

GS1-label

Manual for despatch units and packages in the
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Introduction

Thousands of consignments a day are transported in the floriculture sector. At various points in the distribution process the partners concerned need information in order to receive, track, sort and pick goods and ship them to the correct destination.

On top of this, businesses increasingly have to comply with national and international rules and regulations on product liability. It is vital, therefore, to be able to link the physical goods flow to the associated information flow unambiguously.

To achieve uniform, reliable, rapid information interchange it is very important to use a standard. The GS1-label is an international standard that you can use to obtain precise information on the logistic unit to which it is affixed.

This guide shows you how you can introduce GS1-labels in your current logistics processes. It discusses the despatch label so as to enable you to get started immediately once you have read the information.

Floricode service

Various organizations in the floriculture sector have said that they would like Floricode to set up a collective service enabling SSCCs to be retrieved electronically using a web service. Floricode intends to implement this service as soon as the precise needs are known.

Co-production

This document is maintained jointly by GS1 Netherlands and Floricode. Floricode is the point of contact for the registration and coding of floriculture products. It develops and maintains standards that enable all users in the supply chain (growers, traders, plant breeders, logistics providers and auctions, and their software suppliers) to exchange commercial, logistical and financial information with one another. If you have any questions about, or comments on, the content of this document, please contact info@floricode.com and/or info@gs1.nl.

1 Practical information

A GS1-label enables users to identify logistic units in such a way that they can be tracked and traced throughout the supply chain. We set out the practical information you need in order to decide how best to introduce GS1-labels in your current logistics processes.

1.1 Homogeneous and mixed despatch units

Both homogeneous and mixed despatch units are found in the floriculture sector, but most despatch units are mixed. We refer to the load carrier with its contents as the despatch unit. An example of a despatch unit is a Danish container containing three different lots of plants: 10 trays, 15 trays and 20 trays.



Figure 1.1: Examples of load carriers (auction trolley, Danish trolley and pallet)

Homogeneous despatch unit

A homogeneous despatch unit is one containing products of the same type. These products all have the same product specifications: a single GTIN (product code), a single expiry date, a single batch/lot number and/or a single package type.

Mixed despatch unit

A mixed despatch unit is one containing various products with different production specifications, e.g. multiple GTINs, expiry dates, batch numbers and/or package types.

The information required on the label is the same for both types of despatch units.

Coding despatch units and packages

When coding despatch units or packages you can use the GS1-128 symbology and the associated Application Identifier (AI) standard. The AI standard enables you to represent not only ID codes (e.g. GTINs) but also additional information (e.g. batch numbers) in barcode form.

1.2 GS1 standard

The international GS1 standard requires the labels on both homogeneous and mixed despatch units to show at least an SSCC and the Application Identifier (AI) 00. You can use the AI (00) to generate a unique international shipping code for logistic units (pallets, trolleys, cage trolleys, etc.) and track and trace them throughout the logistics chain. It is the key to the information on the consignment and contains 18 digits. For more information on Application Identifiers see [4.1.3](#). The SSCC expires once the consignment reaches its destination and the load carrier is destacked.

AI (00): Serial Shipping Container Code (SSCC)

Identifying individual units by means of an SSCC enables a whole range of actions to be carried out, including transshipment, routing and automatic receipt. The SSCC is the only element that is mandatory on all GS1-labels, but additional information can be added. To enable the SSCC to be scanned it has to be translated into a symbol or 'barcode'. You can represent the SSCC with a GS1-128 symbol.

You can create an SSCC once you have a GS1 code package. Alternatively, you can [order](#) packages solely of SSCCs from GS1 Netherlands. For more information on the structure of the SSCC see [4.1.3](#).

1.3 GS1-128 symbol

The purpose of a GS1-label is to provide clear, precise information on the unit to which it is affixed. The GS1-128 (formerly EAN-128) symbology is used to represent information on the unit concerned in a barcode. This is a system that enables not only the GTIN but also other information (SSCC, batch number, expiry date, etc.) to be represented in a barcode. For more detailed technical information on the GS1-128 symbology see [4.1](#).

Important: code128 is not compatible with the GS1-128 symbol. The symbols, including the SSCC, must be represented in line with the standard GS1-128 symbology so that they can provide unique identification internationally.

1.4 Cross-docking

The term 'cross-docking' means that the goods are delivered to the ultimate consignee via a distribution centre. The despatch unit is immediately sent on to the next location and its composition does not change.

If you do change the composition of a despatch unit, e.g. by transferring lots and/or parts of a lot to another load carrier, this creates a new despatch unit. A new label with a new SSCC must be generated for this new despatch unit.

1.5 Package label

In some cases it can be useful to have information on individual packages so that they can be managed in the logistics chain, for example when orders involve packages divided up among multiple trolleys. To ensure that the correct packages are delivered to the correct buyer it may help to assign a unique SSCC to each package.

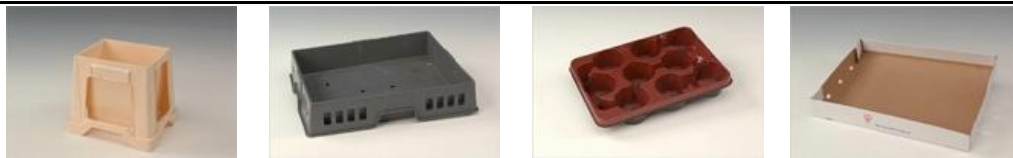


Figure 1.2: Package examples

If you need management information on individual packages we would advise you to put the following information on the label:

What information to put on the label	Should it also be included as a barcode?
Serial Shipping Container Code (SSCC)	Yes, using AI (00)

Table 1.1: What information to put on the label

Important: a package label is not mandatory.

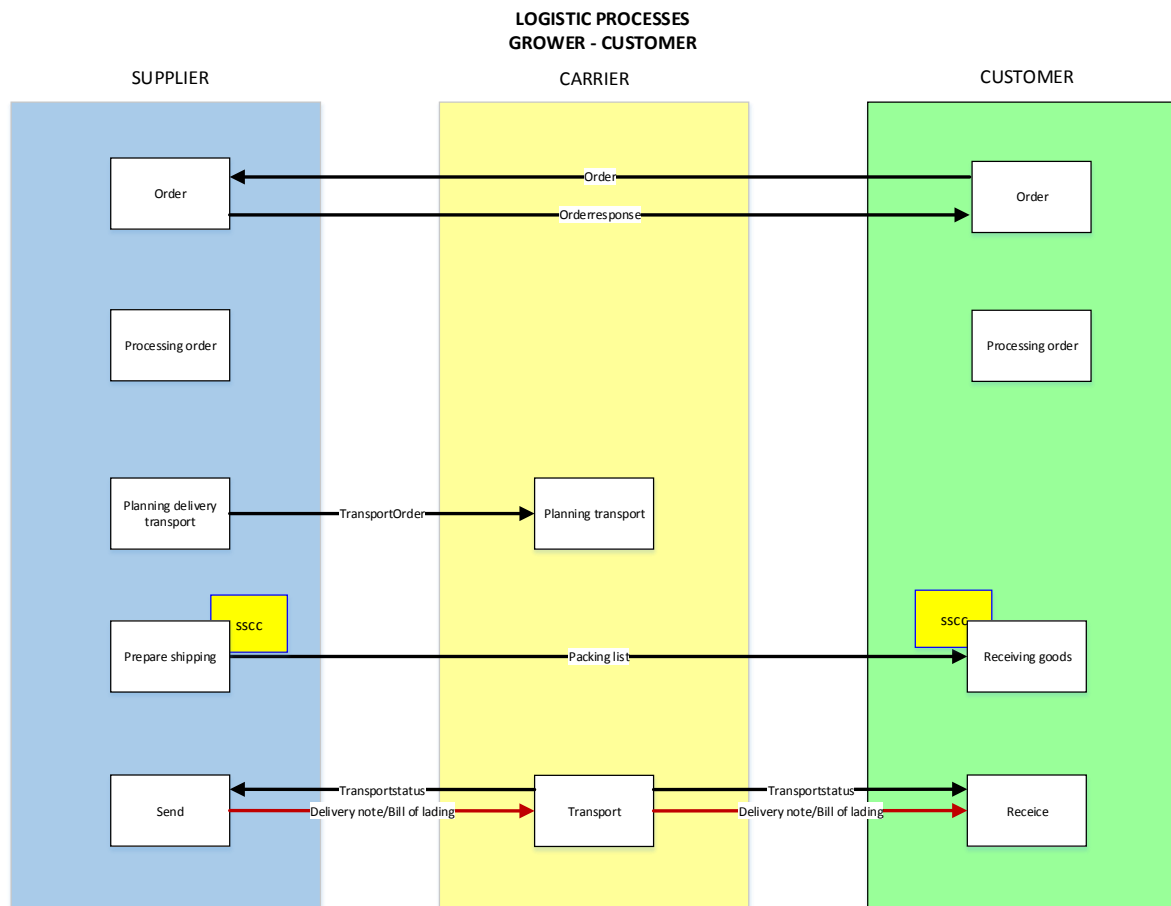
2 Current logistics processes in floriculture

Various logistics scenarios are found in floriculture. This section describes the processes in the most important scenarios where a despatch label and/or package label can be used. The description makes no distinction between homogeneous and mixed load carriers.

