

200L Planetary Dispersion Vacuum Mixer With Cantilever Lifting Barrel For Battery Slurry Mixing

Item Number: JL09



Introduction

200L planetary dispersion vacuum mixer with cantilever lifting barrel delivers uniform battery slurry mixing for high viscosity processes up to 1.2M cps with jacketed temperature control variable speed agitation and integrated safety interlocks for reliable laboratory and pilot production.

[Learn More](#)

Application	Description	Key Benefit
Lithium-Ion Battery Slurry Preparation	Mixes electrode powders with binders, solvents, and other liquid components under vacuum and controlled temperature conditions.	Promotes uniform particle wetting, stable viscosity, and repeatable electrode slurry quality.
High-Viscosity Cathode and Anode Materials	Processes dense formulations that require strong planetary circulation and high-speed dispersion to distribute solids throughout the liquid phase.	Supports consistent dispersion in formulations up to 1,200,000 cps.
Battery R&D and Pilot Production	Provides a scalable mixing platform for formulation development, process optimization, and pilot-scale batch preparation.	Bridges laboratory development and larger-volume production requirements.
Advanced Materials Processing	Blends powders and liquids for functional materials, composites, conductive compounds, and specialty formulations.	Combines vacuum capability, adjustable speed, and jacketed temperature control in one system.
Ceramic Slurry Production	Handles ceramic powders and liquid binders where high viscosity and agglomeration can affect forming or coating quality.	Improves batch uniformity and supports controlled deagglomeration.
Powder Metallurgy Formulations	Mixes metal powders with liquid additives or binders for downstream forming and processing.	Provides robust circulation and controlled high-shear dispersion for demanding mixtures.
Academic and Industrial Research	Supports repeatable materials experiments involving powder-liquid blending, vacuum processing, and thermal conditioning.	Offers configurable operating parameters for process development and comparative testing.

Category	Parameter	Specification
Product Identification	Item number	JL09
Lower Barrel Assembly	Designed total volume	287 L
Lower Barrel Assembly	Effective volume	95-200 L
Lower Barrel Assembly	Internal diameter	750 mm
Lower Barrel Assembly	Internal depth	650 mm
Lower Barrel Assembly	Material-contact material	304 stainless steel
Lower Barrel Assembly	Temperature-control jacket	Single-layer wall jacket for cooling or heating; single-layer bottom jacket for cooling or heating
Lower Barrel Assembly	Jacket connections	G1 inch, with quick-opening union fittings
Lower Barrel Assembly	Jacket pressure resistance	≤0.4 MPa
Lower Barrel Assembly	Jacket circulation system	Customer supplied
Lower Barrel Assembly	Recommended jacket inlet temperature	≤8°C

