



Ji'nan ShengTai Painting Equipment Co.,Ltd.
 Address:East of the intersection of Dongwaihuan Road and Wenhua Road
 Diaozhen Street, Zhangqiu District, Jinan City,Shandong Province
 Email: sales@stpowdercoating.com WhatsApp:+8615854139190

Intelligent Spray Coating Line-Featuring Two Spray Stations and Two Drying Stations STA-3007L

I. Technical Parameters

Category	Item	Technical Parameters	Remarks
Equipment	Dimensions (L*W)	101m × 11m	Subject to actual site conditions
	Control System	Industrial PC + ShengTai Proprietary Software	Hardware: Beckhoff (Germany)
Workpiece Requirements	Max Width & Height	Width ≤ 3000mm; Height ≤ 700mm (above chain) + ≤ 220mm (below chain)	Lower part must stay within the 750mm spacing of the loading platform
	Workpiece Length	14000mm ≥ Length ≥ 4500mm (≥ 4500mm with flange)	If < 4500mm, auxiliary brackets are required for transport
	Max Load Capacity	≤ 500 kg/m	
	Lateral Spacing	> 1/2 of the workpiece height	Gap between components (width-wise)
	Longitudinal Spacing	≥ 1.5 meters	Gap between components (length-wise)
	Height Variance	≤ 50mm for the same row	Differences exceeding this will affect coating quality
Recognition	Brand	SICK (Germany) LMS	



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System		Series 3+1	
Spraying Chamber	Inlet Dimensions	3.1m * 0.9m	
	Coating Types	Water-based / Solvent-based / Two-component paint	
	Spray Gun Quantity	6 Upper + 6 Lower	Automatic switching and start/stop at different angles
	Spraying Speed	< 1.3 m/min	Adjusted based on structure and film thickness requirements
	Filtration Airflow	12000 m ³ /h	
	Coating Thickness	50μm - 100μm	Uniformity may vary slightly
	Pump System	Constant temp, stirring, paint level alarm	T3225 Pump + 50L Paint Tank
Purification Unit	Primary Filtration	Spoiler plates on both sides of the spray booth	
	Secondary Filtration	Paint mist filter cotton	
	Exhaust Airflow	≥ 12000 m ³ /h	
	Fan Power	≥ 15 kW	
Drying Room	Chamber Length	27.5 meters	Subject to actual site conditions



