Coop's automation guide for Packaging · Pallets · Master Data · EDI

February 2023

INTRODUCTION

Coop is continuously developing to meet the future needs of our customers. Our latest investment is a highly automated terminal in Eskilstuna that will be central to Coop's supply chain and contribute to a faster and more efficient flow from customer needs to the arrival of goods in the store.

For a long time, Coop has followed industry standards for packaging, pallets, master data, and EDI. To make it easier for suppliers to follow our requirements, we have created this guide. It contains industry standards and automation requirements that suppliers will need to comply with in the future. The purpose of this guide is to provide support and understanding for the design requirements of new packaging or adjustments to existing packaging, as well as instructions on pallet building and related conditions. It also describes the requirements for master data quality and EDI.

We hope that you, as a supplier, will collaborate with us to ensure high quality throughout the entire supply chain.

CONTENTS

AUTOMATION-ADAPTED PACKAGING

The following text describes the industry's standard for packaging and Coop's future requirements as well as how deviations can be handled to enable automated handling. The packaging shall be designed in such a way as to protect the consumer packaging throughout the logistics chain, including transport, handling in the automated warehouse and groupage with other goods during transport to the store.

The packaging shall, as far as possible, have optimised functionality and environmental benefits. Packaging shall be able to be sorted and recycled, where different types of materials in the packaging should be easy to separate.

Packaging dimensions

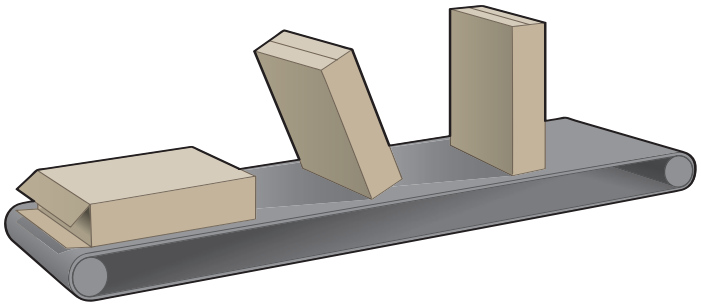
Packaging dimensions need to be within the following limits in order for them to be fully managed in the Automated warehouse:

	Height (mm)	Width (mm)	Depth (mm)	Weight (kg)
Maximum dimension	440	400	600	25
Minimum dimension	45	150	150	0.5

The maximum weight for full handling through automation is 25 kg.
The maximum weight of 15 kg according to Validoo remains for manual handling of packaging.
If the weight exceeds 15 kg, Coop needs to approve an exemption.

Packaging ratio

The packaging shall be of a stable design that minimises the risk of tipping over during handling. The packages may have a ratio of max 1.2 for height / depth and a maximum of 1.7 for height / width.



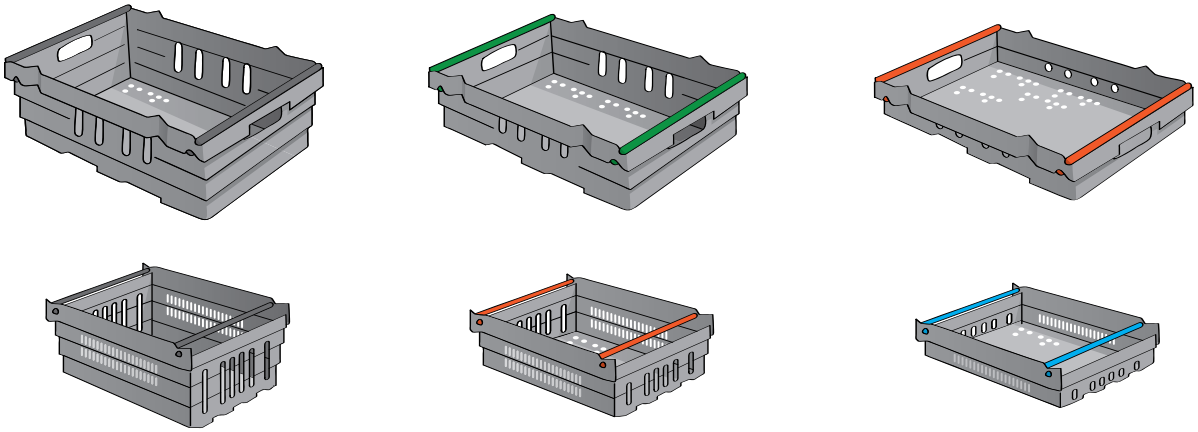
Example:
Packaging dimensions (Height x Width x Depth):
450 x 300 x 250 mm

Ratio calculation:
450/250 = 1.8
450/300 = 1.5

This box has a ratio of 1.8 and 1.5 and is thus not automation adapted.

SRS trays

Svenska Retursystem provides six different modules of SRS trays that are used in the grocery industry. The loop position on the SRS tray shall always be in constant position at item level. That is to say, the loop position must not vary from tray to tray but must always be delivered in the same position on the item in question.



Examples of Svenska Retursystem's 6 different modules of SRS trays.

Labelling of packaging

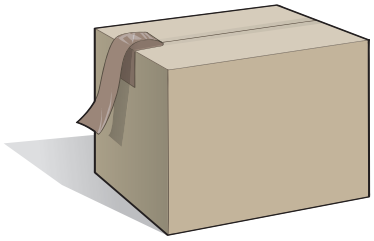
GTINs and barcodes on packaging are a means of achieving logistical efficiency throughout the distribution chain. All packages shall be labelled with a GS1 standard label so that they are easily identifiable. Note that display, whole pallet and half pallet are defined as outer packaging. The barcode in the label shall be in the barcode format GS1-128.

The packaging shall be marked with the batch number and the best-before date if the consumer package has a best-before date. Packaging containing dangerous goods must be labelled in accordance with applicable legal requirements.

