MS.1
Manufacturing instruction shipment

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TABLE OF CONTENT

1 SCOPE

This company standard specifies the minimum requirements for order picking, package, packaging and the loading of products/materials to be transported.

2 NORMATIVE REFERENCES

The document stated below is required for the application of the present standard. Dated references refer only to the edition of the date indicated. Undated references refer to the latest edition of the respective document inclusive of all revisions.

Manufacturing Instructions - Requirements and principles

3 TERMS AND DEFINITIONS

The terms in Annex A (normative) shall be used for the application of this document. The definitions can also be found there.

4 ORDER PICKING

4.1 Basic specifications

Order picking is the taking and collecting of a specified quantity of goods from a total quantity. The result of this activity is the change from a store-specific condition to a shipment-specific condition. The result of order picking as part of the shipping process is the packaging good (goods to be packed).

4.2 Collection of the goods in goods for packing

4.2.1 Reporting of goods for packing

Reporting documents in the system which project BOM item is assigned to which packaging good (packing units (PU)).

4.2.2 Assigning of the packaging good

Every packaging good is given a number which is the consecutive number of a unit in the scope of supply of loose parts or of an assembled unit. It shall be documented which packaging good is to be assigned to which packaging.

4.2.3 Reporting of package

Reporting documents in the system which packaging good is assigned to which package. These data serve as basis for the drawing up of a delivery note.

Notice:

The package is the result of the joining of the packaging good(s) and the packaging. There are preliminary and final packages.

A preliminary package is a transport unit for delivery to the packing company (packer). A final package is a package for transport/delivery direct to the customer.

4.3 Labelling of the packaging good

4.3.1 Labelling by METTOP

When packaging goods are picked at METTOP for transport to a packer or a customer, the goods shall be provided with labels for identification.

Shipment labels are stickers which contain specific data of the packaging goods. The quantity shown on the shipment label is the numerical indication of the number of parts contained in the pack. Piece(s) as unit of quantity need not be indicated. Other units of quantity like set, m, kg. shall be indicated. For shipment the label shall be sticked on a punched plastic support and attached to the packaging good (VE) with non-rotting pack threads or zinc-coated tying wire. The shipping labels shall not be sticked direct on the packaging good.

4.3.2 Labelling by supplier to METTOP

4.3.2.1 Shipment to METTOP, packer and/or supply to manufacturer of METTOP

When packaging goods are picked for supply to METTOP, packer (items are not delivered assembled or disassembled) and/or for supply to the manufacturer of METTOP, the goods shall be identified by means of own shipping labels. The supplier shall identify every single good separately with a shipping label and attach it to the good with non-rotting pack thread or zinc-coated tying wire. The shipping labels shall not be sticked direct on the packaging good.

The label shall give the following information:

- METTOP drawing number/material number
- METTOP purchase order number
- METTOP purchase order item
- METTOP material designation
- Quantity
- Supplier data (e.g. name, address, phone number etc.) +

4.3.2.2 Shipment to customer and packer of METTOP

When packaging goods are picked for transport to customers of METTOP and/or to packers of METTOP (items are delivered assembled or disassembled), the goods shall be identified by means of METTOP shipping labels, see figure 1.

The supplier shall identify every single good separately with an METTOP shipping label and attach it to the good with non-rotting pack thread or zinc-coated tying wire. The shipping labels shall not be sticked direct on the packaging good. The delivery note will be made available by METTOP. It is not permitted to the supplier to provide his own delivery note.

5 PACKAGING

5.1 Basic specifications

Packaging is the generic term for all packaging means and packaging aids for fulfilment of a given packaging task. The selection of the packaging shall always be made on the basis of economic and ecologic aspects (multi-trip packaging shall be preferred to one-way packaging). The packaging shall fulfil the following functions:

- **Protection of the packaging good** from damage, soiling, theft or environmental influences which might adversely affect the quality of the goods.
- **Storage and transport** of the goods which can be affected by rationalised movement and storage of the goods either manually or by lift truck or crane. Consequently, when moving the goods by hand or lift truck, the hollow space between the pallet feed shall not be obstructed by packaging aids. Furthermore, it shall be ensured that the goods cannot slip or get lost during transport.

5.2 Packaging means

5.2.1 Basic specifications

METTOP uses the following categories of packaging means:

- Case, categories 1 to 4, see item 5.2.2
- Crate, category 5, see item 5.2.3
- Strapping (bundling), category 6, see item 5.2.4
- Sledge, category 7, see item 5.2.5
- Cladding, category 8, see item 5.2.6
- Hazardous goods packaging, category 9, see item 5.2.7
- Unpacked goods, category 10, is cancelled
- Transport packaging, category 11, see item 5.2.8
- Freight container packaging, category 12, see item 5.2.9
- Add-on packaging, category 13, see item 5.2.12
- Tarpaulin packaging (VCI foil), category 14, see item 5.2.10
- Heavy goods packaging, category 15, see item 5.2.11

5.2.2 Case, categories 1 to 4

5.2.2.1 Case designs and case types

Cases of the categories 1 to 4 can be in 3 different designs. The following case designs shall be used:

- Design 1 for packaging goods (OSB/3 boards/plywood), see figure 2 and table 2
- Design 2 for packaging goods (sawn timber cladding, see figure 3 and table 3
- Design 3 for packaging goods (cases with circumferential battens, see figure 4 and table 4

The case designs are classified into type classes according to the weights to be packaged, see table 1 The resulting construction of case bottom, side parts, end parts and top is shown in section 5.2.2.2.

Table 1: Case type

Case type		Packaging goods net weight kg		
		Up	to	500
1		500	to	1500
2		1500	to	5000
3	>	5000	to	10000
4	>	10000	to	25000
5	>	25000	to	50000
6		50000	>	50000

