

SUSTAINABLE AND CIRCULAR

Returnable logistic carriers instead of disposable ones





Introduction

As the world's population has grown, demand has increased, producing more convenient, finished products and a prominent increase in consumption. Globalisation, trade liberalisation, and the dominant linear economy model is increasing the amount of packaging waste created.

According to 2022 data, on average, each European produces around 180 kg of packaging waste per year. However, they are one of the main sources of primary raw materials, as 40% of the plastics and 50% of the paper used in the EU are dedicated to their production. Such a consumption system translates directly into the loss of more and more natural resources.

If this situation were not halted by appropriate regulation, there would be an increase of 19% in packaging waste and up to 46% in plastic waste alone in the EU by 2030.¹



These serious facts show we need an apparent change in resource management. Closing the product life cycle and moving from a linear to a circular economy model is crucial so that waste can be used as a raw material in the next production cycle, or carriers can be reused several times.

European Union regulations set to influence behaviour change

In March 2020, The European Commission's European Green Deal unveiled a new roadmap for a circular economy, which includes proposals for more sustainable product design, waste reduction, and consumer empowerment.

The EU's overarching goal is to reduce packaging waste by 15% per Member State by 2040. Companies can minimize and prevent it through the use of returnable packaging. The proposed revision of EU legislation on packaging and packaging waste has three main objectives.

- Preventing packaging waste: reducing the amount of packaging, reducing unnecessary packaging, and promoting reusable and refillable packaging solutions.

¹ https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7155



- To increase high-quality recycling ('closed loop'): Make all packaging on the EU market economically recyclable by 2030.
- Increase the use of recycled plastics in packaging to reduce the demand for primary natural resources and create a market for secondary raw materials.

How do returnable load carriers contribute to sustainability?

→ Environmental benefits

The main advantage of using returnable carriers is that it saves natural resources and reduces waste, such as cardboard boxes and single-use films. Estimations show that, **if EU regulations are properly implemented, there will be a reduction in greenhouse gas emissions from packaging to 43 million tonnes by 2030, compared to 66 million (if the regulations were not changed), and water consumption will be reduced by 1 million m³.**

Furthermore, the cost of environmental damage to the economy and society will be reduced by €6.4 billion from the baseline currently assessed (2022) by 2030. In addition, the standardisation of packaging in the logistics industry results in savings in return transport, thereby reducing the negative environmental impact in the form of CO₂ emissions.

→ Social benefits

Implementing returnable carriers will require transformational investment, which positively impacts the economy and job creation. **Increasing carriers' reuse is expected to create more than 600,000 jobs by 2030, especially in the small and medium-sized business sectors.** The resources gained from the circular economy will save money. It is predicted that each European could save almost €100 per year if companies translated the savings to consumers.

Returnable load carriers in supply chains also benefit employees by reducing manual work. Reusable packaging is standardised, so it can work better with automated systems. There will be fewer failures and improved product flow in supply chains, with little or no system downtime.

→ Business benefits

The implementation of returnable load carriers and the option of renting or closed-loop packaging has meant that many companies have already seen clear financial benefits.

For more on the impact of packaging rental on companies' financial performance, see the research produced in WP2: [Rental, shared usage of logistic means.](#)

Furthermore, in some industries, packaging waste has even become a commodity that generates an additional revenue stream. The returnable logistic carriers strategy saves on direct material costs because it does not require continuous investment in disposable packaging. It saves time and costs associated with packaging management and improves operational efficiency by, among other things, optimising loading times or the use of warehouse space.



How does load carriers' unification reduce costs and improve logistics?

If the logistic carriers' parameters in the supply chain are not aligned, this results in a significant financial loss, resulting in excessive consumption of packaging materials, transportation means, and storage space. It is, therefore, essential to standardize packaging dimensions and coordinate them with those of logistics units, containers, and other equipment.

The European Packaging Federation, as well as Scandinavian countries, are adopting recommendations to standardise the dimensions of transport carriers and the dimensions of logistic units. What impact does this have on cost reduction?

We can illustrate it by using the example of folding box pallets with lids. They are easy to set up and assemble, taking seconds. The high compatibility with the pallet and the fixed connection of the pallet, side walls, and lid eliminates the risk of lost items. The design of this box pallet allows for safe stacking without the risk of the pallet shifting with a foil or strapped load. Moreover, it reduces the cost of purchasing foil, strapping, and disposable wooden pallets that may be difficult to resell later.

Moving towards closed carriers loop

As we have already mentioned, a key element of sustainability efforts is the creation of a closed-loop economy as part of the European Green Deal.

