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ICS 55.020

Descriptors: Packing

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1 General conditions

1.1 Special notes

1. If the contractor cannot unambiguously determine the goods class, Voith must be contacted.
2. The contractor is responsible for selecting the packing category, corrosion protection according to VN 1576-1 and the materials to be used. If wooden supports, pallets, crates, part packings, etc. are made the packing must be reasonably designed for the weight and properties of the goods.
3. This packing standard must be understood as minimum requirements. If additional measures are required in the contractor's experience to protect the goods, they must be taken in agreement with Voith.
4. The contractor is obliged to use economical and space-saving packing. Options of co-packing must be considered and utilized after discussion with Voith.
5. Packing must generally be designed in such a manner that the packed goods and the packing can be transported and stored without damage. Furthermore, the packing must withstand several transshipments during transport.
6. Small parts (bolts, nuts, washers, etc.) must be packed in plastic bags.
7. The climatic conditions of sea transport (e.g. contact to salt water, condensation water, salty air, temperature variations, etc.) must be taken into account especially with respect to corrosion protection and selection of the packing category.
8. The designation and description of the content of packings must completely and fully correspond with the packing lists.
A copy of this packing list must be attached waterproofed to the packing. Special care must be taken that there is no indication of the supplier (neutral paper or packing list handed over by Voith).
9. If the packing is specified in other documents (e.g. project guideline, drawing, etc.) for specific orders or products, these specifications must be met.
10. Packing must take special care to pack assemblies together.

1.2 Corrosion protection

Due to the long transport and storage period, all sensitive equipment - in addition to corrosion protection applied to the goods by the manufacturer - must be protected from corrosion. The corrosion protection is according to VN 1576-1. The processing requirements for the relevant corrosion protection agent must be met under all circumstances.

1.3 External packing inspection (for direct deliveries)

1. Voith has the right to inspect packing at the contractor's at any time.
2. If repeated inspections are necessary due to the contractor's fault, the contractor must bear the resulting costs (e.g. personnel, travel, material costs).
3. Inspection of packing does not release the contractor from its contractual obligations.

1.4 Guarantee

The contractor guarantees the contractual design of the packing according to the state of the art, in particular the best quality and suitability of the packing material, as well as suitability of the packing, taking into account the goods to be packed and the actual stresses, for the warranty period set forth in the relevant contracts.

2 Packing materials

2.1.1 Wood

All wood used (crates, pallets, dunnage bars, etc.) must be treated according to IPPC standard and marked accordingly.

2.1.2 Foils

1. Aluminum composite foil designed as sealing layer foil.
2. Transparent shrink-wrap foil HS

2.1.3 Padding and filler materials

Padding paper, air bags, air cushion foil, foam foils and foam mats are to be used as filler material.

ATTENTION: Styrofoam chips must not be used generally.

The use of hygroscopic filler and padding materials (e.g. wood wool, hay, straw, waste paper, etc.) to fill out empty spaces and/or for padding is not allowed.

2.1.4 Plastic container or bag

To keep small parts such as bolts, washers, etc., that have to be supplied with the goods and which must not be lost, dry during transport and storage. These are fastened to the goods by adhesive tape, cable binder etc.. The documents also supplied, e.g. drawings, shipping documents, certificates, are therefore protected when they are stored and transported.

3 Goods classes (GK)

As the materials to be packed are of different physical and chemical sensitivities, they are grouped in the following goods classes dependent on their properties.

If the contractor cannot unambiguously determine the goods class, Voith must be contacted.

3.1 Goods class GK 1

Shock and corrosion-resistant parts, e.g. piping and support structures, steel structures, sections, formed pipes, scaffolding, etc.

3.2 Goods class GK 2

Cable on cable drums.

3.3 Goods class GK 3

Shock and corrosion-resistant, heavy, bulky materials.

Framework parts, walkways, containers with exterior elements, machined piping, support structures, parts with cooling ribs, robust machines, thin-walled sheet-metal parts (pans, wire pans, vats), equipment, etc. which are largely insensitive to physical and chemical influences (UV radiation, salt water, etc.), fluids and bulk goods in barrels or other containers, etc.

3.4 Goods class GK 4

Corrosion-resistant materials requiring physical protection or cannot be classified in goods class GK 3 due to their size (small parts).

Non-hygroscopic insulating material, plastic, coated steel parts, etc.

3.5 Goods class GK 5

Corrosion-sensitive materials that require physical protection.

Machine elements (gears, couplings, axles, shafts, etc.), fastening elements (screws, wedges, springs, bolts, etc.), Other structural parts (flanges, brackets, etc.), simplest and insensitive parts of general mechanics, refractory materials, etc.

3.6 Goods class GK 6

Materials that require physical and chemical protection.

Rolls, covered rolls, parts with ultra fine machining, parts of general mechanics such as gearboxes, machines, bearings, fittings, etc.

Note: For rubberized rolls, only packing category 7a shall be used.

3.7 Goods class GK 7

Materials that require physical and chemical protection.

Fine mechanical, electrical, electro-mechanical and electronic materials (control cabinets, m.c.b., motors, etc.), etc.

3.8 Goods class GK 8

Materials that are sensitive to corrosion and/or extraordinarily sensitive to shock/vibration:

Electronic and fine mechanical measuring devices, computers, etc.

3.9 Goods class GK 9

Hazardous goods.

Paints, adhesives, chemicals, acids, solvents, propellants, etc.

Attention must always be paid to legal requirements!

4 Packing matrix

4.1 General

If several means of transportation are used for goods shipping, packing must be in accordance with the highest packing category/transport class.

Goods class (GK)	Transport types					Storage acc. VN 1576-1
	Truck	Rail	Sea	Container ¹⁾	Air	
	Packing category (VK)					
GK 1	VK 0, VK 1, VK 3, VK 4, VK 10	VK 0, VK 1, VK 3, VK 4, VK 10	VK 1, VK 3, VK 8, VK 10	VK 1, VK 3, VK 7	VK 2, VK 4, VK 7	C
GK 2	VK 0, VK 5, VK 10	VK 0, VK 5, VK 10	VK 5a, VK 10	VK 5, VK 5a	VK 5	B
GK 3	VK 0, VK 2, VK 3, VK 4, VK 6, VK 7, VK 10	VK 2, VK 3, VK 4, VK 6, VK 7, VK 10	VK 3, VK 6, VK 8, VK 10	VK 2, VK 3, VK 4, VK 6, VK 7	VK 2, VK 3, VK 4, VK 6, VK 7	C
GK 4	VK 2, VK 7, VK 10	VK 2, VK 7, VK 10	VK 8, VK 10	VK 2, VK 7	VK 2, VK 7	B
GK 5	VK 2, VK 4, VK 6, VK 7, VK 10	VK 2, VK 4, VK 6, VK 7, VK 10	VK 6, VK 8, VK 10	VK 6, VK 7, VK 8	VK 2, VK 4, VK 6, VK 7	B
GK 6	VK 2, VK 4, VK 6, VK 7, VK 8a, VK 8b, VK 10	VK 2, VK 4, VK 6, VK 7, VK 8a, VK 8b, VK 10	VK 6, VK 8, VK 8a, VK 8b, VK 9, VK 10	VK 6, VK 8, VK 8a, VK 8b, VK 9	VK 2, VK 4, VK 6, VK 7, VK 8a, VK 8b	A, B Covered rolls only A
GK 7	VK 2, VK 4, VK 7, VK 8, VK 10	VK 2, VK 4, VK 7, VK 8, VK 10	VK 8, VK 9, VK 10	VK 8, VK 9	VK 4, VK 7	A
GK 8	VK 9, VK 10	VK 9, VK 10	VK 9, VK 10	VK 9	VK 9	A ²⁾
GK 9	Attention must always be paid to legal requirements!					

¹⁾ Like transport class 3 (sea freight) but transported in shipping container.

A shipping container is not considered to be packing but a means of conveyance and/or transport container.

