

**PACKAGING MANUAL FOR SUPPLIERS:** 45-073-29 V02 000922

# General requirements for the packaging of purchased parts

Version September 2022





## Packaging manual for suppliers

Regulations for the packaging of purchased parts

Vereinigte Spezialmöbelfabriken GmbH & Co. KG

Tauberbischofsheim, Version: September 2022

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## 1. General information

The following guidelines and instructions for the delivery of goods to the VS Vereinigte Spezialmöbelfabriken GmbH & Co. KG (short VS) form the basis for our terms and conditions of business and constitute a complementary agreement to our general terms and conditions of purchase.

### 1.1 Purpose of the manual

- optimised packaging design
- standardised dimensions for containers, boxes, and load carriers,
- appropriate quantities per packaging container,
- correct and complete labelling of the packaging,
- and thus, a trouble-free flow of materials between the suppliers and VS.

The supplier is responsible for compliance with and implementation of the requirements as well as for compliance by its sub-contractors/sub-suppliers.

### 1.2 Scope of the manual

This packaging manual applies to all deliveries to VS. The provisions of the present packaging manual must be applied as appropriate in the light of any specific national legislation. Deviating packaging is only approved after consultation with the responsible contact persons in In-house Logistics (Innerbetriebliche Logistik) and Purchasing (Einkauf).

### 1.3 Explanation of terminology

#### 1.3.1 VCI (Volatile Corrosion Inhibitor)

VCI is a substance that protects metallic materials against corrosion.

#### 1.3.2 IPPC (International Plant Protection Convention)

Wooden packaging materials and load carriers must be treated to protect them from pests.

#### 1.3.3 RESY (Recycling System)

Standardised labelling which indicates the recyclability of used packaging containers and packaging aids.

### 1.4 Contact details

**VS Vereinigte Spezialmöbelfabriken GmbH & Co. KG**

Innerbetriebliche Logistik (In-house logistics)

Hochhäuser Straße 8

97941 Tauberbischofsheim

Telephone: +49(0)9341 88-0

E-mail: vs@vs-moebel.de

## 2. General packaging requirements

It is the supplier's responsibility to ensure, both internally and externally, that all delivered parts are correctly and appropriately maintained, protected and packaged so that they can reach their destination at VS securely. The supplier must comply with the regulations of the packaging manual and take into account any national and international regulations.

VS requires the use of recyclable materials for disposable and reusable load carriers and packaging. However, the use of reusable load carriers and packaging is to be preferred. Regardless of the choice of the mode of packaging, the following requirements for deliveries must always be fulfilled:

- Parts delivered free from damage
- Delivery exclusively in clean packaging
- Constitution of rational loading units
- Optimum use of space
- Stacking capability (if requested)
- Stability in terms of properties, shape, and volumes
- Problem-free unloading by industrial trucks/fork-lift trucks
- Adequate transport protection
- Compliance with the predefined standard dimensions
- Easy part removal / optimum handling during the manufacturing process
- Correct identification by means of standardised and normed labelling/markings
- Recyclable materials
- Guaranteed protection against corrosion

### 2.1 Packaging materials

One important aspect in addition to the functional properties of the packaging materials is their environmental compatibility, which is why only specified recyclable materials are permitted. Preference should be given to the use of reusable packaging. The approved packaging materials and those to be avoided are described below.

#### 2.1.1 Composites

Composite materials are not permitted, except for wood-metal composites.

#### 2.1.2 Plastics

Reusable packaging should preferably be used: **PE, PP, PET, ABS**. If disposable packaging is used, then non-mixed plastics should be preferred: **PE, PP, PS, PET, PUR**. Plastics with PVC are to be avoided. Plastics should be identified according to DIN 6120 for plastic packaging and packaging materials.

### 2.1.3 Cardboard boxes and paper

Cardboard should also be unmixed. All types of cardboard and papers with the RESY symbol are permitted.

Wax, paraffin, tar (bitumen) and oil papers are to be avoided.

### 2.1.4 Wood

In the case of wood, solid wood, OSB, plywood, compacted chipboard, painted or coated wood are permitted.

### 2.1.5 Filling materials

Paper, corrugated cardboard, polystyrene and shaped parts made of polystyrene and foam are permitted. Left-over packaging should not be used as filling materials.

