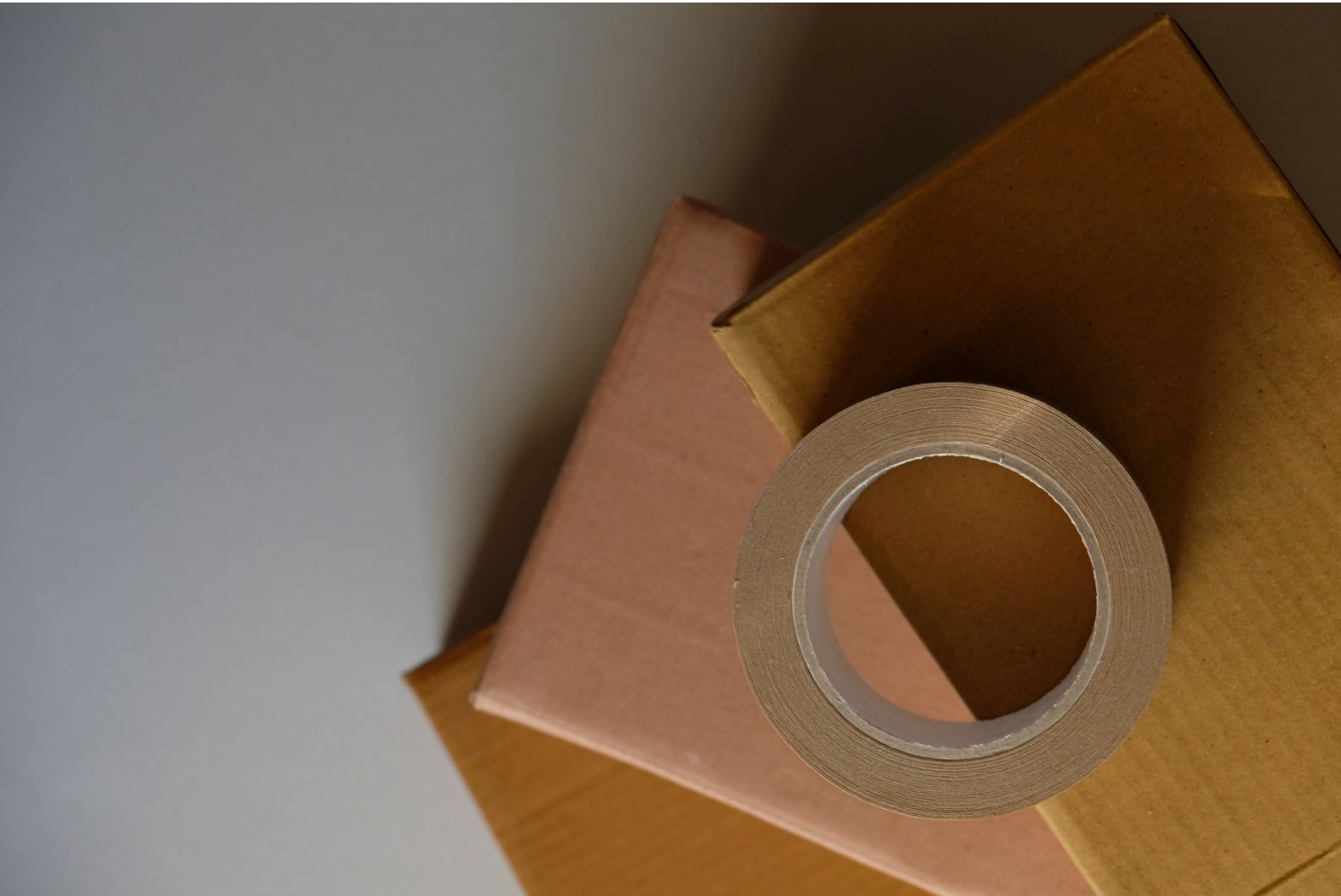


QAM Pac

Revision 02
Edition March 2022



QAM Pac

Quality Acceptance Manual Packaging

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QAM Pac - Revision 02 -March 2022
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B-Pac wishes to thank all contributors that have made this release possible

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AA	AMVE	Aug 2017	First draft
AB	AMVE	Dec 2017	First round of comments added.
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01	AMVE	June 2020	New structure introduced, implemented comments Added tests and details on dimensions of pallets
02	AMVE	Feb 2022	Regulations (EU regulations, WW regulations) concerning material identification of packaging material: <ul style="list-style-type: none"> chapter 2.5.3 (Symbols-markings-icons-codes) Recycling codes chapter 3.3 refers to chapter 2.5 chapter 4.4 refers to chapter 2.5 chapter 5.2 refers to chapter 2.5 Packaging of optical components: <ul style="list-style-type: none"> 3.2.2.3 Optical parts/ Assemblies Use of cardboard frames for handling in the warehouse: <ul style="list-style-type: none"> chapter 2.3.2 Stacking/securing loads Insights and administrative rephrasing or adding: <ul style="list-style-type: none"> pictures of old drawings notes removed in all chapters chapter 1.5.1 Optimize the design of the packaging chapter 2.1 General chapter 3.2.2.2 Clean room packaging chapter 5.3 and 4.7 Communication and disclosure obligation chapter 6 Abbreviation

1	QAM PAC-PACKAGING	7
1.1	QAM PAC - GENERAL	7
1.2	WAYS OF INFORMATION BETWEEN SUPPLIER AND BARCO	7
1.3	PACKAGING INSPECTION	7
1.4	DEFINITIONS.....	8
1.5	USE OF RECYCLABLE MATERIALS	9
2	PACKAGING REQUIREMENTS FOR ALL GOODS	10
2.1	GENERAL	10
2.2	CARDBOARD BOXES/PACKAGES	10
2.3	PALLETS.....	11
2.4	CONTAINERS.....	14
2.5	SYMBOLS – MARKINGS – ICONS - CODES.....	15
3	PACKAGING OF INCOMING GOODS	19
3.1	PACKAGING REQUIREMENTS FOR INCOMING GOODS	19
3.2	REQUIREMENTS FOR SPECIFIC INCOMING GOODS	21
3.3	SYMBOLS – MARKINGS – ICONS - CODES.....	29
3.4	LABELLING	29
4	PACKAGING OF FINISHED GOODS	38
4.1	SUPPLIER/MANUFACTURERS RESPONSIBILITY FOR THE PACKAGING	38
4.2	QUALITY ASPECTS OF THE PACKAGING OF FINISHED GOODS.....	39
4.3	PACKAGING REQUIREMENTS FOR FINISHED GOODS.....	41
4.4	SYMBOLS – MARKINGS – ICONS - CODES.....	41
4.5	LABELLING	42
4.6	TESTING REQUIREMENTS FOR FINISHED GOODS:.....	45
4.7	COMMUNICATION AND DISCLOSURE OBLIGATION.....	45
5	INFORMATION FOR SUPPLIERS/MANUFACTURERS OF PACKAGING MATERIAL	46
5.1	BARCO BOX DESCRIPTION RULES (CARDBOARD SUPPLIERS).....	46
5.2	TECHNICAL NOTES ON BARCO DRAWINGS OF PACKAGING COMPONENTS	46
5.3	COMMUNICATION AND DISCLOSURE OBLIGATION.....	47
6	ABBREVIATIONS	48

1 QAM PAC-Packaging

This document contains all relevant info for packaging of goods for Barco. It is intended to be used and read by the supplier/manufacturer. Consult the info related to your packaging goal.

1.1 QAM Pac - General

This QAM Pac is valid from March 2022. Older packaging won't be updated unless a major change is occurring.

QAM Pac will replace the chapters on packaging in

QAM001	(Quality Acceptance Manual Mechanics)
QAM008	(Quality Acceptance Manual Cable)
QA-IN-OPE-00155	

QAM Pac will be an add-on to the chapters on packaging described in the QAM007 (Quality Acceptance Manual PCBa).

1.2 Ways of information between supplier and Barco

In general, Barco is stimulating its employees to talk to suppliers/manufacturers when starting up a collaboration.

This discussion is certainly needed when problems on the packaging of the product can be avoided. Therefore, as a supplier, we would like to encourage you to ask for this discussion whenever you feel that this can contribute to quality and reduce cost of the packaging. Don't hesitate to notify this to your purchase or SQA contact. Then further steps towards the quality of the packaging needs to be taken. It is our intent to control the quality of the packaging just as it is to control the incoming quality of the products.

It is the responsibility of suppliers/manufacturers to ensure that all products being shipped are properly and adequately preserved, protected and packed for safe arrival at their destination.

If the supplier isn't capable to do this, contact your purchase or SQA contact. Further steps need to be taken on the development of the packaging and an agreement needs to be set up on the responsibilities and ownership of the different steps to take.

If there are remarks about the content, please notify us to upgrade this document.

1.3 Packaging Inspection

The packaging can/will be inspected on arrival in the warehouse or when FAI is set up.

FAI - First Article Inspection is set up

On first time orders

On ER update

As long as delivery is rejected and a defect report is send out

1.4 Definitions

Primary Packaging

The primary packaging is the 1st wrap or containment of goods: usually it is the smallest unit of use or of distribution and it is the packaging which is in direct contact with the goods. This can be a plastic bag, blister, foil, box...

When the primary packaging is transport worthy it can be used as a transport packaging.

Secondary Packaging

Packaging that contains the primary package. When the primary packaging isn't a box or is not transport worthy, a secondary packaging is necessary.

When the secondary packaging is transport worthy it can be used as a transport packaging.

Standard Parts

Standard parts are parts not specified by Barco but by the manufacturer/supplier. The manufacturer/supplier is responsible for the specification.