²⁾ If required, air-conditioning must be indicated additionally.

5 Packing categories (VK)

Packing category description	Page
Packing category VK 0: Unpacked	7
Packing category VK 1: Shrink-wrap in PE foil	7
Packing category VK 2: Cardboard box	8
Packing category VK 3: Wooden supports	9
Packing category VK 4: Pallets	10
Packing category VK 5: Standard drum	11
Packing category VK 5a: Seaworthy drum packing	11
Packing category VK 6: Sheathing	12
Packing category VK 7: Standard crate (without lining)	13
Packing category VK 8: Seaworthy crate (with lining)	14
Packing category VK 8a: Seaworthy crate (with lining) for rolls	15
Packing category VK 8b: Seaworthy crate (with lining, from 15 tons) for rolls	17
Packing category VK 9: Seaworthy crate (with lining and sealing in foil)	19
Packing category VK 10: Shippers own container	20

5.1 Packing category VK 0: no packing

Components are not packed.

5.2 Packing category VK 1: Shrink-wrap in PE foil

Figure 1: Shrink-wrap in PE foil



5.2.1 Instructions for shrink-wrapping

A special PE shrink-wrap foil must be used so that machine parts can be shrink-wrapped.

The foil is placed on the object to be packed and stapled to the supporting wood or pallet, if any.

Then the shrink-wrap foil is evenly heated by means of a gas flame or electrical heater.

Care must be taken that the heater is not held in one place for too long, but traced over the foil in coating movements.

Heating softens the plastic which clings to the object to be shrink-wrapped.

After cooling, the foil tightly clings to the packed good and has significantly more strength than in the original condition. If holes occur during the shrinking process, they must be closed by means of adhesive tape.

Figure 2: Instructions for shrink-wrapping



5.3 Packing category VK 2: Cardboard box

Small and spare parts for transport within Europe, or air freight shipment, should be packed in stable cardboard boxes of standard design, provided that their dimensions are suitable.

From a gross weight of 5 kg, the boxes are to be surrounded by steel or polyester bands.

From 30 to 1000 kg gross weight, one-way or euro pallets must be installed under the boxes.

Over 1000 kg, special pallets must be used that have the required carrying capacity.

Generally, pallets or special pallets must be used that were treated according to IPPC standard.

Figure 3: Cardboard box



5.4 Packing category VK 3: Wooden supports

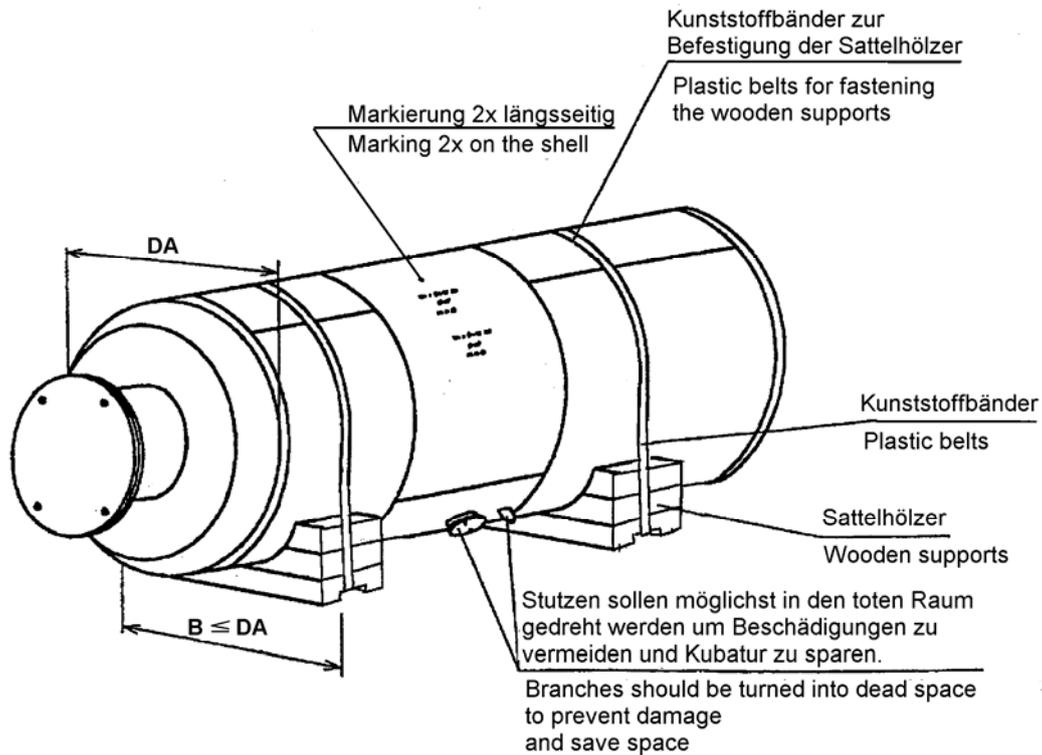
This packing category must be combined with packing category VK 1 (shrink-wrap in PE foil).

Application

For cylindrical vessels or similar goods.

- All openings must be sealed watertight, e.g. by means of plugs, metal or plastic protective caps and/or larger openings by means of blind flanges (wood or steel).
- Vessels and apparatus with their own support bearings must be provided with min. 30 mm thick wooden supports as side protection.

Figure 4: Design of the supports



5.5 Packing category VK 4: Pallets

This packing category must be combined with packing category VK 1 (shrink-wrap in PE foil).

For goods that cannot be packed in boxes, due to their size, pallets or suitable wood structures must be made in order to allow transshipment by means of forklifts.

Preferably, four-way flat pallets of wood, 1200x800 mm (EURO pallet) according to ÖNORM A 5300 or DIN 15146-2 are to be used.

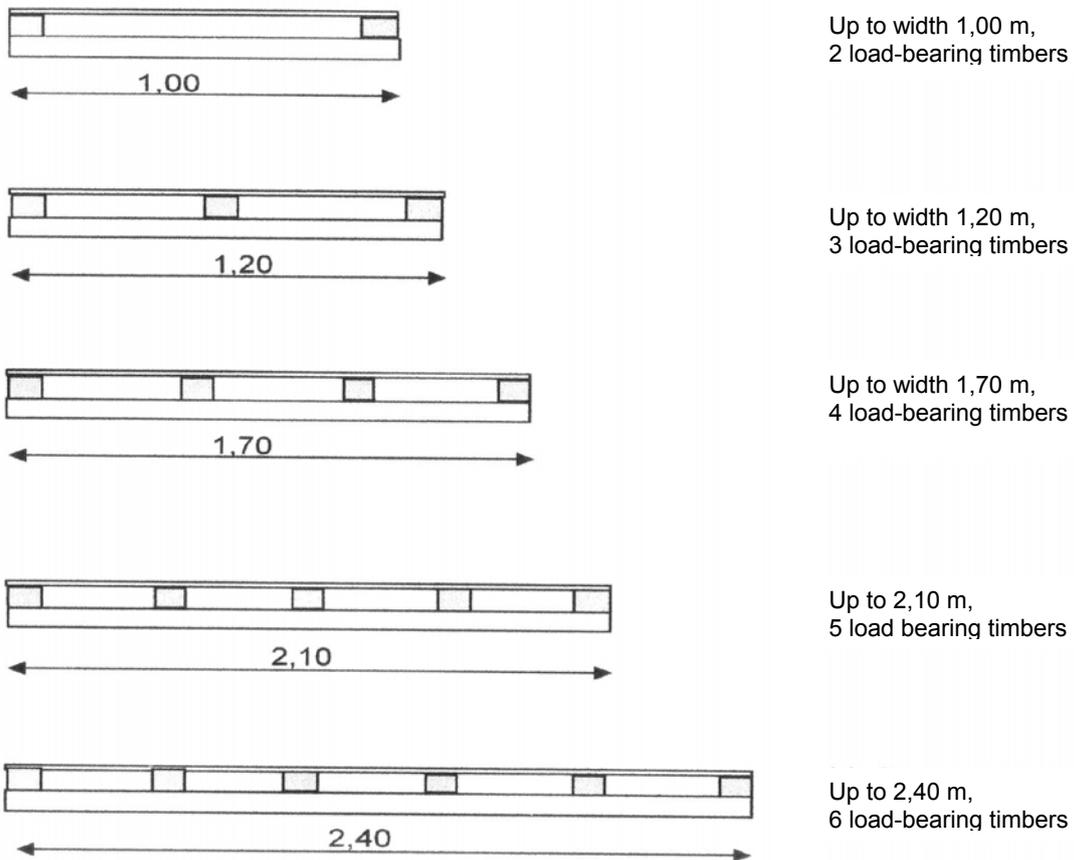
For packed goods up to 1000 kg and max. pallet size - 40 mm (the pallets or wood structures must be at least 20 mm larger than the workpiece to be packed in order to avoid damage).

