Lantech®

Semi-Automatic Stretch Wrapper

Buying Guide

6 Real World Tips for Today's Procurement Teams
from the Front Office to the Back

Text by: Whitney Morris
Design by: Marcie Hoerig

Introduction

Buying a new stretch wrapper can be a daunting and confusing task.

Just Google the word “stretch wrapper” and you’ll face many models and features to choose from. Making the best choice isn’t obvious, and it sure isn’t easy.

But don’t fret. Slow down, take a deep breath and learn from the experts (that’s us.) We’ve got you covered.

These six tips will help you maintain a sense of perspective, cut through the clutter and focus on the things that are really important to making the best decision possible for your company.

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Tip 1 It's about the load!

Don't lose sight of the purpose of stretch wrapping — to get your load from it's origin to its destination in the same condition it left.

Loads that ship with the right amount of containment force, are locked to the pallet with a film cable and have no long or dragging film tails have the highest probability of arriving safely at their destinations.

See Appendix A – What everyone has forgotten about stretch wrapping

Before you begin collecting quotes, make sure you know why stretch wrapping is an essential part of your shipping process. Don't lose sight of the objectives.

We stretch wrap to …

- **Get the load from your facility to your customer's facility, damage-free.**
- **Ship at the lowest cost effectively shipped (LCES).**

If you don't meet these two obligations, you've failed.

Machines wrap better than people – plain and simple. They're better at unitizing a good load that's going to get to its destination in the same condition it was shipped. Know what a good load looks like and strive for it. Good loads have these characteristics:

- **Enough containment force on the top, middle and bottom of the load.**
- **The load is locked to the pallet.**
- **No dragging film tails.**

When you're shopping for a new stretch wrapper, it's easy to focus on the cost of materials, film or freight, and forget about how to unitize your loads. Machine features, specifications, and cost become meaningless if you don't meet the above objectives.

You'll also need to gather important details about your load(s) to share with the customer service rep or distributor providing you a quote, especially if it's over the phone.

You'll need to know the answers to these questions:

1. *What are you wrapping?*
2. *How are you doing it now and how many poeple does it take?*
3. *How many loads a day do you wrap?*
4. *Are you experiencing shipping damage? If you are, what is the damage caused by?*
5. *Are your loads order picked or standard?*
6. *What's the length and width of your pallets?*
7. *How tall do you intend to stack the product?*
8. *How much does the heaviest load weigh?*
9. *How much does the lightest load weigh?*
10. *Do you have a requirement to weigh your loads? If so, what is the reason you are weighing them? (Quality control, accurate bill of lading for LTL carriers?)*
11. *How do you load the pallet onto the turntable? (Pallet jacks or forklifts?)*
12. *Do you have partial layers (random items placed on top of the load that would need to be secured)?*
13. *Does the product overhang the sides of the pallet? If so, by how much?*
14. *How many loads do you wrap each hour or total in a day?*
15. *Are you operating 1, 2 or 3 shifts?*

Tip 2 Figure out how to wrap your load before you buy a machine.

The biggest cost driver in stretch wrapping is in-transit damage incurred by loads that were stretched wrapped improperly.

See Appendix C: Operating tips for semi-automatic stretch wrappers
See Appendix D: What kind of loads do you have?

Machines are capable, but they're not not as smart as you. They can't decide:

- **Whether your favorite film will work.** More than likely, film used for hand wrapping won't work as well on a machine. You've got to consider the gauge, pre-stretch and material of the film. Talk with a distributor in your area, who knows as much about machines as he does film.
- **How tight to wrap the load.** The top, middle and bottom layers of your load need to all have the correct amount of containment force, which is the wrap force multiplied by the number of film layers. The right amount of containment force depends on the type of load you're wrapping. Is your load heavy, light or unstable? Heavy loads may require more containment force and lighter loads may require less.
- **What the wrap pattern should be.** The way the load is wrapped depends on your settings. You need to choose the number of top and bottom counts. You must also decide the wrap force setting and how much overwrap you want applied on the top of the load.
- **Why the film just broke.** Film breaks are more than just an annoyance. They're the No. 1 problem in stretch wrapping. Often they lead to a chain of disastrous consequences. Film breaks are, indeed, the enemy. To limit your risk for breaks, there are a few things you can do:
  - Keep your products from overhanging the pallet and try to eliminate sharp corners.
  - Train operators to properly handle film. Improper film threading is a main cause of film breaks. Film breaks can occur when the film roll experiences nicks. These nicks happen when the film roll has been dropped or mishandled.
  - Don't buy "cheap" film, which has higher risk for flaws (gels, nicks, tears). "Cheap" film may be less tear-resistant and doesn't have the ability to stretch as far as performance films.
  - Don't set the wrap force too high. Depending on your film and product, play around with the tension of the film to determine the best setting.

