

KAESER
KOMPRESSOREN

2012

Kaeser Kompressoren AG
Carl-Kaeser-Strasse 26
96450 Coburg
Germany

LOGISTICS HANDBOOK

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Logistics Handbook
Kaeser Kompressoren AG
96450 Coburg

Contents

1 Objectives

2 Suppliers' responsibility

3 General information

3.1 Definition of terms

- 3.1.1 Packing aids
- 3.1.2 Packaged goods
- 3.1.3 Packing materials
- 3.1.4 Packing
- 3.1.5 Package

4 Logistic requirements

4.1 Delivery logistics

- 4.1.1 Deliveries using the "My Schenker" platform
- 4.1.2 Deliveries by other carriers / the supplier's own vehicles
 - 4.1.2.1 Delivery times
 - 4.1.2.2 Delivery points
- 4.1.3 Adherence to delivery quantities and delivery dates

4.2 Protection

4.3 Packing

- 4.3.1 Packing requirements
 - 4.3.1.1 General requirements
 - 4.3.1.2 Particular requirements for wooden packing
- 4.3.2 Packing types
- 4.3.3 Standardised load carriers
- 4.3.4 Condition of the load carriers

4.4 Marking of the goods

- 4.4.1 Package
- 4.4.2 Marking handling instructions
- 4.4.3 Marking storage class
- 4.4.4 Packaged goods
- 4.4.5 Special requirements for oversized materials

4.5 Shipping

- 4.5.1. Delivery and goods inward
- 4.5.2 Shipping of dangerous goods
 - 4.5.2.1 Definition of dangerous goods
 - 4.5.2.2 Load safety
 - 4.5.2.3 Waste shipment

4.6 Shipping documentation

- 4.6.1 Delivery note
- 4.6.2 Packing list
- 4.6.3 Way bill / consignment note
- 4.6.4 Customs documentation

5 Style guide for suppliers of original spare parts

5.1 Cardboard packaging

- 5.1.1 Basic layout
- 5.1.2 Colour
- 5.1.3 Lettering

5.2 Labels

- 5.2.1 Barcode
- 5.2.2 Label size
- 5.2.3 Font

6 Communication

- 6.1 Duty of disclosure
- 6.2 Duty to report

7 Supplier evaluation

8 Costs

9 Appendices

- 9.1 Index of abbreviations
- 9.2 Publisher

Index of illustrations

- Fig. 1-1: Steps to achieving maximum customer satisfaction**
- Fig. 4-1: "Schenker" homepage**
- Fig. 4-2: Overview of unloading points at the Coburg site**
- Fig. 4-3: Definition of delivery reliability at KAESER**
- Fig. 4-4: Example of an IPPC seal**
- Fig. 4-5: Overview of standardised load carriers**
- Fig. 4-6: Package identification**
- Fig. 4-7: Handling symbols/ dangerous goods symbols**
- Fig. 4-8: Storage classes**
- Fig. 4-9: Sample goods tag**
- Fig. 4-10: Example securing and labelling of oversized materials**
- Fig. 4-11: Sample dangerous goods warning sign to be affixed to shipments over 1000 points**
- Fig. 4-12: Document pouch**
- Fig. 4-13: Delivery note**
- Fig. 5-1. Basic layout of the cardboard packaging**
- Fig. 5-2 Barcode label**
- Fig. 5-3 Font and font size of the KAESER label**

Index of tables

- Table 3-1: Packing materials**
- Table 3-2: Containers and materials**

1 Objectives

This logistics handbook provides suppliers with an overview of KAESER Kompressoren AG's requirements with regard to suppliers' logistics. The logistics handbook aims to ensure a smooth flow of materials and information between Kaeser and its suppliers so that other processes in the value-added chain are not disrupted. The logistics handbook should also help to achieve a continual improvement in quality performance, supply performance and co-operation with the suppliers.

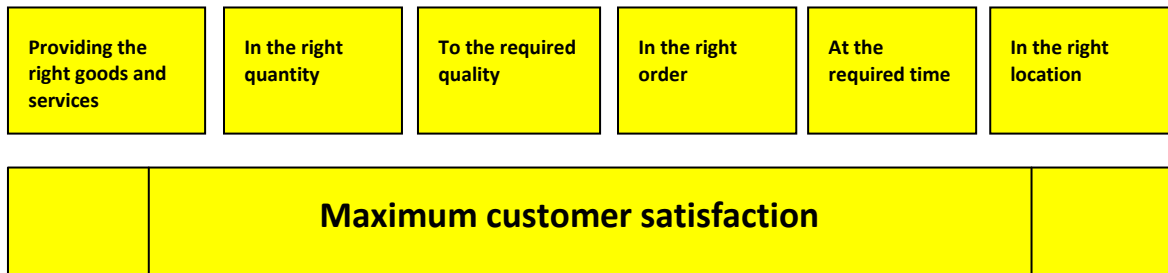


Fig. 1-1: Steps to achieving maximum customer satisfaction

2 Suppliers' responsibility

The supplier is responsible for complying with the mutually agreed logistic requirements and must take the necessary steps to ensure that these requirements are likewise met by its subcontractors. Permanent dealings with trade partners are to be agreed in writing individually. The logistic quality of the subcontractor is thus guaranteed by the supplier.

3 General information

3.1 Definition of terms

3.1.1 Packing aids

Packing aids are the component parts which enable and protect the overall functionality of the packing. Table 3-1 shows common packing materials.

Packing aids	Example	Comment
Cushioning / padding	Air pillows, foam pillows, Styrofoam	
Strapping	Plastic and metal straps, adhesive tape	
Plastic	Shrink wrap	Wrapping of small load carriers
Wood	Squared timber	Storage of cotters, shafts

Table 3-1: Packing materials

3.1.2 Packaged goods

Packaged goods are the goods to be packed and thus protected from a reduction in value.

Examples:

- Unit loads
- Bulk goods
- Liquids
- Gases

3.1.3 Packing materials

Packing material is a container, which can be made from various materials. It is the main component part of the packing and is designed to enclose or hold together the packaged goods, so that they may be shipped, stored and sold (see Table 3-2).

