

Trexel / MuCell, Radiator Top

3D Scan to CAD to FEA Example, Case Study

The MuCell Microcellular Foam injection molding technology is a complete process and equipment technology which facilitates extremely high quality and greatly reduces production costs. The MuCell Process involves the controlled use of gas in its supercritical state to create a foamed part.

The MuCell Technology is targeted at precision and engineered plastic components with maximum wall thicknesses of less than 3mm, and offers a 50-75% improvement in key quality measures, such as flatness, roundness, and warpage, also eliminating all sink marks.

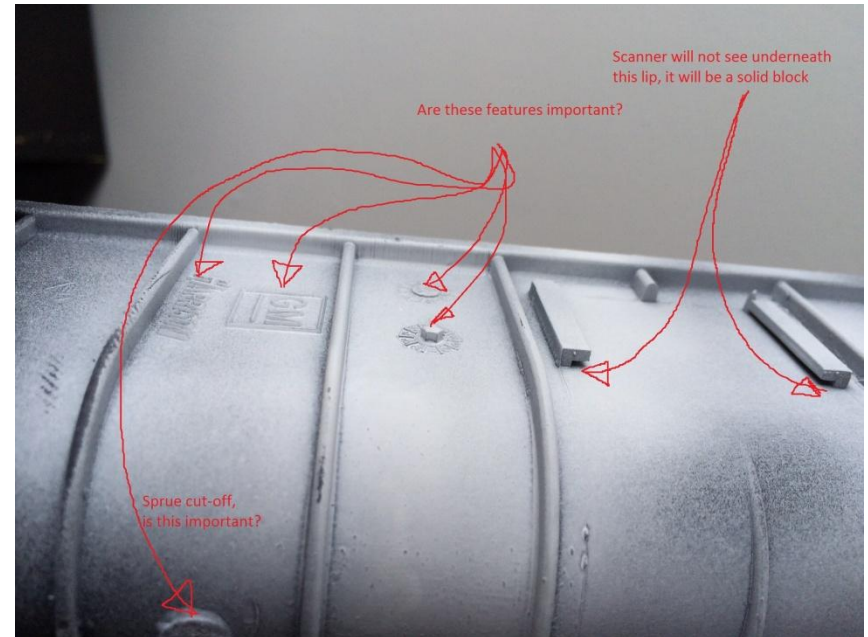
In this 3D scan example, a legacy part with no CAD model was digitized and re-modeled for analysis performed in Moldex3D. Moldex3D is a leading provider of CAE solutions for the plastics injection molding industry. With best-in-class analysis technology, Moldex3D can enable plastic part and mold designers to create in-depth simulation with the widest application range of injection molding processes to optimize product design and manufacturability, shorten time-to-market, and maximize product return-on-investment.

