

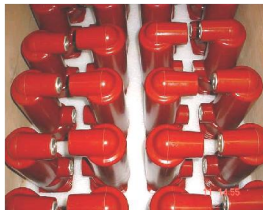
ABB AG – Calor Emag Medium Voltage Products

Guidelines for Packing

Guidelines for Packing



- Gas-insulated switchgear type ZX
- Vacuum circuit-breaker
- Embedded Poles
- Vacuum interrupter
- Components



Guidelines for Packing Content

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Introduction

Guidelines for Packing

1 Introduction



This packing guidance shall give you an overview over the various possibilities of packing of our products.



The packing guideline explains ABB general terms which will be considered for the packing. The packing complies with the general packing standard HPE.

Packing appropriate to the type of duty will be chosen according to the latest technologies and the best quality of packaging means.



The packing method considered the various demands depending on the type and the way of transport defines the choice of the packing method.



Guidelines for Packing

1 Introduction



A safe and easy handling with current ground conveyors or kind of loading is given by adequate construction characteristics of the packing.

Weights and dimensions comply with the valid freight standards.

The packages will be marked according to international regulations / instructions and customers request.



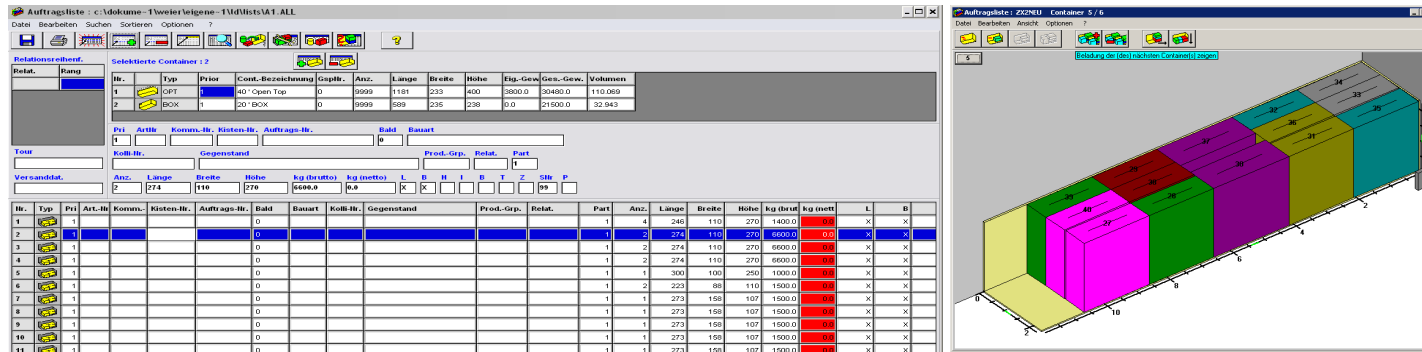
The type of packing is fundamentally determined through

- Dimensions, weight, centre of gravity
- Sensibility
- Base surface area
- Kind of transport and storage period
- Intended transit method and storage requirements



Guidelines for Packing

1 Introduction



By using modern logistic-software operations will be simplified and need of shipping volume will be calculated automatically and correct:

- Optimized construction of the packages
- Calculation of loading volume
- Optimized positioning of the packages on truck or inside container under consideration of the stacking ability and the direction of loading
- Issuing of detailed packing lists per order

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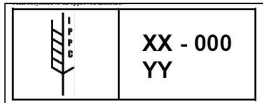
Standards & regulations

Guidelines for Packing 2 Standards & regulations



The type of packing is defined by the following rules and standards:

- HPE
(Organisation for wood packing, pallets and export packing)
- DIN EN ISO 9002 quality management
- Dangerous goods regulations for
 - Air freight (IATA)
 - Sea freight (IMDG, GGV See)
 - Truck (GGVS/KVO/ADR)
 - Train (GGVE/EVO/RID)
- Regulations for wood packing of the IPPC (ISPM 15)



