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#### 1 Foreword

This supplementary handbook describes the standard packaging material used by MANN+HUMMEL with his suppliers. The usage of standard packaging material is very important for a smooth handling in the goods-in departments and warehouses. To ensure correct posting in the MANN+HUMMEL ERP system, it's important to use the standard packaging material numbers of MANN+HUMMEL in the ASN message as well as on the delivery papers. On the following pages the material numbers are listed in categories. All general information is published in the Supplier handbook Logistics MHG-SC-M-0007 which is available on the MANN+HUMMEL homepage.



# 2 List of abbreviations

ASN	Advance shipping notice			
ССМ	Component Cleanliness Management			
CFC	free expansion process			
EPAL	European Pallet Association			
EPS	Polystyrene			
ERP	Enterprise Resource Planning			
ESD	Electrostatic Discharge			
EUDR	European Union Deforestation Regulation			
FSC	Forest Stewardship Council			
EU	European Union			
IPPC	International Plant Protection Convention			
ISPM	International Standard for Phytosanitary Measures			
KLT	Kleinladungsträger (small load carrier / totes)			
PE	Polyethylene			
PP	Polypropylene			
PUR	Polyurethane			
PVC	Polyvinyl chloride			
VCI	Vapor Corrosion Inhibitor			



### 3 Cooperation between MANN+HUMMEL and the supplier

For good cooperation between MANN+HUMMEL and the supplier, it's essential that communication is as clear as possible. In order to achieve this and prevent misunderstandings, the following rules must be observed.

### 4 Packaging in general

To ensure that goods are delivered to MANN+HUMMEL without any damage, an appropriate packaging has to be agreed between MANN+HUMMEL and supplier.

The supplier gets a request by purchasing or material planning department of MANN+HUMMEL. He has to fill out the packaging data sheet template which is available on the MANN+HUMMEL homepage. (www.mann-hummel.com/en/company/downloads/supplier-documents.html)

This template is the basis for a packaging agreement.

Economic, environmental and ergonomic requirements have to be considered as well as requirements for CCM (Component Cleanliness Management), ESD (Electrostatic Discharge) or corrosion protection.

For purchasing components the packaging data sheet number MHG-SC-F-0076 is valid.

For packaging instruction for brand "MANN FILTER" the packaging data sheet number MHG-SC-F-0002 has to be used. All requirements for MANN Filter Brand are described in the chapter MANN FILTER.

For purchase finished goods / trading goods plant-specific packaging data sheets can be available.

### 5 Permissible packaging material

Only qualitatively suitable and recyclable packaging materials may be used for the respective Packaging instruction, which are marked with standardized or recognized by the waste disposal industry. Following requirements have to be respected.

Paper, cardboard, paper board	<ul> <li>unbleached or chlorine-free bleached</li> <li>preferably made of recycled material and FSC certified material</li> <li>free of non-water-soluble adhesive applications</li> </ul>
	<ul> <li>free of coatings that impair recyclability / biodegradability (e.g., Silicone)</li> </ul>
	<ul> <li>Cardboard boxes should be closed in such a way that they can be opened without tools (knife, scissors, cutter), e.g., tear perforation.</li> </ul>



	<ul> <li>for transports in EU incl. imports to Europe: the requirements of the European Deforestation Regulation 2023/1115 (EUDR) must be complied with.</li> </ul>
Wood	<ul> <li>only untreated or heat-treated wood, no usage of fumigations</li> <li>no chip- and fiber boards or laminated wood</li> <li>no woods from protected tree species, preferably made from FSC certified material</li> <li>no painted or coated wood</li> <li>for intercontinental transports: declaration according to ISPM15 / IPPC (International Standard for Phytosanitary Measures)</li> <li>preferably made of recycled material</li> <li>for transports in EU incl. imports to Europe: the requirements of the European Deforestation Regulation 2023/1115 (EUDR) must be complied with.</li> </ul>
Film (including shrink-wrap and stretch film), bags and sacks made from plastic	<ul> <li>only polyethylene (PE) or polypropylene (PP), not colored</li> <li>preferably made of recycled material</li> <li>polyvinyl chloride (PVC) must not be used</li> <li>preferably printed with material mark</li> <li>no metallized films</li> <li>free of non-water-soluble adhesive applications in combination with wet-strength labels made from other materials</li> </ul>
Filler materials	<ul> <li>only paper, cardboard, wood shavings or air bubble film</li> <li>no chips from foodstuffs</li> <li>no mineral wool or rock wool</li> </ul>
Foamed materials, Formed parts (e.g., inlays, basins)	<ul> <li>only formed parts and foamed materials where absolutely necessary</li> <li>only formed parts from PE or PP</li> <li>only foamed materials from polyurethane (PUR), polystyrene (EPS) or expansion-PP (CFC-free expansion process)</li> </ul>
Metal containers	<ul> <li>aluminum or steel (including galvanized or lacquered)</li> <li>no tin-plated metals (e.g., tinplate)</li> <li>no metal tightening and fastening bands</li> </ul>
Composite materials	not permitted (e.g., coated paper)
Tightening straps	only made from polypropylene (PP)
Lettering, dyes and paints	no heavy metals or solvents in paints
Corrosion protection products and preservatives (incl. coatings)	Corrosion protection products e.g., with a VCI coating (Vapor Corrosion Inhibitor) or vapor corrosion inhibitors and preservatives e.g. mineral oil products may only be used after written approval.