### 2.1.6 Metals

Steel and aluminium are permitted.

### 2.1.7 Corrosion protection paper

VCI papers that have been shown to be recyclable along with paper/cardboard materials and VCI films that have been shown to be recyclable along with plastic films are permitted. The corresponding proof/certificates must be submitted to VS.

Papers containing harmful additives as well as impregnated or drenched papers are not permitted. Oil-drenched papers are excepted.

### 2.1.8 Strapping

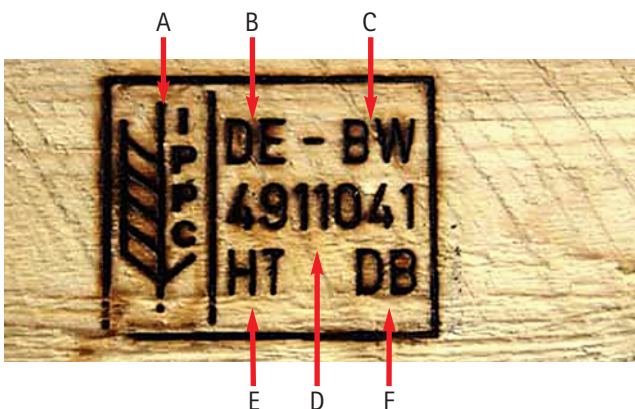
PP, PET, or steel strapping is permitted.

### 2.1.9 Solid wood packaging materials

Packaging materials made from solid wood must be handled and labelled in accordance with the IPPC (International Plant Protection Convention, see 1.3.2).

The IPPC labelling requires the following information:

- A IPPC certification symbol, colloquially known as "wheat stamp"
- B Country ID according to ISO 3166, e.g. DE for Germany
- C Region ID, e.g. BW for Baden-Württemberg
- D Registration number, unique number starting with 49
- E Treatment method (HT for Heat Treatment or MB for fumigation with methyl bromide).
- F DB (debarked) for debarked wood, if applicable (not required by the IPPC standard)



► Fig. 1 Example label

VS requires the HT (Heat Treatment) treatment method. Fumigation (MB) is not permitted.

In general, unmixed materials should be preferred and mixed waste should be avoided.

## 2.2 Dimensions and weights

In the case of individual packages which are not delivered on load carriers, it must be ensured that the permitted maximum weight of a package does not exceed 15 kg. In exceptional cases and only after consultation, packages with a higher weight may be permitted.

The following lengths, widths and heights (in mm) are based on Eurp pallet dimensions and can be combined in various ways. The box dimensions should be as close as possible to the specified dimensions (slightly under but not over).

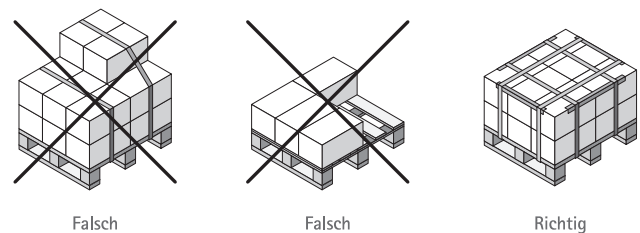
Length	Width	Height
< = 200	< = 130	< = 140
< = 240	< = 160	< = 170
< = 300	< = 200	< = 210
< = 400	< = 260	< = 280
< = 600	< = 400	< = 420

If the maximum weight exceeds specifications, then the parts must be delivered on load carriers:

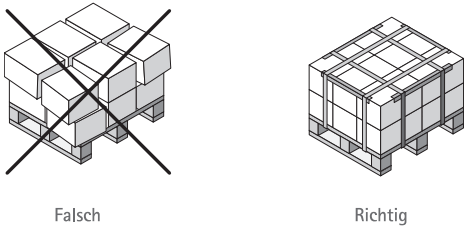
- Load carrier -> total weight max. 1.000 kg
- Euro-pallets are preferable
- Oversized parts -> load carriers with a length of up to 2.500 mm
- Shelf storage -> total height max. 1.000 mm incl. load carrier
- Bulk storage -> total height after consultation with in-house logistics
- Parts larger than 2.500 x 800 mm -> Delivery on specially constructed load carriers

### 2.2.1 Positioning of packaged good and packages

- Even distribution of the weight
- Hollow spaces must be filled -> no slipping
- Strapping -> use of edge protectors



