

Regional Packaging Guideline

MAHLE Behr North America

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1 Requirements

All requirements are strictly enforced, non – conformance might result in debit charges of the actual occurred cost/ effort in addition to a 250 USD administration cost.

1.1 Standard Dimensions

Pallets footprint sizes are 48x45 or 48x40. The height of the pallet incl. load cannot exceed 52 inches.

Exceptions have to be agreed to in writing.

In the event of non-compliant packaging, MAHLE Behr reserves the right to invoice the supplier for any additional costs (QM Notification).

1.2 Ergonomics

- **Weight restrictions**

Maximum manual lifting weight is 30 Lbs for containers including parts.

- **Load carrier / transport packaging**

As per current laws and regulations - supplier is responsible for not exceeding load weight in trailer.

1.3 Product Protection

If the product requires ESD, corrosion, or moisture protection (even if not explicitly stated in specification and drawings) , special protective packaging is required (including but not limited to ESD Tote/Bag, VCI Bag, desiccant in a sealed bag, protective inserts and handling labels/ instructions). It is the supplier's responsibility to make sure the packaging is protected against shipping damages according to the defined shipping method.

All product protection and packaging needs to be approved in writing by the MAHLE Behr Packaging Specialist. See Global Guidelines

1.4 Load Securing, Closure

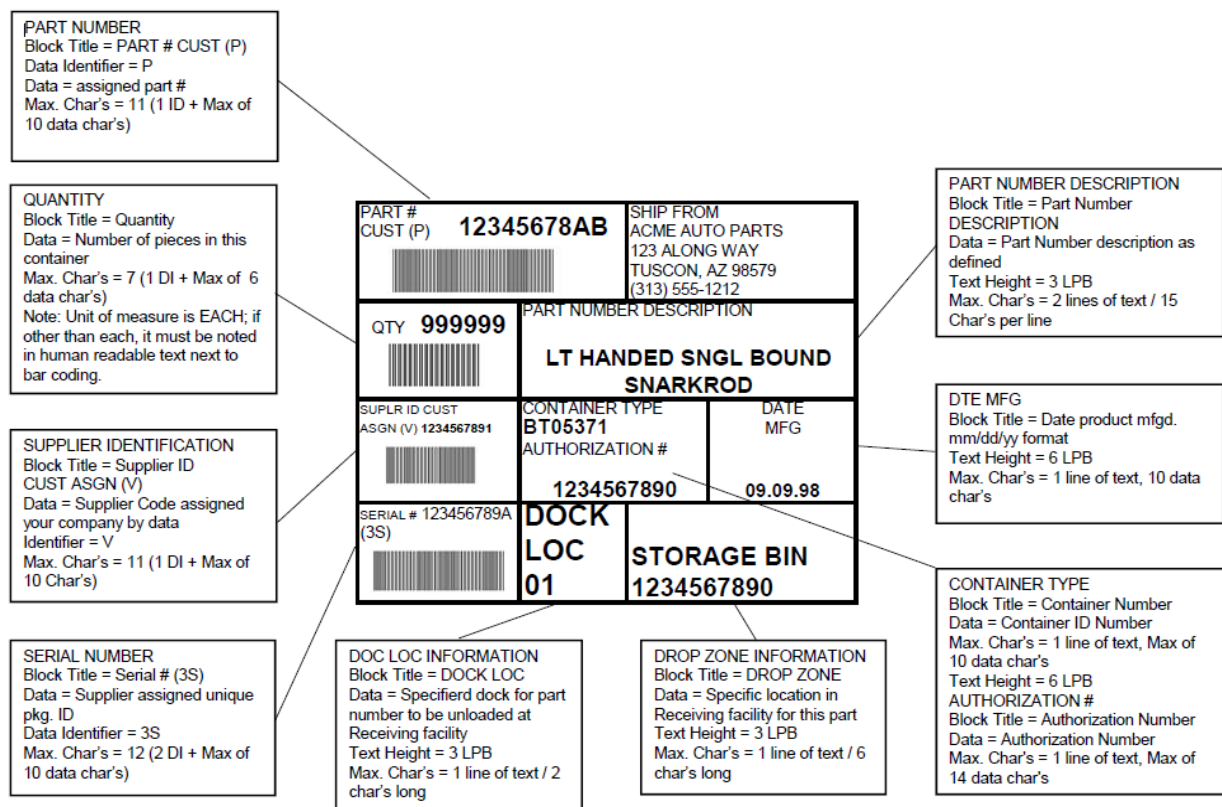
Suppliers are responsible for the proper loading of trailers, considering quality preservation and safety. MAHLE Behr's expectations are to receive components correctly packaged and stacked appropriately in the trailer to prevent damage and ease of unloading. Freight must be loaded with the labels and bar codes facing the rear of the trailer. Materials that arrive in a MAHLE Behr plant that are damaged will be assessed for root cause. If the supplier's packaging or loading appears to be an issue, a non conformance report and debit will be issued. Slip sheets may be used in some cases and the supplier must have the proper equipment to move material on slip sheets per the directive of MAHLE Behr.

