Intelligent Pellet Compressive Strength Tester

Item Number: KT-JTI

Introduction

Engineered for metallurgy, mining, and foundry QA, this intelligent pellet compressive strength tester delivers high-precision servo loading, automated crushing force calculation, and durable gantry stability across a broad 1 kN to 50 kN testing envelope.

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Application	Description	Key Benefit
Iron Ore Pellet Quality Control	Rapid verification of crushing resistance for blast furnace and direct reduction iron (DRI) pellets according to international ISO and ASTM standards.	Prevents in-furnace degradation, fines generation, and furnace permeability loss by screening sub-standard pellet batches before charging.
Mining and Mineral Beneficiation	Evaluation of green, pre-heated, and fired mineral agglomerates produced across disk and drum pelletizers in mine-site processing plants.	Provides immediate feedback for binder optimization (bentonite, organic binders) and moisture adjustment during the pelletization process.
Foundry Core and Briquette Testing	Mechanical load testing of foundry sand cores, binder-consolidated briquettes, and metal swarf compacts subject to mechanical handling.	Minimizes mold collapses and metal casting inclusions by verifying green and cured structural compression thresholds.
Sintered Metallurgical Aggregates	Crushing strength profiling of roasted catalyst supports, sintered bauxite, and ferroalloy pellets subjected to static storage pressure.	Ensures high mechanical survival rates during bulk hopper stockpiling, pneumatic transfer, and high-temperature shaft furnace operations.
Ceramic Proppant Characterization	High-load crush resistance assessment of ceramic spheres and proppants used in hydraulic fracturing and geological engineering.	Confirms resistance against borehole closure stress, maximizing fracture conductivity and operational longevity under underground pressure.
Advanced Composite Material Testing	Mechanical characterization of non-metallic composite spheres, spherical matrix granules, and granular energy-storage media.	Delivers precise stress-strain curve mapping, peak failure loads, and modulus data for structural engineering and material synthesis R&D.

Parameter Category	Specification Attribute	Value / Performance Metric
Model Identifier	Equipment Part Number	KT-JTI
Capacity & Force	Maximum Rated Test Force	50 kN (5,000 kgf)
	Test Force Measurement Range	1 kN – 50 kN
	Load Cell Attenuation Ranges	×1, ×2, ×5, ×10 (automated or manual scaling)
	Test Force Measurement Accuracy	±1% of indicated value (from 20% of each range)
Speed & Displacement	Test Speed Adjustment Range	0.01 mm/min – 200 mm/min (stepless control)
	Speed Accuracy & Control	Closed-loop digital AC servo drive regulation
	Displacement Measurement Resolution	0.01 mm
Mechanical & Envelope	Frame Configuration	Bench-top / Floor-standing dual-column gantry frame
	Drive Mechanism	Precision preloaded lead screw subjected strictly to tensile stress
	Compression Daylight (Vertical Clearance)	0 mm – 450 mm
	Compression Platens	Hardened high-alloy steel, ground and polished parallel surfaces
Automation & Control	Operating Modes	Standalone digital LCD control / PC microcomputer management

Parameter Category	Specification Attribute	Value / Performance Metric
	Automatic Functions	Peak force capture, fracture detection, automated crosshead return
	Data Acquisition Channels	Force channel, displacement channel, time channel
Power & Environmental	Power Supply Requirements	220 VAC ±10%, single phase, 50 Hz
	Operating Noise Level	Low acoustic emission (<65 dB at full operational speed)