Johnson Matthey
Inspiring science, enhancing life

Component packaging standards guidelines for JMBS suppliers

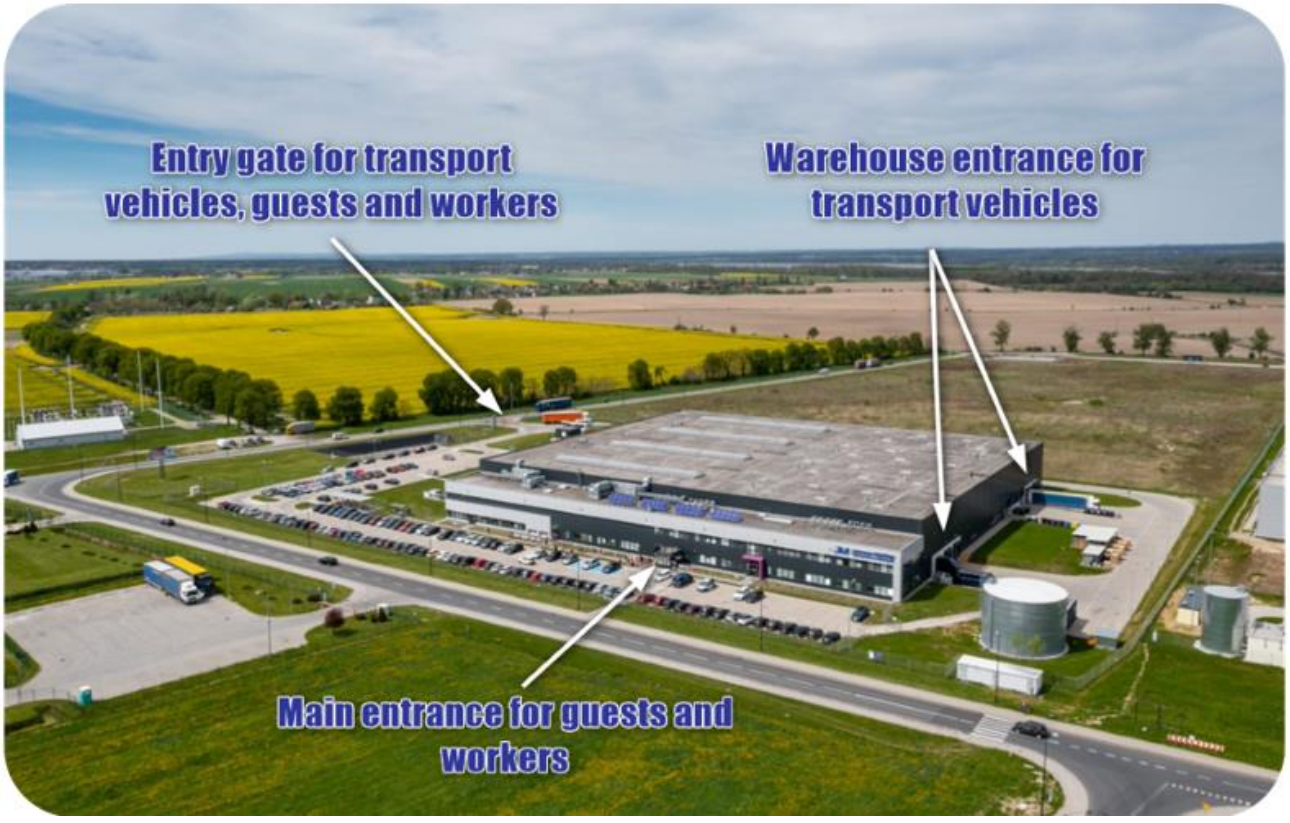


Table of Contents

1. Objective and scope

The aim of this manual is to inform suppliers about JMBS' requirements as to packaging standards for components delivered to our plant.
By using the specifications below, we strive to ensure efficient and frictionless flow of materials between the supplier and JMBS.

2. Contact person

The responsible Commodity Buyer is a contact person in case of packaging topics for particular component.
Supplier Development Leader is responsible for contact with the supplier regarding packaging adjustment and development as well as requirements connected to this procedure.

