

AAC Trims Molding Costs

Atlantic Automotive Components (AAC) recently utilized MoldMAX® HH (High Hardness – 40 HRC) to improve part quality and reduce costs in an automotive trim component application. By replacing P-20 slides with high conductivity MoldMAX, cycle times were reduced from 49 seconds to 37 seconds. This represents more than \$100,000 in annual savings and will save over 1300 hours of molding time each year. Assuming a product life cycle of 5 years, **the decision to use MoldMAX will save AAC \$500,000 and 6500 hours of machine capacity over the life of the tool.**



Interior trim component and tool utilizing MoldMAX HH.



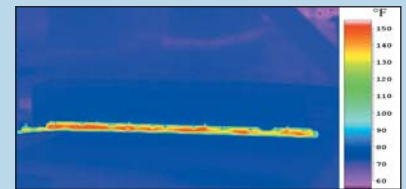
This photo shows two molded parts: the upper part shows a dimensionally conforming part molded at 49 seconds with P-20. The lower part shows deformation as a result of running the same tool at a reduced 37 seconds. Most steel tools are slowed down to mask the effect of poor heat transfer on the molding process. However, with its superior thermal properties, a MoldMAX HH tool was designed in, ran at 37 seconds, and produced a part that was dimensionally accurate and conforming.

Another benefit is the improved quality of the molded component due to the rapid and even removal of heat energy from the molded part. This resulted in a part that met all dimensional requirements the very first time it was run. This saved substantial time getting the tool approved for production and freed up engineering resources to focus on other projects.

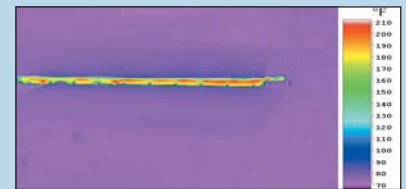
AAC continues to develop innovative ways to provide better value and quality for their customers. They achieved better part quality, reduced costs, and reduced time-to-market by investing in MoldMAX.

Choosing the Right Tooling Material

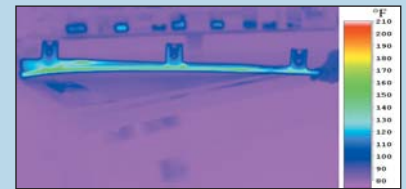
AAC contacted Ferro Corp-Stryker Division, a major supplier of compounded resin, to discuss part distortion that was occurring in the automotive trim part they were manufacturing. Ferro contacted Plastech Consulting to perform a mold filling analysis on AAC's part. Plastech's analysis concluded that the problem was slow heat transfer of the P-20 slide that formed a fitting channel that ran the length of the part. Recognizing the benefits that could be realized by using MoldMAX, John Hickman of Plastech Consulting suggested that the mold builder, Mach Mold, use MoldMAX HH in the slides in place of P-20. Mach Mold has extensive experience



Part from tool using P-20 slides with a 49 second cycle time.



Part from same tool using P-20 slides with cycle times reduced to 37 seconds. Part is 50° F hotter and is distorted.



The tool using **MoldMAX HH** slides produces conforming parts with cycle times reduced to 37 seconds.

machining and effectively utilizing MoldMAX in tools they have built. AAC and Ferro agreed with John Hickman's recommendations and enthusiastically moved forward with the design and build of the door trim mold, taking advantage of the many benefits of MoldMAX.

AAC participated in another service that Brush Wellman offers; infrared imaging of molds and parts which identify opportunities to improve cycle time and part quality. The infrared images above compare molded parts from a tool using P-20 slides vs. MoldMAX HH slides. These pictures are worth a thousand words.

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They illustrate how poorly the tool with P-20 slides removed heat from the part when cycle times were reduced from 49 to 37 seconds. However, the MoldMAX HH slides can easily remove the heat with a 37 second cycle time and produce a conforming part with even better quality than a part molded from the tool with P-20 slides running at an inefficient 49 second cycle time. Not only did MoldMAX HH allow cycle times to be reduced by 25%, but the use of MoldMAX also substantially increased part dimensional approval.

This case study shows how the whole supply chain benefits from implementing the available technology in the form of computer modeling, MoldMAX high conductivity mold materials, and thermal imaging to reduce costs and lead times.

MEET YOUR BRUSH WELLMAN PLASTICS TEAM MEMBER

Profiled: Doug Veitch

Brush Wellman welcomes the newest member to your Plastics Team, Doug Veitch, Director of Application Engineering & Marketing for Plastics/Tooling. In this newly created position, Doug will be responsible for the development of new applications and products targeted primarily at the plastic injection and blow molding markets.

Doug is a graduate of the University of Alberta with a BS in Mechanical Engineering. He comes to Brush from E.I. DuPont de Nemours and DuPont-Canada where he has spent the last 15 years in various commercial and technical positions working with customers

and field sales to get DuPont products specified. He received his blackbelt certification in February, 2004, and his most recent position had responsibility for over \$20MM in revenue.



Doug Veitch

Doug and his family will be relocating to Cleveland from their home in Detroit, MI in order to work from the Brush Wellman headquarters in Cleveland.

Events

March 20 - 23: SPI Structural Plastics Division Annual meeting in Orlando, FL

Dr. Bob Kusner will be presenting **USING INFRARED TECHNOLOGY TO IMPROVE MOLD DESIGN.**

Learn about Infrared thermography, technology permitting processors to maximize the thermal management of molds, and provide detailed information to mold makers, allowing them to improve mold designs and manufacture more efficient tools. Substantially lowering processing costs through improved thermal management will position you to compete in our tough global economy. This seminar will introduce the use of infrared camera technology to stay competitive.

Seminar is scheduled for Wednesday, March 23 in the morning.

April 19 - 21: MoldMaking Expo in Chicago, IL

– visit Brush Wellman at booth 1017.

Complimentary exhibit hall passes are still available, contact Brush Wellman at alloypromotions@brushwellman.com to request your free pass. And be sure to visit the Brush Wellman booth in conjunction with *MoldMaking Technology* to qualify for the grand prize in the "MoldMaking Expo Cup 2005" for your chance to win a gift certificate to the Richard Petty Driving School. Look for details and official rules from *MoldMaking Technology* at the show.

Dr. Bob Kusner will be presenting **DRAMATIC COST REDUCTIONS THROUGH MANAGING THERMAL PROPERTIES OF A MOLD.**

Learn how maximizing the thermal properties of a mold can reduce cycle time and scrap rates offering the greatest return for capital invested in the plastic

parts manufacturing process today.

Though computer modeling Dr. Kusner will explore four factors for managing the thermal properties of a mold: (1) the core and cavity material, (2) the temperature of the cooling water, (3) the flow rate of the cooling water, and (4) the cooling design - cooling channel location, quantity of lines, and the turbulence generated in the lines.

Seminar is scheduled for Tuesday, April 19 at 1:45-2:45 PM.

"Brush Ups" on Mold Alloys is a new publication developed to keep you informed of advancements and trends not only in the plastics industry, but also within Brush Wellman's plastics segment of the Alloy Products group. Look for *Brush Ups* on a bi-monthly basis.

MoldMAX® - Mold Alloys

Providing Thermal Management Solutions

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