TBEA 特变电工

装备中国　装备世界

全过程质量管控介绍

The presentation of total quality control

特变电工沈阳变压器集团有限公司
TBEA SHENYANG TRANSFORMER GROUP CO.,LTD.

一、质量管理体系Quality management system

质量管理体系的建立

The establishment of the quality management system

- 公司根据ISO9001标准要求建立了质量管理体系文件，依据HAF003《核电厂质量保证安全规定》建立了核电质保体系文件，明确了从产品设计开发、原材料检验、生产制造、交付到售前及售后服务、质量责任等一系列要求。

- Company according to ISO9001 standards established the quality management system documents, on the basis of 《Nuclear power plants quality assurance safety rules》established nuclear power quality system documents , made clear a series of requirements from the product design and development, raw material inspection, production, delivery， to the pre-sale and after-sales service, quality responsibility.

一、质量管理体系Quality management system

- 必备的产品实现过程资源：按照人、机、料、法、环五要素配备生产所需资源。人力资源匹配，生产一线员工获得职业资格证书，具备上岗资格条件；生产过程包括的设备、工装工具、计量器具等以满足稳定生产符合强制性认证标准的产品要求；严控各类物料的传递、交接验收流程，确保零部组件自身质量；提供良好的生产作业场地，保证作业环境符合产品制造标准要求。

- The necessary resources of product realization process ： Equipped with resources needed for production according to the five elements including people, machine, material, method and environment. Human resource matching refers to the production line employees to obtain professional qualification certificate, have mount guard qualifications; Production process using the equipment, tooling, measuring instruments conform to the compulsory certification standards of product requirements to meet the stable production; Strictly control the process of the transmission of all kinds of materials and acceptance, ensure the quality of the parts and component; Provide good production area, ensure the working environment conform to the requirements of the product manufacturing standards.

一、质量管理体系Quality management system

- 建立、完善文件制度化的保障体系，为确保产品实现过程得到有效管控，产品在制造阶段遵循5W1H原则。从产品开工前的质量策划、交底文件、工艺方案、人员组织机构、操作检查记录到产品完工后的组织鉴定、问题处理、转序，各环节均依据文件制度，各项规章制度贯穿整个生产过程，具备一套完整的文件制度保障体系。

- Establish and perfect the file institutional guarantee system, in order to ensure the product realization process to effectively control, follow the principle of 5W1H products in the manufacturing stage. From the quality planning before starting, clarification documents, processing plan, organization, operation and inspection records， to the identification after the completion, problem handling and transfer, each link all according to the file system, each rules and regulations throughout the whole production process, with a complete set of file system security system.

一、质量管理体系Quality management system

Quality assurance measures

- The confidence of the quality assurance comes from recognition and confirm the customer and regulatory requirements, product design and development, high quality sourcing, fine production, strict inspection and testing, delivery and after-sales service of thoughtful process control;
- Quality consciousness raises throughout all the staff;
- Implementing international, national and industry standards;
- Objective internal quality system evaluation;
- Adopting international advanced production and testing equipment, high precision measuring equipment;
- Independent, periodic external quality system evaluation.

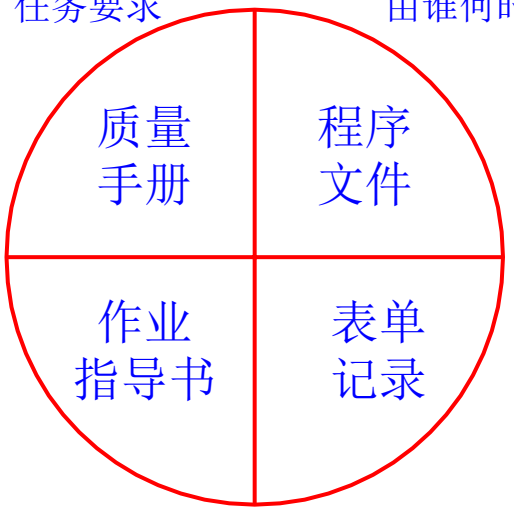
质量保证的措施

- 质量保证信心来源于识别和确认顾客及法律法规要求、产品设计开发、优质采购、精细生产、严格检验和试验、周到细致的交付和售后服务过程的控制；
- 质量意识的提升贯穿于全体员工；
- 国际、国家及行业标准的贯彻；
- 客观的内部质量体系审核；
- 采用国际先进生产、试验设备、高精度的测量设备；
- 独立的、周期性的质量体系外部评估。