Container	Material
Crate	Wood
Case	Plastic
Box	Cardboard

Table 3-2: Containers and materials

3.1.4 Packing

Packing is the entirety of all of the packing materials and packaging. It is the purposely fitted, removable encasement of a product.

3.1.5 Package

A package is the entirety of all the packaging and packing materials brought together as a single unit.

4 Logistic requirements

4.1 Delivery logistics

Delivery logistics can be grouped into two basic types. On the one side is the “ex works” type collection by a carrier contracted by KAESER. On the other side is delivery by the supplier itself or their appointed carrier.

4.1.1 Deliveries using the "My Schenker" platform

Suppliers' shipments to Kaeser are being reorganised as part of the “procurement logistics” project. There is now a new procurement concept into which all shipments for which Kaeser is the freight payer (= Incoterms FCA & EXW) are being integrated.

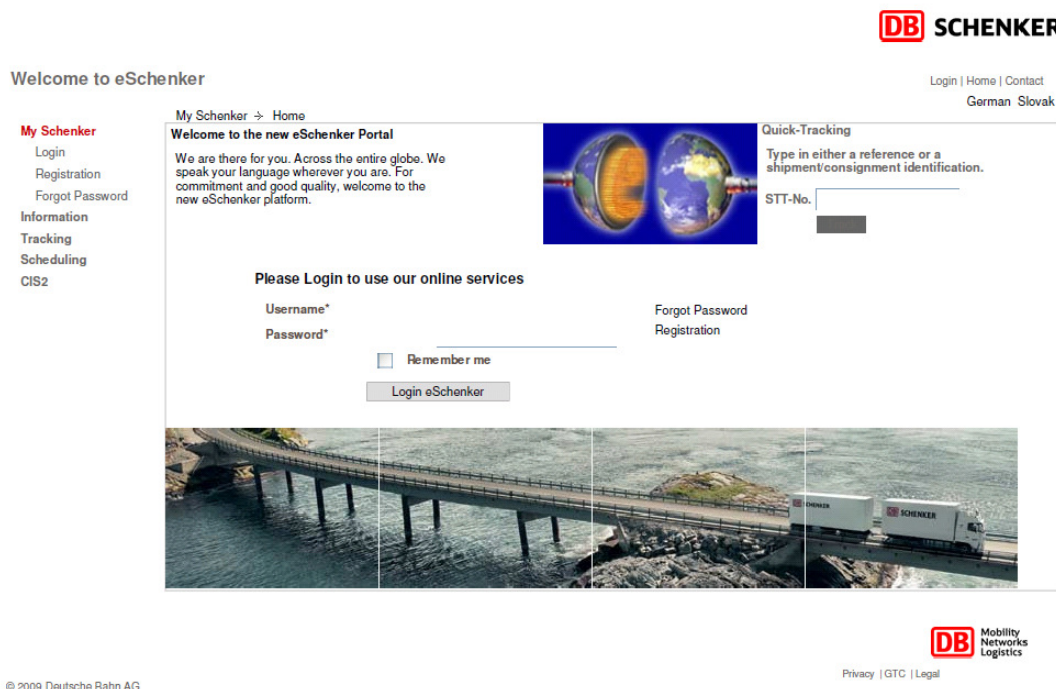


Fig. 4-1: eSchenker "My Schenker" homepage

New and existing suppliers will all be briefed individually. Integration with Kaeser's procurement logistics concept will occur after the suppliers have been approached by Kaeser together with Schenker International. Access to the internet portal and training will be provided after consultation with the Schenker branch office in Coburg, which is our partner for the central control and coordination of shipments:

SCHENKER Deutschland AG
 Creidlitzer Strasse 140
 96450 Coburg
 Germany
 Tel.: +49 9561 140

4.1.2 Deliveries by other carriers / the supplier’s own vehicles

4.1.2.1 Delivery times

Deliveries can be made from Monday to Friday during our normal business hours of 07:00 to 15:00 or by separate agreement.

4.1.2.2 Delivery points

The delivery point must be indicated on the shipping documents.