A GS1-label enables you to identify logistic units in such a way that they can be tracked and traced throughout the supply chain. The only mandatory requirement is that each logistic unit must be identified by a unique serial number, the Serial Shipping Container Code (SSCC). Scanning the SSCCs on logistic units enables the physical movements of those units to be matched with the electronic messages referring to them. Identifying units by means of an SSCC enables various actions to be carried out, including transshipment, routing and automatic receipt.

2.1 Direct delivery from the grower to the wholesaler

This scenario describes the processes between the supplier (usually the grower), the carrier and the customer (usually the wholesaler) using SSCC labels in conjunction with electronic messages and (optionally) an auction packing list. Using SSCC labels in this scenario is particularly worthwhile where the grower sells 'full trolleys' to the retailer via a wholesaler (cross-docking). This is the case in the bedding plants season, for example.



¹⁾

The process of delivery and receipt involves various stages:

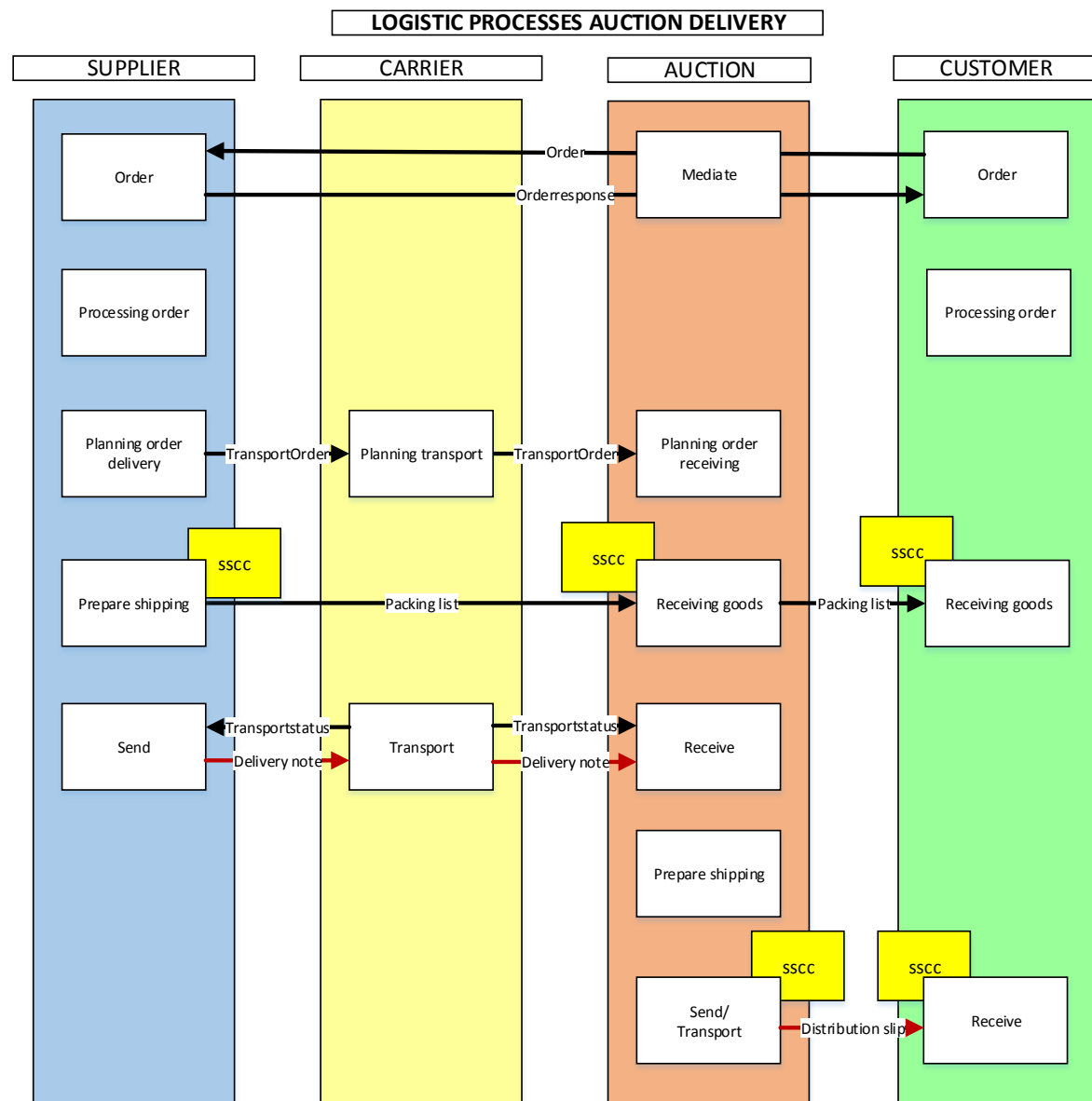
- 1 Ordering
 - a. Orders are placed in various ways: by telephone or fax or using electronic order messages (EOS, Electronic Ordering Systematic).
- 2 Order handling
 - a. The grower prints out an 'order picking list' containing the information relevant to each order or order line (growers sometimes refer to this as a delivery note [*pakbon* in Dutch], which can cause confusion with shipping note, delivery advice [also called *pakbon* in Dutch]).

¹⁾ In this diagram the black lines represent the interchange of electronic messages and the red lines the paper documents.

- b. Based on this ‘order picking list’ the order/order line is picked and packaged.
- 3 Despatch logistics and transport scheduling
 - a. The grower uses an Electronic Transport Order (ETO) to order transport from the carrier.
- 4 Preparing for despatch
 - a. The grower places the processed lots on load carriers, including the order picking lists, which are affixed to the lot on the trolley.
 - b. Once the whole consignment is ready the order picking lists on each load carrier are scanned so that the delivery note (or auction packing list) shows the order lines with the correct quantities. The RFID on the load carrier is also scanned and thus linked to the delivery note.
 - c. The number of lot units (parts of a lot) on each load carrier is recorded: a load carrier can contain one or more parts of a lot.
 - d. A unique SSCC is generated and confirmed for each load carrier.
 - e. If payment is made via the auction, a delivery message (EAB) is sent to the auction for each consignment of one or more load carriers.
 - f. For each consignment of one or more load carriers the grower sends the buyer a delivery message (EPB, Electronic Delivery Note) stating the precise composition of each load carrier (identified by an SSCC).
- 5 Transport
 - a. If there is no packing list, the grower or carrier should take care of the waybill or CMR (road transport convention) consignment note.
 - b. The grower scans the SSCC on each load carrier when loading the delivery vehicle, so that it is clear (for the grower’s own records) who is transporting each load carrier and when the goods were loaded and sent off.
 - c. The carrier uses a status message to inform the wholesaler and the grower of the current status of the transport.
- 6 Receipt
 - a. On receiving the goods the wholesaler checks the products against the data received electronically in the delivery message (EPB) by scanning the SSCC on each load carrier and checks the lots in.
 - b. Once further checks have been carried out, the goods are transported internally within the wholesaler’s location.

2.2 Delivery from grower to wholesaler through the internal auction logistics system

This scenario describes the processes between the supplier (usually the grower), the carrier, the auction and the customer (usually the wholesaler) using SSCC labels in conjunction with a packing list and electronic messages. Using SSCC labels in this scenario is particularly worthwhile where ‘full trolleys’ are sold to the retailer via a wholesaler (cross-docking). This is the case in the bedding plants season, for example.



