

Custom Air Bearing Transporter for Engine Rebuild Center

Situation

WPI, a Texas-based distributor of Waukesha engine products, needed a better way of moving enormous engines around its Houston remanufacturing/service center. Waukesha engines typically are used to run large generators for oil field operations, hospitals and other facilities. Larger engine models produce up to 100 megawatts of power and weigh around 28,000 lbs.

Overhead cranes are available in parts of the Houston rebuild center. However, they are not available in the center's dynamometer test cells and paint booths due to their fully enclosed designs. WPI needed a safe, efficient way of moving the engines in and out of these rooms.

Solution

WPI partnered with Airfloat to create custom air-bearing transporters that literally float the engines on a thin film of compressed air. A pneumatic tugger was added to each transporter to improve maneuverability and to allow engines to be moved by a single operator.

An engine first is placed atop a large stand in a staging area by an overhead crane.

The Airfloat transporter is

then maneuvered beneath the stand. Built-in pneumatic lifting decks raise both the engine and stand about two inches off the ground. Then the air bearings are engaged, causing the engine to float in a friction-free, omnidirectional manner.

The pneumatic tugger pivots 180°, allowing the engines to be maneuvered around corners. A docking frame inside the test cells guides the engine into final position.

Result

In older WPI facilities, heavy-duty fork trucks were used to move engines. This proved to be both cumbersome and dangerous due to the trucks' long forks and wide turning radiuses. Additionally, fork trucks were not allowed to enter the sensitive test bays. Airfloat provided a safer and more efficient solution with the added benefit of being able to completely enter the dynamometer rooms.

