



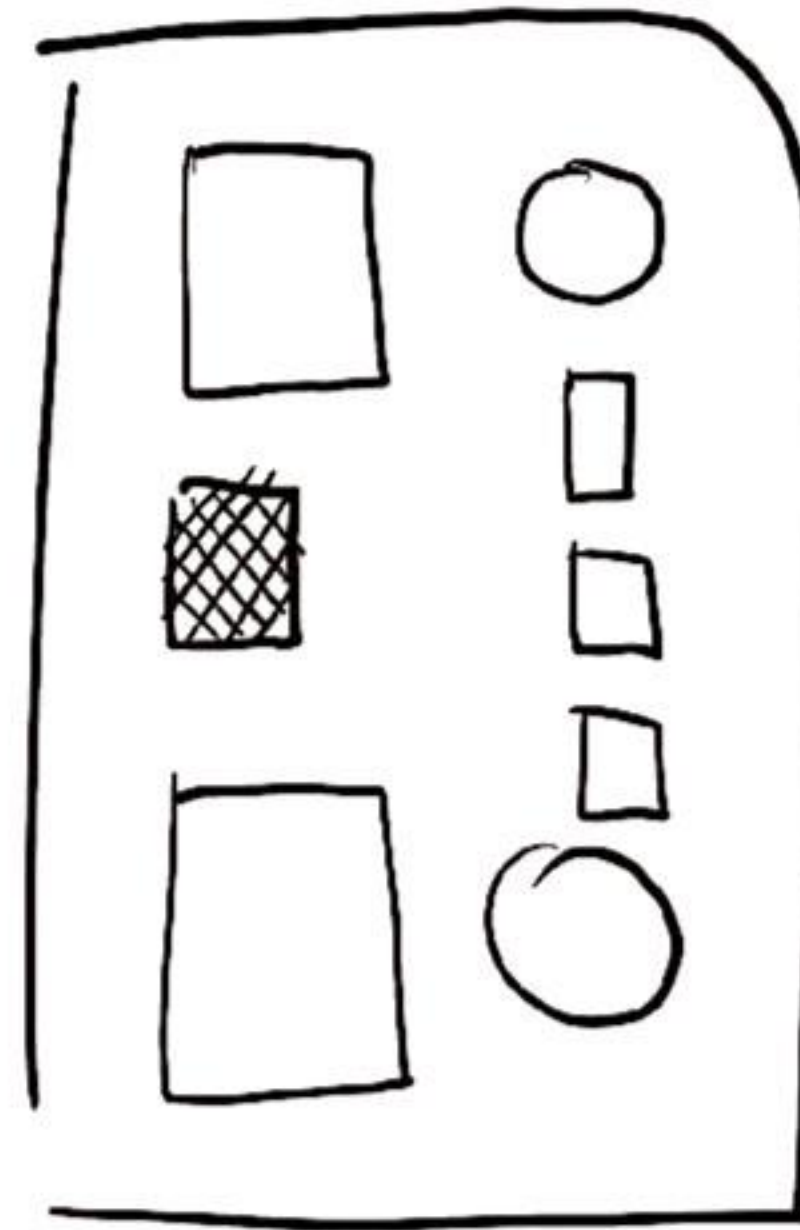
Topic:

VARIOTHERM



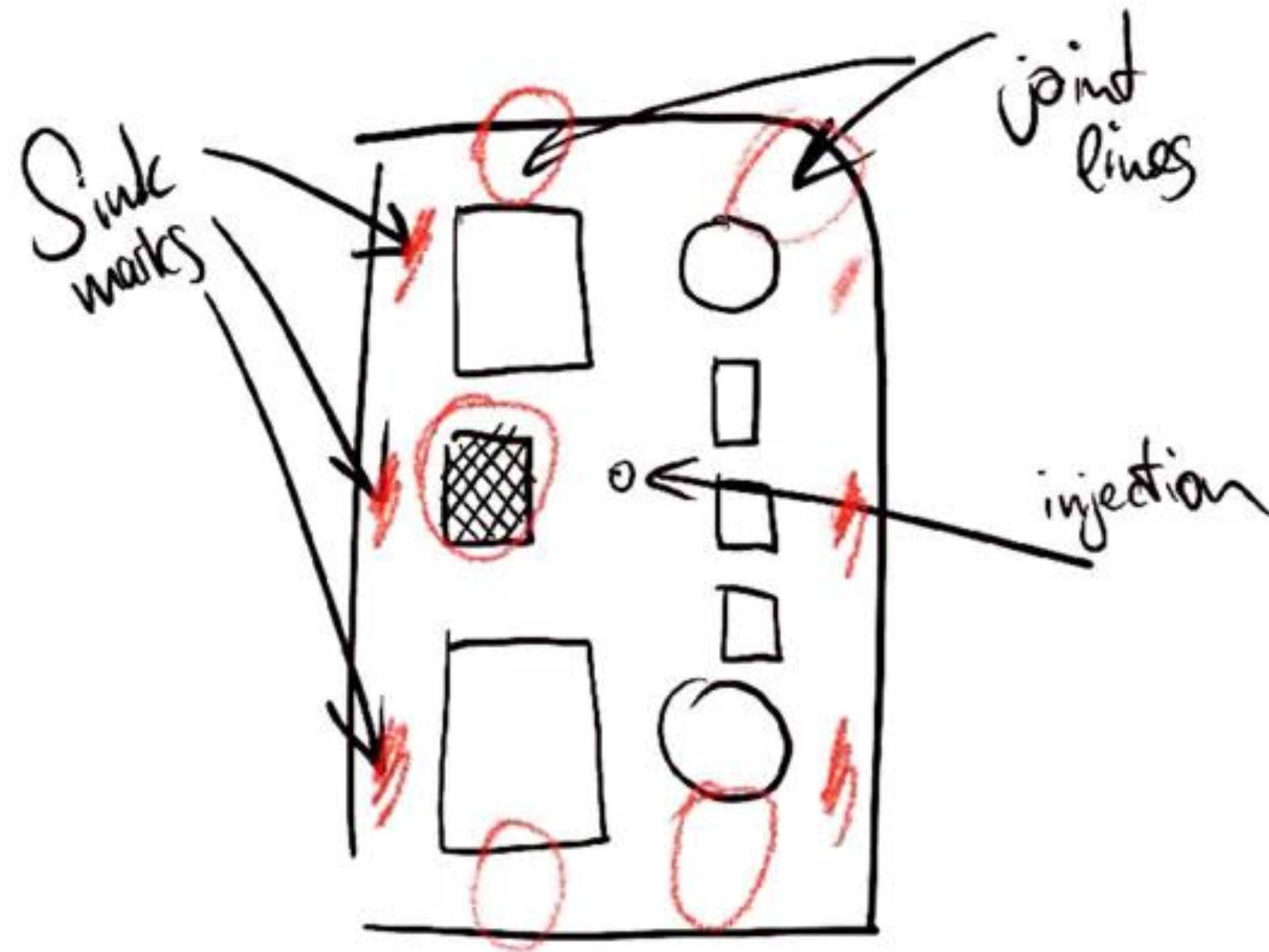
CONTURA[®]
MOLD TEMPERATURE CONTROL

OUR SERVICE



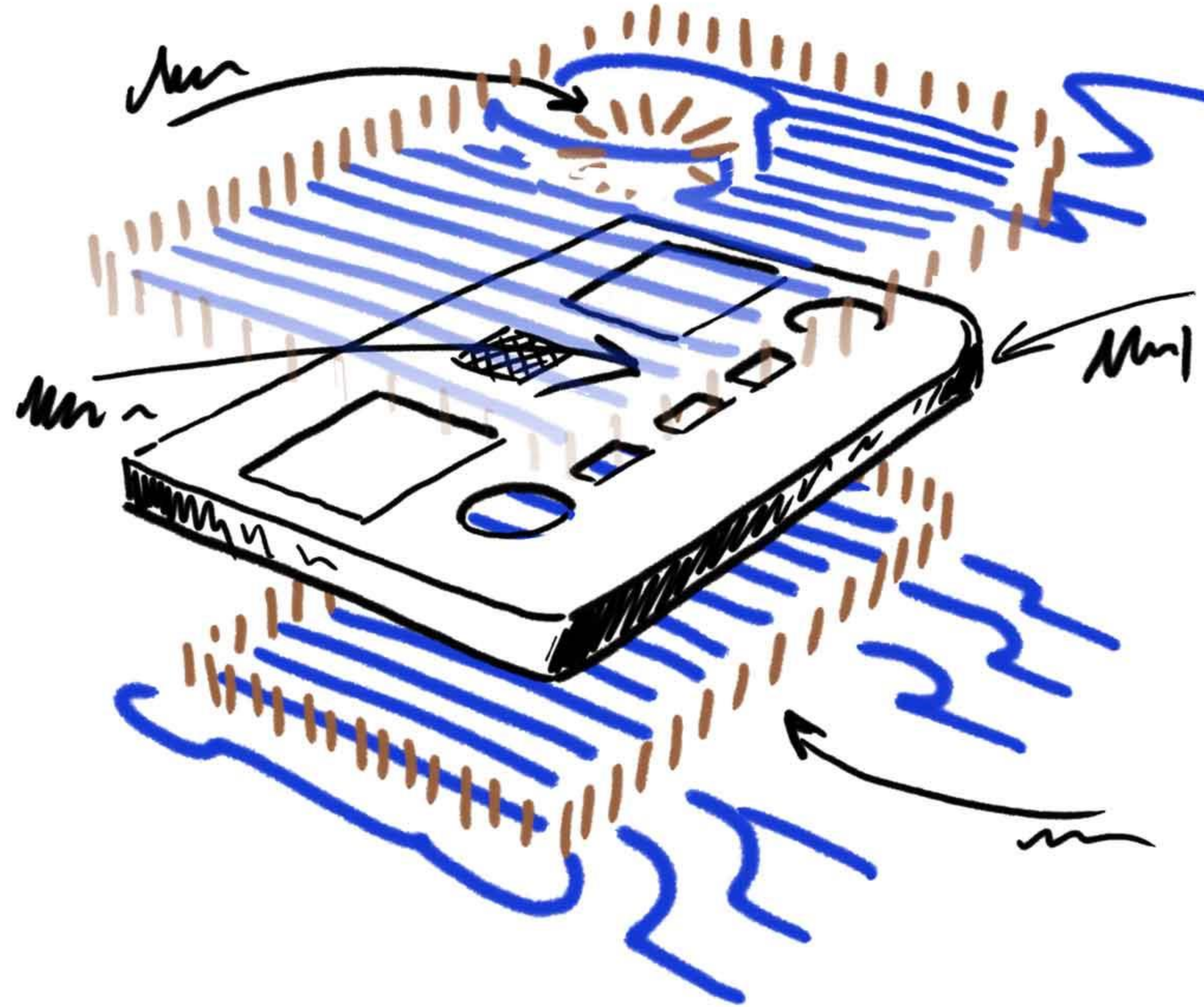
Starting with your Product ...

OUR SERVICE



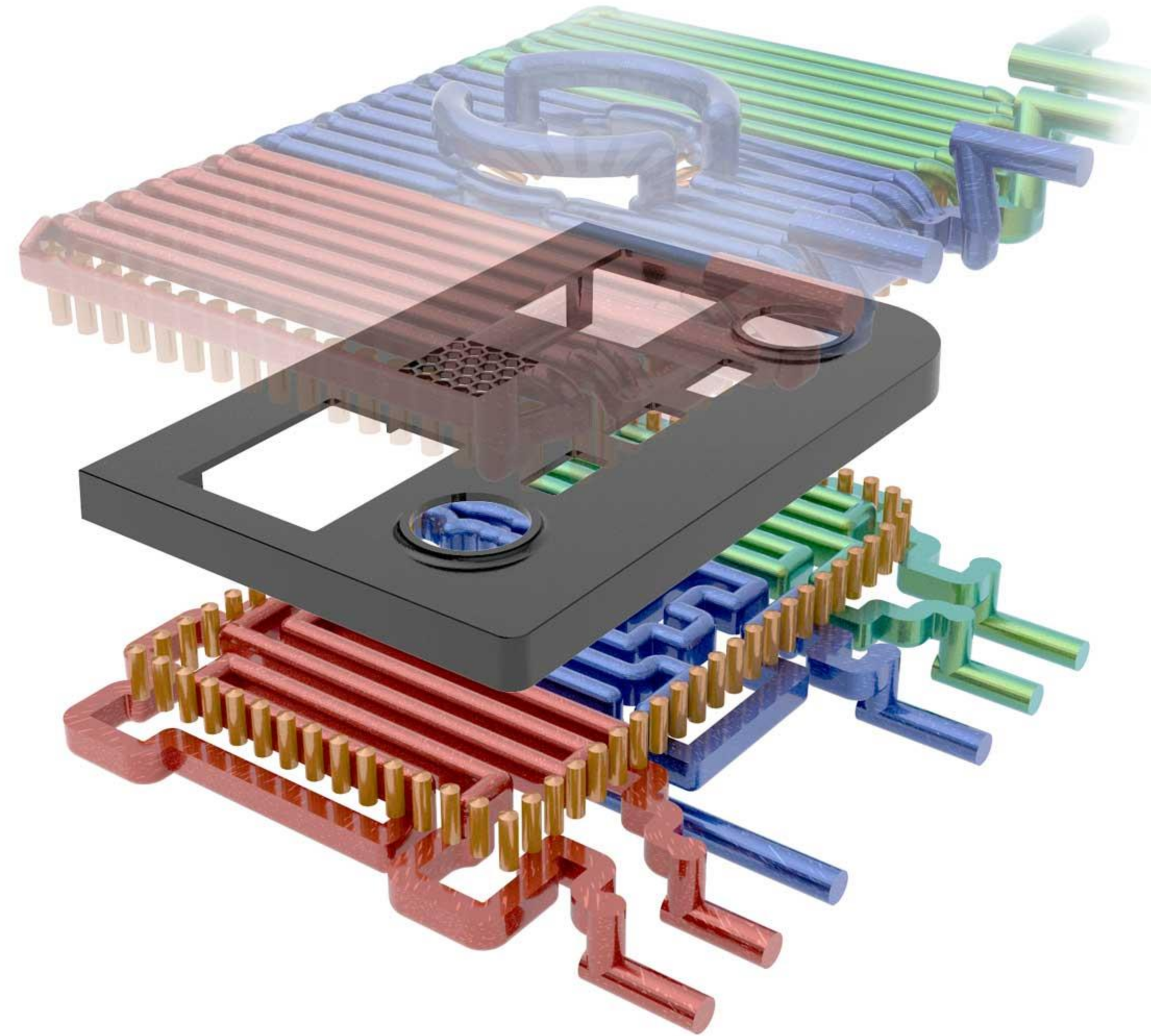
We analyze the project for possible problem areas,

OUR SERVICE



Developing an optimal solution,

OUR SERVICE



Design this solution and manufacture the mold insert,



OUR SERVICE



For a perfect product!

THE VARIOOTHERMAL PROCESS

THE VARIOOTHERMAL PROCESS

- **Before Injection**

 - *Heating up the cavity*

- **After volumetric filling**

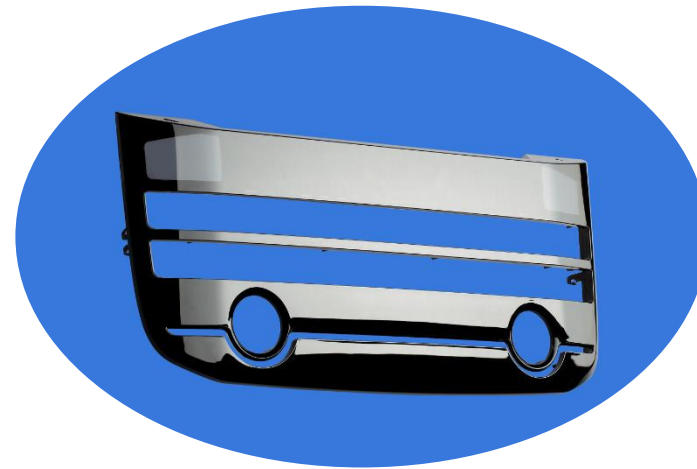
 - *Switch to cooling*

- **After freeze off**

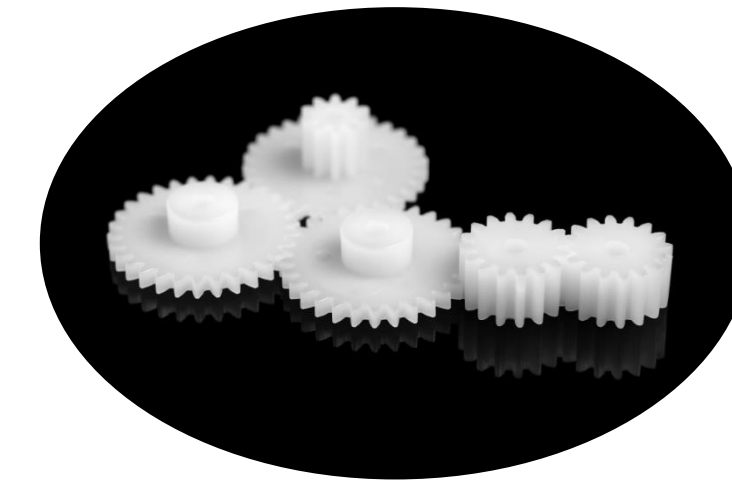
 - *eject the part and heat up the cavity again*



Filling of thin wall parts

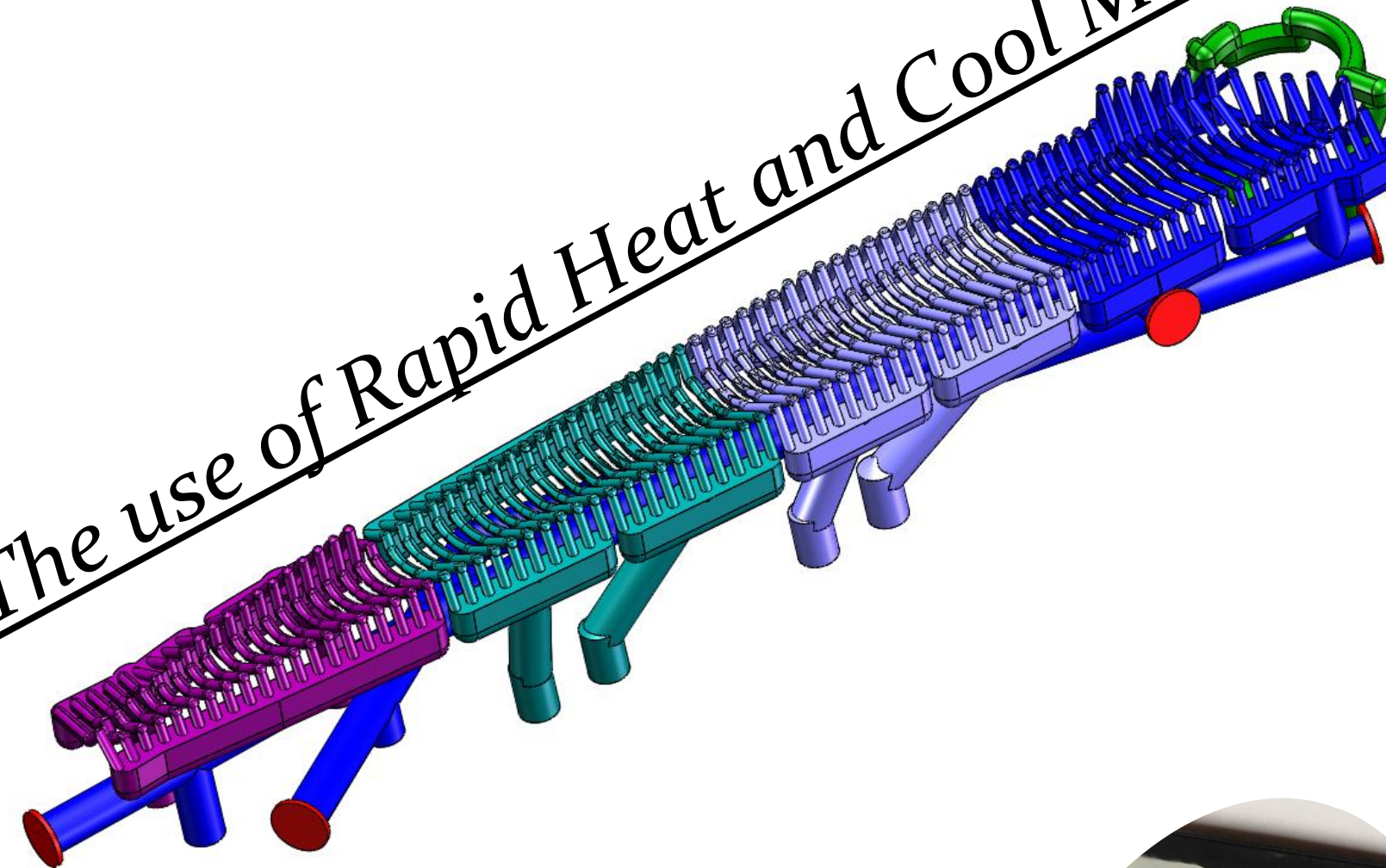


Paint elimination on aesthetic parts



Influence on the crystalline structure

The use of Rapid Heat and Cool Molding



Cycle time saving for thick-wall parts

Increasing of brightness & Elimination of -Weld lines -Streaks



Surface quality for Foamed parts

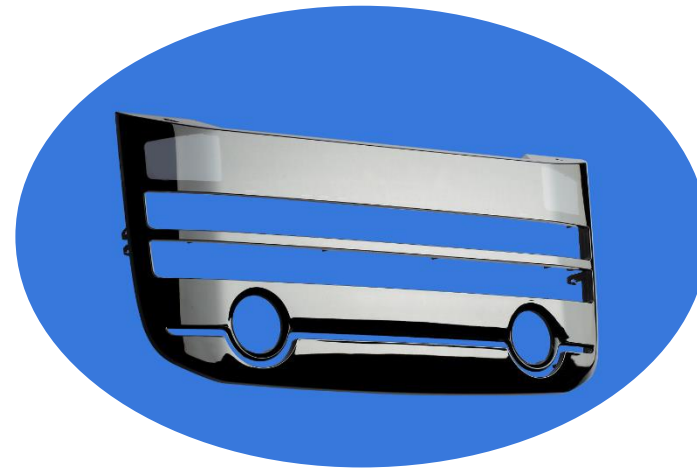


Laboratory equipment out of PS

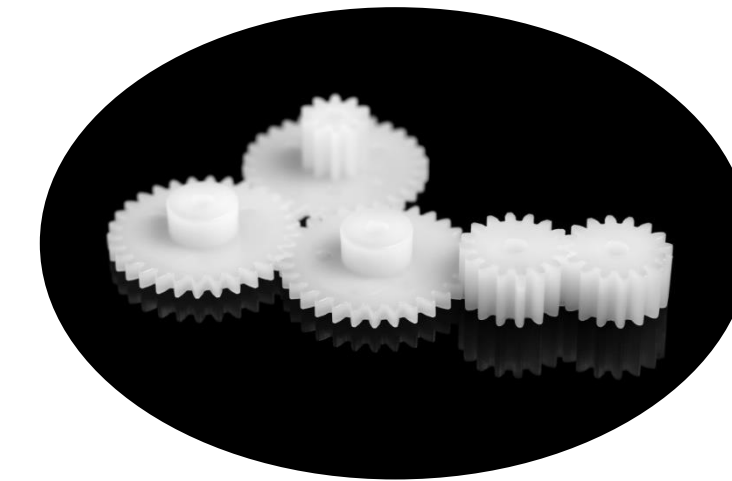
(wall thickness 0,8 mm)



