Physical Test Solutions

Innovative Solutions in Material Test Equipment

Special Instruments

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To complement the comprehensive line of materials testing equipment, **PTS** introduces a line-up of instruments for use in an industrial testing environment. **PTS** offers the following testing solutions:

GBS-60B Erichsen Cupping Tester

The GBS-60B is suitable for processing test for metal plate and belt material. It can inspect the anisotropism of nonferrous metal plate and the plastic deformation performance of metal plate and belt material.

Cupping test basics: The system uses a steel ball or ball punch of a certain specification to press a specimen, which is clamped with a 10 KN force. The force is applied until the specimen is penetrated. The depth that ball punch penetrates into the specimen is the cupping value of the tested specimen, and this cupping value is used to estimate the plastic deformation performance of the material.

Deep drawing cups testing of non-ferrous metals: This method uses a column punch of a certain specification to impact a round plate with a certain external diameter between clamping mould and cups testing mould. The round plate extends along the radial direction and bends under the pressure of the punch, which turns the plate to a column cup, then two symmetrical ear shape protuberances, are formed on the edge of this cup, the anisotropism of material is estimated by measuring the ear rate

NDW Series Torsion Testing Machine

The NDW torsion testing machine uses a PC-controlled AC servo system and is loaded through the active clamping head driven by the AC servo motor and cyclonical pinwheel reduction motor. The torque and torsion angles are measured with a high-precision torque transducer and photoelectric encoder. The computer will dynamically display the test torsion curve, loading speed, peak value, and other relevant information. Model NDW is mainly used for the torsion test of metallic and non-metallic materials, as well as for torsion tests of parts and components. It is an essential instrument to measure torsion properties of materials for mechanics laboratories in the aerospace industry, in general industrial applications, in the construction industry, in scientific research applications and in universities.

EZ Series Metal Wire Torsion Testing Machine

EZ - 3

Model EZ-3 is mainly used to test the plasticity of 1-3mm metal wires and ropes under torsion condition. Surface flaws of steel wires may be shown out during the testing process. It is most suitable for quality inspection of departments related to steel wire.

This testing machine has 3 rotation speeds: 60, 90 and 12 revolutions per minute. The length range of specimen steel wire is 300-100mm. The revolution is displayed by 4-digit LED. The maximum displayed revolution is 999.9. The revolution value is automatically held at the break of specimens.

EZ - 10

Model EZ-10 is mainly used to test the plasticity of 3-10mm steel wires under torsion condition. Surface flaws of steel wires may be shown out during the testing process. It's suitable for quality inspection of departments related to steel wire.

This testing machine has 2 rotation speeds: 30 and 60 revolutions per minute. The length range of specimen steel wire is 500-300mm. The axis force is through the 10:1 lever. The rotation motor is automatically started when the force is applied, and auto-stop at break of specimen. The revolution is displayed by 4-digit LED. The maximum displayed revolution is 999.9. The evolution value automatically holds at the break of specimens.

Model EZ-3

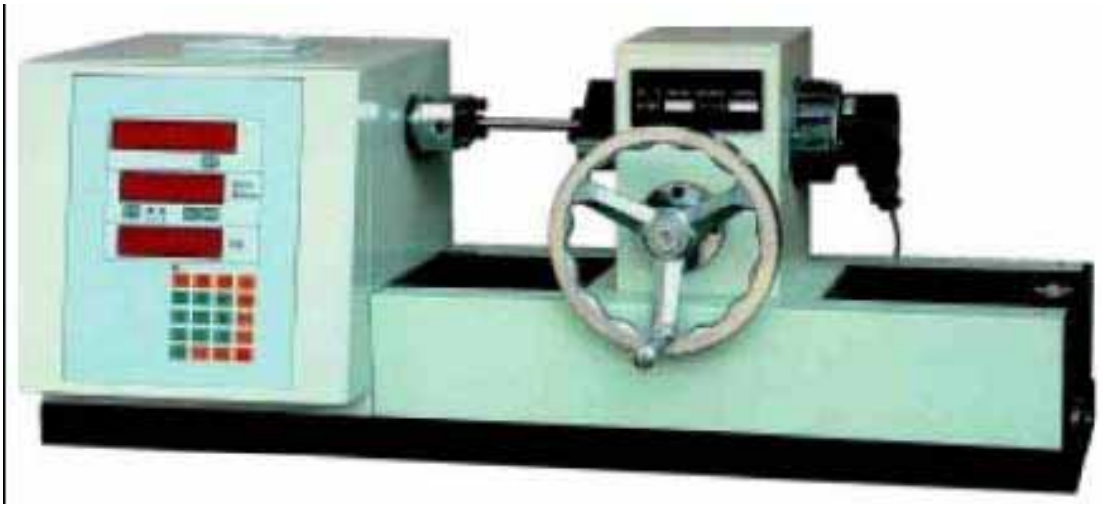
Model EZ-10

NJS Series Digital Display Torsion Testing Machine

Model NJS is used to perform for torsion tests on various materials by imposing a torque. There are two test methods:

- Automatic test: Turn the hand wheel until the test rod breaks. The testing machine will automatically test the yield torque M1 and the maximum torque M2.
- Manual test: To choose the test angles and torques of any 9 points during the test period and record them.