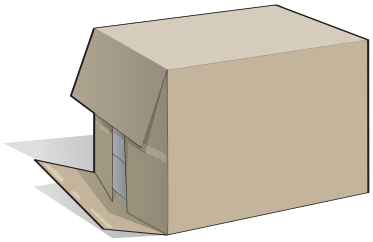
Common packaging deviations and how they can be avoided

Loose lids

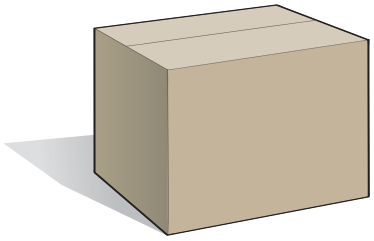
It is important to keep in mind that lids must always be attached with glue, tape or other form of locking. If the lid is loose, consumer packages may fall out and be damaged during handling. Tape ends must be well sealed against the carton and must not hang loose or stick out. Tape must also not be used to secure packaging on the pallet.



Example of loosely hung tape where there is a risk of getting stuck on nearby cartons and being easily torn up when handling the packaging.



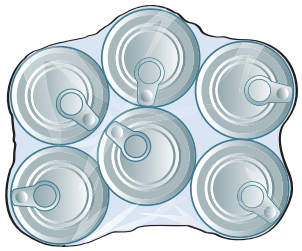
Example of loose lid caused by glue coming unstuck.



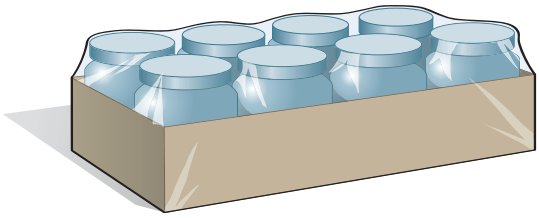
A functional package for automation with closed lid

Uneven shrink filming

Shrink filming should contribute to stable packaging and an even shape. Unstable and uneven shapes can affect the quality and in the worst case, the product can be damaged. An uneven shape can be solved by placing a card tray under the consumer packages.



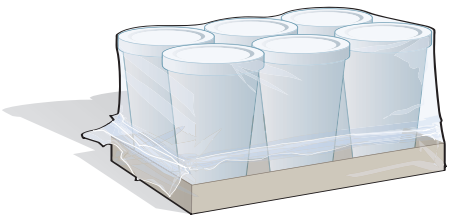
Example of shrink film packaging With uneven and irregular shape.



By using a card tray and tight shrink film, the packaging has a stable and regular shape.

Excess shrink film

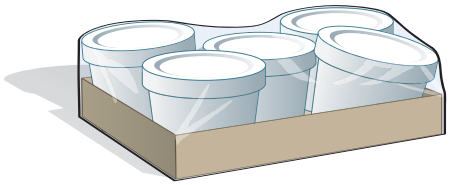
Excess shrink film, known as a “beard”, can mean a risk that the packaging may get caught and stuck during various processes.



Example of packaging with a plastic “beard” that cannot be handled through Automation.

Uneven shape

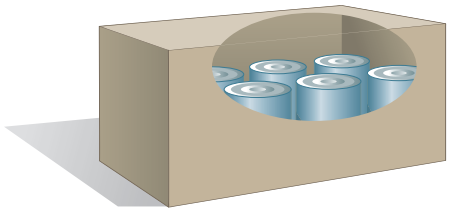
When developing consumer and outer packaging, it is important to use ideal modules. Keep in mind that the outer dimensions of the consumer package must fit into the inner dimensions of the packaging. Therefore, it is important to plan for stable and even packaging. Optimised packaging also has its size adapted to the dimensions of the load carrier.



Example of unstable and uneven shape that in the worst case can damage the product.

Low filling level

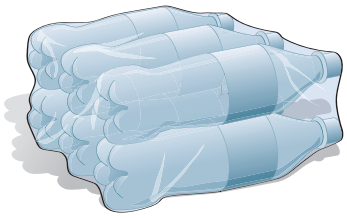
Packaging should have as high a filling level as possible so that the consumer packages can provide stability and strength and reduce environmental impact. With a poor filling level, the packaging has poorer strength, which can lead to crushed and deformed packaging on the pallet.



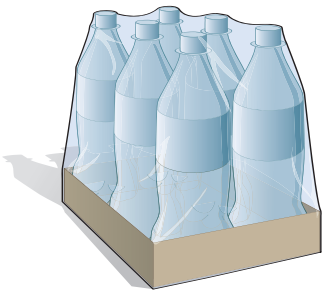
Example of packaging with a low filling level.

Uneven bottom

The underside/bottom of the packaging shall be flat. An uneven underside/bottom can be solved by placing a card tray under the consumer packages.



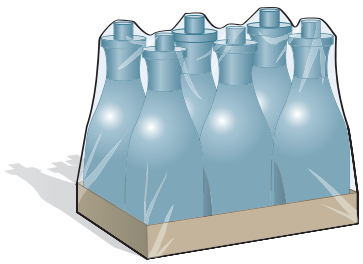
Example of packaging with unevenness at the bottom.



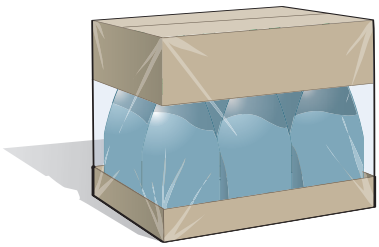
An uneven underside can be solved by placing a card tray at the bottom.

Uneven top

In addition to a stable and even bottom, the packaging also needs an even top for efficient handling. A pointed top can make packaging unstable to pack on pallets to the store and increase the risk of damage to consumer packaging.



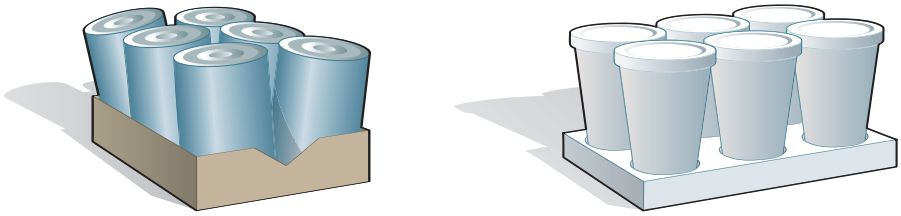
Examples of packaging with uneven top.



