



## **A DESIGN ALTERNATIVE FOR OEMS**

# **How embedded air caster systems enable multi-ton machine repositioning**

**By John Massenburg**

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Stationary machines cannot deliver the agility, speed, and responsiveness that manufacturing demands. As such, original equipment manufacturers (OEMs) have long recognized the importance of adaptability when designing equipment to respond to ever-changing customer needs. However, variable business-related conditions, from demand surges to equipment failures, make it increasingly difficult to flex one's production lines or to optimize floor space and layout. These ongoing and potentially costly challenges help to explain why OEMs insist upon cost-effective alternatives.

Fortunately, this problem is solvable: OEMs can accommodate their customers, the end-users, to mobilize or move anything that the OEM builds by embedding air casters into their machinery. For both OEMs and end-users, an embedded air caster system offers a win-win way to mobilize machines and meet changing demands in manufacturing environments.

### **A STANDOUT SOLUTION**

Specifically, OEM designers embed small air caster load modules into the machine they're designing. The embedded air casters yield a built-in, on-demand rigging system that can be used at any time, enabling the end-user to reposition equipment and workstations within minutes.

To operate, end-users simply attach an air hose to the plant's standard compressed air supply and inflate pressurized discs that are attached to the casters. As these discs fill and expand, they lift the machinery off the floor. Excess air is released, creating a cushion upon which the machine literally floats.

Functionally similar to an air hockey puck, the floating machine can be easily maneuvered at a push because that thin film of air virtually eliminates friction between the machine and floor, eliminating wear-and-tear on the floor. It takes only approximately 1kg of force per 1,000kg of weight to move an object rigged with air casters. The most significant value offered by the casters, however, is the ability to adapt to practically all machine and equipment configurations with little-to-no setup, downtime, or labor.

## **SUBSTANTIAL RETURN ON MINIMAL INVESTMENT**

Consider an aerospace manufacturer (the end-user) that uses tooling scaffolds in the manufacturing of airplanes. An embedded system enables operators to reposition tooling through the production line in minutes, with no need to wait for certified forklift or crane operators. Air casters require only minimal training and no certification to operate. Even if the embedded system saves the aerospace manufacturer just 10 minutes per day in downtime or employee labor over the course of a year, in aggregate this saves the equivalent of an entire week of lost productivity and unnecessary labor costs. The more frequently structures are moved, the greater the return.

## **INNOVATIVE DESIGN MADE EASY**

Embedded systems must also be easy for OEMs to utilize if they are to be practical. Designers can identify which embedded system kit to use and download full engineering models by addressing a few basic questions regarding the number of support points and overall weight of the machine or component. When integrating the air caster system into the machine, it is important to remember that OEM designers are not changing the design to fit the load modules. Rather, the load modules and control console generally are unobtrusive and fit seamlessly into machine designs. As a result, embedded air casters offer enormous value to end-users, who gain an integrated, versatile, and on-demand rigging option while using nothing more than air. Thus, OEMs can solve a serious operational challenge for customers through innovative design. It's a high-value, relatively small-dollar, long-term add-on that can give OEMs both a competitive edge and a new revenue stream.

### **About the Author:**



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