

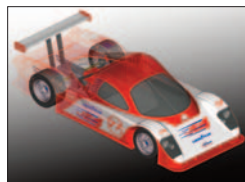
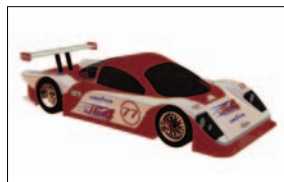
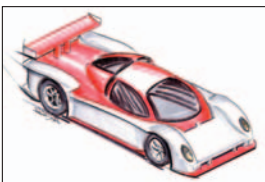


Since 1999, Catalyst has provided solutions to clients with new product launches, current product refinements, design verification and prototyping, quick turn plastic parts for testing and even short run production. By offering all product development services under one roof, your time to market may be reduced by as much as 50%, increasing your potential for higher profits.

All Your Product Development Needs

Whatever your product development need, the Catalyst design and manufacturing teams will meet your goals. The cohesive team of Designers, Engineers, Tooling and Production Managers has the experience and talent you need including:

- Industrial Design
- New Product Design
- Ideation
- Brainstorming
- 2D & 3D Form Study
- Human Factors/Ergonomics Analysis
- Category Development
- Market and Consumer Research
- Mechanical and Electrical Engineering
- Design Validation
- FEA analysis
- CAD/CAM drawings
- Reverse Engineering
- Cost reduction analysis
- Rapid Tooling processes
- Short Run production



With more than 65 years of product development experience and hundreds of products developed in just about every industry you can think of, the Catalyst team understands your product development pains, fears and concerns better than anyone. Not only have we worked with clients to introduce new products or solve design problems, we have also been the clients. We know exactly what you are going through and look forward to using our experience to help you meet your goals.

Call CATALYST today **866-275-2757** or log on to **www.catalystpdg.com** for all your Product Development Needs!

DORAN CASE STUDY



Product Background

Speed to market came to life with the Doran Design JE4 project. The Grand American Road Racing Series developed a new rules package for the 2003 season. The new package called for a complete redesign. Doran Design recognized the opportunity this presented and engaged Catalyst to develop the bodywork for the new car. Catalyst and Doran worked hand in hand in creating and developing the new car design.

The Challenge

The redesigned car must comply with the new rules package and be competitive upon shipment from the manufacturer. The timeline was very tight, with only 12 weeks allotted for Industrial Design and Engineering to be completed.

The Design

The initial brainstorming process produced several sketches that were quickly narrowed down to only one. Once the final body work concept was selected, curves were generated to demonstrate the body's position relative to the chassis, which allowed Catalyst to determine potential problems and minimize the frontal area. The cockpit was designed to create some pressurized areas at the trailing edge of the windows. This area was used as a cooling duct for the engine compartment and exhaust vents for cockpit ventilation. Since the delivery of the first new complete car, stiff competition has commanded continuous improvement of the initial design. In this process Doran Design and Catalyst have collaborated to develop both low and high down force components for those that can be changed within the rules package. Catalyst has also analyzed various components of the suspension in an effort to reduce the amount of unsprung weight for the car. Starting with the analysis of an existing part, Catalyst can locate areas of material that are not providing structural purpose and remove them to reduce the overall mass of the part.

The Catalyst Difference

Traditional race car builders would have stopped with the generation of the preliminary model. Artisans at the the composite shop would have been asked to generate the split lines and joints for the entire car from one large body block. Knowing that this process could be done much more efficiently, the Catalyst Engineering team developed all of the individual body panels to ensure a solid, reliable joint at each seam. By engineering the individual panel bucks, Doran was able to reduce the time needed to manufacture the bodywork. The bucks were sourced to different machine shops and the quality could be controlled using the database generated at Catalyst.

Speed to Market

The entire program from initial concepts through final engineering lasted only 12 weeks. Doran Design was able to field a car at Daytona by letting Catalyst speed the design and manufacturing process for the bodywork with new technologies.

The Result

The Doran JE4 enjoyed a very successful first campaign. The chassis won the first driver's championship under the new rules package and won the 2004 Rolex 24 Hour Race.



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Design Solutions



Industrial Design is the most important step in the development of successful products.

Our Industrial Designers sit side-by-side Mechanical Engineers, Tooling and Manufacturing Specialists, which ensures that the concepts we present will not only benefit the user and manufacturer, but can be efficiently produced and marketed.



Design Solutions include:

- Ideation
- Brainstorming
- 2D & 3D Form Study
- Market and Consumer Research
- Category Development
- New Product Design
- Refine/Redesign Current Products
- Human Factors/Ergonomic Analysis

The Catalyst Edge

Speed to Market is what sets Catalyst apart from the competition. Because our Designers, Engineers and Manufacturing Specialists collaborate on every design, we are able to reduce the typical product development time by as much as 50%!

