

G-Force® Proves It Can Handle The Heat

A leading manufacturer of construction and mining equipment was seeking a new solution for the handling of hydraulic cylinder pins during the heat treat process. In this application, the hydraulic pins are loaded and eventually unloaded from the heat treat furnace and placed directly into a quenching machine. The size of the pins are extremely variable, with some as small as 3" long, 1" in diameter and just 5 lbs, up to pins that are 48" long, 16" in diameter with a weight of 300 lbs. One operator is responsible for the loading and unloading of 20-30 parts per hour.

Finding an appropriate solution for this application was particularly difficult not only due to the wide size variety of parts being lifted, but also because of the intense heat generated by the furnace. To keep the operator safe, the lifting solution needed to have the ability to reach into the furnace while also withstanding the heat coming from the open furnace door.

"It's pretty darn hot," said the company's Health & Safety Engineer. "Inside the furnace it's 1600 degrees Fahrenheit. When that door opens and you're loading parts in, you want to keep the operator at a safe distance and you need to be sure any equipment you're using can take the heat."

The original solution for this application was an air hoist and manipulator that had been around as long as anyone can remember. "We've got a guy who has been here for 37 years. He used that hoist when he was being trained, and it wasn't new then. " The old hoist was proving to be a maintenance nuisance, creating excessive down time and could not handle the increasing weight demands of the application.

The Gorbels Solution

When the search for a new solution began, one of the primary requirements was that it be a servo-controlled device to allow the precision placement necessary when picking and placing the pins onto fixtures in the furnace. "We're trying to switch everything over to servo from our older hoists because of how much easier it is for us to handle the parts. That's been an initiative of ours for the past 3 years. "



Having several other G-Force® units in their facility, the company again chose a Gorbels G-Force® Q with 660 lb capacity with a remote mounted pendant control handle. The unit was mounted on a custom manipulator and carriage featuring a heat shield on the face of the G-Force® actuator to protect the unit from the furnace's intense heat. At the helm of the system, an operator is able to control the up and down motion of the G-Force® with one hand, and the furnace and quench machine doors with the other while maintaining a safe distance from the intense heat.

"The G-Force® has been working out very well for us," said the Health & Safety Engineer. "It runs so much smoother, and gives us excellent control. It's also more reliable, and it's able to handle our heavier pins of 300 pounds plus where our last hoist maxed out at 250."