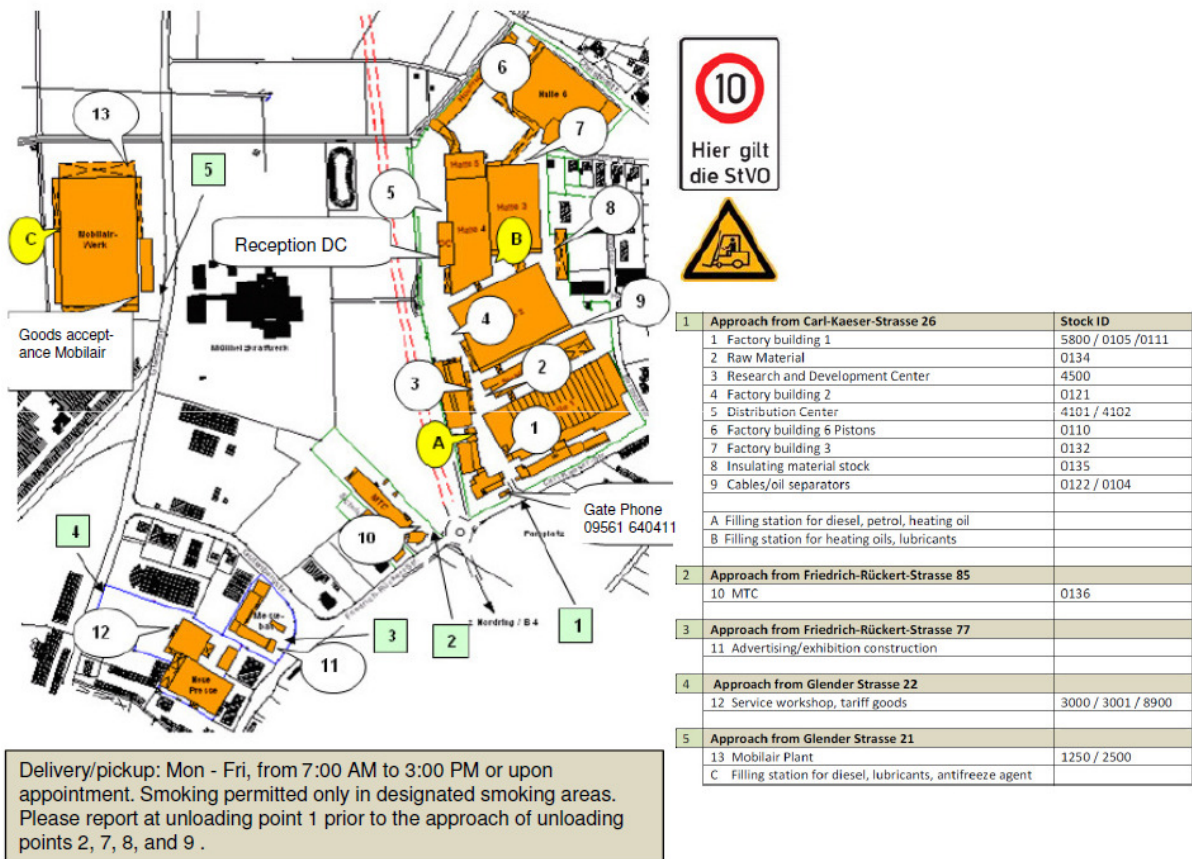


Fig. 4-2 Overview of unloading points at the Coburg site

4.1.3 Adherence to delivery quantities and delivery dates

The supplier is obliged to adhere to the delivery date agreed upon in advance with Kaeser.

Kaeser will accept deliveries that are made no more than 7 working days before the scheduled date. Kaeser reserves the right to refuse to accept deliveries made more than 7 days before the scheduled date, or to return the goods to the supplier. All costs so arising will be the responsibility of the originator. Deliveries after the confirmed delivery date will generally be registered as too late.

The requested delivery date from the purchase order will be compared with the actual delivery date to confirm that this criterion has been met. Changes in delivery date advised to KAESER by means of the supplier's order acknowledgement will be taken into account. Deliveries that extend beyond the date agreed in advance between the supplier and KAESER will be evaluated negatively.

Advised consignments with Schenker on an "unpaid" basis are considered to be on time, if the carrier's shipment lead times were taken into account

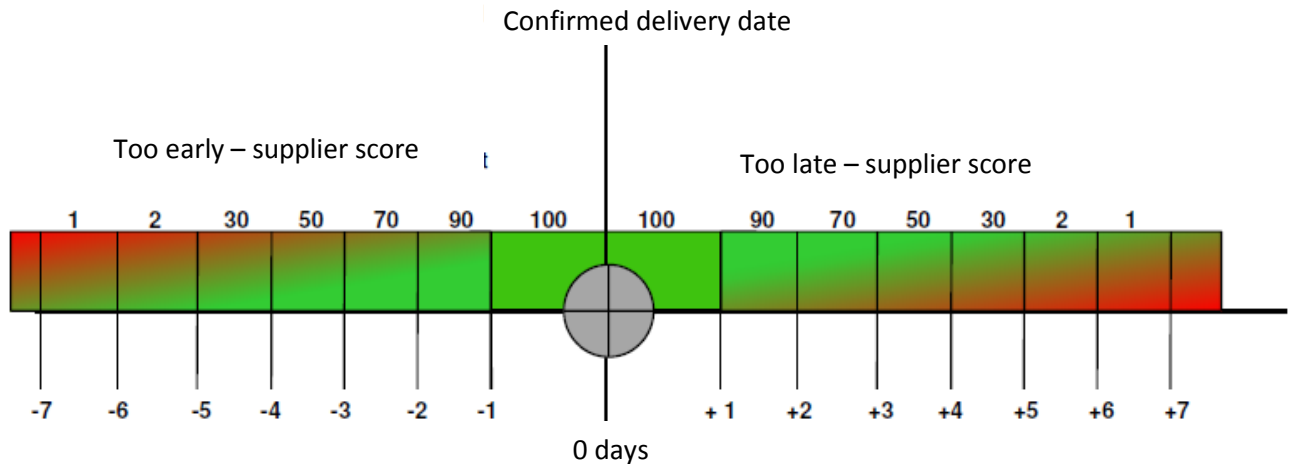


Fig. 4-3: Definition of delivery reliability at KAESER

The shipment should also correspond exactly to the quantity ordered. Partial deliveries may only be made when such has been agreed in advance with the responsible purchaser at Kaeser.

4.2 Protection

All products which could be impaired through interaction with their environment must be suitably protected. In order to prevent subsurface corrosion it must be ensured that surfaces are fully dry and free from grease, oil, dust and rust film prior to protection. Unless alternative protection details are agreed in the contract and/or purchase order, the protection of surfaces not coated with a base, delivery, or top coat is to take place only after final coating, once the assembly / function test / final inspection has been completed.

4.3 Packing

The selected packing must fully facilitate the protection and handling of the goods during shipment to ensure easy handling and maintaining the quality of the packed goods.

- **Protective function:** suitable packing must be used so that the goods are protected from damage, contamination, theft or environmental influences which would have a negative effect on the quality of the goods.

- **Handling function:** the goods must be packaged in such a way that they can be handled and stored without difficulty by hand, forklift or crane. For the goods to be moved by hand or forklift, the hollow space between the pallet blocks or stringers must not be obstructed by packing materials. It must also be ensured that the goods cannot shift or become lost during shipping.

As well as the logistical and QA aspects, the selection of packing must also always take cost-effectiveness and environmental protection into account.

