INSTRUCTIONS FOR SUPPLIERS

PACKAGING INSTRUCTIONS OF S GROUP'S GROCERY TRADE

S Group Retail Business
Inex Partners
Version 1.4
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TABLE OF CONTENTS

Introduction 3

Standards to be followed 3

PALLETS

Pallets in storage automation and store environments 4

Half pallets 5

Quarter pallets 6

EUR, EUR 3-sized and beverage pallets 7

Requirements for pallets in store displays 8

Pallets suitable for automation systems 9

Requirements for pallet loads in storage automation systems 9–11

Using slipsheet boards 12

Wrapping fruit and vegetable pallet loads 12

S Group's requirements for pallet markings 13

Using pallet labels 13

CASES

Commercial shelf-ready packaging 14

Cases in storage automation and store environments 15

Shelf depths 15

Cases suitable for automation systems 16

Requirements for cases in storage automation systems 16–17

Additional requirements for open and low case trays 18

Additional requirements for fruit and vegetable cases 19–21

S Group's recommendations for case markings 22

Case label compliant with fruit and vegetable requirements 22–23

Contact information 23

Appendix: Contents of pallet labels compliant with the ELL standard 24

INTRODUCTION

These instructions include requirements of S Group's grocery trade and Inex Partners Oy for pallets and cases in different phases of the supply chain. The requirements are based on the capacity to handle material in storage automation and stores. In addition, these instructions define how to evaluate the shelvability of cases as part of S Group's procurement and selection processes. Pallets suitable for automation systems and shelf-ready packaging suitable for automation systems are criteria for selection.

S Group also has a responsible packaging policy (https://s-ryhma.fi/en/sustainability/climate-and-natural-resources/responsible-packaging), which defines S Group's main principles and objectives for the development of more responsible and environmentally sustainable product packaging. We encourage all suppliers to promote the responsibility of the packaging of their own products in such a way that the main purpose of the packaging is not compromised.

STANDARDS TO BE FOLLOWED

The markings and dimensions of pallets and cases used in S Group's automated logistics centre and store environments must comply with the following standards:

GS1 label guidelines

European Logistic Label (ELL)

SFS 5352 (modular dimensions)

Standard dimensions and markings are requirements for efficient logistics. In the automated logistics centre, the identification and efficient mobility of products are based on correct and readable labels. Defective packages and labels increase the number of errors in storage automation and cause delays in the supply chain.

PALLETS IN STORAGE AUTOMATION AND STORE ENVIRONMENTS

"Storage automation" refers to automatically operating receiving, storing, picking and shipping functions. In place of manual handling, material is handled by using conveyors and various pieces of equipment. Automation significantly improves the efficiency of the logistics chain.

Storage automation handles pallets from which incoming goods are unloaded for storage and pallets used in-store. Half pallets are delivered to stores through storage automation, and they must meet the requirements set by storage automation and store environments.

Pallet loads at most 1,100 mm high are ideal for storage and automation systems in our logistics centre. Any pallet loads of more than 1,100 mm in height must be agreed upon separately with packaging specialists of Inex (contact information on page 23). Pallet types and sizes accepted in our storage automation and store displays are presented in the following table.

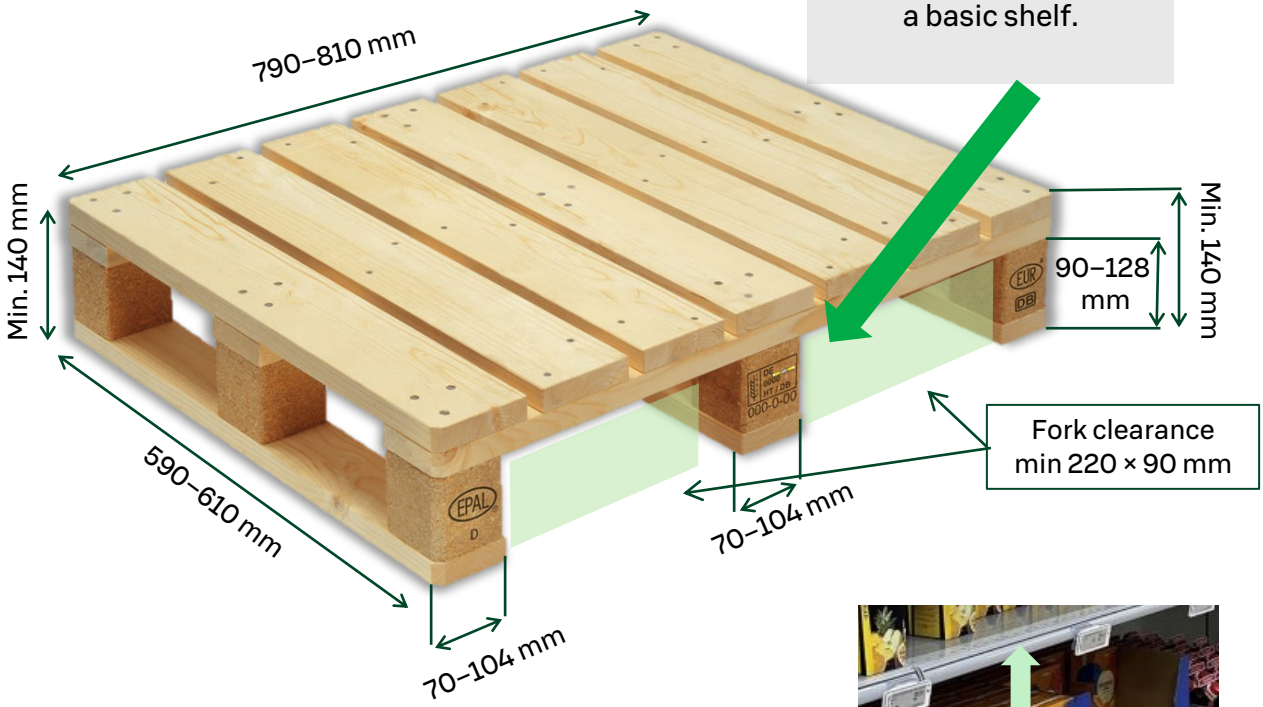
Pallets in storage automation			
Pallet type	Maximum base dimensions (mm)	Maximum net weight (kg)	Recommended height of pallet load (mm)
EUR	800 × 1,200	720	≤1,100
EUR 3-sized	1,000 × 1,200	970	≤1,100
Pallets suitable for basic store furniture			
Pallet type	Maximum base dimensions (mm)	Maximum net weight (kg)	Recommended height of half pallets (mm)
Half pallets	600 × 800	360	≤1,000
Quarter pallets	400 × 600	180	≤1,000
Pallets suitable for mass in-store displays			
Pallet type	Maximum base dimensions (mm)	Maximum net weight (kg)	Maximum height of half pallets (mm)
EUR	800 × 1,200	720	2,300
EUR 3-sized	1,000 × 1,200	950	2,300
Beverage pallets	900 × 1,200	1,200	2,300

HALF PALLETS (EUR 6 PALLET)

600 mm × 800 mm × 1,000 mm

- The minimum height of blocks is **90 mm**.
- The maximum weight of a half pallet load is **360 kg**.
- **Half pallets are handled from the long side.**

Half pallets in stores: The product **face must be on the long side**, so that one half pallet fits in the pallet position in a basic shelf.