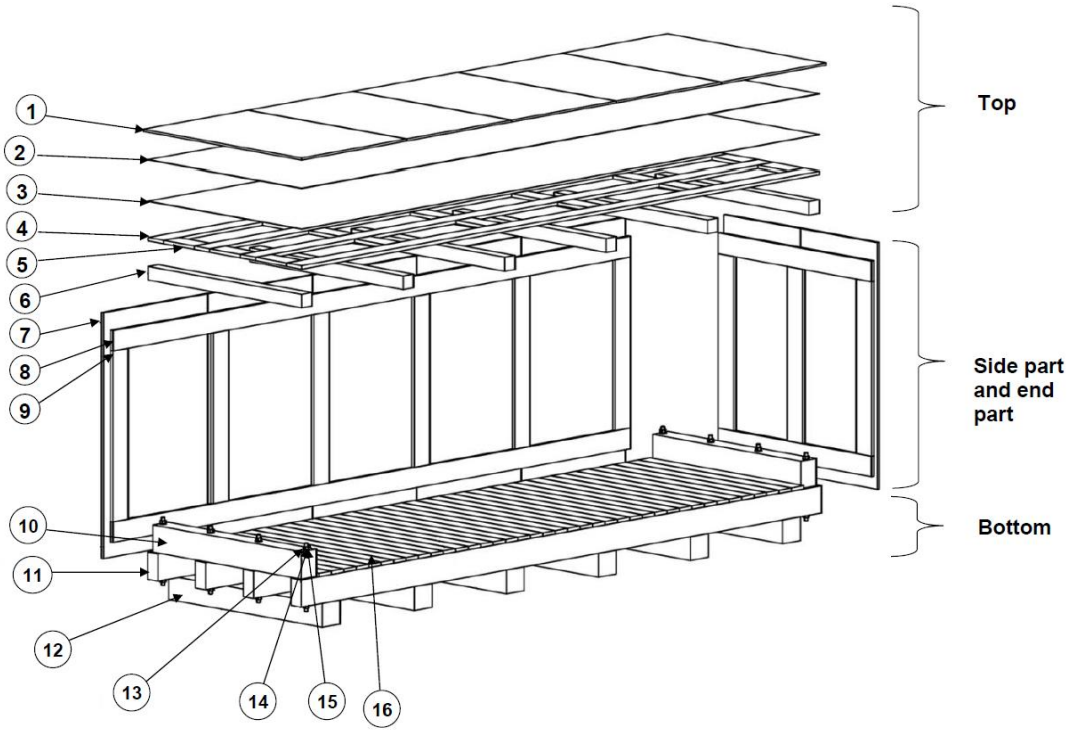


Figure 1: Example - Case of Design 1

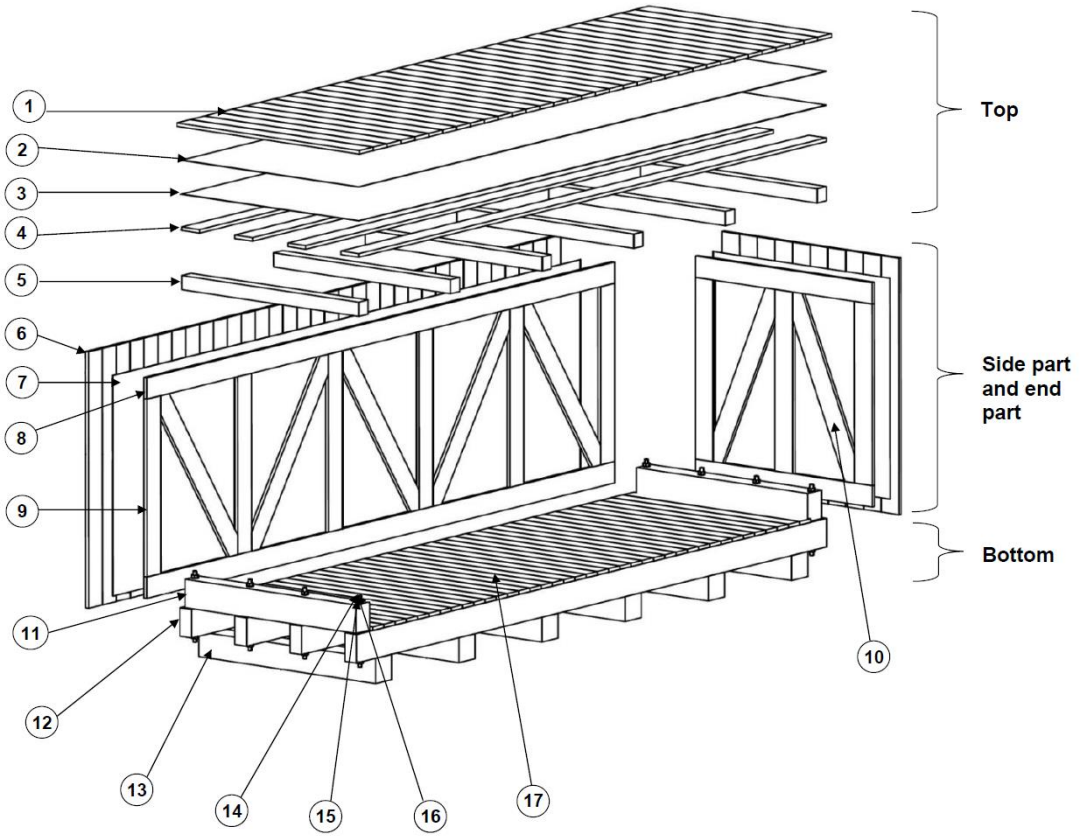


Figure 2: Example - Case of design 2

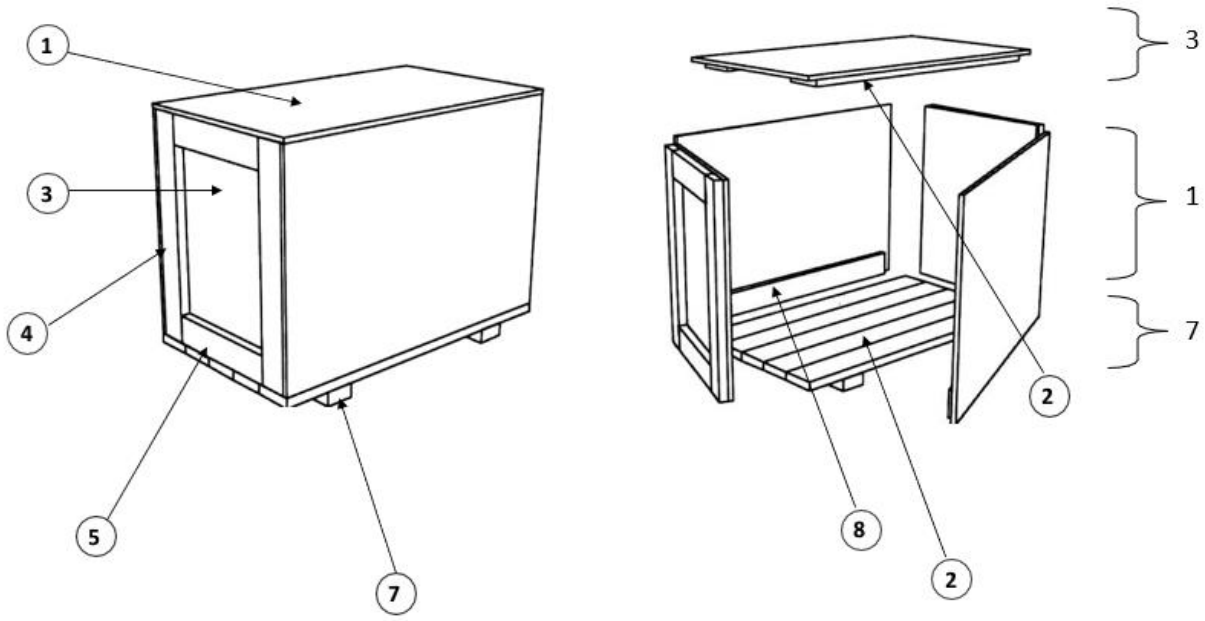


Figure 3: Example - Case of design 3

Table 2: Case of design 1, 2 and 3

Item	Design 1	Item	Design 2	Item	Design 3
	Top				
1	OSB/3 board/plywood	1	Sawn timber	1	OSB/3 board/plywood
2	Film	2	Film	2	Longitudinal top cleat
3	Barrier layer	3	Barrier layer/web board		
4	Longitudinal top cleat	4	Longitudinal top cleat		
5	Cleat (intermediate liner)	5	Square timber bars		
6	Square timber bars				
	Side part, end section				
7	OSB/3 board/plywood	6	Sawn timber	3	OSB/3 board/plywood
8	Batten (horizontal)	7	Jute-pitch paper	4	Batten (outside, vertical)
9	Batten (vertical)	8	Batten (horizontal)	5	Batten (outside, horizontal)
		9	Batten (vertical)	6	Batten (inside, horizontal)
		10	Batten (diagonal)		
	Bottom				
10	Square end wall joist	11	Square end wall joist	16	Transversal runners
11	Longitudinal runner	12	longitudinal runner	17	Bottom boards
12	Transversal runner	13	Transversal runner		
13	Cup head square neck bolt	14	Cup head square neck bolt		
14	Disk	15	Washer		
15	Nut	16	Nut		
16	Bottom boards	17	Bottom boards		

5.2.2.2 Construction of cases of designs 1 to 3

5.2.2.2.1 Cases for packaging goods up to 500 kg

When a case of design 3 for goods up to 500 kg is used, a single entry opening for the forklift is allowed, secondary runner thickness min. 100 mm. When vertical supports are used, they shall be fixed, see figure 5.

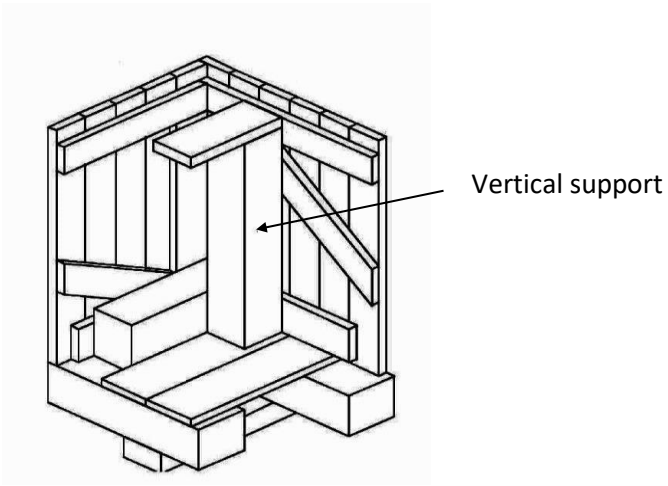


Figure 4: Example: Vertical support

5.2.2.2.2 Cases for packaging goods of 500 kg and more

When cases of designs 1 to 3 for goods of 500 kg and more are used, they shall be constructed in such a way that:

- they have at least two entry openings for the forklift.
- the cases and crates can be stacked in conventional loading up to a stacking impact pressure of 10 kN/m2.
- cases with a gross weight of 5 t and more are provided with heavy-lift corners at the rope sling points and with edge guards at the tops, see table 5.
- the packages withstand the tying-up forces occurring in transhipment.
- handling with hoisting gears and/or industrial trucks is possible.

Table 3: Plate thickness of heavy-lift corners guards

Gross weight Case (in kg)	Heavy lift corners/edge guards for	
	Bottom (in mm)	Top (in mm)
Up to 5000	-	-
> 5000 to 10000	min 3	min 1,5
> 10000 to 15000	min 4	min 3
> 15000 to 20000	min 6	min 4
> 20000 to 30000	min 8	min 6
From 30000	min 10	min 8

5.2.2.2.3 Side parts, end sections and tops

The side and end faces shall be provided with vertical planking. The number of side part and end section panels of the designs 1 and 2 is shown in tables 6 and 7. For cases of design 2, various constructions of the panels with diagonal bracing are possible, see Annex B (for information)

The tops of the cases shall be sealed against ingress of moisture with appropriate sealing elements arranged at the bottom side of the top. The sealing element shall be placed between the planking and the batten frame. Vertical openings of the goods with diameters > 500 mm shall be covered with plywood panels of 5 to 6 mm thickness. These panels shall be fixed in their positions. The numbers of longitudinal top cleats and the dimensioning of the top joists (square timber bars) are indicated in table 8.

Table 9 shows the board, panel and cleat thicknesses of the side parts, end sections and tops.

