2017
Chicagoland Safety, Health & Environmental Conference
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EASE Council

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Southworth Products Corp
THE INDUSTRY THAT MAKES THE SUPPLY CHAIN WORK

EASE
Ergonomic Assist Systems & Equipment
19 Member Companies
60 Industries/technologies
Ergonomic Resources and Tools
Health and safety News
Case Studies
Checklists and Technical Support
White Papers
Speakers and Presentation Materials
Workshops and Outreach to the user
### Products available - solutions to material handling problems

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<td>Scissors lifts</td>
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Until Automation Does It All

....DO SOMETHING TO PROTECT WORKERS
A Long, Long, Long Time Ago...

- Circa 1981, Ronald Reagan fired all of the Air Traffic Controllers...

- Circa 1982-83, Modern Materials Handling published a year long editorial series...titled “Factory of The Future”

......the imminent transformation of manufacturing to “lights-out” factories

...operating around the clock with no people
Still Driving a Car....

• Worried that your investment will soon be obsolete in the looming world of autonomous vehicles?

• 5 to 7 year leases are driving current record demand ...with no decline in sight

• Yet studies, reports and editorials describe an immediate driverless highway system.

• Some point to driverless trucks to solve driver shortage problem.

• 90% of autonomous might be done...The final 10% is decades away.
A new eFulfillment DC

- 2.1 million square feet - operating 24/7/365
- Capacity to ship 150,000 orders per day
- “We tested every technology out there!” Facility Mgr
- Planned Headcount is 3000 (6K hands & 6K feet)
- System selected because it provided the best ROI
Material Handling & Logistics ROADMAP

• ROADMAP was released in 2014 version 2.0 in 2017
• ROADMAP background data from a variety of sources covering the country
• Most prevalent critical issue: Workforce Crisis - the ever diminishing pool of available workers
• Referencing both the quantity and quality of the workforce, including skill, age, fitness, etc.
• Most often proposed solution “Automation”
• Most often heard answer to “When?” ....was “Good question”
EASE Encourages Automation

It contributes to:

- Efficiency
- Capacity
- Consistency
- Predictability

It solves:

- Safety
- Productivity
- Quality
- Worker Issues

-Better than ergonomics
Automation Is Not For Everyone

• A goal for all, but getting there takes .......
  • Vision / Confidence
  • Adequate Capital
  • Acceptable ROI
  • Need for Flexibility
  • Skills to Operate and Re-program
  • Skills to Maintain and Service
To Automate or Not To Automate?

• Is NOT the Right Question!

- It is not black or white.

- It is not worker or robot.

- It is not lights-out factory or sweat shop.

- It is not manual controls vs. smart controls

- It is not optimal efficiency

- It is not bet the company or fold.
To Automate or Not To Automate

• The better question: how can automation increase
  - Productivity, efficiency, capacity, etc.
  - Quality, consistency, reliability, etc.
  - Safety, ergonomics, worker satisfaction, etc.
  - Ability to engage and retain “your most valuable assets.
  - Plus...Ability to attract & hire skilled workers.
Automation can be a Contributor to Continuous Improvement

• Circa mid-1980’s, mainframe computer manufacturer committed funds to a robotic assembly program.
  - Prepped assembly line for robotic interface...
  - Robot delivery delayed month after month...
  - Forced to substitute workers to achieve production requirements...
  - *Surprise* – *Surprise*...Workers on the properly prepped assembly line were so productive, the planned robotic program ROI was destroyed...
What Would Happen If...

....a robot on an AGV was designed to pick orders in a classic warehouse with aisles of pick-pallets lined up under a multitiered rack system?

What would happen for a worker on a walkie if he or she were provided with the same easier access that the automation solution required?
What Must Happen Before...

A robot can be installed in almost any type of manufacturing application...machine feeding, assembly, packaging, etc.

- Both the work cell and the work process would have to be designed to suit

A robot can be installed in almost any type of warehousing application ...order picking, pallet loading/offloading, packaging, etc.

- Both the interfacing work area and the work flow would have to be designed to suit
What Will Happen After...

• The same work cell + process were designed and planned for the robotic operation...were assigned to an average skilled worker?

• Time and time and time again...
  - Productivity, quality, capacity will increase
  - Safety and well being will increase
  - Job satisfaction and engagement will increase

• Not a lights-out 24/7/365 gain...but a lot more than doing nothing!
Your Takeaways...

