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Abstract

# CONCURRENT ENGINEERING IN MODERN MOLD DESIGN AND PRODUCTION

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Concurrent Engineering (CE) is a systematic approach to cause the developer, from the outset, to consider all elements of the product life cycle from concept through disposal including quality, cost, schedule, and user requirements. The molding factories in the Pearl River delta zone, China, are facing a more challenging environment. In order to maintain the competitive advantage, the application of CE is necessary.

Through investigation and running experience of the molding factories, a so-called Integrated Product Development (IPD) team is proposed. The IPD team members consist of product designers, mold designers, NC programmers, machining operators, assembly operators, customers and even the suppliers. Each of them has own authority and right in the IPD team for the product/mold development. They should fully co-operate and share information each other.

A practical case, the development of the mold of the heart-shaped flashing light, was carried out. Through the comparison of the traditional and concurrent development of the mold, results revealed that, with the application of CE philosophy, the total development time of mold can totally be reduced.

This thesis also presents a Product Data Management (PDM) system for supporting concurrent engineering. It provides an environment to the IPD team for concurrent mold development. Pro/INTRALINK was selected to implement the PDM system. Pro/INTRALINK is a concurrent development environment, which serves as a central storage of the electronic data and fully integrated with the CAD/CAM software, Pro/ENGINEER. It can provide simultaneous communication and manipulation of engineering information and the management of complex product interrelationships.

For providing non-engineers to access and modify information contained in the product model, a wed-based program, Web Client, has been built to enable access to the database of the co-operative environment. It uses web browser. Through Internet/Intranet, it distributes product model information to all members of the IPD team.