How does the use of returnable load carriers meet these objectives?

Many times, logistic carriers are left to the end user after a single use. It's time to rely on reusable items. We can integrate them into automated processes and reduce the time required for transport.

Packing, transporting, storing, and unpacking goods is optimized and, in numerous instances, faster than similar processes using disposable carriers. Very often, load units such as wooden pallets, for example, are left to the end user after a single use because they are no longer needed. However, if there are numerous and regular flows of goods within a company or between companies, it makes sense to rely on reusable packaging. They can be integrated into automated processes and thus reduce the time required for transport.





What advantages does returnable packaging offer?

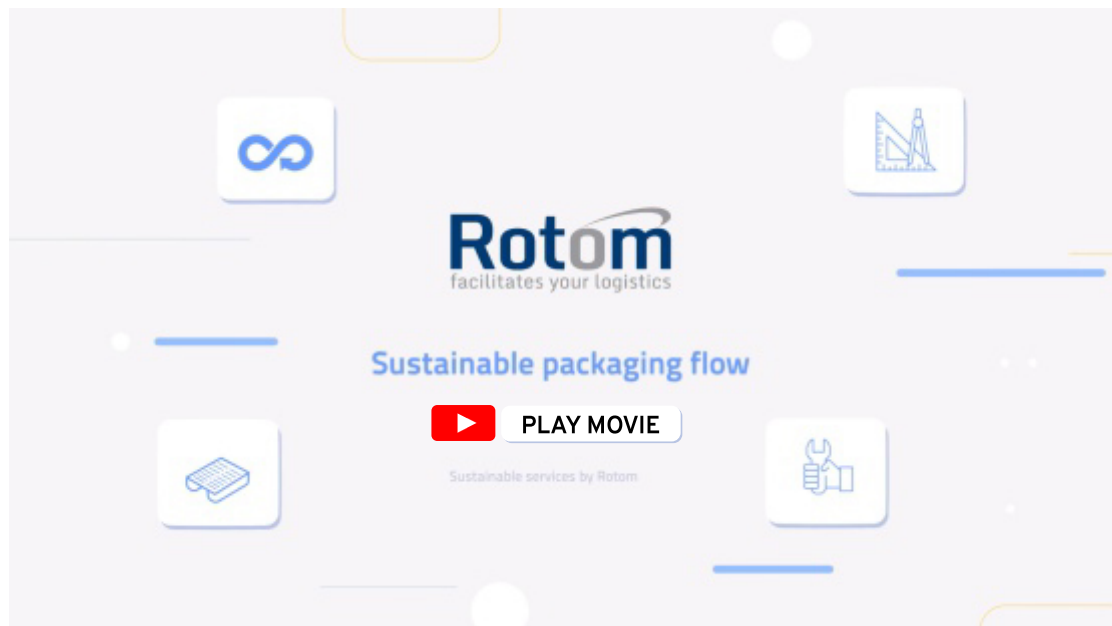
The most crucial advantage of load carriers is obvious: they have an extremely long life cycle. It clearly distinguishes them from disposable packaging, which – as the name suggests – can only be used once. To achieve this life cycle, they must, of course, be sufficiently robust. This quality of packaging provides reliable protection for the goods being transported. It ensures that a one-time investment in packaging solutions remains profitable for years.

Reusable load carriers have economic and environmental advantages: there is no need to store and dispose of disposable packaging, so there is much less waste that harms the environment. Another advantage is the design – to enable inexpensive returnable transport or to save space during storage, reusable packaging is often folded or stacked (nested).

The fact that returnable packaging is foldable significantly contributes to environmental protection. For example, a standard 13.6 m long semi-trailer will hold 96 Gitterboxes in a fixed, non-folding form. By contrast, when the Gitterbox is folded, 264 boxes will fit in the same trailer. This means 2.7 times fewer return trips and less fuel consumption and CO₂ emissions.

Saving material, minimising costs, and optimising processes are some advantages of returnable load carriers in industry and retail.

How does it work in practice? Have a look at the animation below to see what you can gain from introducing returnable packaging into your supply chain.





How can Rotom turn disposable packaging into returnable packaging?

➔ By initiating the recovery of existing packaging

Every shipment of products to our customers' customers is automatically recorded in the system. It lets you know when and how much packaging will arrive at a specific location. Empty packaging is collected by us and delivered to the Rotom warehouse (2Return). Rotom workers check the carriers' quality and inspect and repair them to ensure they can be reused.

This process allows existing packaging to be reused, so buying new units to distribute goods is unnecessary. By working with an experienced partner such as Rotom, you are assured of a smooth and seamless recovery process.

