

## Outline

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### Part 1 Introduction

- Scope of Application
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If you have any questions related to packaging, please contact the responsible MOTORTECH packaging technician.

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## Definition of Terms

<b>Packaging agreement</b>	Packaging planning agreed between the supplier and MOTORTECH GmbH.
<b>General packaging</b>	Specific packaging requirements for MOTORTECH GmbH: basis to develop “it for purpose“ packaging with the scope of special quality and delivery requirements.
<b>Packaging data sheet</b>	The packaging data sheet is used for the packaging proposal from the supplier. The type of packaging used, is also documented in the packaging data sheet.
<b>Identification of shipment</b>	General identification terms of MOTORTECH GmbH.
<b>Article</b>	Items with the same part number.
<b>Inner packaging</b>	Type of packaging that is in direct contact with the parts; used to separate and/or to secure parts.
<b>Single packing unit</b>	Packaging that contains only one article (items with the same part number).
<b>Outer packing unit</b>	Combines several single units into one delivery unit.
<b>Transport packing unit</b>	Type of packaging that enables items to be handled safely and simply and protects them from stresses and external influences during transportation, storage and handling.
<b>Strapping</b>	Used to make the load stay firmly in place during transportation and use (e.g. to secure load on a pallet).
<b>Stackability</b>	Ability to stack several layers of packing without damage. Requirements for stacking are plane surfaces and adequate stability.
<b>Overhang</b>	A part that overhangs the sides of a pallet.
<b>Anti corrosive packaging</b>	Type of packaging that protects parts from corrosion.
<b>One-way packing</b>	Packaging that is used for a single delivery.
<b>Returnable packing/ multi-way packaging</b>	Packaging that is suitable for multiple use on different forms of transport.

## Scope

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This packaging guideline is the contractual basis for delivery of parts to MOTORTECH GmbH. It constitutes a supplement to the general conditions of purchase.

The MOTORTECH packaging guideline is an additional document for specifying the packing system.

### Objective:

The Packaging Guideline makes suppliers familiar with the packaging requirements of MOTORTECH GmbH as a basis on which to develop an optimized packing system.

### Responsibilities:

The supplier is responsible for the development of fit-for-purpose packaging systems which are in accordance with the requirements of the product, the MOTORTECH GmbH General Packaging Guideline and all applicable regulations established by federal, state, provincial and local governments, including those applicable to the location where the package will be discarded.

For all disposable packaging, the use of sustainable materials, which are accepted for recycling worldwide, is required. Packaging waste, wasteful and/or excessive over-packaging should be avoided as specified in EU Directive 94/62/EG.

It is the responsibility of suppliers, both internal and external, to ensure that all items being shipped are properly and adequately preserved, protected and packed for safe arrival at their destination.

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## Packaging Functions

### Irrespective of the choice of packaging type, ensure that deliveries meet the following requirements:

- Parts are to be delivered without any deterioration of quality and free of contamination
- Transport packing units should make for safe and easy handling during unloading and handling with ground conveyors
- Useful loading units and efficient capacity utilization
- Stackability
- Sufficient transit support
- Safe and easy handling while removing parts from their packing
- Proper marking
- Use of recyclable materials
- One article (one part number) to be delivered per single packing unit
- If mixed containers cannot be avoided, parts must be properly organised
- Use separators when shifting or rubbing could cause damage
- All fragile parts must be properly cushioned