Filling of thin wall parts

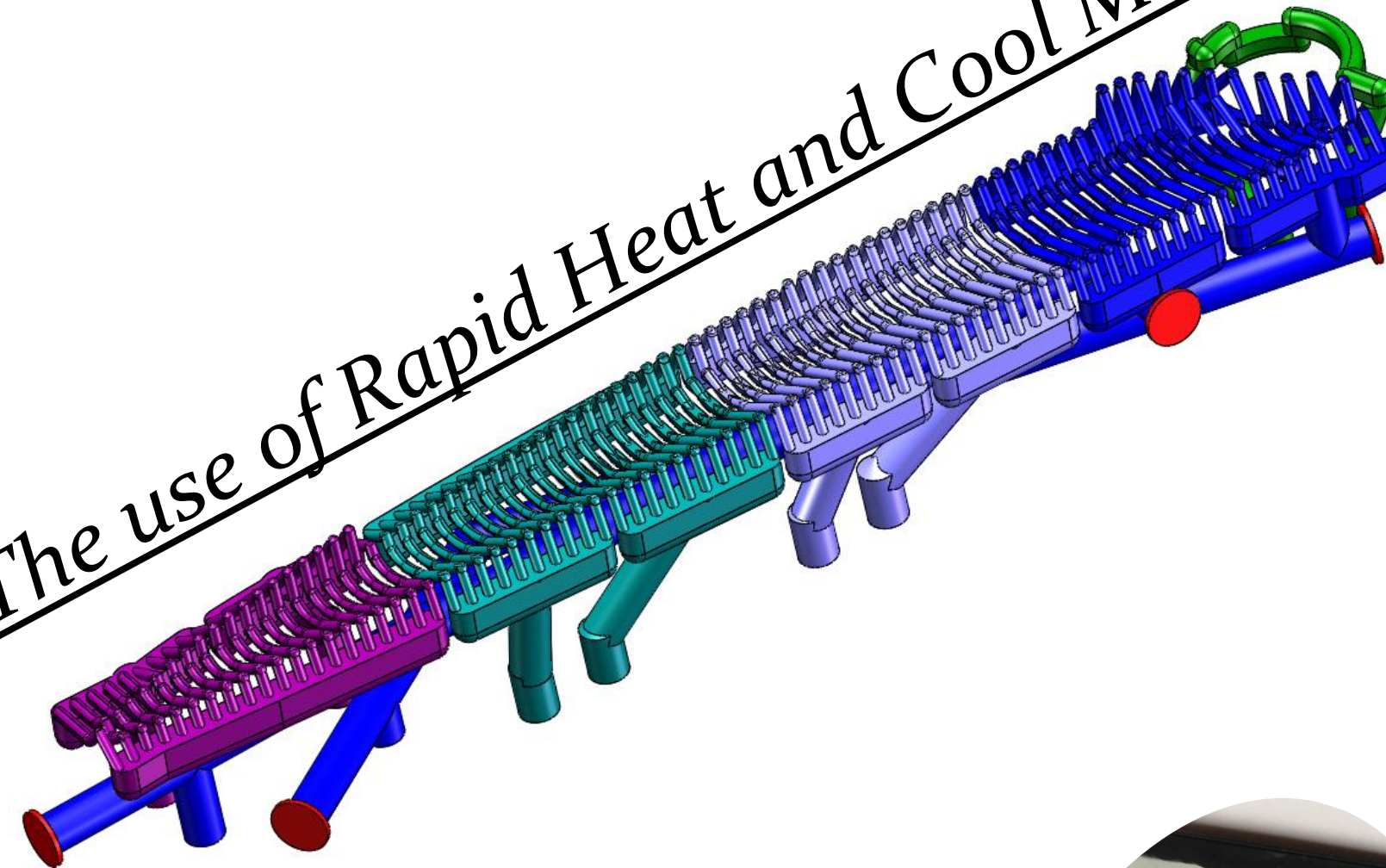


Paint elimination on aesthetic parts



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The use of Rapid Heat and Cool Molding

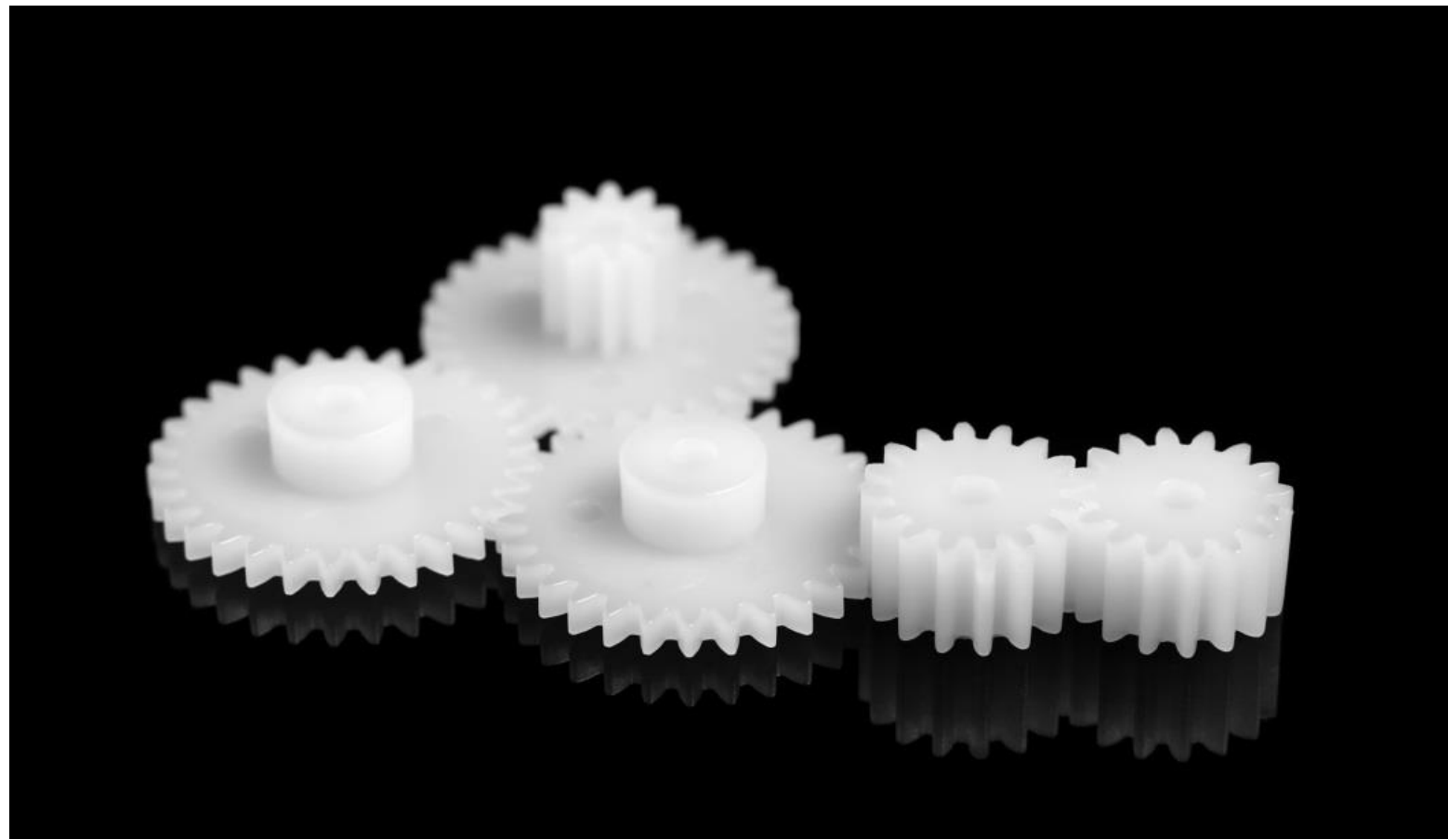


Cycle time saving for thick-wall parts

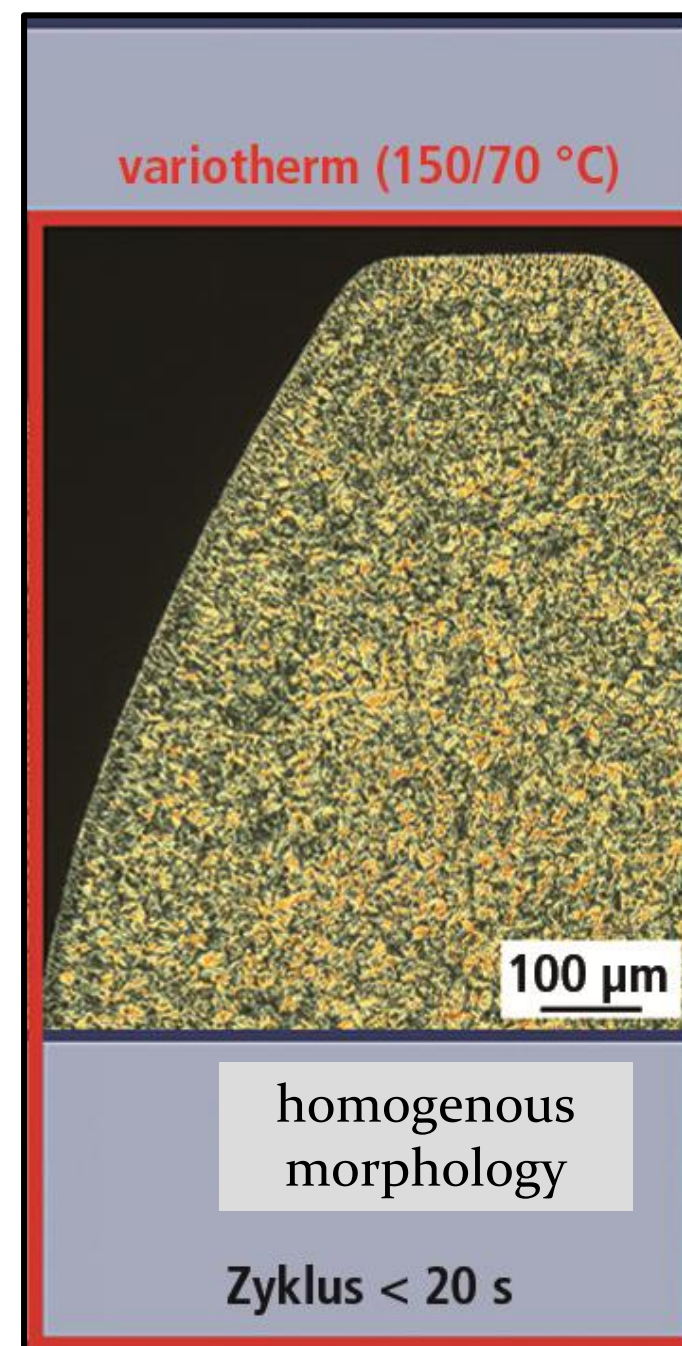
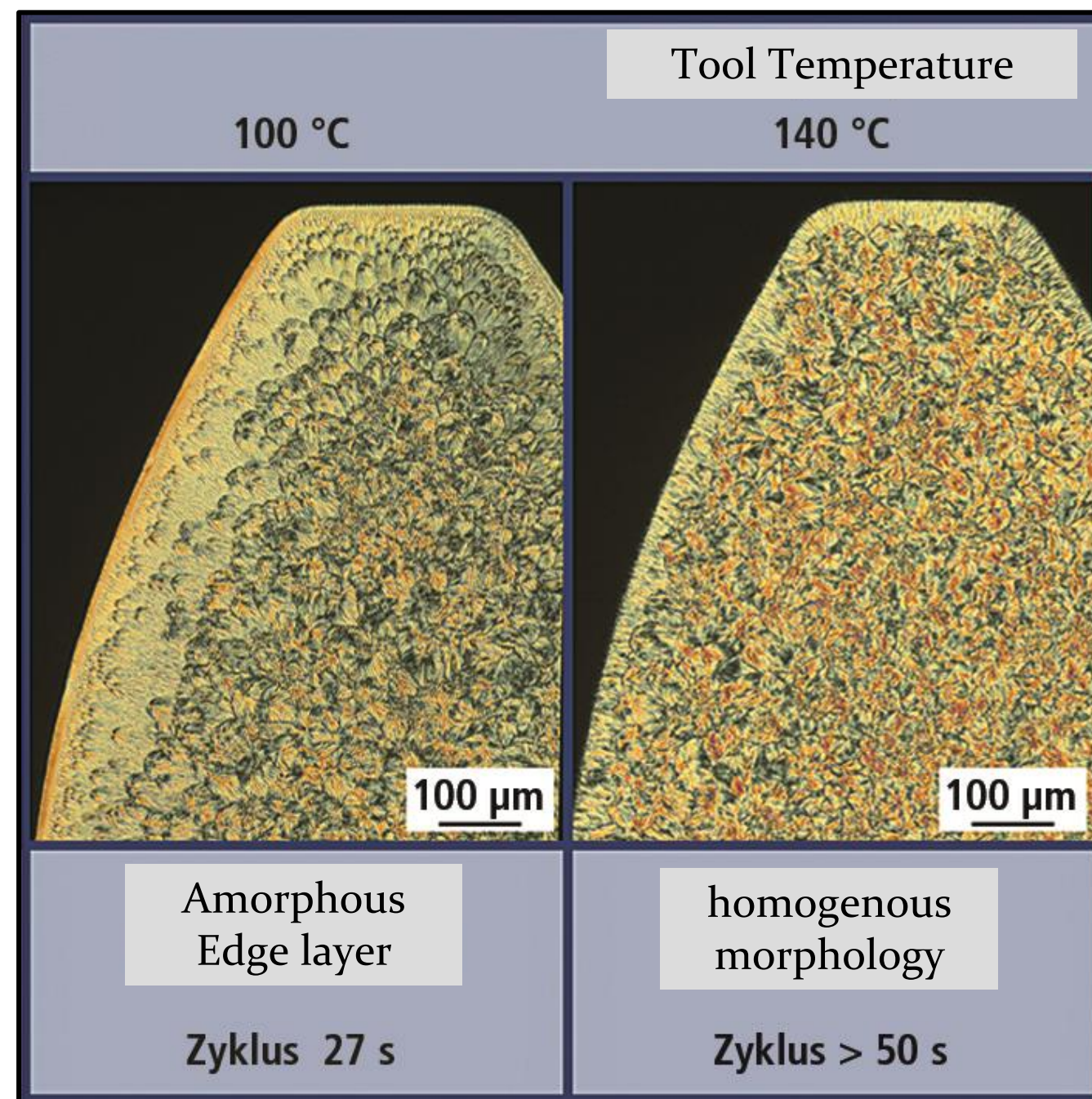
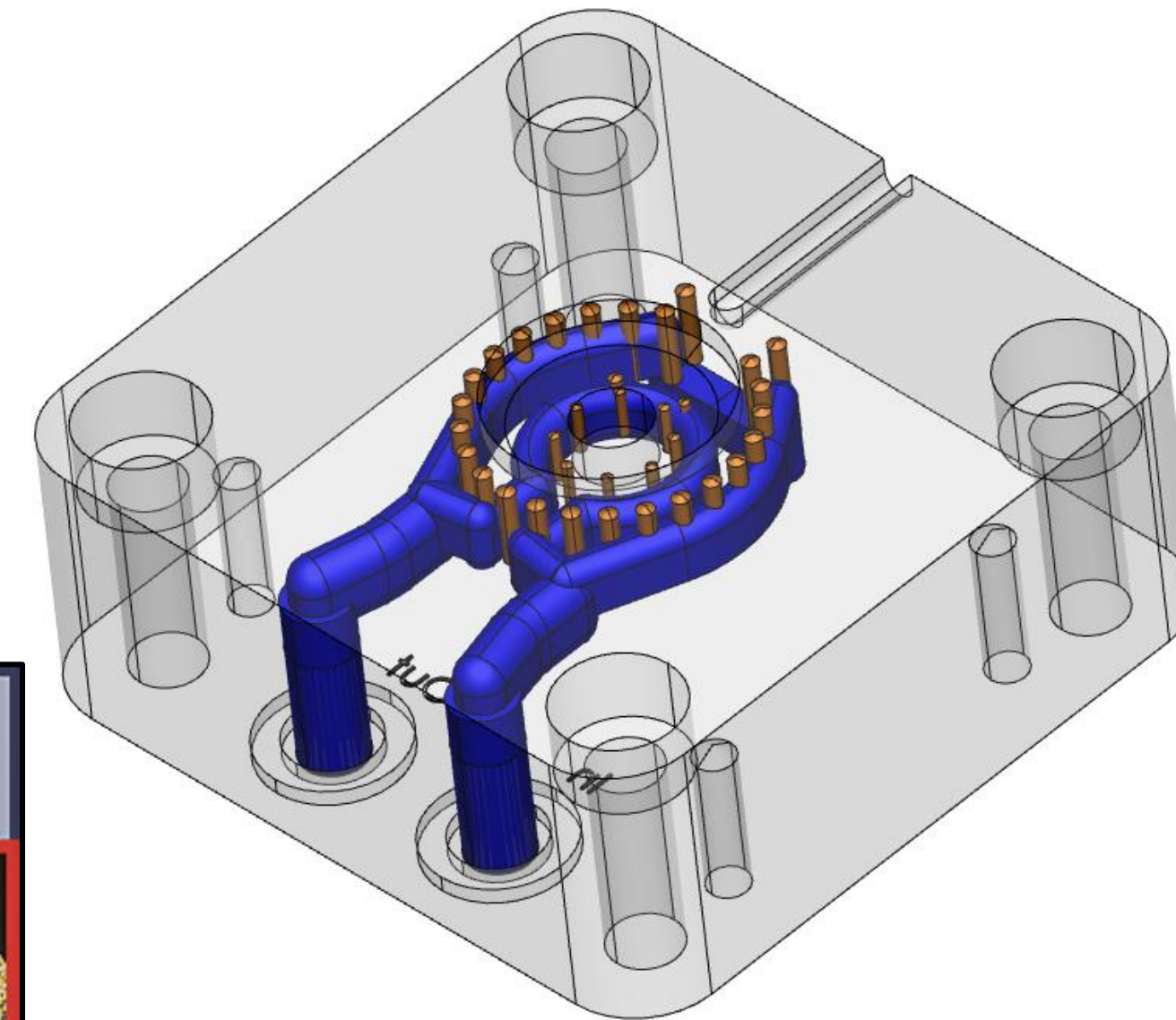
Increasing of brightness & Elimination of -Weld lines -Streaks



