

Quality Guideline

Q10.09028-2106

Quality Assurance during the transport of material (parts/components) to the construction site and material receipt and storage on the construction site during the period before commissioning

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1 Validity

This guideline is valid for SBU Power Plants. Its implementation is obligatory until the time of passing of risk of an order (project) to the customer. It is carried out within the framework of project management under the supervision of the project manager (PL) and is assisted by Purchasing, Engineering and the support function Quality. The PL must commission the Shipping Department or service providers accordingly.

2 Purpose

It must be ensured that the goods are protected against damage by means of appropriate measures all along the supply chain - release of goods for shipment, storage location (collecting point) before shipping, during transportation, at incoming goods, during storage on the construction site and before commissioning.

3 Basic Requirements

3.1 Packaging / Preservation

MAN-ES must clearly stipulate the type of packaging and preservation for the supplier with the order. This is carried out either via the order text or the goods specification.

The supplier cannot be held liable for any damage that arises through the fault of MAN-ES (e.g. unsuitable instructions for packaging).

It is imperative that the type and duration of transportation and storage up to final installation is taken into consideration when selecting the type of packaging. The type of packaging must be selected in such a way that damage due to normal impacts during transportation is excluded, depending on the sensitivity of the material no humidity can penetrate the packaging and the goods are packed in such a way that they can be retrieved in the sequence they are required during the progress of construction (optimised according to installation requirements). Stainless steel, black steel and non-ferrous metals must be packed separately. It must also be ensured that the packaging provides adequate protection for the project-related period the goods remain on the construction site. Regulations pertaining to environmental protection must be observed.

Preservation must be specified in such a way that adequate protection against corrosion and environmental impacts is ensured for the whole duration of the project. It must be taken into consideration here that, among other things, the materials may be exposed to the effects of weather during installation and up until commissioning (IBN). It might be necessary to stipulate interior preservation in order to prevent corrosion of component interiors due to condensation. This must then be taken into consideration in the installation and commissioning plans and where applicable the necessity of preservation removal indicated.

If the use of an anti-condensation or rather anti-corrosion heater is planned and if it is necessary to connect this before the goods are unpacked, it must be ensured that connection is possible while the goods remain packed and the obligation to make such a connection is indicated on the packaging.

In particular the specifications in the order book must also be observed.

3.2 Transport

Depending on the means of transport and the component/packaging, the supplier/carrier must be given clear instructions as how to transport the material. Loads, stackability, hoisting and slinging points etc. must be designated or marked. The materials must be secured in compliance with the relevant transport regulations. Transport using tarpaulins or transport on deck is only permitted if this is approved by MAN-ES (Shipping Dept.). All necessary transport documents must be created and attached. The packing list must describe the contents of the packaging clearly (detailed list of contents). The maximum possible storage time (date) must be attached to the packaging in such a way that it is clearly visible and must be indicated in the release order and in the marker text. The supplier must be obliged/is obliged to give notification of the maximum possible storage time without delay and at all times if requested to do so by MAN-ES. The supplier must take out adequate insurance to cover damage and loss of the goods.

3.3 Delivery Release

Quality assurance (QS) is carried out in compliance with the Q-Guideline Q10.09028-2101. The Quality Report and, if applicable, the Inspection Report describe and document the condition of the material to be transported while in an unpacked and unpreserved state at the time of the inspection. If the quality meets the required standard and the component specifications the release for shipping or rather delivery is given. Checking of the packaging, completeness and preservation is normally carried out by the supplier. In individual cases if commissioned by the project manager this check is carried out again by an (external) expediter.

4 Storage Location (collection point) before shipment

The collection point must be selected in such a way that competent and professional storage is possible. A person responsible for the storage area (on site) must be appointed. Suitable hoisting and transport equipment must be available. Materials susceptible to humidity (e.g. material marked with an umbrella symbol) must be stored indoors. It is imperative that handling symbols are complied with under all circumstances. Stainless steel, black steel and non-ferrous metals must be stored separately. Any materials stored outdoors must be adequately protected against environmental impacts. Packaging and preservation must not be removed. Long-term storage must be avoided. Walkways, roadways and escape routes must be kept clear. Fire protection equipment must be kept available. The area around the collection point must be protected against unauthorised access and theft. Regulations pertaining to occupational safety and environmental protection must be observed. The person responsible for the storage area must verify the suitability of the collection point for MAN-ES (Shipping Dept.) in document form.

