

KOSTAL

Packaging Guideline (KPG)

ENGLISH

Version 1.0

Leopold KOSTAL GmbH & Co. KG

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This KOSTAL packaging guideline is obligatory for suppliers to KOSTAL and sets out requirements to be met in order to achieve optimum delivery quality.

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1 Preamble

1.1 Partnership relations and validity

This guideline applies to all deliveries of materials to be made for KOSTAL products to the subsidiaries or partners of

Leopold KOSTAL GmbH & Co KG

Automobile electrics and associated organisations,

hereinafter referred to as "KOSTAL",

by all KOSTAL suppliers world-wide and their authorized sub-suppliers, including Group companies, hereinafter referred to as "SUPPLIER".

If the SUPPLIER is not in a position to deliver in accordance with the following specifications, he must inform KOSTAL of this before a shipment is made.

The SUPPLIER bears all costs arising from non-compliance with the following stipulations.

The following stipulations apply in addition to KOSTAL's ***purchasing conditions***. If these documents contain clauses which contradict each other, priority lies with the wording of existing contracts with the SUPPLIER, followed by KOSTAL's ***purchasing conditions*** and then the ***KOSTAL logistics guideline (KLG)***.

1.2 Objective / purpose

The purpose of this guideline is to inform SUPPLIERS to KOSTAL of the requirements which must be considered in the planning, sourcing and introduction of packaging materials for bought-in products. When designing the products the SUPPLIER must carry out the planning and (if applicable) the sourcing of the packaging in accordance with this guideline. In addition to this ***KOSTAL packaging guideline (KPG)*** consideration must also be given to the ***KOSTAL logistics guideline (KLG)***, the packaging data sheets and the location-specific requirements.

2 General

2.1 Types of packaging

KOSTAL differentiates between the following types of packaging:

Type of packaging	Definition
KOSTAL returnable packaging*	External and internal packaging, the property of KOSTAL, used returned for multiple use between KOSTAL and SUPPLIER and designed for several years of use
Special packaging	Special packaging, the property of KOSTAL, not to KOSTAL standards but used because of special (product) requirements
Supplier packaging	Packaging, the property of the SUPPLIER, used following release by KOSTAL for deliveries to KOSTAL.
General pool packaging	Packaging from a common container pools (e.g. small load carriers [KLT] to VDA specifications)
Disposable packaging	External and internal packaging, used once only for shipments and then disposed of

* An overview of KOSTAL standard returnable packaging is set out in the **packaging data sheet**.

2.2 Prohibited packaging materials

The following types of packaging materials must not be used for shipments to KOSTAL:

- Polyurethane (PU)
- Glass
- Wood (except pallets)
- Steel straps (except when transporting tools)

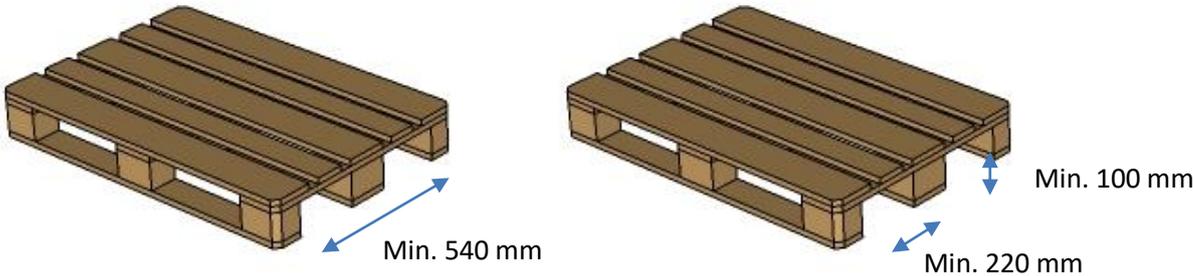
2.3 Packing units and load units

A packing unit is a single package item which can be carried without any aids. A load unit consists of several packing units, brought together on a transport medium (a pallet, for example). The following maximum weights and dimensions apply for packing units and load units.