Call CATALYST today **866-275-2757** or log on to **www.catalystpdg.com** for all your Design Solution Needs!

SUROS ATEC® II BIOPSY CONSOLE CASE STUDY



Product Background

The ATEC Breast Biopsy and Excision System: *Sapphire™* unit console is the first ever all-in-one vacuum-assisted breast biopsy system capable of minimally invasive tissue excision in three primary diagnostic imaging modalities of ultrasound, stereotactic x-ray and MRI.

The Challenge

The goal of the project was to transform the medical equipment design of the initial “flagship” console into one that displayed the client’s commitment to a compassionate and patient-friendly biopsy solution. The interaction between the console and patient was as important as the interaction between the console and clinicians/physicians. The new design had to accommodate multiple features including softening the noise level, reshaping patient perceptions of the unit through improved aesthetics, simplifying the user interface, and increasing safety of the unit. The newly designed unit also had updated space requirements which meant incorporating a smaller footprint.

The Design

Overall, the designers considered the needs of clinicians/physicians, which focused on maintaining the speed, safety and ease of the biopsy procedure. This design was accomplished by incorporating soft curves, warm color selections that are standard in the medical community and a significantly reduced motor sound that was not intimidating to the patient. The ATEC *Sapphire™* console was designed within the limited space restrictions that physicians face in today’s procedure rooms. The new system is 25 percent smaller than its predecessor and is significantly lighter weight than the original design, increasing mobility and the ease of transportation for the Suros sales team and medical personnel.

For the Patient

The smooth, soft lines of the newly designed console exemplify the compassionate approach that Suros takes in developing its technology. The ATEC system was also designed with sound-proof foam to reduce the amount of noise produced by the vacuum that is necessary to perform the biopsy. This was considered a significant and necessary achievement to help create a more “safe” environment for the patient, subsequently lowering an already stressful situation and minimizing the emotional trauma of a diagnostic procedure. The color palette was chosen to be soothing and subtle to the patient. These colors are also accepted as standard clinical color schemes, which consider the aesthetic preferences of the medical facilities.

For the User

Maintaining the console’s integrity for offering clinicians a method for a fast, safe, easy and minimally invasive breast biopsy procedure was of paramount importance. In order to maintain these product features and benefits, the operational control pad was redesigned to have a more intuitive user interface. Using a touch pad membrane versus manual buttons gave the unit a more sophisticated, high-tech and intelligent look and feel. The easy unit hook-up receptacles were repositioned and separated from the user interface for ease of identification. All of these changes also enhanced cleaning and maintenance of the unit.



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Engineering Solutions



At Catalyst, we consider Mechanical Design to be another creative process. Once a concept or direction is selected, our engineers push the design even further—resulting in products that are more innovative and revolutionary. The mechanical design group studies the way a product will be used and the ideal design for manufacturing. Through a series of virtual prototypes and simulations, designers can accurately predict problems and discover enhancements at an early stage, when changes are still fast and inexpensive.



Engineering Solutions include:

- Design Validation
- FEA analysis
- CAD/CAM drawings
- Reverse Engineering
- Mechanical, fluid/pneumatic and electro-mechanical design
- Cost reduction analysis

The Catalyst Edge

Catalyst delivers comprehensive mechanical design solutions in all stages of development. Knowledge and insight gained from one industry promotes crossover thought to unrelated product lines and industries, fostering innovative and creative solutions.

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HUNTER AIR CLEANER CASE STUDY



Product Background

The Hunter Fan Company needed to re-establish their position in the growing and changing air purification market. At the time, a high end retailer had been successfully selling a private label ionizer at a high price. While Hunter's method of filtering and ionizing the air was better than the competition however, the design was very dated. Hunter identified the need for a new design that had the style and presentation of a modern technology product in a new configuration which allowed for a vertical tower style design.

The Challenge

The new air purifier had to be competitive in both aesthetics and function while reaching a moderate price point to attract home improvement and mass market retailers. In addition to the challenge of the redesign, the timeline was extremely tight. With a tradeshow only 3 months away, the design, engineering and prototyping had to be complete and approved in only 10 weeks!

