



# CHOOSING THE BEST PALLET WRAP MACHINE FOR YOUR BUSINESS

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If you are responsible for a pallet wrapping operation you'll know only too well that your choice of machinery can make an enormous difference to your operational efficiency and costs, to the amount of plastic film you use, and to the load stability and safety standards you achieve.

However, the wide choice of automatic and semi-automatic pallet wrapping machines available on the market today, and the huge amount of information provided by their manufacturers, can make it very challenging to identify the pallet wrapping machine that best meets your needs. This short guide aims to help you through the selection process by suggesting the questions you should consider, and providing some of the information you'll need to help answer them.

## WHAT IS A PALLET WRAPPING MACHINE?

So what is a pallet wrapping machine? In essence, it is a machine that holds a roll of plastic film and applies it to a pallet, either by circling around the pallet, or by rotating the pallet on a turntable. Pallet wrappers can be loosely divided into 2 main categories – Core Brake machines and Power pre stretch machines. You can read a lot more about their differences, and the pros and cons of each in our pallet wrapping guide.

<https://www.hazel4d.com/pallet-wrapping-guide/>

## WHAT TYPE OF PALLET WRAPPING MACHINE DO I NEED?

Every pallet wrapping situation has its own challenges and nuances which, combined with the variety of different machines on the market, can make it hard to know where to start. We recommend that you begin by considering the following points:

1. Stability of load before wrapping. Can your load be moved at all before it is wrapped? If not, you'll need to choose a pallet wrapping machine that can handle this
2. Load stability. Can you be confident that the machine will keep your load secure and safe on its pallet from the time it is wrapped until the time it's unwrapped, no matter how it is treated during handling, transit and storage?
3. How much will it cost you to wrap each pallet, once you've taken all costs into consideration?
4. Plastic waste. How much single-use plastic will the machine use to wrap a pallet?
5. How much available space do you have in which to wrap the pallets?
6. Can you wrap all your pallets in fixed locations, or will you need to move your pallet wrapping location around?

# THE MOST COMMON PALLET WRAPPING MACHINES WITH ADVANTAGES AND DISADVANTAGES

## MANUAL PALLET WRAPPING MACHINE

Generally the cheapest pallet wrapping machine type, this option is entirely mechanical and requires no electrical supply.

### ADVANTAGES

- Low initial outlay
- No requirement for electrical supply
- Very easy to use

### DISADVANTAGES

- No Power Pre-Stretch System (which means a higher cost of wrapping)
- Uses a lot more plastic than necessary to wrap pallets
- Still requires operative to walk around the pallet



## TURNTABLE SEMI-AUTOMATIC PALLET WRAPPER – CORE BRAKE

The most basic of all motorised pallet wrapper machines, this option has a couple of advantages but many drawbacks – as you can see below:

### ADVANTAGES

- Low initial outlay
- Can be moved using a fork lift truck

### DISADVANTAGES

- No Power Pre-Stretch System (which means a higher cost of wrapping)
- Ineffective when wrapping light items, as load stability is gained by increasing the tension as the film is applied to the pallet
- Uses a lot more plastic than necessary to wrap pallets
- Although it can be moved, it's not designed to be moved on a regular basis



## TURNTABLE SEMI-AUTOMATIC PALLET WRAPPER – POWER PRE STRETCH

These are often the most efficient, and therefore popular, machines on the market. When optimised properly these machines take some beating – as you can see from the pros and cons below:

### ADVANTAGES

- The power pre-stretch head stretches the film in the head before it is applied to the pallet, creating better load stability when optimised.
- Minimises film used per pallet
- Easy to set up and use
- Can be moved with a fork lift truck
- Low maintenance
- Can be set up with many different programs to meet the needs of different pallet load types

### DISADVANTAGES

- Has a large footprint so needs more space than some other types of machine
- Can generally only be used in one location



## LOW PROFILE TURNTABLE SEMI-AUTOMATIC PALLET WRAPPER – POWER PRE STRETCH

These machines have all the advantages of the Turntable Semi-Automatic Pallet Wrappers, but with the added benefit of having a very low profile, meaning that pallets can be placed on the turntable very easily.

### ADVANTAGES

- The power pre-stretch head stretches the film in the head before it is applied to the pallet, creating better load stability when optimised
- Low profile enables loading using pump trucks or PPTs
- Minimises film used per pallet
- Easy to set up and use
- Low maintenance
- Can be set up with many different programs to meet the needs of different pallet load types

### DISADVANTAGES

- Has a large footprint so needs more space than some other types of machine
- Can generally only be used in one location
- Can not be moved easily once installed



## ROTARY ARM MACHINES – CORE BRAKE

These models feature a machine head that circles the pallet, rather than the pallet turning on a turntable, so are great for situations in which pallets are transported on powered pallet trucks or when loads are very unstable prior to wrapping.