4.3.1 Packing requirements

4.3.1.1 General requirements

The following requirements must be met in order to guarantee the described functionality of the packing:

- Use of environmentally-friendly, recyclable materials for all types of packing
- Reusable packing is to be used in preference to single use packing
- The packing must protect the packaged goods from external influences, such as damage, theft and weather
- The packing must protect the packaged goods from corrosion
- Packaged goods should not be mixed, and should be prevented from mixing during shipment
- Packaged goods should be packed by order (by order item if applicable)
- The composition of the packaged goods must be indicated
- The packaged goods must be delivered in suitable packing
- The packing should enable an unbroken transport chain from the supplier to Kaeser
- The packing is to be multi-layered and to facilitate easy handling
- Where possible the packing is to be suitable for stacking
- The packing is to be suitable for the mode of shipment

4.3.1.2 Particular requirements for wooden packing

Since goods packed in wood are often forwarded to other countries in their original packing, it is essential that wooden packing components comply with the requirements of the ISPM 15 (IPPC) standard and be duly marked with the IPPC seal (the so-called 'wheat mark').

All solid wooden packing of a thickness greater than 6 mm, such as pallets, crates, frames, drums, load carriers, barrels, etc., is subject to ISPM 15. ISPM 15 also applies to dunnage, i.e. individual boards, wedges, beams, etc. that are used to support loads, for example in shipping containers.

Derived timber products such as chipboard, core board, plywood, OSB, MDF and other fibre boards are exempt from ISPM 15.



Fig. 4-4: Example of an IPPC seal

4.3.2 Packing types

- **Single use packing:** single use packing is only suitable for one-time use / shipping after which it must be disposed of. The cost-effectiveness of utilising single use packing must be examined.
- **Reusable packing:** reusable packing is suitable for repeated use without any impairment of function with regard to the protection, storage or shipping of the goods. Due to its longevity, it

should be used in preference to single use packing where possible. In some cases the cost-effectiveness of returning the packing has to be examined.

4.3.3 Standardised load carriers

Packages are to be delivered on standardised load carriers (see Fig. 4-5). This facilitates and rationalises the internal transportation of goods at KAESER. **Non-standard** load carriers may only be used subsequent to consultation and written agreement on an individual basis.

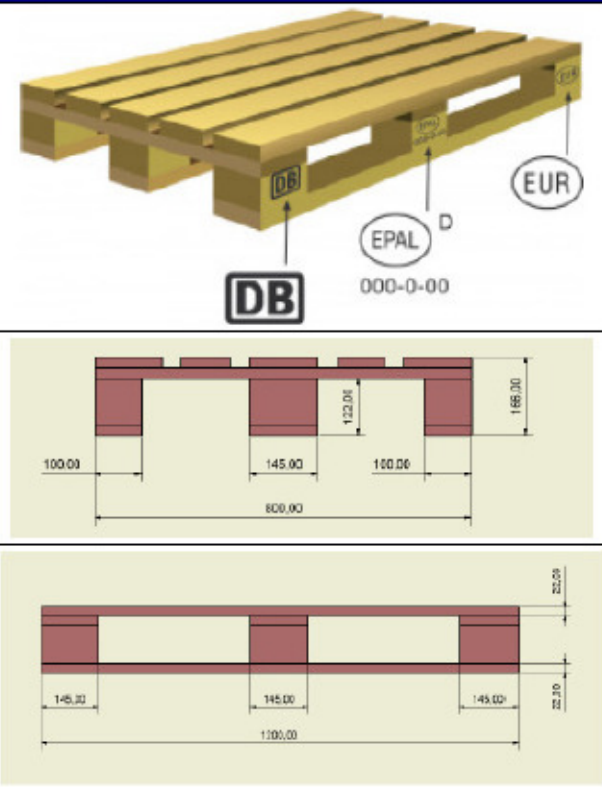


<p>DIN standard euro pallet / euro-pool pallet</p> <p>Manufactured according to quality standard UIC-435-2; incorporated in DIN 15146-2</p> <p>Dimensions: 1200 x 800 x 144 mm</p> <p>Net weight: 25 kg</p> <p>Max. load: 1.5 t</p>	
<p>DIN standard euro box pallet</p> <p>Manufactured according to quality standard UIC-435-2; incorporated in DIN 15146-2</p> <p>Dimensions: 1200 x 800 x 970 mm</p> <p>Net weight: 85 kg</p> <p>Max. load: 1.5 t</p>	
<p>Dusseldorfer Pallet</p> <p>Also called a half pallet, often used for commercial shipping.</p> <p>Dimensions: 800 x 600 x 163 mm</p> <p>Standard: DIN15146 / Page 4</p>	

Fig. 4-5: Overview of standardised load carriers

4.3.4 Condition of the load carriers

The supplier must check before despatching the goods that the load carriers are in a good, undamaged and exchangeable condition, in order to avoid subsequent complications during shipping and to ensure the load carriers can be later exchanged. Defective, unacceptable or damaged load carriers will not be exchanged by Kaeser. Any necessary repacking due to defective, unacceptable or damaged load carriers will be undertaken at the expense of the supplier.

The following conditions are unacceptable for pallets:

- Missing deckboard.
- Crosswise or diagonally broken deckboard.
- A block is missing, broken or split such that the shank of more than one nail or screw is visible.
- More than two lower or upper edge boards are damaged such that the shank of more than one nail or screw is visible.

The following conditions are unacceptable for box pallets:

- The hinged front panels can no longer be opened or closed.
- The floor frame or feet are so bent that the box pallet no longer stands firmly on four feet or can no longer be stacked safely.
- Missing or broken deckboard.
- The lattice is so torn that the wire ends protrude inwards or outwards.

The condition of pallets and box pallets on delivery conform with the exchange criteria of Gütegemeinschaft Paletten e.V. (available at <http://www.gpal.de>).

4.4 Marking of the goods

Before the goods and/or the shipping container are made available for shipment they need to be marked. The labelling of the goods needs to be unambiguous so that they are not confused or mixed up.

4.4.1 Package

Package identification is the first exchange of information between the customer and the supplier regarding the goods being delivered. To ensure the goods reception process proceeds smoothly, it is essential that the package identification details the following information:

- Supplier's / sender's address
- Recipient's address
- Sales order number
- Purchase order number
- Unloading point
- Weight

It must be possible to read the identification of the goods clearly without opening the shipment. To achieve this, the goods should be identified on the front and side of the packing (see Fig. 4-9). Suitable means of identification should be selected, so that the legibility of the identification is not affected during shipping or by other environmental factors. Where goods are packed unsorted, each packed good must be separately identified.