What kind of load carriers can we recover?

The list of products that can be included in the packaging recovery service is very long. Most of them are wooden pallets because they are simply the most common logistical carrier. We can also apply the packaging recovery service to plastic carriers such as plastic containers, plastic crates, pallets, and metal ones: crates, pallets.

The service is available almost all over Europe

Packaging recovery is not a problem, as we have more than 300 warehouses in 11 European countries. As a result, we can recover packaging from almost every corner of Europe. Suppose the carrier is a standard product with our pallet banking service. In that case, we will pick up, for example, a pallet from your customer in another country and deliver it to the nearest Rotom warehouse (2Return).





➔ Replacing current disposable load carriers with reusable ones

If direct packaging recovery is not possible, then replacing it with others that can work in circulation is necessary. In this case, you can buy new media independently, but this is not always necessary.

In such a situation, Rotom provides:

- The necessary packaging.
- Carrying out the entire process – from delivery to recovery.
- Maintenance.
- Re-delivery to circulation.

Then you only pay for the packaging “movement” made, not its value.



Another option is to purchase new reusable carriers. Optionally, Rotom can combine this service simultaneously with the redemption of disposable carriers, which will remain in the owner’s warehouse. For example, if a customer ships goods on disposable pallets, we can begin to acquire them (they stay in Rotom’s warehouses) from its customers and provide reusable pallets instead.

In this process, we support entrepreneurs in valuing and verifying the condition of load carriers.

It involves checking product requirements in such aspects as:

- Applicability of logistic means – we analyze, among other things, how many pieces of packaging are in circulation, and the level of turnover during the year, affecting the level of investment.
- Packaging method – for example, will the product be packaged on automated production lines?
- Type and length of transportation – we consider the shipping location.
- The unpacking process at the customers – how much film or packaging tape is left as waste for recycling?
- Additional industry requirements – together with the customer, we choose the best solution.

Do such measures bring real business success? In the next section, we present the cases of our clients from various industries who have significantly benefited from the transition to reusable carriers.

Customer Cases

#1 Replacing stretch film with reusable security in roll containers

In the highly competitive retail logistics sector, our client – a European leader in the 3PL industry – sought to improve its sustainability practices and optimize its supply chain. Replacing single-use packaging with reusable alternatives, Rotom was chosen as a trusted partner in providing logistics solutions.

Previous logistic carriers' solution

The company used roll containers using a massive amount of disposable stretch film to secure goods in transit. While this approach provided convenience, it had significant drawbacks regarding environmental impact, cost, and time efficiency.

Our solution: Eliminate single-use stretch film and switch to reusable protection.

Recognizing the need for change, the company partnered with Rotom to implement a more sustainable and efficient strategy for securing logistics carriers. The solution was to replace single-use stretch film with particular walls integrated into a reusable roll container. The project included modification for volumes ranging from 100,000 to 1,000,000 of these carriers.



The new closing system eliminated the stretch film and significantly accelerated the packaging process



Results

→ Environmental benefits

Modification of the security of the logistics carriers resulted in a significant reduction in carbon dioxide (CO₂) emissions by as much as 86%, dropping from 143 grams of CO₂ per container to just 20 grams of CO₂. Previously, a single roll of the stretch film generated a carbon footprint of about 5 kg of CO₂ and was sufficient for about 35 roll-container loads. In contrast, the two lids in the new system had a much lower carbon footprint of just 20 kg of CO₂ over their entire life cycle.

→ Cost savings

The implementation of the new security system proved to be very cost-effective for the company. An impressive 70% reduction in packaging costs was achieved, as the price of a single roll container securement dropped from €0.17 to €0.05. One set of walls integrated with a roll container lasts about 1,000 delivery cycles.

→ Time efficiency

In addition to the environmental and financial benefits, the time required for packaging operations has been reduced by as much as 83%. Previously, it took an employee about a minute to wrap a container in stretch film. With the new system, the process of securing a roll container takes just 10 seconds, significantly improving overall operational efficiency.

Summary

By replacing single-use carriers with a reusable alternative, the company has achieved significant benefits in terms of sustainability, cost reduction, and time efficiency. The change resulted in an 86% reduction in CO₂ emissions, leading to considerable cost savings and improved operational efficiency.





#2 Folding plastic boxes instead of disposable cardboard packaging

A manufacturing company that produces plastic cups and food containers recognized the need to improve its efforts to reduce packaging waste. To address its packaging challenges and implement a more sustainable approach, it partnered with Rotom in a logistics carrier transformation.

