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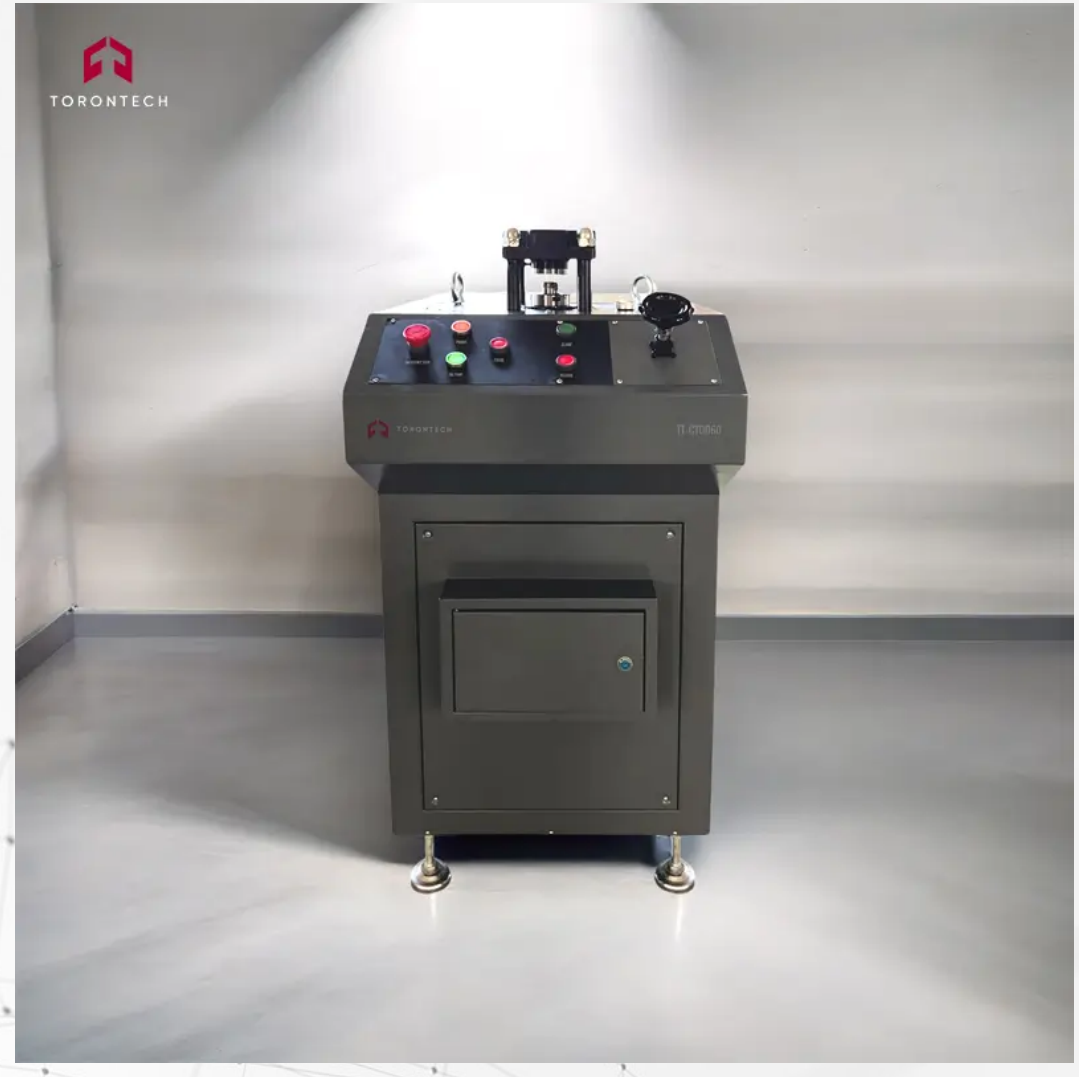

DEEP DRAWING AND CUPPING TESTING MACHINE FOR SHEET METALS – TT-CTDD60

Computer-Controlled Deep Drawing and Cupping Testing Machine TT-CTDD60, a precision instrument for assessing the process performance of metal sheets and strips.

APPLICATIONS

Computer-Controlled Deep Drawing and Cupping Testing Machine TT-CTDD60 is a precision instrument for testing the process performance of metal sheets and strips. The Erichsen cupping test is conducted according to standards ISO 20482, ISO 1520, and GB/T 9753. The deep drawing or earing test device complies with EN1669 and ISO 11531 standards. The hole expansion test device adheres to ISO 16630 and GB/T 24524 standards.

This machine conforms to "Metal Material Sheet and Thin Belt Erichsen Cupping Test" standard for evaluating the plastic deformation performance of metal sheets and strips. It can also be used for "Metal Material Ear Test Method" and "Non-Ferrous Metal Cup Test Method" to test the anisotropy of non-ferrous metal plates. With the relevant mold, it can also conduct tests according to national standards "Color Paint and Varnish Cup Process Test" and "Metal Sheet Forming Performance and Test Method."

The cupping test involves using a specified steel ball or ball punch to apply pressure to the sample with a 10kN clamping force until the sample develops a penetration crack. The depth of the punch penetration (in mm) represents the cupping test value of the plate, which is used to determine the material's plastic deformation performance.

The cup punching test involves pressing a wafer (φ55, φ100) between the pressure rim and the die. Under the punch's impulse, the sample undergoes radial extension and bending plastic deformation, forming a cylindrical cup. This test determines the anisotropy indicated by the ear production rate. The sample is a disc, and the tensile ratio of the disc to the punch diameter is 1.8.

FEATURES

- The cupping testing machine features a new structural principle that achieves constant speed control.
- The new cupping testing machine uses a permanent servo motor for constant speed loading. The hydraulic sensor has been replaced with a new sensor, significantly improving the accuracy and precision of cupping values.
- The cupping test value measurement instrument is a grating measurement (displacement sensor) with a reading resolution of 0.001mm, enhancing machine controllability.
- Both hardware configuration and force transmission principles have been significantly improved compared to the original machine. The computer control configuration achieves machine perfection, allowing for report generation, storage, batch processing, curve drawing, and more.
- The machine features an automatic stop function for plate cracks and is equipped with a camera to accurately determine the crack cup process value.
- Integrated control offers high integration, strong control functions, high data processing ability, and high reliability.
- The computer controls the test process, enabling the dynamic display of clamping force load value, puncturing load value, cupping process value, test speed, and test curve.
- The test system includes data processing and graph processing capabilities, allowing for complete test report and test curve printing.
- The clamping load pressure can be conveniently adjusted for different materials.
- Different test fixtures can be easily replaced according to various test methods.
- The machine features a compact structure, making it simple and easy to operate.

TECHNICAL SPECIFICATIONS

Maximum test force	60kN
Range of test force	0.2kN□ 60kN
Test accuracy	±1□
Speed of test	2□ 100mm/min (under control of arbitrary rate and constant speed)

Thickness of gripping specimen	0.05□ 2mm (high-precision sensor can accommodate ultra-thin sheet metal tests)
Journey of cramping piston	40mm
Resolution of cupping value	0.01mm

Standard Configuration
1. Main Machine 2. Computer 3. One mold for standard cupping testing ◦ One punch (Ø20mm) ◦ One cushion type die (Ø33mm) ◦ One pressing die (Ø27mm) 4. Circuit control amplifier, configured with a high-precision photoelectric encoder. 5. Clamping hydraulic control system.
Optional Items
1. Standard deep drawing cupping punching mold (As per required Standards) 2. Non-standard cupping mold 3. Hole expansion test mold and cone cupping test mold

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