

Cylindrical Capacitor Casing Cnc Grooving And Pre Sealing Machine

Item Number: GC03



Introduction

Engineered for precision energy storage manufacturing this CNC cylindrical capacitor casing grooving and pre sealing machine delivers servo driven accuracy rigid concentric collet clamping and superior sealing consistency for demanding pilot and industrial supercapacitor cell assembly production lines.

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Application	Description	Key Benefit
Supercapacitor Pilot Manufacturing	Automated casing grooving and top-edge pre-crimping for 60-series cylindrical ultracapacitors.	Micron-level groove depth consistency (± 0.02 mm) ensures accurate internal gasket seating and electrolyte retention.
High-Power Battery Cell Assembly	Processing metal casings for high-capacity cylindrical lithium and hybrid energy storage cells.	Eliminates casing deformation and material thinning through smooth servo-controlled rotary feed profiles.
Commercial Energy Storage R&D	Prototyping custom cylindrical casing geometries, alternative wall thicknesses, and specialized sealing profiles.	Rapid parameter adjustments via HMI recipes without requiring mechanical teardown or manual re-shimming.
Automated Module Component Prep	High-reliability shell preparation for energy storage cells integrated into heavy-duty grid and automotive packs.	High concentricity and strict out-of-roundness control prevent assembly misalignments during downstream pack welding.
Custom Shell Sealing Lines	Hermetic pre-sealing and roll-grooving for non-standard diameter cylindrical capacitors and metal containers.	Modular collet clamping easily adapts to custom shell diameters while preserving standard automation kinematics.

Specification Category	Parameter	GC03 Performance Value
Dimensional Accuracy	Sealed Casing Height Accuracy	± 0.05 mm
	Grooving Height Accuracy	± 0.05 mm
	Grooving Depth Accuracy	± 0.02 mm
Operational Performance	Throughput / Capacity	≥ 3 pcs/min
	Equipment Availability (Uptime)	98%
	Tooling & Die Service Life	$\geq 5,000,000$ cycles
Processing Compatibility	Standard Casing Compatibility	Diameter 60-series cylindrical battery & supercapacitor shells
	Custom Diameter Options	Fully customizable tooling available upon request
	Grooving Method	Rotary mold roller forming
	Clamping Mechanism	Automatic pneumatic sleeve-type collet clamp
	Drive Mechanism	Dual servo motor & precision ball screw assembly
Utility Requirements	Control Architecture	Integrated PLC with Touchscreen HMI
	Input Power Supply	220V AC, 50 Hz, Single Phase
	Rated Power Consumption	2.5 kW

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Physical & Environmental	Operating Air Pressure	0.5 to 0.7 MPa (Adjustable, Dry Compressed Air)
	Compressed Air Consumption	0.2 m ³ /min
	Machine Dimensions (L × W × H)	1100 mm × 900 mm × 1700 mm
	Net Equipment Weight	800 kg
	Floor Load-Bearing Requirement	> 800 kg/m ²
	Operating Ambient Temperature	15°C to 30°C
	Ambient Relative Humidity	30% to 80% RH (Non-condensing)
	Logistics / Elevator Transport Envelope	Ground clearance < 1.9 m; Elevator min: W 1.1 m × H 1.8 m × D 1.3 m