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- **If the load needs special attention or reinforcement at some spot.**

You may need to secure partial layers with the roping technique or you may need to band – apply multiple layers of film to one spot on the load. Sometimes your load – if it's heavy and unstable – may even call for steel or polyester strapping.

Keep in mind that machines can't overcome improperly built loads or bad pallets. *These won't work:*

- **Loads that are too big or too small for their pallets**

(more than 2 in. inboard from the edge of the pallet or overhang the pallet by more than 2 in.)

- **Broken pallets**
- **Loads that are poorly stacked** (sides aren't vertical)
- **Loads that are too wide, long, heavy or light**

It's also important to lock your load to the pallet. You need to use a stretch wrapper with a load-to-pallet bonding device – cheap insurance to keep loads from being damaged by sliding off their pallets.

Make sure the machine you buy will get the job done. Don't guess, test. Get help if you're not sure.

Tip 3 Buy a machine that's easy and inexpensive to modify in the field.

"The only constant is change."
- Heraclitus

Better safe than sorry.

Three years after you buy a stretch wrapper, your loads may look different. Load widths, length, heights, weights and stability often change over time. For example, maybe you decide to start double stacking loads. But the problem is your wrap height only goes to 80 in. Don't worry. You don't always have to buy a brand new stretch wrapper to get what you need. Retrofitting a machine with a new component can be cheaper and faster than buying a new one. Some stretch wrapper manufacturers offer retrofits, including one that increases the wrap height to 110 in. tall.

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Look for a stretch wrapper with a modular design, which is usually easy and inexpensive to modify.

Here are the common in-field retrofits or upgrades:

- **Mast height extensions**
- **Base extensions**
- **Film delivery systems**
- **Ramps**
- **Remote controls for mounted forklift operations**
- **Load locking devices**

Tip 4 Buy as many productivity enhancing features as you can.

The cost of labor continues to rise. This year, U.S. labor costs just had its largest increase in more than five years.[1]

Despite the rise in labor costs, it's possible to trim some costs in ways you may have never imagined. Think about stretch wrapping, specifically the labor involved in hand wrapping a load. It's a time-consuming process. Besides manually wrapping the load, the operator must get on and off the forklift.

You can actually avoid some of these tedious steps when you use a stretch wrapper with productivity enhancing features. When you eliminate unnecessary steps, you eliminate labor and save money – thousands of dollars over just a few years. Yes, really.

Your operators can now do something more productive with the time they would have normally lost to getting on and off the forklift, wrapping the load by hand or just staring at the load go round. He can now use the extra time to:

- **Palletize another load**
- **Print shipping labels**
- **Complete bill-of-lading reports**

Labor Saved Per Load	
AUTOMATICALLY CUT FILM	AUTOMATICALLY ATTACH AND CUT FILM
1.5 Minutes	2 Minutes

Potential Labor Cost Savings Over 5 Years for 50 Loads/Day	
AUTOMATICALLY CUT FILM	AUTOMATICALLY ATTACH AND CUT FILM
$21,875	$29,165

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

*Using a semi-automatic stretch wrapper with these features compared to hand wrapping

This leads us into our next point: machines are cheap, people are expensive. Keep in mind, the capital cost of a machine is fixed at the time of purchase and will ultimately convert into an operating expense.

Spreading the cost of a semi-automatic stretch wrapper over the thousands of loads that it's going to wrap during its economic life, yields a low machine cost per load wrapped. For example, if someone wraps 50 loads a day over 10 years, a $15,000 stretch wrapper will cost 12 cents per load. So it makes sense to invest up front in a machine with features that will cut as much labor as possible.

One of the most impactful productivity enhancing features on stretch wrappers is a film delivery system with powered pre-stretch. It can reduce film costs by at least 50 percent. Pre-stretch is the process of elongating film and enhancing the yield of the film. An average customer wrapping 50 loads – who made the switch from hand wrapping or a machine without pre-stretch – can save at least $25,000 in film over five years.

[1] http://www.cnbc.com/id/101883205#.

