

Project Note

# Electronic control for Le Cube coffee machines

Zühlke developed the high quality control system for a new coffee machine for the world market using an iterative process. The electronics are designed for large volume batches and favourable manufacturing costs.

**Task**

Nespresso wanted to launch a new coffee machine called Le Cube on the market. The object was to have the product offer an automatic selection of cup sizes (Espresso or Lungo) at the press of a button and regulate the temperature electronically. Other requirements included white LED lighting in the control keys and the waste container for the used capsules and a cup warmer. Since the product was to be sold worldwide, international regulations and standards for household appliances had to be satisfied. Zühlke was asked to develop a new low-cost electronic control system, including the firmware, which the customer would then mass-produce in Asia.

**Implementation**

All requirements to be met by the new product were in the tender specifications. Based on this information, Zühlke experts drew up design specs in the system design phase. Next, possible microprocessors were thoroughly evaluated and the electronic design was systematically ironed out to produce a low-cost solution. It met all standards and requirements and was suitable for production in the Far East. A cost-efficient process for precise and loss-free temperature regulation was a major challenge. Zühlke tested functional models from its own workshops for feasibility. In the realization phase, engineers optimised the functional models, built initial prototypes closely resembling series models, and tested them. The optimisation steps were carried out systematically, allowing the stipulated production costs to be met. To ensure trouble-free mass production, Zühlke prepared production documentation and coached the manufacturer up to the pilot lot phase.



**Technical Data**

CAE:  
Orcad, PSpice

Connection:  
100/120/230 V -  
50/60 Hz

Thermobloc heating  
system, 1200W

19 bar high pressure  
pump

**Customer benefits**

- Drawing on their broad expertise in electronic development, Zühlke experts devised a cost-effective solution for a convenient household coffee machine.
- The customer benefited from the short development time and was able to launch the device on the market quickly. Zühlke made this speedy pace possible by building functional models and prototypes quickly and efficiently in its own workshops.

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