

TK Elevator Global Supplier Manual

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1. PREAMBLE

TK Elevator (TKE, meaning TK Elevator GmbH and all its affiliates) is one of the world's leading elevator companies. With sites all over the world, TK Elevator has global presence. TK Elevator's aim is to continue to grow strategically and profitably. Innovation and quality are hallmarks of TK Elevator's products and services and assure lasting customer relationships. Profitability, innovation, quality and reputation are very much determined by components and services TK Elevator is sourcing externally. A balanced, competitive and capable supply base is key element for success. For more information about TK Elevator, for general information please go to www.tkelevator.com.

1.1. General purpose of the document

With this “**Global Supplier Manual**” TK Elevator is clearly communicating expectations and requirements towards its supply base. It can be understood as a guideline on how to do business with TK Elevator and will be the basis for a professional business relationship, which is crucial to be competitive and successful in a global market environment. Since this is a meaningful addition, the Global Supplier Manual shall be a substantial part of every supply agreement. In case of conflicts with existing contracts, those remain valid as agreed.

1.2. Validity and applicability

This document is valid and applicable to all companies belonging to the TK Elevator group, hereinafter “TK Elevator”. This document is valid for all products and services delivered by the supplier based on orders received and accepted from TKE over the period of this agreement.

2. GENERAL REQUIREMENTS

2.1. Customer orientation

At TK Elevator we believe in working together with our suppliers in a partnership based relationship. To be successful in a global market environment TK Elevator expects from its supply base to strive for understanding and continuously meeting the expectations. A strong customer orientation, professional behavior in all phases of a business relationship, excellent expertise and a pro-active involvement in the relevant business areas is important to ensure mutual success.

2.2. General Terms & Conditions

For all deliveries from suppliers and services conducted from service providers the “General Terms and Conditions” of the specific ordering TK Elevator group company apply and shall precede this “Global Supplier Manual”.

2.3. Financial stability

Financial stability is a key for successful business in today’s business environment. TK Elevator’s suppliers:

- with a sales volume to TK Elevator > 100.000 €/a or
- suppliers manufacturing parts out of subsidized tooling

are expected to provide proof of their financial stability (e.g. by D & B certification) uncalled and on a regular basis (at least once per year).

2.4. Compliance

At TK Elevator, we expect our suppliers to have zero-tolerance for corruption and to ensure compliance with all United Nations (UN) and Organization for Economic Cooperation and Development (OECD) conventions against corruption, and with all governing anti-corruption laws. In particular, our suppliers are expected to ensure that their employees, subcontractors and agents do not offer, promise or grant any advantages to any TKE employees or related parties with the goal of securing an order award or any other form of preferential treatment in their business transactions.

At TK Elevator, we expect that our suppliers refrain from presenting any invitations or gifts to our employees to gain any form of influence. Any invitations or gifts extended to TKE employees or related parties, if any, must be reasonable and suitable with a view to scope and design, i.e. they must be of low financial value and reflect ordinary local business custom. We also expect our suppliers to refrain from asking TKE employees or related parties for any inappropriate advantages. In our suppliers’ business dealings with us, we expect our suppliers to take decisions based on objective criteria only. Any factors that might influence our suppliers’ decisions due to

private, business or other conflicts of interest must be prevented from the start. The same applies to relatives and other related parties.

At TK Elevator, we expect our suppliers to always compete in a fair manner and to comply with applicable antitrust laws and regulations. Our suppliers are expected not to enter with competitors into agreements that might constitute a breach of antitrust law, nor to take advantage of any dominant market position they might hold.

At TK Elevator, we expect our suppliers to comply with all applicable statute governing the prevention of money laundering, and not to participate in any money laundering activities.

At TK Elevator, we expect our suppliers to communicate the principles laid out herein to their subcontractors and sub-suppliers and to consider these principles when selecting subcontractors and sub-suppliers. Our suppliers are expected to encourage their subcontractors and sub-suppliers to comply with the minimum standards of this Code of Conduct regarding the protection of human rights, working conditions, anti-corruption and environmental protection when fulfilling their contractual obligations.