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Today's semi-automatic stretch wrappers can incorporate more than just pre-stretch. Here's a breakdown of labor saving features that can save you big bucks. **Stretch wrappers can …**

- **Automatically cut the film at the end of wrap cycle.**
  Your operator avoids getting off a forklift or pallet jack to cut the film after each cycle. By eliminating this process alone, you'll save 30 seconds of labor of per load, or about $7,500 over five years.

- **Catch the film at the end of the wrap cycle and start the wrap cycle without dismounting the forklift to attach the film to the load.**
  You not only eliminate the need to cut the film at the end of the cycle, but you eliminate the need to get off the forklift and press the "start" button on the control panel for every load. Instead, your operator can stay on the forklift, use a remote control to start the machine, perform another task while the load is wrapping and pick it up when the cycle is complete. We refer to this as Simple Automation – a technology that saves a typical user at least $25,000 over the first five years of ownership.

- **Weigh a load while wrapping it without increasing cycle time.**
  Some stretch wrappers have scales built into the turntables. When you weigh and wrap at the same time, you can eliminate 30 seconds to 1.5 minutes of doubling handling loads from a stretch wrapper to a freestanding platform scale. That's eliminating $7,500 to $15,000 in labor over five years. Also, when you weigh your load every time, you lower the risk of paying expensive less-than-truck-load (LTL) re-weigh fees.

The above features save thousands of labor dollars over the life of the machine and provide outstanding ROIs. Even if they're used as little as 20 percent of the time in a 40 load/day application, they still make economic sense.

Loss from moving a load from a stretch wrapper to a separate platform scale over 5 years

Hourly Wage	Number of Double Handled Loads per Day*				
	30	40	50	60	70
$10	$3,125	$4,167	$5,208	$6,250	$7,292
$12	$3,750	$5,000	$6,250	$7,500	$8,750
$18	$5,625	$7,500	$9,375	$11,250	$13,125

*Based on 30 seconds of labor per load to move a load from a stretch wrapper to a platform scale.

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

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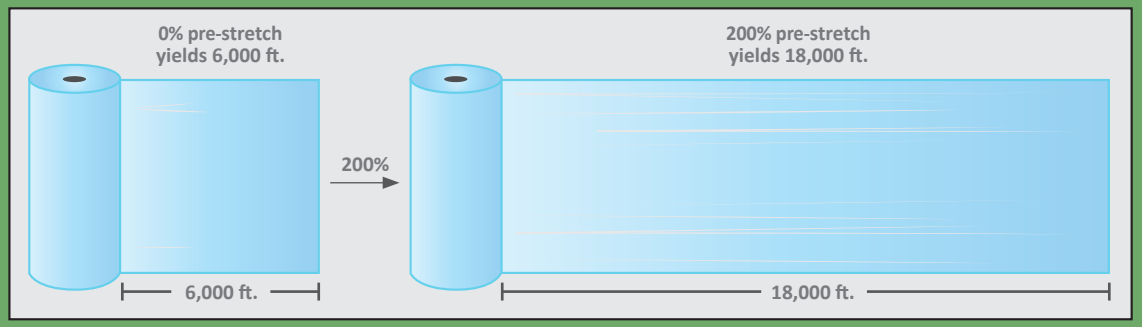
What's pre-stretch?

This happens when two rollers in the film delivery system turn at two different speeds and cause the film to stretch. Pre-stretch film delivery systems are standard on most semi-automatic stretch wrappers.

Pre-stretch is a measure of film economy, which increases the yield of the film per load.



For example, at 100 percent pre-stretch, 6,000 ft. of film would turn into 12,000 ft. At 200 percent pre-stretch, 6,000 ft. of film would turn into 18,000 ft. of film, and so on. Little to no pre-stretch occurs when film is applied to the load by hand.

Most machines can pre-stretch between 100 percent and 300 percent depending on how they're configured. Most people, however, use between 200 and 250 percent pre-stretch. This is a stable and comfortable range for running and gives a good balance between economy and efficiency.

Tip 5 Select a machine that's easy and safe to use.

One reason you may be investing in a stretch wrapper is to reduce workplace accidents and back injuries. Keep in mind, musculoskeletal injuries are the leading cause of your employees missing work. Non-fatal workplace injuries related to musculoskeletal disorders cost businesses more than $21 billion every year.[2]

These risk factors often affect operators who hand wrap loads:[3]

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

You can easily reduce some of these risks by using a safe, modern stretch wrapper.