3D Scanning of a Legacy Part, to Re-create a CAD Model

Preparation of radiator top, spray coating used to eliminate shine



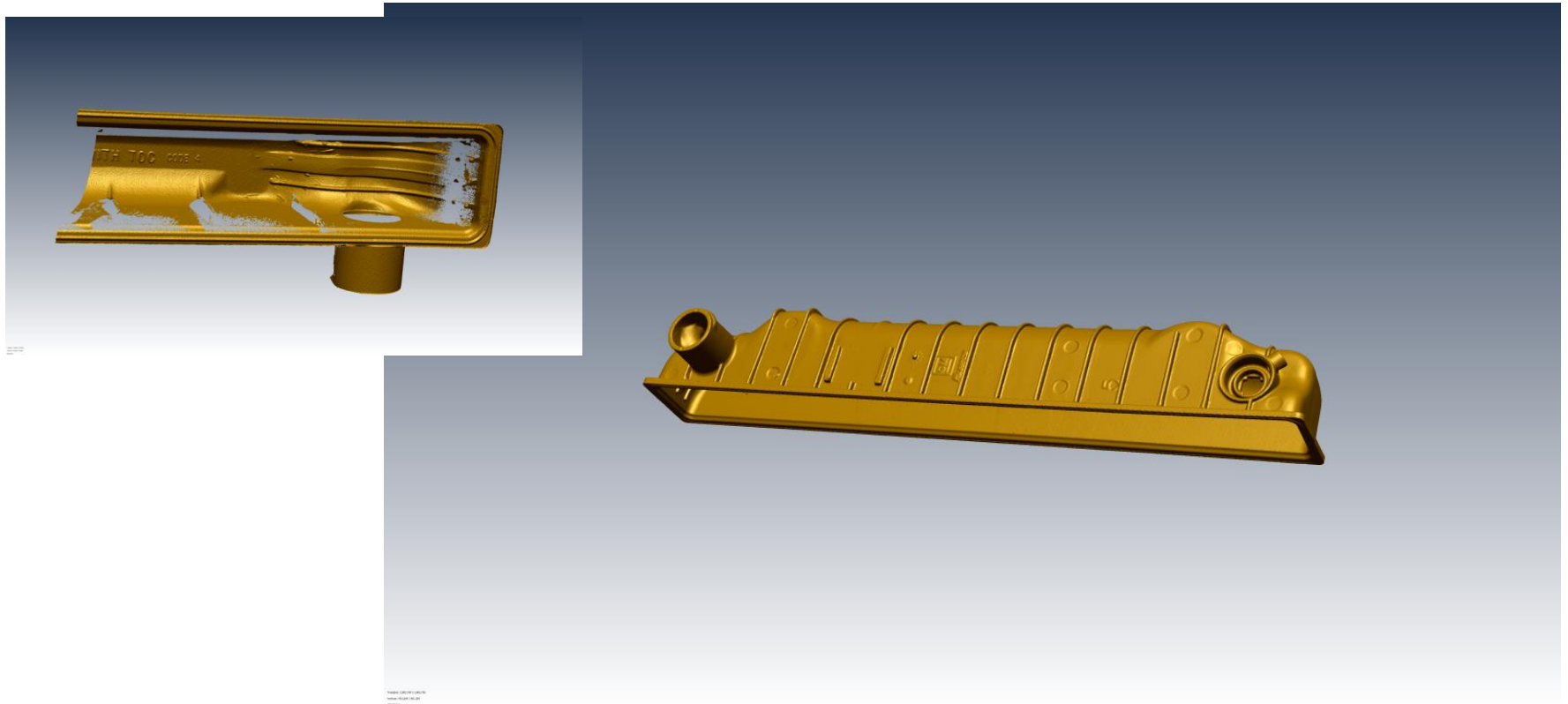
Initial communication helps to determine optimum scan strategy



Structured Light Scanning Allows High Detail Results

Single view scan in process, many views are aligned and processed

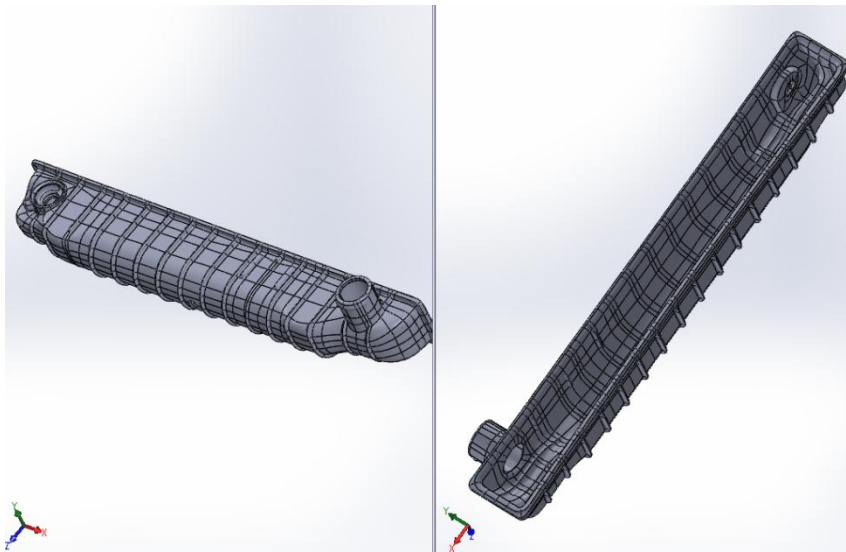
A merged mesh file after global alignment & removal of overlapped areas



