HANDLING OF EUROPALLETS WITH HYDRAULIC FORKLIFT FORKS

SAFE, EFFICIENT AND COST-EFFECTIVE.

MEIJER HANDLING SOLUTIONS

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INTRODUCTION

Every day, forklift operators move thousands of pallets in warehouses and factories. A large proportion of these are Europallets, one of the most common pallet types in Europe. Yet these pallets are still mostly handled with standard fixed forks on the forklift, a practice that creates both safety risks and unnecessary costs. Why continue to work with forks that do not optimally fit the Europallet, when modern hydraulic extension forks exist that make this work much safer and more efficient?

In this text, we discuss what Europallets are and how they came to be, what risks and damage can occur when using traditional forks, and how hydraulically adjustable forks provide a solution. Finally, we look at the economic benefits and return on investment (ROI) of this innovation. The goal is clear: to demonstrate that switching to hydraulic forks not only increases safety, but also quickly pays for itself financially.

WHAT IS A EURO PALLET?

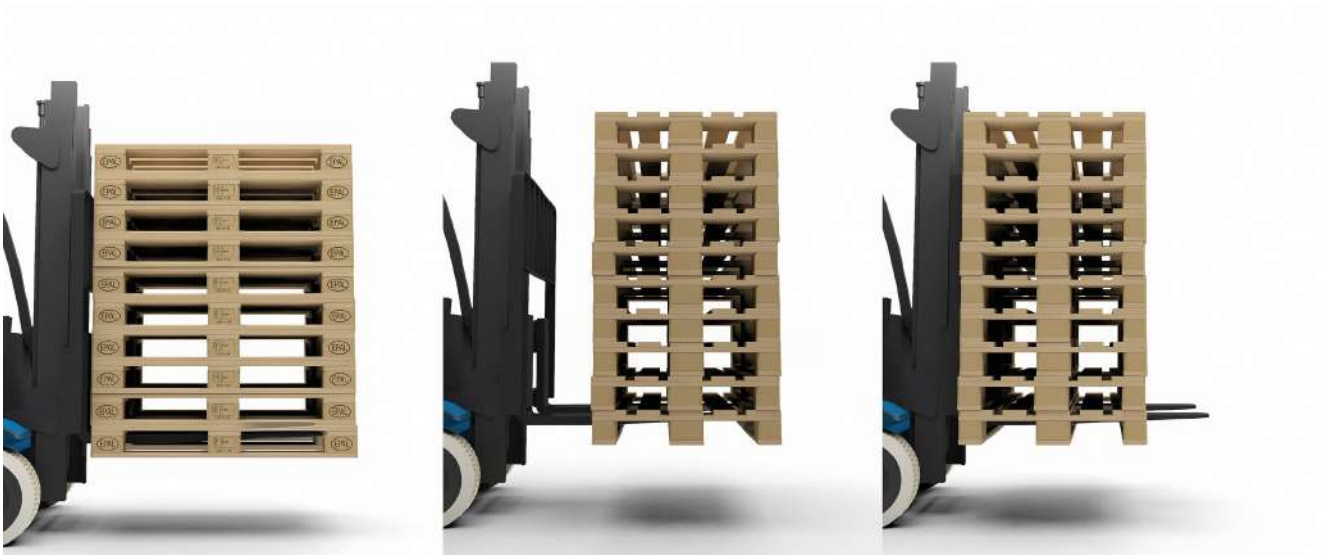
An EPAL euro pallet with the standard dimensions of 800 x 1200 mm. A Euro pallet (officially EUR pallet) is a wooden pallet with standardized dimensions and specifications established by the European Pallet Association (EPAL. The classic euro pallet measures 800×1200×144 mm and can safely carry a load of up to 1500 kg. This pallet type
was developed in the mid-twentieth century to increase efficiency in transportation. In 1961, European railroad companies jointly introduced a standard pallet (officially called the EUR pallet, better known as the Euro pallet) to speed up the loading of rail cars and trucks. This standardization allowed goods to be loaded much faster, according to historical records in just 10% of the time it used to take. The europallet has since become the cornerstone of logistics in Europe.