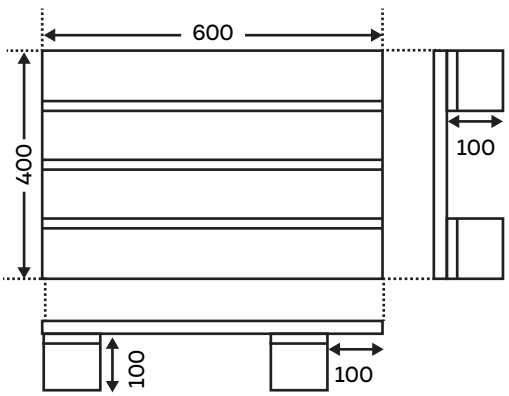
- The recommended load height of half pallets is **≤1,000 mm** (includes the height of the pallet).
- The recommended height enables the use of half pallets in the store furnishing frames of all S Group chains.
- Half pallets can also be used in mass displays.
- **Packages must be inside the edges of pallets.**
- Reusable half pallets (e.g. leased half pallets) should primarily be used.
- A half pallet load must **only consist of full pallet layers**.
- **EUR 3-sized or EUR pallets must not be placed under half pallet deliveries.**



QUARTER PALLETS

400 mm × 600 mm × 1,000 mm

- **The minimum height of blocks is 100 mm.**
- **The maximum weight** of a quarter pallet load is **180 kg**.
- The recommended height of a quarter pallet load is **≤1,000 mm** (including the height of the pallet).
- The recommended height enables the use of quarter pallets in the store furnishing frames of all S Group chains.
- Quarter pallets can also be used in mass displays.
- **Quarter pallets must be four-way pallets.**
- **Quarter pallets must not include any crosswise board.**
- **Packages must be inside the edges of pallets.**
- Reusable quarter pallets (e.g. leased quarter pallets) should primarily be used.
- A quarter pallet load must **only consist of full pallet layers**.
- **EUR pallets must be used for quarter pallet deliveries.**







Quarter pallets in stores:
The product **face must be on the short side**, so that two quarter pallets fit side-by-side in the pallet position on a basic shelf.



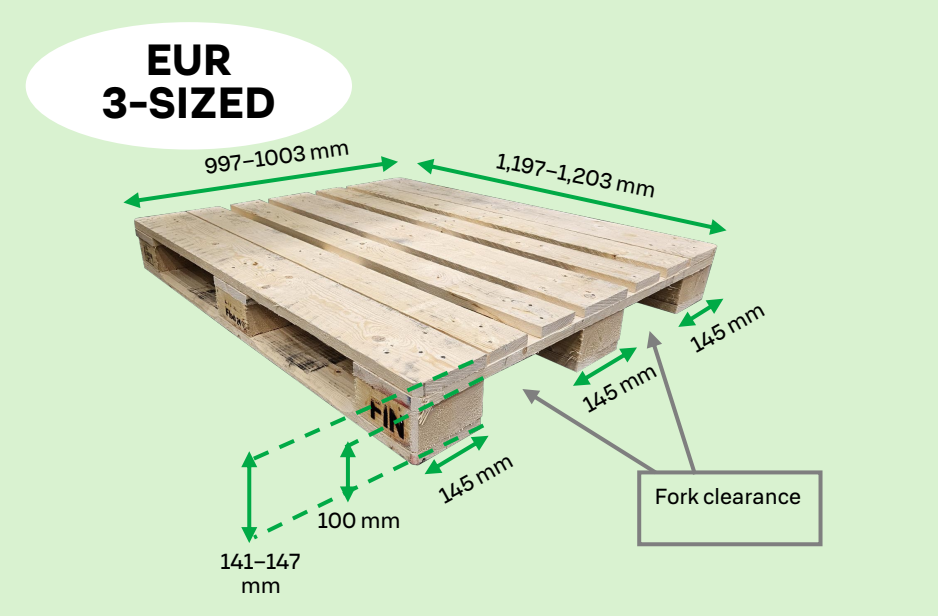
Quarter pallets must not include any crosswise board.

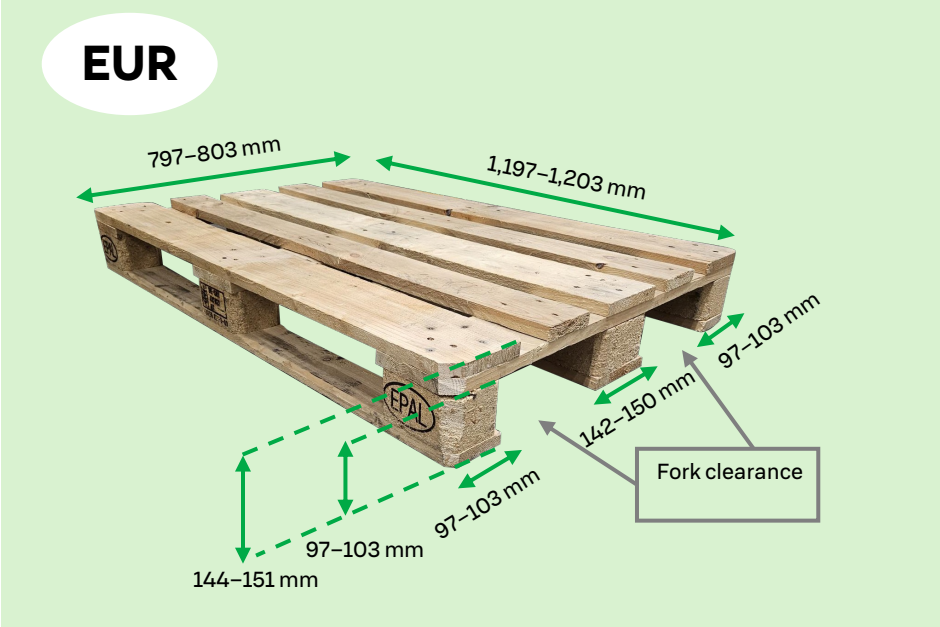
EUR, EUR 3-SIZED AND BEVERAGE PALLETS

- **As a rule,** wood-based standard **EUR, EUR 3-sized and beverage pallets should be used as load pallets.**
- They are **suitable for mass display in the store, but do not fit into the basic furnishing frame of the store.**
- When used in mass in-store displays, the maximum height of a pallet load is ≤2,300 mm (including the height of the pallet).