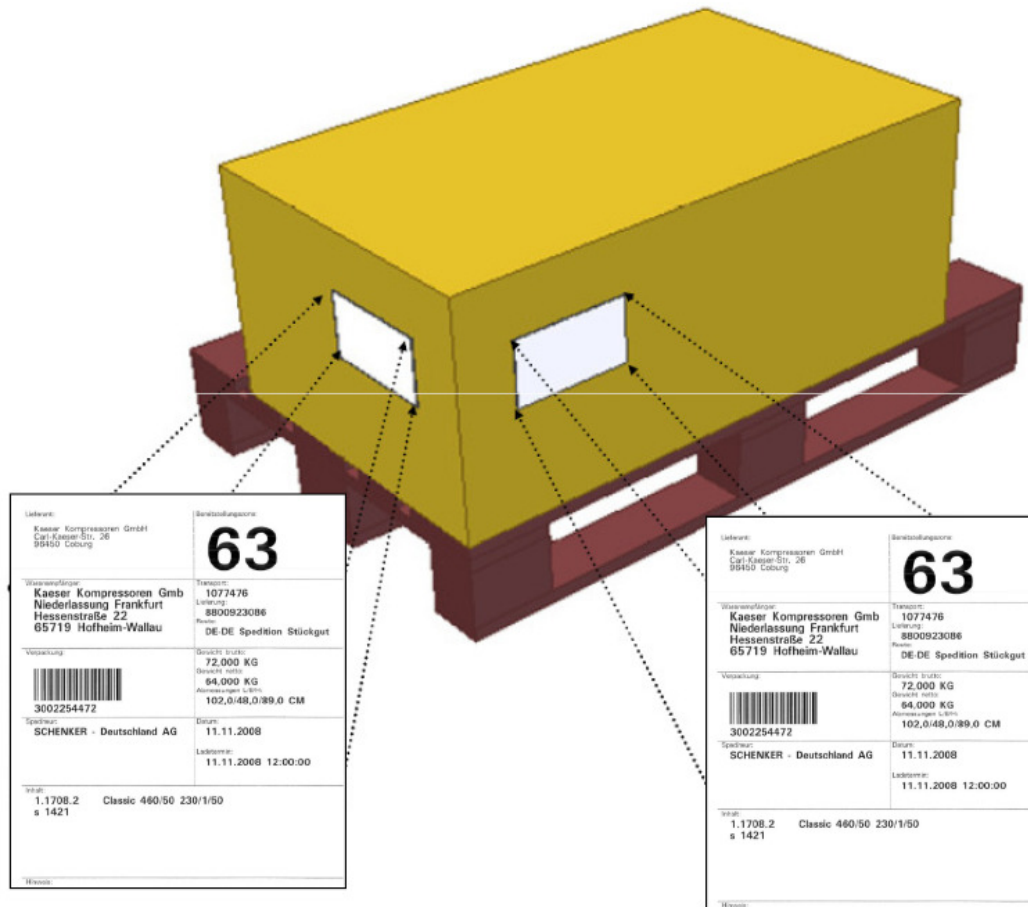


Fig. 4-6: Package identification

4.4.2 Marking handling instructions

If the nature of the packaged goods necessitates particular handling of the package, the packing must be adequately marked with the handling instructions (e.g. fragile, top-heavy) to ensure it is dealt with appropriately. The established handling symbols that should be used are shown in Fig. 4-10.

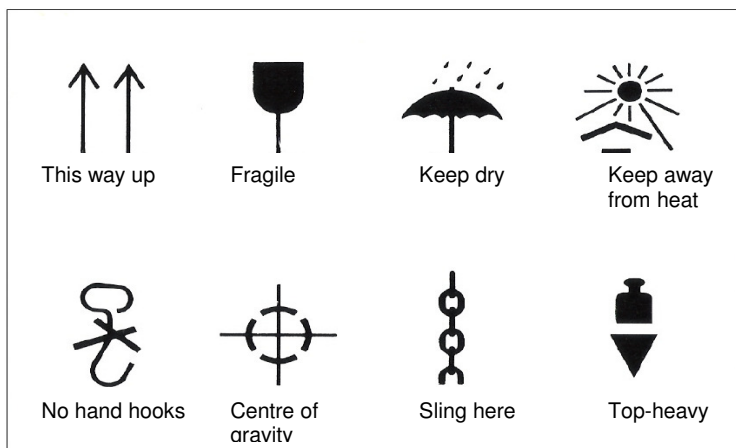


Fig. 4-7: Handling symbols/ dangerous goods symbols

4.4.3 Marking storage class

Permitted classes of storage (see Fig. 4-11) must also be indicated. The applicable storage class is determined by the most susceptible component. If KAESER makes no determination, the appropriate class must be determined by the supplier of the goods. The storage class must also be clearly indicated in plain writing in a suitable place on the shipping documents (e.g. delivery note or packing list).




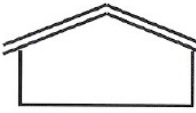

Item	Symbol	Definition
1		Outdoors
2		Under roofed cover
3		Indoors
4		Indoors, heated, min. temp. +8 °C
5		As per 4, but heated and climate controlled, min. temp. +8 °C, max. air humidity 65 %

Fig. 4-8: Storage classes

4.4.4 Packaged goods

If different packaged goods are combined in a single load, the supplier must identify the individual packaged goods with separate goods tags (see Fig. 4-9). The following information must be included on the tag:

- Sales order number
- Number of packages
- Purchase order number
- Description
- Quantity
- Final recipient
- Weight
- Unloading point