2.5. Confidentiality

Confidential information shall mean all technical (including specifications, computer code, inventions, algorithms, know-how and ideas), business, financial, marketing, strategic information and any other information (whether written, oral, graphic, machine recognizable, sample or visual), which is marked „confidential“, is stated to be confidential, or by its nature is intended to be confidential and that is disclosed by TK Elevator to the supplier. As the unauthorized use or disclosure of any confidential information to any third party may result in irreparable and continuing damage to TK Elevator, suppliers shall maintain such Confidential Information in confidence and not disclose it in any way whatsoever, in whole or in part without prior written approval by TK Elevator. The supplier may be requested to sign an NDA (non-disclosure agreement).

2.6. Required quality management system certification level

ISO 9001:2015 requirements are integral part of this Global Supplier Manual. TK Elevator expects its suppliers to have an Quality Management System in place which follows these requirements. This should be confirmed by an accredited certified body. The supplier should furnish the ordering TK Elevator Company with evidence of its most up-to-date certification status at any given time in writing in form of a copy of the certificate. Any changes to the certification status are to be notified to the relevant Purchasing Manager at TK Elevator within 5 working days. Achieving a certain quality management system level is to ensure that the common zero-defect objective is targeted. The supplier is expected to conduct internal audits to verify compliance of processes as laid out in the overall quality management system.

2.7. Contingency plan

The supplier should develop and provide an appropriate emergency strategy based on a risk assessment to guarantee that the products delivered on time and in the agreed quality, even in the event of unforeseen events. Should the delivery to TK Elevator be in jeopardy, the supplier shall inform TK Elevator immediately and propose countermeasures to meet original targets. The additional costs of special measures to maintain production or services and to guarantee the delivery of the correct number of products to the customer and on schedule are to be borne by the supplier. TK Elevator is recommending its suppliers to reserve sufficient stock levels of components, ensure availability of back up production capacities or resources to provide replacement supplies or services in a timely manner based on their risk analysis, emergency plan and general situation.

2.8. Data protection

The supplier shall implement a cyber-security concept as part of its contingency plan. The concept has to ensure that core production systems are secured against cyber-attacks and sabotage. Furthermore, it prevents loss of operation critical data and programming knowledge and provides a backup for those.

2.9. Conformance with laws and standards

Suppliers shall comply with applicable laws and legal, state, country and branch of industry related regulations in the country of supply and at the place of supply (extract refer to appendix 10.1). International standards, including, but not limited to, the EU Directive 2014/33/EU and similar standards in the US, Asia and other regions, shall be adhered to by Supplier.

2.10. Quality objectives, Quality targets

The supplier should work towards a “zero-defect strategy”. To measure and make quality performance transparent, the supplier should specify internal and external quality objectives (defect rates, scrap rates, rework rates, internal and external quality costs, control plan etc.).

Measures in the event of the objectives not being attained should also be specified. The quality objectives/escalation levels should be adjusted annually in order to guarantee the continuous improvement process. Individual TK Elevator Companies may enter into a separate Quality Assurance Agreement with a supplier to specify requirements on component (group) level as needed. TK Elevator reserves the right to agree on supplier specific quality targets on a yearly basis.

2.11. Incoming goods inspection at TK Elevator

The supplier guarantees that all product deliveries meet the requirements laid down in drawings and specifications according to the applicable contract or as otherwise agreed upon. This is to be

ensured by controllable, capable and repeatable processes as well as suitable test methods installed at the supplier's premises. Additionally, TK Elevator will perform incoming goods inspection. As a general rule those inspections consist of a rough visual check of identity, visible external damages, quantity as well as completeness and supply of supporting documents, such as drawings, specifications or test reports. During ramp up of new products, TK Elevator may include specific characteristics through skip lot checks for a preliminary period of time.

