

<b>VSeA Packaging Standard</b>	
<b>WI0071</b>	<b>Version 1.0</b>

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## 1. Introduction

This document outlines all the packaging implications for sourcing of parts and describes the Valeo Siemens eAutomotive (hereinafter referred as “VSeA”) specific packaging requirements. It reveals all cost elements that should be identified and integrated as part of the piece price.

This document also references supporting documents and sources, which may be useful during a VSeA procurement process.

Any deviation from these instructions must be authorized in advance by the VSeA Logistics Team.

## 2. Scope of application

These instructions refer to packaging and quotation requirements for serial delivery only. In phases prior serial delivery (e.g. prototypes and samples) these instructions are by agreement not entirely to adopt.

Serial Delivery (incl. C- and D-Sample) shall mean the delivery of any products except for A- and B-samples in accordance with the definition of VDA recommendations.

## 3. Quotation requirements

When responding to a VSeA procurement request during an early supplier involvement the quotation should include all elements of packaging and freight costs, as listed in Appendix 2 & 3. Cost elements may vary depending on the geographical location of the supplier’s plant. This guideline includes different cost scenarios for following supplier locations:

- Local and European based Suppliers
- ‘Rest of World’ based Suppliers

VSeA owns production plants in Europe (France, Germany, Hungary, Poland) and China (Changzhou, Changshu, Tianjin, Shenzhen). Therefore the geographical region of the VSeA production plant must be considered by the corresponding supplier in order to choose the proper packaging option.

## 4. Packaging strategy

VSeA Packaging Strategy is defined as returnable packaging (hereinafter referred to as “Standard Packaging”) throughout the Local and European supplier base and expendable packaging for supplier base identified as ‘Rest of World’. The packaging selected may be a property of VSeA or a box/container belonging to the Supplier which is approved by VSeA.

The function of packaging is to preserve parts quality by protecting the components and comply with VSeA safety rules, with the highest fill rate for transport. This includes the number of parts per unit of packaging and the standard sizes in order to optimize the filling rate loading by vehicle or by container. In that context, the Supplier must take all necessary measures to guarantee a delivery without damages, i.e. corrosion, moisture, in clean packaging.

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In general packaging has to be defined considering ecological, economical, safety and quality criteria which are among other things designed to avoid transport damages, to reduce handling efforts, to optimize logistics costs and to reduce the amount of packaging types shipped to and handled by VSeA.

The supplier has to prepare the packaging proposal and agree it with the respective VSeA plant. Packaging proposals must be reflected as detailed and accurate as required in the “Packaging Specification” Data Sheet attached in the procurement process. The Data Sheet shall be approved by VSeA in the framework of the Component Review, and in any event no later than at the PPAP-release.

The supplier is always responsible for ensuring part quality up to point of use.

## 5. Packaging types

### 5.1 Standard packaging

Packaging owned and provided by VSeA which can be used multiple times for numerous kinds of parts. Supplier can select from a basic range of various packaging sizes (see [Appendix 1](#)).

Standard Packaging should always be the preferred option. In case shipment in VSeA Standard Packaging is not possible due to specific part geometry or characteristic, please contact the VSeA Logistics Team.

### 5.2 Expendable packaging

In some cases, for economical reasons, as back-up packaging or generally for shipping overseas, cardboard packaging is used. It is used once and then will be discarded or the material will be recycled. It is the supplier's responsibility to design packaging on the basis of VSeA requirements for expendable packaging and to bear the costs.

### 5.3 Back-up packaging

As requested in the SVRF, back-up packaging is mandatory for suppliers in the early project phase. If VSeA for any reason cannot supply enough Standard Packaging, the supplier is allowed to pack parts in back-up packaging. The Supplier needs an approval from VSeA for releasing the Alternative / Back-up Packaging. This is however only valid if following conditions are met:

- Responsible Logistics and Material Planner at VSeA are informed well in advance
- Back-up packaging complies with the requirements for Expendable Packaging
- Quantity of parts per unit must be equal to standard packaging out of ordering reasons
- Back-up packaging is defined from supplier and approved by VSeA
- The costs for back up packaging is overtaken by the party which is responsible for the lack of standard packaging

## 6. Packaging requirements

### 6.1 Packaging requirements for standard packaging

All parts that enter production at a VSeA have to meet the following specific packaging requirements.

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### 6.1.1 Cleanliness requirements

VSeA plants require a special cleanliness. For example paper, cardboard or wood which could possibly contaminate the production facility with dust and moisture are not allowed - even as inner packaging material. The loading unit has to be wrapped in foil due to cleanliness requirements.

