Wood particle panel/chipboard Testing Machine

Model: WDW-10Y

1, General introduction

Wood is commonly employed as an engineering material in the construction and furniture industry. With its broad range of physical and mechanical properties, wood from different species of trees can be chosen to suit specific application requirements. Standards, such as ASTM D143, cover testing methods to determine the mechanical properties including flexure strength, tensile strength and shear strength of wood. This allows engineers to compare the properties of various species before choosing one which best fits the engineering requirements.

Chipboard, fiberboard, and particle board are engineered materials made by gluing wood chips or wood particles together with an adhesive under high pressure. Increased use of these materials has resulted in the need for more stringent testing to determine their strength properties

UnitedTest offer a number of test fixture to determine strength parallel or perpendicular to the grain, cleavage strengths, Internal bond strengths and specific requirements like nail or screw withdrawal strength, flexure, compression test etc., Other standards UnitedTest wood testing fixtures conform to include ASTM D1037, ASTM D1761, BS373, BS5669, JIS A5905, JIS A5906 and JIS A5908.

2, Main technical specification

Load capacity	**10KN/20KN/30KN/50KN**
Frame proof load capacity	**300%** of rate capacity
Multiple load cell in one machine function	YES
Load Accuracy	Class 1/0.5 according ISO7500-1
Load cell overload capacity	150% of rate capacity
Load measuring resolution	1/500000 FS, stepless
Position / displacement resolution	0.001mm
Crosshead travel	1200mm
Tensile test space	700mm
Compression test space	800mm
Effective testing width (Clearance between columns)	500mm
Standard tensile test fixture	Manual wedge type
Wedge tensile fixture Flat specimen range	0-20mm
Wedge tensile fixture Flat specimen range	Φ4-Φ20mm
Compression platen diameter	Φ100mm
Testing speed range	0.001 mm/min～500 mm/min, stepless, adjustable arbitrarily (Optional max. 1000mm/min)
Weight	450Kg~600kg
Standard Power	220/110V, 50/60HZ, 1 phase
Analysis software	SmartTest English version
Working system	MS Win7 / Win10
Frame structure	Standard: Dual test space Optional: Single test space

Test Fixture:

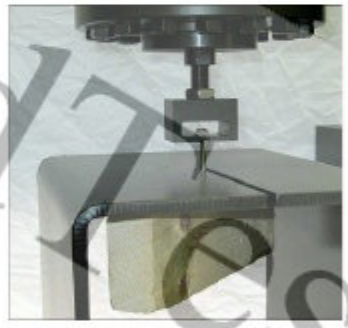
Internal bond tensile strength test for fiberboard, wood adhesives (Perpendicular to surface);
Wood Test Fixtures Tension Grips - Perpendicular to Grain
Wood Based Products Nail and Screw Withdrawal Tension Tests
Tensile Grips Wood Fiber Particle Board (Parallel to surface)
Wood bend test fixture
Shear test fixture for wood (interlaminar shear test)
Compression test fixture for wood

3, References

ASTM D1037, Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
ASTM D143, Standard Test Methods for Small Clear Specimens of Timber
ASTM D1761, Standard Test Methods for Mechanical Fasteners in Wood
ASTM D3043, Standard Test Methods for Structural Panels in Flexure
ISO 3133, Wood -- Determination of ultimate strength in static bending
ISO 6238, Adhesives -- Wood-to-wood adhesive bonds -- Determination of shear strength by compressive loading
ASTM D905, Standard Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading
ASTM D198, Standard Test Methods of Static Tests of Lumber in Structural Sizes
ASTM D3044, Standard Test Method for Shear Modulus of Wood-Based Structural Panels
ASTM D3498, Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems
ASTM D3501, Standard Test Methods for Wood-Based Structural Panels in Compression
ASTM C557, Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing
BS 373, Methods of testing small clear specimens of timber
BS 5669, specification for wood chipboard and methods of test for particle board
JIS K 6802, JIS Z 2117, JIS A 5905, JIS A 5906, JIS A 5908

Internal bond test

Tension for Perpendicular to Grain



Nail or screw withdrawal

Tensile test

Bending test

Shear test