3. Principles of packaging selection

Packaging should always be selected based on economic and ecological aspects. All packaging must meet legal and regulatory requirements (including local requirements applicable in the country to which the shipment is sent) and have a possibly minimal impact on contamination of the environment.
No matter what type of material is chosen, it must meet the following criteria:
- it cannot compromise the quality of delivered components in any way;
- components should be packed and placed on the pallet in the most effective way;
- components should be transported in a safe manner;
- components should be packed in a way that will ensure a safe and effortless unloading at the supplier's site.

4. Environmental regulations on packaging

JMBS supplier is obligated to reduce the amount of negative environmental impact of the substances used for production of packaging as well as of generated packaging waste by limiting the volume and weight of packaging to the necessary minimum required to fulfil the function of packaging and ensure safety of the product taking into account JMBS' expectations.
JMBS supplier is obligated to reduce the amount and negative environmental impact of the substances used for production of packaging as well as of generated packaging waste by:
- ensuring, the packaging does not contain harmful substances in quantities that pose threat to the product, the environment or human health;
- ensuring, the maximum sum of heavy metals content (lead, cadmium, mercury and hexavalent chromium) in the packaging does not exceed 100 mg/kg, excluding the packaging defined in regulations.

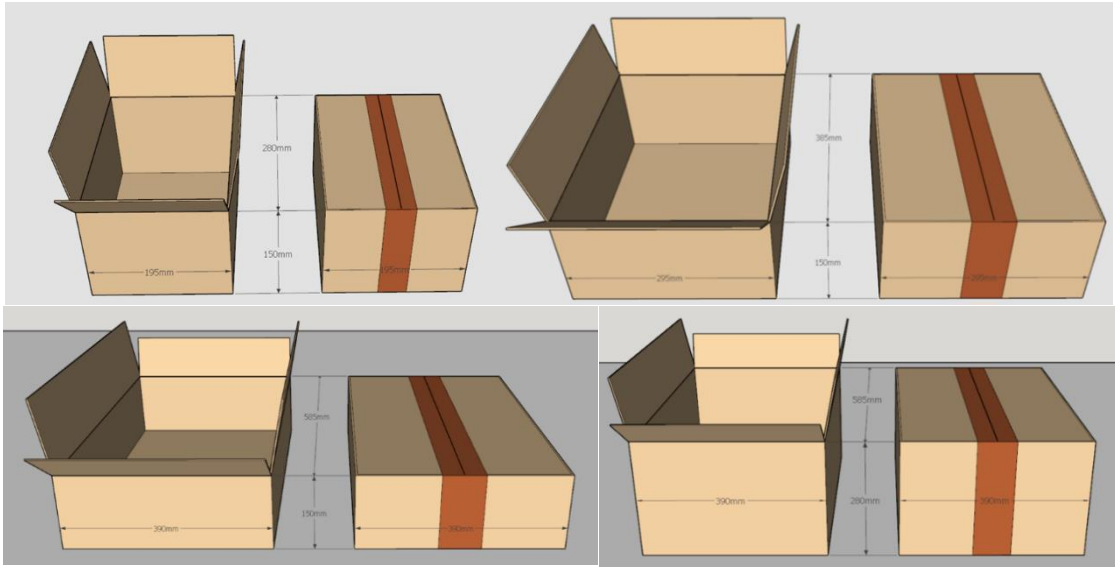
JMBS supplier is obligated to deliver products in packaging that is designed and made in a way that enables its multiple use and subsequent recycling or at least recycling if multiple use is not possible or other than recycling form of recovery if recycling is not possible.

5. Disposable packaging specification

Packaging should meet the requirements referred to in the points above. The material can be arranged in layers provided that subsequent layers do not impact the quality of the components in lower layers.
The quality of the packaging must ensure, that the requirements concerning carrying capacity and additional load are met. The maximum gross weight of a single packaging / carton box should not exceed 12 kg.

6. Disposable packaging standards

Sizes of acceptable cardboard packaging.



