

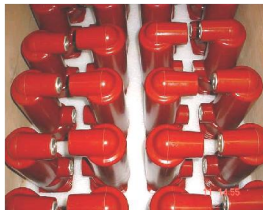
ABB AG – Calor Emag Medium Voltage Products

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.



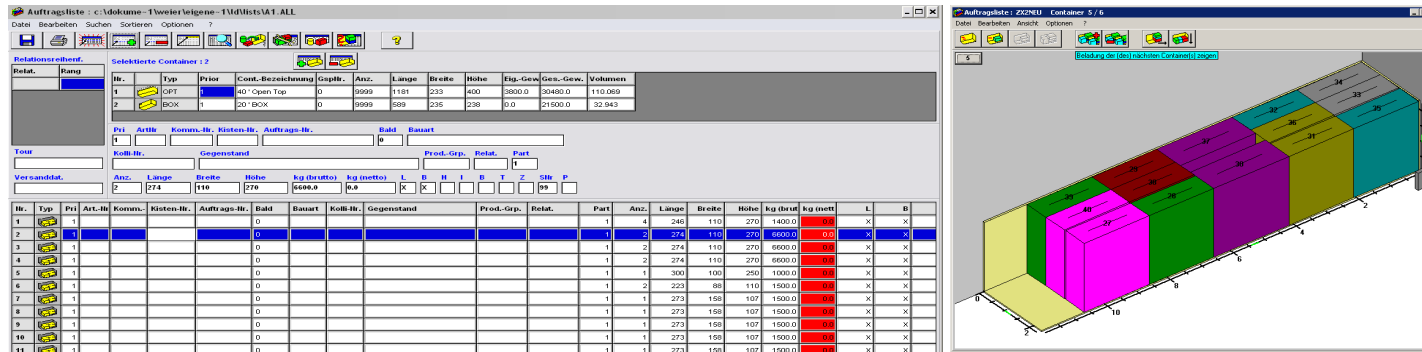
The type of packing is fundamentally determined through

- 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

2

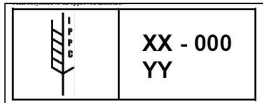
Standards & regulations

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

3.1 Gas-insulated switchgears type ZX



3.1.1

Unpacked switch gears for truck transport (without reloading) – suitable for domestic transport only

Does not apply for ZX0 switchgears.

- Dimensions:
 - Variable depending on the size of the panel
- Type of packing:
 - Unpacked, without dust protection
- Unloading:
 - Only by crane
- Storage:
 - Outdoor-storage not possible

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX



3.1.2

Pallet for direct truck transport (without reloading) – suitable for domestic transport only

- Dimensions:
 - Variable depending on the size of the panel
- Type of packing:
 - 8 x 10 vats, number of vats depending on the width, floor 24 mm
 - Securing of the panels on the pallet with textile strap against slipping in lengthwise direction
 - Fastening with longitudinal and cross timbers
- Unloading:
 - By crane or forklift (depending on the weight)
- Storage:
 - Outdoor-storage not possible
 - No dust protection

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX



3.1.3

Pallet for direct truck transport (without reloading) – with poly protection cover suitable for domestic transport only

Type of packing as described under 3.1.2

- Variation:
 - Optional the panels can be provided with a poly protection cover to prevent as dust protection
- Unloading:
 - By crane or forklift (depending on the weight)
- Storage:
 - Outdoor-storage not possible

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX



3.1.4

Pallet protect with paperboard for the direct truck transport (without reloading) – within Europe

- Dimensions:
 - Variable depending on the size of the panel
- Type of packing:
 - Single or double packing (see paragraph 3.1.8)
 - Longitudinal and cross timbers, bottom 24 mm
 - Securing of the panels on the pallet with textile strap against slipping in lengthwise direction
 - Fastening with longitudinal and cross timbers
- Unloading:
 - By forklift
- Storage:
 - Outdoor-storage not possible

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX



3.1.5

Pallet covered with paperboard for the sea transport in containers belonging to the shipping company

