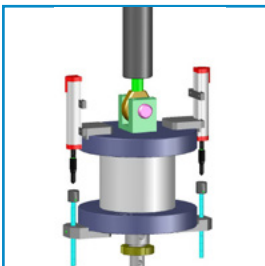
EHR10

Clip-on extensometer
Gauge-25
High Resolution 10 mm Travel



EHR10-B

COD Crack Opening Displacement
High Resolution 2 mm Travel



ELP50-B

The exact longitudinal strain (For Compression)
Double Sensor



EHR10

The exact longitudinal strain (For Compression)
High Resolution



ELP50-3

The exact longitudinal strain (For Compression)
Double Sensor



EHR10-D

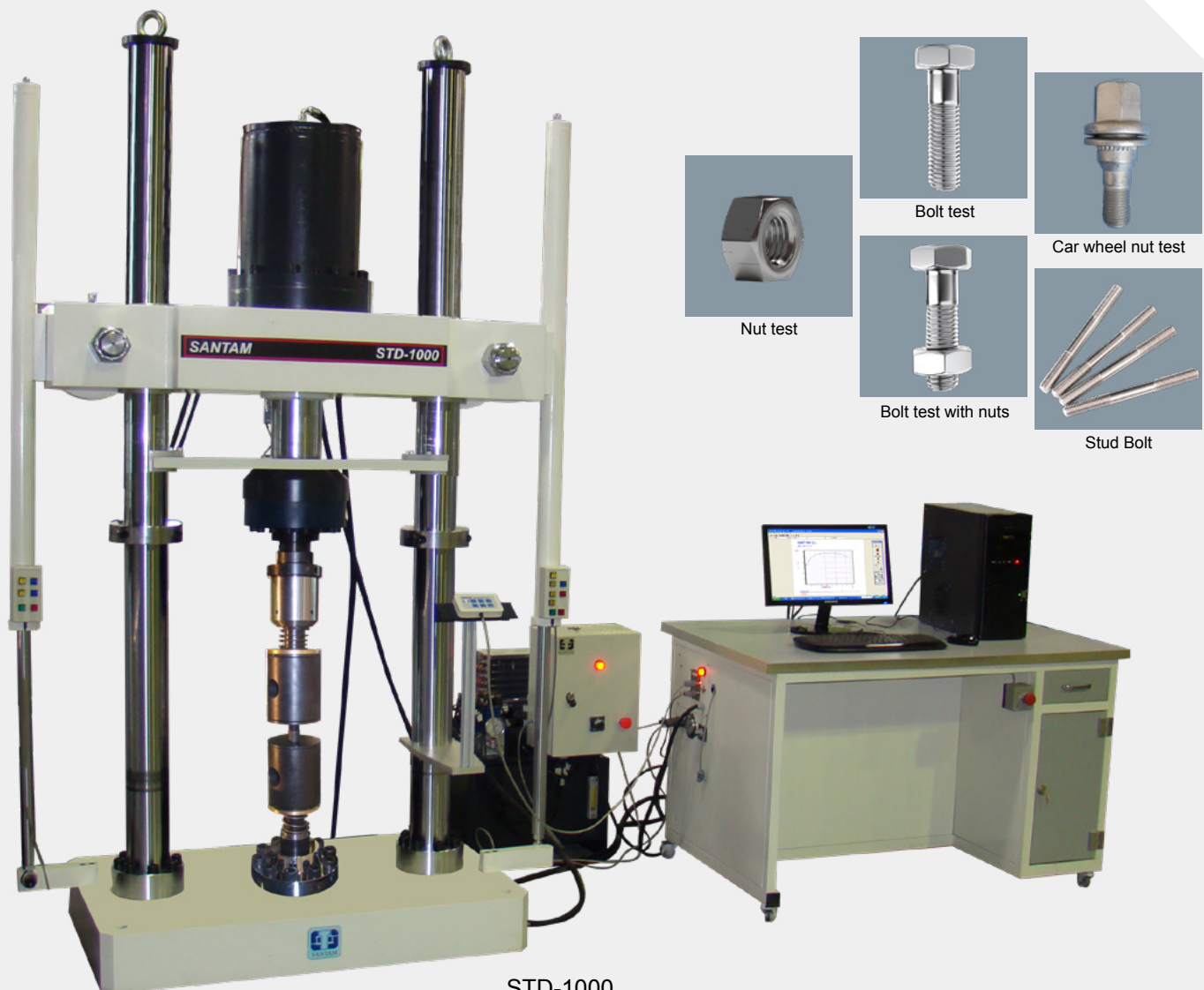
Extensometer Thickness Increase
The exact transverse strain



