



INTELLIGENT LOAD STABILITY  
**Experts In Pallet Wrapping Optimisation**

**COMMITTED TO**  
**IMPROVING THE**  
**PERFORMANCE OF**  
**YOUR BUSINESS**

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# WHAT MAKES US DIFFERENT?

We provide more for our clients. We add value.  
We add an extra dimension. We call it

## “DELIVERING THE 4<sup>TH</sup> DIMENSION”



Passionate  
innovators



Experts in  
specialised sourcing



Agile & adaptable



Fast decision makers



Well-resourced  
in capital & assets



Masters of creative,  
personalised solutions

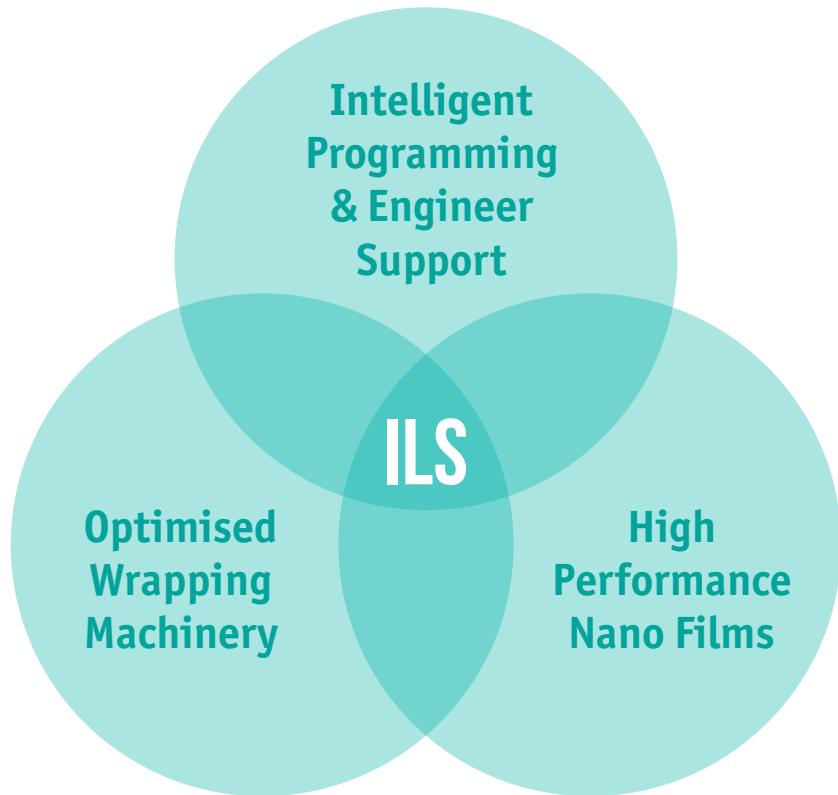


## OUR STORY

We're a global provider of packaging products and machinery. We're devoted to improving pallet load stability through our unique consultancy services and the latest technology in stretch films and pallet wrapping machinery.

Based in Leeds, UK, with a presence across Europe, we serve large organisations by developing custom-designed solutions that drive efficiency and improve business performance.

# A UNIQUE APPROACH



**Minimum Labour Cost**



**Minimum Plastic Usage**  
Reduced by up to 65%



**Maximum Load Stability**



**Lowest Cost Per Pallet Wrapped**  
Reduced by up to 59%

# FILM PRICE IS ONLY THE TIP OF THE ICEBERG

As packaging pioneers in stretch film, we revolutionised the market with Extremus Nano Films and Intelligent Load Stability. Focussing on price per kg means you could be using more film per pallet, distributing unstable loads and operating inefficiently.

As your packaging partner we review all of these direct and indirect costs, ensuring optimised processes, stable loads, and the lowest cost per pallet wrapped.



# KEY DELIVERABLES



## COST SAVINGS

Reduce labour requirements  
and cut ongoing film expenditure



## OPERATIONAL SUCCESS

Eliminate crushing and stability  
issues in transit



## SUSTAINABILITY

Implement recycled content  
films and loop recycling systems



## PLASTIC REDUCTION

Significantly reduce  
film usage on every pallet

# We provide the complete, end-to-end solution

Our combination of advanced films and high performance wrapping machinery is delivered through a relentless commitment to customer service and technical excellence. Our engineers and technicians provide expert advice and ongoing support to ensure your pallet wrapping solution remains fully optimised to your requirements.

