

An aerial photograph of a two-lane asphalt road curving through a dense forest. The trees show a mix of green and vibrant autumn colors like yellow and orange. A white truck is driving on the road. The text is overlaid in the upper left quadrant.

**WE SAVE RESOURCES
IN SUPPLY CHAINS
FOR A BETTER TOMORROW**

THE GLOBAL PARTNER FOR SUSTAINABLE INDUSTRIAL
PACKAGING AND LOGISTICS SOLUTIONS

NEFAB
SAVING RESOURCES



**IT'S ABOUT SMARTER PACKAGING
AND LOGISTICS SOLUTIONS**

NEFAB
SAVING RESOURCES



We save environmental and financial resources by optimizing supply chains. We do this by innovating together with our customers to create smarter packaging and logistics solutions while always respecting people and high ethical standards. This contributes to a better tomorrow for our customers, for society and for the environment.

Our core values are Respect, Empowerment and Simplicity. These values guide us in how we do business and how we interact with each other within the company, as well as with our customers and business partners.



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GLOBAL PACKAGING AND LOGISTICS SERVICES

IT'S ABOUT REDUCING CO2 EMISSIONS AND TOTAL COSTS

Nefab is a global industrial packaging provider that offers complete packaging solutions, logistics services, and optimization programs. Our focus is aimed at reducing our customer's total cost for logistics and product protection, as well as reducing the environmental impact in their supply chains. With our global engineering and supply capabilities, we serve Telecom, Automotive, Energy, Aerospace, Healthcare, Lithium-ion Batteries, and many other industries in every corner of the world.

Nefab strives to offer innovative packaging and logistics solutions designed to save financial and environmental resources in supply chains while ensuring high performance and product protection. With in-depth material knowledge and expertise, our packaging solutions are engineered, prototyped, and tested by our Global Engineering Network in ISTA-certified labs around the world. We combine global packaging supply and coordination with local logistics services and support that fit the needs of each customer and product requirement.

With more than 70 years of experience combined with competence and presence in more than 30 countries, taking care of natural resources has been a fundamental part of our culture from the very beginning. It is a way of working and simply a way of being in our day to day lives at Nefab.

The right packaging solution will not only protect your product – it will improve your brand and reduce CO2-emissions and your total cost of logistics. All our solutions are engineered and optimized for a specific product and flow. If it is; sensitive, strong, small, large, light, heavy, or shipped by; truck, sea, rail or air. Our solutions are based on your circumstances. We chose a pallet, outer and inner packaging that best fit your needs through the entire supply chain.

PACKAGING SOLUTIONS OPTIMIZED FOR YOUR SUPPLY CHAIN



THE SHIFT TO CIRCULARITY AND INNOVATION

At Nefab we innovate together with our customers, suppliers, and supply chain partners with the ambition to drive the change into fully circular flows. Our approach is to set up pilot projects to validate and demonstrate potential savings by shifting to a circular business model.

The key steps for a circular business model are:

- High or fully recycled packaging materials
- Packaging design and production with lowest environmental footprint possible
- Materials sourced from closed loop or circular flows
- Locally optimized logistics to lower CO2 eq in transport
- Enabled by Nefab buy-back of packaging - guaranteeing circularity
- LCA measurement and tracking to further reduce CO2 eq emissions and total costs

Sustainable packaging materials and sourcing is the foundation of circular solutions. At Nefab we take a global and local approach to strategic sourcing, and we are continuously scanning the market for new, innovative materials. In addition, we continue to invest in R&D and in partnership with like-minded companies to build circular, resource efficient business models.



GLOBAL PACKAGING SOLUTIONS THAT REDUCE TOTAL COST

Nefab's Total Cost Approach ensures that your packaging solution is optimized to reduce total cost in your supply chain. We evaluate specific cost areas within your logistics flows, and identify ways in which a smarter packaging solution can make a difference for your bottom line.

- **TRANSPORT**

By optimizing the packaging design to the supply chain, Nefab can reduce the overall transport costs for you. With tailored packaging solutions, you can fit more products into each shipment, container and truck, and thereby save money on shipping costs.

- **HANDLING**

A packaging solution should enable a safe, easy and fast packing and loading procedure. With improved working environment and reduced handling time, you can focus on your core processes rather than packing and packaging.

- **ADMINISTRATION**

With our complete packaging solutions offer, JIT-deliveries and Vendor Managed Inventory (VMI) services, you can enjoy improved delivery planning and turn fixed costs into variable. At the same time, working capital can be reduced as well.

- **PRODUCT PROTECTION**

On its way in transit, the packaging protects the goods from stresses throughout the supply chain. The ingenious solution is the one that do the job with the minimum level of material, thus optimizing the cost for packaging, damages and claims.

- **WAREHOUSING**

Nefab enables you to save space in the receiving area as well as in the warehouse, for finished goods. This by designing collapsible packaging solutions with optimal fill factor and stacking capability.

CREATE YOUR COMPLETE PACKAGING SOLUTION

Our packaging solutions are developed in-house and in close collaboration with customers. We provide all the components required to create your complete packaging solution. The final solution is different for each and every customer, but the end result is always the same - an optimized packaging solution that reduces total cost and environmental impact.

In general, a complete packaging solution consists of inner and outer packagings. These are optimized for the customers' distribution to protect against the strains and stresses to which products are expected to be exposed to during transportation.

We offer complete packaging solutions in several different types of material, such as fiber, foam, plastics, plywood, steel, wood and many more. Our packaging products are used for all types of applications and industries, everything from small and light to large and heavy.

- **LID**

Lid with edge-boards fixes the sleeve into position and gives extra strength to the package to increase stacking properties.

- **INNER PACKAGING**

Selecting the right inner packaging solutions is crucial - it is the characteristics of your product and its journey to the final destination that determines which solution that will be optimal and best do the job.

- **OUTER PACKAGING**

Choosing the right outer packaging solution can have a significant impact on the overall performance of a supply chain. Critical to consider is if you ship unitized or mixed loads.

- **PALLET**

There are several aspects to consider when deciding what type of pallet to use - how heavy is the load, what transportation mode is used, how will it be handled and many more.



ESD/CORROSION/ MOISTURE PROTECTION

Products are often in need of ESD, corrosion and/or moisture protection. Nefab has provided corrosion protection solutions for many industries over the years. One of these is VCI in different formats (paper, foam,...). This is an additive that can be added to most common packaging materials. For ESD, one solution that Nefab offers is an anti-static bag used to protect electronic components from damage caused by ESD. To protect your product from moist, you can work with dessicants in combination with alubARRIER materials.

IN-HOUSE DESIGN & ENGINEERING

Our global network of engineers is ready to transform ideas into new solutions all over the world based on customer requirements. No matter the location of your products or where they are being shipped. We can design solutions in all types of materials, and we have five ISTA Certified labs to quickly go from prototype to testing and validation.

DESIGN

All our solutions are engineered and optimized for a specific product and flow. We help customers to optimize their load utilization by designing packaging solution that matches their mode of transportation. Our global engineering network consists of over 200 engineers, who regularly collaborate on projects and share designs to strengthen our customer offerings around the world.

Designs and material selections for solutions are tailored to the product and logistics setup in order to optimize environmental footprint and cost from different perspectives (such as transport, handling, protection level and warehousing).

We can use 3D printing to gain a greater understanding of the fit and function for designs that are highly complex or have many interconnected pieces, giving us greater leverage for providing the best solutions possible.

With our multi-material competence, we can offer the right solution no matter the material. Our engineers have experience from a wide range of materials, and material combinations to ensure that your solution is the best possible - no matter if its one-way solution or a returnable solution, we will engineer the right solution for your supply chain.

Three simple design principles



With the help of tools like GreenCalc, a Life Cycle Analysis tool that identifies potential CO2 eq and cost savings of packaging compared with the existing solutions, our engineers follow three design principles:

Design with efficient resource utilization (reduce)

- Reduce environmental impact in transportation, reduce packaging materials use and reduce product fragility

Design with extended resource utilization (reuse)

- Reuse packaging in the supply chain, reuse packaging multiple times, control returnable pool and design packaging to be repaired

Design to increase material recovery (recycle)

- Increase recycled content, use material that can be better recycled, and design with a circular approach

PROTOTYPING

Once solutions have been designed, we can efficiently produce prototypes. No matter the product or application, we are equipped to help you prototype and verify your packaging solutions. In close interaction with customers, we can quickly go from the design phase to prototyping, and prepare for testing in one of our ISTA certified test labs.

TESTING

Different products and industries have specific standards and requirements that need to be fulfilled. Through our expertise and testing capabilities, we can ensure that these requirements are met and verified. Our understanding of test standards and industry requirements ensures that your packaging solution complies with all relevant standards and regulations.

ISTA certified testing labs

Our solutions are based on the products and materials that fit your needs. No matter the packaging material we can design, test and validate the solution in-house to make sure that your packaging solution protects your products from A-Z. Our material testings include: BST, ECT, plywood bend test etc.

To validate that a packaging solution meets the criteria defined, Nefab offers testing according to the most common testing standards (ISTA, ASTM, ISO, ENSI and EN). We have our own ISTA certified testing laboratories in China, India, the Netherlands, the United States and Sweden.

For products that are too large to test, we have a special software to simulate a test through a FEM-Analysis. FEA or Finite Element Analysis is a Computer Aided Engineering tool that allows Nefab engineers to virtually examine the stresses and strains within designs.

Thanks to all these tools we can give you the most cost-effective solutions with the right product protection.

Material testing

- Mullen Burst (BST)
- Plywood bend test
- Edge Crush Test (ECT)
- Tensile/compression up to 10kN (2248lbs) protection



Vibration test



Drop test



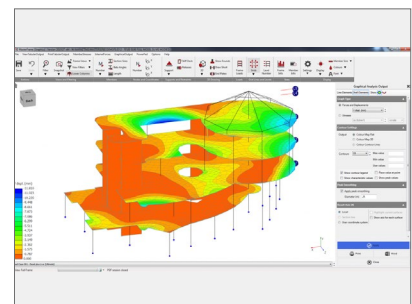
Incline drop



Compression/stacking test



Climate chamber



FEA analysis



CLEANROOM

Our fully equipped ISO Class 5 cleanroom gives us the controlled environment to clean and pack your semiconductor or high-tech products in accordance with the highest cleanroom standards.

Nefab cleanroom

Our classified cleanroom meets the Class 5 requirements specified in ISO 14644-1. As an ESD specialist we have equipped our cleanroom to meet the strictest EPA requirements.

Complete service provider

From our Packaging Engineering Center, located in the Brainport region Eindhoven, we offer a complete service around your high-tech products and tools. Besides packaging design, flexible production and testing, we are a specialist in cleaning services helping you to meet the high market recommendations.

Our engineers know the requirements and limitations of cleanroom environments. They are experienced in developing packaging optimized for low contamination risk, optimal total cost and minimal environmental impact.

Outsourcing the cleaning and packing activities from your process to Nefab will help you focus on your primary activities. Nefab will act as supplier and service partner fully integrated into your product flow.

Flexible and fast

To maintain commitments to your customers, flexible and fast service is needed. Worldwide experience combined with local flexibility enables us to follow your processes and help you serve your customer.

Cleanroom packaging

- Foil on roll
- Standard bags and rolls
- Custom 3D and gusset bags
- Plastic totes

Reference projects

- Cleaning of tools of all shapes & sizes
- Repacking under protected atmosphere
- Customized bagging
- Tailor-made packaging

Description

LDPE bag 100 x 130 mm

LDPE bag 150 x 250 mm

LDPE bag 260 x 360 mm

LDPE bag 390 x 490 mm

LDPE bag 470 x 610 mm

LDPE bag 650 x 840 mm

LDPE bag 710 x 960 mm

LDPE bag 1000 x 1400 mm

HOISTING BELTS

Special runnels keep the belts in place and secure the box, enabling safe, easy handling (manual or by machine).

CLEANROOM RETURN SETS

Used to return the packaging in clean condition.

MODULARITY

The C2C Cube Sizes are conform to international standards. The modular concept and special stacking features allow you to ship multiple combinations of boxes safely.

PILLOWS

Use this on all your product sizes and protect down to 10G.

EXTRA FASTENING HOLES INSIDE BOX

Equip the Cube with extra inner straps or add accessories like special fastening plates.

AIRTIGHT WITH GASKET AND FILTER

The special developed filter regulates the air pressure inside the box in transit without adding a risk for contamination

INTEGRATED HANDLES

Lift the box manually, even with a protective PE Layer around it.

DEDICATED LABEL AREA

Each Cube has an integrated RFID tag and cleanable label surface.



Nefab logistics services offers outsourced warehouse operations, tailored to value added services such as on-site packaging, pooling, JIT packaging, VMI, repacking, kitting and Last Mile Optimization. We combine unrivalled packaging expertise and logistics optimization to ensure an efficient supply chain with a reduced total cost.

LOGISTICS SERVICES THAT SAVE RESOURCES



WAREHOUSING SERVICES

Nefab delivers an unparalleled customer service through dedicated customer teams, engaged people working in an agile culture, and a global footprint. If there are inefficiencies built into the packaging – the traditional 3PL will only find ways to better ship that inefficient packaging around the world. Nefab will optimize the packaging to reduce transportation costs and the total carbon footprint.

POOLING

Nefab Pooling is a solution that gives your business the most optimal flexibility in regards to packaging. Instead of investing capital in your own packaging, you can, based on demand, rent returnable packaging whenever you want, in as large quantities as you wish. On top of this our packaging pools are connected to our IoT-platform that enables customers to never be more than one-click away from information about their products.



PACKING AND KITTING SERVICES

CONTAINERIZATION

Nefab provides a full range of container-related services including container loading and unloading. Nefab's personnel will secure your cargo to meet or exceed port requirements to ensure safe transport of your cargo via rail or ocean.

FLAT RACKING

Nefab is an expert at designing flat racking support systems and complies with Annex 13 lashing requirements when specified. We can help you make the right decisions on the type and quantity of lashing materials, as well as proper placement, to secure your valuable equipment.

IN-HOUSE PACKING

Our skilled workers will weigh, measure, and design product-specific packaging for your products at our facility. We will then carefully pack and ship your products direct to the end customer, or return them to you. Nefab has thousands of square feet of space and acres of lay-down yard to support our packing and warehousing services.

ON-SITE PACKING

Products are packed by skilled Nefab workers at your facility. If needed, we can also establish a fulltime operation within your facility, or take care of your clean room packing needs for highly sensitive products.

KITTING AND SUB-ASSEMBLY

Nefab provides both inbound and outbound services including warehousing, tracking, and assembly of items as required prior to packing. This enables our customers to move semi-finished goods off of their shop floor and into ours.

Nefab has extensive experience of improving customers' packaging solutions by analyzing their situation and supply chain using pre-defined processes and tools. This provides a clear view of the customer's current packaging solution, and what improvements and savings can be achieved while maintaining the same level of product protection.

PACKAGING AND LOGISTICS OPTIMIZATION PROGRAMS

CALCULATING ENVIRONMENTAL AND COST IMPACT WITH GREENCALC

In line with our ambition to be a leading green industrial packaging company we have invested in the development of an environmental impact calculator, Nefab GreenCALC. We were one of the first industrial packaging company to introduce a multi-material, and multi-criteria LCA (Life-Cycle Assessment) calculator.

- **ENVIRONMENT**

Through GreenCALC it is possible to quantify improvements in reduction of Global Warming Potential.

- **REDUCING COST**

The total cost can be reduced through optimizing packaging solutions according to the findings of our GreenCALC.

- **AREAS OF IMPROVEMENTS**

Through our LCA tool we provide our customers with areas of packaging improvements that shows how our customer can both reduce their eco footprint and total cost.

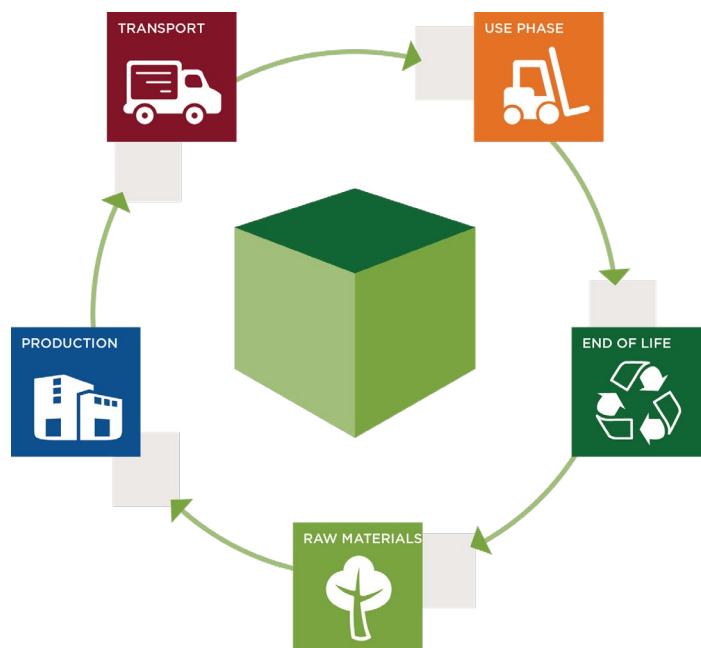
HOW WE WORK WITH LCA

Life Cycle Assessment is an analysis technique that allows us to understand the environmental impacts associated with all stages of a product's life — from extracting the raw materials involved, to manufacturing, distribution, use, and eventually, end of life.

With GreenCALC, we utilize the core principles of Life Cycle Assessment to provide our customers with a complete, transparent analysis of the environmental impact of their packaging and logistic flows. In addition, we can propose a newly designed solution aimed at improving your carbon footprint and reducing logistics costs, with quantified data that can be used to report progress on sustainable initiatives within your packaging and logistics flow.

HOW GREENCALC WORKS

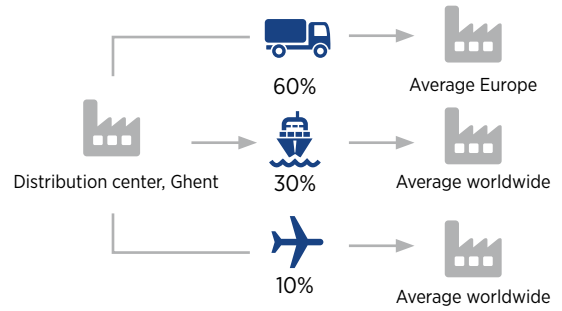
GreenCALC is integrated with SIMA Pro, the world's leading Life Cycle Assessment software for impact calculators, allowing us to understand the effects of your packaging flow at each stage and make calculations accordingly.



SUPPLY CHAIN SAVINGS REPORT

Nefab optimizes packaging to save total logistic cost and environmental impact. In this flow 16 000 products are shipped on average 1000km by truck, 2000km by boat and 2000km by plane. Input data for design:

- product weight: 32 kg
- test standard ISTA3E
- Stacking requirement 1 +2 in warehouse
- reduce damages
- improve sustainability



Based on the above we have following solution comparison:

Packaging solution

CURRENT

Current box with EPS insert and wooden pallet



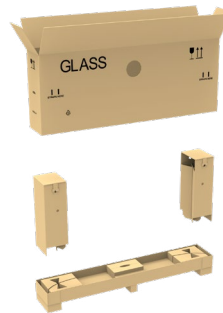
MATERIAL USAGE:

- 15,0 kg Wood
- 7,0 kg Corrugated
- 3,0 kg EPS, Molded foam
- Total of 25,0 kg**

- Corrugated box with wooden pallet and EPS insert.
- Positioning the EPS inserts and placing windscreen not ergonomical friendly.
- Need for additional wooden frame on top to reduce damages from 3-4% to 2.5% (caused by strapping & tension windscreen). Additional damage to rubber by EPS blocks (not sustainable).

PROPOSED

Fiber-based Windscreen Packaging



MATERIAL USAGE:

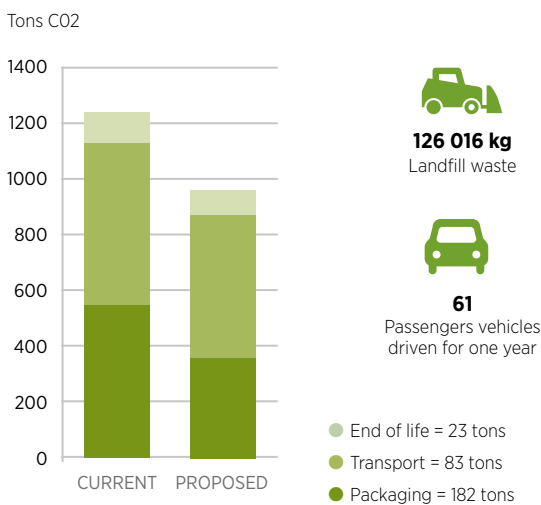
- 10,0 kg Corrugated
- 2,5 kg Honeycomb
- Total of 12,5 kg**

- Light and 100% fiber-based solution, 100% paper recyclable and thus more sustainable solution.
- Ergonomical friendly to pack and unpack.
- ISTA3E tested and approved
- No additional wooden top frame needed to avoid strap-damage. Estimate damage rate to be max. 0.5% or lower.

Annual savings

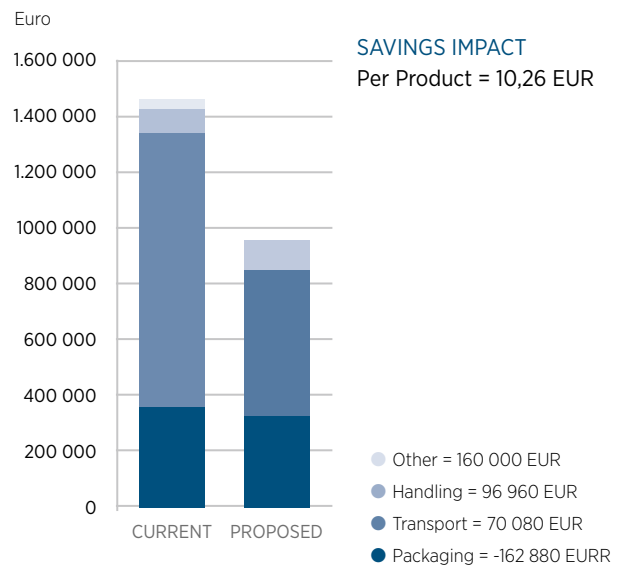
ENVIRONMENTAL

C02 eq Savings
288 metric tons = 23%



FINANCIAL

Total Savings
164 160 EUR = 14%



Tons of CO² eq is calculated using ISO14040 & 1044 guidelines. ecoinvent database and ReCiPe 2016 Midpoint Hierarchist methodology

The Financial Savings graph illustrates total cost of logistics by implementing a new solution. Main components are: transport, handling, packaging. Others (warehousing, damages,waste management)

PACK AUDIT

Pack audit is a program for evaluating packaging solutions, identifying potential improvements and ways in which a potential redesign could reduce your total cost of logistics. Through our pack audit process, we ensure that solutions are designed to have a minimal impact on the environment. By taking a holistic approach to all inbound and outbound logistic flows, we identify and evaluate also opportunities to reduce the total cost of logistics.



PRE-AUDIT MEETING

Nefab and the customer review the current packaging material and packaging process as well as determining the scope and focus of the upcoming program. From the first step Nefab will deliver a pre-audit report and a proposal for a complete pack audit. This step is used to establish the potential improvements that can be achieved.

PACK AUDIT WORKSHOP

During the second step, a complete review is made to cover all products, their packaging, packing processes and related logistic flows. The purpose of this step is to gather data and information that enables Nefab to propose optimized solutions, taking sustainability, product protection and the total cost of logistics into account.

REENGINEERING AND OPTIMIZATION

With all information at hand, Nefab reengineers solutions and analyzes the impact on the environment and total cost. At this stage our engineers utilize a set of tools supporting design, dimensioning, load and freight optimization, and total cost analysis. The deliverable is 3D design concepts that enable the customer to visualize the optimized complete packaging solution.

PACK AUDIT REPORT

The final result of the program is the pack audit report. The report explains the current total cost of logistics, proposed packaging designs and impact on environmental and total cost. Test reports, packing instructions, samples and more can be part of the report, depending on the scope of the project.

CONNECTED PACKAGING SERVICES

There should never be a doubt of where your products are at any given time, when they will arrive or in what sequence that they are packed in a container. With our Connected Services we can ensure that there are no blind spots in your supply chain. By adding track & trace functionality to your packaging solutions, you can monitor location and events in real time.

Our broad portfolio of connected devices, plays a key part in this strategy. It allows Nefab to track and trace packaging in real time around the world. By measuring its temperature, shock, humidity, CO2 eq emissions, and more, we can ensure that optimal conditions are met during shipment.

Nefab have built a platform that enable our customers to have full visibility of their products no matter where they are shipped in the world. The platform is compatible with new IoT networks like Sigfox, LTE Cat-M and NB-IoT. Today, there is no single network that provides global coverage therefore we have built a platform that can integrated with different network.

- **EASE OF MIND**
- **ALWAYS UP-TO-DATE**
- **REDUCE COST**



LOCALIZATION SERVICES

With our localization services, information is always up-to-date, and you will always have information about where your products are, real-time stock levels, how close they are and when they will arrive.

