



Packaging Manual

MAHLE Filtersysteme GmbH



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1. Standard returnable packaging

VDA R-KLT 3215



External dimensions	300 x 200 x 147 mm
Inner dimensions	243 x 162 x 129 mm
Weight	0.6 kg
Volume	5.3 l
Mat.-No.	76686224
Stacking factor	3 + 1

VDA R-KLT 4315



External dimensions	400 x 300 x 147 mm
Inner dimensions	346 x 265 x 109 mm
Weight	1.3 kg
Volume	10 l
Mat.-No.	76673636
Stacking factor	3 + 1

VDA R-KLT 6415



External dimensions	600 x 400 x 147 mm
Inner dimensions	544 x 364 x 109 mm
Weight	2.2 kg
Volume	22 l
Mat.-No.	70328522
Stacking factor	3 + 1

VDA R-KLT 6147



External dimensions	600 x 400 x 147 mm
Inner dimensions	544 x 359 x 129mm
Weight	1.8 kg
Volume	25.2 l
Mat.-No.	70357850
Stacking factor	3 + 1

VDA RL-KLT 6280



External dimensions	600 x 400 x 280 mm
Inner dimensions	544 x 359 x 262 mm
Weight	2.7 kg
Volume	51.9 l
Mat.-No.	70669467
Stacking factor	3 + 1

Cardboard alternative SLC 3215



External dimensions	300 x 200 x 140 mm
Tolerance	0/-3 mm
Quality	DIN 55468
Volume	7,4 l
Mat.No.	0001SCH
Max. total weight	15 kg

Cardboard alternative SLC 4315



External dimensions	400 x 300 x 140 mm
Tolerance	0/-3 mm
Quality	DIN 55468
Volume	12l
Mat.No.	0003SCH
Max. total weight	15 kg

Cardboard alternative SLC 6415



External dimensions	600 x 400 x 140 mm
Tolerance	0/-3 mm
Quality	DIN 55468
Volume	36l
Mat.No.	0008SCH
Max. total weight	15 kg

Cardboard alternative SLC 6147



External dimensions	600 x 400 x 140 mm
Tolerance	0/-3 mm
Quality	DIN 55468
Volume	36l
Mat.No.	0008SCH
Max. total weight	15 kg

Cardboard alternative SLC 6280



External dimensions	600 x 400 x 280 mm
Tolerance	0/-3 mm
Quality	DIN 55468
Volume	58l
Mat.No.	0009SCH
Max. total weight	15 kg

Magnum box Mahle internal fold.



External dimensions	1200 x 1000 x 900 mm
Inner dimensions	1120 x 975 x 715 mm
Weight	62 kg
Payload	500 kg
Foldable	yes
Stacking factor	3 + 1
Mat.-No.	70548239

Magnum Optimum 1208

Lid



External dimensions	1200 x 800 x 958 mm	1210 x 810 x 73 mm
Inner dimensions	1142 x 742 x 785 mm	
Weight	52 kg	5,2 kg
Payload	750 kg	
Foldable	yes (295 mm)	
Stacking factor	3 + 1	
Mat.-No.	72511241	70669462

DB lattice box (planned to expire)



External dimensions	1240 x 835 x 970 mm
Inner dimensions	1210 x 800 x 800 mm
Weight	85 kg
Payload	1500 kg
Foldable	no
Stacking factor	3 + 1
Mat.-No.	70669473

Plastic pallet INTERNAL gray



External dimensions	1200 x 800 x 150 mm
Weight	16.3 kg
Mat.-No.	70545925

EURO-pool-pallet 1200x800

External dimensions	1200 x 800 x 150 mm
Weight	21 kg
Payload	1000 kg
Mat.-No.	70669470
Other	Pallet is treated

2. Label positioning

- Every small load carrier is signed with a VDA shipping label
- The VDA shipping label is fixed outside on the longitudinal side of the small load carrier
- Every multi-unit carton box is signed with a VDA shipping label on the longitudinal side
- Additional guidelines can be found at: Implementation Guideline Global Transport Label (GLT) (www.Mahle.com)

3. Handling unit

- Usually, containers with small load carriers should not exceed a height of 1 meters and must be provided with an end cap. All layers of the container must be completely closed
- ESD small load carriers must generally be closed with a lid
- Packages made of layered LT and/or with steel/wooden pallets must be secured for transport by angles and tension straps
- Load carriers and containers must be stacked in such a way that they are safe from load
- When stacking load carriers and containers, the maximum permissible load (see label plate) must not be exceeded
- Containers may only be stacked with end caps
- The maximum weights of the KLT's must be designed according to the legal guidelines of the respective country

4. Cleanliness requirement

Technical cleanliness

Components relevant to technical cleanliness must be ensured throughout the entire logistics process in accordance with the requirements of the specifications/drawing. If special measures are required for this purpose, these must be agreed with MAHLE during the quotation phase and taken into account in the quotation (e.g. additional disposable packaging, periodic container cleaning, etc.). If it is necessary to clean the containers, the sup-

plier must prove the required cleanliness of the container in the series preparation by means of a certificate. All production and logistics processes of the supplier must be carried out in a dry and clean environment. The supplier is responsible for setting up the necessary structures for this. Furthermore, the use of covered empty container spaces for all MAHLE volumes must be ensured without exception.