Table 4: Number of side-part and top panels for designs 1 and 2

Length of case (cm)	≤ 300	301 to 500	501 to 700	701 to 900	>900
Number of panels	1	2	3	4	5

Table 5: Number of end face panels for designs 1 and 2

Case length in cm	≤ 200	> 200
Number of panels	1	2

Table 6: Dimensioning of top joists for designs 1 to 3

Width of top (cm)	Longitudinal cleats of top [a] Quantity	Square timber bar W x H [b] (cm)
≤ 100	2-3	6 x 8
101 to 150	3-4	8 x 10
151 to 200	4-5	10 x 12
201 to 250	5-6	12 x 14
251 to 300	6-7	14 x 16
301 to 350	7-8	14 x 18
351 to 400	8-9	≥ 14 x 18
[a] Center distance cleat to cleat max. 70 cm [b] Center distance between square timber bars max. 70 cm		

Table 7: Board, panel and cleat thicknesses of side parts, end sections and top for designs 1 to 3

Case type	Packaging goods Net weight kg	Min. board/panel thickness mm			Cleat thickness cm
		Wood	OSB3	Plywood [a]	
1	From 500 to 1500	24	12	12	10 x 2,4
2	> 1500 to 5000				
3	> 5000 to 10000				
4	> 10000 to 25000				≥ 10 x 2,4
5	> 25000 to 50000				
6	> 50000				
For case type 1 a minimum thickness of 9 mm is allowed when plywood of the type APA RATED SHEATHING and type APA RATED STURDIFLOOR with bonding method EXTERIOR is used.					

5.2.2.2.4 Bottom

The bottom according to tables 10 and 11 shall be designed as required for the case type. All square end wall joists shall be bolted up with the longitudinal runners with cup head square neck bolts, for case type 6 double bolted joints are required, see item 5.3.2. Table 12 shows the board, panel and cleat thicknesses of the bottom.

Table 8: Bottom construction for design 1 to 3

Case type	Packaging goods Net weight kg	Longitudinal runner W x H in cm	Transversal runner W x H in cm	Square end wall joist W x H in cm	Cup head square neck bolt [d b]	Hole dia. max.
1	From 500 to 1500	8 x 10	≥ 10 x 10	8 x 8	12	13
2	> 1500 to 5000	10 x 12		8 x 10		
3	> 5000 to 10000	12 x 14		10 x 12	16	17
4	> 10000 to 25000	14 x 16	≥ 12 x 12	12 x 14		
5	> 25000 to 50000	≥ 14 x 16		≥ 14 x 16	20	21
6	> 50000	≥ 18 x 20	≥ 14 x 14	≥ 18 x 20	30	31
[a] Cup head square neck bolt according to DIN 603, see item 5.2.2						

Table 9: Number of square timber bars (longitudinal runners) for designs 1 to 3

Bottom width in cm	≤ 100	101 to 180	181 to 240	241 to 300	301 to 350
Min. number of square timbers	2	3	4	5	6

Table 10: Board, panel and cleat thicknesses of bottom for design 1 to 3

Case type	Packaging goods Net weight kg	Min. board/panel thickness mm		
		Wood	OSB3	Plywood [a)]
1	From 500 to 1500	24	12	12
2	> 1500 to 5000			
3	> 5000 to 10000			
4	> 10000 to 25000			
5	> 25000 to 50000			
6	> 50000			

a) For case type 1 a minimum thickness of 9 mm is allowed when plywood of the types APA RATED SHEATHING and APA RATED STURDIFLOOR with bonding method EXTERIOR is used.

5.2.2.3 Cases of category 1

Goods heat-sealed in aluminium sandwich film (BAAINBw TL 8135-0003:2019-11 or equivalent film) with addition of appropriate desiccant as in item 6.2.1.

Goods: Corrosion-sensitive machine-building and electric materials, prefabricated pipe lines. Guaranteed durability: 24 months

5.2.2.4 Cases of category 2

Case as in 5.2.2.3 but with the use of padding elements appropriate for the sensitivity of the goods, case-in-case packaging. The g values shall be specified.

Goods: Highly sensitive electrical and control system components.

Guaranteed durability: 24 months

5.2.2.5 Cases of category 1

Case as in 5.2.2.3 but goods heat-sealed in 0,2 mm PE film (BAAINBw TL 8135-0019:2019-09 or equivalent film).

Goods: Corrosion-sensitive machine-building and electric materials, prefabricated pipe lines.

Guaranteed durability: 12 months

5.2.2.6 Cases of category 4

Case as in 5.2.2.3 without heat-sealing of goods but with gilled plates when the top section of the case is provided with plywood and OSB/3 board cladding.

Goods: Shock and corrosion resistant units (simple machine components, bolts/pins, parts for pipe lines such as welding fittings, threaded fittings).

Guaranteed durability: 24 months

5.2.3 Crate of category 5

The specifications for the cases in 5.2.2 also apply to crates. The bottom of the crate is the load-bearing element and shall always remain closed.

Two thirds of the end, side and top faces shall be provided with planking.

Goods: Components insensitive to corrosion and to the usual mechanical effects occurring during transport; all types of vessels.

5.2.4 Strapping (bundling) of category 6

A bundle shall be made up in such a way that

- it has at least two entry openings for the forklift,
- it withstands the tying-up forces occurring in transhipment,
- handling with hoisting gears and/or industrial trucks is possible.

Bundling shall be carried out as follows:

- with square-timber clamps and clamping screws (threaded rods). The clamps can also be in the form of channel sections.
- with intermediate layers in wood, plywood or plastic material, dimensioned as required for the weight of the goods and secured with clamping screws to avoid slipping,
- with suitable screws/bolts whose projecting lengths shall be covered with strips provided with appropriate recesses. The strips shall be fixed with nails, the screwed/bolted joint shall be secured.

Goods: > 100 mm for pipes sold by the meter, structures/racks which do not need protection against the usual mechanical effects and have been combined only for the purpose of forming a loading unit.

< 100 mm in crates of category 5 but with closed end side

5.2.5 Sledge of category 7

The sledge shall be designed in such a way that

- it has at least two entry openings for the forklift,
- the rope sling points are provided with heavy-lift corners when the weight exceeds 5 t,
- it withstands the tying-up forces occurring in transhipment,
- handling with hoisting gears and/or industrial trucks is possible.

The sledge structure is allowed in timber or in steel. If direct bolting is not possible, the goods shall be fastened on the sledge with appropriate bands. Length and width of the sledge structure shall not be smaller than the respective dimensions of the goods. The sliding skids shall be bevelled at 45° to at least 30 % of the skid thickness. If necessary, appropriate padding shall be provided between the goods and the supporting structure and between the goods and the fastening elements.

Goods: Robust corrosion-resistant components whose dimensions exceed the usual loading gauges.

5.2.6 Cladding of category 8

The cladding (incl. cable drums) shall be designed in such a way that:

- it has at least two entry openings for the forklift,
- the rope sling points are provided with heavy-lift corners when the weight exceeds 5 t,

- it withstands the tying-up forces occurring in transhipment,
- handling with hoisting gears and/or industrial trucks is possible.

Preservation shall be made by applying contact preservative and adhesive aluminium film. The cladding shall be designed in such a way that all machined surfaces are completely protected.

Fittings and projecting parts shall be fully clad and, if necessary, provided with padding.

When parts are highly sensitive, it is urgently recommended using a case according to categories 1 to 4, items 5.2.2.3 to 5.2.2.6.

Goods: Parts whose dimensions and weights exceed the usual loading gauges. For components which are insensitive to corrosion and mechanical effects of transport, only the machined surfaces are protected by cladding.

5.2.7 Hazardous goods packaging of category 9

When packing units are prepared, special attention shall be paid to the regulations on the maximum quantities allowed for the packing together of dangerous goods.

Goods: Dangerous goods as defined by:

- GefahrgutRVÄndV 8 eighth ordinance for the amendment of the dangerous goods regulations for transport by sea
- GGVSEB road, rail and inland waterway transport
- IATA-DGR transport by air

5.2.8 Transport packaging of category 11

The transport packaging shall be designed in such a way that:

- it has at least two entry openings for the forklift,
- it withstands the tying-up forces occurring in transhipment,
- handling with hoisting gear and/or industrial trucks is possible,
- the parts are protected against climatic influences and mechanical influences during transport. The transport packaging gives no durability guarantee for storage.

Goods: Parts for intermediate shipment (to sub suppliers, machining workshops, central packers). These parts shall be protected against climatic and mechanical influences during transport.

5.2.9 Freight container packaging of category 12

In freight container packaging (packaging on load-bearing transport bottoms, see figure 6) the inside dimensions of the containers shall be observed.

Goods heat-sealed in aluminium sandwich film (BAAINBw TL 8135-0003: 2019-11 or equivalent film) with addition of appropriate desiccant.. Table 13 shows the items of the container bottom.

The bottom or sledge shall be suitably designed both for loading as unit load on a break bulk ship and for container utilisation. When containers are used, the system-inherent restrictions on dimensions and weight shall be considered.