Criterion	Packing unit	Load unit
Max. total weight	15 kg	1000 kg
Max. external dimensions	600 x 400 x 325 mm	1200 x 1000 x 1500*

* The permitted stacking height for each container is specified individually in the packaging data sheet. The maximum height must never exceed 1500 mm.

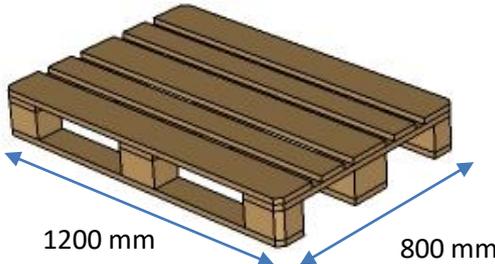
It must be possible to move load units using conventional transport equipment (e.g., manually operated fork-lift trucks). The width into which the fork blades are inserted must be at least 540 mm and the height of the recesses for the fork blade must be at least 100 mm.



As a general rule Euro pallets (EPAs) should be used for making up load units. Disposable pallets should have the same dimensions as Euro pallets - i.e., 1200 mm on the side with the long runners and 800 mm wide. Where small quantities of packaging are delivered a half-sized Euro pallet (600 mm x 800 mm) can be used. Pallets with runners in both directions must not be used.

RIGHT:

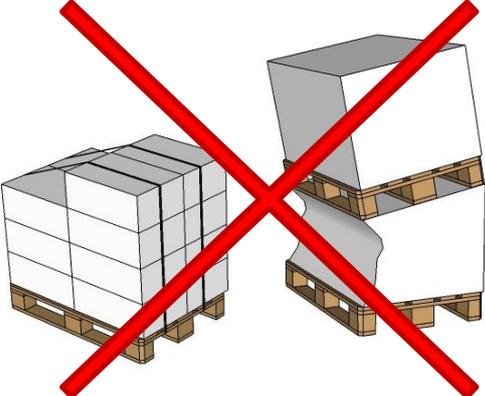
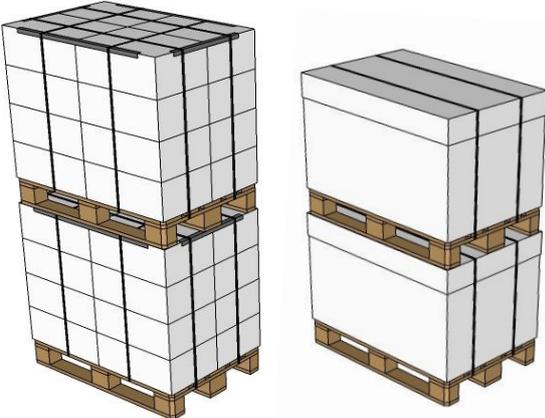
WRONG:



Pallets must be filled with complete layers, but in no circumstances must packing units protrude over the edges of the pallet. Incomplete layers and load units which cannot be stacked should be avoided. This also applies to pyramids of cartons or boxes. As a general principle, load units must be constructed so that they can be stacked safely for optimum transport. Where returnable packaging is involved, layers on the pallet must be filled with empty containers if necessary.

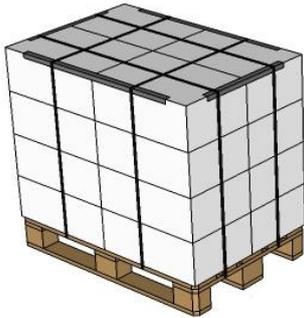
RIGHT:

WRONG:



Strapping load units must be carried out by all-round strapping with plastic straps. The number of straps must be sufficient to ensure that the load unit can be transported safely. Load unit made up of a pallet and layers of cartons must be strapped in two directions, each with two straps. In no circumstances must the straps cut into the cartons or damage the returnable packaging. Where necessary for safety reasons corner reinforcements must be used in the vertical and horizontal planes. Steel straps must not be used. The only exception here is the use of steel straps for transporting tools.

