Technology Standard

MAHLE Behr Europe KLT[1] Pool System

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[1] KLT = small load container

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1. General processing of MAHLE Behr KLT-Pool System

1.1. Order process

The returnable packaging (RP) in this system may only be used for deliveries from the supplier to MAHLE Behr, from MAHLE Behr to the supplier, and for MAHLE Behr's internal deliveries. This applies to all deliveries to MAHLE Behr Group companies within Europe.
In addition, global and regional logistic guidelines must be considered.

Areas of application:

> MAHLE Behr supplies the following European countries delivered duty unpaid and untaxed:
>
> Belgium, Denmark, Germany, France, Italy, Luxembourg, Monaco, Netherlands, Austria, Poland, Romania, Switzerland, Slovenia, Slovakia, Spain, Czech Republic, and Hungary.
>
> Remaining countries of Europe:
>
> In the remaining countries additional freight charges are calculated individually and charged to the buyer. Customs documents for export registration are prepared by MAHLE Behr and attached to the shipment. Resulting payments of duty and taxes including additional expenses will be charged to the consignee.

The supplier orders at MAHLE Behr the RP, required for his demands.
The RP may only be used for deliveries to MAHLE Behr subsidiaries. The use for deliveries to other partners or pre-production is expressly prohibited.

MAHLE Behr supplies the RP to the supplier within the defined lead-time after receipt of order by fax or e-mail.

1.2. RP account statement

For all RP a packaging-account must be implemented between supplier and MAHLE Behr. MAHLE Behr forwards its packaging account statement via e-mail monthly to supplier. Supplier must check accounts within permitted time period. In case of claims, supplier must add corresponding paperwork.

Packaging accounts for shared RP are managed by container-eu@mahle.com, only.

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1.3. Physical inventory

Stock taking of all RP must be done minimum once per year. Date of stock taking is defined as 31.12.20xx.

Reports of stock taking must be returned at the defined date the latest.

In case of discrepancies from RP account to physical counting, reported stock will be overtaken into RP account.

Discrepancies that could not be clarified with defined time frame will be charged to supplier with costs for re-sourcing.

If no stock taking report is returned with defined date, RP account will be booked to "0" and booked quantity will be charged to exchange partner with costs for replacement.

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2.   RP at MAHLE Behr KLT-Pool System

2.1.   Overview 1 RP at MAHLE Behr Pool

Packaging name: **MU3**		
Packaging number: **BT05815**		
Color: blue - RAL5005		

Packaging details		
	EXTERNAL	INTERNAL
Length	**800 mm**	**700 mm**
Width	**400 mm**	**330 mm**
Height	**323 mm**	**308 mm**
Weight	**4,48 kg**	
Superimposed load: 150 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
1139 mm	**140,96 kg**	**3**	**9**

Packaging name: **MU4**		
Packaging number: **BT00380**		
Color: blue - RAL5005		

Packaging details		
	EXTERNAL	INTERNAL
Length	**600 mm**	**531 mm**
Width	**400 mm**	**341 mm**
Height	**330 mm**	**316 mm**
Weight	**3,40 kg**	
Superimposed load: 120 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
1230 mm	**156,00 kg**	**4**	**10**

Packaging name: **MU5**		
Packaging number: **BT00013**		
Color: blue - RAL5005		

Packaging details		
	EXTERNAL	INTERNAL
Length	**600 mm**	**542 mm**
Width	**400 mm**	**352 mm**
Height	**218 mm**	**208 mm**
Weight	**2,80 kg**	
Superimposed load: 120 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
1257 mm	**165,60 kg**	**4**	**13**

Packaging name: **MU5L**		
Packaging number: **BT03073**		
**Color: ESD black	Resistance: 10^6 ohm**		

Packaging details		
	EXTERNAL	INTERNAL
Length	**600 mm**	**542 mm**
Width	**400 mm**	**352 mm**
Height	**218 mm**	**214 mm**
Weight	**3,05 kg**	
Superimposed load: 120 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
1257 mm	**178,60 kg**	**4**	**13**

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2.2. Overview 2 RP at MAHLE Behr Pool

Packaging name:		
MU6		
Packaging number:		
BT00379		
Color: blue - RAL5005		

Packaging details		
	EXTERNAL	INTERNAL
Length	**400 mm**	**352 mm**
Width	**300 mm**	**242 mm**
Height	**218 mm**	**208 mm**
Weight	**1,40 kg**	
Superimposed load: 120 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
1257 mm	**165,60 kg**	**8**	**13**

