

NO COMPROMISE. JUST PRECISION.

ROBOTIC SURFACE INSPECTION AND REPAIR IN HIGH-VOLUME PAINT SHOPS



PERFECT SURFACES

FULLY AUTOMATED

While painting processes have been largely automated for decades, final surface finishing has long remained manual, costly, and inconsistent. With the Automatic Finish solution, ASIS and Micro-Epsilon now close this gap.

Combining state-of-the-art 3D inspection with intelligent robotic repair, the system detects and removes clear coat and e-coat defects fully automatically. It enables stable, high-quality processes—even in challenging zones such as

tailgates and front waterfalls—without requiring extra installation space.

From defect classification to sanding and polishing, all steps are performed by robots using flexible, consumable-agnostic tooling and precise media dosing. The result: maximum quality with minimum rework, scalable for any production line.

ROBOTIC FINISH IN STOP & GO

WHY AUTOMATION IS NOT ALL THE SAME

Not all automated systems are created equal

While many solutions claim to offer “automatic surface inspection and repair”, the technical differences are significant – and they matter.

From edge coverage and defect detection to ease of model change and true automation of polishing, ASIS and Micro-Epsilon deliver the most advanced system available for high-volume paint lines.

Why Stop & Go matters

Our system is designed to operate in Stop & Go conveyor environments – which others in the market see as a disadvantage. But in reality, this is a key reason for our global success:

Only when the car stands still can we measure and repair with maximum precision – especially at critical edges and design transitions. Other systems measure in motion and accept much higher tolerances – at the expense of automation quality.

READY FOR NEW MODELS

MINIMAL COMMISSIONING EFFORT

- Decreased commissioning time for both inspection and repair setup
- No new hardware required when introducing new car models
- Customers can be trained to create and validate new model configurations independently
- Includes a comprehensive simulation environment and 3D-scanning-based planning tools

THE GLOBAL LEADER

FOR AUTOMATIC FINISH

ASIS and Micro-Epsilon offer the market-leading robotic system for detecting and repairing paint defects in high-volume series production.

With over 70 robots in daily operation at major automotive OEMs, the solution sets the global benchmark

for performance, process stability, and ease of integration.

From e-coat to clearcoat – trusted worldwide across Europe, Asia and North America.

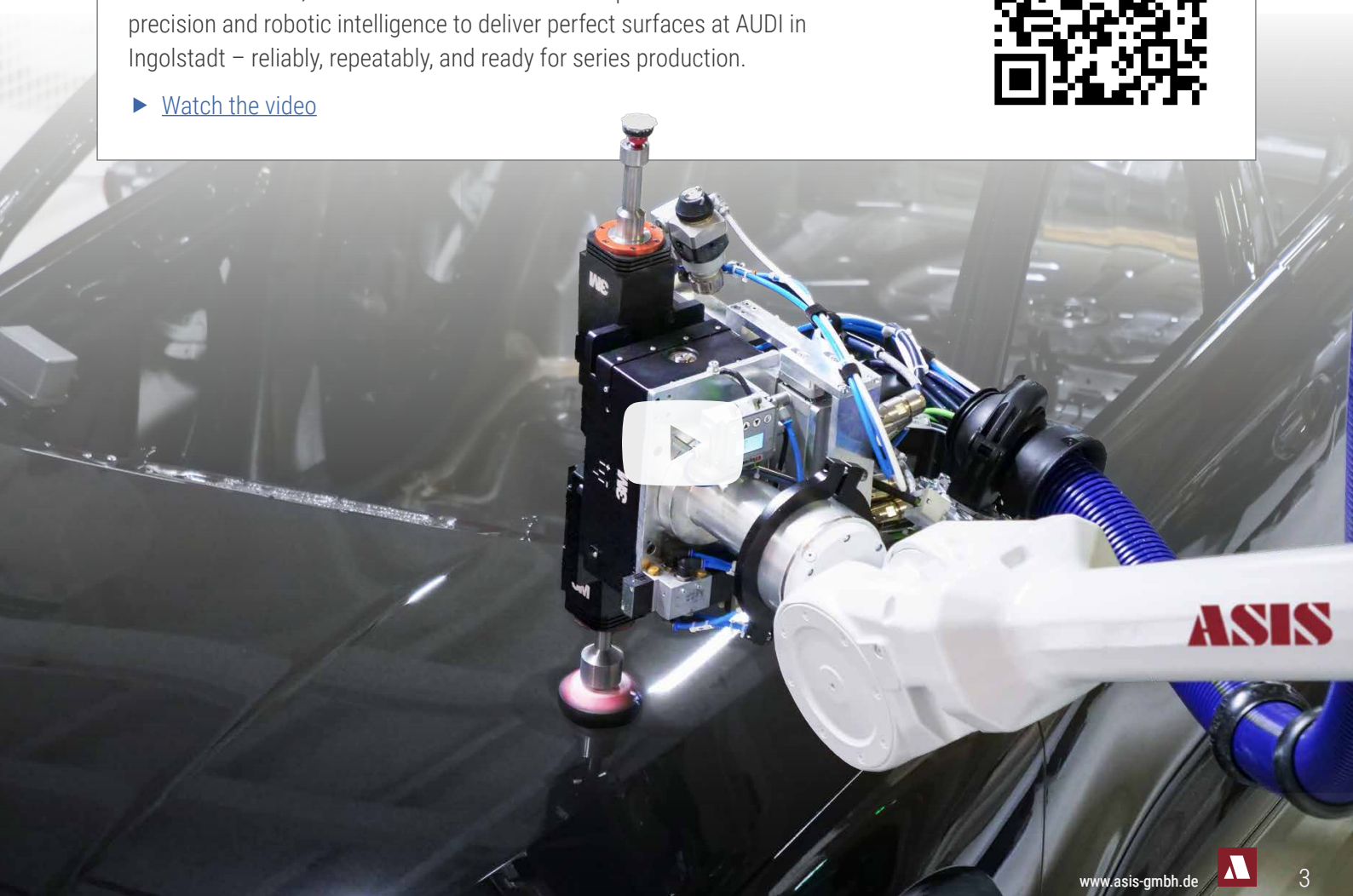
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SURFACE PERFECTION – IN ACTION