2.12. Change management

The suppliers are required within their projects, products and processes to apply an accurate change management. Changes affecting TK Elevator as a customer are to be communicated in written form and need to be approved by TK Elevator. The contracting TK group company will provide an according approval template upon request. Cost-by cause principle applies unless otherwise agreed upon up front. Changes to 3rd party or notified body approved products and components are not allowed without re-approval by 3rd party / notified body. Changes in the manufacturing processes of the suppliers and sub-suppliers which can lead to changes in the product characteristics (general affecting form, fit or function [e.g. geometry, mechanical properties, tensile strength, durability, machining]) require TK Elevator's approval prior to their implementation. Changes need to be processed in compliance with the requirements of a "state of the art" quality management system (product history record).

2.13. EQ assessment

Prior entering into a business relationship with a supplier TK Elevator may conduct (based on purchasing volume or risk) an EQ assessment, which is a unique global supplier evaluation and qualification method of the supplier's quality management system. Depending on the scoring achieved within this cross-functional assessment by TK Elevator, the supplier may be awarded with a certificate. The validity of the certificate depends on the result of the assessment and will be renewed based on ongoing performance or a re-assessment. Should the suppliers performance level not meet TK Elevator's expectation, the supplier is requested to initiate improvement measures in order to reach an acceptable level within a set period. A satisfying level of risk containment may be requested by TK Elevator for the time until this acceptable level may be reached. Evidence of improvements are to be submitted to TK Elevator in all phases.

2.14. Supplier audits

TK Elevator reserves the right to verify the effectiveness of the supplier's quality management system through on site audits. The audits will be conducted with prior notice and with focus on those areas which are relevant for TK Elevator's scope of products / scope of service. Audits may be scheduled on a routine basis or driven by quality issues as part of an escalation process. In some cases, audits at sub-suppliers may be required as well; nevertheless, the supplier is generally responsible for auditing sub-suppliers. Different types of audits may be conducted such as system audits (based on ISO 9001:2015 or comparable), product or process audits (VDA 6.3 or similar) or capacity studies such as run@rate. In the area of service providers to TK Elevator, the audit activities may include health and safety assessment at the job site.

2.15. Supplier performance rating

Within an existing business relationship, the suppliers' performance will be monitored continuously (e.g. monthly, semi-annually or annually) by the ordering companies. The criteria of the supplier ratings are primarily quality, delivery performance, competitiveness and service level. TK Elevator will inform its suppliers about the results. Should the suppliers performance level not meet TK Elevator's expectation, the supplier is requested to initiate improvement measures in order to improve within an appropriate period. A satisfying level of risk containment may be requested by TK Elevator for the time that is needed to bring the performance back into an acceptable range. Evidence of improvements are to be submitted to TK Elevator in all phases. Should a supplier be unable to manage and drive an improvement process on its own, TK Elevator may offer some guidance or mentorship in such process. The supplier performance will certainly have an impact on existing business and on future sourcing decisions. Ongoing performance issues may lead to a "New Business Hold" status or initiate resourcing activities.

2.16. Sub-supplier management

TK Elevator's suppliers shall pass on all relevant requirements as stated in this document or as communicated through specifications, drawings etc. within the supply chain and ensure compliance through audits, tracking of quality figures, supplier ratings etc. TK Elevator may request audits within the supply chain and reserves the right to join with prior notice.

2.17. Lessons learned

The goal of "Lessons learned" by/with suppliers or service providers is to ensure that past experiences are implemented in new projects and products. Expertise from development, production, customer complaints and research projects can be utilized. Tools of use include knowledge databases, FMEA databases, design guidelines and standards. TK Elevator expects that applicable systems be applied for the improvement of subsequent projects.

2.18. Continuous improvements

To stay competitive in a global market environment it is necessary to constantly improve the products, production processes and business processes in general. The main goal is to create a structure and mindset striving to make noticeable improvements through suitable methods (e.g. Kaizen) and measurable operating figures for all relevant aspects of the business along the supply chain. Sustainability, efficiency, quality improvements and cost effectiveness are the most important aspects of continuous improvement and should be openly communicated as part of the business relationship. Individual TK Elevator Companies may agree on specific goals with the supplier to drive a sustainable cost improvement process.