CAD surfacing of the Mesh

Creates an .IGS or .STP CAD File

Individual surface patches are created to follow and preserve detail



Final CAD file is smooth surfaced

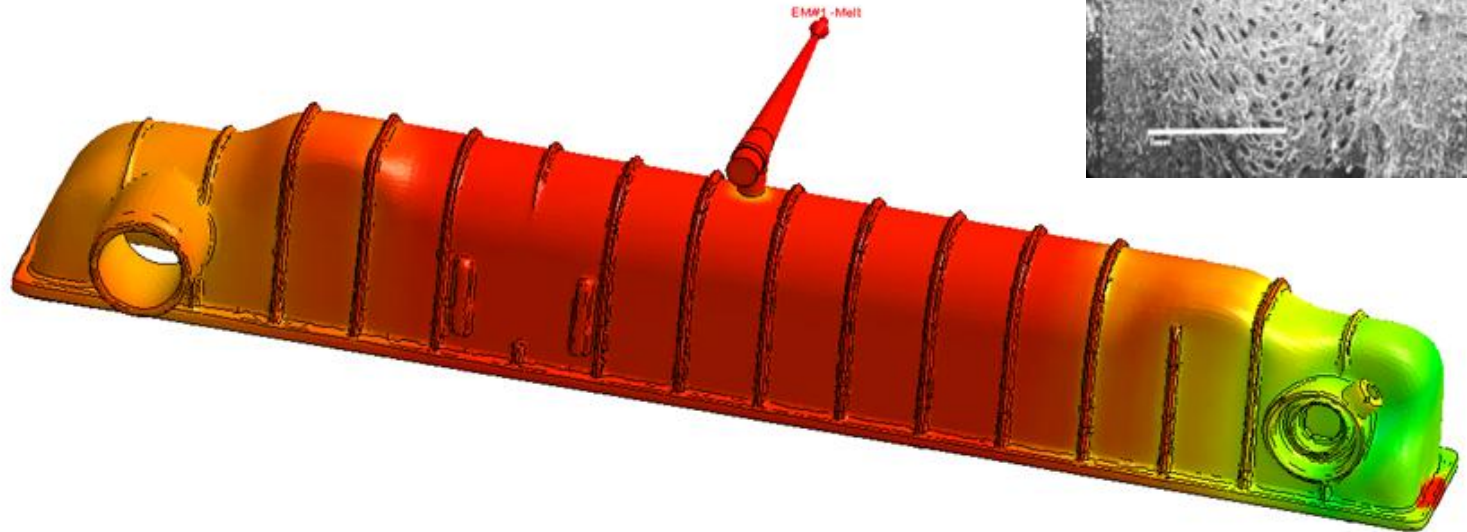


Simulation – Part Density

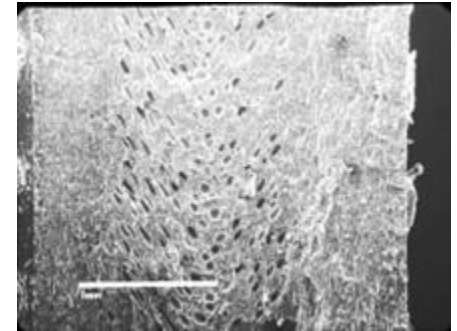
Filling / Packing_Density

Time = EOF

[g/cc]



T MuCell Processes
REXEL INC.

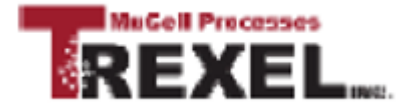
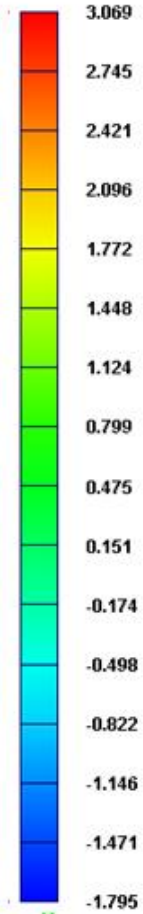


Moldex3D

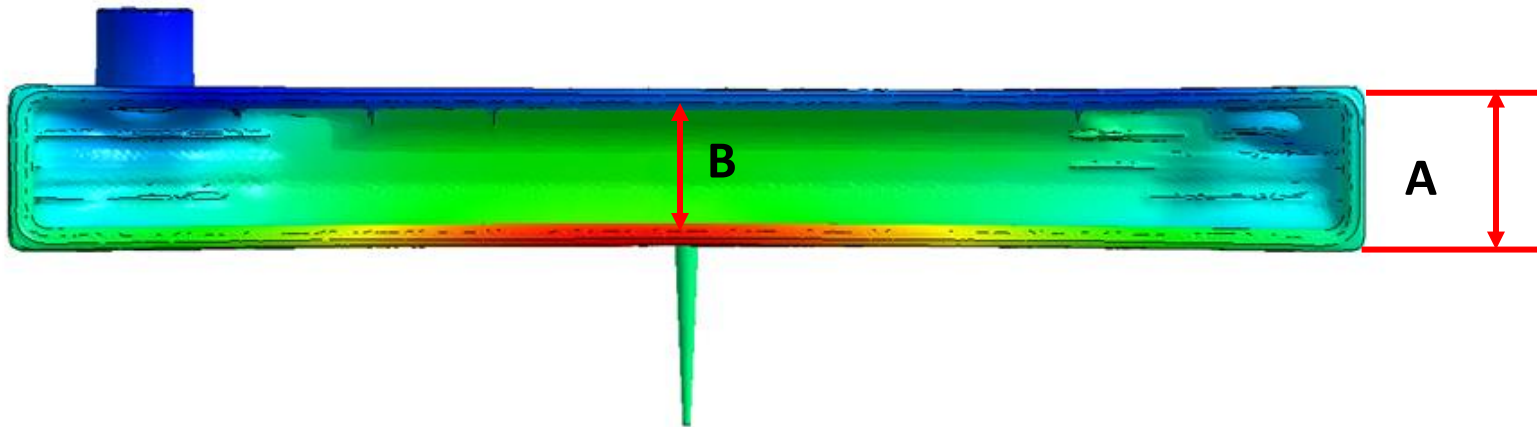
Simulation – Displacement

Warpage_Y-Displacement

[mm]

