

Policy

Packaging

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Scope: Applicable to the Lockweiler site of thyssenkrupp Automotive Body Solutions GmbH



thyssenkrupp

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1 Purpose and Scope

Packaging and shipping activities serve to protect our products throughout the entire transportation process.

To prevent damage to our products, protective preservation measures and, where necessary, additional packaging solutions must be applied.

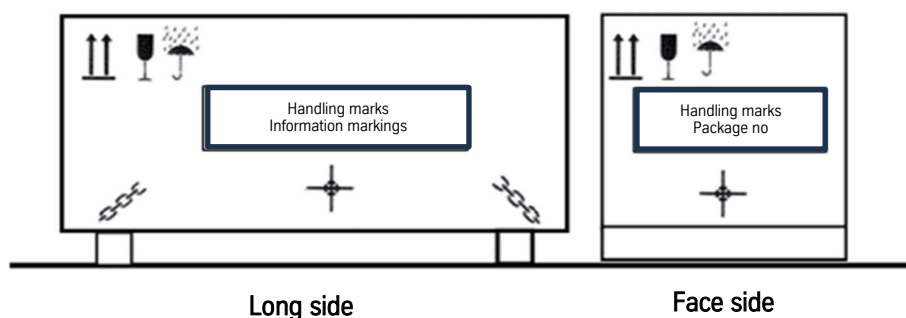
This applies to mechanical, chemical, and physical stress.

Internal, regulatory, and customer-specific requirements stipulate the following principles for packaging and shipping activities:

- Packaging size and effort must be limited to what is necessary to protect the product
- Filling materials must be kept to a minimum
- Wherever possible, reusable or recyclable packaging materials must be used
- Oil and wax paper may only be used with customer approval
- Only preservation materials compliant with IPPC and EU regulations may be used

Instructions for handling the packaging must be visibly and weatherproof affixed to all sides of each package unit.

Example:



Pre-preservation, i.e., spraying the exposed metal parts with appropriate corrosion protection agents, shall — unless specified otherwise in the individual order — be carried out by the customer.

2 Responsible Contacts

The commissioned packaging company is responsible for the proper implementation in accordance with this guideline and any additional specifications. The respective designated specialist departments are available to provide support as needed.

The following contacts in shipping logistics are available at the respective site:

Location	Contact	Phone	Email
Lockweiler	Melanie Lang	06871/60-21076	melanie.lang@thyssenkrupp-automotive.com
Heilbronn	Abuzer Tas	07131/1569-254	abuzer.tas@thyssenkrupp-automotive.com

3 General Information

3.1 General Conditions

By accepting the order, the contractor confirms that the scope of services to be provided is fully defined.

There are no ambiguities regarding the scope of execution of the order.

All information provided in the text or on site does not release the contractor from their duty of care and sole responsibility regarding the correct interpretation and execution in accordance with generally accepted engineering practices and the state of the art.

The contractor is independently responsible for obtaining all necessary information. The principle of “obligation to obtain information” (Holschuld) applies to the contractor. In this context, the contractor must carry out all technical coordination and clarifications with thyssenkrupp Automotive Body Solutions GmbH. The results of these discussions and clarifications must be documented by the contractor and submitted exclusively to thyssenkrupp Automotive Body Solutions GmbH.

thyssenkrupp Automotive Body Solutions GmbH undertakes to provide required materials, data, and information in line with the progress of the project.

By awarding the contracted scope of supply to a specialized company, that company assumes full responsibility for technical execution as well as adherence to deadlines and costs.

3.2 Confidentiality

The contractor shall maintain strict confidentiality toward third parties regarding all processes and matters of the client and the end customer that come to their knowledge in any way.

All drawings, technical documents, and other materials, data, and programs provided to the contractor by thyssenkrupp Automotive Body Solutions GmbH remain the property of the client and may not be reproduced, commercially distributed, used for competitive purposes, or made accessible to third parties or companies without the client's prior consent.

