



Equipment Solutions for Manual Material Handling Challenges

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EASE

Ergonomic Assist Systems & Equipment



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800 Member Companies

Over \$170 Billion

17 Industry Groups



19 Member Companies

55 Industries/Technologies

Ergonomic Resources and Tools

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Case Studies of Equipment Applications

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UNIFIED INDUSTRIES, INC.

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THE TRACK TO BETTER PICKING



HAMILTON
Casters ★ Trucks ★ PRONTO



Blickle



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SMART LIFTING



SOUTHWORTH
making work faster, safer, and easier



Equipment Solutions for Manual Material Handling Challenges

Understanding the Challenges – Warehousing and Distribution



Understanding the Challenges- Order fulfillment



Understanding the Challenges – Lifting and Carrying Material



Understanding the Challenges – Assembly tasks



Understanding the Challenges – Manufacturing and Fabrication



Understanding the Challenges – Retail and Merchandising





What is adding to these challenges



- ✓ *Rapidly aging workforce*
- ✓ *More obese workforce*
- ✓ *Competitive pressures – foreign & domestic*
- ✓ *Productivity demands - do more with less people*
- ✓ *Financial restraints*
- ✓ *Escalating Workers Comp costs*
- ✓ *Retaining valuable employees*



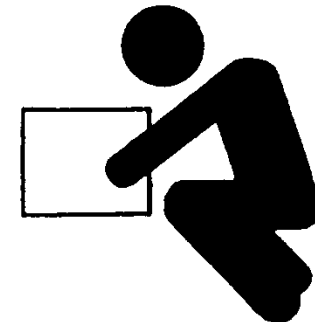
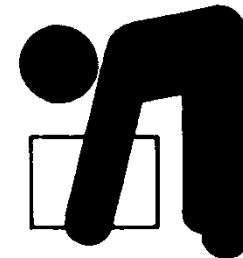
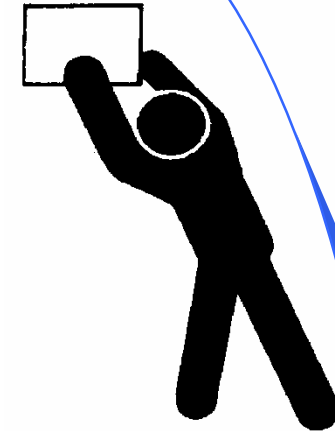
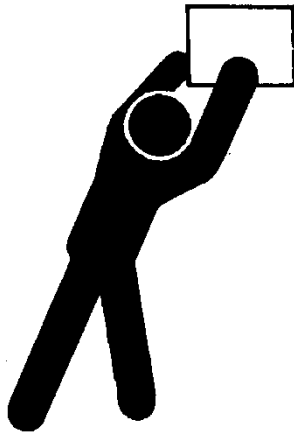
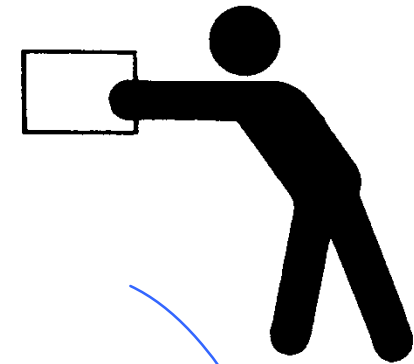
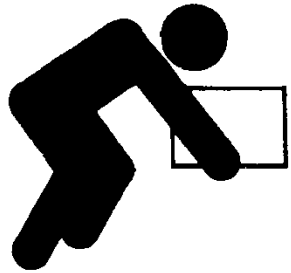
Ergonomic issues are almost always production bottlenecks



- ✓ *Wasted motion (a core LEAN value)*
- ✓ *Wasted time (including fatigue)*
- ✓ *Quality shortfalls*
- ✓ *Poor morale (effecting worker thru put)*



LIFTING
STRETCHING
REACHING
BENDING
STOOPING
and
WALKING



Typical problem ...and an ergonomic problem





As much as 40% of the time required unloading a pallet, can be spent walking around it!