### 6.1.2 Protection against physical damage

Additional protection against impacts and vibrations that may cause any damage to the material when provided Standard Packaging is not sufficient enough, is the supplier's responsibility (e.g. trays, cushioning or dunnage).

### 6.1.3 Stackability and weight requirements

- All packaging and handling units should be stackable (minimum 1+1). If part configuration or weight requirements do not permit stacking, prior approval is required from the VSeA Logistics Team. Every Handling Unit needs to be strapped.
- Maximum height of handling unit is 1000 mm
- Maximum weight per handling unit is 500 kg
- Maximum weight of a packaging unit (including packaging material) is 12 kg

### 6.1.4 Electrostatic Discharge protection

ESD-sensitive parts are only allowed to get in contact with ESD protective packaging which meet DIN EN 61340-5 -1/-2/-3 requirements (e.g. anti-static packaging material).

### 6.1.5 Moisture and anti-corrosion protection

When corrosion of the part is a risk, corrosion inhibiting materials (e.g. VCI bags) and protection against moisture (e.g. dry bags) are required. The design of the moisture and anti-corrosion protection is under the supplier's responsibility. VSeA has to approve.

### 6.1.6 Packaging loop

For any new projects VSeA will provide the returnable standard packaging (small load carrier or specific containers for big sized parts).

VSeA and the Supplier will jointly define the number of returnable containers required for the loop based upon lead times, delivery frequency, inventories and consumption rate. VSeA and Supplier will set up strict inventory management for incoming and outgoing containers. VSeA will in no case fund returnable containers beyond the agreed loop size. This is also valid for returnable special load carriers (e.g. trays, [see 6.3](#)).

The Supplier cannot use these returnable containers for any other flow than for deliveries to the VSeA site. They should also not be used for:

- The inner production circulation
- The intermediate storage of half-finished parts
- Stockpiling
- Providing of sub-suppliers

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If the supplier would need additional packaging to manage other usages, the Supplier has to buy its own boxes and make sure that the two packaging loops will never be mixed. The supplier has to ensure a strict inventory control of this additional loop. VSeA will never compensate for the loss of this supplier-owned packaging.

The legal owner of the packaging shall be responsible for the cleaning, maintenance and repair of the carriers and bear all related costs. If the packaging is dirty and could possibly contaminate the quality of the part or production facility, then the VSeA Logistics Team is immediately to be informed for further instructions.

If Standard Packaging is damaged in such a way that part protection and stackability is not guaranteed, then it is classed as damaged. Do not ship parts using a damaged container. In any case of damaged containers, please contact the VSeA Logistics Team.

By default the empty containers are delivered to the supplier’s production location.

Should a supplier be classified as ‘Rest of World’ based Suppliers, but has a local distribution center referring to the location of VSeA production plants, VSeA will provide Standard Packaging to support the delivery loop between the local distribution center and the VSeA production plant only.

In case of a stock-out of returnable containers, the Supplier must contact the responsible VSeA Logistics Planner who can authorize deliveries with back-up packaging. Supplier is responsible for securing the deliveries.

## 6.2 Packaging requirements for expendable packaging

### 6.2.1 Cardbox requirements

- Supplier must ensure that cardboard quality and thickness is sufficient to protect the shipped goods against any kind of transport damages
- Cardboard boxes with removable covers or lids are mandatory (e.g. FEFCO 0306), boxes with flaps are forbidden (e.g. FEFCO 0201)
- Cardboard sizes must be modular to standard sized pallets (see 6.2.2)
- Weight and stackability requirements (as defined in 6.1.3) must be fulfilled

### 6.2.2 Pallet requirements

- All parts shall be delivered on EURO pallet (1200x800 mm) or Over Sea pallet (1140x760/790 mm) 4-way entry pallets or equivalently sized 4-way entry boxes/containers
- Other pallet sizes require permission by the VSeA Logistics Team
- No packaging materials may overhang the pallet
- Wooden material must follow ISPM 15 regulations and must be marked with the “IPPC” logo
- Weight and stackability requirements (as defined in [6.1.3](#)) must be fulfilled
- The Handling Unit needs to be wrapped in foil due Cleanliness Requirements. (Top and all 4 outer Faces)

### 6.2.3 Common considerations for Expendable Packaging

- Expendable packaging shall be designed with consideration given to ease of handling and the repacking into VSeA Standard Packaging (see chapter [6.3](#))
- Expendable packaging will not be accepted for Local/EU suppliers unless benefits are proven by business case over Standard Packaging
- Crates and wooden boxes shall always be avoided

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- All expendable packaging materials shall be legally and economically recyclable or disposable
- Customized pallets will not be accepted for Local/EU suppliers. EURO Pallet is requested (1200x800 mm).