Surface quality for Foamed parts

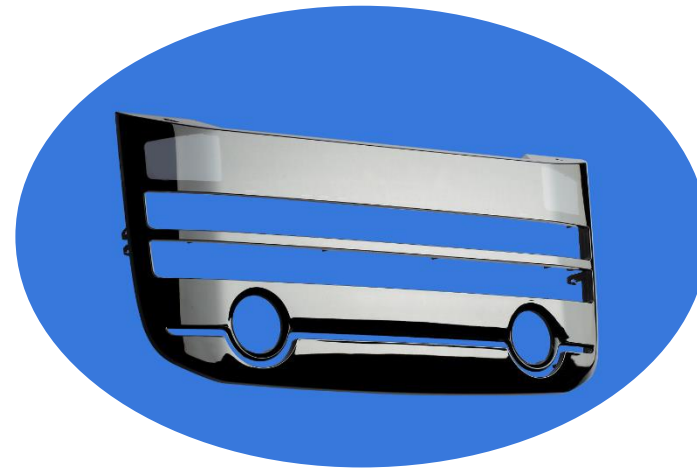


Gear wheels out of POM

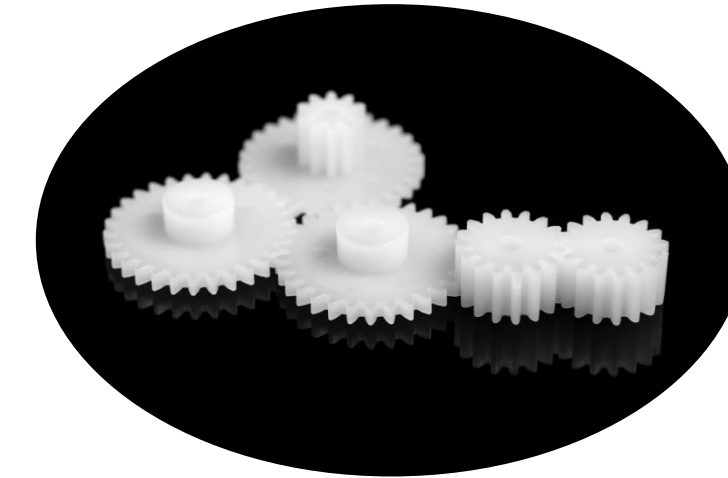




Filling of thin wall parts

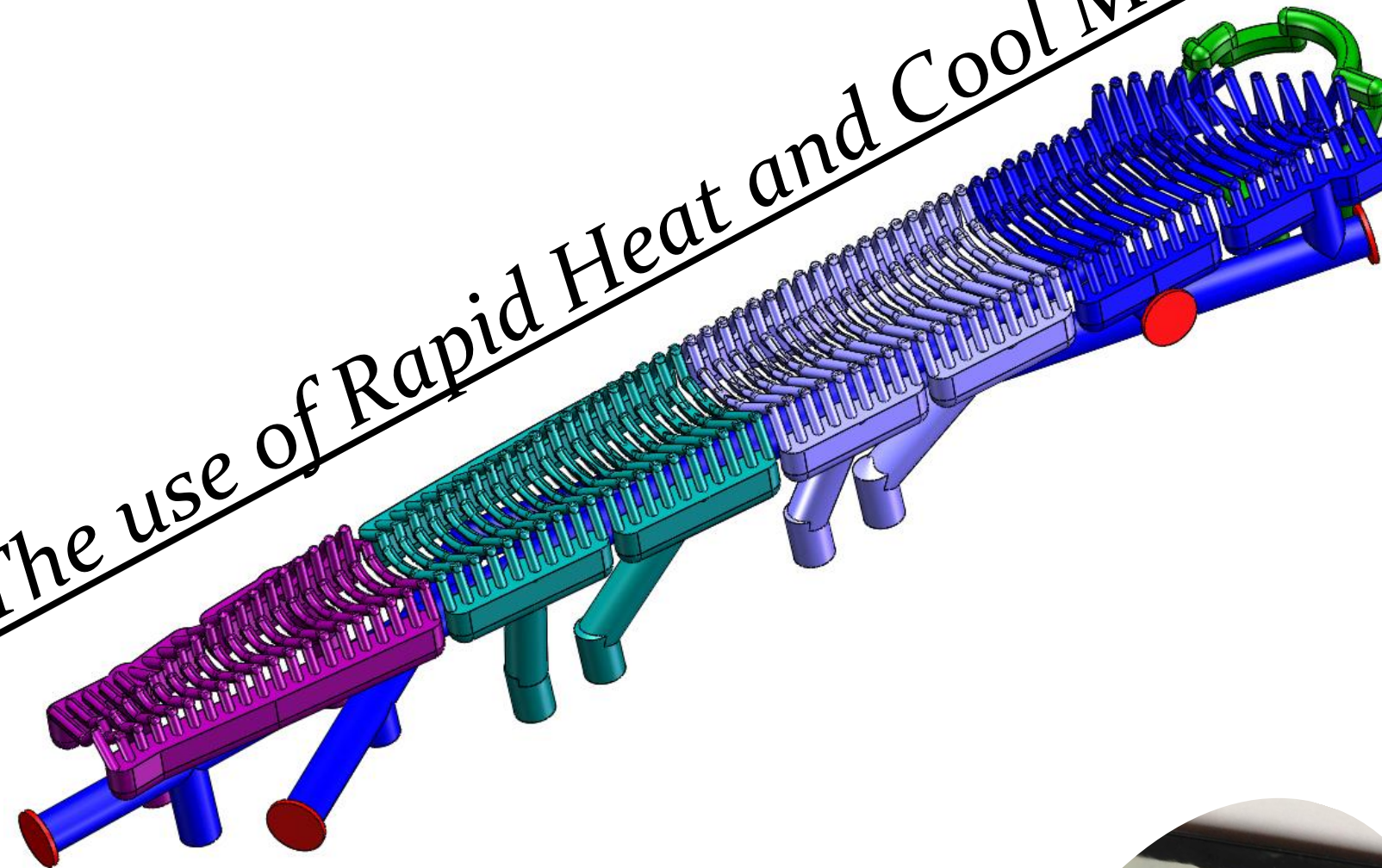


Paint elimination on aesthetic parts



Influence on the crystalline structure

The use of Rapid Heat and Cool Molding



Cycle time saving for thick-wall parts

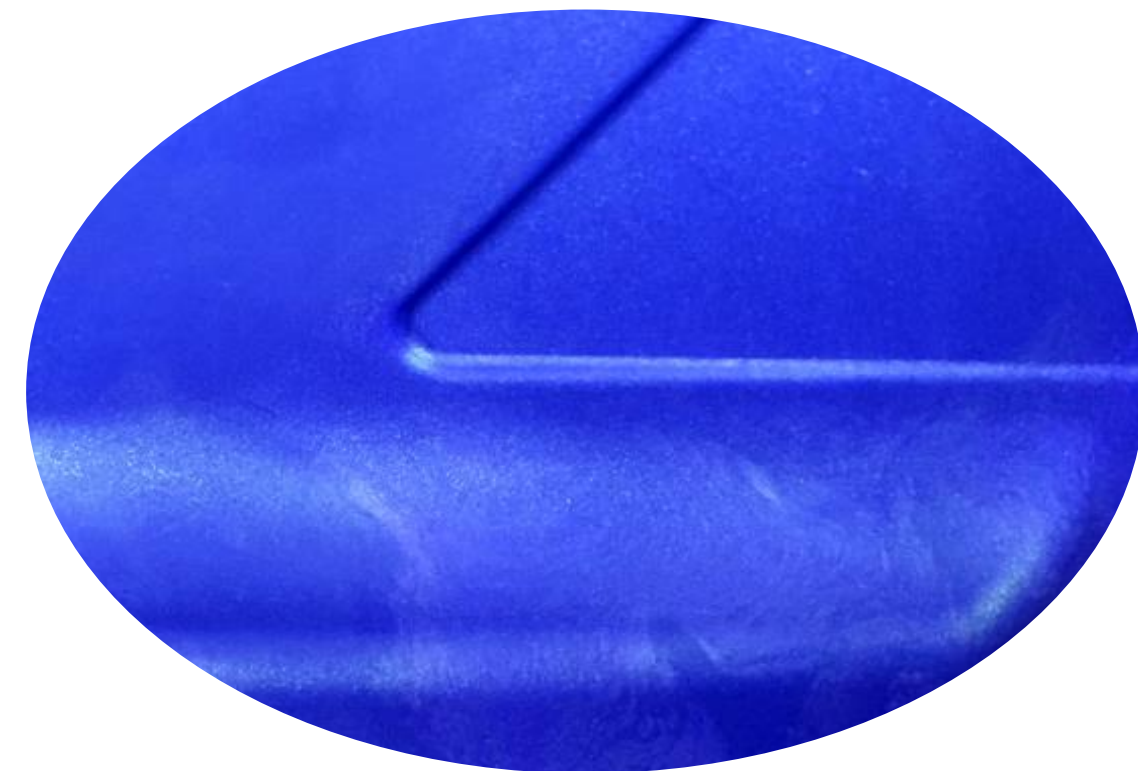
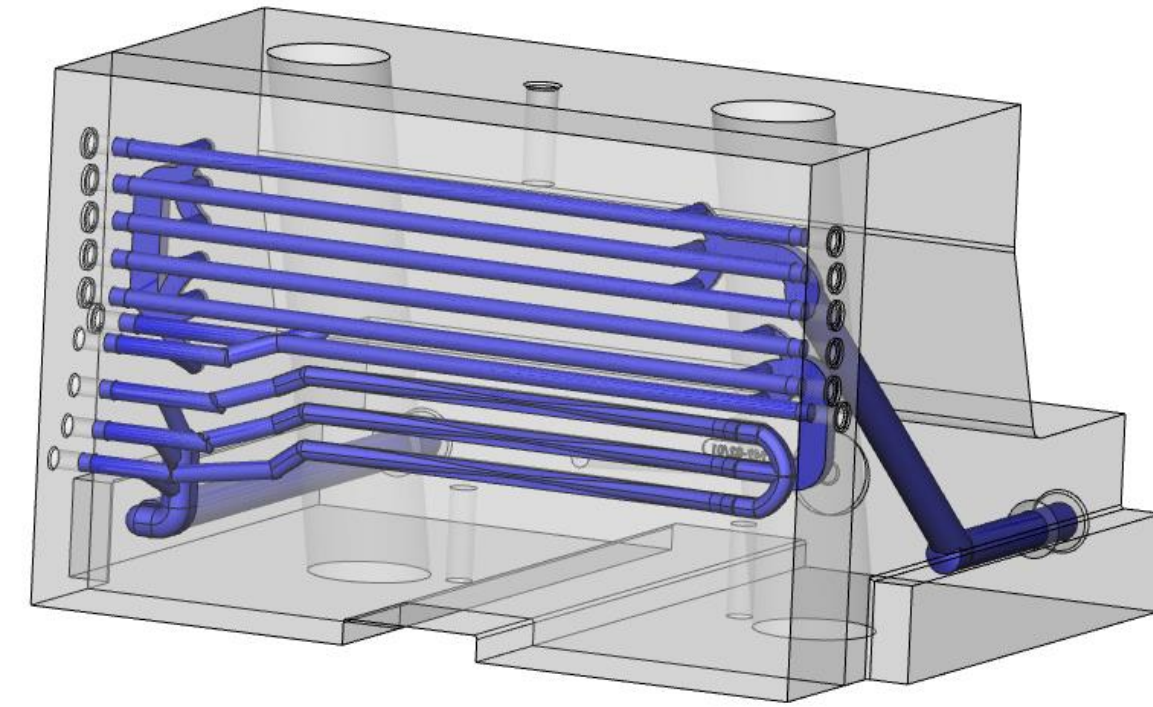
Increasing of brightness & Elimination of -Weld lines -Streaks



Surface quality for Foamed parts



Housing made out of
PA 6 GF₃₀ + MuCell



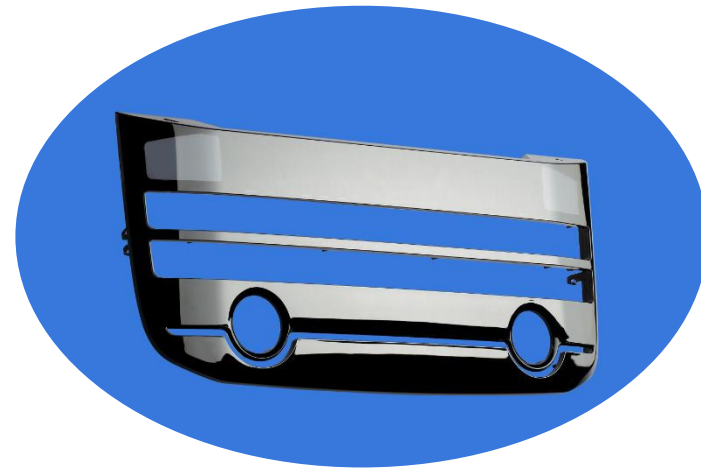
Isothermal process 80°C
Mold Temperature



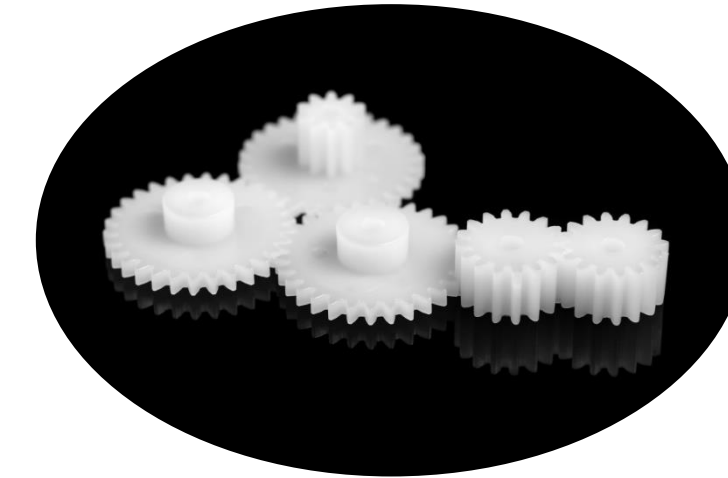
variothermal process 160°C
injection 80°C during cooling



Filling of thin wall parts

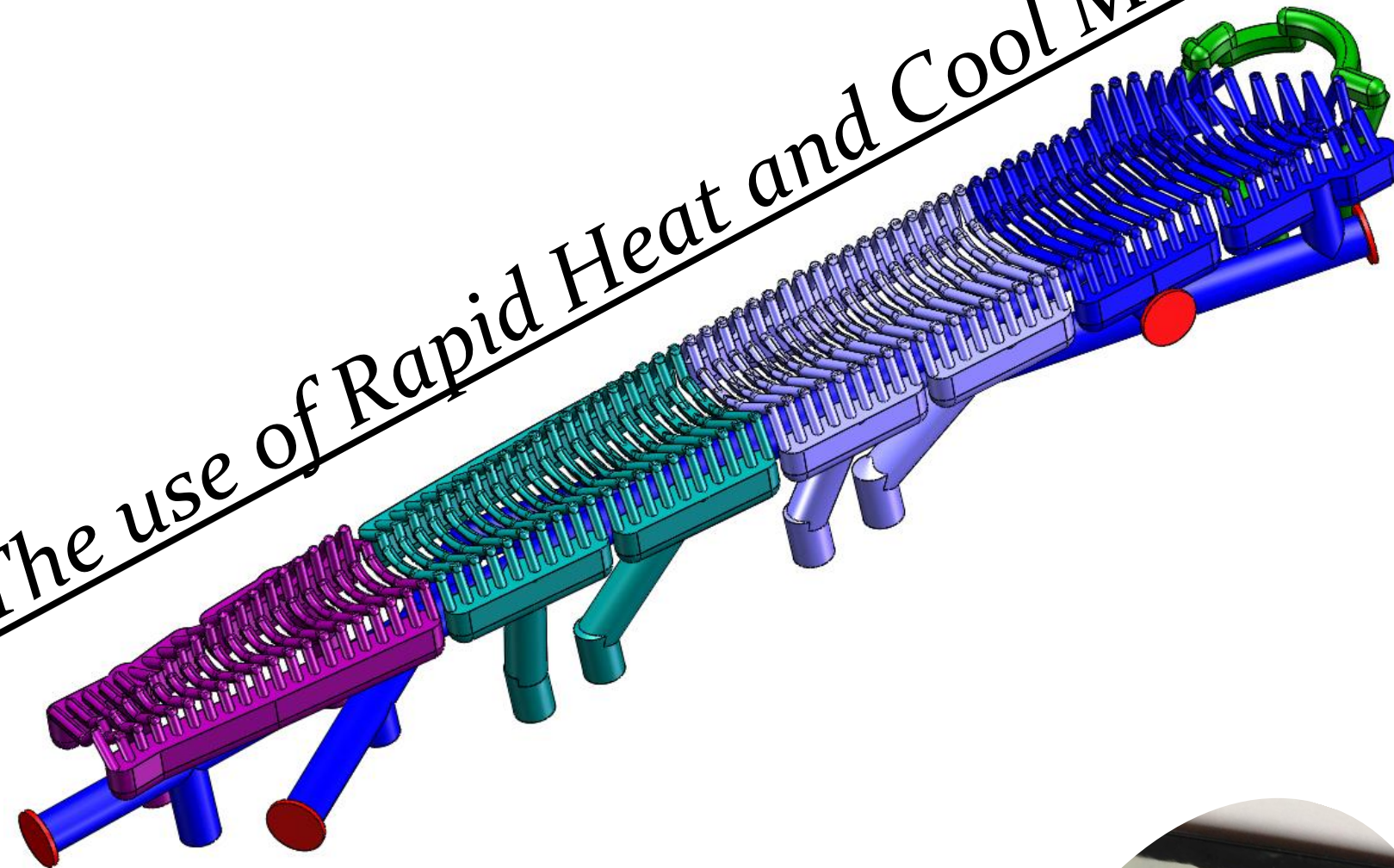


Paint elimination on aesthetic parts



Influence on the crystalline structure

The use of Rapid Heat and Cool Molding

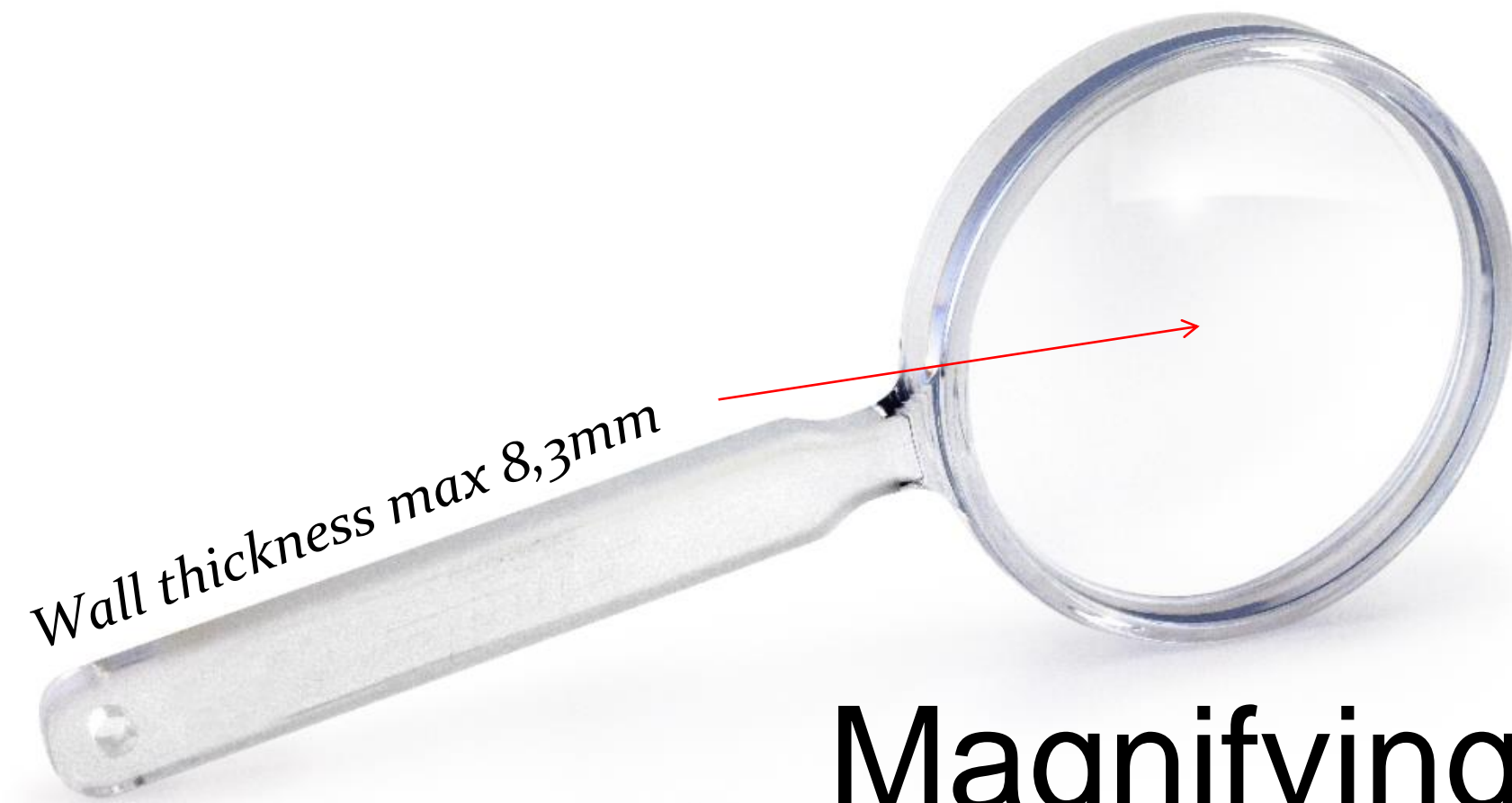


Cycle time saving for thick-wall parts

Increasing of brightness & Elimination of -Weld lines -Streaks

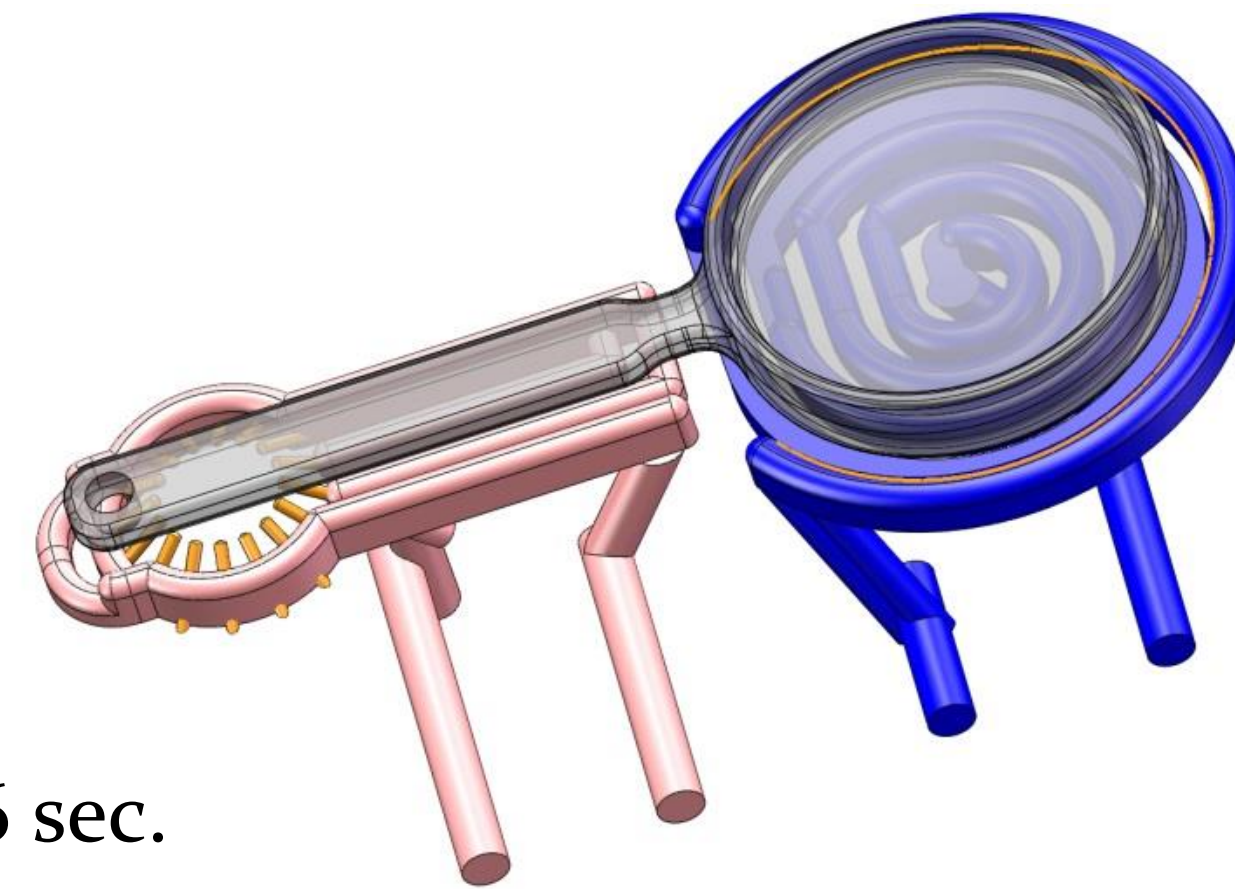
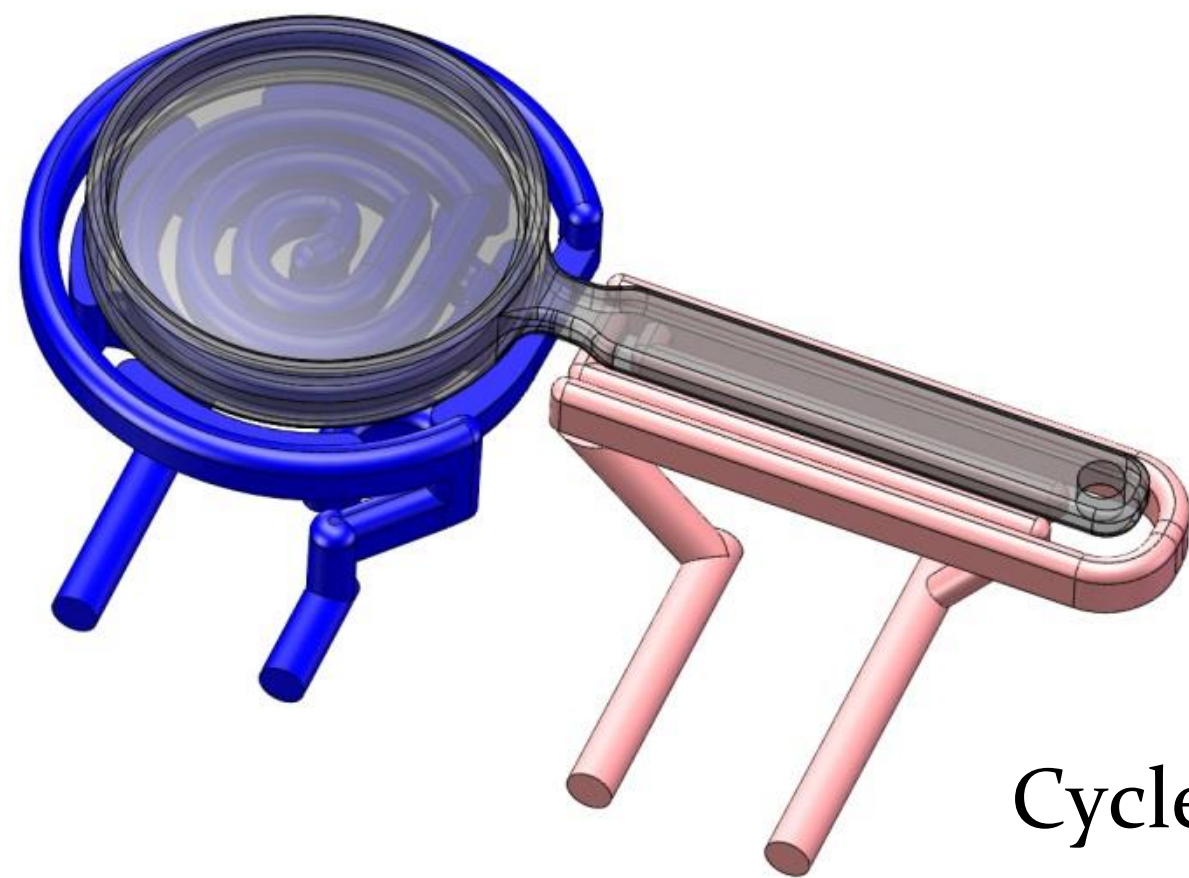


Surface quality for Foamed parts



Magnifying glass out of PMMA

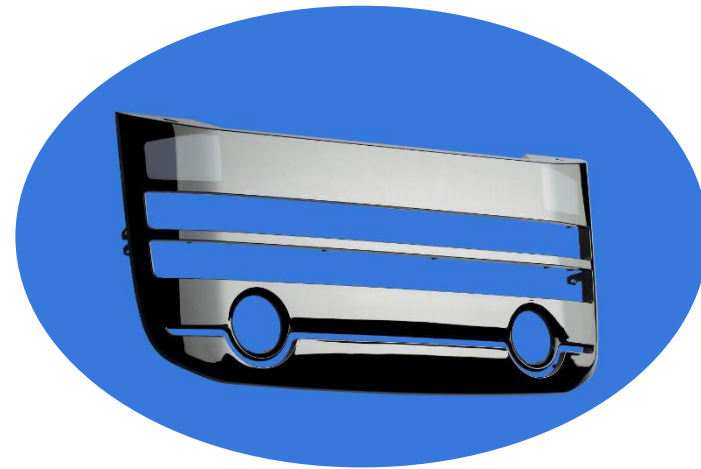
(cycle time conventional 320 sec.)



