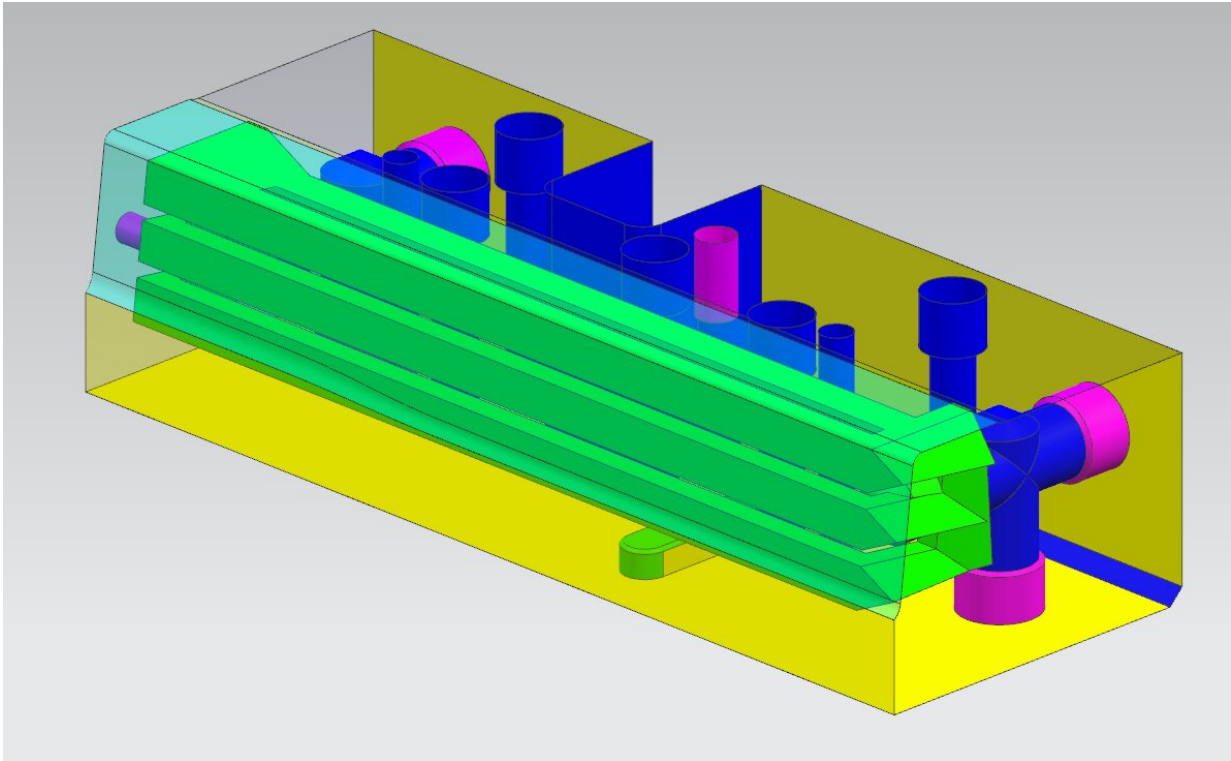


# Manufacturing—Built to last

November 5 2019

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Credit: Oak Ridge National Laboratory

Researchers at Oak Ridge National Laboratory, in collaboration with Lincoln Electric and Dienamic Tooling Systems, demonstrated that an additively manufactured hot stamping die can withstand up to 25,000 usage cycles, proving that this technique is a viable solution for production.

ORNL is working with industry to develop a large-scale metal wire-arc process that reduces the cost and shortens lead times required to manufacture the dies, which are used to shape and cut materials.

"Conventional manufacturing allows water channels to only be machined in straight lines, but additive manufacturing lets water channels follow the shape of the die more uniformly to allow for optimized temperature reduction," ORNL's Andrzej Nycz said.

"With this [manufacturing method](#), we can also use different materials within the same die to improve the design."

The ability to additively manufacture dies is a benefit to the United States' [manufacturing](#) industry because most hot stamping dies are imported.

Provided by Oak Ridge National Laboratory

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