2)

The process of delivery and receipt involves various stages:

²⁾ In this diagram the black lines represent the interchange of electronic messages and the red lines the paper documents.

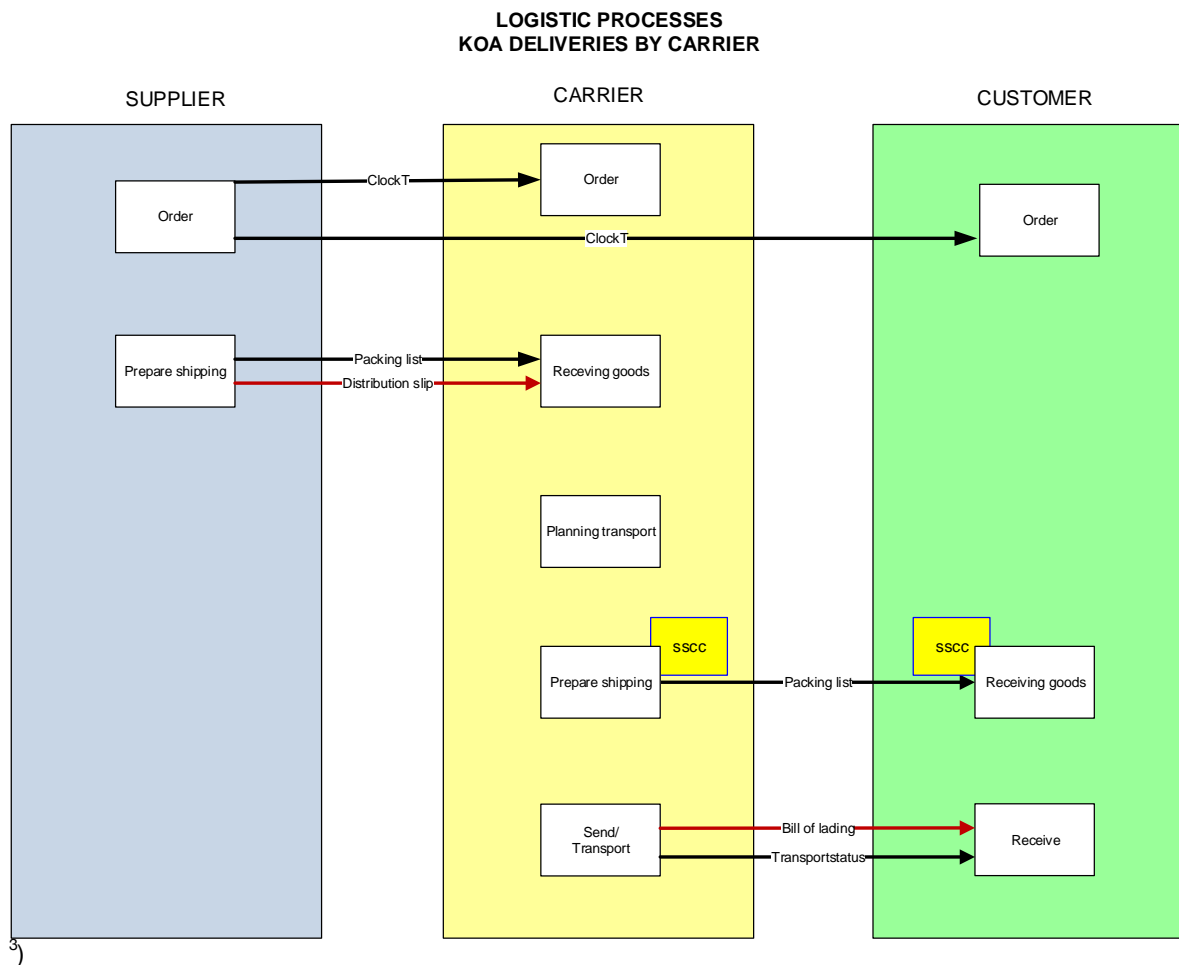
- 1 Ordering
 - a. Orders are placed in various ways: by telephone, fax or electronic order messages (EOS).
- 2 Order handling
 - a. The grower prints out an 'order picking list' containing the information relevant to each order or order line.
 - b. Based on this 'order picking list' the order/order line is picked and packaged.
- 3 Despatch logistics and transport scheduling
 - a. The grower uses an Electronic Transport Order (ETO) to order transport from the carrier.
- 4 Preparing for despatch
 - a. The grower places the processed lots on load carriers, including the order picking lists, which are affixed to the lot on the trolley.
 - b. Once the whole consignment is ready the order picking lists for each load carrier are scanned so that the auction packing list shows the order lines with the correct quantities. The RFID on the load carrier is also scanned and thus linked to the delivery note.
 - c. The number of lot units (parts of a lot) on each load carrier is recorded: a load carrier can contain one or more parts of a lot.
 - d. One or more auction packing lists are generated for each load carrier. A unique SSCC label is also generated for each load carrier.
 - e. For each consignment a delivery message (EAB) is sent to the auction. (Where the grower uses an SSCC label and a delivery message (EPB) this is not necessary for the logistics process; the EAB is only used for payment via the auction.) The auction then sends the buyer a delivery message (DESADV = despatch advice) in the form of an electronic delivery note between the consignor and the consignee.
 - f. For each consignment the grower sends the wholesaler a delivery message (EPB) stating the precise composition of each load carrier (identified by an SSCC).
- 5 Transport
 - a. The packing list(s) serve(s) as the carrier's waybill.
 - b. The grower scans the SSCC on each load carrier when loading the delivery vehicle, so that it is clear (for the grower's own records) who is transporting each load carrier and when the goods were loaded and sent off.
 - c. The carrier uses a status message to inform the auction and the grower of the current status of the transport.
- 6 Receipt
 - a. The auction checks whether the data on the delivery notes (EAB) is present in the auction system by scanning the barcodes on the packing lists. (The auction does not itself use the SSCC label to support its logistics processes.)
 - b. Based on this scan the auction then sends the grower and the wholesaler a status message (ELS-HUB).
- 7 Preparing for despatch
 - a. Load carriers are not split up by the auction and/or no goods are transferred.
 - b. A distribution note is generated for each lot, for the auction's internal process.
- 8 Transport
 - a. The load carrier is delivered to the wholesaler by internal transport.
 - b. On delivery the auction scans:
 - In Naaldwijk: the packing lists and its own location indicator.
 - In Aalsmeer: one of the packing lists.

9 Receipt

- a. On receiving the goods the wholesaler checks the products against the data received electronically in the delivery message (EPB delivery note) by scanning the SSCC on each load carrier and then checks the lots in.
- b. Once further checks have been carried out the goods are transported internally within the wholesaler's location.

2.3 'Remote buying' deliveries from the carrier to the wholesaler

This scenario describes the processes between the carrier and the customer (the wholesaler) when delivering goods purchased in 'remote buying' (KOA, Kopen op Afstand) transactions. Here the auction performs the logistical role of supplier. The use of SSCC labels and electronic messages is worthwhile in this process scenario. De Winter Transport, for example, delivers some 800 load carriers a day with four or five lots each as remote purchases.