2.19. 5-S, Cleanliness

Cleanliness and well-organized work environment including ergonomic aspects is key to ensure work safety and quality of products and services. The TK Elevator definition of “5-S” is as listed below:

- Sort
- Straighten
- Shine
- Standardize
- Sustain

The supplier shall follow the basic 5-S principles and perform 5-S workshops on a regular basis.

2.20. Traceability, First in first out (FIFO)

Records are to be kept for the constant traceability for all products from the raw materials or input stock up to dispatch of the finished parts and components. Provision is also to be made for appropriate measures to ensure traceability at the supplier plants. All material must be managed following the First-In-First-Out rule to ensure proper management of changes and traceability. There may be specific requirements concerning the level of traceability set forth by individual sites.

2.21. Health & Safety

At TK Elevator, we expect our suppliers to fully comply with applicable national statute governing health and safety at work. Furthermore, our suppliers are expected to establish and maintain an appropriate occupational health and safety management system (e.g., in accordance with OHSAS 18001, or national equivalent). This includes containing actual as well as potential health and safety risks at work. Moreover, our suppliers are expected to train their employees for the purpose of preventing accidents and occupational diseases as best as possible

2.22. Environment

At TK Elevator, we expect our suppliers to comply with all applicable national laws, regulations and standards to protect the environment. Our suppliers are expected to establish and maintain a suitable environmental management system (e.g., in accordance with ISO 14001, or national equivalent) to minimize environmental impact and hazards, and to improve environmental protection in their everyday operations.

For such suppliers that deliver products to the European Union this explicitly includes compliance and according documentation of the REACH and RoHS regulations.

Our suppliers are expected to reduce their energy consumption and raise awareness of their energy usage in order to protect the climate (e.g. in accordance with ISO 50001).

2.23. Official business language

Official business language at TK Elevator is English and should be used in all global matters or business affairs involving multiple entities. However, for local/regional business activities and in day-to-day operations national language of the specific ordering TK Elevator group company is acceptable. The same concept applies to drawings, specifications and all other relevant documents.

2.24. Documentation, document control

Within the overall quality management system the supplier should ensure appropriate documentation and document control (revisions, change management, archiving [in doubt at least 15 years], back up etc.). Compliance in this area may be subject to an audit.

3. PROJECT MANAGEMENT

3.1. Project planning and methods

For all major projects with TK Elevator the supplier shall compile project plans that serve to secure project results in line with the specifications set forth, such as setting of deadlines, scope, contents, format and responsibilities. The key milestones important to the supplier and TK Elevator as a customer shall be agreed upon in due time with the responsible project management. Appropriate and state of the art project management methods need to be deployed and aligned with the relevant TK Elevator group company.

3.2. Project reviews

During internal project reviews, the supplier is requested to compare the status of the project with the desired goals and record the results. TK Elevator as a customer is to be advised, in the manner agreed, of the progress of the project and any eventual problems or risk that may occur. Trouble-free implementation within the agreed deadlines is a priority requirement of TK Elevator. Joint project reviews will be conducted together with TK Elevator at milestones to be determined. In case of deviations, appropriate measures with clearly defined responsibilities are to be initiated, communicated and documented.

3.3. Critical path evaluation, risk assessment

In order to limit the risk of failure in projects, the critical path within a project needs to be identified, an appropriate risk assessment should be conducted, and risk containment measure initiated. Should the project scope or external circumstances change, a re-evaluation is required and to be addressed in a timely manner.

3.4 Advanced Product quality planning

Besides choosing a general suitable approach to manage overall project activities, specific product quality planning efforts should be included. All relevant elements within a product life cycle such as design, prototyping, testing, industrialization, measurements, production launch and finally lessons learned should be included. Advanced product quality planning [APQP] or a similar process should be used.