Example of pallet location in mass in-store display areas.





REQUIREMENTS FOR PALLETS IN STORE DISPLAYS

Fits in-store furniture frame **≤1,000 mm**	The load must not protrude outside the edges of the pallet.
Pallet loads are sturdy and their use of space is effective.	There must be no empty space in pallet loads.
Products are easy to recognise and take from the **pallet face**	No marketing materials that extend over the top surface of the pallet.











- **It must be easy to remove the protective material of pallet loads without requiring any tools.**
- It must be possible to make pallet loads ready for sales without requiring any tools.
- Pallets must display products, not packaging material.
- Pallets used in store displays must also meet the storage automation requirements presented on page 9.

PALLET

PALLETS SUITABLE FOR AUTOMATION SYSTEMS

Pallets and loads suitable for automation systems are absolute requirements for the reception of warehouse goods. The starting point of an efficient and automated receiving system is a pallet that meets the requirements of automation.



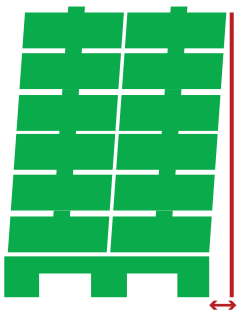
Stretch film can also be wrapped around the pallet, without covering the fork clearance. Stretch film must only be wrapped around products on pallets.

REQUIREMENTS FOR PALLET LOADS IN STORAGE AUTOMATION SYSTEMS

- **All pallets must be fully intact.**
- We recommend that standard reusable pallets are used.
- Each pallet must be tightly bound in such a way that **there are no loose parts of the wrapping material.**
- Pallet labels and other documents must not hang loosely from the pallet load.
- Each pallet load must **only consist of full layers**, and **each layer must consist of an equal number of cases**.
- A single pallet can only consist of a **single type of product, with a single best before date.**
- Cases must be packed as neatly as possible.
- There must be **no adhesive or taping** between pallet layers or cases in a single layer.
- Cases must not be wrapped or taped together.
- **Empty space** between cases **must not be filled with any filler material**.
- If a slipsheet board is used between layers, the material must be stiff cardboard or corrugated cardboard. (See more instructions on page 12.)
- A slipsheet board can only be placed on a pallet load if another pallet is stacked on top of that pallet.
- There should not be ice in pallet layers or on top of the pallet in frozen products.



All pallets must be fully intact. Even minor deviations can cause problems in automatic receiving systems.



Permissible pallet load tilt max. 5 cm

Products must remain inside the edges of the pallet; they must not extend outside the edges. Pallet loads must be as straight as possible. **The maximum permitted tilt is 5 cm.**

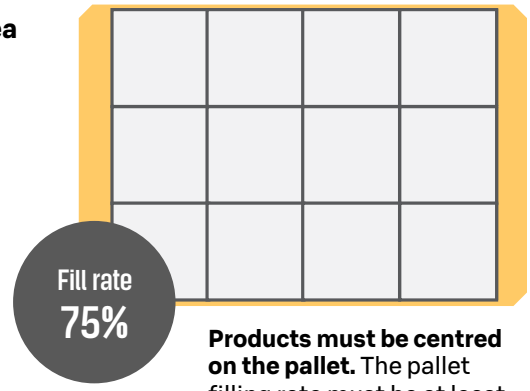
REQUIREMENTS FOR PALLET LOADS IN STORAGE AUTOMATION SYSTEMS

The following requirements do not apply to half pallets used in store displays.

Filling rate of a pallet layer

Each pallet layer must cover **at least 75% of the pallet area and be located in the middle of the pallet.** If there is any empty space on a pallet, it must be located on the short sides of the pallet as evenly as possible at both ends.

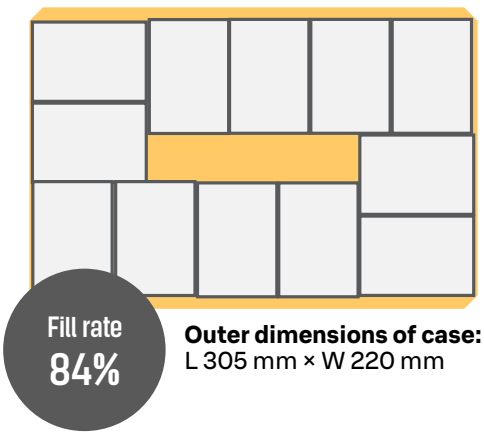
There can be no empty space in the middle of a layer. Pallets should be filled from one long side to the other, without any products extending over the edges. It should be noted that there are separate requirements for low case trays(p. 18)



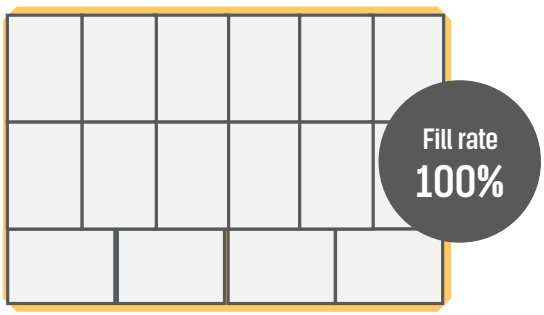
Products must be centred on the pallet. The pallet filling rate must be at least 75%

Pallet layer space efficiency

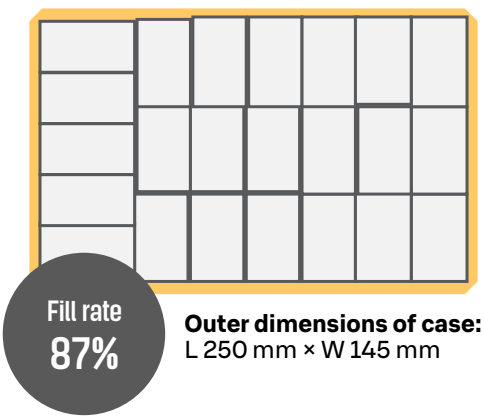
In a space-efficient pallet layer, the filling rate is close to 100%. When designing cases, it is good to take into account the modular dimensioning of cases, which allows for a good filling rate. Below are two examples of pallet space efficiency.



