

	Europe Business Management System	Revision Date:
		20/MAR/2020
EA-SC-xx-M-001	Supplier Logistics Manual	Revision Level:
MANUAL		REV NEW
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Foreword

YAZAKI has always considered customer satisfaction as one of the top priorities.

To achieve this challenging objective, the quality of our products and services must be part of the main considerations when designing new technical solutions.

Delivering high quality product cannot be achieved without packaging providing proper protection.

Packaging material is a critical part of the YAZAKI product and service package offered to our customers.

Our Suppliers are considered as key partners to succeed in achieving the challenging customer's objectives.

In this direction, the needs for packaging standard requirements have been growing at the same time as YAZAKI Europe Limited's growing success.

This document is the result of a long study on how to further optimize product packaging with as purpose to bring values to our business partners: Customers and Suppliers.

This packaging requirements manual is one of the key stones of future YAZAKI and its business partner's success.

We rely on the support of every party in the application of these requirements.

1. PURPOSE

The purpose of this specification is to outline the minimum requirements for packaging systems for all component families listed below as well as any other components that may not be listed:


Standard parts	Non-Standard parts
Tape / Foam	Wire Spools /drums
Clips / Fasteners	Terminal reels
Nuts / Bolts / Screws	Convolute Tubing
Connectors	Extended Length Plastic Shields/Troughs

Standard parts are hereby defined as parts which are small and / or uniform in configuration which will fit into a pre-determined set of hand-held / human movable boxes.

Non-Standard parts are hereby defined as parts which require their own packaging system and / or SLC and pallet dimensions due to part configurations/sizes in order to ensure package and part integrity.

The minimum requirements within these guidelines shall be met by all Component Suppliers shipping Standard & Non-Standard parts to YAZAKI.

These requirements will help YAZAKI and its Suppliers to achieve a high level of Quality performance in regard to automotive standards, environmental legal and local requirements and OEM specific needs.

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This specification has the following objectives:

- To protect the components against damage in transit, handling and storage until the point of use;
- Reduce Quality issues and related Logistic costs;
- Avoid relabeling
- Optimized cube utilization for the handling unit, the loading unit as well as the transport medium.
- To respect ergonomic and safety constraints

Therefore, it is ultimately the Suppliers responsibility to ensure that their parts arrive at the end user undamaged.

Suppliers must use packaging that withstands the various dynamics of all transportation methods as land, air and sea transport.

Only one-part number is permitted to be shipped inside each box. Multiple part numbers inside one box is not permitted.

2. SCOPE:

This packaging guideline applies to all Suppliers and YAZAKI manufacturing plants shipping components and raw material to one of the YAZAKI EUROPE Limited manufacturing plants and distribution centers in the EMEA region.


All YAZAKI EUROPE limited manufacturing plants and distribution centers are entitled to apply these regulations stated in Supplier Logistics Manual.

Supplier is responsible for the quality of their products and obedience of requirements in stated Supplier Logistics Manual.

For deliveries of YAZAKI ComBU designed components please consider the additional Component Packaging Specification [EA-QM-CO-S-027].

3. TERMS & DEFINITIONS:

APQP	Advanced Product Quality Planning process
ASN	Advanced Shipping Notification
BCT	Box Compression Test
ComBU	Components Business Unit
ECT	Edge Crush Test
EDI	Electronic Data Interchange
EMEA	Europe Middle East Africa
Expendable	One-way, apply to carton/container box
GPDB	Global Price Database
HSC	Half Slotted Container (e.g. FEFCO 0312)
IPPC	International Plant Protection Convention
ISPM 15	International Standards for Phytosanitary Measures No. 15
ISO	International Organization for Standardization

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OEM	Original Equipment Manufacturer
PPAP	Production Part Approval Process
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals Regulation
RFQ	Request for Quotation
RSC	Regular Slotted Container (e.g. FEFCO 0201)
SM	YAZAKI Supply Management
SLC	Small Load Carrier
SPS	Standard Packing Size
Supplier	Product Manufacturer
VCI	Volatile Corrosion Inhibitor
VDA	Verband der Automobilindustrie (German Automotive Association)
WMS	Warehouse Management System
YEL	YAZAKI Europe Limited