The documents may only be made accessible to those employees who are directly involved with the subject matter of the contract, and such employees must be bound accordingly to confidentiality. The contractor may use the documents received from the client solely for the purpose of fulfilling the contract.

Upon request of the client, the contractor must return all documents provided.

3.3 Safety

The contractor must ensure strict compliance with all regulations applicable to the respective services concerning site safety, accident prevention, and occupational health and safety requirements for external companies during the execution of the contract.

To prevent workplace accidents, all facilities, arrangements, and measures must be implemented in accordance with the applicable accident prevention regulations, as well as with the relevant generally recognized safety engineering and occupational health standards and the internal regulations of the end customer.

Where additional requirements are stipulated in other legal provisions, these shall remain unaffected. Upon request, the contractor must be able to provide evidence at any time that all safety requirements are being complied with.

Only equipment and machinery that comply with accident prevention regulations and VDE standards may be used on the construction sites for the execution of the work.

The contractor and its employees must comply with the control procedures arising from the work regulations of the client and the end customer when entering and leaving the premises of both the client and the end customer.

The contractor is obliged to return any identification badges issued by the client or the end customer upon termination of the respective employment relationship. The cost of lost badges will be charged to the contractor.

To the extent applicable to the execution of the contract, the laws and regulations of the Federal Republic of Germany shall apply, as well as any supplementary laws and regulations of the end customer at the place of performance.

The contractor must take out sufficient liability insurance and installation insurance and present proof thereof to the client upon request.

If employees of several companies (client and external contractor) are working together at one workplace or within one work area and mutual hazards may arise, a coordinator must also be appointed in accordance with Section 6 of BGV A1 "Principles of Prevention."

A similar requirement arises from Section 3 of the Construction Site Ordinance, which requires the appointment of a safety and health coordinator when employees of multiple employers work together.

Section 8 of the Occupational Health and Safety Act "Cooperation of Multiple Employers" obliges the client and the external contractor (the employers) to cooperate to ensure safety and health protection and to inform each other about the hazards arising from their respective activities. However, this presupposes that potential hazards have been identified within the framework of a risk assessment.

In general, the contractor must instruct its agents accordingly before the start of work and ensure compliance with the relevant regulations. The contractor's responsibilities include, even without explicit request from the client, active coordination, hazard analysis, and implementation of protective measures with regard to occupational health and safety.

Each agent of the contractor must provide written confirmation to the client, prior to commencing work, acknowledging that they have read, understood, and will comply with the safety regulations. Commencement of work without prior confirmation is strictly prohibited.

Depending on the work task, hazards may arise for both the client's employees and the employees of external companies. It is therefore important that these potential hazards be jointly identified by the responsible representatives of the client or its coordinator and by the responsible representative of the external contractor.

This risk assessment should be carried out during an on-site meeting. The identification of potential hazards and the determination of protective measures must be documented using the form "Risk Assessment for External Companies" (FB3620).

3.4 Working hours

The contractor must ensure that, in the case of overtime work, late shifts, night work, Sunday work, or work on public holidays, all statutory and internal site notifications are submitted in due time.

The periods during which services are performed on the construction site must be coordinated with the site manager of thyssenkrupp Automotive Body Solutions GmbH.

3.5 Employee Qualification

To ensure an efficient packaging process, thyssenkrupp Automotive Body Solutions GmbH reserves the right to reject the contractor's personnel for the following reasons:

- Insufficient qualifications
- Inadequate performance
- Negative impact on work morale
- Other significant reasons

Any costs incurred as a result shall be borne by the contractor.

Upon request, the contractor must be able to provide proof of the qualifications of individual employees.

4 Packaging Activities – General

4.1 Platforms

The most practical and efficient method for shipping machines and larger packaging units is via platforms (for exceptions, see Chapter 9 “Packaging Activities for Shipments to Asia Using the Example of a Transmission Test Bench”).



The dimensions depend on the type of shipment. The width of each platform shall generally be 223 cm.