Goods Corrosion-sensitive machine-building and electric materials, prefabricated pipe lines
Guaranteed durability: None

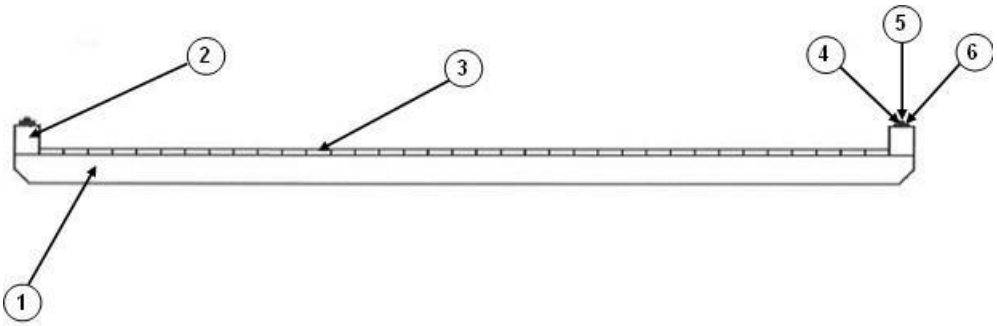


Figure 5: Container bottom (typical example)

Table 11: Container bottom

Item	Designation
1	Longitudinal runners
2	Square end wall joist
3	Bottom boards
4	Bolt
5	Washers
6	Nut

5.2.10 Tarpaulin packaging (VCI foil) of category 14

Goods are packed with VCI foil.

Goods: Machine components without electrical components

5.2.11 Heavy goods packaging (special packaging) of category 15

Packaging which requires a special bottom structure with steel girders).

Goods: Heavy goods, goods which are particularly bulky or with special position of the center of gravity so that particular measures need to be taken with regard to protection of the goods and load distribution.

5.2.12 Add-on packaging of category 13

Goods: Components which are loaded with the lifting tackle applied directly to the goods.

5.3 Packaging aids

5.3.1 Nails

The nails shall be either round wire nails as per DIN EN 10230-1, loose nails for use in automatic nailing machines as per DIN 1052:2022-10 or special nails as per DIN 1052-10:2012-05.

5.3.2 Cup head square neck bolts

The bolts used shall be cup head square neck bolts according to DIN 603:2017-05.

5.3.3 Nuts

The nuts shall be hexagon nuts according to DIN EN ISO 4032:2023-12.

5.3.4 Washers

The washers shall be square washers as per DIN 436:2024-10 or washers with square hole as per DIN 440: 2024-10

5.4 Quality and strength of the packing materials

5.4.1 Basic specifications

Specific requirements of the buyer's country concerning type and nature of the materials are defined in the applicable version of the Consular and Standard Regulations of the Austrian Chamber of Commerce (K und M).

5.4.2 Wood

Strength values and design features as in DIN 1052-10:2012-05 and DIN EN 1995-1-1:2010-12, see Annex C (normative), tables C.1 and C.2.

The packaging of the categories 1 to 8 and 11 to 13 (load-bearing parts) shall be made of coniferous wood according to DIN 4074-1:2012-06 - S 10 - TA/FI (pine/fir) - dry. For non-load-bearing structural elements inside the barrier enclosures of cases, the use of timber as in DIN 4074-1:2012-06 - S 7 -TA/FI (pine/fir) - dry is allowed in due consideration of table 14.

Table 12: Supplements to DIN 4074-1:2012-06

	Grading class S 10	**Grading class S 7**
Max. size of resin galls	l = 5,0 cm b = 0,5 cm	l = 10 cm b = 1 cm
Min. specific gravity	0,45 to 0,50 kg/dm3	0,45 to 0,50 kg/dm3

The following material is allowed for surface cladding:

- wood according to DIN 4074-1:2012-06-S7-TA/FI - semi-dry.
- plywood according to DIN EN 315:2000-10 and/or DIN EN 13986:2015-06 -BFU 100, min. thickness 12 mm for cases of designs 1 to 3.
- plywood of the types APA RATED SHEATHING and APA RATED STURD-I FLOOR with bonding method EXTERIOR, min. thickness 12 mm with vertical fibre orientation for the designs 1 to 3. For cases of design 1, a min. thickness of 9 mm is also allowed.
- OSB/3 boards according to DIN EN 300:2006-09, min. thickness12 mm only for cases of designs 1 to 3.

5.4.3 Heavy goods packaging made of steel structures

For the packaging of category 15, steel structures shall be designed as in DIN EN 1993 1-1

6 PACKAGING

6.1 Basic specifications

For packages exceeding one of the following values

length = 1190 cm, width = 240 cm, height = 240 cm, weight = 20,000 kg,

the packer shall, upon request, draw up transport/package sketches and hand them over to METTOP before packaging starts.

If required, packages with weights ≤ 25 t shall be provided with appropriate lashing points (lashing eyes).

For air freight, the maximum package dimensions shall be agreed with METTOP in each individual case. It is absolutely necessary to observe the regulations of the BMK (Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation, and Technology).

Within the scope of the incoming and outgoing-goods inspection, the preserving agent applied to the goods by the supplier shall be checked by the packer for damage on the outer surfaces and if damaged shall be properly repaired with a preserving agent.

6.2 Joining of packaging good(s) and packaging

6.2.1 Preservation methods

6.2.1.1 Basic specifications

Within the scope of the incoming and outgoing-goods inspection, the temporary corrosion protection applied to the goods by the supplier shall be checked by the packer for damage on the outer surfaces and if damaged shall be properly repaired. One of the following methods shall be applied for the protection of the packed goods:

- Desiccant method
- VCI method (VCI is short for volatile corrosion inhibitor)

6.2.1.2 Desiccant method

Depending on the durations of transport and storage, the goods shall be protected against corrosion by adding desiccants and heat-sealing the goods in plastic film.

The following materials are used as barrier films:

- Polyethylene film according to BAAINBw TL 8135-0019:2019-09 or equivalent film
- Aluminium sandwich film according to BAAINBw TL 8135-0003:2018-11 or equivalent film

Barrier enclosures shall be designed to allow the proper opening and re-closing of the enclosure for two times. If desiccant is used, it shall be replaced completely after every opening of the packaging.

Projecting parts and sharp edges shall be properly padded to prevent wearing through or piercing of the film. The volume of air inside the barrier enclosure shall be reduced to a minimum.

Openings in the barrier sheathing such as areas pierced by fastening elements shall be sealed vapour-tight with seals and sealing compound applied on both sides of the barrier film (see Fig. 7).

The necessary desiccant quantity shall be calculated according to DIN 55474:2015-03 for a maximum permissible ultimate humidity of 40%. The water vapour permeability shall be established using the procedures specified in DIN EN ISO 15106- 3:2005-05; the films shall be checked both in as-delivered and in aged condition.

When hygroscopic material has to be enclosed for reasons of packaging, the necessary quantity of desiccant units shall be calculated using the calculation formula below. The factors and calculation values are stated in Table 15.

The desiccant bags of the low-dust type shall be placed in the upper section of the film enclosure and properly secured against falling. The desiccant bags shall be fastened in such a way that they permanently withstand the loads resulting from transport, handling, and from weight increase due to the absorption of moisture. Direct contact between desiccant and pack- aged goods is not allowed.

Formula: $n = 1/a\ (V \times b + m \times C + A \times e \times WDD \times t)$

Table 13: Desiccant units

Factor	**Meaning**	**Calculation value**		
n	Number of desiccant units	-		
a	Water volume to be absorbed by each desiccant unit to comply with the permissible max. air humidity in the enclosure.	Permissible ultimate humidity	20 %	40 %
		Factor a	3	6
e	Correction factor related to the permissible ultimate humidity	Factor e	0.9	0.7
V	Inside volume of the package in m³	-		
b	Humidity content of the entrapped air in g/m³	e.g. at 20 °C and 85% relat. humidity b = 15 g/m³		
m	Mass of the hygroscopic packaging aids (in kg)	-		
c	Factor for the humidity content of the hygroscopic packaging aids in g/kg (‰)	C = 80 for wood, air-dry = 18 % water content		
		C = 80 for wood and cardboard 80 for padding elements on organic basis		
A	Surface area of barrier enclosure in m²	-		
-	-	Exemplary values of suitable films		
WDD	Water vapour permeability of the barrier enclosure for the climate to be expected, in g/m² x d, measured according to DIN 53122-1:2001-08 or DIN EN ISO 15106-3:2005-05	Type of film	Testing atmosphere	
			20/85	38/90
		LD – Pe 0,2 mm thick	0.4	2.0
		Aluminium sandwich	< 0,1	0.1
t	Total duration of transport and storage in days	-		

