

Torsion Testing Machine

CTT Series 200Nm-2000Nm

Instruction

CTT Series uniquely superior torsion tester are mainly used for performing torsion test on metal, nonmetal and compound materials complying with international standards. SANS offers five models torsion testers (CTT202, CTT502, CTT103, CTT203 and CTT303) with capacities of 200Nm, 500Nm, 1000Nm, 2000Nm and 3000Nm.

Torsion



Fig 1. CTT series Torsion tester with PC

Main feature:

CTT Series offers a full range of torsion testing machines in capacities from 200 to 3000 Nm. These uniquely superior torsion testers provide loading and weighing capabilities in both directions of rotation. This feature makes it possible to conveniently determine not only the ultimate torque load of a specimen, but also how that specimen behaves under conditions of continuous or intermittent

torque loading in both directions.

Essentially, each torsion tester comprises a variable speed drive loading system and a digital control and indicating system in a fixed unit.

The weighing head with its strain gage torque transducer is mounted on a moveable unit, which can be located on the rails to accommodate specimens of varied lengths.

SANS CTT series belong to bench top with floor based and are furnished with heavy duty slotted steel bed rails that are normally lies on the test bed, the standing support bed and the slotted steel rail are solid integral frame. These sliding rollers allow the moveable unit to compensate for any changes in specimen length during loading. All torsion testers feature our patented bi-directional grips, which assure slip-free specimen clamping regardless of the twist direction. With these precision-machined universal grips, loads can be applied in both directions without changing grips. The rugged,

electromechanical loading system employs a gear reduction system coupled directly to a variable speed drive motor. This reversible loading system provides positive, infinitely variable testing speeds from 6° to 720°. As the load increases, more power is delivered to the twisting head to apply increasing torque to the specimen to maintain the preselected twisting rate.

SANS Powertest Software with standard PC and DCS-300 controller carry out closed loop control and torsion test data analysis and capturing, and also showing the material behavior throughout the test.

Fig2. High precise encoders ensure twist angle accuracy

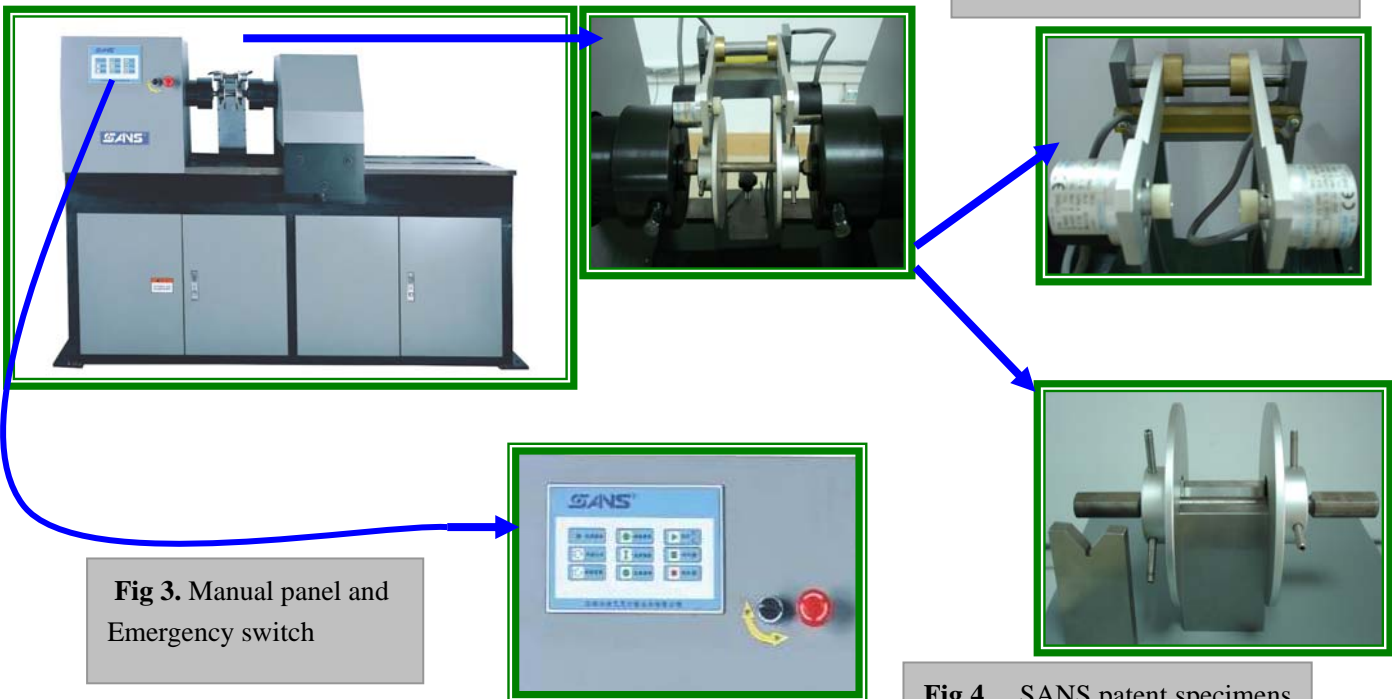


Fig 3. Manual panel and Emergency switch

Fig 4. SANS patent specimens gauge length block

Technique Specifications:

Models	CTT202	CTT502	CTT103	CTT203	CTT303
Torque capacity (Nm)	200	500	1000	2000	3000
Torque measurement range (Nm)	2~200	5~500	10~1000	20~2000	30~3000
Accuracy class	Grade 1/0.5				
Torque measurement accuracy	±1% of indicating / ±0.5% of indicating				
Torque resolution (Nm)	1/300000				
Twist angle range (°)	0~10000				
Twist angle accuracy	±1% of indicating				
Torsion speed (°/min)	6~720	6~720	6~720	6~720	6~500
Torsion speed accuracy	±1% of indicating				
Span of two ends grips (mm)	300	650	650	650	650
Specimens diameter (mm)	Ø6- Ø16	Ø6- Ø20	Ø6- Ø20	Ø8- Ø26	Ø8- Ø26
Motor Power (kW)	0.2	0.4	0.75	1	2
Power supply (V/Hz)	(220±10%)/50	(220±10%)/50	(220±10%)/50	(220±10%)/50	(380±10%)/50
Dimension of frame (mm)	1000x520x500	1700x510x1150	1700x510x1150	1700x550x1200	1850x660x1200
Weight(kg)	300	500	500	550	750

Operating Temperature Range: 0 to 40°C

Storage Temperature Range: -10 to 45°C

Humidity Range: 10% to 90% non-condensing, wet bulb method.

Power: standard optional voltages 220/240 VAC, 50– 60 Hz; power must be free of spikes and surges exceeding 10% of the nominal voltage

Specifications subject to change without notice

Optional Features: Torsional pickups can be fitted directly to the sample for exact measurement of the angle of twist.

Powertest

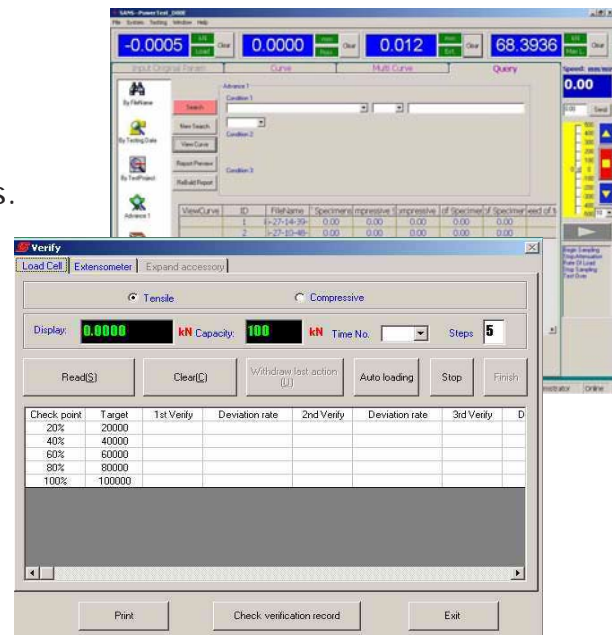
Software:

Powertest Software

Building on our long history of providing solutions to an enormous variety of different testing problems, SANS offers a comprehensive range of software products, each design in the hope of making testing simple, precise and efficient. Specific and focused application software products have been developed in close cooperation with our customers around the world. There are several valuable features that are common to all. Perhaps the most important is the ability to further customize the testing

- Use of modern databases.
- Generation of user customized reports.
- Standard SPC programs for X-bar, R, and frequency distributions/histograms.
- Ability to recall, replot, and rescale curves.
- Recall of data that spans different test modules.
- User-configurable machine parameter and control setting

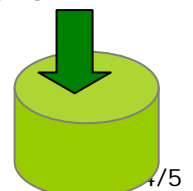
parameters that are used to collect and document testing data, as well as control the testing machine. Specifically, our range of application software is for data acquisition, data analysis, and closed loop control of SANS testing machines that have a compatible servo system or four-quadrant drive. All versions of our focused application software are rich with standard features that improve productivity and enable you to build, access, and use a powerful materials testing database:



Control system:

With late-model material high standard inspection and new technology changing with each passing day, the requirement of controlling the material testing machines have been demanded to upgrade much higher stages, SANS contributed to the testing machines solutions over decades course and launched the advanced control

system of DCS-300 to wide customers in variety industries and different territories of the world, DCS-300 controller brings more advantage in the measurement resolution which up to 1/300000. Hereby the following features will be shown:



industry controlling and suitable to be IC of our products.

Closed loop control Function

Closed loop among stress, strain and displacement by digital control system, DCS-300 come true the control loops can exchange automatically and evenly. 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.

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-digit fixed point, vector control, A/D exchange, position capturing, etc. It is a CPU widely used in



Control Technology

USB2.0 communication

Data exchange between hardware and software via USB 2.0 interface and velocity of 480 Mb/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.

Data acquisition & position capturing system

Data acquisition system consists of 8 channels of 24 bit A/D exchange; effective resolution is 1/300000 and no steps in full range. Exchange velocity and gain are programmable on line. The products contain 3 channels of encoders' position capturing system, permitting photo-electricity orthogonal code impulse. Frequency can reach 5 MHz, which has functions of correcting, direction identifying and number counting.