Previous carriers' solution

The company's previous logistic carriers' system was based on disposable ones. Most often, employees stacked the produced cups on top of the other and packed them into plastic bags; next, they packed them into cardboard boxes loaded 20 at a time on a pallet. The pallets with the products were delivered to the customers to use the products at the filling stations. Once the cartons were emptied, the plastic bags, cartons, and pallets were sent for recycling. This conventional approach resulted in significant waste generation and inefficiencies throughout the supply chain.

Switching to reusable load carriers

The company adopted a new logistic means solution centered around reusable Smartboxes. These collapsible plastic carriers provided an innovative alternative to previous packaging methods.

Results

➔ Increased efficiency

Through numerous tests, it was possible to estimate the optimum number of items that could be transferred to the box. The test result was that the total volume of items in a box compared to the number of items in 20 cardboard boxes on a pallet increased by almost 10%. Not having to fill, close and stack 20 boxes on a pallet increased the efficiency of operations on the production line and at the customer's filling station, which clearly improved operations.

➔ Waste reduction

The company has significantly reduced packaging waste by eliminating the need for cardboard boxes, tape, and wooden pallets. Moreover, the Smartbox crate allowed more products to be packed in a plastic bag, minimizing plastic consumption.

➔ Cost savings

The elimination of single-use packaging items has translated into cost savings for the company and its customers. Moreover, increased productivity and easier handling of media has improved operational speed.





➔ **Environmental impact**

The switch to reusable packaging has significantly reduced the manufacturer’s environmental impact. The use of Smartboxes has resulted in greater volume per shipping unit, eliminated the production and recycling of cardboard boxes and wooden pallets, and minimized the use of plastic and tape.

Summary

The company has successfully transformed its packaging practices by working with an experienced logistics partner and switching to reusable carriers. The client’s commitment to sustainability has significantly reduced waste and increased savings. In this way, the company has set a positive example for the plastics manufacturing industry, demonstrating that innovative solutions can significantly benefit both companies and the environment.



The company has significantly reduced packaging waste by eliminating the need for cardboard boxes, tape, and wooden pallets. Moreover, the Smartbox crate allowed more products to be packed in a plastic bag, minimizing plastic consumption.



#3 Designing and marketing reusable pallets for a solar panel distributor

A manufacturing company that produces plastic cups and food containers recognized the need to iA wholesale solar panel distributor faced challenges in optimizing its supply chain. The initial approach was to use standard-size pallets because of their affordability and availability. However, as the company grew, it recognized the need for a more efficient and sustainable solution.

Successful logistics partnership

Since 2022, the distributor has partnered with Rotom to regularly recover and reuse pallets specially designed for the unique dimensions of the solar panels. Standard packaging and modular pallets needed to be improved for the irregularly sized panels, requiring the use of custom pallets.

Solution

Rotom designed and manufactured a more robust version of custom pallets equipped with distributor brandings, such as logos and names, to overcome the challenges. These pallets were designed with durability in mind, adapting the pallet's dimensions to the product being transported, reusing the pallet, and eliminating damage to the goods during transport.

In the event of damage to returning pallets, which has yet to be observed, Rotom will be responsible for repairing and remarketing them, further promoting sustainability and cost reduction.

Results

The cooperation between the distributor and Rotom has yielded significant results:

➔ Number of recovered load carriers

Approximately 2,000 were recovered during the year, exceeding the initial 30% collection rate goal.

➔ Cost reduction and total cost of ownership (TCO)

By recovering and reusing pallets instead of buying new ones, the distributor has significantly reduced purchasing costs and, very importantly, eliminated damage to goods in transit. The price of returning pallets is considerably lower than buying new carriers.

➔ Increased sustainability

The recovery and reuse of load carriers have contributed to the customer's sustainability goals. Minimizing waste and adopting the principles of a closed-loop economy have reduced the environmental impact.



Summary

Working with Rotom, the Client has successfully implemented a reusable packaging system. Introducing customized, durable pallets tailored to unique product requirements led to cost savings and strengthened the sustainability strategy.



Concerns about the transition to returnable logistic carriers

→ Is packaging circulation profitable?

Circulation of load carriers is certainly profitable, and specific returns depend on various factors, such as the packaging materials used, production scale, distribution channels, and overall supply chain performance.

→ Is the quality of load carriers that Rotom recovers from my customers adequate?

All the handling on carriers' repair, maintenance, and collection side stands with Rotom, which is committed to providing 100% fit for use in the supply chain.

→ How do I overcome the administrative problems associated with pooling?