	Film Manufacturer	Packaging Suppliers	Machinery Manufacturers	Hazel 4D
Advanced Films	✓	?		✓
Pallet Stability Expertise	?	✓	?	✓
Pallet Wrapping Machinery		?	✓	✓
Engineering Support			?	✓
Ongoing Analysis & Support				✓
Continuous Improvement				✓

# LOAD STABILITY CONSULTATIONS

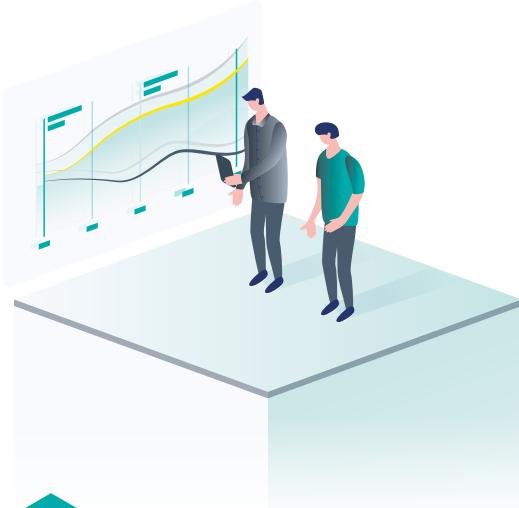
Our Intelligent Load Stability system really performs because it's tailored to meet the needs of every customer and their operations perfectly. That's why working in partnership is so vital to our success and the difference we make to our customers.



1

## WE DISCOVER

One of our experts will test your current system, looking into film specification, efficiency of materials, machine performance and time taken to prepare each pallet, recording the stretch and stability achieved. We'll also want to know about any challenges you face, or particular areas you're keen to optimise or improve.



2

## WE RECOMMEND

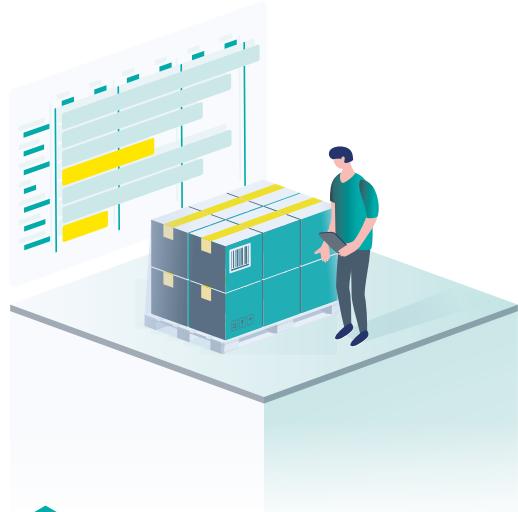
Our discovery phase will lead to a full report and a fully-costed recommendation designed specifically for you. These recommendations will not only address your specific concerns or challenges, but also identify opportunities to deliver the ultimate pallet wrapping solution for your operations.



3

## WE OPTIMISE

We spend time ensuring your new setup is perfect, fully tested and only handed over to you when we're happy it's performing as it should. Your staff will be fully trained to continue making best use of the system, and comprehensive training and reference materials will be left with you.



4

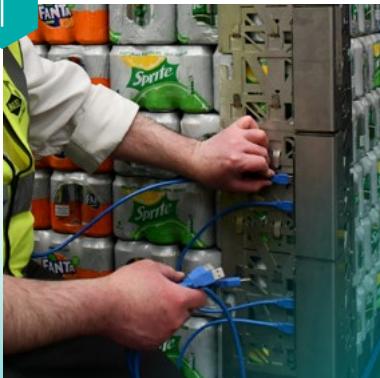
## WE SUPPORT

An optimised system requires regular auditing, so this is part of the service. We'll ensure that you're able to continue meeting targets, making genuine savings on resources, materials and costs, optimising safety and stability, and will make sure that the system is performing at its best.

# STATE-OF-THE-ART MOBILE SYSTEM TESTING

Using our FEF2000 system, we measure pallet pressure from existing film and machinery, comparing with alternatives and benchmark standards to find your optimal solution for stability and efficiency.

1



2



3



We mount electronic modules that measure the forces in 40 positions on each wrapped load, meaning we can identify over or under-use of wrap and too much force (which could lead to crushing) or too little force (which creates instability).

This allows us to create settings that fit your needs perfectly. It is ideal for customers who have had transit trials as part of a primary or secondary packaging specification, helping them to recalibrate to a perfect fully tested setting.