7. Conditions concerning returnable packaging

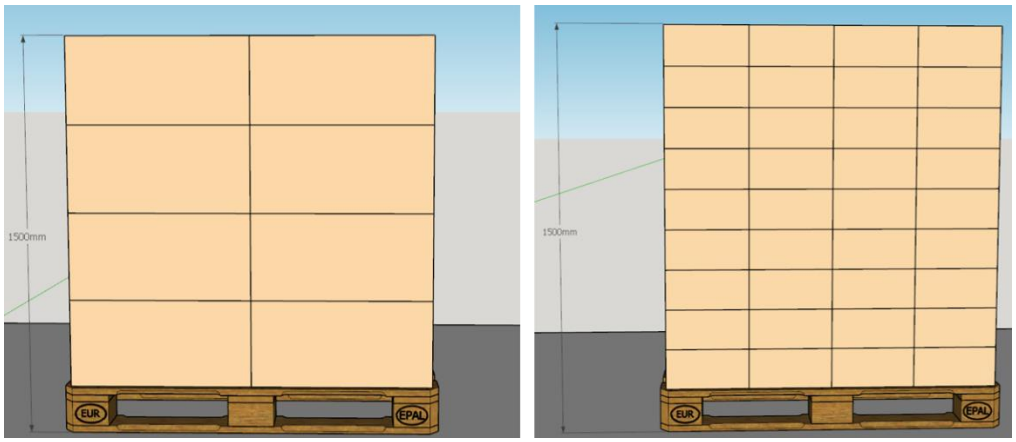
If possible, returnable KLT containers should be used for transportation of goods. To ensure long life-span, returnable packaging should be handled with caution and should not be used for purposes which it is not designed for.
Supplier should inform JMBS in advance of the details related to the management of returnable packaging (e.g. method of return, liability and cleaning requirements, etc.).

8. Returnable packaging standards

Generally, returnable packaging is selected individually for the designed production line.

9. Maximum weight / height

The material should be delivered in packaging placed on a 120x80 cm pallet. Packaging should not project beyond the outline of the pallet.
The maximum weight of a pallet is 500 kg (exception: cell suppliers - weight of a loaded pallet including the pallet weight itself cannot exceed 1,000kg)
The maximum height of a pallet is 150 cm (see pictures below).



10. Pallets

Pallets should meet EPAL requirements, if not agreed otherwise with JMBS.
In case of pallet stacking, pallets must be marked with information about the number of permissible layers. Out of concern for the environment, JMBS prefers a maximum use of transport capacity, which can be achieved by using a method of packing, that will safely allow stacking pallets during transport. The supplier should ensure that this approach is safe for both employees and packed goods, during transport and on the supplier's / customer's premises.
If pallets cannot be stacked, they must be marked with a "DO NOT STACK" label.

11. Avoidance of oversized packaging

It is obligatory to comply with the basic dimensions of a pallet and oversize packaging should be avoided. In case of non-compliance with the above, JMBS will have to reject the delivery or charge the supplier with the costs of repacking of the goods.

12. Safe transport unit (packaging)

For environmental reasons, constricting is only allowed in exceptional cases upon JMBS's approval.
Proper securing of the goods with a plastic tape.
In case of components delivered in returnable containers, the packaging should be safely arranged on the pallet, secured with a cover and cross-fastened - two strips of PP tape along the pallet + two strips of PP tape crosswise.
In case of components delivered in disposable cartons, the hardness of the cartons has to be taken under consideration:
- cartons made of hard cardboard: the packaging should be safely arranged on the pallet and cross-fastened - two strips of PP tape along the pallet + two strips of PP tape crosswise. If the cartons have sufficiently hard filling, it is recommended to use cardboard angle bars.
- cartons made of soft cardboard *: in such cases it is allowed to wrap the cartons with stretch foil. The use of plain plastic wrap (known as cling film) is not allowed due to the cartons sticking together during transport, which leads to difficulties during unpacking.

* In order to protect the environment, JMBS does not accept the use of heat-shrinkable foil.

13. Mixed pallets

One packaging cannot contain more than one component type.
It is permissible to store packages of different components on one pallet, however they must be appropriately marked (collective label, individual label).

14. Delivery

The selection of the packaging and securing of a package should guarantee a safe transport of goods without damaging the components.