一、质量管理体系Quality management system

质量管理体系文件控制层次

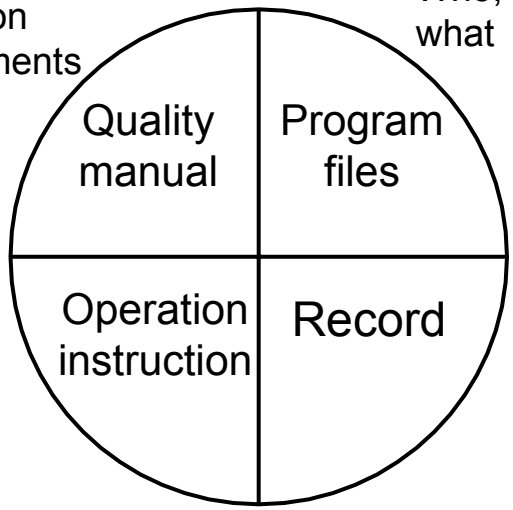
职责、任务要求　　由谁何时去做什么



如何去做　　用什么去证明

Quality management system document control level

Responsibilities、Mission requirements　　Who, when and what to do



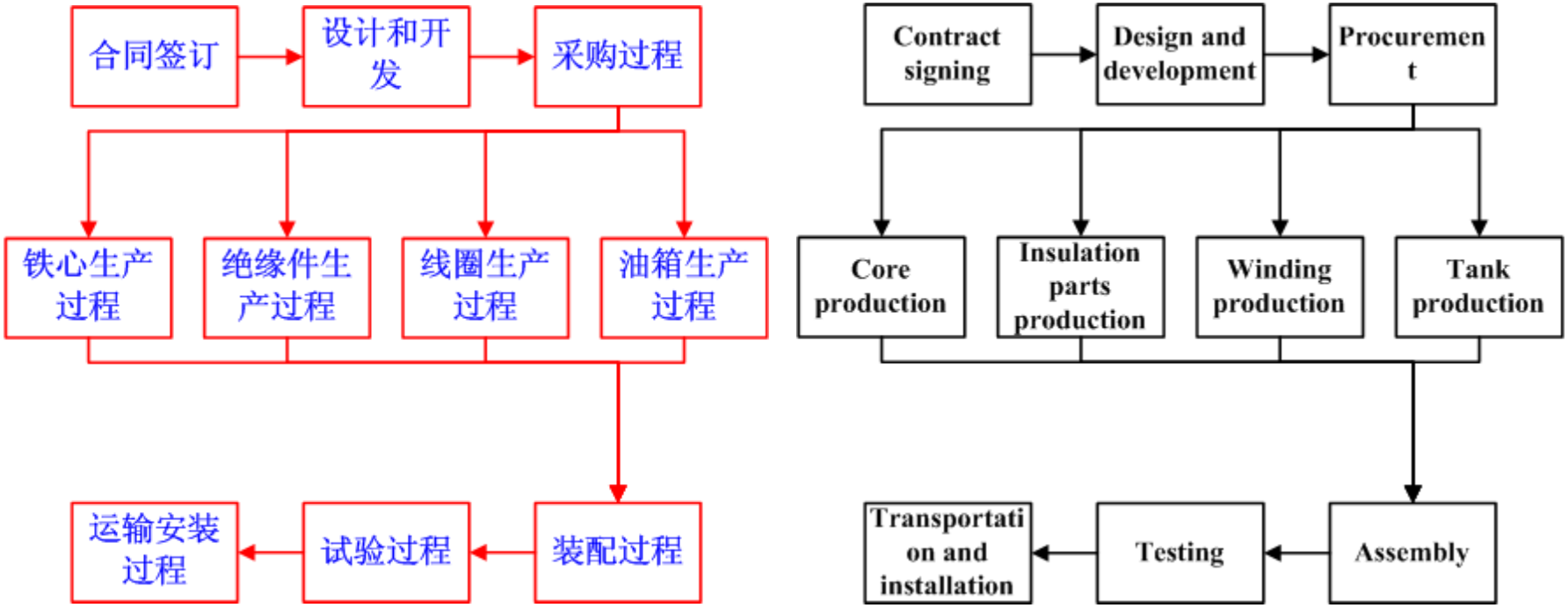
How to do　　What to prove

TBEA 特变电工

二、产品实现过程Product realization process

产品实现过程流程图

Product realization process flow chart



二、产品实现过程--合同签订过程
Contract signing

质量控制要求
Quality control requirements

● 投标文件满足招标文件和投标评审的要求；
The bid documents to meet the requirements of the tender documents and bid evaluation;
● 合同条款与投标文件的偏差得到澄清；
Clarify the deviation of the terms of the contract and bid documents;
● 合同条款、技术协议满足用户要求并能完全履行。
The terms of the contract, the technical agreement can meet user requirements and be able to completely fulfill.

质量保证措施
Quality assurance measures

● 投标文件递交前对所有条款进行评审；
Review all terms before bidding documents submitted;
● 合同签订前对所有合同条款进行评审。
Review all the terms of the contract before the contract signing.

招标文件
Bid documents
投标评审
Bid evaluation
投标
Bidding
中标后
合同评审
After winning the contract review
签订合同
Sign the contract

质量控制要点
Quality control points

● 检查投标的技术参数、原材料及组部件采购周期、工艺条件、试验要求、产品交货期、付款方式、投标保证金和履约保证金回收、质保期、违约金等条款是否符合公司和用户要求；
Check whether the clauses of the technical data of the bidding, raw material and parts purchasing cycle, process conditions, testing requirements, product delivery time, payment terms, bid bond and performance bond, quality assurance period, the penalty due to breach of contract are accordance with the requirements of the companies and users ;