• Until Automation Does It All...Do Something.
• And there are lots of “Somethings” to be done
• Do the right thing...Do Something... and EASE has a lot of those answers
Until Automation Does It All...

Manufacturing
Until Automation Does It All...

Fabrication and Assembly
Until Automation Does It All...

Distribution
Until Automation Does It All...

Packaging & Palletizing
Hey! Hey! Hey! we're gonna automate

ugh!

Boss said that 10 years ago
Automation might not be for everyone...and the decision to automate is not easy

Expensive....

Complexity....

Inflexible....

Resources....

Maintenance....

Return on Investment....
<table>
<thead>
<tr>
<th>Doing something for a most valuable asset means:</th>
<th>Automation</th>
<th>MH Equipment</th>
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<tbody>
<tr>
<td>Resources</td>
<td>Expensive</td>
<td>Much, much less</td>
</tr>
<tr>
<td></td>
<td>Complexity</td>
<td>Easy to implement</td>
</tr>
<tr>
<td></td>
<td>Inflexible</td>
<td>Easy to adapt to change</td>
</tr>
<tr>
<td></td>
<td>Resources</td>
<td>No additional burden</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
<td>No additional expense</td>
</tr>
<tr>
<td></td>
<td>ROI $$$$$$</td>
<td>Easily measured in months</td>
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For those companies that can’t make the leap to automate they should ... DO SOMETHING! EASE Can Show You How
What’s coming out of the laboratory...
What’s coming out of the laboratory...
What’s what’s coming out of the laboratory...
Approximately 450 million new pallets produced each year in the USA. 1.9 billion (est’m) pallets are in use at any given time.
There are different styles of order pickers, but at a cost...

The pallet height is fixed

The pallet height is adjustable
$8,000 to $10,000 option
..and reaching out is still an issue
Pallet positioner adapted to an order picker
Notice the top layer is about at the same elevation.
Opening up the pick slots
Spread pallets out......
Engineering interventions can assist to stacking and unstacking pallets weighing 40 to 80lbs.
Vacuum tube lifters eliminate back bending – serious issues for anyone and for the older worker or obese, a VERY serious issue
Handling heavier cases is made easy for **all** workers.

The productivity gains can be enormous often freeing up workers for other tasks.
Pallet positioners being applied to pick slots in racks.
Back bending, reaching out – serious issues and for the older worker or obese, a VERY serious issue
As much as 40% of the time required unloading a pallet, can be spent walking around it!
Load positioners automatically function holding the top layer of goods in the 30” to 40” window, greatly reducing the bending.

Turntables eliminates having to walk around.
Load positioners can be made portable. This provides for flexibility on where they can be used on cramped back rooms or congested work areas.
Some load positioners use air bags instead of springs.

....Careful, compressed air is needed to charge the air bag
Manual Turntables

For the backroom

......to transfer merchandise from pallets to U-boats or to stocking carts
Pallet rotators make quick work exchanging pallets.

Damaged product on the bottom of a pallet can be easily removed.
Stackers powered up/dn and Full Power Stackers
Inexpensive stackers can transport pallets, stack them to free up floor space, load positioners and double as a positioner.
They are highly maneuverable in tight quarters and can eliminate the manual lifting.

These are inexpensive choices especially when compared to fork lifts.
Vacuum lifters fitted to booms on mobile equipment allows extended reach

Articulated boom

Straight boom
Vacuum lifters are efficient and very useful in areas when sorting cartons or case goods require multiple pick and place tasks.
Vacuum lifters are highly efficient for handling cartons, bags and pails. They can be easily adapted and work well in a small work areas.
Powered two wheel hand truck
Auto-positioning display systems

Can be loaded with full pallets with a hand pallet truck avoiding excessive manual material handling for the store employees.
Skid lifters

Manual and powered

Careful, can only be used with nestable, open bottom pallets or skids
Properly placed supplies and tools eliminates walking around and promotes a highly efficient work space.
# Work Stations

## Laminate Work Surfaces

- Electrostatic discharge option
- 1-1/8” high-density core a layer of plastic laminate
- Industrial grades (very durable)

