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engineering

ENGINEERING

MOLDING

TOOLING

ASSEMBLY

PRECISION BY DESIGN



ENGINEERING

- Design Assistance
- Metal Replacement
- Net Shape Consolidation
- Mold Flow Analysis
- FEA Analysis

MOLDING

- Conventional Molding
- Clean Room Molding
- Insert Molding
- Materials Expertise
- Process Control
- Quality Control
- ISO9001/2000
- FDA 820.1GMP
- UL Registered

TOOLING

- Mold Design
- Mold Construction
- Mold Maintenance
- CAD/CAM Interaction

ASSEMBLY

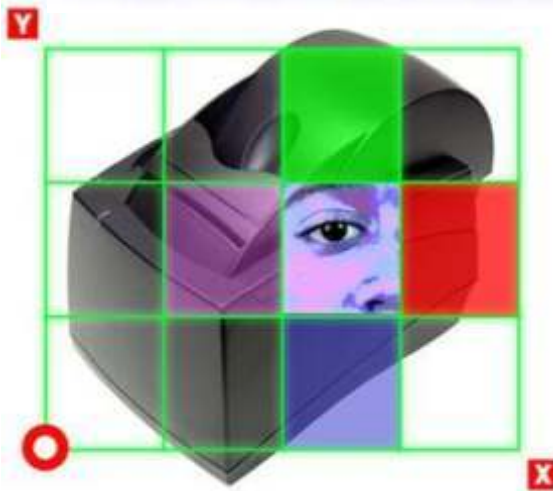
- Subassembly
- Electromechanical
- Component Testing
- Pad Printing
- Decorating
- Sonic Welding
- Heat Staking
- Packaging

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Part Of The Solution



How do you become a part of the solution to the questions that surround any demanding plastic application? Having the skill, experience, and technology available to provide customer assistance in plastic application design and product realization is essential. Having all of these elements under the same roof is exceptional.

Working together with our customers in the early stages of design can build a strong relationship that fully utilizes all of the tools at our disposal for successful project problem solving.

Engineering Design



There is one very important element that affects every product design...manufacturability. Our cross-functional design team takes into consideration the capabilities and limitations of the manufacturing process. This requires plastics injection molding knowledge gained only from experience. Not only do you want the most economical part... you also want the most reliable part. It's a balance of cost and strength. These are values that only an experienced plastics engineer can deliver.

Backed by years of experience in plastics injection molding, Alliance engineers will interface with your design team in the early stages of product development to provide the best solutions for efficient manufacturability, part integrity and economy.

MARKETS

- Consumer
- Electronics
- Medical
- Office Automation

USEFUL MATERIALS DESIGN LINKS



DUPONT PLASTICS



BAYER MATERIAL
SCIENCE



ADVANCED ELASTOMER
SYSTEMS



GE PLASTICS

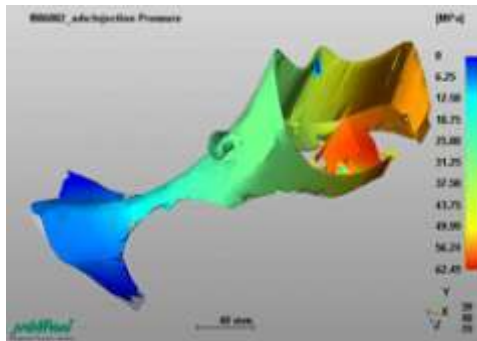
Metal Conversion Technology

Since the introduction of high-impact, engineering grades of thermoplastics, components that were typically made from metals have been widely replaced by these materials in a wide variety of industrial, consumer products and medical applications. Lighter weight, flexibility, color-ability, corrosion resistance and lower costs are just a few of the reasons for their choice.

While not all metal parts can be substituted by plastics, continual development of advanced engineered composites is stretching plastics' physical properties envelope and advancements in controlled processing operations and technology are resulting in significantly improved performance.



Mold Flow Analysis



3D computer model simulates mold fill and graphically illustrates potential hot spots or pressure points.

What is Mold Flow Analysis? It's one of the most advanced tools ever devised for the plastic injection molding engineer. More precisely, it's a computer generated 3D simulation that models the flow of resin material into a single or multi-cavity mold.

With the aid of mold flow analysis, our engineers can obtain statistical data of the molding process before the mold is actually constructed. The object is to optimize the fill process of a mold and the integrity of the part. The data provided during the analysis helps the engineer select the optimum location for vent lines, gate position and feed system. Temperature variations, hot spots and potential stress points are clearly defined in the simulation. Hot spots cause uneven cooling and excessive warpage. Concentrated stress points can result

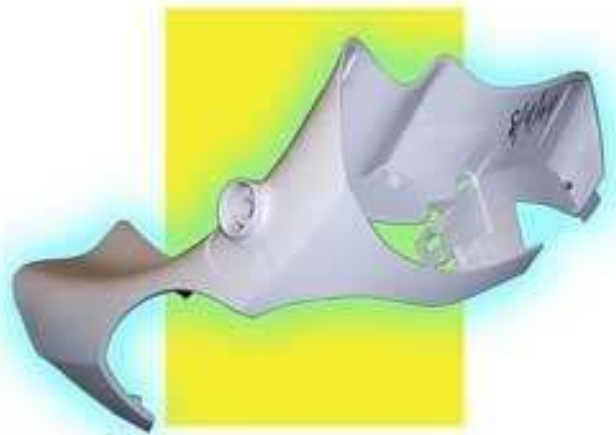


Metal air impact wrench housing is replaced with high-impact thermoplastic housing.