An uneven top can be solved by placing a card tray over the consumer packages.

Trays without a lid or shrink film

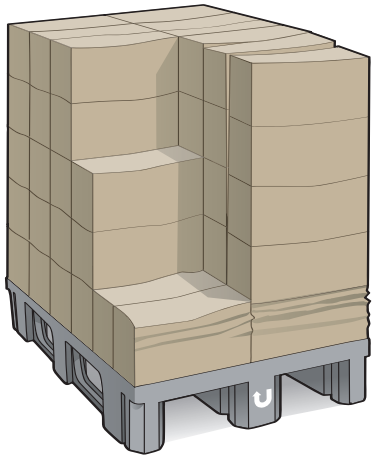
Trays without a lid or shrink film should have a tray edge equal to at least 50% of the height of the consumer package, but must be at least 45 mm. If the tray edge on the long or short side is too low, the consumer packaging risks falling out of the package.



Examples of packaging without lids and shrink film where the consumer packaging is at risk of falling out.

Substandard corrugated board

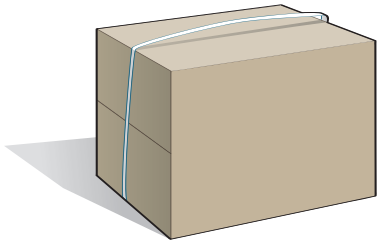
The corrugated board quality used for packaging must be adapted to the shape and weight of the product and so that any tray is rigid and of good quality. If the corrugated board quality is weak, the packaging can be deformed at the bottom of the pallet or when pallets are stacked on top of each other. Both glue and corrugated board must hold for normal handling of the packaging. Glue becoming unstuck is the most common problem when it comes to defects in packaging. It can be enough for just one glue point to fail during handling for the structure to rupture and result in damage to the consumer packaging.



Examples of weak corrugated board quality where the packaging becomes compressed and irregularly shaped on the pallet.

Loose handles and straps

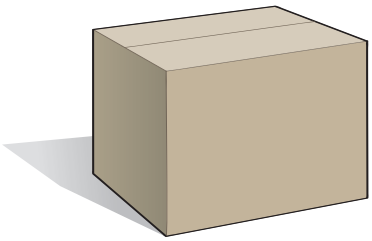
If straps are used, they must be placed tightly around the packaging without gaps. Protruding handles on the packaging must be avoided as far as possible.



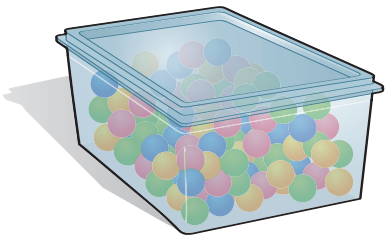
Example of loose strap at risk of getting stuck when the packaging is handled.

Hard plastic

Hard plastic packaging often has a raised edge on the lid that makes packaging unstable when co-packing products for stores. This type of packaging material should preferably be avoided and replaced by packaging of corrugated board, where sealed plastic bags in the packaging can be used to protect the quality of the product.



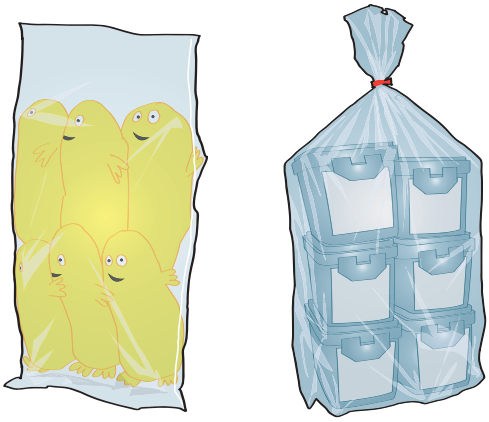
By using sealed plastic bags in the corrugated board carton, the quality of the product is protected.



Example of hard plastic packaging with lid with a raised edge.

Bags and sacks

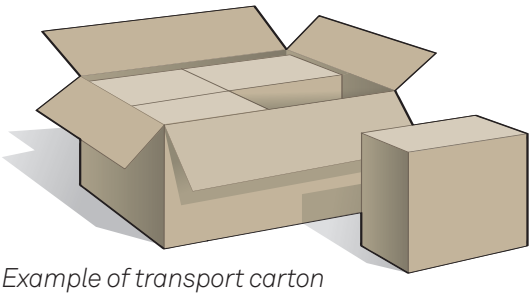
Packaging in the form of bags and sacks cannot be handled with automation. To enable automated handling, a bag can be placed in a carton. It is important to ensure as high a filling rate as possible in the carton. With a poor filling level, the packaging has poorer strength, which can lead to deformed packaging on the pallet.



Example of bags and sacks that cannot be handled by automation.

Transport cartons

If a transport carton is used, manual handling is required to remove the packages. Transport cartons shall be avoided and are only accepted in exceptional cases. If a transport carton is used, it shall be entered through item information in Validoo and have its own GTIN.



Example of transport carton

Want to know more about automation-friendly packaging?
For more information, see the ECR Packaging Guide www.ecr.se/forpackningsguiden

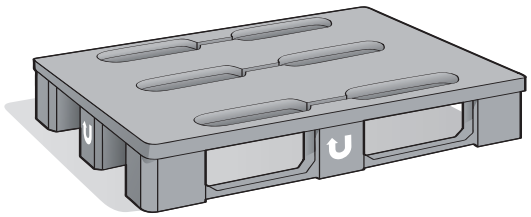
AUTOMATION-ADAPTED PALLETS

To achieve automated handling of pallets in our new terminal, they need to be stable, have the correct marking and appearance, and be delivered with quality assured load carriers. The following text describes industry standards and Coop's future requirements for pallets and how deviations can be handled to enable automated handling.

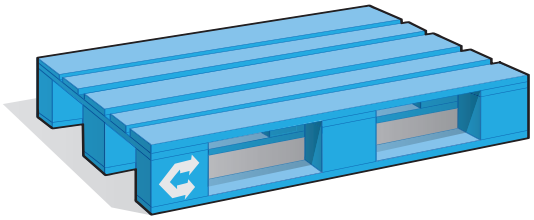
Load carrier types
It is important that the pallet is flawless upon arrival at the automation, so as to minimise the risk of automation stops. The carriers must be whole, clean and must not be contaminated in such a way as to damage the goods or automation belts.