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Packing specifications

Guidelines for Packing

3.3 Embedded Poles (indoor)



3.3.1

Reusable case for air, truck and sea transport in containers, for FCL and LCL deliveries, stackable up to 1,000 kg / top cover surface

- Dimensions:
 - 120 x 80 x 64 cm
 - 120 x 80 x 89 cm
 - 215 x 105 x 90 cm
- Type of packing:
 - Case 6 mm plywood, full non-wood type
 - Packing of the poles with special ethafoam inserts (upper and base parts)
 - Preservation for overseas transport in aluminium foil for a transport and storage time of 6 month from date of packing
- Inhalt:
 - 18 - 24 pieces
- Loading and unloading:
 - By forklift
- Storage:
 - Under-roof storage

Guidelines for Packing

3.4 Embedded Poles (outdoor)



3.4.1

Reusable case for air, truck and sea transport in containers, for FCL and LCL deliveries, stackable up to 1,000 kg / top cover surface

- Dimensions:
 - 215 x 105 x 90 cm
- Type of packing:
 - Packing of the OP-poles with special ethafoam inserts (upper and base parts)
 - Locking with a special plywood cover for protection against slipping (prefabricated pattern)
- Content:
 - 14 pieces
- Loading and unloading:
 - By forklift
- Storage:
 - Outdoor-storage possible
 - Under-roof storage recommended

Guidelines of Packing

3.5 Vacuum interrupters



3.5.1

Reusable case for air, truck and sea transport in containers, for FCL and LCL deliveries, stackable up to 1,000 kg / top cover surface

- Dimensions:
 - 120 x 80 x 89 cm
- Type of packing:
 - Case 6 mm plywood, full non-wood type
 - Packing of the vacuum interrupters with special ethafoam inserts
 - Separate shrinking of the chambers with dryers
 - Preservation for overseas transport in aluminium foil for a transport and storage time of 6 month from date of packing
- Content:
 - 32 - 420 pieces
- Loading and unloading:
 - By forklift
- Storage:
 - Under-roof storage

Guidelines for Packing

3.6 Components



3.6.1
Carton on pallet for air and truck transport,
not stackable

- **Dimensions:**
 - 120 x 80 cm (Euro dimension) or
 - 120 x 100 cm
- **Type of packing:**
 - Small parts will be packed additionally in cartons
 - If necessary the components will be protected with stacking bags, airbags bubble wrap, polystyrene, foam-pack or paper stuffing
- **Content:**
 - Components
- **Loading and unloading:**
 - By forklift
- **Storage:**
 - Outdoor-storage not possible



Guidelines for Packing

3.6 Components



3.6.2

Carton on pallet for air and truck transport,
not stackable

- Alternative I:
 - Shrinking in polyethylene foil protecting against short-term humidity on the way of transport (e.g. shipment by ferry)
- Alternative II:
 - To enable the stacking of the packages, the boxes will be strengthened with longitudinal and angle woods.
 - The packages can be stacked twice one upon the other.



Guidelines for Packing

3.6 Components



3.6.3

Case for transport in containers, for FCL and LCL deliveries, stackable up to 1,000 kg / top cover surface

- Dimensions:
 - Variable
 - Optimized for a beneficial container load
- Type of packing:
 - Plywood DW100 water-resistant, longitudinal and cross timbers, cover lumbers
 - If necessary the components will be protected with stacking bags, airbags bubble wrap, polystyrene, foam-pack or paper stuffing
 - If applicable a pre-packing of the components in cardboard boxes occurs
 - Preservation in aluminium foil for a transport and storage time of 12 month from date of packing
 - Extension of the preservation time to 18 - 24 month possible
- Loading and unloading:
 - By forklift or crane
- Storage:
 - Outdoor-storage possible
 - Under-roof storage recommended