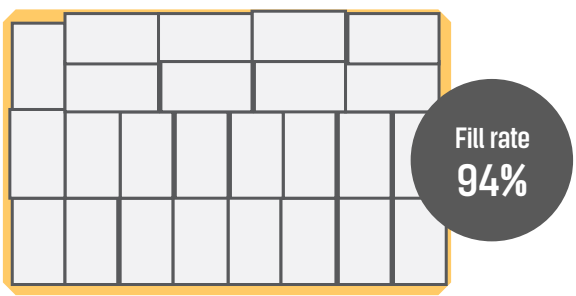
Outer dimensions of case:
L 305 mm × W 220 mm



The external dimensions of the case have been changed:
L 300 mm × W 200 mm
The case will have modular dimensions, with 33% more product capacity on the pallet.



Outer dimensions of case:
L 250 mm × W 145 mm

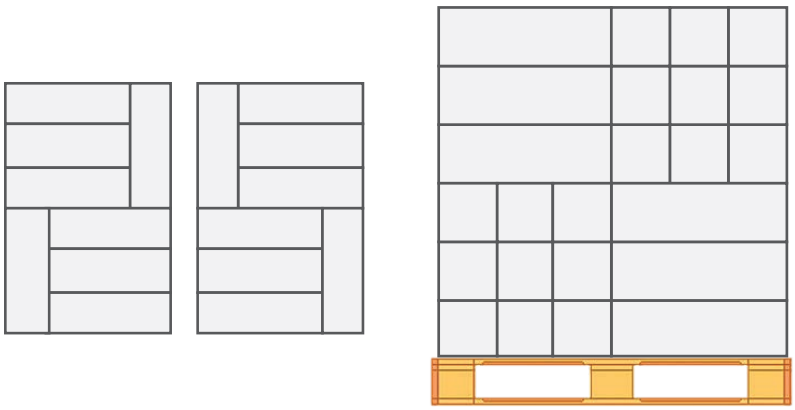


The outer dimensions of the case remain the same, but the **pallet layout is different.** The pallet can hold 8.6% more products.

REQUIREMENTS FOR PALLET LOADS IN STORAGE AUTOMATION SYSTEMS

Crosswise stacking

A pallet is sturdier if the direction of products is turned, for example, every third layer. In this case, the product pattern and the number of packages remain unchanged; the pattern is only turned by 180 degrees.

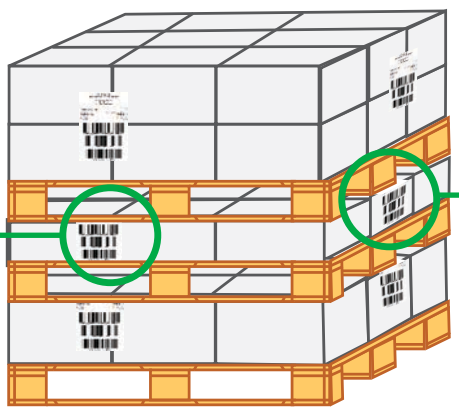


Stacked pallet deliveries

All items must primarily be delivered on separate pallets. If the ordered volume is very low, a sandwich pallet consisting of layers of several different items can be formed.

In this case, **every item is wrapped on a separate pallet and with a separate pallet label.** Pallet layers are stacked on top of each other to form a tower which is wrapped for transportation. When a sandwich pallet is received in the automated warehouse, the extra wrap can be removed from around all pallets, after which each pallet is a separate wrapped unit with separate pallet labels.

If the product layer on a pallet is so low that the pallet label is taller than a single layer, the top of the label can be folded on top of the product layer.
Barcodes must be readable.



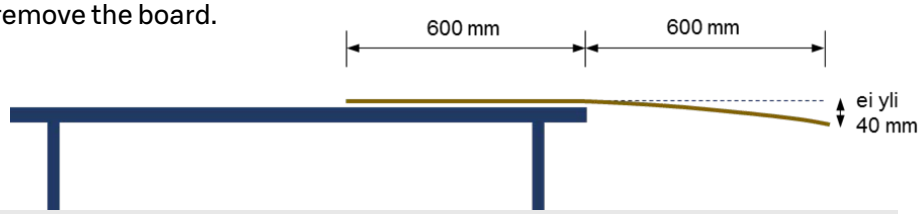
USING SLIPSHEET BOARDS (INTERLAYER)

If slipsheet boards are used between layers:

- The board cannot be larger than the dimensions of the pallet.
- A board must be placed between the same layers on every pallet consisting of the same product.
- The material must be stiff cardboard or corrugated cardboard.

Material recommendations for slipsheet boards:

- Stiff cardboard, thickness >1 mm
- Stiff corrugated cardboard, thickness >2 mm
- One-sided corrugated cardboard, paper, friction paper and plastic must not be used.
- The slipsheet board must be a single board, dimensioned according to the size of the pallet.
- Holes in the slipsheet boards must be minimized.
- It must be easy to remove the board.



Testing the rigidity of the slipsheet board: when the board's short side extends over a platform (such as a table), it must not bend more than 40 mm.

TYING FRUIT AND VEGETABLE PALLET LOADS

When tying fruit and vegetable pallet loads, we recommend that **corner supports and at least five plastic bands or perforated stretch film are used.**

The use of a nylon or other net is absolutely prohibited. For example, a nylon net can wrap around the wheels of a forklift or can cause problems in automation.





REQUIREMENTS FOR PALLET MARKINGS

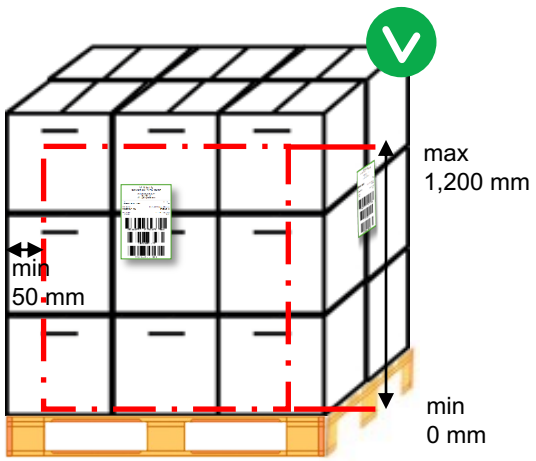
In S Group's supply chain, pallet markings must be in accordance with the GS1 European Logistics Label (ELL) standard.

- **The use of an ELL label with the serial shipping container code (SSCC) is mandatory.**
- The party forming a logistics unit must use its own GS1 company prefix number.
- The GS1-128 barcode type is used for GS1 logistics markings.
- An example of a label compliant with the ELL standard is shown on page 24.

More information about GS1 markings and their use is available from GS1 Finland Oy (gs1.fi)

Pallet label in accordance with the GS1 ELL standard
PALLET LABEL (European Logistic Label)





The automation barcode scanning range is marked in red in the image.

