



Damage & Injury Risk “Virtually” Eliminated with G-Force®

Industry:

Gas and Power Generation

Product:

Turbine compressors

The Problem:

Moving parts by hand posed injury and product damage risks

The Solution:

Gorbel G-Force



We needed something that gave us a lot of control

Atlas Copco’s gas and process division engineers turbo compressors and expansion turbines that serve a number of industries, including natural gas processing and power generation. At an assembly facility where the components of the large compressors are assembled, multiple work processes were sharing a single overhead crane system for handling the components and sub assemblies. Workers would often be at a stand still while a co-worker used the crane, or would forgo the crane altogether and risk injury by lifting heavy parts by hand.

The company decided to target the high- throughput milling applications for a process change, and installed Gorbel work station cranes to eliminate the productivity delays caused by the shared crane. While the new cranes would eliminated that problem, finding a lifting device to fit the application was a challenge due to the size of the load and the sensitive machinery it was being placed into.

In this work cell, large stainless steel cylinders that range from 5-15” in diameter and weigh from 15 to 400 pounds milled down from a bell shaped impeller blanks into the finished impeller with razor sharp edges. Moving the parts by hand posed multiple injury risks, as well as high potential for damage.



“We’re lifting very heavy steel cylinders and trying to place them with precision into the milling machine without damaging the part or the machine,” said Diehl. “We needed something that gave us a lot of control.”

After exploring multiple servo-powered lifting devices, the company selected a 660 pound capacity G-Force® Q. While all the servo-powered devices delivered very good control, Atlas Copco felt they would have the most control with the G-Force® after seeing a demo of the unit’s virtual limit package, float mode feature, and overall smooth movement thanks to the unit’s wire rope.

An operator now secures the impeller blanks into the tooling grip that Atlas Copco designed, which locks onto the blanks’ outer rim. Once secured, the operator engages Float Mode on the G-Force® handle, and then moves the load up and down by holding the gripping tool or the load itself.

As the operator moves the load over the milling machine, the G-Force® virtual limits engage and serve two functions; reducing speed and prohibiting movement. First, speed is reduced as the load is lowered over the milling fixture. Then as the impeller blank makes contact with the fixture, the G-Force® prohibits any further lowering. With these virtual limits combined with float mode, the operator is able to carefully position the blank onto the fixture exactly where it needs to be without any risk of suddenly dropping the load too far and causing damage.

From the perspective of reducing risk of injuries and product damage, Atlas Copco’s expectations were met. Perhaps more importantly, worker response to the G-Force® has been overwhelmingly positive. “I really like the float feature,” said one operator. “It makes it really easy when you’re lining up a hole for a part.”

“If you try to introduce a solution to a problem, but it actually makes the process hard or slow, workers just won’t use it,” said Diehl. “We’ve had no problems with workers not using the G-Force®. They all think this is the greatest thing.”