- Exclusively defined by a catalogue-defined specification.

- Also called "off the shelf" products.

- Produced by manufacturers with their own ordering code and the manufacturer is owner of the specifications and the revision.

- Typical for standard parts: form, fits and function are maintained constant during the lifetime of the parts.

- E.g. screws/glue/bags/PS/electronic goods/.....

Custom Parts

Custom parts are parts specified by Barco. Barco is responsible for specifications and specifications are the same for all the manufactures/suppliers. Specifications can be stored in different contract documents e.g.:

- Customized mechanical parts are specified by a mechanical drawing and / or DD (design directive) file.

- Customized electronics (PCBA) and boards (PCB) are specified by a DD file.

Finished good

These are goods that are ready to be shipped to final clients/customers when they arrive at Barco. E.g.:

- Full products. This includes those manufactured by OEMs (original equipment manufacturers) or ODMs (original design manufacturers).

- Accessory items (stacking frames...)

- Service goods

- Spare parts.

Logistics unit

A logistics unit can be a good or any combination of goods put together in a case, on a pallet... established for the purpose of transport. Logistics units take many forms:

- Single box containing a limited number of goods

- Pallet with one or multiple goods

1.5 Use of recyclable materials

Barco is determined to reduce its environmental footprint. Since packaging has a big impact on the environmental footprint, Barco advice:

1.5.1 Optimize the design of the packaging

Optimize the size/volume in such a way that the actual weight is equal to, or bigger than the volumetric weight of the packaging. It is stated later how to calculate this (see [page 10 "size evaluation of the box"](#)).

Make sure all different materials are manually separable to promote proper recycling.

Stay away from the use of coatings or adhesives that prevent recycling.

1.5.2 Use recycled material instead of virgin material whenever feasible.

If for certain applications virgin material is required due to characteristics, still consider the use of material with a % recycled content in it, to such a degree that the characteristics of the virgin material are still reflected. Use kraft or unbleached paper materials whenever possible.

1.5.3 Reduce and/or eliminate the use of non-recyclable materials that will prevent or hinder the packaging recycling after use.

At all times strive towards the elimination of expanded polymer materials (foams: PU, PE, PP, PS) from the packaging of any kind of goods. Buffer capabilities can be obtained by using air-filled PE sealed bags, shredded cardboard or paper, specific designed plastic trays, etc.

1.5.4 Limit the number of different materials used in the packaging

Strive to limit the number of different materials used for the packaging of a good to 3. Make it easy to separate the materials, so that they can end up in the right waste stream.

1.5.5 Consider the use of more environmental-friendly inks for labelling work.

Water-based and natural-based inks are available, so avoid the use of petrochemical based polymers for ink materials. Also, consider alternative technologies for marking.

1.5.6 We encourage to pack goods in a green way.

Choosing for materials for which a sustainable recycling stream is in place is preferable above selecting materials which are considered 'green' but cannot be collected separately. The risk is that they end up in an already existing waste stream while acting as pollutants and contaminants rather than contributing to sustainable recycling. Of course, Barco is open for the use of bio-based and/or bio-degradable packaging, but the waste collection, treatment, recycling process of this material stream should be clear to all stakeholders, and compliant to regulations.

2 Packaging requirements for all goods

All deliveries should meet following requirements.

2.1 General

Pack for **transportation to its final destination** and/or for prolonged storage. In the event that the finished goods are to be kept in storage, provisions are to be made for periodic inspections to detect possible deterioration. E.g.: Batteries inside.

Deliver goods without any deterioration of quality and free of contamination. The same applies for finished goods and their packaging delivered in **Barco's receiving destination**.

Overall packaging should adequately protect against

- damage
- contamination (dust)
- ESD damage
- corrosion during shipment and storage. When necessary take appropriate measures to protect against moisture and corrosion : add moisture absorbing bags (e.g. silica gel) or introduce similar solutions (e.g. VpCl)

Provide **means of separation** when shifting or rubbing could cause damage.

Allow safe and easy handling during unloading, handling and while removing products from their packing

When applicable : consider **returnable/reusable packing systems** : get in contact with the purchaser. A reusable/returnable packaging system is a joint effort between all parties. The full involvement and approval of each is necessary to succeed.

When shipped via air, packaging has to be conform with the "**Air Cargo Security Act**".

Packaging should comply with **relevant export regulations** and should be in accordance with mandatory legislation.

2.2 Cardboard boxes/packages

The box needs to be sturdy and in good condition. All packing boxes should be closed and clean.

All (fragile) components must be properly cushioned. (See also chapter 2.2.2 customized mechanical components)

Size evaluation of the box

When your package is relatively light compared to its volume, shipping could become expensive. **Evaluate the size of your packages** by calculating the volumetric weight for air freight. If your actual weight is equal to or higher than the volumetric weight, the size of package is ok. If the actual weight is smaller, consider using a smaller packaging if possible.

Calculation volumetric weight:

Volumetric weight in kg = Length (cm) x width (cm) x height (cm)/6000

Volumetric weight in lbs.= Length (in) x width (in) x height (in) / 166

2.3 Pallets

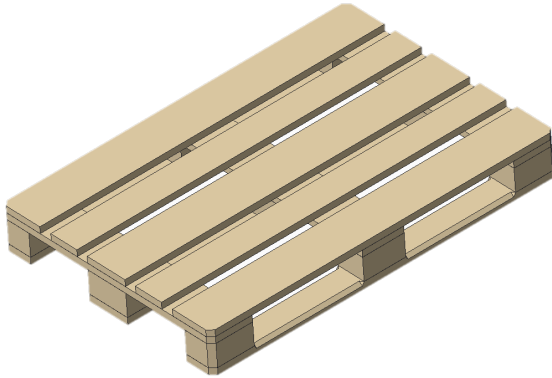
2.3.1 sizes, styles and dimensions

1200x800(x144) or 1200x1000(x144)

4-way entry EUR pallets (EPAL1 and EPAL3), block style

Material:

wood , IPPC labelled (IPPC symbol, country code, registration number of the national plant protection authority, heat treatment, licence number-year-month)



plastic



When defining the pallet take into account the usage of good wood and take care of sturdy construction.

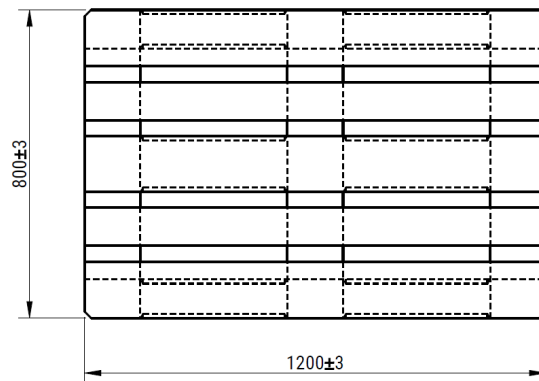
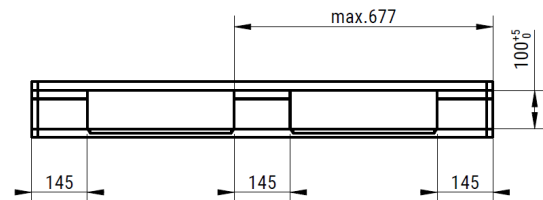
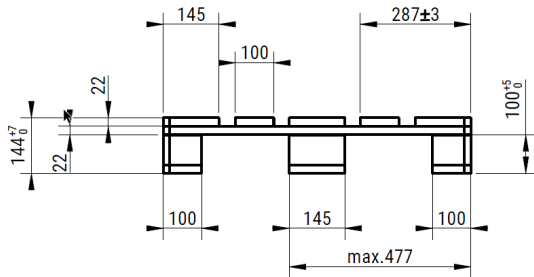
Do not use pallets:

- which have bark visible on the wood.
- which have evidence of insect damage (such as grub holes).
- that are broken.

Preferred dimensions :

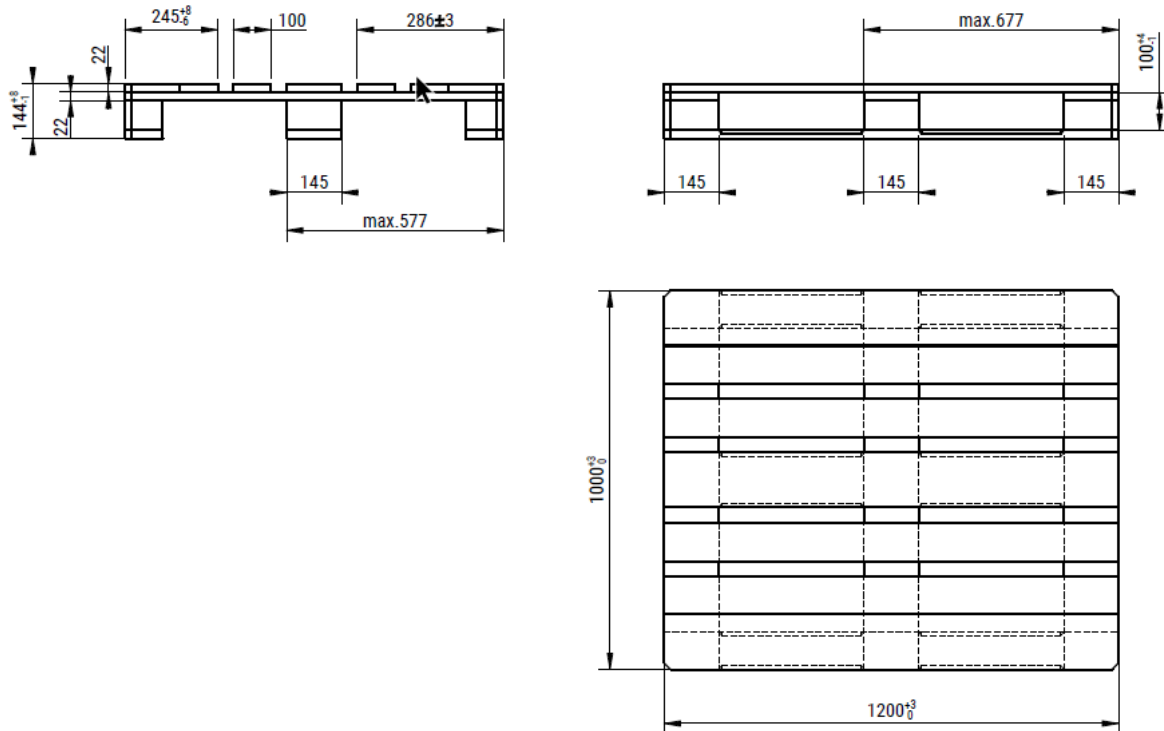
1200 x 800 x 144 - wood : Similar to [EPAL1 Euro pallet](#)