Nesting totes need to have stretch wrap to secure the totes to the pallet.

1.5 Labeling

All product labels should comply with the ANSI / AIAG standards. MAHLE Behr's minimum requirement is the AIAG specification of 4" x 6", AIAG ISO size 6. B-10 Version 1.00, 5/95.

Self adhesive labels must be applied to returnables only in pre - defined areas on two adjacent sides.



2 Returnable Packaging Systems

MAHLE Behr will conduct regular container inventory count. The supplier is required to support this inventory upon request. Supplier is also required to actively support Mahle Behr Packaging Tracking Systems at no additional cost. MAHLE Behr will charge supplier for lost and damaged to supplier based on route cause principle.

2.1 Large Container

MAHLE Behr-owned containers are not to be used for (but not limited to) any other customers, bank builds, WIP material, or trash cans. Unused MAHLE Behr containers have to be identified and returned to MAHLE Behr.

Container ID	Container Description	Outer Length	Outer Width	Outer Height	Inner (Bot) Length	Inner (Bot) Width	Inner (Bot) Height	Total # of Container per Pallet	Total # of Container per 53' Trailer	Total # of Pallets per 53' Trailer [Assembled]	Total # of Pallets per 53' Trailer [Collapsed]	Container Weight (lbs)	Container Weight (kg)
BT50544	Behr Ret. Bulk Cont.	32.00	30.00	34.00	29.20	27.30	27.30	1	189	189	504	85.00	38.55
N/A	Behr Ret. Bulk Cont.	48.00	40.00	29.00	43.60	36.00	23.10	1	90	90	210	142.00	64.40
N/A	Behr Ret. Bulk Cont.	48.00	40.00	34.00	43.60	36.00	27.60	1	90	90	210	159.00	72.11
BT58415	Behr Ret. Bulk Cont.	48.00	40.00	50.00	43.60	36.00	43.40	1	60	60	150	203.00	92.06
BT09300	Behr Ret. Bulk Cont.	48.00	45.00	19.30	44.30	41.30	12.70	1	130	130	-	102.00	46.26
BT09301	Behr Ret. Bulk Cont.	48.00	45.00	25.00	44.20	41.20	18.50	1	104	104	128	122.00	55.33
BT06204	Behr Ret. Bulk Cont.	48.00	45.00	34.00	44.20	41.20	27.50	1	78	78	208	145.00	65.76
BT06605	Behr Ret. Bulk Cont.	48.00	45.00	42.00	44.20	41.20	35.40	1	52	52	130	180.00	81.63
BT57926	Behr Ret. Bulk Cont.	48.00	45.00	50.00	44.20	41.20	43.30	1	52	52	78	199.00	90.25
BT09188	Behr Ret. Bulk Cont.	56.50	48.00	25.60	53.30	44.80	18.00	1	88	88	154	159.00	72.11
BT09135	Behr Ret. Bulk Cont.	56.50	48.00	34.60	53.30	44.80	26.90	1	66	66	154	189.00	85.71
BT50562	Behr Ret. Bulk Cont.	56.50	48.00	42.00	53.30	44.80	34.90	1	44	44	88	220.00	99.77
BT50541	Behr Ret. Bulk Cont.	64.50	48.00	34.60	61.30	44.80	26.80	1	54	54	144	207.00	93.88

2.2 Small Container

Nestable Containers are strongly preferred for mid and long distance supply chains. MAHLE Behr-owned containers are not to be used for (but not limited to) any other customers, bank builds, WIP material, or trash cans. Unused MAHLE Behr containers have to be identified and returned to MAHLE Behr.