4. PROCESS DETAILS:

4.1 Responsibilities

4.1.1 YAZAKI Responsibilities

- Assist the Supplier with its packaging proposal
- Approve the Suppliers packaging proposal

4.1.2 Supplier Responsibilities

Comply with the YAZAKI packaging specification and customer (OEM) specific requirements

- Design & test the packaging (internal dunnage, dimensions, loading unit) based on these requirements
- Submit all required packaging documentation in GPDB Capacity Confirmation and written form (packaging data sheet)
- Ensure availability of sufficient quantity of packaging as well as a contingency plan in order to ensure a continuous supply.
- Review packaging for compliance and resubmit for approval in case of quality issues, part changes that affect the packaging or changes in the packaging specification.
- Comply with environmental legal requirements: Packaging directive 94/62/EC, REACH regulation (EC) N° 1907/2006 and also with local requirements.

4.2 Packaging/Standard Packaging Size

Standard packaging size is packing per item number according to an agreed and fixed quantity.

4.2.1 Handling Unit Requirements

Handling unit is the packaging / container in which the individual products (e.g. bags of connectors, reels of terminals, grommets, etc.) are packed per item number.

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It is not allowed to mix different part numbers in a handling unit. Different modification /different revision levels of products also may not be combined in a handling unit.

Packages must be easily handled during opening and closing and for repacking operations.

All handling units must enable stacking, be rigid with no excessive flexing, bowing, buckling or distortion. They must provide adequate protection to ensure that goods reach end user in perfect condition. Depending on the shipping conditions and components material e.g. for sea-freight conditions, environmental effects could require additional packaging material as desiccant bags, VCI paper and corrosion protection.

4.2.2 Packaging Design & Dimensions

In order to enable a maximum fill rate of the pallet and the pallet footprint the container shall be modular. Preferred container dimension for the 1.200mm x 800mm footprint can be found in EA-SC-xx-M-001-A-01.

The corrugated material must have minimum 44 ECT to provide a sufficient strength in order to maintain part quality.

Minimum BCT requirement is explained in section 4.9.

The flute direction shall be vertical to optimize the compression strength.

All carton boxes shall be adequately sealed with packaging tape. Staples as well as asphalt sealing tapes are not allowed. Hand holes should not be used, unless specified by YAZAKI.

4.2.3 Ergonomic Requirements & Container Utilization

The weight per manually handled handling unit is limited to 15kg.

Each handling unit shall reach a minimum vertical box density of 90% based on the following formula:

$$\text{vertical box density (\%)} = \frac{\text{Height of goods in container}}{\text{Height of container}}$$

4.2.4 Expendable Packaging

Corrugated box material as well as the used internal dunnage shall be 100% recyclable. During the design of the box and dunnage the loading, unloading, recycling and disposal shall be considered.

All the boxes shall be regular slotted container (RSC) with flaps for closure. Half slotted container (HSC) shall not be used.



Figure 1 Authorized carton box types

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4.2.5 Returnable Packaging

In case of mutual agreed use of returnable packaging, the ownership as well as the responsibilities for maintenance, repair, cleaning, tracking, etc. shall be determined during the sourcing process. Rental of returnable packaging may also be pursued as an option.

For standard parts the returnable packaging shall be conform to the VDA or Odette GALIA packaging standards.

4.2.6 Inner Packaging (Packaging for Special Protection)

The inner packaging shall be designed to protect the parts in an efficient manner: Quality and Cost. Components features shall be considered: self-lubricated parts, moving parts, functional features, appearance, material, ESD Sensitive devices etc.

Cushioning packaging (air bag, bubble foil/wrap) or foam chips usage shall be avoided as much as possible.

To be able to choose the proper inner packaging method, several parameters shall be taken into account:


- Does the part contain moving features?
- Is there any fragile area on the part?
- Is there a seal or self-lubricated component?
- What kind of material is the part made of?
- Is there any needed orientation of the part in the packaging for future processing?

4.2.7 Transport Packaging Design & Dimensions

All shipments of the Component Suppliers shall be palletized. Deviations (e.g. for slip sheets) have to be mutual agreed.