Coop therefore strives to ensure quality-assured arriving load carriers by having goods from suppliers delivered on the pallet types CHEP or SRS 800x1200 mm.

Automation only handles whole and half pallets. Third-sized pallets are only accepted in exceptional cases and with Coop's approval. Quarter pallets and disposable pallets are not accepted.



SRS 800x1200 mm

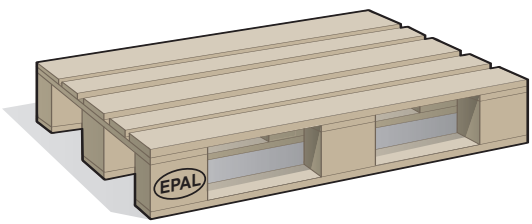


CHEP 800x1200 mm

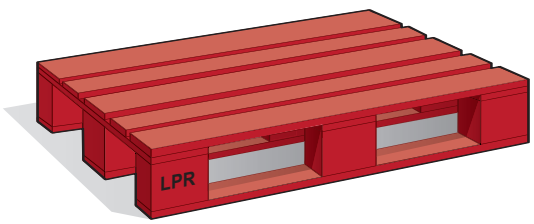
SRS
Plastic pallets from Svenska Retursystem. Svenska Retursystem has a user fee and daily rent on full-size pallet grey, and half-size pallet black has a deposit. Half-size pallet grey is registered and administered in the Svenska Retursystem web portal. The load carrier does not need to be inspected and there is no pallet replacement or pallet transfer system.
Read more at www.svenskaretursystem.se

CHEP
Pooling company providing characteristic blue wooden load carrier, which is available at a cost. The cost shall be included in the price of the goods. The load carrier does not need to be inspected and there is no pallet replacement or pallet transfer system.
Read more at www.chep.se

A-rated EUR pallets and LPR pallets are only accepted in exceptional cases and with Coop's approval.



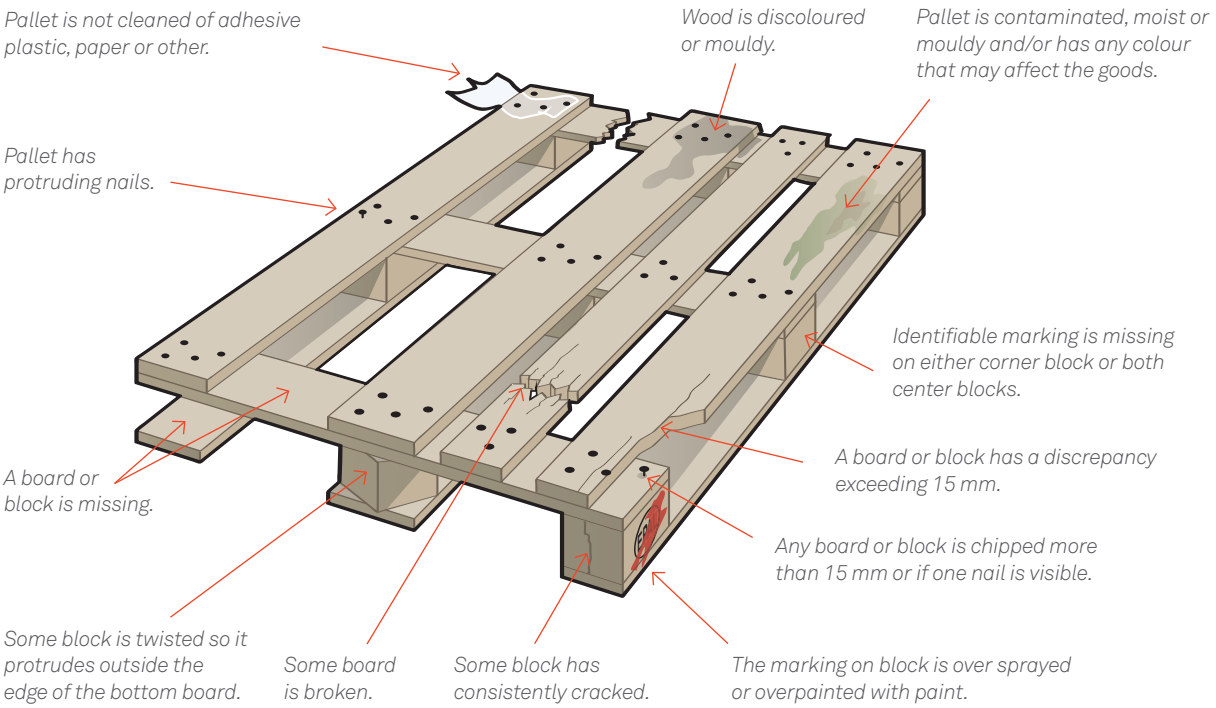
EUR 800x1200 mm



LPR 800x1200 mm

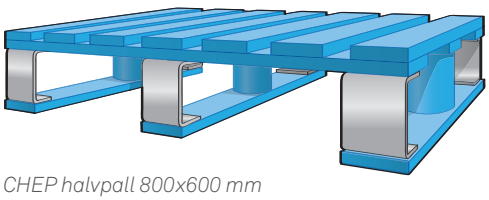
In order for the EUR pallet to be classified as approved, it must be manufactured according to UIC Code 435-2, Swedish standard (SS-EN 13698-1) or equivalent national standard. Read more at www.dnvgl.se and www.sis.se

A-rated EUR pallets and LPR pallets are only accepted in exceptional cases.

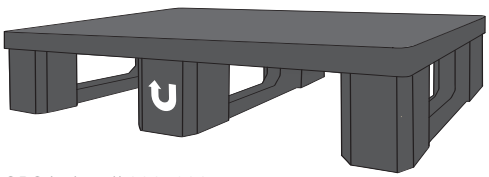


Half pallets

Half pallets 800 x 600 mm should always be delivered placed on a slave pallet (800 x 1200 mm) of type SRS or CHEP. If only one half pallet is delivered, it shall be placed centrally on the slave pallet. The maximum height of the half pallet is 1250 mm including load carrier and slave pallet. With dispensation, pallets up to 1900 mm can be accepted. The total weight of a half pallet, including load carrier, must not exceed 500 kg.