RIGHT:



WRONG:



The SUPPLIER should take all necessary steps to protect load units from inclement weather. If load units are stored or handled outside, they must be protected with pallet covers.

Bundles delivered as mixed pallets must be stacked in layers of the same material number. Mixed layers of different delivery note numbers and materials are not permitted.

3 Packaging planning

The SUPPLIER is responsible for planning the packaging of parts. Separate packing planning is required for each new product.

The SUPPLIER must draw up packing planning on the basis of the framework conditions defined by KOSTAL. If the SUPPLIER is contracted to deliver to several KOSTAL locations, separate packing planning must be carried out for each location and a packaging approval/release must be obtained for production deliveries. KOSTAL also expects that, as a preventive measure, the SUPPLIER will plan and reserve alternative packing so that, if the production packing is not available and after the SUPPLIER has obtained an approved **deviation request (AWG)** the alternative packing can be used.

Planning the packing provides the SUPPLIER with a basis for calculating his quotation. **The SUPPLIER shall include the expected logistics costs for packaging, transport and other cost elements in his quotation.**

KOSTAL's packing planning department will decide with the SUPPLIER on whether standard KOSTAL containers or special containers are to be used. As part of KOSTAL's environmental policy disposable packaging should be kept to a minimum. Every effort must be made to use returnable packaging. Combinations of returnable and disposable packaging must also be avoided. For intercontinental transport the aim must initially be to find a disposable packaging solution. However, KOSTAL also reserves the right to establish an intercontinental returnable packaging system where this is necessary because of quality, cost or process requirements.

KOSTAL's own containers are intended primarily for transporting the products between the SUPPLIER's last shipping location and KOSTAL. KOSTAL handles the sourcing of these KOSTAL standard packaging and makes them available to the SUPPLIER.

KOSTAL's returnable packaging must not be used for other purposes, such as:

- the intermediate storage of semi-finished products (WIP)
- holding stocks at the SUPPLIER's premises greater than the requirements in current delivery schedules (e.g., production in advance or production in batches)
- deliveries by the SUPPLIER to sub-suppliers
- deliveries by the SUPPLIER to other exchange partners

For such purposes the SUPPLIER must obtain any necessary containers at his own expense and these containers must not enter the closed loop returnable packaging system with KOSTAL. This does not apply to containers which meet KOSTAL's requirements for returnable packaging, are marked with the usual KOSTAL identifications and have been approved by KOSTAL for inclusion in the closed loop returnable packaging system between KOSTAL and the SUPPLIER.

3.1 Packing structure

The packaging structure defines the structure of the load units and the associated packaging master data covering packaging used for delivering bought-in parts to KOSTAL. This packaging structure must be maintained for all deliveries to KOSTAL.

The packaging structure must be planned on the basis of the specific product stipulations issued by KOSTAL. The packaging structure must be documented using the **packing data sheet** form. This form is used in order to approve/release the packaging.

3.2 Planning quantities

In planning quantities of packaging material, the demand is based on the quantities of products to be delivered. These quantities of products are the annual quantities stated by the KOSTAL purchasing department in the enquiry. Where returnable packaging is used the SUPPLIER's calculations must take account not only of the quantities of packaging materials in circulation in the closed loop circulation systems with future production locations in the KOSTAL Group but also possible losses of packaging materials in the course of time.

The packaging materials requirements determined in this way must be divided by the SUPPLIER in accordance with the planning forecasts for products to be supplied, so that sufficient packaging materials are available for the SUPPLIER to make deliveries to KOSTAL on time.

Where returnable packaging is used the SUPPLIER must have sufficient returnable packaging for a turnaround of 21 days, no matter what the method of delivery and the distance between the shipping point and the receiving plant.

The amount of packaging required is calculated as follows:

The annual demand for products (pcs) divided by 250 working days and divided by the quantity of parts per container, and then multiplied by 21 working days to arrive at the total container requirement.

If the SUPPLIER needs additional KOSTAL returnable packaging he must obtain this at his own cost. These additional costs must be shown in the quotation.