Good stretch wrappers eliminate the need to hand wrap and reduce the physical stress on a 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 will be 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 the operator from walking between the mast and the load.
  - has guarding surrounding the rollers to prevent the operator's hands from getting caught inside.
- **The turntable is large enough for the pallet to fit inside it without protruding corners. This eliminates trip hazards and collision points.**

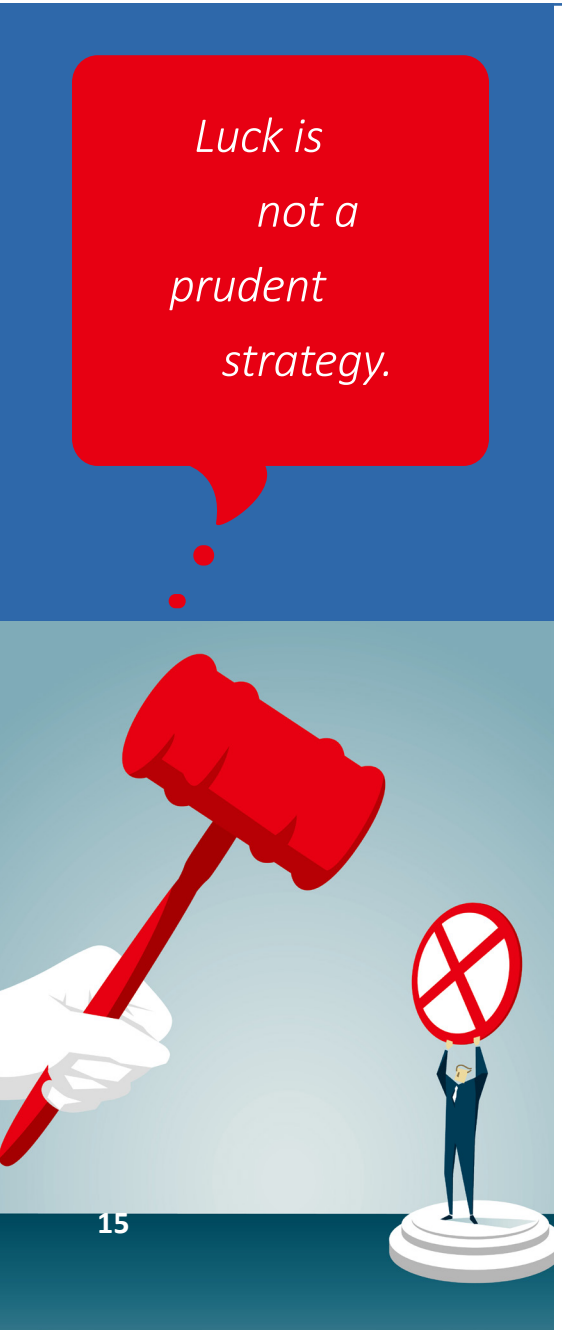
When it comes to operating the machine, you want one that's easy to learn and easy to use. Look for:

- **A simple control panel**
- **Displays on the control panel that make it easy to understand critical performance settings, including wrap force and wrap count**
- **A photo eye that automatically adjusts for different load heights**
- **An easy-to-thread film delivery system**
- **The ability to fine-tune adjustments without complicated programming**

[2]Liberty Mutual

[3]www.osha.com

Tip 6 Remember Murphy's Law.



See Appendix B: Semi-automatic stretch wrapper FAQs

Not only will something go wrong, it'll go wrong at the worst possible time. How fast can you recover from a breakdown? Where will the parts come from? Who's going to replace them? Who's going to diagnose the problem? How comprehensive is the warranty? Are extended warranties available?

You need someone (or a group of people, in this case) to have your back when something goes wrong. Think of support from a stretch wrapper company as support from a friend – it can be really good or really bad. Remember that time when your best friend picked you up on the side of the road when you ran out of gas, or made you some chicken noodle soup. And remember the time when your ex-friend stole your high-school girlfriend. We guess that you prefer a friend who's loyal and trustworthy.

So look for stretch wrappers that not only are built to last, but be fixed fast if something stops working. Or maybe, you just need someone to help you establish stretch wrapping standards tailored to your specific loads. In any case, seek out these traits:

1. **If you need a replacement part, you'll get it ASAP**
    a. The majority of part orders filled the same day they're received
    b. The manufacturer's headquarters is located close to a major shipping hub
    c. Next day delivery possible for orders received by 8 p.m. EST
    d. The manufacturer supports every machine it's ever made

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2. If you need start-up assistance or employee training, a technical support team will help.

a. Service Department available 24/7, 365 days of the year
b. Order parts via phone or online 24/7
c. All technicians are trained and certified by the manufacturer on its machines
d. Most customers in the continental U.S. are less than three hours away from a certified technician
e. Individualized training programs for customers
f. Start-up performed by certified, trained technicians
g. Over 200 distributors located in the U.S.