- Length 800 mm
- Width 1,200 mm
- Height 144 mm
- Weight Approx. 25 kg
- Safe working load min. 1 000 kg - preferred 1 500 kg



1200 x 1000 x144 - wood: Similar to [EPAL3 Industrial pallet](#)

- Length 1,000 mm
- Width 1,200 mm
- Height 144 mm
- Weight ca. 30 kg
- Safe working load min. 1 000kg – preferred 1 500 kg



2.3.2 Stacking/securing loads:

Don't exceed the dimensions of the pallet.

Occupy at least 80% of the pallet floor surface.

Align boxes in columns, corner to corner, for the greatest stacking strength. Avoid interlocking or rotating layer patterns. Do not pyramid the boxes; keep the top layer flat to prevent damage from top loads.

Secure components /boxes onto the pallet by banding/strapping. By preference plastic. Metal banding is only allowed when safety is concerned or in case of excessive weight. Banding/Strapping may not cover (bar code) labels.

When using edge protectors, use by preference cardboard. These shouldn't be glued to the goods. Use straps/banding to secure the position.

A slip sheet (top and bottom) or **tray/cover** (top and bottom) on the pallet is recommended to protect the (packaged) goods from being damaged during transport. Slip sheets between layers can also be used to stabilize the load.

To protect against rain, shrink/stretch film can be used. **Do not only use** the shrink/stretch film **to stabilize the load**. Transparent stretch film is obliged. Non-transparent film may not be used.

When using shrink/stretch film, logistics unit labels ([see chapter 3.4](#)) should be outside the film wrapping.

Load height requirements depend on the way of transporting: **advised** (pallet included)

- 1.6 m for air

- 2.2 m for boat

When necessary: pallet stacking frames or pallet boxes/mantle boxes are allowed. Stacking frames with a maximum height of 3 for wooden stacking frames. Cardboard stacking frames are preferred. The preferred maximum stacking height for cardboard stacking frames is 2. Drawing of cardboard stacking frame for a EUR1 pallet is available on request (ref. b591318).



2.3.3 Quality of the pallet

Pallets should comply to the specifications mentioned below. Additional testing on strength, stiffness and durability in dynamic and static conditions can be requested for specific products.

Always the same load:

Rotational drop test based on ISTA1: not only the strength of the pallet is evaluated but also the way of loading.

The test is described in “**QTP_ENV_Rotational Edge Drop**”. Your SQA or Purchase contact can provide you with this document.

Possible different loads:

Define the dynamic load: e.g. for incoming goods a maximum dynamic load of 500 kg is allowed. This is approximately a static load of 1500 kg (= ultimate load). Pallets should not break to 1500 kg with a uniform load.

If the load exceeds 500 kg, then adapted test needs to be defined.

2.4 Containers

When goods are shipped in a container, the container should meet following requirements

Containers must be in **good condition, clean and not damaged**.

The bottom and sides of **goods without cardboard boxes** always have to be protected.

Secure the components inside the container to avoid damage by movements among the components. Means of separation need to be provided when shifting or rubbing could cause damage.

The content of the container must be secured from movement during transport in such a way that they don't damage or create a safety hazard when unloading (e.g. block and brace).

2.5 Symbols – markings – icons - codes

Below you'll find a brief description on symbols, markings, icons, and codes that are necessary for the correct

handling during transport
storage

unloading and unpacking





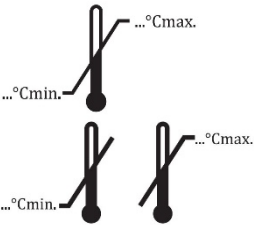

(legal) information on the content of the packing, compliance with statutory requirements


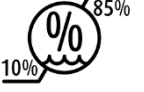

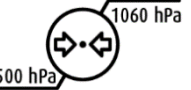

recycling of the packaging

These can be labelled, printed, stamped.... on the packing. Any way will do if they are clearly visible and readable. By preference, they should be on the label side of the packing.

2.5.1 Handling and storage symbols

The symbols used are based on the symbols in the standard ISO 780(Packaging – Distribution packaging – Graphical symbols for handling and storage of packages) and in ISO 7000 (Graphical symbols for use on equipment but some also some of use for packaging). Most commonly used symbols are:

Picture	Symbol name	Meaning	Remark
	Fragile	Contents of the distribution packages are fragile therefore it shall be handled with care.	Use of the graphical symbol shall be limited to fragile products that cannot be protected by normal packaging.
	Keep away from rain	Packaging shall be kept away from rain and be kept in dry conditions.	Use shall be limited to where it is necessary
	This way up	The correct upright position of the distribution packages for transport and/or storage	Use shall be limited to where it is necessary
	Temperature limits	<p>Packages shall be stored, transported, and handled within temperature limits indicated.</p> 	<p>Used for packages that require temperature control. Use shall be limited to where it is necessary. Other allowed markings could be e.g.: "Keep Cool" (required storage below 8° C)</p> 

	<p>Humidity limits</p>	<p>To indicate the acceptable upper and lower limits of relative humidity for transport and storage.</p> 	<p>Use shall be limited to where it's necessary.</p>
	<p>Atmospheric pressure limitation</p>	<p>To indicate the acceptable upper and lower limits of atmospheric pressure for transport and storage.</p> 	<p>Use shall be limited to where it is necessary</p>
	<p>ESD Susceptibility Symbol</p>	<p>To indicate packages that contain electrostatic sensitive devices or to identify a device or a connector that hasn't been tested for immunity to electrostatic discharge.</p>	<p>Only to be used for the primary packaging. Use shall be limited to where it is necessary</p>

Other symbols can be found via the database page of the ISO organization.
<https://www.iso.org/obp/ui/#search>

2.5.2 Legal Information

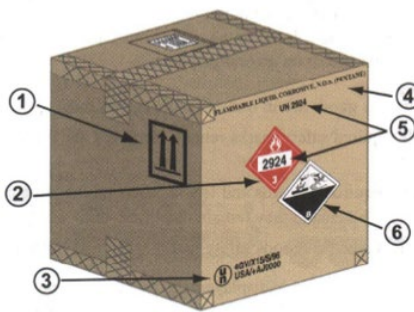
DGR

Dangerous goods packages must be marked and labelled (see also [chapter 2.2.4](#)) following

[GHS \(Globally Harmonized System of Classification and Labelling of Chemicals\) Guidance on labelling and packaging in accordance with Regulation \(EC\) No 1272/2008](#)

The markings/labels must be clearly visible on the packaging.

Example of packaging with correct GHS labelling



- ① Orientation label (optional)
- ② Primary class label
- ③ Standardized UN certification (according to standard)
- ④ Shipping name
- ⑤ UN number
- ⑥ Subsidiary class label



2.5.3 Recycling codes

It is mandatory to identify the packaging material by the appropriate recycling code.












There is no need for visibility and readability when the packaging is in use. It needs to be visible and readable when the packing material is sorted to be recycled or collected as waste.

Recycling codes are used to identify the material from which an item is made, to facilitate easier recycling or other reprocessing. More info can be found on:

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997D0129&from=EN>

When it is not possible to put recycling codes on each of the components, due to lack of space or other technological constraints: they may be affixed either to the main body of the packaging, or to another label or any other component. If the product is sold with a leaflet or with instructions for use, the content of the environmental label may be stated on such media.

Commonly used recycling codes in Barco:

Symbol	Code	Description	Examples of usage in Barco
	#1 PET(E)	Polyethylene terephthalate	Blister packaging, bottles
	#2 HDPE	high-density-polyethylene	Plastic containers, plastic bags
	#3 PVC	polyvinylchloride	Tape, bottles (for chemicals)
	#4 LDPE	low-density-polyethylene	bags, Ziploc bags, bottles, packaging foam, stretch film, bubble wrap
	#5 PP	polypropylene	(packaging) foam
	#6 PS	Polystyrene	(packaging) foam
	#7 O (Other)	All other plastics	Polyurethane foam (PUR), polycarbonate (PC), polyamide (PA), styrene acrylonitrile (SAN), acrylic plastics/ polyacrylonitrile (PAN), bioplastics
	#20 PAP	Corrugated fiberboard (cardboard)	Cardboard boxes corrugated
	#21 PAP	Non-corrugated fiberboard (paperboard)	Boxes in solid cardboard
	#22 PAP	Paper	paper, paper bags
	#50 FOR	Wood	Wooden products except wood that is marked with IPPC stamp

2.5.4 Position and size

Follow the recommendation as described in the standard ISO 780.