We distinguish between three lengths:

1. 290 cm: 2 platforms fit into a 20' container or 4 into a 40' container
2. 390 cm: 3 platforms fit into a 40' container
3. 580 cm: 2 platforms fit into a 40' container or 1 into a 20' container

Preparation for container transports



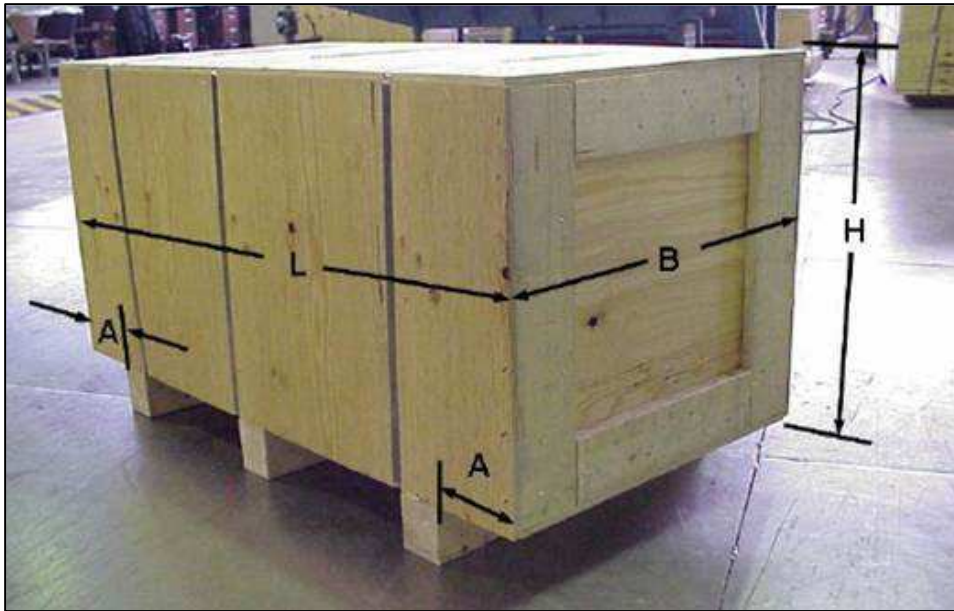
For container transport, one skid is provided on each side;



steel loops are fitted to pull the platform out of the container.

4.2 Crates

The shipment of small parts, individual assemblies, and bulk materials should preferably be carried out in crates.



Six crate sizes are used:

Size	L	W	H	A	Weight
1	210 cm	83 cm	60 cm	20 cm	50 kg
2	122 cm	63 cm	60 cm	15 cm	30 kg
3	230 cm	125 cm	122 cm	30 cm	120 kg
4	210 cm	125 cm	123 cm	30 cm	105 kg
5	210 cm	125 cm	60 cm	20 cm	77 kg
6	210 cm	83 cm	123 cm	20 cm	87 kg



For packages weighing over 500 kg, the base must be reinforced with wooden beams measuring 5 × 10 cm.



For nailing edges on face sides, a frame made of boards measuring 2 × 10 cm must be provided.

4.3 Packaging of machines

Requirements for the goods to be packed:

- Free of foreign residues
- Retention of inherent oils and greases
- Dry (no residual liquids/moisture, water, rain, etc.)
- Free of protruding sharp parts or components extending into the packaging or wrapping space
- Movable parts must be secured to the goods by lashing, wedging, or cushioning

Requirements during packaging:

- Temperature of the packaging materials and the goods should be approximately the same
- No exposure to atmospheric contamination or high humidity
- No temperature fluctuations greater than 5°C during the packaging process

Requirements for the packaging:

- The wrapping must form a sealed enclosure; no open packaging
- Prevent any ingress of water
- Components to be protected must not come into contact with wood or other acidic materials
- The wrapping must be sealed by folding, stapling, or welding

Requirements for packaging material (wood):

- Residual moisture content: 10–14%
- Free from mold and contamination
- Wood must be treated in accordance with ISPM 15
- Stable nailing and secure fastening elements
- No nails or other elements protruding outward
- Proper fastening elements must be used
- Only wood approved for packaging may be used
(no impregnated wood, no tropical wood, and no wood with remaining bark)



Provision of the platform with support timbers placed on top



The machine has been positioned and the locations of the support timbers are marked.