3. Worry-free warranty protects you against manufacturer flaws.

a. Five year warranty on turntable semi-automatic stretch wrappers
b. Unlimited cycles covered, no exclusions

4. Quick Reference Guide

a. Comes with all machines
b. Step-by-step operating instructions
c. Troubleshooting reference for common questions

Final thought

It's human nature to CYA (cover your a**). You want to make the best buying decision for yourself, your employees and your boss. And you need to justify that decision. As long as you follow a sound buying strategy and pay attention to the fundamentals, you'll end up with the best stretch wrapper for your application.

Here are a few golden rules we'll leave you with:

1. Buy a stretch wrapper that's made by a well-established manufacturer and sold by a reliable distributor that can provide service, training and support.

2. Understand what you're buying. This means don't take short cuts. All machines are not equal. Along your buying journey, don't let too-good-to-be-true deals tempt you into buying the wrong thing. Remember, there's no free lunch, unless you're at a seafood buffet in Vegas. You get what you pay for. Don't let the price of a "cheap" machine lure you into a less than adequate purchase.

3. The lowest cost of ownership for semi-automatic stretch wrappers is what really matters. The cost of ownership for a stretch wrapper is determined by the least amount of in-transit shipping damage, the least amount of downtime and the best safety record. Machine price and film costs have relatively little effect.

4. It pays to own a stretch wrapper.

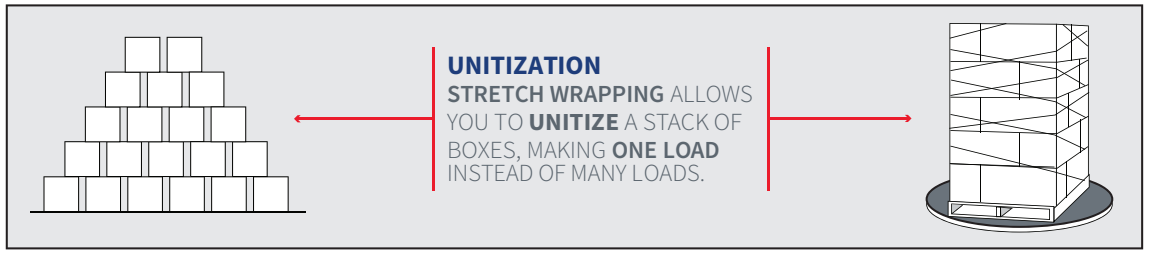
Appendix A - What everyone has forgotten about stretch wrapping

Why we stretch wrap

Stretch wrapping's about load unitization and containment. Here are the core ideas that underlie the process. Stretch wrapping's goal is, and has always been, the safe arrival of product loads at their destinations at the lowest cost.

Unitization

As early as the 1970s, a large segment of American industry realized the ergonomic and economic benefits of unitization. "Making big ones out of little ones," or unitizing loads of goods on pallets, became the most widely used material handling method for shipping products.



Containment

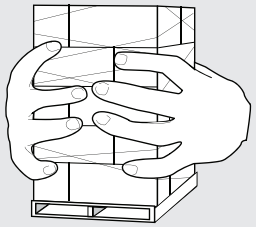
Containment is the ability to hold unitized product loads in "as made" condition. Film provides effective and economical containment when properly applied. Today, film has become the most popular way to contain unitized pallet loads.

Vibration

Vibration is the term for the forces exerted on a product load during its transport from one location to the next. These forces are containment's worst enemy. To defeat vibration, containment must be effectively applied. Ineffective containment leads to product damage, customer dissatisfaction, excessive costs, and unnecessary waste.

Delivering required containment force

Film dispensed to a unitized load provides a certain amount of containment force for every revolution applied. The number of film layers applied multiplied by the wrap force equals Containment Force (number of film layers x wrapping force per revolution = C.F.). Containment force, usually expressed in pounds, is what holds the load together.



