

Automatic Iron Ore Pellet Compressive Strength Tester

Item Number: KT-JTH



Introduction

Evaluate iron ore pellet crush resistance with this automatic compressive strength tester, featuring constant platen speed, high accuracy load cells, real time curve tracking, automated batch statistics, and direct test report printing.

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Application	Description	Key Benefit
Commercial Pelletizing Plant Quality Control	Routine quality screening of green, preheated, and indurated iron ore pellets sampled directly from traveling grate and rotary kiln discharge lines.	Ensures that fired commercial pellets satisfy contract strength thresholds, preventing catastrophic degradation and excessive dust creation during transport.
Blast Furnace Burden Optimization	Benchmarking crushing thresholds of metallic burden charges prior to charging into high-capacity blast furnaces under thermal and mechanical descent stresses.	Prevents premature in-furnace pellet breakdown, avoiding gas channel blocking and maintaining optimum furnace permeability and stable molten metal production.
Direct Reduction (DRI/HBI) Feedstock Evaluation	Evaluating compressive resilience of cold-bonded or oxidized pellets targeted as feedstock for gas-based shaft furnaces and fluidized bed reduction processes.	Confirms pellets withstand severe static shaft pressures without clustering, disintegration, or generating fine particles that foul top-gas recovery circuits.
Sintering and Pelletizing Research Laboratories	Academic and industrial R&D characterizing the structural effect of novel binders, fluxing agents, basicity ratios, and firing temperatures on pellet physical strength.	Delivers high-precision, repeatable fracture data and complete deformation profiles required to develop cost-effective pellet chemistry and firing cycles.
Transshipment Port and Terminal Ore Auditing	Receiving inspection and third-party verification of bulk iron ore pellet consignments at maritime ports, railheads, and metallurgical terminal depots.	Validates whether commercial pellet shipments have maintained physical integrity after open-sea transit, rough mechanical handling, and conveyor transfer.
Mining Beneficiation Process Auditing	Downstream mechanical testing of concentrate agglomerates to audit the effectiveness of grinding fineness, magnetic separation, and moisture management on pelletization.	Identifies upstream mineral processing inconsistencies early, allowing operators to optimize bentonite dosing and disk pelletizer moisture addition.

Engineering Category	Parameter Specification	Technical Metric / Construction Detail
Base Equipment Identification	Machine Model Reference	KT-JTH
Testing Standard Compliance	Primary Standard	GB/T 14210 (Iron Ore Pellets - Determination of Crushing Strength)
	Secondary Harmonization	ISO 4700 (Iron Ore Pellets for Blast Furnace and Direct Reduction Feedstocks)
Specimen Requirements	Target Test Specimen	Oxidized iron ore pellets, fluxed pellets, direct-reduction pellets
	Specimen Diameter Range	10.0 mm to 12.5 mm (accommodates non-standard sizing via adjustable platen travel)
	Batch Testing Quantity	Standard batch size ≥ 60 individual pellets per statistical test group
Platen Velocity & Drive	Compression Platen Speed	10.0 mm/min to 15.0 mm/min (constant speed closed-loop regulation)
	Drive Mechanism Type	Dual precision transmission lead screws housed within vertical columns
	Power Transmission	High-torque motor coupled to heavy-duty mechanical gear speed reducer
Force & Displacement Sensing	Drive Housing Location	Fully enclosed within heavy cast machine base for vibration dampening
	Load Sensing Transducer	High-precision force measurement load cell mounted directly beneath crossbeam

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Platen Geometry & Hardness	Displacement Tracking	Precision photoelectric rotary optical encoder mounted at column apex
	Contact Detection	Automatic platen pre-load contact recognition and threshold trigger
	Upper Compression Platen	High-alloy hardened tool steel, coupled directly to load sensor assembly
	Lower Compression Platen	High-alloy hardened tool steel, fixed rigidly to lower base testing table
Control, Display & Output	Platen Surface Condition	Ground and polished flat, high wear and indentation resistance
	Controller Architecture	Embedded microprocessor system with multi-channel A/D data acquisition
	User Display Interface	Industrial high-contrast liquid crystal display (LCD) on side control console
	Graphic Monitoring	Real-time force-displacement curve plotting and instantaneous peak tracking
	Statistical Calculation	Automatic batch arithmetic mean calculation and individual value logging
Safety & Operational Limits	Hard-Copy Documentation	Built-in thermal micro-printer integrated directly into side cabinet
	Workstation Connectivity	PC communication interface supported for external curve recording and printing
	Machine Protection	Mechanical limit switches, software over-travel, and load over-capacity cutoff
	Automation Cycle	One-touch test start, automatic peak fracture detection, rapid platen return