We'll adjust your machine settings and train your operatives to monitor this and manage it effectively, using the test data gathered as a benchmark and continuing to optimise your pallet-wrapping in the future.

A large stack of wrapped pallets in a warehouse. The pallets are wrapped in clear plastic and stacked in a tiered fashion. The background shows the industrial interior of a warehouse with metal beams and overhead lighting.

“

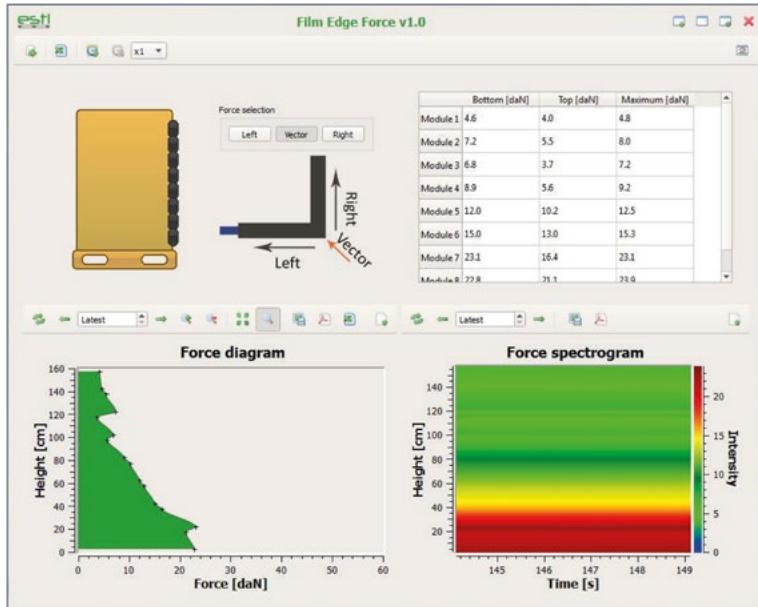
Badly wrapped pallets are a menace on a forklift – but getting them rewrapped slows things right down. Extremus film, properly used, puts a stop to tail ends and loads that aren’t locked to their pallets - which means I can get on and do my job without worrying.

**FORKLIFT DRIVER**

# CRUSHING V CONTAINMENT

## FEF 200 PALLET TESTING DEVICE

The FEF 200 is a state-of-the-art measuring device made up of load cells that can be attached to the edges of a pallet load before wrapping it with stretch film. Once the pallet wrapping cycle is started, the device accurately measures the forces the stretch film places on the secondary packaging and the edges of the pallet load. The scientific results can expose any instabilities and weaknesses in the wrapping cycle, as well as areas of over-wrapping.



We use the results to help you choose the correct machine settings, improve your pallet stability and prevent corner crushing. By containing the pallet load correctly, we can prevent packaging deformation and stop your products becoming unsaleable.

The data provides a benchmark that we can monitor machine performance against and ensure all your pallet wrappers are set up to perform in the same way.



“

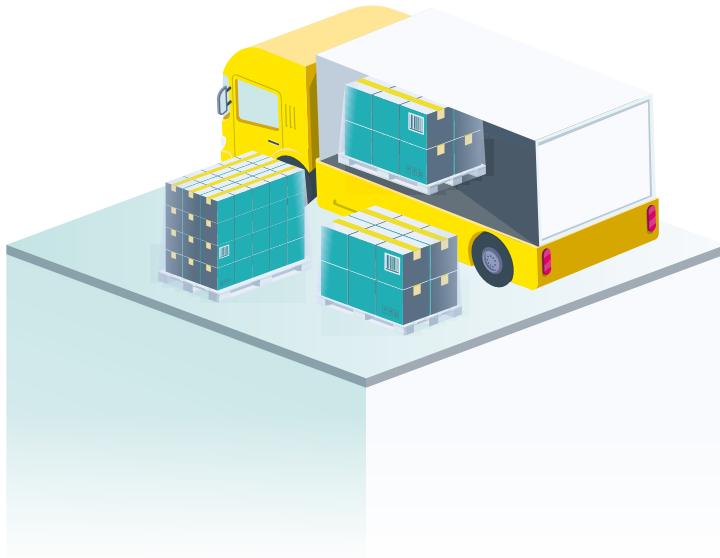
As a driver, there's nothing worse than loads shifting when out on the road, even in instances requiring harsh breaking I've found that Hazel 4D's Intelligent Load stability solutions ensure that pallets wrapped using their approach stay rock solid. Meaning customers receive their goods in pristine condition every time.