Net Shape Consolidation

The advantages of using plastics are strength, economy and flexibility. A plastic design has more dimensional fluidity, it can easily take on any shape. More importantly, plastic parts can be designed to assimilate other parts into one component. For example, a plastic drill housing having receptacles for switches, clips and wire harness receptacles previously made of metals as separate parts, can be designed to have these parts molded as integral parts of the main component.

In the industry, it's known as Net-shape Consolidation. Instead of multiple parts and added assembly time, you get one streamlined plastic component with no assembly or finishing required. It's the smart way to engineer plastic products.



MOLD FLOW ANALYSIS OPTIMIZES

- Injection Pressure
- Fill Time
- Pressure & Temperature Variations
- Shot Size
- Volumetric Shrinkage
- Machine Capacity

cooling and excessive warpage. Concentrated stress points can result in premature part failure. These potential molding problems are easily predicted and overcome during the design phase.

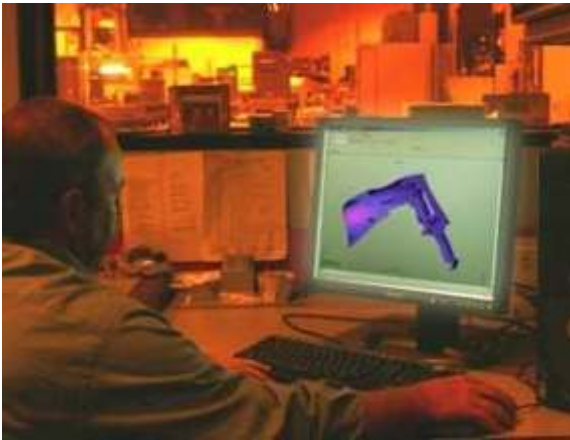
Mold flow analysis speeds mold development by eliminating time-consuming trial and error processes. The end result is accurate, economical and reliable plastic parts.

• Gate Runner System

• Cycle Time

• Clamp Tonnage

• Material Flow



Integrated CAD/CAM Tool Design

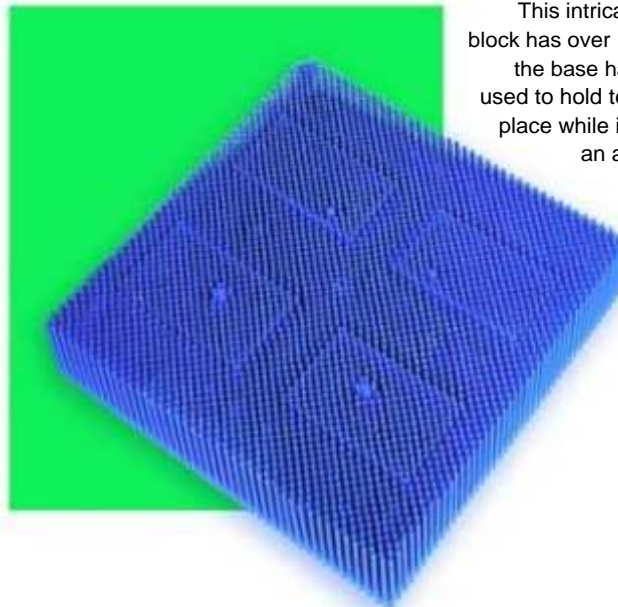
Integrating computer generated product design with computer controlled machining stations is fundamental to precise tooling construction. Alliance PPC has several resident seats of Computer Aided Design software (Unigraphics, Pro-Engineer, Solidworks, etc.) that enable us to interface with the manufacturing software used to create high speed cutter path control at these machines. The result is an accurate, mirror image, three-dimensional mold built to our exact specifications.

CAD/CAM capability not only provides greater innovation in less time, it shortens design cycles and accelerates time-to-market. APPC can accept a wide variety of CAD formats transferred by e-mail or you can contact us to upload files on our secure ftp site.

ALLIANCE Project Management

- Design Optimization
- Cross-functional Team Input
- Tool Design and Build
- Weekly Progress Reports
- First Article Approvals – PPAP
- Production Overview

Your Alliance Project Manager is your single point of contact for all engineering, quoting and tooling questions.



This intricate vacuum holding block has over 1000 bristles while the base has 1000 holes. It is used to hold textile fabric firmly in place while it is pattern-cut with an automatic die cutter.



THE CUSTOMER IS ALWAYS FIRST

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HOME PAGE

TOP OF PAGE