14.1. Special types of packaging

Special types of packaging that were not mentioned in packing specification or packing instructions must be approved by JMBS Purchasing Department.

14.2. Individual arrangements

Individual arrangements with JMBS Purchasing Department always take precedence over general packing specifications included in the Packaging Manual.

15. Identification of packed goods

15.1. Marking and labelling of packaging

An easily identifiable label showing a 5-digit material number as assigned by JMBS and the number of products in the package should be affixed to all packaging. The labels should be placed in such a way that ensures their visibility on the pallet from each of the outer sides. If the material is packed into 1-4 carton boxes per layer, the labels should be placed in such a way that ensures their visibility on the shorter sides of the pallet. If there are more than 4 carton boxes on a pallet, the labels should be placed in such a way that ensures their visibility on the wider sides of the pallet.
The labels should meet Odette, VDA 4902 v. 4 standards or specific to the project (GTL/VDA 4994).
All packaging, both outer and inner, should have an easily identifiable label.

An example of a picture of a proper marking of packaging with labels.
Shorter side:

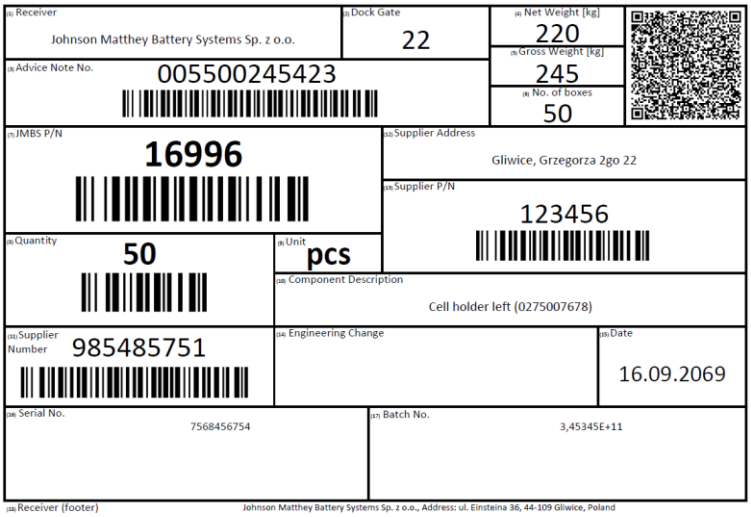
Wider side:

A label should contain the following data:
- Product number as used by JMBS
- JMBS Order number
- Short description of the product (e.g. plastic housing)
- Material quantity contained in the package along with the measurement unit (e.g. pcs., kg, etc.)
- Material production date, batch no. / lot no.
- Expiration date (if applicable)

Moreover, JMBS recommends all suppliers switching to QRC coding standard.

15.2. Label model example

VDA standard:

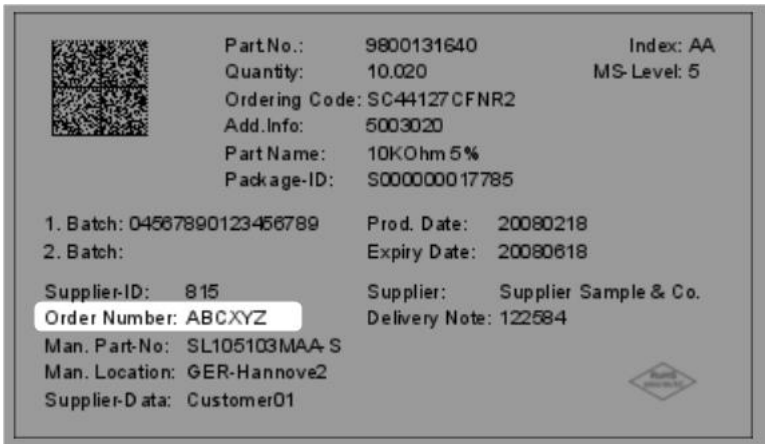


VDA label fields explanation:

Position number on VDA label	Number discription
1	**Receiver**
2	**Dock-Gate**
3	**Advice Note No.**
4	**Net Weight**
5	**Gross Weight**
6	**Number of Boxes**
7	**JMBS P/N**
8	**Quantity**
9	**Unit**
10	**Component Discription**
11	**Supplier Number**
12	**Supplier Address**
13	**Supplier P/N**
14	**Engineering Change**
15	**Date**
16	**Serial No.**
17	**Batch / Lot No.**
18	**Receiver (footer)**

The purchase order number should be included on the label in DMC code (prefix is “K” -> example K55284673).