The holes for the fastening bolts and the corresponding bolt holes in the support timbers are drilled.



VCI Method

VCI active substances (Volatile Corrosion Inhibitors) are corrosion protection agents that exhibit a noticeable vapor pressure even at relatively low temperatures and form a continuous, long-lasting protective atmosphere around the item to be protected.

VCI materials can be applied to the surface requiring protection in the form of powder, oil, paper, foam, or film. In this process, corrosive agents are not removed but rendered harmless through chemical interaction. A prerequisite for this is the isolation from the external atmosphere by means of a barrier layer enclosure, within which the saturated vapor pressure is maintained over an extended period.



Edges and corners must be covered with protective cushioning film.



After placement, the film is sealed (welded). (Leave an opening for air evacuation!)



A portion of the air is evacuated to increase the saturated vapor pressure of the VCI gases. The opening is then sealed (welded).

When packages are stacked on top of each other:



Stable substructure (support frame) made of 10 cm × 10 cm timbers

4.4 Packaging of Transport Systems

Requirements for the goods to be packed:

- Free of foreign residues
- Retention of inherent oils and greases
- Dry (no residual liquids/moisture, water, rain, etc.)
- Free of protruding sharp parts or components extending into the packaging or wrapping space
- Movable parts must be secured to the goods by lashing, wedging, or cushioning

Requirements during packaging:

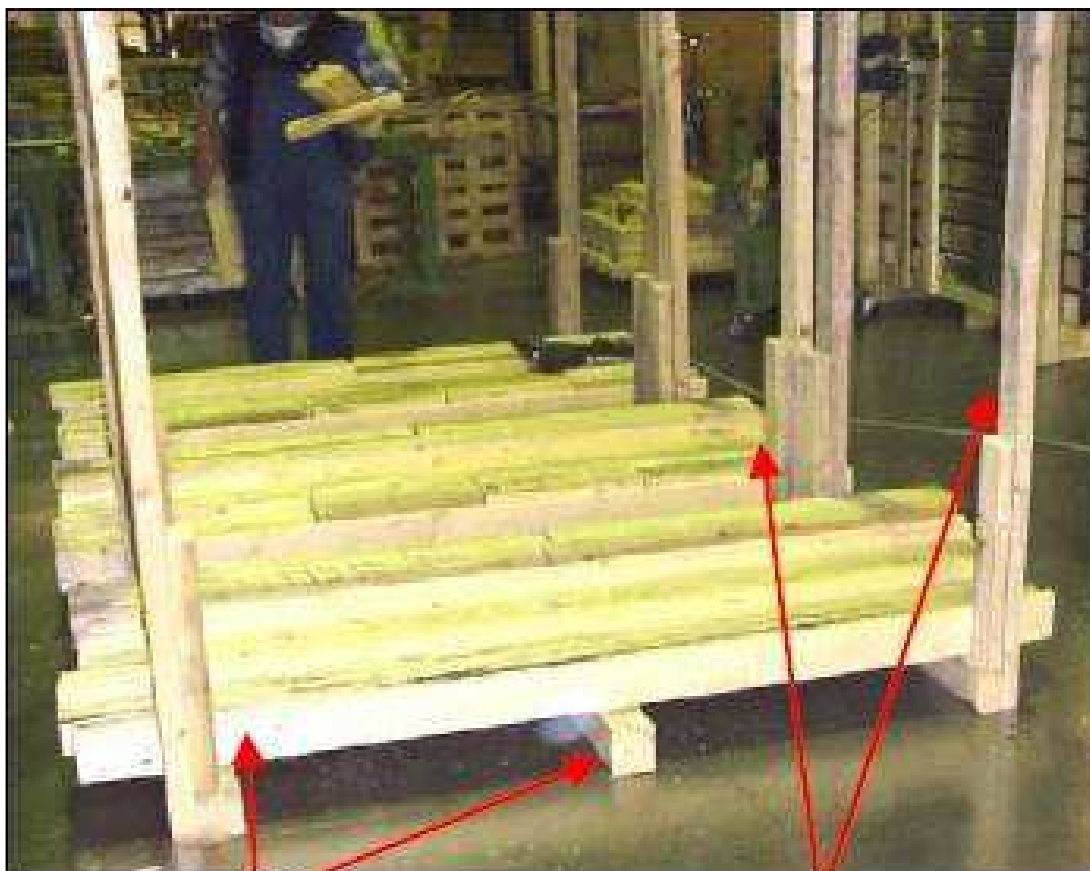
- Temperature of the packaging materials and the goods should be approximately the same
- No exposure to atmospheric contamination or high humidity
- No temperature fluctuations greater than 5°C during the packaging process