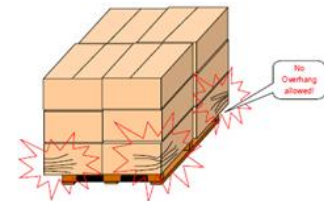
The following minimum design requirements have to be fulfilled:

- Footprint: 1.200mm x 800mm, 48" x 40" (1.219mm x 1.016mm) for US shipments
- Maximum pallet height (empty): 150mm
- Dynamic pallet Load Capacity conform 3m stack and it should be minimum 750kg
- 4-way free entry block pallet with three skids
- Forklift pocket minimum opening height: 88mm
- Solid wood pallet, no press wood pallet
- IPPC treatment & marking according to ISPM 15 (latest version)

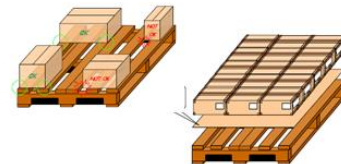
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4.2.8 Palletization

The carton footprints shall completely cube out a full layer on the pallet with no overhang.



The part bearing boxes need to lie on its four corners. If this is not possible, a cardboard layer **no larger than the pallet footprint** has to be added.



The folding boxes shall be aligned vertically. Brick or interlocking stacking is not allowed.



Figure 2 Palletization Requirements

4.2.9 Stacking


All pallet loads shall assure a safe stacking and enable optimal transport and storage volume utilization. Palletized loading units must, under dynamic circumstances (during transport), withstand a stacking height of three pallet loads of the same footprint and weight or a height of 3,00 m, assuring all products to arrive in undamaged condition at the final point of use.

The minimum Box Compression Test (BCT) value of the selected corrugated box shall be determined based on this dynamic transport condition, considering a safety factor of at least 3.

The following table will help to identify the maximum height per loading unit:

Transport type	Max. Loading unit Height (mm)
Standard truck / High Cube Sea container	1.275 mm
Megatruck	965 mm (3 units stacking)
	1.450 mm (2 units stacking)

Table 1 Max height per loading unit

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The heaviest palletized load must always be at the lowest level while storing the pallets or during transport. The top layer of the palletized load has to be even. Pyramid stacking as well as the use of “Do not stack” labels is not permitted.

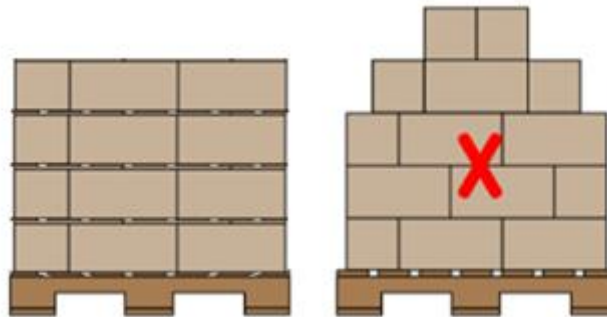


Figure 3 Stacking with flat top

Exceptional use of “Do not stack” label has to be agreed individually and will not exempt the Supplier from damaged product claims.

For loading units that exceed 500kg, 2 labels have to be attached on adjacent corners to alert the material handlers about the weight risk. An example can be found below:

Above applies unless different is agreed in the PPAP product packaging standard or due to size and / or configuration of Non-Standard parts.

Weight of pallet > 500kg
Ensure that pallet is loaded underneath


4.2.10 Security in Goods Transportation

All loading units must be secured with plastic banding and/or clear plastic stretch wrap. Steel banding, nailing or gluing is not permitted. In addition, corner boards or edge protectors might be used.

For wire spools overlapping on the pallet is not allowed. See Figure 4.



Figure 4 Overlapping of wire spools

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Large spools (See Figure 5.) which do not take up the full footprint of the pallet must be banded to the pallet in a 4-way pattern.

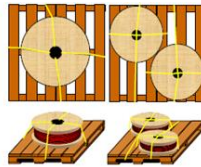


Figure 5 Positioning large spools on pallet

Smaller spools (See Figure 6.) which take up the full footprint of the pallet may also be banded, but should always be stretch wrapped as shown, with “X” pattern on top for final wrap. All four corners of pallet should be included in the stretch wrap.

