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TOOL & MOULD MAKING

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Hardware-Software Appliance Accelerates NC Work

Cimatron's plug-and-play SuperBox solution is a breakthrough productivity enhancer that serves all CimatronE seats in a facility.

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Integrated CAD/CAM Solution That Is Specialized for Mould Making Covers Everything from Quoting to Delivery

CimatronE CAD/CAM software for mould making, an integrated solution dedicated to one area of application, is engineered to produce high-quality moulds of any size and degree of complexity and to enable the mould maker using the system to deliver finished moulds in record time. Exactly why Cimatron, the developer,

can claim that its application-specific software package is more valuable to mould makers than any other CAD/CAM software they might buy is detailed in the literature on the product.

Speed and Control

A third-party benchmark study per-

formed a few years ago revealed why CimatronE users can expect to increase their business competitiveness and profitability by using the software. The mould and die shop benchmark study undertaken by the Aberdeen Group found that best-in-class tool shops at that time could deliver finished moulds to customers in an average of 8.7 weeks. (Average tool shops needed 9.3 weeks, and the class of shops characterized as “laggards” averaged 11.6 weeks to delivery.) Aberdeen determined that tool shops operating CimatronE were delivering their moulds in 7.9 weeks on average.

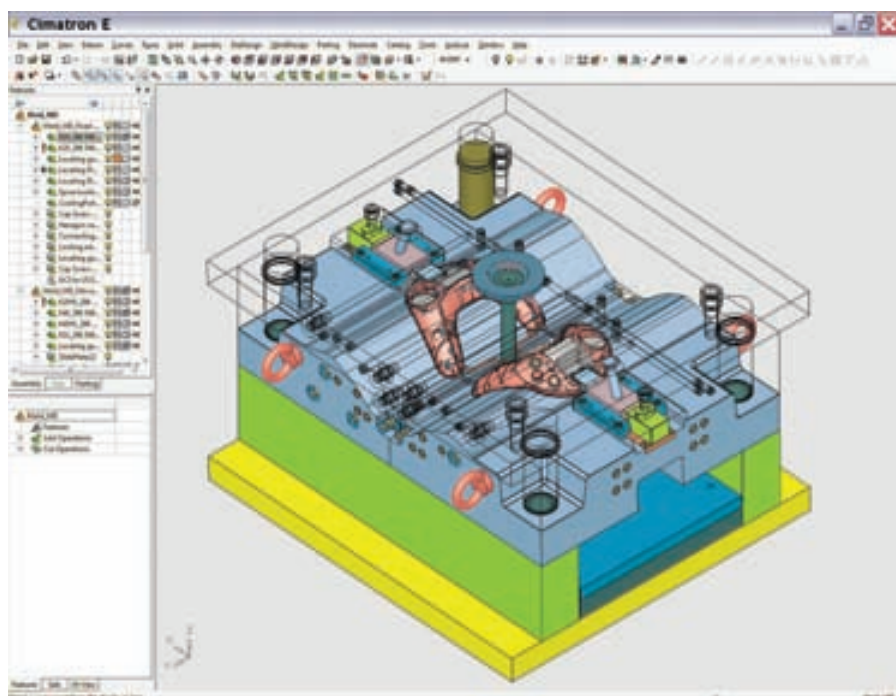
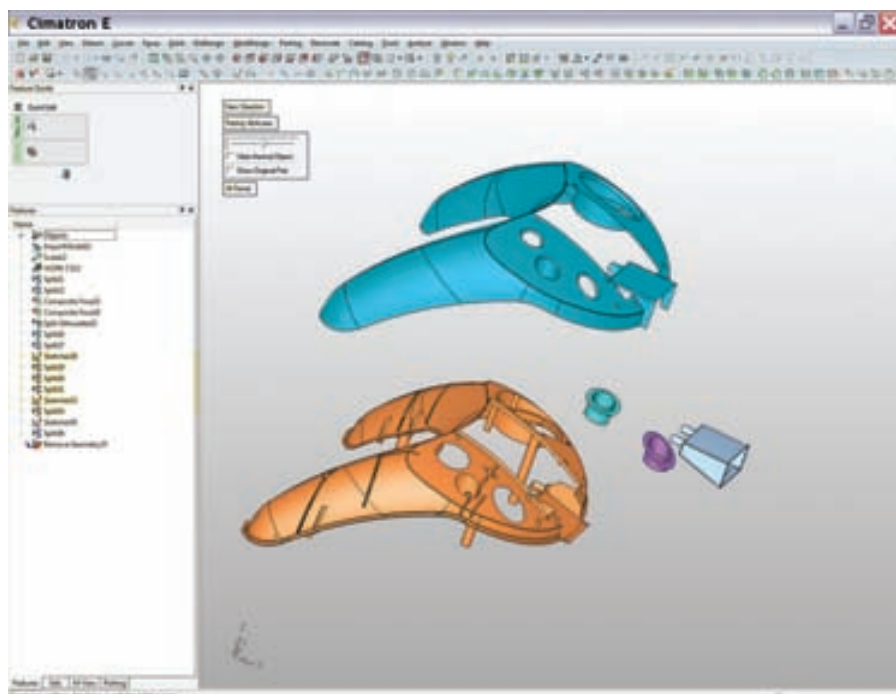
CimatronE addresses the entire mould making process, so nothing is lost in translation. The limitations of general-purpose CAD software and confusing, time-consuming switching between multiple systems are both avoided with Cimatron. What’s more, the software offers the benefits of built-in data converters, flexible mould base configuration options, powerful mould-specific design functions, and automated bill of material (BOM) creation.