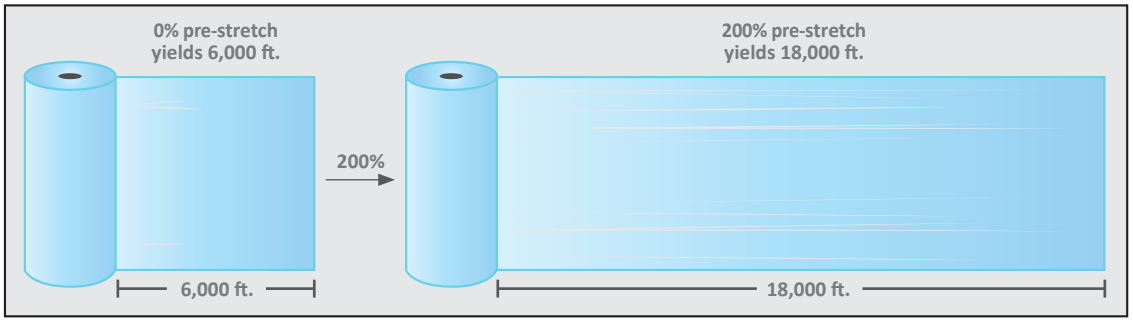
"CONTAINMENT FORCE"
THE TOTAL SQUEEZING PRESSURE THE FILM EXERTS ON THE LOAD.

Damage prevention

Effective containment happens when the containment force delivered meets or exceeds the containment requirement for any given load. Effective containment prevents damage and assures that products reach destinations in as-shipped condition.

Note:

Pre-stretch is a term that is inextricably linked with stretch wrapping. This process increases the number of loads that can be wrapped with a roll of stretch film. For example, pre-stretching a 6,000 - ft. - long roll of stretch film 100 percent increases its yield to 12,000 ft. Pre-stretching the same film roll 200 percent would increase the yield to 18,000 ft. Typically, most films are stretched between 200 percent and 300 percent when applied by a machine. Little pre-stretch occurs when stretch film is applied by hand.



Appendix B - Semi-automatic stretch wrapper FAQs

Question: Everybody says their machines are safe. How do I know for sure?
Answer: Use this list to check key safety concerns.

1. Is the machine free of trip, burn, and scrape hazards to protect the operators from severe injury?
2. Is the film delivery system located on the side of the mast to prevent the operators from being pinched between it and the loads.
3. Is the film delivery system located on the same side of the mast as the machine controls?
4. Does the film delivery system have full safety guarding of the rollers to prevent the operator's hands from getting caught in the rollers?
5. Is the film delivery system counter-weighted to reduce the possibility of crushing anything caught underneath it?
6. Is there sufficient clearance between the edge of the turntable and the mast to prevent the operators from being pinched between it and the loads.
7. Will the footprint of the load fit entirely within the turntable's circumference without overhanging?

Question: How can I tell if it's easy to use?
Answer: Check these key points:

1. Is it easy to load and thread film?
2. Is there an easy way to attach film to the load without requiring operators to tuck or tie the film to the pallet?
3. Is there an automatic film cut-off option available to eliminate manual film cutting and let operators remove loads from the turntable or wrap zone without getting off the fork lift?
4. Is there an automation module option available that attaches film to the load, lets the forklift drivers start the machine and remove loads from the turntable without dismounting?
5. Are load wrapping choices easily adjustable on the control panel?
6. Are top and bottom wrap counts displayed on the control panel?
7. Are operators' guides attached to the machine?
8. Can you figure out how to operate and adjust it without instruction?

Question: How do I know it's reliable and durable?
Answer: Investigate these:

1. How big is the installed base of these machines?
2. Are key components life cycle tested to ensure reliability?
3. What are the preventive maintenance items?
4. Is there evidence of metal-to-metal contact?
5. Have chains been replace with belts where ever possible?
6. Does the turntable support system require lubrication or make excessive noise?
7. Does the turntable drive system require lubrication or periodic adjustment?

Question: What are the key elements of good support?
Answer: Screen your prospective purchases against these criteria:

1. Is the manufacturer available 24 hours a day, seven days a week for service?
2. Does your local distributor have factory trained and certified technicians?
3. Is the warranty for components five years for turntable machines and three years for straddle machines?
4. Are operating manuals, videos, and parts lists supplied with the machine?
5. Are step-by-step troubleshooting and operating guides supplied with the machine?
6. Does the manufacturer offer extended warranties?

Appendix C - Operating tips for semi-automatic stretch wrappers.

15 good-to-know things you won't find in the manual

1. Buy a containment force measuring tool with your wrapper. This tool measures the holding force of the film on the load.

2. If you don't have a containment force tool or know how much containment force you need, wrap as tight as you can without twisting or crushing the load and without breaking the stretch film.

3. There are a number of containment force measuring tools and methods available. Be sure you know which one you're using and that its measurements will not be directly comparable with those from other tools.