3.3 Technical execution

In designing the packaging the primary objective is to protect the products. In addition the aspects of handling, ergonomics and economics must be considered within the framework of packaging planning. The SUPPLIER has to design the packaging to an extent that ensures the safe transport of the goods to the final point of use. The KOSTAL standard returnable packing units as shown in the packaging data sheets must be taken as the basis for the design of the packaging. Even if disposable packaging or special packaging is to be used, this must be aligned with the KOSTAL standard returnable packaging - i.e., the dimensions of the external packaging must align with those of KOSTAL standard returnable packaging.

Where containers without lids are used the products must be protected against dust and dirt by using plastic bags (sealed or closed with adhesive) and/or an empty layer (where trays are used). Electronic products must be always packed in suitable ESD-proof packaging.

In addition, regional and international regulations must be observed when planning packaging. In particular for international trade consideration must be given to the International Standards For Phytosanitary Measures No. 15 (ISPM15) in the International Plant Protection Convention (IPPC).

KOSTAL also specifies further requirements for packaging. These are shown in the following table as essential and optional characteristics:

Type of packaging	Essential characteristics	Optional characteristics
KOSTAL returnable packaging (external packaging)	<ul style="list-style-type: none"> - manufacturer identification - material identification - recycling symbol - KOSTAL logo* - date clock 	<ul style="list-style-type: none"> - ESD symbol** - KOSTAL packaging ref. no. - tool number
Disposable packaging (external packaging)	Symbols : <ul style="list-style-type: none"> - "Fragile" - "Protect against moisture" - "Handle with care" - arrows to show top / bottom 	<ul style="list-style-type: none"> - KOSTAL packaging ref. no. - ESD symbol** - tool number - manufacturer identification - recycling symbol
KOSTAL returnable packaging (internal packaging)	<ul style="list-style-type: none"> - KOSTAL packaging ref. no. - manufacturer identification - tool number - material identification - recycling symbol - KOSTAL logo - date clock 	<ul style="list-style-type: none"> - ESD symbol** - colour code - mechanical coding - hand-grip recesses - arrows (for direction of assembly in automated processes)
Disposable packaging (internal packaging)		<ul style="list-style-type: none"> - KOSTAL packaging ref. no. - ESD symbol** - colour code - mechanical coding - hand-grip recesses - arrows (for direction of assembly in automated processes) - recycling symbol

* with no reference to any location, company or supplier

** to DIN EN 61340 if affected by ESD

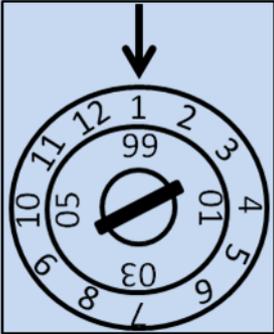
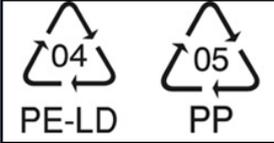
Special considerations for electronic components on reels:

Electronic components on reels must always be supplied on plastic reels. Cardboard reels or reels made of polyurethane or amines are not permitted.

