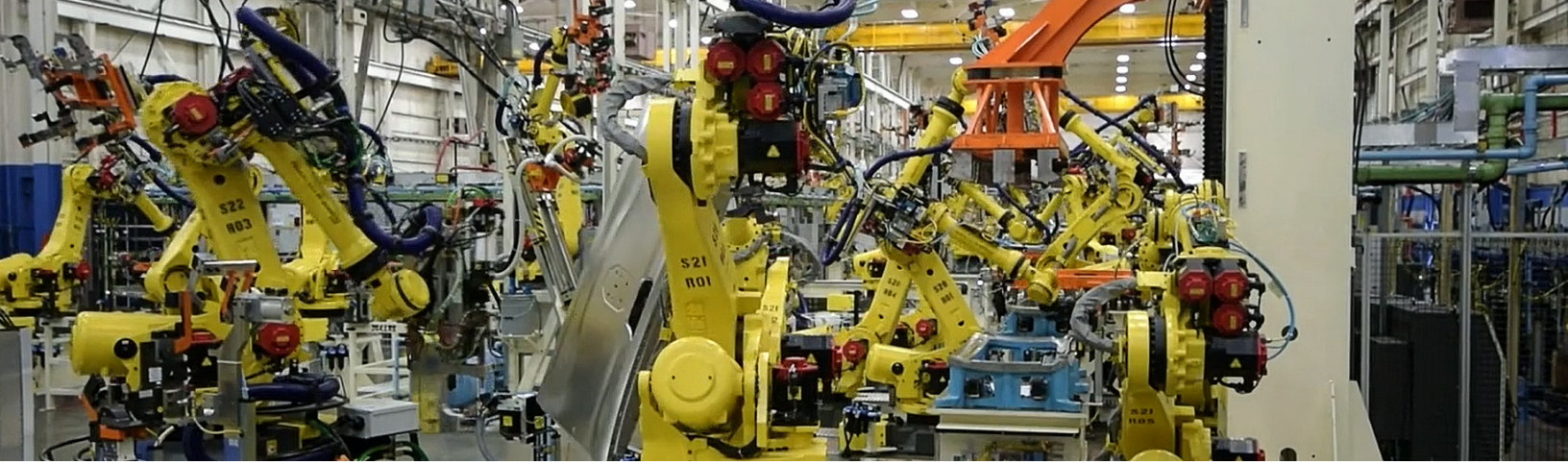


Valiant TMS

Use Case – Auto A-Pillar Latch Tool Handle

Customer Profile

Valiant TMS develops intelligent production automation systems for automotive and aircraft manufacturing companies worldwide. Valiant TMS leverages current technologies, such as additive manufacturing, to meet its customer's requirements, and the Valiant TMS Additive Manufacturing Lab has multiple systems capable of printing polymer and metal.

Challenge

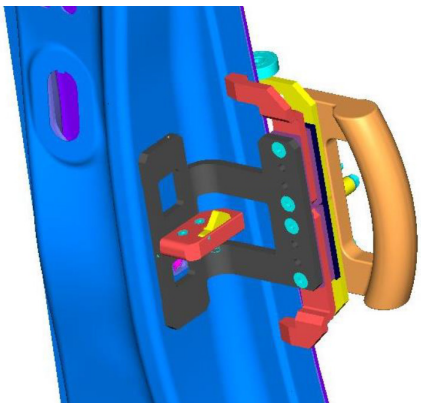
A new hand tool used to attach an auto A-pillar door latch required a combination of ergonomics, strength, and minimal weight. Engineers wanted to 3D print the tool since it would meet these requirements better than a machined metal alternative. However, an essential aspect of the ergonomic design was achieving a very smooth, no-defect surface finish in a material that would provide sufficient strength.

Solution

The Valiant TMS Additive Manufacturing Lab chose to print the latch tool with the Origin One 3D printer using advanced digital light processing (DLP) P3 technology. The Origin One offered benefits on multiple fronts, including a broad range of materials and an injection mold-like surface finish. In addition, engineers used Dura56, a photopolymer material developed by Loctite® specifically for the Stratasys Origin One, for its quick print speed and high impact toughness. P3 technology on the Origin One is also more isotropic, offering higher strength than non-isotropic additive methods.

Impact

3D printing the tool with the Origin One resulted in a 78% cost reduction and 79% faster print time compared to other additive processes. Additionally, the combination of the Origin One and Dura56 material achieved a very smooth surface finish, which provides a comfortable grip for operators repetitively using the tool on the assembly line.



A CAD rendering of the complete A-pillar tool with the handle shown in gold color.

The 3D printed handle in Dura56 material.

79%
Decrease in Print Time

Compared to Other Additive Processes

78%
Cost Savings

Compared to Other Additive Processes

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