ACTIVE SENSORS

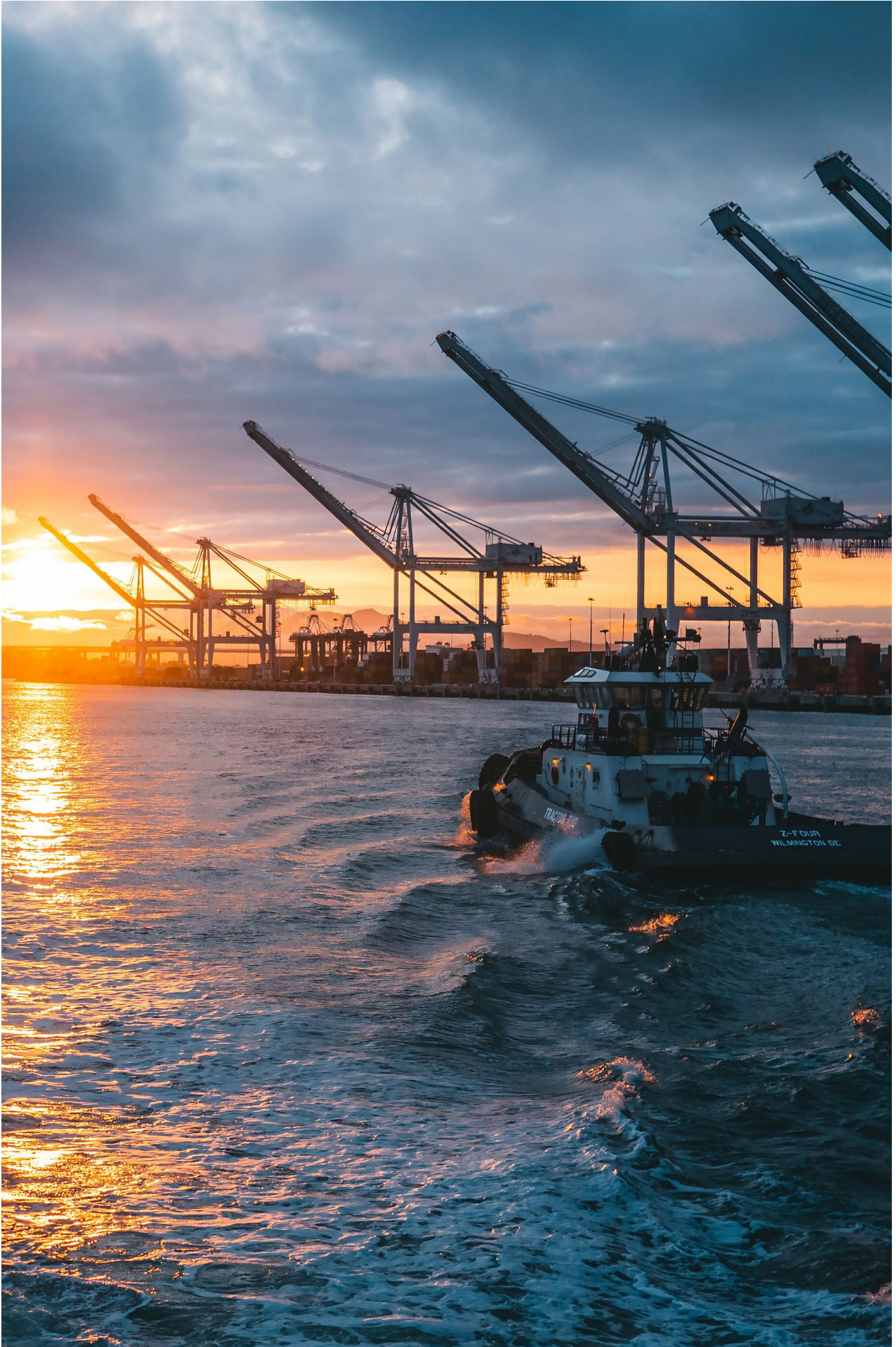
Our active sensors can provide information about shock, detect if a box has been tampered with (via light-sensors), and measure the temperature and humidity of the environment surrounding a product, among other things.

FOR ALL DEVICES

The data provided also enables analysis of routes, delivery performance, handling, utilization and lead times. Together with our customers, we continuously explore new ways of connecting packaging solutions for the future.

A NEW WAY TO MANAGE RETURNABLE FLOWS

Our Connected Packaging Services are mainly used in a returnable flow, or for flows with sensitive products as well as high value goods. Returnable packaging is typically a substantial investment, and management of your pool can often prove to be a challenging task. By making your packaging smarter, we create a path into The Internet of Things & The Internet of Logistics, allowing your packaging to tell you where it is, when it will arrive and what state it's in — saving you both time & money.





SUSTAINABLE ONE-WAY PACKAGING

Sustainable one-way packaging is perfect for export shipments. We offer different types of one-way packaging in all sorts of materials. Our engineers work closely with customers to develop a suitable packaging solution for their specific product. With our in-house testing capabilities, we ensure that the packaging protects the content for the entire journey.



EDGEPAK STRAW

EdgePak Straw is a 100% recyclable heavy-duty corrugated solution that provides stacking strength and easy handling at a low carbon footprint. Its foldable corners are made from strawboard, creating a strong moisture resistant construction that can stack over 4 tons.

Nefab EdgePak Straw evolved out of our corrugated solution. We wanted to develop a quick-and-easy solution with lower cost and increased stacking strength. The straw fibers are short (not flexible) but very stiff compared to wood fiber. When combining the layers it gives the material great strength. Despite its fiber-based character, the packaging design can withstand over 350 kilogram weight per box and allows for 1+3 stacking. On top of that, the solution is UN certified for transporting dangerous goods.

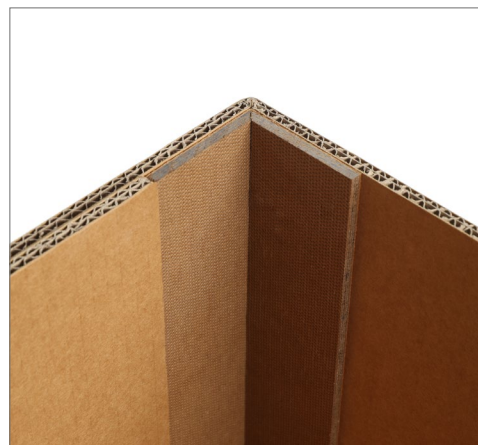
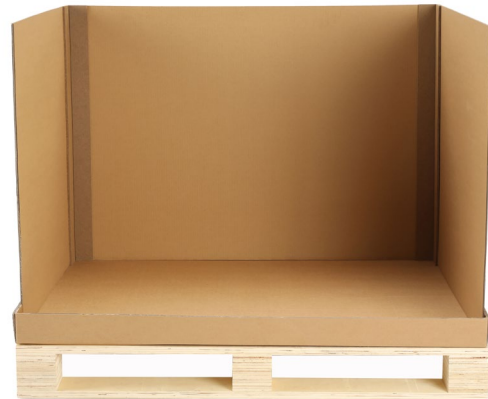
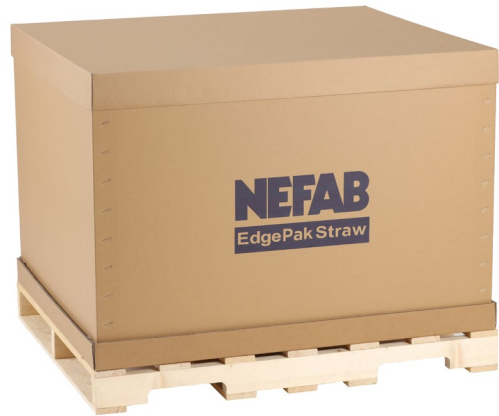
Through this, we've developed our solutions able to be 100% recyclable in the paper waste stream. Key steps are the grinding and soaking recycling step. Health is improved due to reduced CO2, emissions, since the straw can be used in manufacturing of strawboard, rather than being burnt in the fields. Local communities benefit from strawboard solutions by being able to sell straw, which is the residue from their crops, instead of burning it.

FOR ALL TYPES OF APPLICATIONS

EdgePak straw can be used for a wide variety of applications, ranging from light to heavy. It can be used to ship products through road, sea and air. It can be custom made with different styles of lids, corrugated sleeves and pallets to match the needs of your products.

Benefits

- The straw fibers are short but very stiff compared to wood fiber and is a solution as strong as plywood
- It has better stacking strength than a triple wall corrugated box
- It creates a quiet and safe work environment at both packing and un-packing destination
- Easy to assemble without using a single nail
- The compact, wet mechanical process makes EdgePak Straw more resistant to moisture than paper
- Cost-efficient
- Full accessibility from front side/easy loading & unloading
- Can be delivered flat or as a kit to assembly line
- 100% paper recyclable
- Flat compression test strength up to +4 ton
- Can be custom made with different styles of lids and pallets





AWARD WINNING APPLICATION FOR LITHIUM-ION BATTERIES

Nefab’s EdgePak Straw packaging solution for Lithium-Ion batteries (LiB) was awarded in the German Packaging Award 2022 and in the WorldStar Packaging Contest 2023. The jury was impressed by the environmental savings that Nefab’s solution offers. Until recently, the battery industry has relied heavily on expanded polypropylene (EPP) materials which are difficult to recycle. By switching to a mono-material fiber solution, the whole packaging is sustainable and fully recyclable. Despite its fiber-based character, the packaging design can withstand over 350 kilogram weight per box and allows for 1+3 stacking. On top of that, the awarded solution is UN certified for transporting dangerous goods.

LOAD CAPACITY COMPARISON

| Product (Size of Box: 1200 x 800 x 800 mm) | Dry Conditions Acc. to ASTM D642-2015 (Imperial/Metric) | After Climatic Conditioning Acc. ISTA3E Hot Humid conditions + Acc. To ASTM D642-2015 (Imperial/Metric) |
|---|---|---|
| | stacking strength | stacking strength |
| EdgePak Straw | 49,3kN | 40,5kN |
| Corrugated Box (ABC - flute, CT 14 kN/m) | 20,30 kN | 10,10 kN |
| Reinforced Corrugated Box (BC flute ECT 15kN/m + paper corner profiles) | 42,20 kN | 22.1 kN |
| Corrugated Box (AAA-flute, ECT 25 kN/m) | 29,50 kN | 22,1 kN |
| Plywood Box, 6 mm | 50 kN | 45.3 kN |



HEALTH AND SAFETY

The solution is easy to handle and can be assembled without using a single nail. It creates a quiet and safe work environment at both packaging and unpacking destination.



HOW TO RECYCLE EDGEPAK

At Nefab, we're committed to reducing our environmental impact and contributing to a more circular economy. That's why we've invested in researching the repulpability of our fiber-based solutions. We've partnered with two of the top laboratories in the field, PTS Lab Germany and Michigan State University, to conduct rigorous testing and analysis of our products.

Through this, we've developed our solutions able to be recycled in the paper waste stream. Key steps are the grinding and soaking recycling step. This enables us to partner with recyclers and ensure we meet the highest sustainability recycling standards.

Our collaboration with PTS and Michigan State University is just one example of how we're taking action to achieve our sustainability goals. Of course we also made complete life cycle analyses of our fiber-based materials and know their CO2 eq. and other impact categories in detail.

ENGINEERED AND VALIDATED

The EdgePak Straw solutions are engineered, prototyped, and tested by our Global Engineering Network in ISTA-certified labs around the world. In that specific setting, the Compression test for the EdgePak Straw solution is carried out. This considers forces/weights to account for both potential scenarios of Warehouse Compression and Vehicle Compression. The test is conducted in accordance with ISTA 3E specifications, ensuring the prescribed atmospheric conditions and utilizing the specified equipment.



EDGEPAK STRAW COLLAR

Nefab's EdgePak Straw Collar is a fiber-based pallet collar for one way shipments. Nefab's EdgePak Straw Collar is made from strawboards that strengthen the packaging solution. The packaging solution is 100% recyclable as paper and generates 50% lower CO2 emissions compared to wooden collars.

EdgePak Straw Collar is a one-way fiber-based pallet collar that has evolved from our heavy-duty corrugated packaging solutions. It is made of cardboard and unique straw corners, offering an eco-friendly alternative to wooden collars for one-way flows. As a fiber-based solution, it is 100% recyclable as paper and generates 50% lower CO2 emissions. EdgePak Straw Collar is 58% lighter, more ergonomic and foldable.

The unique combination between corrugated packaging and foldable strawboard corners gives this solution an outstanding stacking strength of 800 kg in dynamic load. The strawboard also makes the packaging foldable to save space and create a safe work environment. The collars are exempt from ISPM-15 regulation for exports.

Local communities also benefit from strawboard solutions by selling straw, which is the residue from their crops. Instead of being burnt as a residue, the straw becomes a source of income for these communities.

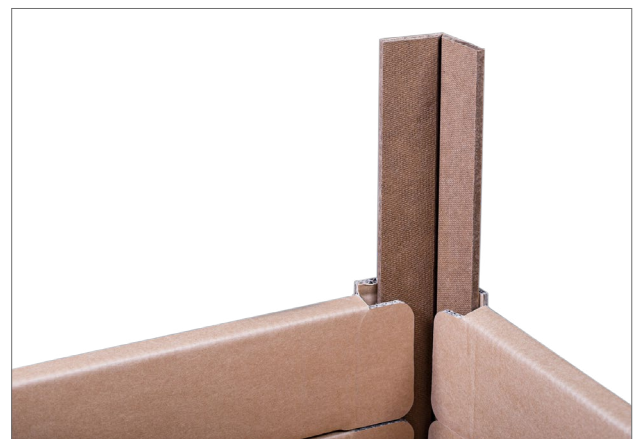
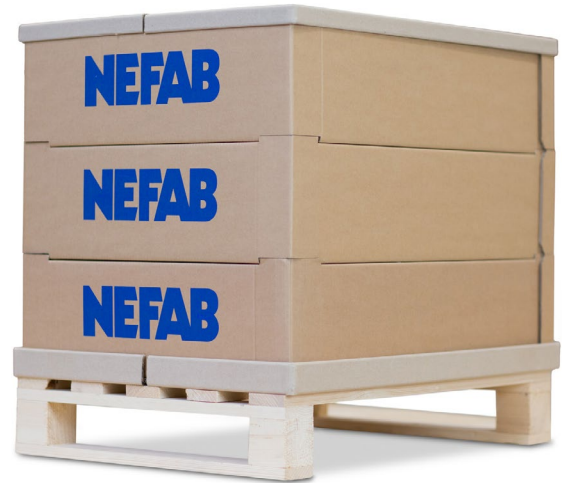
REFERENCE CASE

One of our customers is a Swedish multinational company that is the world's largest bearing manufacturer. They shared with us the data for a total cost analysis with the goal to evaluate the possibility to implement a one-way solution for dedicated flows. Previously, this well-known company used wooden collars for one-way flows, which was not optimal in terms of CO2 emissions. With a complete one-way fiber-based pallet collar solution, we were able to help them reduce cost and CO2 emissions in their supply chain.

Nefab made the packaging solution lighter and easier to handle with improved ergonomics. Additionally, fiber-based pallet collars provide environmental savings: 53% lower CO2 output in 1-way flows, equivalent to 2678 vehicles driven for 1 year according to Nefab's GreenCALC.

Benefits

- 58% lighter than wood-based solutions
- Quick to assemble, which can be easily done in approximately 1 minute
- Provides a quiet, safe, and ergonomic work environment
- 100% recyclable, in the paper recycling flows
- 50% less CO2 emissions compared to wood collars in one-way streams
- Made of straw fibers that strengthen the packaging solution
- Compact, wet mechanical process makes straw pulp more resistant to moisture than paper





CORRUGATED BOXES

Nefab is offering corrugated boxes on project basis, meaning that each solution is tailor-made. The corrugated materials are very versatile, being available in many different styles (single wall, double wall, triple wall) and combinations — from standard box sizes to a wide range of customizable solutions.

Benefits of corrugated boxes:

- Extremely lightweight
- Versatile, used in many industries
- Completely recyclable
- Low purchase costs vs. alternative transport packaging
- Offers shock absorption properties

CHARACTERISTICS

Each corrugated box has its own unique characteristics. Nefab engineers work closely with the customer to achieve the optimal packaging requirement. The design process incorporates a product analysis, which enables the correct selection of the type of board grade (single, double and triple wall-qualities), as well as the optimal box construction. Nefab can take care of all corrugated requirements starting with the small corrugated die-cut primary packs to the demanding protective transit pack in heavy-duty corrugated.

DOUBLE/TRIPLE WALL BOXES

Depending on the needed strength one can choose for 2W-3W. The most commonly used box is a 2W box with BC fluting.



SLOTTED & DIE-CUT BOXES

The slotted boxes can often be found as double folded sheets of corrugated board that fold simply into a four-sided box. The top flaps meet in the center and can be taped, glued or stapled to close. Die-cut boxes are a good solution when high technique, special sizes and a high degree of customization are needed.



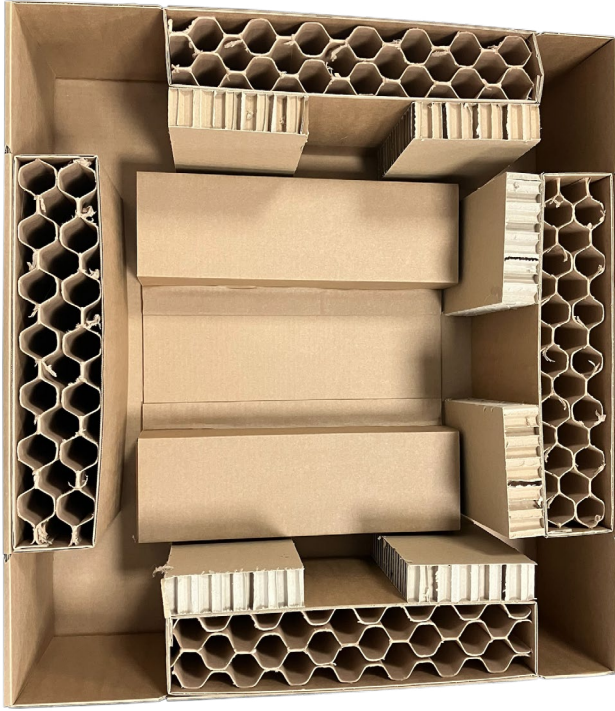
FEFCO TYPES

Corrugated boxes are used for various packaging and shipping purposes, and Nefab has a variety of FEFCO (European Federation of Corrugated Board Manufacturers) box types. These can be very useful for meeting different packaging needs.



SPECIAL INNER DESIGN

Nefab also specializes in inner fittings inside a corrugated box. Inner fittings can be made of all sorts of material like foam, honeycomb, cardboard or a combination. Thanks to customized designs products can be fully protected against all shocks.



Nefab's objective is to ensure that products arrive safely and in good condition. Designing a cost-effective package that meets customer requirements is always a top priority.

Nefab can also provide tests of the design to ensure the package will protect its contents throughout its journey to the customer. Test possibilities include drop testing, compression test, climatic stress, material test and pack implementations.





EXPAK

Nefab ExPak is a nailless and foldable plywood box solution that takes up minimal storage space. The plywood box is very easy to assemble. It is an ideal solution for export shipments, long-term storage and transportation and has a strong and durable design.

EXPAK

ExPak is well-suited for valuable, heavy-weight and fragile goods, as well as a variety of more specific applications. Since its material composition gives it a lightweight advantage, ExPak is a prime choice over heavier packaging products for air shipments. ExPak is appropriate for export packaging in harsh conditions in general, and can be certified for dangerous goods shipments as well.

ExPak is very adaptable overall, and can be easily customized according to customer specifications and requirements. If required, the box can be supplemented with inner fittings and reinforcements modified to fit the product packed. There are different versions of the ExPak concept to suit different needs.



ExPak P



No nails



Easy setup

Benefits of using Nefab plywood boxes

- Perfect for everything from light to heavy sensitive, and highly valuable products
- Certified for hazardous goods
- Easy to assemble and disassemble
- Complies with IPPC
- Can easily be customized according to customer specifications
- Requires less storage space
- Nail-less which creates a higher safety and a quieter working environment



EXPAK P

Nefab ExPak P consists of three sections - bottom, lid and foldable frame - and is delivered flat to save space and shipping costs. The ExPak P is suitable for small-medium sized products.

EXPAK P ASSEMBLY



NEFAB REFERENCES

| Description | Gross weight (in kg) | MOQ (in pcs) |
|-------------------------------|----------------------|--------------|
| ExPakP Box / 280 / 180 / 185 | 2.06 | 25 |
| ExPakP Box / 380 / 280 / 185 | 3.23 | 25 |
| ExPakP Box / 380 / 280 / 285 | 3.97 | 25 |
| ExPakP Box / 380 / 280 / 385 | 4.71 | 25 |
| ExPakP Box / 580 / 380 / 185 | 5.28 | 25 |
| ExPakP Box / 580 / 380 / 385 | 7.36 | 25 |
| ExPakP Box / 580 / 480 / 485 | 9.65 | 25 |
| ExPakP Box / 780 / 380 / 385 | 9.09 | 25 |
| ExPakP Box / 780 / 580 / 385 | 11.69 | 25 |
| ExPakP Box / 780 / 580 / 585 | 14.58 | 25 |
| ExPakP Box / 980 / 580 / 585 | 17.19 | 25 |
| ExPakP Box / 1180 / 780 / 385 | 19.44 | 25 |
| ExPakP Box / 1180 / 780 / 585 | 23.53 | 25 |
| ExPakP Box / 1180 / 780 / 785 | 27.63 | 25 |
| ExPakP Box / 1180 / 780 / 985 | 31.73 | 25 |
| ExPakP Box / 1180 / 980 / 785 | 31.78 | 25 |
| ExPakP Box / 1180 / 980 / 985 | 36.28 | 25 |

UN

| Description | Gross weight (in kg) | MOQ (in pcs) |
|-------------------------------|----------------------|--------------|
| ExPakP Box / 370 / 370 / 300 | 4.83 | 25 |
| ExPakP Box / 380 / 280 / 385 | 4.74 | 25 |
| ExPakP Box / 580 / 380 / 385 | 7.39 | 25 |
| ExPakP Box / 780 / 580 / 585 | 16.68 | 25 |
| ExPakP Box / 780 / 380 / 385 | 10.61 | 25 |
| ExPakP Box / 980 / 580 / 585 | 19.77 | 25 |
| ExPakP Box / 1180 / 780 / 785 | 31.59 | 25 |



Other ExPak types



EXPAK PS

Easy for assembling complex and large products.



EXPAK S

The design of ExPak S allows full access from all sides for loading and unloading, offering maximum flexibility in packing. The ExPak S is suitable for large products.



EXPAK XL

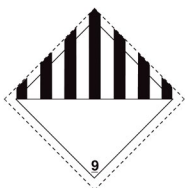
Our Nefab ExPak XL, patent pending, is designed for giant volumes up to 20 m³ or 700 ft³.



EXPAK A

The ExPak A simplifies handling and storage. The ExPak A is suitable for small-medium sized products.

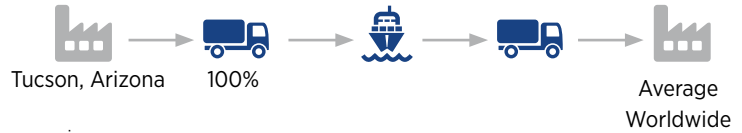
DANGEROUS GOODS





SUPPLY CHAIN SAVINGS REPORT

Nefab optimizes packaging to save total logistic cost and environmental impact.
 In this flow 790 products are shipped on average 1150 km by truck and 30 000 km by boat.
 Input data for design:
 - product weight: 650 Kg



Based on the above we have following solution comparison:

Packaging solution

CURRENT
 Cleated Crate



MATERIAL USAGE:
 15.003 kg Wood
 11.742 kg Plywood
 2.244 kg Steel, Straps or parts
Total of 28.989 kg

PROPOSED
 ExPak WBE-NF-Mlv1250/200

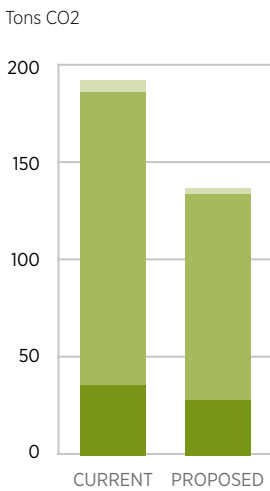


MATERIAL USAGE:
 6.31 kg Plywood
 1.4 kg Steel galvanized, ExPak
 9.08 kg Wood
Total of 16.79 kg

Annual savings

ENVIRONMENTAL

CO2 eq Savings
54 metric tons = 29%



10 897 kg
 Landfill waste

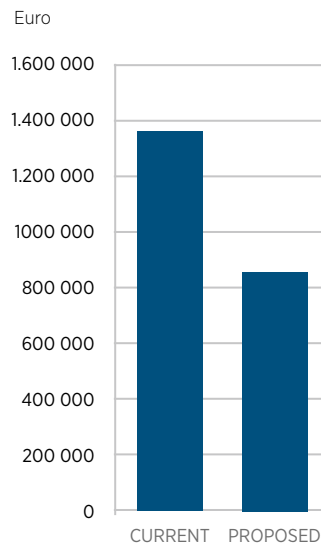


11
 Passengers vehicles driven for one year

- End of life = 2 tons
- Transport = 45 tons
- Packaging = 7 tons

FINANCIAL

Total Savings
47 818 EUR = 35%



SAVINGS IMPACT
 Per Product = 26,13 EUR

● Packaging = 47818 EUR

Tons of CO₂ eq is calculated using ISO14040 & 1044 guidelines, ecoinvent database and ReCiPe 2016 Midpoint Hierarchist methodology

The Financial Savings graph illustrates total cost of logistics by implementing a new solution. Main components are: transport, handling, packaging. Others (warehousing, damages,waste management)



FOR ALL TYPES OF APPLICATIONS

Nefab provides a wide range of sustainable one-way packagings for different applications. From very light corrugated applications to ExPak boxes in 8mm plywood for heavy and demanding applications. Nefab can offer products as single, double or tripple wall corrugated. On top of this Nefab can also combine packaging types and deliver plywood lid and base together with a corrugated sleeve. This solution is better from overstacking point as a plywood lid is very good for stacking. It distributes the load evenly to the sleeve even when stacking is offset.