Size:

For normal purposes, the overall height of the graphical symbols shall be 100mm, 150mm or 200mm. Depending on the size or shape of the package; however, the size of the graphical symbols may be larger or smaller, provided that the visibility of the graphical symbols is retained.

Different horizontal/vertical ratio's may be applied to enhance the visibility of the graphical symbols provided that the original meaning is retained.

Position:

In principle, graphical symbols should be placed near the left-hand upper corner on at least 2 upright sides of the package that are also used for the labelling of the package.

Exception: some symbols require a specific position because of their meaning.

E.g.: centre of gravity



3 Packaging of incoming goods

These requirements apply to all packaging of goods (standard parts, custom components, subassemblies, assemblies) purchased by Barco **for use in its manufacturing operations**.

In KOR we use a semi-automatic warehouse. Goods for this warehouse need to meet specific



requirements. These will be indicated with "KOR" in front of the specific requirement. If you can't meet these requirements contact the purchase or SQA contact.

3.1 Packaging requirements for incoming goods

3.1.1 Cardboard boxes/packages

General requirements: [chapter 2.2](#)

Incoming goods may be delivered in bulk. However, 2 **different** goods in 1 package (box) are **not permitted** because of labelling issues. (See [chapter 3.4](#))

Special mandatory requirements for incoming goods for the warehouse in Kortrijk:



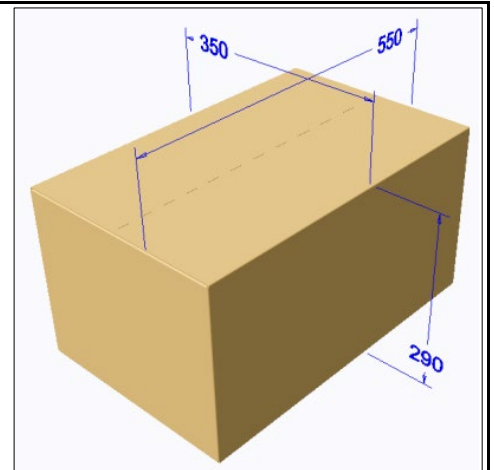
When applicable and depending on the size of the goods, packaging/box (primary or secondary) **shouldn't exceed** following sizes and weight:

L=550mm (outside dim)

W=350mm (outside dim)

H=290mm (outside dim)

Weight of 1 box shouldn't exceed 23 kg



Drawings of boxes that meet these requirements are available on request.

When a packaging/box is required that is bigger than volume above and/or above 23kg, inform beforehand.

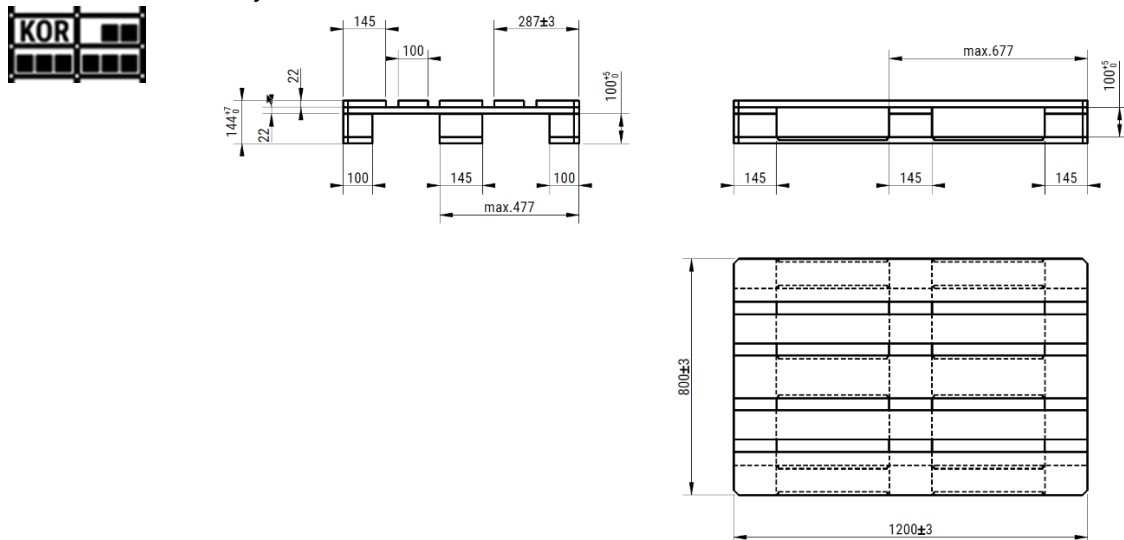
3.1.2 Pallets

3.1.2.1 Preferred sizes and styles:

General requirements: [chapter 2.3](#)

Special mandatory requirements for incoming goods for the warehouse in Kortrijk:

Only 1 size allowed : 1200x800x144




Only 1 material **allowed** : wood
Other pallet sizes need to be mentioned beforehand

3.1.2.2 Stacking/securing loads:

General requirements: [chapter 2.3.2](#)

Special mandatory requirements for incoming goods for the warehouse in Kortrijk:



Packages of more than 23kg should be palletized, but should occupy at least 80% of the pallet surface. When less than 80% is occupied, consider a custom pallet for this load or send the box as a single coli.

Do not put a box of less than 23 kg on a pallet.

Advised stacking height: 0.75m; 1.15m; 1.65m; 2.20m for KOR.

Max. weight of 1 pallet = 500 kg. (strict – do not deviate)

Slips sheets **between layers** can also be used to stabilize the load. These slip sheets **need to be perforated**, except for the top sheet.

Carboard stacking frames are preferred. The maximum stacking height for cardboard stacking frames is 2. Drawing of cardboard stacking frame for a EUR1 pallet is available on request (ref. b591318).

3.2 Requirements for specific incoming goods

3.2.1 Standard Parts

For some standard parts the primary packing is part of the specifications.
E.g., Glue can be offered in 50 ml tubes but also in 100ml packing.

When a secondary packaging (bulk) needs to be defined, general requirements as defined in chapter 2.1 should be followed.

3.2.2 Customized Mechanical Parts

Mechanical parts defined by Barco are specified by a mechanical drawing (XXXXXXX_XX_mech.pdf). On the drawing, a VAC (Visual Appearance Class) is defined. For more explanation on VAC see chapter QAM001/2.1.1.

All mechanical components for use in Barco manufacturing need to be packed and delivered to this standard, even when not specified on the drawing. Depending on the VAC, more stringent or more specific requirements are determined.

It is always the responsibility of the supplier to pack the items in a way that they are delivered according to the drawing specs and VAC. The following is a guideline and can't be a guarantee for correct shipment and packaging.

The highest VAC on the drawing is always applicable.

Table: VAC and minimum requirements for packaging

class	Box containment	PE foam on part
C-D	Flat components placed on each other Components can be delivered in bulk	No PE foam needed unless for components with inserts, nuts or a general shape that can damage other components or components that have been painted or coated.
B	A cardboard shell between each layer of components.	Components individually wrapped in 1 mm PE foam for all components. Masking tape and packing PE foil can't leave traces on the components when removing.
A-AA	A cardboard shell between each layer of components.	Components individually wrapped in 1 mm PE foam for all components. PE foil fixed with masking tape. Masking tape and packing PE foil can't leave traces on the components when removing. Inserts, nuts or a general shape that can damage other components are locally covered with additional PE foil.

In case the above requirements are not enough the supplier will update the packaging for correct shipment. In case of very specific components, an additional packing instruction will be agreed between Barco and the supplier.

3.2.2.1 *Packaging notes on the drawing*

In case a specific packaging instruction is required, a note is placed on the product drawing describing how the part needs to be packed.

Example of a note:

PACKAGING - REQUIREMENT PARTS	QAM-Pac
<ul style="list-style-type: none"> - SINGLE PACKED (packed in a sealed PE bag) - DEDICATED PACKAGING REQUIRED - MOISTURE SENSITIVE: ADD MOISTURE ABSORBING BAG OR SIMILAR SOLUTION 	

3.2.2.2 *Clean room packaging*

“Clean room parts” are parts that will be processed in a clean room by/at Barco. If the part is indicated as a “clean room part” on the product drawing or in the DD (Design Directive) file, following additional packaging requirements apply:

Protect the components from dust and immediately pack them after processing & degreasing. (more info on “cleaning parts see QAM001/ chapter 2.3).

All components must be delivered in 2 zipped (closed) clear plastic bags (inner bag in outer bag). Only 1 inner bag is allowed in 1 outer bag. It is allowed to pack multiple outer bags in 1 box for shipment.

Non-optical paper or cardboard packaging material isn’t allowed in the inner bag.

Part quantity in the inner bag: as defined on the product drawing or DD file.

Example of a note on a drawing for a custom mechanical part:

PACKAGING - REQUIREMENT PARTS	QAM-Pac
<ul style="list-style-type: none"> - THIS PART IS A CLEAN ROOM PART (SEE QAM-Pac FOR DETAILS) - ONLY 1 PART PER INNER BAG (SINGLE PACKED) - DEDICATED PACKAGING REQUIRED - MOISTURE SENSITIVE: ADD MOISTURE ABSORBING BAG OR SIMILAR SOLUTION 	

3.2.2.3 Optical parts/assemblies

The drawing of an optical part in Barco can be recognized by the drawing border as in the picture below. In the drawing border is clearly stated "OPTICAL COMPONENT".

