Why use Casting Process Simulation?

This is why

- Detect and correct possible errors in crucial phases – reduce your scrap rate and secure your quality

- Develop thin walled parts

- Optimize feeders

- Reduce needs for pattern changes – optimize patterns from the start

- Save time, money and reduce your environmental footprint

- Every casting counts

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Detect and correct possible errors in crucial phases

Mouldfilling   Solidification   Stresses and deformation

NovaFlow&Solid   +   NovaStress*

* NovaStress is a fully integrated module to NovaFlow&Solid that predicts how the part will contract, possible residual stresses and risk areas for cracks.
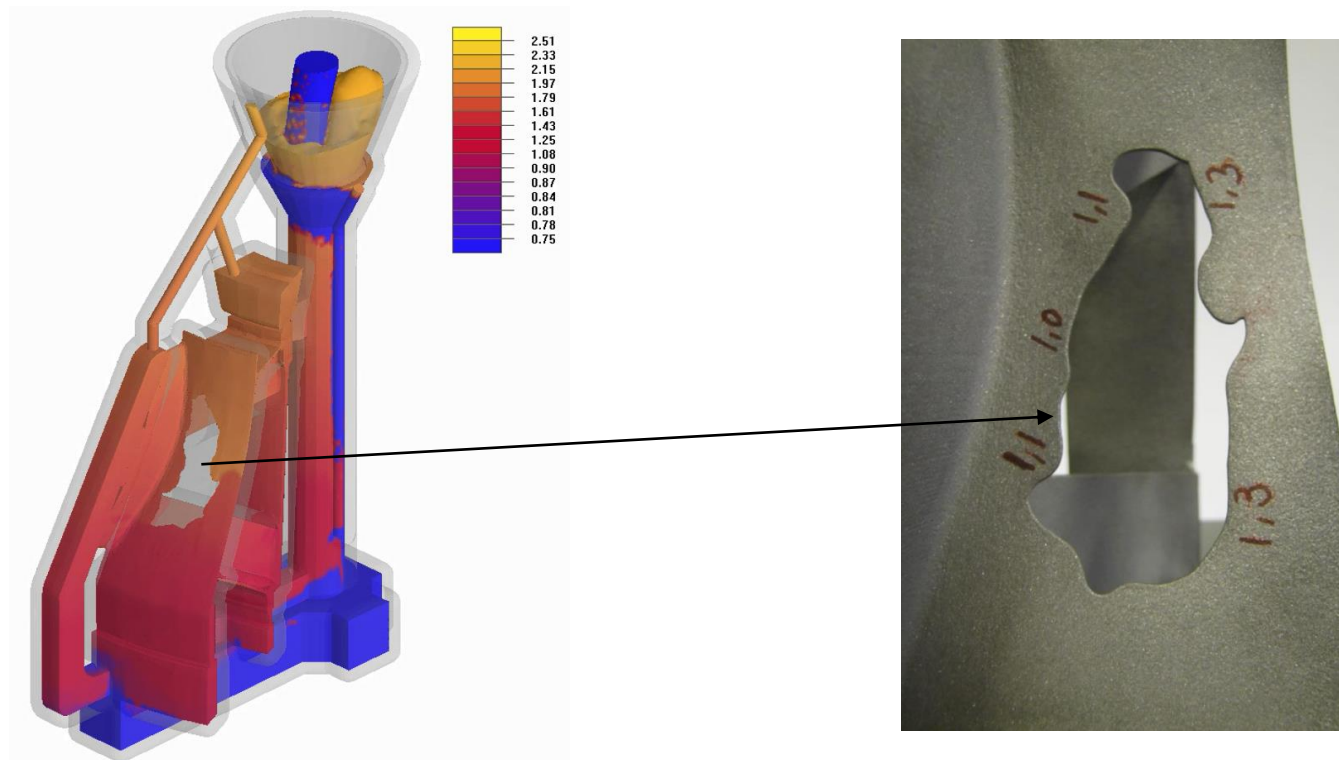
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Develop defect free castings

