Ergonomics and Manual Material Handling
James J. Galante
Chairman
EASE Council
Material Handling Industry of America
Charlotte, North Carolina
E.A.S.E.  Ergonomic Assist Systems and Equipment
A Product Council of Material Handling Industry of America

MATERIAL HANDLING INDUSTRY OF AMERICA®

YOUR INDUSTRY CONNECTION
MHEDA
Established 1945
Non-profit Trade Assoc.
$125 Billion Market
19 Industry Groups
Over 750 Members
22 ANSI Standards
Two Major Trade Shows

E.A.S.E. Ergonomic Assist Systems and Equipment
A Product Council of Material Handling Industry

17 Member Companies
5 Industries Covered
Ergonomic Resources and Tools
News
Case Studies
Technical Support
White Papers
Speakers and Presentation Materials
Visit our display

Booth 409

Ray Niemeyer – Managing Executive
Material Handling
Equipment Distributors
Association

www.MHEDA.org
MISSION

To broadly promote the benefits of ergonomic assist systems and equipment together with the advantages derived from the use of this equipment in the workplace and to promote the safety and health of the work environments.
Why Address Manual Material Handling?
The effects of manual material handling represent the biggest single contributor to worker injury in the United States and the application of good ergonomic programs can reduce those incidences.
LIFTING
STRETCHING
REACHING
BENDING
STOOPING
and
WALKING

These unnecessary worker activities can result ergonomic problems
Lift & Turn to position large valves during assembly
The assembly, wiring start-up and testing of these large devices requires access to all sides, top and bottom.
Vacuum lifters are efficient and very useful in areas where sorting containers is creating multiple pick and place tasks.
Bench top devices like this adjustable height stand or this turntable allow complete access to the work while seated or standing.
High density vertical storage systems put each item at the correct height.
Manipulators making easy work of handling cylinder heads in a machining center
IAD - Intelligent Assist Devices

Amplifies operator’s power
Unit has an intuitive, human-like feel

Intuitive
The operator has a sense of control & feel over the load using normal arm, wrist and hand movements.

Intelligent
Resolver feedback from the servomotor allows for future implementation of programmable human limits.
IAD’s for vertical movement
IAD’s for Horizontal movement
These manual devices reduce carrying loads
They come in all shapes and sizes and to gain the maximum benefit should be applied to the application.
Some care should be used not to overload carts.
This lift and gravity conveyor permits one person to do what was a two man job.
Pallets

Approximately 450 million new pallets produced each year in the USA. 1.4 billion (est’m) pallets are in use at any given time.

MANUAL LOADING AND UNLOADING OF PALLETS CONTINUES TO BE ONE OF THE MOST COMMON AND MOST INJURY PRONE TASKS IN INDUSTRY TODAY.
Here is a very typical problem
These are automatic load leveling devices that maintain the top of the load in the 30 to 40” ergonomic window.
Lifts and positioners can also be fitted with turntables for "near side" loading.

As much as 40% of the time required loading a pallet, can be spent walking around it!
Lifts fitted with turntables eliminate wasted motion....

....and put the load at the right elevation to reduce the possibility of back inquiry.
Balancers can also be used to unload pallets and make positioning goods at various locations within a machine or work center.

Notice the bi-directional work station crane.

These trays of parts become virtually "weightless".
These lightweight lifts are highly maneuverable
Inexpensive stackers to transport pallet loads in and around work stations - even load/unload directly from them
This vacuum lifter makes easy lifting and maneuvering of these heavy cheese wheels.

This is a really cheesy job!
Containers

Manual loading and unloading of wire baskets, containers and Gaylord's leads to a high incidence of lower back injuries.
Issues: Back bending, back extension, over reaching, fatigue and product loss
Parts picking made productive from fixed height tilters

Notice the high hinge causing the container to elevate as it tilts.
This spring loaded positioner elevates the goods in the container to eliminate the bending.
This lift and tilt provides access to all of the parts in this container.
Parts picking on assembly line
Parts picking at a hydraulic press work station.

Imagine the back extension, bending and reaching required to get to these parts.
Other Material Handling Equipment Solutions
Electric chain hoist on articulated jib crane

Notice the use of gravity roller conveyor to ease the feeding of parts
This expandable conveyor is driven right into the truck

The individual boxes and cartons are conveyed right to the worker

Notice how the odd sizes and shapes are handled easily by a single piece of equipment
Portable lift for transporting to and then vertical positioning panels in a finishing operation.
Lift & Tilt to position electrical panels in this work cell

Notice the accordion skirt to cover scissors legs
Here are good examples of how industrial tilters foster good ergonomics and eliminate wasted motion
These devices make quick work exchanging pallets

Damaged product on the bottom of a pallet can be easily removed
Questions?

James J. Galante

EASE Council

Material Handling Industry of America