



AUTOMATION



CUSTOMIZATION



LOW  
MAINTENANCE



DEBRIS  
RESISTANCE

# 7<sup>TH</sup> AXIS FOR ROBOTIC SANDING

## Manufacturing - Robotics

**Complete robot transfer solution enables highly reliable automated sanding through resistance to wear and debris.**

### **CUSTOMER & APPLICATION:**

#### **ROBOT EXPERTS SEEK TO IMPROVE SANDING PROCESS THROUGH AUTOMATION**

GrayMatter Robotics sets themselves apart in the robotics space with their unique AI-driven solutions to complex and critical tasks. One of these is sanding: a debris-producing process that requires highly consistent pressure applied over complicated surfaces.

In current manual processes, workers are at risk of impacts or burns from hot, abrasive debris; carpal tunnel syndrome from high vibration; and respiratory issues from dust and fumes.

The team at GrayMatter sought to create an automated scanning, planning, and sanding system to cut operation time in half while increasing worker safety and product quality.

### **CHALLENGE:**

#### **INCREASE ROBOT WORKSPACE WITH A DURABLE, EASY-TO-IMPLEMENT 7<sup>TH</sup> AXIS**

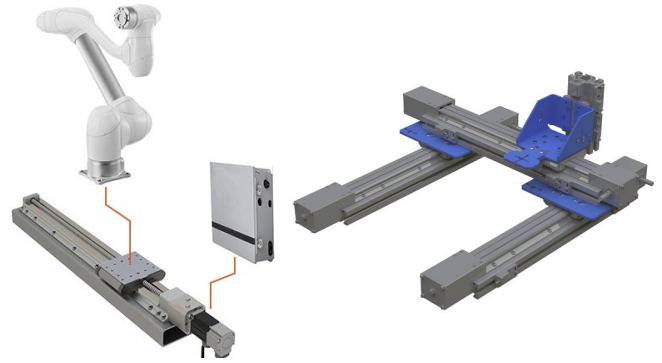
GrayMatter's Scan&Sand™ system needed to consistently produce superior results while sanding variable workpieces. GrayMatter developed self-programming algorithms to instantly scan and compute the best possible sanding solution for the desired part. Their software then guides robotic arms which sand each part with superhuman quality and consistency.

They needed a durable 7<sup>th</sup> axis to extend the range of the robotic arms and allow processing large and complex parts. Keeping with GrayMatter's design philosophy, this robot transfer unit must be easy to set up, operate, and maintain. Abrasive debris and factory dust cannot stand in the way.





*LoPro® linear actuators can be driven via ball or lead screw, chain, or belt. The belt option (used in this application) can reach lengths of over 70 feet.*



*LoPro actuators are well-suited for complex automation applications. They make reliable robot transfer units for small and medium-sized robots / co-bots. They can also be joined into multi-axis units, such as pick-and-place gantries, using kits from Bishop-Wisecarver.*

## **SOLUTION:**

### **COMPLETE 7<sup>TH</sup> AXIS SOLUTION USING VEE GUIDE TECHNOLOGY TO ENHANCE DURABILITY**

Bishop-Wisecarver supplied GrayMatter with a LoPro® Size 4 with 4 meters (over 13 feet) of travel. The actuator is equipped with a belt drive, gear reducer, motor mount, custom machining for the mounting holes, and a custom kit of mounting hardware.

LoPro® actuators run on DualVee Motion Technology®: the highest quality guide wheels and track. This ensures reliable motion even in harsh and debris-prone environments.

Furthermore, Bishop-Wisecarver's team of experts were there for GrayMatter at every step. Clear communication and a deep understanding of motion systems ensured we met all the project requirements.

## **CHALLENGE SOLVED:**

### **RELIABLE AUTOMATION, CONSISTENT RESULTS**

By extending the range the robotic arms with a LoPro® 7<sup>th</sup> axis, it is possible to sand complex-shaped workpieces up to 12 feet in length.

LoPro®'s dependability and ease of maintenance are critical elements of Scan&Sand™. The entire sanding system is designed to operate consistently and without failure – even in the harshest sanding applications. As a result, customers can easily load parts, start the machine, and walk away knowing Scan&Sand™ will deliver quality results. Employees are spared the risk factors of manual sanding and are free to perform other tasks.

Bishop-Wisecarver's complete 7<sup>th</sup> axis solution greatly simplified the installation process.

*"BWC is an excellent solution – reliable, excellent performance, it's delivered on time... we know the people here, and they're interested in what we've done."*

- Paul Vidal, Head of Operations at GrayMatter Robotics

## **QUANTIFIABLE RESULTS:**

### **PUT TIME INTO PRODUCTION (NOT REPAIRS)**

The Scan&Sand™ is capable of sanding parts up to 2-4 times faster than the human hand with a 90% reduction in reworks.

Customers of GrayMatter Robotics have used the LoPro®-mounted system while sanding down metal, wood, fiberglass, and composite materials.

The 7<sup>th</sup> axis solution is extremely well suited for the environmental conditions and dynamic loading. The entire actuator maintenance has consisted of a wipe down and oil application every 1-2 weeks.

*"BWC LoPro 4 is ideal for lightweight robots operating in dusty environments, and the DualVee design is extremely robust and easy to maintain. We are extremely satisfied by the customer service and delivery times of the LoPro, especially when many other companies are struggling with supply chain issues."*

- Brual Shah, Co-founder and CTO at GrayMatter Robotics

Visit [graymatter-robotics.com](http://graymatter-robotics.com) to learn more about Scan&Sand™.

**CONTACT US TO DISCUSS YOUR SPECIFIC GUIDED MOTION NEEDS**

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