The Design

The new Hunter Fan air purifier combines Hunter's effective air cleaning solution to the growing world of upright ionizers. It uses an upright tower profile that brings air in through the front filter area and exits it out the top, which in addition to cleaning the air also helps overall air circulation in the room. It uses a unique axial fan that lends to the upright layout of the overall mechanism, allowing a more even use of the filter space and staging the fan at the top of the product. Since the competitor's unit does not use an actual filter, this also gave Hunter the competitive advantage. Not only does this product ionize, but it truly filters the air for a more substantial benefit to the environment. The redesign, developed as a platform for product variations, uses different internal components and user displays for product differentiation.

The Catalyst Difference

Speed to market and designing for the real world gives Catalyst PDG the competitive edge. Through our vertically integrated processes, we are able to significantly reduce the product development cycle and ensure that the concepts we present will not only benefit the user and manufacturer, but can be efficiently produced and marketed. For the Hunter Fan company, that meant giving them the competitive advantage with innovation and design while successfully meeting stringent deadlines.

Speed to Market

Impossible deadlines and helping customers get their products to market on time is our business. This particular project involved not only getting to market quickly, but doing it with innovation at a realistic price point. The Hunter Fan Company successfully launched the new product in time to meet market demands, several hundred dollars under the competition's price point.

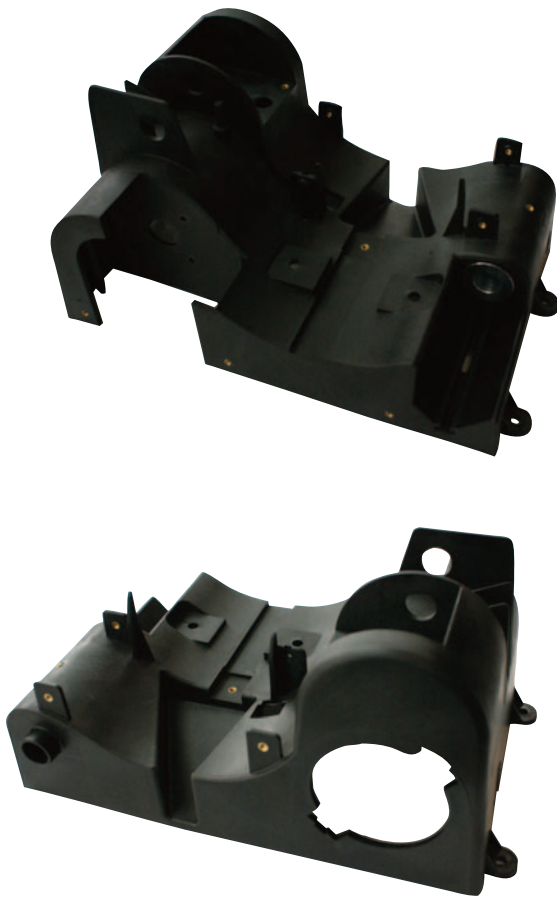


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Rapid Tooling



Catalyst's proprietary rapid tooling process was developed to give clients a fast and accurate way to validate design intent, complete form, fit and function testing, and provide true-to-form marketing samples.



Rapid Tooling includes:

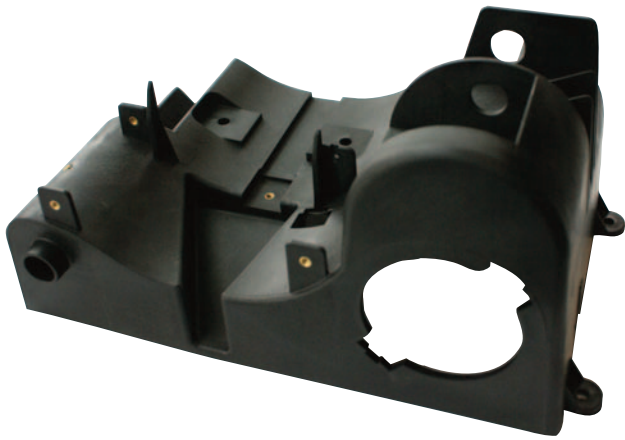
STAT (Sample Time Acceleration Technology), an alternative to SLA and RTV prototyping dramatically reduces product development time with a proprietary injection molding process. This process was designed to move your product to market faster, giving you a longer shelf-life and the potential for increased profit. With fast on-time delivery, Catalyst has become the production partner of choice for many Fortune 500 companies across the country. STAT is the perfect rapid tooling solution for producing actual plastic parts with extremely tight lead times.

The Catalyst Edge

Unlike other rapid tooling processes, the STAT process produces sample parts made in the plastic material of your choice with your design specifications to demonstrate exactly how your product will look, feel and function once it is manufactured. Because the STAT parts are real injection molded parts, they can often be used as production parts.