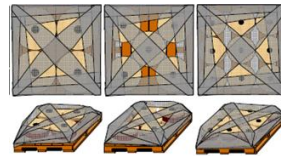


Figure 6 Positioning small spools on pallet

Wire Fibre Drums (See Figure 7.) shall follow the same requirements for spacing on the pallet and banding/stretch wrapping as Wire Spools.

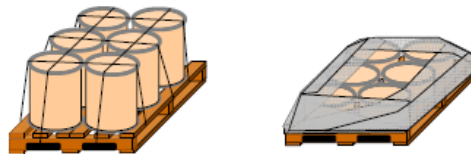



Figure 7 Positioning wire fibre drums on pallet

4.3 Packaging Verification

Packaging specifications are mutually agreed between YAZAKI and Supplier. All loading units and its content must arrive in undamaged condition at the final point of use. In the event of any transportation damages, unless otherwise agreed between YAZAKI and Supplier in the individual case, the party that has commissioned,

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and pays, the freight forwarder shall be responsible for the securing and handling of any claims for damages against the freight forwarder.

In case the packaging is considered unsuitable or needs to be improved the Supplier is alerted. Supplier, SM, quality and packaging engineering work together for improving packaging.

Verification shall be done by performing the necessary tests such as drop test (Ref: VDA Recommendation 4535, ISO 2206 / ISO 2248), BCT and shipment trial. Test results shall be verified by YAZAKI.

Before the deployment of improved packaging shipment trial is performed in order to confirm the packaging capabilities to protect the parts according to the designated physical flow / Supply Chain. The shipment trial is part of the packaging validation process. Therefore, this test shall be planned before PPAP approval.

4.4 Labelling

YAZAKI is using a material handling system based on SAP. In support of this initiative, all component and raw material Suppliers that supply to YAZAKI or any of its affiliate locations are required to attach barcoded labels according to the known European automotive standards (Odette or VDA), on each pallet unit and handling unit. Label samples are shown in EA-SC-xx-M-001-A-02.

4.4.1 General requirements

According to VDA 4902/ODETTE V4.1, standards are specified for the automotive industry and its Suppliers.

Packaging is subdivided as following:

- Handling unit: Small Load Carrier (SLC), carton etc.
- Pallet unit: Pallet, pallet cage

Labels are to be attached to the stated sides of packing units in visible position. Adhesive labels must be used for carton boxes. Labelling for SLC is explained in section 6.3.


4.4.2 Barcode / Data identifier requirements

The permitted barcode type is Code 39 according to ISO/IEC 15417. The allocated space of the barcode shall be directly below the human readable characters. The print quality shall comply with ISO/IEC 15416 with a height of 13 mm.

A sample print shall be provided by the Supplier to the receiving YAZAKI plant for testing of the content and quality of the barcode prior to any label change.

The barcoded fields shall start with the data identifier and will identify the type of information encoded in that symbol. Care must be taken that the barcoded data has the proper data identifier. The data identifier shall be printed in human readable characters in parentheses under the title for the appropriate data area. The data identifier shall not be included in the human readable interpretation of the bar code symbol.

Fields on label are explained in EA-SC-xx-M-001-A-02.

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The data identifiers listed below shall be used on YAZAKI labels:

Data identifier	Data area
P	YAZAKI part number
Q	Quantity
V	Supplier number
S	Serial number
2P	Supplier part no. (optional)

Table 2 List of Data Identifiers

4.4.3 Handling unit label

Each handling unit must be labelled with only one barcoded label. It must be always possible to scan the handling unit label from the outside of a composed pallet.

Handling unit label

- A6, size 210 x 74 mm
- It must be positioned on the front of each handling unit.
- The content of the label must be printed in Arial font.
- The printing must be in black on white background.
- Barcodes must be placed in middle of the related field.

4.4.4 Pallet unit label


Pallet labels must be attached to the outside of the pallet foil or placed in a plastic transparent label holder. It is not allowed to glue the pallet label directly to a handling unit.

The main label for pallet unit (pallet, pallet cage)

- A5, size 210 x 148 mm
- Two labels must be implemented on the package, as one on the front and one on the longitudinal side.
- The content of the label must be printed in Arial font.
- The printing must be in black on white background.
- Barcodes must be placed in middle of the related field.