The process of delivery and receipt involves various stages:

1 Ordering

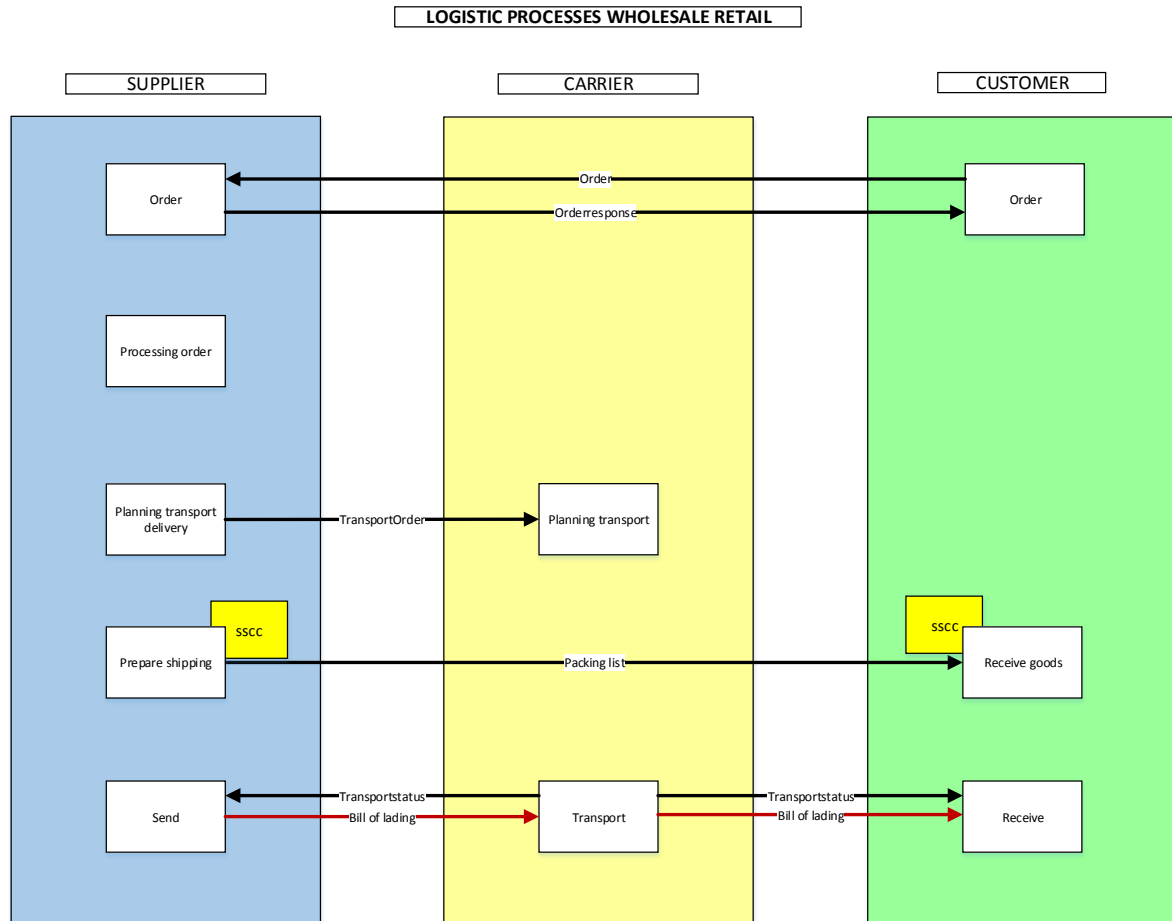
- a. Once the goods have been purchased in a clock auction the carrier receives the order response messages (CLOCKT, Electronic Clock Transaction) from the auction or the wholesaler.
- b. This message implicitly serves as a 'transport order' for the carrier on behalf of the wholesaler.

³) In this diagram the black lines represent the interchange of electronic messages and the red lines the paper documents.

- c. It also contains information enabling the carrier to carry out an input check on the goods.
- 2 Preparing for despatch (at the auction)
 - a. During the clock auction distribution process the auction assembles the load carriers for each wholesaler along with the lots ordered by the wholesaler that have to be delivered to the carrier's location at the auction.
 - b. Each lot or part of a lot has an auction distribution note with a barcode, which is linked to the auction's or wholesaler's order response (CLOCKT).
 - c. The auction scans the distribution notes and the barcode/RFID on the load carrier (KOWALA, matching load carrier and lading) and sends the carrier the scanned data as a 'clock auction delivery message' (EPB-KLOK, Electronic Delivery Note for the Clock Auction).
- 3 Receipt of goods
 - a. The carrier receives the goods and scans the barcodes on the distribution notes (or the RFID on the load carrier) and checks the products in conjunction with the information in the 'clock auction delivery message'.
- 4 Transport scheduling
 - a. The carrier schedules the transport of remote purchases in its own TMS system, combined with the various other transport orders.
 - b. The consignments are assembled, and a 'dossier number' is generated as an ID for each one.
 - c. The transport orders are sent to the on-board computer of the respective delivery truck.
- 5 Preparing for despatch (at the carrier)
 - a. The carrier assembles the load carriers for the wholesaler by transferring lots (or part-lots) to other load carriers if necessary (consolidation). Each lot is accompanied by its own distribution note.
 - b. The carrier scans the RFID or barcode on each load carrier and the barcodes on the distribution notes. In this way a unique SSCC label is generated and confirmed for each load carrier.
 - c. For each consignment of one or more load carriers the carrier sends the wholesaler a delivery message (EPB) stating the precise composition of each load carrier (identified by an SSCC).
- 6 Despatch/transport
 - a. The carrier compiles the waybill or CMR consignment note. The carrier sends the consigners and consignees status messages (ELS, Electronic Logistics Status) based on up-to-date information from the on-board computers.
 - b. After unloading the load carriers (and possibly scanning them) the driver signs off the transport order via his on-board computer.
 - c. When distributing the goods internally in the auction building for delivery to the wholesaler the carrier's staff member scans the SSCCs on the labels on the load carriers delivered and the GLN (Global Location Number), so that the goods are recorded in the carrier's system as having been delivered correctly.
- 7 Receipt
 - a. The wholesaler receives the goods and scans the SSCCs on the label of each load carrier, checks the products in conjunction with the information in the delivery message (EPB delivery note) and checks the lots in. There is an implicit check against the data in the order response messages (CLOCKT) from the auction.
 - b. Once further checks have been carried out the goods are transported internally within the wholesaler's location.

2.4 Delivery from wholesaler to retailer

This scenario describes the processes between the wholesaler (the supplier), the carrier and the retailer (the customer). Electronic messages and labels with standard SSCCs can be used between the wholesaler and the retailer.



4)

The process of delivery and receipt involves various stages:

- 1 Ordering
 - a. Orders are usually placed by the retailer in the wholesaler's web shop or using EDI (EANCOM) messages.
 - b. Orders are also received by telephone, fax or in the form of Excel/CSV files: the salesmen enter these orders in the wholesaler's ERP system.
- 2 Order handling (for order handling and supply logistics see the process for scenario 1).
 - a. On the buying side electronic data interchange takes place between the wholesaler, the grower and the auction (EOS messages for offer, order and order response), thus creating orders electronically.
 - b. Based on the EAB message from the grower to the auction, the auction then sends the wholesaler a DESADV message.

⁴⁾ In this diagram the black lines represent the interchange of electronic messages and the red lines the paper documents.

- c. Goods receipt and checking takes place using this DESADV message by scanning the barcode on the packing list.
- 3 Despatch logistics and transport scheduling
 - a. The wholesaler exchanges standard messages with the carrier for the transport orders (ETOs) and transport status (ELS).
- 4 Preparing for despatch
 - a. The load carriers are assembled by the wholesaler in the order picking process and prepared for despatch to the retailer.
 - b. As soon as a load carrier is ready the order picking lists are scanned, along with the RFID on the load carrier, then an SSCC label is printed out and attached to the load carrier.
 - c. The retailer receives the electronic despatch advice in the form of a DESADV (EANCOM) message stating the precise composition of each load carrier (SSCC).
 - d. As soon as the load carrier is ready to be transported the SSCC label is scanned, thus recording the departure status in the wholesaler's system.
- 5 Transport
 - a. The carrier picks up the consignment, transports it (and transships it if necessary) and delivers it to the agreed delivery address.
 - b. Depending on the arrangements that have been agreed, the carrier or wholesaler takes care of the waybill or CMR consignment note, which is not exchanged electronically.
 - c. Scans on loading and unloading enable the carrier to exchange status messages (ELS) on the consignment with the consigner and/or consignee.
- 6 Receipt
 - a. The retailer receives the goods, scans the SSCC on the label of each load carrier, checks the products in conjunction with the information in the EANCOM-DESADV message and checks the lots in.
 - b. Once further checks have been carried out, the goods are transported internally within the retailer's location.

2.5 Rules

The following rules have been applied in the description of the processes:

- In floriculture a GS1-label is always used in conjunction with electronic interchange of the relevant data between the supply chain parties' systems.
- Standard SSCC (Serial Shipping Container Code) coding and labelling is used for GS1-labels in floriculture.
- GS1-labels can be used on all types of load carriers (auction trolleys, Danish containers, trolleys, cage trolleys, etc.), irrespective of whether these load carriers have their own ID in the form of a barcode and/or RFID.
- The auctions have not yet brought their systems and methods into line with the use of standard GS1-labels. Where necessary a GS1-label can be used alongside and simultaneously with the auction packing list and the Electronic Packing List.