**EXPECT DISTRIBUTION LTD**

# IMPROVING TRANSPORT & LOGISTICS SAFETY

The European Safe Logistics Association (EUMOS) recognises our strong commitment to increasing transport and logistics safety. They've certified that we've demonstrated sustainable efforts towards the EU objectives to achieve zero fatalities on the road by 2050.

We're recognised as experts in helping customers improve their pallet load stability in order to comply with the global legislations around cargo transport safety and pallet load securing. Our consultants are specially trained to support our customers in achieving this and much more.



# Why is having stable pallets important?

Wrapping your pallet loads safely and securely is essential to prevent potential accidents, product losses and hefty fines for delivery non-conformance. This reduces the chances of having the additional expense and hassle of reworking products.

Pallets need to be able to cope with any accelerations or decelerations without losing their structure or rigidity.

The EU legislation introduced in 2018 put the responsibility for securing cargo safely on everybody from the producer of the pallet load to the driver.

Critical to safe and secure pallets, is making sure you use a high quality stretch film that's applied properly and consistently using the correct machine settings or by hand.



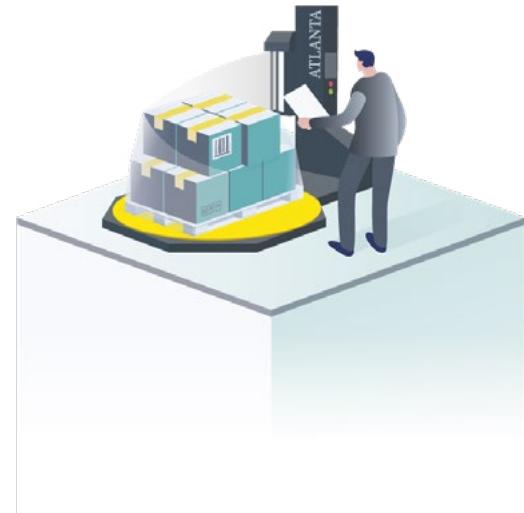
Studies have shown that  
**4%** of all transported goods  
are damaged in transit\*

\*Source: Ku Leuven University, Belgium

# UK ENGINEERS

Our engineers are based across the UK, demonstrating our commitment to provide exceptional service and being readily available whenever you need us.

With their expertise and support, you can have peace of mind knowing that your packaging machinery is in capable hands, allowing you to focus on your core business operations. They possess in-depth knowledge of packaging automation machinery and are well-versed in various brands and models.



**On-the-ground  
expertise**



**Seamless  
installation**



**Ongoing support**



**Rapid response**



**Comprehensive  
maintenance services**



**Prompt  
troubleshooting**



# DEMONSTRATION & MACHINE TRIALS

We do everything we can to demonstrate the benefits of our machinery, helping you to assess their suitability for your needs and make more informed decisions.

# ONSITE TRAINING

**Our training service covers a wide range of areas, from automated machinery to handheld equipment, and provides detailed product understanding.**



## TAILORED APPROACH

We understand that every customer has unique training needs. That's why we tailor our training to your specific requirements and challenges. Whether you need technical training on automated machinery or basic handheld products, we customise our training to suit your business goals.

## HANDS-ON LEARNING

We believe in the power of practical experience. Our trainers facilitate hands-on learning, allowing your team to directly engage with the machinery and equipment they will be working with. This approach produces the most effective training experience, enabling your team to operate effectively and efficiently.

## EXPERT TRAINERS

Our training service is delivered by our experienced technical team. They are equipped with extensive knowledge of products, machinery, H&S and best practice. With their guidance, your team will receive expert instruction and insights that enhance their skill, boost confidence and improve productivity.

## COMPREHENSIVE SUPPORT

We provide ongoing support, guides and materials to address any questions or challenges your team may encounter even after the training is complete. Our experts are available to provide guidance and assistance, ensuring a smooth transition and continued proficiency in operating the machinery or equipment.

## CASE STUDY

# PLASTIC USAGE REDUCED BY 66%

How we helped a bedding manufacturer reduce plastic usage by 66%.

This family-run firm ships around 195,000 pallets of bedding each year, but their poor film and damaged machines meant that they were wasting wrap and still not managing to eliminate rips, tears or returned pallets.

