



BRIGHT MINDS,  
BRIGHT LIGHTS.



## **Packaging Guideline for Suppliers of**

**ZKW Lichtsysteme GmbH,  
ZKW Slovakia s.r.o.,  
ZKW Lighting Systems (Dalian) Co., Ltd.,  
ZKW México S.A. de C.V.**

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## **OBJECTIVES OF THE PACKAGING GUIDELINE FOR SUPPLIERS**

This document aims to communicate the packaging guidelines of ZKW Lichtsysteme GmbH to the suppliers involved in a cooperative manner.

Its purpose is to standardize and limit the types of packaging used.

An optimized packaging design as well as standardized dimensions and loading units aim to ensure the quality of the delivered articles and prevent additional efforts.

## 1 List of abbreviations

6M-SOP	6 Months after Start of Production
AKL	Automatic Small-parts Warehouse
ASN	Advanced Shipping Notice
DIN	Deutsches Institut für Normung (German Standardisation Organization)
EDI	Electronic Data Interchange
EN	European Standard
EPP	Expanding Polypropylene
ESD	Electrostatic Discharge
EW	Einweg - Disposable
ID	Identification
IPPC	International Plant Protection Convention
ISPM	Internationaler Standard für Pflanzengesundheitliche Maßnahmen für Verpackungsmaterial aus Holz im internationalen Handel (International Standards for Phytosanitary Measures)
IV-System	Information Processing System
LAB	Delivery Schedule
LGP	Logistics Planning
MW	Mehrweg - Reusable
PE	Polyethylene
PP	Polypropylene
PPS	Production Planning System
PS	Polystyrene
SCM	Supply Chain Management
VDA	Verband der Automobilindustrie (German Association of the Automotive Industry)



## 2 Introduction

This guideline was developed to standardize the number of packaging types, to limit the increasing number of variants, to minimize the associated freight costs at the different sites, including the modes of transport, and to adapt these to local market conditions.

In conjunction with standardized dimensions and coordinated quantities in every loading unit, an optimized design and selection of containers and packaging is aimed at pursuing the following goals:

- Ensuring article quality
- Compliance with cleanliness standards
- Prevention of the loss of cargo space
- Ensuring economically feasible storage
- Minimizing the order picking efforts
- Minimizing the handling efforts
- Consistently using the containers delivered right through to the assembly line
- Minimizing the increasing number of diverse packaging

Irrespective of the chosen packaging type, the supplier must meet the following requirements:

- Avoidance of an in-transit loss of quality
- Creation of economic loading units
- Compliance with ZKW's cleanliness requirements
- Optimum utilization of containers
- Securing the loading units in transit
- Ensuring stackability
- Compliance with the specified standard dimensions
- Handling-friendly parts removal (especially in the case of special parts, the position in which they must be placed in the packaging, e.g. electronic components)
- Use of recyclable packaging material
- Preferential use of reusable packaging with lids
- Reduced use of disposable packaging materials

This guideline is in effect and supersedes all previous versions.

## 3 Packaging

### 3.1 General

A distinction is made between reusable (MW) and disposable (EW) packaging depending on the supplier and ZKW location (see table below):

		Supplier site			
		Europe	Asia	America	Others
ZKW site	Europe	MW	EW	EW	EW
	Asia	EW	MW	EW	EW
	America	EW	EW	MW	EW

#### 3.1.1 Material selection

Abrasion resistance is the most important criterion for material selection with the aim of avoiding particle emissions (preferred materials are PE and PP)!

- Do not use packaging made of cardboard, wood, polystyrene, corrugated cardboard, compressed wood chips or similar materials.
- Pallets to be made of plastic (except for overseas transport)
- Do not use any additional padding or cushioning material (such as polystyrene flakes,...).
- Use plastic films, plastic nonwovens, waterproof films, plastic trays, bubble wrap, foam or equivalent as interlayers.

To ensure consistent ESD protection (from the supplier to ZKW), ESD- compliant packaging must generally be provided for electronic components. Contact Project Purchasing and Quality Engineering to discuss any non-conformities.

EPP trays and thermoformed trays must be designed in such a way that EPP and thermoformed lids can be used, which are ZKW Standard lids (4.3 Catalog of standard ZKW packaging containers for packaging provided). ZKW will provide the technical details of box lids needed to design the corresponding containers.



### 3.1.2 Size and weight selection

The top priority when selecting the size of containers is to utilize preferably 100% of the loading volume while considering the max. gross weight (see below) and the batch size agreed on with ZKW depending on the average monthly requirement (4.2 Link to packaging datasheet).

Please note that **every** box must be provided with the right lid → 4.3 Catalog of standard ZKW packaging containers for packaging provided

In order to avoid packaging waste wherever possible, the packaging volume and weight should be reduced to the absolute minimum required to protect the goods. Reusable packaging further minimizes the waste of materials.

