**WELDING**

# WELDING INSIDE BOILERS



LONG LIFE &amp; LOW MAINTENANCE



DEBRIS RESISTANT



EXTREME TEMPERATURES



LONG LENGTH

## Improving Operation and Maintenance in Harsh Welding Conditions

A welding and metalworking company looked to Bishop-Wisecarver when redesigning their boiler welding machinery. This equipment was designed specifically to refurbish boilers in a variety of industrial settings, including power generation plants, chemical plants, and pulp and paper mills. These machines build up the boiler wall thickness, which involves laying down rows of weld bead onto the inside walls.

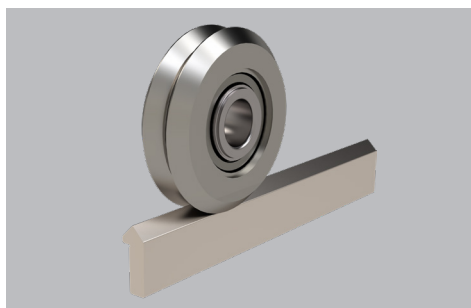
The existing system used rack and gear driven weld torches with wire feeders, as well as a cam-follower system to guide the motion of the welding torch up and down the insides of the boilers, frequently around of 20 feet in height. The weight of the moving torch and feeder system was approximately 150 pounds.

**CHALLENGE**

## ENHANCE RELIABILITY AND EASE OF MAINTENANCE

The existing system had several critical factors that needed to be addressed. Namely, the cam-follower system was not easily serviceable, and needed frequent replacement. This slowed down the completion time for a weld job.

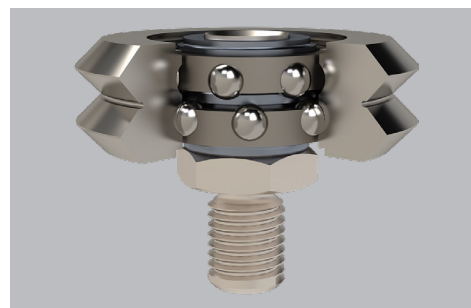
The new system needed to operate in an extremely harsh environment: contamination from alloy steel weld splatter and oxidized scale debris. Additionally, no lubrication is allowed inside the chamber.



*Stainless Steel DualVee® Wheel and Track*



*Six sizes of wheels to fit various machine footprints and load requirements*



*Cutaway of DualVee wheel with studded option*

### **SOLUTION**

## **AN EASY-TO-MAINTAIN LINEAR GUIDE SYSTEM**

Stainless steel DualVee® guide wheels and track from Bishop-Wisecarver were installed without lubrication and actuated by the rack and gear drive. However, as compared to the cam-follower system in the previous design, the DualVee wheels and track were significantly easier to install and replace.

Stainless steel components reduced the effects of corrosion substantially, while the vee shape of the guide wheels and track provided self-cleaning action that wiped away slag and scale debris.

### **CHALLENGE SOLVED**

## **NEW DESIGN IS EASY TO MAINTAIN AND OFFERS LONGER LIFE**

The DualVee® wheels and track allowed quick removal for servicing. In addition, because of the reliability and durability of Bishop-Wisecarver's products, the new design had a longer lifecycle and needed less maintenance than the previous system. This meant that the welding machine could run longer with less likelihood of interruption, thus saving costs and getting the job done in less time.

### **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 in the most harsh and extreme applications.

- ✓ Reliable motion systems suited for harsh and extreme environments, including high temperatures during welding
- ✓ Self-cleaning DualVee® guide wheels and track wipe away weld spatter and other debris
- ✓ Stainless steel options for enhanced corrosion resistance and contamination-free solutions
- ✓ Wheels and track can operate without lubrication
- ✓ Highly durable motion components reduce maintenance costs
- ✓ Long lengths of track available in a single piece (up to 20 ft) and easily butt-joined for longer lengths
- ✓ DualVee Motion Technology® provides smooth, continuous motion