● 检查合同条款与投标条款的偏差。
Check the deviation of the terms of the contract and tender clause.

质量检验记录
Quality inspection records

● 投标评审表； ● 合同评审表（销售类）。
Bid evaluation table ;
The contract review form (sales)

TBEA 特变电工

二、产品实现过程--设计和开发过程
Design and development

质量控制要求
Quality control requirements

●设计图样、技术条件符合订货合同（合同转交单）、技术协议、与产品有关的技术标准及相关的法律和法规的要求。
Design drawings, technical conditions comply with the order contract (contract transfer list), the technical agreement, related to the product with the requirements of technical standard and related laws and regulations.

质量保证措施
Quality assurance measures

● 产品设计编制设计任务书及设计计划；
Prepare the design specification and design plan ;
● 设计过程应用潜在失效模式及后果分析工具（FMEA）；
Design course application potential failure modes and effects analysis tool(FMEA);
● 设计文件100%经过校核、会签、审核、批准；
100% design documents will be checked, signed, reviewed and approved ;
● 重点项目、重大产品、新产品组织技术专家评审。
Organize technical expert review for the key projects, major products and new product.

合同协议
Contract agreement
初步设计
Preliminary design
设计评审
Design review
技术设计
Technical design
评审和审批
Review and approval
设计验证
Design verification
绘图
Drawing
审核批准
Approval
发放
Issue

质量控制要点
Quality control points

● 设计初步评审；
● 产品图纸评审；
● 设计验证；
● 设计更改。
● 设计技术评审；
● 工艺会签；
● 设计确认；

Preliminary design review;
Technology design review;
Product drawing review;
Sign of process;
Design verification;
Design confirmation;
Design change.