### ADVANTAGES

- Allow easy access when using PPTs
- No base at all – so pallets can stay on the floor
- Small footprint

### DISADVANTAGES

- No Power Pre-Stretch System, which means a higher cost of wrapping
- Not effective at wrapping light items as load stability is gained by increasing the tension as the film is applied to the pallet



## ROTARY ARM MACHINES – POWER PRE-STRETCH

With Rotary Arm machines, a machine head circles the pallet rather than the pallet turning on a turntable, which means they are great for situations in which pallets are transported on powered pallet trucks or when loads are very unstable prior to wrapping. The power pre-stretch head also delivers excellent load stability, but these machines do still have their pro's and con's:

### ADVANTAGES

- Allow easy access when using PPTs
- No base at all – so pallets can stay on the floor
- The power pre-stretch head stretches the film in the head before it is applied to the pallet, creating better load stability when optimised.
- Minimises film used per pallet
- Easy to set up and use
- Can be set up with many different programs to meet the needs of many different pallet load types

### DISADVANTAGES

- Large base footprint
- Often a more expensive option
- Cannot be moved once installed



## ROBOT PALLET WRAPPER

The latest in the pallet wrapping innovation – the Robot follows the contours of the pallet and literally ‘runs’ round the pallet wrapping it as it goes in much the same way as a human would. Robot pallet wrappers have a lot more advantages than disadvantages.

### ADVANTAGES

- Easily movable, so can be used anywhere that pallets need wrapping
- Battery operated, so don’t need a local power supply
- Wraps pallets of any shape and size as the robot follows the contours of the pallet
- Power pre-stretch head ensures that film usage is minimised when optimised

### DISADVANTAGES

- Pallets need some space around them to allow them to be wrapped
- Spare battery required to avoid downtime



## WHICHEVER MACHINE TYPE SEEMS RIGHT FOR YOU...

you’ll only realise its full benefits if it is set up correctly with the right film, and is fully optimised. Find out more about how our expert consultants can help with this contact us on 0113 242 6999, or visit our website here: <https://www.hazel4d.com/services/packaging-consultations/>

## SEMI-AUTOMATIC VS MANUAL PALLET WRAPPING

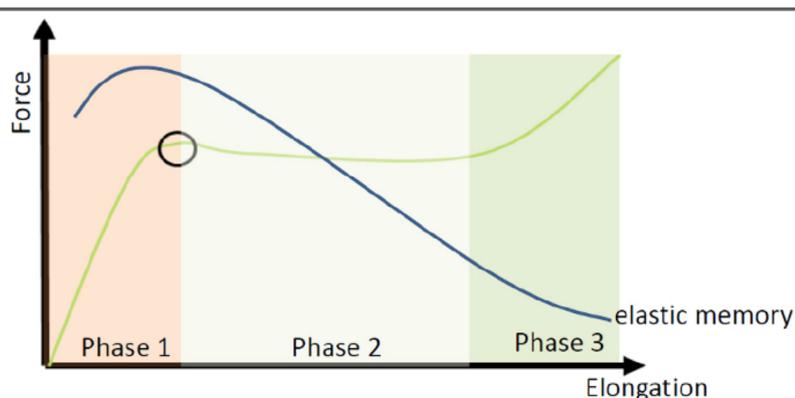
On the face of it, pallet wrapping by hand is low capital outlay, and low maintenance. However, many companies are moving away from hand wrapping as the health and safety risks of people moving quickly around pallets, usually running backwards whilst holding a roll of film, are significant. Moreover, it is difficult to achieve acceptable levels of consistency when wrapping by hand. Inevitably some operatives will be more diligent than others, and there are even significant variances in how a single operator wraps – depending on the time of day, and how they are feeling. This affects the cost of wrapping pallets – which are generally higher than the cost of wrapping a pallet using a pallet wrapping machine. It also affects load stability, which can be achieved much more consistently using machines – and levels of plastic waste, which are generally far lower when using machines.

## HOW SHOULD I WRAP MY PALLETS?

The secret to a really well wrapped, safe and stable pallet lies in the quality of the stretch film used, and how well it is stretched. Perhaps unsurprisingly, stretch film is designed to stretch – and only when it is stretched to its optimum level is it truly stable. The properties of stretch film allow it to be stretched to a given point before it snaps – and many film manufacturers state this stretch level as part of the film specification. This is usually stated as a percentage (150% stretch for example), and is the point at which a film is fully optimised. Stretch film typically stretches to a greater or lesser degree in line with the indicative graph to the right.

### STRESS/STRAIN BEHAVIOUR V ELASTIC MEMORY OF STRETCH FILM

#### Elastic memory



If a film is left in phase 1 or 2 (i.e. it isn't stretched to its optimum), then it will have a tendency to continue to stretch during the pallet's journey – creating a loose and unstable pallet. If the film is stretched into phase 3 – its optimum stretch level, then it is unable to stretch any further. This creates a locked plastic film with no further stretchability and, hence, a reliably stable pallet load.

It is clear that achieving this sort of load stability is never going to be as easy using hand pallet wrap as it is using a machine, but manufacturers have now developed pre stretched hand films to help address this issue. These films have been machine stretched before being rolled, meaning that when they are applied to the pallet they are already optimised. This has the added advantage that pre stretched films are thinner, and are available on longer rolls, than standard film. Combined with the fact that the film is easier to apply, and can be applied from a dispenser by operatives standing up and walking forwards, pre-stretched hand films are a good choice in most hand wrapping situations.

Ultimately, the best pallet wrapping method for you will depend on the type and quantity of pallets being wrapped. If you are wrapping 30 or more pallets a day, then it is definitely worth looking at the merits and the commercials of installing a power pre-stretch wrapping machine, and if you are wrapping fewer than this, then it is well worth considering switching to a pre-stretch hand film system.