

# Self-Supporting & Balanced

*New Design Makes Ubiquitous Hand Truck Safer*

A material handling standby, the hand truck can be found in almost every commercial setting where supplies need replenishing. They're ubiquitous, handy and necessary, but not without risks.

The most identified risk associated with hand trucks has to do with musculoskeletal injuries, typically the result of micro strains and tears related to a repetitive task.

Another risk with hand trucks is the effort required to pull back and then balance the load on two wheels while moving and maneuvering. The heavier the load being moved the greater the risk for an injury or accident. Rotacaster, a caster manufacturer from New South Wales, Australia, has applied their innovative multi-directional wheel in a unique way that can reduce or eliminate safety risks using a hand truck.



The Self-Supporting Rotatruck reduces the force required to move a given load. This is accomplished by the use of a stable four-wheel platform with the Rotatruck in

the reclined position. The self-supporting capability eliminates the need and associated risk of maintaining the balance of a load. With the work and effort required to balance a hand truck eliminated, less operator fatigue should result in fewer workplace injuries.

Pulling a two-wheel, hand truck back into the balanced position causes musculoskeletal stress, which may be repeated many times in a delivery cycle and workday. However, with a supported load, additional conditions that risk injury can be avoided.

When pushing a two-wheel hand truck, the user must reverse direction and lift the weight of the entire load up a curb. One way to reduce the risk of injury associated with a curb is the use of a curb ramp, but a curb ramp may not always be available or

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**The Rotatruck actively reduces the risk of injury by:**

- Fully supporting the weight of the load, removing the need to balance the load manually.
- Rotatruck levers, rather than lifts a load up and over a curb, using less force and improving user ergonomics.
- Allowing loading to be completed in the operating position, removing the need to pull back heavy loads and reducing pull back effort by up to 35%
- Providing 360° maneuverability through the use of Rotacaster's patented multi-directional wheels

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workers may not want to carry the extra equipment.

This is especially true on some deliveries where a street curb or a building entrance step have to be navigated.

Adjusting the balance position constantly for changes in terrain and the need to pull a hand truck up a curb adds to the risk of injury.

In Australia, a Work Safe Award was given in 2009 to Rotacaster for the Rotatruck, which was recognized for solving this identified work place risk. It requires 35 percent less force, for a shorter duration, to pull a load back into the reclined, supported position, according to an independent ergonomics report released in Dec. 2009. Once in the self-supported position, a user is relieved of the work and associated risk required to constantly balance the load.

The technology allows workers to negotiate a curb without the need of a curb ramp or reversing and lifting the load. As a curb is approached, the user of a Rotatruck simply pushes down on the handle, raising the front multi-directional wheels up to clear the height of the curb. Continuing in the for-

ward direction, the rear wheels are rolled or lifted over the obstacle. This method greatly reduces the work and risk required to accomplish the same task with a two-wheel hand truck.

While the hand truck is not always considered primary workplace equipment, other than by delivery drivers, they are probably in every facility and office. The type of hand truck and their use should be reviewed for workplace safety improvements.

Magline Inc., Standish, Mich., has a three-position hand truck, which features a pair of swivel casters that can be deployed to support a heavier load or can be dropped down flat as a four-wheel cart for more load carrying capacity or bulkier items. With the hand truck in the inclined position, the delivery person is relieved of the need to balance the load. They can focus on safe maneuvering. The Magliner three-position, hand truck provides great flexibility in usage.

OHSA has identified pushing and pulling as a common dynamic task in the use of hand trucks. In this task, a worker must exert enough force to push or pull the

hand truck, but must also be ready to regain balance in case the hand truck or load moves unexpectedly. The potential instability of a hand truck often causes the worker to adopt awkward postures, resulting in over-exertion injuries.

The Rotatruck is very easy to maneuver with multi-directional wheels and a stable four-wheel base. The wheels eliminate wheel scrubbing that occurs with four fixed wheels or complications associated with swivel casters. With a supported load and easy maneuverability, many hand truck loads can be safely moved and maneuvered with just one hand with a Rotatruck. This easy and safe operation is important. The occasional user does not always understand the potential for losing balance of a load, hand injury risks in tight spaces, or the overall effort required to move a load with a hand truck.

As companies look to reduce the weight of packages that can be hand carried, there will be an increased need to use hand trucks or carts to maintain efficiencies. Safer hand trucks with ergonomic improvements should be considered for a safer work place. **FSM**

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