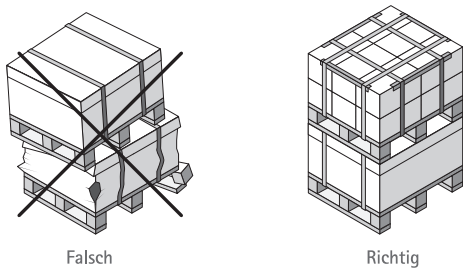
► Fig. 2a Positioning of packaged goods and packaging



► Fig. 2b Positioning of packaged goods and packages

### 2.2.2 Stacking capability of the loading units

- Stacking capability must be guaranteed -> If not possible, labelling/identification necessary



► Fig.3 Stackability capacity of the loading units

## 2.3 General corrosion protection

Corrosion protection can be provided directly at the material through the use of corrosion-protective oils or by means of the packaging, such as VCI paper. Corrosion-protective oils must be tested by VS before delivery.

Corrosion protection films (VCI films) possess corrosion inhibitors. The film must be located in closed packaging to ensure effectiveness. In addition, oil can be used in combination with the VCI film. However, this must be harmonised with the VCI film. For parts with large surface areas, a VCI film must also be used as an intermediate layer to ensure corrosion protection. Corrosion protection films must be used in accordance with the manufacturer's specifications.

Desiccants are also used to protect against corrosion.

The product must be completely surrounded by a barrier layer, since the bags of desiccants only have limited absorption capabilities. If there is no barrier layer or the barrier layer is inadequate then moisture can flow in from the exterior at any time. Desiccants must be used according to the manufacturer's instructions.

Before delivery, it must be ensured that all parts that are subject to corrosion have been correctly protected, wrapped and packaged. It is necessary to prevent any direct contact between metal parts and cardboard packaging in environments that are subject to moisture.

## 2.4 Safety and environment

All items delivered by the supplier to VS must comply at least with the applicable legal provisions regarding packaging, transport, storage and content materials. It is also necessary to comply with all environmental, electrical and electromagnetic requirements applicable in the country of manufacture and country of use.

If dangerous substances are delivered, it is necessary to comply with local regulations regarding the labelling and transport of dangerous substances.

Labelling must be performed in accordance with "Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)".



► Fig. 4 Dangerous goods code

## 3. Standard packaging

VS requires the use of recyclable materials for disposable and reusable load carriers and packaging. The use of reusable load carriers and packaging is to be preferred. Standard packaging should be used as described below.

### 3.1 Inner or individual packaging

Inner or individual packaging is required for many parts for reasons of part protection and handling. It may be reusable or consist of disposable packaging materials.

Reusable inner packaging materials include, for example:

- Plastic inserts
- Specifically shaped inlays
- Plastic intermediate layers or separators
- Polystyrene strips

Parts may only be packed in clean reusable packaging. Used reusable packaging may only be used again if it can meet the same standards and provide the same protection as reusable packaging in the new condition.



Disposable inner packaging materials include, for example

- Pouches or plastic bags
- Corrugated board and cardboard packaging
- Netting tubes
- Cardboard inlays, cut parts or inserts



► Fig. 5 Plastic bags (left), netting tubes (right)

### 3.2 Outer packaging

The quality of the cardboard packaging must ensure sufficient stability for stacking and must be resistant to impacts.

Parts that are sensitive to corrosion must be prevented from coming into direct contact with the cardboard, e.g. by means of VCI film. Cardboard packaging must be dry, intact and free from damage, such as tears.

### 3.3 Load carrier

Load carriers include EUR-pallets, Euro mesh crates, disposable pallets, and reusable containers.

#### 3.3.1 Euro pallets

The following classification exists for Euro pallets:

Class A: wood colour light  
No chipping  
No adhesions  
No soiling  
All labels readable

Class B: wood colour dark  
No chipping  
No adhesions  
No soiling  
Traces of use  
No twisted blocks

Class C: wood colour dark  
Chipping permissible  
Adhesions permissible  
Traces of use  
Label readable on at least one block  
Slightly twisted blocks (max. 1 cm)  
Humidity of the surface  
Contaminants that cannot be transferred to the load

- > Only class A and B pallets are accepted.
- > Only EPAL/UIC class pallets are swapped over.