3.4. Feasibility statement

The supplier shall examine the feasibility of the goods/services he is going to offer through a feasibility study. Besides the technical feasibility (manufacture of the parts under series conditions in line with the specifications and the required process capability), this also encompasses such aspects as logistics, quality, deadlines, cost, readily available capacities, compliance with environmental regulations etc. Feasibility is to be proven by the Supplier to TK Elevator upon request.

4. PRODUCT DEVELOPMENT

For suppliers with design responsibility only

4.1. Design and layout

The following agreements shall be made and documented by the supplier's project manager/ engineer and the respective TK Elevator project manager:

- Definition of development targets and product or process quality objectives
- Definition and alignment of technical interfaces
- Design rights and rights of utilization (intellectual properties)
- Document responsibility; document management (e.g. D-FMEA, DoE, drawings, specification or performance specification)
- Change management, part/ tool history documentation
- State of the art product validation/ process verification as part of the industrialization process

4.2. Methods and techniques

Suppliers with design responsibility shall use state of the art design methods and tools. A compatibility check with TK Elevator's research and development infrastructure has to be performed in advance.

4.3. Calculation and simulation

Based on given specifications and requirements called out in validation plans, the supplier shall prove by calculation that the product meets the requested characteristics as e.g. tensile strength, reliability, safety, feasibility and functionality. This can be established by dynamic/kinematical simulation on CAD, life-cycle analysis, distortion calculation (FEM), moldflow analysis or similar.

4.4. Design FMEA

Suppliers with development tasks assure a systematic and comprehensible analysis of the risks associated with the product utilization and possible malfunctions throughout the product's period of use. For this purpose, Design FMEA (Design- Failure Mode and Effect Analysis) are to be carried out in order to ensure that potential problems are detected at an early stage, thus enabling appropriate preventive steps to be taken (design iterative). TK Elevator set forth clear internal guidelines concerning FMEA requirements, therefore if relevant, an "Interface-FMEA" will be carried out jointly with TK Elevator.

4.5. Specific characteristics

By conducting a Design FMEA critical characteristics (TKE: “critical to safety” or “critical to quality”) are being identified. These specific characteristics are crucial for function, safety, subsequent processing, assembly, etc. and require special attention. They will be marked in drawings as such and represent the basis for process capability examinations, work and test planning, process regulation, QM-verification etc. Special characteristics are to be monitored and documented in an understandable manner using appropriate methods (e.g. SPC for mass production, 100 % check for small series production).

4.6. Technical documentation

The technical documentation is to be agreed upon between TK Elevator and the supplier prior to the placement of the order/ start of a project concerning content, format, process, methodology, distribution and submission of information and data etc.

4.7. Design reviews

The supplier must conduct design reviews at defined points in time (milestones, quality gates). The development results presented will be systematically analyzed during the design reviews to establish the extent to which the specifications / development targets defined have been met. The procedure for design reviews will be coordinated between the Supplier and TK Elevator project management. For key development projects, those need to be aligned with milestones of TK Elevator’s internal Standard Product Development Process (SPDP). Reviews are to be documented accordingly.

4.8. Design verification and validation

Unless otherwise agreed upon, design verification and validation are to be carried out by the Supplier. In doing so, the Supplier must prove that the product developed meets the specifications set forth. The manner in which design verification and validation is carried out and documented is to be coordinated with TK Elevator and to be captured in a so-called PV-plan (product validation plan). Additionally, TK Elevator requires the proof that the product adheres to the specific laws and norms of its destination country. In the event that homologation is to be carried out, the appropriate competencies are to be coordinated and fixed at the time orders are placed.

5. SAMPLING AND PROTOTYPING

5.1. Production of prototypes and samples

The same technologies, processes and sub-suppliers, including their processes, used for series production, should also be employed, to the extent possible, for the production of prototypes (if requested), samples and pre-series. If the supplier has to use different technologies, processes and sub-suppliers this has to be communicated with and approved by TK Elevator accordingly. In some cases special techniques as e.g. rapid prototyping may be requested.