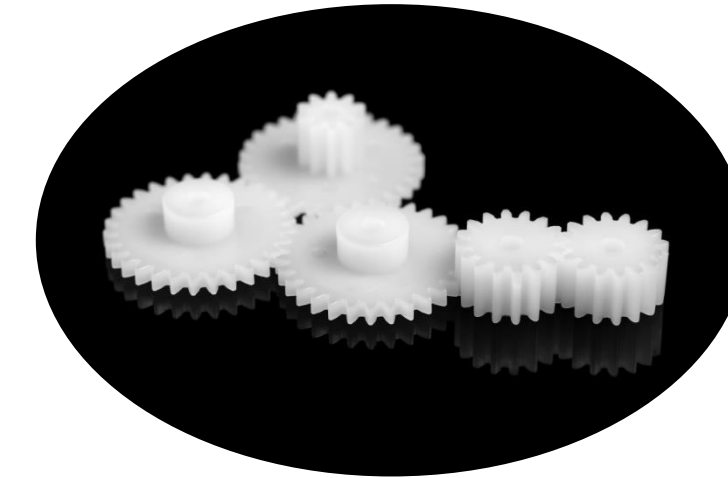
Cycle time variotherm 86 sec.



Filling of thin wall parts

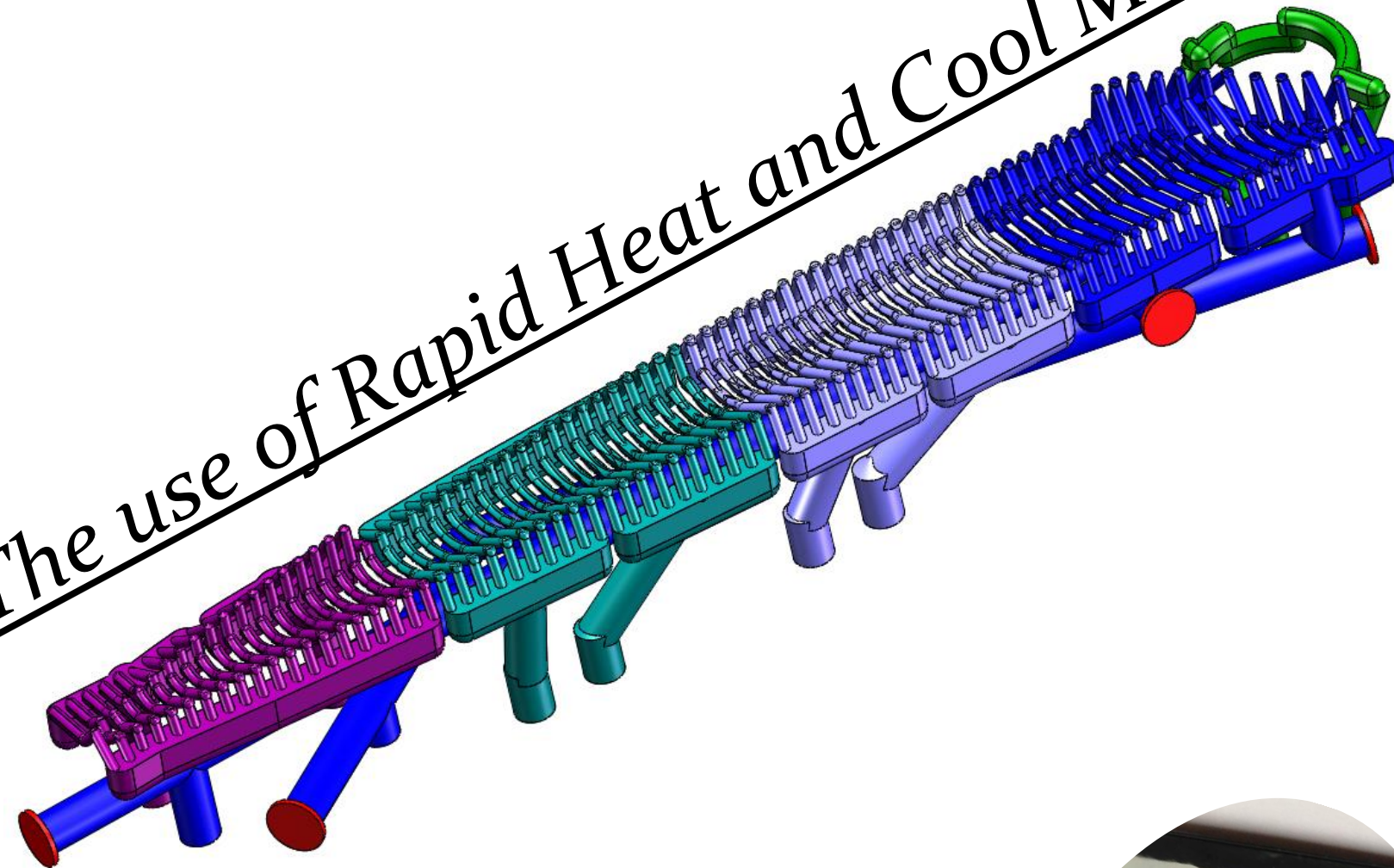


Paint elimination on aesthetic parts



Influence on the crystalline structure

The use of Rapid Heat and Cool Molding



Cycletime saving for thick-wall parts

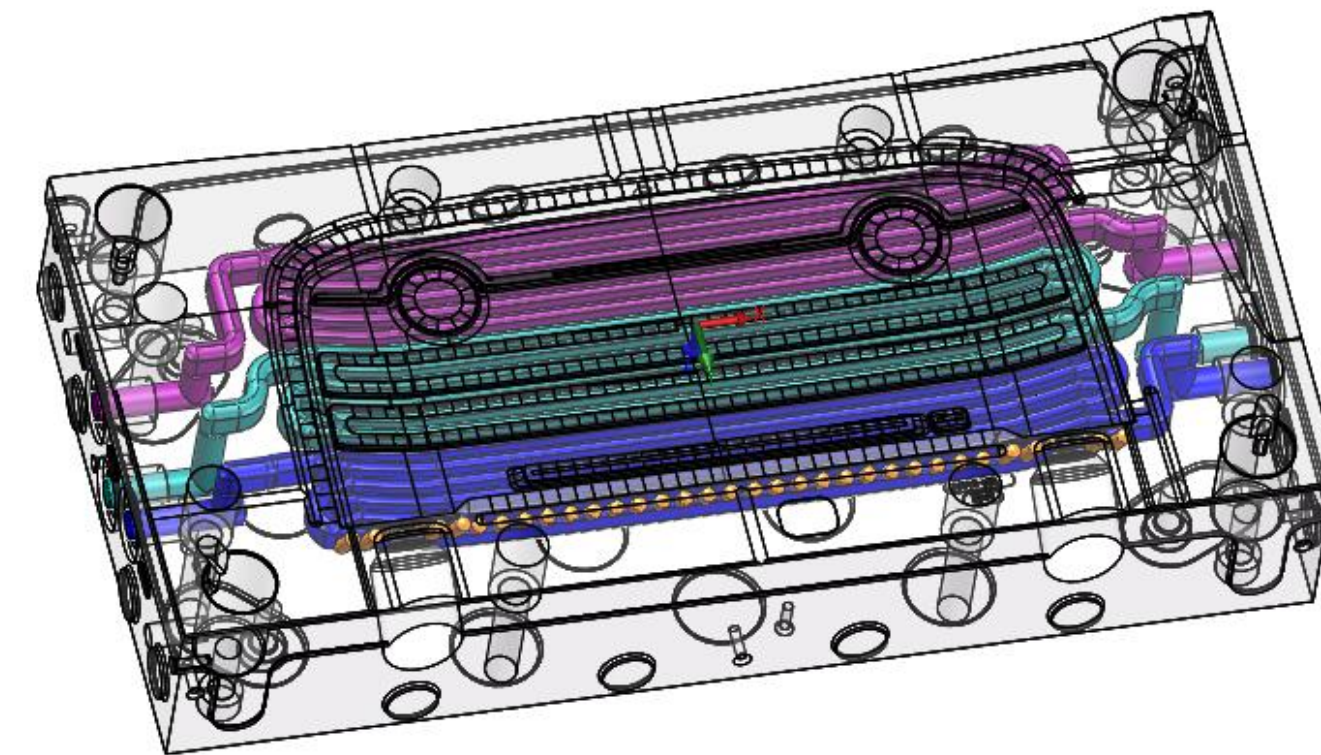
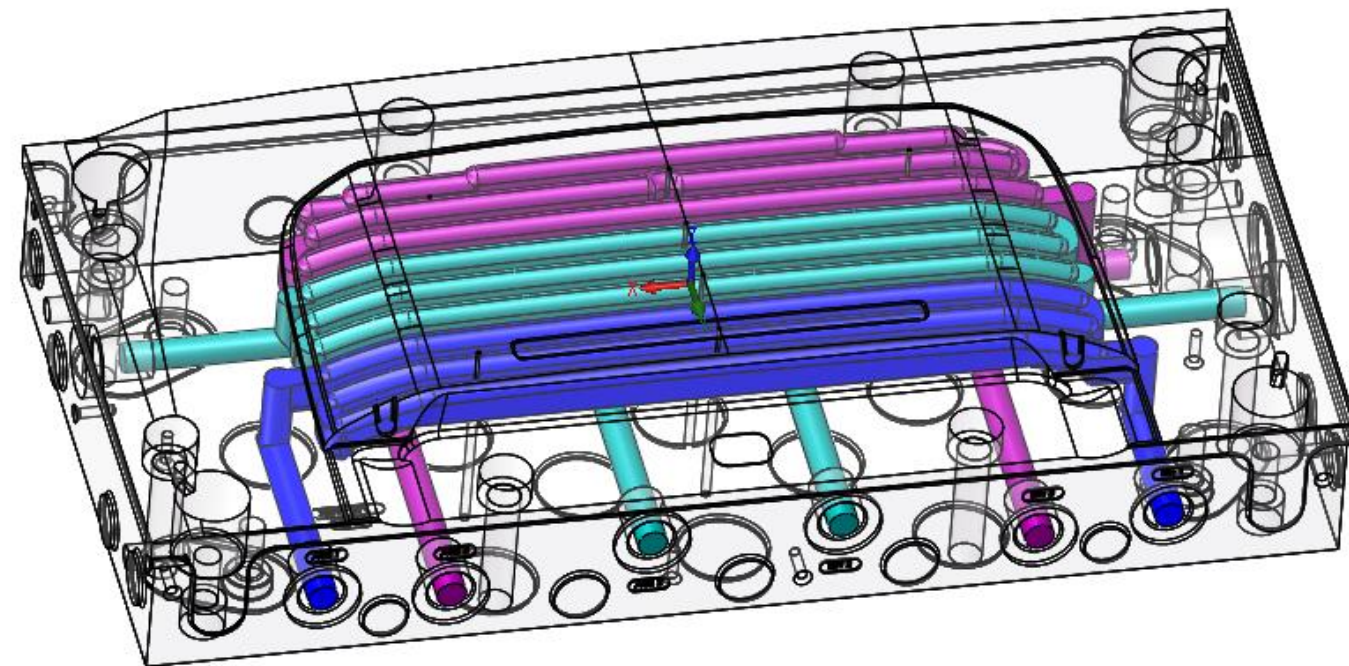
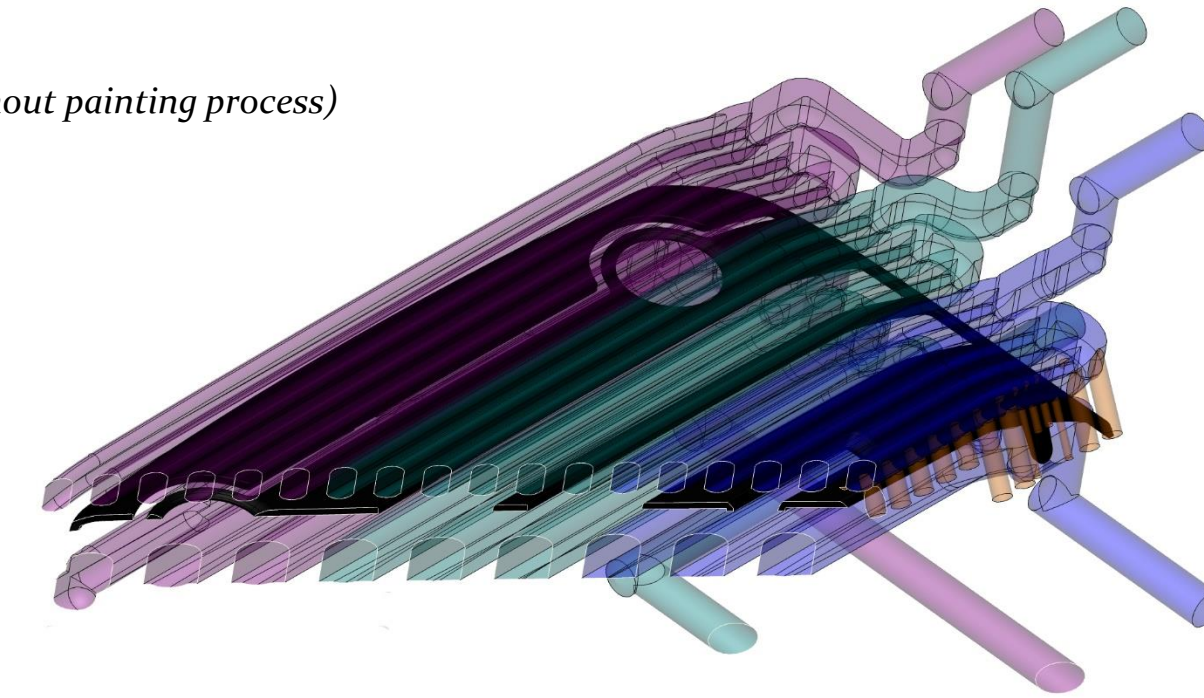
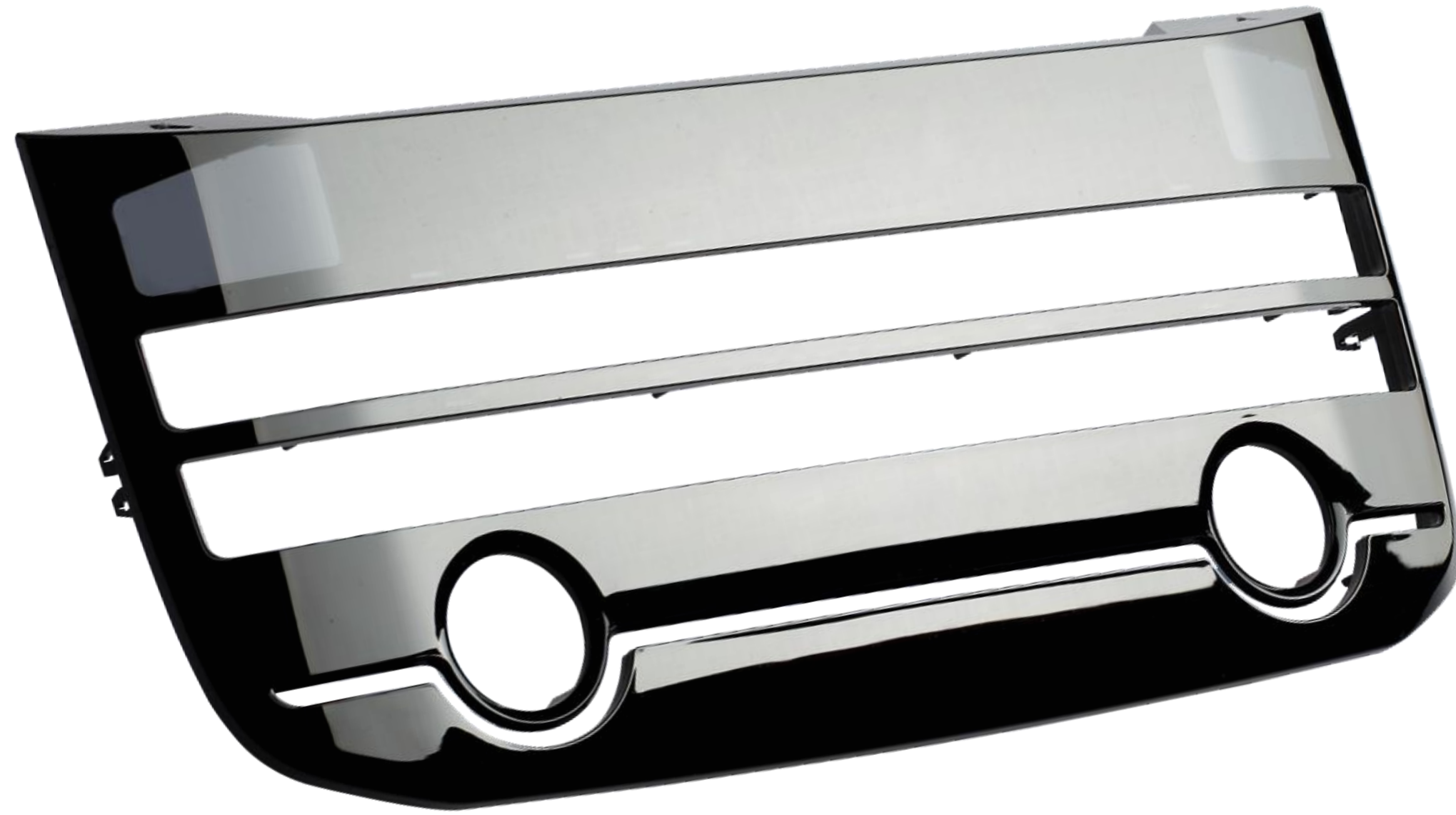
Increasing of brightness & Elimination of -Weld lines -Streaks



Surface quality for Foamed parts

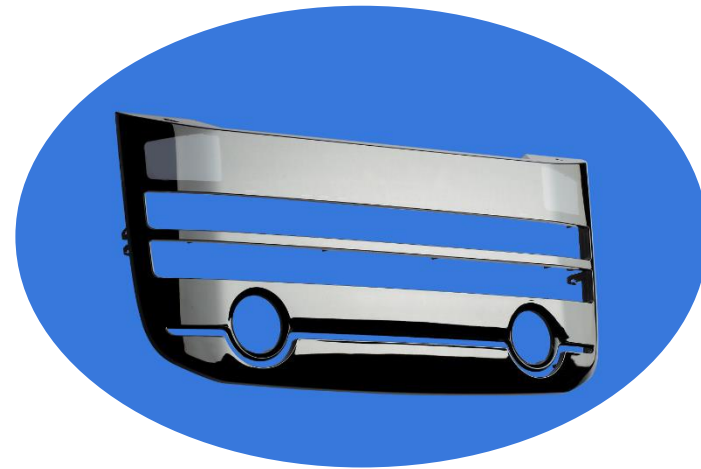
2K Automotive bezel (PC-PC/ABS)

(Part made free of weld lines without painting process)