For the usage rules when implementing GS1-labels in the floriculture sector see [section 3](#).

3 Usage rules for implementation

Certain usage rules apply when using GS1-labels. It is vital to apply these rules correctly so as to optimise your logistics processes and data interchange. The following usage rules apply:

- The term 'load carrier' is commonly used in floriculture, referring mainly to auction trolleys and Danish containers. The term 'despatch unit' refers to the load carrier with its contents.
- As soon as lots/parts of a lot are transferred to another load carrier in the supply chain during the logistics process this creates a new 'despatch unit' for which a new SSCC and a new SSCC label must be generated. The information on the correct contents of the new despatch unit must then be exchanged between the consigner and the consignee. (This is relevant, for example, in the case of remote purchases transported by carriers to different consignees.)
- As soon as the shipper scans the RFID or barcode on the load carrier and the lot IDs (order picking lists) a link is established between the load carrier and its contents. The system can then generate an SSCC for this load carrier and print out the label, which is attached to the load carrier. The SSCC and the RFID code (or barcode) can both be exchanged in the electronic messages in the supply chain. The consignees can then scan the RFID/barcode and/or the SSCC on the label, depending on the technical facilities they have.
- If the load carrier does not have an ID of its own the SSCC assigned to it is this load carrier's sole – and unique – ID for the duration of the transport.
- If the load carrier(s) is/are transported from the supplier to the customer via a carrier's (or auction's) hub, only the details of the ultimate consignee are included on the label, not the details of the hub.
- If cross-docking takes place at the wholesaler and the contents of the load carriers remain unchanged, the SSCC label can include the ultimate consignee's GLN (Global Location Number) combined with AI code 413 (= ultimate consignee).
- An SSCC label can be used not only for each despatch unit but also for each package in each despatch unit.
- The SSCC label for each package supports the distribution process at the wholesaler, where individual packages from a single lot need to be distributed to the correct end-users.
- The supply chain partners agree amongst themselves if they wish to use SSCC package labels in addition to labels for each despatch unit.
- Large plants are usually sent without packaging or shrink-wrapping. In this case each plant can be given an SSCC package label.
- When using package labels, if possible the wholesaler should generate the SSCCs for the labels and provide them to its suppliers with the correct data electronically: the standard 'labelling message' and 'lading advice' can be used for this purpose.
- In practice growers often provide individual plants with 'price labels' at the buyer's request. The most commonly used format is 40 x 50 mm. From the logistics standpoint and because of the cost aspect it is advisable to use the same format for the various types of label. This will speed up the adoption and use of GS1-labels.
- The SSCC expires as soon as the despatch unit is 'broken up' (i.e. destacked and/or restacked so that the composition of the despatch unit changes).
- A logistics provider can use its own SSCC for load carriers that it delivers to a retailer on behalf of a supplier. Retailers will want to take the load carriers into stock based on the unique international SSCC; supplier recognition in the SSCC is not relevant here.
- An SSCC cannot be re-used for at least one year after it has expired.

4 Technical information GS1-label

4.1 The GS1-128 symbol

The GS1-128 symbology and the related Application Identifiers (AI) are a variant (subset) of the Code128 standard. “128” represents the number of different characters that can be generated. The main difference between GS1-128 and Code128 lies in the special character at the start series, the FNC1. This character tells the scanner that the symbol is built up according to the global standardized GS1-128 symbology. GS1-128 barcodes may contain GS1 codes (GTIN, SSCC, and GLN) and attribute data (batch/lot number, expiry date, etc.).

4.1.1 The FNC1-character

The FNC1-character is used to identify a GS1-128 symbol and distinguish it from a Code128 symbol. Besides this application, the FNC1-character is also used as a separation character to indicate the end of a variable data field. This allows the scanner to recognize where information belonging to an AI, i.e. a data field, ends and where the next AI begins. Apart from a limited number of fixed AI's, other AI's must always be closed with a FNC1 character. [Appendix 7.2](#) contains a table of AI's that do not need to be closed with a FNC1 character.

4.1.2 Compact barcode

Unlike the numerical (i.e. digits only) symbology, including EAN13, UPC12 and ITF14, the GS1-128 symbol system allows for lower-case letters, upper-case letters and control characters to be used besides digits. Three different code sets are used in the symbol system: code set A, B and C. The code set you use depends on the information that you want to include in the GS1-128 symbol:

- **Code set A** is used for displaying upper-case letters, digits and ASCII control characters.
- **Code set B** is used for displaying upper-case letters, lower-case letters, digits and ASCII control characters.
- **Code set C** is only used to display digits. This code set allows two digits to be converted into a symbol character.

The symbols in code set C are shorter than those in code set A or B. It is therefore recommended that code set C should be used as much as possible.

4.1.3 Application Identifiers

GS1-128 symbols are made out of data fields, which in turn are defined using Application Identifiers (AI's). These AI's are standardized and always precede the data fields. They indicate the significance of the information, the data format and the length (fixed or variable) of the data field. For example, the first data field may state what the article is and the next data field states the expiration date.

4.1.4 SSCC: Serial Shipping Container Code

As was stated in [chapter 1](#), it is a mandatory requirement to identify both homogeneous and mixed dispatch units using a unique serial number, the SSCC, AI (00) on the label. The SSCC, or the Serial Shipping Container Code, is an identifying code that allows you to control and record the flow of goods up to the level of the individual unit. Using the code opens up the opportunity to track and trace goods within a company and throughout the entire supply chain.

The format of the SSCC is as follows:

Extension Digit	GS1 Company Prefix	Serial Reference	Check Digit
N ₁	N ₂ N ₃ N ₄ N ₅ N ₆ N ₇ N ₈ N ₉ N ₁₀ N ₁₁ N ₁₂ N ₁₃ N ₁₄ N ₁₅ N ₁₆ N ₁₇		N ₁₈

Figure 4.1: Format of an SSCC

- The Extension Digit: this digit can have any value from 0 to 9 and is used to increase the numbering capacity of the Serial Reference. Its use is at the discretion of the company allocating the SSCC.
- The GS1 Company Prefix (GCP): this number is allocated by GS1 Member Organisations to the company that allocates the SSCC – here the physical builder or the brand owner of the logistic unit. It makes the SSCC unique worldwide but does not identify the origin of the unit.
- The Serial Reference: this serial number is created by the company allocating the SSCC. This serial number is intended to uniquely identify your shipping unit. The simplest way to allocate the serial number is sequentially, for example00000, ...00001, ...00002.
- The Check Digit: this number is calculated using the algorithm defined by GS1. You can calculate the check digit on [our website](#).

5 Layout GS1-label

5.1 Lay-out

5.1.1 GS1-label

The information included in the GS1-label comes in two basic forms:

- 1 Information to be used by people: this is comprised of Human Readable Interpretation (HRI), non-HRI text and graphics.
- 2 Information designed for data capture by a machine: barcodes.
Barcodes are machine readable and are a secure and efficient method for conveying structured data, while HRI, non-HRI text and graphics allow people general access to basic information at any point in the supply chain. Both methods add value to GS1-label, and often co-exist on the same label.

For the purposes of interpreting this guideline, there are two types of text that appear on a label:

Human Readable Interpretation (HRI)

HRI is the information below or beside a barcode which is encoded in the barcode and represents the same characters as carried in the barcode.