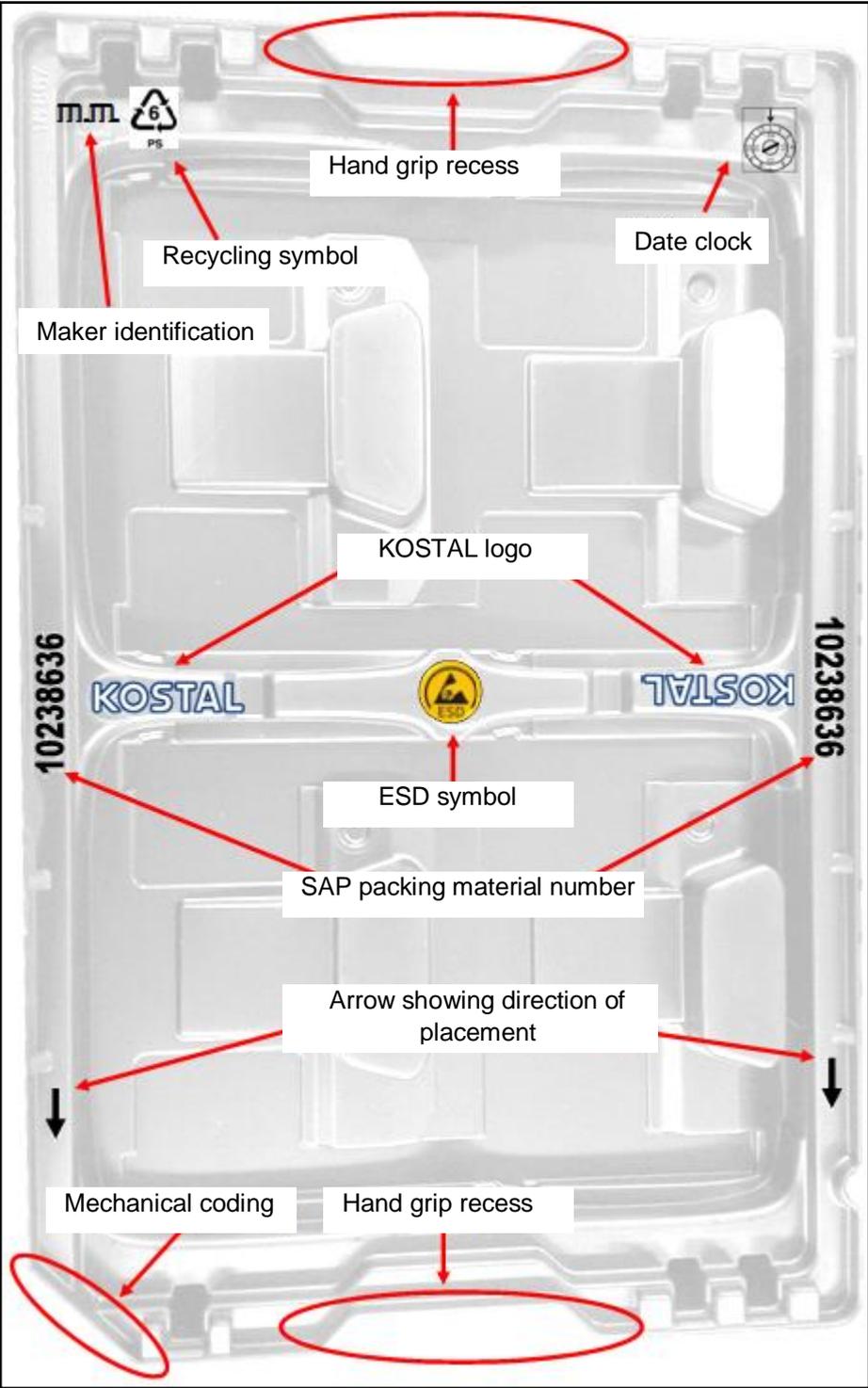
Within a packing unit each reel must be packed separately in a bag providing ESD protection unless the SUPPLIER himself provides special ESD protection. Reels not self-retaining in a packing unit must be fixed by the SUPPLIER so that they are used in the correct sequence.

The following section contains illustrations and symbols which clarify the requirements set out in the above table:

These symbols are merely examples to show the characteristics in question.

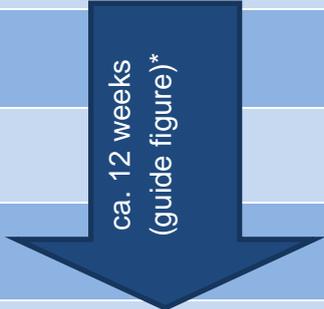
Symbol description	Typical illustration
ESD symbol	
KOSTAL logo	
Date clock (production date)	
Recycling symbol / material	
Symbols: - Fragile, - Protect against moisture, - Handle with care - Arrows to show top / bottom	
Colour code	

The following illustration shows a complete deep-drawn tray with all its relevant features. The KOSTAL packing material number should be shown in two places on the upper surface of the tray and should be clearly legible from the centre point of the tray.