Today, the europallet is by far the most widely used pallet in Europe and beyond. It is estimated that there are around 650 million EPAL europallets in circulation worldwide. These pallets form the backbone of an exchange system: an empty pallet is exchanged for a full one, allowing pallets to be continuously reused and exchanged in the supply chain. Due to their wide applicability and standardized format, europallets can be used almost anywhere, from warehouses to trucks. Clearly, the Europallet has gained tremendous distribution and importance in logistics. At the same time, this means that efficient and safe handling of europallets is of great importance: any incident or damage can occur many times over because there are so many pallets in use. (To illustrate, a new EPAL europallet costs around €25, so it pays to prevent damage).

RISKS WHEN USING STANDARD FORKLIFT FORKS.

Given the dominant role of the europallet, one would expect the forklift equipment to be adapted accordingly. In practice, unfortunately, this is often not the case. Almost all forklifts come standard with fixed forks of a certain length (usually around 1,000-1,200 mm). However, this standard fork length is in no man's land compared to the europallet: it is longer than 800 mm (the short side of the pallet), but sometimes just short of 1,200 mm (the long side). This causes two major problems when picking up pallets:

1. **When picking up on the short side (800 mm side):** the standard forks are then longer than the pallet is deep. So the forks will protrude at the back, often about 20 to 40 cm. Those protruding steel forks are a direct
risk: they can bump into other goods or pallets, or even accidentally pick up a pallet directly behind them. The result is damage to nearby products or pallets and even risk of injury. Imagine that behind the pallet you are picking up is another pallet; excessively long forks can inadvertently lift that second pallet, which can then fall down.
This type of accident can have serious consequences for bystanders and products.
2. **When picking up on the long side (1200 mm side):** here is the opposite problem. Standard forks shorter than 1200 mm provide *insufficient support* along the entire length of the pallet. The forks do not reach to the end of the pallet, so the pallet does not rest fully on the forks.
Especially with heavy loads, this may cause the pallet to tip forward or the pallet boards may break due to the overhanging weight. Such an overturned or
broken pallet is not only costly (products can fall and be damaged), but also dangerous, falling goods can injure personnel. In other words, one fixed fork length is always a compromise: too long for one side, too short for the other.



These limitations of standard forks lead to several practical problems in the warehouse. First, forklift drivers must work very carefully and precisely to avoid damage. For example, when picking up a Euro pallet from the long side, they deliberately do not let the pallet fully extend until it hits the fork carriage, they let the pallet stand a little away from the mast so that the forks do not stick out at the back. However, this goes against their training: every driver is taught to push a pallet all the way against the fork carriage for maximum stability. Now they suddenly have to eye
estimate how much space to leave. In practice, many companies try to solve this by placing markings on the forks (for example, a line indicating "enter here at 1200 mm pallets"). But such markings wear out and are difficult to see from the driver's seat. Having to constantly stop to check whether the fork is sticking out too far, or maneuvering by feel, slows down the work considerably. Each pallet thus takes just a little more time to pick up safely, which lowers overall handling capacity.

Second, using unsuitable forks carries a high risk of damage, and therefore costs. When a forklift damages a pallet or the load on it, it often has to be completely sorted out and dealt with. Think of scenarios such as: a pallet of cargo punctured by a fork has to be returned to the packing department, products have to be re-stacked or replaced, an inventory correction has to be made, a damage report with photos has to be prepared, perhaps a truck driver is waiting for the damage to be resolved, and in the end you are left with a dissatisfied customer. All of these collateral consequences cost time and money. Damage to the pallet itself is also a waste, because that pallet represents a value and must be repaired or replaced.