For heavy applications or tough conditions as oversea transportation the Nefab ExPak box is best choice. This plywood box can take many tons in overstacking and handles humid conditions in a good way.



CRATEPAK-O

CratePak-O is created using strength of metal corners coupled with robustness of wooden crates. It is sturdy, easy to assemble, shipped flat and requires no nails for assembly. CratePak-O is designed to contain large heavy-duty products for harsh / rugged environments and is resistant to a wide spectrum of mechanical shocks from multiple modes of transport.

CRATEPAK-O METAL CORNERS

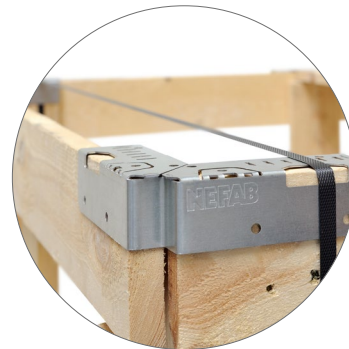
Metal corners come in two sizes, 19 mm and 38 mm, and are suitable with Asian, European and US lumber. They feature multiple holes for fastening, strapping and additional screwing. Metal corners also have specific featured slots to hold straps in place and special reinforcements to enhance structural strength and over stacking.

QUICK FACTS CRATEPAK-O

- Pallet alternatives: wooden runners, wooden four-way pallet, integrated four-way pallet
- Max recommended stacking load (excl. pallet): up to 10,000 kg on each box depending on configuration
- 19 mm metal corners: for products up to 2000 kg. Box size up to 12 m³
- 38 mm metal corners: for products up to 10 000 kg. Box size up to 50 m³

CUSTOMER BENEFITS WITH CRATEPAK-O

- Quick to assemble and dismantle
- High safety, nailless solution
- Space-saving. Delivered and stored as a flat pack
- Offers effective packaging for extra-large and heavy duty products
- Can be opened and closed several times
- A modular solution that can be customized with different types of inner fittings
- Fits several types of pallet configurations
- Strong and durable solution for harsh conditions

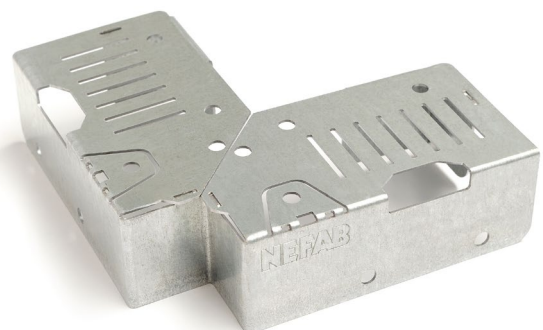
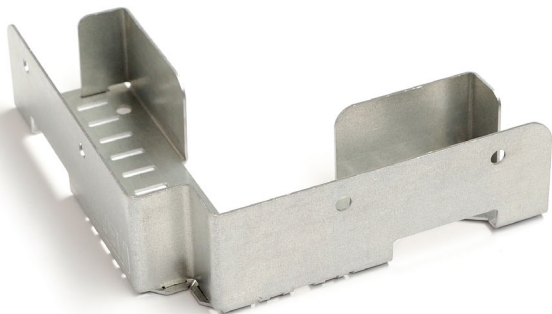




The CratePak-O is shipped collapsed to save space. It is easy and quick to assemble. Four corners are already fastened to the pallet. To assemble, the sides are just slid into place and closed with four top corners and a lid (optional).

EASE OF HANDLING

The metal plates are designed to make the assembly of the crate as easy as possible. The inside frame of the steel components is lower in height to make it easier to place the different frames in place. The design of the metal corner provides more strength to the construction than traditional corner design. It's possible to bend the lips on the metal corner to secure over-stacking and lid placement.



The metal corners come in 2 different sizes, 19 mm and 38 mm. The corners feature multiple holes for fastening, but can also be used with strapping and have specific features to hold these straps in place.



PALLETS

To provide for a strong base for a solution and a means for moving it, a pallet is absolutely necessary. Pallets are usually combined with outer packaging but can be used on their own. Nefab offers industry standard pallets such as wood, steel and plastic, as well as a range of lightweight and paper based pallets.

THERMOFORMED PALLET

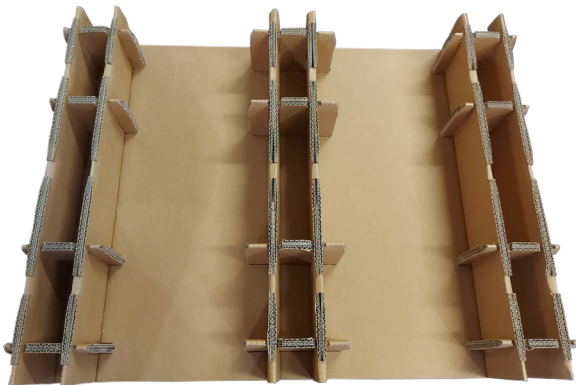
Nefab's thermoformed pallets are sustainable plastic packaging pallets made from high recycled content. Customizable, protective, and engineered to match specific product requirements and regulations, our solutions are ideal for automated lines that require precision packaging due to robotic handling. Nefab's thermoformed pallets are available globally for several industries, including Automotive, Electronic, Telecom, Aerospace, and Lithium-ion battery (LiB) segments.



PAPER PALLET

Nefab's paper pallet is, due to its construction, a lightweight, strong and low-cost packaging application at a low environmental footprint. The Paper Pallet is shipped flat and once it is assembled it offers

great strength. This makes it the most cost-efficient paper pallet on the market. The versatile design accommodates various sizes and options to reinforce for numerous distribution challenges.



Benefits

- Fully paper recyclable
- Low weight (1200 x 800 mm - 2.5 kg)
- Customizable footprint
- Durable, unitized stacking up to 850 kg
- Optional increased moisture resistance
- Reinforceable for rough forklift handling

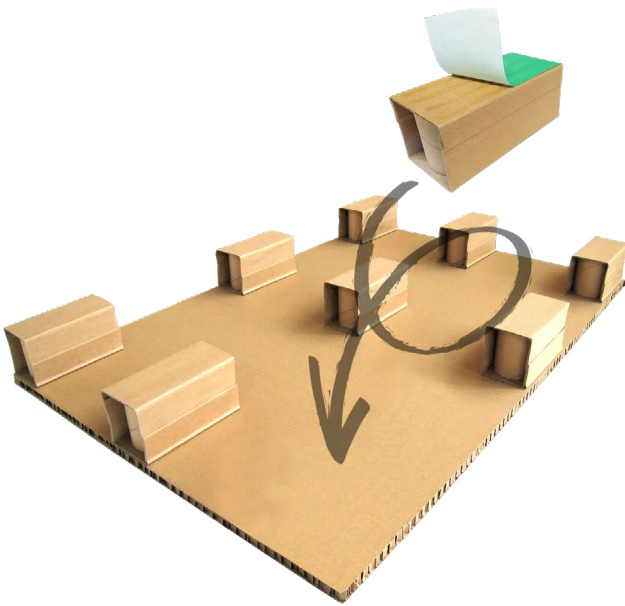




PAPERPALL

PaperPall is a 100% recyclable carton board pallet foot for replacing wooden or other kinds of pallet runners/pallets. It is a combination of compact carton board (U-profiles) and stabilization elements (cores). The surface of the U-profile is reinforced by wet strengthened kraftliner giving high protection for humidity. The PaperPall can also be provided with self-adhesive surface for easier fastening. Unlike wood, no treatment is needed, which makes it ISPM-15 compliant.

- Strength
- Environmental and cost effective
- Easy handling
- Hygienic and recyclable





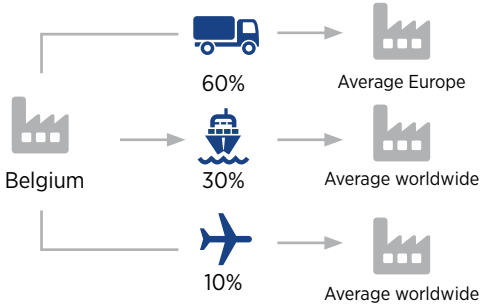
SUPPLY CHAIN SAVINGS REPORT

Nefab optimizes packaging to save total logistic cost and environmental impact. In this flow 7000 products are shipped on average 540 km by truck, 600 km by boat and 200 km by plane.

Input data for design:

- Product weight: 20 kg
- PaperPall length 1265mm x3

Based on the above we have following solution comparison:



Packaging solution

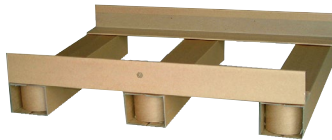
CURRENT
Old pallet



MATERIAL USAGE:
17,0 kg Wood
Total of 17,0 kg

- Full size wooden pallet
- Strong but stronger than needed
- Heavy

PROPOSED
PaperPall

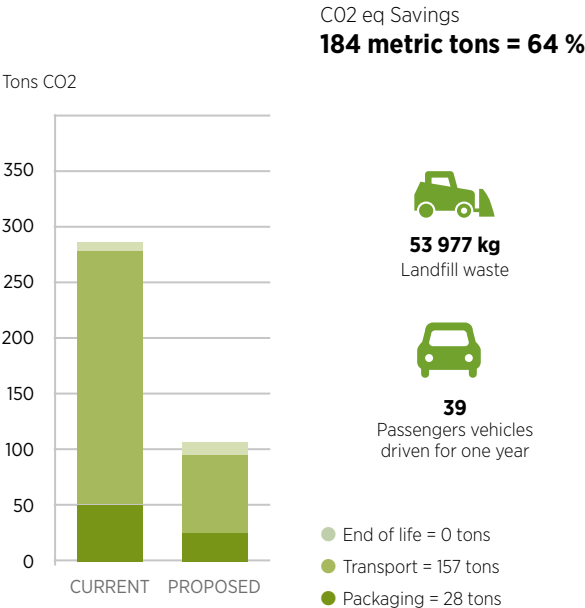


MATERIAL USAGE:
3,5 kg Edgeboard
Total of 3,5 kg

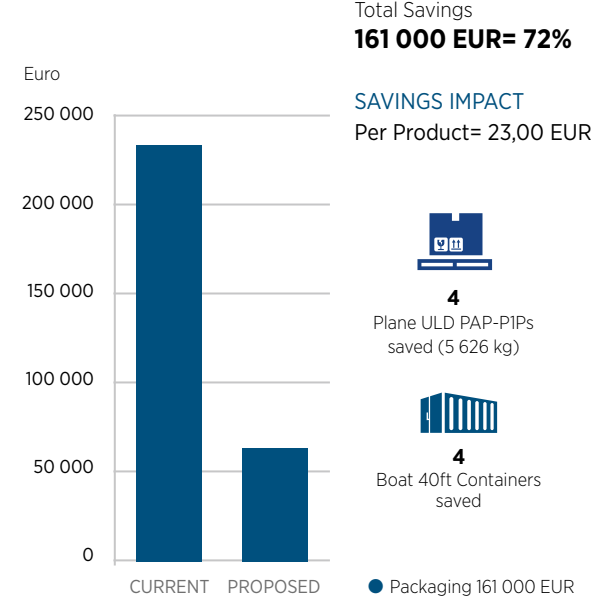
- Pressed paper feet with pressed paper flatboards/L-boards
- Strong enough for this application
- Much lighter, less material used

Annual savings

ENVIRONMENTAL



FINANCIAL



Tons of CO² eq is calculated using ISO14040 & 1044 guidelines, ecoinvent database and ReCIpe 2016 MIDPOINT Hierarchist methodology

The Financial Savings graph illustrates total cost of logistics by implementing a new solution. Main components are: transport, handling, packaging. Others (warehousing, damages,waste management)



WOODEN PALLETS

Wooden expendable pallets can be found in various designs. In general, expendable wooden pallets are used for heavier products in a one-way flow.



Benefits

- Strong and durable design
- Meet international regulations

LIGHTWEIGHT PALLETS

The plywood pallet is an excellent load carrier for light-medium weight goods that need a strong and durable packaging solution.



Benefits

- Low moisture absorption
- Plywood deck has a smooth, clean surface
- Low weight which is perfect as export packaging
- Plywood does not pose any phytosanitary threats according to FAO - IPPC - ISPM15

PRESSWOOD PALLETS

Presswood pallets are molded in one solid piece from dried wood fibers. The manufacturing process takes place under high temperature and pressure which burns out all infestation and eliminates the need for costly fumigation or heat treatment of wood.

Benefits

- Low weight but good strength
- Completely recyclable
- Free of plant pests according to FAO - IPPC - ISPM15



Nefab references

Description

Euro pallet 1200 x 800 mm - 4 way

Cardboard pallet 1200 x 800 x 100 mm - 4way

Presswood pallet 800 x 600 mm (dynamic load 500 kg) - 4 way

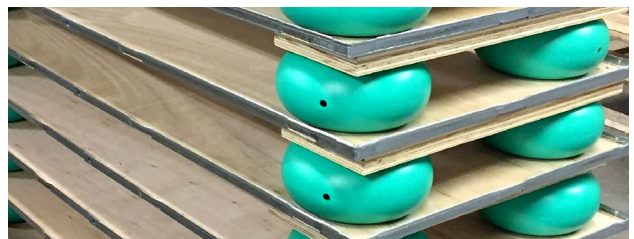
Presswood pallet 800 x 600 mm (dynamic load 1000 kg) - 4 way

Presswood pallet 1200 x 800 mm (dynamic load 900 kg) - 4 way

Presswood pallet 1200 x 1000 mm (dynamic load 900 kg) - 4 way

SKIDMATES

These products protect your goods against shock and vibration damage. These cushions can be easily mounted onto a pallet base.





RETURNABLE PACKAGING

Returnable packaging and reusable packaging is a cost-effective and environmental friendly alternative for customers who have a large stream of goods to a limited number of distribution points. The goal is to reuse the packaging.



REPAK

Nefab RePak is an ideal solution for returnable flows. Due to its lightweight plywood material and collapsibility ratio it ensures ease of handling and assembly.

REPAK

Having a collapsible returnable plywood packaging system allows for numerous savings during handling, transport and storage. In addition to the plywood, the container is equipped with steel components to reinforce its longevity and strength for multiple uses. Its strength and durability means it can be used and reused for several cycles, leading to significant cost reductions. Nefab's engineers will help your business calculate the potential cost take out and how many units that are needed to optimize your returnable flow.

It can easily be customized according to customer requirements and is also compliant with international phytosanitary requirements (ISPM #15). Nefab's plywood containers are highly cost-effective if your material flow is reasonably large and you have few distribution points.



RePak L



RePak T

Benefits

- Delivered collapsed so units are easy to stack and store
- Provides excellent product protection
- Low weight vs. standard nailed wood products
- Long lifespan, very strong
- Ideal for returnable packaging pools
- Can be returned as one unit
- Custom dimensions and features available (handles, gates, surface treatment etc.)
- Meet international phytosanitary regulations for export compliant wood packaging
- At the end of a lifecycle RePak solutions are easy to recycle
- easy to assemble and disassemble without having to use a single nail



LOGPAK

LogPak pallet collar system is a well-established packaging solution used worldwide. The collars can be customized and are available with four or six galvanized steel hinges.

LOGPAK

The flexible collar system has all the advantages of a modern returnable system. It is a standardized way of transporting goods and damaged collars or lids can easily be replaced. The costs are relatively low and under normal conditions the packaging will last for more than ten years. Furthermore it is collapsible and has a strong and reliable design.

Nefab's wooden packaging material also conforms to phytosanitary regulations according to the IPPC and can therefore be shipped worldwide.

Users can be found in a variety of industries. Major customers can be found within the telecom, automotive, defence, retail, distribution, alternative energy, foundry and bearing industries.

Benefits

- Standard method of packaging
- Collars and lids are easily repaired
- Completely customizable
- Long life under normal conditions (10+ years)



LIDS

The lids can be made of 6, 8 or 12 mm plywood with either two battens or galvanized steel corners, ensuring that the lid will stay in place. Customization can be made to accessories such as handles, colored collars and prints.



Nefab references

Description

| | |
|-----------------------------|------------|
| Collar 800 x 600 x 200 mm | - 4 hinges |
| Collar 1200 x 800 x 200 mm | - 4 hinges |
| Collar 1200 x 1000 x 200 mm | - 4 hinges |
| Collar 800 x 600 x 200 mm | - 6 hinges |

REPAK P

Durable and flexible pallet collar system with four or six galvanized steel hinges. Available in standard and custom sizes with various options. Plywood alternative available for heights exceeding 300 mm.



REPAK T

Returnable steel and sheet material. Packaging solution consisting of three parts: lid, frame and a fixed base attached to a pallets.

- Ideal for returnable packaging pools
- Can be collapsed within itself and be returned as one unit
- Highly recommended for heavy or bulky goods



Accessories

- Document holder
- Corrugated interlayer
- Dividers
- Collar lock
- Corrosion protection
- Stacking corners
- Board
- Pallet spacers





PLASTIC COLLAR

Plastic collars simplify the stacking and storage of smaller products on pallets, facilitating transportation. They can be stacked on top of each other, creating more space, and can be customized with lids, dividers, or interlayers for personalized storage options.

The plastic collars are simply stacked onto a pallet and make it much easier to transport and store smaller products. Several plastic collars can be stacked on top of each other, giving more space. Storage options can also be individualized by using lids, dividers or interlayers. Plastic stacking frames are lightweight and do not change their shape, even if they are being stored out in the open. Their smooth surface does not splinter and makes them easy to clean.

The plastic collars are available for euro pallets, display pallets, industrial pallets and other formats. Those with 4 hinges can be folded diagonally, whereas the ones with 6 hinges (available for sizes 600 x 800 mm and upwards) can be folded down to their respective pallet size to save space. Nefab has different sizes available for both types.



Benefits:

- Lightweight
- Simplify the stacking and storage
- Customizable
- Easy to clean



RACKS & CONTAINERS

Racks & steel containers have a long lifetime and their strength protects products from impacts and rough handling. The design can be fully customized to provide optimal handling on the production line.

STEEL CONTAINERS FOR DANGEROUS GOODS

This collapsible dangerous goods steel container has been designed for the transport and storage of restraint systems such as airbags, seatbelt pretensioners or gas generators. It consists of a standardized collapsible outer container surrounding modular trays that are stackable and nestable. This solution is optimized for truck and sea freight, and is designed to hold multiple airbag modules, as inner fittings can be customized for several modules.



FOLDABLE STEEL CONTAINERS

Foldable steel containers for reusable systems are an appreciated form of packaging that can be customized to fulfill the customers needs. Nefab designs and supplies multi-purpose wire mesh containers as well as customized steel containers for better handling.



STEEL RACKS

Steel racks have a long lifetime and their strength protects the products from impacts and rough handling. The design can be fully customized to provide optimal handling on the production line. For use in out- or inbound flows, steel racks can be made collapsible to minimize freight costs.



Benefits

- Designs can be customized and tailored for your product
- Offers an unmatched level of strength to protect your goods, both in terms of impact resistance and stacking strength
- Can be reused in multiple flows to maximize its useful life and reduce packaging waste





PLASTIC BOXES

Nefab offers a wide range of packaging systems made of plastic materials. Plastic solutions have low weight and are suitable for returnable solutions. Plastic materials can be customized and tailored to fit all types of applications and transport modes.

PLASTIC BOXES

From standard foldable large containers (FLCs), to customized solutions made of multiwall plastic sheets, and injection-moulded or vacuum-formed trays - these solutions are user friendly and very sturdy in relation to their weight. Plastic solutions are easy to clean and the smooth surface inside prevents soiling. Materials used include polypropylene (PP), polyethylene (PE) and acrylonitrile butadiene styrene (ABS) in different densities.

Benefits

- Very user-friendly
- Extremely sturdy in relation to weight
- Easy to clean
- Smooth surface, prevents soiling
- Lightweight
- Customizable



Plastic solutions are used for various applications due to their low weight and cleanliness. This type of returnable system is widely used in the automotive industry. Many different sizes are available to fit the needs of most market segments but Nefab also provides customized systems that improve the logistic flow and reduce total costs.





THERMOFORMED SOLUTIONS

Nefab's thermoformed solutions are sustainable trays and Reflex® cushioning applications made from high recycled content.

Highly customizable, protective, and engineered to match specific product requirements and regulations, our thermoformed solutions are ideal for automated lines that require precision packaging due to robotic handling. Designed, prototyped and tested in our ISTA-certified labs by our Global Engineering Network, and meets UN test standards.

Characteristics

The thermoformed solutions are made from different sustainable sources according to each customer need and requirement, from virgin materials to recycled plastics, such as ocean bound plastics. Besides being more sustainable in comparison to foam and steel, our solutions are lighter, offer improved protection, and save space due to high stackability.

Thermoforming process

Thermoformed solutions are a result of a process called thermoforming or vacuum forming. This is the manufacturing process where a plastic sheet is heated to a pliable forming temperature, formed to a specific shape in a mold and trimmed to create a usable product. This molding quality is also the reason why thermoformed solutions are considered as sustainable plastic packaging products. They can be molded in different shapes and sizes, collected, cleaned, grinded, and re-extruded. Besides, thermoformed applications are usually light and nestable, which means less material is required to pack, store, and transport products. Because they can be reduced, recycled, and reused, thermoformed solutions are perfectly fit to return and circular flows.



Benefits

- Highly customizable and protective
- Made primarily from recycled plastics and 100% recyclable materials
- Require less material than alternative solutions such as foam or steel – making them light, ergonomic and compatible with automatic lines
- Efficiently applicable to one-way flows, return flows, circular flows and automated lines
- Different shapes & sizes, are easily collected, returned, cleaned, and re-made again from waste
- Can be re-used up to 50 times
- Up-to-60% reduction in CO² emissions
- Enabled by Nefab buy-back of trays

The benefits of ocean bound plastics

- Ocean bound plastics can be refined to quality levels up to 100% inclusion in nearly any application where HDPE is the preferred material
- This versatile resin can be for molding products, making it suitable for a wide range of packaging applications, including thermoformed cushioning
- Ocean bound plastic is also an option to reduce ocean pollution

Applications

Nefab's thermoformed solutions are available globally for several industries, including Automotive, Electronic, Telecom, Aerospace, and Lithium-ion battery (LiB) segments.

Award winning thermoformed solutions

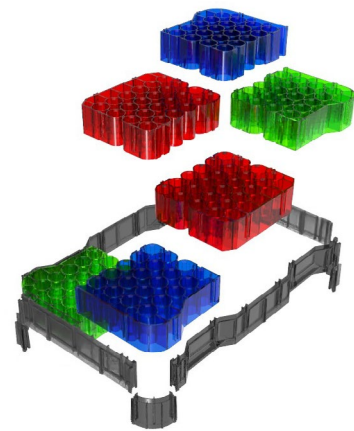
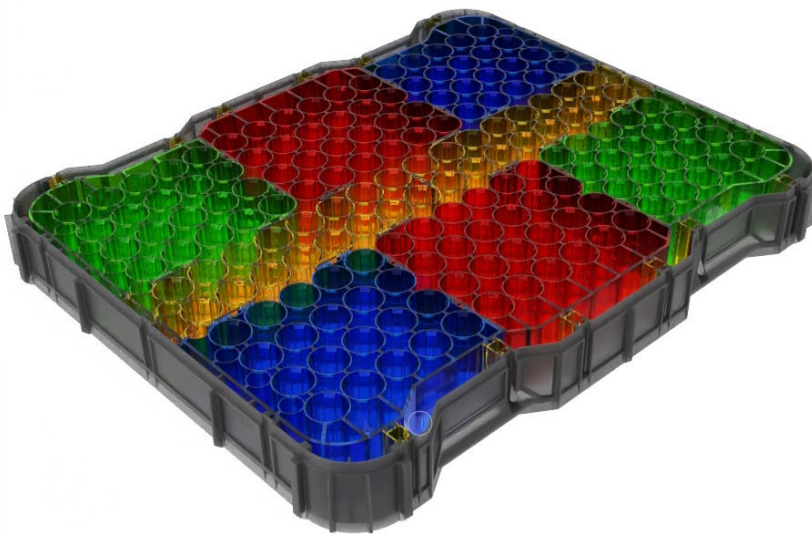
Nefab's thermoformed solutions are recognized as global reference in sustainability and innovation by the WorldStar Global Packaging Awards.