Manual Turntables

*..... inexpensive and
pallet jack
accessible*



This unproductive task that involves repetitive lifting, bending, twisting, stretching and walking with a load



Disc turntable



Review the material handling problem holistically

Questions to ask:

- Weight of sacks
- Size of sacks (wider sacks are much harder to carry)
- Can smaller sacks be ordered from the supplier.

Note the stairs. Carrying loads up stairs is a huge ergo issue

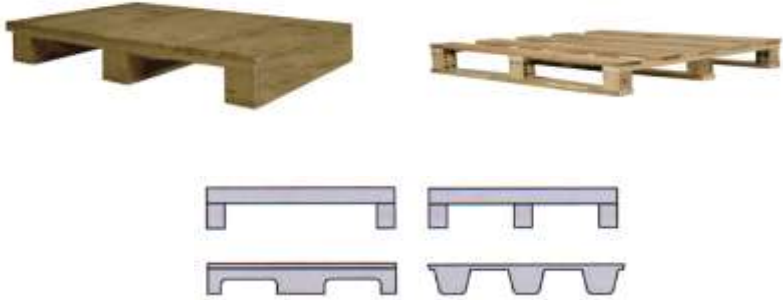
Note the condition of the floor some materials can be very slippery – a safety issue

Skid lifters



Manual and powered

Careful, can only be used with nestable, open bottom pallets or skids



Roller conveyor can be used in rack and shelving



Greatly reducing the stress on storing or retrieving heavy cases and cartons



Issues: back bending, walking around pallet on a wet floor



The old method req'd the load be lifted twice; the new method meant only lifting the load once

work task reduced 50%

The issues were dramatically reduced by the use a spring load positioner and fixed height table.



Consider the work environment like processing perishable foods...



Is expensive stainless steel equipment necessary or could galvanized or just epoxy finished mild steel suffice?

The challenge here is heavy cases of liquids and available workers don't have the upper body strength to handle them hour after hour

The vacuum tube lifter makes the individual case almost "weightless"

The worker can do their job safely and maintain or even increase productivity.





Vacuum tube lifters are highly efficient for handling cartons, bags and pails

They can be easily adapted and work well in a small work areas.





.....to finished goods and packaging

Load positioners automatically function holding the top layer of goods in the 30" to 40" window



Notice the top layer is about at the same elevation



Opening up the pick slots



Stackers

They are highly maneuverable in tight quarters and can eliminate the manual lifting



These are inexpensive choices especially when compared to fork lifts



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



Pallet rotators make quick work exchanging pallets



Freestanding workstation cranes



- Effortless and precise control
- Articulating hanger assemblies
- Enhanced structure stability – no cross bracing



Single & Double girder cranes



- Increased efficiency with handling heavy loads in tight work areas



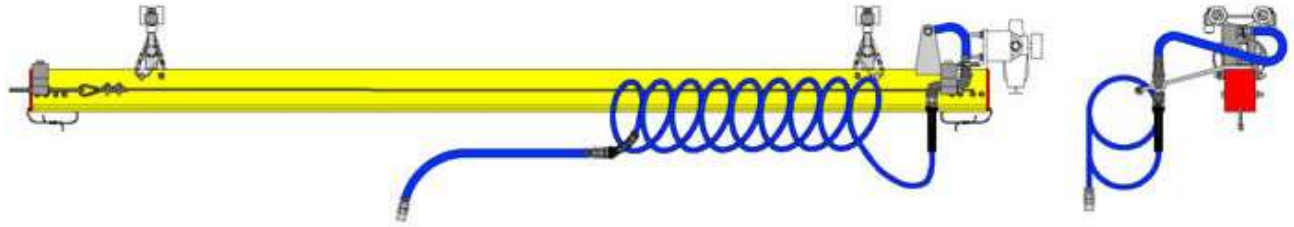
Monorail Systems and Aluminun Modular cranes



Pillar & Wall Mount Jib cranes



Special Purpose Cranes & Systems



Containers

Manual loading and unloading of wire baskets, containers, gaylords and totes leads to incidents of upper & lower back injuries