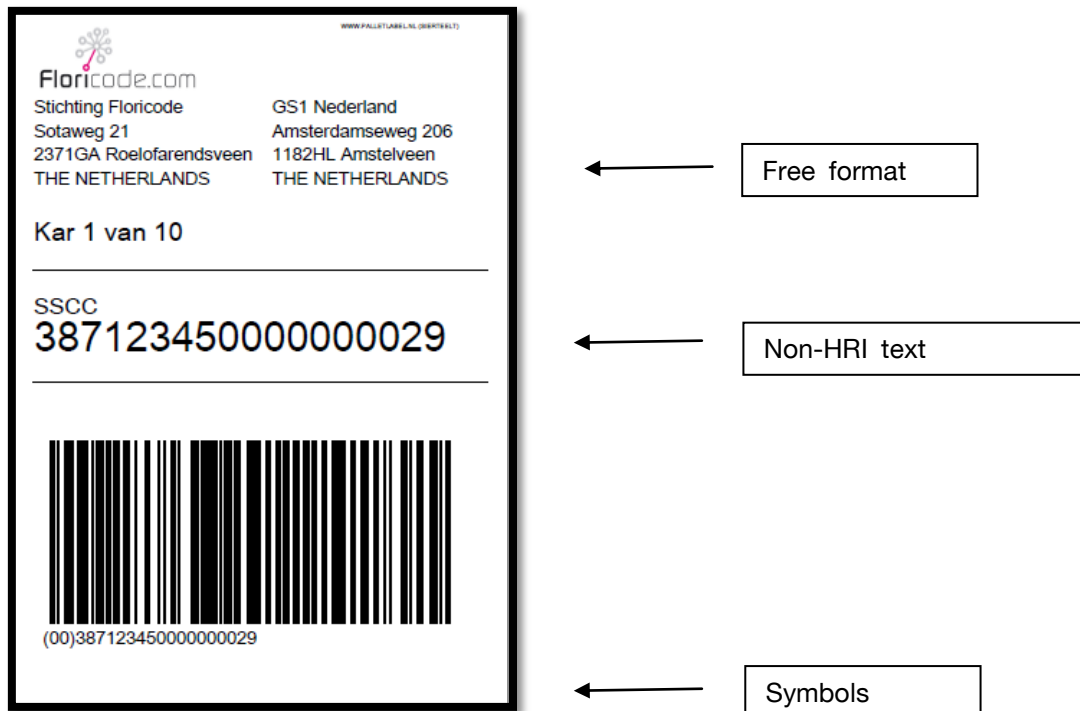
Not Readable Interpretation (non-HRI)

Text is all other text on a label.

On the GS1-label a distinction is made between the types of data communicated on the GS1-label, in order to facilitate interpretation by machines and people. For this purpose the data can be expressed in three building blocks:

- 1 **Free format (top part).** May contain non-HRI text and graphics.
- 2 **Not Readable Interpretation (middle part).** Contains non-HRI text reflecting the information represented in the barcode(s) using data titles rather than AIs, and optionally additional information not represented in barcodes (preferably including data titles) (non-HRI).
- 3 **Symbols (bottom part).** Contains the barcode(s) including human readable interpretation (HRI).

The three building blocks are separated by a horizontal line. The label is printed in portrait, size A6 (105 mm x 148 mm). The following sections describe the building blocks in detail.



5.1.2 Package label

The package label is constructed in the same manner as the despatch label:

- 1 Free format (top part).
- 2 Not Readable Interpretation ((non-HRI text (middle part)).
- 3 Symbols (bottom part).

The package label is constructed the same as the despatch label in terms of content, but there are some differences in terms of format:

- **Dimensions:** the package label is printed in A7 format.
- **Printing:** the package label is printed in landscape format and affixed to the packaging in that orientation.



The three building blocks are separated by a horizontal line. The label is printed in landscape, size A7.

5.2 Free format

5.2.1 Despatch label

In the top part of the GS1-label for homogeneous and heterogeneous logistic units you may place free-form information, such as a company name, address or logo. The floriculture sector has opted to use the following set of data in this part of the label:

What free format information to include in the top part?	Should this also be included in the barcode?
Company logo	No
Supplier address	No
Customer address	No
Consecutive number of the logistic unit: Unit X of Y	No

Table 5.1: Free format in despatch label

5.2.2 Package label

It's sufficient to include your company logo in the top part of the label. The serial number of the trolley and the address of both the customer and supplier are not needed here. Product information on the content of the package (cultivar name, product code, quantity) should be included here.

What free format information to include in the top part?	Should this also be included in the barcode?
Company logo	No
Product information	No

Table 5.2: Free format information in package label

5.3 Non-HRI text

The non-HRI text in the middle part of the GS1-label contains a data title and data content. For example: data title: SSCC, data content: 3871234567449326. Text with data titles is text designed to support manual operations and to facilitate key entry in menu driven systems. It should contain the text equivalent of all data elements represented in barcodes, and is comprised of data titles and data content.

Data Titles

Data titles are the standard abbreviated descriptions of element strings (AIs) used to support the human interpretation of encoded data. Data titles should be used adjacent to all data fields included in the non-HRI text building block.

All barcoded data elements must also be included as text with data titles.
The data content should be at least 7 mm (0,28 inch) in height.
Application Identifiers (AIs) must not be included in the text with data titles.

Important:

All barcoded data elements must also be included as text with data titles in English.
The data content should be at least 7 mm (0,28 inch) in height.
Application Identifiers (AIs) must not be included in the text with data titles.

Data titles may also be used adjacent to barcodes and HRI.

- For each included data field representing a barcoded data element the GS1 data title related to the AI must be included.
- If there is no language agreed between trading partners, data titles must be printed in English. As an option left at the discretion of the labeller, a second language can be added. For English data titles, the exact data titles as specified in the '[GS1 General Specifications](#)' should be used.
- Data titles should follow the format as specified in the '[GS1 General Specifications](#)', in particular they should be presented in UPPERCASE when indicated.
- To avoid any ambiguity in the human interpretation of dates the data tag for dates may be followed by the chosen format. E.g. BEST BEFORE (dd.mm.yyyy): 24.12.2013. This is not to be confused with the format to be used within the bar coded data field which is always YYMMDD.

5.4 Symbols

The bottom section of the GS1-label consists of symbols only, including the HRI. The barcodes on the GS1-label are conform to the GS1-128 standard. GS1-128 barcodes must be distinguished from Code128 barcodes by the use of the FNC1 immediately after the start character. If FNC1 is not included at the start of each symbol, the barcode will not meet the requirements of the GS1 System.

Important:

You may use a data field (Application Identifier) only once for each GS1-label. This means for instance that it is not allowed to use a Global Trade Item Number (GTIN) twice on a GS1 label.

Try to limit the number of GS1-128 symbols to a maximum of three.

The bottom part of the GS1-label must always include the SSCC.

The barcode symbols must be at least 31,75 mm high.

Considering the length of the SSCC (18 positions), we recommend to place this code as a separate symbol on the GS1-label, but this is not mandatory. If you do not have enough space on the label it is allowed to put additional information in the SSCC symbol.

In order to facilitate manual data entry in the event of any scanning problems, you must make the data fields clearly recognisable. You can do this by including the contents of the data fields as human readable text below the symbols.

The brackets used to show the Application Identifier must not be translated into bars. Most software programs take care of this automatically. However, there are software programs available which offer the option of whether or not to translate these brackets into bars, so make sure yours is properly configured.

5.4.1 Fonts and free format

You are free to use whatever fonts you like, but you are advised to use a font that is easy to read, such as Times New Roman or Arial. The font height is preferably 7 mm. The non-HRI text beneath the barcodes must be minimal 3mm (0,0118 inch) high.

The free format building block may include any text or graphics not meant for automated processing. The name and address of the sender and receiver are typical examples. A company logo can also be added here.

5.5 Size

5.5.1 Sizes of the label

The physical dimensions of the label are determined by the labeller, but the size of the label should be consistent with the data requirements for the label. Factors influencing label dimensions include the amount of data required, the content and X-dimension of the barcodes used, and the dimensions of the logistic unit to be labelled. The business requirements for most users of GS1-labels are met by using one of following:

1 Compact label

A6 (105 mm x 148 mm) or 4 x 6 inch, which is particularly suitable when only the SSCC, or the SSCC and limited additional data, is encoded. For example: applied on case labels.

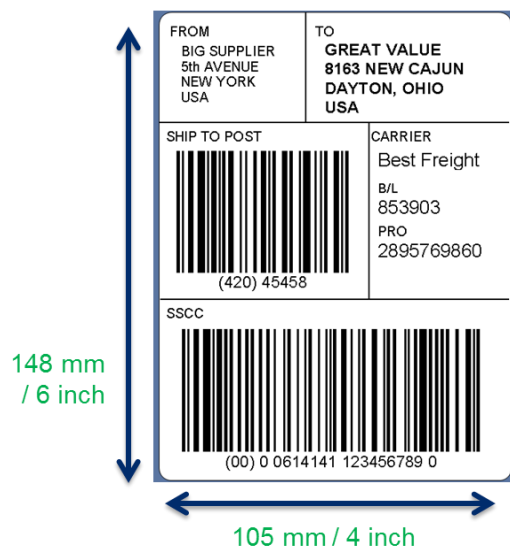


Figure 5.3: Dimensions A6 / 4 x 6 inch label

2 Large label

A5 (148 mm x 210 mm) or 6 x 8 inch, suitable when additional data such as trade item data are needed. For example: applied on pallet labels.