The machine can retrieve or print latest test results after a test. It is suitable for applications in labs environment in scientific research dept., colleges and industrial enterprises to test the mechanical properties of materials under torsion conditions. This series of testing machines conforms to standards of ASTM A938, ISO 7800:2003.， GB/T239-1998, GB10128 and others equivalent.



Specifications:

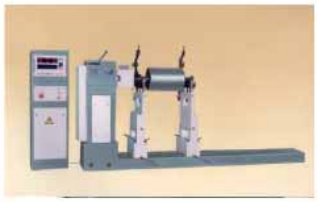
- Maximum test torque 150 Nm
- Minimum reading of torque 0.05 Nm
- Accurate torque measurement range 20-150 Nm
- Maximum torsion angle 9999.9°
- Minimum reading of torsion angle 0.1°
- Relative error of torque indication ≤ ± 1.0%
- Relative repeatability error of torque indication ≤1 . 0 %
- Diameter of specimen 10 mm
- Maximum test space 260 mm
- Power Supply AC, 220V ± 10%

YQ Series Quick Forging Test Machine, YQR Series Quick Hot Forging Test Machine

The YQ and YQR machines comply with the International standards "*Metallic materials forging test methods"*, for quality control inspection of high-speed rods and wires. By simulating the quick impact conditions of the metallic materials during the forging and pressing process, the machine truthfully reflects the instances of the quickly compressed rods and wires.

Bearing and Vertical Balancing Machines

PTS has an extensive selection of hard bearing and vertical balancing machines. With a wide variety of applications ranging from the fields of motors, fans, diesel engines, textile machines, aerospace and ships the machines offer practical balancing solutions.



MMW-1A Computer Control Universal Friction and Wear Testing Machine

Model MMW-1A simulates rolling, sliding and rolling & sliding combined movement under a defined contact pressure to complete point, line and plane simulating tests. The unit is used to evaluate the friction and wear performance of lubricants, metals, plastics, coatings, rubber, ceramics and a variety of other materials. The unit meets the requirements of the traditional petrochemical industry for research and development, and to test various kinds of intermediate and high grade hydraulic oils, combustion engine oil and gear unit oil.

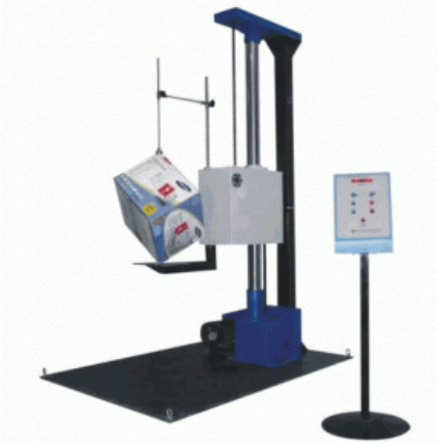
GW-40A Bend Testing machine

The Bend Testing Machine is special equipment to carry on bending test for reinforce bar, steel bar and pipe. It can do bending test with both directions according to standards requirement. It conforms to standards ASTM A615-89, ASTM A615M-89, ISO 7438:1985, ISO 8491：1986（E）.

PQ-6 Pure Rotary Bending Fatigue Testing Machine

This machine tests the fatigue strength of metals or other materials under bending and rotating conditions. ModelPQ-6 typically tests the bending fatigue limitδ-1 of metals under the action of a symmetrical repeatedly alternating bending force. Accordingly the tension-compression fatigue limit δ-1p and torsion fatigue limitτ-1 can be determined by calculation according to experienced formula. The system has simple structure, easy to operate, stable and reliable liable. The unit is used in industrial environments and in educational institutions.

Model DTT-150 Drop Testing Table



This equipment can be used to do free falling test on the packages' side, corner and arris. Digital display height readout and encoder are used for tracing height and offer the accurate falling height, whose error does not exceed 2% or 10mm compared with the preset falling height. It adopts single arm double columns structure. Electric reset, electric-controlled falling and elevating device is convenient for use. Particular hydraulic cushioning device enhances greatly the service life, smoothness and safety. Single arm structure is easy for placing sample. The angle between the falling impact surface and motherboard surface does not exceed 5º.

Technical Specifications:

Test mode	Side, corner and arris
Dropping height	300 - 1500mm (12" – 59") adjustable
Test capacity	0 - 100kg (0 – 220 lb)
Maximum specimen size	1000X800X100mm (LXWXH) (39"X31"X 39")
Holding arm size	270 X 750mm (11" X 30")
Weight	700 kg (1,550 lb)
Power supply	AC 110V, 60Hz. / 220V, 50Hz

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