

Machine Stretch Wrapping

Driving Economical, Efficient and Ergonomic
Loading Dock Operations

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Introduction

As a manager you have a lot on your mind. If you could do one thing to improve the efficiency of your shipping dock, the safety of your people and reduce costs associated with shipping, would you do it?

A stretch wrapper gives you the ability to take control of your environment when so many other factors are out of your control. Here are five ways a single machine can create positive change on your loading dock.



1 A Lean Approach to Stretch Wrapping

Lean eliminates waste, so you can do more with less. Some manufacturing companies employ Lean principles so they can eliminate unnecessary costs, increase profits and in the end better serve their customers. Waste comes in multiple forms, but isn't always obvious.

You can identify where waste is happening by using Lean manufacturing tools such as Value Stream Mapping. It's a visual depiction of a work flow that follows a product through its entire process. The work flow is analyzed step by step to determine how each step impacts the final product. Any step that doesn't impact or improve the product is categorized as waste.¹

Is your wrapping process adding value? If you're hand wrapping, it's not. Consider these forms of waste and how a machine can help eliminate them.²

WASTE	HAND WRAPPING	MACHINE WRAPPING
Defects	Hand wrapping produces inconsistent results and a load with weak points can lead to in-transit damage.	A machine can wrap with more consistency from the top to the bottom and from the first load to the last.
Non-Utilized Talent	Why waste human capital on rote work?	Automating routine tasks allows employees to do other jobs that require critical thinking.
Extra-Processing	When hand wrapping you may be applying more film than necessary to hold your loads together which could increase your material costs.	A machine can apply film with more tension (squeezing force), making it possible for you to use less film to hold loads together.

¹ www.profitable-practice.softwareadvice.com

² See Lean six Sigma: 8 Wastes Chart

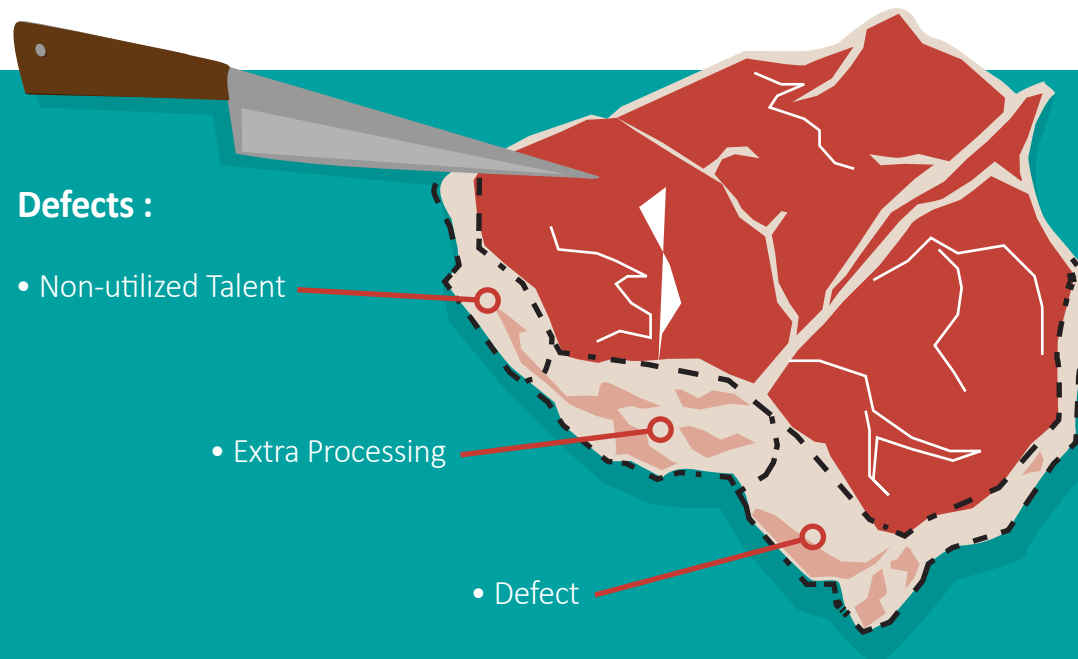


*“We want to banish waste and create wealth.
We have to shed fat and build muscle as a team.”*

– Chuck Intrieri, Supply Chain, Warehouse and Logistics Consultant

Think of the wrapping process as a flavorful rib eye. At the butcher you see a beautifully marbled steak, but there's excess fat around the edges. What would Chuck Interiori do?