For additional information, please make reference to page 67 en 68.

INJECTION MOLDING

Plastic injection molding is a popular manufacturing technique in which thermoplastic pellets are converted into high volumes of complex parts.

Injection molding is a method to obtain molded products by injecting a variety of plastic materials molten by heat into a mold, and then cooling and solidifying them. The method is suitable for the mass production of products with complicated shapes and takes a large part in plastic processing.

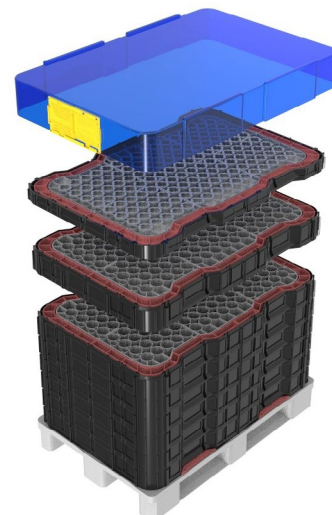


Injection molded trays and inserts are a comparatively inexpensive alternative to other, more costly materials. Injection molded trays often offer increased durability and accuracy in the manufacturing process. This unique combination of benefits positions injection molding as the method of choice when designing your operation's kitting trays, especially those used in robotic and automated processes.

In addition to added durability and reduced costs, injection molded trays can be tailored to your specific application. Whether you need a reliable way to secure parts during in-plant shipping, the ability to interface with robotics equipment or a kitting tray that will reduce noise levels in your facility, injection molded trays can be customized to accomplish nearly any task.

Benefits

- Cost-effective
- Increased durability and accuracy
- Suitable for mass production
- Ideal for complicated shapes







DANGEROUS GOODS

Nefab has years of experience with dangerous goods regulations, and can provide packaging solutions that comply with the UN's international standards. We can supply a number of different designs in a wide range of materials with the focus on providing the most suitable solution for each individual project.



DANGEROUS GOODS

Products that are categorized as hazardous need to be protected according to the dangerous goods classification. As one of the world's leading suppliers of dangerous goods packaging systems, we can supply a number of different designs in a wide range of materials with the focus on providing the most suitable solution for each individual project.

Tested and approved

Nefab products have been tested and approved for the transportation of Dangerous Goods in many different weights and sizes. All boxes are put through the required tests before they are approved for dangerous goods applications. The performed tests are conducted according to UN recommendations as well as the specifications of other statutes.

Selecting the packaging

Packages of dangerous goods must be durable enough to ensure that the item will not leak, break, or otherwise cause harm to anyone or anything. They must also be



Packaging tailored to your product

There are two different options when selecting the packaging for dangerous goods: using an approved packaging or developing a new type of packaging. This is where Nefab can provide you with a great amount of assistance. We have a wide variety of different approved outer packaging that can be used for dangerous goods. However, for those in need of specialty packaging, we can also assist in creating a custom-made solution.

Approved Packaging

Any outer packaging that has been approved for dangerous goods has been tested and certified. When selecting approved packaging, you will need to know four pieces of information:

- The characteristics of the goods to be shipped (is it a solid, a liquid, or a gas)
- The measurements, weight, and volume of the goods
- The type of inner packaging that will be used
- The method of transportation to be used

properly marked, labeled, documented, and classified. Nefab can assist you with packaging any goods that fall into this category.

Before packaging any dangerous good, it is important to understand the different classifications. Each of these classifications may present unique challenges to packaging and shipping. Each of these classes has its own unique label that must be included somewhere on the packaging (also with the subclass label).

- Class 1** Explosives
- Class 2** Gases
- Class 3** Flammable liquids
- Class 4** Flammable solids or substances that may spontaneously combust or that may emit flammable gases when in contact with water.
- Class 5** Oxidizing substances and organic peroxides
- Class 6** Toxic or infectious substances
- Class 7** Radioactive materials
- Class 8** Corrosives
- Class 9** Miscellaneous dangerous goods not classified

To select an approved packaging, our experts will first check all regulations that apply to the goods you want to ship. If the packaging and method of transportation are approved for the class of dangerous goods being shipped, we will look at our range of packaging solutions to make certain we have a certified packaging that is acceptable. We will then determine the gross weight of your shipment to determine the correct approved packaging.

Once we've determined the correct type of approved packaging for your needs, we will provide you with an offer that includes the certificate and a copy of all testing done on the packaging. This is to ensure that you receive all of the relevant information needed to make a decision.



Creating a new type of packaging

If we do not have a suitable type of packaging on hand or if you need a specific certificate that does not match anything available, our team of experts can develop a new dangerous goods packaging for you. This packaging will be a completely new design and will go through a testing period before it can be certified.

Before packaging can be used to transport dangerous goods, it must go through a type of approval test. This test puts the packaging through several scenarios that regularly occur when shipping goods. All the testing done through Nefab is Performed in National Testing and Research Institutes. In Belgium is this done by The Belgian Packaging Institute (IBE-BVI)., now more known as RISE-SP.



The following five steps are done during testing. Each step asks a question.

- Identification – are the materials correctly identified?
- Measurement – what are the package measurements?
- Drop Test – will the package and goods survive being dropped?
- Stacking Test – can the package be stacked for 24 hours without showing signs of breaking if other packages are stacked on top of it?
- Bottom Lift Test (if the package is large or an intermediate bulk container) – can the package be lifted without the bottom of it falling out?

The Impact of Shipping Dangerous Goods

As you can see, shipping dangerous goods does require additional planning and cost. Nefab can assist you with determining the best type of packaging to use and answer any questions you may have about shipping this type of material.



Other dangerous goods solutions

Sustainable corrugated solution

- Corrugated box BC flute
- EPP foam inner fittings
- ✓ Many boxes on 1 pallet
- ✓ Efficient utilization of space
- ✓ Low weight

Lithium batteries solutions

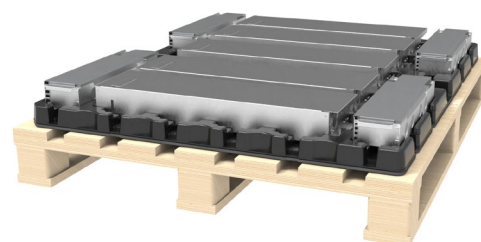
Lithium Batteries are classified as Dangerous Goods, Class 9 by the United Nations. The consequence is that the packaging needs to fulfill a high standard and normally be UN certified. With a long and proven track record in dangerous goods and lithium batteries, Nefab holds a position to serve all flows and statuses of batteries while supporting our customers with regulation guidance.

The basic purpose for dangerous goods packaging is to fully contain the dangerous goods, even if the box is being put under great stress. Nefab can provide both existing solutions that are already certified for packing lithium batteries, as well as new solutions that are designed, tested and validated according to customer

ExPak P

- Combination of plywood and steel
- Honeycomb inner fittings
- VCI bag + vermiculite
- ✓ Excellent protection
- ✓ Easy to assemble / pack
- ✓ Comes in 3 pieces, can be flattened
- ✓ Can be used as returnable packaging

specific needs. Nefab has the engineering capability and knowledge to provide complete, multi-material packaging solutions for all statuses and flows, allowing to serve as a reliable partner for customer packaging needs, from the outer packaging itself to every accessory in between, such as absorbents, labels and tapes.





DANGEROUS GOODS

Internal pre-certification testing

Just as designing our LiB packaging does, testing LiB packaging also requires a very structured approach; each product and industry require different methods and knowledge when it comes to testing and test standards. At Nefab, our engineers understand the importance of this and have experience adhering to the strict testing requirements for lithium-ion batteries. Nefab can simulate various conditions that packaging can be exposed to in the different stages of its lifecycle. Between our five ISTA certified test labs, our engineers can utilize numerous types of testing equipment, allowing for a wide breadth of test scenarios to help us design the most effective packaging for each individual case.

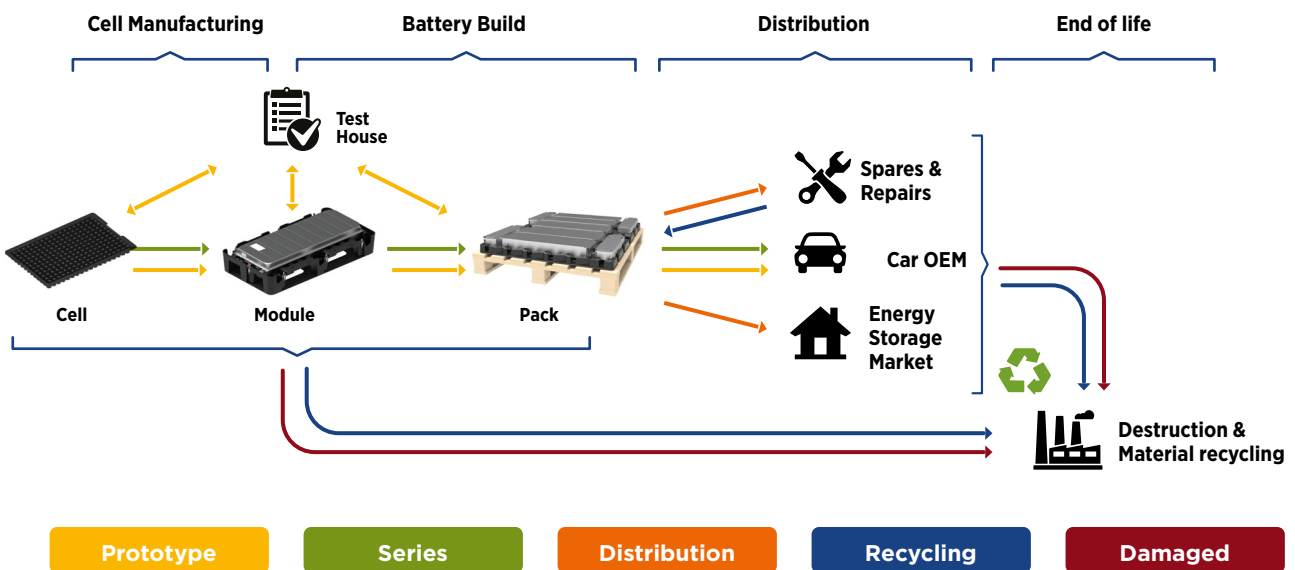


Reating new packaging

Due to the stringent requirements stipulated by the UN, the developed solution must go through a type approval test before it can be used to ship these goods. This involves testing the packaging with the appropriate UN specifications to ensure its suitability for the carriage. Our engineers have the skillset and experience to take new Lithium Batteries packaging through this process.



At Nefab, we offer different types of solutions, depending on different factors:





Solutions by application

- Cell solutions
- Module solutions
- Pack solutions

Solutions by battery status

- **Prototype**

A prototype LiB hasn't been tested and qualified in accordance with the UN's 38.3. The prototype regulations also apply to a low series production of untested batteries.

- **Series**

No matter if your status is series for production, distribution or recycling, Nefab can provide the right solution.

- **Damaged, defective critical**

Our boxes for defective critical batteries are state of the art packaging. A potential electrolyte leakage will be captured by the box, and due to its rigid construction, it is protected against the escape of flames or ejection of projectiles during an emergency event.

Solutions by flow

- **Returnable**

Returnable and reusable packaging are a cost-effective and environmentally friendly alternatives for customers who have an extensive flow of goods with a limited number of distribution points.

- **One-way**

For export shipments or long domestic flows, one-way packaging may be the preferred choice.

AWARD WINNING APPLICATION FOR LITHIUM-ION BATTERIES

Nefab's fiber-based packaging solution for Lithium-Ion batteries (LiB) was awarded in the German Packaging Award 2022 and in the WorldStar Packaging Contest 2023. The jury was impressed by the environmental savings that Nefab's solution offers. Until recently, the battery industry has relied heavily on expanded polypropylene (EPP) materials which are difficult to recycle. By switching to a mono-material fiber solution, the whole packaging is sustainable and fully recyclable. Despite its fiber-based character, the packaging design can withstand over 350 kilogram weight per box and allows for 1+3 stacking. On top of that, the awarded solution is UN certified for transporting dangerous goods.



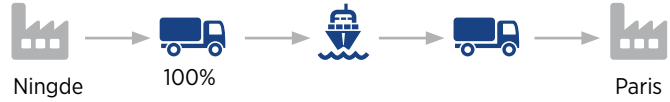


SUPPLY CHAIN SAVINGS REPORT

Nefab optimizes packaging to save total logistic cost and environmental impact. In this flow 5 760 000 products are shipped on average 856 km by truck and 10 000 km by boat.

Input data for design:

- product weight: 13.1 Kg
- stacking requirement 1 + 2
- test standard customized standard

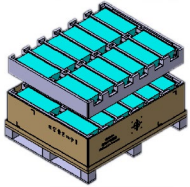


Based on the above we have following solution comparison:

Packaging solution

CURRENT

EPP cushion solution



MATERIAL USAGE:

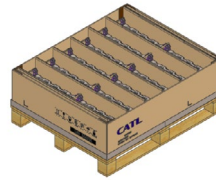
- 5.0 kg Corrugated
- 23,6kg Plywood
- 192,0 kg Wood
- 2,3 kg PE, bag
- 7,7 kg EPP, molded foam

Total of 38,6 kg

- Description:
- Technical properties:
- Benefits:

PROPOSED

Paper Solution



MATERIAL USAGE:

- 15.1 kg corrugated
- 20.0 kg Plywood
- 2.3 kg PE bag
- 1.6 kg Strawboard
- 3.1 kg Paperpulp

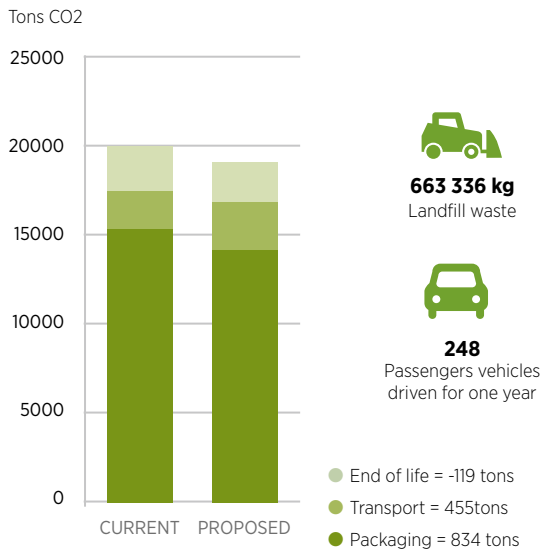
Total of 42.1 kg

- Description:
- Technical properties:
- Benefits:

Annual savings

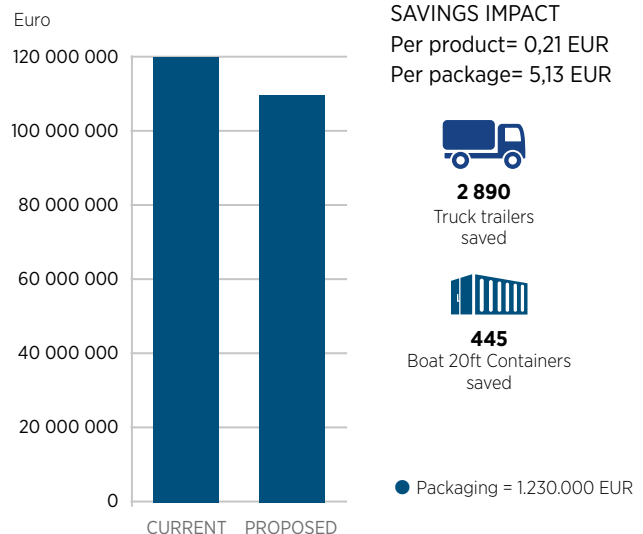
ENVIRONMENTAL

CO2 eq Savings
1 170 metric tons = 6%



FINANCIAL

Total Savings
1.230.000 EUR = 8%



SAVINGS IMPACT
Per product= 0,21 EUR
Per package= 5,13 EUR

Tons of CO₂ eq is calculated using ISO14040 & 1044 guidelines. ecoinvent database and ReCiPe 2016 Midpoint Hierarchist methodology

The Financial Savings graph illustrates total cost of logistics by implementing a new solution. Main components are: transport, handling, packaging. Others (warehousing, damages, waste management)



LONG-TERM PACKAGING

Long-term and export packaging were designed to protect sensitive products throughout their entire life circle, during transit, storage and handling. We develop and offer standard sizes as well as solutions that are completely customized.



PLYPAK

Nefab's PlyPak boxes and cases are made of high-quality plywood and are UV-coated both inside and outside. This type of packaging is built to last and the galvanized steel profiles create a very strong design.

PLYPAK

The great design flexibility in the Nefab range allows customization as in the choice of handles, locks, coatings and printing, as well as the dimensions of the box. Since all wood and processed wood conforms to phytosanitary regulations, products can be dispatched worldwide without any additional treatment.

Benefits

- Superior strength
- Lightweight
- Excellent product protection
- Opportunity for high-quality printings
- Suitable solutions for frequent handling and long-term storage



Inner fittings

This type of packaging can also be equipped with inner fittings such as dividers, compartments and shockabsorbing foam for optimal product protection.



Typical applications are:

- Handheld power tools
- Spare parts and mobile devices
- Repair and cutting tools
- Medical and electrical equipment
- Returnable flows when collapsibility is not required



FLIGHT CASES

The Nefab flight cases are fully customized boxes and cases with a great strength/weight ratio and an exclusive design. They are made from coated plywood or lightweight plastic sheets with aluminium profiles. This combination offers low weight and excellent product protection.

FLIGHT CASES

Flight cases are often used as sales and demo cases, or as exclusive product packaging for long-term use. Some of the areas in which the flight cases are applied are; electronic and musical equipment, various devices and instruments, tools and exhibition material. The inner fittings can be customized according to specific products. Moreover, you can choose from different locks, handles, colors, logotype printings etc.



Benefits

- Fully customizable
- Great strength to weight ratio
- Exclusive designs available
- Lightweight
- Excellent product protection





PLASTIC CASES

Nefab's plastic cases, cases and totes are used in many different ways and have a variety of applications. They are a lightweight solution and may contain inlays to protect your product during transport and storage.

PLASTIC CASES

We can offer the right solution for a specific product or situation with our wide selection of standard sizes. By adding internal fittings, printing, handles, locks and so on, we can customize any of these standard products.



Benefits

- Custom and standard sizes available
- Lightweight
- Resistant to dust and wear
- Color combinations of case/hinges
- Inlays protect your product during transport and storage





ALUMINIUM CASES

Aluminium cases can stand up to hard transport, and are ideal for protecting and storing items. If you have sensitive and expensive equipment which has to be transported, this product is suitable for this purpose.

ALUMINIUM CASES

Aluminium cases are all dust- and splash-proof, equipped with spring-loaded handles and can be locked with 6 mm padlocks. The cases have a relatively low weight, are fitted with reinforced corners, and can be stacked. The cases are manufactured according to high technical requirements.

We have 13 different standard sizes. If we do not have the size that suits your needs, we can offer a custom-built aluminium box. The cases can also be fitted with foam fittings that are customized to your needs. We can mount a hand-made or water-jet cut foam solution.



Accessories

- Wheels
- Padlocks
- Foam inserts

Benefits

- The cases can be stacked
- Tailor-made and standard sizes available
- Hand-friendly handles with springs
- Latch prepared for padlocks (Ø 6mm)
- Do not rust
- Low weight
- Stainless hinges
- Dust and splash-proof
- Durable top profile
- Great for corrosion resistance and hygiene



WATERTIGHT CASES

Nefab's plastic boxes, cases and totes are used in many different ways and have a variety of applications. They are ideal for outdoor use in tough conditions, and are chemical-resistant.

WATERTIGHT CASES

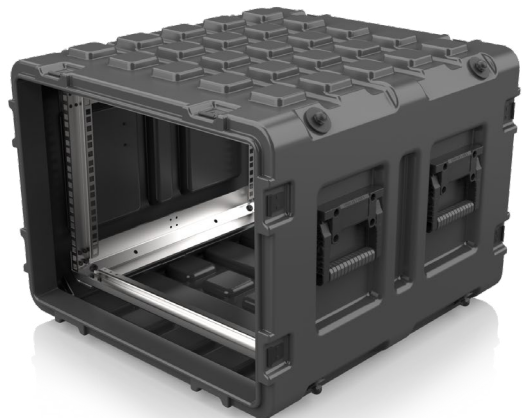
Nefab's robust watertight cases are engineered to endure the harshest environmental and climatic challenges. Crafted as a seamless, solid structure, these cases possess exceptional resilience against impacts and vibrations, ensuring secure handling and transport even in the most demanding conditions.

Featuring stainless steel latches and a silicone gasket, these cases exhibit remarkable durability against moisture, dust, chemicals, rust, and mold. Their waterproof and airtight design empowers them to excel in extreme temperature variations, both high and low, across diverse global settings.



Benefits

- Suitable for outdoor use in tough conditions
- Chemical-resistant
- Standard sizes available
- Custom sizes for large orders available
- Customized printing and different colors available



Available with over 400 varied dimensions. Standard range spans from 210 x 210 x H 355 mm to 2710 x 810 x H 910 mm internal dimensions. Opting for custom sizes is a possibility.



INNER PACKAGING

A product in a package is protected thanks to buffering, blocking and filling materials. Inner packaging combined with a good outer packaging guarantees an optimal protection against damages during transport and storage. Moreover, environmentally friendly alternatives help your business achieve its sustainability goal.



FIBERFLUTE

FiberFlute is a fiber-based packaging solution that provides outstanding cushioning performance for a wide range of products. It is an eco-friendly alternative to foam and is 100% paper-recyclable.

FiberFlute is a sustainable packaging solution made from 100% recycled fibers, which contributes to saving trees and preserving natural environments. The packaging provides excellent cushioning performance for a variety of products, and absorbs more shock with less material, compared to PE foam. Using FiberFlute provides optimal product protection while minimizing overall costs and CO2 emissions, due to less material used, less waste being burnt, and less plastic ending in the ocean.

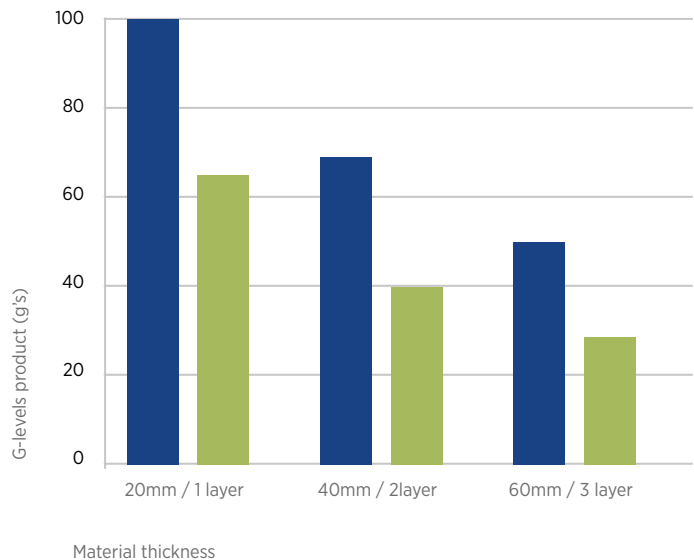


Eco-friendly alternative to foam: comparative analysis

- **Test**
Comparison between PE foam 30Kg/m³ & Nefab's FiberFlute type190 (lowest density in range).
- **Materials**
Equivalent material thickness (20/40/60mm) used to verify which solution performed better.
- **Result**
40 - 45% lower G-values for FiberFlute, which means that less FiberFlute is required to protect products compared to Polyethylene.

Benefits

- Fiber-based and 100% recyclable in the paper stream
- Absorbs more shock with less material compared to polyethylene foam
- Performs in both dry and humid conditions
- Has a nestable shape which results
- Made of renewable material
- Reduces costs and CO2 emissions





SUPPLY CHAIN SAVINGS REPORT

Background

- The customer produces complete solutions for packaging liquids, foods, home and personal care products in PET, can, glass and other materials
- They want to have more sustainable solutions and explore an fiber-based alternative

Packaging solution

CURRENT

- We provided a standardized ExPak solution with PE foam for various components

PROPOSED

- We suggested for some controlled flows a hybrid solution with triple wall corrugated sleeve, ExPak bottom and lid
- FiberFlute fitments was recommended in both ExPak as alternative for PE foam.

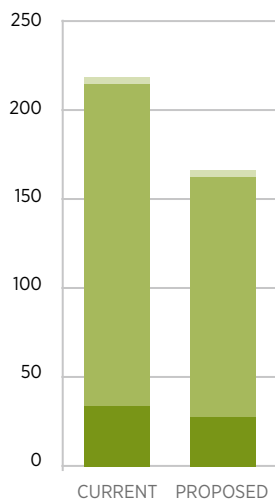
Why this solution?