CHEP halvpall 800x600 mm

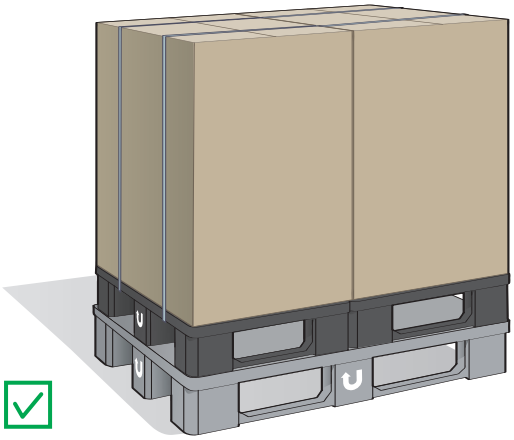


SRS halvpall 800x600 mm

Wooden half pallets (white) are classified as disposable pallets and, together with flex pallets, will be phased out and must be avoided.

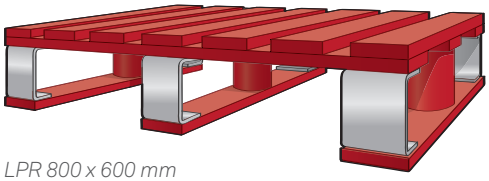
By using a corrugated cardboard hood on the half pallet, the pallet becomes more stable and less prone to tipping over. The hood must not be oversized so that it creates overhangs or reach down around the blocks of the pallet. Plastic straps used to secure the half pallet for transport must be anchored around the half-pallet and must not be anchored around the slave pallet.

A half pallet solution with an open bottom should be avoided as it raises the centre of gravity of the pallet, creating instability and a risk of the half pallet tipping over.



Example of half pallets with corrugated hood and they shall be anchored with plastic straps and placed on a slave pallet.

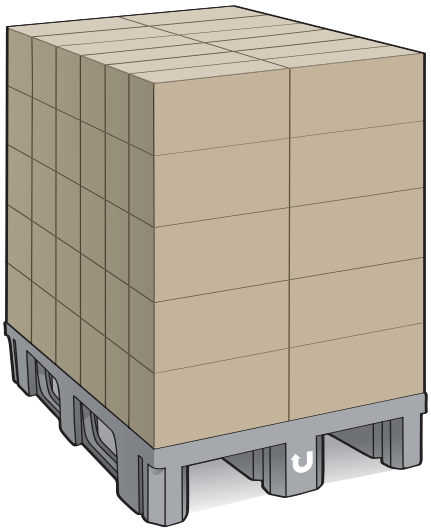
Pooling pallet LPR half pallet is accepted in exceptional cases.



LPR 800 x 600 mm

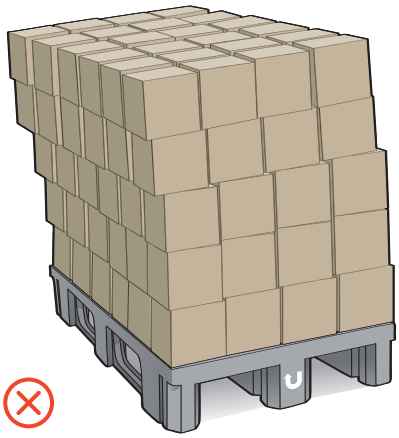
Construction of pallets

The total height including load carrier may not exceed 1250 mm. With dispensation, pallets up to 1900 mm can be accepted. The total weight including load carrier shall not exceed 1000 kg.

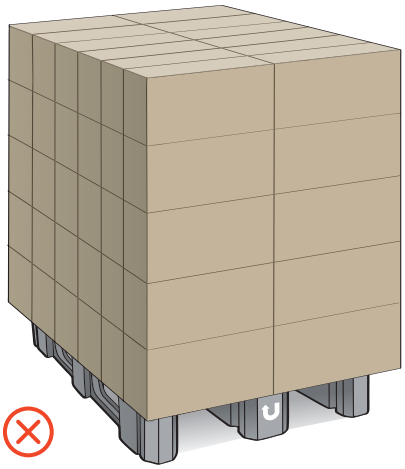


1250 mm maximum height incl. load carrier.

The pallet shall be constructed **without overhang** and the packaging must not be placed outside the load carrier. If the pallet is not up to standard, it risks being rejected on the track system at the goods reception. Any faults must be corrected manually, which is not always possible and leads to inefficient and slow handling.

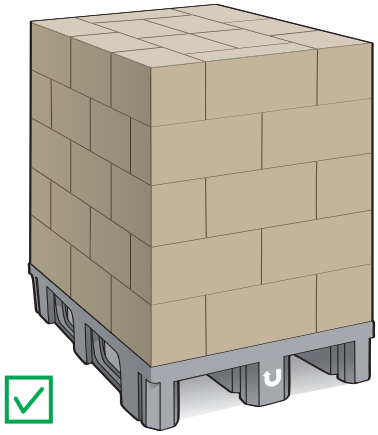


Tower stacking of smaller outer packaging often results in unstable pallets with overhangs that easily collapse during handling and after removal of plastic.



Packaging that is not adapted to the pallet's size and creates overhangs.

To create good stability and filling, packaging can be conveniently placed to bond the load on the pallet, which also minimizes the risk of overhang and instability.

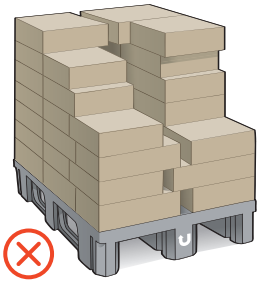


Pallet with load laid with a bond.