Container ID	Handheld container and pallet description	Outer Length	Outer Width	Outer Height	Inner (Bot) Length	Inner (Bot) Width	Inner (Bot) Height	Total # of Container per Pallet	Total # of Container per 53' Trailer	Total # of Pallets per 53' Trailer [Assembled]	Total # of Pallets per 53' Trailer [Collapsed]	Container Weight (lbs)	Container Weight (kg)
BT52033	Behr Ret. Layer Pad	44.00	41.00	0.16	n/a	n/a	n/a	-	-	n/a	n/a	n/a	-
BT50542	Behr Ret. Pallet Lid	48.00	45.00	2.90	n/a	n/a	n/a	-	-	n/a	n/a	n/a	7.26
BT50543	Behr Ret. Pallet	48.00	45.00	6.00	n/a	n/a	n/a	-	-	n/a	n/a	n/a	17.23
BT05709	Behr Blue Ret. Ctr	12.00	7.40	5.00	9.40	5.50	4.50	216	11,232	52	-	2.00	0.91
BT05710	Behr Blue Ret. Ctr	12.00	15.00	5.00	9.40	13.00	4.40	108	5,616	52	-	2.20	1.00
BT05371	Behr Blue Ret. Ctr	12.00	15.00	7.50	9.40	13.00	6.80	72	3,744	52	-	2.60	1.18
BT57781	Behr Black Ret. Ctr	12.00	15.00	7.50	21.40	9.30	8.70	216	11,232	52	-	2.00	0.91
BT05372	Behr Blue Ret. Ctr	24.00	11.20	9.50	21.40	9.30	8.70	40	2,080	52	-	4.30	1.95
BT50545	Behr Blue Ret. Ctr	24.00	15.00	5.00	21.40	13.00	4.40	54	2,808	52	-	3.60	1.63
BT05373	Behr Blue Ret. Ctr	24.00	15.00	7.50	21.40	13.00	6.80	36	1,872	52	-	4.60	2.09
BT05374	Behr Blue Ret. Ctr	24.00	15.00	9.50	21.40	13.00	8.80	30	1,560	52	-	5.20	2.36
BT50546	Behr Blue Ret. Ctr	24.00	15.00	11.50	21.40	13.00	10.90	24	1,248	52	-	6.00	2.72
BT05375	Behr Blue Ret. Ctr	24.00	15.00	14.50	21.40	13.00	13.80	18	936	52	-	8.30	3.76
BT50547	Behr Blue Ret. Ctr	24.00	22.50	7.50	21.40	20.50	6.80	24	1,248	52	-	4.80	2.18
BT05376	Behr Blue Ret. Ctr	24.00	22.50	8.70	21.40	20.50	8.10	20	1,040	52	-	6.20	2.81
BT05377	Behr Blue Ret. Ctr	24.00	22.50	10.90	21.40	20.50	10.25	16	832	52	-	7.80	3.54
BT58416	Behr Blue Ret. Ctr	24.00	22.50	14.50	21.40	20.50	13.80	12	624	52	-	8.20	3.72
BT05378	Behr Blue Ret. Ctr	32.00	15.00	7.50	29.40	13.00	6.70	24	1,248	52	-	5.80	2.63
BT05605	Behr Blue Ret. Ctr	48.00	15.00	7.50	45.40	13.00	6.30	18	936	52	-	8.30	3.76
BT05379	Behr Blue Ret. Ctr	48.00	15.00	10.80	45.40	13.00	9.60	12	624	52	-	10.10	4.58
BT09400	Behr Blue Ret. Ctr	48.00	22.50	7.30	45.40	20.50	6.30	12	624	52	-	9.80	4.44
BT05380	Behr Ret. Ctr Lid	24.00	11.00	0.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.00	0.45
BT05381	Behr Ret. Ctr Lid	24.00	15.00	0.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.10	0.95
BT05382	Behr Ret. Ctr Lid	48.00	15.00	0.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.00	1.36
BT05415	Behr Ret. Ctr Lid	12.00	15.00	0.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.00	0.45
BT06484	Behr Ret. Ctr Lid	24.00	22.00	0.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.00	1.36
BT06485	Behr Ret. Ctr Lid	32.00	15.00	0.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2.50	1.13
BT59465	Behr Ret. Pallet Lid (Nesting)	48.00	40.00	3.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	34.00	15.42
BT59466	Behr Ret. Pallet (Nesting)	48.00	40.00	6.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	17.00	7.71
BT59467	Behr Blue Ret. Ctr (Nesting)	23.60	15.80	7.10	19.30	13.40	6.20	30	1,800	60	120	3.40	1.54
BT59468	Behr Blue Ret. Ctr (Nesting)	23.60	15.80	14.30	19.30	13.40	13.00	15	900	60	120	5.50	2.49