Requirements for the packaging:

- The wrapping must form a sealed enclosure; no open packaging
- Prevent any ingress of water
- Components to be protected must not come into contact with wood or other acidic materials
- The wrapping must be sealed by folding, stapling, or welding

Requirements for packaging material (wood):

- Residual moisture content: 10–14%
- Free from mold and contamination
- Wood must be treated in accordance with ISPM 15
- Stable nailing and secure fastening elements
- No nails or other elements protruding outward
- Proper fastening elements must be used
- Only wood approved for packaging may be used
(no impregnated wood, no tropical wood, and no wood with remaining bark)



Support blocks 8 cm x 10 cm

Sides 5 cm x 10 cm



The crates used for packaging FR tracks, transport system stands, safety guards, and other bulky goods are timber frame constructions made of squared lumber.



Careful stacking with intermediate timbers



The goods are secured with braces and steel strapping.



If necessary, the face sides must be protected with boards.



Provision of the platform with support timbers and stop blocks placed on top



To protect the platform from the VCI film, line it with cushioning film.



Lay out the VCI film.



The bearing points for the packages are additionally lined with cushioning film.



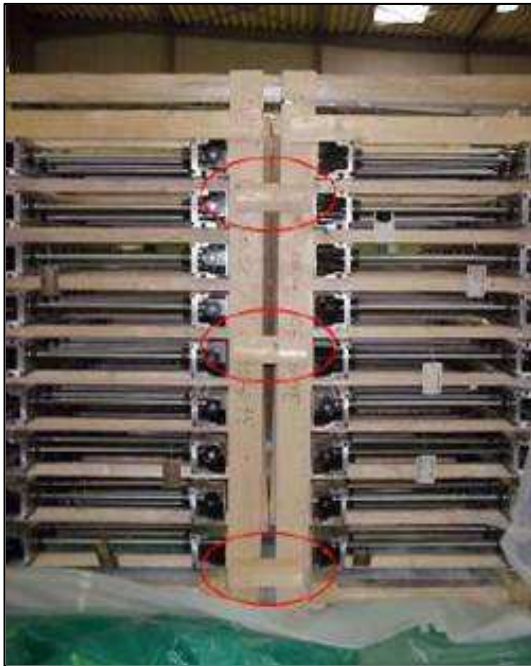
Place the packages onto the platform.



The individual packages are connected to each other.



Nail down the stop blocks.



Finally, attach a stop block. To protect the VCI film, place two plastic sheets.

Edges and corners are covered with cushioning film.



To prevent the VCI film from sagging, a securing strap is applied.



The individual packages are secured.



VCI-impregnated polyurethane foam strips



The VCI film is sealed (welded).

(Leave an opening for air evacuation!)



To increase the saturated vapor pressure of the VCI film, a portion of the air is evacuated and the opening is then sealed (welded).