3.4 Packaging assessment

The following illustration provides an overview of the stages of approval of the packaging in relation to the project-specific timing planning. The SUPPLIER must have obtained the appropriate approvals from KOSTAL by Gateway 8.5 "First production samples". To achieve this the SUPPLIER must submit the packaging planning, sample packaging and initial sample packaging at the correct time for each product. The timings are agreed between the SUPPLIER and KOSTAL:

Project timing	KOSTAL	SUPPLIER
Gateway 8	Order to the SUPPLIER	
Gateway 8		Submit the packaging planning
Gateway 8		Submit sample packaging with free-of-charge sample articles
Gateway 8		Submit an initial sample packaging from the production tool
Gateway 8.5		Logistics approves / releases the packaging
Milestone 9	The product is released (initial sample inspection report)	Introduce series production packaging

* precise timing planning is determined by the project purchase department in the KOSTAL plant

KOSTAL issues approval/release of the sample packaging in terms of logistical, production planning aspects. Checks are made on the basis of the packing requirements for the specific products. Approval/release of the packaging by KOSTAL does not release the SUPPLIER from his responsibility for quality.

Following final release of the production packaging all deliveries must immediately be made using the specified packaging. It must not be used beforehand without an approved **deviation request (AWG)** from KOSTAL.

4 Obtaining packaging

Responsibility for obtaining the planned packaging and the terms of ownership depend on the type of packaging - see section 2).

4.1 KOSTAL returnable packaging

External packaging is provided by KOSTAL in accordance with the turnaround cycle defined in section 3.2. Following approval/release by KOSTAL all further packaging requirements must be obtained by the SUPPLIER from approved sources at his own cost. When obtaining returnable packaging the SUPPLIER must ensure that to ensure clear identification, the characteristics stated in the packaging data sheets are shown as lettering on the packaging.

The SUPPLIER is 100% responsible for providing internal packaging in the correct quantities at the right time, both for the run-up to production and for production itself. The SUPPLIER must obtain the approved/released internal packaging from a packaging manufacturer nominated by KOSTAL or agreed between the SUPPLIER and KOSTAL.

The SUPPLIER must ensure that, to ensure clear identification, the characteristics stated in section 3.3 are shown as lettering on the packaging. As evidence that the packaging has been ordered and delivered the project buying department at the relevant KOSTAL plant must receive a copy of the delivery note. KOSTAL will record the initial quantity in the returnable packaging accounts.

In the case of internal packaging KOSTAL will become the owner, either by sourcing it direct or by amortizing the costs in the product piece-price.

4.2 Disposable packaging

Disposable packaging is provided by the SUPPLIER and is included in the price of the product. The costs of disposing of disposable packaging are charged on the "polluter pays" principle. In no circumstances is disposable packaging returned to the SUPPLIER by KOSTAL.

4.3 Other packaging

In principle the SUPPLIER is responsible for obtaining all other types of packaging. Any deviations from this rule must be defined in the specific project. KOSTAL undertakes to handle returnable packaging correctly and to make it available for the SUPPLIER to collect. Reductions in value caused by normal wear and tear are borne by the SUPPLIER.

4.4 Setting up packaging tools

The SUPPLIER is responsible for setting up new packaging tools. Unless otherwise agreed KOSTAL project buying bear the initial costs of setting up the tool, after the packaging has been approved/released. Setting up the packaging tool must comply with the terms of the KOSTAL tool loan contract.

5 Packaging management

The following specifications in section 5 refer exclusively to returnable packaging.

5.1 Setting up new packaging accounts

As from the first movements of products following approval/release of the returnable packaging for transporting products between the SUPPLIER and KOSTAL, the returnable packaging is logged and managed in so-called returnable packaging accounts, with a separate returnable packaging account being established for the SUPPLIER for each type of packaging used. The packaging accounts represent a direct 1:1 relationship between the KOSTAL receiving plant (or a company authorized by KOSTAL) and the SUPPLIER. These accounts record movement data (incomings and outgoings) as well as the associated references (document date and delivery note number). The SUPPLIER is expected to set up similar packaging accounts. If a SUPPLIER uses KOSTAL returnable packaging for shipments to several KOSTAL receiving plants he must record these movements in separate packaging accounts.