- Lower scrap rate = saves material and energy

- Lower temperatures = saves energy

- Improved yield = saves material and energy
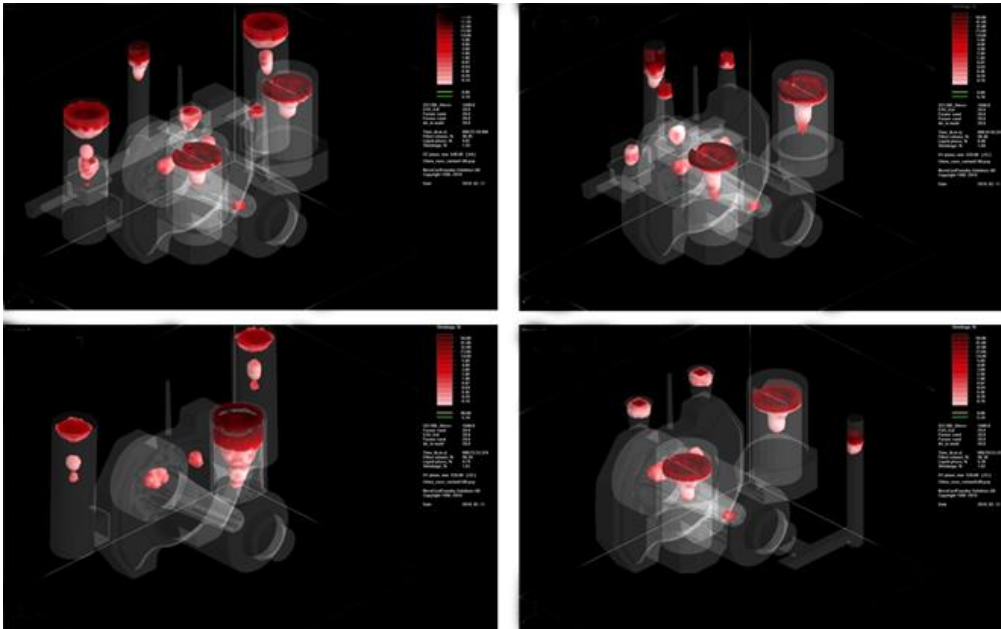
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Develop thin walled parts

Save material, energy and fuel consumption, simulate the limit for your products and optimize the process parameters

Simulation performed by Swerea with NovaCast software within the Cleansky LEAN project

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Optimize feeders

Calculate modulus and feeder size
Test various feeders and optimize yield

Feeder size calculation

Use (Shift+Mouse) on section to input a casting modulus

Input data

Alloy name	G20Mn5 (S)
Alloy density, kg/m^3	7002.981
Casting modulus, cm	
Geometric modulus	1.376
Casting weight to be fed, kg	49.916
Pouring temperature, °C	1610.000
Minimum Feed metal requirement, %	4.528
Minimum Modulus ratio Feeder/Casting	1.200
Feeder ratio Height/Diameter	1.500
Modulus ratio Neck/Casting	1.100
Feeder type	Cylinder
Mould hardness	80.000
Location	Top

Result

Minimum Feeder modulus, cm	2.176
Actual modulus ratio Feeder/Casting	1.582
Feed metal requirement, cm^3	451.821
Feeder weight, kg	12.898
Modulus Feeder neck, cm	1.514
Feeder neck dimension square, mm	60.542
Minimum Feeder diameter, mm	116.061
Minimum Feeder height, mm	174.092

N	Casting modulus, cm	[X,Y,Z], mm
1	1.376	[278.33, 277.30, 81.89]

Add to list   Delete   Save to file
Save ratio   Cancel

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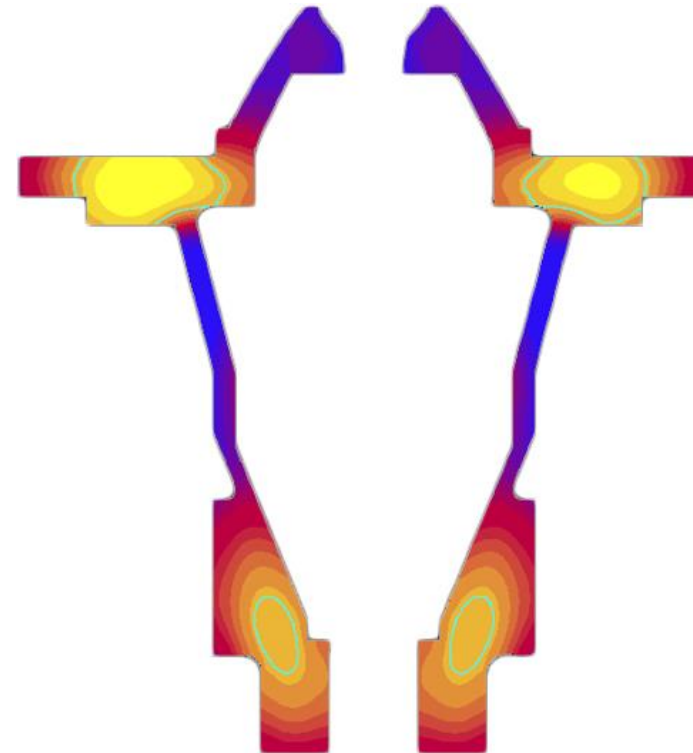
Reduce need for pattern changes

- NovaStress – integrated add-on module to NovaFlow&Solid

- Simulate residual stresses

- Simulate dimensional changes and distortion

- Saves lead time and need for changes

- Optimize patterns from the beginning

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Good Guys' Index

- Yield comparison

- Energy consumption/cost comparison

- CO_2 emissions

- Good Guys' Index

Good Guys' Index (GGI)

- The best resource is the one that is not used

- Every casting counts

- Compare effects of choosing EXO feeders

- See effect of reduced pouring weight

The GGI is easy;
You get score 100 if you have a yield of 100% and zero degrees pouring temperature over the liquids!

Impossible? No. Hard? Yes!

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So, let's reduce the environmental footprint.