#### 3.3.2 Euro mesh crate (EPAL)

Mesh crate dimensions are standardized as length 1240 mm, width 835 mm and height 970 mm. As of 2011, the empty weight has been approximately 70 kg. The empty weight is approx. 70 kg from the year of manufacture 2011 (85 kg before).

The permissible total weight is 1000 kg. The weight must be evenly distributed in the mesh box and secured against slipping. The mesh boxes must stand stably and be in proper condition.

-> Acceptance only of exchangeable Euro mesh boxes (EPAL)!

#### 3.3.3 Disposable pallet

Disposable pallets must be treated against pests according to ISPM 15 (IPPC-HT) just like the Euro pallet. In contrast to the Euro pallet, there is no exchange for the one-way pallet. The last recipient in the supply chain is responsible for the disposal of the pallet.

The size to be used is 1200 x 800 mm (L x W). If the parts to be delivered exceed this size, a protective board which is larger than the delivered parts must be mounted on the pallet. Otherwise, a pallet of the required size must be made. A smaller pallet can also be manufactured for small parts.

The pallet must be stable and safe to stack. Loads are secured on such pallets using packaging aids (e.g. stretch film).



► Fig. 6 Disposable wooden pallet



► Fig. 7 Disposable INKA pallet

### 3.3.4 Reusable containers

Any wooden reusable containers used must meet the IPPC standard. The containers must have been heat treated and not fumigated. Wooden crates may be made from solid wood or OSB. Plywood and OSB are permitted only if they have a low formaldehyde content (E1).

The reusable containers must be stable and safe to stack. If the container is not stackable, this must be accordingly labelled.

All reusable containers must be sourced from an officially approved company and should be labelled accordingly. Parts that are packed in reusable containers must be positioned in a way that secures them against slipping.



► Fig. 8 OSB box



► Fig. 9 Reusable folding box

Position of the sticker (150 x 100 mm, four-sided): 200 mm from the bottom, 140 mm from the right.

KTP boxes can also be used as reusable containers. Make sure that the box is in good condition and has always been stored correctly (protection against moisture).

### 3.4 Packaging aids



► Fig. 10 KTP box

Packaging aids are used to seal packaging containers and to increase the rigidity of the package, thus improving the protection of the packaged goods. Packaging aids include accessory materials, padding materials, and corrosion-protective packaging.



► Fig. 11 Top frame

Packaging aids are used to ensure secure transport and to protect the outer packaging. These include, for example, extension frames, stretch film, edge protectors.

Padding material is used to fix the packaged goods in position in the packaging and to cushion it, e.g. PE foam film, bubble film.

Corrosion-protective packaging is used to protect against corrosion, e.g. VCI film, VCI paper.



## 4. Labelling

Each package must be clearly and visibly labelled on the front, right side to ensure rapid and unambiguous identification of the individual items of packaging.

Any old labelling must be removed. Moreover, the labelling must be applied in such a way that it remains on the package until the goods are accepted and does not become detached.

The labelling must contain at least the following specification:

- item number
- item name
- Number
- Supplier
- VS order number

The labelling of packages and palletisations of goods coming from overseas is predefined in a document (see 7 Special packaging for maritime freight). All deliveries must be accompanied by the following documents:

- Delivery note
- Consignment note/bill of lading
- Dangerous goods data sheets (if necessary)

No delivered goods will be accepted without the complete accompanying documentation. Further delivery documents demanded by VS, such as quality documents, must be provided in a separate sleeve with the delivery and separate from the delivery note.

If deliveries are made using a parcel service then the delivery note should be enclosed inside the package. The demanded labelling is not required for these packages.

The labelling is required for deliveries made by a haulage company. In addition to the labelling, the delivery note must be enclosed in a shipping envelope.

The delivery note must indicate the following information:

- Name and address of the sender
- Name and address of the recipient
- Delivery note number
- Date of delivery note
- Gross weight, net weight
- Name of the ordering party (contact person)
- Order number
- Order date
- Order position
- Item number
- Item name
- Supplier's article number
- Delivery quantity (for each order item) in relevant units
- Load carrier type and number (optional, required in the shipping documents)

If the packaged goods require a special type of handling of the package, this must be clearly and visibly indicated on the outside of the package.