- FiberFlute can be recycled as paper material
- Not only it provides cushion for products that are sensitive to shock and vibration, but it also helps the packing process by keeping in place the corrugated sleeve right after it is erected
- It is also used as a filling material when there is a gap between the last layer of products and the lid

Annual savings

ENVIRONMENTAL

Tons CO2



CO2 eq Savings
55 metric tons = 25%

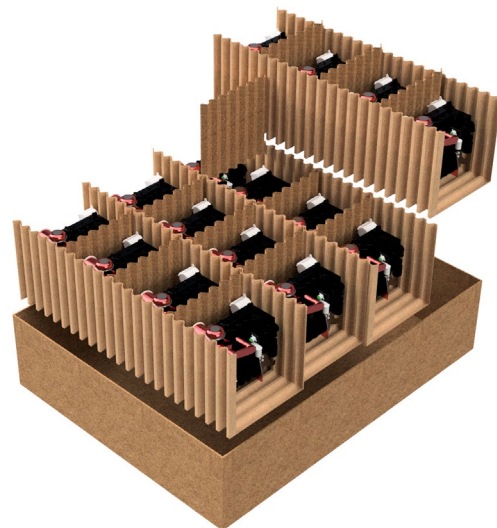


272 m³
Water depletion



12
Passengers vehicles
driven for one year

- End of life = -1 tons
- Transport = 50 tons
- Packaging = 6 tons





WOODFOAM

Nefab's WoodFoam is a recyclable memory foam for lightweight products. It is a sustainable alternative to plastic-based and PU foam: fiber-based, 100% isocyanate-free, repulpable and recyclable as paper. In addition, it is adaptable to the shape of the product.

WoodFoam is a lightweight fiber-based foam material made from Nordic wood. It is resilient and has great damping and insulation capacity, whilst being recyclable in existing paper/board streams. The material is designed to replace polymer foams in packaging solutions. It is a soft yet resilient material with a memory foam like behavior and it fits various types of conversion methods like sawing, die-cutting, waterjet cutting and laminating.

The material can be used to clamp products between panels, cut/sawed and assembled into block solutions, die-cut into desired shapes and patterns, as well as used as inserts or wrap-around. For best result, it is recommended to cut/saw the material with toothless blades. Knives and blades should be sharpened regularly to achieve best result.

Cushioning and insulation

WoodFoam is ideal for cushioning and void fill in transport packaging solutions as well as inserts in heavy-weight product transports. It is developed to match existing polymer foams in damping performance.

WoodFoam is also perfect for insulation purposes in meal kit deliveries, online grocery sales or medical shipments. Developed to match existing fossil-based solutions in insulation capacity. The thermal conductivity (λ) of WoodFoam is 0,035.

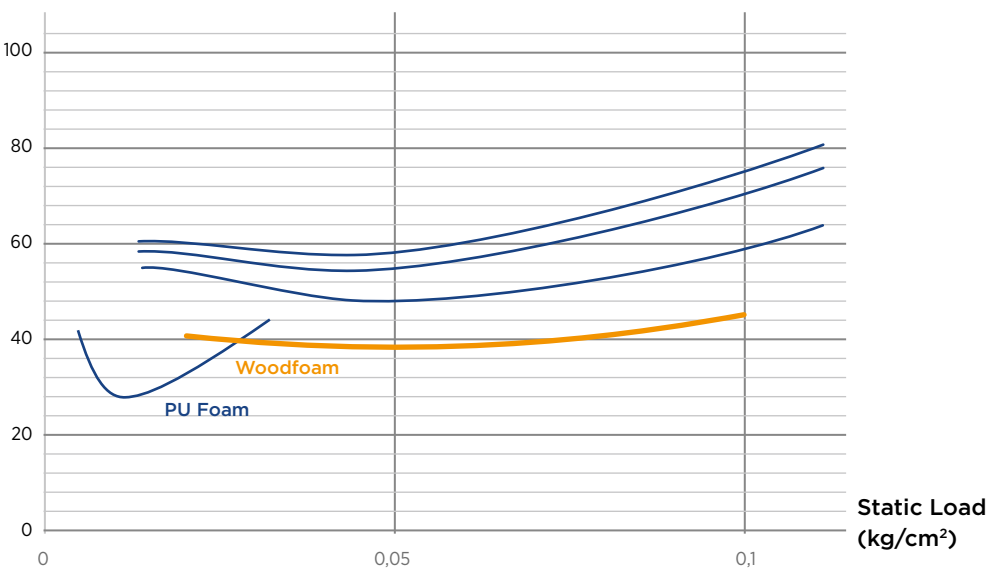


Applications

WoodFoam's customizable cushioning properties provide excellent product protection for electronics, aerospace, advanced technologies, and other industrial applications.



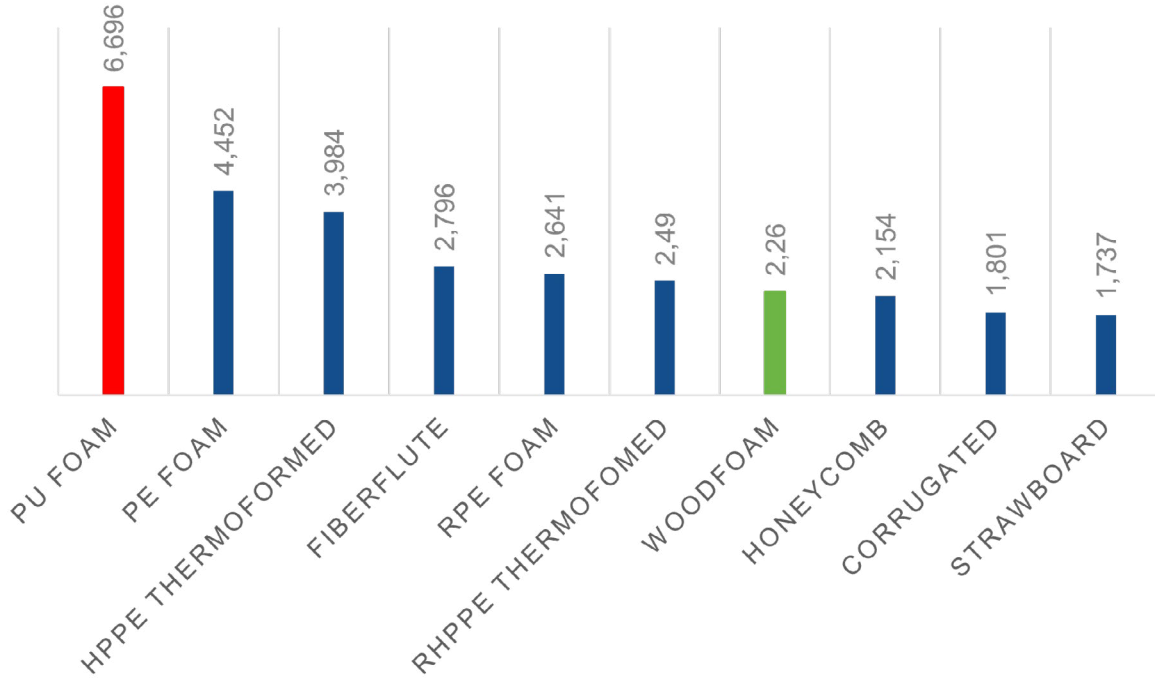
G-levels*



*Source: Test report 341850



CO2 EQ / KG OF RAW MATERIAL



Source: Nefab LCA models for packaging material verified by Pre-Sustainability

Eco-friendly alternative to PU Foam and 3R's

In a comparative analysis between polyurethane foam and the recyclable foam Nefab's WoodFoam reduces CO2 emissions by ~ 70% compared to PU foams. Additionally, as a recyclable foam solution, Nefab's WoodFoam reduces plastic consumption, enables the reuse of packaging, and it is recyclable as paper. These are the 3R's of the circular economy.

Benefits

- Recyclable in paper/board stream
- 70-80% reduced CO2-emissions when replacing polymer foams
- Made from FSC-certified wood with a wood fiber content of 80-95%
- Produced with an efficient dry-forming process, low energy and zero water consumption
- 100% isocyanate-free
- Offers low G-performance
- It can be converted and customized to fit different product shapes and dimensions
- Adaptable to the shape of the product

Isocyanate-free

Isocyanate is a substance widely used to manufacture flexible and rigid foams, and it can harm human health. As a sustainable raw material, Nefab's WoodFoam is isocyanate-free, which protects people working with it.

Reference case

Thales Group is a French multinational company that designs and manufactures electrical systems and provides services to the aerospace, defense, transportation, and security industries. They have set a sustainability goal of reducing its environmental footprint by 35% by the end of 2023.

For this customer case, Nefab developed a complete packaging solution made of corrugated board and WoodFoam, both made from sustainable raw materials, which makes the full solution recyclable in existing paper/board streams. The packaging solution has been qualified for ATA 300 cat II air transportation.



HONEYCOMB

Honeycomb is a packaging material that consists of kraft paper formed into continuous uniform hexagonal cells. Due to the wide range of applications, honeycomb can be considered as both inner and outer packaging.

Apart from blocking and filling it can also be used as a shock absorbing product, a product separator or even for pallets. Honeycomb is completely recyclable made only of kraft paper and water-based glue. Die-cutting possibilities and different thicknesses from 10 to 110 mm give flexible design possibilities.

The material is strong with high resistance to vertical compression. The surface can be PE film coated to achieve humidity resistance. Anything from small electronic components to large generators can be protected with honeycomb. The packaging can be designed for products as light as a cell phone or as heavy as automotive parts of several tons.



The lightweight and flexible design possibilities of honeycomb make the product a competitive alternative to other products such as expendable wooden pallets. Honeycomb has gained wide acceptance in Japan, United States and Europe thanks to its many benefits.

Benefits of honeycomb

- Wide field of application
- Reusable and recyclable
- PE film coating for humidity resistance available
- Strong, high resistance to vertical compression
- Lightweight
- Low freight cost
- Easy to handle



PAPERPULP

Derived from recycled and renewable wood fiber, Paperpulp embodies a cost-efficient, 3D-shaped molded pulp packaging solution used for its shock-absorption capabilities.

Paperpulp, crafted from versatile fiber-based material, offers a unique flexibility, enabling it to assume various 3D shapes. As an eco-conscious choice, molded pulp stands out as the premier option for safe and economical packaging of objects with complex curves and multiple dimensions. The resulting products are not only lightweight and durable but also excel in their capacity for shock absorption. Moreover, fiber-based packages are versatile, boasting recyclability, biodegradability and compostability. Paperpulp has various post-processing techniques and additional features available to cater to specific application requirements.



Rough or smooth?

The contrast between the production of rough and smooth fiber-based packaging lies in the application of post-pressing or hot-pressing in the latter. This final step entails the compression of the product within a two-sided mold, yielding a smooth and precisely defined shape. The end products are characterized by their sleek, printable, and slim design, combining support with a refined surface finish.



Extra features according to needs

Paperpulp has customizable extra features according to needs such as water resistance, grease resistance, fireproofing etc. An exemplary application is a seedling shield Taimitassu, which includes the pre-fertilizer that supports the shields initial growth.

Other benefits of the fiber product

- Customer specific shapes and solutions
- Thanks to it's easy to use design - plug and play!
- Shockproof and overwhelming vibration damper
- Available with water resistance
- Doesn't shine the coating
- Stackable inside or on top of each other - space efficient!
- Can be applied to automatic lines
- Environmentally and 100% recyclable with paper



THERMOFORMED SOLUTIONS

Nefab's thermoformed solutions are sustainable trays and Reflex® cushioning applications made from high recycled content.

Highly customizable, protective, and engineered to match specific product requirements and regulations, our thermoformed solutions are ideal for automated lines that require precision packaging due to robotic handling. Designed, prototyped and tested in our ISTA-certified labs by our Global Engineering Network, and meets UN test standards.

Characteristics

The thermoformed solutions are made from different sustainable sources according to each customer need and requirement, from virgin materials to recycled plastics, such as ocean bound plastics. Besides being more sustainable in comparison to foam and steel, our solutions are lighter, offer improved protection, and save space due to high stackability.

Thermoforming process

Thermoformed solutions are a result of a process called thermoforming or vacuum forming. This is the manufacturing process where a plastic sheet is heated to a pliable forming temperature, formed to a specific shape in a mold and trimmed to create a usable product. This molding quality is also the reason why thermoformed solutions are considered as sustainable plastic packaging products. They can be molded in different shapes and sizes, collected, cleaned, grinded, and re-extruded. Besides, thermoformed applications are usually light and nestable, which means less material is required to pack, store, and transport products. Because they can be reduced, recycled, and reused, thermoformed solutions are perfectly fit to return and circular flows.



Benefits

- Highly customizable and protective
- Made primarily from recycled plastics and 100% recyclable materials
- Require less material than alternative solutions such as foam or steel – making them light, ergonomic and compatible with automatic lines
- Efficiently applicable to one-way flows, return flows, circular flows and automated lines
- Different shapes & sizes, are easily collected, returned, cleaned, and re-made again from waste
- Can be re-used up to 50 times
- Up-to-60% reduction in CO² emissions
- Enabled by Nefab buy-back of trays

The benefits of ocean bound plastics

- Ocean bound plastics can be refined to quality levels up to 100% inclusion in nearly any application where HDPE is the preferred material
- This versatile resin can be for molding products, making it suitable for a wide range of packaging applications, including thermoformed cushioning
- Ocean bound plastic is also an option to reduce ocean pollution

Applications

Nefab's thermoformed solutions are available globally for several industries, including Automotive, Electronic, Telecom, Aerospace, and Lithium-ion battery (LiB) segments.

Award winning thermoformed solutions

Nefab's thermoformed solutions are recognized as global reference in sustainability and innovation by the WorldStar Global Packaging Awards.



THERMOFORMED TRAYS

Nefab's thermoformed trays are sustainable plastic packaging applications made from high recycled content. Our solutions are highly protective and customizable, ideal for precision packaging in automated lines that require robotic handling.

Nefab's thermoformed trays are available globally to several segments, including the Automotive, Electronic, Datacom, Telecom, Aerospace, and Lithium-ion Battery industries

Nefab's thermoformed trays are designed with reduced materials and sizes optimized for packaging and

loading. When possible, once their life cycle comes to an end, we collect our customer's thermoformed waste, clean, extrude, and reuse it as raw material to produce recycled thermoformed trays. This keeps the plastic trays in continuous use in circular flows, which contributes to reduced CO2 emissions and total cost in the supply chain.

Tailor-made according to each of customers' needs and requirements, Nefab's thermoformed trays are made from different eco-friendly materials, from virgin materials to recycled plastics. Besides being more sustainable in comparison to foam and paper, our thermoformed trays are lighter, offer more protection, and save more space and handling due to high nestability.



Materials and applications

- Reversible trays: stackable and nestable by 180° rotation
- Dust-proof trays: same stacking and reversing possible
- Hinged trays: trays with moving frame
- Undercut trays: stackable in the same position but with alternate rotation
- Blisters: low cost
- Cushioning: great performance for multiple drops
- Other: covers and fittings

REFERENCE CASE

We extended a specialized tray solution to one of our clients, precisely a dustproof double-wall tray. Their request consists of 112 pieces, all meticulously manufactured from PS CB ESD material.

Their unique specifications encompass a returnable, self-supporting tray that complies with Hella Type 1A standards. This tray ensures the secure placement of components within the nest and protects sensitive prism surfaces.

Thermoforming is the preferred method for this project due to its compatibility with automated production line handling.



THERMOFORMED CUSHIONING

Nefab's thermoformed cushioning solutions are sustainable plastic cushioning applications made from high recycled content.

Smart and sustainable cushioning solutions are lighter, require less material and labor and offer improved protection, and save space due to high nestability compared to foam and paper. Nefab's thermoformed cushioning solutions are made from different sustainable contents according to each of our customer's needs and requirements.

Main cushioning applications

Available globally to several industries, including the Automotive, Electronic, Datacom, Telecom, and Lithium-ion Battery segments.

We provide light, medium, and heavy-duty applications, including:

- ReFlex® Cushions
- Desktop computers, hard drivers and laptops
- Rack mount servers
- Modular systems
- Telescopes
- Silicon wafers and more



Silicon wafers and more

Reflex Packaging - Part of Nefab Group

In 2021, Nefab Group AB acquired Reflex Packaging Group to further strengthen Nefab's commitment to saving resources in our customer's supply chains. The acquisition positions Nefab as the world's leading manufacturer of high-performance thermoformed cushioning, with operations in Americas, Europe, and Asia, and a focus on designing and manufacturing solutions using recycled content - including ocean bound plastics - as the raw source material.



REFERENCE CASE

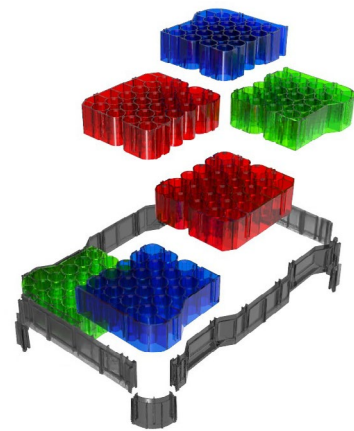
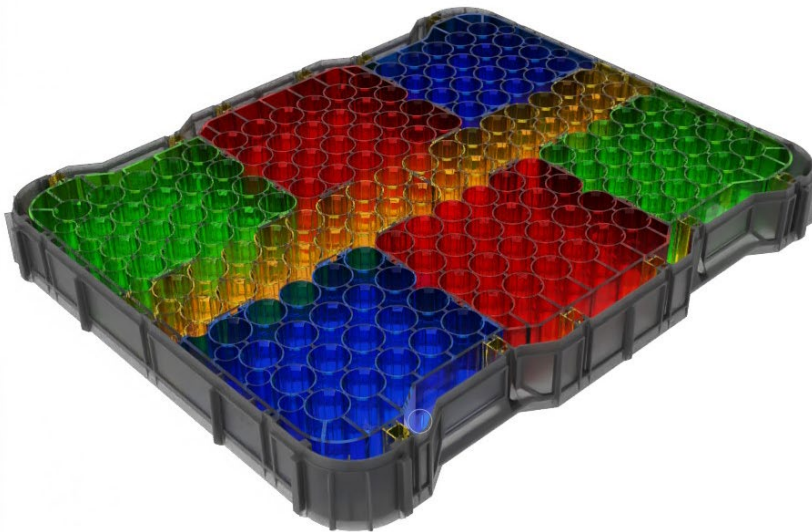
A tailored thermoformed cushion has been created to meet a customer's specific needs, with an estimated annual demand of 200,000 units. It's constructed from HDPE RC, comprising 80% to 100% recycled materials. Notably, the customer has requested a specialized drop test to be carried out in our ISTA lab, ensuring alignment with their precise requirements. The choice of thermoforming, specifically vacuum forming, has been made due to its optimal suitability for this unique application.



INJECTION MOLDING

Plastic injection molding is a popular manufacturing technique in which thermoplastic pellets are converted into high volumes of complex parts.

Injection molding is a method to obtain molded products by injecting a variety of plastic materials molten by heat into a mold, and then cooling and solidifying them. The method is suitable for the mass production of products with complicated shapes and takes a large part in plastic processing.

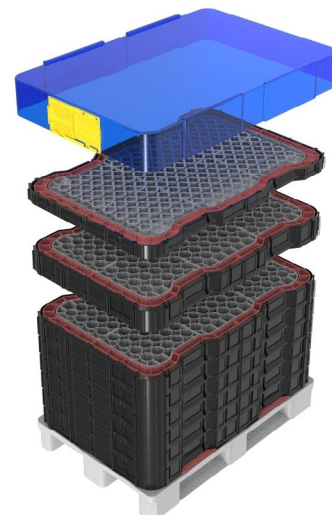


Injection molded trays and inserts are a comparatively inexpensive alternative to other, more costly materials. Injection molded trays often offer increased durability and accuracy in the manufacturing process. This unique combination of benefits positions injection molding as the method of choice when designing your operation's kitting trays, especially those used in robotic and automated processes.

In addition to added durability and reduced costs, injection molded trays can be tailored to your specific application. Whether you need a reliable way to secure parts during in-plant shipping, the ability to interface with robotics equipment or a kitting tray that will reduce noise levels in your facility, injection molded trays can be customized to accomplish nearly any task.

Benefits

- Cost-effective
- Increased durability and accuracy
- Suitable for mass production
- Ideal for complicated shapes





RANPAK

Ranpak provides pioneering and eco-friendly in-the-box protection solutions. These are sustainable, efficient solutions for a wide range of packaging needs, complemented by cutting-edge end-of-line automation. Nefab is an official distributor of Ranpak and can assist you in finding the right solution for your supply chain.

PROTECTIVE PACKAGING SOLUTIONS

Ranpak is the producer of renewable, recyclable, and biodegradable material that can help to protect your products, whatever your requirements. The solutions are created to meet and exceed your needs for sustainability, performance, and cost. Nefab as official distributor is ready to provide more than just the packaging and automation options you need to support the growth of your business.

We're focused on how supply chain performance can effectively and efficiently be managed by offering a total cost of ownership, better protection against damage and improved speed and efficiency to achieve long term cost savings.





FILLPAK TTC

The FillPak® Table Top with Cutter converter forms single-ply, fanfold kraft paper (width 38cm) into a PaperStar™ configuration for fast and efficient void filling. The TTC upgrade adds a cutting mechanism to the FillPak TT converter, and it also allows operators to pre-set paper lengths via an Electronic Delivery System (EDS) mode. The unit can be set up to dispense void-fill material at lengths from 30 cm up to 3 m. The TTC converter has the same small footprint as the regular FillPak TT, and can be easily adapted to any packing environment, or integrated into areas with limited space.

High speed

Fanfolded packs of paper offer minimal handling time

Clear operation

Due to its simplicity the unit is very effective and easy to use

Pre-set paper lengths (EDS mode)

Besides foot pedal operation the operator can also work with the EDS mode. The option for pre-setting paper lengths offers even more packing convenience

Cost-efficient

Runs at high speed allowing maximum box throughput

Ergonomic

Automatic cut mechanism and an EDS mode



Specifications of the system

Converter

- Dimensions: 43 x 45 x 46 cm
- Weight: 10 kg
- Voltage: 100-230 Volt
- Power: 150 Watt
- Speed: 1.4 m/s
- Cut method: automatic

Paper

- Base weight: 50 gr/m² - 70 gr/m²
- Pack length: 500 m, 360 m
- Paper width: 38 cm
- Average pack weight: 9.5 kg, 9.6 kg
- Average yield: 1.5 m²



FILLPAK TRIDENT (MINI)

Due to their triangular shaped paper pads, the FillPak Trident and Trident Mini are flexible and easy to use packaging solutions that can serve in void fill applications while providing additional blocking, bracing, and fixation for safe product delivery in shipping. FillPak Trident and Trident Mini produce structural void fill pads, reducing costs by 15-25% compared to traditional paper packaging solutions.

Cost efficient

Trident's triangular cross section uses less materials, helping to keep costs down. By improving productivity, labor costs can also be managed within the packing line, while pre-programmed pad lengths in batch mode save time in advance.

Superior protection

With their unique, patented triangular pad shape, FillPak Trident and Trident Mini offer superior protection with less paper when compared to traditional protective paper packaging options and air bags.

Sustainable

Both Tridents are 100% paper-based protective packaging solutions that potentially deliver an average 15-25% reduction in paper usage compared to other paper-

based machines and can eliminate the use of nonsustainable plastic-based products like air bags.

Safe and easy to use

The solutions are safe to operate, portioning paper with a protected cutting device in the FillPak Trident or by assisted tear in the FillPak Trident Mini.

Key features

- Easy loading
- Various operating modes
- Integration in the packaging process & stations
- Multiple paper types



FILLPAK TRIDENT

Specifications of the system Converter

- Dimensions: 102 x 102 x 208 cm
- Weight: 82 kg
- Frequency: 50-60 Hz
- Voltage: 110-230 VAC
- Speed: Up to 2.3 m/s
- Cut method: Automatic
- Operator modes: 5*

* Foot pedal mode, batch mode, EDS mode (Electronic Delivery System), preset mode, recipe mode

FILLPAK TRIDENT MINI

Specifications of the system Converter

- Dimensions: 92 x 92 x 200 cm
- Weight: 36 kg
- Frequency: 50-60 Hz
- Voltage: 110-230 VAC
- Speed: Up to 1.4 m/s
- Cut method: Assisted tear
- Operator modes: 2

** Foot pedal mode, EDS mode (Electronic Delivery System)



FillPak Trident

FillPak Trident Mini

| | 50 g/m2 Recycled Kraft | 70 g/m2 Virgin Kraft | 70 g/m2 Greenline | 90 g/m2 Virgin Kraft |
|-------------|------------------------|----------------------|-------------------|----------------------|
| Pack width | 38 cm | 38 cm | 38 cm | 38 cm |
| Pack length | 500 m | 360 m | 360 m | 300 m |
| Pack weight | 9.6 kg | 9.6 kg | 9.6 kg | 10.2 kg |



PADPAK JR

PadPak® Junior converts multi-ply kraft paper into a cushioning pad on demand. It enables fast and efficient cushioning and blocking-and-bracing, for low-volume packaging needs. The converter forms the paper into a protective, shock-absorbing paper pad, using a patented folding and stitching process. PadPak® JR is easy to operate, and requires minimal operator training. Operators create new pads by raising a handle until the desired pad length is dispensed, then lowering the handle to cut.