## THE PROBLEM

During a consultation and a full test of ten machines, we found that the stretch wrap being used was of poor quality, prone to ripping and tearing. In an attempt to get it working better, operators were often loading the film onto machines incorrectly, damaging the roll so that wrap was wasted. With no confidence in the wrap they were also wrapping several times, using much more film than should be needed.

This activity led to huge variances in the pre-stretching and tensioning of the film, causing unstable loads that were difficult to move safely and regularly resulted in rejected loads that had to be reworked at considerable expense.

## OUR SOLUTION

Our aim was to achieve a stable load, a reduction in film used and the elimination of waste, and improved efficiencies with effective machines.

We replaced three damaged machines and swapped their stretch wrap to Extremus. We spent time training their operators on the science behind stretch wrapping, how to load the Extremus Film correctly and its benefits for load stability.

## THE DIFFERENCE IT MADE...



Annual stretch wrap spend reduced by **£93,900**



Operators can now load film correctly, eliminating damage to film



A consistent stretch on film



Less film needed to wrap each pallet



With Hazel 4D's input and knowledge, they have put best practice into the production area driving cost and efficiency savings.

**MANAGING DIRECTOR**

# EXTREMUS STRETCH FILM



## Ultra strong nano film for up to 400% stretch and unbeatable stability.

High quality raw materials and the latest nanotechnology make Extremus the unbeatable film it is. When optimised, Extremus can stretch up to 400%, delivering the ultimate in strength and stability. And because it's puncture and tear resistant, it's still quick and efficient to use. Here's how it changes the game:



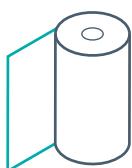
### OUTSTANDING HOLDING FORCE

Extremus stretch film is produced from a unique blend of polymers using the latest nanotechnology for outstanding holding force and reduced movement.



### SAFE, STABLE PALLET

Consistent strength and stability means safer pallet transit, little or no damage to products, quicker unloading, easier handling for customers and safer storage.



### ULTRA STRONG APPLICATION AND UP TO 400% STRETCH

Ultra strong nano film means you use less without compromising on the stability and safety of each load.



### MINIMAL WASTE & COST

This significantly reduces the volume of plastic used, lowers your plastic waste and PRN's, and allows you to forget other protective packaging too.



### CONSISTENT MATERIAL BLEND & HIGH PUNCTURE RESISTANCE

This puncture-resistant load holding nano stretch machine film is manufactured using state-of-the-art nanotechnology with up to 67 layers.



### FASTER WRAPPING

So you can keep up your wrap-speed without worrying about punctures and line stoppage

# MADE TO GO THE EXTRA MILE

## TRADITIONAL STRETCH FILMS

- Low Holding Force
- Low Stretch Yield: Up to 200%
- Stiff & Thick: 17mu – 23mu
- Inconsistent Performance
- 5 - 10 Layers: Low Puncture Resistance
- Unproven Recycled Grades

VS

## EXTREMUS STRETCH FILM

- ✓ High Holding Force
- ✓ High Yield Capacity : Up to 400%
- ✓ Flexible & Thinner: 10mu – 15mu
- ✓ Highly Consistent
- ✓ Up to 67 Layers: High Puncture Resistance
- ✓ Tested & Reliable Recycled Grades

# EXTREMUS 44 NANO MACHINE FILM

This range of high yield films can stretch up to 400%, making it perfect for high volume palletwrapping requirements.

Its advanced design is perfect for high-speed wrapping, and when paired with our Mytho machines, it truly provides a seamless and efficient packaging solution. Trust in our nano film for a strong, reliable hold.



High puncture  
resistance



High holding  
force



Guaranteed  
roll length



Easy  
application



## Hand Film Stability

Load stability is a critical factor in logistics and transportation.

ALT provides unparalleled load stability when hand wrapping pallets, guaranteeing that your shipments reach their destination securely.

# EXTREMUS ECO PALLETWRAP



Sustainability without the compromise.

The Extremus Eco range is plastic tax exempt as it comprises a **minimum recycled content of 30%**.

Our Eco range has been extensively tested so that all of the range provides genuine reductions in the amount of virgin plastic used per pallet.



Plastic tax  
exempt



Out performs  
traditional films



Reduced carbon  
footprint



High  
containment  
force



We're proud to announce that we've achieved a 25% reduction in packaging costs by switching to recycled alternatives. Extremus Eco has helped us minimise our plastic tax burden without compromising on essential load stability. Other recycled grades that we trialled had inconsistencies in performance and cost us valuable time and money in regular rewaps.