The wood used to manufacture the packing must be treated according to IPPC standard.

The parts are fastened by means of suitable steel band, plastic band or screws, so that slipping is impossible. The parts must be protected appropriately from damage by the means of fastening.

In any case, there must be a suitable sealing layer between the goods and the packing woods, e.g. aluminum foil, anti-skid mat or the like.

Figure 5: Recommended number of support woods for pallets.

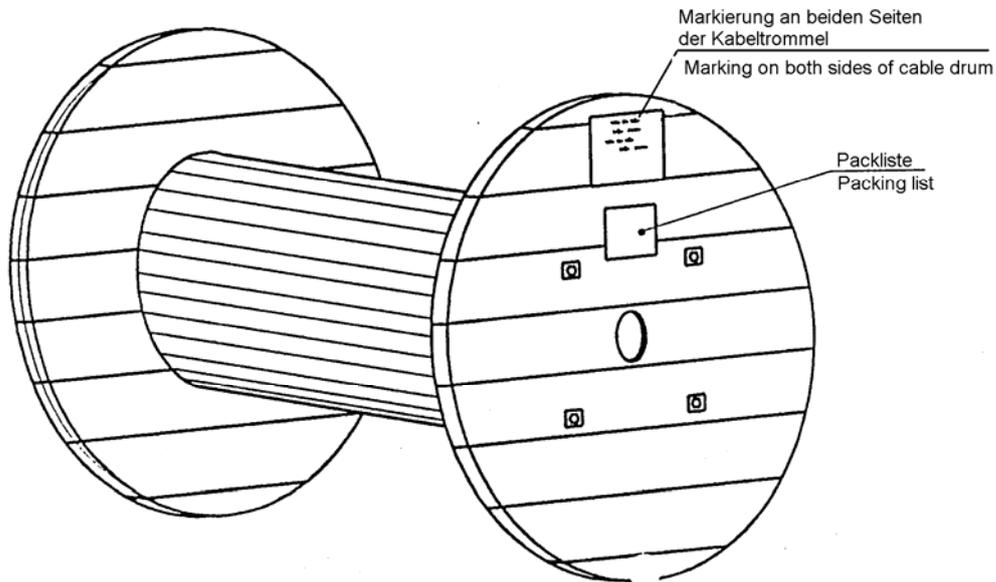


5.6 Packing category VK 5: Standard drum

Application: for cable on cable drums.

The cable ends must be preserved and routed to the inside, if possible.

Figure 6: Drum design

**5.7 Packing category VK 5a: Seaworthy drum packing**

Cables on cable drums for seaworthy packing must be packed using packing category 5.

In addition, this packing must be combined with packing category VK 1 (shrink-wrap in PE foil) and packing category VK 8 (seaworthy crate with lining).

5.8 Packing category VK 6: Sheathing

Sheathing can be made by means of wooden laths or lamella packing.

5.8.1 Lamella packing

The lamella packing is to be fixed by means of adhesive tape.

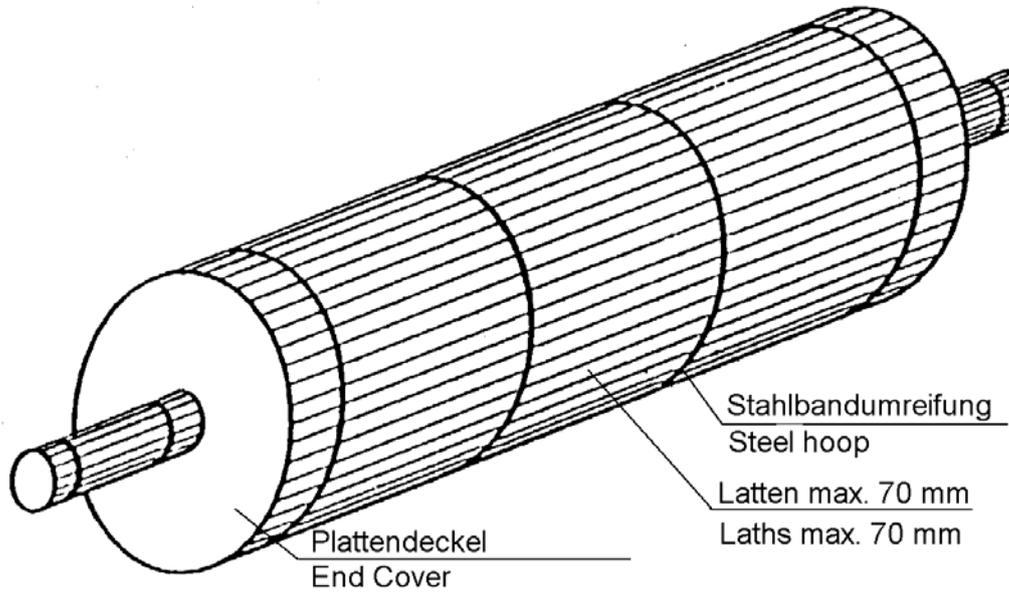
5.8.2 Wooden laths

If wooden laths are used, care must be taken that a watertight sealing layer is installed between the wooden laths and the component.

The lath width must be selected according to the component diameter, but max. 70 mm.

The wooden laths must be fixed by means of zinc anodized steel band or plastic bands.

Figure 7: Sheathing of a cylinder



5.9 Packing category VK 7: Standard crate (without lining)

The crate must always be designed in accordance with the total gross weight.

5.9.1 Crate bottom

Longitudinal skids min. 80 mm thick, floor boards min. 24 mm thick.

For crates > 5 t and/or width > 2000 mm: square face timber bolted (through bolt with washer + nut).

Crosswise skids to 5 t, 100 x 100 mm thick, from 5 t, 100 x 120 mm thick, must be bolted to the longitudinal and/or intermediate skids and securely nailed several times.

Crosswise skid securing wood: with as for longitudinal skid, height 100 mm, length 400 - 1000 mm, forklift width must be left free.

From 2 t: Longitudinal skid securing wood and/or bar: height as for longitudinal skid, width 80 mm, length according to crate width.

Special note for heavy lift packing ≥ 5 t: For heavy lift packing, crates must be provided with special heavy lift hardware and/or crate angles.

5.9.2 Side walls, face walls and cover

Must be designed according to requirements.

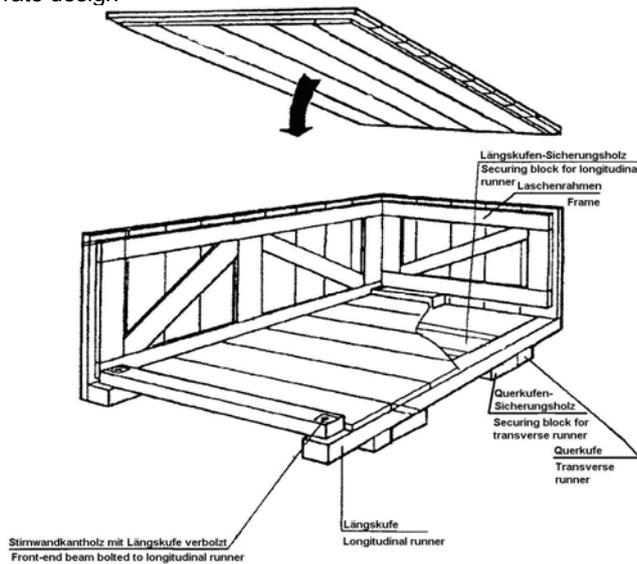
For crates > 2 t and/or length > 3000 mm, truss-type stiffening is required.