4. Even when using the same tool, there can be considerable person-to-person variation in measurements. Round up. It's better to have more containment force then you need than not enough.

5. Don't cheap out when buying stretch film. "Bargain" films are false economies. Product damage is a much bigger stretch wrapping cost driver than film cost. Get a good film. It'll wrap better and run better. The goal of stretch wrapping is not to minimize film cost. Getting the right containment force at the lowest film cost is what you want.

6. Generally, the thinner the film, the lower the wrap force at which it can be applied without excessive film breaks. There is a point of diminishing returns on film gauges and pre-stretch levels. Be careful when choosing these. Better to err on the high side.

7. Operators overcome film breaks by reducing the force at which it's applied to the load. This results in lost containment force unless they compensate by adding more revolutions of film. They often neglect to do this, increasing the probability that something bad will happen to the load during shipment.

8. Most loads are wrapped with more containment force (more film) at their tops and bottoms and less in the middle. If there is no damage or shipping problems with these loads, the amount of containment force in the middle is sufficient for the entire load. This often leads to an opportunity to reduce the film at the top and bottom and lower costs.

15 Good-to-know things you won't find in the manual - continued

9. If you're not sure where to start, try a good grade 70 or 80 gauge stretch film pre-stretched at 200%. This combination provides a good blend of wrap quality, minimal film breaks, and acceptable film cost for a wide variety of load types.

10. When adjusting the wrapper for a new load, start with the turntable or wrap arm speed. Work up to a speed the load can handle. Restacking fallen loads isn't fun.

11. Then set the top and bottom wrap counts and the film overwrap at the top of the load (number of inches the film extends over the load's top). Begin with 2 for the top counts and 2 for the bottom.

12. Next, adjust the film delivery system speed. Start with a 6" overlap of film bands.

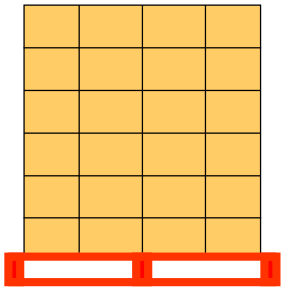
13. Finally, adjust the wrap force. Apply as much force as you can without breaking film or twisting or crushing the load.

14. Measure containment force at the load's top, middle and bottom with your containment force tool. Make sure it meets or exceeds the load's containment force requirement. Adjust the settings and repeat steps 10-13 until you get the right containment force.

15. Optimizing the wrap pattern, film type and gauge, pre-stretch level, film delivery system speed, and wrap force setting is hard work. Really hard! Really tedious. And takes time. Don't expect to do it in 30 minutes.

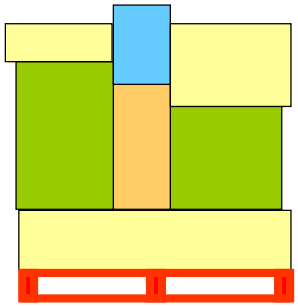
Appendix D - What kind of loads do you have?

"A" PROFILE



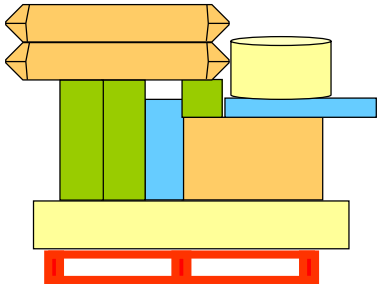
- ✓ Straight sides
- ✓ No protrusions
- ✓ Slightly inboard
- ✓ Stable

"B" PROFILE



- ✓ Relatively straight sides
- ✓ 2 in. or less protrusions
- ✓ Relatively stable

"C" PROFILE



- ✓ Odd shapes
- ✓ Severe Protrusions
- ✓ Unstable

Appendix E - The maintenance checklist

The Maintenance Checklist

What really matters to maintenance managers when their company buys a stretch wrapper.

Your shipping manager has asked you to review a list of stretch wrappers he's considering purchasing. You want a stretch wrapper that will get the job done (wrap loads) and make your life easy. You already have enough work on your plate. So when problems come up for you to solve, it's important to solve them quickly.

Good stretch wrappers require minimal maintenance and come with maximum support when something does go wrong.

Here's a check list of what you should look for in a new stretch wrapper:

The machine comes with clear step-by-step operating instructions and a quick reference guide filled with trouble-shooting FAQs.

A knowledgeable equipment specialist can perform start-up assistance when the machine is installed.

If you need a replacement part and it's ordered today, you'll get it tomorrow.