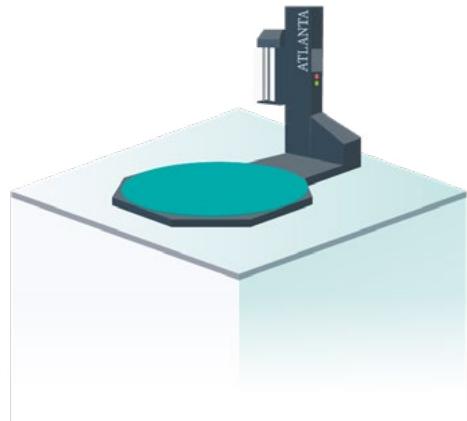
**TRIALLED & TESTED TO GUARANTEE  
TRUE EXTREMUS PERFORMANCE**

# ATLANTA PALLET WRAPPING MACHINES

ATLANTA  
STRETCH

Built to deliver ultimate performance, stretch and speed. We're exclusive UK distributors of Atlanta Stretch S.P.A's unrivalled range of automatic and semi-automatic wrappers. Partnering Atlanta machines with our range of Extremus films is the ultimate combination in pallet wrapping.

We help you identify the key considerations that determine which machine is right for your core wrapping requirements; pallet height, weight, load stability, desired output and operational infrastructure.

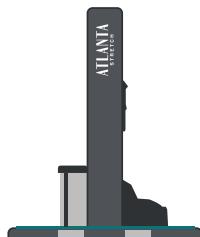


## SEMI AUTOMATIC STRETCH WRAP MACHINES

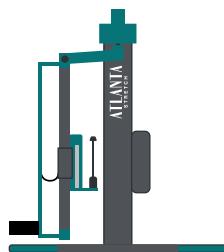
In semi-automatic stretch wrap machines, the film application involves the need for an operator. They position the pallet, manually connect the stretch film (or utilise the advanced Arya technology) and initiate the pre-set wrapping cycle. The operator manually cuts the film or uses an installed mechanical cutter, if available.



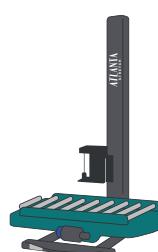
Mobile Wrapping



Rotating Turntable



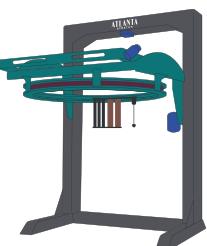
Rotary Arm



Rotating Turntable



Rotating Arm



Rotating Ring

## AUTOMATIC STRETCH WRAP MACHINES

Automatic machines require no operator intervention. They transport pallets automatically using optional roll or chain conveying systems. Once in the wrapping position, the machine follows a pre-set wrapping programme. After completion, the pallet is transported to the next stage in the despatch process.

[Contact us for more information on our automated line machines.](#)

# ARYA SYSTEM

New patented Arya system makes the process fully automatic, blowing the film onto the pallet at the start of the cycle, saving manual labour and speeding up the wrapping process.



## 100 PALLETS PER DAY

The average number of pallets wrapped per day by Arya customers



## 25 SECONDS SAVED PER PALLET



## 1220 MANUAL HOURS SAVED

Based on average semi-automatic machine operating for 220 days per year over an 8 year life cycle



## OPTIMISED WRAPPING MACHINERY

- Range of high-performance wrapping machinery
- Machines designed to stretch our Extremus films to the maximum levels
- Stock and bespoke-build options with various upgrades and accessories
- Where applicable our in-house Engineering Team will upgrade existing machinery to achieve the optimum results, for example gearing upgrades/roping devices

# MOBILE WRAPPERS

Mobile pallet wrappers are exceptionally flexible and designed to mimic human wrapping techniques. These machines can be transported to the pallet and operate similarly to how a person would wrap.

Their utility shines in scenarios where pallets require wrapping in diverse locations or where moving unstable stacked pallets is impractical. As the machine adapts to the pallet's base size, they are a great solution when dealing with oversized or irregularly shaped pallets.

The popularity of mobile wrappers has grown significantly in the last couple of years due to their versatility in addressing various pallet-wrapping challenges.