Figure 5.4: Dimensions of A5 / 6 x 8 inch label

3 Other size labels

Other label dimensions are typically variations driven by data requirements or logistic unit size.

5.5.2 Sector choice A6 label

Given the amount of space available on the load carrier the floriculture sector has opted to make the **A6 label** the standard for despatch labels. The dimensions of an A6 label are 105 x 148 mm.



Figure 5.5: Dimensions of A6

For the package label the sector has opted for an **A7 label** in landscape format, which is best affixed to the packages in that orientation.



Figure 5.6: An example of a package label

5.5.3 Summary label sizes

Label type	Size	Size in mm	Print	Apply
Despatch label	A6	105 mm X 148 mm	Portrait	Portrait
Package label	A7	105 mm X 74 mm	Landscape	Landscape

Table 5.3: Summary of label formats

5.6 Width and height GS1-128

Width

The maximum width of the GS1-128 symbol, including the light zones, is 165 mm. A maximum of 48 data characters (ASCII characters) may be placed in the symbol. This includes both the data and the FNC1 separating characters. The characters of the start series, those in the stop series and any control characters (code A, code B, code C and shift) do not count towards the maximum number.

Height

The height of the GS1-128 symbols must be at least 31,75 mm high. The length of the GS1-128 symbol should be kept as short as possible: the maximum width of the GS1 label is 148 mm. Some recommendations are:

- Always use Application Identifiers with a fixed data field before the ones with a variable data field.
- Always include Application Identifiers with an uneven number of characters or with a letter or character as last in the GS1-128 symbol.

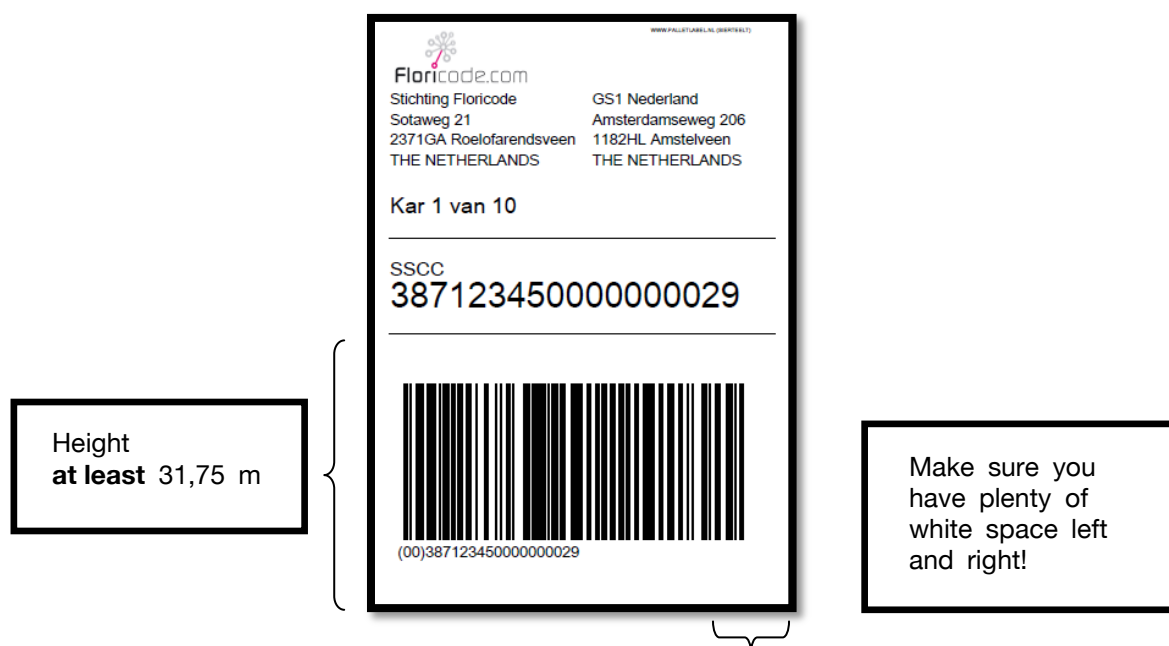


Figure 5.7: Width and height of GS1-128 symbol

5.6.1 Quiet zones

Always retain a light zone both to the left and right of the GS1-128 symbol. The quiet zone has two functions:

It enables the scanner to adjust to the background colour. So see to it that no text or other print is interfering with the quiet zone.
It also serves as a safeguard against reading errors.

The width of the quiet zones is ten times the width of the X-dimension (or the narrowest bar in the barcode) in millimetres. For example, with an 80% magnification factor, the light zone is $10 \times 1 \text{ mm} \times 80\% = 8 \text{ mm}$.

5.6.2 Magnification factor or X-dimension

The magnification factor you choose for printing the symbol depends on the accuracy of the printer and the distance at which the symbol should be read. The magnification factor for reproducing the Serial Shipping Container Code is between 49,5% and 94%. The size of the SSCC depends on the label format. On an A5 label, the SSCC is shown with a magnification factor of 94% and on an A6 label the magnification factor is 49,5%.

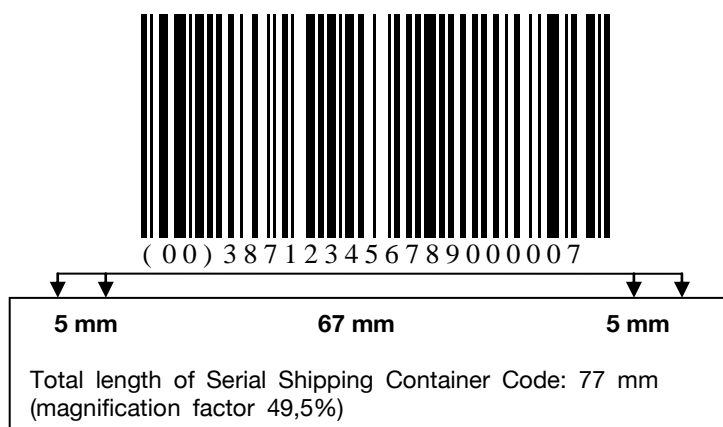


Figure 5.8: Example of an Serial Shipping Container Code (magnification factor 49,5%)

Most of the label software programs do not work with magnification factors, but with X-dimensions. X-dimension means the smallest bar (element) in a barcode. The table below shows the magnification factors and the corresponding X-dimensions.

Magnification factor in %	Accompanying X-dimension in mm
49.5	0,495
60	0,6
70	0,7
80	0,8
90	0,9

Table 5.4: Magnification factor and accompanying X-dimension

Package types and dimensions

If the product is too small to comply with the minimum X-dimension, then a minimum X-dimension of 0,25 mm (0,0098 inch) applies. The minimum height of the GS1-128 symbol applies to the actual barcode without the digits below. This is 12,7 mm (0,5 inch). If the product (e.g. a type of package) is too small to comply with this rule the symbol may be further reduced in size, but to keep it scannable the barcode itself must never be smaller than 5,08 mm (0,200 inch).

6 Application of the GS1-label

As well as the information requirements, format and layout, the agreements made on the placement and quantity of GS1-labels for each logistic (shipping) unit are important. This section describes the practical application of the GS1-label.

6.1 Quantity

Each logistic unit should at least contain one label. For pallets it is recommended that two sides of the item are labelled with the exact same data, to ensure one label is always visible (e.g. pallets that are stored either long or short edge facing). On rolling logistic units a label on one side is usually sufficient.

6.2 Placement

When placing the GS1-label in accordance with the GS1 standard, the following must be taken into account:

Place the GS1-label at least 50 mm from the vertical edge. This may be both to the left or right side. For ergonomic reasons, the right-hand vertical edge is to be preferred.

If you want to place the labels higher than one metre on logistic (shipping) units, the middle of the symbol with the SSCC must be between 400 mm (16 inch) and 800 mm (32 inch) above the underside of the despatch unit. The best place to affix the GS1-label is 800 mm from the underside of the pallet or roll-container. This is the best choice for ergonomic reasons when scanning the label.

If the despatch unit is lower than one metre, the distance to the ground must be at least 32 mm, and the distance to the (side) edge at least 19 mm. All other symbols on the GS1-label should be above the SSCC.