For the above reasons, reusable packaging should always be given preference. The proportion of disposable packaging materials shall be kept at a minimum. Sustainable recycling of reusable and disposable packaging materials must be ensured. In order to meet the requirements of the Packaging Regulation and to avoid unnecessary burden on the environment, only environmentally compatible materials are to be used and the statutory provisions are to be complied with.

Repackaging and handling efforts are to be avoided, therefore the container delivered should support automated storage and withdrawal for supply at the assembly line. Therefore, the following standard dimensions of loading units (including the pallet and pallet cover) must not be exceeded:

L x W x H [mm]: 1200x800x1100

Also consider the following weight limits:

- The maximum gross weight for small load carriers is 15 kg (except all load carriers with size of 400x300 mm).
- The maximum gross weight for load carriers 400x300 mm is 14 kg.
- The maximum gross weight of large load carriers (including pallet) is 500 kg.

Refer to section 4.3 Catalog of standard ZKW packaging containers for packaging provided for standard container sizes.

Already in the RFQ phase (initial offer), the supplier is required to take into account the specifications according to the packaging guidelines when selecting the type of packaging with regard to material, size, weight, degree of filling, etc. If, after nomination of the supplier, it turns out that the offered packaging, which among others, is the basis of the award of contract, does not comply with the packaging guideline of ZKW, the supplier shall bear the costs for this.

The supplier must allow for simple changes in packaging up to 6M-SOP (e.g., from large to small AKL container, from small folding box to large AKL container, or from large to small folding box, etc.) without additional costs.

### 3.1.3 Container filling

Only one part number may be placed in a container. Please note that this includes the delivery of left and right parts in separate containers.

When using inner packaging (blisters, trays, compartments, etc.), the height must be selected so that the container is completely filled (i.e. the height of the individual layers must be adapted to the max. inner height of the container). This is to ensure optimum protection of the parts. Delivery of sorted material is standard and also defined in the packaging data sheet. A delivery of small-volume quantities shall be agreed on separately.

### 3.1.4 Container marking and labeling

In case the supplier provides packaging not owned by ZKW, the supplier must clearly and obviously mark the packaging with an ownership mark. ZKW will be unable to ensure a proper return if there is no clearly recognizable property marking.

Containers owned by ZKW are clearly marked with "Property of ZKW" as well as a container number. The unique code for any kind of reusable packaging developed by supplier is created by ZKW and is sent to supplier directly after the single packaging item has been approved (after sending the drawing including dimensions and weight of packaging item). The supplier is then required to mark this packaging with this code in a visible place.

In order to avoid confusion of parts in the process, each container and/or the transport unit must be marked with a goods tag (with barcode) for identical parts in accordance with VDA 4902 version 1.3 (June 2021). The following information must be affixed to the goods tag from the first delivery onwards:

- Goods recipient (attention of xxx)
- ZKW unloading site
- Delivery note number (plain text and barcode)
- ZKW part number (plain text and barcode)
- ZKW designation
- Content capacity (plain text and barcode)
- Batch number (plain text and barcode)
- Supplier number (plain text and barcode)
- Date
- Design revision date (index)



The size of the label may vary depending on the packaging size and possibly also on the different ZKW plants where it is used. The following list shows the possible label dimensions based on packaging size:

- A5 210 mm x 148 mm → Only used for pallets, not for containers
- A6: 152,4 mm x 101,6 mm bzw. 148 x 105 mm
- KLT1: Label for small load carriers (KLT) 210 mm x 74 mm
- KLT 2: label for flat packages 210 mm x 42 mm


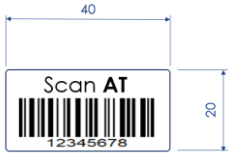
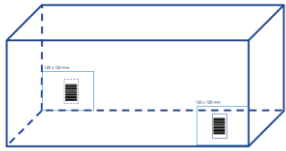
Every container must have a legible label on it, either in a pouch or in a fixture designed for this purpose. Metal rods or clips to attach the labels to the container are not permitted. VDA adhesive dots may also be used to securely attach the labels to the containers. Adhesive labels must not be used. All old labels (such as the customer-internal inspection notes, VDA goods tags or equivalent) must be removed by the supplier before loading the empty goods. Please refer to 4.3 Catalog of standard ZKW packaging containers for packaging provided to know the specified location of labels on a container. For easy identification during goods receipt, the label should also be visible when the packaging is stacked. Furthermore, it must be ensured that no container IDs (barcode) are covered by the label in order to guarantee the scanning process.

**Exception ZKW Slovakia s.r.o.:** All supplier labels must be firmly and completely attached to the packaging with a non-invasive adhesive surface or attached by means of adhesive dots without leaving any space between the packaging unit and the label.