Lieferant: Kaeser Kompressoren GmbH Carl-Kaeser-Str. 26 96450 Coburg	Bereitstellungszone: Packstück 1 von 2
Warenempfänger: Kaeser Kompressoren Niederlassung Frankfurt Hessenstraße 22 65719 Hofheim-Wallau	Transport: 1077476 Lieferung: 8800923086 Route: DE-DE Spedition Stückgut
Verpackung:  3002254472	Gewicht brutto: 72,000 KG Gewicht netto: 64,000 KG Abmessungen L/B/H: 102,0/48,0/89,0 CM
Spediteur: SCHENKER - Deutschland AG	Datum: 11.11.2008 Ladetermin: 11.11.2008 12:00:00
Inhalt: 1.1708.2 Classic 460/50 230/1/50 s 1421	
Hinweis: Achtung Transportschäden! Inhalt sofort bei Übernahme auf Transportschäden prüfen! Falls Schäden bei der Überprüfung gefunden wurden, diese sofort vom Spediteur bestätigen lassen, da sonst jeglicher Anspruch auf Schadensersatz vom Spediteur und von uns abgelehnt wird. Made in FR Germany	

Fig. 4-9: Sample goods tag

4.4.5 Special requirements for oversized materials

There are additional rules for the delivery of oversized materials:

- The goods are to be secured using metal bands only
- The goods are to be supplied on a single commission basis (order related identification)
- The goods must be secured against shifting in at least 3 places
- The goods are to be identified by a tag that is attached by wire or with glue

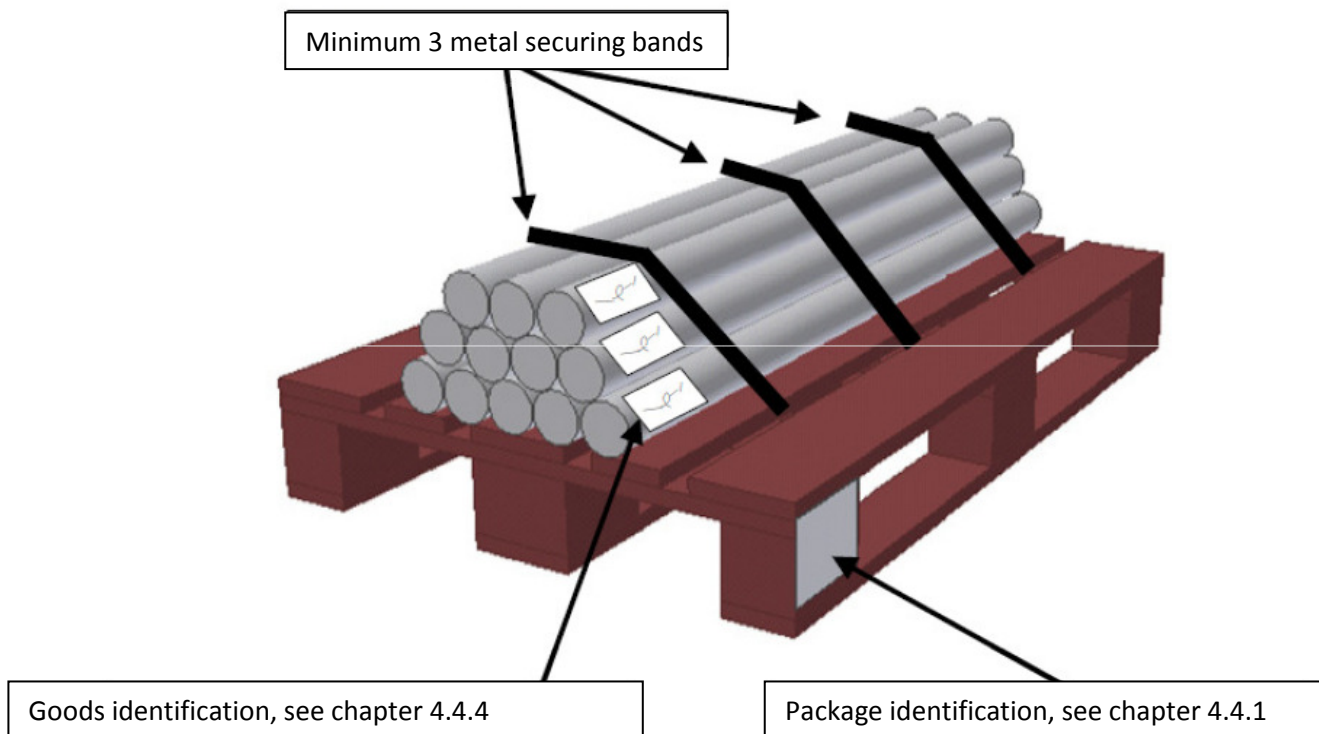


Fig. 4-10: Example securing and labelling of oversized materials

4.5 Shipping

4.5.1 Delivery and goods acceptance

Goods are delivered to the unloading point indicated on the shipping documents – see chapter 4.1.2.2. When delivering to unloading points 3, 7, 8 and 9, please report first to unloading point 1.

Goods may not be unloaded at any other point on the site without the agreement of the goods acceptance personnel. German national road traffic regulations (StVO) are in force throughout the KAESER site in Coburg with a speed limit of 10 km/h (6 mph). Please refer to other regional and national regulations when delivering to KAESER subsidiaries outside of Germany.

Goods inward

Where possible the goods are to be shipped in enclosed vehicles or protected by a tarpaulin, especially if the materials are susceptible to corrosion. The following points regarding shipment from suppliers to Kaeser should also be observed:

- The haulier / carrier must hand over the correct documentation for the shipment.
- Deliveries will only be received Monday to Friday between 07:00 and 15:00, except by special prior arrangement.
- The supplier is obliged to ensure the goods being despatched are properly stored until they are collected by the carrier.
 - Protected from weather
 - Protected from corrosion
 - Protected from damage
 - Protected from contamination

4.5.2 Shipping of dangerous goods

4.5.2.1 Definition of dangerous goods

Materials identified as dangerous goods in chapter 14 of the safety data sheet must be shipped in type tested packing that is approved for the shipment of dangerous goods. The shipment must adhere to the 1000 point rule in accordance with section 1.1.3.6 of the [German] Shipment of Dangerous Goods by Road and Rail Act (GGVSE/ADR).