5.9.3 Stack pressure

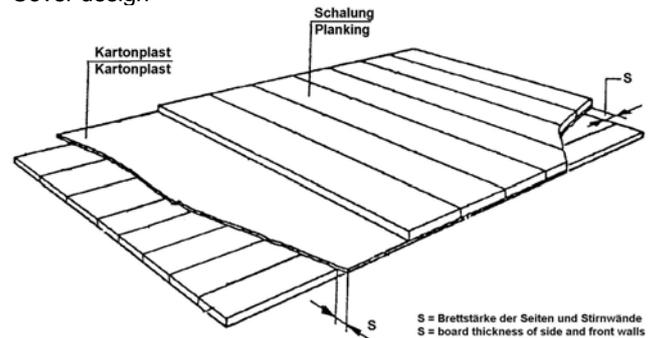
Strap frames, diagonals and cover woods must be designed for a stack pressure of min. 1 t/m². The cover woods incl. cover supports must be installed at distances of 600 - 700 mm and nailed to the side walls.

Figure 8: Crate and cover design

Crate design



Cover design



5.10 Packing category VK 8: Seaworthy crate (with lining)

The crate must always be designed in accordance with the total gross weight.

5.10.1 Crate bottom

Longitudinal skids min. 80 mm thick, floor boards min. 24 mm thick.

For crates > 5 t and/or width > 2000 mm: square face timber bolted (through bolt with washer + nut).

Crosswise skids to 5 t, 100 x 100 mm thick, from 5 t, 100 x 120 mm thick, must be bolted to the longitudinal and/or intermediate skids and securely nailed several times.

Crosswise skid securing wood: with as for longitudinal skid, height 100 mm, length 400 - 1000 mm, forklift width must be left free.

From 2 t: Longitudinal skid securing wood and/or bar: height as for longitudinal skid, width 80 mm, length according to crate width.

Special note for heavy lift packing ≥ 5 t: For heavy lift packing, crates must be provided with special heavy lift hardware and/or crate angles.

5.10.2 Side walls, face walls and cover

Must be designed according to requirements.

For crates > 2 t and/or length > 3000 mm, truss-type stiffening is required.

5.10.3 Stack pressure

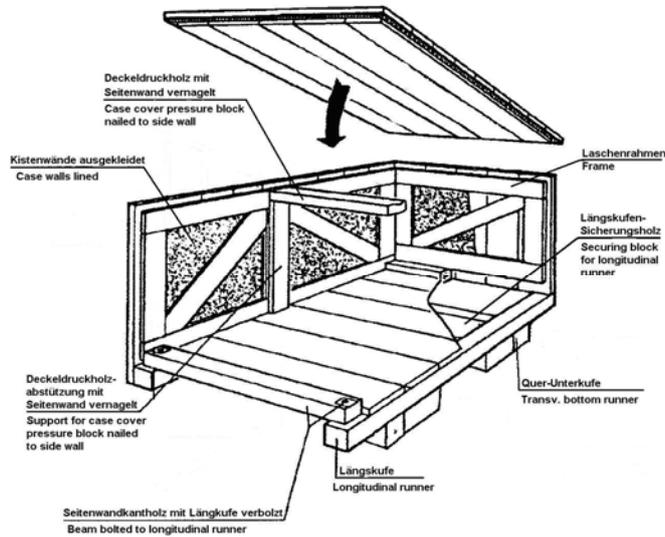
Strap frames, diagonals and cover woods must be designed for a stack pressure of min. 1 t/m². The cover woods incl. cover supports must be installed at distances of 600 - 700 mm and nailed to the side walls.

5.10.4 Lining

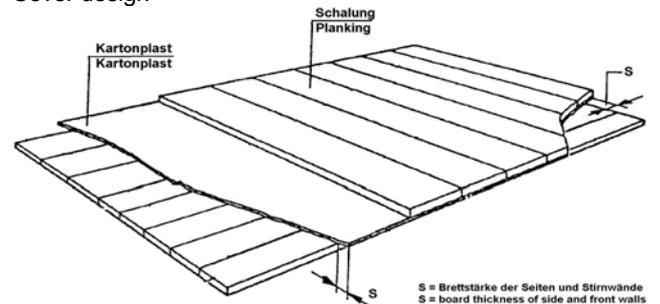
The crate is to be lined with sufficient overlap on the side walls and the cover, using waterproof special paper or equivalent material. The lining must not rub through or be damaged.

Figure 9: Crate and cover design

Crate design



Cover design



5.11 Packing category VK 8a: Seaworthy crate (with lining) for rolls

The crate must always be designed in accordance with the total gross weight.

5.11.1 Crate bottom

Longitudinal skids min. 80 mm thick, floor boards min. 24 mm thick.

For crates > 5 t and/or width > 2000 mm: square face timber bolted (through bolt with washer + nut).

Crosswise skids to 5 t, 100 x 100 mm thick, from 5 t, 100 x 120 mm thick, must be bolted to the longitudinal and/or intermediate skids and securely nailed several times.

Crosswise skid securing wood: with as for longitudinal skid, height 100 mm, length 400 - 1000 mm, forklift width must be left free.

From 2 t: Longitudinal skid securing wood and/or bar: height as for longitudinal skid, width 80 mm, length according to crate width.

Special note for heavy lift packing ≥ 5 t: For heavy lift packing, crates must be provided with special heavy lift hardware and/or crate angles.

5.11.2 Side walls, face walls and cover

Must be designed according to requirements.

For crates > 2 t and/or length > 3000 mm, truss-type stiffening is required.

5.11.3 Stack pressure

Strap frames, diagonals and cover woods must be designed for a stack pressure of min. 1 t/m². The cover woods incl. cover supports must be installed at distances of 600 - 700 mm and nailed to the side walls.

5.11.4 Lining

The crate is to be lined with sufficient overlap on the side walls and the cover, using waterproof special paper or equivalent material. The lining must not rub through or be damaged.

5.11.5 Supporting area

In order to prevent that the roll shell touches the crate, supporting areas must be provided in the crate at the ends of the roll. For rolls with mounted bearings, special care must be taken that the roll is not fixed in the crate on the bearings.

The design of the support must be selected according to the load and the support area available (min. 50 mm). Hardwood must be used if required. Furthermore, the supporting area must be lined with foam material or felt.

After the roll is placed in the crate, the roll preservation must be checked for damage and repaired if necessary.

The distance of rolls from each other and from the side walls must be at least 50 mm.

The distance of the rolls from the floor and cover must be at least 100 mm.

5.11.6 Handling mark

Roll crates must be provided with the following handling marks:

- protect from moisture
- center of gravity
- attach here
- top
- allowed temperature range (values are given explicitly)
- do not insert forklift here
- symbol for storage class

For design of the symbols, see section Marking and sign requirements.

