

Automotive Parts Coating Cases

2024 Edition

MUSI Technology - Spray Coating Specialist

Document Reference: MUSI-CS-AUTO-2024

Issue Date: 2026

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Industry Overview

The automotive parts industry demands the highest coating quality in industrial manufacturing - A-class finish, no orange peel or film variation, durability under salt spray, UV, and thermal cycling. MUSI has delivered 32 automotive coating projects in 2024 across body parts, bumpers, wheel hubs, interior components, and EV battery housings.

Sector Snapshot

Market Drivers

Electrification (EV adoption 18% growth), light-weighting, and stricter coating quality and durability standards from OEMs.

Coating Challenges

Multi-material substrates, A-class surface quality, 30 minute color change for multi-color production, 100% process traceability per part.

Production Volume Trend

Tier-1 suppliers running multiple model variants on the same line - flexibility is now as important as throughput.

Common Coating Challenges

A-Class Surface Quality

Bumpers and body panels require zero orange peel, no DOI degradation, perfect color matching.

Multi-Material Bonding

Coating systems must adhere to steel, aluminum, magnesium, and plastic substrates with the same primer and topcoat.

Multi-Color Production

OEMs run 12-30 color codes daily - quick color change in 5-15 minutes essential.

Process Traceability

Every part scanned at every stage with full process data logging.

Environmental Compliance

VOC less than 5 g/m² for water-based, complete particulate filtration, compliant solvent destruction by RTO.

Selected Case Studies - 2024

Vietnam Tier-1 Automotive Parts Coating Line

Field	Detail
Client Type	Tier-1 supplier producing brackets and connectors for Japanese/Korean OEMs
Region	Vietnam
Scale	600,000 pcs/year, 120 m line
Equipment Delivered	Overhead chain conveyor, 5-stage pretreatment, 8-gun powder booth, 30 m convection oven, cyclone+cartridge recovery
Key Results	Daily output 12,000 pcs verified, film thickness +/- 5 micron, 4+ years stable operation
Status	Operating since 2020

Argentina Automotive Bumper Robotic Coating

Field	Detail
Client Type	Tier-1 bumper supplier to major OEM
Region	Argentina
Scale	800,000 pcs/year, 10-robot flex cell
Equipment Delivered	10x ABB 6-axis robots, 3D vision, 2K water-based, climate-controlled booth, IR pre-cure + convection oven
Key Results	A-class film quality verified, 60-sec cycle achieved, color change under 15 minutes for 8 colors
Status	Commissioned Q2-2024

EV Wheel Hub Powder Coating Production Line

Field	Detail
Client Type	EV manufacturer in-house wheel hub plant
Region	China
Scale	800 hubs/shift, 2-shift operation
Equipment Delivered	Hook-type conveyor, 5-stage chrome-free pretreat, electrostatic powder booth, 200 deg C cure oven
Key Results	2-shift output 1,600 hubs, salt spray 1,000+ hours, zero pretreatment chemistry rejections
Status	Operating since 2023

Interior Plastic Parts 2K Mixing + UV Cure

Field	Detail
Client Type	Tier-2 interior trim supplier
Region	Czech Republic
Scale	12,000 pcs/day
Equipment Delivered	2K mixing spray machine, electrostatic spray cell, UV curing tunnel, water-curtain booth
Key Results	Cycle time 35 sec, transfer efficiency 82%, low VOC less than 3 g/m ²
Status	Commissioned 2024

Robotic E-coat (CED) Pretreatment Line

Field	Detail
Client Type	Tier-1 brake caliper supplier
Region	India
Scale	200 jobs/hour, 24/7 operation
Equipment Delivered	7-stage CED pretreatment + electrocoat dip tank + bake oven
Key Results	1,500 hours salt spray, zero rust complaints, 99.5% first-pass yield
Status	Operating since 2024

Energy Storage Container Robotic Coating Line

Field	Detail
Client Type	ESS manufacturer
Region	China
Scale	50 containers per shift
Equipment Delivered	2x KUKA robots in 14x6x5 m booth, 2K PU paint, primer+topcoat, IR cure
Key Results	30 day weatherability test passed, salt spray 1000h, color consistency +/-1.5 dE
Status	Operating since 2024

Benefits Delivered to Clients

Stable Daily Output

Most projects exceed contract throughput targets within 60 days.

Reduced Energy Cost

Heat recovery, VFD on motors, intelligent shutdown - typical 25% energy reduction.

Lower Material Cost

>=98% powder recovery saves USD 50-200K per year.

Compliance Certified

OEM audits and EPA emission tests passed first time.

Operator Friendly

Local-language HMI, standardized fault codes, productive in 2 weeks.

Aftersales Response

Issues resolved remotely or with same-week onsite visit.

Industry Key Metrics

Metric	2024 Performance Average
Lines delivered	32 automotive projects
Average commissioning time	4-8 weeks site work
Average power saving vs old line	25%
Average material recovery (powder)	98%
Average first-pass yield	98.5%
Customer satisfaction (post-1-year)	4.7 / 5.0
Average warranty claim rate	0.8% of equipment value
Geographic coverage	9 countries

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
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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.