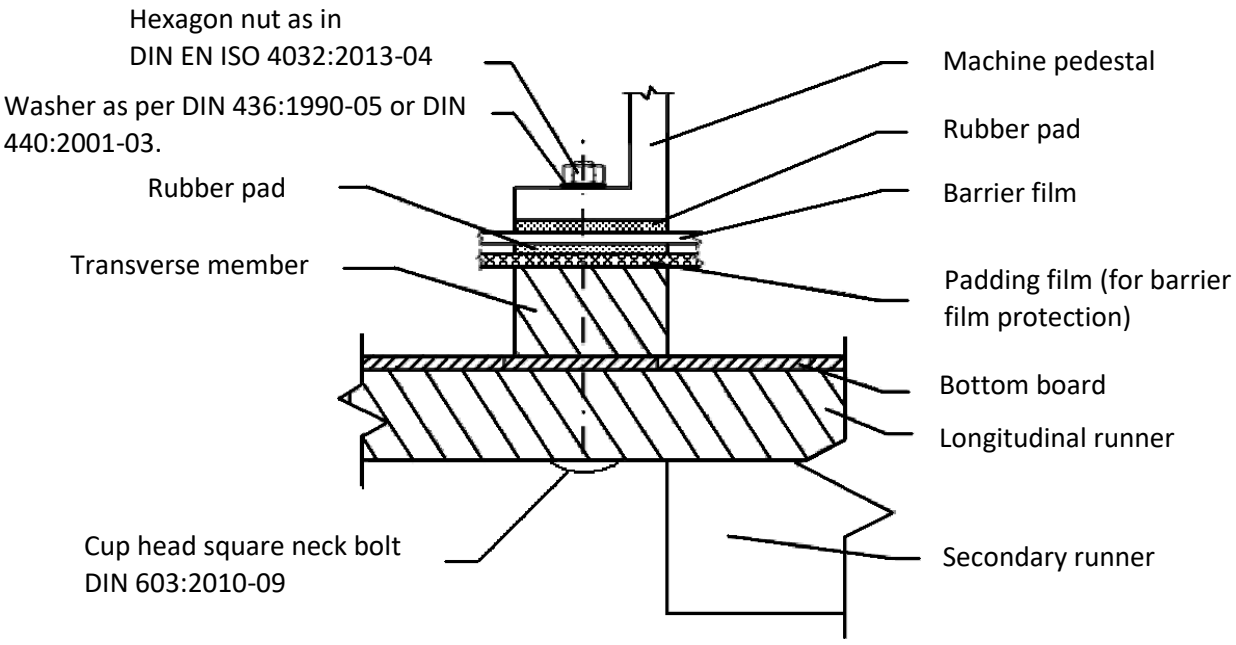


Figure 6: Piercing of the barrier film

6.2.1.3 VCI method

With regard to compatibility, preservation using the VCI method with at least one appropriate carrier material (paper, film, foam pack, etc.) is also possible, but requires previous consultation with and approval by METTOP. According to HPE 2010, the following shall be observed for the VCI method:

- Use of VCI according to maker's quantity indication
- Observance of pre-contact time of the various VCI products (maker's specifications)
- Clarification of VCI compatibility with a previously applied preserving agent
- The distance between VCI and material to be protected is assumed to be max. 30 mm (rule of thumb)

6.2.2 Nailing of wooden battens

Nailing shall be made as specified in DIN EN 1995-1-1:2010-12 chapt 8.3. Nailing of end-grained wood is applied only for the fixing of case components.

Figure 8 shows a sample sketch of the nailing of wooden battens. The battens shall be fixed with at least 2 nails in every board.

Shortest applicable distances between nails:

- 5 d from unloaded edge
- 10 d from loaded edge

d = nail diameter

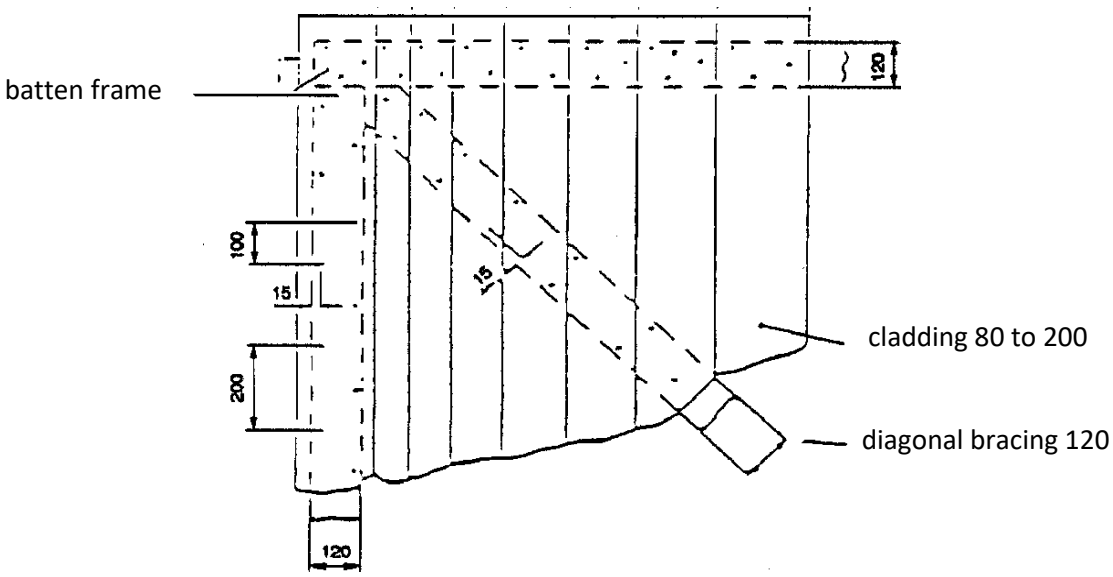


Figure 7: Nailing of wooden battens - sample sketch

6.3 Identification of the package

6.3.1 Marking of the case

The marking consists of lettering, handling instruction, IPPC (International Plant Protection Convention) marking (if necessary) and the company logo.

The packages shall be provided with light-fast and sea-water resistant contrast colour (preferably black RAL 9005) using a template or with lettering signs. The materials of the signs shall be resistant to heat, cold, UV radiation and sea water. When parts are not packed or when sledge structures are used, the marking may be applied to the goods themselves.

The package marking shall be requested from the Commercial Sales Dept. of METTOP when the cases are ready for shipment. In addition, the package shall, if necessary, be provided with the necessary marking relating to properties and condition, hazards and storage class of the goods.

6.3.2 Lettering

The lettering is project-related and part of the shipping instructions. METTOP will make these shipping instructions available to the contractor in due time.

If there are no regulations to the contrary, all letterings shall be in Arabic numerals and Latin capital letters.

The size of the lettering shall be adapted to the size of the case and the space remaining near the handling symbol and instructions. The lettering shall be applied so as to ensure that the handling marking is not covered, in particular when signs are used.

The lettering shall be applied to at least two sides of the package; if lettering on 4 sides is required, this will be communicated to the contractor in due time.

Packages of cylindrical shape shall be provided with marking on two opposite faces.

6.3.3 Handling marking

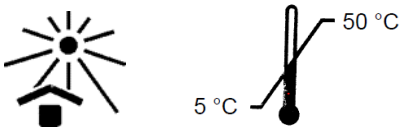
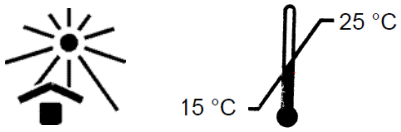
The packages shall be provided with the relevant pictorial marking of the handling instructions according to DIN EN ISO 780:2016-05. The marking of the handling instruction shall be made in the usual letter sizes specified in

DIN EN ISO 780:2016-05. The marking of the center of gravity and of the point of lifting gear application shall be made on all packages as appropriate for size and weight of the package and the position of the center of gravity.

The type of storage shall be marked using the pictorial marking shown in table 16.

The type of storage shall be chosen as appropriate for the most sensitive of the goods. If no specifications are made by METTOP, the type of storage shall be determined by the manufacturer or the supplier of the goods.

Table 14: Types of storage

Type of storage		**Graphical symbol** [a) b]
Cons. No.	**Explanation**	
1	The package shall be kept in a dry place. Outdoor storage under tarpaulin or roof.	
2	The package shall be protected against sunlight, kept e.g. in a closed building without temperature control (indoor storage).	
3	The package shall be stored protected against frost and sunlight in a bay within a temperature range from 5 °C to 50 °C .	
4	The package shall be stored protected against sunlight in an air-conditioned bay within a temperature range from 15 °C to 25 °C and at an air humidity between 40 % and 60 %.	
5	Special storage area for dangerous goods.	Dangerous goods within the meaning of the Ordinance on Hazardous Substances for the respective type of transport (GefahrgutRVÄndV 8, GGVSEB, IATA-DGR) shall be provided at least with the following additional marking: • Lettering: UN No. (expert committee of the United Nations) and technical designation of the goods. • Marking of the storage class with class symbol and class figure; in case of more than one dangerous property, the class symbols for the dangerous goods shall be shown in addition; see table 17. The size of the marking shall be at least 100 x 100 mm, on containers, 250 x 250 mm. • When packages are combined to form loading units, markings and symbols of the individual packages must be fully and clearly visible, otherwise the loading unit shall be provided with new marking.

[a)] Pictorial marking according to DIN EN ISO 780:2016-05

[b)] Hazardous substances marking, see item 6.3.6

6.3.4 IPPC marking

Wooden cases shall be marked with the IPPC stamp. This stamp gives information on treatment methods, country of origin, and the competent phytosanitary authority, and contains the registration number of the company which has carried out treatment and packaging. The IPPC stamp shall be applied to at least 2 sides.

6.3.5 Company logo

All cases shall be provided with the METTOP company logo using a template. The template and letter size shall be chosen as appropriate for the size of the case. The company logo shall be arranged on all sides and on every side in central position at the top edge.

6.3.6 Hazardous substances marking

According to the hazardous substances ordinance CLP/GHS, all packages containing a hazardous substance shall be provided with pictorial marking as per table 17 on at least two sides.

