BilD: AeroGo

Air sliding rigging systems can be used both for transporting in-house machines as well as finished products.

Revolution in the transport of heavy loads

When heavy loads have to be moved within production, usually a crane is used. An alternative to this are hovercrafts. A single operator can safely lift and move components using air bearings.

Current solutions for the movement of heavy machinery and product loads are considered by many modern companies to be outdated, and may pose significant challenges and risks. Cranes require a rigging process for every move, and suspended loads are always a concern. Forklifts are inherently dangerous as the driver has limited sight, and the weight and mass of the vehicle poses a risk to workers in the facility. Both of these also require a large amount of space, and trained, certified operators.

Traditional heavy load movement solutions are also expensive. A crane capable of 50-ton lifts may cost $1 million or more. Putting in a rail system is less expensive, but it's a straight-line solution with zero flexibility that doesn't account for changing market conditions or processes. Traditional wheeled casters are a cheap solution but they require manpower that doesn't fit within ergonomic load-pushing guidelines. Moving just a 5,000 pound load might require four to six people, and during this movement, these staff are off the assembly line, so the productivity of the entire facility dips just to move machinery or product. Additionally, moving multi-ton loads places enormous pressure on factory and warehouse floors. Companies invest heavily in epoxy coated floors to enhance and add value to their products when customers visit the factory. Reducing damage from point loading (wheels) on a new epoxy floor is not only protecting a company's facility, but also its image. A long proven product that is consistently being utilized in new ways is transforming the management of heavy loads—*air casters powered by hovercraft technology.*

Benefits of Hovercraft-Style Air Casters

Air casters, which are also known as air bearings or air skates offer a very low profile and low friction solution for moving heavy loads. These solutions leverage the power of fluid film technology to use trapped and escaping air to lift massively heavy loads. It's very similar to an air hockey table where moving air balances and supports the weight of the puck.

Companies from machine shops to aerospace manufacturers are utilizing air casters to maneuver loads. The air casters are charged with compressed air, loads are lifted and moved with minimal effort, and then the casters are simply deflated to lower the load perfectly into place without any drop risk. Air casters smooth out many of the issues that can currently derail the logistical flow of heavy equipment. Manufacturing sectors such as aerospace and rockets that are managing pieces costing hundreds of millions of dollars are rapidly adopting air casters as proven technology that best protects their investments.

The costs of air caster technology presents a powerful value proposition, especially when implemented at scale. A product weighing 400 pounds and sitting on wheeled casters is easily moved by one person and isn't a likely candidate for air casters. Once you reach over 1,000 pounds then it's unreasonable for a single person to push that load. Pushing 5,000 pounds on wheels is exceedingly hard and requires a lot of people. Air casters allow a single person to push 5,000 pound loads with just 30 pounds of pressure (which is the ergonomic max according to most health and welfare codes). The benefits magnify as you reach massive loads of 50,000 or more pounds, where larger-sized cranes and heavy-duty rails are the norm. Workers can affix air casters to their products and machine tools, giving them the flexibility to move along a manufacturing line. If there's a problem in the production queue, the workers can dynamically adjust, instead of sitting idle while other parts of the line catch up.

Compared to the training required for crane operation or usage of rail systems, air casters are incredibly simple. There's very minimal training required since there's no moving parts involved. The load doesn't lose contact with the ground, so there's no risk of suspended drops, and no pinch points. Staff members simply attach interconnect hoses to the air casters, put them in place, and compressed air and the physics of air caster technology does the rest.

From Planes to Machine Tools

The simplicity and incredible lifting power of air casters make them suitable for any heavy load scenario. Consider a power plant environment that is frequently moving various transformers, compressors or pumps. Or a facility that has to transport cable reels. Moving such heavy machinery and products by crane is slow and dangerous. Air casters are a much more elegant solution with multiple benefits of lowered costs, improved safety, and expanded productivity.

Air casters are ideal for metalworking and tooling environments. For example heavy Bridgeport machining tools can weigh over a ton. With air casters in place, teams can move Bridgeport machinery easily and safely. They can transform static single-line production floors into dynamic operations. If they need a Bridgeport moved fifty feet to another section, the air casters allow them to adjust on the fly. With a crane there's much more time involved. And safety regulations often mandate work stoppages within a certain range of the crane.

Rotation... *you can easily do with the air cushion.*

Air casters keep the floor moving with minimal interruptions. Usage of air casters also provides flexibility in terms of scale of a company's projects and ambitions. Consider a heat exchanger manufacturer. It's very common to see such a firm expanding into bigger and bigger units. However, the size of their manufacturing floor restricts their lofty goals. Ceilings are only so high, and lifting a giant exchanger while adding four or five feet of height is challenging. Or if there's a need to spin the exchanger around to complete some welds. Both functions are difficult or impossible due to dimension constraints. With air casters the machinery is lifted mere inches off the floor. Low ceilings are no longer an issue. The exchangers are easily rotated and moved in seconds. And many firms using air casters are shipping their products with additional casters so the end client can easily maneuver the product during on-site installation.

Within aerospace air casters are fast replacing other means of movement. A large airplane manufacturer took advice from Toyota's assembly line processes and greatly reduced its usage of cranes. Plane sections take up a considerable footprint on a floor. Utilizing air casters, many aerospace firms easily rotate and move pieces in ways that were simply not possible. Left and right turns previously required cranes and work stoppages, but are now performed quickly with air casters.

Hovercraft-style air casters are reshaping manufacturing and logistics. They've changed the risks, people, and expense involved with moving heavy loads. The increased flexibility and safety of these products benefit workers as well as operators, boosting productivity, improving morale, and positively impacting the bottom line.