### Packaging Must Perform Several Functions during Transportation, Storage and Use:

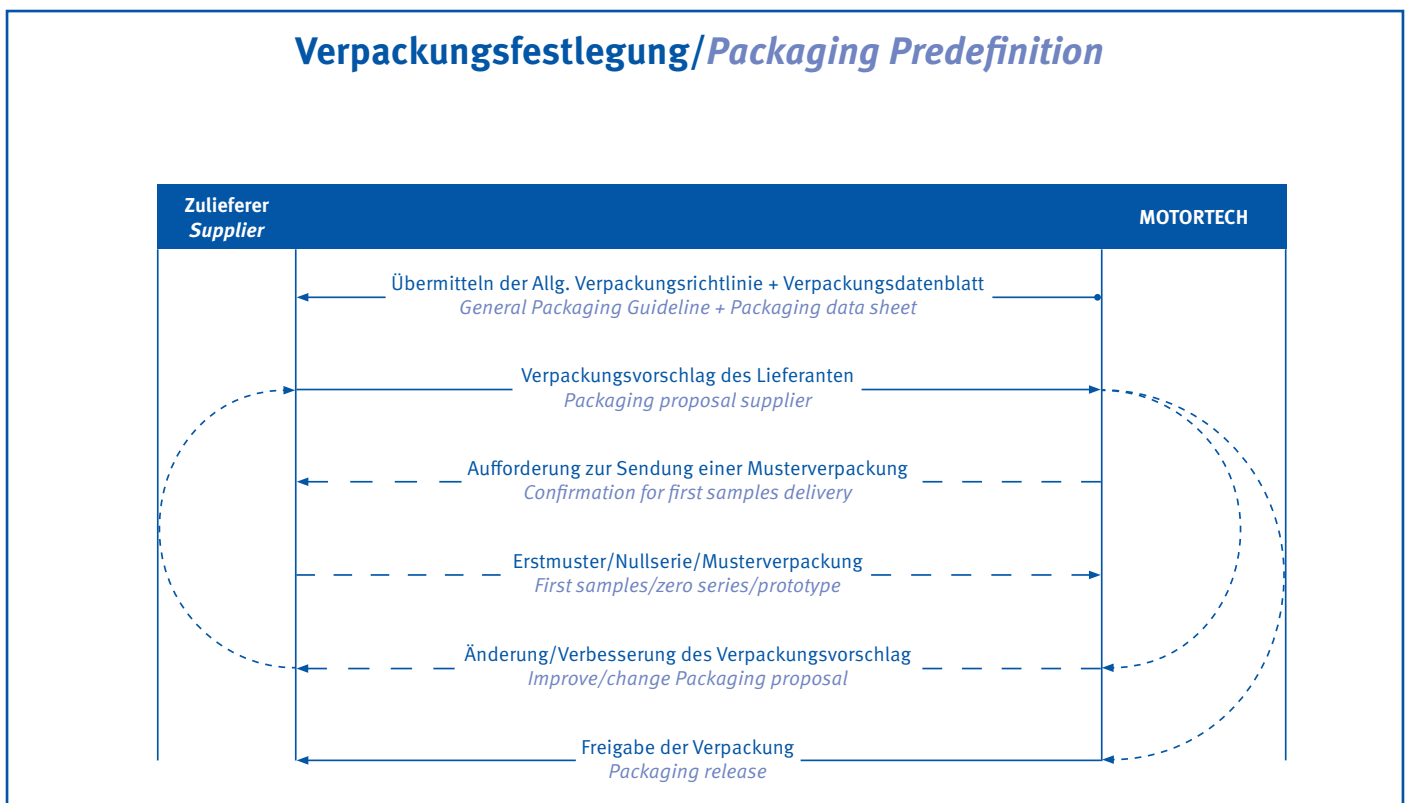
<b>Protection function</b>	Protection from physical damage and environmental hazards, sufficient stability to withstand the maximum stacking height.
<b>Loading and transportation</b>	Transport packaging should be designed to be held, lifted, moved, set down and stowed easily and safely. Transportation packaging must be constructed in such a way that it is suitable for shipment, thereby ensuring that it meets all the demands of handling, storage and transportation.
<b>Storage function</b>	Packaging should be designed to perform the required storage functions.
<b>Convenience</b>	Convenience of use and safe handling by users.
<b>Communication</b>	Visibility of relevant consignment details and supplier data.
<b>Compliance function</b>	Environmental acceptability and ease of recycling and/or disposal and Compliance with legal and regulatory requirements.
<b>Guarantee function</b>	By delivering an undamaged packing unit, the supplier ensures that details on the packaging correspond to the content of the packaging.
<b>Rationalisation</b>	Efficient loading and storage units in terms with regard to dispatch type, route and weight, shipping space utilization, storage space utilization as well as handling security during loading, unloading, storing, opening and disposal.

## Packaging Predefinition Process

### Packaging agreement:

The general packaging guideline plus packaging data sheet are forwarded to the supplier, together with the MOTORTECH terms of purchase. Based on the packaging guideline, the supplier draws up a packaging proposal and forwards it to the MOTORTECH GmbH. If the supplier already has an existing packaging procedure document, this document can be used instead of the packaging data sheet. By forwarding the proposal to MOTORTECH GmbH, the supplier is approving the packaging data sheet.

Packaging prototypes or first samples/zero series in prototype packing are to be supplied on request.



The objective is to conclude the packaging agreement with the initial sample inspection. Quality requirements, as specified in the packaging guideline, must be fulfilled, also after approval of the agreement.

### Communication:

Send your packaging proposal (on packaging data sheet) via email to the first sample inspector of MOTORTECH GmbH, Quality Department.

## Supplementary Explanations

<b>Part Number</b>	Article number (MOTORTECH).
<b>Packaging sub unit</b>	Data referring to single and/or inner packaging.
<b>Designation of sub-unit</b>	Name/specification of single packaging type used.
<b>Dimensions</b>	Length x width x height of single packing unit in mm.
<b>Inner packaging</b>	Additionally used packing materials used to secure and/or separate parts, such as intermediate layers, moulded inserts, ...
<b>Packaging aid</b>	Auxiliary packing materials.
<b>Total weight</b>	Total weight of the single packing unit in kg.
<b>Stacking factor</b>	Number of single packing units that can be stacked e.g. 0 = stacking not possible, 2 = 2 units can be stacked, ...
<b>Closure</b>	Type of closure, e.g. tape.
<b>Description</b>	Complementary description of the packing sub-unit.
<b>Transport packaging</b>	Data referring to transport and/or loading unit.
<b>Designation of loading unit</b>	Name/specification of base carrier used (e.g. euro pallet, box pallet)
<b>Dimensions</b>	Length x width x height of load unit (e.g. base pallet).
<b>Outer packing</b>	Name/specification of outer packing unit.
<b>Packaging aid</b>	Auxiliary packing materials.
<b>Closure</b>	Type of closure, e.g. strapping.
<b>No. of layers</b>	Number of layers.
<b>No. of sub units/layer</b>	Number of parts per layer.
<b>Total weight</b>	Total weight of transport unit.
<b>Total height</b>	Total height of transport unit.
<b>Stacking factor</b>	Number of transport packing units that can be safely stacked.
<b>No. of parts/transport unit</b>	Number of parts per transport unit.
<b>Description</b>	Complementary description of the transport packing/loading unit.