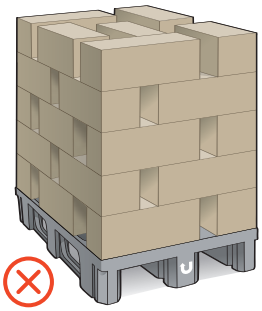
Load on the pallet

In order for the load on the pallet to be handled with full automation, it must be placed on the pallet so that air pockets do not arise. It is important that the packaging reaches all the way from edge to edge of the carrier, i.e. 800x1200 mm. The dimensions of the packaging are recommended to be modular according to the dimensions of the pallet in order to achieve a high filling rate and functional handling in the automation.

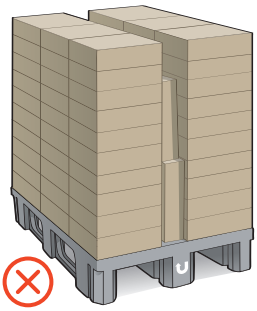
The load on the pallet should be smooth and regular. The packaging must not be turned so that the load becomes irregular. Each load shall contain the same number of packages. The maximum weight to handle a load item is 200 kg.



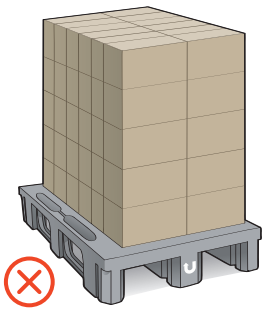
Example of load with air pockets in the middle of the pallet, a so-called "chimney".



Examples of load with air pockets.

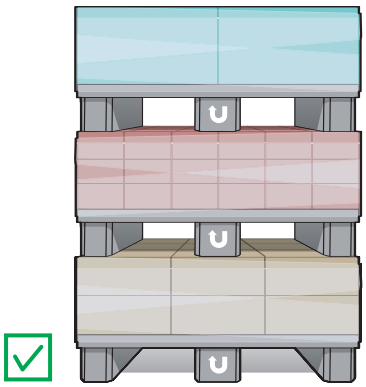


Example of turned packages that create an uneven load.



Example of packaging that is not adapted to the pallet's size and creates a narrow load.

Load pallet
A load pallet that consists of several sorted load pallets where the same item consists of one or more loads on their own pallet. It is recommended that each load pallet is separately covered in plastic. If an ordered volume of an individual item represents more than 50% of a load, the item shall be delivered sorted onto its own pallet.

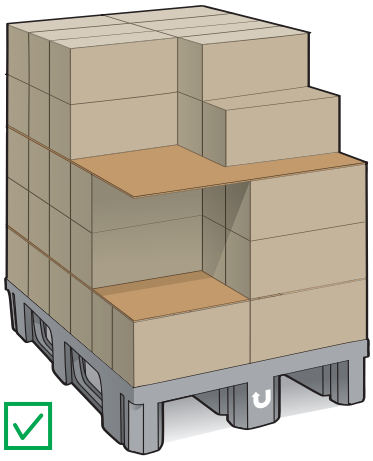


Exempel på sortrena lavpallar.

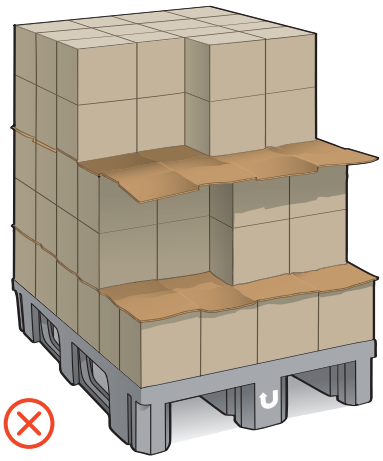
Mixed pallet
A mixed pallet consists of a load carrier loaded with packages with different item numbers and which make up less than 50% of a load. This type of pallet requires manual sorting in the automation and **shall be avoided**.

Intermediate layers
Intermediate layers can be used to create stability in the pallet module. Tower stacking of smaller packaging often results in unstable pallets that easily collapse during handling after removal of plastic. Intermediate layers can then be used to stabilise the pallet.

The intermediate layers shall not exceed the dimensions of the load carrier 800x1200 mm. Multiple intermediate layers per load level are not allowed. The intermediate layers shall be of qualitatively robust paper or thinner cardboard, and shall not be irregular, divided, perforated with holes or patterned according to the weight of the goods.



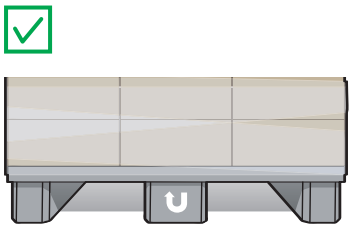
Robust intermediate layers that stabilise the pallet



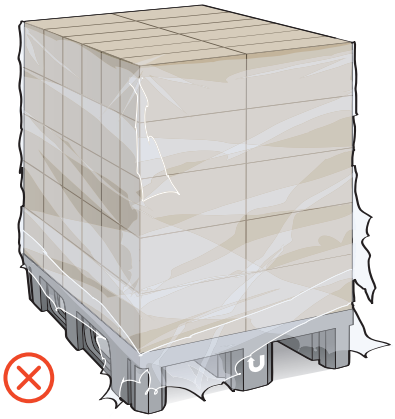
Example of perforated and protruding intermediate layers that can cause production stoppages

Plastic covering of pallets
Packages placed on pallets shall be secured with plastic. The plastic shall cover all packaging and also go down around the pallet, so that the packages are fixed on the pallet. The plastic must not cover the tunnels of the pallet and must not be so tight that the packages become deformed. Both whole and half pallets shall be plastic covered and this must be transparent.

The plastic must not be anchored around the feet of the pallet. Pallet tunnels covered in plastic cannot be handled in automation and are rejected on the track system at the goods reception. Loose hanging plastic risks causing production stoppages.



