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Guidelines for Design and Manufacture Quality Control of Customized Consumer Products

定制消费品设计与生产质量控制指南

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Guidelines for Design and Manufacture Quality Control of Customized Consumer Products

1 Scope

This Standard provides the general principles in the design and manufacture of customized consumer products, and the guidelines for manufacture quality control in the demand determination, design, management and control of raw and auxiliary materials, manufacturing, pre-delivery inspection, packaging, transportation and delivery process.

This Standard is applicable to the quality control of customized consumer products in the design and manufacturing stage.

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 25321-2010 Guidelines for Manufacture Management of Safer Consumer Products

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 Consumer

Consumer refers to an individual who purchases or uses property, products or services for the needs of living consumption.

[GB/T 34400-2017, Definition 2.1]

3.2 Consumer Product

Consumer product refers to a product designed and manufactured for, but not limited to, personal use, including product components, parts, accessories, packaging and instructions for use.

[GB/T 36431-2018, Definition 3.1]

3.3 Customized Consumer Products

Customized consumer products refers to consumer products that take the consumers' individual demands into consideration.

4 General Principles

4.1 Quality Control in the Design Stage

The quality control in the design stage of customized consumer products should consider the following factors:

a) Carry out quality planning in the design stage;

b) The input and output of the design matches the consumers' demands;

c) Carry out design analysis in the design stage through the mode of simulation or sample-making;

d) Design review and confirmation of configuration design, variant design and design changes;

e) Perform sample inspection and appraisal during the design stage;

f) The output of the design considers the requirements of the subsequent manufacture;

g) The output of the design is confirmed with the consumers.

4.2 Quality Control in the Manufacturing Stage

The quality control in the manufacturing stage of customized consumer products should consider the following factors:

a) Carry out quality planning in the manufacturing stage;

b) Formulate and execute specialized quality control procedures for customized consumer products;

c) The basic quality data of manufacture matches the consumers' demands;

d) Establish an error-proof and traceability control mechanism for key components of customized consumer products;

e) Conduct inspection and supervision of customized consumer products; form quality control records; clarify traceability and responsibility information;

AA---Packaging and Transportation; **BB**---Delivery Confirmation.

Figure 1 -- Quality Control Process of Design and Manufacturing Stage of Customized Consumer Products

5 Demand Confirmation

5.1 Content of Customized Demands

Customized demands include the following content of customized products:

a) Specifications: specification data of customized consumer products, such as: volume and space size data, etc.;

b) Materials: information of raw and auxiliary materials required for the manufacture of customized consumer products, such as: textile fabrics, plates, adhesives and hardware accessories, etc.;

c) Appearance: information of appearance style demands of customized consumer products, including optional types and subjective description types, etc.;

d) Functions: leading functions and auxiliary functions of customized consumer products;

e) Price: expected price and price range of customized consumer products;

f) Others: delivery and after-sales demands of customized consumer products, such as: delivery time limits, delivery modes, acceptance standards and methods, liability for breach of contract, after-sales maintenance and repairs, etc.

5.2 Quality Control Points of Customized Demands

Customized demands include the following quality control points:

a) Demand description;

b) Demand conversion;

c) Demand assessment;

d) Demand rectification;

e) Demand and order conversion;

f) Storage of order information.

The manufacturers of customization should take the consumers' customized demands as the basis for product configuration design; establish a complete product configuration information model or example, and conduct quality and safety assessments; formulate a rational configuration design scheme. The configuration design is carried out in accordance with the following steps:

a) In accordance with the combination of basic modules and functional modules of a product, establish a product configuration model;

b) Provide users with optional functional demands and matching combinations of functional demands;

c) Set configuration principles;

d) In accordance with the configuration principles, clarify the functional modules required for customized products; match them with the basic modules to generate customized products.

6.2 Variant Design

6.2.1 Product development stage

In the stage of variant design oriented to product development, the manufacturers of customization should take mature basic-type products as prototypes for the planning of the development of customized products and product extension design.