### 3.1.4.1 Fixed barcode labels

**Exception ZKW Lichtsysteme GmbH and ZKW México S.A. de C.V:** Due to the fully automated warehouses in Wieselburg, AT and Silao, MX and in order to ensure automated parts identification, all containers must be provided with at least two barcode labels. These barcode labels are in addition to the standardized VDA label (mentioned above). Thus, all ZKW containers are provided two or in some cases four labels by ZKW, which must not be removed under any circumstances. There are no activities required from the supplier.

The following table shows the details of the labels as well as their content and positioning.

		
<p><b>standard label</b> width: 40 mm height: 50 mm code type: C128 [C] content: 2 digits container type, 6 digits index</p>	<p><b>label for low containers</b> width: 40 mm height: 20 mm code type: C128 [C] content: 2 digits container type, 6 digits index installation: if the height is less than the standard label</p>	<p><b>container positioning</b> twice per container adhesive area: 120x120 mm on the longitudinal side of the box</p>

Regardless of the container type, the barcode label is always on the two long sides or in the case of quadruple labeling, then on long and shorts sides.

**Exception ZKW Slovakia s.r.o.:** The barcode labels are always placed on two opposite sides, depending on the container type, the labels are placed on the long or short sides of the container.

Due to different positions of the barcode labels between Wieselburg and Krusovce, it can be possible to have up to six barcode labels on containers. No barcode labels must be removed under any circumstances. Furthermore, the supplier must make sure that these barcodes remain visible when placing the VDA-labels on the boxes.

### 3.1.5 Cleaning

The supplier is responsible for filling clean and dry containers only.

Generally, reusable containers must not be lined with plastic bags. Exception: Reusable containers used for greased articles must be lined with a plastic bag in order to avoid contamination, or special containers must be used that are only approved for the transport of these products. The supplier shall procure these PE bags and will not be provided by ZKW.

Production in "dust reduced" environments calls for special cleanliness requirements for the components to be processed. The specific standards defined for this purpose must also be met by purchased parts.

In these cases, it should be noted that the suppliers' production processes must ensure that the components are never exposed to dust or dirt at any time that might reduce the quality. If this proves to be impossible, the supplier must take appropriate protective and preserving measures (by selecting and designing the packaging with storage and transport in mind).

In order to meet this situation in the best possible way, it is necessary to define and specify the packaging for each article depending on the required level of cleanliness. Load carriers are provided and/or shipped in cleaned conditions. In case load carriers fail to meet the quality requirements of the material transported in them, the supplier must carry out further cleaning measures at his own expense (e.g. washing or wiping out the container, ...).

### 3.1.6 ESD packaging and corrosion protection

ESD is short for "Electro Static Discharge". It is caused by the exchange of charge between two bodies with different voltage potentials. The warning symbol for components at risk of ESD (see appendix) must be stuck or embossed on the packaging so that it is clearly visible.

ESD can cause invisible damage to electronic components.

Note that all elements of the packaging (containers, boxes, trays, cover, interlayers, etc.) that might come into contact with electronic components as well as the load carriers in which they are transported must be antistatic and conductive.



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**Exception ZKW Slovakia s.r.o.:** In case of an ESD special requirement – pallets and lids would need to be antistatic and conductive.

In order to guarantee continuous protection, the entire loading unit (including the carrier for electronic parts) must be packaged in a conductive manner. Each individual packaging component must be marked accordingly with the ESD hazard warning in conformity with DIN EN 61340-5-1:201707 Hazard warning sign for ESD susceptible parts on it.

Conductive materials are divided into four categories:

### **Shielding materials (less than $10^3$ Ohms)**

These materials act like a Faraday cage by completely preventing or attenuating the passage of current. Most shielding materials contain a conductive metal or carbon element; this is also specified as the preferred solution for the packaging of individual prints.

### **Conductive materials (between $10^3$ and $10^5$ Ohms)**

They have a low resistance and therefore ensure that the charge is dissipated quickly. They are specified for most electronic components such as prints transported in multipack blisters.

### **Dissipative/antistatic materials (between $10^6$ and $10^{11}$ Ohms)**

These materials equalize differences in potential within a relatively short time. They are well suited for components already containing electronic parts, thus improving their protection.

### **Insulating materials**

They feature a high surface resistance of no less than  $10^{12}$  Ohms and are difficult to ground. Static charges will remain in one place of these materials without any dissipation.

Long shipping and provisioning times under extreme fluctuations in temperature and humidity can cause serious corrosion damage, particularly in overseas containers. International shipments must therefore take appropriate measures for corrosion-protection.