In accordance with the KOSTAL **EDI guideline** the SUPPLIER must ensure that, when advanced shipping notifications (ASN) are sent electronically, the packaging reference numbers and quantities are included in the advice.

5.2 Making bookings in packaging accounts

At KOSTAL all incoming and outgoing movements of returnable packaging are recorded in packaging accounts. Incomings are the returnable packaging (full and empty) received by KOSTAL and outgoings are the returnable packaging (full and empty) leaving KOSTAL. Bookings are made on the basis of the delivery notes / advanced shipping notifications (ASN) issued by the SUPPLIER.

It is absolutely essential to state the packaging materials used in the delivery paperwork and advices, with the correct packaging reference numbers. The material numbers of KOSTAL standard returnable, packaging are set out in the **packing data sheets**. Material numbers for project-specific packaging must be obtained from the relevant KOSTAL receiving plant.

Bookings of outgoing packaging are made on the basis of returnable packaging delivery notes issued by KOSTAL. If the SUPPLIER finds differences between the information in the delivery note and the packaging physically received, he must inform the packaging management department at the relevant KOSTAL receiving plant so that the packaging accounts can be aligned. As a general principle KOSTAL accepts no debits for work carried out by the SUPPLIER, or requests for 8D reports associated with the exchange of empty packaging.

5.3 Returnable packaging stock checks

At the end of each year or as requested by KOSTAL the SUPPLIER must align the packaging accounts. For this the SUPPLIER asks the KOSTAL packaging management department (or the company authorised by KOSTAL) for the movement data in the KOSTAL packaging accounts and checks them against his own records. He then carries out a physical stock check of the returnable packaging on a specified day (a day when no packaging is being moved). He must report the results of the accounts alignment to KOSTAL within 14 days of the stock check, stating the date of the stock check and the delivery note numbers covering the last 3 (three) incoming and outgoing movements before the date of the stock check. Any differences in stock figures can be eliminated if necessary by making correction bookings in the KOSTAL and SUPPLIER packaging accounts. This will involve an alignment of delivery notes and in this regard only those delivery notes will be considered which contain the packaging data specified in the **KOSTAL logistics guideline (KLG)**.

If the SUPPLIER does not carry out an account alignment within a 12-month period the stock figures in the KOSTAL packaging account taken as firm and accepted by the SUPPLIER. The period is from the date of the last account alignment up to the current date.

5.4 Losses

The basis for determining losses of returnable packaging in circulation is the alignment between the stock-take figures and the SUPPLIER's packaging account figures and the figures recorded in the KOSTAL packaging accounts. Losses must be replaced by the party which causes the loss.

5.5 The process for requesting returnable packaging

The SUPPLIER must request the necessary quantity of empty packaging each week from the relevant KOSTAL receiving plant, using the special form **FB_7602-35-020**.

Responsibility for ensuring that empty packaging is available lies with the SUPPLIER. If KOSTAL is not able to make the necessary quantities of packaging available and a constraint occurs, the SUPPLIER must report this without delay to the packaging management department in the relevant KOSTAL plant and must escalate the matter if necessary.

In addition the SUPPLIER must have alternative packaging available at all times. This must provide adequate protection, with dimensions and capacities as close as possible to the standard packaging. However, this alternative packaging must not be used without a **deviation approval (AWG)** issued by the relevant KOSTAL receiving plant.

5.6 Handling

The basis for organising and charging the costs of returning empty packaging is provided by the delivery conditions agreed with the SUPPLIER. If one of the Incoterms DAP/ DDP has been agreed for the shipment, the return of empty packaging is the responsibility of the SUPPLIER and is carried out at his cost. However, if one of the Incoterms EXW/ FCA has been agreed, KOSTAL accepts the costs of transporting the empty packaging. In both cases the SUPPLIER must ensure that, for each delivery to KOSTAL of a full packaging container, an empty packaging container is collected, in order to maintain a 1:1 exchange.

