10L Laboratory Planetary Dispersion Vacuum Mixer For Lithium Battery Slurry Mixing

Item Number: JL05

Introduction

10L laboratory planetary dispersion vacuum mixer for lithium battery slurry mixing with up to 1200000 cP viscosity handling, vacuum retention, heating cooling jacket, adjustable speed control, and precision high shear dispersion for consistent laboratory scale processing and repeatable results.

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Application	Description	Key Benefit
Lithium Battery Electrode Slurry	Mixes battery powders and liquids into homogeneous cathode or anode slurry for laboratory electrode development.	Supports repeatable dispersion and stable slurry preparation before coating.
High-Viscosity Battery Formulations	Processes viscous formulations up to ≤1,200,000cP using planetary mixing and high-speed dispersion.	Provides stronger material movement for difficult-to-process batches.
Advanced Materials Research	Disperses powders, fillers, and liquid binders during formulation development and process optimization.	Enables controlled comparison of mixing speed, dispersion speed, and temperature.
Ceramic Slurry Preparation	Combines ceramic powders and liquid components for research-scale slurry development.	Improves batch uniformity and supports downstream forming or coating trials.
Powder Metallurgy Binders	Mixes metal powders with binders or process liquids under controlled conditions.	Helps produce consistent laboratory feedstock and reduce agglomeration.
High-Viscosity Adhesives and Resins	Processes dense adhesive, resin, and composite formulations requiring vacuum treatment.	Vacuum operation helps control entrained air during mixing.
Vacuum Deaeration Research	Combines agitation and vacuum processing for materials where air inclusion can affect quality.	Supports improved process consistency and reduced bubble-related defects.

Parameter	Specification
Product item number	JL05
Application range	Mixing and dispersing powders and liquids for various common batteries to produce uniformly mixed battery slurry; suitable for high-viscosity processes
Applicable viscosity	≤1,200,000cP
Customer-provided vacuum system	Required; pumping capacity 4L/S using 2XZ-4
Vacuum level	-0.098MPa
Vacuum retention	Above -0.085MPa after 24 hours; no leakage into the vessel
Main machine total power	□ 5.2kW
Overall weight	Approximately 900kg
Overall dimensions	Length 1530mm × width 922mm × height 1792mm
Exterior color	Off-white

Parameter	Specification
Floor load requirement	900kg/m²
Design ambient temperature	-10□ +120°C
Mobility	Caster-mounted mobile design

Parameter	Specification
Designed total volume	16L
Effective volume	5-10L
Vessel internal diameter	310mm
Vessel internal depth	220mm
Product-contact vessel material	304 stainless steel
Temperature-control jacket form	Single-layer jacket on vessel wall for cooling or heating; single-layer jacket on vessel bottom for cooling or heating
Jacket connections	G1/2", fitted with quick-opening union joints
Jacket pressure resistance	≤0.4MPa
Jacket circulation system	Customer-provided; recommended inlet water temperature ≤8℃ and cooling water flow rate □ 7L/min
Discharge method	One G1" three-piece discharge ball valve at the vessel bottom

Parameter	Specification
Operating frequency	5-50Hz
Mixing power	2.2kW
Mixing blade speed	10-100rpm
Planetary box speed	5-50rpm
Mixing blade diameter	161mm
Mixing blade design	Variable-section spiral twisted type with 90° helical line
Mixing blade material	304 stainless steel
Mixing blade line speed	0.08-0.8m/s
Number of mixing blades	2
Distance between blades	7.5±2.5mm
Blade-to-vessel-wall distance	3±1.5mm
Blade-to-vessel-bottom distance	2.5±1mm

Parameter	Specification
Operating frequency	5-50Hz
Dispersion power	3kW
Dispersion speed	600-6000rpm
Dispersion disc diameter	70mm
Dispersion disc design	Toothed disc
Dispersion disc material	304 stainless steel
Dispersion line speed	2.1-21m/s
Number of dispersion discs	2
Number of dispersion shafts	1

Parameter	Specification
Scraper support material	304 stainless steel
Scraper plate material	Polytetrafluoroethylene (PTFE)
Scraper speed	Same as planetary box speed
Removability	Removable design
High-viscosity operating requirement	The wall scraper must be removed during high-viscosity processing

Parameter	Specification
Structural material	High-rigidity carbon steel
Lifting method	Electric lifting
Lifting guide	High-precision linear guide
Lifting stroke	≤440mm

Parameter	Specification
Upper vessel material	304 stainless steel
Powder feed port	One DN50 port with sight glass and quick assembly connection
Liquid feed port	Shared with the powder feed port
Spotlight port	One DN50 port
Vacuum port	One ISO 15A quick assembly port
Exhaust port	One ISO 15A quick assembly port
Spare port	One ISO quick-opening 3/4" port
Digital vacuum gauge port	One M14×1.5 female metric-thread connection

Parameter	Specification
Electrical cabinet	Houses the variable-frequency drive and other low-voltage electrical components
Operating panel	Houses buttons, knobs, touchscreen, and related controls
Power supply	AC 3×380V±5□ , 50Hz
Control method	Electrical control
Drive and speed adjustment	Variable-frequency drive starting and control
Cooling method	Air cooling
Operating interface	Touchscreen operation
Digital temperature display	Provided for material temperature
Emergency stop	One emergency stop button
Alarm system	Over-temperature alarm, over-temperature alarm shutdown, and alarm-off function
Speed display	Rotational speed displayed on the touchscreen
Power indication	One power indicator