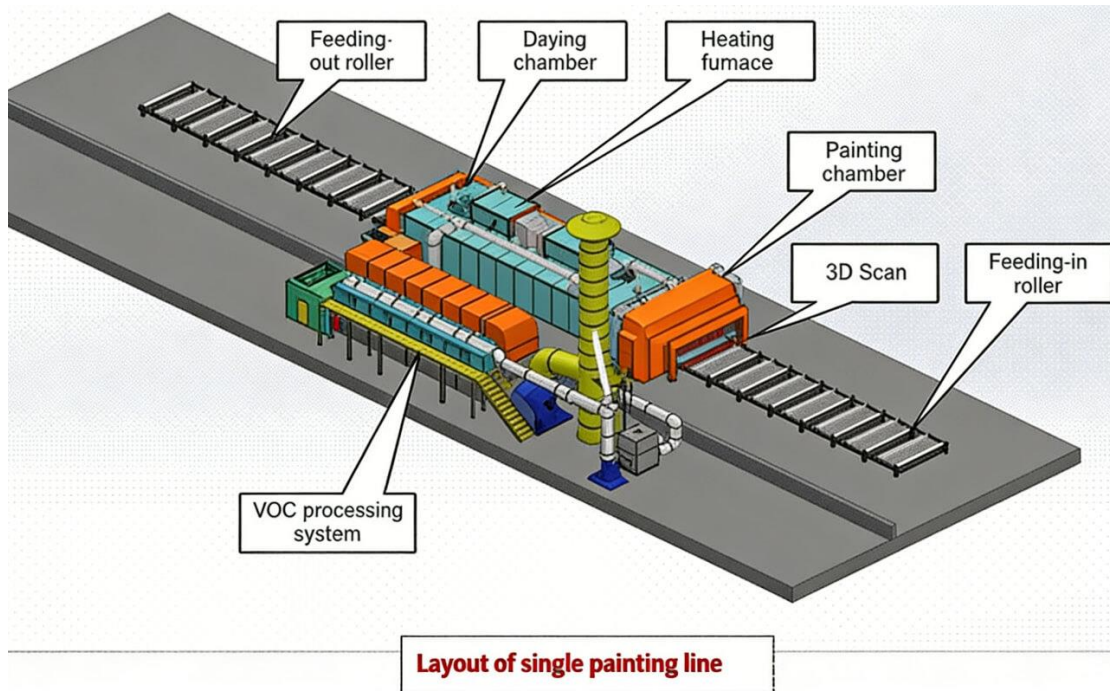
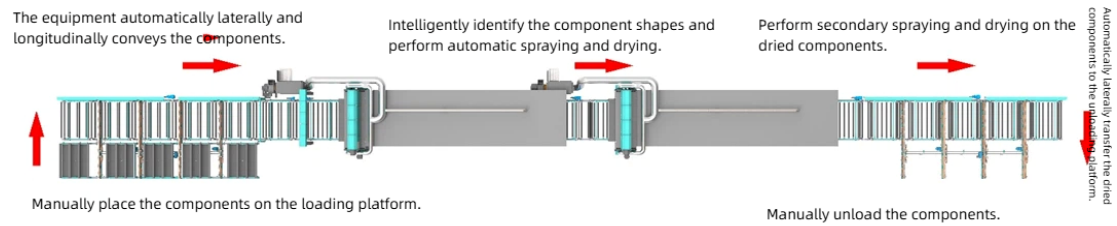
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	Burner Brand	Riello	
	Power Consumption	45 kWh/h	Rated
	Heating Method	Natural Gas Burner	Single chamber: 2×200,000 kcal
	Warm-up Time	Approx. 30 minutes	
Transmission Unit	Conveyor Power	Servo Motor	Delta Servo Motor
	Spraying Speed	Max 1.3 m/min	Fully automated control
	Longitudinal Conveyor	T-plate chain transmission	Servo-driven, fully automated
	Cross-transfer Beams	2 sets (3 beams per set at loading/unloading)	
	Beam Lifting Capacity	≤ 3500 kg per unit	
	Beam Lifting Height	500mm	
Operating Conditions	Power Supply	3-Phase 4-Wire, AC 380V, 50Hz	
	Compressed Air	Pressure: 0.4—0.6 MPa; Flow: 48 m ³ /h	
	Ambient Temperature	-10°C to +45°C	
	Operating Hours	24-hour continuous operation supported	



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II. Scheme of Intelligent Painting Line



III. Advantages of ShengTai Automatic Painting Line

1. **Environmental Excellence:** Painting is conducted within a sealed chamber with centralized recycling and treatment of waste gases. This ensures optimal environmental protection and a superior workspace for operators (particulate matter at the filter discharge port is maintained at less than $3\text{mg}/\text{m}^3$).
2. **High Efficiency & Quality:** The system enables simultaneous painting of the top, bottom, and ribs of components in a single pass. Compared to manual methods, the **ShengTai** line significantly boosts production capacity per unit area, ensures consistent coating quality, and allows for adjustable film thickness. This precision reduces paint waste and labor costs through high-level automation. Additionally, the integrated drying chamber minimizes the impact



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of ambient temperature on the coating process.

3. **Advanced 3D Scanning & Modeling:** The system utilizes a combination of through-beam and 3D scanning sensors to generate precise three-dimensional imaging of components. Three communication scanners, positioned above the conveyor, digitize the material surface in **4 mm** increments. This data creates a highly accurate spray signal based on the material's geometry. The LIDAR hardware, housed in a light-proof protective shell, calculates distances and collects dense point-cloud data (coordinates, reflectivity, and texture) to rapidly build a 3D model. **ShengTai** intelligent software then generates automated painting codes based on these images to ensure precision spraying.
4. **Optimized Spray Control:** A total of **12 painting torches** are utilized, with each torch corresponding to the front and back of three XYZ positions. Coating thickness is managed by adjusting the trolley speed, nozzle size, and operational mode. The system supports "single," "double," or "triple coverage" to match various roller conveyor speeds. To eliminate "empty painting" and waste, the sensors ensure the system only paints when a workpiece is detected.
5. **Thermal Energy Optimization:** Drawing from extensive experience across multiple automatic painting line projects, **ShengTai** has optimized the arrangement of the six air supply fans within the drying room. This design maximizes thermal energy utilization, resulting in faster surface drying and increased overall production capacity.
6. **Data Integration & Smart Control:** The user interface includes comprehensive data collection and device control functions. **ShengTai** provides transmission and read-write modules for specific intercommunication needs, such as temperature feedback, boot time logs, and production statistics. The system also allows for remote commands such as start and pause. Specific functional modules can be reserved and defined by both parties during the signing of technical documents to meet future requirements.