Indications in accordance with ISO 10110			
A	REV	NAME	DATE
	ER		
DESIGNER		DESCRIPTION MODIFICATION CURRENT REVISION	
APPROVED		MATERIAL	SEE TABLE
		~0,064	kg
PROJ. 1ST ANG	1/1	A4	OPTICAL COMPONENT <small>ALL RIGHTS STRICTLY RESERVED. REPRODUCTION OR ISSUE TO THIRD PARTIES IN ANY FORM WHATSOEVER, IS NOT PERMITTED WITHOUT WRITTEN AUTHORITY FROM BARCO</small> <small>This drawing shall be used in combination with the CAD file for full product definition</small> <small>All undimensioned nominal geometry: see CAD file of same revision</small> <small>In case of conflict, drawing dimensions overrule CAD dimensions</small> <small>See additional info on the drawing for applicable CAD file GD&T references and tolerances</small>
MM	SCALE	SHEET 1 OF 1	
STANDARD LENS CONCAVE CONCAVE		LENS_CC_CC	AE

When there is no note on the drawing following packaging requirements apply:

"Optical parts/assemblies" always need to be packed at least contamination free. Preventing exposure to e.g. dust, fumes, outgassing (including outgassing of packaging):

Protect the components from contamination and pack them after processing.

Every component needs to be individually wrapped in an inner plastic bag or wrapping (e.g. glassine paper, lens tissue,....) in order to allow handling without gloves. Wrapping should not leave traces or contamination on the component.

Non-optical paper or cardboard packaging material isn't allowed in the inner bag or wrapping.

Single wrapped components can be collected in a sealed plastic bag ,blister, tray, EPS box or plastic box.

When there is a packaging note on the drawing, the (additional) packaging requirements on the drawing need to be applied.

3.2.3 PCBA's, PCB's and electronic components

3.2.3.1 PCB's and Electronic components sensitive to moisture

Moisture sensitive components shall be dry packed, labelled, shipped, stored and handled according to J-STD-033.

Example:



PCB shall be dry packed in moisture barrier bags for storage per IPC-1601 by the PCB manufacturer.

Example:



PCBs and/or individual electronic components (MSL level >2) shall be stored in a dry cabinet (RH% <10%), if not in moisture barrier bags by the assembly plant. Handle according to IPC-1601.

All PCB shall be dry packed for long term (>1 month) storage by the assembly plant to protect the PCB finish.

ImAg Finish requires anti-tarnish treatment and hermetic sealing in sulphur free Moisture Barrier Bags (MBB) and shall be protected with silver protection paper, simultaneously protecting these PCBs from moisture and air pollution.

3.2.3.2 PCBAs and Electronic components sensitive to ESD (Electrostatic Discharge)

Electrostatic damage directly affects the quality and reliability of products. Components sensitive to ESD should be transported in special electrostatic shielding packages and should be marked with the "ESD Susceptibility Symbol", ref IPC-A-610.



All electronic components shall be packaged in anti-static, ESD protective packaging.

Each PCBA shall be packed individually.

Put PCBAs in a static shielding bag or in a separate static shielding box.

Example:



Multiple PCBAs in 1 box or bag will be allowed when they are physically separated from each other.

Example: a box with dividers, with a shock absorbing bottom foil, and a protective cardboard sheet on top of the items. (ESD regulations need to be taken into account)



In case of a bag, a closing mechanism is used that avoids that the PCBAs slips out.

In case the PCBA contains protruding components (e.g., inserts, nuts, bolts, connectors, etc.), necessary preventive measures shall be taken to avoid those components perforate ESD safe packaging and/or damage other components.

In case of fragile PCBAs (like rigid-flex-rigid PCBAs; keyboards with risk of esthetical damage), necessary preventive measures shall be taken to avoid damage of fragile components.

This protection can be provided by using individual boxes and/or dissipative PE foil, tray, or foam. (ESD safe compatible material to be used)

In case the PCBA is individually packed in an ESD bag it needs to be labelled. People in production and warehouse will handle the component without opening the bag. The label shall be the same as on the component. For the correct "Label identification and marking on PCBA" the QAM007 should be consulted.

If the label info on the PCBA is readable and scannable through the ESD bag, the bag must not be identified. Before implementation of this exception an agreement should be made.

special marking

Individual packing materials (bag or box) shall always mention the “ESD Susceptibility symbol” to indicate that the device is sensitive to ESD.



Figure 1 : ESD Susceptibility Symbol: to indicate packages containing electrostatic sensitive devices or to identify a device or a connector that has not been tested for immunity to electrostatic discharge.

Note that industrial ESD shielded packing material uses the “ESD protective symbol” which isn’t the same as the symbol described above.



Figure 2 : ESD Protective Symbol: to indicate the primary function of the packaging regarding electrostatic protection.

3.2.4 Wires and cables

Wires and cables (assemblies) are to be packed under the UL Traceability program.

https://legacy-uploads.ul.com/wp-content/uploads/2014/04/ul_traceability_requirements.pdf

In case of wiring harnesses, a marking should be available on the smallest packaging of the wiring harnesses. Because of the complexity of this matter, we refer to the UL Traceability requirements document of UL.

A manufacturer who makes wiring harnesses under UL recognition, will automatically meet this marking obligations.

Standard cord sets and Power Supply cords for UL are a special case: this must be a manufacturer under a UL Follow-Up Service program and the UL mark for this category requires the use of a holographic label.

3.2.5 Dangerous goods (DGR)

Goods that are categorized as dangerous goods need to be packaged / protected according to the dangerous goods classification and should follow the rules of the Dangerous Goods Packing Group.

This information can be found on the SDS (Safety Data Sheet) of the goods – section14.

Extract of an SDS – section14

SECTION 14. Transport information	
14.1. UN number	
UN Number	: 1219
14.2. UN proper shipping name	
* ADR/RID Name	: UN 1219 Isopropanol (Isopropyl alcohol), 3, II, (D/E)
ADN Name	: UN 1219 Isopropanol (Isopropyl alcohol) , 3, II
IMDG Name	: UN 1219 Isopropanol (Isopropyl alcohol), 3, II, (12°C)
IATA Name	: UN 1219 Isopropanol (Isopropylalcohol), 3, II
14.3. Transport hazard classe(s)	
Class	: 3
14.4. Packing group	
Packaging Group	: II
14.5. Environmental hazards	
Environmentally hazard	: No
Marine pollutant	: No
14.6. Special precautions for user	
Danger number	: 33
Hazard Label(s)	: 3
EmS-N°	: F-E , S-D
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code	
BRENNTAG	

	MATERIAL SAFETY DATA SHEET	Page : 8 / 9
		Revision : 3/7/2015
		Revision nr : 10
		Supersedes : 25/6/2013
ISOPROPANOL		Code : 13333

SECTION 14. Transport information (continued)	
Type ship	: -
Pollution category	: Z

Table: Dangerous Goods Packing Group

Packing Group I	high danger
Packing Group II	medium danger
Packing Group III	low danger

Table: packaging classes DGR

Packaging Classes	Description
1	Explosives
2	Gases
3	Flammable liquids
4	Flammable solids: substances liable to spontaneous combustion, substances which, in contact with water, emit flammable gases
5	Oxidizing substances and organic peroxides
6	Toxic and infectious substances
7	Radioactive materials
8	Corrosives
9	Miscellaneous dangerous goods

Once the group and class are known, follow the UN Recommendations on the Transport of Dangerous Goods Model Regulations (TDG Model Regulations). This guidance document is developed by the United Nations to uniform the development of national and international regulations governing the various modes of transport of dangerous goods (by air, by road and by sea). Most of dangerous goods regulations such as IMDG Code, IATA and other national regulations are developed based on this. We will not accept dangerous goods unless those goods are properly classified, packaged, marked, labelled, placarded, described and certificated.

3.3 Symbols – markings – icons - codes

General requirements: [chapter 2.5](#)

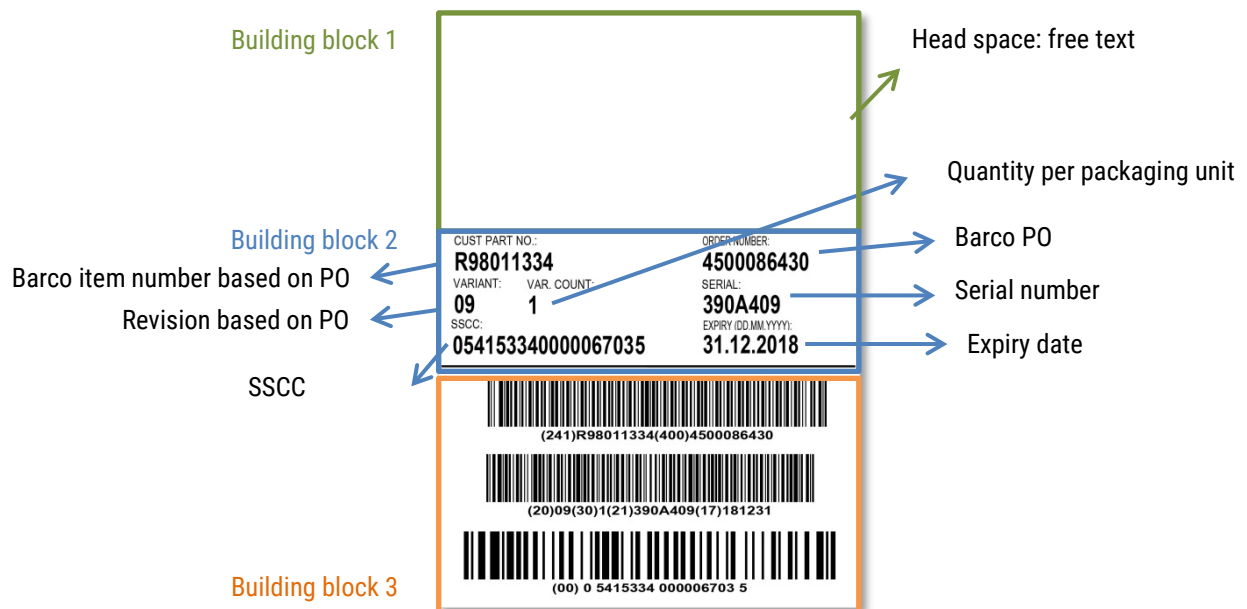
3.4 Labelling

To be future-oriented to label incoming goods, we follow the recommendations and standards of the GS1 organisation. More info: <https://www.gs1.org/about>.

