

MANUFACTURING - CUTTING

CNC PLASMA CUTTER



MULTI-AXIS

DEBRIS
RESISTANTEXTREME
TEMPERATURES

CUSTOMIZABLE

Actuator Gantry Beats the Heat and Debris

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. The working envelope is 26.5" x 45.75", and the cutter can accommodate standard 4' x 8' material.

CHALLENGE

RELIABILITY IN A HIGH TEMPERATURE, DEBRIS-FILLED ENVIRONMENT

Though the motion system must be long enough to supply the 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.

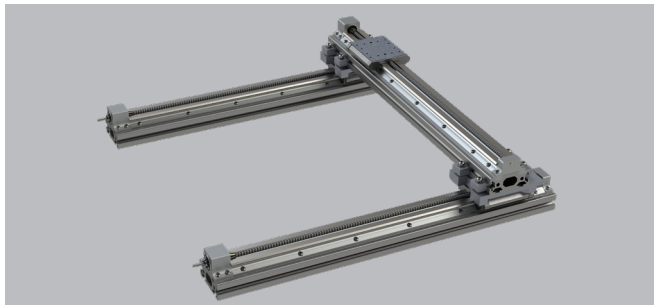


FIGURE 1: LoPro® actuators in a gantry configuration.

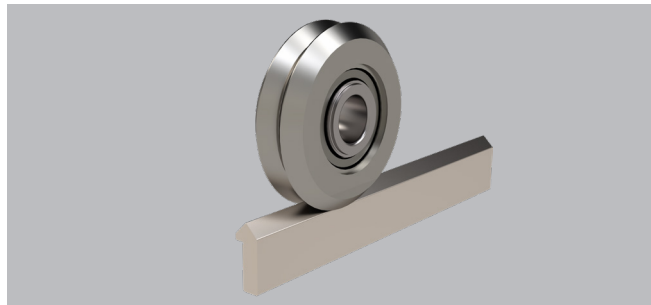


FIGURE 2: DualVee® guide wheels and track - the foundation of LoPro® linear actuators.

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.

CHALLENGE SOLVED

THE NEXT GENERATION OF CNC FOR AUTOMATED PLASMA CUTTING

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.

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