Call CATALYST today **866-275-2757** or log on to **www.catalystpdg.com** for all your Rapid Tooling Solution Needs!

SHADE CUTTER CASE STUDY



The Challenge

The client presented Catalyst with an extremely complicated part for prototypes and pre-production/production samples. Due to the complexity and part size, it was considered an experimental tool, which is often used to validate the design integrity and efficiency of a part. In addition, every other part in the assembly depended on this one part. There was little time for part/tooling optimization for manufacturing. The original files indicated the part would need:

- 18 side actions
- 8 molded-in brass inserts
- Heat staked inserts
- Overmolded bearings

All of which have been shown to significantly decrease production efficiency.

Catalyst often works with clients on experimental tools that challenge the "normal" process and push the limits of part design. Due to the complexity and part size, this part fell into that category. The Catalyst tooling managers worked hand in hand with the client's design team to ensure the design intent and integrity of the part was not jeopardized. With the number of side actions and brass inserts required by the part, the design and tool had to be on target.

The Catalyst Difference

Catalyst prides itself on the ability to push the limit of tooling design and injection molding, making what has never been possible a reality. This particular part started the process with four men running the injection molding press due to the number of side actions involved. Before production was complete, they had fine tuned the process so one man could run the press even with 18 side actions. That is the Catalyst difference: trying new ways, thinking on our feet, doing whatever it takes to make your project successful.

The proprietary rapid tooling process allows Catalyst to decrease time to market compared to conventional tooling processes.

The Result

The original design of the part remained intact and Catalyst was able to provide the client with the pre-production parts they needed for testing, marketing samples and in-store installations.



Short Run Manufacturing



SPRInT, Catalyst's proprietary short run tooling process was developed to accelerate the product development process by getting your product to market before your competition.



Short Run Manufacturing Includes:

SPRInT (Short-Run Production Rapid Insert Tooling) can be used to bridge the gap between prototyping and large volume manufacturing or, depending on the volume, it can be used to fill your full production needs.

Catalyst will build a QC7 aluminum insert tool that runs in our proprietary Uni-Base system and yields higher quantities of plastic parts in a short lead time. This process is perfect for 25,000 to 100,000 pieces, depending on size and complexity.

The Catalyst Edge

Catalyst can significantly reduce the product development time, and continue their speed to market expertise and momentum into production, even for a short period of time while high volume production is being ramped up. Building production parts from a SPRInT tool while the final large volume tool is being made, you get your product to market faster, which equates to earlier profit and market share. And, based on your annual volume, this type of short run production may even meet your full production needs.

Call CATALYST today **866-275-2757** or log on to **www.catalystpdg.com** for all your Short Run Manufacturing Needs!

COBRA MOTORCYCLES CASE STUDY



The Challenge

Cobra Motorcycles has produced premium race-ready mini motocross bikes for youth riders since 1993. Cobra Motorcycles is the only producer of off-road motorcycles that are truly made in the U.S.A.

In 2006, Cobra recognized a gap in the market and decided to introduce a new motorcycle to their line, a 65cc bike that would enter them into a new race category. Their team designed and engineered the entire motorcycle from the ground up. Once the design and engineering were finalized, and Cobra was ready to produce parts, they called Catalyst PDG, Inc. for their injection molding expertise. Cobra's low volume production needs and the need for speed to market, made offshore tooling unrealistic.

The new motorcycle would be launched at the Winter Mini Olympics in Florida, so the parts Catalyst produced had to be dead on. The motorcycle, as an introduction into a new category, would be scrutinized carefully by riders, vendors and other manufacturers. The parts had to be flawless, the assembly perfect.

The entire program consisted of a total of nine individual parts including a left and right shroud, left and right side number plates, a seat pan, rear fender; air box, chain guard and the front number plate. Nine individual aluminum tools and hundreds of parts were made and shipped to support the new product introduction.

The Catalyst Difference

The ability to actually tool and mold parts right inside of Catalyst facility sets Catalyst apart from other product development companies. While many companies outsource such projects, having the parts made in a facility with design, engineering and CAD services under one roof results in a more flexible process.

Throughout production, Catalyst worked closely with Cobra to integrate design changes while maintaining the original schedule. Other injection molding companies would have to involve a third party, creating a time delay and potentially missing the deadlines. The product development process at Catalyst does not end with design and engineering. Every department of the company plays an integral role in developing new products, whether it is designing from a napkin sketch or injection molding a large program.

The Results

The new 65cc motorcycle was enthusiastically received during the launch at the tradeshow. To date, Cobra Motorcycles has sold more than half of their annual capacity of this unit and expects the popularity to continue to increase as races are won throughout the year.



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