	•	If supplied parts contain adhesions of preservatives, labelling is required.
Transportation units	•	Transportation units made of metal must not contain surfaces with hexavalent Chromium or Nickel.

### 6 Dimensions and weight of packaging

The maximum dimensions and the weight of the handling units are determined by site. Information can be found in the plant-specific section, supplier handbook MHG-SC-M-0007 Supp1 also available on the MANN+HUMMEL homepage.

It is not permissible for goods to protrude from the load carrier (or extend in an upward direction as the load carriers have to be stackable) unless explicitly agreed in the packaging instructions of the relevant site (exceptions e.g. media rolls).

### 7 Packaging for transport & storage

The packaging design must ensure that neither the content nor the packaging itself is damaged during transport. With external transport, for example, goods must be protected against moisture. It must also be possible to transport and stack the goods easily with a forklift truck. In addition, the goods must be packed in the most space-saving way so that only the necessary number of loading units is used. It must also be possible to remove individual parts without difficulty.

Only in exceptional cases and with the agreement of the relevant site may two pallets be shrink-wrapped together, stretched, strapped etc. In addition, a pallet may not be doubly secured (e.g. strapped and shrink-wrapped).

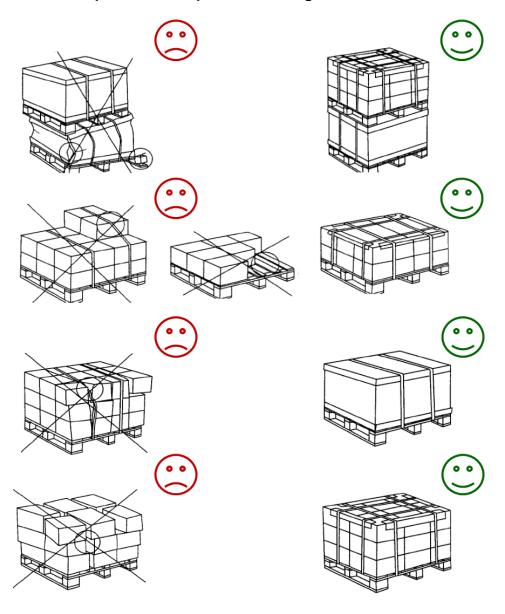
The goods are packed according to type. Mixed pallets are the exception and are to be marked appropriately. The supplier provides information on the maximum load of loading units. If stacking of loading units is not possible for reasons of stability or because of fragile goods, the supplier marks the transport units accordingly.

Material combinations (e.g. iron clamps, nails in timber) must be kept to a minimum and easy separation after use must be ensured

Damaged units such as metal box pallets with protruding metal rods or broken wooden pallets represent a safety risk and must therefore not be supplied to MANN+HUMMEL. Repackaging costs resulting from supply in non-exchangeable empties are borne by the supplier/are deducted from the credit note for the shipment.



# 7.1 Examples for transport and storage







### 8 Empties management

Returnable packaging is managed through empties accounts. Unless otherwise agreed, account statements are sent by MANN+HUMMEL to the supplier, at the beginning of each month. The supplier then has 14 days to reconcile his own accounts and submit a claim if there are discrepancies. If no objection has been received within this period, the inventories booked by MANN+HUMMEL are accepted as valid.

Provided empties are used for shipping. The supplier commits not to divert from its intended use.

The supplier is responsible to perform minimum 1 x per year a stock counting. The stock balance has to be reportred to MANN+HUMMEL. Defect returnable packaging has to be send back to the owner or scrapped after it has been agreed between supplier and MANN+HUMMEL. In both cases empties accounts have to be posted accordingly.

