TADANO

Supply Chain Management

# Quality Guideline

**TADANO**

**European Operations**

Public Release:



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# 1. Introduction

These guidelines serve to ensure and maintain the product quality of purchased parts from Tadano Demag GmbH and Tadano Faun GmbH.
It defines and explains all quality-related requirements, methods, and tools with regard to approval, manufacture, delivery and continuous improvement of purchased parts.

# 2. Scope

A Quality guideline is a higher-level regulation that takes precedence over all subordinate general and specific requirements.
The hierarchy of all contract documents is named below:

Contracts

1. Framework Agreement
2. Quality Assurance Agreement
3. Sales contract, Work contract

Contract documents:

4. Quality Guidelines / Inspection Guidelines
   (Superior regulation for the Quality and procurement of purchased parts)
5. Technical drawings
   (Specific requirements for the manufacture, testing, and properties of purchased parts)
6. Technical specifications/specifications
   (Specific requirements for the manufacture, testing, and properties of purchased parts)
7. Technical standards
   (General requirements for the manufacture, testing, and properties of purchased parts)

The contractual documents on which the contract is based are the binding basis for assessing the quality and compliance with the nature of the contractual items.



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# 3. Certification of Suppliers

Since TADANO sells its products worldwide, the supplier must apply all necessary national and international legal regulations and guidelines (in the current version) that are required for the development, design, manufacture, testing, and delivery of the contractual items and must be in possession of all necessary certifications. TADANO quality management expects to be informed immediately about possible changes to the certifications or if national and international laws and standards as well as guidelines cannot be complied with. This also includes all applicable laws and ordinances on environmental protection and occupational safety.
Furthermore, the supplier should maintain a modern, certified management system for quality, environment and occupational safety that is effective in all areas of the company, in accordance with the currently valid international standards and guidelines.

# 4. Qualification of Suppliers

For the approval of new suppliers, TADANO quality management carries out a qualification audit at the supplier.
The following criteria are evaluated as part of the qualification audit:

- Supplier quality management system
- Measurement and test equipment management by the supplier
- Quality control / process control of in-house production
- Quality control of external production (subcontractors / purchase)
- Quality assurance of in-house and external production
- Communication with TADANO
- Occupational safety in the manufacturing processes
- Experience of the supplier with related products
- Existing/available resources and vertical integration of the supplier
- Suppliers change management
- Complaints handling process
- Traceability in sourcing and manufacturing



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TADANO quality management evaluates the audit result objectively and independently and decides on a general classification of the supplier as follows:

- **Supplier approved (without restrictions)**
  An approval fully enables TADANO to establish a business relationship with the supplier.
- **Supplier approved (with restrictions)**
  A limited approval enables TADANO to establish a limited business relationship with the supplier. The supplier continues to implement necessary improvement measures to achieve unrestricted approval by TADANO quality management.
  Restrictions can include the following criteria:
  - Product groups
  - Production plants, production sites and companies
  - Production lines
  - Machine groups
  - Manufacturing processes
  - Subcontractors, dealers and service providers
  - Number of initial sample / series orders
- **Supplier not approved (measures required)**
  Approval is rejected and necessary development measures are defined. The supplier carries out the implementation of the measures voluntarily and independently to obtain approval.

# 5. Certification of Products

Is compliance with technical regulations and standards such as e.g. If ECE, CE, EAC or UL specifications are agreed, the supplier shall provide serial or lot number-related proof in accordance with the applicable guidelines. At the request of TADANO Quality Management, the supplier shall provide evidence that the contractual items delivered comply with all guidelines required for placing them on the market.

# 6. Qualification of Products

If a sample test has been agreed for contractual items or their components, the supplier shall carry out proof of manufacturability under series conditions regarding technological, logistical, and quality-related aspects based on the underlying contractual documents. The corresponding scope of the sample test and the test documentation is defined in **TADANO Inspection Guidelines**.
In case of doubt, the supplier is expected to agree an appropriate scope of testing and documentation with TADANO Quality Management.
After successful approval of a product (series release) by TADANO quality management, the product can be procured by TADANO from the supplier without restrictions.



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In the event of changes in the manufacturing process that affect the supplier's series conditions and product properties, TADANO quality management expects immediate, proactive, and written information.

## 7. Labelling and traceability

During the entire manufacturing process, contractual objects must be handled and marked in such a way that confusion or mixing is always excluded.
The type and design of this marking must be suitable to guarantee the production period, production batch, delivery quantity and delivery date of the contractual items in connection with a modern traceability system.

## 8. Storage, Packing, Transport

If required by TADANO, a logistics regulation must be agreed between TADANO Logistics and the supplier, which describes the packaging and commercial units and contains information required for transport and to ensure the shelf life of a product (temperature, humidity, UV radiation, corrosion protection, scope, and intervals of maintenance during storage, etc.)

## 9. Defects and Complaints

If TADANO discovers a defect in a contractual item, the supplier will be informed of the facts and a cause analysis will be requested.

To guarantee the crane function and customer satisfaction, the technical solution approach or the elimination of a defect always has priority over any clarification of a case of damage.