Figure 10: Crate design up to 3 t

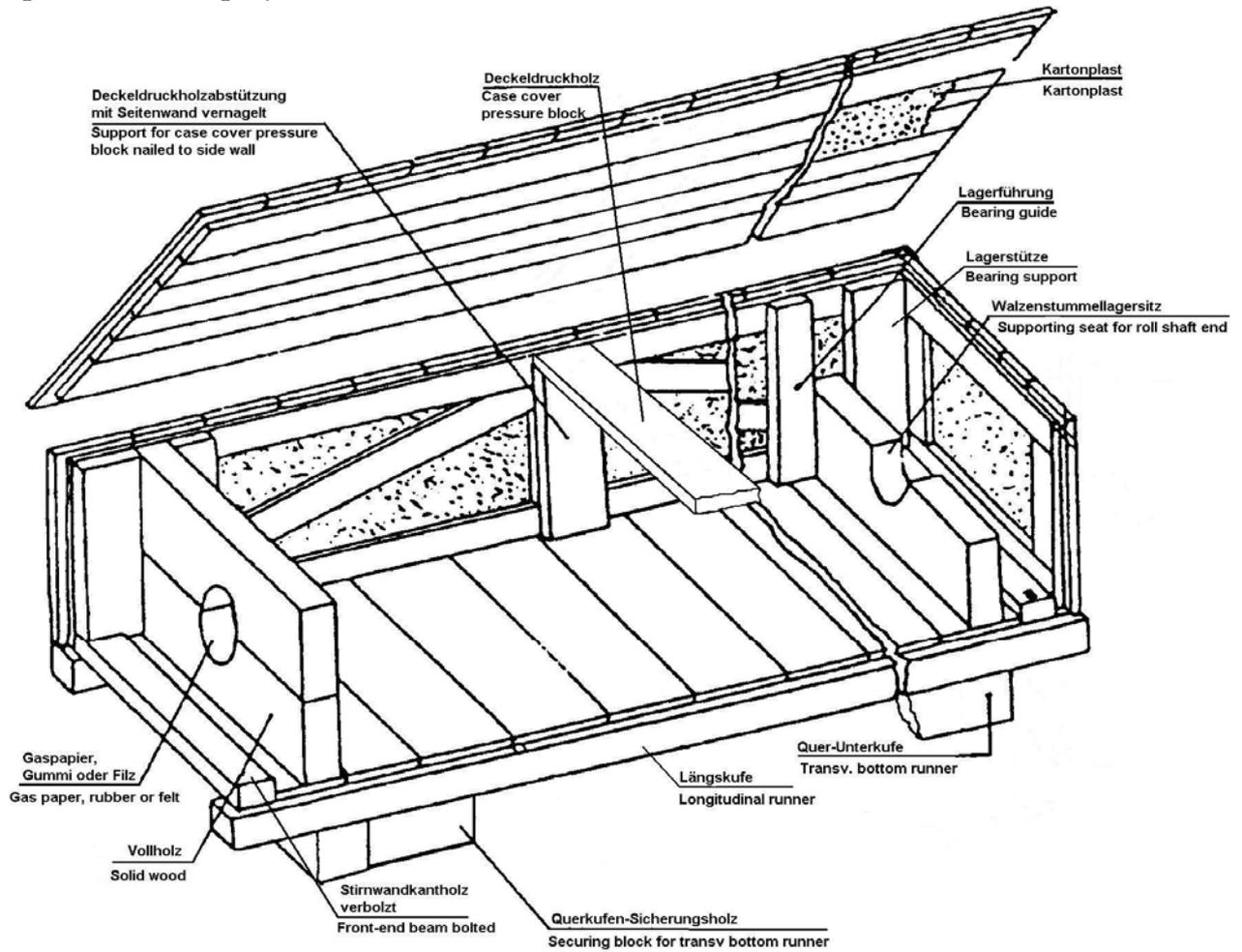
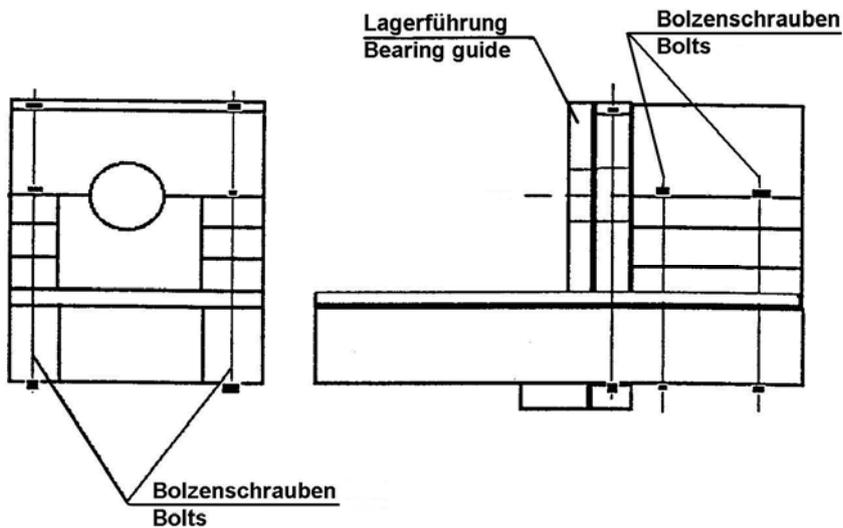


Figure 11: Crate design (roll bearing) from 3 t



5.12 Packing category VK 8b: Seaworthy crate (with lining, from 15 tons) for rolls

The crate must always be designed in accordance with the total gross weight.

5.12.1 Crate bottom

Longitudinal skids min. 120 mm thick, floor boards min. 24 mm thick.

Square face timber bolted to longitudinal skid (through bolt with washer + nut).

Crosswise skids to 5 t, 100 x 120 mm thick, from 5 t, 100 x 120 mm thick, must be bolted to the longitudinal and/or intermediate skids and securely nailed several times.

Crosswise skid securing wood: with as for longitudinal skid, height 100 mm, length 400 - 1000 mm, forklift width must be left free.

5.12.2 Side walls, face walls and cover

Must be designed according to requirements. Truss-type stiffening is required.

Side walls:

Strap frame and diagonals on the inside. Between the strap frame and boards, lining with sufficient overlap on the side walls and the cover, using waterproof special paper or equivalent material is required. The lining must not rub through or be damaged.

Face walls:

Strap frame of face wall at least 50 x 50 mm thick. The strap frame of wide crates must be stiffened at maximum 1200 mm intervals by vertical square bars.

For vertical boards, additional horizontal straps must be provided at distances of 1200 mm max. Care must be taken that the vertical straps are always designed continuously.

Cover:

Longitudinal and transverse boards, hollow-chamber plates in between (cardboard plastic), if cardboard plastic consists of several parts, min. 150 mm overlap and sealed by adhesive tape. The cover must sit on the strap frames of the face wall and the cover woods.

5.12.3 Stack pressure

Strap frames, diagonals and cover woods must be designed for a stack pressure of min. 1 t/m². The cover woods incl. cover supports must be installed at distances of 600 - 700 mm and nailed to the side walls.

5.12.4 Lining

The crate is to be lined with sufficient overlap on the side walls and the cover, using waterproof special paper or equivalent material. The lining must not rub through or be damaged.

5.12.5 Supporting area

In order to prevent that the roll shell touches the crate, supporting areas must be provided in the crate at the ends of the roll. For rolls with mounted bearings, special care must be taken that the roll is not fixed in the crate on the bearings.

The design of the support must be selected according to the load and the support area available (min. 50 mm). Hardwood must be used if required. Furthermore, the supporting area must be lined with foam material or felt.

After the roll is placed in the crate, the roll preservation must be checked for damage and repaired if necessary.

The distance of rolls from each other and from the side walls must be at least 50 mm.

The distance of the rolls from the floor and cover must be at least 100 mm.

5.12.6 Handling mark

Roll crates must be provided with the following handling marks:

- protect from moisture
- center of gravity
- attach here
- top
- allowed temperature range (values are given explicitly)
- do not insert forklift here
- symbol for storage class

For design of the symbols, see section Marking and sign requirements.