2.3 Special Packaging

Special returnable packaging is to be developed and procured by the MAHLE Behr Packaging Engineer with the help of the Suppliers Packaging Contact, unless otherwise stated in the business contract with MAHLE Behr. Suppliers are encouraged to make recommendations in order to utilize the best packaging available for preservation of material and unit quantity per container.

Special expendable packaging is to be developed and procured by the supplier unless otherwise stated in the business contract with MAHLE Behr. In the case that the supplier has to develop and procure the packaging, all packaging must be approved by MAHLE Behr Packaging Engineer.

A significant sample sizes must be available for Supplier's Run @ Rate so the packaging can be reviewed and approved.

3 Disposable Packaging

Suppliers are not authorized to ship or invoice expendable containers within MAHLE Behr North America, unless authorized by the receiving Mahle Behr plant. MAHLE Behr request that the corrugated thickness selection be based upon the strength required to hold the product without damage to the parts or the carton. Cardboard needs to withstand the stacking to truckload height without crushing the bottom layers.

Supplier is responsible to have an approved expendable backup box available at all times in case there is a shortage of MAHLE Behr returnable containers and it should mimic the returnable dimensions and density. Suppliers must enter the expendable (back up) packaging information in Pool4Tool. Once the expendable ULD is approved, the supplier can ship in expendable with proper authorization (one time authorization numbers)

Boxes of materials on skids must be secured using polyester banding that can be heat sealed or with appropriate adhesives. Metal bands, PVC stretch wrap and other methods of securing materials to a skid are not acceptable unless they are approved in writing by the MAHLE Behr plant. Overall carton sizes must accommodate the full closure of the box with the product packaged. Cartons must not exceed the size of the skid that they are shipped on. Pallet cannot exceed box sizes by more than one inch on each side.

Please note that MAHLE Behr North America only accepts HSC boxes (boxes with removable lids) unless approved otherwise in writing.

Shipments in RSC containers are only allowed with authorization issued in writing by MAHLE Behr Packaging Specialist. (or approved ULD sheet)

Disposable plastic or wood pallets shipped to MAHLE Behr North America must be a 4-way entry open boarded 3 base pallet or flat stringer pallets (4 way entry) and must not contain compressed wood. Metal pallets are not allowed. Weight per pallet must stay under 3500 lbs unless approved otherwise in writing.

4 Overseas Packaging

4.1 Slip Sheets

MAHLE Behr North America does encourage the use of slip sheets for oversea pallet sized boxes.

Every box must have its own slip sheet. Loading and unloading shall be conducted only with specialized handling equipment.

5 Management of Empties

Suppliers are responsible for the removal of the bar code labels and the cleanliness of the returnable containers in order to ensure there is no contamination of the contents.

The MAHLE Behr facility ship location will be responsible for providing suppliers with enough containers to support requirements during the lifetime of the program. MAHLE Behr plants are also responsible for general repairs and replacing broken containers. Suppliers must notify the plant in case of receiving damaged containers and must ship them back properly marked for repair.

**Unless stated otherwise in contract between MAHLE Behr and supplier*

Storage of MAHLE Behr empty containers outside the plants is prohibited; all suppliers must have a designated container storage area inside their plants.

6 Hazardous Material

Shipping and packaging of hazardous materials are must comply with all laws and regulations. Proper identification and handling is absolutely required

7 Environment / Recycling / Waste Prevention

See Global Guidelines

8 Abbreviations

AIAG	Automotive industry Action Group
ANSI	American National Standards Institute
ESD	Electro Static Discharge
HSC	Half Slotted Container
PVC	Polyvinyl Chloride
QM	Quality Management
RSC	Regular Slotted Container
ULD	Unit Load Device
VCI	Volatile Corrosion Inhibitor
WIP	Work In Progress