20L Laboratory Planetary Dispersion Vacuum Mixer Cantilever Lifting Bucket For Lithium Battery Slurry Mixing

Item Number: JL06

Introduction

20L laboratory planetary dispersion vacuum mixer with cantilever lifting bucket for lithium battery slurry mixing, high viscosity processing, precise heating cooling, and uniform powder liquid dispersion under vacuum conditions for dependable scalable research and production workflows consistent results.

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Application	Description	Key Benefit
Lithium Battery Slurry Mixing	Mixes battery powders and liquids under vacuum to produce a uniform slurry for electrode preparation and related cell fabrication processes.	Supports consistent powder-liquid integration and helps manage air-sensitive or bubble-sensitive processing conditions.
High-Solids Electrode Formulation	Handles highly viscous formulations within the specified viscosity range of up to 1,200,000 cP using planetary mixing and high-speed dispersion.	Provides the torque, speed range, and dispersion action needed for demanding thick-material batches.
Battery Material Research	Enables laboratory teams to test formulation ratios, mixing sequences, and thermal conditions using effective batch volumes from 8L to 20L.	Provides flexible batch sizing for repeatable research and process development.
Advanced Materials Processing	Combines powders and liquids for research involving high-viscosity material systems and controlled temperature processing.	Integrates mixing, dispersion, vacuum, heating, and cooling functions in one vessel.
Powder Metallurgy Slurry Preparation	Supports the preparation of powder-liquid mixtures requiring intensive dispersion and controlled material movement.	Helps improve batch uniformity through coordinated planetary and dispersion actions.
Ceramic and Academic Laboratory Work	Serves laboratory and academic research workflows that require controlled powder-liquid blending, vacuum operation, and temperature management.	Offers a mobile, configurable platform for small-batch experimentation and scale-up-oriented studies.

Parameter	Specification
Product Item Number	JL06
Equipment type	20L laboratory planetary dispersion vacuum mixer with cantilever lifting bucket
Primary material function	Mixing and dispersion of common battery powders and liquids to produce uniform battery slurry
Suitable process viscosity	≤1,200,000 cP
Vacuum system requirement	Customer supplied
Required pumping capacity	4L/s, 2X-4
Vacuum level	-0.098 MPa
Vacuum retention	After 24 hours, pressure remains above -0.085 MPa without leakage into the vessel
Main machine power	>5.2 kW
Overall weight	Approximately 1000kg
Overall dimensions	Length 1546mm × width 895mm × height 1792mm
Exterior color	Off-white
Required floor load capacity	900kg/m²

Parameter	Specification
Ambient design temperature	-10 to +120°C
Mobility	Caster-mounted mobile configuration

Parameter	Specification
Vessel design total volume	28L
Effective working volume	8-20L
Vessel internal diameter	350mm
Vessel internal depth	300mm
Vessel material	304 stainless steel on material-contacting parts
Temperature jacket configuration	Single-layer jacket on vessel wall for cooling or heating; single-layer jacket on vessel bottom for cooling or heating
Temperature jacket connections	G1/2-inch connections with quick-opening union fittings
Jacket pressure rating	≤0.4 MPa
Jacket circulation system	Customer supplied
Recommended jacket inlet temperature	≤8°C
Recommended cooling-water flow	>10L/min
Discharge outlet	One G1-inch three-piece discharge ball valve at vessel bottom

Parameter	Specification
Operating frequency	5-50Hz
Mixing power	2.2kW
Mixing blade speed	8-86rpm
Planetary box speed	5-53rpm
Mixing blade diameter	194mm
Mixing blade style	Spiral helical type
Mixing blade manufacturing	Precision casting and machining maintain a 90-degree helical line
Mixing blade material	304 stainless steel
Mixing blade linear speed	0.09-0.9m/s
Number of mixing blades	2
Blade-to-blade distance	7±2.5mm
Blade-to-vessel-wall distance	3±1.5mm
Blade-to-vessel-bottom distance	3±1mm

Parameter	Specification
Operating frequency	5-50Hz
Dispersion power	3kW
Dispersion speed	600-6000rpm
Dispersion disc diameter	70mm
Dispersion disc style	Toothed type
Dispersion disc material	304 stainless steel
Dispersion linear speed	2.1-21m/s
Number of dispersion discs	2

Parameter	Specification
Number of dispersion shafts	1