## Standard Container

### External packing/loading unit:

Euro pallet	1200x800 mm	1000 kg
One-way pallet	1200x800 mm	1000 kg
DB Box pallet/lattice box	1200x800 mm	1000 kg
Wooden box on pallet	1200x800 mm	1000 kg
Crate on pallet	1200x800 mm	1000 kg
Wooden box	Oversized parts	
Crate	Oversized parts	
Industrial containers	1200 x 800 mm	1000 kg
Returnable containers	1200 x 800 mm	1000 kg
Auxiliary loading aids		

### Packing sub-unit:

Plastic box	500x300 mm
Returnable containers	500x300 mm
Corrugated board boxes	derived from 1200x800 mm
Single wall corrugated board	
Double wall corrugated board	
Tri-wall corrugated board	
Waterproof coated corrugated board equipped for overseas shipments	

### Internal packaging/single packaging/inserts:

Pouches/bags
Cardboard boxes
Corrugated board boxes
Moulded inserts
Intermediate layers
Crossed compartment inserts

### Packaging aids:

Foldable pallet collar	1200x800 mm
Pallet collar	1200x800 mm
Stretch film/Shrink film/Film hood	
Plastic strapping/Metal strapping	
Edge protectors/Corner protectors	

### Cushioning materials:

Paper Plus System
Air bubble film
Air cushion pad
Wrapping paper
Foam film

**Anti-corrosive packaging materials:**

- VCI film
- VCI paper
- VCI vapour capsule
- Oil paper
- Waxed paper
- Waterproof corrugated board
- Desiccant bags

**General Requirements**

The choice of packing method is dependant on product characteristics, and protection requirements, transportation mode and structural conditions on supplier's site.

**Approved Materials**

**Environmental targets regarding packaging planning:**

Prevention of packaging waste, reusability of packaging, ease of recycling, recovery of packaging materials, reduced use of packaging materials.

To meet environmental requirements, the marking of packaging and packaging materials for recycling purposes as specified in DIN 6120, is required. Ensure that one-way packaging is clearly and visibly marked with the standard symbols (symbols and abbreviations as specified in DIN 6120) and/or those recognized by the waste disposal industry. The identification must not restrict recyclability.

**Approved packaging materials:**

In general, environmentally compatible materials deemed suitable and accepted worldwide for recycling are to be used for all one-way packaging. Composite materials and loose fill materials such as packaging chips should be avoided.

Packaging material must not affect the cleanliness of parts.

**Paper/cardboard/corrugated board**                      Comprising papers and cardboard made of materials not hazardous to paper production.

**Plastics**    For one-way use: PE, PP  
 For multi-way use: PE, PP, PS  
 Film: PE  
 Foam: PE, PP, PS  
 Maximum 5% printed area for all applications

**Anti-corrosion paper/film**                      VCI papers, for which there is evidence that its materials can be recycled with paper/cardboard.  
 VCI film, which it has been shown can be recycled with plastic film.  
 Corrosion protection packaging materials may not contain any nitrosamine compounds, secondary amine compounds, heavy metals or nitrite.  
 Oil or waxed paper may be used whenever the use of VCI materials is not applicable.

Desiccant bags as specified in DIN 55 473  
 Minerals: desiccant clay, perlite, silica gel, vermiculite

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## Approved Materials

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<b>Wood</b>	<p>Non-impregnated solid wood and plywood.</p> <p>For shipments from outside the EU or shipments scheduled to be sent outside the EU, wood treatment conforming to ISPM No. 15 is required.</p> <p>ISPM No. 15 requires that wood packaging materials must be either heat-treated or fumigated regardless of the country of export. The requirement includes proper marking of all treated materials in accordance with the IPPC standard.</p>
<b>Strapping</b>	<p>for sensitive articles: PP (black)</p> <p>for heavy parts: metal strapping</p>
<b>Closures</b>	<p>Adhesive tapes and packaging straps as well as adhesive labels and product labels must not restrict the recyclability of the carrier material. Use of neutral tape is recommended.</p>
<b>Metals</b>	<p>Steel, aluminium</p>

In general, the use of neutral packaging materials is recommended.