## 3.2 Reusable packaging

### 3.2.1 Provisioning of packages

In cases where ZKW has agreed on to provide the packaging, the packaging volume will be specified and purchased as agreed in the packaging datasheet, based on lot sizes, safety stocks and shipping time. The agreement to provide the supplier with packaging shall only apply for circulation between ZKW and the supplier, but not for the supplier's internal use or for third parties (sub-suppliers). If delivery is not possible in the defined packaging, this must be agreed with ZKW in due time.

For purchased parts (e.g., electronics), the supplier develops the packaging and is thus also responsible for ensuring that the parts supplied suffer no loss of quality due to the packaging.

If the supplier is responsible for packaging development and procurement, the supplier must coordinate this with the person responsible for packaging planning of ZKW as follows:

### Process of packaging alignment and procurement (development of packaging concept by supplier)

Step	Activity	Responsibility Supplier	Responsibility ZKW
1	Forwarding CAD data		X
2	Development of packaging concept	X	
3	Alignment of packaging concept	X	X
4	Announcement of loading carrier ID (must be visible on the packaging)		X
5	Approval of packaging concept		X
6	Handover of samples (2 pieces)	X	
7	Validation and approval		X
8	Fill Packaging Data Sheet (base for purchase of series quantity)	X	
9	Approval of Packaging Data Sheet		X
10	Supplier provides planned procurement quantity of packaging for series production	X	
11	Validation and approval of procurement quantity of packaging for series production		X
12	Procurement of series quantity	X	
13	Transmission of delivery notes of packaging quantities	X	

The planned procurement quantity must be coordinated by the supplier with the GPC responsible for the project (10-11), whereby the quantity may not exceed that in the packaging data sheet. Only after approval by the GPC may the order for packaging procurement be triggered.

The supplier is obliged to send the delivery notes (13) of the delivered serial quantity(s) immediately and without request to:

<b>ZKW Lichtsysteme GmbH</b>	GPC (project dependent) Packaging-development@zkw.at Packaging-management@zkw.at
<b>ZKW Slovakia s.r.o.</b>	Lucia.Masarykova@zkw.sk packagingdisponents@zkw.sk
<b>ZKW Lighting Systems (Dalian) Co., Ltd.</b>	GPC (project dependent)
<b>ZKW México S.A. de C.V.</b>	Daniel.Vega@zkw.mx

without delay. This serves to ensure correct management of the packaging material accounts in the interest of both parties.



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In case ZKW does not provide either outer or inner packaging, the supplier is required to use the packaging according to ZKW-owned container dimensions. (see 4.3 Catalog of standard ZKW packaging containers for packaging provided).

The demand of reusable containers, which is based on the existing delivery schedules, can be requested maximum 14 days in advance and it must be requested at least 7 days in advance from the ZKW container management. The maximum requestable packaging quantity provided by ZKW is specified in the supplier packaging data sheet.

Any excess product-specific load carriers in the process (average daily pieces to peak amount) must be buffered at the supplier (except packaging which is provided by ZKW – see 4.3 Catalog of standard ZKW packaging containers for packaging provided). The ZKW container management must be informed if there are no forecast figures for components in these load carriers. From this point on, the load carriers must be stored by the supplier under the mentioned conditions.

The supplier shall not misuse the empties for covering their internal production circulation or circulation with sub-suppliers and shall not keep a stock in excess of the currently scheduled delivery.

In order to keep track of the circulating containers in the container accounts as well as the additional reusable packaging materials (e.g. interlayers, plastic lattices, ...), it is mandatory that the shipping documents state the type and quantity of empties in every delivery to ZKW. The supplier must check the empties provided against the type and quantity stated on the delivery note.

After EOS, ZKW (Purchasing) shall agree with the supplier on the quantity of reusable containers that are still required to eliminate the binding of storage capacities for empty containers that are no longer needed. This also comes into effect if a permanent, significant decrease in the call-off quantities has occurred in the series delivery.

**Approving of (substitute) packaging materials does not relieve suppliers of their responsibility of proper parts deliveries.**

### 3.2.2 Warehousing of packaging provided

Empty packaging provided must be stored in covered areas by the supplier. In addition, it must be ensured that contamination with materials that are not suitable as packaging materials (cardboard, fillers...) is excluded.

EPP trays for return deliveries to ZKW must be collected in an upside-down position on pallets, sorted by type, and stored under a roof (in a dry place). One-way packaging components are to be disposed of. Empties shall be handled by container return (exchange) with each shipment.

### 3.2.3 Container accounts

ZKW sets up an account to keep track of every inward and outward movement of every reusable packaging.

Reusable packaging is provided with an identification number. Stock movements of all load carriers will be listed, and their stock taken at the end of every month. These reconciled container accounts are checked and discrepancies, if any, shall be reported within 14 days by submitting a copy of the delivery note for evidence.