Small and mobile

The converter is compact to fit any production environment and is built on castors which makes it easy to move it to another packing area

Various applications

Pads can be used for products of all shapes and sizes, as pad length is controlled by a foot pedal

Excellent absorbing material

The paper cushioning pad has a proven tremendous shock absorbing capacity

Easy in use

The system is very easy for a packer to use



Specifications of the system

Converter

- Cut method: Manual Tear
- Weight: 54.0 kg
- Dimensions: 80 x 78 x 154 cm
- Speed: 30 cm per sec (Feed rate)

Paper options

- 70/70 gr/m2 Kraft
- Roll Length: 160 m
- Roll Width: 68 cm
- Pack Weight: 15.4 kg

Paper pallet

- Dimensions wxdxh: 120 x 80 x 83 cm
- Weight: 328 kg
- Rolls per pallet: 20





PADPAK CC

The PadPak® Compact Cushioning converter simplifies and improves the packing and protection of smaller items at a packers' workstation. A small footprint means the machine can be placed either on the workstation or on a floor stand next to it. With 1-ply and 2-ply options, both light and heavy products can be packed - all with excellent protective performance.

Compact

Due to the small footprint of the machine, the system can be placed on the workstation or at a floor stand right next to the work station

Small paper units

Pack creative and smart with the small pads to save money in packaging costs

Separate remote control

The machine will be delivered with a separate remote control for a custom friendly and flexible control of the machine

Versatile

The machine goes with 1 or 2 layer paper units and offers therefore a solution to pack light and heavy products

Performance

Unique pad design offers optimal protection



Specifications of the system

Converter

- Dimensions: 51 x 81 x 55 cm
- Weight: 50 kg
- Power: 350 Watt
- Voltage: 100 - 240 Volt
- Frequency: 50/60 Hz

Paper options

- Base weight: 50/50 gr/m²
- Roll length: 215 m
- Roll width: 38 cm
- Roll weight: 8.6 kg
- Paper type: Kraft
- Base weight: 50/70 gr/m²
- Roll length: 180 m
- Roll width: 38 cm
- Roll weight: 8.2 kg
- Paper type: Kraft
- Base weight: 70 gr/m²
- Pack length: 360 m
- Pack width: 38 cm
- Pack weight: 9.6 kg
- Paper type: Kraft
- Paper color: Brown or White



PADPAK GUARDIAN

The PadPak Guardian is a cushioning solutions are available for working at raised height or lower down and for either standalone use or next to a working table, using a floorstand or tablestand converter. Whether you need stronger pads or pads with more flexibility, PadPak Guardian can produce both. That makes it well-suited to almost any packaging environment, from automotive to e-commerce. Pads can be used to cushion both light and heavy items, from glass vases through to electrical motors, using a single pad to cushion sides and corners or rolling up packaging into a coil.

Excellent product protection

Reliable protection for your products is a must. PadPak Guardian provides a wide range of different paper types with proven high cushioning values, protecting your products properly whatever the application.

Sustainable materials

Ranpak is leading the way for sustainable packaging across the globe. Our in-the-box packaging solutions can support your growth, protect the environment, and keep your customers happy. Sustainable, cost-effective, and versatile packaging helps your business to thrive while showing your commitment to the planet. PadPak Guardian is the sustainable, compact, fast and ergonomic answer to many of your packaging needs.

Reduced packaging operation costs

An Enhanced Loading System means that paper can be loaded in 20 to 30 seconds, with major gains in production time. If a paper jam occurs, your operator can resolve it with a single button, for higher production throughput and less paper waste. To optimize production, you can access three different speed settings, up to over 1.2m of pads per second. With five operation modes and low paper shrinkage, PadPak Guardian gives you more efficient operations in many different circumstances.



Key benefits

- Compact
- Ergonomic
- Modular configuration
- Sustainable

Paper packs

| | 90 Ecoline | 90 Virgin | 70/70 Rec/Vir | 70/75 Rec/Eco |
|--------------------|------------|-----------|---------------|---------------|
| Length | 300 m | 300 m | 180 m | 180 m |
| Width | 38 cm | 38 cm | 38 cm | 38 cm |
| Paper basis weight | 90 g | 90 g | 70/70 g | 70/75 g |
| Pack weight | 21 kg | 21 kg | 20 kg | 21 kg |

Specifications of the system

Converter

- Dimensions (w x d x h): 61 x 87 x 139 cm
- Weight: 89 kg
- Power: 1050 W
- Voltage: 100-240 colors)

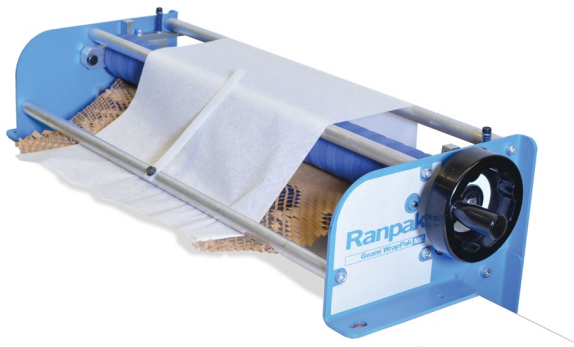


GEAMI WRAPPAK

Wrapping is often an important element of packaging, providing protection against surface abrasion and minor handling incidents. Geami WrapPak materials safeguard products against these challenges, and they are also designed to prevent damage caused by the internal impacts that can result when several items are packed together in the same container.

GEAMI WRAPPAK M

The Geami WrapPak Manual converter expands die-cut kraft paper into a 3D honeycomb structure. Designed as a manual system, Geami WrapPak M does not need electricity, making it an excellent solution for mid-volume applications.



Presentation

Perfect in-the-box presentation enhances the customer unboxing experience.

Convenient

Can be placed anywhere for your convenience.

Reduce cost

Reduces material handling and takes up less storage space.

Specifications of the system

Converter

- Cut method: Manual Tear
- Weight: 11.0 kg
- Dimensions: 66 x 49 x 32 cm

- Paper Type: Kraft
- Color: Brown or White

Interleaf Paper

- Roll length: 840 m
- Roll width: 30.5 cm
- Roll weight: 7.0 kg
- Base weight: 22 gr/m²
- Paper Type: Kraft
- Color: White or Black (also available in a selected range of colors)

Die-cut Paper

- Roll length: 250 m (420 m expanded)
- Roll width: 50.8 cm
- Roll weight: 10.8 kg
- Base weight: 80 gr/m²

GEAMI WRAPPAK HV CONVERTER

The Geami® HV (High Volume) converter expands die-cut kraft paper into a protective 3D honeycomb structure. Electrically operated, it can significantly improve wrapping speed and overall packaging throughput, making it an outstanding solution for high-volume packaging environments.

Presentation

Perfect in-the-box presentation enhances the customer unboxing experience.

Time savings

Pads are created at high speed with minimal reloading necessary.





Cost-effective

- Less material is needed to provide optimal protection
- Geami WrapPak HV paper cutter is an accessory to the Geami WrapPak HV machine, suitable for customers who want to eliminate manual tearing.

Benefits of this solution

- Eliminates tearing by hand
- Eliminates time spend on folding teared edges
- Clean cut for improved presentation

Specifications of the system

Converter

- Dimensions (w x d x h): 71 x 51 x 43 cm
- Weight: 21 kg
- Power: 320 W
- Voltage: 100-240 VAC
- Speed: Up to 0.75 m per sec
- Cut methods: Manual tear (Cutter accessory optional)

Die cut paper

- Base weight: 80 gr/m²
- Color: brown or white
- Unexpanded roll length: 250 m
- Unexpanded paper width: 50.80 cm

Interleaf paper

- Base weight: 22 gr/m²
- Color: white (standard), also available in other colors
- Roll length: 840 m
- Paper width: 30.50 cm

GEAMI WRAPPAK EX

The Geami WrapPak EX is a handy dispenser box that expands die-cut kraft paper into a 3D honeycomb structure. The small footprint allows it to be placed on any table top or packaging area, providing 134 meters of finished wrapping material in a disposable container.

Cost-efficient

Due to the reasonably low investment costs of the converter

Perfect in-the-box presentation

Enhances the customer's unboxing experience

Convenient

Can be placed anywhere

Specifications of the system

Converter

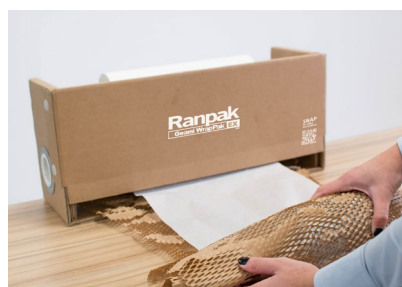
- Cut method: Manual Tear
- Weight: 6.0 kg
- Dimensions: 56 x 18 x 24 cm

Die cut paper

- Roll length: 82 m (134 m expanded)
- Roll width: 50.8 cm
- Base weight: 80 gr/m²
- Paper type: Kraft
- Paper color: Brown or White

Interleaf paper

- Roll length: 134 m
- Roll width: 30.5 cm
- Base weight: 22 gr/m²
- Paper type: Kraft
- Paper color: White





FOAM & BUBBLE

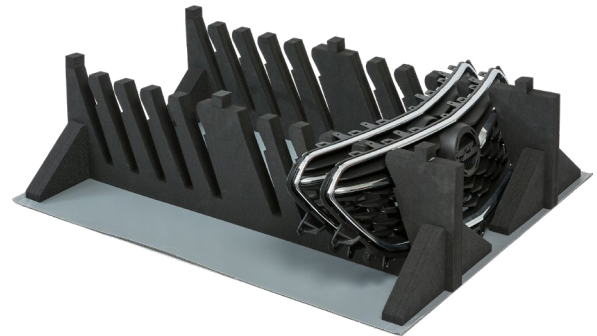
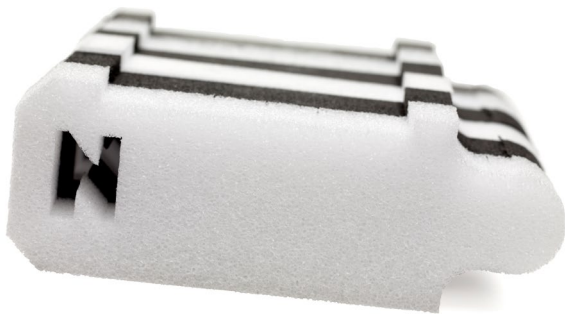
Foam and bubble are used as protective packaging due to their unique shock absorbing abilities. We design solutions using various foam materials and manufacturing techniques.

Foam cushioning is used to protect against shock and vibration. There are numerous different options to protect the goods and the final solution will be dependent on factors such as: product fragility, product weight, shipping and handling conditions, batch size and more. Nefab offers many foam materials and different solutions such as moulded foam, fabricated foam, foam-in-place, and foam profiles.

Materials and manufacturing processes

There are basically four different materials (PE,PU,PP,PS) and two main manufacturing processes (molding, converting) that are used to meet required specifications. Cushion film consists of bubbles formed between two or more polyethylene foils. They ensure maximum protection.

Nefab utilizes mainly material which not only serves to insulate the product from transportation shocks, but also from static-interference, temperature variations and other external threats.



Benefits of foam cushioning

- Excellent protection from shocks and vibrations
- Customizable
- ESD and corrosion protection available
- Moisture-resistant and resilient
- Broad range of thicknesses, densities and models
- Lightweight



FABRICATED FOAM

Polyethylene is moisture resistant with good multi-drop cushioning performance. We custom design, prototype and test foam packaging solutions for customers all over the world.

Benefits

- Light
- Cfc-free
- Air- and water-resistant
- Non-toxic
- Odourless
- Dustfree
- Heat and sound insulation
- Mould- and moisture-resistant
- 100% Recyclable
- Suitable for food stuff



Nefab references

| Description | Width (mm) | Length (mm) | Thickness (mm) | Density (kg/m ³) |
|-------------|------------|-------------|----------------|------------------------------|
| PE foam | 1000 | 500 | 1 | 20 |
| PE foam | 1250 | 500 | 1 | 20 |
| PE foam | 1550 | 500 | 1 | 20 |
| PE foam | 1000 | 250 | 2 | 20 |
| PE foam | 1250 | 250 | 2 | 20 |
| PE foam | 1550 | 250 | 2 | 20 |
| PE foam | 1000 | 175 | 3 | 20 |
| PE foam | 1250 | 175 | 3 | 20 |
| PE foam | 1550 | 175 | 3 | 20 |



Nefab references

| Description | Width (mm) | Length (mm) | Bubble | Type | Thickness (μ) |
|------------------|------------|-------------|--------|--------|---------------|
| Bubble wrap 1000 | 100 | | Small | Double | 50 à 60 |
| Bubble wrap 1200 | 100 | | Small | Double | 50 à 60 |
| Bubble wrap 1200 | 100 | | Small | Triple | 50 à 60 |
| Bubble wrap 1500 | 100 | | Small | Double | 50 à 60 |
| Bubble wrap 1500 | 50 | | Big | Double | 50 à 60 |
| Bubble wrap 2400 | 50 | | Big | Double | 50 à 60 |
| Bubble wrap 1000 | 100 | | Small | Double | 75 à 80 |
| Bubble wrap 1200 | 100 | | Small | Double | 75 à 80 |
| Bubble wrap 1500 | 100 | | Small | Double | 75 à 80 |
| Bubble wrap 1500 | 100 | | Small | Double | 75 à 80 |
| Bubble wrap 1000 | 100 | | Small | Double | +/- 100 |
| Bubble wrap 1200 | 100 | | Small | Double | +/- 100 |
| Bubble wrap 1500 | 100 | | Small | Double | +/- 100 |

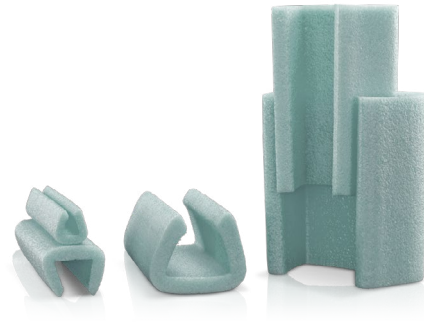




FOAM PROFILES

We offer a broad range of models with varying densities and shapes that are suitable for different applications.

- U-profile – for edge and corner protection
- L-profile – for corner protection
- WS-profile – for wind screens and other glass products
- O-profile – protection for tubes, pipes, poles etc
- C-profile – edge and corner protection for special applications
- System profile – designed to give shock and vibration protection to sensitive products



PADPLOTS (FOAM PADS)

Self-adhesive foam pads can be stuck to the inside of cardboard boxes and protect contents from damages. It is manufactured from non-abrasive closed cell foam.

| Description | Length | Width | Thickness | Packaging |
|---|--------|-------|-----------|---------------|
| Padplots 25 kg / m ³ - not permanently self-adhesive | 100 | 100 | 25 | 504 pcs / box |
| Padplots 25 kg / m ³ - permanently self-adhesive | 100 | 100 | 25 | 504 pcs / box |
| Padplots 25 kg / m ³ - permanently self-adhesive | 100 | 100 | 50 | 240 pcs / box |

Also available in 50x50x12 mm - 50x50x25 mm

BUBBLE/FOAM ENVELOPES

Envelopes with a bubble foil/foam interior are perfect for buffering your smaller products.

- Easy to write on
- Excellent adhesion
- Available in many sizes
- Self-adhesive strip
- Lightweight protection



Nefab references

| Description | Length (mm) | Width (mm) | Pcs / box |
|-------------------------|-------------|------------|-----------|
| Envelope with PE bubble | 100 | 165 | 200 |
| Envelope with PE bubble | 120 | 215 | 200 |
| Envelope with PE bubble | 150 | 215 | 100 |
| Envelope with PE bubble | 180 | 265 | 100 |
| Envelope with PE bubble | 220 | 265 | 100 |
| Envelope with PE bubble | 220 | 340 | 100 |
| Envelope with PE bubble | 230 | 340 | 100 |
| Envelope with PE bubble | 270 | 360 | 100 |
| Envelope with PE bubble | 300 | 445 | 75 |
| Envelope with PE bubble | 350 | 470 | 75 |

| Description | Length (mm) | Width (mm) | Pcs / box |
|-----------------------|-------------|------------|-----------|
| Envelope with PE foam | 102 | 178 | 500 |
| Envelope with PE foam | 127 | 229 | 500 |
| Envelope with PE foam | 152 | 229 | 500 |
| Envelope with PE foam | 184 | 280 | 250 |
| Envelope with PE foam | 216 | 280 | 250 |
| Envelope with PE foam | 216 | 338 | 250 |
| Envelope with PE foam | 241 | 338 | 250 |
| Envelope with PE foam | 267 | 376 | 125 |
| Envelope with PE foam | 318 | 452 | 125 |
| Envelope with PE foam | 362 | 478 | 125 |



CORROSION PROTECTION

Products that are transported for a longer period or stored for an extended period are often in need of corrosion protection. Corrosion protection packaging prevents corrosion without having to treat the metal with oil, grease or paint.

Nefab has provided corrosion protection solutions for many industries over the years. Temperature changes, contaminated air, sea salt and moisture, all create corrosion. All products with bare metal (bearings, engines, parts, electronic devices) need to be protected. Products in overseas transit go through a complex process of loading, unloading, manipulation, warehousing and control. So many parameters can influence the quality of the metal. Highest care is needed for a problem-free arrival.

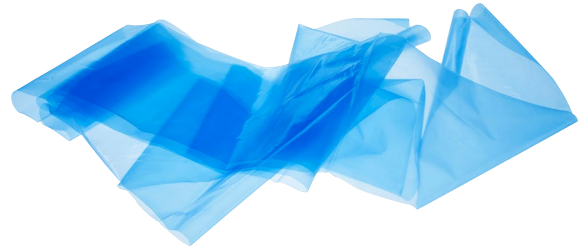
With its competence and global network Nefab can provide a customized solution anywhere in the world, giving customers the ability to dispatch products worldwide without humidity or corrosion damages.

How to prevent corrosion:

There are several different solutions for protecting the product from corrosion depending on parameters such as: product type, means of transportation, and the length of the transit time. Below we give you an overview of the solutions that can be used to protect your products from corroding. Some products can also be combined to reach the best results.

VCI (VOLATILE CORROSION INHIBITOR) BASED MATERIALS

VCI is an additive that can be added to most common packaging materials. Once exposed to the air, the additive vaporizes in the air and deposits itself as a thin layer on metal surfaces. This layer prevents humidity from reaching the metal and the process of corrosion is prevented. VCI technology is suitable for corrosion protection during shipment, temporary storage between manufacturing processes and mothballing of seldom used equipment.



VCI FILM

Nefab offers VCI bags and film made of LDPE that offer total corrosion control for multiple metals. These products are available in a wide variety of forms and sizes, including:

- Heat sealable & zipper closure bags
- Shrink
- Stretch
- UV stabilized
- Flame retardant
- Woven, non-woven
- Multi-layer & laminates
- Custom shapes, sizes and forms (automatic open, gussets, caps, elastic, others)

Simply wrap, shroud, or pack your products or equipment; protection is continuous for WIP, storage, transit, lay-up, or mothballing applications. A continuous self-replenishing vapor emits from the film to protect all exposed metal surfaces regardless of temperature or humidity swings.



Nefab references

FLAT BAGS

| Width (mm) | Length (mm) | Thickness (μ) | Packing quantity |
|------------|-------------|---------------|------------------|
| 100 | 150 | 100 | 2000 bags / box |
| 150 | 200 | 100 | 1000 bags / box |
| 200 | 250 | 100 | 1000 bags / box |
| 250 | 350 | 100 | 600 bags / box |
| 250 | 350 | 150 | 400 bags / box |
| 600 | 800 | 100 | 100 bags / roll |



GUSSET BAGS

| Length (mm) | Gusset (2x) (mm) | Height (mm) | Thickness (μ) | Packing quantity |
|-------------|------------------|-------------|---------------|------------------|
| 405 | 155 | 600 | 100 | 200 bags / box |
| 650 | 200 | 1100 | 100 | 75 bags / box |
| 660 | 200 | 750 | 100 | 150 bags / box |
| 830 | 290 | 1370 | 100 | 40 bags / box |
| 900 | 350 | 1500 | 100 | 50 bags / box |
| 900 | 400 | 1400 | 100 | 40 bags / box |
| 1160 | 450 | 1200 | 150 | 40 bags / box |
| 1200 | 400 | 1400 | 80 | 50 bags / box |
| 1200 | 400 | 1600 | 80 | 50 bags / box |
| 1200 | 525 | 2000 | 100 | 40 bags / box |
| 1250 | 425 | 2500 | 80 | 25 bags / box |
| 1270 | 540 | 1600 | 150 | 40 bags / box |
| 1275 | 435 | 1900 | 100 | 40 bags / box |
| 1300 | 600 | 2400 | 100 | 20 bags / box |

ZIPPER BAGS

| Width (mm) | Length (mm) | Thickness (μ) | Packing quantity |
|------------|-------------|---------------|------------------|
| 83 | 127 | 100 | 5000 bags / box |
| 150 | 200 | 100 | 1000 bags / box |
| 305 | 254 | 100 | 1000 bags / box |



FILM ON ROLL

| Width (mm) | Length (m) | Thickness (μ) |
|------------|------------|---------------|
| 500 | 1075 | 100 |
| 590 | 911 | 100 |
| 720 | 747 | 100 |
| 1000 | 125 | 100 |
| 1100 | 1612 | 18 |
| 1500 | 215 | 100 |
| 2000 | 160 | 100 |
| 2500 | 129 | 100 |
| 2700 | 153 | 100 |
| 3000 | 110 | 100 |
| 4000 | 80 | 100 |
| 4600 | 234 | 100 |
| 5960 | 54 | 100 |

TUBULAR FILM

| Width (mm) | Length (mm) | Thickness (μ) | Remarks |
|------------|-------------|---------------|---------|
| 200 | 403 | 100 | |
| 300 | 448 | 100 | Anti-UV |
| 300 | 358 | 100 | |

SHRINKFILM

| Width (mm) | Length (mm) | Thickness (μ) |
|------------|-------------|---------------|
| 6000 | 50000 | 200 |

LDPE SHRINKFILM

| Color | Width (mm) | Thickness (μ) |
|-------------|------------|---------------|
| Transparant | 6000 | 200 |



SHRINKFILM GUN

RIPACK® Series 3000 can wrap a Euro-pallet of one meter height in less than a minute with his heating power adjustable from 45 to 76kW.

- Maximal safety:
The combustion nozzle in stainless steel remains cold even during an intensive use (Patent Ripack®).
- Versatility and adaptability:
To retract the large areas of film, RIPACK® Series 3000 offers a choice of 5 extension wands from 0.50 to 2 meters long and adaptable with a single click.





VPCI PAPER

VpCI papers provide corrosion protection in several different applications including single item packaging, multiple item wrapping for bulk shipments, OEM, and automotive parts packaging for storage and shipping, and sheet liners for product separation. The papers are nitrite-free and made from neutral/natural kraft paper that is recyclable and repulpable.



VPCI FOAM

VpCI impregnated foams protect precision fabricated parts and highly sensitive electronic components. They protect against breakage, surface damage, or scratches. We offer this on rolls but we can also cut this in our production to the desired dimensions.

VPCI DEVICES

VpCI devices provide exceptional adsorption and protection for recessed areas. Devices are applicable to virtually any packaging system. They come in pouches, tablets, foams, or emitters.



VPCI LIQUIDS

Preventatives and rust removers are based on organic chemicals that remove stains and oxides from iron, copper, brass, aluminium. These rust removers replace sharp acid and if the user follows the instructions for use, they are not harmful to human skin.



PREVENTATIVE

VpCI-337 is a liquid concentrate for indoor use, creates an anti-corrosion environment in containerized transport boxes or crates, suitable to protect edges of stacks of sheet coils.

VpCI-368 one of the highest quality coatings that provide corrosion protection for metals that are exposed to demanding outdoor weather conditions, leaves a hard waxy coating resistant to UV radiation.

VpCI-369 is suitable for outdoor use, it leaves a translucent oil film on the surface, which has a self-regeneration capability, provides efficient protection to all kinds of metals requiring long-term preservation of the material, applied as a coating or additive in oils.

VpCI-377 is a water-based concentrate used as a substitute for oil protection, leaving the surface with a dry transparent water repellent film, a wide range of concentrations of solution provides the flexibility for adjustment in the length of the corrosion protection.



RUST REMOVER

VpCI-422 is an environmentally friendly and biodegradable organic rust removing agent containing corrosion inhibitors, effective in removing rust and matted layers of ferrous and non-ferrous metals. It effectively removes rust from steel, iron, copper, brass, chrome and aluminum. It is not harmful to human skin and does not harm paints, plastics or rubber. This product is 100% biodegradable and does not require special waste disposal; thanks to these characteristics, the product is useable for outdoor applications, where potential contamination would be a problem. VpCI-423 is equivalent to VpCI-422 supplied as a gel for use on vertical or horizontally suspended surfaces.