JMBS purchase order number can be also added by writing it directly on the label, see below example:



16. Identification of components

A supplier must identify all the components that have been packed, if the components are packed into additional packaging such as bags, rolls, etc. They should have labels with product number as used by JMBS and the number of components contained in it.

17. Delivery note

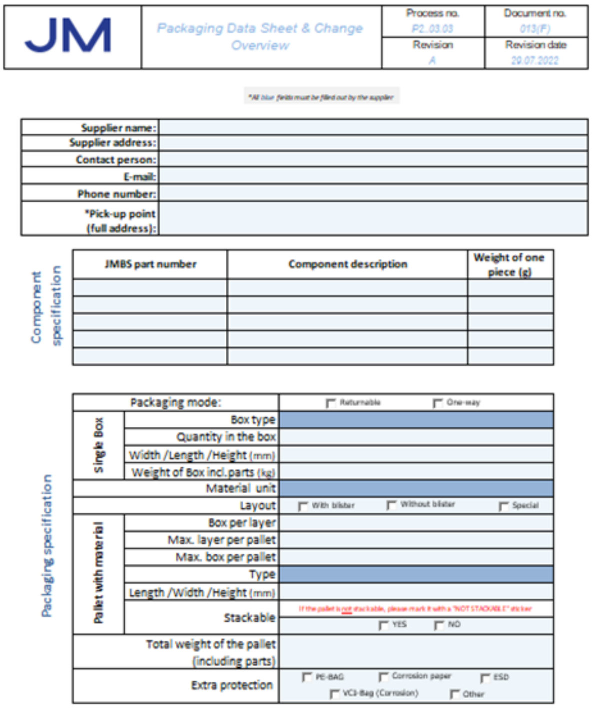
The delivery should contain a delivery note in the form of a shipping document containing: product numbers, quantities of the individual products, individual number of the document to identify the delivery, type and quantity of packaging, date of dispatch and Purchase Order number (PO nr). Delivery note (DN) should be submitted along with the shipment, and placed in such a way that ensures its accessibility without tearing/opening the package with the goods.

18. Packaging approval

All forms / types of component packaging shipped to JMBS must be approved by JMBS Purchasing Department.
For this purpose, the supplier must complete the Packaging Data Sheet.
In the event of packaging change, the supplier is required to additionally complete the Change Overview sheet.
The completed and signed document must be sent to the JMBS Purchasing Department in PDF format for approval.
In exceptional cases, JMBS may ask the supplier to send samples of the selected form of packaging.

Packaging Data Sheet & Change Overview – document no. P2.03.03-013(F).A

- Declaration sheet



JM | Packaging Data Sheet & Change Overview | Process no. P2..03.03 | Document no. 013(F) | Revision A | Revision date 29.07.2022

*All blue fields must be filled out by the supplier

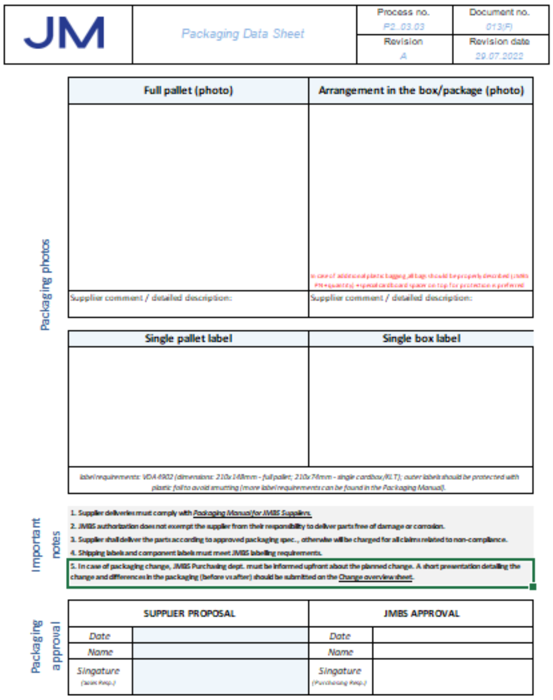
Supplier name:	
Supplier address:	
Contact person:	
E-mail:	
Phone number:	
*Pick-up point (full address):	