<table>
<thead>
<tr>
<th>Description</th>
<th>Notes</th>
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<tr>
<td>Edged with high-impact-resistant PVC</td>
<td>Economical; most popular laminate</td>
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<tr>
<td>Edge rounded at 90°; Cleanroom has laminated underside</td>
<td>Edge provides significant comfort for operators resting hand or arm on edge</td>
</tr>
<tr>
<td>1-1/4” rounded radius black molded bumper edge</td>
<td>Edge resists damage; rounded edge provides some arm/hand comfort</td>
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</table>
Manufacturing and assembly operations are moving to towable carts.
Lifts, tilters or turntables to position the carts in the work cell
These devices fit under the carts so do not take up any more space in a work cell.
Containers

Manual loading and unloading of wire baskets, containers, Gaylords and totes leads to incidents of upper & lower back injuries.
Containers
Understanding the issues
Understanding the issues
Spring loaded positioners to elevate the goods.

Speeds picking the parts and reduces the bending/reach issues.
High hinge tilters are ideal for gaining access to the bottom and back of containers.
What is in the container will effect the style of tilter needed to present the parts at the best ergonomic position.

- Hinge point
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
Tilter adapted to handled drums

Lift and Tilt to the operator access as needed
Sometimes people need to work in containers
Handling various containers may require special end effectors.
Carts, Dollies, Platform Trucks and U-boats

These manual devices reduce carrying loads
They come in all shapes and sizes and to gain the maximum benefit should applied to the application.
The wheel choice can have a huge impact on the rolling friction of any cart, dolly or portable rack.
Wheel and Caster Technology

- Vertical handles 18-20” apart or horizontal handle at 37”
- Max. push force:
  - Starting it moving: 45 lbs
  - Keeping it moving: 20 lbs
- Load does not block line of sight
- Max. load 500 lbs.
- Lightweight items only
- Good traction (Coefficient of Friction: 0.6+)
- Max. speed: Walking pace 3 ft./sec (2 mph)
- Sealed precision bearings or well-maintained roller bearings
- Good traction (Coefficient of Friction: 0.6+)
- Non-swivel
- Swivel
Rule #1 – don’t overload a cart!
Rule #1 ....even if you have help moving it
Rule #1 ......or even if it has a motor!
New specialty cart shows real promise in retail stocking

Adjustable height shelf

Eliminates going up & down a step stool
These lightweight aluminum stackers are highly maneuverable...

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

...and increase efficiency and productivity!
Adjustable height carts with a tilt stand positions totes

Or This?

This?

Speeds stocking and eliminates the stressors.
Good ergonomics!
Wheel and Caster Technology

Examples of good applications

Platform elevated
Correct push bar height
Larger wheels

Examples of poor applications

Platform too low
No push bar
Wheels too small
Some solutions not only solve the back problem, they can eliminate wasted motion and increase efficiency.

Battery powered scissors lift
Self leveling carts

Calibrated spring provides linear moment and it is adjustable
Self leveling Uboats

Calibrated spring provides linear moment

These can be retro-fitted to existing Uboats
Calibrated spring provides linear moment
Self leveling floats bring the bottom half of the load...

....into the correct operating range which eliminates bending and reduces reaching
Roller conveyor can be used in rack and shelving

Greatly reducing the stress on storing or retrieving heavy cases and cartons
Carton Flow - Retrofit Application

**Pick Rates**

- **Pallet Rack Static Storage**
  - Average Pick: 5.2 Sec

- **Carton Flow Dynamic Storage**
  - Average Pick: 3.0 Sec
High density vertical storage systems speed order picking and put each item at the correct height.
This vertical carousel storage system puts all the parts at the correct ergonomic elevation.
This horizontal carousel storage system is the ultimate in high speed parts picking.
Expandable conveyor

The individual boxes and cartons are conveyed out

Notice how the odd sizes and shapes are handled easily by a single piece of equipment
This expandable conveyor is driven right into the truck.
The members of the EASE Council come from 18 different companies and represent over 60 industry segments and technologies in the material handling industry.

Promoting Safer, Healthier, and More Productive Employees

EASE can give you the tools to create a safe and healthy work environment for your employees.

Whether you are looking to purchase equipment, find supplies or safety codes or simply looking for guidance, we are here to offer our assistance.

Call, email or visit our website today to find out more about ergonomic assist systems and equipment and how we can help you to make the best choices for your business.

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Ergonomic Solutions for Retailers

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The End

Questions?