

In distribution and warehousing facilities, workers spend almost all of their time in moving and handling activities. As a result, they are constantly in danger of injury.

There are many causes of such injury, but by far the number one cause is lifting which is followed by lifting-related activities such as repetitive reaching, bending, stretching, and other physical contortions.

While a great deal of effort and attention has gone into programs designed to help reduce lifting injuries, back injuries are still the number one cause of lost time and insurance claims. The solution is to completely eliminate lifting.

Statistics show approximately 5 million workplace injuries occur in the U.S. every year. Almost one-third of these are back injuries caused by lifting. These injuries result in direct costs ranging from \$20,000 - \$30,000 per claim, plus the indirect costs of lost productivity and increased insurance premiums. For this reason, the elimination of lifting has become important not only from the standpoint of worker consideration, but also as a cost-saving imperative for industry.

This booklet is designed to show how lifting and lifting-related injuries can be eliminated or reduced through the use of simple and inexpensive mechanical lifting and positioning equipment.

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OPERATION	TYPICAL PROBLEMS	RECOMMENDATIONS	
Inverting pallet loads	Damaged packages on pallets are typically at the bottom of the load. To replace the damaged package is a labor intensive, time-consuming task.	A pallet inverter rotates an entire load in seconds providing access to damaged packages. It can also be used to transfer loads from pallets to slip sheets or from in-house pallets to shipping pallets.	
Stretch wrapping	Hand stretch wrapping requires the operator to walk backwards while bent over and pulling on the hand wrapper in order to stretch the film for a tight wrap.	Low-cost powered stretch wrappers with almost flat turntables can be loaded using a hand pallet truck provide a safe alternative to hand wrapping.	
Loading and unloading trucks without a loading dock	Unloading trucks from grade level is a time-consuming and sometimes hazardous operation. Loads must often be broken down and carried to conveyors or other handling equipment.	Hydraulically powered dock lifts bring fork trucks or pallet jacks to the level of the truck bed. Even if a dock exists, the use of a dock lift allows easy loading and unloading of trucks with bed heights that are lower or higher than the dock.	
Order picking from high storage racks and carousels	It is hazardous to have people up on ladders or climbing up and down from scaffolding on fixed-height platforms. The danger of falling or dropping parts or materials on another worker is always present.	Powered personnel lifts take workers to the necessary height and allow them to work both safely and efficiently.	
Order picking of large sheets or assemblies	Where large planks, sheets of plywood, plastic laminates, or other materials are stored in racks, there is a need to bring order picking personnel to the proper height and also to allow one person to pick stock without the danger of lifting, losing balance, or falling.	This can be accomplished by using the lift-on-lift technique. The operator and a smaller lift are placed on a large lift. The large lift is vertically positioned so that the operator can stand on it and vertically position the smaller lift for level transfer.	
Moving materials between different levels	Inclines in conveyors can be dangerously steep or require too much room for gentler grades.	A lift table with a conveyor top allows materials to be conveyed on at one level and off at another, thereby eliminating the need for lifting.	
Moving products to and from mezzanines and upper levels	Personnel should never have to manually carry materials up or down stairways.	Where mezzanines or multiple levels are used in warehousing, reciprocating vertical conveyors provide a safe, efficient method of moving materials from one level to another.	
Order picking from bins	Workers must access a variety of parts, products, or materials stored at different levels in different bins. This increases the risk of fatigue or injury from reaching, bending, and lifting.	Much of the reaching, bending, and lifting involved can be eliminated through the use of lifter/transporters which adjust to the level of the bins and also provide either manual or powered transportation from the picking area to shipping or other areas.	
Loading and unloading pallets	This is a common operation both in warehousing and distribution. The bending, lifting, and reaching required is not only strenuous and fatiguing, it can also result in injury to the back or other parts of the body.	Spring-actuated level loaders automatically adjust in height as the load is progressively added or removed, allowing the operator to work with little or no lifting. Turntables rotate the pallet for near-side loading and unloading.	