How are clearcoat defects detected and repaired fully automatically?

In this short video, we show how ASIS and Micro-Epsilon combine 3D precision and robotic intelligence to deliver perfect surfaces at AUDI in Ingolstadt – reliably, repeatably, and ready for series production.

► [Watch the video](#)



HIGH-PRECISION 3D INSPECTION

WITH MICRO-EPSILON REFLECTCONTROL

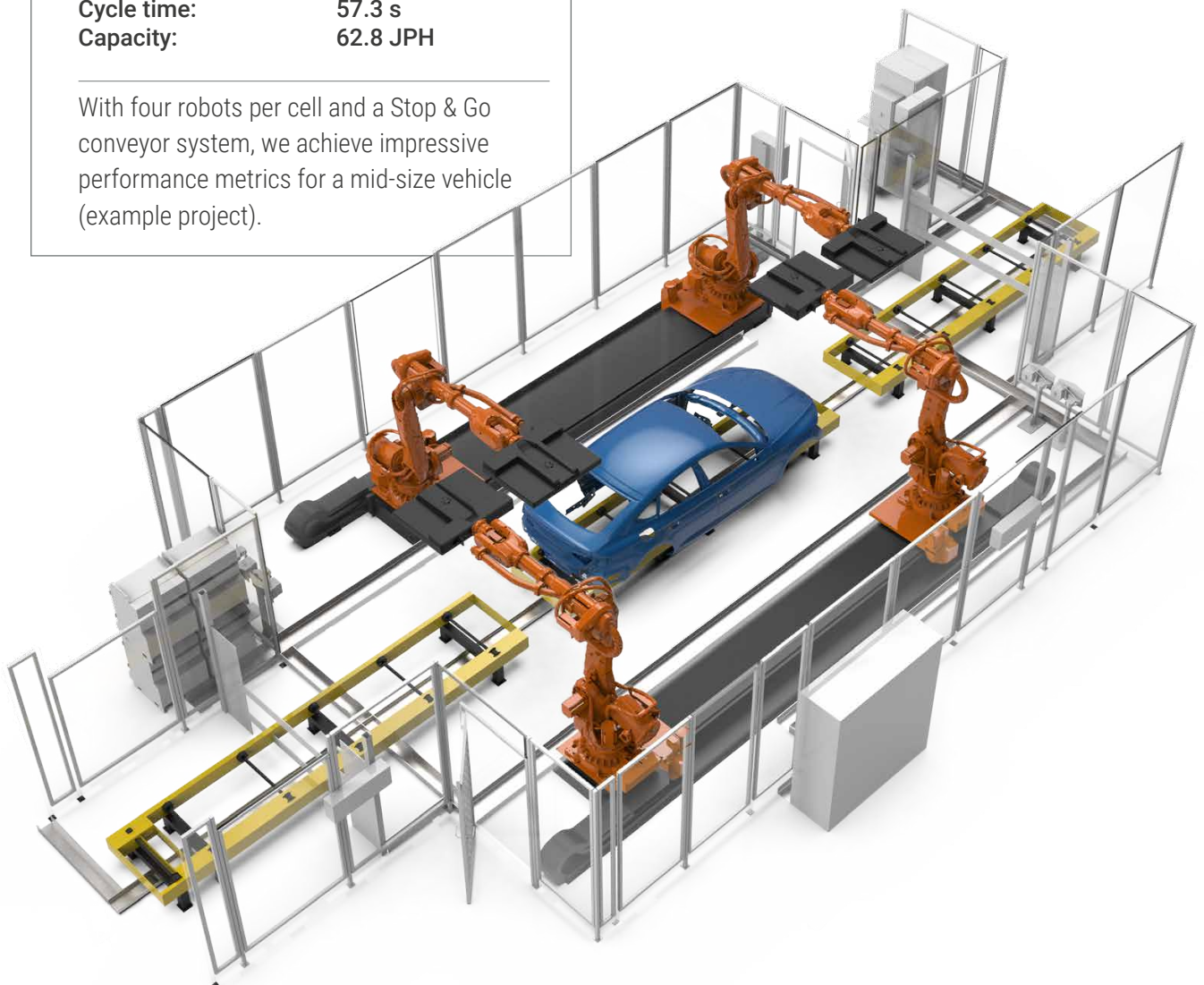


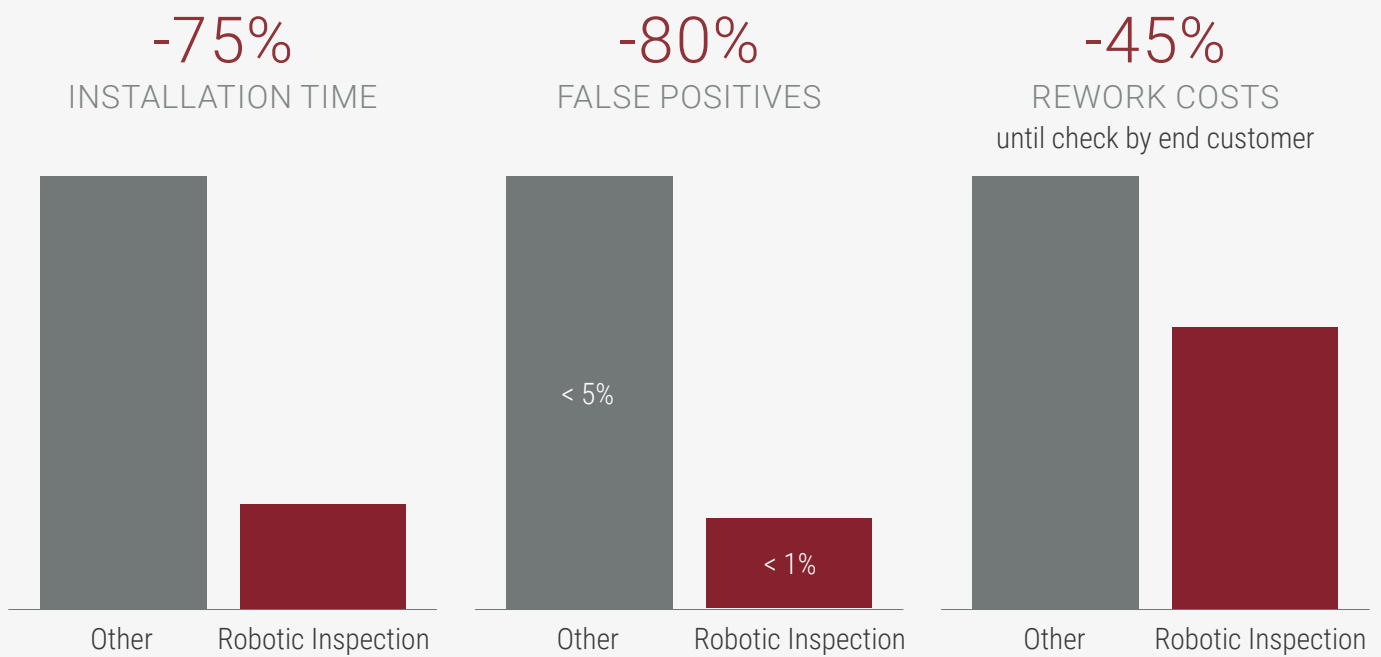
- Covers > 98% of the complete outer surface with a > 98.5% detection rate (up to 1 mm close to edges).
- Micrometer-level 3D image technology enables faster processing (especially for smaller defects) and better relevance classification (especially for the e-coat-application)
- Provides precise defect localization in 3D, including hard-to-reach areas like tailgates and front waterfall zones, without additional space requirements
- Includes inline longwave appearance measurement for optical quality validation
- Reduces false positives, ensuring that more real defects are processed
- No tool calibration or annual maintenance needed
- No hardware difference between clearcoat and e-coat

KEY DATA - INSPECTION

Inspection time: 37.8 s
Cycle time: 57.3 s
Capacity: 62.8 JPH

With four robots per cell and a Stop & Go conveyor system, we achieve impressive performance metrics for a mid-size vehicle (example project).