He would ask the butcher to trim off the fat. Charging by the pound, that outer fat is costing you additional money and you're just going to throw it away. The rib eye costs \$9.99/lb. The butcher cuts off 2oz. of fat, saving you about \$1.25. If you're buying two steaks, \$2.50, three steaks \$3.75 ... you get our drift.



2 Keep Your Employees Happy and Healthy

True or False?

“I love hand wrapping loads in August.”

False!

The average temperature of major U.S. cities in August is 90 degrees. If you haven't experienced hand wrapping at that time of year, imagine yourself shuffling around a pallet, bent over, trying to tightly apply film with only the breeze from the dock door to cool you. Now imagine standing up, dizzy and nauseous. It's awful. Not only is wrapping by hand a drain on finances and productivity, but it affects employee health, morale and turnover as well.

Musculoskeletal injuries or pains are one of the leading causes of lost work day injury and illness. The following are risk factors³:

- **Lifting, pushing or pulling heavy objects**
- **Working in awkward body postures**
- **Performing the same or similar tasks repetitively**
- **Bending**
- **Reaching**

These are all characteristics of hand wrapping.





Non-fatal workplace injuries related to musculoskeletal disorders cost over \$21 billion in direct costs and accounts for 42.2 percent of the total cost burden to businesses in 2010.⁴

On average it takes someone 4 minutes to hand wrap a pallet, 4 minutes of repetitive motion. Multiply that by the number of pallets needed to be wrapped along with other laborious daily activities. It's no wonder warehouse workers are at least 8 times more likely to suffer back problems than other workers.⁵



3 www.osha.com
4 Liberty Mutual
5 www.cdc.gov/niosh

3 Keep Your Employees Safe

Good stretch wrappers eliminate the need to hand wrap and reduce the physical stress on the body.

Great stretch wrappers incorporate safety features so that you don't just trade one set of risks for another. You want the people who are operating the machine to be as safe as possible.

A safe-to-operate stretch wrapper has these **characteristics**:

- **All wires and motors are enclosed to prevent trip, scrape or burn hazards.**
- **The film delivery system ...**
 - is located on the same side of the mast as the controls to prevent operators from walking between the mast and the load.
 - has guarding surrounding the rollers to prevent the operator's hands from getting caught inside.
 - is counter-weighted to reduce the possibility of crushing anything in its path.
- **A turntable that is large enough for your pallet to fit inside without protruding corners, trip hazards or collision points.**



Some machines can even eliminate steps that create safety hazards, like dismounting forklifts. In 2009, OSHA estimated overall there were 110,000 fork lift accidents costing \$135 million dollars.⁶ Accidents associated with getting on and off the fork lift can be reduced by machines that will automatically attach and cut film each cycle, taking away the necessity to get on and off a truck.



⁶ Towards Improved Forklift Safety – Roger Bostelman

4 Reduce Costs with a Machine

At first glance, a stretch wrapper may seem like a luxury purchase, and some may see it as a “want” rather than a “need.” Those who see it as unnecessary are probably not the ones spending their day hand wrapping. What they don’t understand is that a machine can potentially pay for itself in several ways.

Labor – Automating routine tasks frees up valuable time, allowing people to perform other jobs that require critical thinking. And adding productivity features, such as automatically attaching and cutting the film, allow you to configure a machine to your desired level of automation.

Labor Required				
	HAND WRAPPING	SEMI-AUTOMATIC MACHINE	AUTOMATICALLY CUT FILM	AUTOMATICALLY ATTACH AND CUT FILM
Labor Required	4 Minutes	3 Minutes	2.5 Minutes	2 Minutes

Potential Labor Cost Savings over 5 years				
10 Loads per Day		\$2,915	\$4,375	\$5,835
20 Loads per Day		\$5,835	\$8,750	\$11,665
30 Loads per Day		\$8,750	\$13,125	\$17,500
50 Loads per Day		\$14,585	\$21,875	\$29,165

Based on \$14/hr. labor rate, 250 working days/year

Film – Modern film delivery systems provide different levels of pre-stretch. Pre-stretch multiplies the yield of each roll which could save you money on consumables. For example, 200 percent pre-stretch will turn 6,000 ft. of film in 18,000 ft.