Category	Parameter	Specification
Lower Barrel Assembly	Recommended cooling-water flow	>60 L/min
Lower Barrel Assembly	Discharge configuration	One G1-1/2 inch three-piece discharge ball valve at the bottom of the barrel
Lower Barrel Assembly	Design ambient temperature	-10 to +120°C
Lower Barrel Assembly	Mobility	Caster-mounted mobile design
Agitator Assembly	Working frequency	5-50 Hz
Agitator Assembly	Agitator power	15 kW
Agitator Assembly	Agitator blade speed	4-40 rpm
Agitator Assembly	Planetary box speed	2.5-25 rpm
Agitator Assembly	Agitator blade diameter	432 mm
Agitator Assembly	Agitator blade style	Spiral twisted type; precision casting and machining ensure a 90-degree helical line
Agitator Assembly	Agitator blade material	304 stainless steel
Agitator Assembly	Agitator blade line speed	0.09-0.9 m/s
Agitator Assembly	Number of agitator blades	2
Agitator Assembly	Blade-to-blade distance	6±2 mm
Agitator Assembly	Blade-to-wall distance	3±1 mm
Agitator Assembly	Blade-to-bottom distance	3±1 mm
Dispersion Assembly	Working frequency	5-50 Hz
Dispersion Assembly	Dispersion power	22 kW
Dispersion Assembly	Dispersion speed	284-2840 rpm
Dispersion Assembly	Dispersion disc diameter	155 mm
Dispersion Assembly	Dispersion disc style	Serrated
Dispersion Assembly	Dispersion disc material	304 stainless steel
Dispersion Assembly	Dispersion disc line speed	2.3-23 m/s
Dispersion Assembly	Number of dispersion discs	4
Dispersion Assembly	Number of dispersion shafts	2
Wall-Scraping Assembly	Scraper support material	304 stainless steel
Wall-Scraping Assembly	Scraper plate material	Polytetrafluoroethylene PTFE
Wall-Scraping Assembly	Scraper speed	Same as planetary box speed
Wall-Scraping Assembly	Removability	Removable design; the scraper must be removed during high-viscosity processing
Base and Lifting Assembly	Base material	Carbon steel for high-rigidity structural construction
Base and Lifting Assembly	Lifting method	Hydraulic cylinder
Base and Lifting Assembly	Lifting guidance	High-precision linear guide rails
Base and Lifting Assembly	Lifting stroke	≤740 mm
Upper Barrel Assembly	Upper barrel material	304 stainless steel
Upper Barrel Assembly	Powder inlet	One flange connection, DN150
Upper Barrel Assembly	Liquid inlet	One G1 inch connection
Upper Barrel Assembly	Sight glass ports	Two DN110 tempered-glass sight glasses
Upper Barrel Assembly	Vacuum port	One G3/4 inch connection
Upper Barrel Assembly	Exhaust port	One G3/4 inch connection
Upper Barrel Assembly	Digital vacuum gauge port	One M14×1.5 female metric-thread connection

Category	Parameter	Specification
Control System	Electrical cabinet	Houses the variable-frequency drives and low-voltage electrical components
Control System	Manual operating panel	Houses buttons, knobs, and instruments
Control System	Power supply	AC 3×380 V±5%, 50 Hz
Control System	Control method	Electrical control plus hydraulic control
Control System	Drive and speed regulation	Variable-frequency drive startup and control
Control System	Cooling method	Air cooling and liquid cooling
Control System	Operating method	Buttons and knobs on the electrical cabinet front panel
Control System	Digital temperature display	Displays material temperature
Control System	Emergency stop button	One
Control System	Alarm system	Overtemperature alarm, overtemperature alarm shutdown, and alarm deactivation
Control System	Speed display	Panel meter displays operating speed
Control System	Power indicator	One
Control System	Timer	One timer controlling dispersion and agitation simultaneously
Control System	Optional HMI configuration	When selected, control-system functions are integrated into a touchscreen interface
Safety Interlock System	Emergency stop function	Pressing the emergency stop switch immediately stops the equipment and prevents further operation
Safety Interlock System	Low-speed agitation during lifting	The vessel can be raised while low-speed agitation continues
Safety Interlock System	High-speed dispersion enable	High-speed dispersion can operate only after the barrel reaches its raised position
Safety Interlock System	Operating safety lock	During mixing, the barrel cannot descend and the mixing barrel cannot be opened
Safety Interlock System	Vacuum backflow protection	A dedicated vacuum buffer tank helps prevent vacuum pump oil from flowing back into the mixing barrel
Safety Interlock System	Drive fault protection	The variable-frequency drive provides overload, overcurrent, overvoltage, leakage, and phase-loss protection
Safety Interlock System	Vessel lifting condition	The mixing barrel can rise only after reaching the required position condition
Safety Interlock System	Vessel lowering condition	The barrel cannot descend while vacuum remains in the vessel and atmospheric pressure has not been restored
Safety Interlock System	Raised-position locking	After the barrel reaches the raised position, a locking protection system prevents abnormal lowering during operation
Safety Interlock System	Dry-mixing lifting requirement	During the dry-mixing stage, the agitator blades must rotate while the barrel is being raised