Finally, there is the aspect of responsibility and workload. In traditional situations, when damage occurs, the blame almost automatically falls on the forklift driver: he or she should have been more careful. This puts a lot of pressure on the driver, who is constantly anxious that the forks don't accidentally hit something. It is actually unfair to place all the responsibility on the driver when the tools (the forks) are not ideal. Moreover, a stressed, overloaded driver may also be at risk himself, for example, if he has to get off the truck to check if forks are properly seated or to correct something, he moves among the machines at risk of being hit by another truck. In short, the current work with standard forks on euro pallets unnecessarily increases the risk of damage and injury, increases the workload for drivers and can lead to substantial costs for the company.

HYDRAULIC REACH FORKS AS A SOLUTION (800 MM/1200 MM).

Given the above problems, the solution is actually quite logical: make sure the forklift forks adapt to the pallet, rather than the other way around. This is where hydraulic reach forks come into the picture, also called telescopic forks. These are special forks that mount on the forklift and are adjustable in length. Specifically, these forks can extend from 800 mm to 1200 mm in length and vice versa. Thus, with a stroke (extension length) of 400 mm, an inserted fork of 800 mm creates exactly an extended length of 1200 mm, or exactly both dimensions of a europallet. This means that the fork always has the correct length: 800 mm when the pallet is picked up from the narrow side (800 mm), so that nothing protrudes, and 1200 mm when picked up from the wide side, so that the pallet is fully supported. At the "touch of a button," the forklift driver can adjust the fork length from his cab to suit the situation. So there is no longer any doubt about whether the fork is too long or too short; the operator no longer has to "guess" or work with markings, he simply adjusts the fork to the pallet size and can then tighten the load all the way against the mast as usual, without danger of sticking out or inadequate support.

These hydraulically adjustable forks (often operated via an additional hydraulic function on the truck) have been available and developed since the 1980s, and have amply proven their reliability. In fact, it is a relatively simple modification to the forklift, but one that makes a world of difference in practice. The driver can now stay in the truck and use a lever or knob to change the fork length, even while approaching the pallet. This increases safety because the driver no longer has to get out of the truck to fit fork extensions, for example; thus reducing the chances of someone driving around in the danger zone or getting hit. Because the fork is always at the correct length, the entire handling foolproof: mistakes where a fork accidentally extends and hits something are eliminated. Working with these extendable forks feels more intuitive and enjoyable for drivers because they can simply pick up their pallet as they are trained (fully inserted) without worrying about where the fork tips end up. The result is less stress and higher productivity for the driver.

MAIN BENEFITS OF HYDRAULIC (TELESCOPIC) FORKS.

- **More safety and less damage:** Forks that are too long no longer protrude from the pallet and thus can no longer hit behind pallets or goods. This prevents many damages and significantly reduces the risk of accidents or injuries. The load is always fully supported, preventing pallets from tipping or breaking.

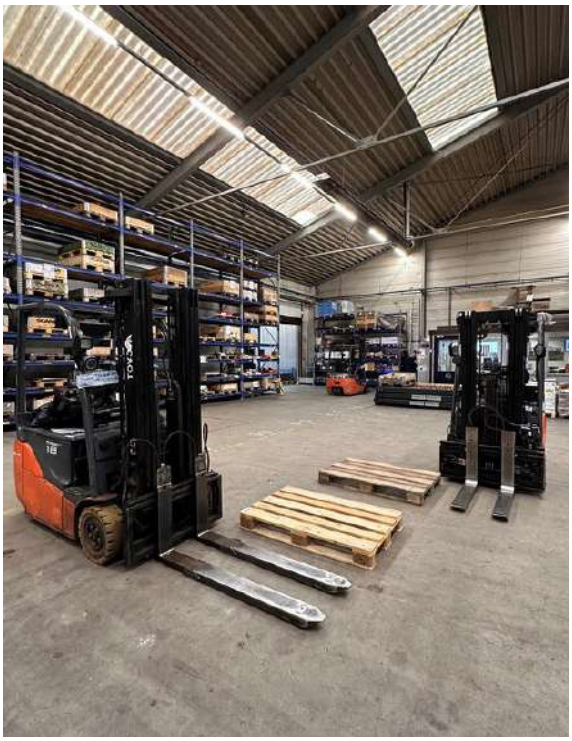
- **Increased efficiency and time savings:** Due to the adjustable fork length, the driver no longer has to maneuver with millimeter precision or check each time whether the forks are positioned correctly. Pallets can be picked up and moved faster and more fluidly, reducing the handling time per pallet. Changing between different pallet sizes is also uninterrupted.