Packaging name:		
MU6L		
Packaging number:		
BT05138		
Color: ESD black | Resistance: 10^6 ohm		

Packaging details		
	EXTERNAL	INTERNAL
Length	**400 mm**	**352 mm**
Width	**300 mm**	**242 mm**
Height	**218 mm**	**214 mm**
Weight	**1,60 kg**	
Superimposed load: 120 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
1257 mm	**186,40 kg**	**8**	**13**

Packaging name:		
MU7		
Packaging number:		
BT06501		
Color: blue - RAL5005		

Packaging details		
	EXTERNAL	INTERNAL
Length	**300 mm**	**238 mm**
Width	**200 mm**	**150 mm**
Height	**154 mm**	**143 mm**
Weight	**0,55 kg**	
Superimposed load: 95 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
685 mm	**108,00 kg**	**16**	**10**

Packaging name:		Lid name:
MAHLE KLT4213		**LID D45**
Packaging number:		Lid number:
BT59936		**BT60297**
Color: blue - RAL5005		

Packaging details		Lid details
	EXTERNAL	INTERNAL	
Length	**400 mm**	**345 mm**	**400 mm**
Width	**300 mm**	**260 mm**	**300 mm**
Height	**213 mm**	**185 mm**	**-**
Weight	**1,42 kg**		**0,25 kg**
Superimposed load: 600 kg		
Handling unit stacking details for empty boxes		

Stack height	Weight	Per layer	Max layers
1205 mm	**76,80 kg**	**8**	**5**

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2.3. Overview 3 RP at MAHLE Behr Pool

Packaging name: **MAHLE KLT3147** Packaging number: **BT60471**		Lid name: **LID D35** Lid number: **BT60296**
Color: blue - RAL5005		

Packaging details		Lid details
	EXTERNAL	INTERNAL	
Length	**300 mm**	**243 mm**	**300 mm**
Width	**200 mm**	**162 mm**	**200 mm**
Height	**147 mm**	**130 mm**	-
Weight	**0,57 kg**		**0,09 kg**
Superimposed load: 400 kg			
Handling unit stacking details for empty boxes			
Stack height	Weight	Per layer	Max layers
1167 mm	**83,84 kg**	**16**	**7**

Packaging name: **MAHLE KLT6147** Packaging number: **BT62593**		Lid name: **LID D65** Lid number: **BT62539**
Color: blue - RAL5005		

Packaging details		Lid details
	EXTERNAL	INTERNAL	
Length	**600 mm**	**544 mm**	**600 mm**
Width	**400 mm**	**359 mm**	**400 mm**
Height	**147 mm**	**130 mm**	-
Weight	**1,82 kg**		**0,52 kg**
Superimposed load: 400 kg			
Handling unit stacking details for empty boxes			
Stack height	Weight	Per layer	Max layers
1167 mm	**136,48 kg**	**4**	**7**

Packaging name: **MAHLE KLT8420** Packaging number: **BT57600**	
Color: grey	

Packaging details	
	EXTERNAL	INTERNAL
Length	**800 mm**	**238 mm**
Width	**400 mm**	**238 mm**
Height	**200 mm**	**238 mm**
Weight	**2,93 kg**	
Superimposed load: 380 kg	
Handling unit stacking details for empty boxes	
Stack height	Weight	Per layer	Max layers
1140 mm	**63,95 kg**	**3**	**5**

Packaging name: **LID A1208** Packaging number: **BT00233**
Color: blue - RAL5012

Packaging details	
Length	**1205 mm**
Width	**805 mm**
Height	**94 mm**
Weight	**6,10 kg**
Handling unit stacking details for empty boxes	
Stack height	Weight	Per layer	Max layers
2494 mm	**172,50 kg**	**1**	**25**

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2.4. Overview 4 RP at MAHLE Behr Pool

Packaging name: **MAHLE KLT4013**		Lid name: **LID D41**
Packaging number: **BT63447**		Lid number: **BT63448**
Color: ESD black		

Packaging details		Lid details
	EXTERNAL	INTERNAL
Length	**400 mm**	**345 mm**
Width	**300 mm**	**260 mm**
Height	**213 mm**	**185 mm**
Weight	**1,54 kg**	

(continued below)