Using pallet labels

- The recommended size of the pallet label is A5 (148 mm × 210 mm). Self-adhesive matte plastic is recommended.
- Each pallet load must have **two identical pallet labels, one of which must be on the long side and the other on the short side.**
- The pallet labels for fruit and vegetable pallet loads (EUR, EUR 3-sized) must be placed on both long sides of the pallet.
- Labels must be attached in the area indicated in the image above as high as possible, so that they do not hang loose from any corner.
- Labels must be at least 50 mm from corners.
- **On quarter pallets**, labels must be attached on top of the pallet.
- **On half pallets**, labels must be attached on the short sides of the pallet.
- If no stretch film or similar is used, the label can be attached directly on products, without binding several packages together.
- If stacked pallets are used, each pallet must have a separate labels.
- **A pallet load cannot have two or more different SSCC codes.**

COMMERCIAL SHELF-READY PACKAGING (SRP)

Absolute criteria:

- A loose cover must be attached to the tray using an adhesive, tape or pins.



Depth max. 60 cm
40 cm deep SRP enables shelvability in all our chains (see table p.15)

- Tray or underlay enabling shelving.
- The product must be identifiable on the SRP.
- The front edge of the facing side is sufficiently low. The front edge features graphical design that supports the product.
- The product is easy to take off the shelf and put back.
- Weight max. 10 kg (recommended under 7 kg).
- SRP meets Inex requirements (see page 17).







Added-value criteria:

- Tidy and even packing surfaces after opening. The SRP is easy to open. The edge of an SRP must not cover any significant product information. The face of an SRP should be its shortest side.
- Be mindful of the efficient use of space. No empty space in a full SRP. A package with modular dimensions is efficiently suited for the shelf depths. The modular dimensioning is based on a basic dimension of 600 mm × 400 mm and multiples and fractions thereof. Possibility for stacking SRP if the product allows it.
- The packaging material should be easy to remove and recycle.
- The packaging should also be recognisable when handled by transport equipment.

CASES IN STORAGE AUTOMATION AND STORE ENVIRONMENTS

Significant savings can be achieved in in-store shelving when products are shelved in shelf-ready packaging, instead of individually. A well-designed SRP helps to display the product. Products can be displayed more neatly, and customers can recognise and grab them better. Additionally, a uniform and neat layout of an SRP provides communication regarding the product family and supports the brand.

In addition to being shelf-ready, a good SRP protects products during transportation and storage and makes it easier to handle products in different phases of the supply chain. An SRP suitable for storage automation produces significant added value in terms of storage handling.

The shelving capacity and suitability for the storage automation of SRP are evaluated as part of S Group's procurement and selection processes.

S Group's criteria for shelf-ready packaging have been divided into absolute and added-value criteria:

Absolute criteria define whether or not a case is shelf-ready. If a case meets all absolute criteria, it is shelf-ready. If an absolute criterion is not met, the case cannot be used in shelving.

Added-value criteria are important features, considering the functionality of cases. A case may be shelf-ready, even if it does not meet added-value criteria.

The criteria for shelf-ready packaging are shown on page 14. Requirements for cases suitable for automation systems are presented on pages 16–21.

SHELF DEPTHS

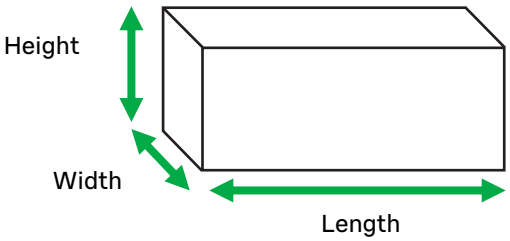
	PRISMA	S-MARKET	Small-scale store
Basic shelf (warm)	600 mm	500 mm	400 mm
Exceptions:			
Beverages	-	600 mm	600 mm
Toilet paper and paper towels	800 mm	600 mm	600 mm
Diapers	800 mm	600 mm	600 mm
Potato crisps	800 mm	-	-
Hygiene	500 mm	-	-
Makeup and women's fragrances	400 mm	400 mm	-

The shelf depths of refrigeration and freezer equipment vary by product and temperature range. You can check the product area-specific shelf depth from your contact person with SOK (the procurement manager of the product group in question: firstname.lastname@sok.fi) or with space management: tilanhallinta.market-ketjuohjaus@sok.fi.

CASES SUITABLE FOR AUTOMATION SYSTEMS

A case suitable for storage automation produces significant added value in terms of logistics. Our most cost-efficient and highly automated picking system requires cases that meet the requirements set by storage automation.

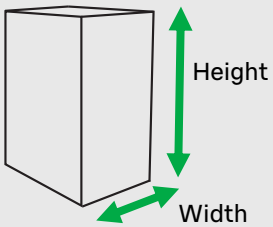
Not all products are fully suitable for automated picking systems. For example, some cases of cosmetic products are too small for automation systems. Cases not suitable for automation are picked manually, using light and voice picking systems. Cases not suitable for automation may be shelf-ready if they meet the criteria for shelf-ready packaging on page 14. If your cases do not fully meet the requirements set by an automated picking system, please contact the packaging specialists of Inex (contact information on page 23).





It must be possible to stack cases modularly with packages of different sizes.

The ratio between the **height and width of a case cannot be more than 1.7.** A high centre of gravity may cause cases to fall over on conveyor belts.



Any empty space inside cases must be minimised.



REQUIREMENTS FOR CASES IN STORAGE AUTOMATION SYSTEMS

- A case must always contain the same number of consumer packages.
- **Any changes in the number and dimensions of consumer packages must be reported immediately.**
- The minimum size of the **bottom of the case is 100 × 150 mm and the maximum size is 400 × 600 mm.**
- The **minimum height of a case is 50 mm** and **the maximum height is 400 mm**.
- The ratio between the height and width of a case **cannot be more than 1.7**.
- **The maximum weight of a case is 23 kg. The recommended weight is less than 16 kg.**
- Cases must be rectangular.
- The shape of a case must not change during handling.
- It must be possible to stack cases with different sizes.
- There must be **no empty space inside cases**.

REQUIREMENTS FOR CASES IN STORAGE AUTOMATION SYSTEMS

- To prevent cases from opening accidentally, it must be ensured that the adhesive used to keep the packages closed is strong enough and bears the weight of consumer packages.
- If a case includes a cover, the cover must be strong enough so that it does not open when lifted from the top. The cover must be attached to the case, using an adhesive, tape or pins.
- When using locking tabs, their maximum height is 16 mm.
- If shrink film is used, it must be so strong that it does not break when the products are lifted from the shrink film or a separate lifting lug.
- Cases wrapped in plastic must be so tight that the shape of the cases does not change during handling.
- Cases intended for store displays when opened must have a sufficiently sturdy and high cardboard collar, tray or wrap to prevent the products from falling.
- In particular, it is worth noting that packaging must withstand compression and other mechanical handling in automation. For this reason, the packaging must be sufficiently strong in terms of material.