(20' und 40' box containers and 40' high cube containers, only FCL / FCL deliveries possible)

- Dimensions:
 - Variable depending on the size of the panel
- Type of packing:
 - Single or double packing (see paragraph 3.1.8)
 - Longitudinal and cross timbers, bottom 24 mm
 - Securing of the panels on the pallet with textile strap against slipping in lengthwise direction
 - Fastening with longitudinal and cross timbers
 - Standard preservation in aluminium foil for a transport and storage time of 12 month from the date of packing
 - Extension of the preservation time to 18 - 24 month possible
- Unloading:
 - By forklift
- Storage:
 - Outdoor-storage not possible

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX



3.1.6

Sea freight in a shipper's own container (new or second-hand) with CSC tag (20' und 40' box containers and 40' high cube containers)

Suitable for outside storage

Under-roof storage recommended

Storage: Same as for cases for conventional sea freight

- Packages as described under 3.1.5
 - Under the consideration that packages remain in the bought container boxes outside storage is possible in accordance with agreed preservation time.

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX



3.1.7

Case for the conventional sea freight – can be stacked up to 1,000 kg / top cover surface

- Dimensions:
 - Variable depending on the size of the panel
- Type of packing:
 - Single or double packing (see paragraph 3.1.8)
 - Longitudinal and cross timbers, bottom 24 mm
 - Plywood DW100 water-resistant
 - Cover lumbers
 - Fastening with longitudinal and cross timbers
 - The interior fitting is strengthened by pillars and longitudinals (stacking pressure)
 - Preservation in aluminium foil for a transport and storage time of 12 month from the date of packing
 - Extension of the preservation time to 18 - 24 month possible
- Unloading:
 - By crane or forklift
- Storage:
 - Outdoor-storage possible
 - Under-roof storage recommended

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX

3.1.8



I. Single panel packing
gross weight up to approx. 2.5 tons



II. Double panel packing
gross weight up to approx. 4.5 tons

Guidelines for Packing

3.1 Gas-insulated switchgears type ZX



3.1.8.1

Double panel packing

Gross weight up to approx. 4.5 tons

The standard packing price is calculated for the single packing.

ABB will use double panel packing only after customers approval.

- The double panel packing provides the following advantages:
 - Saving potential in packing costs which will be granted to the customer.
 - Increase of the stability in the packaging unit.

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Securing of packages in containers

Guidelines for Packing

4 Securing of packages in containers



The packages will be secured in the container with timbers on the bottom against slipping in lengthwise and crosswise direction and on the sides with special stuffing bags

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Securing of packages on the truck

Guidelines for Packing

5 Securing of packages on the truck



The tie-down will be made as follows:

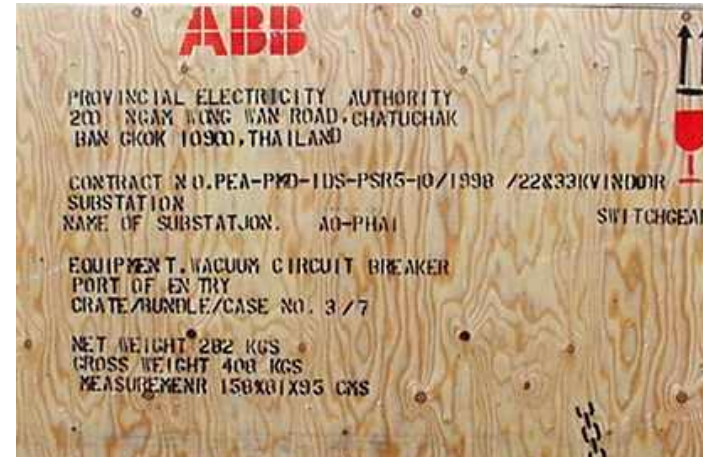
1. Tension belts against upright movements
 - The number of belts depends on the width of the package, preferably 1 belt per package
2. Nailing-up of the timbers on the truck bottom against horizontal movements
3. Stuffing bags for cushioning against each other, if necessary