Packaging details		Lid details
	EXTERNAL	INTERNAL	
Length	**400 mm**	**345 mm**	**400 mm**
Width	**300 mm**	**260 mm**	**300 mm**
Height	**213 mm**	**185 mm**	-
Weight	**1,54 kg**		**0,29 kg**

Superimposed load: 400 kg

Handling unit stacking details for empty boxes

Stack height	Weight	Per layer	Max layers
1209 mm	**81,60 kg**	**8**	**5**

Packaging name: **MAHLE KLT6013**		Lid name: **LID D61**
Packaging number: **BT63449**		Lid number: **BT63450**
Color: ESD black		

Packaging details		Lid details
	EXTERNAL	INTERNAL	
Length	**600 mm**	**544 mm**	**600 mm**
Width	**400 mm**	**359 mm**	**400 mm**
Height	**213 mm**	**185 mm**	-
Weight	**2,54 kg**		**0,75 kg**

Superimposed load: 400 kg

Handling unit stacking details for empty boxes

Stack height	Weight	Per layer	Max layers
1209 mm	**70,80 kg**	**4**	**5**

Packaging name: **LID A1208 ESD**
Packaging number: **BT63451**
Color: ESD black

Packaging details

Length	**1205 mm**
Width	**805 mm**
Height	**94 mm**
Weight	**6,80 kg**

Handling unit stacking details for empty boxes

Stack height	Weight	Per layer	Max layers
2494 mm	**190,00 kg**	**1**	**25**

Packaging name: **EUROPALLET**
Packaging number: **804562**
Color: wood

Packaging details

Length	**1200 mm**
Width	**800 mm**
Height	**144 mm**
Weight	**20,00 kg**

Superimposed load: 6000 kg

Handling unit stacking details for empty boxes

Stack height	Weight	Per layer	Max layers
2304 mm	**320,00 kg**	**1**	**16**

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3. Implementation of MAHLE Behr Pool System at suppliers

3.1. Step1 - Identification of parts

Based on the packaging specifications of MAHLE Behr, supplier defines the quantity of parts per packaging and adjusts these in consultation with the responsible Logistics team leader (Logistic Datasheet).

3.2. Step2 - Access to the system

Registration with Logistics MAHLE Behr Group: kltpool@mahle.com

Supplier receives additional information and the order form.

Address:

MAHLE Behr GmbH & Co KG
KLT-Pool Management / TEL
Mauserstraße 3
D-70469 Stuttgart
Tel: +49 711 501 10225
Fax: +49 711 501 44 10225
E-mail: kltpool@mahle.com

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4. Logistics processing of MAHLE Behr Pool

4.1. Scheduling/delivery of RP

Supplier is responsible for planning and scheduling the demand for RP. Supplier's order is sent by fax or email. Within a maximum of 5 / 7 working days after receipt of the order, delivery will be carried out by MAHLE Behr.

Lead time 5 working days:
Belgium, Denmark, France, Germany, Italy, Luxembourg, Monaco, Netherlands, Austria, Poland, Switzerland, Slovakia, Spain und Czech Republic.

Lead time 7 working days:
Romania, Slovenia, Hungary

Shipments to other European countries will take place after previous coordination.

Shipment of empty RP takes place sorted and with defined package sizes. KLT 3147, 4013, 4213, 6013, 6147 and 8420 are to be stacked with the corresponding lid. Load securing for KLT and lids must be done with lid A1208/A1208ESD and straps.

Euro pallet	(804562)	=	16	pcs. per stack
1 pallet KLT3147	(BT60471)	=	112	pcs. (incl. lids D35 - BT60296)
1 pallet KLT4013	(BT63447)	=	40	pcs. (incl. lids D41 - BT63448)
1 pallet KLT4213	(BT59936)	=	40	pcs. (incl. lids D45 - BT60297)
1 pallet KLT6013	(BT63449)	=	20	pcs. (incl. lids D61 - BT63450)
1 pallet KLT6147	(BT62593)	=	28	pcs. (incl. lids D65 - BT62539)
1 pallet KLT8420	(BT57600)	=	15	pcs.
1 pallet A1208	(BT00233)	=	25	pcs.
1 pallet A1208ESD	(BT63451)	=	25	pcs.
1 pallet MU 3	(BT05815)	=	27	pcs.
1 pallet MU 4	(BT00380)	=	40	pcs.
1 pallet MU 5	(BT00013)	=	52	pcs.
1 pallet MU 5 L	(BT03073)	=	52	pcs.
1 pallet MU 6	(BT00379)	=	104	pcs.
1 pallet MU 6 L	(BT05138)	=	104	pcs.
1 pallet MU 7	(BT06501)	=	160	pcs.

