



CMM Shuttle System



The Situation

A leading manufacturer of mining vehicles wanted to improve efficiency at its North Carolina calibration laboratory. The lab routinely analyzes large metal castings weighing up to 20,000 lbs. each. The facility's coordinate measuring machine (CMM) is located in a temperature- and humidity-controlled room with a positive-pressure ventilation system. The loading/unloading of the test pallet is performed in an adjoining room with a quick-rollup curtain door to limit exposure to the outside environment. Lab workers needed a way to safely and quickly transport the bulky test articles and pallet from the staging room to the CMM room.

The Solution

Airfloat, in cooperation with the CMM maker, designed and built a custom air-bearing shuttle that docks with a pair of large tooling pallets. Once docked, the operator deploys pneumatic lifting beams to lift the 8,000-lb. pallet and test article a centimeter or two off the ground. Using the dual X- and Y-axis drives, the operator can literally drive the transporter in circles, around corners and other complex movement patterns. Airfloat also provided a removable bridge to allow the transporter to cross an expansion gap between the rooms.

The Result

The calibration laboratory estimates the Airfloat shuttle system has reduced CMM cycle times by 50-70%. While one loaded pallet is in the CMM room being measured, the second one is unloaded/loaded in a staging area. When the measuring process is complete, the shuttle is used to swap the two tooling pallets, and the process is repeated.