If MANN+HUMMEL returnable packaging is damaged or lost by supplier, supplier has to bear the costs.



### 9 MANN+HUMMEL standard packaging material numbers

MANN+HUMMEL prefers to use standard packaging materials. But the usage is agreed between supplier and the plants. If standard packaging material is used, it's necessary to add the information of the MANN+HUMMEL packaging material number on the delivery note and in the electronic data interchange ASN (Advance shipping notice) message.

### 9.1 Large load carriers

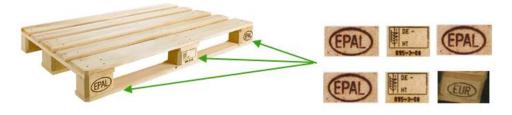
M+H	Short description	Outer Dimension	Tara weight	Maximum	Material	Picture
Material number		[l x w x h in mm]	[kg]	load capacity /Kg		
VPX1000DBG	DB/EPAL Box Pallet	1240 x 835 x 970	70 - 85	1500	Metal	
VPX1001334	M+H Box Pallet 1334	1020 x 820 x 965	57	1000	Metal	
VPX1001868	M+H Box Pallet 1868	1020 x 820 x 340	36	1000	Metal	
VPX100VARIO	M+H Vario Box	1200 x 1000 x 970	40	250	PP	





#### 9.2 Pallets

All manufactured EPAL (euro pallets) since 2010 are treated according ISPM 15 and can be recognized by brandings on both sides of the long side or on both center blocks. Authenticity features of euro pallets are branded on the left and right corner block.



M+H		Outer Dimension	Tara weight	Maximum	Makawial	Distance
Material number	Short description	[l x w x h in mm]	[kg]	load capacity /Kg	Material	Picture
VPX200EPAL	Euro-Pallet	1200 x 800 x 144	22	1000	Wood	4
VPX2000800	Pallet 800 mm	1200 x 800 x 150	10	400-1000	Wood	427
VPX2000900	Pallet 900 mm	1200 x 900 x 150	10,5	400-1000	Wood	1
VPX2001000	Pallet 1000 mm	1200 x 1000 x 150	11	400-1000	Wood	ALL S
VPX2000600	Half Pallet	600 x 800 x 150	6	400-1000	Wood	lite

The use of multi-way pallets and multi-way load carriers is preferred. If the load carrier is provided by the supplier, he has to ensure that reusable load carriers are made of recyclable materials, preferably made from recycled material. The type of load carrier needs to be agreed with the relevant MANN+HUMMEL location. The IPPC standard (ISPM 15) must be observed for wooden packaging or load carriers. Conformance to ISPM 15, Regulation of Wood Packaging Material in International Trade, is the supplier's responsibility including ensuring the correct treatment, identification and general condition of the wood - free from sharp edges and no mould permitted. Note that such wooden packaging is routinely subject to checks for compliance at certain international borders.



### 9.3 Small load carriers / totes and lids

The maximum total weight of the small load carriers should not exceed more than 12 kg but can deviate as listed in the plant specific supplier handbook (MHG-SC-M-0007 Supp1). Small load carriers always have to be covered by a lid (Standard lid or lid made out of cardboard).

M+H		Outer dimension	Tara weight	Maximum	Marketal	P
Material number	Short description	[l x w x h in mm]	[kg]	load capacity /Kg	Material	Picture
VPX3004314	KLT / SLC 4314	400 x 300 x 140	1,65	14	PP	
VPX3004328	KLT / SLC 4328	400 x 300 x 280	2,8	50	PP	in a met
VPX3006414	KLT / SLC 6414	600 x 400 x 140	3,4	50	PP	lon n n n m
VPX3006428	KLT / SLC 6428	600 x 400 x 280	5	50	PP	in a a a a a a a
VPX3006433	KLT / SLC 6433	600 x 400 x 330	2,5	20	PP	
VPX5004300	Lid for KLT /SLC 43xx	400 x 300 x 25	0,5	N/A	PP	
VPX5006400	Lid for KLT / SLC 64xx	600 x 400 x 25	0,55	N/A	PP	





### 9.4 Special packaging

M+H	Short description	Outer dimension	Tara weight	Maximum		·
Material number		[l x w x h in mm]	[kg]	load capacity /Kg	Material	Picture
VPX900OCTA	Octabin	1200 x 800 x 809-2000	5-25	1000	Carton	0

### 10 Errors in packaging

This chapter describes the most frequent packaging errors, to enable the supplier to take appropriate action to avoid them and thus prevent unnecessary additional costs. The way that MANN+HUMMEL handle these errors are also explained.