Especially the document “GS1 Logistics Label Guideline” is very relevant for this section. The document can be found online: https://www.gs1.org/docs/tl/GS1_Logistic_Label_Guideline.pdf

3.4.1 Content of the label

The fields selected by Barco to be used



Building block 1 may contain text and graphics. In the **head space** you can include any text **not meant for** (automated) **processing**. Typical examples of free text are:

- Compulsory content (different than the content in building block 2)
- e.g. In case of certified goods compulsory content can be : model identification (also called Type reference or product name). Do not use wildcard characters. The Model ID or Type reference shall be the same as the model or type used in the certification reports
- Name/address of the sender
- Logo's
- Handling symbols (e.g. keep cool)
- Indications on how many boxes there are for 1 order
- etc...

Building block 2 contains text (with data titles) reflecting the information represented in the barcodes.

The fields to be used are:

AI (Application Identifier)	Data title (on the label)	Data full content	BARCO data to be filled in	Example/Remark
241	CUST. PART NO.	Customer part number	Barco item number: number based on the PO	R877255
400	ORDER NUMBER	Customer's purchase order number	Barco PO (purchase order)	4500086430
20	VARIANT	Variant Number	Revision: revision based on the PO	01
30	VAR.COUNT	Count of items	Quantity of the same item in 1 logistics unit	number
21	SERIAL	Serial Number	Fill in when applicable for the logistics unit: only used when there is 1 piece per logistic unit	1 serialized part in a single unit box that is send
17	EXPIRY (DD.MM.YYYY)	Expiration date	Fill in when applicable for the logistics unit	expiration date for glue
00	SSCC	Serial Shipping Container Code	SSCC is used to identify the logistics unit	Numeric

Most of the fields are general knowledge except for the SSCC.

SSCC (= serial shipping container code) = logistics units are individually identified with the SSCC.

The easiest way to explain compare it with the tracking code you receive when ordering on line. In the future Barco will be able and suppliers/manufacturers will be encouraged to work according to the GS1 EDI (more info go to <https://www.gs1.org/edi>): electronic business messaging that allows automation across the supply chain. When this code is used to the full, Barco will be able to receive the information before the shipment even has arrived and prepare the receiving of the goods. For the moment the system isn't yet in place, and a dummy number 054153340000000001 is used for all.

Building block 3 contains barcode(s):

The barcodes are conforming to the GS1-128 standard with application identifiers. (See table above)

Data content of the barcodes:

Barcode 1: (AI 241) Cust. Part no. (AI 400) order number

Barcode 2: (AI 20) variant (AI 30) var.count (AI 21) serial (AI 17) expiry (AI YY.MM.DD)

Barcode 3: (AI 00) SSCC

SSCC formatting and size

SSCC is an 18-digit number used to identify logistics units. To automate the reading process, the SSCC is often encoded in a barcode, generally GS1-128

The format 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

Extension digit: used to increase serial reference capacity -> number from 0-9
 GS1 Company Prefix: Company number for company that allocates the SSCC
 Serial Reference: serial number created by the company allocating the SSCC
 Check digit: calculated by an algorithm defined by GS1

Size and position of the barcodes

More detailed info: "GS1 Logistics Label Guideline". The document can be found online:
https://www.gs1.org/docs/tl/GS1_Logistic_Label_Guideline.pdf

3.4.2 Which field to fill in on the label

This label will be used for both logistics and non-logistics unit labelling. A **tool** is available to generate a PDF that can be used to generate and print the label. Contact your purchase contact for more info.



3.4.2.1 Boxes/crates/cases:

Only **1** article **number** in **1** box / crate/ case is possible. However, more than 1 article per box / crate / case is possible (bulk packaging). Fields to use: (data title used on the label)

Standard parts:

CUST. PART NO.	mandatory
ORDER NUMBER	mandatory (only 1 order number per unit)
VARIANT	NA (Not Applicable)
VAR.COUNT	mandatory
SERIAL	use when applicable when VAR.COUNT=1: put it on the label when VAR.COUNT > 1: each serial number on a separate label or document (if document, put it in a shipping pouch)
EXPIRY (DD.MM.YYYY)	use when applicable
SSCC	use dummy number 054153340000000001, unless GS1 EDI is in place














Examples standard part label for boxes, crates, cases

<p>Minimum requirements</p>  <p>CUST PART NO: B591121 ORDER NUMBER: 4500086430 VARIANT: VAR. COUNT: 50 SERIAL: SSCC: 054153340000000001 EXPIRY (DD.MM.YYYY):</p> <p>(241)B591121(400)4500086430 (20)00(30)50(21)(17) (00) 0 5415334 000000000 1</p>	<p>1 piece with serial number</p>  <p>CUST PART NO: B591121 ORDER NUMBER: 4500086430 VARIANT: VAR. COUNT: 1 SERIAL: 9552900003 SSCC: 054153340000000001 EXPIRY (DD.MM.YYYY):</p> <p>(241)B591121(400)4500086430 (20)00(30)1(21)9552900003(17) (00) 0 5415334 000000000 1</p>	<p>with expiration date</p>  <p>CUST PART NO: B591121 ORDER NUMBER: 4500086430 VARIANT: VAR. COUNT: 50 SERIAL: SSCC: 054153340000000001 EXPIRY (DD.MM.YYYY): 31.12.2018</p> <p>(241)B591121(400)4500086430 (20)00(30)50(21)(17)181231 (00) 0 5415334 000000000 1</p>
<p>3 pieces with serial number</p>  <p>CUST PART NO: B591121 ORDER NUMBER: 4500086430 VARIANT: VAR. COUNT: 3 SERIAL: SSCC: 054153340000000001 EXPIRY (DD.MM.YYYY):</p> <p>(241)B591121(400)4500086430 (20)00(30)3(21)(17) (00) 0 5415334 000000000 1</p>	<p>S/N 9552900003 </p> <p>S/N 9552900004 </p> 	 

Custom parts:

CUST. PART NO.	mandatory
ORDER NUMBER	mandatory (only 1 order number per unit)
VARIANT	mandatory
VAR.COUNT	mandatory
SERIAL	use when applicable when VAR.COUNT=1: put it on the label when VAR.COUNT > each serial number on a separate label or document (if document, put it in a shipping pouch)
EXPIRY (DD.MM.YYYY)	use when applicable
SSCC	use dummy number 054153340000000001, unless GS1 EDI is in place

Examples custom part label for boxes, crates, cases

<p>Minimum requirement</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>CUST PART NO: R8781373 ORDER NUMBER: 4500086431 VARIANT: 00 VAR. COUNT: 30 SERIAL: EXPIRY (DD.MM.YYYY): SSCC: 054153340000000001</p>  <p>(241)R8781373(400)4500086431</p>  <p>(20)09(30)1(21)1(17)</p>  <p>(00) 0 5415334 000000000 1</p> </div>	<p>1 piece – with serial number</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>CUST PART NO: R8781373 ORDER NUMBER: 4500086431 VARIANT: 00 VAR. COUNT: 1 SERIAL: 9552900003 EXPIRY (DD.MM.YYYY): SSCC: 054153340000000001</p>  <p>(241)R8781373(400)4500086431</p>  <p>(20)09(30)1(21)9552900003(17)</p>  <p>(00) 0 5415334 000000000 1</p> </div>	<p>with expiration date</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>CUST PART NO: R8781373 ORDER NUMBER: 4500086431 VARIANT: 00 VAR. COUNT: 30 SERIAL: EXPIRY (DD.MM.YYYY): SSCC: 054153340000000001 31.12.2018</p>  <p>(241)R8781373(400)4500086431</p>  <p>(20)00(30)30(21)1(17)181231</p>  <p>(00) 0 5415334 000000000 1</p> </div>
<p>3 pieces with serial number</p> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>CUST PART NO: R8781373 ORDER NUMBER: 4500086431 VARIANT: 00 VAR. COUNT: 3 SERIAL: EXPIRY (DD.MM.YYYY): SSCC: 054153340000000001</p>  <p>(241)R8781373(400)4500086431</p>  <p>(20)09(30)3(21)1(17)</p>  <p>(00) 0 5415334 000000000 1</p> </div>	<div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>S/N 9552900003 </p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>S/N 9552900004 </p> </div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"> <p>S/N 9552900004 </p> </div>	

3.4.2.2 Pallet

1 pallet, 1 kind of standard part (1 article number): If the articles are in different boxes, crates or cases, each one needs to be labelled as indicated above and a label is needed for the pallet.