Fig. 4-11: Sample dangerous goods warning sign to be affixed to shipments over 1000 points

Irrespective of whether the vehicle must be marked (orange warning signs on the front and rear of vehicles with more than 1000 points. Signs 40 cm long, 30 cm high with a black, 15 mm wide border), the driver must carry with him the current

- Safety data sheets
 - Accident procedure sheets
- for the materials on board.

4.5.2.2 Load safety

The carrier / vehicle driver (e.g. service technician) must secure all the goods being transported against shifting. The load must be stowed securely using lashing straps and lashing rings. Flammable materials must be kept separate from oxidising materials.

4.5.2.3 Waste shipment

Waste may sometimes be classified as dangerous goods, e.g. used cleaning rags, and suctioned and filtered materials fall under Class 4.1 UN 3175 (solid materials that contain flammable liquids). Obligations under the latest transportation of dangerous goods laws and their associated ordinances must always be observed and complied with. Furthermore, all the latest laws and legal requirements concerning dangerous goods must be complied with.

4.6 Shipping documentation

The goods must be shipped with the correct documentation, which must be handed over to the goods acceptance personnel at Kaeser. The information contained in the shipping documents enables the goods acceptance process at Kaeser to proceed smoothly. Shipping documentation with missing information increases the workload for Kaeser and will be charged to the supplier.

4.6.1 Delivery note

To clear the delivered goods through goods inward, Kaeser requires a delivery note / packing list which clearly describes the delivery. The delivery note (see Fig. 4-16) must be sent with the delivery and affixed in a clearly visible position or in a document pouch (see Fig. 4-15) on the front or side of the package.

4.6.2 Packing list

If a delivery comprises several packages or pallets, the delivery note for each shipping unit must include a packing list with the following information:

- Package number
- Kaeser's part number, or
- Supplier's part number
- Short description of the separate parts
- Net weight per package
- Quantity
- Registration number of the delivery vehicle
- Number of separate parts

4.6.3 Way bill / consignment note

The consignment note must contain the following information:

- Recipient's address and unloading point
- Consignor / delivery address
- Number of packages in the delivery
- Total weight of the delivery
- Handover / despatch date of the delivery

4.6.4 Customs documentation

Customs documentation must be included with goods being delivered from outside the EU. The supplier is responsible for providing all the documentation necessary for the clearance of customs and for presenting this documentation to the carrier.

5 Style guide for suppliers of original spare parts

Kaeser greatly values its corporate identity and wishes to present itself to the outside world in a uniform manner. First and foremost the following information provides suppliers of original KAESER spare and service parts details of the required appearance of packages and their labelling. The application of the guidelines to certain suppliers / a defined spectrum of parts will be individually determined by Strategic Purchasing and Logistics Planning in cooperation with the supplier concerned.

5.1 Cardboard packaging

5.1.1 Basic layout

The basic layout is as illustrated in Fig. 5-1.

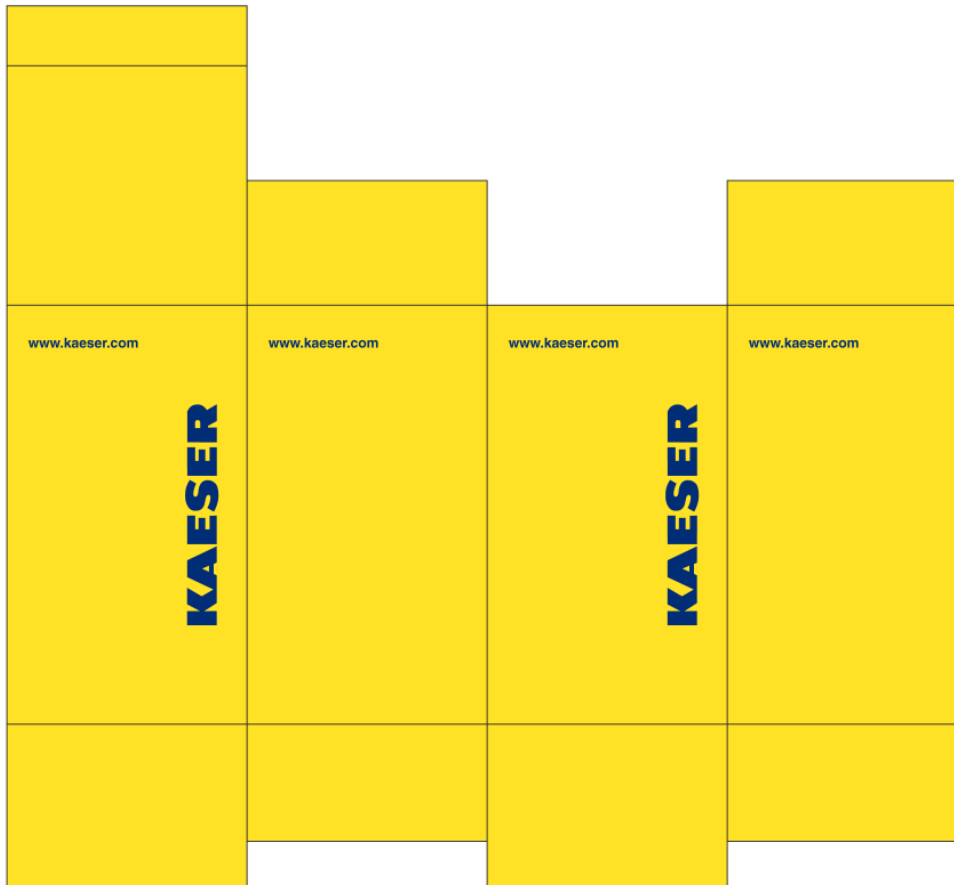


Fig. 5-1. Basic layout of the cardboard packaging

5.1.2 Colour

The primary colour is defined: *HKS4N* – pigment content 100 yellow, 20 magenta;

Permissible alternatives:

RAL 1021 rape yellow;

Pantone 116 – pigment content 100 yellow, 17 magenta

5.1.3 Lettering

Primary lettering colour: Black

Size of the Kaeser lettering: 2/3 of the edge length

Font: ARIAL BLACK

Colour approval takes place with a final inspection by the Design Department upon receipt of a sample

5.2 Labels

The uniform design and use of barcode labels ensures the fast, error free picking of goods and their despatch to the customer.

