

Autonomous Robotic Powder Coating

for High-Mix, Conveyor-Based
Productions

Building on Omnirobotic's years of technology development in 3D Perception, motion planning and task planning AI, this Robot Behavior Template is built to make it easier for Machine Builders to rapidly autonomous robotic systems in general industry or metal fabrication-driven powder coating scenarios.



Features

Autonomous Robotic Powder Coating for High-Mix Lines has a variety of benefits:

- **Finally, Robots for High-Mix:** No fixed limit on the number of parts or process model variations that can be applied (e.g. color recipes).
- **Use Existing Hardware:** Make use of FANUC Line Tracking and other preferred robot controller features for adaptation to densely loaded, continuous moving lines.
- **Simplified Integration:** Because of persistent labor shortages and the variety of demands within general industry, Omnirobotic has developed a rapid integration approach that focuses on maximizing net productivity benefits ASAP.

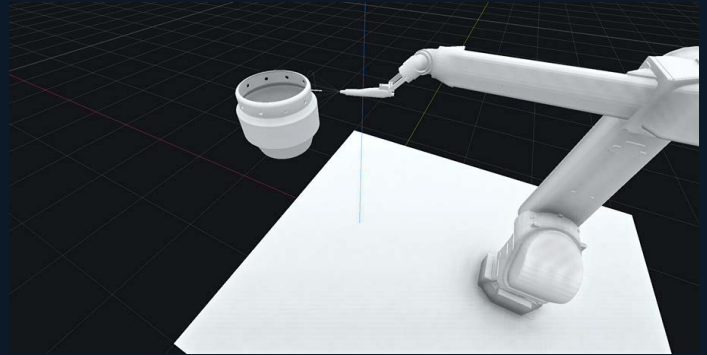
Technical Guide

What software components are needed to deploy a final system?

- **Cartesian constraints:** Safety zone and work volume must be defined for robot, while OmniBrain™ sends cartesian points to robot controller.
- **Smoothing:** A shape smoothing radius must be defined according to the degree of process accuracy required by end user.
- **Tool Parameters:** Fan width, standoff and tool angle can be defined to emulate the methodology used by existing (or otherwise absent) skilled workers.
- **Per-Robot Scanning:** 3D Perception stations must be positioned to each side of a work volume within which a robot is expected to process parts.

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Template Specifications

While Autonomous Robotic Systems are versatile and robust, specific use case requirements may not apply to every Behavior Template. In this template, the following specifications apply:

- No specific Faraday effect targeting, however behavior editing can allow for indirect management of Faraday effects.
- Wire mesh parts ($\leq 3/8$ ") are not applicable.
- Cameras must be placed outside the process booth.

Project delivery is primarily supported by Machine Builders, Integrators or Robot OEMs. Standard Machine Designs can be provided upon request.



How Can "I Try Before I Buy"?

Unlike traditional automation, High-Mix autonomy focuses on addressing indefinite part variation within existing expectations for skilled labor. As such, "test drives" can be organized at demo facilities or in the Omnirobotic lab environment to optimize function prior to deployment in production. This can be done as follows:

- End-User defines a sample of representative parts.
- Free "Test Drive": User tests it on existing machine with standard templated behavior.
- Paid Service: User works with Omnirobotic's team to optimize machine function according to their needs. Cost of service scales at standard rates according to expenses incurred.

Paid service can also be initiated after installation. Project costs include capital expenditure for equipment, plus \$10/robot-hour in production, as powered by AutonomyOS™.

If You Build It, Autonomy Will Come

Contact Omnirobotic to Learn More!

sales@omnirobotic.com
www.omnirobotic.com
1-450-231-1074

2572 Le Corbusier Blvd,
Laval (QC) Canada H7S 2K8