4.5 Crate Packaging

Requirements for the goods to be packed:

- Free of foreign residues
- Retention of inherent oils and greases
- Dry (no residual liquids/moisture, water, rain, etc.)
- Free of protruding sharp parts or components extending into the packaging or wrapping space
- Movable parts must be secured to the goods by lashing, wedging, or cushioning

Requirements during packaging:

- Temperature of the packaging materials and the goods should be approximately the same
- No exposure to atmospheric contamination or high humidity
- No temperature fluctuations greater than 5°C during the packaging process

Requirements for the packaging:

- The wrapping must form a sealed enclosure; no open packaging
- Prevent any ingress of water
- Components to be protected must not come into contact with wood or other acidic materials
- The wrapping must be sealed by folding, stapling, or welding

Requirements for packaging material (wood):

- Residual moisture content: 10–14%
- Free from mold and contamination
- Wood must be treated in accordance with ISPM 15
- Stable nailing and secure fastening elements
- No nails or other elements protruding outward
- Proper fastening elements must be used
- Only wood approved for packaging may be used
(no impregnated wood, no tropical wood, and no wood with remaining bark)



The crate is lined with VCI film.
Metal parts are preserved using VCI oil or WD-40.



Secure steel cables with special care.



Contact between wood and metal must be avoided, as the metal may corrode due to residual moisture in the wood.



All wooden components inside the VCI film that come into contact with metal must be wrapped in wax paper.



Once the protective film is sealed, the packages are secured using wooden braces.



Closing the crate with a lid and securing it with steel straps



Marking of the crate using the corresponding stencil

4.6 Container loading



For container loading, use a forklift with sufficient lifting capacity and long forks.



Use a wedge for securing.

For container loading, provide one skid on each side for support (lubricating soap increases the sliding capability of the platform).



Attach a steel loop to pull the platform out of the container.



The last platform does not require a steel loop, as the forklift can lift the platform directly from underneath.



As a final step, insert a cross beam to secure the load.

4.7 Carton Packaging

Requirements for the goods to be packed:

- Free of foreign residues
- Retention of inherent oils and greases
- Protected with preservation measures where necessary
- Marking must correspond to the information in the packing list

Requirements during packaging:

- Temperature of the packaging materials and the goods should be approximately the same
- No temperature fluctuations greater than 5°C during the packaging process
- Sensitive, non-break-resistant parts must be protected with bubble wrap or foam chips
- Sensitive parts must be secured against contact
- Inspection (visual inspection and quantity check)

Requirements for the packaging:

- Adequate stability
- Appropriate packaging materials must be used (protection against external influences)
- Correct carton size
- Remove old labels or markings
- Clear and unambiguous labeling (address labels, delivery note pouches)

Bezeichnung	Ident. Nr. Kurzform	Länge (cm)	Breite (cm)	Höhe (cm)	Tara (kg)
Karton klein	M 0000.202.20 4 AP	23	19	18	0,1
Karton mittel	M 0000.202.20 J 2	35	25	13	0,2
Karton mittel	M 0000.202.21 11032	47	34	18	0,7
Karton mittel	M 0000.202.22 11004	63	33	36	1,3
Karton groß	M 0000.202.19 53 DD	50	50	42	1,3
Karton Ordner	M 0000.202.58 294/4	33	30	7	0,2

Folding cartons – standard range



Folding cartons – blanks



Folding cartons for binders



Filling material: bubble wrap, foam chips



Staple the bottom.



For heavier weight, the top must also be stapled!



Seal the package with adhesive tape.



A finished package – closed, with delivery note/invoice enclosed

4.8 Packaging – Air security

Tamper protection of the outer packaging:

- Cartons are secured with adhesive tape to prevent tampering
- Wooden crates are closed in accordance with HPE standard / DIN 55499 / VDI Guideline 2700
- Plastic crates are closed and strapped

This ensures that any tampering is immediately detectable. Packaging materials must be protected against unauthorized access and must be closed especially during breaks and at the end of work.

No finishing processes are carried out.