For pallets less than 400 millimetres (16 inches) high, the barcode needs to be placed as high as possible while protecting the barcode.

6.2.1 Logistic units in floriculture

The floriculture sector has expressed the following preference for the position and number of labels.

One GS1-label is enough for an auction trolley or Danish container:

- **Auction trolleys:**

If possible, place the GS1-label on the rolling despatch unit at the height of the 'letter clip'.

- **Danish containers:**

Place the GS1-label on the short side of the unit (side from which the unit is usually handled).

Two GS1-labels are attached to pallets. It is best to attach GS1-labels to a pallet as follows:

– Pallets:

- 1 Place the first label on the top right of one of the long sides of the load carrier.
- 2 Place the second label on the top right of the side adjacent to the first label, if possible.

Important: the ideal height for labels is set out in section [6.2](#).



Figure 6.1: Position of GS1-labels on pallets and trolleys

6.2.2 Package labels

When affixing a package label we would advise you to place it on the package in a way that it is visible on the long side of the load carrier.

6.2.3 Position on stacked load carriers

For more information on stacked load carriers see section 8.3 of the [GS1 international guide](#) to GS1-labels.

6.2.4 Summary

Label	Type	Examples	Quantity of labels	Position short side(s)	Position long side(s)
Despatch label	Rolling despatch unit	Auction trolley, Danish container	1	1	N/A
Package label	Rolling despatch unit	Auction trolley, Danish container	1 per package	N/A	1 per package
Despatch label	Non-rolling despatch unit	Pallet	2	1	1

Table 6.1: Summary quantity of labels

6.3 Attaching the label

When affixing a GS1-label please consider the following:

- The format of the GS1-label.
- Type of application.
- The way of printing (pre-printed or in-line).

In addition, it is important to know whether the labels need to be affixed manually, semi-automatically or automatically.

Manual affixing of labels

Manual affixing of GS1-labels is suitable when a precise placement of the GS1-label is not necessary, and when the volume of products is low.

Semi-automatic affixing of labels

Semi-automatic affixing of GS1-labels is suitable when a precise placement of the label is required, and when the volume of products is low.

Automatic affixing of labels

Automatic affixing of GS1-labels is suitable when precise placement of the label is required, and when the volume is high.

An applicator is used to affix labels semi-automatically or automatically. This applicator affixes, blows or rolls the label on the surface where it needs to be affixed.

Important:

- For sealed logistic (shipping) units (i.e. pallets), it is recommended to affix the GS1-label on the outside of the (plastic) seal, otherwise it may be difficult to scan the label. Please bear in mind that this advice has been formulated specifically for the Dutch market and is not endorsed by international GS1 recommendations.
- For unsealed logistic (shipping) units, the GS1-label should be affixed preferably to the load carrier or one of the outer cases (such as a box). This will prevent damage when the goods are restacked on other units.

You can choose to have your GS1-labels verified by GS1 Netherlands. In case you'd like to request a label verification, please submit your (sample) labels to: Customer Support, GS1 Netherlands, PO Box 247, 1180 AE Amstelveen. Please include your [e-mail address](#) so that we can inform you about the results.

6.4 Examples



Figure 6.2: The GS1-label on a Danish container



Figure 6.3: The GS1-label on an auction trolley



Figure 6.4: The GS1-label



Figure 6.5: GS1-labels

6.5 Removing other labels

Labels will have been attached to the despatch unit for various reasons after production and/or during transport between various storage locations. These may or may not have information in barcode format. This causes confusion among the ultimate consignee's staff receiving the goods. The following sector agreement has therefore been reached in the Netherlands:

On delivery to the ultimate consignee a despatch unit must only have the GS1-labels described above. All other labels that include information in barcode form must be removed or taped over before delivery.

7 Appendix

7.1 Checklist

Below is a checklist for you to check whether you are using the GS1-label correctly.

1	Have you included the data title of the Application Identifier in line with the GS1-label standard in the middle part of the label?	See 5.3
2	Have you included the English data titles in the middle part of the GS1-label?	See 5.3
3	Have you included the SSCC (AI 00) on the GS1-label?	See 1.2 and 4.1.4
4	Do the barcodes have a minimum height of 31,75 mm?	See 5.6
5	Do the barcodes have a minimum magnification factor of 49,5%?	See 5.6.2
6	How many labels have you attached to the despatch units?	See 6.1
7	Where have you positioned the labels?	See 6.2
8	Have you included the FNC1-character at the beginning of the GS1-128 symbol?	See 4.1.1
9	Have you included the FNC1-character after any variable data fields?	See 4.1.1

7.2 Fixed data fields

First 2 numbers of AI	Official name (English)	Official Data title (English)	Total length of data, including AI
00	Serial Shipping Container Code (SSCC)	SSCC	20
01	Global Trade Item Number (GTIN)	GTIN	16
02	GTIN of Contained Trade Items	CONTENT	16
03	Not yet assigned by GS1		16
04	Not yet assigned by GS1		18
11	Production Date (YYMMDD)	PROD DATE	8
12	Due Date (YYMMDD)	DUE DATE	8
13	Packaging Date (YYMMDD)	PACK DATE	8
14	Not yet assigned by GS1		8
15	Best Before Date (YYMMDD)	BEST BEFORE/BEST BY	8
16	Sell By Date (YYMMDD)	SELL BY	8
17	Expiration Date (YYMMDD)	EXPIRY/USE BY	8
18	Not yet assigned by GS1		8
19	Not yet assigned by GS1		8
20	Variant Number	VARIANT	4
31	Trade Measures	See GS1 General Specifications 2015, section 3.6.2	10
32	Trade Measures	See GS1 General Specifications 2015, section 3.6.2	10
33	Logistic Measures	See GS1 General Specifications 2015, section 3.6.3	10

First 2 numbers of AI	Official name (English)	Official Data title (English)	Total length of data, including AI
34	Logistic Measures	See GS1 General Specifications 2015, section 3.6.3	10
35	Trade and Logistic Measures	See GS1 General Specifications 2015, sections 3.6.2 en 3.6.3	10
36	Trade and Logistic Measures	See GS1 General Specifications 2015, sections 3.6.2 en 3.6.3	10
41	Global Location Number	See GS1 General Specifications 2015, sections 3.7.5 – 3.7.10	16

7.3 Glossary

Abbreviation/Term	Name	Definition
Packing list		The 'shipping note' used by floriculture auctions.
CLOCKT	Electronic Clock Transaction	Floricode standard message for floriculture.
CMR	Road transport convention	An international convention on international road transport. The abbreviation CMR stands for <i>Convention Relative au Contrat de Transport International de Marchandises par Route</i> (Convention on the Contract for the International Carriage of Goods by Road). The CMR applies to all road transport from and to one of the countries signatory to the convention.
DESADV	Despatch advice	Floricode standard message for floriculture (EDIFACT).
Distribution note		A 'picking list' or 'lot list' supporting the auction's order distribution process.
EAB	Electronic packing list	Floricode standard message for floriculture.
EDI	Electronic Data Interchange	A standard for the electronic interchange of certain business documents, such as orders and accounts, and certain messages and confirmations.
ELS	Electronic Logistical Status	Floricode standard message for floriculture.
ELS-HUB	Electronic Logistical Status (logistics provider)	The Electronic Status Message sent by the logistics provider (hub).
EOS	Electronic Order System	The set of Floricode standard messages enabling trading to be carried out electronically.
EPB	Electronic Delivery Note	Floricode standard message for floriculture (XML).
EPB-KLOK	Electronic Packing List for	Floricode standard message for

Abbreviation/Term	Name	Definition
	clock auctions	clock auctions.
ERP	Enterprise Resource Planning	Relates to computer programs used mainly in organisations to support all company processes.
ETO	Electronic Transport Order	Floricode standard message for floriculture.
GLN	Global Location Number	GS1 standard number enabling physical locations and legal entities to be identified uniquely.
KOA	Remote buying (Kopen Op Afstand)	Buyers sitting at their computers are connected to the auction system via the internet.
KOWALA	Matching load carrier and lading (Koppeling Wagen Lading)	Floricode standard message for floriculture.
SSCC	Serial Shipping Container Code	A standardised international despatch code (EAN-128), which suppliers can attach to their logistic units in the form of a barcode.
TMS	Transport Management System	The carrier's Transport Management System.

Version control and contact information

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