5.2. Prototype documentation, testing of trial samples

The prototype parts, assemblies and aggregates that need to be tested, must be documented properly over the whole value chain (manufacturing, assembly etc.). All reworking, repairs and similar carried out on prototype parts are also to be documented. The scope of documentation is to be agreed upon between the supplier and TK Elevator project management. The supplier may only deliver prototypes if they comply with the specifications. If necessary, test features will be agreed with TK Elevator.

6. PPAP (PRODUCT AND PROCESS QUALIFICATION)

6.1. Qualification programs

The testing programs, procedures and methods, basis of measuring, reference points, documentation, evaluation etc. are to be coordinated in a timely manner between the Supplier and TK Elevator and to be documented accordingly. The development of a qualification plan, including sub-supplier part qualification, component and product qualification must be developed by the Supplier as part of the project management and be available at the agreed milestone reviews with TK Elevator. Industry relevant regulations and codes need to be considered (see appendix 10.1). The Supplier is required to follow the qualification plan and must report any deviations that could bear a risk to the project execution immediately.

6.2. Production Part Approval Process (PPAP)

PPAP has to be conducted for all new and changed components. PPAP samples are products produced and tested under serial conditions (machinery, plant, operation and test equipment, processing conditions). The Supplier shall conduct the PPAP per specific requirements of specific ordering TK Elevator Group Company (a generic PPAP guideline can be provided upon supplier's request). The number of parts to be documented is to be agreed upon. In case a supplier does not deliver manufactured parts (e.g. non-part related services, distribution) the TK Elevator Group Company will decide on the applicability of PPAP on a case by case basis.

Only "OK parts", (O.K. meaning parts evidently meeting TK Elevator's requirements to full extend) from serial production may be sent as samples for PPAP to TK Elevator. PPAP shipments missing the relevant documentation will not be processed. Parts have to be marked clearly on the packaging as "PPAP samples".

The approval (or denial) will be submitted in written form by TK Elevator in a timely manner. PPAP sample parts that are delivered to TK Elevator for approval have to be marked with individual numbers with supplier's inspection results referring to those numbers. The packaging of those samples has to be properly marked on the outside to clearly identify PPAP shipments from any other shipments.

6.3. Re-qualification

For key components or for safety relevant products, the Supplier is obliged to carry out re-qualification testing (complete or agreed measurement of all the required features) of the products to be supplied, including documentation of the results. Scope and frequency should be agreed upon with the relevant TK Elevator group company. A yearly re-qualification is required if no other agreements are defined. The re-qualification may include measurements and functional features such as service life, engineering strength, wear and corrosion resistance. The result documentation must be available on request. Found deviations must be reported to TK Elevator immediately to decide on corrective actions and material in process or at the customer. Costs associated with the re-qualification are carried by the Supplier.

6.4. Manufacturing concept

Based on the requirements received from TK Elevator and utilizing its specific process know how the Supplier should plan and establish a feasible, efficient and ecological manufacturing concept. This concept should be flexible enough to adjust to product changes in a reasonable range.

6.5. Launch management

With an overall focus to achieving trouble-free serial start-up production, TK Elevator expects its suppliers to manage the introduction of (a) new product(s) or the ramp up of a new production.

Besides the relevant part/ component and process approval processes the Supplier is required to:

- thoroughly plan any new product launch or startup of a new production
- investigate capacity and capability (e.g. first pass yield, run@rate)
- plan a feasible logistic concept (internally and externally)

The launch management should be guided and supported by an appropriate risk assessment.