Since the legs can not bend, all the bending is at the lower back

Challenge: Back bending, back extension, over reaching, fatigue and product loss

Portable Powered Tilters

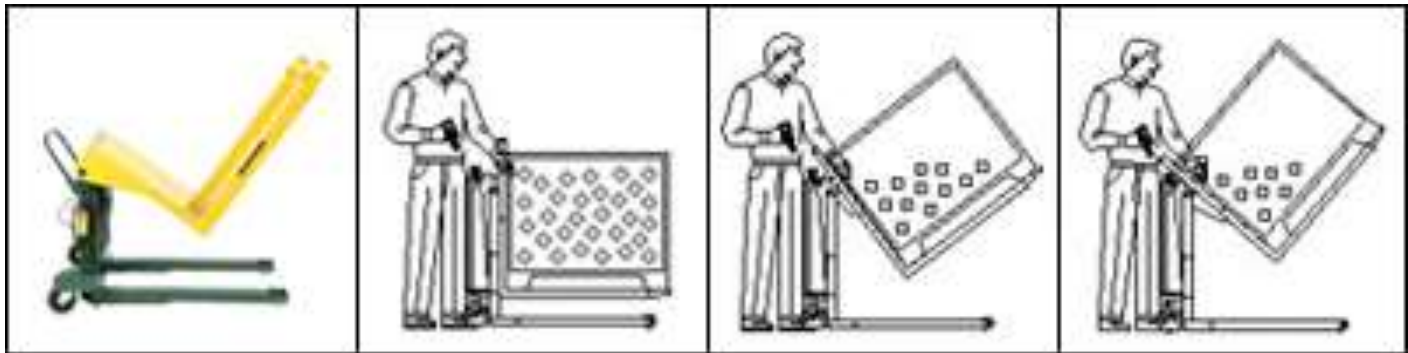


.....Back Breaking Job

Back Saving Solution!



High hinge tilters
are ideal for
gaining access to
the bottom and
back of containers





The challenge is simply giving the assembler total access to work lift and tilt devices provide ready that access

These spring loaded positioners can be adapted fitted into carts, hampers, wheeled tubs and gondolas



There are spring loaded positioners which elevate the goods in the container to speed picking the parts and eliminates the bending and reach issues



10/04/2008

This a low
hinge tilter.
It can sit flat
on the floor
and be
raised with a
built-up base



Corner Tilters

Excellent for
granular
material or
other semi
liquid
material that
flows



Roller conveyor can be used in rack and shelving



Greatly reducing the stress on storing or retrieving heavy cases and cartons

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
precision
handling



Carts, Dollies, Platform Trucks and U-boats



Dave, I'm assuming you can drop a few slides in here to better discuss things on wheels!



Pushing (or pulling) heavy loads is bad ergonomics and is also a dangerous work task (health and safety issues)

They come in all shapes and sizes and to gain the maximum benefit should applied to the application



Rule #1 – don't overload a cart!