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4.2. Cleanliness

It is to be assumed that containers are circulated throughout the MAHLE Behr Group under industrial conditions. This includes the handling of the containers as well as a minor soiling by process-related activities on the parts which cannot be avoided.

RP shall be provided in usable condition.

RP are inspected and sorted in MAHLE Behr plants with defined quality criteria.

Container in re-usable condition must be sent to MAHLE Behr's Logistic Centers directly.

Containers to be cleaned must be sent to cleaning stations before returning them into KLT-pool loop.

Clean / re-usable RP must be stored dryly (under roof) in any case.

Additional requirements in regards of cleanliness of RP must be defined and ensured separately.

4.3. Labeling (according VDA4902, VDA4994)

For the identification of KLT/MULTIPACK, **only non-self-adhesive** shipping/part identification labels must be used. They must have a grammage of 120g/m² at minimum.

Labels must be put into the provided label holder (KLT). Fixation with adhesive dots is not permitted.

The fixation of the labels at MULTIPACK must be done with max. 2 adhesive dots.

For identification of the handling unit, a master label must be used. The fixation must be done with max. 2 adhesive dots.

These adhesive dots can be purchased directly from the manufacturer at MAHLE Behr conditions.

Following types are available:

Adhesive dot 45 x 19 mm (item number BT56855)
Adhesive dot 30 x 30 mm (item number BT56856)

Adhesive dots may also be purchased at other manufacturers. The dots must comply with the specifications of MAHLE Behr adhesive dots.

Specifications and supplier information could be requested at KLT-Pool Management.

No other types of fixation are permitted.

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4.3.1. **System** conform labeling:

- Non-self-adhesive label, put into label holder at KLT and 1 master label at front end fixed with max. 2 adhesive dots of defined types

- Non-self-adhesive label, fixed with max. 2 adhesive dots at MULTIPACK and 1 master label at front end fixed with max. 2 adhesive dots of defined types

- Exception MU7 – due to sizes, label must be put on long side

- Basically, size of labels (VDA 4902, VDA4994) should be aligned to size of KLT

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4.3.2. **System** non-conform labeling:

- Label on the lid
- Label on the side
- Affixing (self-adhesive) pockets to the container
- Use of any type of tape (also Scotch tape)
- Multiple labels applied by suppliers
- Use of self-adhesive labels
- Labels between the reinforcing ribs
- Labels on the inside of the container

- To prevent parts from getting mixed up in the production process, only the currently valid shipping/parts identification label must be used on the container.

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4.4. Palletizing

According to this standard Euro pallets (1200 x 800 x 144 mm) must be used for shipping of RP. MAHLE Behr part number is 804562.

4.5. Load securing

- For the delivery of full KLT/MULTIPACK, only plastic straps are permitted. When using handling unit lid A1208, the plastic strap must be routed through the grooves.

- For MULTIPACK, the plastic strap must be routed through the grooves in the lid (not the hinge).

- Exception: for MU7 plastic straps must be routed in the middle row of handling unit in addition.

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4.6. Goods receipt inspection process

Inbound deliveries / packaging will be inspected at goods receipt and if non-compliant, a claim will follow. Costs will be charged to the supplier.

Following items will be checked amongst others:
- Cleanliness
- Labeling
- Palletizing
- Load securing

4.7. Area of application for RP

In principle, the RP is suitable for all parts satisfying the dimensional requirements. If using additional inserts, it is also possible to securely pack sensitive parts as well. If filled containers are handled manually, care must be taken to ensure compliance with the ergonomic and legal guidelines.

Exceptions to this rule must be defined!

4.8. Ergonomics

Weight restrictions (payload / superimposed load) must be observed for all RP.

A maximum total weight of 12 KG including packaging must not be exceeded for small boxes employed for shipments to/from MAHLE Behr, in case of manual handling.

Exception: For MU7 – BT06501 a maximum permitted total weight of 8 kg applies.

The stacking height of filled containers per pallet must be agreed with MAHLE Behr.

5. Contact person for logistic/technical standards

The department responsible for the contact/coordinating function relating to logistic and technical contents of this guideline is Europe Logistics, Container Concepts / Logistics Services, TEL

Mr. Jochen Rothfuß, TEL
jochen.rothfuss@mahle.com