**APPLICATION STORY** 

#### AEROSPACE

## *COATING REMOVAL GANTRY*

LONG LENGTH HARSH CUSTOMIZABLE MULTI-AX

# Automated LoPro<sup>®</sup> gantry blasts through harsh debris environments.

Automated plastic media blasting systems are used to remove paint and other coatings on projects that vary from small automotive components to various aircraft parts. The level of complexity of plastic media blasting ranges from manual blast rooms to fully automated robotic systems.

This manufacturer needed a complete gantry motion system for paint removal on aircraft parts. The blasting head is located on the end of a robotic arm that is inverted and mounted to a large gantry system.

### CHALLENGE RELIABILITY AGAINST THE HARSHEST DEBRIS

The motion system must withstand dust, plastic particle debris, and paint contaminants. Against these incredibly harsh factors, the system must deliver smooth motion and low maintenance requirements. Additionally, each linear axis must be designed for the heavy-duty load requirements of this appliction. The gantry must support the inverted robotic arm, which weighs upwards of 7,500 lbs.



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Chain-driven LoPro<sup>®</sup> linear actuator, steel beam mounted



Multi-axis LoPro<sup>®</sup> system configured with mounting brackets



Closeup of LoPro<sup>®</sup> wheel plate (no wheel covers shown), using DualVee<sup>®</sup> guide wheels

#### **SOLUTION**

## CUSTOMIZED, HIGH CAPACITY LOPRO MULTI-AXIS SYSTEM

The robotic arm is mounted to a heavy-duty gantry constructed using LoPro<sup>®</sup> linear actuators from Bishop-Wisecarver. The custom X-axis LoPro<sup>®</sup> assemblies each include eight size 4XL DualVee<sup>®</sup> guide wheels and a steel wheel plate, for maximum load capacity and durability. The Y-axis assemblies are equipped with a coupled leaf chain drive mechanism, high capacity roller bearings, and a steel housing structure.

#### **CHALLENGE SOLVED**

## *INCREASED MACHINE UPTIME, DECREASED LABOR*

This automated system decreased labor requirements by two-thirds after implementation, and reduced time spent on maintenance.

The gantry allows for load capacities in excess of 7,500 lbs to carry the inverted robotic arm and take the loads during motion, actuation, and blasting. Importantly, the vee guide wheel technology at the core of the LoPro<sup>®</sup> multi-axis solution tolerates and wipes away the plastic media debris and other particulate, resulting in more machine uptime.

#### THE BISHOP-WISECARVER ADVANTAGE

## WHEN THE GOING GETS TOUGH, WE KEEP YOU IN MOTION

Bishop-Wisecarver has the actuators and guided motion products to excel in harsh, extreme, and demanding applications. Our reliable solutions are designed to provide long-lasting and low-maintenance motion capabilities, even when up against harsh debris conditions and heavy loads.

- ✓ Highly reliable LoPro<sup>®</sup> linear actuators excel in harsh and extreme environments
- ✓ Self-cleaning DualVee Motion Technology<sup>®</sup> wipes away debris as the system runs
- Modular design eliminates cumbersome component integration
- LoPro<sup>®</sup> gantry bracket kits make versatile gantry construction easy
- Long actuator lengths and unlimited butt-joining capabilities maximize work area
- Versatile drive system options (undriven, belt-, chain-, or screw-driven)
- Versatile mounting options (unmounted, or on various sizes of steel beam or aluminum extrusion)
- Custom design support from experienced engineering professionals



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