6.6. Launch containment

TK Elevator asks its suppliers to respond to risks detected within the launch management process in an appropriate manner. Variant to containment measures (as described in chapter 8.4) in case of a quality claim, the so-called "Launch Containment" has a preventative characteristic versus a reactive intention. Within the Launch Containment, certain areas will require special attention, which means this could be more increased level of documentation, more frequent and in depth quality checks during ramp up, temporarily tightened tolerance ranges etc. The explicit measures should be captured and documented in a launch containment overview that is shared with TK Elevator on demand. TK Elevator reserves the right to install containment measures on supplier's cost if the supplier's measures are not effective. After successful deliveries, the conditions of the "Launch Containment" will be removed step by step. In case of unsuccessfully / non conformance deliveries the conditions will remain

7. PRODUCTION

7.1. Production process release (“first part release”)

With ramp up of every new production (e.g. start of shift, tool changeover, equipment maintenance), the production process (set up) needs to be released. All inspections done within the release have to be listed in the control plan.

7.2. In process control

Features may have been detected from the Process FMEA that can be classified as key to quality characteristics, in this documents named as specific characteristics. Considering the results of process capability studies, in process control steps need to be laid out and established accordingly.

7.3. Measurement systems / devices

Measurement systems and measurement devices need to be designed and configured designed characteristics of the measurement system itself in order to satisfy TK Elevator quality requirements. A Measurement System Analysis (MSA) should be conducted to ensure that the right measurement and approach is selected, measurement procedures are laid out correctly and the measurement uncertainty of individual devices or systems is calculated. MSA includes as well calibration studies, components of variance, attribute gage study, gage R&R and others. To avoid redundant work, MSA per part family is certainly a valid option. The Supplier has to ensure that all measuring devices follow the results of the MSA and are calibrated and maintained in a manner to ensure accuracy of results.

7.4. Preventive Maintenance of production equipment

Maintenance of production equipment is crucial to ensure at all times a 100% availability of the production equipment at the required production rate and with the required level of quality. Preventive maintenance should be conducted by qualified personnel only with appropriate planning to ensure compliance with health & safety relevant aspects. The maintenance should be documented accordingly. Perishable components of specific equipment and crucial items (to be determined with the equipment vendor) should be held readily available to have short lead times to ensure short-term recovery of production readiness.

8. CLAIM MANAGEMENT AND ESCALATION

8.1. Non-conforming goods or components

TK Elevator will inform its supplier about deviations and claims. Non-conformities can be identified at incoming inspection, production or in the field. The processing will be carried out by means of inspection report, preliminary information can be given per mail, e-mail, fax or phone. The quality claim will only be closed when the root cause of the claim has doubtlessly been identified and resolved.

8.2. Handling of non-conforming goods or components / rework

Non-conforming/rejected material should be contained in separate, designated and locked areas and labeled accordingly. Affected quantities need to be declared as such in the respective materials management system. Should the Supplier plan to re-introduce reworked goods or components, state of the art quality management processes should support this, to avoid any subsequent issues.

8.3. Problem solving methods and tools

In case of non-conformities, the supplier is required to utilize appropriate and state of the art problem solving methods, such as 8-D report, Fish-Bone diagram, 5-Why etc. If needed, the supplier should seek for external support e.g. laboratories, institutes. Minimum expected response time:

- containment: 1 working day
- root cause: 10 working days
- final report: 20 working days (effectiveness check may be done later – target date needs to be stated)

8.4. Containment measures

Initiations of containment measures are the first steps in a root-cause analysis process. Containment actions specifically control the damage; they do not necessarily have a corrective effect. In a figurative sense, this means:

- 1) control/seal the issue
- 2) assess the damage
- 3) track and trace how much may have spread
- 4) notify all relevant parties (e.g. customer)
- 5) further actions if necessary (e.g. in case of safety risks)

All these steps are to be documented accordingly.

8.5. Escalation routine

Should a quality claim not be resolved adequately in a timely manner or in case of repeating issues TK Elevator will apply an escalation routine in order to avoid further damages. TK Elevator reserves the right to install containment measures on supplier's cost if the supplier's measures are not effective. Depending on the effectiveness of agreed measures (e.g. improvement of delivery or service performance), the reaction time of the supplier, quality of information and supply level at TK Elevator, the individual escalation steps apply. TK Elevator will inform the supplier in written form about an escalation measure becoming effective.