In general, TADANO quality management requires independent, immediate, and long-term remedial measures by the supplier. Depending on the classification of a defect, TADANO quality management will define measures to sustainably prevent defects. The required language in which solution measures are described is the responsibility of TADANO quality management (German or English) in each individual case.



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| Failure Class | Failure Category | Failure description | Counter measure |
|---|---|---|---|
| A | Safety | Serious deficiencies relevant to safety. Defects with the classification endanger life and limb. The foreseeability of the defect is not given. People are injured, the crane is no longer safe or gets out of control and endangers human life. The environment suffers great damage. | 8D-Method FMEA |
| B | Quality | Serious defects that cause economic damage. The defect is foreseeable (e.g., due to warning lights). These are critical parts (e.g., welds, brakes) or violation of laws and regulations. Legislation prohibits the use of cranes. Environmental damage can only be repaired with great effort. | 8D-Method |
| C | Quality | Defects that cause functional or performance disruptions. These are less critical components. The error can be avoided through explanations and maintenance or rectified through repair or component replacement. The crane is unavailable for (planned) repair work. The environment is damaged. | 8D-Method |
| D | Quality | Defects that do not affect the functionality or performance. The function is given despite the defective component. Due to the maintenance, the error no longer occurs. The crane has cosmetic imperfections, and there may be little or no harm to the environment. | Own measures |
| E | Request | Minor complaints, future improvements, customer requests | Acknowledge |

*Table 1: Classification of Deviations*

See Appendix A:
Quality Guideline - Appendix A (8D Report)

The 8D report provided by TADANO Quality Management is an aid. If a separate 8D form is used, all 8 disciplines and the form of the 8D report must be retained according to the template.

The expected timeline for the timely transmission of an 8D report is listed below (Table 2). This timeline plays a significant role in evaluating communication with the supplier.

| Who? | What? | When? |
|---|---|---|
| TADANO Quality Management | Identifying a defect, requesting a solution to the problem using the 8D method or error class A, B or C | Day of request |
| Supplier | Implementation of short-term measures to maintain quality<br><br>(Delivery of the report with 3D measures) | Within **3 working days** after receiving of request |
| Supplier | Implementation of long-term measures to ensure the sustainability of a solution<br><br>(Delivery of the report with 8D measures) | Within **20 working days** after receiving of request |

*Table 2: Timeline of 8D Report submission*



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# 10. Oblogation of evidence and information

## 10.1. Self-disclosure

If the supplier finds a deviation from a product that has already been delivered, TADANO Quality Management expects the supplier to report this voluntarily in order to avoid or minimize consequential damage. The supplier is therefore obliged to inform TADANO quality management proactively, immediately and in writing of any product warnings, recall campaigns and product information relating to the contractual items delivered using the email address below.
(Product-Alert@tadano.com)

## 10.2. Deviations, changes, repairs

In the event of a discovered deviation, desired change or necessary repair of a contractual item, an inquiry must be approved by TADANO quality management. Every inquiry must be sent proactively, immediately and in writing to TADANO Quality Management using the email address below.
(Quality.Approval.Request@tadano.com)

See Appendix B:
Quality Guideline - Appendix B (Quality Approval Request)

**Definition of a deviation:**
If the supplier finds a deviation in a product that has not yet been delivered, which cannot be corrected, TADANO quality management expects a proactive, immediate, and written request for approval of the deviation before delivery.

**Definition of a change:**
If the supplier determines that a technical specification cannot be proven to be manufacturable or cannot be met through procurement, TADANO quality management expects a proactive, immediate, and written request for approval of the change before the subject of the contract is manufactured.

**Definition of a repair:**
If the supplier finds a deviation in a product that has not yet been delivered, which could be corrected by a considerable repair effort, TADANO quality management expects a proactive, immediate, and written request for approval of the repair measures before the repair begins.



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# 11. Supplier audit

## 11.1. Regular audit

A regular audit takes place regularly at the supplier's site to obtain process observations and to accompany the implementation of measures. The supplier then receives an audit result from TADANO Quality Management for information.

## 11.2. Product-Audit/Process-Audit

In the event of significant quality problems or as a further measure of a regular audit, TADANO quality management carries out an explicit product/process audit at the supplier. Here, TADANO quality management expects unrestricted access to all necessary production facilities and product-related information from the supplier to obtain an all-encompassing, objective insight into the supplier's performance on site. A final evaluation by TADANO quality management is used to define any further measures related to qualitative improvements. The supplier receives the audit result from TADANO Quality Management as well as the necessary measures in writing. If corrective measures are defined from this audit, TADANO quality management generally expects an immediate implementation of these measures

# 12. Evaluation of Supplier Quality

The quality of the deliveries is checked, statistically recorded and evaluated by TADANO quality management. The result is communicated to the supplier in a quality report on a regular basis or in individual cases after an event.

The following criteria are evaluated and described in a quality report:

- CPPH („Claimed Parts Per Hundred")
  Percentage of complained quantities to delivered quantities
- QCPH („Quality Cost Per Hundred")
  Percentage of quality costs to material value of the delivered goods
- Error types / Error frequencies
  Distribution and frequency of the different types of errors

----------###### End of Document ###----------



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