Plastic packaging must withstand the weight of the consumer packaging and lifting.





The cover must be attached to the case, using an adhesive, tape or pins.



To prevent cases from opening, it must be ensured that the quality and volume of the adhesive used are sufficient.



The maximum height of locking tabs is 16 mm.

ADDITIONAL REQUIREMENTS FOR OPEN AND LOW CASE TRAYS
(e.g. yoghurt and quark trays)

- The minimum height of cases (tray and product) is 50 mm.
- The edges of a tray may not be higher than the consumer packages within.
- If the tray has corners or locking tabs that are higher than the products, they may nest no more than 10 mm when stacked.
    - The case should remain visible by at least 50 mm when the trays are stacked inside each other.
- If there are holes at the bottom of the tray, the consumer packages must cover them.
    - If holes are not required to be placed on the bottom, they should preferably be placed in the middle of the sides of the tray.
    - An internal structure supporting cups or jars is recommended for case trays.
- The recommended material for the case tray is corrugated cardboard or sturdy paperboard (minimum 600 g/m²).
- The filling rate and layout of the pallet layers is very important:
    - The pallet layer must cover at least 90% of the pallet's surface area. The empty space should be evenly distributed on all four sides.
    - The pallet layout must be solid (no holes in the middle) and in the shape of a rectangle (no holes on the edges).



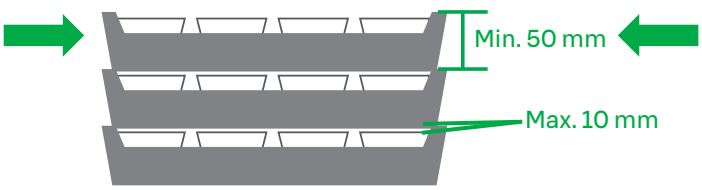
If there are holes at the bottom of the tray, the consumer packages must cover them.



The minimum height of the case is 50 mm.



When stacking, trays should not nest more than 10 mm.





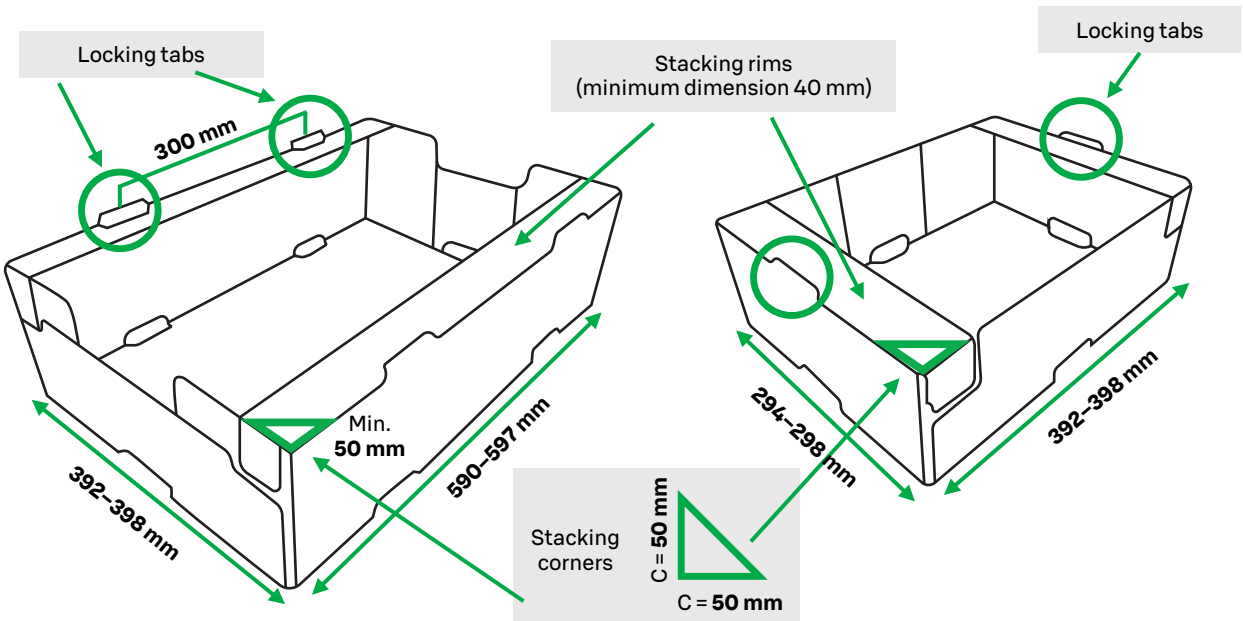
The tray has a structure that supports the cups. The holes in the tray are positioned in the middle of the side edge.

ADDITIONAL REQUIREMENTS FOR FRUIT AND VEGETABLE CASES



Euro Pool System folding plastic fruit and vegetable crate

- It is recommended to use foldable and recyclable black plastic Euro Pool System fruit and vegetable crates.
    - EUR pallets should primarily be used with plastic crates.
- When using cardboard packages, fruit and vegetable cases must follow the modular dimensions:
    - 600 × 400 mm or 400 × 300 mm
- The minimum height of a case is 60 mm.
- In order to stack cardboard packages firmly, they must have stacking rims on both sides or stacking corners in all corners. The minimum width of the stacking rims is 40 mm. The short sides of the stacking corners must be at least 50 mm; c = 50 mm. (See image.) The short sides of the triangle cannot be shortened by means of rounding.
- Cardboard package stacking rims must primarily be on the long side in the longer packaging model (600 mm × 400 mm) and on the short side in the smaller packaging model (400 mm × 300 mm). In a larger (600 × 400) packaging model, the stacking rims can also be on the short side.
- There must also be locking tabs on the long side of a larger packaging model and on the short side of a smaller packaging model. The maximum height of locking tabs is 16 mm.
- Products and all packaging materials must remain inside the case.
- The case must not be deformed, for example due to overpacking or material failure.

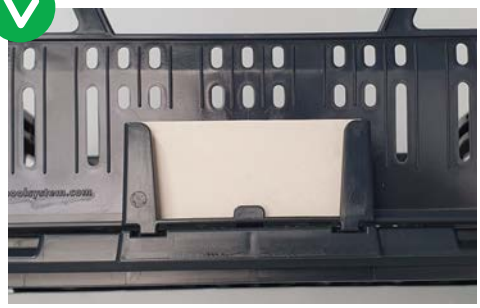


ADDITIONAL REQUIREMENTS FOR FRUIT AND VEGETABLE CASES

Case markings on plastic crates

We recommend using a label appropriately sized for the label slot of the crate in question and placed under the supporting edges. The label should be made of high-friction paperboard or cardboard. The width of the label should be 85–88 mm and the height 34–60 mm depending on the size of the label slot.