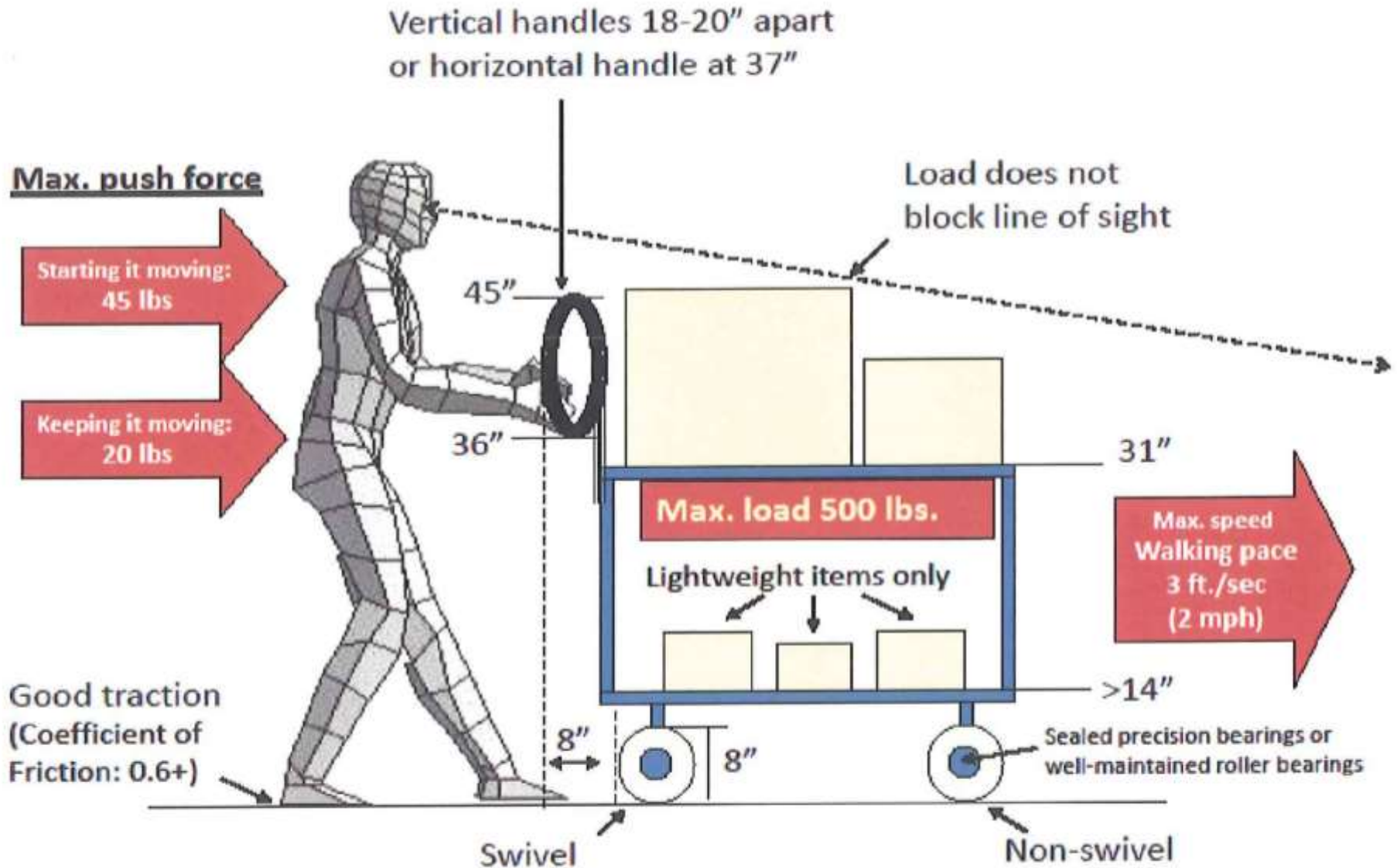
Rule #1even if you have help moving it



Rule #1or even if it has a motor!



Wheel and Caster Technology



The wheel choice can have a huge impact on the rolling friction of any cart, dolly or portable rack.



Powered two wheel hand truck





....they
provide
easy access
to loads to
eliminate
reaching

These
lightweight
aluminum
stackers are
highly
maneuverable...



...and increase efficiency and productivity!

Self leveling carts

Manual & Powered elevating carts



Manufacturing and assembly operations are moving to towable carts



Look to positioning devices
when the towable cart is placed
in the work cell



Properly placed supplies and tools eliminates walking around and promotes a highly efficient work space



These are adjustable height benches

The majority of industrial work benches sold today are powered



Available Resources....



Free subscriptions
Available

www.mhi.org/EASE

Free download

Ergonomic Guidelines for Manual Material Handling

www.mhi.org/EASE



The members of the EASE Council come from 16 different companies and represent over 50 industry segments and technologies in the material handling industry.



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Promoting Safer, Healthier, and More Productive Employees
The EASE Council advocates the benefits of ergonomic assist systems and equipment in the workplace and to promote the general safety and health of workers through the use of ergonomic assist systems and mechanical equipment.

...find guidance.
...to find out more
...and equipment and
...the best choice for



- EASE is the resource for:**
- Equipment solutions - 16 companies - Over 50 technologies
 - Case studies - real problems and real solutions
 - Workshops - ergonomic and Lean training
 - Equipment photos & videos - huge library
 - Ergonomic trends and news articles
 - Information - brochures, white papers, technical reports
 - Presentations - private & governmental organizations
 - Resources - private & speakers to present them
 - Guidelines & productivity enhancements
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 - Ergonomic and Lean Training Program
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