Figure 12: Reinforced crate design

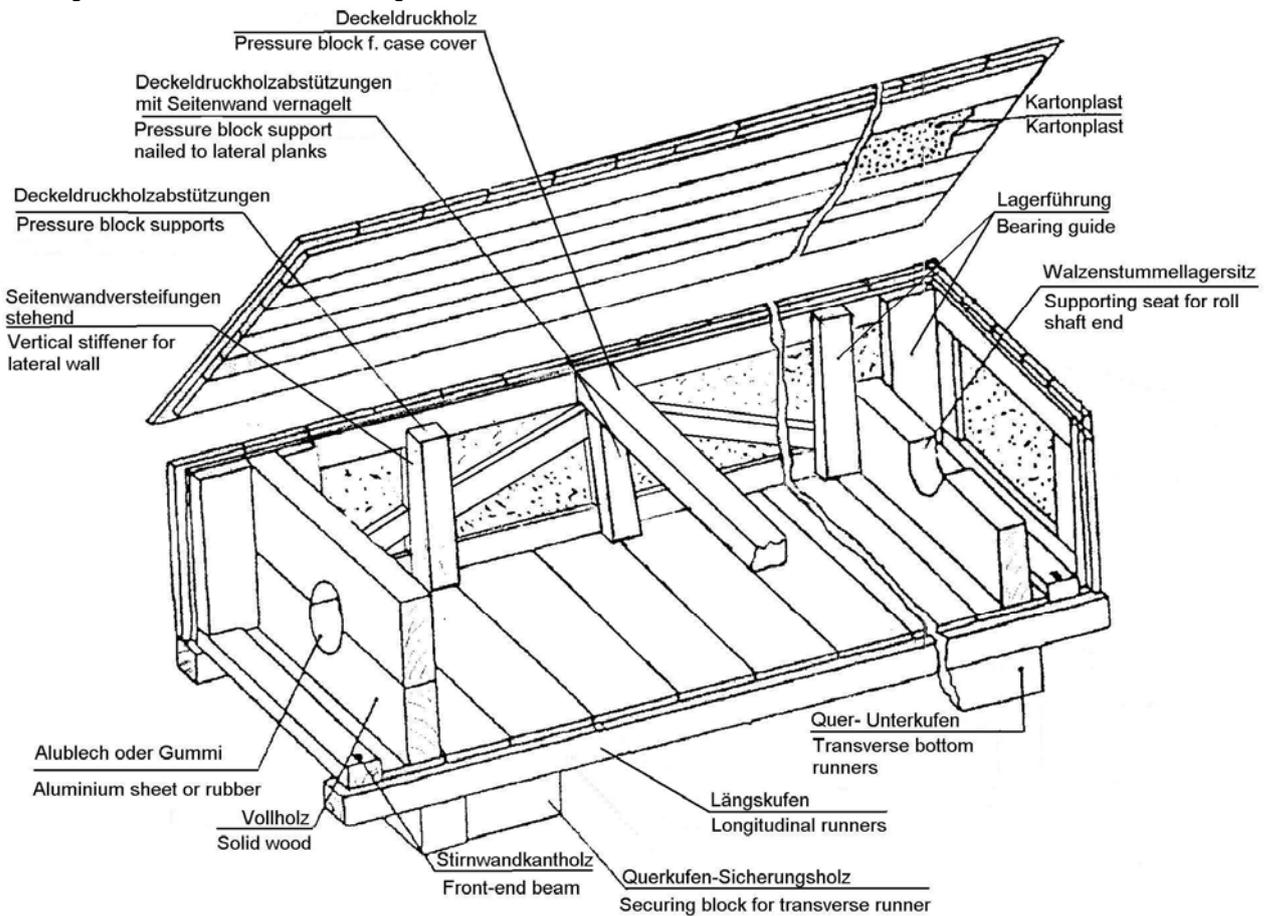
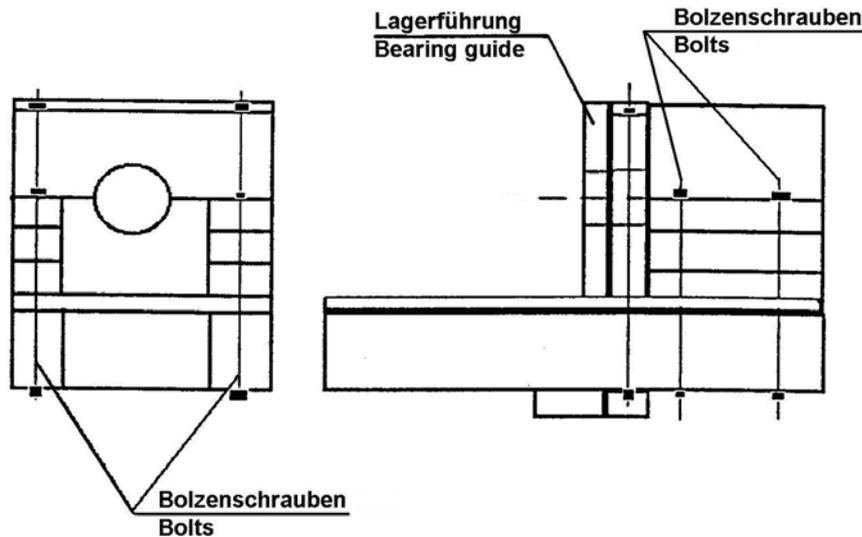


Figure 13: Crate design (roll bearing)



5.13 Packing category VK 9: Seaworthy crate (with lining and shrink wrap)

5.13.1 Crate and cover design

According to packing category VK 8.

5.13.2 Goods

The goods are to be shrink-wrapped in aluminum foil. Edges or projecting parts must be padded adequately. Distance between foil and crate wall 30 - 50 mm. Direct contact of the aluminum foil with the crate floor must be avoided (install air cushion foil, foam material, etc.).

5.13.3 After processing

After processing of the foil, the enclosed air must be exhausted (vacuum approx. 6 mbar) and a leakage test to be carried out. For absorption of humidity, desiccants of sufficient quantity (silica gel, etc.) must be added, and/or suitable measures must be taken so that a corrosion preventing room climate is created. In order to prevent contact corrosion, the desiccant must be attached in such a manner that direct contact to the packed good is not possible. The desiccant packs must be guaranteed to be dustproof and so stable that they will not open under any circumstances.

5.13.4 Packed goods

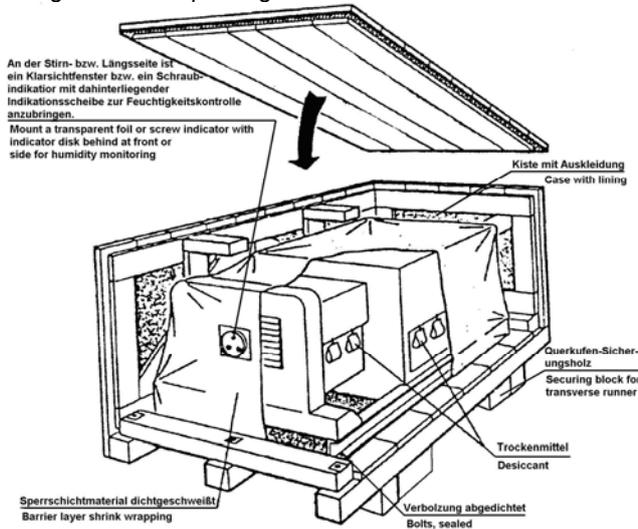
The packed goods must be secured in such a manner inside the crate against horizontal forces that may occur (tilting, marshaling shock, impact, etc.) that such loads are withstood without damage. They may be secured by bolting to the skids and/or the floor, fixing to the floor by means of frames, padding between the device and crate wall, etc.

