

MULTI-AXIS



DEBRIS
RESISTANT



EXTREME
TEMPERATURE



CUSTOMIZABILITY

CNC PLASMA CUTTER

Manufacturing - Cutting

Actuator Gantry Beats the Heat and Debris

CHALLENGE:

THE NEXT GENERATION OF CNC FOR AUTOMATED PLASMA CUTTING

The CNC plasma cutter operates on a manufacturing factory floor to produce parts from metal plates of various thicknesses. A fume extractor moves with the torch head to minimize the amount of toxic fumes that escape into the surrounding environment.

A multi-axis linear motion system is needed to actuate the plasma cutter. During operation, cutting debris and heat are of particular concern to the integrity of the motion elements.

CRITICAL FACTORS:

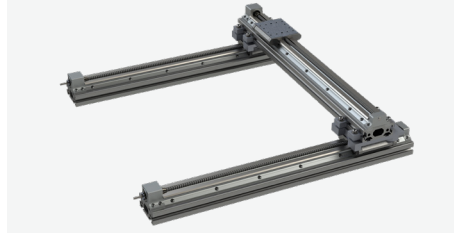
RELIABILITY IN A HIGH TEMPERATURE, DEBRIS- FILLED ENVIRONMENT

The working envelope is 26.5" x 45.75", and the cutter can accommodate standard 4' x 8' material. Though the motion system must be long enough to supply this working envelope, it must also have a low profile make it easy to fit the machine into a secondary fume hood.

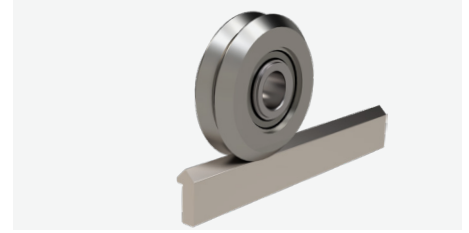
The system must overcome abrasive dust, weld splatter, hot sparks, and elevated temperatures associated with the cutting process. Additionally, the actuator must provide sufficient positional accuracy for the CNC operation.



LoPro® Ball Screw Actuator



LoPro® Actuators in a Gantry Configuration



DualVee® Guide Wheel and Track - the Foundation of LoPro® Linear Actuators

THE BISHOP-WISECARVER ADVANTAGE

START WITH SMOOTH, SELF-CLEANING GUIDE WHEEL TECHNOLOGY.

When it comes to debris-filled environments, Bishop-Wisecarver has systems and products that will hold up to the most extreme and debris-filled situations.

- Highly reliable motion systems suited for harsh and extreme environments
- Self-cleaning vee guide wheels wipe away glass dust and debris
- LoPro® Actuators are easily connected into multi-axis systems
- Highly durable motion components reduce maintenance costs
- Custom-engineered solutions from experienced professionals
- In-house machine shop capable of prototyping and fabricating custom assemblies

SOLUTION:

A MULTI-AXIS SYSTEM BUILT FOR EXTREME AND HARSH CONDITIONS.

Three LoPro® linear actuators from Bishop-Wisecarver form an XX'Y gantry that holds the vertical axis, fume extractor, and torch head. The CNC plasma cutter is constructed using ball screw driven actuators to provide positional accuracy. Wiper covers on the actuators' moving wheel plates provide extra shielding from sparks and weld splatter. Optional bellows provide even more protection, if the end-user decides to equip them. The LoPro® actuators come mounted to steel beams and include custom drive ends that are fabricated into the machine frame.

RESULTS:

PROBLEM SOLVED.

The low-profile gantry system provided a large working envelope for the plasma cutter while keeping the machine footprint sufficiently compact.

In addition, the resulting durability of the equipment exhibits how well Bishop-Wisecarver's motion technologies are suited to overcoming debris-filled and extreme temperature environments.

CONTACT US TO DISCUSS YOUR SPECIFIC GUIDED MOTION NEEDS

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