- **Better maneuverability (space saving):** A forklift with retracted 800 mm forks has a smaller turning radius and is easier to maneuver in tight spaces than a truck with fixed 1200 mm forks. In narrow aisles or while turning, that shorter length makes a significant difference. Only once the pallet is safely in the fork does the operator extend the fork to 1200 mm for full support, thus combining maneuverability with load capacity.

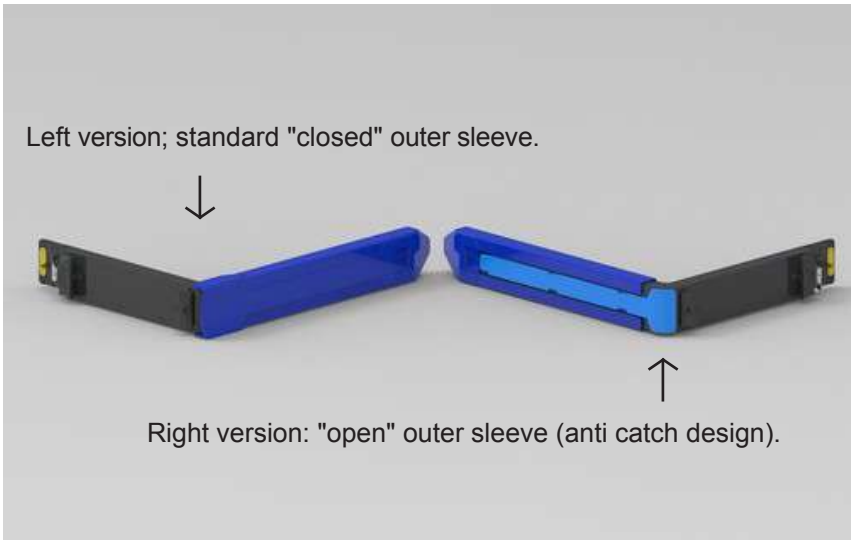
- **Increased productivity and smooth workflow:** Drivers can use their normal workflow (fully insert and pallet against the fork back) without detours or tricks. They don't lose time positioning or correcting, which means more pallets can be moved per hour. Plus, they don't have to change trucks or use separate fork extenders for different pallets; one truck can handle everything.

- **Reduced damages and cost savings:** Because damages are drastically reduced, the company saves costs on broken pallets, damaged products and logistical disruptions. Fewer returned goods, less repair work and fewer claims directly mean lower operating costs.

- **Higher driver satisfaction:** Forklift drivers experience less stress and physical strain. They can work faster and with more confidence when the risk of error is low. With telescopic forks, they cause less damage and worry, which increases job satisfaction. A satisfied driver performs better and is retained longer for the company.



DEVELOPMENT AND DESIGN OF REACH FORKS.



The first reach forks were developed in 1980 by Meijer Handling Solutions. Since then, numerous variants have been designed, each tailored to specific applications in logistics.

For applications where the fork length needs to be adapted to different pallet sizes, such as Euro pallets, Meijer has developed special reach forks. These telescopic forks allow the outer tube to be extended and retracted without touching the floor.
extended without touching the floor or the boards of the pallet. This is possible thanks to the unique design of the outer sleeve and the special recesses at the bottom of the inner forks.

In addition, the design incorporates a wear plate, which ensures a long service life of the inner forks, even under heavy use. This innovative design contributes to both the durability and safety of telescopic fork systems.

INSTALLATION OF HYDRAULIC REACH FORKS.

Hydraulically operated telescopic forks are c o n t r o l l e d from the cabin of the forklift. This requires an additional hydraulic function in addition to standard functions such as lift, tilt and side-shift. In the latest generations of lift trucks, this fourth function is often standard. In older models, however, this function can also be retrofitted.