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Marking examples

Guidelines for Packing

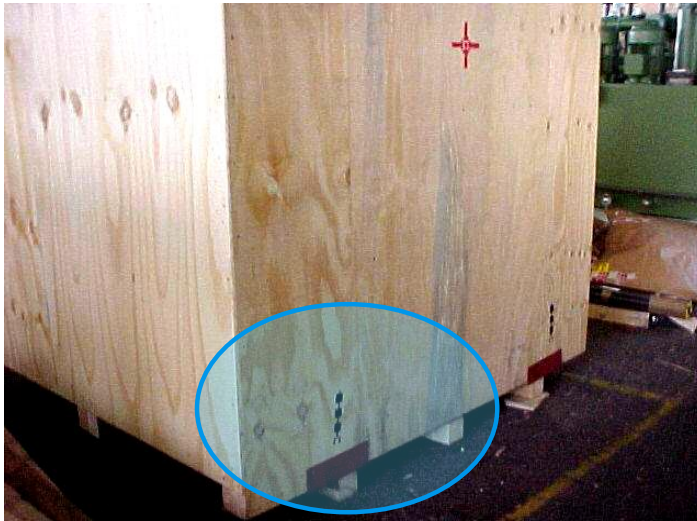
6 Marking examples



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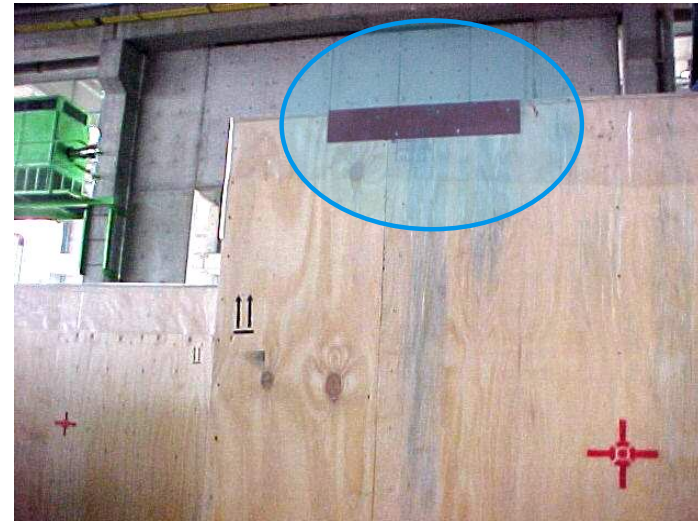
Packaging options

Guidelines for Packing 7 Packaging options



1. U-iron – underneath

- Used for heavy cases



2. Steel angles – above

- Used for high and / or heavy cases

Guidelines for Packing 7 Packaging options



3. Additional coverfoil – outside

- For better protection against moisture



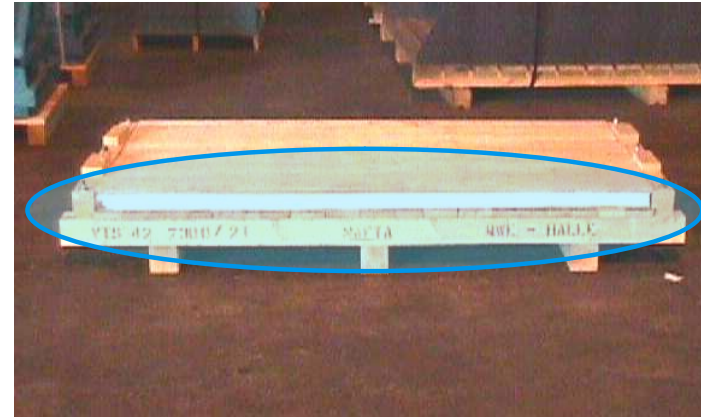
4. IPPC Standard ISPM 15

- Special heat treated wood

Guidelines for Packing 7 Packaging options



5. Tilting indicator



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

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Advantages and disadvantages of packing types

Guidelines for Packing

8 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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