Potential Film Cost Savings Over 5 years				
	100% PRE-STRETCH	150% PRE-STRETCH	200% PRE-STRETCH	250% PRE-STRETCH
10 Loads per Day	\$2,435	\$4,230	\$5,365	\$6,140
20 Loads per Day	\$4,870	\$8,465	\$10,725	\$12,285
30 Loads per Day	\$7,300	\$12,695	\$16,090	\$18,425
50 Loads per Day	\$12,170	\$21,160	\$26,820	\$30,710



Damage – The cost of damage is hidden, because it’s a topic most of us want to avoid. The fact of the matter is damage happens and its repercussions are too big for anyone to ignore.

In 2008 the Grocery Manufacturers Association (GMA), the Food Marketing Institute (FMI) and Deloitte Consulting published a joint study discovering the underlying causes of unsellable products. According to that survey .05 percent of products shipped are unsellable due to damage.⁷

But, there are measures you can take to reduce the risk- stretch wrap properly. Proper stretch wrapping can recover half of your lost products.

Potential Impact of Damage Over 5 years		
PRODUCTS SHIPPED	HOW MUCH YOU’RE LOSING	HOW MUCH YOU COULD RECOVER
\$500,000	\$12,500	\$6,250
1 million	\$25,000	\$12,500
2 million	\$50,000	\$25,000
3 million	\$75,000	\$37,500

If you’re currently hand wrapping 30 loads a day and shipping \$1 million of products annually, you could potentially **save \$41,715 over 5 years** just by switching to a machine that cuts film automatically and has 200 percent pre-stretch.

Use the tables above to see how much you could possibly save.

⁷ www.gmaonline.org

5 Prevent Damage

Remember the primary reason you wrap loads – to provide protection during shipment. Every time you put a load in the back of a truck, you run the risk of it being damaged during transit.

Think of all the reasons loads can fail in shipment – vibrations, abrupt stopping and starting, pot holes, sharp turns, running over curbs. All of these things are out of your control.

However, the things you can control are creating stable loads and stretch wrapping them properly.

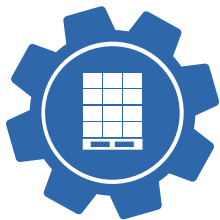
What does a properly wrapped load look like?

1. The minimum amount of containment force required everywhere on the load.*

2. The load is bonded to the pallet with a film cable.

3. There are no dragging film tails.





Hand wrapping may seem like a cheaper alternative, but it's impossible to produce the same results as a machine.

Hand wrapping **creates**:

- **Inconsistent containment force** – It's easier for people to wrap tightly in the middle of a load than the top and the bottom, leaving weak points.
- **A poor load-to-pallet bond** – It's difficult for people to reach the bottom of the load, much less catch the pallet, and the film always seems to tear anyway. Without a proper load-to-pallet bond your run the risk of the load sliding off its pallet during transit.
- **An unprofessional look.** – If it appears you don't take pride in shipping your product, can people expect that you take pride in making your product?
- **Fatigue** – People might do a decent job wrapping the first couple of pallets, but after a while they become tired and produce substandard work.

Machines have the ability to perform the same task again and again without jeopardizing quality. The last load is wrapped just as well as the first. Many have features that help produce a safe-to-ship load such as a load to pallet bonding mechanism, variable film tension control and a digital film tension read out.

Containment force is the squeezing pressure the film puts on a load. It is what holds loads together. Different types of loads require different amounts of containment force.

See Lantech's "Containment Force Recommendation" chart.

Final thought

Everyone ignores the loading dock until there's a problem. You're good at preventing those, and so folks may assume that everything is working out really well. Convincing someone to spend money to change a work flow that has worked for years isn't always easy.

As a manager, your neck is on the line for every decision you make. So you want them to be smart ones. Take a step back and look at the overall impact of stretch wrapping machines so you can make educated decisions when it comes to eliminating hand wrapping or replacing an antiquated stretch wrapper.

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