The symbols for package handling instructions are internationally standardized in ISO R/780 and in DIN 55 402. The symbols must never be omitted as they are self-explanatory and so overcome language problems in international transport operations.

## 5. Return and disposal of load carriers and packaging materials

The function and the removal of unusable packaging materials and load carriers is checked both before they are returned to the supplier and before they are used again by the supplier.

The repair or, if necessary, the disposal of any packing containers and load carriers that can no longer be used is the responsibility of the owner. If the question of ownership cannot be clearly resolved, e.g. in the case of pool systems, then the party currently in possession of the item is responsible for disposing of it and procuring a replacement.

The supplier is responsible for ensuring that its parts are packaged in clean packaging containers. Unless agreed to the contrary, pool load carriers are swapped on a one-to-one basis (1:1) upon delivery. Load carriers exhibiting damage when delivered are not credited to the respective supplier's load carrier account.

## 6. Packaging for specific material groups

### 6.1 Decorative parts

- Use a Euro pallet as the base pallet (see 3.3.1 Euro pallet). For parts as of a length of 2000 mm or more, use two Euro pallets.
- Place a protective panel which is 30 – 50 mm larger than the decorative part on top
- Place foam film on the protection plate to protect it against damage and to prevent slipping.



► Fig. 12 Euro pallet with protective fleece



► Fig. 13 Decorative parts with fleece

- Stack all the decorative parts with the top/good side facing upwards. Only place the topmost part with the bottom side facing up.
- Place a corresponding number of foam foils between each layer.
- In case of small parts, make sure that foam foils connect the stacks with each other, if necessary, stack every 5th part slightly offset
- Wrap with foil if necessary
- Place the protection plate on top and bandage the entire stack.



► Fig. 14 Decorative parts

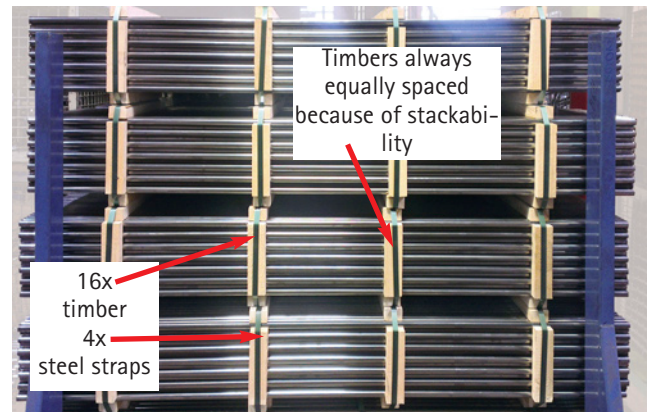
- Wrap veneered parts with black, UV-protection stretch film and insert PE foam film across the full area as an intermediate layer.
- Ensure that the parts are wrapped first and only strapped afterwards
- The labelling as well as the shipping envelope with the delivery documents are to be appended outside the film (see 4. Labelling).
- Only one article may be contained in each transport unit.
- The maximum stack height including pallet and protective boards is 1000 mm.
- The maximum weight of the palletized assembly is 1000 kg.

**Exact delivery (stack size) must be clarified with the purchasing department and will be noted in the order.**

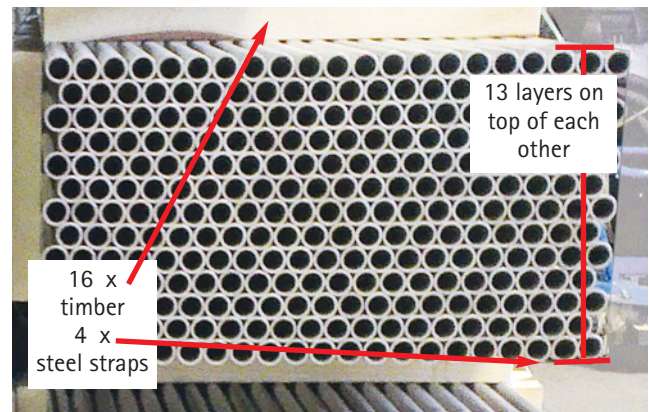
## 6.2 Steel tubes

### 6.2.1 Steel tubes, fixed lengths – bundles

- Bundled fixed lengths must be secured with packaging wood and steel strips, 20 mm vertical, in order to secure them for transport and to avoid damage.
- The thickness of the packing wood should be at least 60 mm and the maximum moisture content of the wood should be 8 %.