Meaning	Pictorial marking	Explanation
Gas under pressure		Contains gas under pressure; risk of explosion when heated. Contains cryogenic gas; risk of cryogenic burns or injuries.
Explosive		Unstable, explosive Explosive; risk of mass explosion Explosive; high risk of splinters and fragments projected Explosive; risk of fire, blast, splinters and fragments projected, risk of mass explosion in case of fire
Oxidising		May cause or intensify a fire, oxidizing agent. May cause fire or explosion; strong oxidizing agent
Flammable		Extremely flammable gas Flammable gas Extremely flammable aerosol Flammable aerosol Liquid and steam highly flammable Liquid and steam flammable Flammable solid
Corrosive		May be corrosive on metals Causes severe chemical burns to the skin and heavy eye injuries
Health hazard		May cause irritations of the respiratory ducts May cause sleepiness and daze feeling Can cause allergic reactions of the skin Causes severe irritation of the eyes Causes skin irritations Detrimental to health when swallowed Detrimental to health at skin contact Detrimental to health when breathed in Detrimental to health in general and to the environment by ozone destruction in the upper atmosphere
Acute toxicity		Danger to life when swallowed Danger to life at skin contact Danger to life when breathed in Toxic when swallowed Toxic at skin contact Toxic when breathed in
Serious damage to health		May be fatal when swallowed or at ingress in the respiratory ducts Causes damage to organs May cause damage to organs May impair fertility or cause harm to the unborn child May presumably impair fertility or cause harm to the unborn child May cause cancer

		May presumably cause cancer May cause genetic defects May presumably cause genetic defects May cause allergy, asthma-like symptoms or breathing difficulties when breathed in
Dangerous to the environment		Very toxic to aquatic organisms with long-term effect Toxic to aquatic organisms with long-term effect

Table 15: CLP pictogram

6.4 Inspection

6.4.1 Basic specifications

The packer shall inform METTOP in due time (i.e. at least two days) before packaging starts. METTOP has the right of its own presence during packaging or of that of a representative. In any case, METTOP reserves the right of inspection of the packaging.

The packer shall fill in an inspection report (METTOP form: *VO.61 QM Inspection Report Mettop EN 00*) for every package. In addition, the calculation documents and a list of the materials used stating quantities, cross-sections etc. shall be drawn up for each package. The documents shall be made available to METTOP for countersigning. Works-specific records giving the same information are also accepted by METTOP.

If, on the basis of the records or during inspection of the packages, there is reasonable doubt concerning proper preservation, marking or packaging, the authorized representative of METTOP will decide as to whether opening of the packages and possibly opening of the barrier enclosures is required.

If the opened packages are found to be unacceptable, the representative of METTOP will decide whether additional opening of twice the number of packages opened for the previous inspection shall take place.

Such additional inspection will be repeated till all packages of an additional inspection have been found to be fully acceptable.

The packer is responsible for correct execution of packaging in accordance with these minimum requirements, and for the perfect quality of the packing material. Any deviation from these conditions requires the previous written approval by METTOP.

The packaging inspection does not relieve the packer from its warranty obligations and liability.

6.4.2 Testing atmospheres

The testing atmospheres to be used shall be chosen as appropriate for the country of destination. If no climate data are available, atmosphere B according to DIN 53122-1:2001-08 shall be used. If no particular proof of water vapour permeability (WDD) has been furnished, the max. permissible water vapour permeability factor (mean value of as-delivered and aged condition) stated in the relevant technical term of delivery shall be used.

The test results shall be proven in an inspection certificate type 3.1 or 3.2 according to DIN EN 10204:2005-01.

7 LOADING AND UNLOADING

7.1 Basic specifications

The securing of the load is the combined operation-safe and transport-safe loading. Operation-safe loading is in the responsibility of the carrier. He must ensure that the loaded vehicle fulfills all road-traffic requirements (StVO = road traffic regulations, StVG = road traffic act) at any time. The party dispatching the goods is responsible for transport-safe loading. According to the power to enact secondary legislation for loading and unloading (HGB = commercial code) in its applicable version, the dispatching party is obliged to load, stow and fasten (load) the goods/units in a transport-safe manner. In addition, it shall also be ensured that the goods can be unloaded in a safe way. The regulation VKSfor the securing of loads on road vehicles shall be complied with.

Failure to comply with the securing of the load in an METTOP-organised transport shall be reported immediately to the person indicated in the ordering documents.

7.2 Securing of the load

7.2.1 Stress assumptions

The forces of gravity which are relevant for the securing of the goods result from the actually occurring acceleration and deceleration values.

Table 18 states the acceleration factors for the different types of transport.

The g-values shown in the table are the maximum acceleration forces occurring in normal operation. In combined transport, the type of transport causing the highest acceleration values shall be taken into account.

The values in table 18 shall be combined with the downward acting gravitational force of 1 g and dynamic fluctuations (vertical) in the following way:

(a) = ± 0,3 g (b) = ± 0,5 g (c) = ± 0,7 g (d) = ± 0,8 g

Table 16: Stress assumptions according to CTU directive on combined transport

Acceleration forces (according to HPE Guidelines of August 2010)			
Type of transport	**Forward acceleration**	**Backward acceleration**	**Lateral acceleration/upward**
Road transport	1,0 g	0,5 g	0,5 g
Railway transport Shunting traffic	4,0 g	4,0 g	0,5 g (a)
Combined transport [a)]	1,0 g	1,0 g	0,5 g (a)
Maritime transport Baltic Sea North Sea Worldwide	0,3 g (b) 0,3 g (c) 0,4 g (d)	0,3 g (b) 0,3 g (c) 0,4 g (d)	0,5 g 0,7 g 0,8 g
Air transport	1,5 g	1,5 g	vertical ± 3,0 g

[a)] Railway wagons with containers, swaps, semi-trailers, trucks and complete trains (UIC = (International Union of Railways) and RIV (Regolamento Internazionale Veicoli, agreement governing the exchange and use of coaches in international traffic).
The forces resulting from the accelerations can be calculated by multiplying mass (packaged goods or unit) with acceleration: F = m × g.
Other acceleration forces may occur.

7.2.2 Fixing of the goods

The goods shall be bolted to the case bottom structure using load-distributing transverse wooden members.

The number of bolts and their dimensioning shall be calculated according to figure 9. It shows the permissible load of the connection of the cup head square neck bolt for force application in direction of grain in terms of N.

The minimum bolt spacing and the minimum bolt distance from the loaded edge in grain direction shall be 7 d, but at least

100 mm. Securing in place of movable parts of the goods shall be made in the same quality as the fixation of the goods on the bottom of the case.

If screw-fastening/bolting of the merchandise to the case bottom structure is impossible or possible only to a limited extent, appropriate intermediate layers, padding elements, supports or blocking elements shall be used to avoid slipping of the goods in the case.

The following measures are appropriate:

- Jamming of the goods using wooden thrust blocks and threaded rods (min. bolt diameter see table 10),
- Lashing of the goods using pre-stretched wire and turnbuckle (proof of sufficient wire cross-section is required),
- Textile straps and textile belts with pertaining locking devices with due consideration of the supplier specifications and qualities.
- All goods fixation devices shall be used in conjunction with appropriate edge guards.
- Sensitive parts or surfaces shall be protected with suitable materials.

	Coniferous wood incl. larch	**Oak and beech wood**
single-lap joint	550 N/mm² × a1 × d but not more than 2 400 N/mm² × d2	700 N/mm² × a1 × d but not more than 2 800 N/mm² × d2

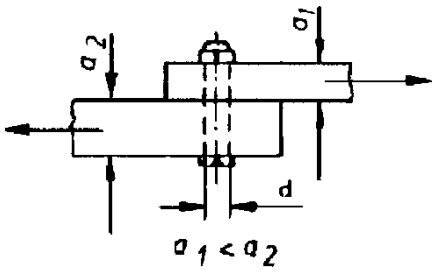


Figure 8: Connection of the cup head square neck bolts

Annex A
(normative)
Definitions of terms

A.1 System of the concepts

Figure A.1 shows the relationship between the concepts.

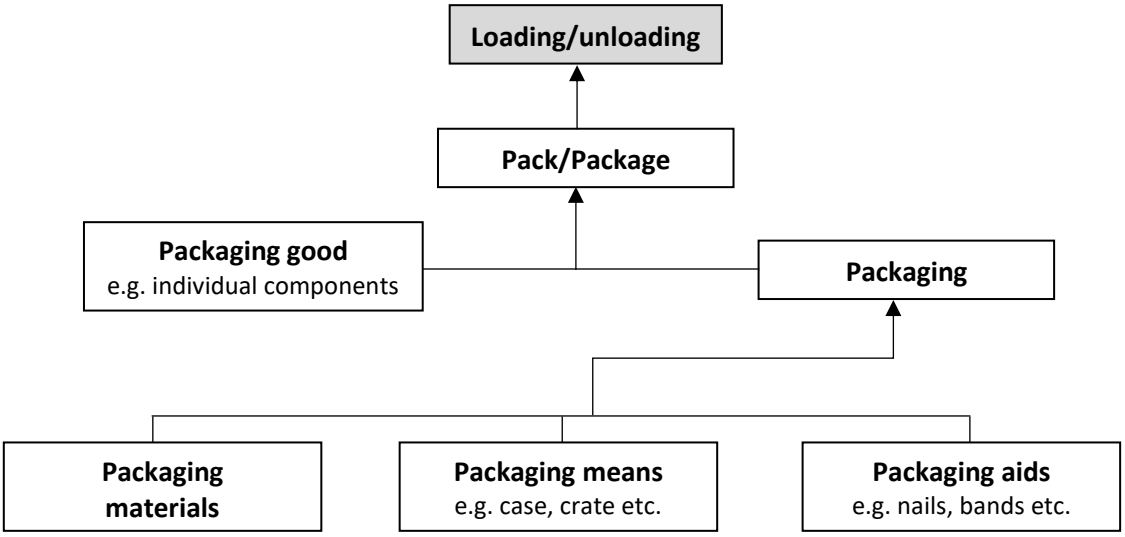


Fig. A. 1 - System of the concepts

A.2 Terms and definitions

The terms are listed in alphabetical order; the source is indicated in [].

