



# ADVANCED BLOW MOULD MANUFACTURING

TO STAY AHEAD IN BLOW MOULD MANUFACTURING, CONTINUOUS RESEARCH AND DEVELOPMENT AND RE-INVESTMENT IN THE APPROPRIATE NEW EQUIPMENT ARE ESSENTIAL.

*GARRTECH INC*

TODAY'S PACKAGING MARKETS demand continual improvement in lead times and quality. Along with reduced margins throughout the supply chain and increasing global pressures, this forces mould makers to constantly develop and enhance their manufacturing methods, making efficiency and accuracy the primary focus. Price is a tell-tale sign of an apparent overcapacity situation of mould makers in the global market. In the past ten years we have seen mould prices drop 15 to 35 per cent, delivery times reduced by 25 to 40 per cent, and quality has increased significantly. At the same time that mould prices are dropping, materials costs, wages, utilities, insurance and taxes continue to increase. This places tremendous importance on labour-saving devices to reduce costs.

## ENGINEERING AND AUTOMATION

After product design completion, mould engineering is the first and fundamental underlying step in the manufacturing process. To meet continuous time pressures in both overall project lead time to market and minimisation of labour hours, which are directly related to maximisation of CNC machine efficiency, the engineering of the mould must be complete prior to cutting metal.

Reducing and eliminating a bottleneck in engineering and machine programming requires constant focus and manipulation. Current practices involve automated procedures at first concept, such as computer-calculated bills of materials, hole charts and corresponding CNC programming routines created in the background at the 3D design stage. This association with design and subsequent operations also makes modifications faster and easier, while eliminating opportunities for human error.

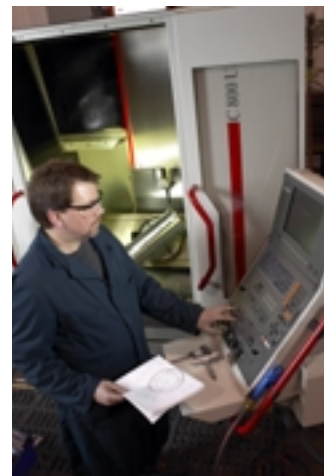
Standardisation is applied company-wide, starting at the design phase, following through to manufacturing and final assembly. Everything from fasteners, wear items, alignment systems and cutting tools are catalogued and applied as needed. This reduces inventory and the manufacturing of custom items, a key element to keeping costs down. An important undertaking being pursued is the removal of the time-intensive drafting stage, moving to a paperless manufacturing environment.

## CONTINUOUS RESEARCH AND DEVELOPMENT

Garrtech gets involved with its customers' processes, for example, lightweighting moulds to extend their blow machine life. Feedback from customers' plant and maintenance personnel provides valuable information regarding critical areas such as machine

down time and labour-intensive tasks. The company continues to experiment with new types of mould materials, such as alternate metals and alloys, looking for improved thermal conductivity, surface finishes, durability, cutting efficiencies, weight and cost. Using non-conventional methods to apply conventional surface coatings to mould cavities has the potential to improve part release, reduce mould cleaning and increase material flow and therefore part detail, while enhancing cycle time.

Beyond research alone, companies must be willing to invest in new technologies, for example, the implementation of specialised equipment for venting PET moulds. Venting of PET moulds, especially in heatset applications is crucial to part definition and reduced cycle time.



*Working towards greater efficiency.*

## INVESTMENT IN NEW EQUIPMENT

Garrtech sees re-investment into new manufacturing technology as the only way to reach and maintain a leading position in the industry. A common practice in the industry is high-speed machining. Old equipment must be turned over and replaced with new, faster equipment. Such advancements in machining speeds drive the requirement for improvements in the cutting tools. All tools are balanced to suit the equipment they run on in order to extend the life of capital investments and reduce maintenance time. Another benefit of high-speed machining is improved surface finishes, resulting in less handwork.

Laser cutting technologies provide speed and accuracy unachievable by conventional cutting techniques alone. The company has invested, and continues to invest, in this technology for complex high-surface definition and engraving needs demanded by custom packaging markets. Although in its infancy, it has formed an association with a European company that has developed a method for laser mould polishing. This is an exciting technology, which would eliminate the use of manual hand polishing, the result being that every mould cavity would be identical within extremely high tolerances while compressing handwork tenfold.