4.1 Quality Assurance Measures

The person responsible for the storage area must inspect the collection point regularly. The condition of the packaging must be checked during

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these inspections. The person responsible for the storage area must notify MAN-ES of any damage. The packaging must then be professionally repaired immediately. An inventory audit must be carried out and the stocks recorded.

If the duration of the storage exceeds the originally planned time, the suitability of the packaging and preservation for the lengthened storage period must be checked. If necessary, suitable measures must be taken to ensure that the stored materials cannot be damaged. Conditions that facilitate corrosion must be avoided (e.g. by means of new corrosion protection, the installation of an anti-condensation heater, relocating the goods to a new storage area, replacement of drying agents, foils etc.). The goods must be re-packed after such measures.

5 Loading, Transport (shipping), Unloading

Adequate and tested slinging gear must be used for loading and unloading. The designated points must be used for slinging. Any damage to the packaging must be reported immediately. The goods (material) must be checked to see if they have also been damaged. Suitable measures must be undertaken if this is the case.

Securing of the load and loading onto the means of transport must be carried out in compliance with all legal and technical basic conditions. Only appropriately equipped means of transport may be used. The drivers of the means of transport must possess valid authorisations. The load must be secured in such a way that it cannot slip or move and it is impossible for the packaging and goods to be damaged. The max. permissible load of the means of transport must not be exceeded.

5.1 Quality Assurance Measures

Packing and loading lists (indicating location, e.g. Deck3/Sect.5) must be compiled by the person responsible for loading and transport (e.g. loadmaster). Any damage to the packaging and/or the goods must be reported to MAN-ES (Shipping Dept.) immediately (if applicable FK 0917).

5.2 Incoming Goods Inspection on the Construction Site

The delivery must be inspected immediately after unloading and receipt on the construction site. The inspection includes the following:

- Check of goods against the delivery note and packing list, target/actual and article number.
- Inspection of the packaging, is there any visible damage or any parts of it wet?

If the packaging is damaged, the goods must also be checked for any damage. Any damage must be documented with photos. Suitable measures must be taken to repair any damaged outer packaging and if necessary the preservation (goods protection*), or in the case of damage to the goods MAN-ES (project manager) must be notified immediately and adequate measures taken.

6 Storage on the Construction Site

The storage area must be selected in such a way that competent and professional storage is possible. A person responsible for the storage area (on site) must be appointed. Stock lists must be kept (entries and exits and storage location of the material). The packaging and preservation must not be removed prematurely. Suitable hoisting and transport equipment must be available. Moisture sensitive components must be stored indoors (or in containers). Bulk goods, small parts, cartons, plastic parts, hoses must be stored indoors (warehouse). Chemicals must be stored indoors in a locked (fire-proof) area, (see also Storage of Hazardous Substances). Stainless steel, black steel and non-ferrous metals must be stored separately. Any materials stored outdoors must be adequately protected against environmental impacts. Wooden crates stored outdoors must not be placed directly on the ground, use square timber as an intermediate layer (pay attention to the loading capacity of the crate base). Walkways, roadways and escape routes must be kept clear. Fire protection equipment must be held available. The storage area must be protected against unauthorised access and theft. On principle all regulations pertaining to occupational safety and environmental protection must be observed. Hazardous substances must be marked as such and stored with safety data sheets in compliance with the Ordinance on Hazardous Substances. The HSE safety officer of the construction site must check this by means of inspections and rectify any deviations via the site management.

6.1 QS-Measures

The storage area must be inspected regularly (person responsible for the storage area). The condition of the packaging or the goods protection* must be checked during these inspections. Any damage to packaging and/or materials must be documented and rectified. Any damaged outer packaging and if necessary the preservation and protection must be restored (goods protection). If partial withdrawals are made from the packaging or if packaging is opened before the usage date, the goods protection* must then be restored to such an extent that the remaining materials are adequately protected against environmental impacts and mechanical damage depending on the local conditions and the construction situation. If the duration of the storage exceeds the originally planned time, the suitability of the packaging and preservation for the lengthened storage period must be checked. If necessary, suitable measures must be taken to ensure that the stored materials cannot be damaged (e.g. by means of new corrosion protection, the installation of an anti-condensation heater, relocating the goods to a new storage area, replacement of drying agents, foils etc.). The goods protection must be restored after such measures.

