

Laboratory Rod Mill Roller Grinding Jar For Precise Comminution

Item Number: KT-MG1



Introduction

This laboratory rod mill roller grinding jar uses steel rods for line contact comminution. Designed for wet and dry processing across batch and circulating operations, it delivers narrow particle distributions without excessive over grinding.

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Application	Description	Key Benefit
Mineral Processing & Flotation Feed Preparation	Pulverizes raw mineral ores, core samples, and metallurgical tailings to precise particle liberation thresholds prior to bench-scale froth flotation and hydrometallurgical leaching trials.	Prevents the over-grinding of brittle valuable minerals, drastically reducing slime losses and maximizing flotation recovery rates.
Advanced Technical Ceramics & Electronic Substrates	Homogenizes and refines hard ceramic compounds including alumina, zirconia, silicon carbide, and electronic titanates in wet solvent suspensions.	Ensures a strictly controlled, narrow particle size distribution, promoting maximum green-body packing density and defect-free sintering.
Battery Active Materials & Solid Electrolyte Synthesis	Processes lithium precursor salts, cathode formulations, solid-state electrolyte powders, and conductive carbon additives under dry inert or wet milling regimes.	Minimizes structural lattice degradation, prevents metallic iron shedding, and delivers uniform particle sphericity for enhanced electrochemical kinetics.
Industrial Glass, Frits & Vitreous Enamel Formulation	Comminutes specialty glass cullet, ceramic frits, and vitreous enamel fluxes into stable, uniform aqueous slips for industrial glaze and surface coating applications.	Eliminates unground oversized grains while controlling suspension rheology without unwanted fine agglomeration.
Geochemical Assay & Core Sample Analysis	Grinds hard geological exploration samples, exploratory rock chips, and drill cores into sub-sieve analytical powders required for XRF, XRD, and ICP-OES spectroscopy.	Guarantees complete analytical sample representativeness with zero volatile loss or cross-sample contamination during processing.
Specialty Chemical Synthesis & Catalyst Carrier Milling	Disperses heterogeneous catalytic precursors, inorganic pigments, and polymer chemical additives within batch or recirculating fluid carriers.	Provides high-energy line-contact shear that increases specific surface area uniformly while maintaining precise process temperature stability.

Parameter Group	Specification Attribute	Value / Standard Configuration (KT-MG1 Series)
Core System Classification	Equipment Identifier	KT-MG1
Core System Classification	Vessel Architecture	Sealed Cylindrical Rod Mill Drum / Roller Jar
Comminution Mechanism	Primary Grinding Dynamics	Linear Impact & Line-Contact Shear / Attrition
Comminution Mechanism	Internal Media Geometry	Calibrated Cylindrical Hardened Steel Rods
Operational Flexibility	Processing Atmospheres	Dry Powder Grinding & Wet Slurry Milling
Operational Flexibility	Process Flow Modes	Intermittent Batch Mode & Continuous Circulating Mode
Roller Compatibility	Drive Roller Length Requirement	Compatible with Standard 24-inch (610 mm) Roller Benches
Roller Compatibility	Roller Spacing Accommodation	Adjustable 2-Roll and 3-Roll Industrial Lab Drives
Metallurgy & Fabrication	Drum Wall Construction	High-Strength Hardened Alloy Steel (Mirror-Polished Interior)
Metallurgy & Fabrication	Media Metallurgy	Through-Hardened Wear-Resistant Carbon/Chrome Steel

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Sealing & Containment	Closure Interface	High-Torque Quick-Clamping Flange with O-Ring Gasket
Sealing & Containment	Gasket Compatibility	High-Durometer Viton / Nitrile / PTFE Chemical Elastomers
Processing Feed Specs	Maximum Recommended Feed Size	< 5.0 mm (Heterogeneous Granular Feed)
Final Granularity Control	Target Discharge Distribution	Down to < 45 µm (325 Mesh, Matrix & Feed Dependent)

Variant Model Code	Working Volume	Internal Diameter	Internal Length	Media Charge Weight	Operating Mode
KT-MG1-1000	1.0 Liter	100 mm	130 mm	2.5 kg	Intermittent Batch
KT-MG1-2000	2.0 Liters	125 mm	165 mm	5.0 kg	Intermittent Batch
KT-MG1-5000	5.0 Liters	180 mm	200 mm	12.0 kg	Intermittent Batch
KT-MG1-1000C	1.0 Liter	100 mm	130 mm	2.5 kg	Continuous Circulating
KT-MG1-5000C	5.0 Liters	180 mm	200 mm	12.0 kg	Continuous Circulating

Media Charge Property	Graduated Ratio	Diameter Range	Length Tolerance
Coarse Impact Rods	25% Total Mass	Ø 20.0 mm	Vessel Length - 5.0 mm (±0.5 mm)
Intermediate Reduction Rods	40% Total Mass	Ø 15.0 mm	Vessel Length - 5.0 mm (±0.5 mm)
Fine Attrition Rods	35% Total Mass	Ø 10.0 mm	Vessel Length - 5.0 mm (±0.5 mm)