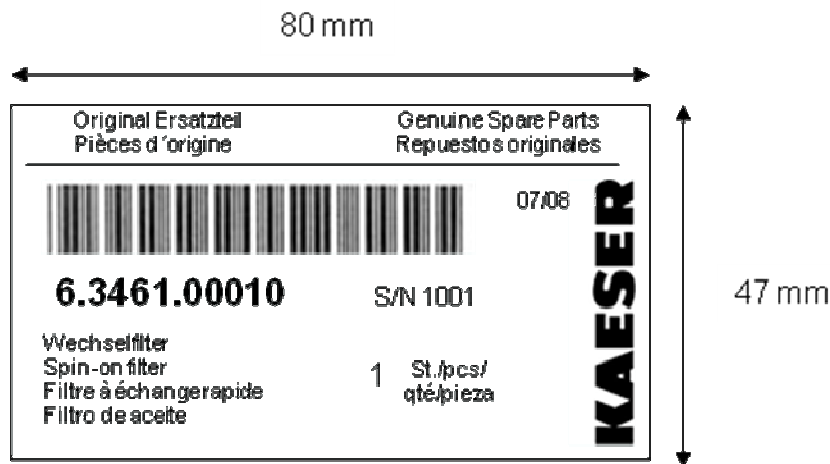


Fig. 5-2 Barcode label

5.2.1 Barcode

The barcode (per EAN Code 128) only represents the article number

- Article number (language independent)
- Description (German, English, French, Spanish)
- Number and unit of quantity (German, English, French, Spanish)
- Attached without barcode "Original Spare Parts"(German, English, French, Spanish)
- Packing date in the works (month / year)

5.2.2 Label size

The label size is a standard 80 mm x 47 mm. If the lid of the box is smaller than our standard label, the size of the label should be reduced proportionally to a length of 50 mm (i.e. 50 mm x 30 mm), otherwise for reasons of legibility the label is to be attached to the packaging sideways.

5.2.3 Font

The font and font size of the standard label are shown below

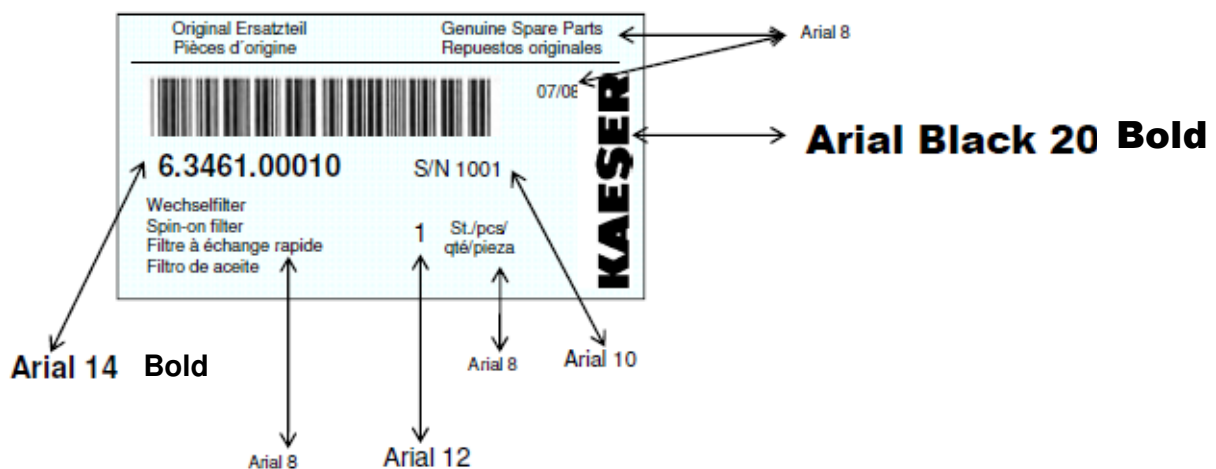


Fig. 5-3 Font and font size of the KAESER label

6. Communication

The implementation and realisation of an optimal logistic chain is possible only with good communication between the supplier and Kaeser. Successful co-operation is built on rules and agreements and the immediate and voluntary communication of any relevant circumstances to the other parties.

6.1 Duty of disclosure

- The supplier is obliged to provide Kaeser with a provisional date on which the goods will be ready for despatch.
- The supplier will give Kaeser or the carrier binding notice of despatch readiness at least 48 hours before despatch of the goods. Where goods are being despatched by heavy goods transport the required period of notice increases to not less than 2 weeks.

Suppliers listed for KAESER "My Schenker" (see chapter 4.1.1) discharge their duty by attaching the delivery note in the supplier system.

- When delivering directly to the end user, the packing list must be sent back to the Kaeser Despatch Department or Purchasing Department at least 1 week before the agreed delivery date.
- If applicable, the origin of the goods must be determined with the help of a supplier's declaration.

6.2 Duty to report

The supplier must advise Kaeser without delay of any apparent delivery bottleneck that could affect the delivery date or quantity.

7 Supplier evaluation

The suppliers' service patterns are periodically evaluated by generating performance indicators combined with subjective assessments. The logistic key performance indicators become components of a holistic evaluation system and will be taken into account when suppliers are next selected.

Suppliers from whom materials with part numbers have been ordered during the last 12 months will be evaluated annually.

Suppliers with purchasing volumes in excess of €500,000 and suppliers with KPIs exceeding standard values will be evaluated every six months.

8. Costs

Where suppliers deviate from the requirements laid out in this logistics handbook, Kaeser reserves the right to recharge any costs arising to the supplier.

9. Appendices

9.1 Index of abbreviations

i.e. that is

DIN	German industrial standard
EU	European Union
kg	kilogramme(s)
max.	maximum
min.	minimum
mm	millimetre(s)
t	tonne(s)
UIC	International Union of Railways

9.2 Publisher

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