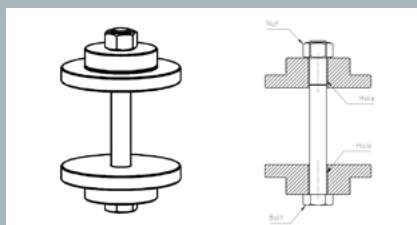
EHR10-D2

Transverse and longitudinal strain extensometer
To calculate the Poisson's ratio

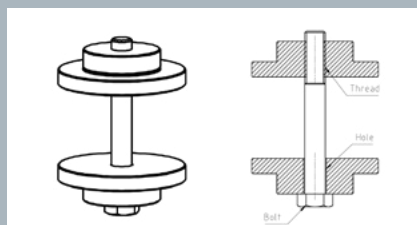
Universal Testing Machine
(Electro-Hydraulic Operation)



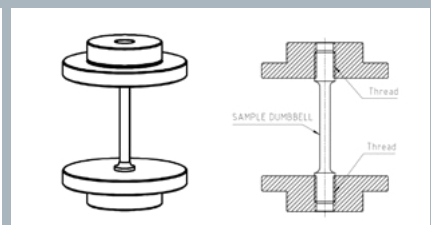
STD-1000
Universal Testing Machine
Hydraulic, Closed Loop AC Servo Model
Bolt & nut Testing, ASTM-A370
Capacity 1000 kN



Bolt test with nuts



Test bolt without nuts



Stud Bolt



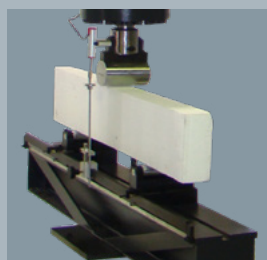
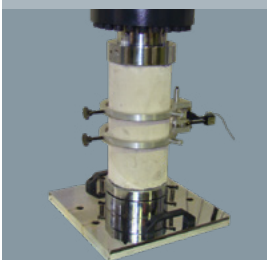
Universal Testing Machine
(Electro-Hydraulic Operation)



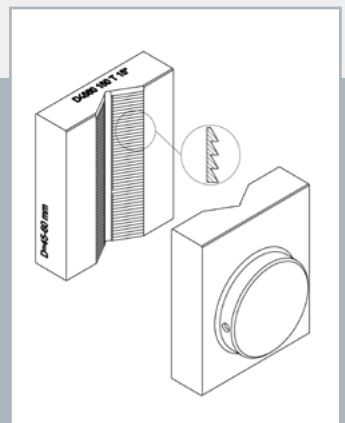
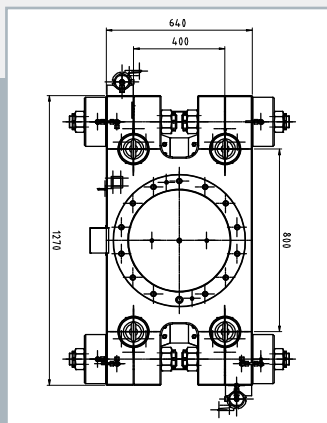
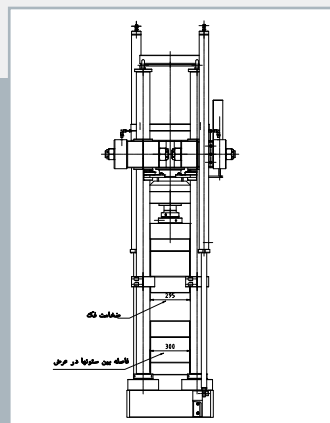
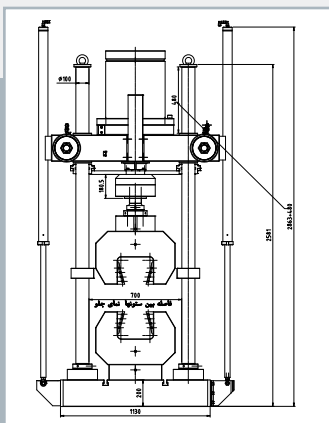
STD-1000
Universal Testing Machine
Hydraulic, Closed Loop AC Servo Model
Fixed Compression Platens



STD-1000
Universal Testing Machine
Hydraulic, Closed Loop AC Servo Model
3-point Bending Fixture, C1609/C1609M – 12
Capacity 1000 kN