5 Packaging Activities – General Requirements

5.1 Location Lockweiler

Requirements for the goods to be packed:

- Free of foreign residues
- Retention of inherent oils and greases
- Dry (no residual liquids/moisture, water, rain, etc.)
- Free of protruding sharp parts or components extending into the packaging or wrapping space
- Movable parts must be secured to the goods by lashing, wedging, or cushioning

Requirements during packaging:

- Temperature of the packaging materials and the goods should be approximately the same
- No exposure to atmospheric contamination or high humidity
- No temperature fluctuations greater than 5°C during the packaging process

Requirements for the packaging:

- The wrapping must form a sealed enclosure; no open packaging
- Prevent any ingress of water
- Components to be protected must not come into contact with wood or other acidic materials
- The wrapping must be sealed by folding, stapling, or welding

Requirements for packaging material (wood):

- Residual moisture content: 10–14%
- Free from mold and contamination
- Wood must be treated in accordance with ISPM 15
- Stable nailing and secure fastening elements
- No nails or other elements protruding outward
- Proper fastening elements must be used
- Only wood approved for packaging may be used
(no impregnated wood, no tropical wood, and no wood with remaining bark)

5.2 EU-Packaging Policy (PPWR)

All suppliers are required to comply with all applicable requirements of the new EU Packaging and Packaging Waste Regulation (PPWR) in its currently valid version.

According to Article 18 of the PPWR, this includes, among other things:

- Compliance with the requirements for the recyclability of packaging
- Increasing the respective recycling rate
- Reducing the variety of materials and the volume of packaging used
- Promoting reusable packaging and reuse solutions
- Compliance with technical documentation requirements

The supplier must ensure that all packaging, which will be put onto the EU market from a third country, complies with all requirements of the PPWR.

Furthermore, the supplier undertakes to take the necessary precautions to ensure that, upon request by thyssenkrupp Automotive Body Solutions GmbH, Lockweiler site, it has all information regarding the materials used for the packaging, quantities, recyclability, etc., readily available. In addition, the supplier shall ensure that it possesses the corresponding EU declarations of conformity and can provide them upon request without being asked.

6 Packaging of Tools and Fixtures

6.1 VCI-Method

VCI active substances (volatile corrosion inhibitors) are corrosion protection agents that exhibit a noticeable vapor pressure even at relatively low temperatures and surround the item to be protected with a continuous and long-lasting protective atmosphere.

VCI materials can be applied to the surface requiring protection in the form of powder, oil, paper, foam, or film. In this process, corrosive media are not removed but rendered harmless through chemical reaction. A prerequisite for this is the isolation from the external atmosphere by means of a barrier enclosure, in which the saturated vapor pressure is maintained over an extended period.

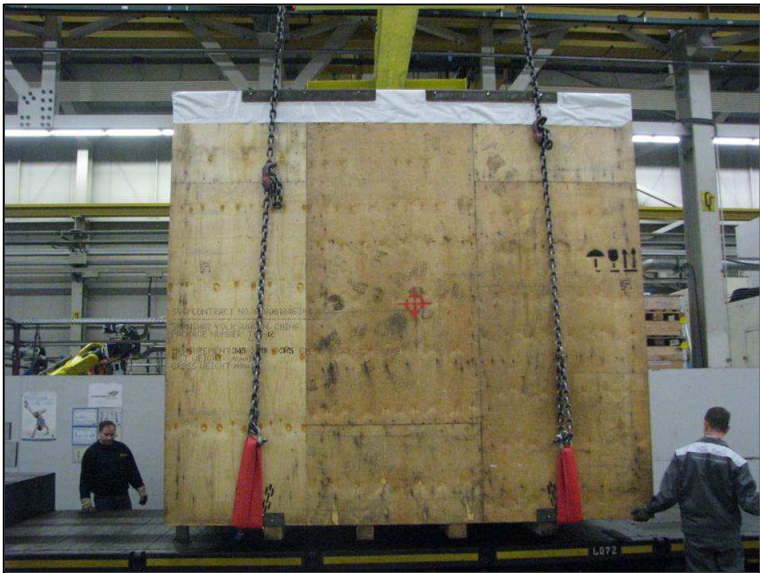


Edges and corners are covered with cushioning film. After placement, the film is sealed (leave an opening for air evacuation!). A portion of the air is then evacuated to increase the saturated vapor pressure of the VCI gases. The opening is subsequently sealed.