6.2.2 Product customization stage

In the stage of product customization, variant design may be divided into product structure variant design and component parameter variant design, which are carried out in accordance with the following steps:

a) On the basis of product modularization, based on elements like structural models, assembly models and product models, conduct product structure variant design under automation or manual intervention;

b) On the basis of unchanged overall structure, based on the parameterization and product characteristics, conduct component parameter variant design on components that need modifications.

6.3 Formulation of Design Scheme

During the formulation of a design scheme, the design and development personnel should confirm the following content:

a) The requirements for product safety determination in mandatory standards, and relevant laws and regulations;

a) The manufacturers and consumers confirm the clarity and completeness of the design input, and the correspondence with the demand information;

b) Clarification and identification of demand information in the design drawings;

c) Review and confirmation of the design scheme and its changes;

d) Confirmation of the trial sample-making by the manufacturers and consumers;

e) Confirmation of the sample testing by the manufacturers and consumers.

7 Management and Control of Raw and Auxiliary Materials

7.1 Procurement

7.1.1 Quality control points

During the enterprises' procurement of raw and auxiliary materials for the customized consumer products, the following quality control points are included:

a) Supplier management;

b) Bill of materials;

c) Purchasing requirements;

d) Incoming material inspection;

e) Incoming material confirmation.

7.1.2 Quality control modes

The raw and auxiliary materials purchased by the enterprises include the following quality control modes:

a) Formulate supplier management methods; keep quality information records of procurement sources; evaluate the suppliers' capability of providing high-quality products; assist the suppliers in their decision-makings of selection;

b) The list of raw and auxiliary materials provided to the suppliers should match the design and manufacturing requirements, and obtain confirmation;

c) The list of raw and auxiliary materials provided to the suppliers should clarify and consider the customized demands agreed with the consumers, such as: sizes, textures, appearance and functions, etc.;

8.3 Management and Control Mode of Basic Quality Data

8.3.1 Overview

Basic quality data includes process parameters, equipment parameters, inspection data and product defects in the manufacturing process. The quality control of basic quality data may be conducted through the mode of the collection, query, display and analysis of basic quality data.

8.3.2 Collection of basic quality data

The enterprises should set data collection points of basic quality data parameters and bad codes, and collect them in accordance with the following modes:

a) Conduct statistics on the quality information of finished products in the manufacturing and assembly process;

b) Through the mode of system online, enter the components with quality issues and publish them in the production line collection interface;

c) Conduct real-time collection of quality parameters during the processing.

8.3.3 Query and display of basic quality information

The enterprises should display basic quality information. The query and display of basic quality information shall consider the following factors:

a) The production line collection interface may conduct statistics on the data collected at the current collection point;

b) Display the daily basic quality information;

c) The corresponding product information may be queried through the basic quality information;

d) Provide the multi-field combination query function for product information.

8.3.4 Analysis of basic quality data

The analysis of basic quality data shall satisfy the following functions:

a) The basic quality information may allow editing operations, such as: modification and deletion;

b) Abnormal points of the basic quality information (duplicated or mismeasured data) may allow editing operations like deletion;

c) Through the basic quality information, form an analysis chart that allows query

assembly personnel of corresponding key components through the barcode information of finished products;

c) Support the function of online collection of the batch number of key components and information of already-assembled key components, and document records;

d) Support the function of querying the installation time, installation station, installation personnel and corresponding finished product information in accordance with comprehensive conditions, for example, the batch number of the components.

8.4.4 Error and omission management

The error and omission management of key components shall consider the following factors:

a) Provide the function of reviewing key components information;

b) Provide online prompts for errors and omissions in the installation of key components;

c) Provide the function of setting information, such as: the assembly station of raw and auxiliary materials, key components that shall be assembled and the quantity of key components based on BOM or other modes;

d) Provide the function of automatic prompting for errors and omissions in the installation when scanning the finished products and their key components during the assembly process based on the BOM mode.

8.5 Error-proof Management of Customized Components

The error-proof management of customized components shall consider the following factors:

a) Support the association of customized components with product models through QR codes and RFID, and corresponding error-proof processing modes;

b) Support the function of querying the assembly time and assembly personnel of customized components through the barcode information of finished products;

c) Provide the function of reviewing information of customized components; provide online error-proof modes for errors and omissions in the installation of customized components.

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