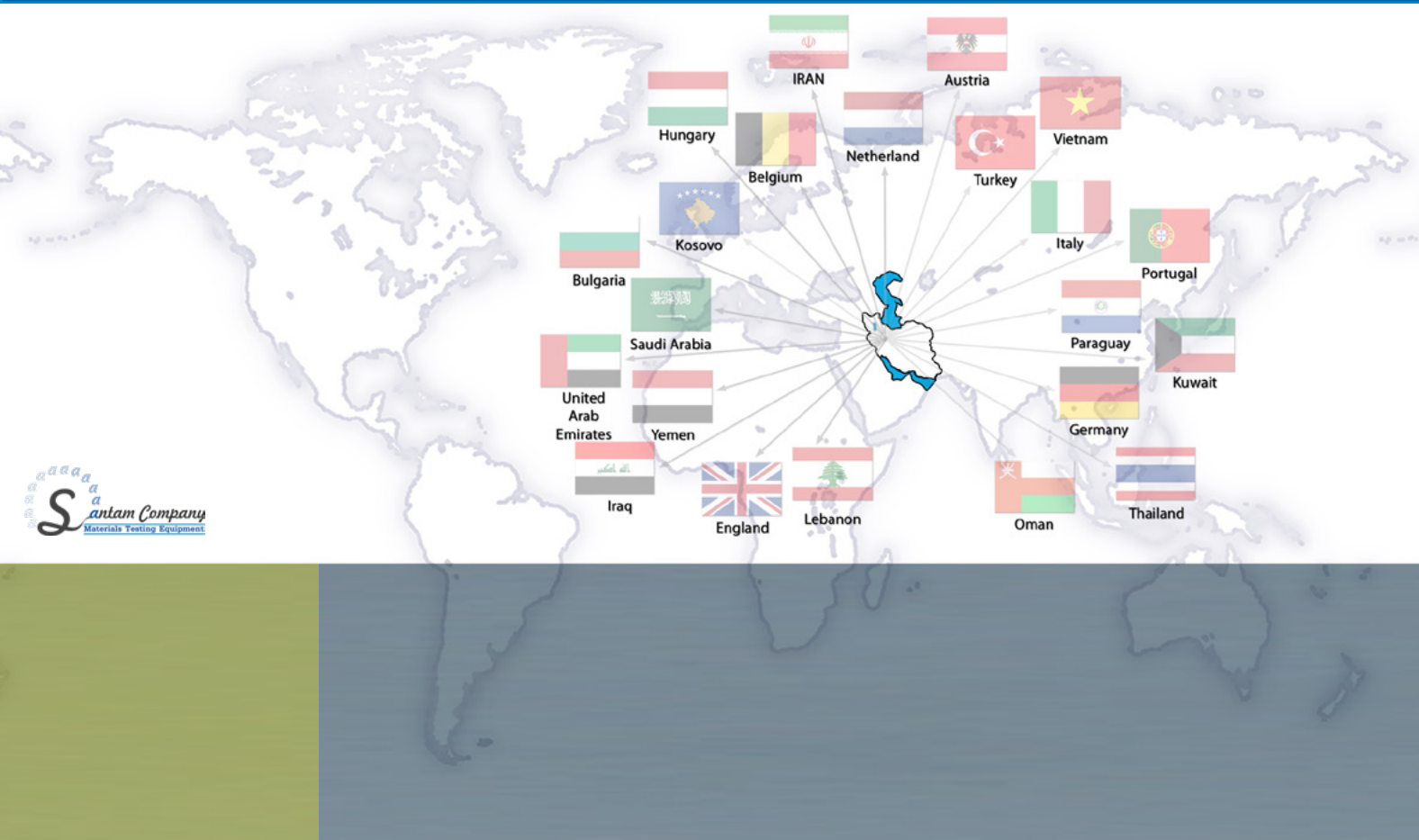
Universal Testing Machine (Electro-Hydraulic Operation)



Universal Testing Machine
(Electro-Hydraulic Operation)



Technical Specifications					
Model	STD-600	STD-600B	STD-1000	STD-1500	STD-2000
Capacity, kN (Tonf)	600(60)	600(60)	1000(100)	1500(150)	2000(200)
Standard	ASTM A370 & EBM & E9-09 & E-209 & C39M & C1609M ISO 6892-1/2 & 13314				
Tensile test speed range, mm/min	0.01 ~ 200				
Compression test speed range, mm/min	0.01 ~ 150				
Force measurement	By means of load cell, accuracy 0.5% of the reading in range of 2% to 100% of load cell capacity, resolution 1/±100000				
Extension measurement	By means of non-contact encoder, resolution 0.001mm, accuracy 0.05mm				
Capable of mounting extensometer	Different analog and digital extensometers (SANTAM made) can be mounted				
No. of columns	Double	Double	Double	Four	Four
Round specimen clamping range, mm	d=5~40	d=5~40	d=5~50	d=4~60	d=4~75
Flat specimen clamping range, mm	t=0~35	t=0~35	t=0~45	t=0~60	t=0~80
Test stroke without grip, mm	1550	1750	1800	1850	2700
Test stroke with tensile grip, mm	1000	1000	1000	800	700
Jack maximum stroke, mm	500	300	300	300	150
Distance between columns, mm	650	650	700	700*300	700*400
Hoist and locking mechanism	Manually	Hydraulic (with Separate Power Pack)	Hydraulic (with Separate Power Pack)	Hydraulic (with Separate Power Pack)	Hydraulic (with Separate Power Pack)
Dimension (w×l×h), mm	3000×900×1250	3100×1000×1410	2800×700×1550	2620×970×1500	3000×3000×4500
Electricity current	380±5%VAC, 3 Phase				
Power	12 Amp, 2500 W	12 Amp, 2500 W	15 Amp, 3000 W	15 Amp, 3000 W	15 Amp, 3000 W
Approx. weight, Kg	2200	2700	3300	4000	6200



Designing & Manufacturing of
Materials Testing Equipment

ISO 9001 - 2015



Agent

All of the specifications shown in this brochurs are subject to change without notice.

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