*Please note: It may be assumed that the goods are adequately protected if the packaging and preservation are undamaged and the storage period is not exceeded. It must be ensured that the goods continue to be adequately protected once the packaging is opened or removed. This can be effected by, for example, covering the goods with foils (make sure this is UV-resistant), reclosing containers etc. In the case of goods that are adequately protected against rusting (e.g. galvanized) it is normally sufficient to protect these against mechanical damage. However, goods protection must also be sufficient to ensure that the goods are protected against construction site soiling (e.g. grinding dust etc.).

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7 Period before Commissioning (IBN) on the Construction Site

7.1 Installation

To be carried out in compliance with Guideline Q10.09028-2104, the part, component, system documentation, construction site work plan and Q-Plan/Test Plan.

As far as possible the goods protection should only be removed to the extent necessary for installation.

7.2 Quality Assurance (before start of installation)

The components must be inspected visually before the start of installation (Supervisor QS). This must be carried out on the basis of the Quality Report and the checklist from FAT in the case of parts listed in the Q-plan. The components without a Q-Plan are to be inspected in compliance with the order specifications. The visual inspection must be documented in a report (SAT Test Plan). Any deviations must be reported immediately via FK 0917. Measures must be agreed and implemented (with the project management).

7.3 Corrosion Protection

Care must be taken during installation that the factory corrosion protection on surfaces such as paint, galvanization, covers, protective covers (also on pipes) etc. is not damaged or rather renewed. Any damage to surface coatings must be restored (observe manufacturer specifications). Fittings and electrical components must be covered (e.g. with foils) after installation. Open connections on pipes, flanges, cables, parts and components must be closed in such a way that they are rain-proof. Before doing this any unprotected surfaces that have been exposed to moisture (also inner surfaces) must be dried and if necessary corrosion protection applied where functioning permits (e.g. spray oil) (warning: consult the competent supervisor before doing this, possible danger of explosion). Care must be taken (especially in the Tropics) to prevent the formation of condensation. This also means that even after installation anti-condensation heaters must be connected (electrical parts/engines). In all cases the instructions of the manufacturer must also be observed. The corrosion protection measures must also be carried out after partial installation and interruptions in installation.

The measures such as covers, closures, surface coatings, spray oil etc. that have to be removed again during commissioning must be documented in a report (checklist) and handed over to the commissioning supervisor. Their removal must then be entered by him in the report.

7.4 Damage

The components must be protected against mechanical damage. The measures to be implemented here depend on the progress of the construction, the traffic routes and the components themselves. The measures must be specified by the site manager together with the supervisor.

Any damage to components must be documented and the site management/project management notified (FK 0917). These will then specify the measures required for restoration.

7.5 Soiling

The components must be protected against soiling. Particular attention must be paid to grinding dust (stainless steel/black steel), weld spatter, paint splashes, rust spots, environmental dirt etc. The components must be covered properly (e.g. foils). Foils used to cover components outdoors must be tied down securely in order to safeguard them against wind. Any soiling that might nevertheless occur must be removed at the latest during construction cleaning.

Where keeping the construction site clean is concerned the instructions in the building code (Construction Site Manual Q10.09028-3080) and the HSE Guidelines (Q10.09028-3100 and Q10.09028-3102) must be observed.

7.6 Quality Assurance Measures

The quality and HSE supervisor must carry out regular inspections (at least twice a week) of the installation areas. It is his task to monitor the status of the measures for goods protection, the safety and cleanliness of the construction site and where applicable to make suggestions for improvements. The inspections must be documented in a report with photographs and each of these reports sent once a week to the Q-Department in Augsburg.

The quality or HSE supervisor passes on any necessary improvements or measures to the supervisor of the respective trade responsible for the installation. The construction site management must be notified if these are not implemented in the near-term.

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