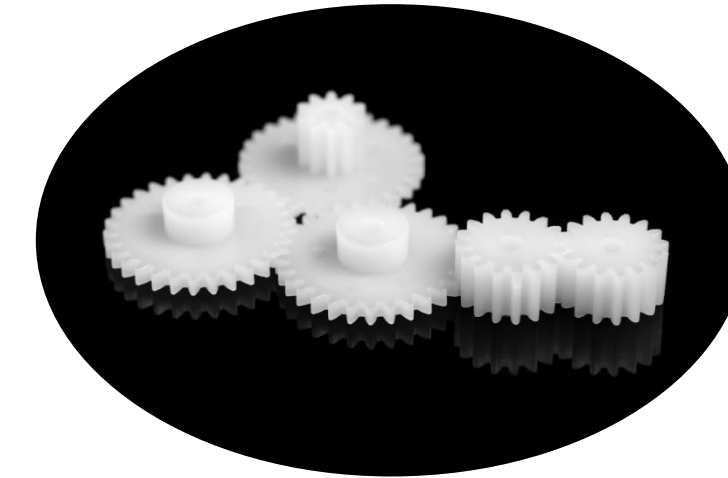




Filling of thin wall parts

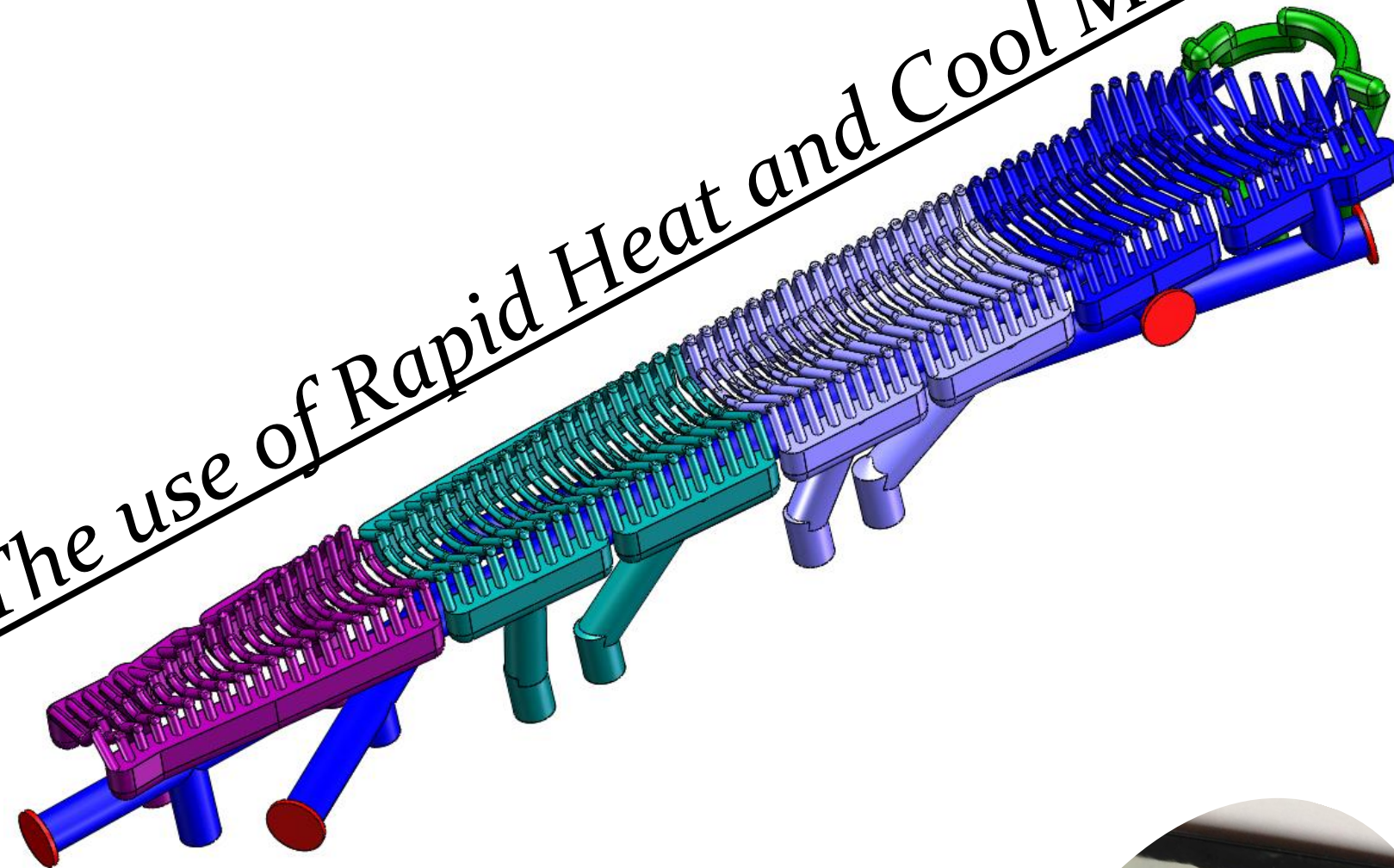


Paint elimination on aesthetic parts



Influence on the crystalline structure

The use of Rapid Heat and Cool Molding

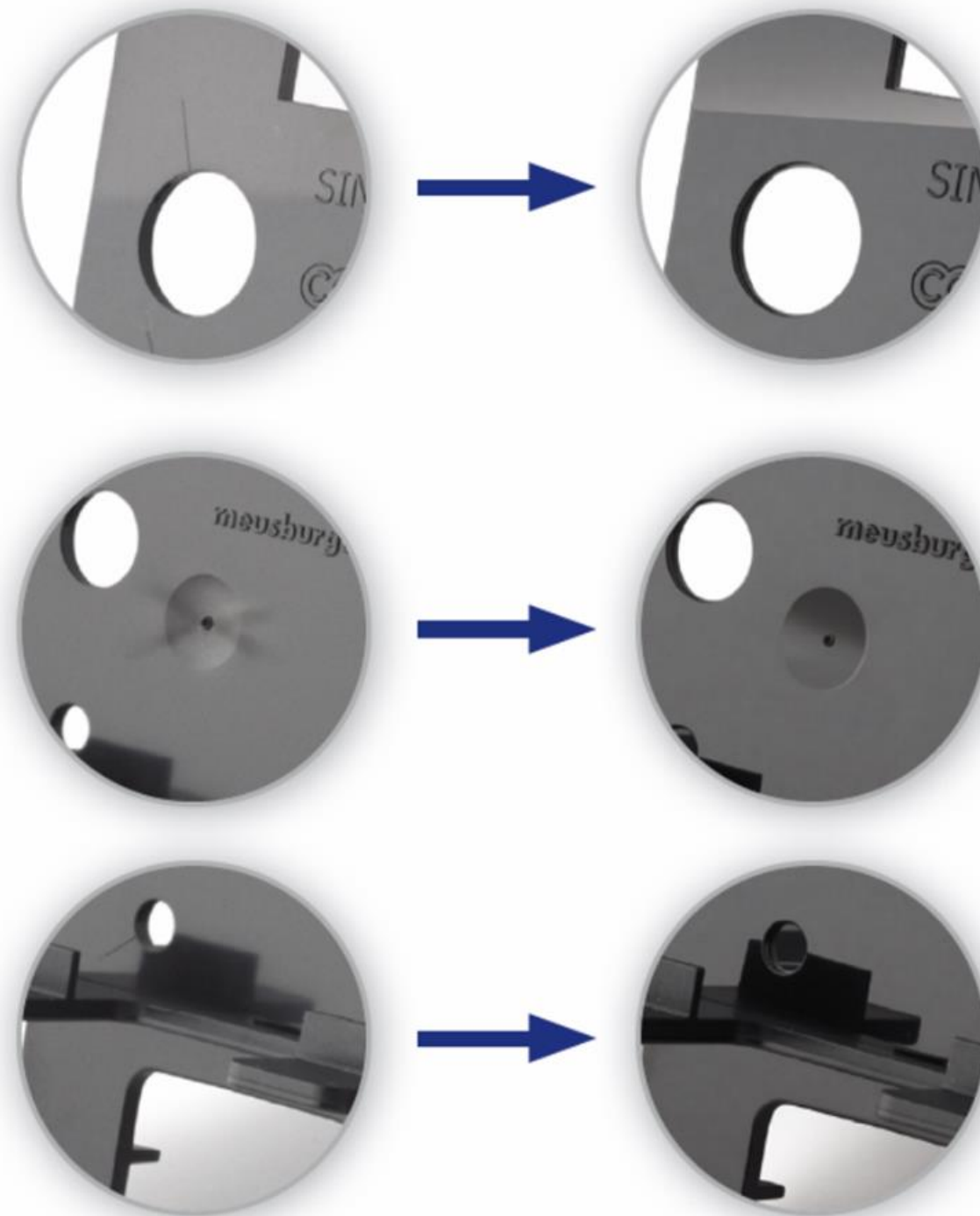
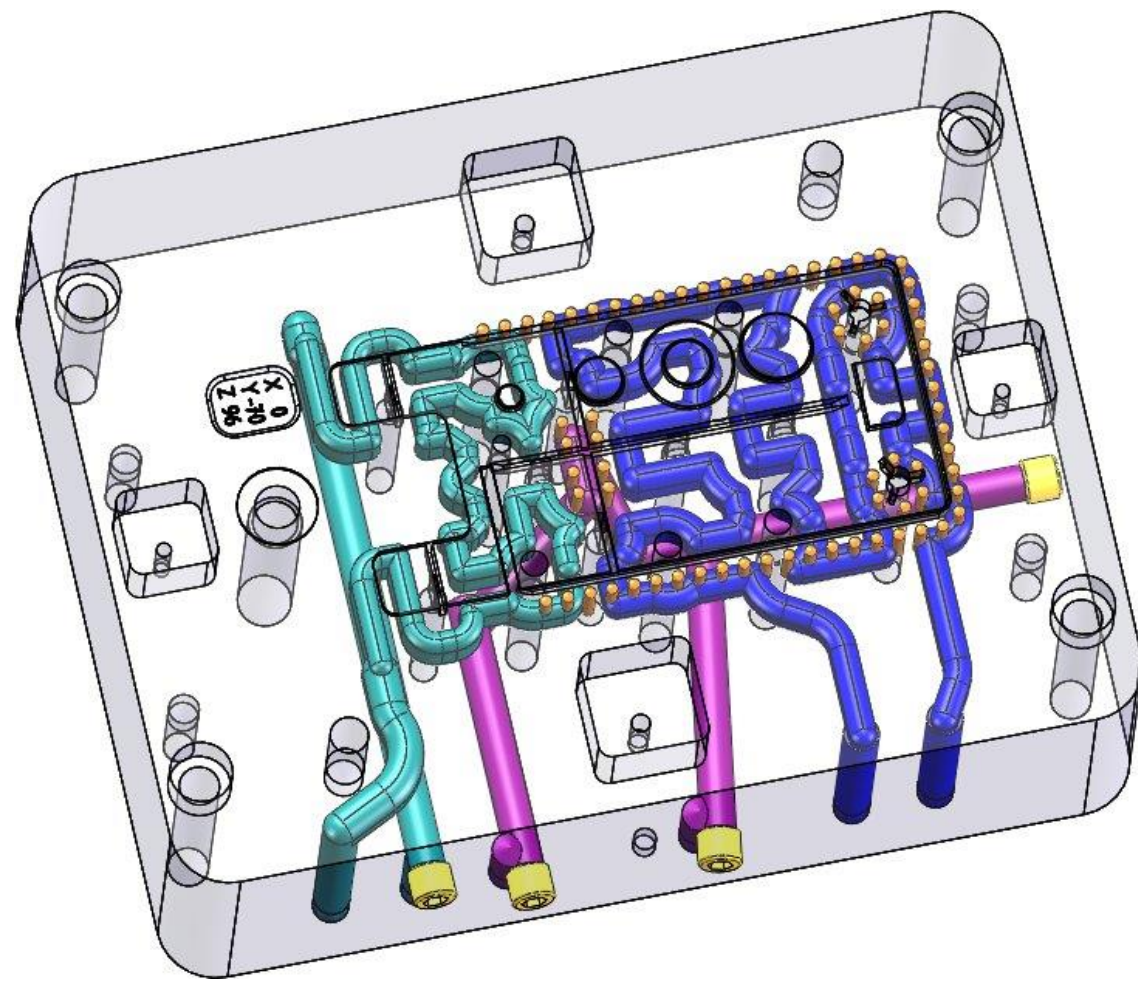
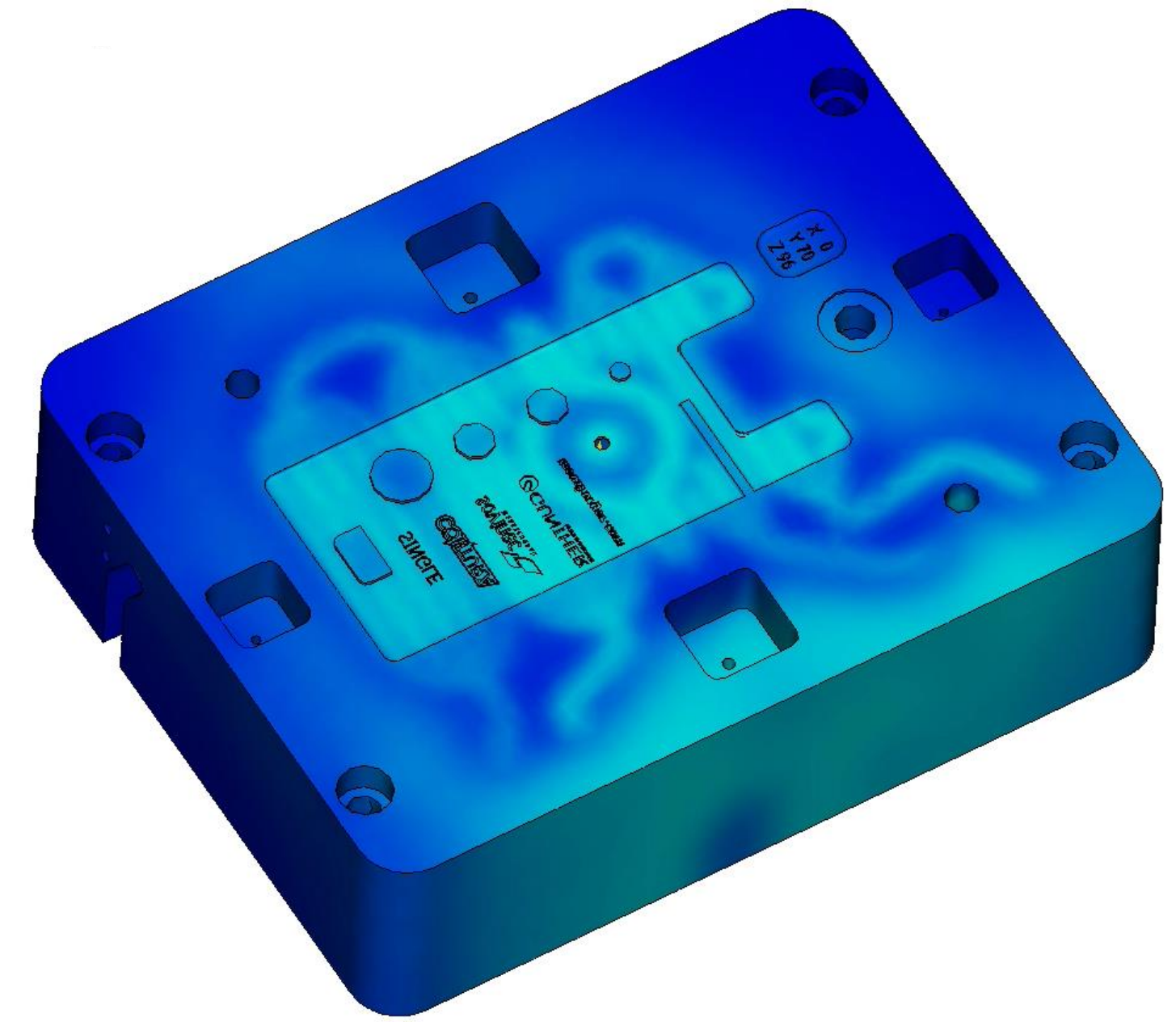