The manufacturer offers replacement parts for every machine it has ever made.

The warranty is 5 years, covers unlimited cycles and has no exclusions.

The machine requires no scheduled preventive maintenance.

A service tech can easily retrofit the machine weeks, months or years after you've installed it (e.g., mast height extensions, base extensions, film delivery system, ramps, remote controls, load top platen).

When you need live support on parts, repairs or maintenance – whether by phone, the manufacturer's website or in-person – a live service tech is available 24/7, 356 days of the year.

A service tech is within a 3-hour drive of your facility.

The manufacturer of the machine offers on-site training for your technicians.

Appendix F - How to calculate your payback

Calculate the total annual labor and film cost savings of a stretch wrapping system to identify your payback period.

Step 1: Labor Savings

Hourly Labor Rate		Labor Hours Saved Per Week *(from chart below)*		Labor Savings Per Week		Work Weeks Per Year		Total Annual Labor Savings
	x		=		x		=	

Step 2: Film Cost Savings

Film Cost Per Load Savings		Loads Per Week *(from Film Cost Worksheet on page 27)*		Film Cost Savings Per Week		Work Weeks Per Year		Total Annual Film Cost Savings
	x		=		x		=	

Step 3: Total Savings

Total Annual Labor Savings		Total Annual Film Cost Savings		Total Annual Labor & Film Cost Savings
	+		=	

Step 4: Payback Period

Machine Price		Total Annual Labor & Film Cost Savings		Months Per Year		Total Combined Labor & Film Cost Payback
	÷		x	12	=	

Labor hours savings chart: labor hours saved per week through machine wrapping compared to hand wrapping

	LOADS PER WEEK																	
	100	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Semi-Automated System	2	5	6	8	9	10	11	13	14	15	16	18	19	20	21	23	24	25
Automated Platform or Semi-Automated Over Conveyor System	7	9	11	14	16	18	20	23	25	27	29	32	34	35	37	41	43	45
Freestanding Conveyorized System	8	10	13	15	18	20	23	25	28	30	33	35	39	40	43	45	48	50
In-line Converyorized System	11	14	17	20	24	27	30	34	37	1	44	47	51	54	57	61	64	68

Labor savings machine wrapping vs. hand wrapping

- Chart above gives labor savings per week when machine wrapping loads, campared to hand wrapping.
  (Example: Stretch wrapping 400 loads per week on a semi-automated machine saves 10 hours per week compared to hand wrapping.)
- Assumes hand wrapping labor requirement of 4.5 minuts per load. For 80 loads per day x 5 days per week x 4.5 minutes per load = 30 labor hours per week for hand wrapping.

Feel free to call the Lantech Customer Response Team at 800-866-0322 or email them at CRT@lantech.com if you need help or have questions about completing this form.

Appendix G - How to calculate film cost savings

You can calculate the film cost per load based on the load size, number of revolutions, pre-stretch factor and film cost per linear foot. This guide estimates film cost per load. To obtain an exact cost, we suggest you wrap your load to your specifications, cut the film and weigh it. Multiply the weight by the cost per ounce of film.

		Load Length		Load Width				Perimeter of Load
Step 1:	OLD		+		x 2 ÷ 12 in/ft	=		
	NEW		+		x 2 ÷ 12 in/ft	=		
		Perimeter of Load		Turntable Revolutions *(from chart below)*				Feet of **Stretched Film**
Step 2:	OLD		x			=		
	NEW		x			=		
		Feet of **Stretched Film**		Pre-stretch Factor *(from chart below)*				Feet of **Unstretched Film**
Step 3:	OLD		÷			=		
	NEW		÷			=		
		Feet of **Unstretched Film**		Film Cost per Linear Foot*				Film Cost Per Load
Step 4:	OLD		x			=		¢
	NEW		x			=	–	¢
								Film Savings Per Load
								¢

WRAP ARM/ TURNTABLE REVOLUTIONS REQUIRED

WRAP PATTERN		LOAD HEIGHT							
Top	Bottom	30"	40"	50"	60"	70"	80"	90"	100"
2	2	7	8	9	11	12	13	14	16
3	3	9	10	11	13	14	15	16	18
4	4	11	12	13	15	16	17	18	20

PRE-STRETCH FACTOR
(% of stretch PLUS 1.0)

10%	60%	100%	150%	200%	250%	300%
1.1	1.6	2.0	2.5	3.0	3.5	4.0

* Cost per roll divided by feet per roll. $\frac{\$/\text{Roll}}{\text{Ft./Roll}}$

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