## Why mobile wrappers give you complete flexibility?



Wrap pallets that vary in shape and size



Wrap anywhere in your warehouse



Safe and simple to operate



Neos

Available with the patented ARYA system



Sfera



Marathon

## CASE STUDY

# HOME BARGAINS: ROBOTIC RESULTS

Home Bargains were experiencing all sorts of problems due to their pallets being wrapped by hand, including high labour costs, health and safety issues and film wastage.

Following our site audit we recommended the Sfera high performance robot wrappers in conjunction with our Extremus ultra high yield film as an ideal solution.

Since implementing these changes Home Bargains have achieved incredible cost, labour and efficiency savings, not to mention a much happier and healthier workforce!

- Huge cost savings of £90,000 a year
- 50 hours of labour time saved every day
- Reduced plastic waste impact
- Production downtime greatly reduced
- Improved stability of pallets
- Reduced Health & Safety Issues
- No film breakages
- Increased number of pallets wrapped per day



# TURNTABLE WRAPPERS

Turntables are the most commonly seen machines on the market and come in two main varieties - Core Brake and Power Pre-Stretch.

The Core Brake, while cost-effective, quick to install and simple to operate and maintain, lacks performance in film stretching. On high volume wrapping, this results in higher wrapping costs and inefficiency by consuming excessive plastic per pallet.

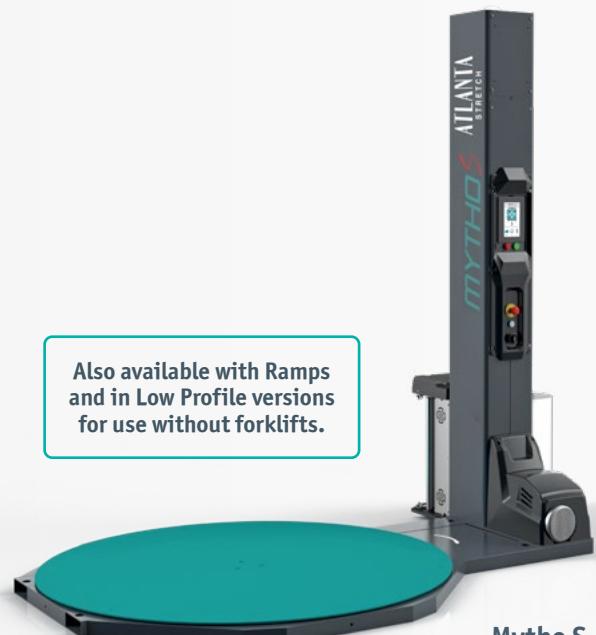
On the other hand, the Power Pre-Stretch options (with enhanced pre-stretch heads) improve load stability, reduce film usage and offer more versatile program setups. They are still low maintenance and this higher efficiency make it a favoured choice when optimised for specific pallet load types.



Synthesi



Eva



Mytho S

Available with the  
patented ARYA system

## Why turntable wrappers increase efficiency?



Speed up the wrapping cycle



Minimise film usage per pallet



Improve consistency and pallet stability

## CASE STUDY

# SAVINGS OF OVER £100,000 A YEAR

A food manufacturer was incurring excessive financial and operational costs due to ineffective stretch wrapping processes. The company was spending around £150,000 annually on stretch film, using 100 tonnes of plastic film and spending time and money repairing old machines.

## THE PROBLEM

Worn, damaged wrapping machines were causing stretch film to break and meant wrapped pallets were extremely unstable. The machines were unable to keep up with production during peak periods which resulted in bottlenecks and downtime.

Large supermarket chains were rejecting and returning damaged and leaning shipments, so warehouse operatives were spending a significant amount of time re-wrapping pallets. The frustrated operatives were loading the stretch film incorrectly in an attempt to prevent film breakages and keep the machines wrapping. Their Warehouse Manager repeatedly commented 'my guys deserve better'. The problem was costing them money, time and their reputation.

## OUR SOLUTION

We conducted a thorough audit of their machinery, assessing setup accuracy, film stretching efficiency, and pallet wrapping performance. By recommending the adoption of Extremus film and advanced turntable pallet wrappers, optimized for up to 300% stretch, we devised two tailored wrapping programs to minimize stretch film usage. The switch, coupled with new equipment, yielded a ROI in under 7 months. Ongoing training and support from Hazel 4D ensured the operations team's confidence in the system, leading to continual savings and prompt issue resolution.