Component specification

JMBS part number	Component description	Weight of one piece (g)

Packaging specification

Packaging mode:		Returnable / One-way
Single Box	Box type	
	Quantity in the box	
	Width /Length /Height (mm)	
	Weight of Box incl.parts (kg)	
Material unit		
Layout		With blister / Without blister / Special
Pallet with material	Box per layer	
	Max. layer per pallet	
	Max. box per pallet	
	Type	
	Length /Width /Height (mm)	
	Stackable	YES / NO
Total weight of the pallet (including parts)		
Extra protection		PE-BAG / Corrosion paper / ESD / VCI-Bag (Corrosion) / Other



JM | Packaging Data Sheet | Process no. P2..03.03 | Document no. 013(F) | Revision A | Revision date 29.07.2022

Packaging photos

Full pallet (photo)	Arrangement in the box/package (photo)
Supplier comment / detailed description:	Supplier comment / detailed description:

Single pallet label	Single box label

label requirements: VDA 4902 (dimensions: 210x148mm - full pallet; 210x74mm - single cardbox/KLT); outer labels should be protected with plastic foil to avoid smutting (more label requirements can be found in the Packaging Manual).

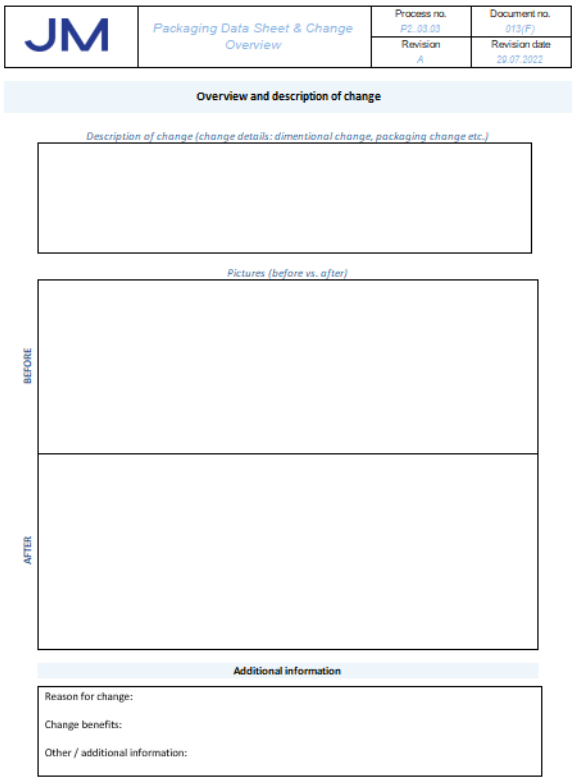
Important notes

1. Supplier deliveries must comply with Packaging Manual for JMBS Suppliers.
2. JMBS authorization does not exempt the supplier from their responsibility to deliver parts free of damage or corrosion.
3. Supplier shall deliver the parts according to approved packaging spec., otherwise will be charged for all claims related to non-compliance.
4. Shipping labels and component labels must meet JMBS labelling requirements.
5. In case of packaging change, JMBS Purchasing dept. must be informed upfront about the planned change. A short presentation detailing the change and differences in the packaging (before vs after) should be submitted on the Change overview sheet.

Packaging approval

SUPPLIER PROPOSAL		JMBS APPROVAL	
Date		Date	
Name		Name	
Singature (Sales Rep.)		Singature (Purchasing Rep.)	

- Change overview sheet



Revision	Date	Change description	Prepared by	Approved by
A	2021-07-29	Creating the document	Anna Blimer	Grzegorz Niedzielski
B	2022-09-16	Updating requirements for DMC, requirement of PO nr need to be added on label	Marcin Halama	Grzegorz Niedzielski