Usually an additional hydraulic hose package is i n s t a l l e d through the mast of the forklift for this purpose. Alternatively, a valve that distributes hydraulic control of the side-shift function between the side-shift and reach forks can be chosen. In this c a s e , an electric mast cable is also required, as the valve is electrically switched.

The cost of these modifications varies by type and brand of forklift. We recommend obtaining quotes from multiple suppliers to get a good idea of the options and associated investments.

ECONOMIC BENEFITS AND ROI.

In addition to the operational advantages, hydraulic reach forks also have clear economic benefits. In fact, damage prevention and efficiency gains translate directly into cost savings and productivity gains. Every incident that is prevented, whether it is a broken pallet, damaged stock or an operational accident, saves the company money. As mentioned earlier, a single incident of damage entails all sorts of hidden costs: work stoppage, goods recovery, administrative handling and possibly customer claims. By using extendable forks, some companies have reduced the number of damages almost to zero, resulting in significant savings. For example, one transportation and warehousing company reported that since switching to telescopic KOOI® forks, there has been virtually no more pallet or product damage, as well as being able to move more pallets per unit of time, the investment was therefore very quickly recouped.

Of course, there is an investment involved in purchasing hydraulic reach forks, but it usually pays for itself surprisingly quickly. Cost analyses show that most extendable fork systems pay for themselves within about one/two years due to the reduction in damage and increased productivity. In addition, the forks themselves last a long time (they are robustly built for heavy use) and require little additional maintenance - usually just periodic checks, not much different than standard forks. Some manufacturers even offer tools such as an ROI calculator to calculate exactly how many months you will have your investment out.

ROI Calculator

CONCLUSION.

In conclusion, hydraulic, length-adjustable forks for forklifts are a win-win investment. They make working with the immensely popular Europallet safer and easier for drivers, drastically reduce the risk of damage to goods and equipment, and increase handling capacity. Financially, this results in significant cost savings, with the initial investment being recouped in less than one or two years in most cases. earned back. In short, implementing hydraulic only increases safety and efficiency, but also c improvement that benefits both the employer and the forklift operator.

EXAMPLE ROI CALCULATION:

- Working weeks per year= 45
- Working days per year= 5
- Working hours per year= 8
- Claims per week= 1
- Value of products per claim =€ 200.00
- Repair amount pallet per claim =€ 3.50
- Adminstrator (A) >€ 35 per hour> 30 min >€ 17.50
- Operator (B) >€ 25 per hour> 30 min >€ 12.50
- Investment in reach forks =€ 4,500

1. Number of claims per year
45 weeks× 1 claim/week= 45 claims per year

2. Cost per claim
As calculated previously:

- Claim amount product loss =€ 2.00
- Repair pallet =€ 3.50
- Adminstrator (A) =€ 17.50
- Operator (B) =€ 12.50

Total cost per claim:
€2,00+€3,50+€17,50+€12,50=€35,50

3. Total annual cost
Total annual cost=45×€35.50=€1,597.50

4. Productivity loss due to fixed forks is± 5%
€25.00× 45× 8× 5 =€ 45,000.00× 5% =€ 2,250.00

5. Total cost
€1,597.50+ €2,250.00= €3,847.50

6. ROI if the cost for reach forks is €4,500.00:
€4,500.00 / €3,847.50= 1.17 years.*

A = Administrator costs include: Administration such as taking pictures, preparing damage report, stock differences, informing customer, etc.

B = Operator costs including: return packing department, remove damaged product, replace pallet, rewrap, return shipping.

** Excluding set-up costs and forklift adjustments.*

Meijer Handling Solutions
(Part of the Meijer-Group)
Oudebildtdijk 894
9079 NG Sint Jacobiparochie
www.meijer-handling-solutions.com :
e-mailinfo@meijer-group.com

Meijer Handling Solutions B.V.
Oude Bildtdijk 894| 9079 NG Sint Jacobiparochie| The Netherlands
+31 (0)518 49 29 29 |info@meijer-group.com | www.meijer-handling-solutions.com