Cycletime saving for thick-wall parts

Increasing of brightness & Elimination of -Weld lines -Streaks



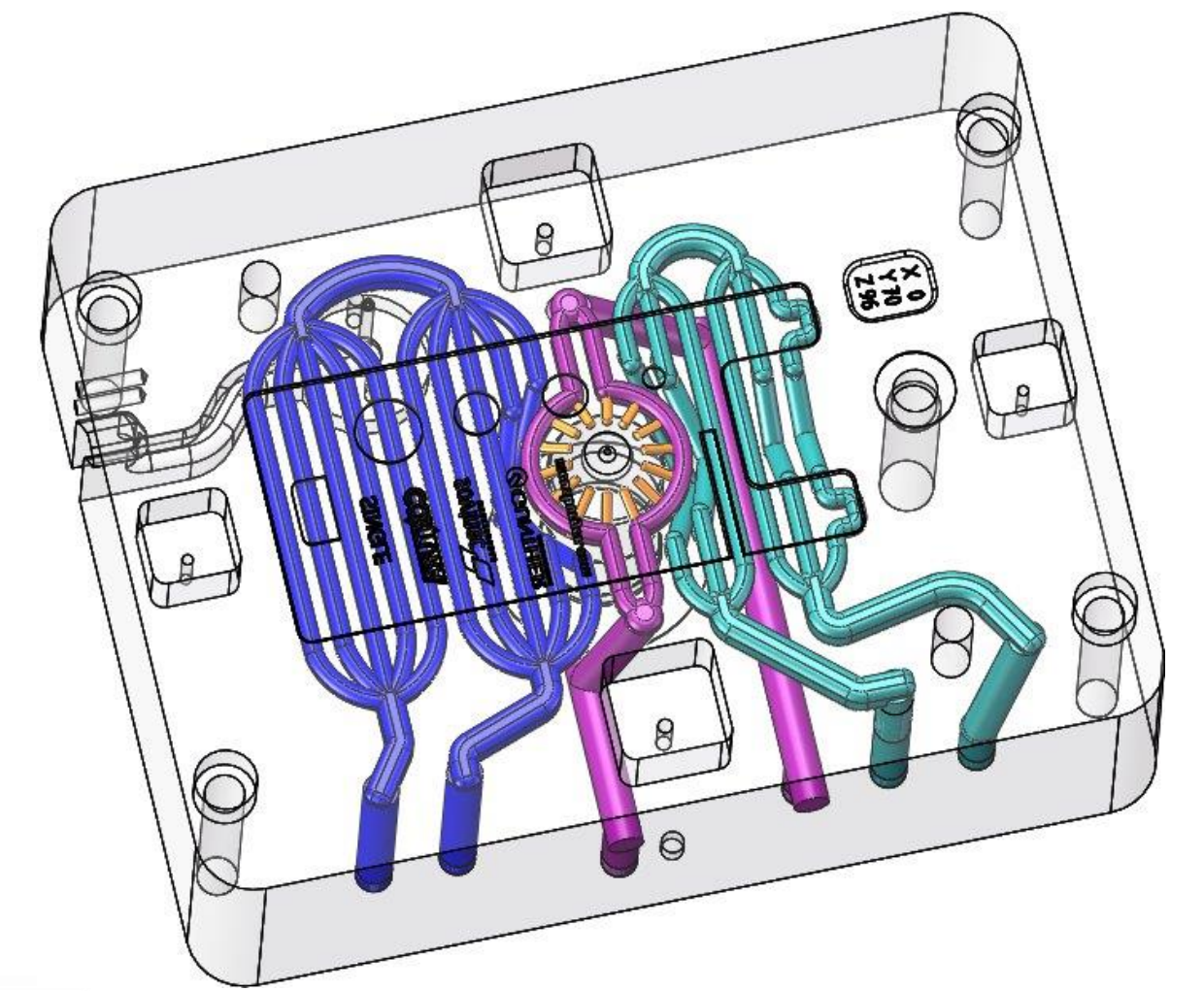
Surface quality for Foamed parts



Elimination of weld lines

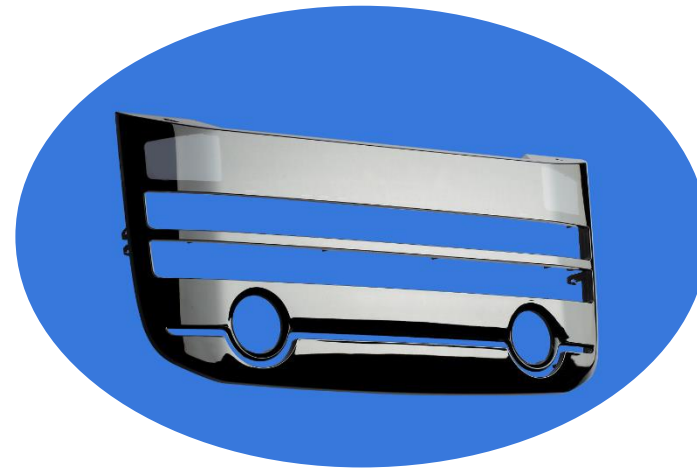
Elimination of streaks

Increase of the surface brightness

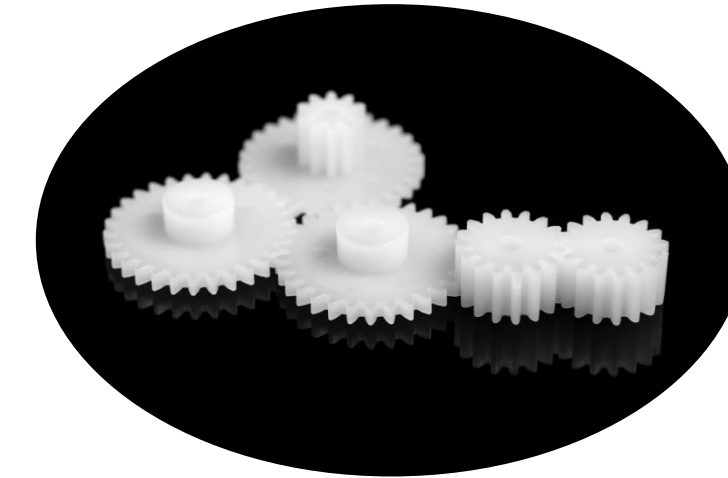




Filling of thin wall parts

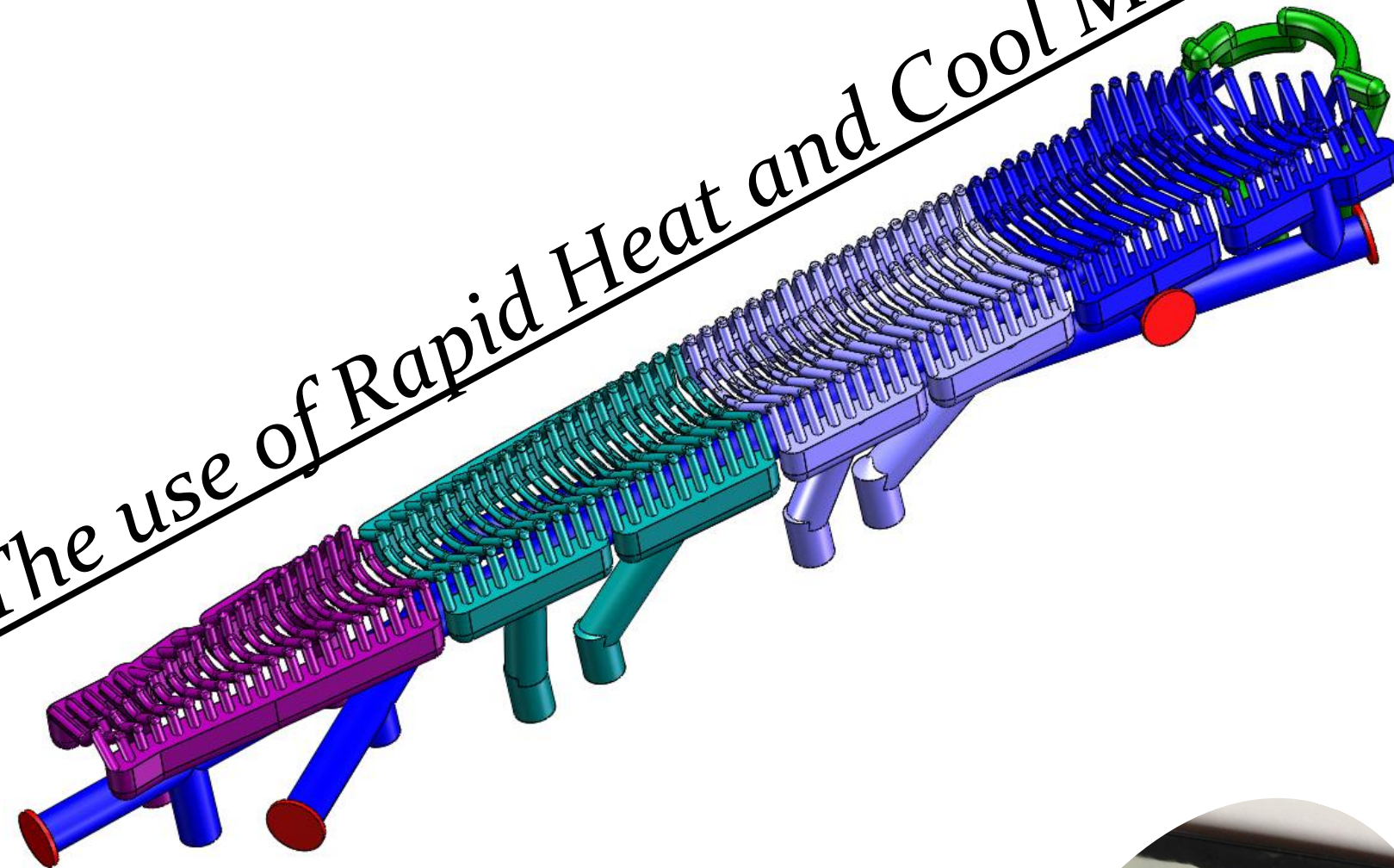


Paint elimination on aesthetic parts



Influence on the crystalline structure

The use of Rapid Heat and Cool Molding



Cycletime saving for thick-wall parts

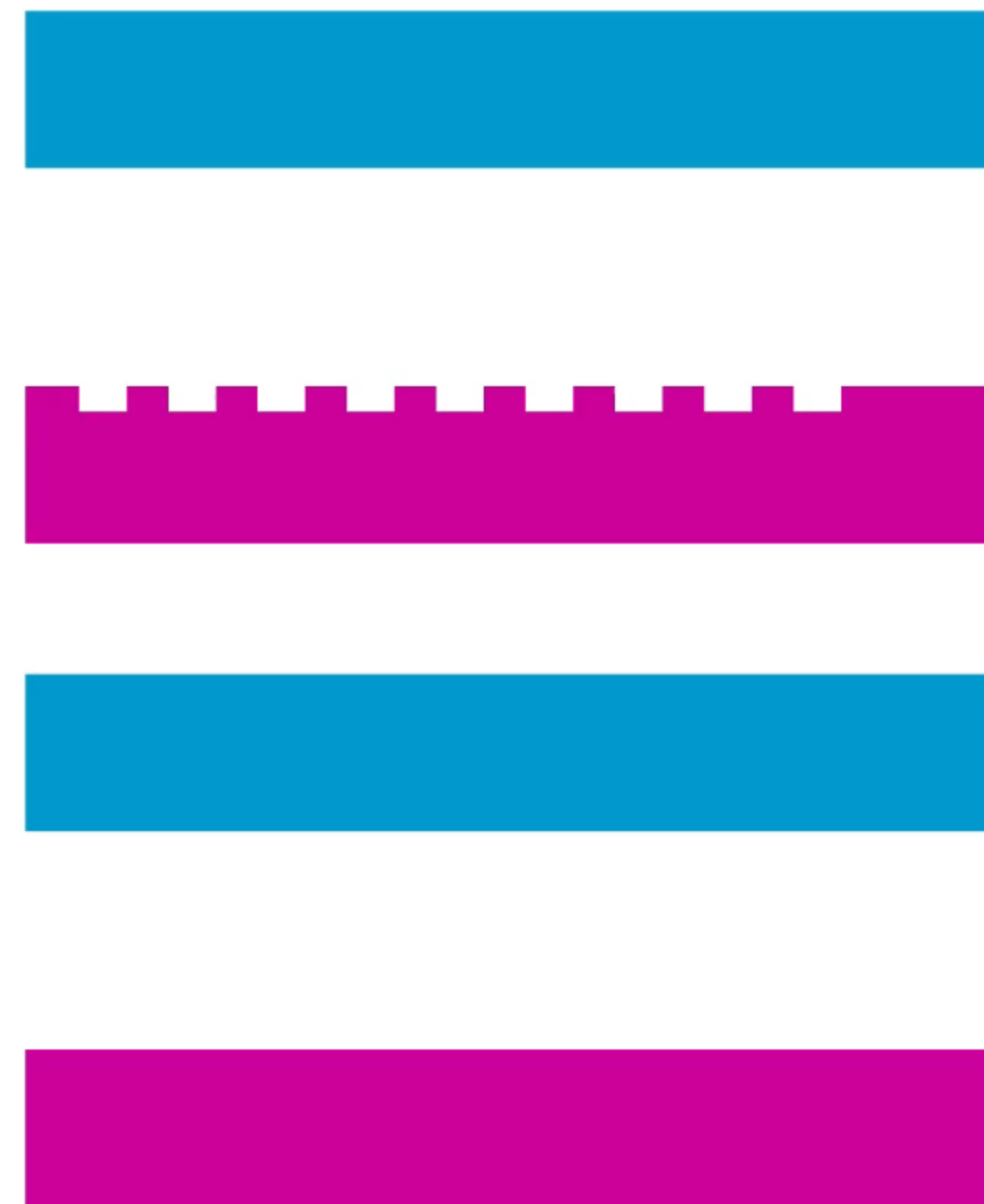
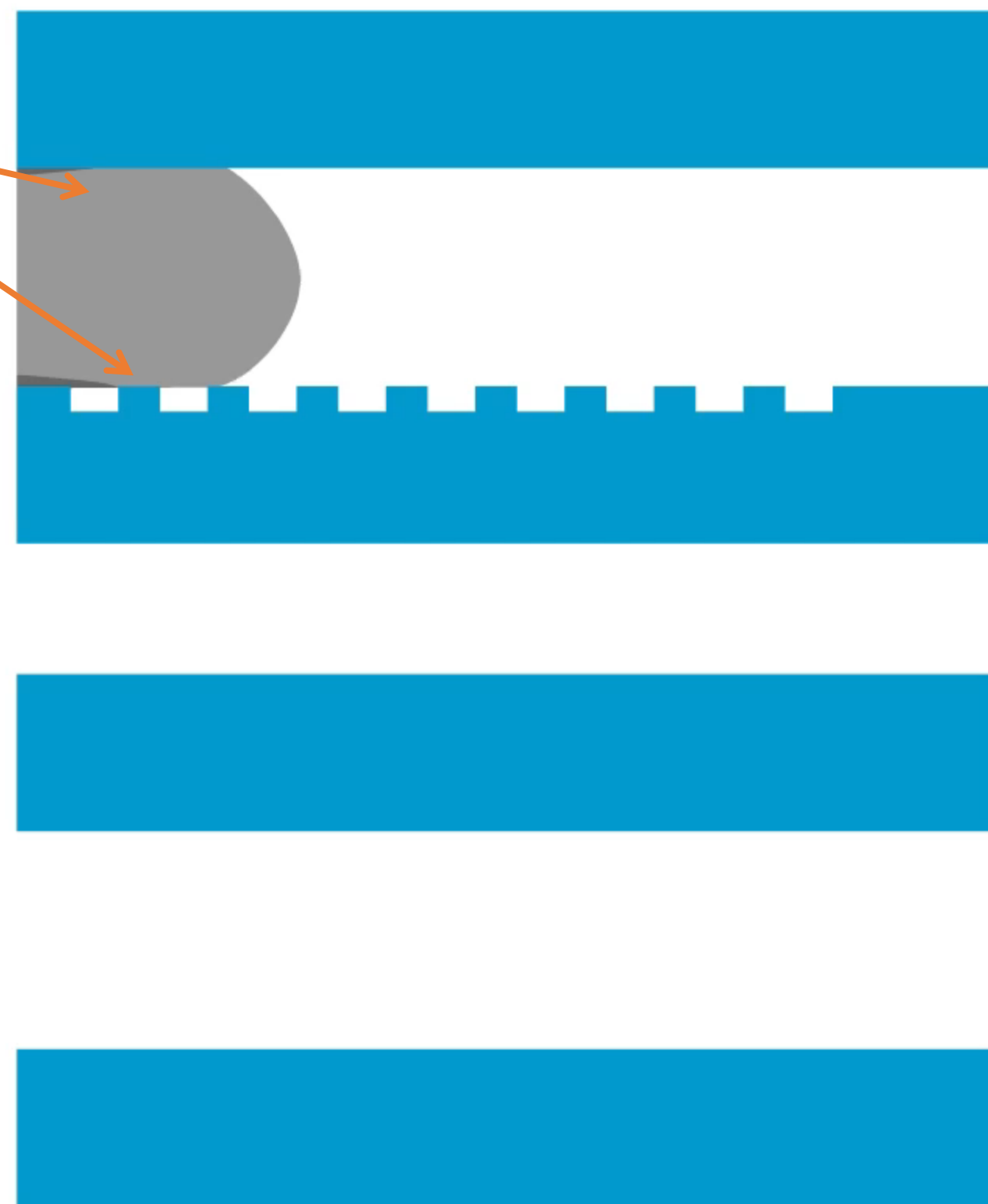
Increasing of brightness & Elimination of -Weld lines -Streaks



Surface quality for Foamed parts

SCHEMATIC REPRESENTATION

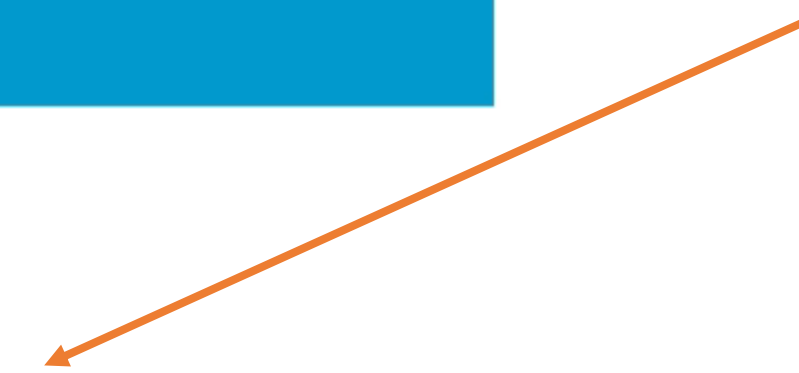
solidified
boundary layer



SCHEMATIC REPRESENTATION



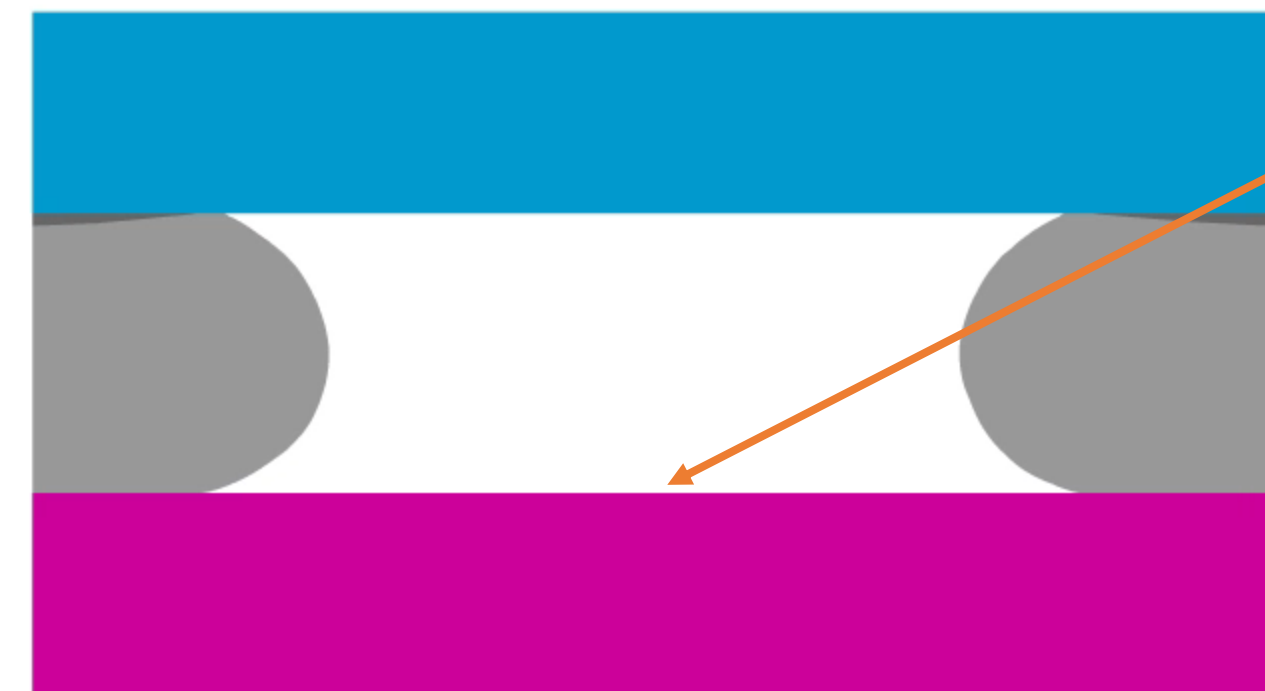
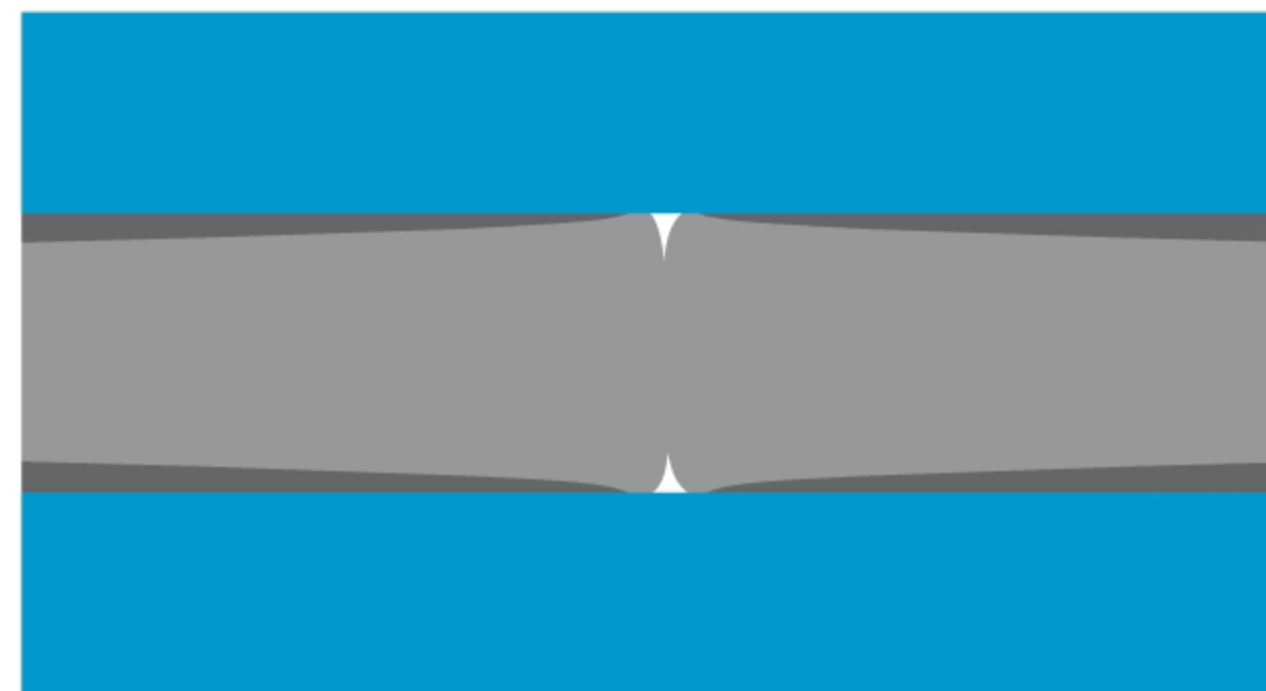
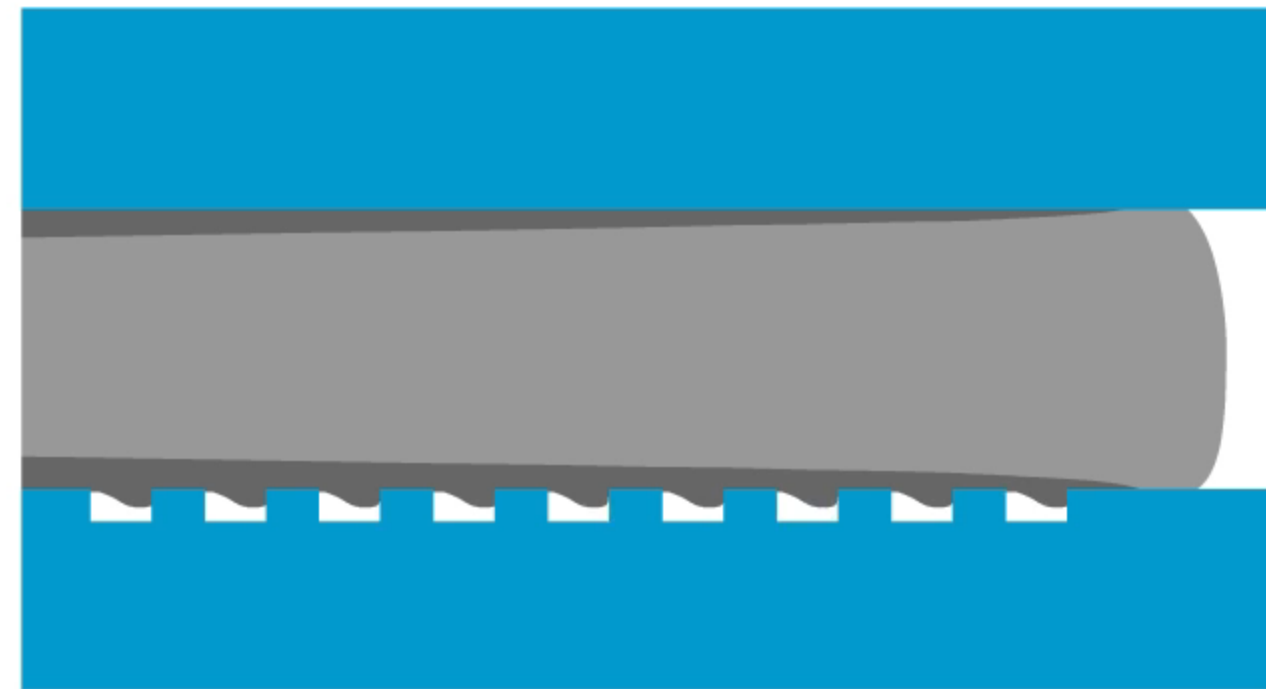
Exact structure mapping



SCHEMATIC REPRESENTATION

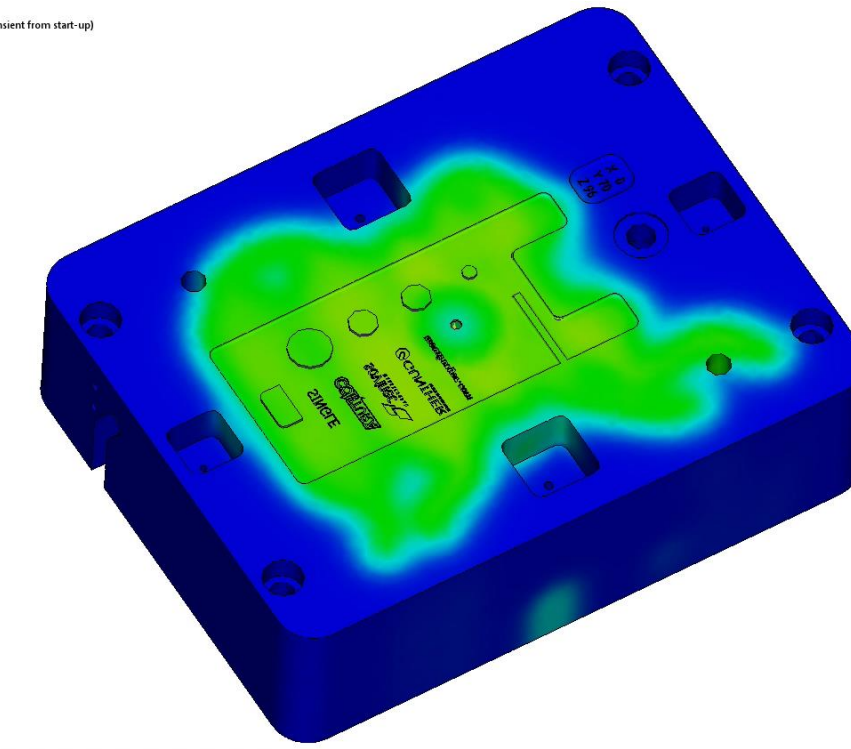
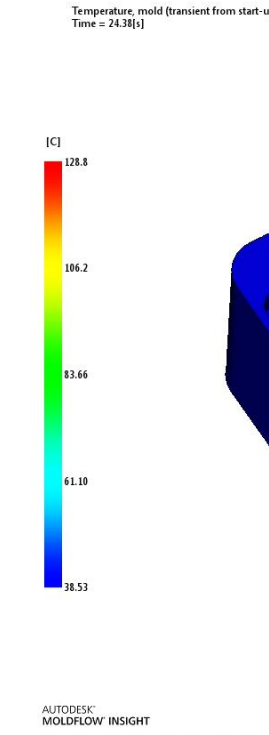
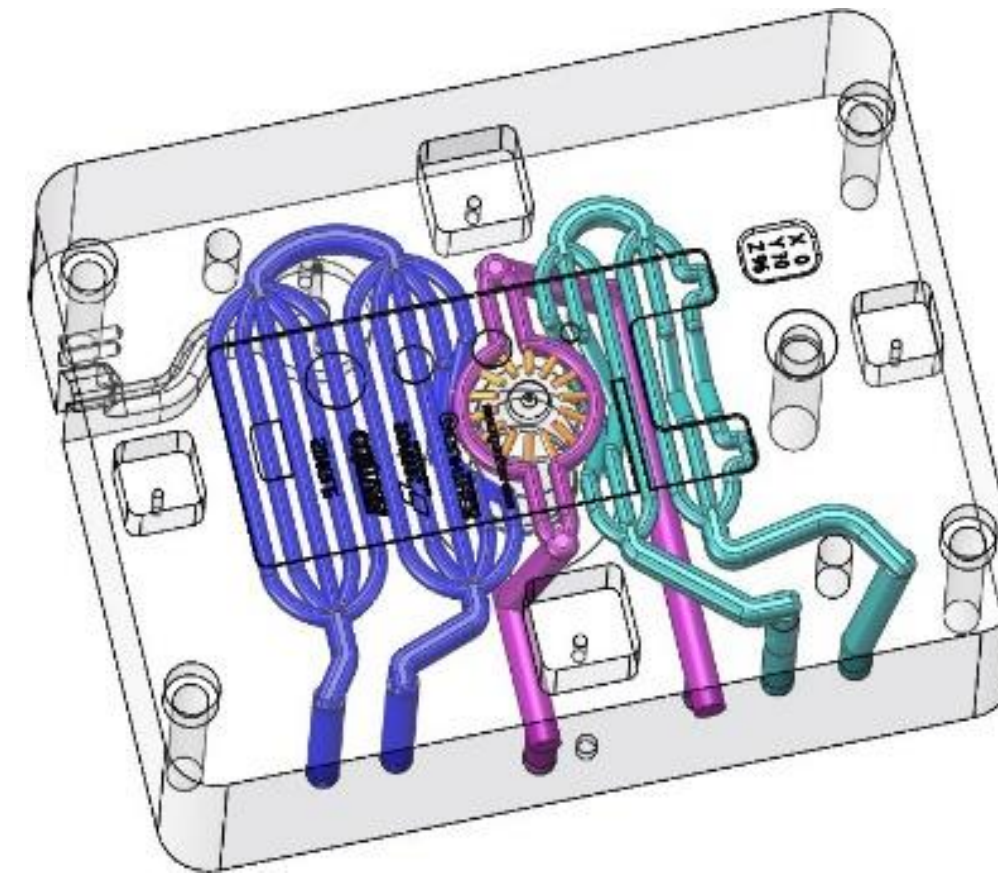
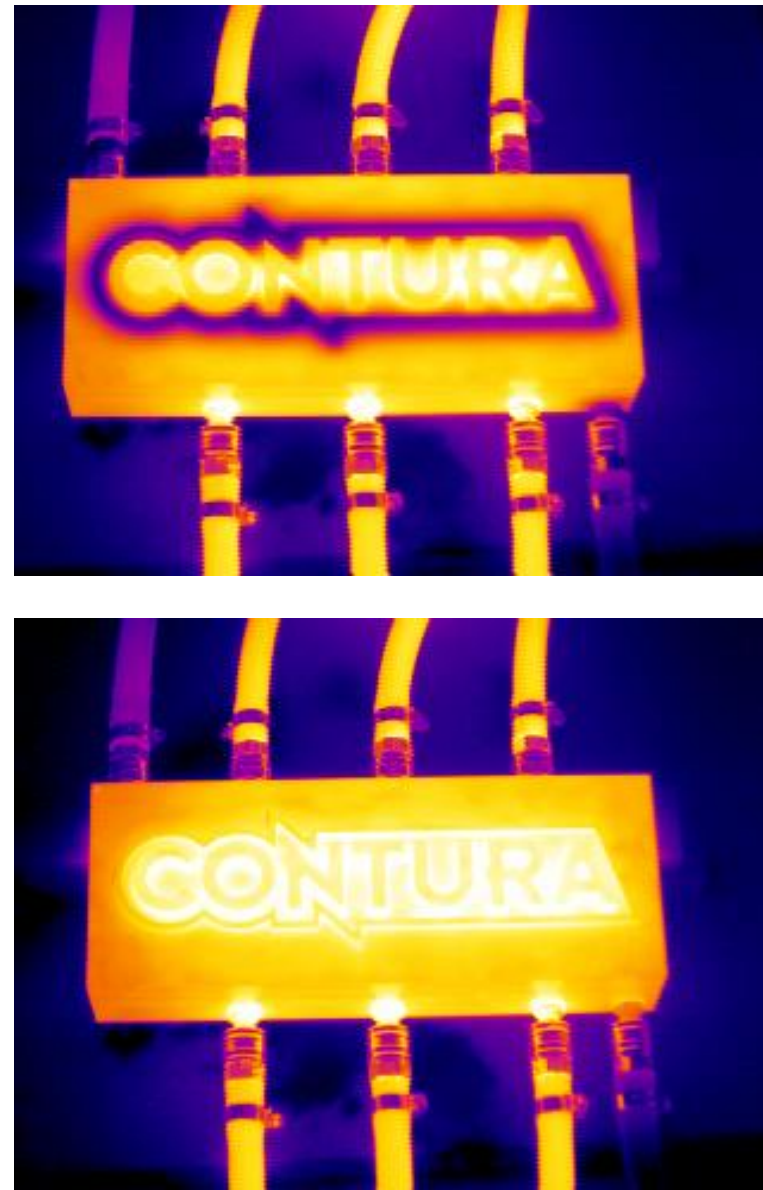


SCHEMATIC REPRESENTATION



No visible
joint lines

WHAT WE NEED ?