6.2 General

- Tools and fixtures must be bolted to the crate base using threaded rods
- Crates must be reinforced internally with sufficient cross beams to prevent compression of the crate during lifting
- Crates weighing 10 metric tons or more must be fitted with lifting lugs (top and bottom) with a minimum thickness of 8–10 mm to prevent damage from chains and ropes
- The crate lids must be covered and secured with PVC film (overlapping on the sides) to prevent rainwater from entering the crate





7 Packaging of Body Parts

7.1 General

- External components must not come into contact, rub against each other, or move during transport—appropriate spacers and cushioning must therefore be used. The positioning of the parts in the crate depends on the characteristics of the individual component (case-specific).
- Internal components may be nested where appropriate—this also depends on the characteristics of the individual component (case-specific).



8 Packaging of air freight – Location Lockweiler

8.1 Air freight (secured)

Tamper protection of the outer packaging:

- Wooden crates are closed in accordance with HPE standards / DIN 55499 / VDI Guideline 2700
- Cartons are secured against tampering using adhesive tape

This ensures that any tampering is immediately detectable.

Packaging materials must be protected against unauthorized access and must be closed, especially during breaks and at the end of work.

8.2 Air freight (unsecured)

Larger packages that cannot be scanned by the scanner or are not scannable (dark alarm):

- One side or the lid must be screwed shut to allow inspection at the airport without opening or damaging the crates.



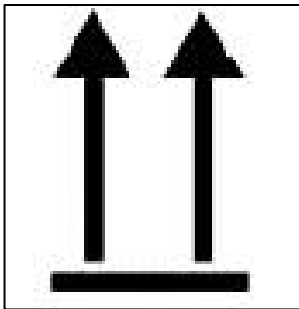
9 General Packaging and Preservation Requirements

Preservation shall be carried out using the desiccant method.

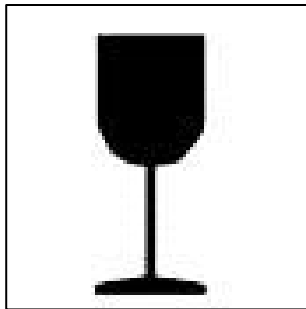
An aluminum composite foil shall be used as the barrier layer (it has four times lower water vapor permeability than PE film).

Preservation period: 12 months

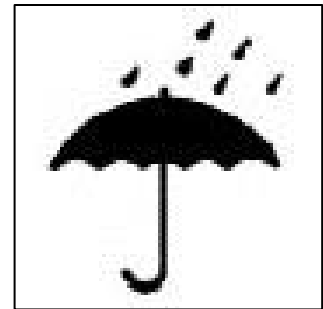
The following handling symbols must be affixed:



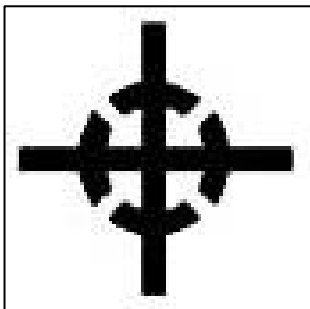
This side up



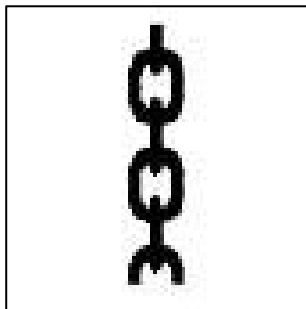
Fragile goods



Protect from moisture



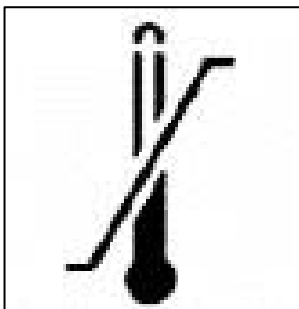
Center of gravity



Sling here



Position forklift here



Permissible temperature range