5.13.5 Goods that may vibrate

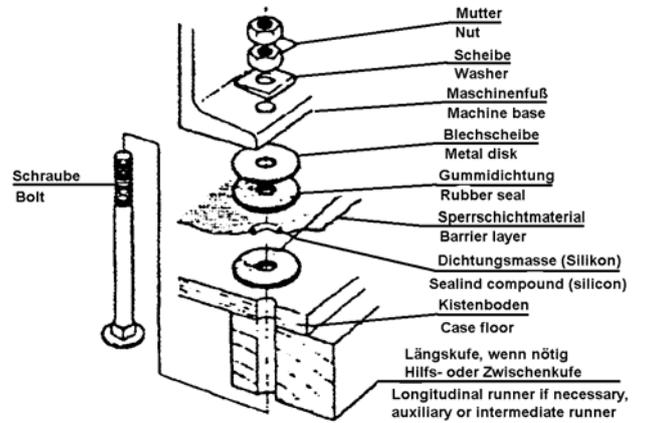
Goods that may vibrate must be secured in such a manner (using rubber-metal connection, spring elements, etc.), that the mass and exciting forces cannot reinforce each other and resulting damage is prevented.

Figure 14: Internal packing and bolting

Design of internal packing



Design of bolting



5.14 Packing category VK 10: Shipper's own container

In contrast to the shipping container, the shipper's own container is considered to be a means of packing, since the goods can be stored in it until used.

For sea transport, box containers should be provided if possible.

For optimum packing and handling, the goods are to be packed on bases that are pushed into the container by means of a forklift.

Figure 15: Shipper's own container

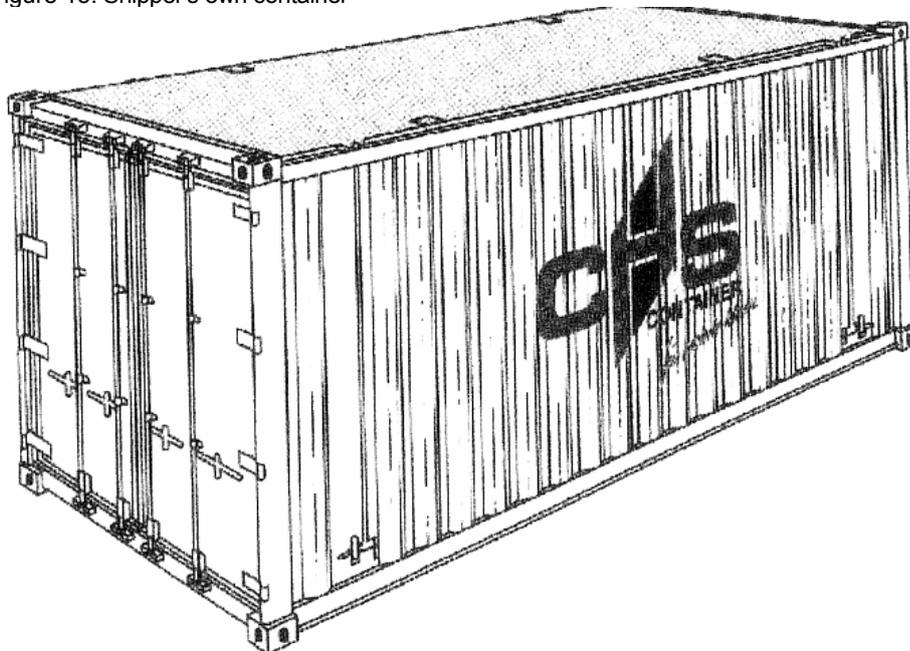
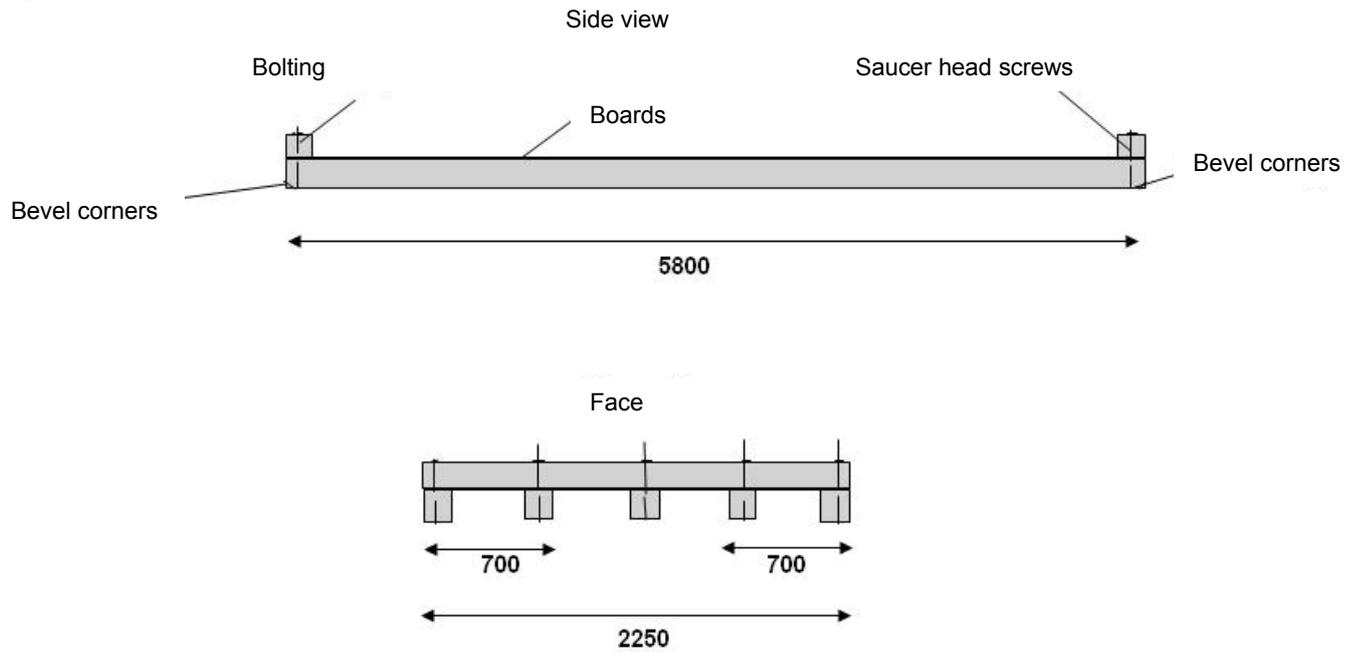


Figure 16: Example for a container floor



5.14.1 Fastening on the container floor

On the outside long sides of the container floors, eyes are attached through which 36 mm polyester attachment belts can be pulled to tie down the parts.

If the floor is filled (maximum approx. 10,000 kg/floor), it must be covered by PE shrink-wrap foil (see Packing category VK 1) to protect the goods from moisture and dirt.

Figure 17: Eyes in the container floor

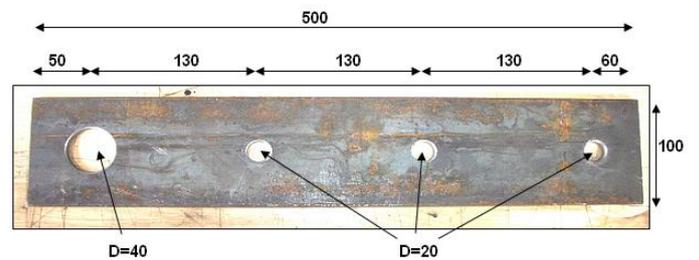


Figure 18: Example for a container floor



In order to remove the floors from the container at the destination, 2 tie straps or cables must be attached on the floor face on the side towards the container door. The tie straps are designed such that commercial shackles and ropes can be attached to them.