- CUST. PART NO. mandatory
- ORDER NUMBER use when applicable
 1 order/pallet: **mandatory**
 More than 1 order for same article: NA.
 Check correct labelling of each box, crate or case.
- VARIANT NA
- VAR.COUNT **mandatory** (total number of the articles on the pallet)
- SERIAL use when applicable
 when VAR.COUNT=1: put it on label
 when VAR.COUNT >1: each serial number on separate label or
 packaging slip (put document in a shipping pouch)
- EXPIRY (DD.MM.YYYY) use when applicable
 the same for the complete pallet. Check correct labelling of each box.
- SSCC use dummy number 05415334000000001, unless GS1 EDI is in place

Examples pallet label for standard part – 1 order number for the whole pallet

<p>Minimum requirement</p>	<p>1 piece with serial number</p>	<p>with expiration date (all the same)</p>
<p>3 pieces with serial number</p>		

1 pallet, 1 kind of custom part (1 article number) If the articles are in different packaging's, packaging needs to be labelled as mentioned above and a label is needed for the pallet. The fields to use for the pallet label

- CUST. PART NO. Mandatory
- ORDER NUMBER use when applicable
1 order/pallet: **mandatory**
more than 1 order for same article: NA. Check correct labelling of box, crate, case.
- VARIANT goes together with the order number
1 order/pallet: **mandatory**
more than 1 order for same article: NA. Check correct labelling of box, crate, case.
- VAR.COUNT mandatory (total number of the articles on the pallet)
- SERIAL use when applicable
when VAR.COUNT=1: put it on label
when VAR.COUNT >1: each serial number on a separate label or packaging slip (if document put it in a shipping pouch)
- EXPIRY (DD.MM.YYYY) use when applicable
- SSCC use dummy number 054153340000000001, unless GS1 EDI is in place

Examples pallet label for custom part – 1 order number for the whole pallet

<p>Minimum requirement</p> 	<p>1 piece with serial number</p> 	<p>with expiration date (all the same)</p> 
<p>3 pieces with serial number</p> 		

1 pallet, different goods (bundling of articles)

No label for the pallet, each transport packaging needs to be labelled as mentioned above.

3.4.3 Label format

A6 (preferred) and A5 according to the instruction “GS1 Logistics Label Guideline”

https://www.gs1.org/docs/tl/GS1_Logistic_Label_Guideline.pdf

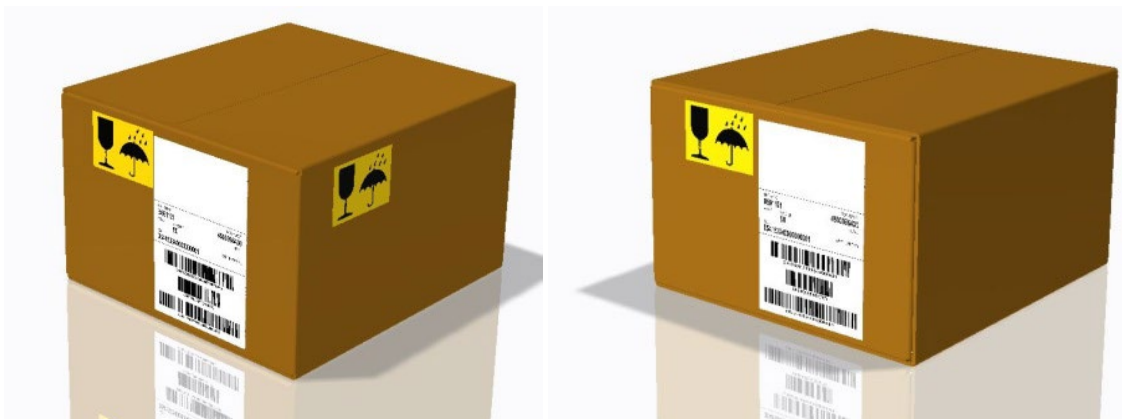


3.4.4 Label placement

On boxes, crates, or cases:

Symbols, markings, and icons will be placed near the left-hand upper corner at least at 2 sides, if possible, on 4 sides.

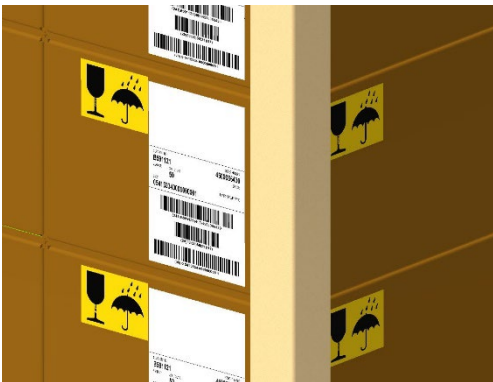
Label will be near right hand (upper) corner, at least at 2 opposite sides, if possible, on 4 sides.



In case the box is very small, solutions as indicated below are allowed. Don't bend on the barcodes.



If possible put them on the box, crate or case in such a way that when corner protection is used the label can still be read.



On pallets:

When a pallet label is in place, position is as indicated on the picture on adjacent sides. If possible, use 4 labels on 4 sides.



4 Packaging of finished goods

The guideline applies to all packaging used for protecting and handling of finished goods:

- full products. This includes those manufactured by OEMs (original equipment manufacturers) or ODMs (original design manufacturers).
- accessory items.
- service goods.
- spare parts.

Finished goods are goods that arrive in Barco and that are ready to be shipped to final clients/customers.

The supplier should consider that the packaging of these goods won't be opened at Barco. The packaged finished good remains as it is when it arrives at Barco and when shipped further to Barco customers.

4.1 Supplier/manufacturers responsibility for the packaging

The manufacturer/supplier **is supposed to be able to**

- develop and design
- test
- implement the packaging

Dependent on the complexity of the packaging, regular updates on the development should be provided to Barco. For "simple" packaging (not complex, using the same tested packaging of a similar product, etc.....), the evaluation of the packing will be done at an agreed moment or the latest at the first FAI.

If the manufacturer/supplier can't come up with previous steps, contact your purchase or SQA contact. Further steps need to be taken on the development of the packaging. An agreement needs to be set up on the responsibilities and on the ownership of the different steps to take. Eventually if the manufacturer can't come up with previous steps, the development, evaluation and testing of the packaging will be done by Barco. Or it can also result in mixed responsibility: if the manufacturer is able to develop/design but not able to test then the testing can be organized by Barco.

Barco is stimulating its employees to talk to manufacturers/suppliers. This discussion is certainly needed when problems on the packaging of the product can be avoided. As a manufacturer / supplier, therefore we would like to encourage you to ask for this discussion whenever you feel that this can contribute to quality and cost of the packaging. Don't hesitate to notify this to your purchase or SQA contact. Then further steps towards the quality of the packaging needs to be taken. It is our intent to control the quality of the packaging just as it is to control the incoming quality of the products

It is the manufacturer's / supplier's responsibility to notify Barco if any changes to the packaging, cleaning, or preserving system are anticipated. Barco must approve all changes.

4.2 Quality aspects of the packaging of finished goods

Depending on the complexity of the packaging, it is obvious that a lot of detailed communication is needed with the manufacturer/suppliers. Barco should provide the manufacturer/supplier with a description, objectives, and specifications of the packaging. Since this is different from project to project, not all details can be mentioned. Topics to be discussed:

Specific (technical) specifications for packaging of the goods

- Design
- Special requirements: ESD, moisture, dust, etc.....
- Packaging graphics : some finished goods require dedicated printing
- Symbols, markings and recycling codes
- Labelling
- Size evaluation
- Testing/evaluation based on ISTA and IEC

Specific handling and storage instructions

- Evaluate the need of a transport packaging (secondary packaging for the finished good)
- Labelling of the primary packaging/secondary packaging
- Stacking : different heights need to be taken into account
- Palletizing : (more details see 3.3.3)

An agreed way of working should be created. The necessary action should be taken to document the decisions. There are different possibilities: statement of work, product norm, design directives, mechanical drawing Depending on the kind of goods and the negotiations.

E.g.1: Design Directives:

A Design Directive can be found in the BOM of finished goods like spare parts, accessory kits. A DD file is as follows: DD file article number= XXXXXXDD, file format =XXXXXXDD_00_DesignDirective.pdf. In the document you will find following regarding to finished goods.

2.2 Finished goods

The actual assembly, to which this Design Directive is applicable, is cataloged as "finished good". In other words, the supplier should take into account that the packaging of the actual assembly will not be opened at Barco. The packaged assembly remains as is when it arrives at Barco and when shipped further to Barco customers.

In the DD file you'll find a chapter with more on packing and labelling instructions.

E.g.2: Mechanical drawing:

When a mechanical drawing is available of the full product, a VAC (visual appearance class) is defined. All goods for final clients of Barco need to be packed and delivered to this standard, even when not specified on the drawing about the packaging.

When there is no mechanical drawing of the full product and a custom mechanical part is part of the finished product, consider the VAC on the drawing of the part. Depending on the VAC more stringent or more specific requirements are determined. The highest VAC on the drawing is always applicable. See also [chapter 3.2.2](#) for more guidelines on the packaging guidelines by VAC for custom mechanical parts.

For more explanation on (mechanical) drawings of full products see chapter QAM001/7.

For more explanation on VAC see chapter QAM001/2.1.1 Visual Appearance Class (VAC).

4.3 Packaging requirements for finished goods

4.3.1 Cardboard boxes/packages

General requirements [chapter 1.6.2](#)

Specific requirements for finished goods:

Each finished good must be packed separately: it is possible that 1 finished good consists out of more than 1 part and that they need to be collected in 1 packaging.

The packaging won't be opened at Barco. The packaged product remains as it is when it arrives at Barco and when shipped further to Barco customers. The package should arrive in Barco without any deterioration of quality and free of contamination.

Each packaging of a finished good needs to be labelled (see also chapter 4.5).

Secondary packaging is permitted if all separate (primary) boxes are labelled as mentioned in chapter 4.5.