► Fig. 15 Steel tubes, fixed lengths – bundles, view from the side



► Fig. 16 Steel tubes, fixed-lengths – bundles, view from the front

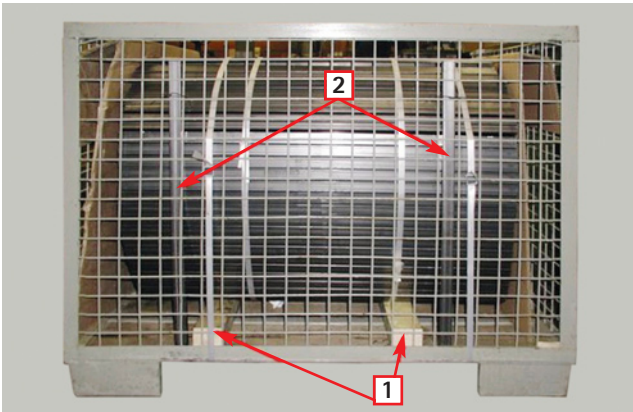
Cross-section: D 22 x 2.5 mm – Number per bundle 267 tubes

### 6.2.2 Steel tubes, fixed lengths – mesh crate

- Line inside of mesh crate on all four sides and floor of mesh crate with cardboard (incl. VCI film bag) or PP twin-wall sheets (black 1180 x 780 x 2.5mm) (see 3.3.2 Euro crate pallet).
- Line cardboard on all four sides and on base with corrosion-protective film, in paper form if necessary, before the items are placed inside.
- If possible, place the fixed lengths in the mesh crate parallel to the short side. If this is not possible due to length reasons, secure the fixed lengths using wooden strips in the mesh crate so that they cannot fall out when the crate is opened.
- After filling, cover with anti-corrosion foil/paper.
- The mesh crate must not exceed a total weight of 1000 kg



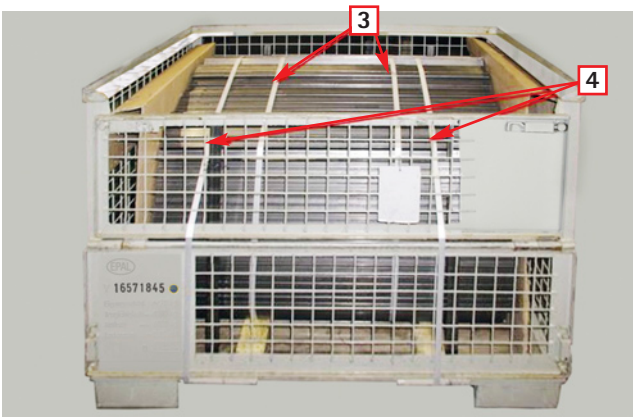
### 6.2.3 Automatic removal of fixed lengths tubes from mesh crate



► Fig. 17 Steel tubes, fixed lengths - 1

#### Spacers

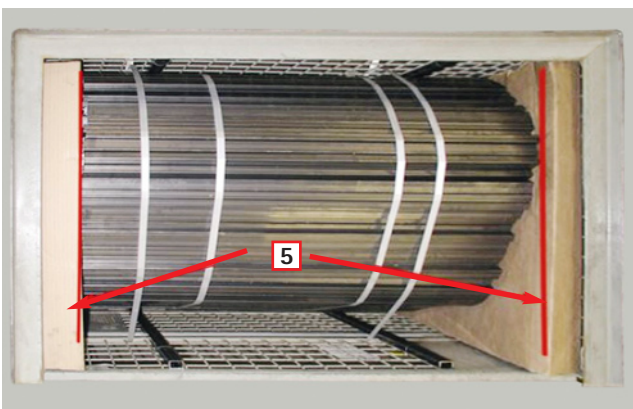
- two pieces of square timbers as dunnage, (min. 40 mm high, max. moisture content of wood 8% (see fig. 17, pos. 1) and min. 15 mm thick.
- four spacers, two on each side (see fig. 17, pos. 2)



► Fig. 18 Steel tubes, fixed lengths - 2

#### Bundling

- For the maximum permitted filling amount, please refer to the text of the order.
- Bundling of tubes with steel strips - (see fig. 18, pos. 3)
- Additional strapping of the bundle of tubes in the mesh crate to prevent slipping in the crate - (see fig. 18, pos. 4)



► Fig. 19 Steel tubes, fixed lengths - 3

#### Alignment

- The ends of the tubes must be aligned flush and secured against slipping (see fig. 19, item 5).