The plastic should go down around the pallet, but must not cover the pallet tunnels



Example of covered pallet tunnels and loose hanging plastic that can cause production stoppages

Edge protection

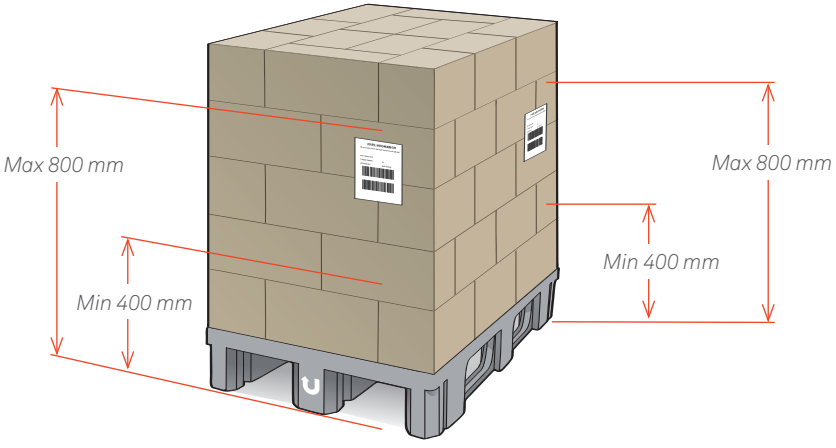
Edge protection in the form of corrugated board placed on the corners of the pallet shall be avoided as these need to be manually removed to enable automated handling.

Marking of pallets

Pallets delivered to Coop's Automated Warehouse shall be labelled according to standard with GS1 pallet label. The pallet label is necessary for the identification of the handling of the pallet in the warehouse. When the information in the pallet label matches the physical item and when the supplier labels the pallet correctly, it generates an automated handling. Pallets that are not marked with the correct GS1 label create manual handling and the risk of delayed availability. The barcode in the pallet label shall be in the **barcode format GS1-128**.

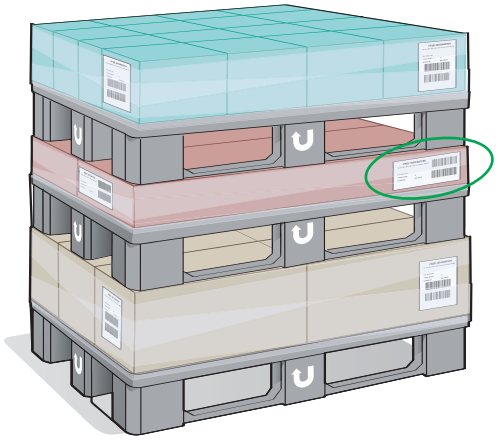
If the pallet contains packages of different best before dates, the worst best before date shall be indicated on the pallet label

Each pallet shall be marked with two GS1 pallet labels which shall be placed on the pallet at least 400 mm and a maximum of 800 mm from floor level. They shall be placed on a short side of the pallet and its right-hand long side, as seen from the short side with pallet label. The label shall be placed horizontally on the pallet, i.e. horizontal bars with vertical barcodes, and shall be placed on the outside of the plastic. If the pallets are delivered paired, the labels of both pallets must be positioned in the same direction. The label shall be white with black barcode and shall be of such quality as to be readable with a scanner.



Label placing of GS1 label on the pallet

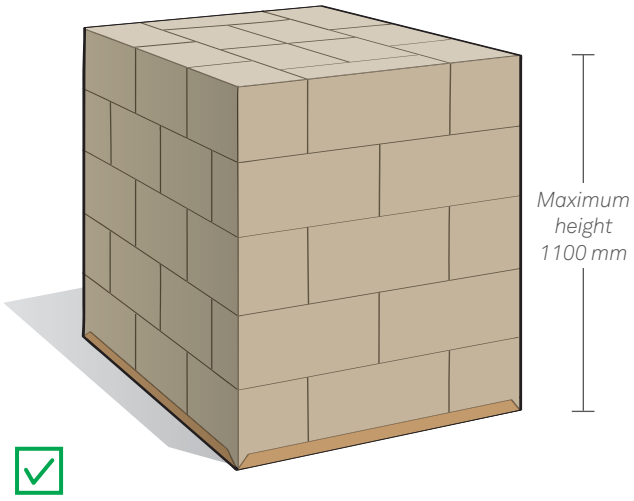
For low load pallets where horizontal pallet labels do not fit, a low pallet label can be used where the text fields are placed on the left and the barcodes on the right, see example in the picture below.



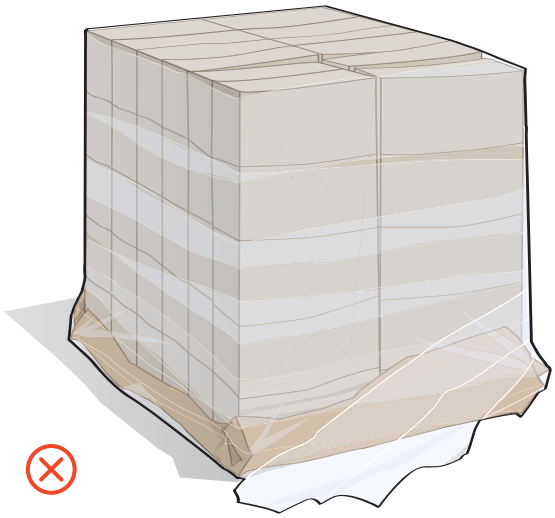
Placing of GS1 pallet label on load pallets

Slipsheets Container

Packages in containers shall be loaded onto slipsheets of corrugated cardboard or pallets with a maximum height of 1100 mm in order to be placed on a load carrier when unloading. With dispensation, heights up to 1900 mm can be accepted (inc. load carrier). A slipsheet pallet must be secured with plastic and must be constructed without overhang so that the pallet can be placed level with the edges of the carrier, 800x1200 mm, i.e. the same requirements as for the use of pallets.



Corrugated cardboard slipsheet without overhang and with packaging adapted to the dimensions of the pallet.



Example of slipsheet with overhang at the bottom and loosely hung plastic that can cause production stoppages.

QUALITY ASSURED ITEM MASTER DATA

An important piece of the puzzle for efficient and functional handling is quality-assured item information from you as a supplier. The information is processed as a basis for decisions about new items and to enable the right handling of packaging and pallets in automation. GS1 item information is a standardised way to exchange information digitally about items, such as dimensions, weight, item number, brand and sustainability. Poor and incorrect data quality can cause production stoppages and in some cases delay the availability of the products.