Alternatively, it is possible to use a sticker label glued to the crate, which is attached to the side of the crate on a section that is as even as possible. The adhesive of the sticker must be water-soluble.





Example of a product label suitable for automation and attached at both ends.

Other packaging requirements for products

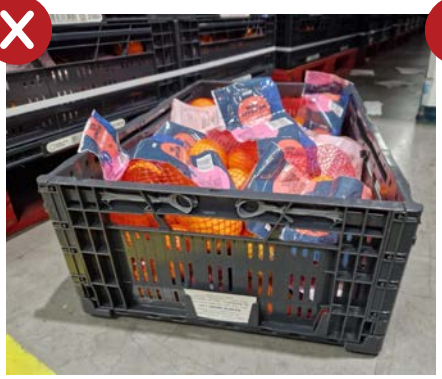
Punnet labels and other packaging material should remain inside and below the edges of the case.

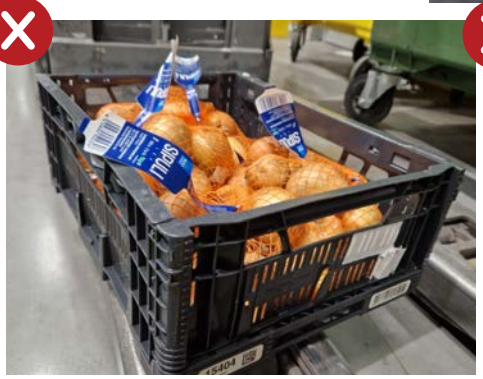
We recommend using punnet labels that are attached to the packaging material at both ends.



Consumer package labels and other packaging materials extending out of the cases interfere with automated processing.









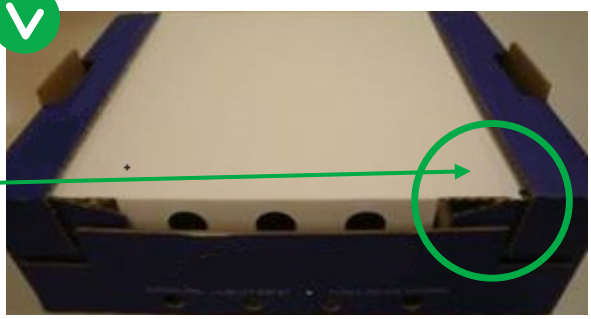
ADDITIONAL REQUIREMENTS FOR FRUIT AND VEGETABLE CASES

Solution options for packaging materials outside the case edges.

If the product must be packed inside a plastic bag for reasons of product quality, we recommend taping the mouths of the bag securely shut as shown below or using a cardboard cover suitable for automation. The same solution option with a cardboard lid can be utilised, for example, for wineglass labels or other packaging material that may easily extend outside the edges of the case.

The cardboard lid should be bent under the supporting edges.





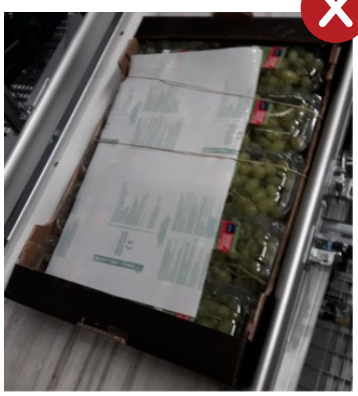


If a plastic bag is necessary, then the edges must be closed with long broad tape as shown.



The use of rubber bands, loose papers or loose plastic covers is prohibited.





S GROUP'S RECOMMENDATIONS FOR CASE MARKINGS

GS1 marking instructions for cases are recommended for case labels.

The case label must indicate **the name and quantity of the product, the date, any batch information and the GTIN code**.

The GTIN code must be in barcode format. The code can be used to GS1-128, EAN 13 or ITF14 formats.

The case label must be located on top of the case or on the cover, so that the label can be seen from above.

Case label in accordance with the GS1 standard



1. Information about the manufacturer
2. Product description
3. GTIN of the case
4. Batch code and date
5. GS1-128 barcoded information

CASE LABEL COMPLIANT WITH FRUIT AND VEGETABLE REQUIREMENTS

All cases of fresh fruit and vegetables must contain at least the following markings **in Finnish and Swedish**:

- **Product name**
- **Country of origin**
- **Quality class** for all the products which have official quality classification (1 lk./kl./Class I or 2 lk./kl./Class II)
- **Name and address of the packer**
- **Lot code**
- **Weight**
- **For packed products number of consumer packagings / case**

Exceptionally, it is not recommended to put markings in barcode format on the case packaging of fruit and vegetables.

SPECIFIC MARKETING STANDARDS ON THE CASE LABEL OF FRUIT AND VEGETABLE PRODUCTS

In addition to the mandatory minimum requirements:

Variety (apples, pears and grapes, variety group for oranges)

Post-harvest treatment of citrus

Fruit pulp colour (peaches and nectarines, non-green kiwifruit)

Size (if products are sorted by size)

Additional labelling of organic fruit and vegetable products on the case label



In addition to the above information, organic products must include **The EU organic leaf symbol with the supervisor's ID below it and info of origin of raw materials:**

EU agriculture = EU:n maataloudesta/EU-jordbruk

Non-EU agriculture= Muusta kuin EU:n maataloudesta/Icke-EU-jordbruk

XX Agriculture = XX:n maataloudesta/XX jordbruk (XX = name of the country)

Product Quality Manager Riikka Nummi (riikka.nummi@sok.fi) (or SOK's Category Manager for the product (firstname.lastname@sok.fi) give more details about requirements for case label text. **Please confirm the case label text with them.**

CONTACT DETAILS

Inex packaging specialists:

inexptdc.pakkausasiantuntijat@sok.fi

SOK Package design and space management:

sok.packaging.team@sok.fi

tilanhallinta.market-ketjuohjaus@sok.fi

3.12.2010

Contents of European Logistic Label (ELL) standard

Fixed measure products (pallet is not a product)

This part of the label has a free format, which can be used to describe e.g. company and product information.

This part of the label includes pallet information in text format. Titles should be presented in English as specified in GS1 standards. In addition, titles can be provided also in the other language if necessary. Information contains pallet's SSCC-code, GTIN of outer package, batch/lot number, count of packages on pallet, e.g. the best before date and gross weight. Same information is presented in barcodes in the lower part of the label.

Notice that each logistic unit must be assigned its own unique SSCC-code!