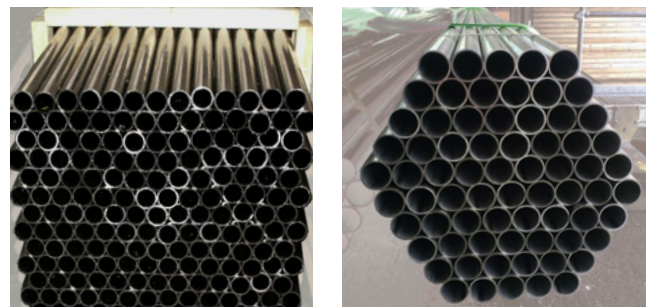
### 6.2.4 Steel tubes, manufacturer length - bundles

- Manufacturer-specific length  $\leq 7.000$  mm
- Weights per bundle  $\leq 2.700$  kg
- Height of bundle  $\leq 400$  mm
- Widths of bundle  $\leq 600$  mm

-> Exact bundle quantity and bundle type are to be clarified with the purchasing department and will be noted in the order.

- Rust prevention agent must be slightly oily (oil content approx. 7 %)
- Secure steel tubes with at least four steel straps (20 mm).
- If the steel tubes are exposed to moisture during transport, the steel tubes must be protected against drips of condensation by means of oiled paper (see 2.3 General corrosion protection).
- Note filling quantity per cassette
- Each bundle must have two suitable lifting straps for unloading by crane at a distance of min. 3000 mm above the centre.

#### Round tubes



► Fig. 20 Round tube: wooden box (left), hexagon (right)

#### Square tubes



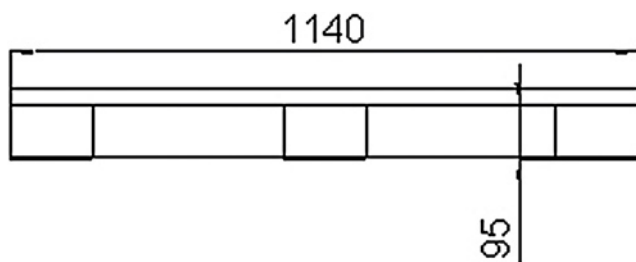
► Fig. 21 Square tube (left), rectangular tube (centre), flat oval (right)

## 7. Special packaging for maritime freight

When transporting goods by sea, the specific conditions and stresses must also be taken into account for the packaging, such as effects due to cold, wetness or heat as well as extreme stresses during transshipment and corrosion (see 2.3 General corrosion protection). Furthermore, the packaging should be designed in a space-saving and practical manner and be suitable for loading by means of cranes or industrial trucks/forklifts. Dimensions and weights should be sensibly adapted to the dimensions and permitted load of the means of transport (see 2.2.1 Positioning of packaged goods and packages). Steel parts are the highest-volume parts delivered in this way.

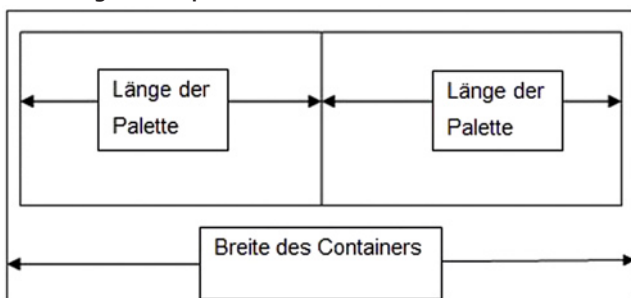
### Packaging information:

- Standard dimensions of the pallet or crate: 1.140 x 760 mm (L x W).
- Minimum fork insertion aperture for stacker, at least 95 mm



► Fig. 22 Maritime freight pallet

Other sizes permitted only after consultation with the in-house logistics department.