What we need?

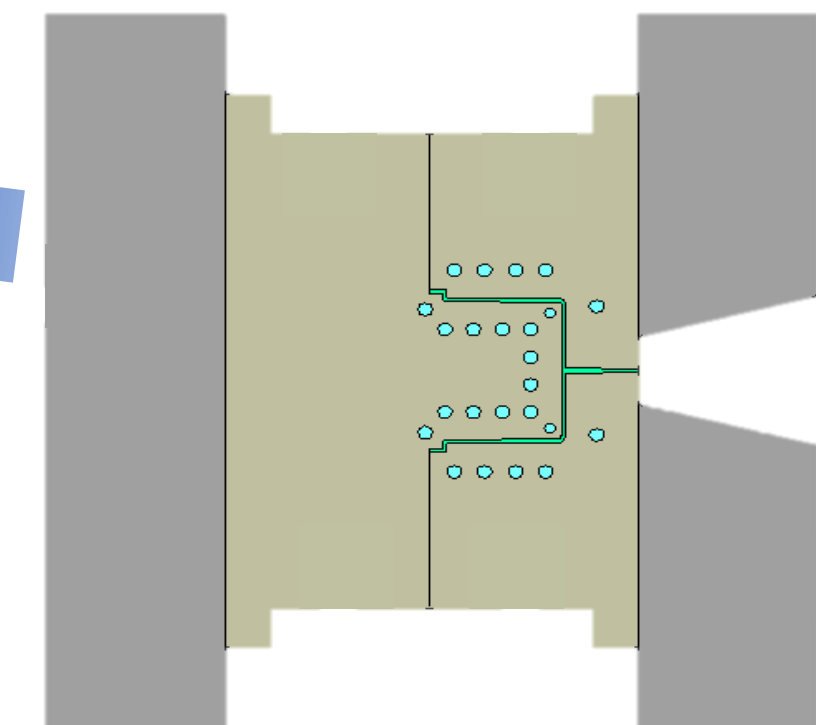


Cycle Temp Gekko (Variotherm Device)

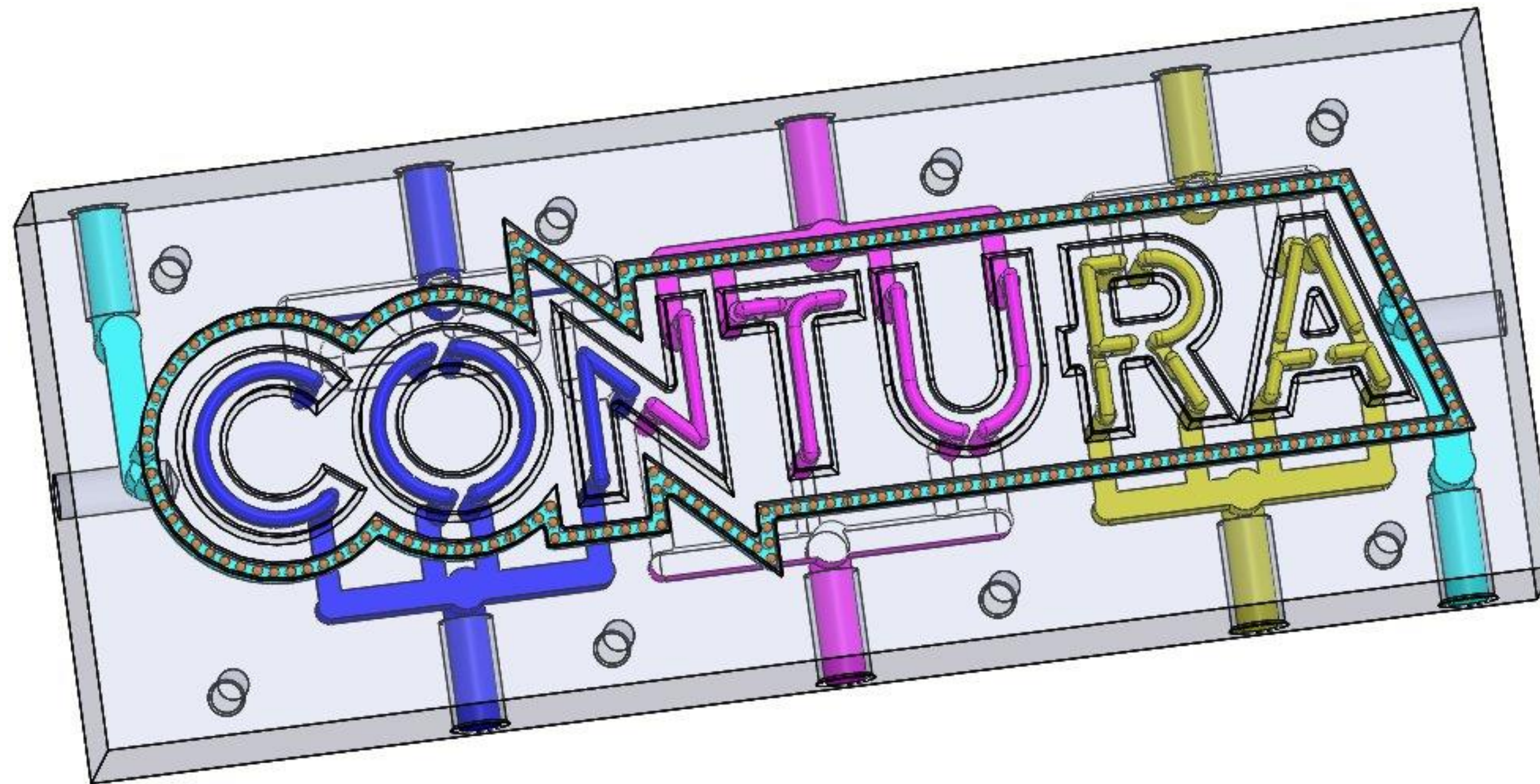
&



Contura Inserts on the Mold



VARIOTHERM – CONTROL



VARIOTHERM EXAMPLE

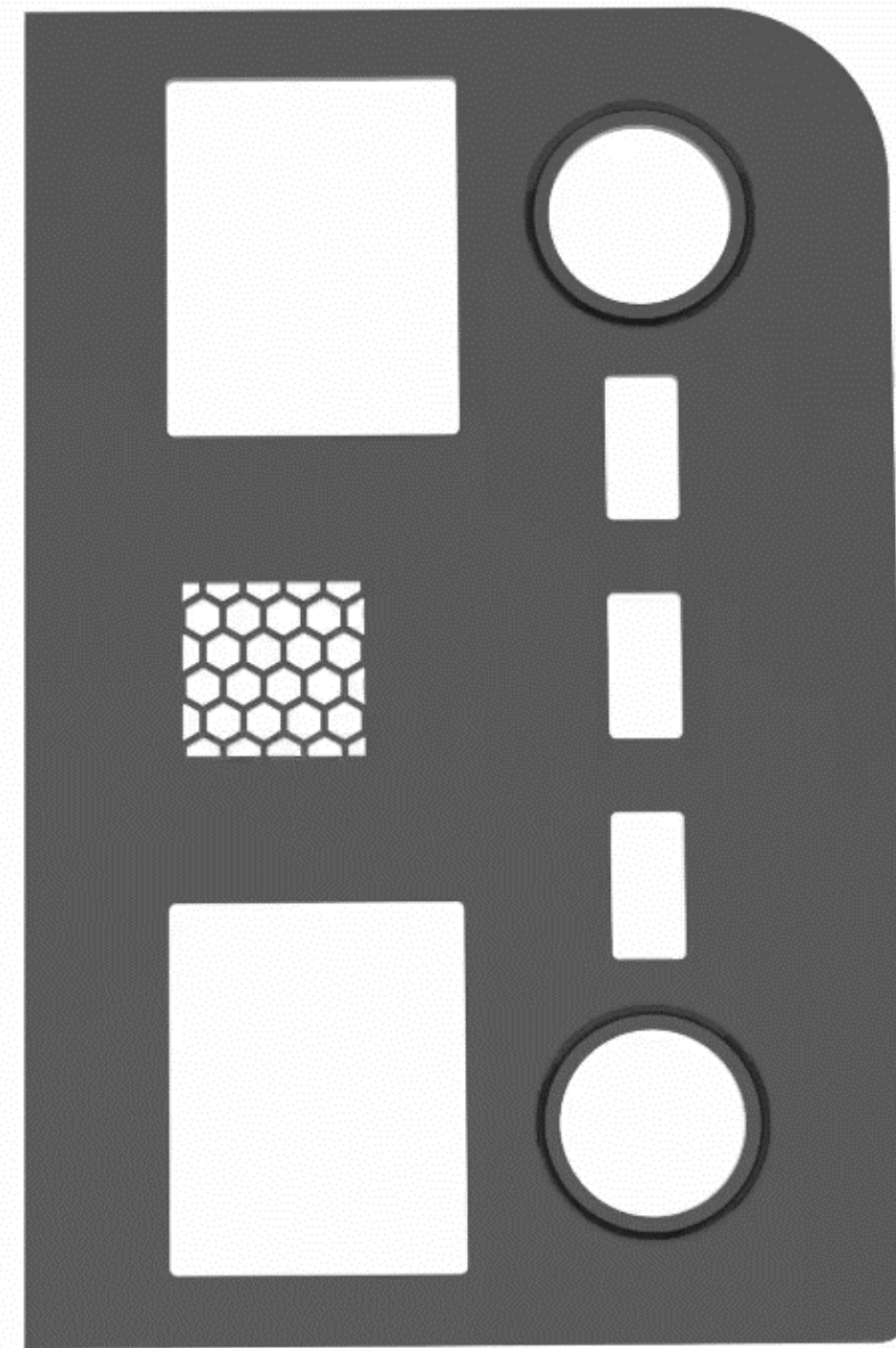


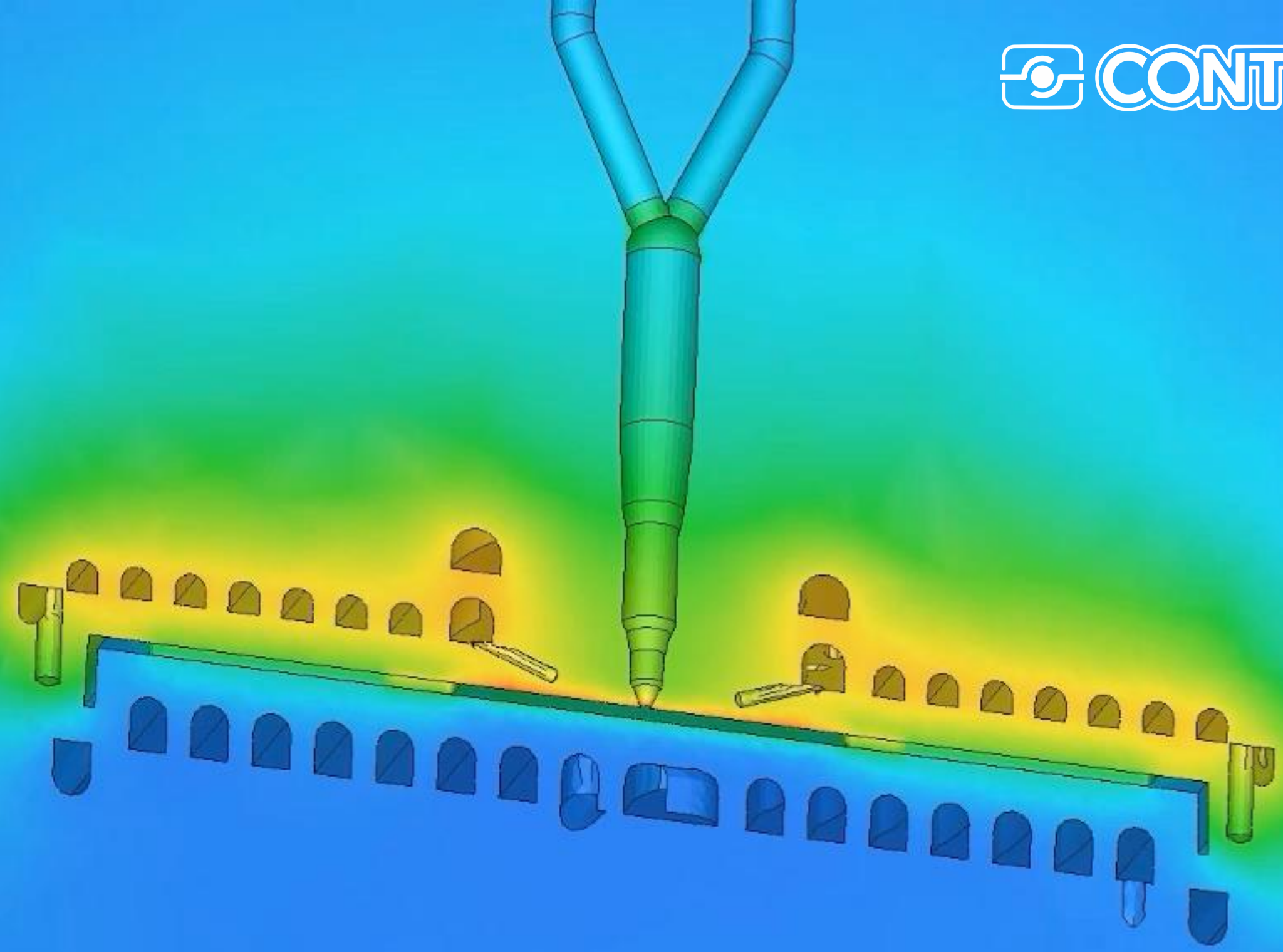
Insert after connecting the „frame channel“ with cold water

Insert after heating up!



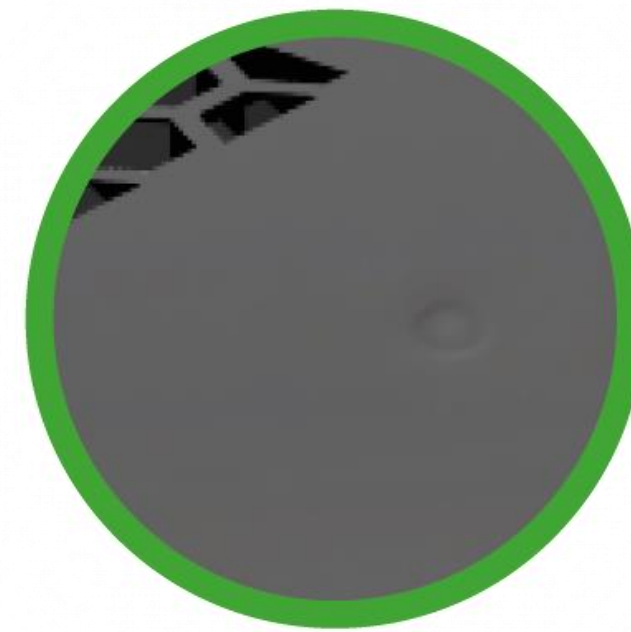
APPLICATION EXAMPLE





APPLICATION EXAMPLE

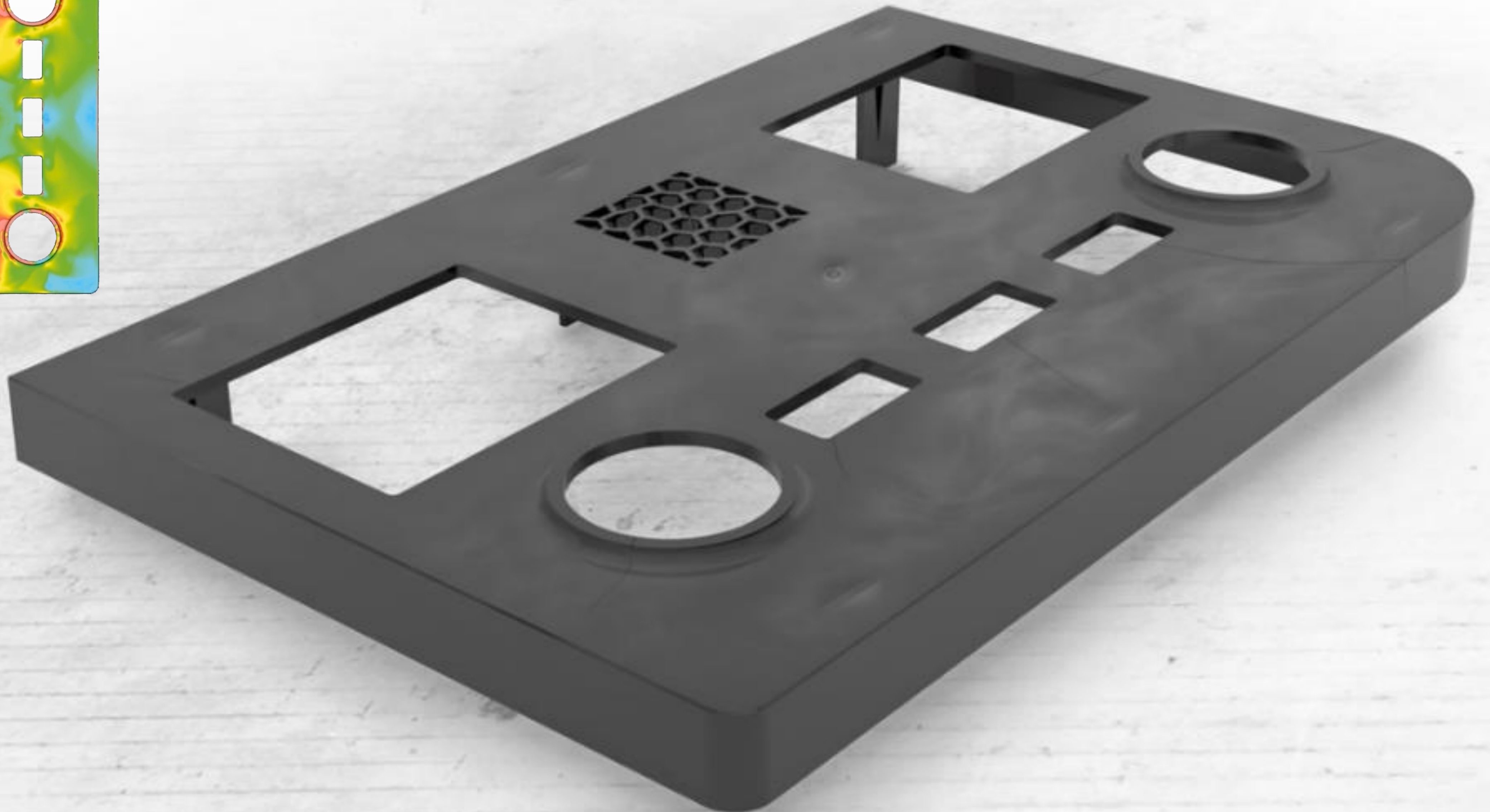
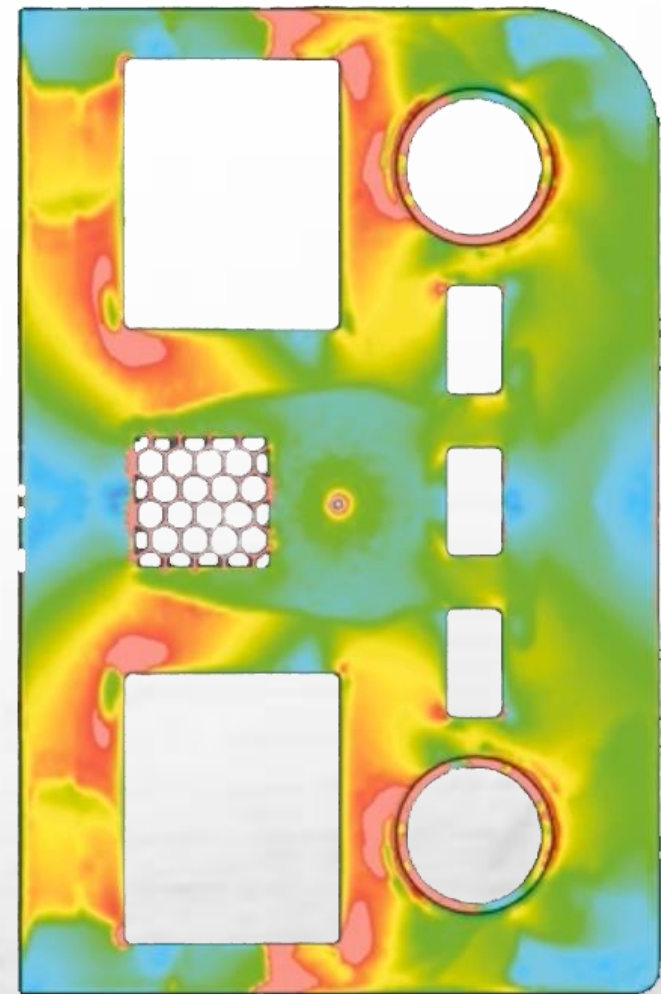
Influence of variothermal molding