SYSTEM COMPARISON

REFLECTCONTROL VS. TUNNEL CONCEPTS

Feature	reflectCONTROL	Tunnel Concepts
False Positive Rate	< 1 %	Up to 10 % (= 1 per vehicle)
Edge Coverage	Measures < 1 mm to edge	Stops at 7–8 mm from edge
Design Geometry	All edges measurable	Fades out complex shapes
Detection Accuracy	> 99 %	~93 % or lower
Data Type	True 3D data	Only 2D; poor classification
Data Precision for Repair	< 1 mm precision; for direct repair	> 10 mm offset; no direct repair
Model Setup Time	3–4 weeks	10–12 weeks
New Models	No new hardware needed	Additional cameras/adjustments
Tailgate/Front Access	Included in base layout	Requires extra stations/space
Model Configuration	Customer-accessible	Only via remote support
Polishing Automation	3D repair process	Not available
Appearance Check	Integrated longwave sensor	Not included
Automation Level	High (staff reduction possible)	Low

SMART ROBOTIC REPAIR

EFFICIENT & FLEXIBLE

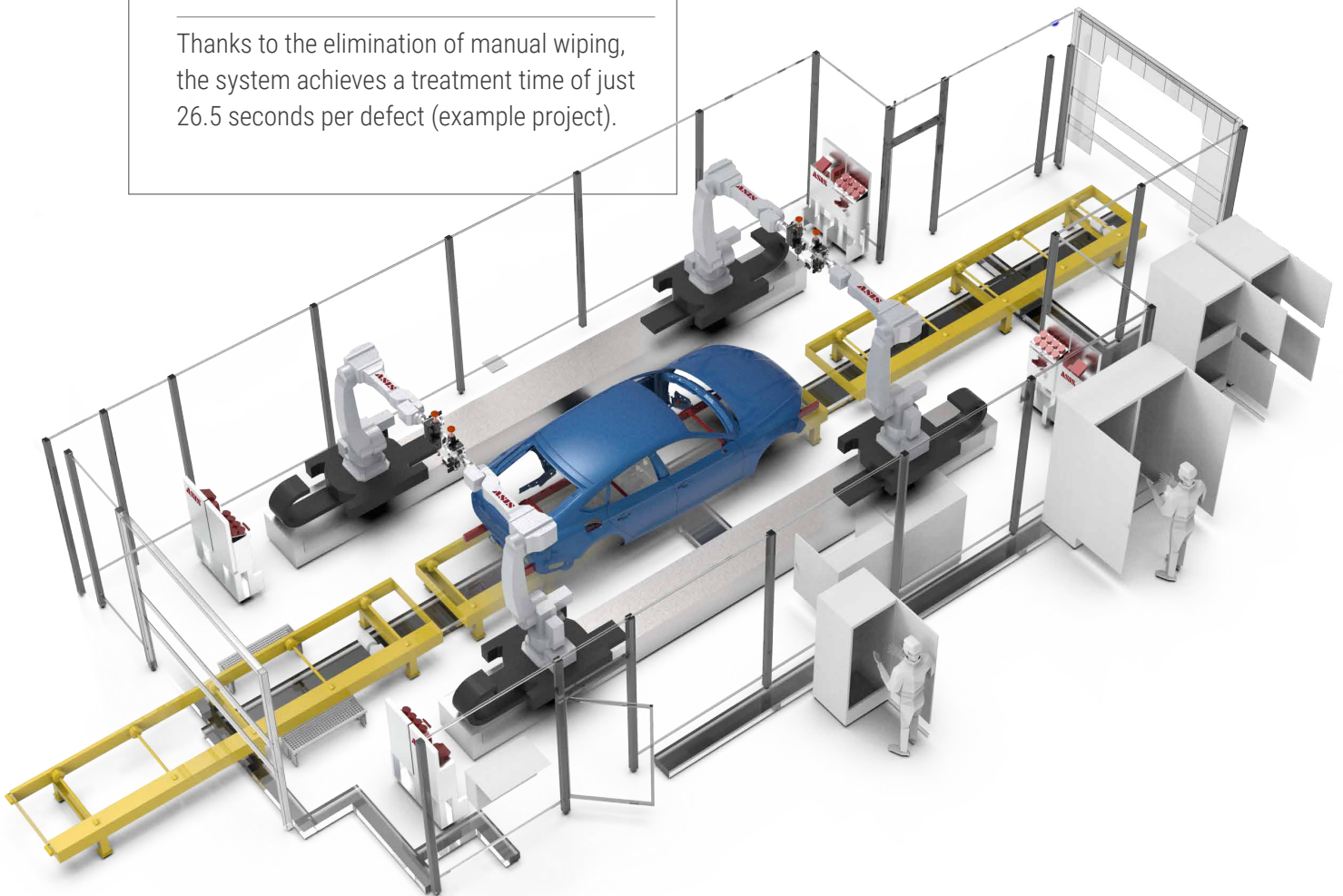
ASIS

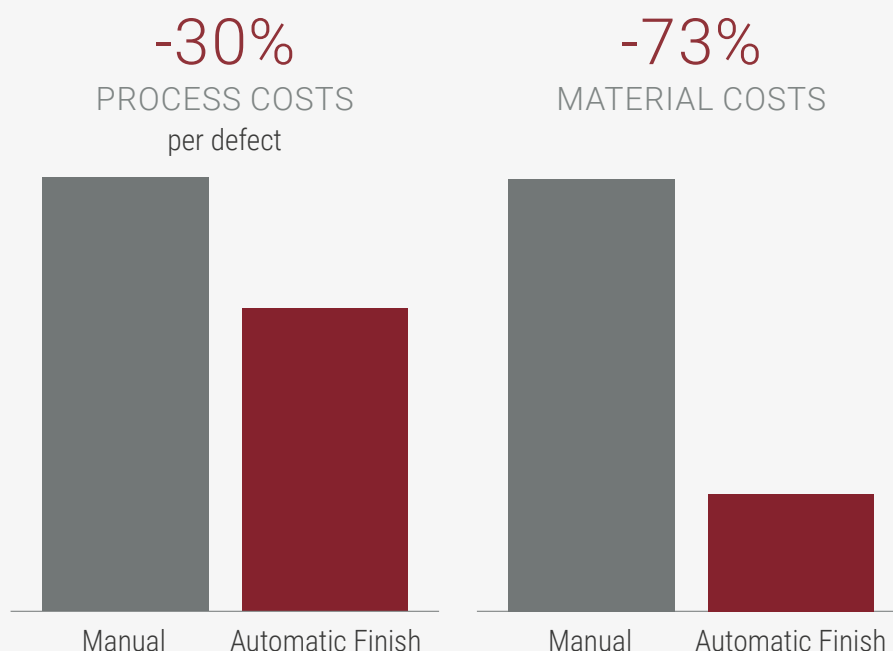
- Robot and consumable agnostic: works with any robot brand and standard abrasives
- No streaming motion required – repair is performed from stationary positions
- Fully automated pad and disc changes with media verification
- Precise dosing via Polish-Sup system (0.1–0.4 g per repair)
- No wiping needed between sanding and polishing for minimized handling time
- Available Technical Center for realistic validation using original customer workpieces and consumables