And as with design, so with machining and automation: the user always has a full range of capabilities and options to call upon, and the flexibility to choose full, partial, or no automation for a given task.

Cimatron’s integrated solution streamlines the whole mould making process. However, customers not feeling a need for the complete package can acquire any of the separate modules: Data Import, Quoting, Parting, Preliminary Design, Mold Tool Design, Drawing, NC Programming, and Electrode.

Quoting

The Data Import module enables the mould designer to go to work as soon as the customer’s part data are received, even if the data quality is poor. The software provides automatic data validation and highly accurate conversion from all standard formats and includes native read-write options for popular CAD systems.



The QuickSplit function in CimatronE’s Parting module (*top*) lets users define and visualize multiple opening directions. Through the Mold Tool Design module (*bottom*), multiple users can work on an assembly simultaneously.

Quick and accurate cost estimates that will enable the user to win more business are the promise of the Quoting module in CimatronE. Via the module's QuickSplit function, undercuts and other problem areas possibly requiring additional work can be spotted. The user can estimate mould base cost with preliminary designs that include the placement of primary mechanisms such as sliders and runners, and preliminary design images can be incorporated in the quotation. And with QuickCompare, the user is able to clearly visualize and analyze engineering changes to ensure an accurate cost estimate.

Design

The QuickSplit advanced tools in CimatronE's Parting module are available for optimizing parting and cavity design. They enable the user to easily modify the model for manufacturability, split closed or open models without solid-body stitching, define multiple opening directions and quickly analyze draft angles and undercuts to ensure flawless parting.

In addition, there are tools for designing high-quality parting surfaces with a strong package of surface functionality, exploiting built-in parting line visualization and motion simulation to avoid repetitive redesign, and streamlining the design process with automatic transfer of geometries and related information to the mould design environment.

The Preliminary Design module facilitates the generation of 3D designs to use in evaluating strategies and gaining customer approvals. It makes it easy to design moulds in any layout with up to thousands of surfaces and components, to place all of the mould components, and to generate a preliminary bill of material so that early-stage machining can be initiated in parallel with final-design approval.

CimatronE's module for Mold Tool

Design features measurement, analysis and collision detection capabilities in support of design validation. Multiple users can work on the same assembly simultaneously, thus minimizing the length of the design cycle; and, with QuickCompare, engineering changes can be analyzed and local changes applied within seconds. From this module, design data can be transferred automatically to Cimatron's NC environment to accelerate tool manufacturing. Mold Too Design contains complete functionality for mould base configuration, ejection systems design, cooling system design and runner design.

In Drawing, the user can create and reuse drawing templates that incorporate the customer's specifications. Drawings containing all the information needed for ordering components and instructing shop-floor operators also can be generated easily.

Manufacturing

The NC Programming module includes everything necessary for turning the mould design into a prototype or a fully functioning production tool with impressive accuracy and speed. According to Cimatron, by employing it as part of an end-to-end solution, users can save time and eliminate errors by seamlessly transferring geometrical attributes from the design phase to the NC programming phase without data conversion. They can also manage engineering changes with built-in as-

The Quoting module in CimatronE ensures that users can generate accurate cost estimates quickly and thus have an edge in the competition to win more jobs and new business. Pictured is the MoldQuote Generator, which makes the conversion of complete data into a sound quote automatic.

sociativity; changes made in the tool design flow directly to the relevant NC procedure.

Finally, concurrent engineering capabilities that allow users to begin to produce selected mould assembly components while they are still designing others serve to compress delivery cycles in the way that has made CimatronE an industry leader.

CimatronE's

NC module features rich built-in CAD functionality, along with tools for automated drilling, efficient roughing, high-quality finishing, advanced micromilling, and full 5-axis machining for mould making. In addition, NC setup and tool table reports can be generated automatically either as the user postprocesses a programme or as a separate action. Strong simulation and postprocessor support ensures predictable machine behaviour and machining results.

Complete wire-EDM programming functionality for 2- and 4-axis modes is also delivered with the NC module. The Electrode module supports this capability with electrode design and manufacturing functions that allow these steps to be executed rapidly and efficiently.