Freight container [CTU Code: 2015-05]

A transport vessel of permanent nature and hence strong enough and suitable for repeated use; it is specially designed to facilitate the transport of goods by one or more carriers without transhipment; designed such that it can be secured and/or easily transshipped and provided with corner fittings for his purpose. It must have been approved on the basis of the international convention for safe containers (CSC) of 1972 in its applicable version. The term “freight container” includes neither vehicles nor the packaging, but freight containers transported on container chassis are included.

Hazardous goods packaging [DIN 55405:2014-12]

Shipping packaging in conformity with the traffic law regulations for the transport of hazardous goods.

NOTE
Also refer to Note 3 on Packaging.

Commercial dispatch [METTOP]

Commercial dispatch is the generic term for all activities in connection with the planning and documentation of shipment.

Case [DIN 55405:2014-12]

Dimensionally stable, rectangular or polygonal solid-walled packaging means with top (lid).

Order picking [METTOP]

Order picking is the generic term for all activities from the compiling to the marking of materials/products for subsequent process steps like assembly, shipment etc.

NOTE:
The result of order picking as part of the shipping process is the packaging good (goods to be packed).

Packaging good [DIN 55405:2014-12]

Packaged good or good which is to be packaged.

NOTE:

Packaging good can be any unpacked good or a pack produced in a preceding packaging process. The packaging good imposes the packaging to be used for the protecting function which is mainly determined on the basis of - the nature and condition of the good (unit load, bulk/pasty good, mixed good, liquid incl. gaseous liquid, gases/gas mixtures), - the assignment of the good to a product category (food, pharmaceutical product, chemical, hazardous good, heavy good), - the specific properties of the individual good. Goods which can usually be filled in a packaging means from above are called flowable goods. The German DIN standard replaces the previously used term “Verpackungsgut” with the new term “Packgut”
(packaging good)

Packaging aids [DIN 55405:2014-12]

Packaging component which, in conjunction with the packaging means, yields the total of the functions of a packaging.

NOTE 1
The term refers to parts which are used in addition to the packaging means and yield/fulfill supplementary functions like closing, marking and furnishing, securing and protecting, handling, removing. The German DIN standard replaces the previously used term “Verpackungshilfsmittel” with the new term “Packhilfsmittel” (packaging aids).

NOTE 2
From the viewpoint of the hazardous goods regulations, packaging aids which are not part of the packaging means (transport unit) are considered to be loading aids.

Package [DIN 55405:2014-12]

Packaging unit which is fit for transport.

NOTE for METTOP:
The German DIN standard uses the term “Packung” (pack) for a transport unit in which the packaging does not have to fulfill particular requirements. The German DIN standard uses the term “Packstück” (package) for a transport unit in which the packaging must fulfill particular requirements.

“Packung” (pack) [DIN 55405:2014-12]

Product of the packaging process resulting form the joining of packaging good and packaging.

NOTE:
There are various intended purposes of a Packung (pack). For this reason the basic term has to be stated more precisely by adding e.g. a packaging good designation or a word designating a particular function.

Packaging means [DIN 55405:2014-12]

Packaging component which constitutes the main part of the packaging and which is intended to hold the goods to be packaged. The packaging means serves to enclose, either in part or completely, or to contain the goods to be packaged.

NOTE:
As the main item of the packaging, the packaging means has decisive influence on the fulfilment of the packaging’s functions (protection, rationalisation, communication), cost and environmental compatibility. The packaging means are made available for the packaging process at different degrees of prefabrication depending on what is required for the integrated packaging procedures. There are packaging means with a low degree of prefabrication which take their shape during the packaging process, and packaging means with high degree of prefabrication made available as hollow bodies ready for filling, or available in flat condition and erected to their shape ready for filling. The intended use or the property of the packaging means can be stated more precisely with the help of specific designations by adding the designation of a functional determiner to the main term or to the terms for individual types. In conjunction with a particular packaging material, the packaging means can be characterised by adding the designation of the packaging material (like glass bottle for a bottle made of glass). The connection of the term packaging means with a particular packaging good shall be avoided as such connection is usually only reasonable for the packaging in the entirety of its constituents. Dimensionally stable packaging means with a high degree of prefabrication such as bottle, can, jerrycan, barrel, box and case are designated as containers. The German DIN standard replaces the previously used term “Verpackungsmittel” with the new term “Packmittel” (packaging means).

Heavy goods packaging [DIN 55405:2014-12]

Transport packaging designed for particularly heavy goods.

NOTE
Weight limits may be defined in tariffs and transport regulations.

Technical dispatch [METTOP]

Technical dispatch is the generic term for all activities in connection with the practical execution of shipment (dispatching).

Transport [DIN 30781-1:1989-05]

Transport is the movement of persons and/or goods from one place to another with the aid of manual or technical means.

Means of transport [DIN 30781-1:1989-05]

Means of transport is a means used for the movement of persons and/or goods from one place to another.

Transport packaging [DIN 55405:2014-12]

Packaging which facilitates the transport of goods, protects the goods against damage in transit or is used for reasons of transport safety and which are used at the place of packaging. [Packaging Ordinance] Transport packaging or tertiary packaging, i.e. packaging which facilitate the handling and the transport of two or more sales units or outer packaging in such a way that direct contact with them and damage in transit are avoided. Containers for transport by road, rail, ship and air are not considered as transport packaging. [Directive 94/62/EC].

Strapping [DIN 55405:2014-12]

Forming of a closure, reinforcement or securing of packages or forming of bundles in which mainly strap-like closing aids are used.

VCI film [DIN 55405:2014-12]

Plastic film with additives which are released during transport and storage to prevent corrosion of metallic surfaces of the packaging good.

NOTE:
VCI is short for volatile corrosion inhibitor.

Loading [METTOP]

Loading is the entirety of the conveying and storing procedures for the putting of goods/packages on a means of transport.

Packaging (activity) [METTOP]

Packaging is the joining of the goods to be packed and the packaging to form a packed unit.

Packaging (object) ([DIN 55405:2014-12]

Entirety of all packaging elements, in particular packaging means and packaging aids, for the fulfilment of a packaging task

NOTE 1
It serves to protect the goods, man and environment, serves the purpose of rationalisation in handling during production, the presentation and consumption of the goods and of information on and advertising for the goods.

NOTE 2
The terms refers to the necessity of packaging as an element of quality assurance of the goods with the necessity of packaging resulting from the fact that the place of production and place of consumption are not the same, to the rationalisation of the distribution and disposal processes by means of effective distribution systems and forms of trade, for safe flow of information incl. publicity and for the enhancing of the utilisation value of the goods by simplified handling, safe application of the goods, their safe and space-saving storage, and the promoting of the development of new products and habits of utilisation. The packaging fulfills a variety of different functions. For this reason, the main term shall be stated more precisely by specific designations. To make reference to a particular intended use of to a property of the packaging, the corresponding functional determiner shall be added to the main term. The connection of the term packaging with a particular packaging material shall be avoided as such connection is usually only reasonable for the its constituents.

NOTE 3
For specifications deviating from this, see Packaging Ordinance (Annex B), Directive 94/62/EC (Annex B); for hazardous goods, refer to ADR/RID 1.2.1.

Shipment (dispatch) [METTOP]

Shipment is the generic term for all activities from order picking to the putting of the goods on a means of transport, inclusive of the securing of the goods/materials on the means of transport.

NOTE:
Dispatch is subdivided into Commercial Dispatch and Technical Dispatch on the one hand and in internal dispatch and external dispatch on the other hand.

Crate [DIN 55405:2014-12]

Wooden packaging means in the form of a three-dimensional framework structure made with boards, cleats or battens and usually reinforced with diagonal cleats and/or cleats/battens arranged parallel to and at a distance from one another.

NOTE 1
The corners are usually in the form of three-way corners.

NOTE 2
Crates can be either in the form of open crates or closed crates; closed crates are crates lined inside with e.g. plywood, chip or fibre boards.

Annex B
(for information)
Forms of panels with diagonal bracing

Fig. B.1 shows examples of panels with diagonal bracings according to the HPE Packaging Guideline.