KEY DATA - FINISH

Sand and polish per defect:	26.5 s
Time to change a disc:	19.0 s
Time to change a polish pad:	18.0 s

Thanks to the elimination of manual wiping, the system achieves a treatment time of just 26.5 seconds per defect (example project).





SYSTEM COMPARISON

CLEARCOAT VS. PRIMER/E-COAT REPAIR

Feature	Clearcoat	Primer / E-coat
Sanding tooling	3M Random Orbital Sander	ASIS Rob-E-Unit
Sanding disc exchange	ASIS Disc-X-Change	ASIS X-Change
Polishing tooling	3M Random Orbital Buffer	not needed
Polishing pad exchange	ASIS Pad-X-Change	not needed
Polish dispense	ASIS Polish-Sup	not needed
Repair controller	not needed	not needed
Sanding/polishing medium	Customer specific	Customer specific
Automatic path planning software	CIT AUTOMAPPPS	CIT AUTOMAPPPS

AUTHORIZED PARTNER

FOR 3M AND CIT

ASIS is an Authorized Service Center for the 3M Finesse-It Robotics Paint Repair program in the EMEA region.

We handle warranty, maintenance, and repairs for 3M sanding and polishing tools – using original parts and trained service staff. Fast turnaround and direct support included.

As a CIT Integration and Sales Partner, ASIS also manages AUTOMAPPPS services directly – including the integration of new body types into existing repair systems.

One partner, full service – from tool to software.

CONTACT

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