5L Laboratory Planetary Vacuum Mixer With Cantilever Lifting Bucket For Lithium Battery Slurry Mixing

Item Number: JL03

Introduction

5L laboratory planetary vacuum mixer with cantilever lifting bucket for lithium battery slurry mixing, high viscosity dispersion up to 1.2 million cP, jacketed temperature control, precision agitation, and reliable pilot scale processing for advanced battery research and materials development.

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Application	Description	Key Benefit
Lithium Battery Electrode Slurry	Mixes active powders, conductive agents, binders, and liquid media for cathode or anode slurry development.	Supports uniform composition and repeatable electrode preparation.
High-Viscosity Battery Formulation	Processes highly viscous formulations with viscosity up to 1.2 million cP.	Provides a practical solution for difficult-to-flow laboratory materials.
Conductive Additive Dispersion	Uses a serrated high-speed dispersion disc to distribute fine conductive materials through a liquid or paste matrix.	Helps reduce agglomeration and improve formulation consistency.
Advanced Materials Research	Combines powders and liquids for experimental composites, functional materials, and specialty formulations.	Enables controlled small-batch trials before process scale-up.
Ceramic and Powder Metallurgy Slurries	Mixes ceramic powders, binders, additives, and process liquids in research and development workflows.	Delivers adjustable agitation and dispersion for formulation optimization.
Academic Laboratory Research	Supports repeatable mixing experiments, material screening, and process parameter studies.	Provides flexible speed, volume, and temperature-control options.
Temperature-Sensitive Processing	Uses wall and bottom jackets for cooling or heating during mixing and dispersion.	Helps maintain process conditions that influence viscosity and material quality.

Parameter	JL03 2.1L Variant	JL03 8L Variant	JL03 16L Variant
Site-facing identifier	JL03 2.1L	JL03 8L	JL03 16L
Design total volume	2.1L	8L	16L
Effective volume	0.7-1L	2.7-5L	5-10L
Container inner diameter	164mm	240mm	310mm
Container inner depth	100mm	180mm	220mm
Container material	304 stainless steel on material-contact parts	304 stainless steel on material-contact parts	304 stainless steel on material-contact parts
Applicable viscosity	≤1.2 million cP	≤1.2 million cP	≤1.2 million cP
Design ambient temperature	-10□ +120°C	-10□ +120°C	-10□ +120°C
Vessel movement	No casters, manual handling	Caster-mounted movement	Caster-mounted movement

Parameter	JL03 2.1L Variant	JL03 8L Variant	JL03 16L Variant

Jacket configuration	Single-layer wall jacket for cooling or heating; single-layer bottom jacket for cooling or heating	Single-layer wall jacket for cooling or heating; single-layer bottom jacket for cooling or heating	Single-layer wall jacket for cooling or heating; single-layer bottom jacket for cooling or heating
Jacket connection	G3/8 inch, with quick-opening union	G1/2 inch, with quick-opening union	G1/2 inch, with quick-opening union
Jacket pressure resistance	≤0.4MPa	≤0.4MPa	≤0.4MPa
Jacket circulation system	Customer-supplied; recommended jacket inlet water temperature ≤8℃	Customer-supplied; recommended jacket inlet water temperature ≤8℃	Customer-supplied; recommended jacket inlet water temperature ≤8℃
Cooling water flow	□ 3.5L/min	□ 7L/min	□ 7L/min

Parameter	JL03 2.1L Variant	JL03 8L Variant	JL03 16L Variant
Discharge configuration	No discharge outlet	One 1 inch downward discharge plunger valve at the vessel bottom	One G1 inch three-piece discharge ball valve at the vessel bottom

Parameter	JL03 2.1L Variant	JL03 8L Variant	JL03 16L Variant
Working frequency	5-50Hz	5-50Hz	5-50Hz
Mixing power	0.55kW	1.5kW	2.2kW
Mixing blade speed	14-130rpm	10-98rpm	10-100rpm
Planetary box speed	5-40rpm	5-50rpm	5-50rpm
Mixing blade diameter	83mm	124mm	161mm
Mixing blade style	Variable-section helical twisted design, 90° helix	Variable-section helical twisted design, 90° helix	Variable-section helical twisted design, 90° helix
Mixing blade material	304 stainless steel	304 stainless steel	304 stainless steel
Mixing blade linear speed	/	0.06-0.6m/s	0.08-0.8m/s
Number of mixing blades	1	2	2
Distance between blades	/	7±2mm	7.5±2.5mm
Blade-to-vessel-wall distance	3.5±1mm	2+1mm	3±1.5mm
Blade-to-vessel-bottom distance	2±1mm	2+1mm	2.5±1mm

Parameter	JL03 2.1L Variant	JL03 8L Variant	JL03 16L Variant
Working frequency	5-50Hz	5-50Hz	5-50Hz
Dispersion power	1.1kW	2.2kW	3kW
Dispersion speed	580-58000rpm	610-6100rpm	600-6000rpm
Dispersion disc diameter	60mm	70mm	70mm
Dispersion disc style	Serrated	Serrated	Serrated
Dispersion disc material	304 stainless steel	304 stainless steel	304 stainless steel
Dispersion linear speed	1.8-18m/s	2.2-22m/s	2.1-21m/s
Number of dispersion discs	1	1	2
Number of dispersion shafts	1	1	1