

# NovaFlow&Solid Top Use Cases

Manufacturing Software by NovaCast

# Reduce Shrinkages

## Challenge

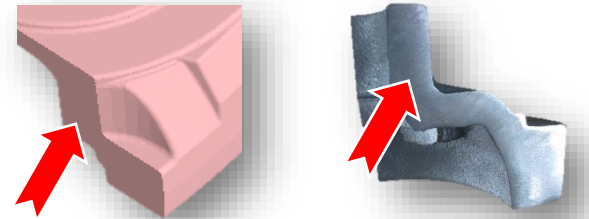
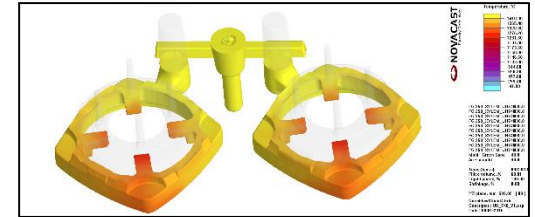
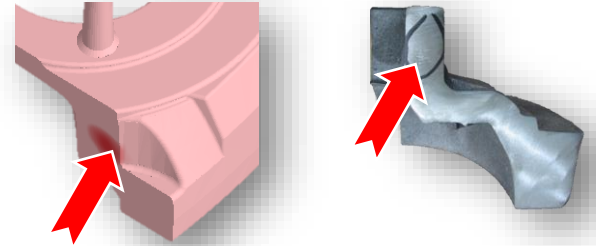
- Reduce shrinkage defects in a casting
- Optimize yield to save material and energy
- Find the optimal way to produce the part

## Solution

- First, verify that you reproduce the existing shrinkage problem.
- Secondly, test new variant of feeding in order to see if problem is gone.

## Results

- By using NovaFlow&Solid you can verify various casting designs and casting layouts.
- The result was that the shrinkage defect was removed.



# Optimize the Gating System for High Pressure Die Casting

## Challenge

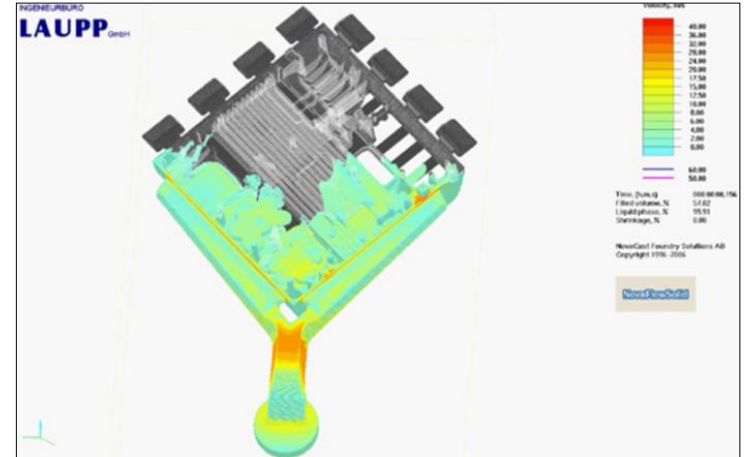
- Be able to fill the part without cold flows
- Place vents on correct places
- Verify what velocities to use

## Solution

- Simulate the filling of the part without vents to see where to place them.
- Simulate the complete filling to find out if the part is filled or not.

## Results

- Grundfos was able to develop the correct gating system and place the vents where the mold is filled last.



"NovaFlow&Solid is a programme developed by people with practical experience in casting, which cannot be said about all developers. It provides practical solutions to problems through simulations."

- **Steen Heelund, Grundfos**

# Export Residual Stresses for Further Calculations

## Challenge

- Be able to use the residual stress caused by thermal gradient created in NovaStress in an external FEM software.

## Solution

- NovaStress can export residual stress data in a node format
- FEM based system, in this case Abaqus imports the nodes with data.
- Loads are applied onto the residual stresses.

## Results

- Using NovaStress as preprocessor to any load calculation program will give a much better prediction on displacement and stress distribution in the final part.

