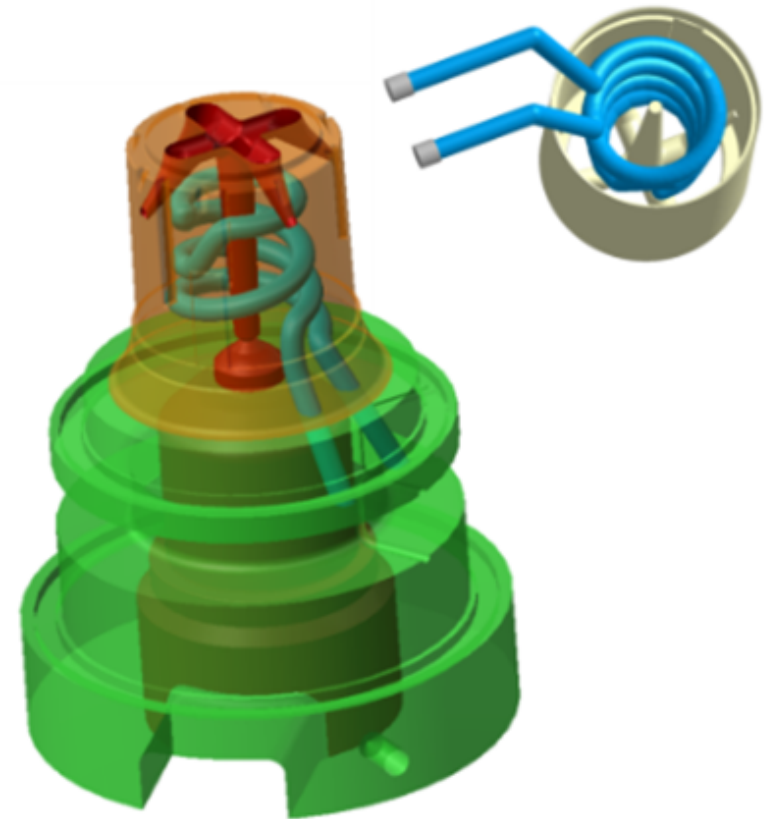


DMLS tools and hybrid design improve part quality and cycle time

- **Solution**

- Design of conformal cooling channels
- Hybrid structure
 - Manufacture the lower part of the mold by conventional process (CNC milling)
 - Upper part built on EOS M 270
- Material: EOS MaragingSteel MS1
- Validation of results with flow, fill and cooling simulation using Moldex3D => decision for final design

conformal cooling channel; design of the DMLS insert

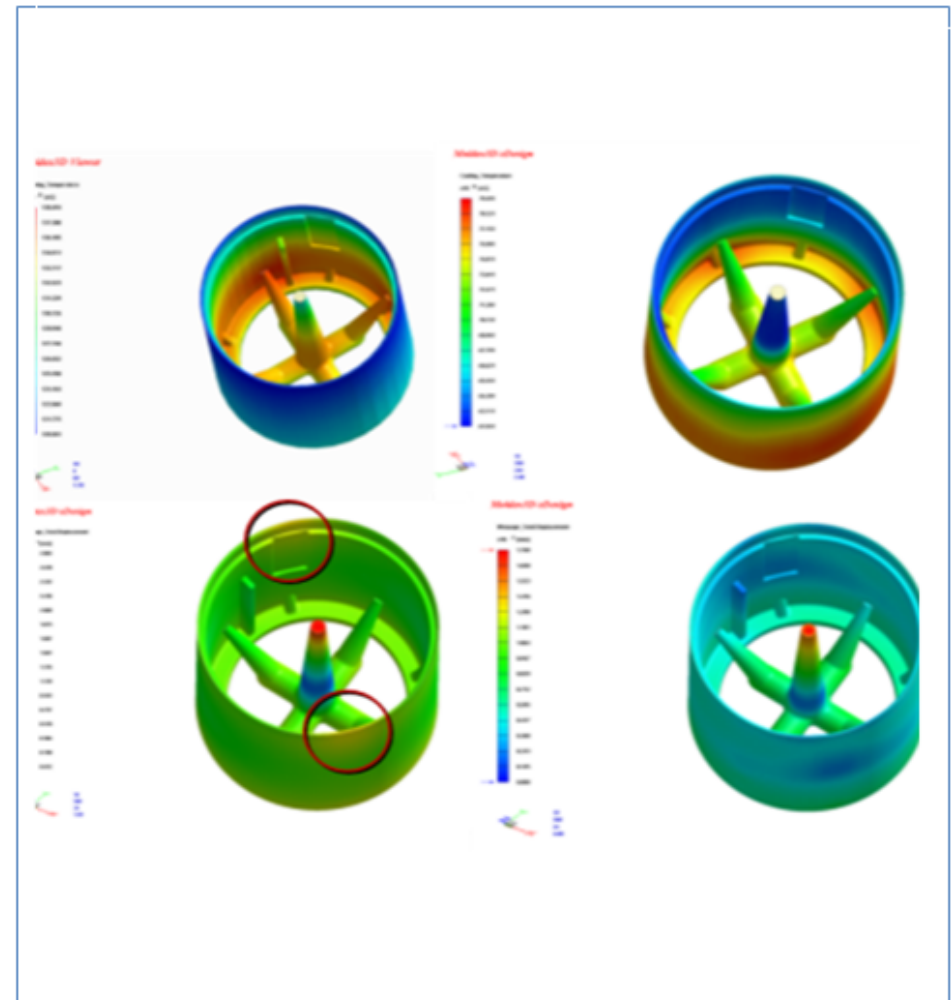


Simulation compares benefits of conformal cooling channels with conventional solution

Upper picture : temperature distribution analysis.
Bottom picture: warpage analysis

- **Solution**

- The simulation is performed for the two possible solutions with Mouldex3D
- Temperature distribution
- The solution with the copper alloy shows a maximum temperature of 107°C
- The solution with the copper alloy shows a maximum temperature of 79°C
- Warpage analysis
- The conventional solution shows a warpage of max 0.25mm
- The DMLS solution shows a warpage of 0.1 mm



Case Study - 2

DMLS addresses quality and cost per part challenges

- **Challenge**

- Cost reduction for the manufacturing of an automotive plastic product (San, Luran 368 R Crystal Clear, BASF)
- 4 cavities mould, standard solution with copper alloy inserts
- Optimize cold Runner and nozzle gate process
- Improve quality of the manufactured part

Insert and plastic part