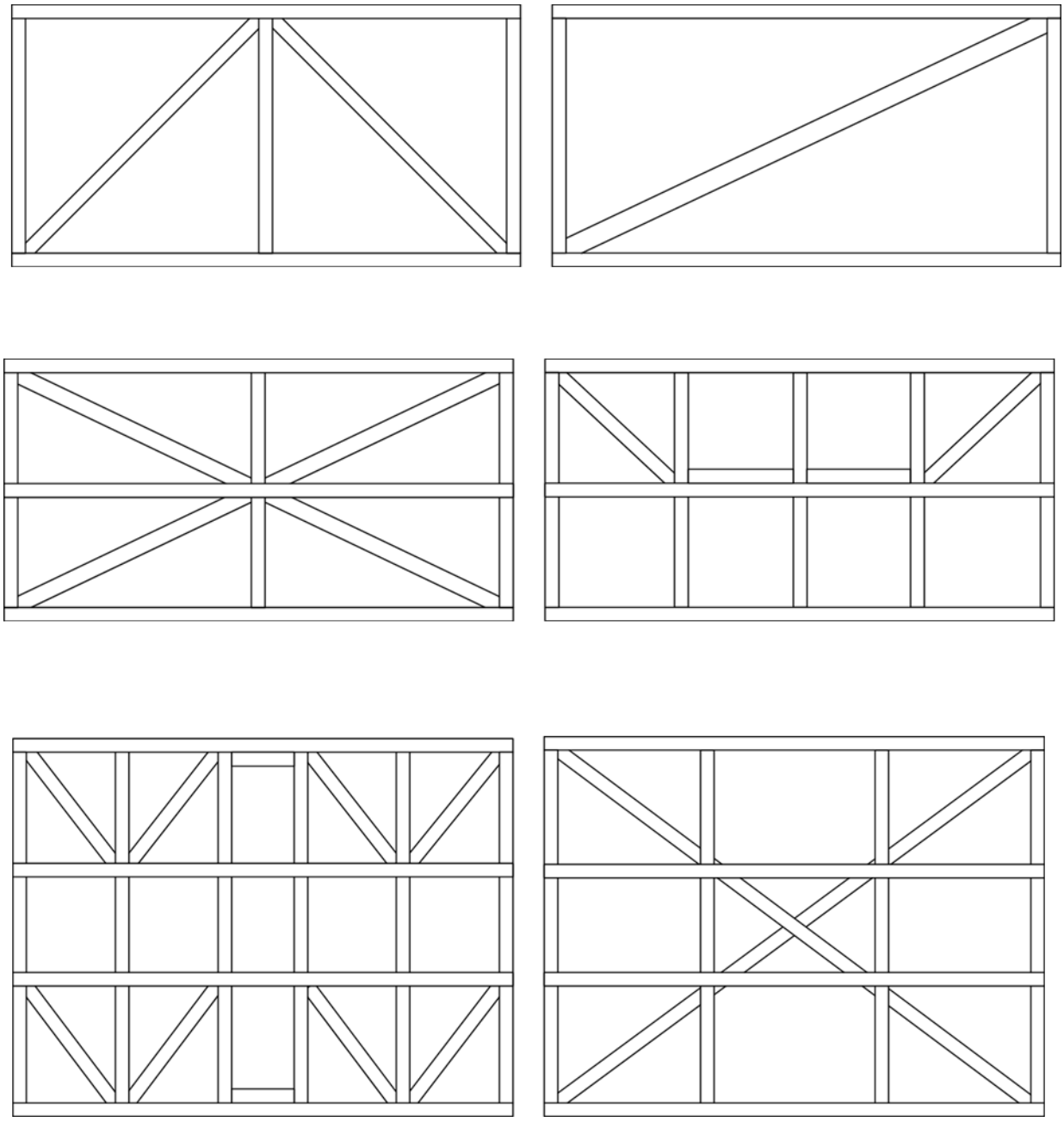


Fig. B. 1 – Panels with diagonal bracing for cases of design 2

Annex C
(normative)
Permissible stresses for wood

The permissible stresses for wood used as packaging material are indicated in table C.1.

The permissible compressive stress in N/cm² for angular application of force on wood of grading class S10 for load case H (main forces) is calculated with the aid of table C.2.

Calculation formula: $\sigma_{dperm} \leq \sigma_{dperm} \parallel - (\sigma_{dperm} \parallel - \sigma_{dperm}) \sin \alpha$

For load case HZ (main and additional forces) – shunting impact, transport by crane or industrial truck – the permissible stresses shall be multiplied by the factor 1,15.

Permissible stresses σ_{perm} and τ_{perm} in N/cm2 for load case H				
Type of stress	**Grading class S7**		**Grading class S10**	
	Coniferous wood	**Hard-wood**	**Coniferous wood**	**Hard-wood**
Bending $\sigma_{b\ perm}$	900	950	1250	1400
Bending of through beams without joints $\sigma_{b\ perm}$	950	1000	1250	1500
Tension in the direction of grain $\sigma_{z\ perm}$	0	0	1100	1250
Pressure in the direction of grain $\sigma_{d\ perm} \parallel$	750	900	1100	1250
Pressure perpendicular to direct. of grain $\sigma_{d\ perm} \perp$	250	400	250	400
Pressure perpendicular to the direction of grain in components in which minor indentations are harmless. $\sigma_{d\ perm}$	300	500	300	500
Shearing off in direction of grain and glued joint τ_{perm}	120	130	120	130

Table C. 1 - Strength data for wood used as packaging material

Permissible compressive stress in N/cm² for angular application of force on wood of grading class S10for load case H (main forces)				
Angle α or β between connecting load and direction of grain	**Coniferous wood**		**Oak and beech wood**	
	-	**For components for whichminor indentations are harmless**	**-**	**For components for whichminor indentations are harmless**
0°	1100	1100	1250	1250
10°	950	1100	1100	1130
20°	800	900	950	1000
30°	650	700	820	900
40°	550	600	700	770
50°	450	500	600	680
60°	400	450	500	600
70°	300	370	430	550
80°	270	330	400	530
90°	250	320	390	500

Table C. 2 – Permissible compressive stress for angular application of force

Referenced technical standards, codes and regulations

BAAINBw TL 8135-0003:2018-11 of the federal office for defence technology and procurement; technical deliveryconditions - packaging materials - sandwich films

BAAINBw TL 8135-0019:2019-09	of the federal office for defence technology and procurement; technical deliveryconditions - packaging materials - polyethylene films of low density
CLP/GHS	Regulation on Classification, Labelling and Packaging of Substances and Mixtures; Verordnung (EG) Nr. 1272/2008 (GHS-Verordnung) über die Einstufung,Kennzeichnung und Verpackung von Stoffen und Gemischen nach neuem GHSund altem EU-Recht
CTU Code	IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units
DIN 436:1990-05	Square washers; especially for wood constructions
DIN 440:2024-10	Washers - With square hole, especially for timber constructions
DIN 603:2017-05	Cup head square neck bolts
DIN 1052-10:2012-05	Design of timber structures - Part 10: Additional provisions
DIN 1143-1	Nails for use in automatic nailing machines, round, loose
DIN 4074-1:2012-06	Strength grading of wood - Part 1: Coniferous sawn timber
DIN 30781-1:1989-05	Transport chain; Basic concepts
DIN 53122-1:2001-08	Testing of plastic and elastomer films, paper, board and other sheet materials -Determination of water vapour transmission - Part 1: Gravimetric method
DIN 55405:2014-12	Packaging - Terminology - Terms and definitions
DIN 55474:2015-03	Auxiliary means of packaging - Desiccants in bag - Application, calculation of therequired number of desiccant units
DIN EN 300:2006-09	Oriented strand boards (OSB) - Definitions, classification and specifications
DIN EN 315: 2000-10	Plywood - Tolerances for dimensions
DIN EN 1993-1-1:2010-12	Eurocode 3: Design of steel structures - Part 1-1: General rules and rules forbuildings
DIN EN 1995-1-1:2010-12	Eurocode 5: Design of timber structures - Part 1-1: General - Common rules andrules for buildings
DIN EN 10204: 2005-01	Metallic products - Types of inspection documents
DIN EN 10230-1	Steel wire nails - Part 1: Loose nails for general applications
DIN EN 13986: 2015-06	Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking
DIN EN ISO 780:2016-05	Packaging - Pictorial marking for handling of goods (ISO 780:1997)
DIN EN ISO 4032:2023-12	Hexagon regular nuts (style 1) - Product grades A and B (ISO 4032:2012)
DIN EN ISO 15106-3:2005-05	Plastics - Film and sheeting - Determination of water vapour transmission rate -Part 3: Electrolytic detection sensor method (ISO 15106-3:2003)
GGVSEB	Regulation on carriage of dangerous goods by road and rail (Dangerous GoodsOrdinance Road and Rail)
GefahrgutRVÄndV 8	refers to the eighth ordinance for the amendment of the dangerous goods regulations (Dangerous Goods Ordinance)
HPE-Verpackungsrichtlinie 2010	HPE Packaging Guidelines of The Registered Federal Association for WoodenPackages, Pallets and Export Packaging e.V.
IATA-DGR	IATA Dangerous Goods Regulations
StVO	(Austrian) Road traffic regulations
StVG	(Austrian) Road Traffic Act
VKS	VKS - Regulation on Load securing on road vehicles