Following collection and delivery the SUPPLIER is responsible for the correct treatment of the packaging. KOSTAL returnable packaging must be stored so that it is protected from the weather and no lettering or labels must be stuck to it.

Where empty packaging is returned to KOSTAL from the SUPPLIER, containers must be cleaned and stacked on pallets for transport. Empty containers (without internal packaging and without lids) must be stacked upside down on pallets.

5.7 Cleaning

The SUPPLIER must ensure that only cleaned packaging is used for deliveries to KOSTAL and to any organisation authorized by KOSTAL. The SUPPLIER must specify and comply with requirements for the cleanliness of returnable packaging, based on the needs and specific requirements for the products to be packed. This applies not only to the interior of containers; the exterior must also meet basic cleanliness requirements.

5.8 Repairs

The SUPPLIER must ensure that the returnable packaging for which he is responsible is suitable for use and must carry out repairs if necessary. Damaged KOSTAL returnable packaging must not be used for deliveries to KOSTAL and to any organisation authorized by KOSTAL. They must be returned separately to KOSTAL with a prior advice to the empty packaging management department and must be clearly identified as damaged. However, unusable returnable packaging must not be returned to the KOSTAL receiving plant without a direct replacement being collected by the SUPPLIER.

KOSTAL will dispose of unusable returnable packaging if it is KOSTAL's property. The costs for disposal will be charged to the party responsible for the damage.

5.9 Amending the quantity of packaging in circulation if demands change

The SUPPLIER must amend the quantity of packaging in circulation at regular intervals to match the real requirements. The basis for this provided by the delivery schedules issued by KOSTAL for the products. If a change in the quantity of packaging in circulation becomes necessary the SUPPLIER must inform KOSTAL without delay.

6 Introduction and run out of packaging

6.1 Pre-production launch

Before the official start of production, samples and components are delivered in pre-production packaging. These packaging concepts must be defined by the SUPPLIER, taking into account the quality requirements for the product. No release is issued by KOSTAL. The aim must be to complete the planning, release and sourcing of production packaging as early as possible.

6.2 Technical changes to the product

KOSTAL's purchasing department will send the SUPPLIER enquiries covering technical changes to products. The SUPPLIER must check the current packaging planning and packaging requirements with regard to such technical changes. If necessary the SUPPLIER must quote for a technical change to the packaging. This quotation must be based on new packaging planning (see section 3).

6.3 End of production

A new form of packaging may be introduced as a result of the major reduction in demand for the product. The SUPPLIER must provide this packaging at no extra cost. A stock check of returnable, packaging must be carried out at the end of production of the product.

- KOSTAL returnable packaging:

The SUPPLIER checks the future demand for the product and determines a maximum stock of returnable packaging to be kept in circulation for deliveries to KOSTAL, based on a new quantity planning exercise. All unnecessary returnable packaging in the packaging circulation system must be returned to KOSTAL.

- All other packaging:

Unlike the KOSTAL returnable packaging, all other superfluous packaging must be disposed of by the SUPPLIER at his own cost. In all cases KOSTAL must be informed of the planned disposal of packaging.

7 Appendix

7.1 Location-specific requirements

A separate appendix applies to each KOSTAL receiving plant, in which individual sections of the ***KOSTAL packaging guideline (KPG)*** are described in more detail, taking account of location-specific requirements.

7.2 Other applicable documents

KOSTAL logistics guideline (KLG)

Goods carrier data sheet

EDI guideline

EDI general commercial conditions

webEDI general commercial conditions

Purchasing conditions

Supplier assessment

Logistics assurance agreement (LSV)

Consignment contract

Deviation approval (AWG)

PPAP (PPAP check-list) / FB_7602-65-026

Material special deliveries

Form FB_7602-35-020

These documents can be inspected at www.kostal.com