### 6.3 Special Load Carrier (Tray/Inlay)

A special load carrier is generally a durable inner packaging made of a specific type of plastic material and shall be designed to ensure part stability during transport and protection from other potential damages.

Special load carriers are to be designed, developed and purchased by the supplier and shall be included in the part price, but need to be released by VSeA team.

Easy handling and a high packaging density are required for special load carriers and poka yoke needs to be fulfilled. The VSeA logo and the VSeA load carrier number must be integrated in the special load carrier (packaging number of supplier can be added if requested).

For some parts, the use of ESD protective packaging is mandatory. ESD suitable packaging must be provided for electronic components, in order to assure a continuous ESD-protection. The supplier shall investigate what form of protection is the best for the component.

### 6.4 Materials

Supplier shall consider following important remarks for certain packaging materials or packaging components:

Wood	Wood based packaging material for shipments have to meet ISPM 15 regulations
Paper	Waxed or oiled papers should be avoided
Composite packaging materials	Not allowed for expendable packaging due to recycling issues
Styrofoam	Not allowed for packaging due to the VSeA cleanliness requirements
Loose fill materials	Loose fill materials are not allowed
VCI materials	Ensure that used VCI materials are suitable for regular recycling
PVC	Not allowed due to environmental issues and disposal costs
Straps	Only use plastic PET or PP straps
Tape	Tape should not limit the recyclability of material
Edge protection	Do not use metal edge protection

### 6.5 Continuous Improvement

VSeA and Supplier will agree to a periodic meeting schedule, at least, one meeting will be held each year and will deal with packaging matters.

VSeA will require Supplier to provide VSeA with at least an annual a continuous improvement plan that will at least focus on the following objectives:

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- Improving the delivery performance
- Reducing delivery and internal production lot sizes
- Packaging improvement and adaptation

## 7. Appendices

### 7.1 Appendix 1 – Range of Standard Packaging



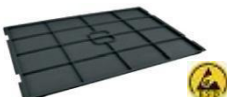
#### Standard Container

	Type	Inner dimensions (with lid) (LxWxH in mm)	Outer dimensions (LxWxH in mm)	Volume (l)	Tare Weight (kg)	Min. units per layer	Max. units per pallet
	RL-KLT 3115 RL-KLT 3147	243x162x129.5 (119.5)	300x200x147	5.3	0.63	16	96
	RL-KLT 4047 RL-KLT 4147	345x260x129.5 (119.5)	400x300x147	11.8	1.20	8	48
	RL-KLT 4280	346x260x262 (252)	400x300x280	24.1	1,70	8	24
	RL-KLT 6047 RL-KLT 6147	544x359x129.5 (119.5)	600x400x147	25.7	2.00	4	24
	RL-KLT 6013	544x359x195 (185)	600x400x213	38,9	2.54	4	16
	RL-KLT 6080 RL-KLT 6280	544x359x262 (252)	600x400x280	51.9	2.95	4	12

 = ESD-Characteristics optional. In PL Power Electronics mandatory as standard


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**Cover Lids for Container**

	<b>Used for Type</b>	<b>Dimensions (L x W in mm)</b>	<b>Tare Weight (kg)</b>
	RL-KLT 3115 RL-KLT 3147	279x198	0.1
	RL-KLT 4047 RL-KLT 4147 RL-KLT 4280	396x297	0.3
	RL-KLT 6047 / 6080 RL-KLT 6147 / 6280	594x396	0.7


 = ESD-Characteristics optional. In PL Power Electronics mandatory as standard

**Plastic Pallet**

<b>Plastic Pallet (ESD)</b>		
Dimension:	1200 x 800 x 155 mm (L x W x H)	
Tare Weight:	15 kg	
Design:	3 skids, closed upper surface with retaining edge	
Material:	Polypropylene (PP)	
Static load:	3500 kg	
Dynamic load:	1500 kg	

 = ESD-Characteristics optional. In PL Power Electronics mandatory as standard

**Lid for Pallet**

<b>Lid for Plastic Pallet</b>		
For Basic Dimension:	1200 x 800 mm (L x W)	

