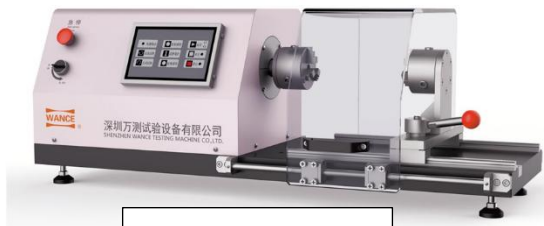


Torsion Testing Machine | 50~5000N.m



TST501 50Nm



TST202 200Nm



TST502 500Nm
TST103 1000Nm

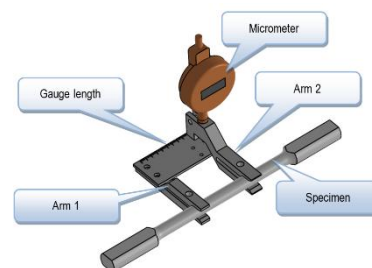
This type of torsion testing machine is a new generation of torsion testing machine independently developed by our company in combination with the current international advanced manufacturing and control technology. The machine is suitable for testing the torsional properties of metal, nonmetal and composite materials. The equipment is designed with table-top structure, low backlash precision planetary reducer and imported servo motor, with compact structure, low noise, high transmission efficiency, wide speed range and other advantages. The maximum output speed can reach 5r/min (1800°/min), which can greatly shorten the conventional test time. In addition to the conventional torsion test function, the torsion residual strain test can also be realized, which is especially suitable for teaching in colleges and universities.

Features

- Torque is measured by high-accuracy and high-stability transducer
- AC servo motor driver offers infinitely variable speed transmission
- It can apply positive and negative torque on specimen
- Over-load protection
- Emergency stop button
- Automatic removing initial clamping force
- Automatic calculation after test
- Angle measurement can automatically recognize upper and lower yield point of materials
- DSP based control system, integrating measurement with control
- Fully closed-loop control of load, displacement and extension
- Professional test software allows data analysis and graph plot, report print and export.
- Live display of torque, angle and speed

Troptometer

- Swiss made micrometer ensures accurate measurement of torsion angle in gauge length.
- Compact structure, easy to operation, high efficiency.
- Torsion angle resolution is greatly improved, resolution can reach 0.001°
- Test result is more accurate with higher repeatability.



DTC-500 controller



- High integration, powerful control, data processing capacity, high reliability.
- Two closed loops (torque and twist Angle) control system, realize full digital two closed loop control of torque and twist Angle, and

automatically switch between each control loop, and achieve smooth transition without impact when switching between different modes.

- It can control and maintain the test torque and torsional Angle.
- Three-channel high-precision 24-bit analog signal acquisition system, up to 1200Hz acquisition frequency and 20BIT resolution.
- Three high-speed digital acquisition channels, used for acquisition of photoelectric encoder, grating ruler and other orthogonal pulse signal, the highest signal acquisition frequency up to 4MHz.
- Integrated high-speed FPGA module can realize synchronous acquisition of multiple signals, and the test results are more accurate.
- Digital output interface can output 0 ~ 2MHz pulse signal, analog output interface can output 16-bit precision -10V ~ +10V voltage signal, can be used for servo motor, servo valve and other actuator control.
- RS232 serial port communication, communication rate of 115200bps, strong anti-interference ability, at the same time provide USB interface for communication with computers without RS232 interface.
- With locking function connector, durable, not easy to fall off. Interface features can be set online by the software. The layout of each interface is neat and reasonable.
- With perfect limit protection, overload protection, emergency stop and other safety protection functions.