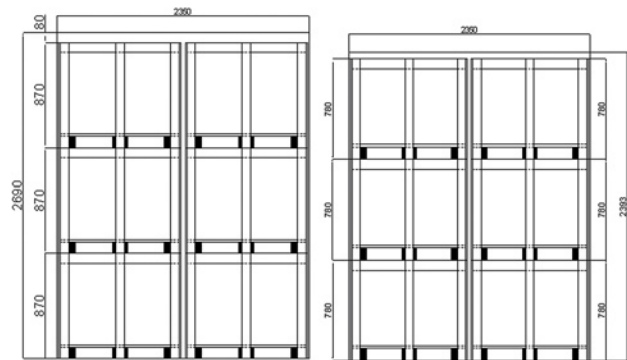
► Fig. 23 Container freight

### Height of the loading unit:

The height is specified in such a way that three load units can be stacked on top of one another during transport. Other heights are only permitted after consultation. It is necessary to ensure that the construction of the bottom load unit is stable enough to bear the weight of the load units above it.

If necessary, construct a frame around the load unit to support the weight (see 2.2.2 Stacking capability of load units).

- max.: 870 mm for one HC container (High-Cube Container) (2690 mm)
- max.: 780 mm for a standard container (2393 mm)
- max.: 750 mm for special steel parts



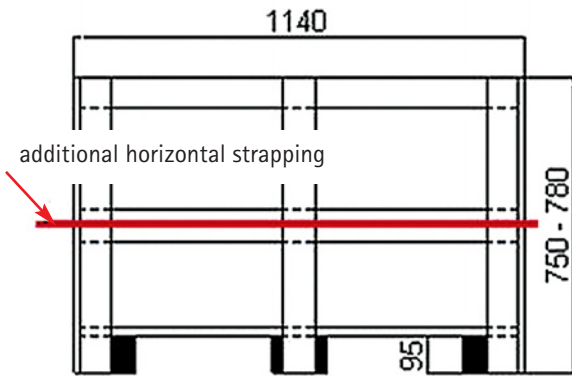
► Fig. 24 HC container and standard container

- Width of the pallet or crate:  
The predefined width is 760 mm. Widths greater than 760 mm is only permitted after consultation with the company.
- Make sure that load units that are stacked on top of one another have the same base surface area. If this is not ensured, the lower load unit may collapse due to the high loads resulting from the load units above it.
- The pallet construction must be accessible from four sides with a lift truck.
- The pallets and crates should be identified on all four sides with the following completed documents

VS-order number/ item number	bar code VS-order number
VS-material number	old-VS-material number
name of the item	quantity
VS-job number / item number	delivery point as VS-order
package number: total number of package: weight: volume:	packed / checked for quality by (name): at: number of delivery note
supplier number / name of supplier / address	

► Fig. 25 Labelling of maritime freight

- Maximum weight of a load carrier: 1.000 kg
- Maximum overall weight of a package that is not delivered on a load carrier: 15 kg
- Individual packaging of articles in bags, only if this is expressly requested.
- Heavy load units should have an additional strap at their half to keep them unified during transport and to prevent any bulging of the load unit.



► Fig. 26 Wooden frame box

- When constructing the pallet it is possible to use wood, wood-based materials, plastic, metal or cardboard. This depends on the parts present on the pallet.
- In the case of wooden constructions, OSB should be preferred for crates. If solid wood is used, it must have been treated according to the IPPC standard (heat treatment HT).
- No fumigated materials or containers should be delivered.
- When loading, place the heaviest load units at the bottom and the lighter ones on top.
- Use straps or stretch film or a combination of both to tie down the load units.
- Steel-framed boxes must be painted or galvanised (corrosion protection).

**Especially for untreated steel parts:**

- Untreated steel parts must be packaged in a VCI film and must not have direct contact with cardboard boxes. The certificates/evidence of the VCI film must be available to VS.
- The crate/cardboard in which untreated steel parts are transported must also be fully lined with a VCI plastic film and sealed at the top. This is necessary to prevent contamination by dripping oil.
- Allow oiled parts to drain thoroughly and use only suitable oil in combination with the VCI film.

**Examples for pallets and**



► Fig. 27 Various pallets and Boxes: wooden frame boxes (top right and left), steel frame box (centre left), OSB crate (centre right), cardboard packaging (bottom)





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