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Outer Dimensions:	1210 x 810 mm (L x W)
Tare Weight:	5.5 kg
Design:	Suitable for all Standard Packaging Units Four strapping grooves
Material:	Polypropylene (PP)

### Large / Heavy Load Carriers



Light Box (ESD)		
Suited for Dimension:	1210 x 810 x xxx* mm (L x W x H)	
Inner dimension:	1160 x 760 x xxx* mm (L x W x H)	
Tare Weight:	~ 35* kg	
Design:	Loading unit parts: Pallet, sleeve, lid foldable Opt.: Click bracket, runners/bases, tension belt	
Material:	Polypropylene (PP) (dischargeable)	

 = ESD-Characteristics optional. In PL Power Electronics mandatory as standard

\* = variable ring-height-options. Depends on Packaging Concept

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**7.2 Appendix 2 – Packaging and Delivery Cost Elements for Local & European Suppliers**

	Option 1 (Standard)	Option 2 (Exceptional)
<b>Packaging Type</b>	Returnable Packaging	One Way / Back Up Packaging
<b>Instruction</b>	<p>Due to specific cleanliness and ESD requirements at VSeA production plants, supplier's parts have to be packed in VSeA owned and returnable standard packaging.</p> 	<p>If VSeA Standard Packaging is not a suitable option, One Way Packaging can be chosen by business case.</p> 


<b>Packaging Strategy</b>	Returnable	Expendable
<b>Owner of Packaging</b>	VSeA	Supplier
<b>Delivery Terms</b>	FCA (named Supplier site) & DAP (named VSeA site)	FCA (named Supplier site) & DAP (named VSeA site)

Cost Elements	Direct Cost Elements to be included in Supplier's Quotation	
<b>Freight Costs</b>	Freight Costs for delivery loop	One Way Freight Costs
<b>Packaging Costs</b>	Inner packaging material (e.g. trays)	One Way Packaging Costs (e.g. cardboard)
	Expendable dunnage and cushioning	Inner packaging material (e.g. trays)
	Load Securing and bundling costs (e.g. banding, shrink wrapping)*	Expendable dunnage and cushioning
		Load securing and bundling costs (e.g. banding, shrink wrapping)*

<b>Exclusions</b>	VSeA will provide containers to support a delivery loop only. This does not include any stock-holding, batch building or WIP containers - to support these activities the suppliers will need to fund their own containers.
	VSeA will fund Standard Packaging for the supplier's final assembly location only.
	Handling units have to be strapped & wrapped in foil due to cleanliness requirements. This procedure is binding for Standard and One Way Packaging

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**7.3 Appendix 3 – Packaging and Delivery Cost Elements for ‘Rest of World’ Suppliers**

<b>Packaging Type</b>	One Way Packaging
<b>Instruction</b>	<p>Expendable Packaging is used once and then discarded or the material will be recycled.          All expendable packaging materials shall be legally and economically recyclable or disposable.          Crates and wooden boxes shall always be avoided.</p> 

<b>Packaging Strategy</b>	Expendable
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<b>Owner of Packaging</b>	Supplier
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<b>Delivery Terms</b>	FCA (named Supplier site) & DAP (named VSeA site)
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<b>Cost Elements</b>	<b>Direct Cost Elements to be included in Supplier's Quotation</b>
<b>Freight Costs</b>	One Way Freight Costs
<b>Packaging Costs</b>	One Way Packaging Costs (e.g. cardboards, pallet)
	Inner packaging material (e.g. trays)
	Expendable Dunnage and Cushioning
	Load Securing and bundling costs (e.g. banding, shrink wrapping)

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<b>Exclusions</b>	Should a supplier be classified as 'Rest of World' based Supplier but has a local distribution center referring to the location of VSeA production plants, VSeA will provide returnable standard packaging to support the delivery cycle between the local distribution center and the VSeA production plant only.
	If business case shows benefits from Standard Packaging over Expendable Packaging. VSeA can deviate from this declared suggestion.
	Handling units have to be strapped & wrapped in foil due to cleanliness requirements. This procedure is binding for Standard and One Way Packaging.

## 8. List of Abbreviations

DIN	German Institute for Standardization
ESD	Electrostatic discharge
EU	European Union
IPPC	International Plant Protection Convention
ISPM	International Standards for Phytosanitary Measures
PET	Poly-Ethylene Terephthalate
PP	Polypropylene
PPAP	Production Part Approval Process
WIP	Work In Progress
VCI	Volatile Corrosion Inhibitors
VDA	German Association of the Automotive Industry
VSeA	Valeo Siemens eAutomotive