REFERENCE CASE

Corrosion protection for the automotive industry

A US-based engine manufacturer was involved in creating the new NEF engine (New Engine Family). The manufacturer experienced problems with rust and damage of packaging that they received from some sub-supplier in Italy. As Nefab is a supplier of this manufacturer in the US, Nefab Italy was asked to come up with a solution to this problem.

The Nefab solution

The packaging solutions used by different suppliers comprised of an external protection such as wooden crates or low quality plywood crates and of an internal protection. This inner packaging included, in some cases, corrosion protection in the form of desiccants and VCI paper or bags.

VCI is a substance that slows down a chemical reaction and prevents moisture from reaching the metallic surface. The VCI protection used, however, held a much lower quality than what Nefab could offer through its global agreements. The solution that Nefab came up with was a combination of using Nefab ExPak crates and higher quality VCI bags.

This proved to be an optimal solution that eliminated the corrosion problems that manufacturer had encountered, and it proved to be the preferred solution for the suppliers.

The benefits for the manufacturer

He gained several cost advantages through the Nefab approach, including:

1. Reduced cost with an estimated value of +/- € 225000 in less than 12 months due to the elimination of corrosion problems.
2. Saved transportation cost, such as, sending bad components back to the original manufactures and external companies for reworking.





MOISTURE PROTECTION

To protect your product from moisture you can work with desiccants in combination with alubARRIER materials. Absorpole and container Dri Pack eliminate mold.

DESSICANTS

Desiccants can be used in combination with other corrosion protection packaging materials like aluminum barrier foil, VCI films,... Our desiccants can be used inside the packaging (crate, box, bag,...) or inside the mode of transport (container, truck, ...).

Silica gel is normally used in the pharmaceutical, food and electronics sectors and in all areas where it is necessary not to have a dispersion of powder of any kind or in cases in which the available space permits the use of only a small bag, this is still the most used desiccant. Silica gel has a porous and granular shape and is made from sodium silicate. Because of the great absorption capacity it removes moisture from the air rapidly.

Bentonite clay is a natural product and is chemically inert and non-corrosive. Due to its structure, it attracts moisture and is an effective desiccant at normal temperatures and relative humidity. Bentonite has been approved for contact with food and drugs and it's a greener alternative to Silica gel and are less costly than equivalent Silica gel desiccants.

In most common package environments, bentonite desiccants offer a higher absorption capacity than Silica gel desiccants and are, therefore, a feasible alternative to Silica gel. Bentonite clay is chemically inactive, non-corrosive and all natural clay. It attracts and binds water molecules to its vast inner and outer surface area, making the absorption capacity of bentonite considerable, even at low humidity levels. As the relative humidity in a container increases, the absorption capacity of bentonite also increases. When packaged in Tyvek wrapping, bentonite meets government standards for use with food.



NEFAB REFERENCES

| Dessicant Silica gel bags | Packing quantity |
|---------------------------|------------------|
| Silica gel bags of 2 gr | 4000 pcs / box |
| Silica gel bags of 5 gr | 1500 pcs / box |
| Silica gel bags of 30 gr | 400 pcs / box |

| Dessicant clay bags | Packing quantity |
|---------------------------------|------------------|
| Dewpack container bag of 1 kilo | 14 pcs / box |
| Dessicant clay 4 units | 100 pcs / box |
| Dessicant clay 8 units | 60 pcs / box |
| Dessicant clay 16 units | 35 pcs / box |

| Optional dessicant hang system | Packing quantity |
|--------------------------------|------------------|
| Woven hangtie | 2000 pcs / box |





CONTAINER DRI PACK

Container dri pack is available in several configurations to best accommodate different modes and methods of shipping. The needed quantity depends on the goods itself and on the shipping conditions.

The number of recommended bags in a container for optimal protection of the goods during their journey:

- usage in a 20 FT container: 32 - 36 bags
- usage in a 40 FT container: 64 - 72 bags

Strips with adhesives on the back are for a quick and easy installation onto the container walls.

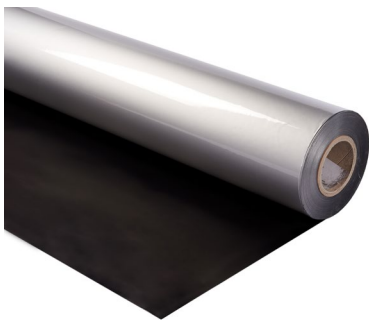
- usage in a 20 FT container: 5 - 6 strips
- usage in a 40 FT container: 10 - 12 strips

ALUBARRIER

Aluminum - barrier material can be used as a packaging in combination with desiccants. In the packaging process of the product, they pump out the air so the desiccants absorb the remaining moisture.

Aluminum barrier foil has a considerably lower water vapor transmission rate than bags made of LDPE or HDPE and reduces the required number of desiccants in export packaging.

We offer various combinations of foil barrier materials and film for products requiring moisture protection. This includes everything from films, small bags to large super heavy duty barrier bags.



Nefab references

| Description | Width (mm) | Length (m) | Thickness (mm) |
|---------------------|------------|------------|----------------|
| Triplex Alu-barrier | 1000 | 200 | 0.123 |
| Triplex Alu-barrier | 1500 | 200 | 0.123 |



ELECTROSTATIC DISCHARGE (ESD)

Nefab can offer a complete ESD control program including products for the EPA (Electrostatic Protective Area), grounding products and testing equipment.

Nefab offers a complete range of shielding, conductive, insulating and dissipative products that enable us to design a solution that gives the required protection. We also offer a complete ESD control program, including products for the EPA, grounding products and testing equipment. Electrostatic Discharge, ESD, can cause damage or operational disturbances in electronic equipment. With our ESD knowledge and expertise, Nefab can provide a suitable customized solution to meet specific demands.

ESD PROGRAM

An ESD Program should include below steps, by adhering to below check steps ESD damage can be minimized.

- ESD training and instruction
- Handle ESD sensitive (ESDS) products only in an ESD Protected Area (EPA)
- Keep all conductors (including persons) on the same potential
- Remove all “common” (charge generating) plastics from the EPA
- Neutralize electrostatic charges on essential insulative materials by using ionization
- Surround all ESDS with ESD safe packaging materials, except when they are being actively worked on

CHECKLIST FOR ESD SAFE HANDLING

ESD Evaluation

- Assign an ESD coordinator
- Which components are ESDS (ElectroStatic Discharge Sensitive)?
- Where are ESDS products handled?
- Which processes can cause ESD?
- Where do ESDS products go after leaving the plant?
- Quantify damage and loss due to ESD

ESD protection

Optimal ESD protection can be achieved by combination of:

- ESD training and instruction;
- ESD protective products;
- frequent monitoring of the above.

ESD training and instruction

- Explain why ESD protection is necessary
- Demonstrate the use of various ESD products



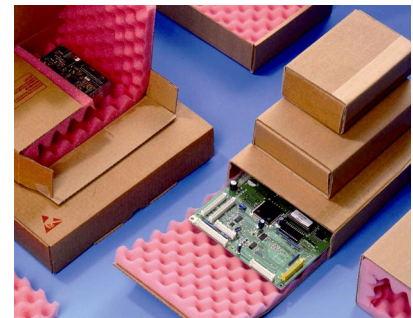


Nefab references

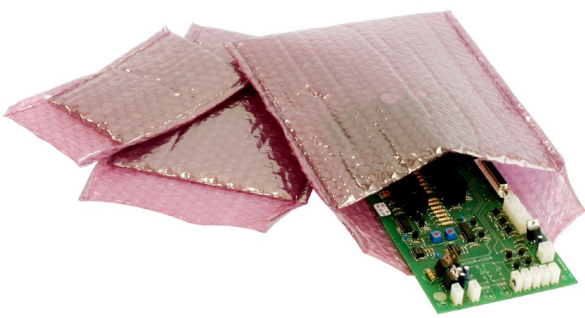
| Description | MOQ |
|-------------------------------------|---------------|
| Static Shielding Bag - 76 x 127 mm | 100 pcs / box |
| Static Shielding Bag - 152 x 254 mm | 100 pcs / box |
| Static Shielding Bag - 203 x 305 mm | 100 pcs / box |
| Static Shielding Bag - 254 x 356 mm | 100 pcs / box |
| Static Shielding Bag - 457 x 610 mm | 100 pcs / box |



Cortronix boxes



Corrugated boxes + ESD foam



Bubble shielding bags



ESD Packaging Program





LOAD SECURING

Load securing has a fourfold impact. It enhances safety for individuals by preventing accidents caused by insecure loads, shields the environment from hazardous leaks, cuts costs by preventing damage and reducing time spent on unloading. Moreover, It helps maintain a positive company image by ensuring products arrive intact.



LOADSECURING

Load securing, also known as cargo securing, is the securing of cargo for transportation. According to the European Commission Transportation Department “it has been estimated that up to 25% of accidents involving trucks can be attributable to inadequate cargo securing”.



Loadsecuring

Cargo that is improperly secured can cause severe accidents and lead to the loss of cargo, lives, and vehicles, or cause environmental hazards.

We can assist you with all of your shipping needs, including load securing. We make certain to use only the best practices for sea, land, and air freight.

NEFAB OFFERS A LOADSECURING SOLUTION ON 3 DIFFERENT LEVELS

Packing level

Good loadsecuring starts with good, optimized and stable packaging

Pallet level

We offer solutions to ensure a stable pallet according EUMOS 40509 legislation

Load level

On loadlevel we also offer different possibilities to avoid shifting of the goods during the journey. Lashing, antislip, lashingsystems, Loadspacers,....
All solution are EN12195 certified



ANTI-SLIP MATERIALS

Anti-slip materials are the basis of efficient load securing. If you combine the right material, other load securing methods are reinforced. Non-slip material increases the dynamic sliding friction coefficient between the loading surface and the load significantly and enables loads to be secured safely and efficiently as a result.

PAPER

- Double-faced paper, ecru
- Standard: 77x117 cm & 100x120 cm
- Thicknesses: 85, 100, 150, 220, 300, 400 gram/m²
- Customization possible or sheets (roll): on demand

STABUFILM

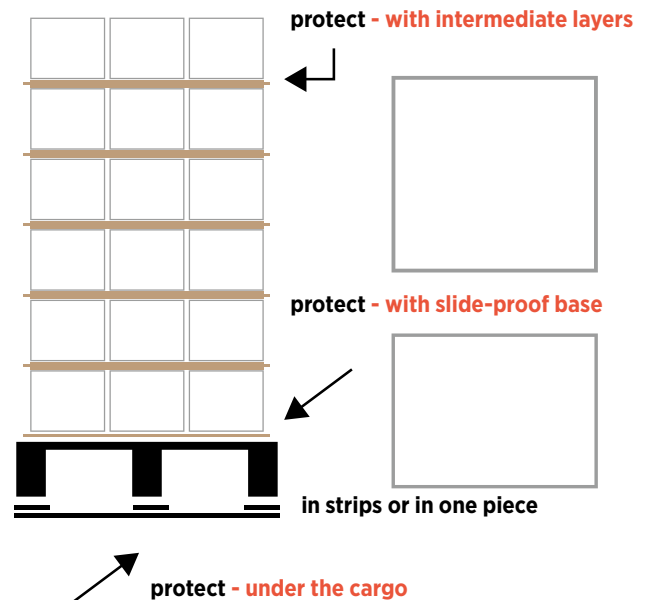
This anti-slip material is made of a high density polyethylene film with anti-slip coating.

- Stabilize any packaging format
- Water barrier for surface, layers and as topcover
- On a pallet level, as layer or as topcover
- Available on rolls, in different qualities
- Easily implemented in a packaging line
- For drums, pails, bags,...
- PE film, double-sided anti-slip
- Total moist barrier, food safe
- Full automatic applications and big volumes
- On rolls (800, 1000, 1200 mm), 50 kg
- Ideal solution for stacked buckets or cans

CARDBOARD

- Anti-slip coating on both sides
- Sheets: 100x200 mm, 150x200 mm, 150x600 mm, 150x800 mm, 150x1000 mm, 150x1200 mm
- Thickness: 500 upto 1000 g/m²

Our recommendations



STABUFOAM

Anti-slip foam comes in: basic - ultra plus. Both are polyolefin foam sheets with an anti-slip finish on both sides.

- Basic - 3 mm thick
- Ultra plus - 3 mm thick
- Ideal solution for stabilization of bigbag on a pallet
- PE foam, non-slip finish on both sides
- Enormous friction force, waterproof
- Thickness: 3 mm
- Customization possible (formats/on rolls)





RUBBER

Non-slip mats create a higher friction between the floor and the cargo and prevent your cargo from moving. Nefab mats have an open structure and are made from SBR/NBR rubber bonded by PUR granulates. They are tested and approved as per the EN12195 requirements. A minimum friction force of 0.6μ is guaranteed.

- Durable product made of regenerated rubber
- Conform EN12195 - VDI 2700
- Friction of 0.6 Available in different lengths and densities
- Customization possible
- Thicknesses: 3, 6, 8, 12 mm
- Reusable



| | Paper | Cardboard | Foil | Foam | Rubber | Coating |
|------------------|-------|--------------|------|--------------|--------|---------|
| On the pallet | x | (single use) | x | (single use) | x | |
| Between the load | x | x | x | x | x | x |

Nefab references

| Length (mm) | Width (mm) | Thickness (mm) | MOQ (pcs) |
|-------------|------------|----------------|-----------|
| 13600 | 130 | 3 | 150 |
| 100 | 100 | 6 | 2000 |
| 3000 | 200 | 6 | 216 |
| 200 | 100 | 8 | 2200 |
| 300 | 200 | 8 | 2000 |
| 5000 | 150 | 8 | 125 |
| 8000 | 1250 | 8 | 1 |
| 8000 | 1250 | 8 | 1 |





PAPER AND CARDBOARD

Anti-slip sheets

Anti-slip sheets protect your products from shifting during internal conveying, transport and storage. The paper sheets, with an anti-slip coating on both sides, exist in different weights with different mechanical strengths adapted to your needs: 85, 100, 140, 220, 300 g/m³. For heavier products cardboard sheets can be used with grammages above 300 g/m².



- Easy to use
- Standard pallet sizes, available in sheets and rolls
- 100 % recyclable
- ISO 14062 eco-designed certified
- Suitable for the food industry
- Can be used on the bottom, in between layers or at the top for pallet stacking

Nefab references

| Length (mm) | Width (mm) | Grammage (g/m ²) | MOQ (pcs) |
|-------------|------------|------------------------------|-----------|
| 1170 | 770 | 85 | 5000 |
| 1170 | 970 | 85 | 5000 |
| 1030 | 730 | 100 | 5000 |
| 1050 | 1050 | 100 | 5000 |
| 1095 | 795 | 100 | 5000 |
| 1150 | 750 | 100 | 5000 |
| 1170 | 770 | 100 | 5000 |
| 1200 | 1000 | 100 | 5000 |
| 1200 | 800 | 100 | 5000 |
| 1150 | 1150 | 140 | 4000 |
| 1170 | 770 | 140 | 4000 |
| 1200 | 800 | 140 | 4000 |
| 1200 | 1000 | 140 | 4000 |
| 1170 | 770 | 220 | 3000 |

| Length (mm) | Width (mm) | Thick (mm) | Color | MOQ (pcs) |
|-------------|------------|------------|-------|-----------|
| 100 | 60 | 3 | Blue | 10000 |
| 100 | 80 | 3 | Blue | 10000 |
| 100 | 100 | 3 | White | 200000 |
| 150 | 105 | 3 | Blue | 10000 |
| 1200 | 1000 | 3 | White | 2000 |
| 800 | 100 | 3 | White | 19600 |
| 1000 | 1000 | 3 | White | 2100 |
| 1100 | 1100 | 3 | White | 2000 |
| 1140 | 1140 | 3 | White | 3500 |
| 1200 | 100 | 3 | White | 7000 |
| 1300 | 1100 | 3 | White | 500 |
| 170 | 131 | 3 | Blue | 63 |



CARDBOARD CORNERS

Cardboard profiles are placed on pallet corners or edges to secure the load.

Laminated hardboard corner profiles support the pallet and help to stabilize and protect the pallet during strapping and foiling. The profiles also protect the corners of the products during handling in the logistics chain and prevent possible damages. And finally corner profiles prevent cuts from strapping band or wrapping foil. Corner protection serves many purposes:

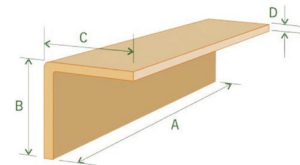


Benefits

- Prevent damages due to lashing bands or straps
- Available in different wing dimensions, thicknesses, colors and lengths
- Possibility for non-isosceles angles
- On demand: self-adhesive tape, coatings, saw cuts, ...
- Printing is possible

Nefab references

| Description (B-C) | Color | Length (A) | Thickness (D) |
|--------------------|-------|------------|---------------|
| Edgb-L-PAP/35/35 | Brown | 3000 mm | 3 mm |
| Edgb-L-PAP/50/50 | Brown | 3000 mm | 3 mm |
| Edgb-L-PAP/60/60 | Brown | 3000 mm | 3 mm |
| Edgb-L-PAP/60/60 | Brown | 2000 mm | 5 mm |
| Edgb-L-PAP/70/70 | White | 1500 mm | 5 mm |
| Edgb-L-PAP/80/80 | Brown | 3000 mm | 6 mm |
| Edgb-L-PAP/100/100 | Brown | 3000 mm | 6 mm |



Custom-made production: all corners can be cut to the desired length (from 50 mm-max corner length).

Max thickness: 10 mm - length of the wings up to 100mm

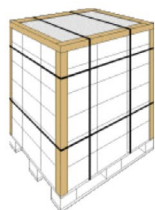
For extra stability the corners can be combined with our elastic strapping band

Special features (on demand)

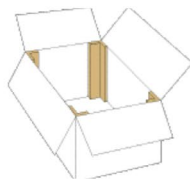
- U- profiles
- Bendable profiles
- Framecut corner
- C- profiles



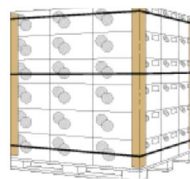
Pallet support



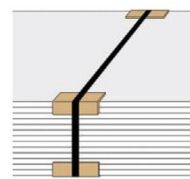
Edge Protection



Strengthening packaging units



Give strenght for stacking and wrapping

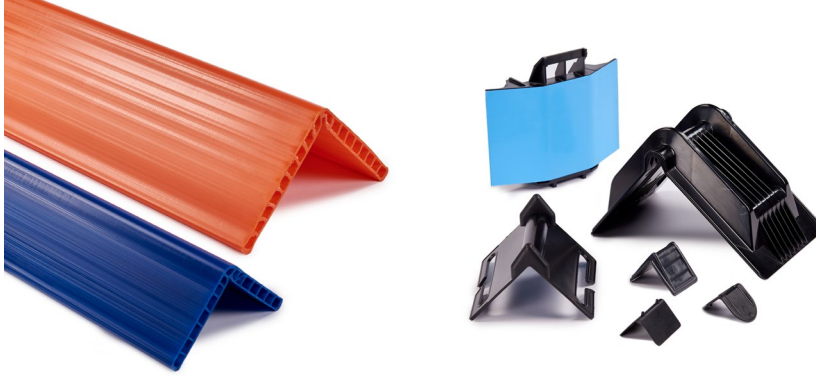


Strap Protection



PLASTIC CORNERS

Plastic protection angles are most commonly used for either load securing or pallet securing.



PROTECTION CORNERS FOR LASHING BAND AND RATCHET STRAPS

These corners spread the force of lashing bands and ratchet straps over a bigger surface. Depending on the application you can opt for corners that protect the entire width of the pallet or corners that only guide the lashing band. Plastic corners can be reused multiple times.

Nefab references

| Description | Length (mm) | Legs (mm) | Color | Thickness (mm) |
|-------------------------------|-------------|-----------|--------|----------------|
| Edgb-L-PLT / 6000 / 120 / 120 | 6000 | 120 | blue | 15 |
| Edgb-L-PLT / 6000 / 190 / 190 | 6000 | 190 | orange | 20 |

Custom-made production: all corners can be cut to the desired length

Benefits

- Reusable
- Prevent damages due to lashing bands or straps
- Available in different wing widths, thicknesses, colors and lengths
- Non-isosceles angles for easy set-up

| Description | Length (mm) | Legs (mm) | Color | Thickness (mm) | Packaging |
|--|-------------|-----------|-------|----------------|---------------|
| Protection angle with slot for lashing bands | 100 | 90 | White | 3 | 200 pcs / box |

| Description | Length (mm) | Legs (mm) | Color | Thickness (mm) | Packaging |
|----------------------------|-------------|-----------|-------|----------------|----------------|
| Protection angle for coils | 139 | 135-175 | Black | 5 | 90 pcs / box |
| Protection angle for coils | 145 | 40-190 | Black | 5 | 80 pcs / box |
| Protection angle for coils | 50 (32) | 50-50 | Black | 4 | 1000 pcs / box |

PLASTIC STRAPPING EDGE PROTECTORS

These corners are used as protection on pallet level to protect your products against damage from strapping. These corners are perfect to protect the edges of furniture.

Available in several sizes and types.



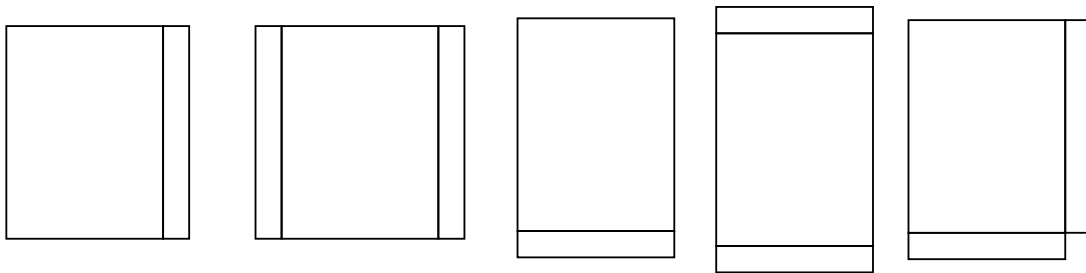


SLIPSHEETS

Slipsheets are an alternative for the use of pallets. The forklift truck needs to be equipped with a push/pull system. Switching from wooden or plastic pallets to slipsheets can result in significant savings (material, space, repair and storage).



The grab handles can be provided on whichever side needed.



Nefab can provide different sorts and qualities:

- Massive cardboard sheets
- Plastic sheets (ldpe-hdpe)
- Recycled plastic sheets

Benefits

1. Economical
 - Up to 10% more space in a container
 - Less storage space needed
 - No need for ISPM 15 heat-treated pallets
2. Environment
 - Less CO emissions (lower weight + optimal container load)
 - Adds value in a woodless environment
 - Free of insects
3. Safety
 - No nails, splinters or broken wood parts
 - Less lifting, much lighter than a pallet





STRETCH FILM

Is the most versatile packaging material used worldwide by movers and packers. It is very helpful for shipping and storage of fragile goods and provides extra protection of delicate items.

Labour savings

- Handling of loose boxes is more "time intensive" than handling a unitized load.

Low supply cost

- Compared to other packaging and bundling materials.

Transportation savings

- Unitizing accelerates the speed at which goods are moved, carrier vehicles spend less time at loading docks.

Protection

- Unit loads reduce incidents.

Warehouse damage

- Unitized loads moved by forklift or pallet jack in warehouse have less damage than loose boxes carried by hand.

Recycling

- Stretch film is recyclable.



Description

- Stretch film
- Dimensions: 500 mm x 300 m
- Color: Black
- Thickness: 20 μ
- Stretch film - mini stretch
- Dimensions: 100 mm x 150 m
- Color: Transparent
- Thickness: 20 μ
- Manual stretch
- Dimensions: 500 mm x 300 m
- Color: Transparent
- Thickness: 20 μ + diameter core





EASYSTRAP

Easystrap is a secure and cost-effective alternative to stretch wrap, adhesive tape, rubber bands, wrapping bands. They are also very useful when fixing edge protection corners.

Description

- Elastic band with corrugated dispenser box
- Length: 1200 mm - width: 100 mm (tolerance L & W: +/- 5%)
- Color: transparent - thickness: 40µ (tolerance: +/- 5%)
- 100 straps on a roll / box
- MOQ: 28 dispensers - 448 dispensers / pallet

- Elastic band with corrugated dispenser box
- Length: 1400 mm - width: 100 mm (tolerance L & W: +/- 5%)
- Color: transparent - thickness: 40µ (tolerance: +/- 5%)
- 85 straps / piece
- MOQ: 30 dispensers - 960 pcs / pallet



Secure and slip-proof

Easystrap has an enormous tensile strength and excellent elasticity.

No damage

On packaging and labels compared to adhesive tape.

Less waste

Up to 90% less waste in comparison to conventional stretch wrap.

Time saving

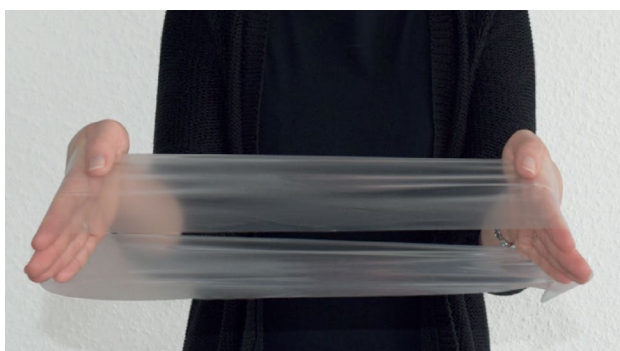
No need for strapping tools, wrapping machines etc..



