

Overhead Chain Auto Spray Line

Technical Data Sheet

MUSI Technology - Spray Coating Specialist

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Product Description

Overhead Chain Auto Spray Line is an enclosed track conveyor coating system designed for medium-to-high volume manufacturing of hung components such as automotive parts, hardware fittings, and small appliance shells. Workpieces hang from hangers attached to the overhead chain and travel through pretreatment, spray, and curing zones in a continuous flow.

Operating Principle

Workpieces loaded onto hangers transported by enclosed-track overhead chain conveyor through pretreatment, drying, spray application, curing oven, and cool-down. Variable frequency drive on chain motor allows speed adjustment 1 to 10 m/min based on production demand.

Technical Specifications

All values are typical for standard configuration. Custom specifications available on request.

Parameter	Value / Range
Conveyor type	Enclosed I-beam track, X348 or P450 chain
Conveyor speed	1 - 10 m/min variable (VFD)
Load capacity per hanger	Up to 50 kg
Hanger spacing	200 - 600 mm adjustable
Pretreatment stages	3 / 5 / 7 stage spray
Spray station count	2 - 12 (reciprocator or robotic)
Curing oven	12 - 60 m, multi-zone convection
Curing temperature	150 - 220 deg C +/- 3 deg C
Total line length	50 - 300 m custom layout
Throughput	100 - 50,000 pcs/shift depending on cycle
Chain drive power	3 - 15 kW per drive station
Energy consumption	30 - 60 kWh/ton coated
Compressed air	0.6 MPa, 5 - 30 m ³ /min total

Dimensions and Layout Requirements

Dimension	Value
Line height	3.5 - 5 m typical
Pretreatment tunnel	width 1.2-2.5 m, length 12-30 m
Spray booth	width 1.5-3 m, length 4-12 m
Curing oven	width 1.2-2.5 m, length 12-60 m
Loading station	3-5 m straight
Required floor area	80-400 m ² depending on capacity
Ceiling height	Min 5 m, 6 m preferred
Foundation	Standard concrete, no special foundation

Options and Accessories

Multi-Color Spray Stations

Additional booths and color-change systems for multi-color production.

Robotic Spray Cell Integration

6-axis robot cell can replace reciprocator booths for complex parts.

IR Pre-Cure Zone

Infrared zone before main oven for fast flash-off.

Heat Recovery System

Exhaust-to-supply heat exchanger, 40-60% energy reuse.

Cooling Tunnel

Forced-air cool-down before unloading.

Production Tracking

Barcode or RFID with MES integration.

Automated Load/Unload

Robotic load/unload at start/end stations.

Control System

PLC

Siemens S7-1500 or S7-1200 series CPU

HMI

Siemens TP1500 or KTP, 7 or 15 inch touchscreen

Network

Profinet field bus, Ethernet TCP/IP to office

Recipe management

Up to 100 recipes (color, oven temp, conveyor speed)

Alarm system

Real-time alarm logging with operator acknowledgment

Energy monitoring

Per-zone power consumption display

MES interface

Optional OPC UA or REST API

Installation Requirements

Foundation

Standard reinforced concrete floor 20 cm thick

Utilities

3-phase 380/415/480V at 100-300 kVA

Compressed Air

Dry oil-free 0.6 MPa, 5-30 m³/min

Natural Gas

Gas-fired ovens: 0.05 MPa, 200-600 Nm³/h

Water

Soft water 0.3 MPa for pretreatment, 1-5 m³/h

Drainage

Floor drain to wastewater treatment

Installation Time

3-6 weeks delivery to commissioning

Service and Maintenance

Daily

Visual check of chain, lubricator, hanger condition

Weekly

Pretreatment chemistry sampling, oven temperature calibration

Monthly

Chain tension adjustment, gun cleaning, spray pattern verification

Quarterly

Bearing greasing, motor inspection, oven exhaust fan check

Annually

Complete chain inspection, recommend chain replacement at 7-10 years

Warranty

Standard 12 months from FAT, extendable to 24 months

Typical Applications

- Automotive small parts (brackets, connectors, fasteners)
- Hardware fittings (hinges, brackets, latches)
- Lighting fixtures and lamp housings
- Office furniture frames and accessories
- Small appliance shells
- Garden tools and outdoor hardware

Standards and Compliance

Standard	Compliance
ISO 9001:2015	Quality Management - certified
ISO 14001:2015	Environmental Management - certified
ISO 45001:2018	Occupational Health and Safety - certified
CE Marking	EU compliance (LVD, EMC, MD)
ATEX	Zone 1/2 explosion-proof (where applicable)
China GB	Domestic safety and environmental compliance

Contact MUSI Technology

For inquiries, technical questions, or to request a custom quotation, please contact our sales engineering team:

Channel	Details
Sales Email	lin@coating-spray.com
Phone (Sales)	+86 181 5173 1332
WhatsApp	+86 181 5173 1332
Website	https://coating-spray.com
Headquarters	Wujin Industrial Park, Changzhou City, Jiangsu Province, China
Business Hours	Monday-Saturday 08:30-18:00 (GMT+8)
Response Time	Sales inquiries within 24 hours, technical proposals within 5-7 business days

How We Engage

Step 1 - Discovery

Share workpiece specifications, target throughput, color count, facility layout, and budget. Engineers respond with technical questions within 24 hours.

Step 2 - Process Simulation

We model your line in 3D, simulate cycle time and energy consumption, and provide a baseline ROI analysis.

Step 3 - Proposal and Quotation

Detailed technical proposal with layout drawings, equipment list, payment terms, and delivery schedule.

Step 4 - Manufacturing

Custom fabrication in our 28,000 sqm facility under ISO 9001 QMS. Progress photos shared via customer portal.

Step 5 - Factory Acceptance Test

You witness or remotely observe pre-shipment testing.

Step 6 - Site Installation

MUSI engineers travel to your site for installation, commissioning, and operator training.

Step 7 - Aftersales Support

Warranty support, remote diagnostics, preventive maintenance, and spare parts supply via our global network.