Clean Gate
Point

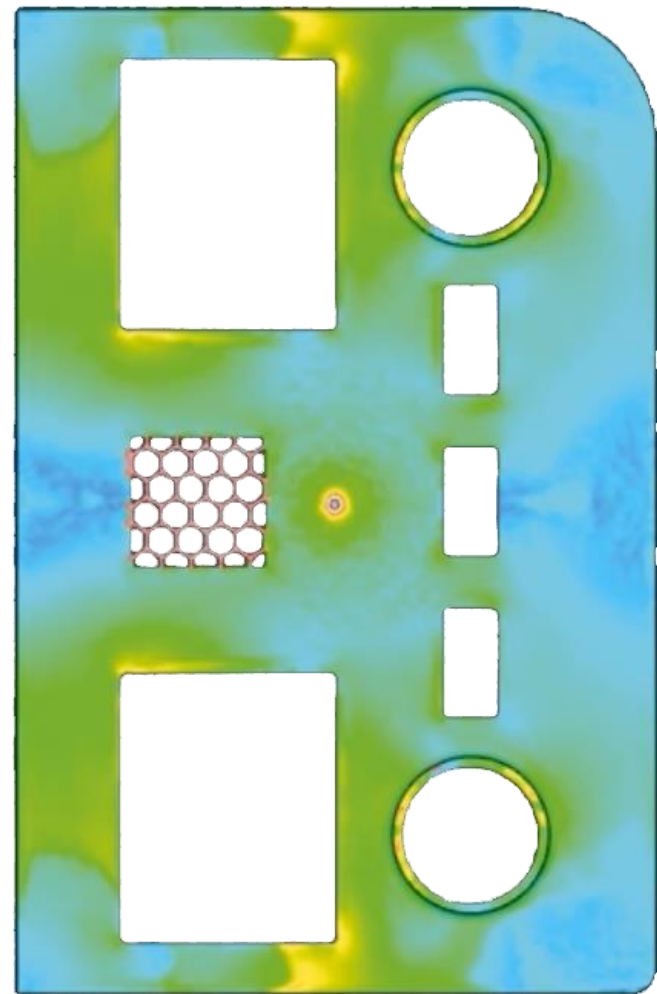
APPLICATION EXAMPLE

Influence of variothermal molding



APPLICATION EXAMPLE

Influence of variothermal molding



APPLICATION EXAMPLE



»Gemeinschaftsprojekt Gekko«



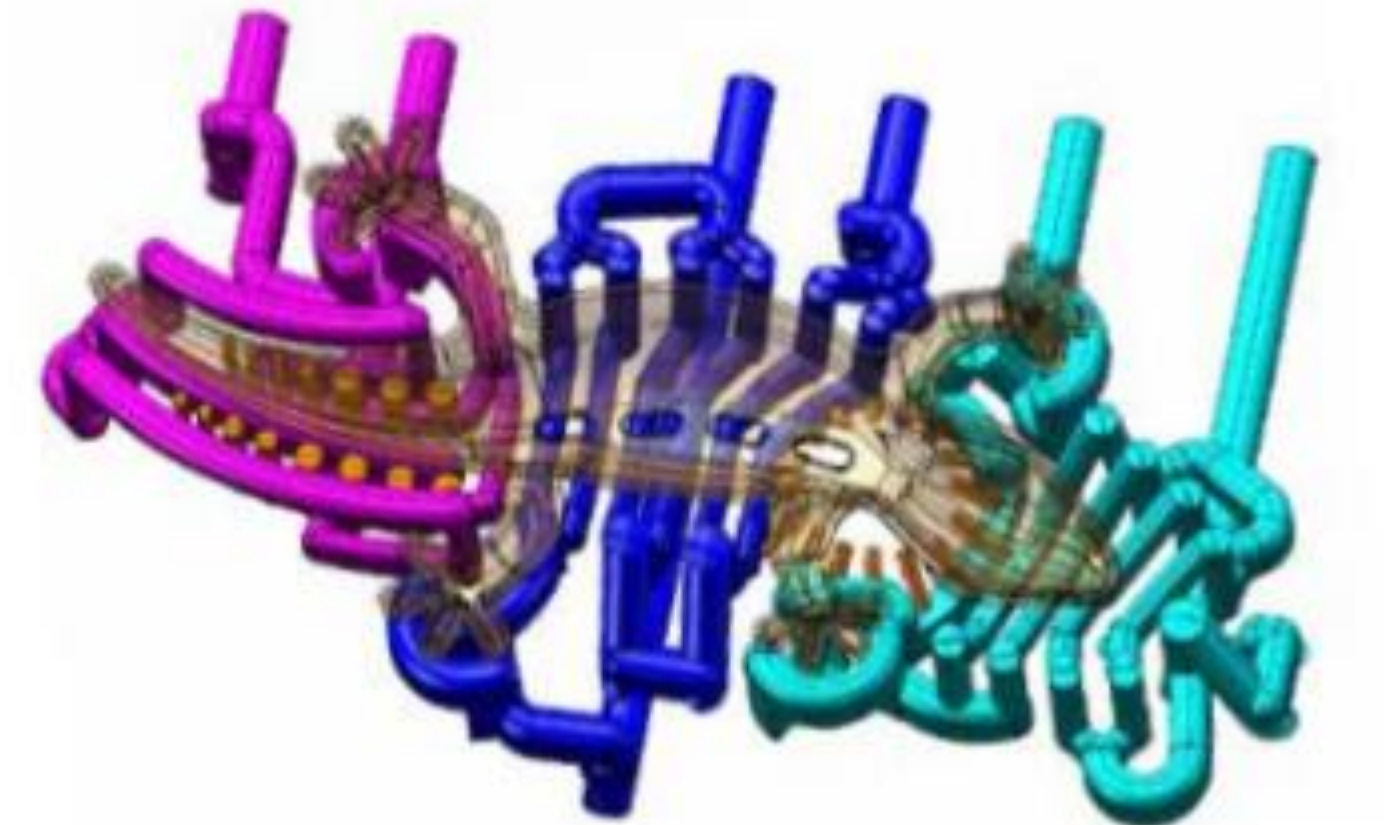
konventionelle Fertigung



variotherme Prozessführung

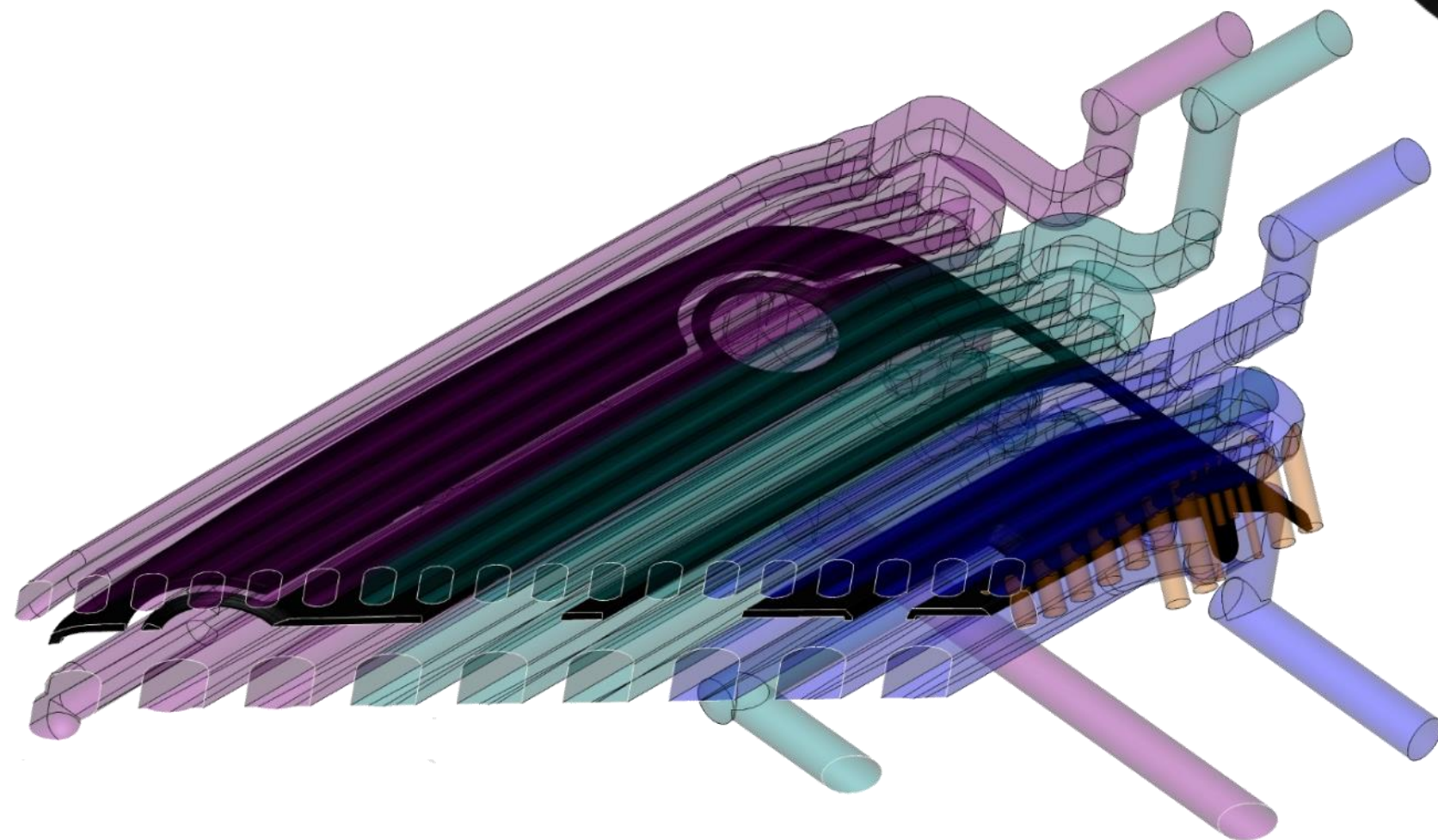
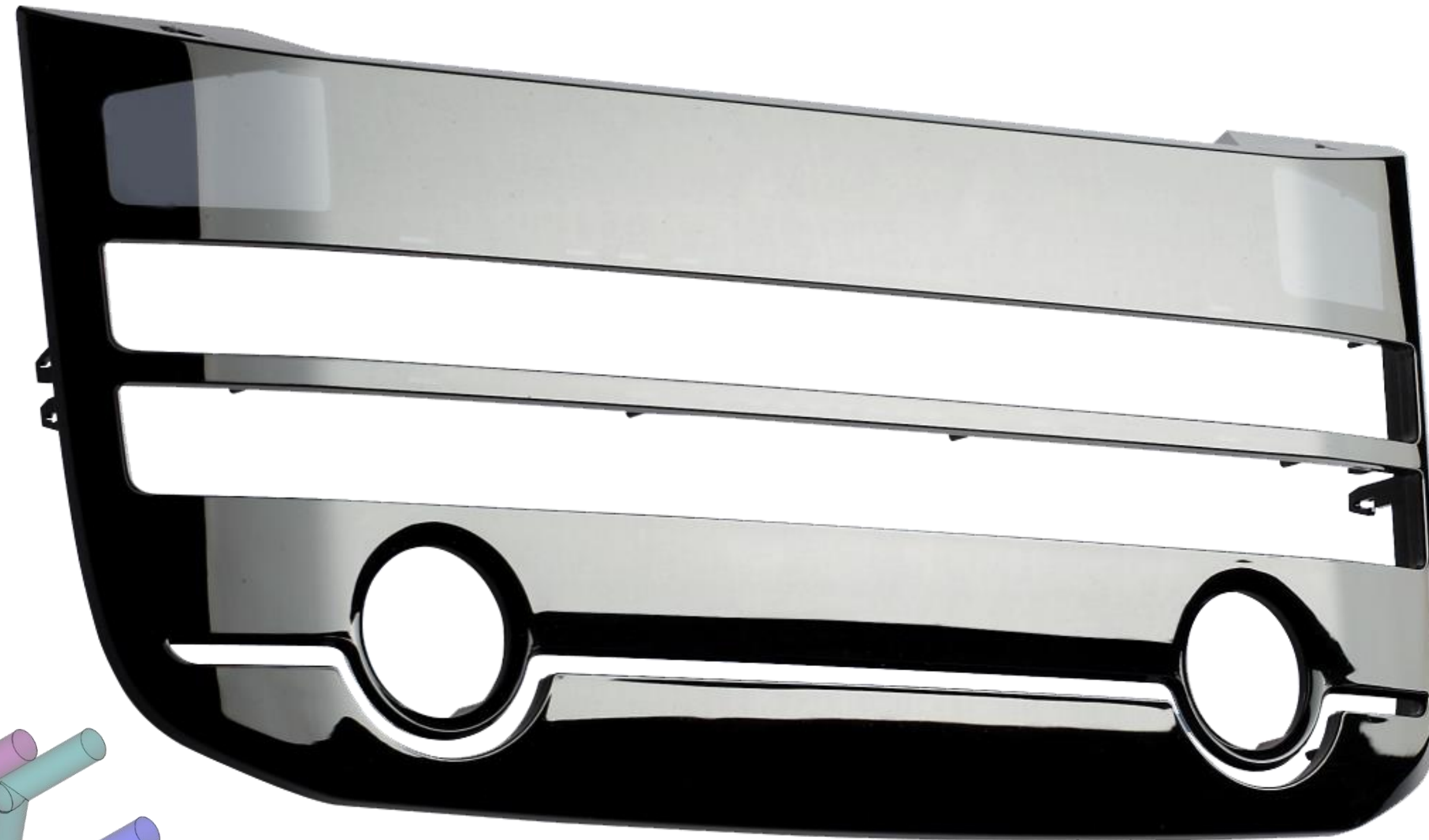
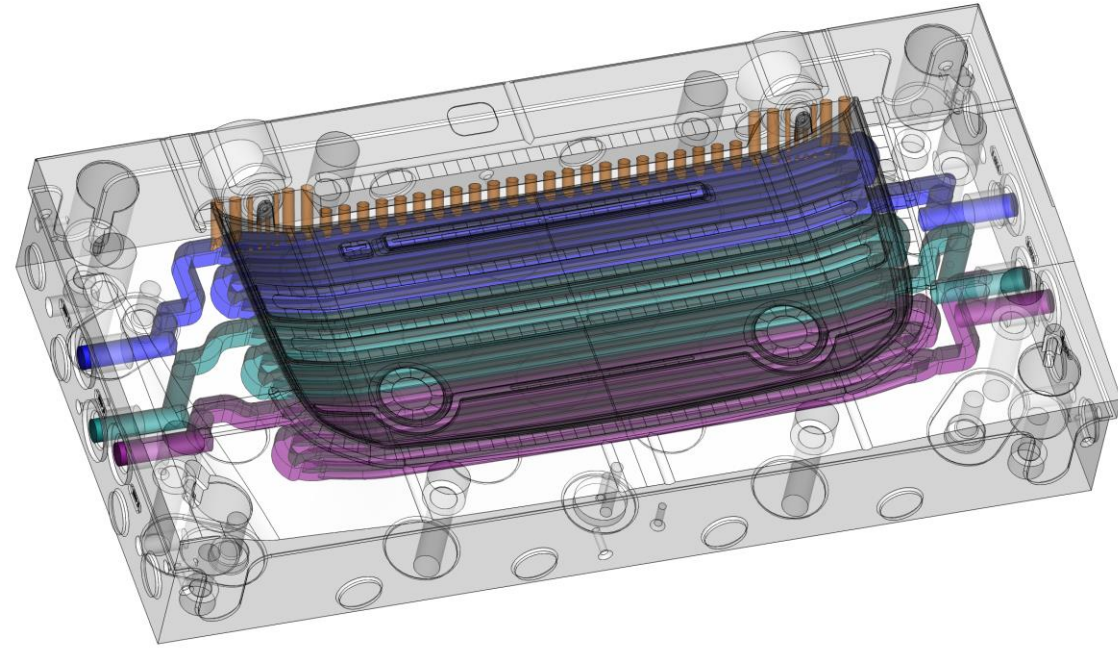


Contoured mold temperature control at the ejector side. Divided into two zones.



Location of the variothermic, contour-following tempering channels on the nozzle side (visible face), divided into three zones.

APPLICATION EXAMPLE



RESULT:

- Reduction of cycle time by 23%
- Weldline free plastic part
- Less Warp

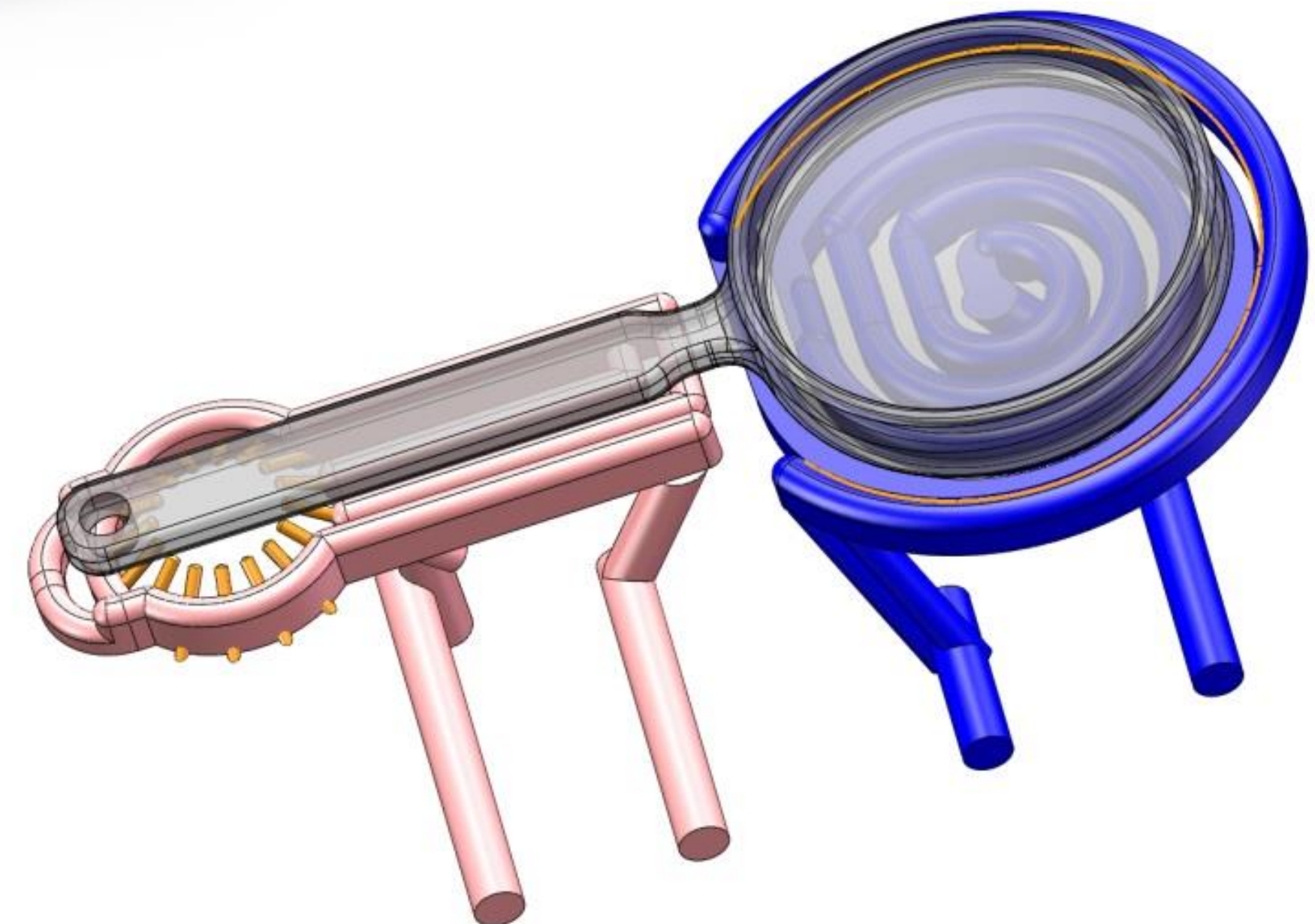
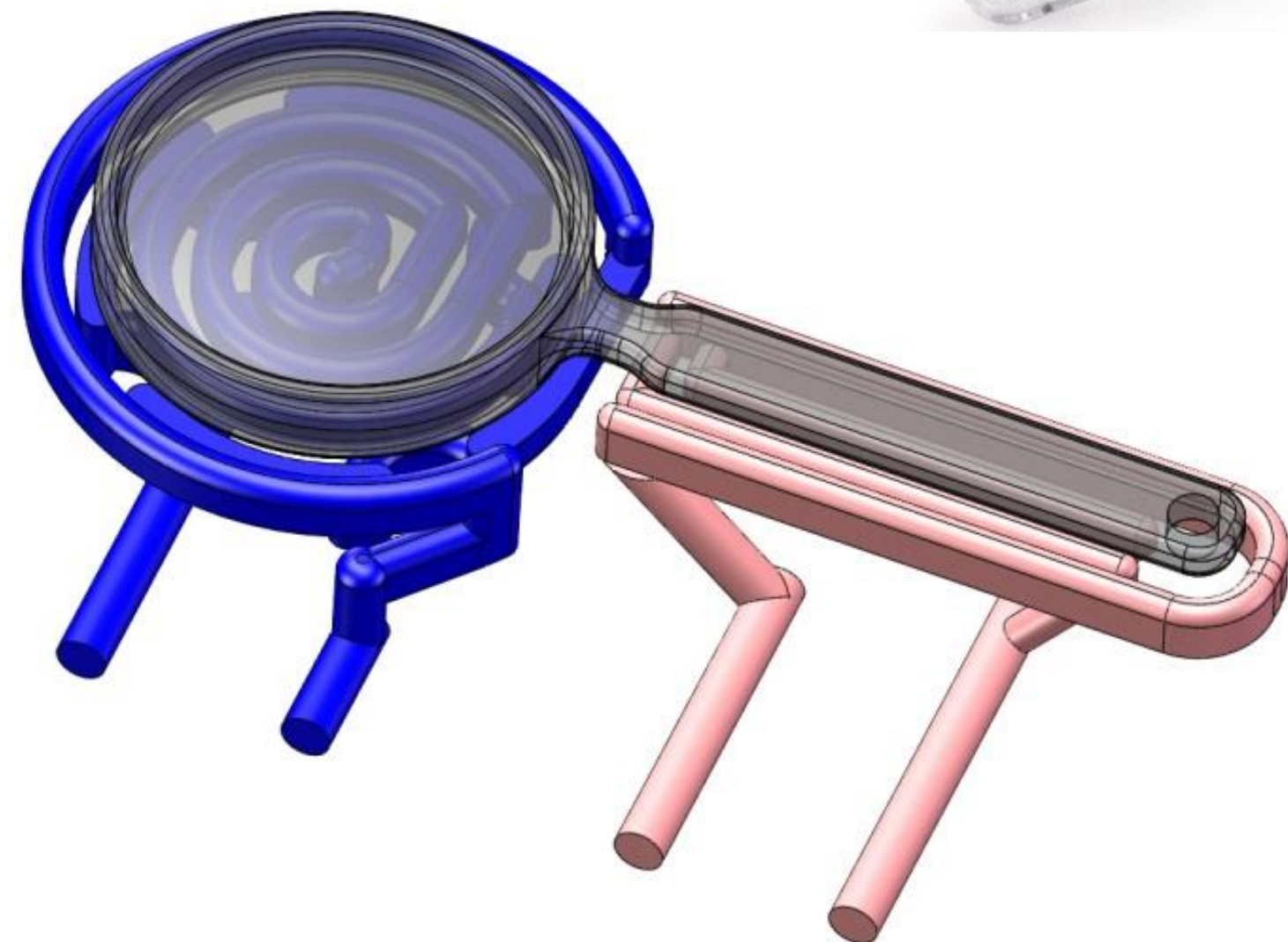
APPLICATION EXAMPLE

Magnifying glass from PMMA. Target : Cycle time reduction of a thick wall part by Variotherm

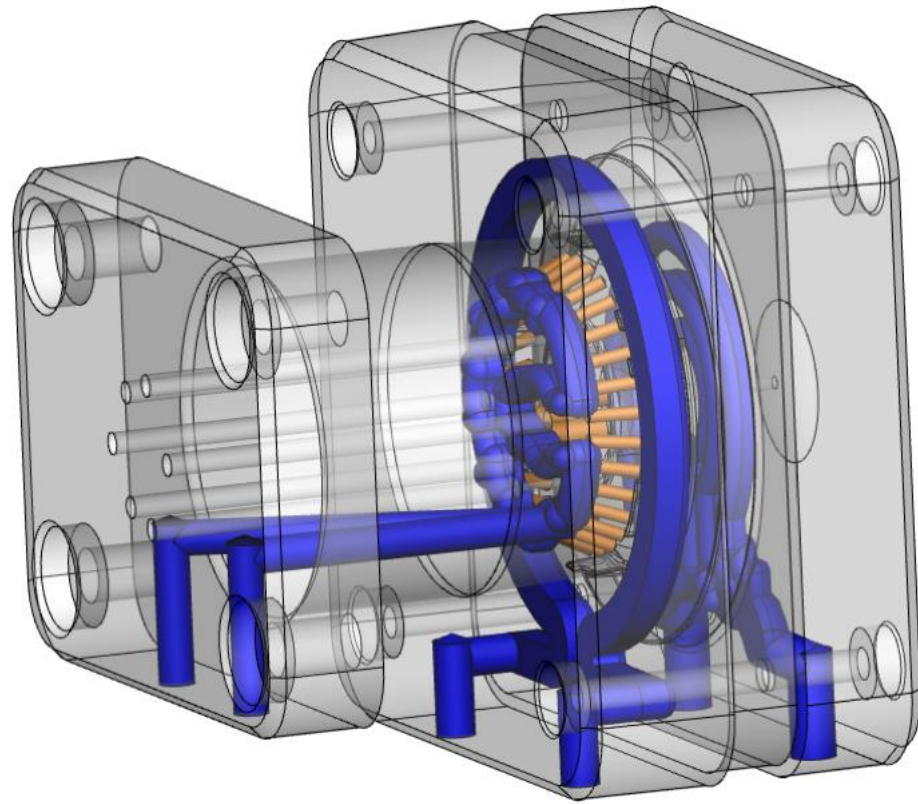
Cycle conventionell:
320 sec.



Cycle Variotherm:
86 sec.



APPLICATION EXAMPLE



RESULT:

- Reduction of cycle time by 49%
- Cycletime from 186 sec to 95 sec
- Reduction of the scrap rate by 11%

**BOOST
YOUR
PROCESS!**



 **CONTURA**

www.contura-mtc.de



THANK YOU FOR YOUR
ATTENTION!