5. Dimensions of disposable packaging

Dimensions of disposable packaging must be based on the standard reusable packaging (reduction picking, packaging in portions).

Alternative packaging

The use of alternative packaging must be avoided as a matter of principle, as it causes process disturbances with additional costs. In the event that the series packaging is not yet available or the delivery call-off cannot be covered by the available series packaging, the supplier must ensure his ability to deliver by delivering in MAHLE-compliant alternative packaging. Alternative packaging can be provided in one-way as well as reusable packaging. If one-way packaging for intercontinental supply has already been agreed upon, this can be used as alternative packaging for continental supply in coordination with MAHLE packaging planning. Before using alternative packaging, this must be agreed with MAHLE packaging planning. The costs for the use of one-way and alternative packaging caused by the supplier must be borne by the supplier. If necessary, the resulting consequential costs must be agreed separately between Mahle and the supplier. Even alternative packaging agreed with MAHLE does

not release the supplier from his responsibility to deliver properly (e.g. selection of packaging suitable for transport according to MAHLE guidelines, component quality). If the supplier's disposable packaging is used as alternative packaging, it must fulfil the following requirements: Protection against moisture, dust and dirt to ensure component quality. Damage-free, unproblematic handling by industrial trucks. Optimum stacking height dimensioned to the installation space of the means of transport used. Marking of the maximum load or stacking factor. Environmentally friendly disposal. Standard dimensions of the load unit and modular design must be observed depending on the receiving plant. Before using the series packaging, the completely filled out packaging data sheet of the alternative packaging (one-way or reusable) must be submitted to the packaging planning department. A corresponding note "Alternative packaging!" must be entered in the delivery note, indicating the contact person with whom the packaging was specified (name, abbreviation, telephone number). The maximum permissible weights in the load carriers are based on the legal requirements of the respective country or must be agreed and approved with the responsible persons in the plants.

6. Inner packaging

Reusable packaging

- are used for different part families. They are used across business areas. They do not have fixed installations.
- are used for the specific packaging of clearly assignable part families. They are usually used between one MAHLE plant and one supplier, but in exceptional cases also for several suppliers and plants of MAHLE.
- Packages are transport units consisting of several individual components (e.g. pallet, VDA small load carrier, end cap).

- Packaging aids are used, if necessary, as accessories for load carriers and are used for quality assurance.

One-way packaging

- are intended for single use only. After use they are sent for recycling. Disposable packaging is to be avoided on principle. They may only be used as packaging aids in exceptional cases and after consultation with the logistics planners of the MAHLE plants.
- Disposable packaging and packaging aids must be procured by the supplier.

7. Approved packaging materials

For ecological and economic reasons, only selected materials are approved by Mahle for disposable packaging and disposable packaging aids. The following table lists the materials approved for all disposable packaging and packaging aids:

- Cardboard boxes
- Corrosion protection paper
- Plastics
- Metals
- Wood
- Textilian

8. Repair, scrapping, disposal and cleaning

Repair – scrapping – disposal

- Load carriers that show damage or defects must not be loaded and shipped
- Decommissioning of MAHLE's own load carriers may not be carried out independently by the supplier
- Repairs of MAHLE load carriers are only carried out by partners authorized by MAHLE

Cleaning

- Parts may only be delivered in clean and functional load carriers

- Qualitative requirements for the part to be delivered determine the degree of cleaning of the load carriers and must be implemented by the supplier at his own expense
- MAHLE ships reusable packaging in functional condition
- Supplier's requirements that go beyond this cleaning condition are to be implemented by the supplier at his own expense
- Other regulations (also with regard to the type and cycle of cleaning) are possible after consultation with individual plants

9. Sustainability

MAHLE is committed to sustainability and develops and implements ecological packaging systems taking into account economic conditions. This basically results in the following: For transport within the same economic area, the use of reusable packaging is preferable in order to reduce the proportion of disposable packaging. The preferred use of one-way packaging over reusable packaging is subject to individual case consideration. The optimum packing density to avoid unnecessary transport is to be determined by a packing simulation. MAHLE and its suppliers are committed to using approved, environmentally friendly materials in order to meet the requirements of the Packaging Ordinance. Required additional packaging is to be

kept to a minimum without reducing the quality requirements for damage-free delivery of the component (transport, storage and handling). The obligation to recycle reusable and disposable packaging in an environmentally friendly manner and to ensure that the various recyclable materials can be easily separated. The packaging material must be recyclable throughout and visibly marked with clear material specifications on each packaging component. The packaging must be labelled in accordance with DIN 6120-1 (symbol) and DIN 6120-2 (abbreviation) and must not exclude material or energy recovery. Details on approved and non-approved materials can be found in the MAHLE portal.

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