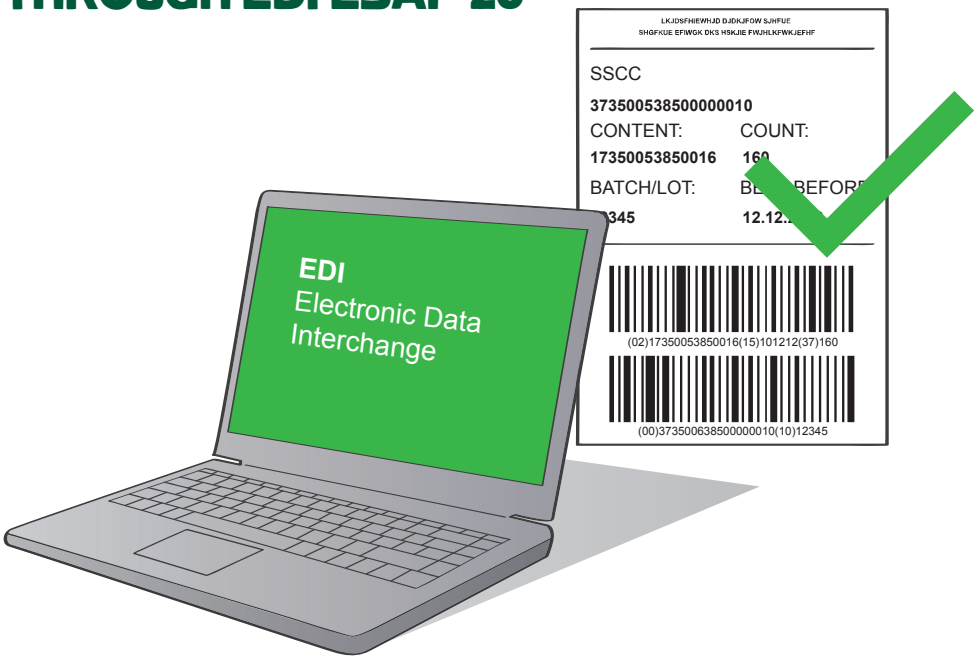
For the items that Coop brings into the product range, item information shall be shared via Validoo Item with Coop as the recipient according to the ECR time window. Quality assurance of the information shall also be carried out in accordance with the ECR time window in the Validoo Q lab. Quality assurance is usually done on consumer item and packaging and on the statutory food information. Changes to item information shall always be shared with Coop via Validoo Item and, if necessary, new quality assurance in Validoo Q-lab must also be carried out.

To support the processes in Automation, mandatory item information such as dimensions and weights, packaging types and load carrier types must always be correctly specified and pallets must be described correctly through accurate information about packing patterns, stackability and stacking height.

For some product groups, more information is required to ensure the handling of the product in automation, such as information on hazardous goods, chemical information, pharmaceutical information, temperature requirements or other circumstances that require abnormal handling in the warehouse. It is therefore important to quality assure the information provided.

For more information about what information can be exchanged, see GS1's guide to Item Information; the current version can be found at www.gs1.se and www.validoo.se

COMMUNICATION AND DIGITALISATION THROUGH EDI ESAP 20



Coop is part of a change in which the desire is to move towards a more digitalised world. Part of this is to use EDI as the primary communication with central suppliers. Where the goal is for all suppliers to use the ESAP20 format.

With inbound deliveries to Coop's automated warehouse, delivery notification shall be given via EDI ESAP 20. The ESAP20 message DESADV shall be sent to the receiving terminal when the goods leave the supplier's warehouse.

The ESAP20 messages that Coop has as a minimum requirement in EDI communication with suppliers are:

- **Order**
  - Order acknowledgement
  - Order confirmation (being able to handle changes to orders)
- **Delivery notification**
- **Invoice** (possibility of also sending credit and additional invoice)

Suppliers who do not have EDI communication with Coop urgently need to establish this. Of course, you choose the system supplier on the market that you want. Coop already collaborates with, among others:

Kofax/ Exder: www.exder.se

EDI-Solutions: www.edisolutions.se

We are happy to help you as a supplier on this journey and if you have questions about EDI and the set up with Coop, you are very welcome to contact us by email through esap20@coop.se

GLOSSARY

CHEP	Global pool company for load carriers
EDI	Electronic Data Interchange, is the transmission of structured information according to an agreed format between trading partners
Förpackning	Orderable and logistics unit
GS1	A global organisation with standards for the flow of information and goods, containing identification, labelling and electronic commerce.
GTIN	Global Trade Item Number. GS1 item number.
Konsumentförpackning	The main task of a consumer package is to make the product available while protecting and preserving its properties.
Lastbärare	Refers to the pallet on which packaging is placed and delivered.
LAV	Load level means one round/layer of packaging on pallets.
LAV-pall	A load pallet consists of several sorted load pallets where the same item consists of one or more loads on their own pallet.
Mellanlägg	Cardboard sheet laid between the different load layers to stabilise the pallet.
Modulsystem	One of the Swedish grocery industry's developed standards for packaging.
Pall	Load carrier with packaging.
Slavpall	Load carrier with dimensions 800x1200 mm, used in handling half pallets.
Sortren pall	Pallet containing only goods of one item number.
SRS	Svenska Retursystem, a company and system, jointly owned by DLF and SvDH, for plastic half pallets and reusable plastic crates.
Transportkartong	Outer carton containing several packages; non-orderable unit.
Validoo	In order for the handling, validation and sharing of the information to take place digitally, GS1 Sweden has developed Validoo. Validoo helps industries to ensure digital product quality.
Validoo Item	Validoo Item performs validation and sharing of product information.
Q-lab	Lab where digital information is quality assured by comparing it to the physical product (packaging at consumer and retailer level) .

REFERENCES

CHEP	www.chep.com
GS1	www. gs1.se
LPR	www. lpr.eu
Svenska Retursystem	www. svenskaretursystem.se
Validoo	www. validoo.se
ECR Packaging Guide	www. ecr.se/forpackningsguiden