

Production Technology of Sanyo Denki

Harumi Kanzaki

Sanyo Denki is organized into three divisions: the cooling systems division, the power systems division and the servo systems division. Some of the developed production technology is common to all divisions and some is unique to specific products. In this report, we explain our basic concept of production technology and present detailed papers on certain aspects.

Production technology has two main functions: (1) production technology in the development and design stages of a product, and (2) production technology in the production stage. The objectives of supply of products are to manufacture high-quality products quickly and at low cost. To achieve these, the development and design stages of a product are essential. As mentioned on the opening page of this report, the things which can be accomplished by the production line are limited once its design specifications are determined. This means that the production technology to manufacture the product quickly, at low cost and with high quality, must be reflected in the development and design stages of a product. Production technology consists of element technology, processing technology, mold technology, parts mounting technology on printed wiring boards, wire winding technology and production method. It is also important to increase production efficiency using known technologies within the limitations of the given specifications, and this includes the development of jigs, tools and factory equipment, factory layout, improvement of production method, improvement of production environment and equipment control.

This issue reports the results of our development work in the field of production technology and parts technology.

In the cooling systems division, we report an example of applying production technology in the development design stage, using the heat sink production method, structure for joining a stator and frame, and a terminal shape enabling automatic soldering of "SAN ACE MC". An example of increased production efficiency is described in the paper titled "Development and Features of "SAN ACE MC" Increasing the Capacity of Production Equipment."

In the power systems division, we report on the start-up of an integrated production system and processing equipment suited for power supplies for switchboards; large- and mid-scale uninterruptible power supplies; and controller boards. The process of achieving a small, low-cost, medium-scale UPS is reported, including details on a new production technology system, the structural design, production method and assembly procedure.

In the servo systems division, papers on the development of a production method using element technology, how the prototype can be produced more quickly, and the development of production equipment with our unique technology for AC servo motor "P" series are reported. Related to these, wire winding technology for various motors such as high density winding and the development of the conductor's end processing method and their history are reported.

Furthermore, production technologies common to all fields, such as investigation of through-hole reliability of printed wiring boards and a printed circuit board defluxing method without cleaning in order to achieve a CFC-free defluxing system, are described in detail.

SANYO DENKI

Technical Report No.2

Nov. 1996