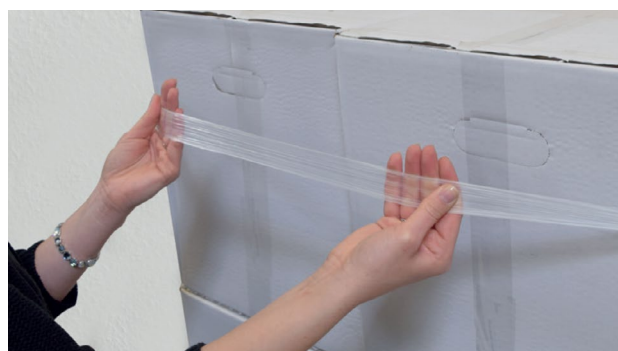
1. Pull stretchband from dispenser and tear off at the seam



2. Prestretch the band



3. Open stretchband



4. Pull stretchband over the packed product



DUNNAGE BAGS

Dunnage bags, also known as airbags, air cushions, and inflatable bags, are used to secure and stabilize cargo. Introduced around 1970, dunnage bags provide convenient and cost-effective cargo stabilization in ISO sea containers, closed railcars, trucks, and oceangoing vessels.

HEAVY BAGS

Heavy bags are mainly used in rail wagons, reefer ships and loads which require extra protection. Our Heavy dunnage airbags are reusable.

| Size in cm | | 60x110 | 85x120 | 100x140 | 100x185 | 100x220 | 120x180 | 120x240 |
|----------------|-------|--------|--------|---------|---------|---------|---------|---------|
| Load in | 10 cm | 8,5 | 13,5 | 19 | 26 | 30,5 | 31,5 | 42 |
| tons in a | 20 cm | 4 | 7,5 | 12 | 16,5 | 20,5 | 22,1 | 29,5 |
| gap of: | 45 cm | - | - | 2 | 3,5 | 4,5 | 6 | 8 |
| Max gap in cm: | | 25 | 37 | 45 | 45 | 45 | 55 | 55 |

| Description | MOQ |
|--|-----------------------------|
| Bates Cargo Pak Heavy 60 x 110 cm | 25 / box - 180 pcs / pallet |
| Bates Cargo Pak Heavy 85 x 120 cm | 20 / box - 160 pcs / pallet |
| Bates Cargo Pak Heavy 100 x 140 cm | 15 / box - 120 pcs / pallet |
| Bates Cargo Pak Heavy 100 x 185 cm | 10 / box - 80 pcs / pallet |
| Bates Cargo Pak Heavy 100 x 220 cm | 10 / box - 80 pcs / pallet |
| Bates Cargo pak Heavy Grand, 120 x 180 cm, 4 ply | 10 / box - 80 pcs / pallet |
| Bates Cargo pak Heavy Grand, 120 x 240 cm, 4 ply | 10 / box - 80 pcs / pallet |
| Quick inflator tool | Per piece |



MEDIUM BAGS

Medium bags are used principally in sea containers and for cargo which requires extra protection. Our Medium bags are reusable.

| Size in cm | | 60x110 | 85x120 | 100x120 | 100x185 | 100x220 |
|----------------|-------|--------|--------|---------|---------|---------|
| Load in tons | 10 cm | 6 | 16 | 12 | 19,5 | 23,5 |
| in a gap of: | 20 cm | 2,5 | 10 | 7 | 12,5 | 15,5 |
| | 45 cm | - | - | 1 | 2,5 | 3 |
| Max gap in cm: | - | 25 | 37 | 45 | 45 | 45 |

| Description | MOQ |
|-------------------------------------|-----------------------------|
| Bates Cargo Pak Medium 60 x 110 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Medium 85 x 185 cm | 15 / box - 120 pcs / pallet |
| Bates Cargo Pak Medium 100 x 120 cm | 20 / box - 160 pcs / pallet |
| Bates Cargo Pak Medium 100 x 185 cm | 15 / box - 120 pcs / pallet |
| Bates Cargo Pak Medium 100 x 220 cm | 15 / box - 120 pcs / pallet |





RE-USE BAGS

Re-Use bags are mainly used in sea containers and for truck transportation.

| Size in cm | | 60x110 | 85x120 | 100x120 | 100x150 | 100x185 | 100x220 | 120x240 |
|----------------|-------|--------|--------|---------|---------|---------|---------|---------|
| Load in | 10 cm | 3,5 | 6,5 | 7 | 9 | 12 | 14 | 14,9 |
| tons in a | 20 cm | 1,5 | 3,4 | 4 | 5,5 | 7 | 9 | 10,1 |
| gap of: | 45 cm | - | - | 0,5 | 0,9 | 1,2 | 1,5 | 3 |
| Max gap in cm: | | 25 | 37 | 45 | 45 | 45 | 45 | 55 |

| Description | MOQ |
|---|-----------------------------|
| Bates Cargo Pak Light Re-use 60 x 110 cm | 40 / box - 320 pcs / pallet |
| Bates Cargo Pak Light Re-use 85 x 120 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Light Re-use 100 x 120 cm | 25 / box - 200 pcs / pallet |
| Bates Cargo Pak Light Re-use 100 x 150 cm | 20 / box - 160 pcs / pallet |
| Bates Cargo Pak Light Re-Use 100 x 185 cm | 20 / box - 160 pcs / pallet |
| Bates Cargo Pak Light Re-use 100 x 220 cm | 15 / box - 120 pcs / pallet |
| Bates Cargo Pak Light Re-use 120 x 240 cm | 20 / box - 160 pcs / pallet |
| Quick Inflator Tool | Per piece |



LIGHT FLEX BAGS

Light Flex bags are mainly used in sea containers and truck transportation. Flex bags are for one-way use and fitted with the patented rotating Flex valve.

| Size in cm | | 60x110 | 85x120 | 85x185 | 100x120 | 100x150 | 100x185 | 100x220 |
|----------------|-------|--------|--------|--------|---------|---------|---------|---------|
| Load in | 10 cm | 3 | 5,3 | 8,7 | 6,4 | 8,3 | 10,4 | 12,6 |
| tons in a | 20 cm | 1,3 | 2,8 | 6,2 | 3,6 | 4,9 | 6,4 | 7,8 |
| gap of: | 45 cm | - | - | - | 0,4 | 0,6 | 0,9 | 1,2 |
| Max gap in cm: | | 25 | 37 | 37 | 45 | 45 | 45 | 45 |

| Description | MOQ |
|---|-----------------------------|
| Bates Cargo Pak Light Flex 60 x 110 cm | 50 / box - 400 pcs / pallet |
| Bates Cargo Pak Light Flex 85 x 120 cm | 35 / box - 280 pcs / pallet |
| Bates Cargo Pak Light Flex 85 x 185 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Light Flex 100 x 120 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Light Flex 100 x 150 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Light Flex 100 x 185 cm | 20 / box - 160 pcs / pallet |
| Bates Cargo Pak Light Flex 100 x 220 cm | 25 / box - 200 pcs / pallet |
| Flex Inflator Tool | Per piece |





LIGHT FLEX ECO BAGS

Light Flex Eco bags are mainly used in sea containers.

| Size in cm | | 60x110 | 85x120 | 85x185 | 100x120 | 100x150 | 100x185 | 100x220 |
|---------------------------|-------|--------|--------|--------|---------|---------|---------|---------|
| Load in tons in a gap of: | 10 cm | 2,3 | 4,1 | 6,6 | 4,9 | 6,4 | 8 | 9,7 |
| | 15 cm | 1,5 | 2,7 | 4,6 | 3,4 | 4,5 | 5,7 | 6,9 |
| | 20 cm | 0,9 | 2 | 3,4 | 2,5 | 3,4 | 4,4 | 5,5 |
| | 25 cm | 0,5 | 1,3 | 2,3 | 1,8 | 2,4 | 3,1 | 3,9 |
| | 30 cm | - | 0,8 | 1,5 | 1,2 | 1,6 | 2,3 | 2,7 |
| | 45 cm | - | - | - | 0,4 | 0,6 | 0,8 | 1,1 |
| Max gap in cm: | | 25 | 37 | 37 | 45 | 45 | 45 | 45 |

| Description | MOQ |
|---|-----------------------------|
| Bates Cargo Pak Light Flex Eco 60 x 110 cm | 50 / box - 400 pcs / pallet |
| Bates Cargo Pak Light Flex Eco 85 x 120 cm | 40 / box - 320 pcs / pallet |
| Bates Cargo Pak Light Flex Eco 85 x 185 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Light Flex Eco 100 x 120 cm | 35 / box - 280 pcs / pallet |
| Bates Cargo Pak Light Flex Eco 100 x 150 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Light Flex Eco 100 x 185 cm | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Light Flex Eco 100 x 220 cm | 25 / box - 200 pcs / pallet |
| Flex Inflator Tool | Per piece |

CARGO PROTECTOR BAGS

Cargo Protector bags are used to secure cargo, which is to be transported by container or road.

| Size in cm | | 85x120 | 85x185 | 100x185 | 120x220 |
|---------------------------|-------|--------|--------|---------|---------|
| Load in tons in a gap of: | 10 cm | 5,3 | 7,3 | 10,4 | 12,6 |
| | 20 cm | 2,8 | 5,2 | 6,4 | 7,8 |
| | 45 cm | - | - | 0,9 | 1,2 |
| Max gap in cm: | | 37 | 37 | 45 | 55 |

| Description | MOQ |
|--|-----------------------------|
| Bates Cargo Pak Cargo Protector 85 x 120 cm, 2ply | 35 / box - 280 pcs / pallet |
| Bates Cargo Pak Cargo Protector 85 x 185 cm, 2ply | 30 / box - 240 pcs / pallet |
| Bates Cargo Pak Cargo Protector 100 x 185 cm, 2ply | 25 / box - 200 pcs / pallet |
| Bates Cargo Pak Cargo Protector 120 x 220 cm, 2ply | 25 / box - 200 pcs / pallet |
| Quick inflator tool | Per piece |



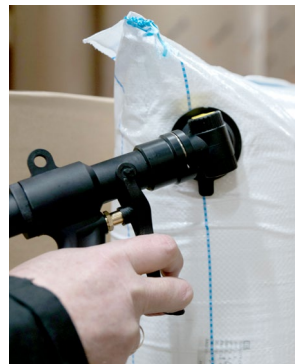


PPW STRIKERBAGS

PPW Striker bags are used to protect your cargo during transit. They are equipped with a patented valve, which allows very quick inflation.

| Size in cm | 60x120 | 90x120 | 90x150 | 90x180 | 90x210 | 120x180 | 120x225 | 150x200 |
|----------------|--------|--------|--------|--------|--------|---------|---------|---------|
| Load in tons | 2,3 | 4 | 5,3 | 6,5 | 8 | 8,4 | 9 | 10,1 |
| in a gap of: | 20 cm | 0,7 | 1 | 2,8 | 3,3 | 5,1 | 5,9 | 6,5 |
| | 35 cm | - | 0,7 | 1,3 | 1,6 | 2,3 | 2,6 | 2,9 |
| | 45 cm | - | - | - | - | 1,2 | 1,5 | 1,9 |
| Max gap in cm: | 20 | 35 | 35 | 35 | 35 | 45 | 45 | 55 |

| Description | MOQ |
|--|------------------|
| Bates Striker PPW Level 1 - 60 x 120 cm | 850 pcs / pallet |
| Bates Striker PPW Level 1 - 90 x 120 cm | 560 pcs / pallet |
| Bates Striker PPW Level 1 - 90 x 150 cm | 520 pcs / pallet |
| Bates Striker PPW Level 1 - 90 x 180 cm | 470 pcs / pallet |
| Bates Striker PPW Level 1 - 90 x 210 cm | 420 pcs / pallet |
| Bates Striker PPW Level 1 - 120 x 180 cm | 330 pcs / pallet |
| Bates Striker PPW Level 1 - 120 x 225 cm | 270 pcs / pallet |
| Bates Striker PPW Level 1 - 150 x 200 cm | 420 pcs / pallet |
| Tool & Machine - Digital inflator | Per piece |
| Tool & Machine - Striker Slinky | Per piece |
| Tool & Machine - Striker Inflator Slinky | Per piece |
| Tool & Machine - Stiker Inflator | Per piece |
| Tool & Machine - Striker head | Per piece |





LOAD SPACERS AND LASH TUBES

Load spacers and lash tubes are products that help you secure your load. Load spacers fill the void, whereas lash tubes are clamped between the ribs of the container and prevent cargo from moving.

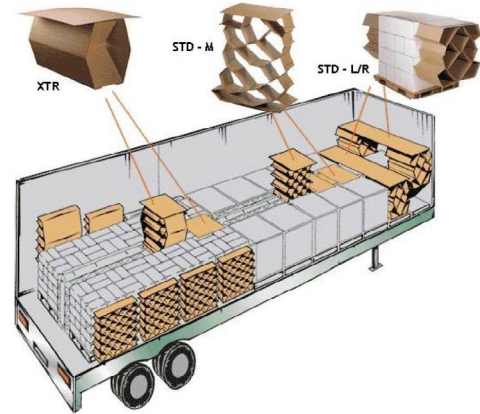
LOAD SPACERS

Load spacers are tailor-made collapsible filling elements that fill up the empty spaces between products. They keep your load in place and avoid damages. Load spacers are very compact, weigh almost nothing and are easily set up.

Free space between products or pallet loads can cause your products to shift or bulge. This can cause serious damages to the product. In many cases the load needs to be restacked before it can be unloaded. One can work towards adapted product dimensions and a more efficient pallet set-up but these parameters are often uncontrollable.

Benefits

- Made of recyclable materials
- Tailor-made
- Low weight
- Reusable
- In combination with airbags = 'complete solution for efficient load securement'



LASH TUBES

Traditionally, a lot of wood is used in shipping containers for securing the cargo. A beam is often placed at the rear of the container to prevent the cargo from falling out of the container from falling out when the doors open. The extension of the import restriction of untreated wood in several continents gives reason to look for solutions that avoid wood. On the one hand, people wish to reduce the administrative hassle surrounding treated wood and avoid any risk of inspection or delay of the container. On the other hand, people are looking for safer, user-friendly and more sustainable solutions. Nefab Packaging has developed the lash tube. Lash tube is a strong laminated cardboard tube. The surface is moist resistant coated. Lash tube is inserted like a wooden beam clamped between the ribs of the container and holds back the load.

Benefits

- Available in different diameters and lengths
- Special outer surface eg. special film, printing, self-adhesive strip, coatings,...



STRAPPING

Strapping is used to hold your products together or secure your load to the pallet. Strapping can be applied manually, semi-automatically or automatically with a strapping machine, anywhere in the warehouse. Depending on the application and the weight of the goods, there are different types of strapping and associated strapping devices.

FIBRESTRAP

FibreStrap is the world's first plant-based cable tie. Made for bundling and attaching just about any product or item. FibreStrap can easily be integrated in any packaging solution or application, replacing the traditional plastic cable ties. FibreStrap is re-usable under certain conditions and can be recycled with other paper products. The Nordic wood fibre material comes from

certified sources which is a warrant for sustainable forestry, giving outstanding tensile strength.

Characteristics of FibreStrap

- Material: Kraft paper certified from sustainable forestry
- Bio-composite: Polylactic acid
- Metal pin: Stainless steel wire
- Recyclable



PAPER STRAPPING

Paper strapping is a recyclable and fully biodegradable strapping, easy to handle and has a breaking strain of 55kg, which is suitable for the vast majority of parcel strapping operations.



PP STRAPPING

PP strapping is the most frequently used strapping band. PP band is suitable for light and medium-heavy strapping applications. This form of strapping works perfectly since its characteristics such as breaking strength, elasticity, loss of tension are flawless. The tensile strength is determined, among other things by the width and thickness of the band.

Characteristics of PP band

- More matte than other strapping
- Standard colours: black, blue, white, yellow
- Can be easily torn in the longitudinal direction
- Specific weight is lower than PET band, PP band floats on water



PP band can be fastened with plastic or metal buckles or heat sealed. Strapping can be done manually, semi-automatic, with a strapping device or full automatic.

Nefab references

| Description | Color | width | Thickness | Length | Core diameter | Breaking strength |
|--------------|-------|-------|-----------|--------------|---------------|-------------------|
| PP strapping | blue | 12 mm | 550µ | 300m / roll | 200 mm | 125 kg |
| PP strapping | white | 12 mm | 550µ | 3000m / roll | 200 mm | 133 kg |

Other dimensions can be supplied. Ask for info and prices



PET STRAPPING

PET strapping is made from Poly-Ethylene-Terephthalate. It is also called green polyester strapping band.

Characteristics of PET strapping

- Perfect for outdoor storage (UV-resistant)
- Very strong, optimal stretch, almost 100% strain recovery
- Smooth or embossed surface
- Can be closed with or without seal
- Recyclable
- Perfect to secure heavy loads
- Can replace steel strapping



Nefab references

| Description | Color | width | Thickness | Length | Core diameter | Breaking strength |
|---------------|-------|---------|-----------|---------------|---------------|-------------------|
| PET strapping | green | 12 mm | 700 μ | 2200 m / roll | 406 mm | 304 kg |
| PET strapping | green | 15,5 mm | 700 μ | 1750 m / roll | 406 mm | 432 kg |

Other dimensions can be supplied. Ask for info and prices

COMPOSITE STRAPPING

Composite band is processed manually and consists of extruded polyester threads. They are glued together and are provided with a polymer coating. Composite band is also a safe alternative for steel strap.

Characteristics of composite band

- Perfect for heavy container loads
- UV- and chemical-resistant
- Secured with buckles / seals
- Less expensive than steel strap, steel cables, chains
- Doesn't damage your load
- Easy and safe to work with
- Holds its tension and can be retightened



Nefab references

| Description | Color | width | Thickness | Length | Core diameter | Breaking strength |
|---------------------|-------|-------|-----------|--------------|---------------|-------------------|
| Composite strapping | white | 16 mm | / | 850 m / roll | 200 mm | 425 kg |
| Composite strapping | white | 25 mm | / | 500 m / roll | 200 mm | 850 kg |

Other dimensions can be supplied. Ask for info and prices

STEEL STRAPPING

Steel strapping is ideal for heavy, sharp-edged and/or hot packages. The variety of types of steel strapping are the result of combining 4 basic product characteristics:

- Dimension: The wider and thicker the steel strapping, the greater the breaking load
- Corrosion protection
- Elongation
- Winding: ribbon or oscillated winding



HOTMELT POLYESTER STRAPPING

In contrast to polyester textile strapping, the polyester yarns are not glued but instead cross-woven. This results in the strapping being less easily severed by sharp-edged packaging goods, and so is often used for strapping of split wood for example. Following the weaving process our woven strapping is further refined with cold glue. Thus, it becomes stiffer and enables greater system strengths when used in conjunction with metal buckles. Due to the resultant smoother surface in comparison with hotmelt polyester strapping, the use of phosphate buckles in place of galvanized buckles is recommended.





LASHING

Lashing belts are often used in export packaging. Polywoven polyesterband helps you to secure your load quickly and efficiently. The band is tightened by means of a rattle and buckle. There are many lashing options for both road transport and container loads

ONE-WAY LASHING

Loadsecuring by means of lashing band is a very ergonomic alternative for chains, steel cables,.. Lashing is easy to manage and light of weight. Polyester lashing is just as safe but a lot cheaper than other load securing systems. Lashing is often used for one-way transport. Combined with the correct lashing buckles, rattles, hooks and a good technique you will save a lot of time and money. The product is delivered in bags of 250 m and can be cut to the desired length.



EASYLASH

Nefab developed an easylash system which permits you to secure your load in a fast and efficient manner. Easylash is made up of 2 vertical parts with 2 horizontal stitches. Mounting into a container is very easy because the 4 j-hooks with latch are clicked into the lashing rings above and below inside a sea container. The load can be secured with 2 lashing buckles and attached to the container eyes with hooks. Depending on the application we have three different colors, each with different dimensions: white, green and red.



CONTAINERLASH

Container lashing prevents your loads from shifting. Containerlash is a modular lashing system that can be adapted to every type of cargo. The horizontal parts can be placed wherever they are needed. With only 4 manipulations one can easily fix the cargo in a container. It is very flexible and has a total strength of 2000 kg. The lashes are delivered per set for 1 container, with 100 sets/package and it adjustable to each type of cargo.

SAFETY SHEETS

Safety sheets prevent cargo from falling out of the container when the container doors are opened on arrival. Both damage to the goods as well as great risk for the personnel opening the container is avoided.





ACCESSORIES

With our wide range of accessories Nefab provides a complete packaging solution. Our accessories can be combined into a complete solution or we can supply single product types. As Nefab focuses on sustainability, we also have a sustainable accessories product range.

ACCESSORIES RANGE

Through our focus on replacing single-use plastic packaging with paper-based packaging solutions, Nefab offers a range of sustainable accessories as well.

WATER-ACTIVATED PAPER TAPE MACHINE

Our Water-activated Paper Tape Machine is an automatic water activated tape dispenser, enabling biodegradable reinforced paper tape to be used by operators anywhere. Many operations globally turned to the multifunctional tape dispenser to improve their carbon footprint. Reinforced paper tape provides high security and protection to your parcels, without putting a damper on your environmental efforts. Handheld and battery operated, there are no limits to where the taper can go, overcoming the limitations of desktop machines. The Taper has multiple tape length and speed settings, enabling the user to adjust as required.



SUSTAINABLE

FIBER REINFORCED PAPER TAPE

The tape is a fiber reinforced, lightweight, water-activated, adhesive tape for commercial applications. The adhesive tape is particularly flexible in handling and usage. A recommended electric water-activated tape dispenser is our Water-activated Paper Tape Machine.



SUSTAINABLE

ECO-FRIENDLY PADDED ENVELOPES

The eco-friendly padded envelopes are based on an innovative technology that creates corrugated protective padding. Instead of using plastic bubbles, the inner layer is entirely made of paper waves that ensure greater protection and rigidity to the casing avoiding the risk of damage.



SUSTAINABLE

PACKING LIST

Packing lists, also known as delivery note pouches, are a well-known means of attaching important documents such as invoices, delivery or return bills to a consignment of goods so that they are clearly visible.





TAPE

The choice of tape is very important to make sure that your customers' packages and parcels are sealed securely before sending them off.

- Packaging tape
- Vci tape
- Warning tape
- Fingerlift tape

Tape dispensers

Dispensers make sealing quicker and more efficient. Our standard packaging tape dispenser has an adjustable release and is available in models suitable for 48/72 mm wide tape.



DOCUMENT HOLDERS

Document holders are made of plastic and are often used in industrial environments. They are attached to a crate or collar and contain pallet information. Document holders facilitate pallet identification

PLACARD LABEL HOLDER

These holders can be used for self-adhesive labels. The holders can be placed on several surfaces like plastic, EPP foam, steel and plywood. It is resistant to UV light and can be washed.

STACKING CONES

Nefab 'do not stack' cones provide a low cost, instantly recognizable way of identifying where products cannot be stacked on top of one another. The pallet cones can be easily taped or strapped to the top of a pallet. The message is in English, Spanish and French.



INDICATORS

Humidity and temperature indicators can be fit inside your packaging to continuously monitor the relative humidity or temperature.

Drop Indicators

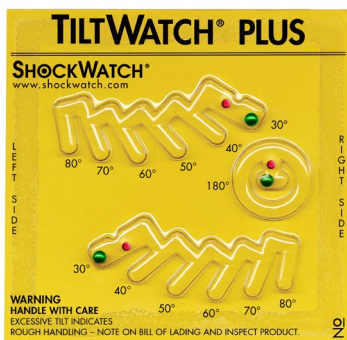
Drop'n'Tell indicators indicate whether your product was dropped or not. The Drop'n'Tell includes two warning labels and is manufactured to detect six different ranges of G-force (5G, 10G, 15G, 25G, 50G and 100G).

Tilt indicators

Tilt indicators are labels that indicate if your product tilted during transport. They can be attached to the packaging. There are 2 types of tilt indicators: one that indicates if there was tilting and one that indicates the tilting degree. These indicators are mainly used for products with fluids or very fragile products. Handlers are forced to be more careful when handling your product when it has an indicator.

Shock indicators

A shock indicator is a label that indicates if your package was exposed to a big shock. If this is the case the label will turn red. Depending on the G-value of your product (force needed to break your product) you choose the type of indicator.



COLOPHON

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- **SAVING RESOURCES**

Sustainable packaging solutions designed to save financial and environmental resources in supply chains while ensuring high performance and product protection.

- **IN-HOUSE DESIGN & ENGINEERING**

With in-depth material knowledge and expertise, our packaging solutions are engineered, prototyped, and tested by our Global Engineering Network in ISTA-certified labs around the world.

- **GLOBAL SUPPLY AND SERVICES**

Global packaging supply and coordination with local logistics services and support.

- **CUSTOMIZED SOLUTIONS**

Customized packaging solutions and logistics services that fit the needs of each customer and product requirement.

NEFAB
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