Since this packaging will be used as a transport packaging to the final customer, be sure to evaluate the size of the packaging. More info: see [chapter 1.6.3](#)

Some boxes of finished goods require a dedicated printing. A (mechanical) drawing, and artwork is delivered by Barco and the artwork reference is mentioned on the drawing. Typically, the number of the artwork is the number of the part followed by AW. The file is a zip-file and contains 3 different formats as stated below.

The file should contain outline fonts, or the fonts need to be added. Please contact Barco if a 'font' problem occurs or if the result of the graphic file isn't matching the graphics on the drawing.

Zip file of artwork No containing

Vector graphics file	*.ai		
Pdf	*.pdf		

4.3.2 Pallets

General Requirements: [chapter 2.3](#)

4.4 Symbols – markings – icons - codes

4.4.1 For the packaging of the finished good

The definition, position etc.... is the result of the discussions between Barco and the manufacturer / supplier.

General requirements: [chapter 2.5](#)

4.4.2 Dedicated printing:

When there's a dedicated printing for the packaging, Barco should deliver the artwork and the relevant symbols, markings and icons will be implemented as much as possible.

4.4.2.1 No dedicated printing

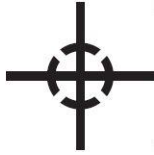
When there is no dedicated printing:

Position: as a generic rule, we follow the recommendations made in the ISO780 document.

In principle, graphical symbols should be placed near the left-hand upper corner on at least 2 upright sides of the package that are also used for the labelling of the package.

Exception: some symbols require a specific position because of their meaning.

E.g.: center of gravity



4.4.3 For the logistics units of the finished good

The same rules are applied as described for the symbols/markings/icons of incoming goods ([see chapter 2.5](#)). Only use extra symbols, markings and icons when necessary.

E.g.: When a secondary packaging (transport packaging) is used, a mantle box or crate around the packaging of the finished good, apply the relevant symbols for transport to Barco.

4.5 Labelling

There are 2 types of labelling:

- packaging labelling of the finished good
- logistics unit labelling for transport to Barco

4.5.1 Packaging labelling of finished goods

Each finished good has got its own packaging and needs its own label(s). Dependent on the size of packaging, dependent on the market where the finished good is meant for, labels can have a different lay-out (size, shape, etc.....) and content. For the final lay-out, content and positioning, Barco should be contacted, and the packaging will be provided to you. A typical label for finished goods looks like the examples below.

Typical for entertainment products:

Label for a projector



Label for a spare part



Typical for medical products:



Typical for enterprise products:

Label for a control room part



Label for a spare part



Position of the label

When there's a dedicated printing for the packaging, indications for the positioning will be incorporated in the artwork by Barco.

In case no dedicated printing is available:

Symbols, markings, and icons will be placed near the left-hand upper corner at least at 2 sides, if possible, on 4 sides.

Label will be near right hand (upper) corner, at least at 2 opposite sides, if possible, on 4 sides. If possible put them on the box, crate or case in such a way that when corner protection is used the label still can be read.



4.5.2 Logistics unit labelling for transport to Barco

The packaging of the finished good needs to be protected during transport to Barco in such a way that there's no deterioration of quality, no damage and that the packaging is free of contamination.

Take the necessary precautions to avoid that logistics unit labels for transport to Barco are put directly on the packaging of the finished good.

When the packaging of the finished good is also the transport packaging to Barco, consider a bag or shrink foil. This will protect the packaged finished good and labels can be applied and removed without damaging the actual packaging of the finished good.

The content, fields to use, format and placement is discussed in [chapter 3.4 Labels for incoming goods](#).

4.6 Testing requirements for finished goods:

“[PVG ENV Guideline Storage and transport](#)” is available: this document provides **general** information and guidelines to **test, evaluate and qualify packed Barco products**.

Which tests you need to do, needs to be discussed and agreed upon.

4.7 Communication and disclosure obligation

Barco acts as an economic operator within Europe. This trigger reporting obligation of packing material placed on the European member states market.

As a supplier of packed goods, you are obliged to provide Barco details regarding the packaging used:

- delivered material type
- recycled content
- delivered weight and units

upon request. This data shall be provided in readable format and within reasonable time.

More details can be found in the applicable EPR regulation Waste framework directive [2008/98/EC](#) and Packaging directive [64/62/EC](#).

5 Information for suppliers/manufacturers of packaging material

5.1 Barco BOX description rules (cardboard suppliers)

We prefer to the use of the FEFCO coding describing the type of box. Dimensions on boxes are always the internal dimensions (useful size) of the box, unless stated otherwise.

<http://www.fefco.org/technical-documents/fefco-esbo-code>


We define the quality of the cardboard itself according to the table below. The desired class is mentioned on the drawing of the box.

BARCO Class	Din references DIN 55468	composition of cardboard layers	Weight gr/m2 (pound/f ²)
1		Single wave	< 400 (9,5)
2	DIN 1.20-DIN 1.30	Single wave	400 (9,5) > < 500 (11,9)
3	DIN 1.40	Single wave	500 (11,9) > < 620 (14,7)
4	DIN 2.20bc - DIN 2.30bc	Single - Double wave	620 (14,7) > 750 (17,8)
5	DIN 2.40bc - DIN 2.50bc	Double wave	650 (15,4) > < 850 (20,2)
6	DIN 2.60bc - DIN 2.70bc	Double wave	800 (19) > < 1000 (23,7)
7	DIN 2.70bc - DIN 2.90bc	Double wave	1000 (23,7) > < 1300 (30,8)
8	DIN 2.91ba - DIN 3.28	Double wave	1300 (30,8) > < 1400 (33,2)
9	DIN 2.92ba - DIN 3.30	Double - Triple wave	1400 (33,2) > < 1600 (38)
10		Triple wave	>1600 (38)

5.2 Technical notes on Barco drawings of packaging components

These drawings are dedicated to suppliers of packaging material.

Depending on the technology on how to produce the part following notes with the relevant tolerance table can be found on the drawing.

PACKAGING - CARDBOARD	QAM-Pac		
- Cardboard class 5 - FEFCO 201 - Recycling code: #20 PAP corrugated - FLUTE Direction 	General tolerances for cardboard boxes (mm)		
	all dimensions ±5mm		
PACKAGING - WOOD	QAM-Pac		
- IPPC 15 labelled wood	Dimensions (mm)	cut contour	assembled parts
	0-1000	±1 mm	±2mm
	1001-1500	±2 mm	±5 mm
	>1500	±3 mm	±5 mm

PACKAGING - FOAM		QAM-Pac		
- Recycling code: #4 LDPE	Dimensions (mm)	cut contour	assembled parts	
	0-200	±3 mm	±5 mm	
	201-500	±4 mm	±6 mm	
	501-800	±5 mm	±7 mm	
	801-1000	±6 mm	±8 mm	
	1001-1500	±7 mm	±9 mm	
	>1500	±8 mm	±10 mm	

PACKAGING - Expanded Polypropylene EPP		QAM-Pac			
- Recycling code: #5 PP					
Dimension	Tolerance / Density				
Linear/Thickness Foam Dimensions	< 25 g/L	25 g/L to 50 g/L	51 g/L to 80 g/L	>81 g/L	
0 to 5 mm	± 0.5 mm	± 0.5 mm	± 0.5 mm	± 0.5 mm	
6 to 15 mm	± 1.0 mm	± 1.0 mm	± 1.0 mm	± 1.0 mm	
16 to 25 mm	± 1.5 mm	± 1.5 mm	± 1.0 mm	± 1.0 mm	
26 to 50 mm	± 2.0 mm	± 2.0 mm	± 1.5 mm	± 1.5 mm	
51 to 100 mm	± 2.0 mm	± 2.0 mm	± 1.5 mm	± 1.5 mm	
101 to 250 mm	± 2.5 mm	± 2.5 mm	± 2.0 mm	± 2.0 mm	
251 to 500 mm	± 3.5 mm	± 3.0 mm	± 3.0 mm	± 2.5 mm	
501 to 1000 mm	± 5.0 mm	± 4.5 mm	± 4.0 mm	± 3.5 mm	
1000 to 1500 mm	± 1.0 %	± 1.0 %	± 0.75 %	± 0.5 %	

Recycling codes (Barco designed packaging components)

All packaging material delivered to Barco, must have a recycling code to identify the material from which an item is made, to facilitate easier recycling or other reprocessing. More info in [chapter 2.5.3](#)

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[2008/98/EC](#) and Packaging directive [64/62/EC](#).

6 Abbreviations

AQL	Acceptable Quality Limit
China RoHS	China RoHS regulation
DD	Design Directive
DGR	Dangerous Goods Regulation
DIN	Deutsches Institut für Normung
ECP	Engineering Change Proposal (BAAN)
ER	Engineering Record (SAP)
ESD	Electrostatic discharge
EPR	Extended Producer Responsibility
FAI	First Article Inspection
FEFCO	European Federation of Corrugated Board Manufacturers
GHS	Globally Harmonized System
GS1 EDI	General Specifications 1 Electronic Data Interchange
IATA	International Air Transport Association
IPPC	International Plant Protection Convention
ISO	International Organization for Standardization
IQC	Incoming Quality Control
NA	Not Applicable
PCB	Printed Circuit Board
PCBA	Printed Circuit Board Assembly
PO	Purchase Order
QAM	Quality Acceptance Manual
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances in electrical and electronic equipment
SQA	Supplier Quality Assurance
SSCC	Serial Shipping Container Code
TDG	Transport of Dangerous Goods
UL94	Underwriters Laboratories
VAC	Visual Appearance Class