

Project Note

Redesign of a Production System for Tubes

An already existing production system of plastic tubes is improved to increase its user-friendliness and output. The experience of the Zühlke engineers helped to reduce production costs significantly and to simplify system operation.

Task

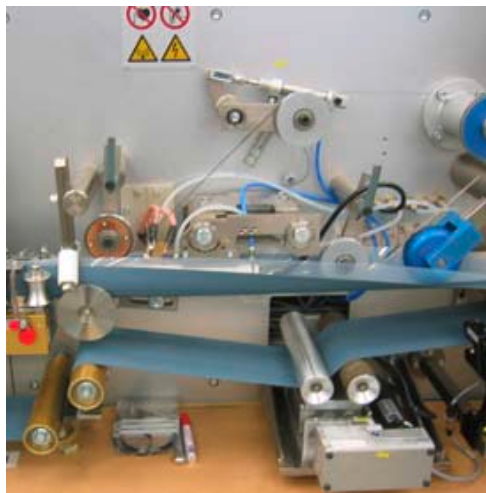
Plastic laminate tubes are an ideal form of packaging for toothpastes, various types of foods or cosmetics. The bodies of the tubes made of multi-layer sheets are seam-welded and cut to the desired length on a special machine (seamer). In this project, PackSys Global commissioned Zühlke to redesign an existing system to increase its user friendliness and output. Zühlke was also instructed to cut production costs and to meet the tight deadlines involved. A special priority was to keep changeover times for format changes short without the use of tools.

Implementation

Zühlke designed and developed the new system drawing on its expertise of reliable welding and cutting processes. It also employed the set of 2-D drawings of the system's predecessor and test reports.

Design phase: Zühlke designed the modules in 3-D CAD, worked out a design for fast format changes and for implementation, wiring and control system. Conducted danger analysis in accordance with CE standard.

- Detailed development and construction: Strength calculations and simulation; drawings of individual parts suitable for production, part lists and documentation in English; clarifications and coordination with suppliers.
- Prototype construction: Assisted with assembly, tests and correction of drawings



Technical Data

SolidWorks, ANSYS, Pro/MECHANICA

Tube diameter: 12.7 – 63.5 mm

Tube length: 50 mm - 200 mm

Output: up to 240 tube bodies or 60m per minute

Material: Multi-layer sheets with a barrier layer of plastic or aluminium High-frequency welding



Customer benefits

- In its new design, the system has a footprint 20% smaller than its predecessor.
- The engineers' years of experience in plant construction helped to reduce production costs significantly and to simplify system operation.

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