质量检验记录
Quality inspection records

● 设计评审记录；
Design review record;
● 设计验证记录；
Design verification record;
● 设计确认记录。
Design confirmation record.

TBEA 特变电工

二、产品实现过程--采购过程
Procurement

质量控制要求
Quality control requirements

- 按技术文件及合同要求组织采购；
Organize procurement according to the technical documents and contract requirements;
- 物资满足相应标准要求；
Goods meet the requirements of relevant standards;
- 供方为合格供方；
The supplier is qualified supplier;
- 按相关要求进行物资贮存和标识。
Storage and identify goods according to the requirements of the relevant.

质量保证措施
Quality assurance measures

- 进厂物资（按批次）100%进行检查或验证；
Goods into the factory (in batches) 100% will be inspected or certificated;
- 绝缘成型件利用X光检测仪逐件进行检测；
Insulation parts test using X-ray detector one by one;
- 重点材料、组部件派监造人员现场监造；
Arrange supervision personnel on-site supervision for the key materials and parts;
- 开展供方选择、评价和重新评价工作；
Develop the supplier selection, evaluation and reappraisal.

材料购买单
Material purchase order
选择供方
Supplier selection
合同评审
Contract review
进货检验
Incoming inspection
入库
Entering warehouse
贮存
Storage
发放
Issue

质量控制要点
Quality control points

- 开展供方评价，选择合格供方；
Carry out the supplier evaluation, select the qualified supplier;
- 组织采购合同评审；
Organize purchase order review;
- 采购物资外观和性能检查；
Goods appearance check and performance tests;
- 物资贮存条件及标识检查。
Material storage conditions and identity check.

质量检验记录
Quality inspection records

- 材料、组部件采购计划；
Purchase plan;
- 原材料进厂检验记录；
Inspection record;
- 供应商基本状况调查表；
Suppliers basic status questionnaire;
- 供方业绩内部评价汇总表。
The supplier performance internal evaluation summary table.

TBEA 特变电工

二、产品实现过程—铁心生产过程
Core production

质量控制要求
Quality control requirements

●产品尺寸、毛刺、锈蚀、波浪度及绝缘电阻符合图纸、技术标准和合同协议要求；
Product size, burr, rust, waves and insulation resistance in accordance with the drawings, technical standards and the contract requirements;
●产品清洁度。
Product cleanliness.

质量保证措施
Quality assurance measures

● 铁芯片按GB2828方法抽样检验；
Core lamination is sampling inspected according to GB2828 method;
● 铁芯叠装100％检查；
Lamination 100% will be inspected;
● 纵剪、横剪采用德国进口乔格线加工，硅钢片存贮采用立体库；
Silicon steel sheet cut by German import brendon DE jonge line ， and storage using three-dimensional library;
● 日降尘量控制在20mg/㎡以下。
The daily heavy control under 20 mg / ㎡.

作业计划、图纸、技术要求
Work plans, drawings, technical requirements
硅钢片验收
Silicon steel sheet acceptance
纵向剪切
Longitudinal shear
横向剪切
Transverse shear
检查
Inspection
铁芯叠装
Lamination
试验
Testing
最后检查
Final inspection

质量控制要点
Quality control points

● 铁芯片尺寸，铁芯直径、窗口尺寸检查；
Core lamination size, core diameter, and the size of the window inspection;
● 铁芯垂直度检查；
Core verticality inspection;
● 铁芯叠积缝检查；
Core pile joint inspection;
● 铁芯绝缘电阻测量；
Core insulation resistance measurements;
● 铁芯清洁度检查。
Core cleanliness inspection.

质量检验记录
Quality inspection records

● 铁芯片纵剪操作检查记录；
Longitudinal shear operation and inspection record;
● 铁芯片横剪操作检查记录；
Transverse shear operation and inspection record;
● 铁芯叠装操作、检查记录。
Lamination operation and inspection record.