

Regional Packaging Guideline

MAHLE Behr Asia Pacific

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1 Requirements

“Regional Packaging Guideline” is key factor which is compliance with the global logistic guideline and other quality standards of MAHLE Behr group.

Suppliers must correspond with “Regional Packaging Guideline” and is also responsible for continuous improvement either best practices implementation or package quality concerns.

1.1 Standard Dimensions

Pallet footprint is key factor in transportation which especially defines pack density in sea container. Considering space utilization in warehouse as well as production area in regional plants, below footprints are recommended:

Plant	Length	Width	Height
MAHLE Behr Jinan	1200	1000	<134
	1200	800	<134
	1140	790	<134
	1140	980	<134
MAHLE Behr Qingdao	1200	1000	<134
	1200	800	<134
MAHLE Behr Korea	1200	1000	<134
	1200	800	<134
MAHLE Behr India	1200	800	150
	1200	800	150

Pallet quality standard also must be taken into account; specific requirements see global logistic guideline.

1.2 Ergonomics

Ergonomics is the purpose which is requiring to avoid excessive workload for production due to inappropriate package concept, below is common description that should be taken into account:

- Max. weight
Generally, G.W: 15 kg is the acceptable and maximum weights for plants. 20 Kg can be considered if it would be agreed by receiving plant.
- Dimension
Generally, container dimension should not exceed 600x400x450mm which can be conveniently removed and transported by plants operator.
- Holding position
Generally, holding option (e.g. grip hole) is not mandatory if the dimension is smaller or fitting with operator’s physical movements. Grip hole is preferable if supplier is using disposable package.

1.3 Product Protection

Protection measurements depends on product features (e.g. materials, fragility, sensitivity etc.)
Therefore package development should take below points into account:

- **Transportation Environment**
Impact factors: temperature, humidity, etc.
Desiccant with plastic bag/film, VCI can be taken into account.
- **Handling process**
Impact factors: vibration, shock, payload, etc.
Cushion foam (e.g. PE, PU) and angle protector can be taken into account.

1.4 Load Securing, Closure

Load securing is also as known as supplement for loading unit strength enhancement, therefore supplier should consider strapping.

Other special requirements like e.g. stretching need to be approved by the plant.

1.5 Labeling

Labeling requirements refers to Global Logistic Guideline unless is specified by plant.

2 Returnable packaging systems

2.1 Large container

Below container is owned by regional plants therefore if there is any circulation flow between suppliers and plants, containers should be taken care of missing and damages.

If there is any special requirements that require suppliers to design their package with using returnable container, below table is for recommendations.

Supplier is encouraged to use their own large returnable container which can be the same or similar dimension with below table.

Plant	Inner Length	Inner Width	Inner Height	BT Number
MAHLE Behr Korea	835	690	493	BT51748
	760	370	205	BT54507
MAHLE Behr India	1160	760	820	BT12162
MAHLE Behr Qingdao	900	800	1000	N/A
	1100	1050	650	N/A
MAHLE Behr Jinan	1160	770	760	BT07459
	1160	970	760	BT07459

Any special request with large container should be agreed by plant packaging engineering department.

More container pool system information, please see Global Logistic Guideline.

2.2 Small container

Below container pool is currently being used in inbound logistic lean concept in regional plants, normally these container will be packed with supplier's own package and transported to production line, therefore suppliers are recommended to choose their carton box dimension which can be fitted with below returnable inside dimension.

Plant	Inner Length	Inner Width	Inner Height	BT Number
MAHLE Behr Korea	340	200	95	BT07465
	411	244	114	BT55376
	440	340	195	BT51745
	440	338	146	BT55383
	440	340	95	BT51744
	440	340	289	BT51746
	440	327	153	BT55380
	485	330	313	BT55379
	480	365	385	BT51746
	487	307	340	BT51746
	520	425	180	BT54508
	560	365	200	BT51745
MAHLE Behr India	280	180	80	BT12207
	280	180	180	BT12208
	360	260	180	BT12209
	560	360	180	BT12210
	560	360	280	BT12211
MAHLE Behr Qingdao	580	380	270	N/A
	580	380	138	N/A
	380	280	280	N/A
	380	280	138	N/A
	280	190	138	N/A

2.3 Special Packaging

In case of special needs or cost driven purpose, some special package concept might be considered for inbound package, e.g. slip sheet, Goodpack, etc. Each plant will have designated person (normally package engineer) who is responsible for development. Once development request is initiated by plant, suppliers are responsible for prototype development and pre-investment. Package engineer will verify the package feasibility if approval or not and cost comparison for purchasing negotiation and procurement with suppliers. If some concepts require facility investment, supplier should be absorbed and plant also need to consider break even point whether it is worth to implement.

3 Disposable Packaging

Package safety and density are always should be firstly taken into account no matter it will be applied to domestic or overseas transportation. Normally, specific requirements of disposable packaging have been already presented in global package guideline which is the same significance for suppliers to design their own package concept.

Suppliers are required to submit the package proposal to receiving plants for confirmation before it is officially being implemented on series delivery, otherwise supplier should bear with additional rework or repair cost, etc.

Suppliers are fully responsible for package quality and continuous improvement after damage has been occurred.

4 Overseas Packaging

Regarding overseas packaging, see Global Logistic Guideline.

Pallet footprint is recommended utilized dimension: 1140 x 790mm, 1140 x 980 mm, 1140 x 1140 mm which can increase sea container pack density.

Suppliers need to be aware of wooden pallet export regulations which is mandatory being heat treated or fumigated.

5 Management of Empties

See Global Logistic Guideline, unless specified by regional plant if other concepts are being come up with by plants based on their special needs.

6 Hazardous Material

See Global Logistic Guideline, unless specified by regional country law.

7 Environment / Recycling / Waste Prevention

See Global Logistic Guideline, unless specified by regional country law.

8 Abbreviations

G.W.	Gross weight
MBI	MAHLE Behr India
MBJN	MAHLE Behr Jinan
MBKO	MAHLE Behr Korea
MBQD	MAHLE Behr Qingdao
PE	Polythene
PU	Polyurethane
VCI	Volatile Corrosion Inhibitor