If ZKW does not receive a response to the reconciliation, the stocks shall be irrevocably deemed confirmed and legally valid. Both parties mutually benefit from the packaging accounts being accurate. A timely and sufficient supply of empties can be provided in due time only if the recorded packaging stock matches the actual stock at hand.

### 3.2.4 Stocktaking / inventory control

In order to keep track of the container circulation in the container accounts, it is mandatory that the shipping documents state the type and quantity of empties in every delivery to ZKW. This also applies to additional reusable packaging materials (e.g., interlayers, plastic lattices, ...)

**Exception ZKW Lichtsysteme GmbH:** Type and quantity of empties is needed on the shipping documents. It does not apply to reusable inner packaging (e.g., interlayers, plastic lattices, ...).

The packaging stock shall be counted at least twice a year at the request of ZKW's Container Management. It is mandatory to physically record the packaging stock. All documented stock levels are deemed accepted if there is no response.

If discrepancies are found to be caused by the loss of or damage to containers owned by ZKW, the costs of procuring replacement resources shall be invoiced to the party responsible.

### 3.2.5 Complaints

All deliveries of containers in need of repair should first be discussed with ZKW's competent departments. In case damaged containers are supplied with goods in them, such shipments shall be confirmed by the carrier and immediately reported to ZKW's competent department.

The parties will then cooperate to decide on the return or disposal of the containers concerned and the correction of accounts.

### 3.2.6 Substitute packaging and extra handling efforts

The use of alternative packaging must be justified in writing (e.g. pre-series start-ups, extraordinary lead times, short-term increases in delivery call-offs, etc.) and coordinated in good time with the purchasing parts planner or the container management. A corresponding note, "substitute packaging" or "alternative packaging" shall be added to the delivery note with the details of the contact person with whom the packaging was agreed (name, department code, phone no.).

As alternative packaging, disposable packaging can also be used. The packaging must follow the requirements mentioned in chapter 3.3 Disposable packaging.

Where substitute packaging is required, the supplier may suggest and use a specific type of packaging if so agreed upon with the responsible departments. It must be noted that packaging chosen by the supplier must match the standard dimensions of containers used by ZKW and must be approved by ZKW. The supplier may not cancel shipments due to non-availability of returnable containers or returnable components. The supplier is required to have an adequate stock of alternative packaging to ensure production shipping can continue.

In case the supplier fails to comply the specified (substitute) packaging through the fault of the supplier (e.g., by using the wrong container, dirty packaging, ...), ZKW reserves the right to charge the additional costs of handling, disposal, rejects handling and repackaging to the supplier concerned.



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If substitute packaging is not agreed with ZKW in due time, the extra costs (e.g., of repackaging) will be charged to the supplier.

### 3.3 Disposable packaging

A disposable packaging concept is only allowed if otherwise impossible for economic reasons or if overseas shipments are made. In order to avoid repackaging costs, disposable plastic (corrugated PP) containers with a removable cover are preferred.

The dimensions should match the dimensions of reusable containers (see 4.3 Catalog of standard ZKW packaging containers for packaging provided). Abrasion resistance and dustproof for inner packaging is the key to material selection with the aim of avoiding particle emissions (preferred materials are plastic trays, plastic inserts, EPP trays or equivalent as interlayers or plastic sheets... or their ESD alternatives if necessary). Do not use packaging made of cardboard, wood, polystyrene, corrugated cardboard, compressed chipped wood or equivalent material, any extra padding or cushioning material (such as polystyrene flakes,...).

The bottom of the container must be able to sustain the weight of the components. For improved stability, an interlayer may be added at the bottom. The thickness of disposable packaging materials shall be chosen according to the weight of the packaging container.

Each container shall be closed with a removable lid. ESD packaging must be selected for sensitive parts to prevent electrostatic charging. For overseas deliveries, sufficient desiccant and ISPM/ IPPC pallets must also be used for protection against corrosion. Please ensure that the pallets are stackable, especially for overseas transport.

#### **Exception ZKW Lichtsysteme GmbH:**

After alignment of the packaging with ZKW, the supplier must disclose the composition of all packaging components that make up the packaging unit for recycling reasons.