Figure 19: Example for tie straps on the container floor



flat steel DIN 1017 100 x 10

Figure 20: Completely loaded container

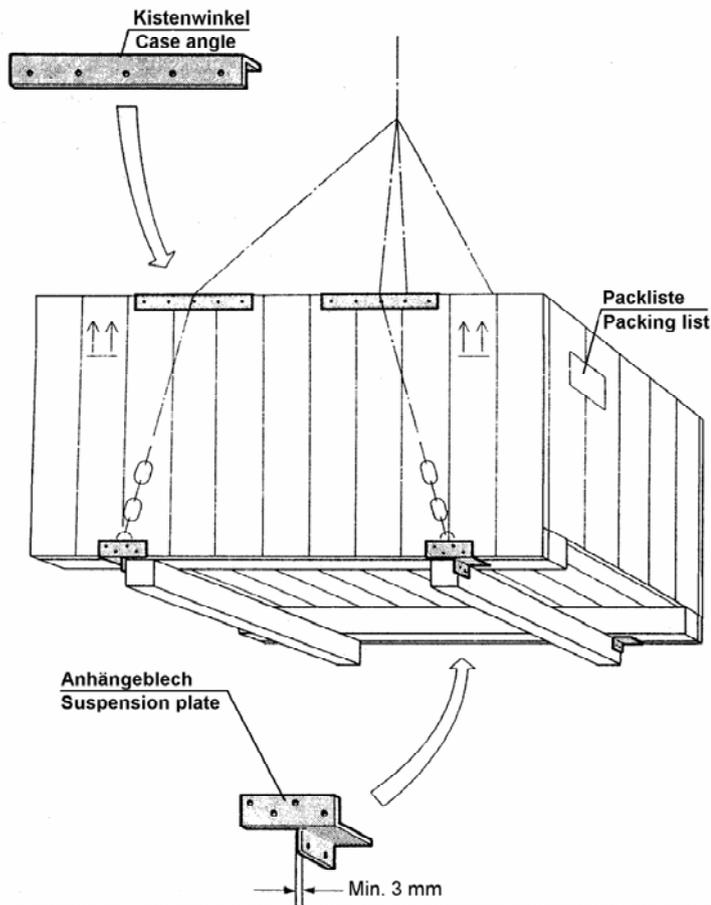


6 Heavy lift hardware (attachment plates and crate angles)

Crates with a gross weight of more than 5 t have hardware of steel on the bottom and top edges in cable position (sheet-metal thickness dependent on the weight, but min. 3 mm).

Attachment plates are to be designed and attached according to the total weight of the loaded crate. The crate angles are intended to protect the crate from damage during attachment to a crane by cables, chains, etc.

Figure 21: Attaching heavy lift hardware



7 Marking and sign requirements

Prior to marking/signing, the base must either be smoothed or prepared by means of primer, and/or degreased in the case of a metal base.

Sheet-metal and/or plastic marking/signing signs are allowed, provided that they are light-resisting, weatherproof, resistant to salt water and UV radiation. The marking/signing paint must be washproof, weatherproof, light-resisting, resistant to salt water and UV radiation, and it must be clearly different from the background.

A template must be used for marking/signing. Capital Latin letters and Arabic numbers are to be used; their size is generally dependent on the container size.

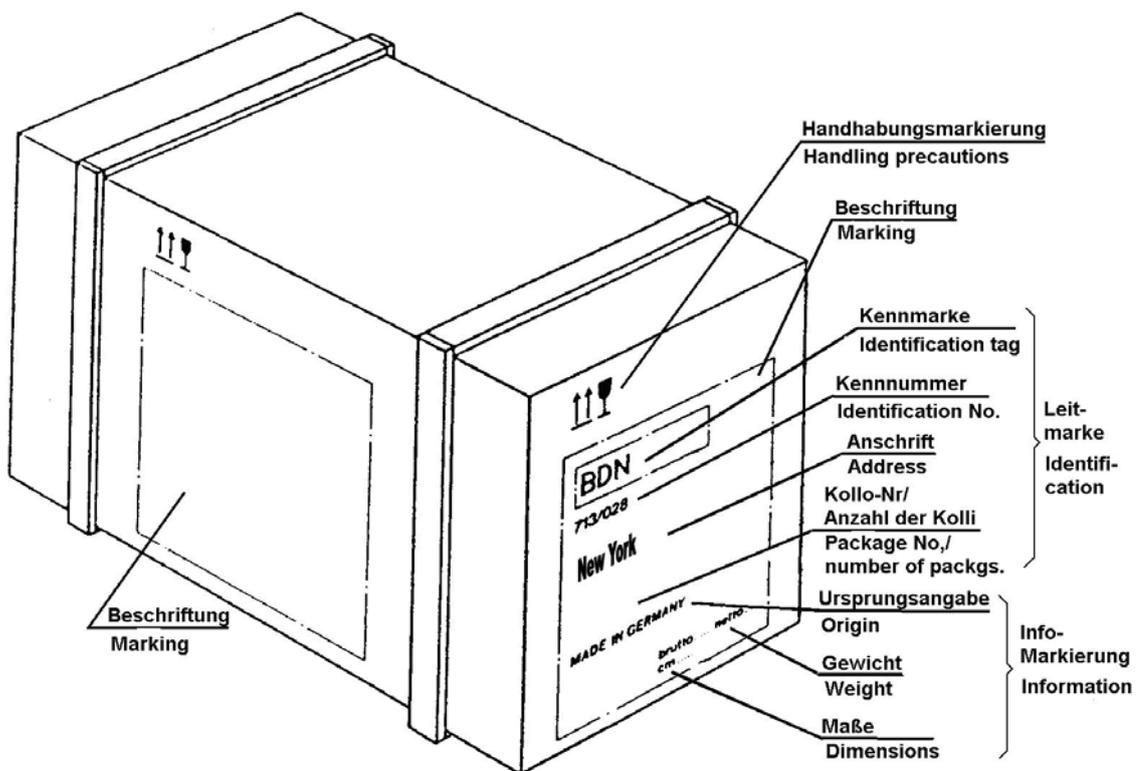
The marking/signing must be clear, sharp, uncovered, parallel to the bottom edge, and well legible during the specified storage time.

Text, form and local application of the sign are indicated in the order conditions and/or illustration.

The handling mark must be designed according to these requirements and attached to the container.

For machine-wide components, the frontside and drive side must be unambiguously and clearly marked on the packing. Special care must be taken that marking must be in the English language and unabbreviated (Front Side, Drive Side)

Figure 22: Example for marking and handling marking



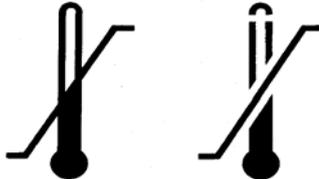
The size and number of pictograms must be adapted to the form and dimensions of the packages. Preferred sizes are 50, 80, 100, 150 and 200 mm. All pictograms must be applied without borders. Text must be largely avoided. In exceptional cases, the handling markings may be supplemented by text.

The pictogram "center of gravity" must be applied to packages of more than 500 kg on at least two adjacent sides.

Figure 23: Pictograms for handling marking

pictogram		designation
basic design according to DIN 30 600 and registration no.	example for template manufacturing	
00463		Vor Nässe schützen en: Keep dry
00464		Vor Hitze (Sonneneinstrahlung) schützen en: Keep away from heat
00465		Keine Handhaken verwenden en: Use no hooks
00466		Schwerpunkt en: Centre of gravity
00467		Klammern in Pfeilrichtung en: Clamp here

pictogram		designation
basic design according to DIN 30 600 and registration no.	example for template manufacturing	
00468		Anschlagen hier en: Sling here
00469		Zerbrechliches Packgut en: Fragile Handle with care
00470		Oben en: This way up
00471		Stechkarre hier nicht ansetzen en: No hand truck here
01200		Sperrschicht nicht beschädigen en: Do not destroy barrier

Bildzeichen		Benennung
Grundausführung nach DIN 30 600 und Registrier-Nr	Beispiel für Schablonenherstellung	
02703		Elektrostatisch gefährdetes Bauelement en: Electrostatic sensitive device
02902		Zulässiger Temperaturbereich en: Temperature limitations
02903		Gabelstapler hier nicht ansetzen en: Do not use fork lift truck here
02904		Zulässige Stapellast en: Stacking limitation
03231		Aufreißen hier en: Tear off here
03257		Vor Hitze und radio- aktiven Strahlen schützen en: Protect from heat and radioactive sources

The symbol corresponding to the specified storage requirement must be attached to the container according to the packing list. The symbols are advised for each order.