Implementation

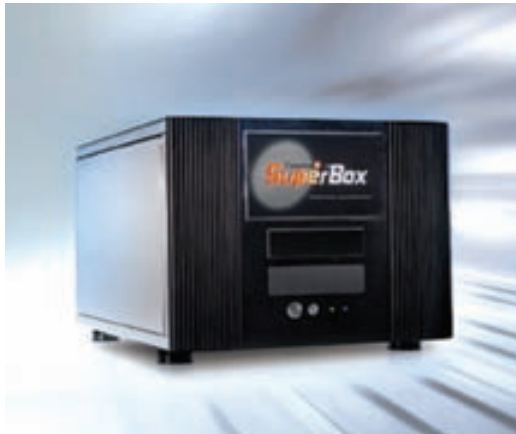
Cimatron subsidiaries and distributors are available in more than 40 countries. These offices are staffed by people who can provide training and implementation support to guarantee successful deployment of CimatronE for companies seeking to upgrade their mould making software with minimum business disruption. Those experts are equipped to offer complete pre- and post-sales support.

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Productivity-Boosting Solution for NC Programmers Reduces Computer Loads, Speeds Tool-Path Calculations

The new CimatronE SuperBox combined hardware-software solution reduces the load on computers and speeds up tool-path calculations for multiple NC programmers. The breakthrough productivity-enhancing device was developed by Cimatron Ltd., the Israel-based provider of integrated CAD/CAM software for mould, tool and die makers and manufacturers of discrete parts. Designed to be simple, the plug-and-play SuperBox requires only a power outlet and a network connection within the user's premises. Once it's plugged in, everyone can begin working faster.

As much as half of a typical NC programmer's day may be consumed by calculations for long tool paths. Even if done in the background, these calculations place a considerable load on the user's PC resources. Cimatron's



aim in developing the SuperBox was to free up the user's computer and expedite completion of the tool-path calculations.

Once the SuperBox is plugged in, all CimatronE NC seats in the facility automatically offload most of their calculation tasks to it, thereby freeing up the resources of individual workstations. The system add-on contains

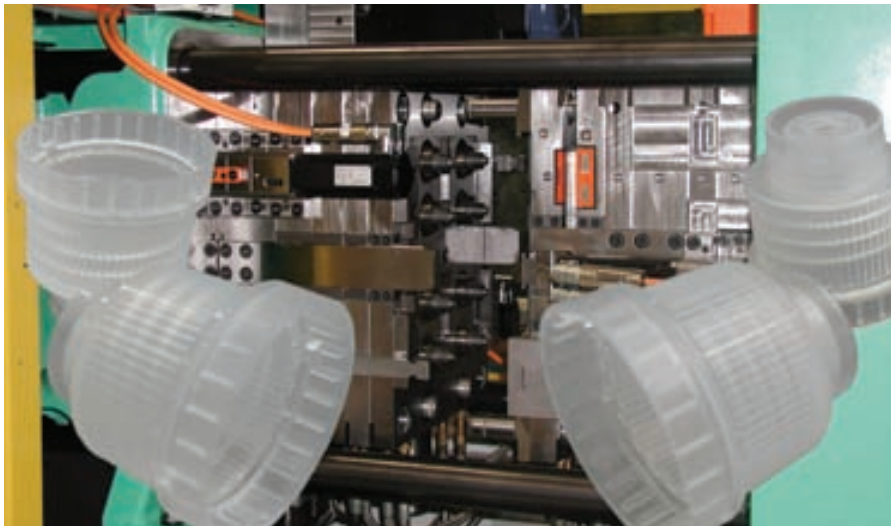
a state-of-the-art multicore CPU and ample RAM, which means that calculation rates are increased significantly as well. And in order to push performance even higher for procedures such as finish-machining that have no stock dependency, the SuperBox can execute multiple procedure calculations concurrently, which shortens the total project calculation time.

The SuperBox requires no training, and no implementation process is necessary. Its architecture is fully scalable, and multiple SuperBoxes can be used to support more users and heavier workloads. With this innovation from Cimatron, NC programmers save time while improving the programming experience, and shop managers are given the opportunity to leverage an increase in productivity.

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Controlling Mould Movements with Electric Motor Drives Opens Up Possibilities for Mould Design, Construction



For 50 years, Hasco Hasenclever GmbH + Co. KG has been backing manufacturers of moulds and tools for metal and plastic processing with a modular system of interchangeable, series-manufactured, individual mould components. In accordance with this strategy of helping lower the costs of mould construction while im-

proving quality and productivity, Hasco offers another innovation: a range of electric motor drives for injection moulding tools.

The use of electric motors in injection moulds offers users and designers options for solving tasks that would be difficult to carry out with mechanical or hydraulic applications, particu-

larly when space is an issue. It enables many typical mould movements to be performed quickly, efficiently and reproducibly, and offers the further advantages of cleanliness and environmental-friendliness. Through the free programming of the control system, many types of movement can be controlled independently and in parallel in order to reduce cycle times substantially. In addition, an outstanding energy-efficiency ratio can be attained.

Electric motors can be used in the direct-drive unit for the demoulding of threaded parts and in the control of needle valve units. Electric motors also make it easy to turn rotary table moulds and drive ejector plates where machine restrictions exist. And slide insert movement, ejection, core pulling and undercutting can all be carried out quickly and reliably with electric motors, as well.

Hasco Hasenclever GmbH + Co. KG

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