9. SEVERABILITY

Any part or provision of this Global Supplier Manual that is held for any reason to be illegal, invalid, unenforceable or in conflict with the applicable laws or regulation of any jurisdiction shall be ineffective only to the extent of such illegality, invalidity, enforceability or conflict. The Parties agree to replace the invalid, ineffective or unenforceable provision by a valid, effective and enforceable provision that economically best meets the intention of the Parties. The same shall apply in the case of an omission.

10. APPENDIX

10.1. Cited and applicable standards

The list of cited and applicable standards is for reference only and does not represent a complete overview. It is the suppliers' responsibility to apply the most relevant releases:

<u>Reference</u>	<u>Subject</u>
ASME A17.1	Safety Code for Elevators and Escalators
DIN EN ISO 27001/02	Environmental management standards Information Security
DIN EN 12015	Electromagnetic compatibility
EN 81-1, EN 81-2	Passenger lifts
EN 81-20	Safety rules for the construction and installation of lifts
EN 81-21	Lifts in existing buildings
EN 81-22	Inclined lifts
EN 81-3	Service lifts
EN 81-31	Goods only lifts
EN 81-40	Stair lifts
EN 81-50	Safety rules for the construction and installation of lifts
EN 81-70	Lifts for disabled passengers
EN 115	Escalator
GRI	Global Reporting Initiative
ISO 9001:2015	Quality management systems — Requirements
ISO 14001	Environmental management standards
ISO 22559-1	Safety requirements for lifts (elevators) - Part 1
OSHA	Occupational Safety and Health Administration
REACH (EC) 1907/2006	Registration, Evaluation, Authorization and Restriction of Chemicals
RoHS (EC) 2011/65/EU	Restriction of Hazardous Substances Directive

10.2. Glossary / Abbreviations

8D process	A systematic course of action for solving problems and for introducing suitable corrective measures that ensure that errors do not re-occur
5-S Method	"5S is a method for organizing a workplace and housekeeping methodology. The 5 S represent Sorting, Straighten, Sweeping or Shining, Standardizing, Sustaining"
6-Sigma	Six Sigma is a methodology to improve quality of process outputs by identifying and removing the causes of defects (errors) and variation in manufacturing and business processes. It uses a set of quality management methods, including statistical methods. 6-Sigma itself mathematically describes 99.9997% efficiency or in other words 3ppm
APQP	Advanced Product Quality Planning is to produce a product quality plan that will support development of a product or service that will satisfy the customer.
ASN	Advanced Shipment Notice
CAD	Computer Aided Design (CAD)
CAE	Computer Aided Engineering (CAE)
CAQ	Computer-aided quality assurance (CAQ)
Cmk	Short-term process control (machine control)
CoC	Code of conduct
Cpk	Continuous process control
FEM	Finite element method (FEM) is a numerical method to solve complex calculations in engineering. FEM is most frequently used to prove technical feasibility of new design up front
First pass yield	First pass yield describes the ratio of parts entering a production process and parts leaving the process as good parts
FMEA	Failure Mode and Effect Analysis, Analysis of potential failure effects and their consequences
MSA	Measuring system analysis
PPAP	Production Part Approval Process (initial sampling process)
PPM	Parts per million 5,000 ppm = 0.5%, in the context of production ppm is an measurement for failure rates
Run@rate	Run@rate is a trial run of a production process under serial production conditions to determine if a newly established process has the right capacity and capability
SPDP	TKE's Standard Product Development Process – contact your ordering TK Elevator company for detailed information

10.3. Links

<http://www.tkelevator.com>

www.unglobalcompact.org

10.4. Keyword search

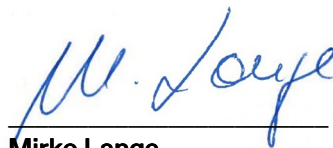
This document has been provided as a pdf document. This allows for easy navigation and keyword searches utilizing the search function.

10.5. Editorial

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