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Marking examples

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4 Marking examples



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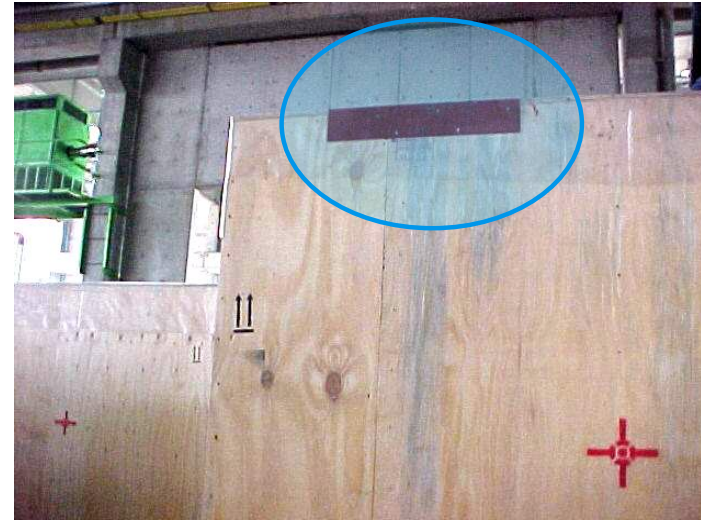
Packaging options

Guidelines for Packing 5 Packaging options



1. U-iron – underneath

- Used for heavy cases



2. Steel angles – above

- Used for high and / or heavy cases

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5 Packaging options



3. Additional coverfoil – outside

- For better protection against moisture



4. IPPC Standard ISPM 15

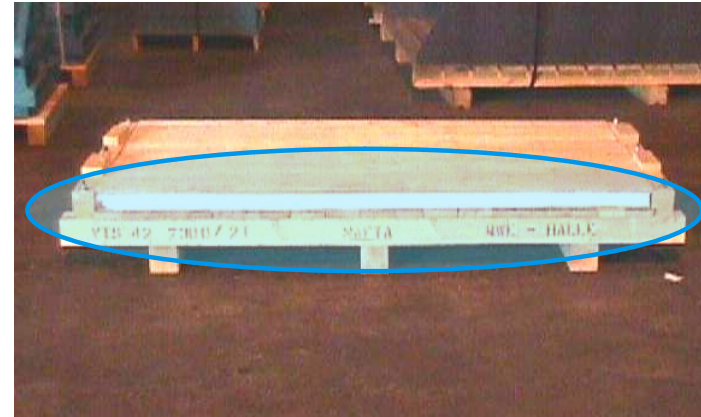
- Special heat treated wood

Guidelines for Packing

5 Packaging options



5. Tilting indicator



6. Additional ethafoam bottom for shock absorption (high protection)

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Advantages and disadvantages of packing types

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6 Advantages and disadvantages of packing types

Type of packing	Advantages	Disadvantages
Packing on pallets	<ul style="list-style-type: none"> ▪ Less expensive ▪ Reduced packing time 	<ul style="list-style-type: none"> ▪ Low protection against manual and corrosion damages ▪ Transport and loading have to be done carefully, expenditure of time
Packing in cases (non-returnable)	<ul style="list-style-type: none"> ▪ Safe protection ▪ Easy handling for the haulier ▪ Outdoor-storage possible ▪ Optimal capacity utilization for truck and container under consideration of dimensions 	<ul style="list-style-type: none"> ▪ More expensive
Packing in cases (returnable)	<ul style="list-style-type: none"> ▪ Safe protection against mechanical damages ▪ Easy handling for the haulier ▪ Economical and ecological 	<ul style="list-style-type: none"> ▪ Logistical expense through returning of cases
Container packing	<ul style="list-style-type: none"> ▪ Safe protection against mechanical damages ▪ Less expensive 	<ul style="list-style-type: none"> ▪ No outdoor-storage possible with containers of the shipping company, as they have to be returned after unloading immediately.
		<ul style="list-style-type: none"> ▪ Alternatively shipper's own containers (second-hand or new) could be bought, in which the packages could remain according to their preservation, to allow an outdoor-storage for this packaging type.

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