Switching to packaging recovery does not require an additional amount of administrative work. Rotom specialists, based on packaging specifications, shipment locations, and an assessment of the quality of available carriers, can precisely calculate savings from carrier recovery and show how companies save time in handling packaging.

→ What steps should you take to make the benefit simulation as accurate as possible?

Transparency of operations and close cooperation between the company managing the packaging workflow and the sales department at the client, and its contractors, is necessary.

→ Can Rotom handle the logistics side of large organizations?

Rotom (2Return) can generate a significant media return with repair and maintenance services for companies with dozens or hundreds of location points. It currently has 300 locations in Europe and constantly expands its outlets. An additional advantage of the process is that we carry out the packaging service process not only for standard pallets (e.g., Euro) but for customers with their custom pallets. Can Rotom handle the logistics side of large organizations?

In the following article, you can read more about the cost analysis and the benefits of switching to load carriers' workflow.



 facilitates your logistics

 Sustainable logistic services

The 5 most common concerns about pooling - we dispel your doubts

[Read more](#)



Benefits of switching to returnable load carriers

➔ Financial benefits

The long-term savings from returnable carriers alone are enormous. Instead of constantly buying disposable packaging systems, we source and return existing cases to the market. Such an operation costs much lower than the cost of disposable packaging. However, we can't use the current carriers and must purchase new returnable ones. In that case, it is usually a one-time investment expense that only slightly extends the return on investment. The higher initial purchase price ultimately translates into a lower delivery cost due to reuse.

Reusable logistic means are also associated with better product protection and less damage. They are sturdy, allowing high protection for demanding parts and providing more outstanding durability at a lower transportation cost than single-use packaging.

There are significant savings in transportation costs when using returnable load carriers because we can use them multiple times. It eliminates the need to purchase and dispose of disposable packaging constantly.

➔ Branding benefits

More and more customers are choosing to work with companies committed to sustainability. According to the Reusable Transport Packaging State of the Industry Report, "88% of respondents predict an increase in demand for reusable packaging over the next 12 months".

Reusable packaging also has an impact on better visibility for your brand. Durable construction, distinct colors, and the ability to customize the packaging, such as putting your company's logo on it, get customers accustomed to using a particular supplier.

➔ Environmental benefits

Reusable packaging eliminates the generation of vast amounts of solid waste compared to single-use packaging. Standardized carriers result in savings in return transportation, thereby reducing the negative environmental impact of CO₂ emissions. It helps conserve natural resources, reduce greenhouse gas emissions, and save energy.

➔ Logistical benefits

Reusable carriers are standardized so that they can work better with automated systems. It reduces jamming and improves product flow in the supply chain with little or no system downtime.

Moving to returnable carriers also offers many other possibilities, such as tracking packages (track & trace) or monitoring transport conditions with special GPS-based sensors that can record temperature or package impacts. We then have complete control over products at every stage of the supply chain.



Summary

Switching to returnable carriers offers tangible financial benefits - as one of the components of sustainability. First, it makes it possible to eliminate the constant spending of money on disposable carriers virtually.

“Implementing a reusable packaging system has proven very profitable for the company. An impressive 70% reduction in packaging costs was achieved, as a single roll container protection cost dropped from €0.17 to €0.05.”

Reusable packaging also means a reduction in the preparation time for shipping goods.

“The time required for packaging operations has been reduced by 83%. Previously, it took an employee about a minute to wrap a container in stretch film, but now, thanks to the security modification, only 10 seconds.”

Reusable carriers also mean better product protection and less damage. Thanks to the exceptional durability of reusable containers, measurable cost savings are achieved in storage and transportation, and the amount of recovered packaging is increased.

“About 2,000 load carriers were recovered during the year, exceeding the initial 30% collection rate goal.”

Above all, the switch to reusable packaging significantly reduces its negative impact on the environment.

“Modifying the security of logistics carriers has resulted in a significant reduction in carbon dioxide (CO₂) emissions, by as much as 86%, dropping from 143 grams of CO₂ per container to just 20 grams of CO₂.”

Recovering and reusing cargo carriers undoubtedly contribute to companies' sustainability goals.

Packaging reuse should become a standard today. As we mentioned earlier, the overarching goal of the EU is to reduce packaging waste by 15% by 2040. It is possible to minimize the amount and prevent more by using returnable packaging.

By making carriers work in circulation, companies act sustainably and contribute to reducing waste by reducing the resources required to produce and distribute disposable packaging. Additionally, they save on logistics costs and the purchase of new packaging, so the benefits of switching to returnable media are undoubtedly worth considering.



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