## THE DIFFERENCE IT MADE...



Huge, ongoing cost savings  
excess of **£100,000 a year**



Reduced plastic waste by **65%**



Production downtime reduced  
increasing number of pallets  
wrapped per day



Reduced need for roll changeovers

“

Not a single pallet has been returned from our customers. Why didn't we do this years ago!

**DISTRIBUTION MANAGER**

# ROTARY ARM

The rotary arm stretch wrapper employs a rotating arm with a film carriage, distinguishing it from turntable wrappers.

In this system, the pallet remains stationary while the arm rotates above, efficiently wrapping stretch film around loads, whether they're light, fragile, or heavy. Engineered for consistent film tension, these machines excel in stabilising palletised loads with regular shapes and dimensions.

Whilst not as common as turntable wrappers, due their smaller footprint and flexibility to be used without forklifts, they have widespread use in warehousing, logistics, and distribution centres.

## Why rotary arm machines work around you?



**Small footprint**



**Easy access  
when using PPTs**



**Great for unstable  
unwrapped loads**



**Lybra Easy**



**Lybra**

# FULLY AUTOMATIC INLINE MACHINES

We can also work with you on integrating fully automatic pallet wrappers into your production lines. These stretch wrappers don't need operator assistance and are designed to lower costs and increase productivity.

## ROTATING RING MACHINES

Designed for output and suitable for complex industrial products and pallets, our Omega and Omega Double machines can wrap up to 150 pallets per hour.

## ROTATING ARM MACHINES

Suitable for unstable loads where the rotary motion of the table could imbalance the pallet, this range is designed for processing around 80 pallets per hour with varied speed and programme options.



Get in touch to learn more about our fully automatic solutions



### Features:

- Easy to navigate operator HMI with multiple pre-set programs
- Easy access and quick load film carriage
- Integrated top sheet applicator for dust or water-resistant wrap
- Top press to stabilise load
- Pre-stretch film carriage for optimisation of film performance and efficiency
- Double film carriage for increased throughput
- Pallet lifter to increase product to pallet security
- Film roping and band wrapping for added load stability and security
- Increased wrap height for tall pallets
- Fully automated conveyor system
- Machine for integration or fully guarded with Full CE Certification

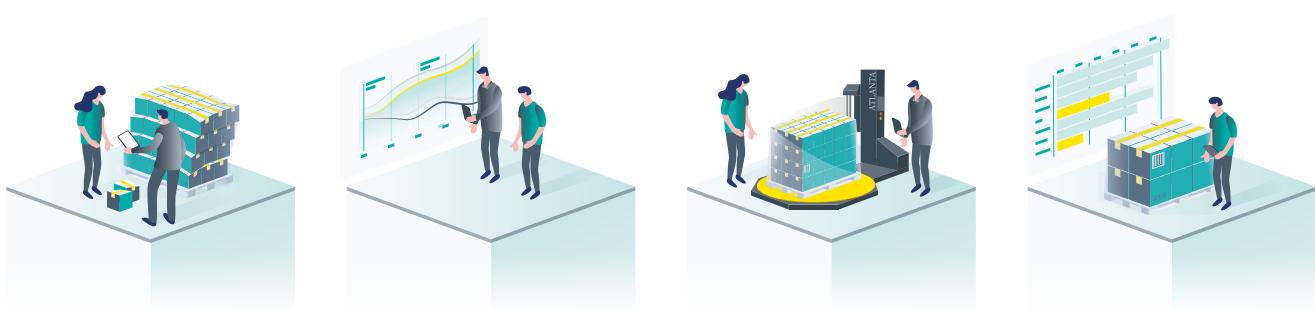
# ACCREDITATIONS & CERTIFICATIONS

Our commitment to supply chain responsibility is built on the principles of ESG and forms the foundation of our business practices.

This is exemplified through our numerous certifications and accreditations. They serve as independent and tangible evidence of our ongoing efforts to create a positive impact on the environment and society, while upholding the highest standards of corporate governance.



# How we add a 4<sup>th</sup> Dimension to your pallet wrapping process



1. WE DISCOVER

2. WE RECOMMEND

3. WE OPTIMISE

4. WE SUPPORT

BOOK A FREE, NO OBLIGATION CONSULTATION TODAY

[hazel4d.com](http://hazel4d.com) | [wecare@hazel4d.com](mailto:wecare@hazel4d.com) | 0113 242 6999

WE'RE NOT YOUR AVERAGE  
PACKAGING SUPPLIER.

WE'RE YOUR SPECIALIST  
LOAD STABILITY PARTNER.



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