## 4 Appendix

### 4.1 Goods tag sample in conformity with VDA 4902 version 4

(1) Receiver <b>Musterwerk Musterstrasse 1 A-9999 Musterstadt</b>		(2) Dock - Gate <b>A5-L31</b>	
(3) Advice Note No (N) <b>123456789</b> 		(4) Supplier Address <b>CSS MAW/3, 9999 Musterstadt</b>	
		(5) Net weight <b>345</b>	(6) Gross weight <b>450</b>
		(7) No Boxes <b>01</b>	
(8) Part No (P) <b>1111.222.3333</b> 			
(9) Quantity (Q) <b>140</b> 		(10) Description <b>MUSTERTEIL</b>	
		(11) Supplier Part No (30S) <b>9876.543.210</b>	
(12) Supplier (V) <b>1234</b> 		(13) Date <b>D 190101</b>	
		(14) Eng. Change <b>A43-275 XL</b>	
(15) Serial No (S) <b>2581752 01</b> 		(16) Batch No (H) <b>C 123</b> 	
(17) CSS, POSTFACH 456, 9999 Musterstadt		Warenanhänger VDA 4902, Version 4	

### 4.2 Link to packaging datasheet

<https://zkw-group.com/home/lieferanten/>



### 4.3 Catalog of standard ZKW packaging containers for packaging provided

#### 4.3.1 ZKW Lichtsysteme GmbH

Returnable packaging possibilities:










Type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	development packaging supplier	Label
					L	W	H	L	w	H			
outer packaging	I05	folding box 8645		8,59	760	560	410	800	600	465	x		SS
outer packaging	I09	folding box 6432		3,15	556	356	290	600	400	320	x		SS
outer packaging	I17	AKL box big 6220		3,22	566	366	183	600	400	238	x		LS
outer packaging	I16	AKL box small 4220		1,83	366	266	183	400	300	238	x		SS
outer packaging	I11	ESD-box EF 6220		2,85	545	345	210	600	400	220	x		SS
outer packaging	I0111	ESD-box EF 6120		2,13	559	359	100	600	400	120	x		SS
outer packaging	I49	ESD box EF4170		1,20	352	252	165	400	300	170	x		SS
outer packaging	I50	KTP-box		37,00	1170	770	745	1230	835	945	x		SS
outer packaging	number supplied by ZWK	EPP-Tray Grundabmessungen 800 x 600 mm	 <small>(inner dimension --&gt; cutout for lid)</small>	variable	745	540		790	590	variable		x	SS
outer packaging	number supplied by ZWK	EPP-Tray Grundabmessungen 600 x 400 mm	 <small>(inner dimension --&gt; cutout for lid)</small>	variable	535	335		590	390	variable		x	on lid
outer packaging / inlay	number supplied by ZWK	moulding tray										x	on pallet lid
lid	I47	lid for ESD-boxn EF6220 + EF6120		0,85	560	360	10	600	400	25	x		
lid	I68	lid for ESD box EF 4170		0,50	355	255	10	400	300	25	x		
lid	I59	pallet lid PP lid A-1208		5,00	1200	800	25	1215	810	45	x		
lid	I62	lid for EPP-Tray 800 x 600 mm	 <small>(upper space in box needed for lid: 150 mm)</small>	0,81				790	590	300	x		
lid	I63	lid for EPP-Tray 600 x 400 mm	 <small>(upper space in box needed for lid: 100 mm)</small>	0,39				590	390	300	x		
lid	I53	lid for moulding trays						573	381	21,5	x		
grid		various grids (PE, PP) for several boxes									x		
inner packaging / inlay	number supplied by ZWK	Blister										x	
pallet	I01	Plastic Pallet		16,50				1200	800	155	x		

Type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	development packaging supplier	Label
					L	W	H	L	w	H			
layer	Z00	layer PP03 hard for folding box big I05 material: PP						750	550	3	x		
layer	Z08	layer PP52 hard for AKL small I16 material: PP						360	260	3	x		
layer	Z11	layer PP23 hard for folding box small I09, AKL big I17 material: PP						555	355	3	x		
layer	Z47	layer hard PP-G46 for KTP-box I50 material: PP						1160	760	3	x		
layer	Z55	layer PP-G88 soft/hard/soft for KTP-box I50 material: PE/PP/PE						1160	760	5	x		
layer	Z56	layer PP-G96 soft/hard/soft for folding box small I09, AKL big I17 material: PE/PP/PE						550	350	5	x		
layer	Z57	layer PE123 soft/hard/soft for folding box big I05 material: PE/PP/PE						750	550	5	x		
layer	Z58	layer PP-G93 soft/hard/soft for AKL small I16 material: PE/PP/PE						362	259	5	x		
layer	Z03	layer ESD for ESD-box I11+I0111 material: PP						550	355	3	x		
layer	Z72	layer ESD for ESD-box I49 material: PP						350	250	3	x		

4.3.2 ZKW Slovakia s.r.o.

Returnable packaging possibilities:

Container type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	packaging development supplier	Label
					L	W	H	L	W	H			
outer packaging	I05	Faltbox 8645		8,59	760	560	410	800	600	465	x		SS
outer packaging	I09	Faltbox 6432		3,15	556	356	290	600	400	320	x		SS
outer packaging	I17	AKL Behälter gross 6220		3,22	566	366	183	600	400	238	x		LS
outer packaging	I16	AKL Behälter klein 4220		1,83	366	266	183	400	300	238	x		LS
outer packaging	I11	ESD-Box EF 6220		2,85	545	345	210	600	400	220	x		LS
outer packaging	I49	ESD Kiste EF4170		1,2	352	252	156	400	300	170	x		LS
outer packaging	I74	ESD box + deckel 800x600x320		5,5	760	560	305	800	600	320	x		SS
outer packaging	J73	ESD Box 64/32+Lid_600x400x320		2,62	570	370	315	600	400	320	x		SS
outer packaging	I57	TS Box S1240 SK šedý		35	1195	795	785	1240	835	960	x		LS
outer packaging	defined number by ZKW	EPP-Tray ESD		variable								x	SS
outer packaging	defined number by ZKW	EPP-Tray		variable								x	SS
outer packaging	808	Deckel		3,3	1200	800	35				x		
lis	J05	ESD LID 1208V1 (1200x800)		3,3	1200	800	35				x		
lid	I62	Deckel fur EPP-Tray 800 x 600 mm		0,81				790	590	300	x		
lid	I63	Deckel fur EPP-Tray 600 x 400 mm		0,39				590	390	300	x		
lid	I53	ESD Deckel Plastic Trays						573	381	21,5	x		
grid	grid	diverse Gitter (PE,PP)									x	x	
grid	grid	diverse textile grid		variable							x		





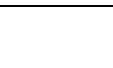
Container type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	packaging development supplier	Label
					L	W	H	L	W	H			
inlay	inlays	Blister										x	
inlay	inlays	blister ESD		variable								x	
pallet	I01	Kunststoffpalette schwarz		16,5				1200	800	160	x		
pallet	I60	H1 ESD Conductive KSP		25				1200	800	150	x		
inlay	Z00	PP-ZWL PP03 8645 grau		0,2				750	550	3	x		
inlay	Z14	PE-ZWL PE07 anthrazit klein		0,1				360	260	4	x		
inlay	Z17	HKP/PE ZWL PE27 AKL klein 750		0,15				360	260	7	x		
inlay	Z52	HKP/PE ZWL PE29 8645 dünn		0,3				750	550	5	x		
inlay	Z53	HKP/PE ZWL PE28 AKL groß dünn		0,2				555	355	4	x		
inlay	Z58	PP-G93 PP/PE-Layer 360x260 Z58		0,12				360	260	7	x		
inlay	Z64	Z64_PP/PE-Layer_1195x785x5		1,2				1195	785	5	x		
inlay	Z59	PP-ZWL PP500 TS purple		0,6				1195	785	4	x		
inlay	Z70	ESD layer 1129 540x350mm		0,2				540	350	4	x		
inlay	Z95	Z95_ESD_PP_Layer_360x260x3		0,1				360	260	3	x		









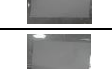
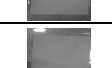


One-way packaging possibilities:

Container type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	packaging development supplier	Label
					L	W	H	L	W	H			
outer packaging		one-way plastic box with cover 800x600x460 or similar dimensions						800	600	460		x	
outer packaging		one-way plastic box with cover 600x400x230 or similar dimensions						600	400	230		x	
outer packaging		one-way plastic box with cover 400x300x230 or similar dimensions						400	300	230		x	
outer packaging		one-way ESD plastic box with cover 800x600x460 or similar dimensions						800	600	460		x	
outer packaging		one-way ESD plastic box with cover 600x400x230 or similar dimensions						600	400	220		x	
outer packaging		one-way ESD plastic box with cover 400x300x230 or similar dimensions						400	300	220		x	
outer packaging		IPPC/ ISPM wooden pallet										x	
inner packaging		one-way plastic layer		variable acc. to used box								x	
inner packaging		one-way plastic insert		variable acc. to used box								x	
inner packaging		one-way blister		variable acc. to used box								x	
inner packaging		one-way ESD plastic layer		variable acc. to used box								x	
inner packaging		one-way ESD plastic insert		variable acc. to used box								x	
inner packaging		one-way ESD blister		variable acc. to used box								x	

### 4.3.3 ZKW Lighting Systems (Dalian) Co., Ltd

Returnable packaging possibilities:

Container type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	packaging development supplier	Label
					L	W	H	L	W	H			
Pallet	P01	Plastic pallet		16,5	1200	800	150	1200	800	150	√		
Container	I05	Faltbox 8645		8,59	760	560	410	800	600	465	√		
Container	I32	KTP Folding PP container		32	1160	760	895	1200	800	1050	√		
Container	I34	Folding plastic box 800*600*335		5,25	765	550	320	800	600	335	√		
Container	I35	Folding plastic box 600*400*335		3,23	560	360	320	600	400	335	√		
Container	I36	Plastic box 400*300*145		0,84	360	260	140	400	300	145	√		
Container	H70	Plastic box 600x400x148		2,42	560	360	152	600	400	167	√		
Container	I46	ESD-Box 600*400*220mm		2,7	570	370	215	600	400	220	√		
Cover	C01	Transparent Cover for I34 box		0,82	745	545	20	745	545	20	√		
Cover	c02	Transparent Cover for I35 box		0,42	550	355	20	550	355	20	√		
Cover	c03	Transparent Cover for I36 box		0,23	345	245	20	345	245	20	√		
Inlay	defined number by ZKW	ESD HDPE Plastic Tray		variable	*	*	*	*	*	*		√	
Inlay	defined number by ZKW	ESD EPP Tray		variable	*	*	*	*	*	*		√	
Inlay	defined number by ZKW	PP+PE Plastic Separator		variable	*	*	*	*	*	*	√	√	
Inlay	defined number by ZKW	Textile Separator		variable	*	*	*	*	*	*	√	√	

Container type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	packaging development supplier	Label
					L	W	H	L	W	H			
Layer	Z21	PE Layer for I36 345*245*4mm		0,1	345	245	4	345	245	4	v	v	
Layer	Z22	PE Layer for I35 550*355*4mm		0,2	550	335	4	550	335	4	v	v	
Layer	Z23	PE Layer for I34 745*545*4mm		0,3	745	545	4	745	545	4	v	v	
Layer	Z24	PP Layer for I36 345*245*4mm		0,1	345	245	4	345	245	4	v	v	
Layer	Z25	PP Layer for I35 550*355*4mm		0,2	550	355	4	550	355	4	v	v	
Layer	Z26	PP Layer for I34 745*545*4mm		0,4	754	545	4	754	545	4	v	v	
Layer	Z27	PP Layer for I32 1120*760*4mm		0,7	1160	760	4	1160	760	4	v	v	
Layer	Z30	PE Layer for I34(Sandwich)		0,4	745	545	10	745	545	10	v	v	
Layer	Z32	PP+PE Layer for I35(Sandwich)		0,2	550	335	10	550	335	10	v	v	
Layer	Z33	PP+PE Layer for I36(Sandwich)		0,1	345	245	10	345	245	10	v	v	
Layer	Z31	PP Layer for I32 1125*725*4mm		0,7	1125	725	4	1125	725	4	v	v	
Layer	Z34	Z34_PE+PP+PE-Layer_1125x725x10		0,7	1125	725	10	1125	725	10	v	v	

#### 4.3.4 ZKW México S.A. de C.V.

Returnable packaging possibilities:

Container type	Container number	Description	Picture	Weight (in kg)	Inner Dimension			Outer Dimension			ZKW owned packaging	packaging development supplier	Label
					L	W	H	L	W	H			
outer packaging	I05	Faltbox 8645		8,59	760	560	410	800	600	465	x		SS
outer packaging	I09	Faltbox 6432		3,15	556	356	290	600	400	320	x		SS
outer packaging	I17	AKL Behälter gross 6220		3,22	566	366	183	600	400	238	x		LS
outer packaging	I16	AKL Behälter klein 4220		1,83	366	266	183	400	300	238	x		LS
outer packaging	I11	ESD-Box EF 6220		2,85	545	345	190	600	400	220	x		LS
outer packaging	I47	ESD-LID EF 6220		0,732				600	400	220	x		LS
outer packaging	I50	KTP-Box 1230x830x945 ZKW I50		37	1170	770	745	1230	830	945	x		LS
outer packaging	defined number by ZKW	EPP-Tray ESD		variable							x		LS
outer packaging	defined number by ZKW	EPP-Tray		variable							x		LS
grid	grid	diverse textile grid		variable							x		
inlay	inlays	Blister		variable								x	
inlay	inlays	blister ESD		variable								x	
inlay	inlays	Tray ESD		variable							x		
pallet	I01	Kunststoffpalette schwarz		16,5				1200	800	160	x		
inlay	Z56	soft-hard-soft interlayer for I05		0,2				755	555	5	x		
inlay	Z55	HKP/PE Layer PP-G88 KTP Box		0,2				1150	790	5	x		
inlay	Z53	HKP/PE ZWL PE28 AKL groß dünn		0,2				555	355	4	x		
inlay	B94	B94_PP_Grid_Black_1150x412x293		0,3				1150	465	293	x		



#### 4.4 Hazard warning sign for ESD-susceptible parts



## 5 Change history

<b>Index / Revision</b>	<b>Date</b>	<b>Reason for Change</b>	<b>Change description</b>
Version 13 – 2021	09.12.2021	Update & additions	Standardization & global alignment
Version 14 – 2023	13.07.2023	Update & additions	Additions

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