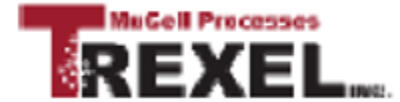


A - B	Predicted	Actual
	3.83 mm	3.33 mm



Moldex3D

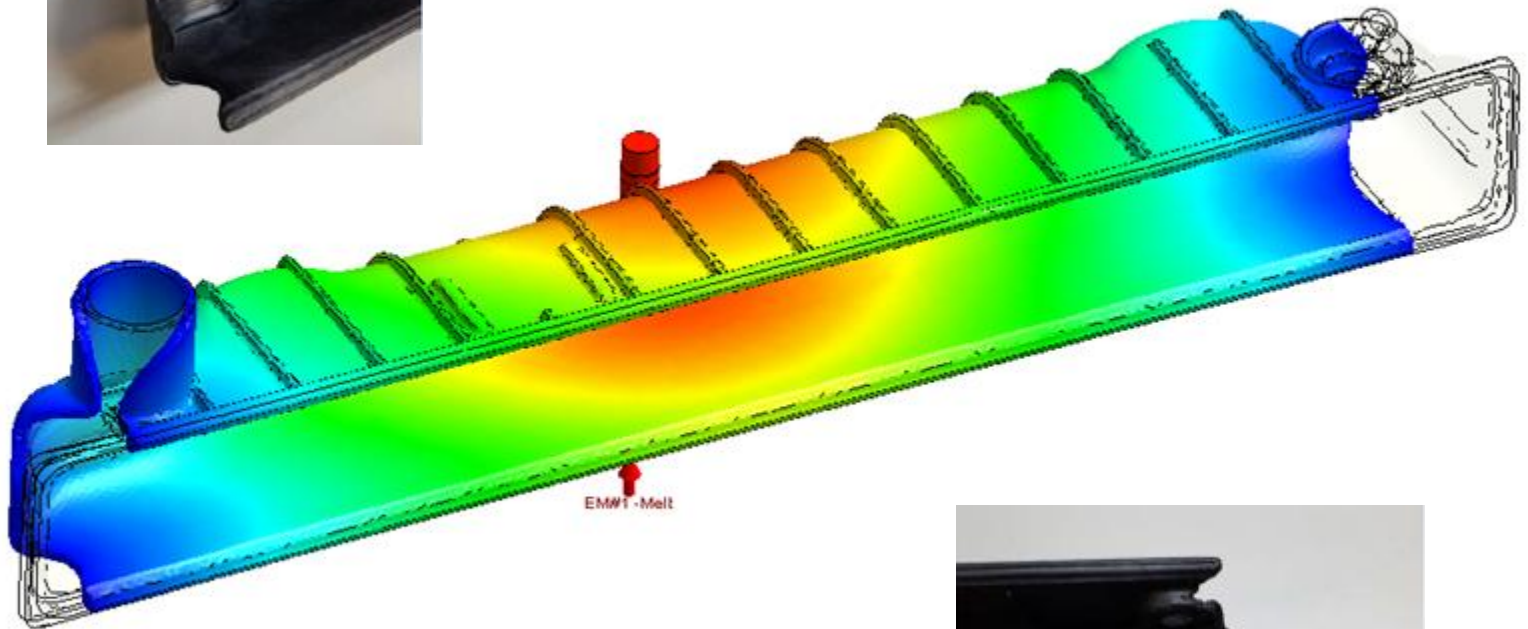
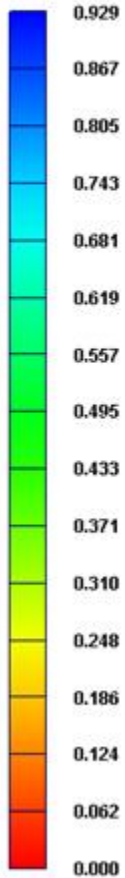
Simulation - Fill



Filling / Packing_Melt Fr

Time = EOF

[sec]



Moldex3D

For more info on this technology, please visit:

www.trexel.com

www.moldex3d.com

WWW.3DPRINTSMITH.COM