4.4.4.1. Homogeneous Pallet unit Label

If a pallet load consists of a single part number (homogeneous pallet), a barcoded pallet label must provide above-mentioned standards and be attached to both short side and longitudinal side of the pallet.

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4.4.4.2. Heterogeneous Pallet unit Label (Mixed Pallet)

If multiple part numbers are being shipped within one Pallet, a mixed load bar-coded label must be attached to the short side of the pallet. This must be a “low adhesion” label. The gross weight for the complete pallet must be easily visible.

4.5 Serial number specification

The most important information on the label is the unique serial number. With this number, relabeling can be avoided.

Therefore, each Component Supplier will be responsible for tracking the serial number they generate for each handling unit and pallet shipped to YAZAKI. Any communications to YAZAKI about particular handling units (e.g. for rework or quality issues) must include the serial number that appears on the bar code label.

Each Component Supplier is responsible for generating serial numbers that are unique across all of their part numbers and handling units. A serial number shall never be repeated.

The diagram below explains the details of the serial number:

123456 = Supplier 6 digits SAP Supplier account number. Account numbers with less than six digits shall be preceded by zeroes in order to make the Supplier account number six digits long.	1A2B3CY29X = Supplier unique 10 digit numeric or alphanumeric tracking ID.
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Table 3 Creation of Serial number

Serial number 16-digit sample



Table 4 Example of Serial number

All pallet labels shall also have a unique 16-digit serial number. In order to separate this number from the box label, the following identifiers have to be used:

Label type	Identifier
Homogeneous Pallet unit	M
Heterogeneous Pallet unit	G

Table 5 Identifiers for labels

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4.6 EDI

ASN's are required for each shipment and must include all information pertaining to the material on the shipment. Especially the printed serial number (Handling unit number) has to be mentioned.

It is required that the Supplier is able to communicate according EDIFACT D99A respectively the communicated YAZAKI standard. For further details please check the YAZAKI *Europe Limited DESADV D99A Implementation Guideline for Suppliers* on the Supplier portal.

4.7 Terms of Delivery

Delivery must be executed according to the official and mutual agreed Incoterms (INCOTERMS 20XX of the International Chamber of Commerce).

The Supplier is responsible for providing all necessary documents (Delivery note, CMR, Invoice) in line with the local, national and international legislation.

The preparation of export documents for non-EU-Countries is mandatory according to the agreed Incoterms.

The Supplier is required to provide proof of origin for all its products as long as customs preferential treatment can be applied in the importing country and/or in the European Union. This proof must be in line with EU legislation (e.g. EUR1, invoice declaration, EURMED, long term Supplier declaration).

4.8 Cost of non-compliance

Documentation costs

Export declaration / EX1 document: 50€ / shipment

EUR1 / ATR: 50€ / shipment

Web-Portal booking: 10€ / shipment

Labeling Non-conformance

First occurrence: 30 days grace period to correct labels

After 30 days 25€ / box that is non-conforming

YAZAKI will pass through all incurred expenses in terms of Repackaging, Labeling or any further activities based on the local labor costs, but with a minimum of 100€, plus applicable documentation costs.

5. REFERENCES & RELATED DOCUMENTS:

Number	References

Number	Related Documents
EA-SC-xx-M-001-A-01	Preferred Expendable Packaging Dimensions
EA-SC-xx-M-001-A-02	Example of VDA Labels

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6. DOCUMENT APPROVAL:

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<i>Cross Functional Team (by functions)</i>				
<i>*The signatures from XFR team is not required</i>				
EQMS issue #294				

<i>Approved by:</i>				
Title / Role	Name	Authorization*	Revision	Date
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***Evidence of authorization is either an electronic approval or a physical signature and stored in a secure location.**

7. DOCUMENT HISTORY:

***For ONLY new or content revisions, the revision date is equal to the Authored by date and all Authorization dates are the same or after. Note: See Section 4 Rules in Yx-QM-xx-Y-001 Process Documentation Management Policy for format or grammar change revision date rules.**

Revision Summary	Revision	Date
General setup of separate guideline. Document transfer to new template. Appendixes A-01, A-02 and A-03 are added.	New	20/MAR/2020