Software

- Modular design: TestPilot USES modular design to divide software into modules for easy upgrades and access management.
- Various upgrading methods: TestPilot upgrading methods include: customer service personnel on-site service; Mailing CDS; Customers upgrade themselves.
- Test criteria: Open programming on TestPilot, customers can edit the test criteria according to their own needs, add the desired results parameters.
- Test plan: Users can easily conduct personalized design for each test through the wizard. Before the test, users only need to select the applicable test plan. Test control parameters, data processing methods and printing items have been set as required.
- Test report can be programmed: the user can set the header and footer before the report output, select the curve type and print out items.
- Measurement display window: torque, twist Angle and twist Angle are displayed independently. Users can set the display window according to their own needs.
- Unit conversion: Internal integration (torque: N·m, kg·m, LB-FT; Torsional speed: $^\circ/\text{min}$, $^\circ/\text{s}$, R /min, etc.,

Torsion Testing Machine | 50~5000N.m

which can be converted at any time during the test. New unit conversion mechanisms can be added according to user needs.

- Graphics: Users can choose any curve to compare. It also provides printout function of any size. Curve zoom function, the user can enlarge the translation of the curve through the mouse in the area. The curve printing function enables users to print all visible curves in any size and position. The software can display multiple curves at the same time, and can automatically calculate and display feature points.
- Automatic intelligence: no need to select files, no need to preset maximum stress and maximum coordinates, coordinate system automatic switching, always see a complete curve.
- Print preview: Like OFFICE software provides print preview function, so you feel more relaxed.
- Multi-combination query data function: users can query the data of previous experiments through the combination of multi-conditions, which greatly facilitates customers to query historical data, compare curves and data.
- Fine-tuning the test results: users can customize some key parameters to fine-tune the test results, such as re-calculating the corresponding shear modulus and other data of the starting point of the elastic section.
- Data statistics function: users can select corresponding data statistics items according to their own requirements.
- Data output: Test data can be exported to Excel to facilitate user analysis of test data.
- Multi-step test control scheme can be set: the test scheme can be set arbitrarily according to different test requirements of users.
- Curve analysis: the software can automatically mark feature points on the curve. Users can zoom in, move, traverse, modify feature points and print curves with the mouse at will.

Technical parameters

Model	TST501	TST202	TST502	TST103	TST203	TST303	TST503
Maximum torque (Nm)	50	200	500	1000	2000	3000	5000
Torque range (Nm)	1-50	2-200	5-500	10-1000	20-1000	30-1000	50-1000
Accuracy class	Cass 0.5						
Torque reading accuracy	±0.5% of reading						
Torque resolution (Nm)	1/500000FS						
Torsion angle range (°)	0-10000						
Torsion angle accuracy	±0.5% of reading						
Troptometer angle resolution	0.001°						
Troptometer angle accuracy	±1.0% of reading						
Torsion speed (°/min)	0.01-10800	0.01-5400	0.01-1800		0.01-1080	6-720	
Torsion speed accuracy	±1.0% of setting						
Grip distance (mm)	300						
Gripping end diameter	Φ3- Φ8	Φ8- Φ18	Φ10- Φ20		Φ8- Φ20	Φ10- Φ28	
Motor consumption (kW)	0.4	0.85	0.85		1.3	2	2
Rated power supply	Single phase, 220VAC, 50Hz						
Machine size (mm)	950×340×300	950×350x400	1600 ×422 ×1200		1700×550×1200	1800×500×1350	1850×660×1200
Weight (kg)	60	100	500		700	750	750

Standard accessories

No.	Name	Description	QTY
1	Main machine	Main machine	1
1.1	Reduce	Precision planetary reducer	1
1.2	Servo motor and driver	Japan YASAKAWA	1
1.3	Torsion transducer		1
2	Controller	DTC500 Full-closed loop control	1
3	Computer and tools		
3.1	Computer		1
3.2	Tool kits	For changing grips	1
4	Grip		1
4.1	Jaws	Vee jaws: $\Phi 8$ - $\Phi 18$	1
4.2	Gauge length meter	50mm, 100mm	1
5	Troptometer	Suitable for $\Phi 10$ (diameter in parallel length) sample (SYLVAC micrometer)	1
6	Documents		1
6.1	TestPilot_ETT test software	CD	1
6.2	Quality certificate		1
6.3	Operation manual		1



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