The following non-conformities are considered as logistics claims:

- non-compliance with packing regulations
- errors in the labeling of packaging units
- damaged packaging

If packing is incorrect or damaged, receipt of goods can be refused.



#### 11 MANN FILTER

In the following, the regulations regarding packaging for delivery to our warehouses are specified in more detail. The graphic representations are exemplary illustrations that you will receive the exact specifications with the individual packaging instructions for each product.

#### 11.1 Pallets

The following specifications must always be observed:

Dimension: 1200 mm x 800 mm x 1000 mm (length x width x height)

Bar > 18 mm

Weight: maximum 500 kg

Type: with a valid certificate in accordance with the IPPC standard with corresponding

Labeling

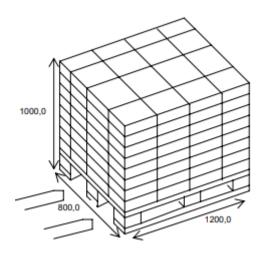
Packaging: a) Pallet with cardboard (cartainer) maximum height 1000 mm inclusive pallet.

b) Shrink wrapping with edge protection (wooden frame or strong cardboard)

c) 4-times strapping with edge protection (wooden frame or strong cardboard)

Fork opening Pallets must be suitable for the forklift fork on the narrow side (800 mm)

be accessible



Pallets must be packed according to type.

Leftovers must be either:

- packed as a partial pallet (preferred procedure) - or packed on a separate pallet, clearly labeled as a mixed pallet.

#### 11.2 Packaging examples

Pallet with wooden frame, strapped







Pallet with a cartainer



Pallet with edge protection, strapped





Pallet stretched



Pallet shrinked





### 11.3 Pallet labeling

Layout: Yellow or white paper (form: 210 mm x 150mm)

Position: On both narrow sides (800 mm) of the pallets, not on the folding box.

Content: 1<sup>st</sup> row: MANN-Filter description (e.g.: C 1567/1)

2<sup>nd</sup> row: 10 – digit material number (e.g.: 4506755136)

3<sup>rd</sup> row: Quantity (e.g.: 120 PC)

### 11.4 Collective packaging

#### 11.4.1 Air filter / Cabin filter

Shrinked: 5 PC and weight max. 15 kg.

Example shrinked air filter







### 11.4.2 Spin-on filters / oil filter cartridges / fuel filters

Shrinked:  $\rightarrow$  diameter 60 – 90 mm 10 PC (5 x 2)

→ diameter 110 mm 8 PC (4 x 2)

 $\rightarrow$  diameter 130 mm 6 PC (3 x 2)

Example shrinked Spin-on filters/elements





### 11.5 Folding box

MANN-FILTER: according to the layout on the supplied CD-Rom and

MANNFILTER Label.

Colours: yellow = RAL 1018 O Pantone 1-1 process

Green = RAL 6016 O Pantone 356

Weight: 400g/m2, information on the drawing is leading



Example, specifications on the drawing



#### 11.6 Modification of existing packaging units/release process

In general, changes to the type and/or quantity of packaging must be avoid for MANNFILTER.

MANN HUMMEL GmbH's written approval is required before the packaging can be modified. The application for release of the packaging changes are made using a form. To obtain this, please contact the Aftermarket Division, Department "Purchase of trading goods".

For new start-ups, the collective packaging unit is specified by the Product management (for M H subsidiaries as a supplier) or by purchasing trading goods (with external companies as suppliers). The specification is generally with preparation of the order plan.

Please note that in the absence of approval by MANN HUMMEL GMBH additional expenses incurred will be charged to you. This is also stated in the Supplier evaluation accordingly.

#### 12 Useful Links

The following links could be helpful to look up information or for norms that are demanded in this handbook:

#### MANN+HUMMEL Homepage:

Homepage: www.mann-hummel.com

www.mann-hummel.com/en/company/downloads/supplier-

documents.html

Norms:

VDA-Normen: www.vda.de

https://www.vda.de/en/services/Publications

Odette Normen: www.odette.org

http://www.odette.org/publications



# 13 Department in charge

Global Material Planning & Logistics MANN+HUMMEL GMBH, Schwieberdinger Straße 126 71636 Ludwigsburg, Germany

# 14 Change history

Revision	Release date	Changes from previous revision
00	07 / 2025	Initial version