AI (02) signifies the GTIN of outer package and AI (37) count of outer packages on the pallet. **AI (02) and (37) are used always together and are recommended to be presented in the same GS1-128 barcode.** AI (37) can contain maximum of 8 numbers information.

AI (02) is always presented in format of 14 numbers. If GTIN-13 is used, the number 0 has to be added in the front of GTIN-13.



GS1-128 barcodes are used in the GS1 pallet label. **Notice that GS1-128 barcode technology should not be confused with Code-128 technology.**

AI (330n) describes gross weight of the pallet in kilograms. The last number of AI defines amount of decimals.

AI (10) describes batch/lot number. Batch number can include maximum of 20 characters information in alphanumeric form.

AI (15) describes the best before date. The form is always YYMMDD (Year, Month, Day) in GS1-128 barcode. The date information could be also something else than the best before date, e.g. AI (11) production date, AI (13) packaging date, or AI (17) expiration date.

SSCC (Serial Shipping Container Code) is the unique and global identification key for logistic units. SSCC contains a running number for individualizing every pallet. **Notice that SSCC is the mandatory element on the GS1 Logistic label. Every pallet has to have a unique SSCC, which is assigned for the life time of the pallet item.**

AI (00) is the Application Identifier for the SSCC. Barcode which includes the SSCC-code is placed in the lowest in the label. SSCC is also recommended to present alone in the barcode. In addition, all barcodes in the label should be centered.

Technical properties of GS1-128 barcode:

- GS1-128 barcode represents data in the widths (lines) and the spacings of parallel lines. In addition, GS1-128 includes Quiet Zones on left and right side of the barcode.
- The maximum physical length is 165mm including Quiet Zones.
- The minimum height of all GS1-128 barcodes in pallet label is 32mm.
- The minimum space of GS1-128 Quiet Zone is 5,75 mm from edge of the label.
- The recommended X-dimension of GS1-128 barcode is 0,495 mm.
- The maximum number of data characters in a GS1-128 is 48.

AI = Application Identifier

Standardized prefix (2-4 numbers) in front of the data to tell what the data means. E.g. AI (00) n2 + n18

More detailed information about Application Identifiers can be found from GS1 Global web pages:
http://www.gs1.org/barcodes/technical/application_identifiers

Pallet label location:

- Two identical labels on sides next to each other, one on the short side and one on the long side to the right.
- Labels should be located minimum 50mm from side edge of the pallet.
- Labels should be located as high as possible, but inside the standard limits, which are 400 – 800 mm from the bottom of the pallet.

27.2.2025

Contents of ELL-standard label for Fresh Fruits and Vegetables

This part of the label has a free format, which can be used to describe fresh fruits or vegetables grower's, packer's and/or distributor's information and product information. ELL-labels for fresh fruits and vegetables should include also country of origin, size and quality class of the products.

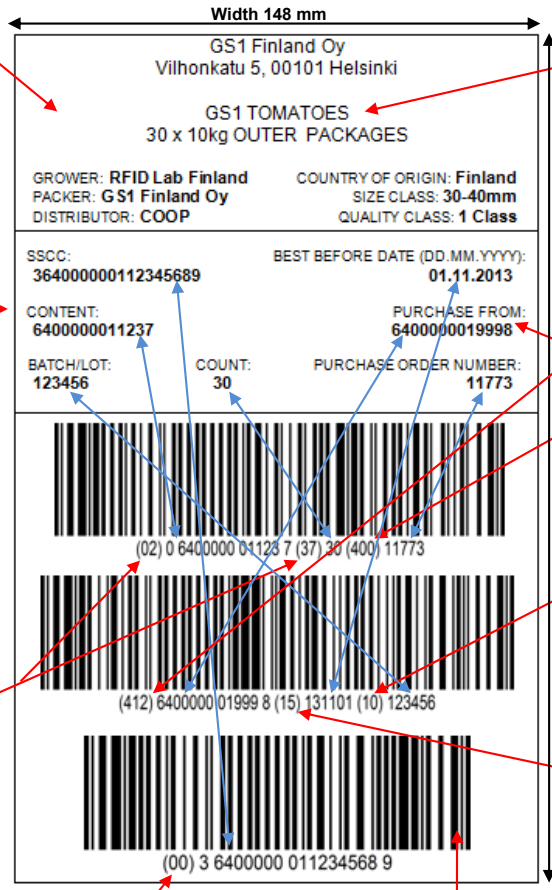
This part of the label includes pallet information in text format. Titles should be presented in English as specified in GS1 standards. In addition, if necessary titles can be provided also in the other language. Information contains e.g. pallet's SSCC-code, GTIN of outer package, batch/lot number, count of packages on pallet, the packaging date, the packer's GLN-number (if available) and gross weight.

Notice that each logistic unit must be assigned its own unique SSCC-code!

AI (02) signifies the GTIN of outer package and AI (37) count of outer packages on the pallet. **AI (02) and (37) are used always together and are recommended to be presented in the same GS1-128 barcode.** AI (37) can contain maximum of 8 numbers information.

AI (02) is always presented in format of 14 numbers. If GTIN-13 is used, the number 0 has to be added in the front of GTIN-13.

Fixed measure products



In this example label, the grower is RFID Lab Finland, which grows Finnish tomatoes to the vegetable packer GS1 Finland. The GS1 Finland has branded GS1 Tomatoes, which are sold to the distributor named COOP. The example GS1 Tomatoes are 1. Class and their size are between 30-40mm.

The purchase from point of fresh fruits and vegetables could be described with the packer's GLN number AI (412). Alternatively could be used the Global G.A.P number (GGN).

AI (400) describes the customer's purchase order number, which can include maximum of 30 characters information in alphanumeric

AI (10) describes batch/lot number. Batch number can include maximum of 20 characters information in alphanumeric form.

AI (13) describes the packaging date. The form is always YYMMDD (Year, Month, Day) in GS1-128 barcode. If product needs best before date, the best before date AI (15) is used instead.

SSCC (Serial Shipping Container Code) is the unique and global identification key for logistic units. SSCC contains a running number for individualizing every pallet. The extension (first) digit in SSCC may vary from 0 to 9 – in this example has been used digit 3. **Notice that SSCC is the mandatory element on the GS1 Logistic label. Every pallet has to have a unique SSCC-code, which is assigned for the life time of the pallet item.**

AI (00) is the Application Identifier for the SSCC. Barcode which includes the SSCC-code is placed in the lowest in the label. SSCC is also recommended to present alone in the barcode. In addition, all barcodes in the label should be centered.

AI = Application Identifier

Standardized prefix (2-4 numbers) in front of the data to tell what the data means. E.g. AI (00) n2 + n18

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