

MAGMA

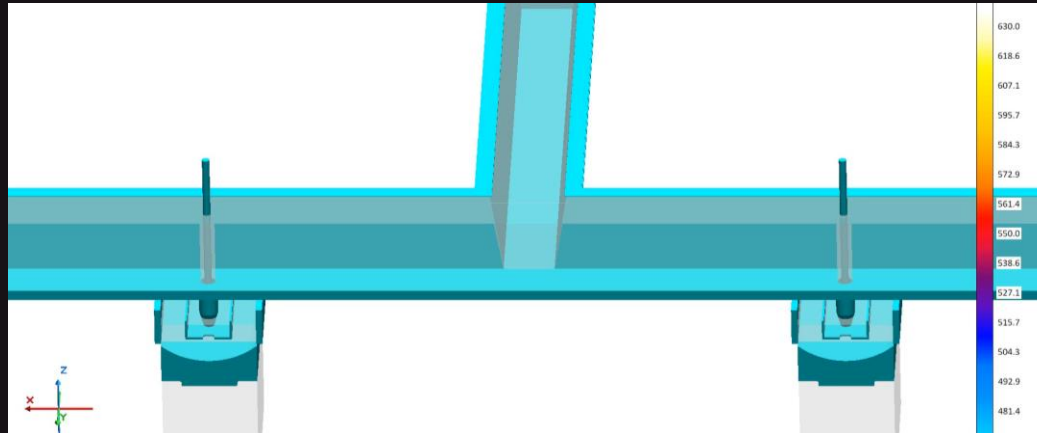
International MAGMA User Meeting 2024

October 9-11, 2024

RADISSON BLU – Frankfurt

BE
PART
OF
IT

The logo for MAGMA, featuring the word "MAGMA" in a bold, sans-serif font. The letter "G" is stylized with a red circular element around it.



News in MAGMA CC

Presented by Erik Hepp

What's New in MS 6.1 - MAGMA CC

- ✓ Stop & Go
- ✓ New 1D Strand Profile Dialog In CC it is possible to create a 1D profile over the entire strand with a single click
- ✓ Clipping of Stress Results
- ✓ Particle counter
 - ✓ Flow Tracer time
- ✓ Tundish / Simultaneous Filling and Withdrawal
- ✓ Fixed Microporosity Criteria
- ✓ k-epsilon RNG Turbulence Model
- ✓ Improved Segregation Model
- ✓ Impact of Support Rolls on Strand Displacement (Stress)

Stop&Go: New dialog

Withdrawal Definition

Specify parameters for withdrawal process. Select one of the available control types.

Control Type

☐ Casting Speed

☒ Stop and go

Stop and go

Step	Type	Value	Unit
1	Forward	27.9	mm
2	Waiting	2.82	s

Casting Speed (mm/min)

Time (s)

Define Machine Data

Process Values

Casting Speed 434.81 mm/min

Casting Frequency 15.58 1/min

Production 0.0 1/h

OK Cancel

Machine Data Definition

Define machine parameters for forward and backward process steps.

Forward

Velocity 1800.0 mm/min

Acceleration 300.0 mm/s²

Deceleration 300.0 mm/s²

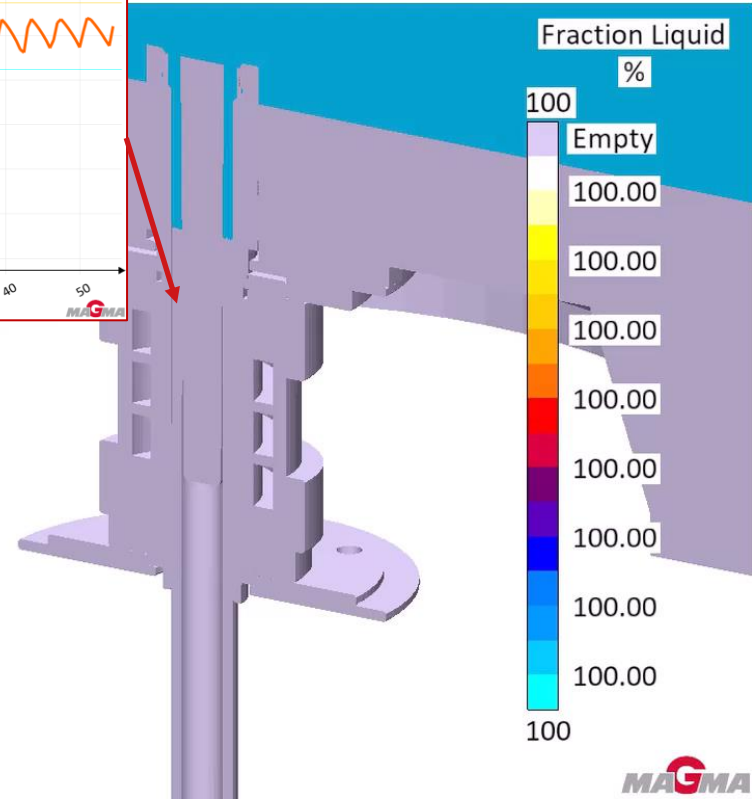
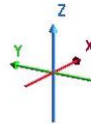
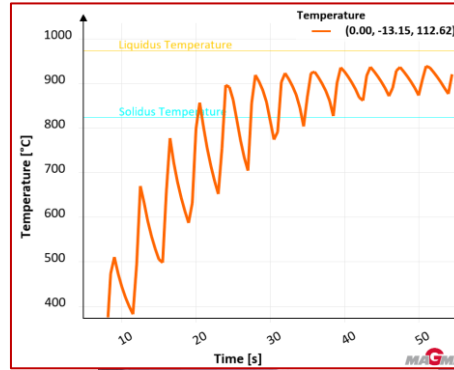
Backward

Velocity 1800.0 mm/min

Acceleration 300.0 mm/s²

Deceleration 300.0 mm/s²

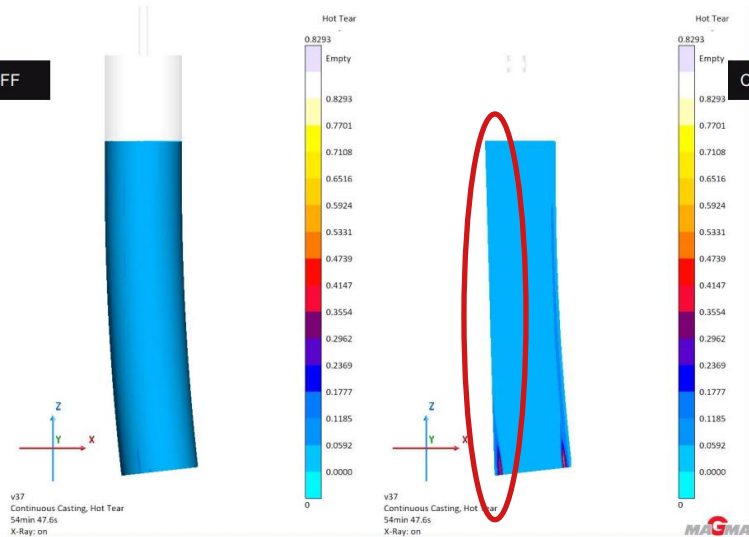
OK Cancel



Clipping in Stress Results

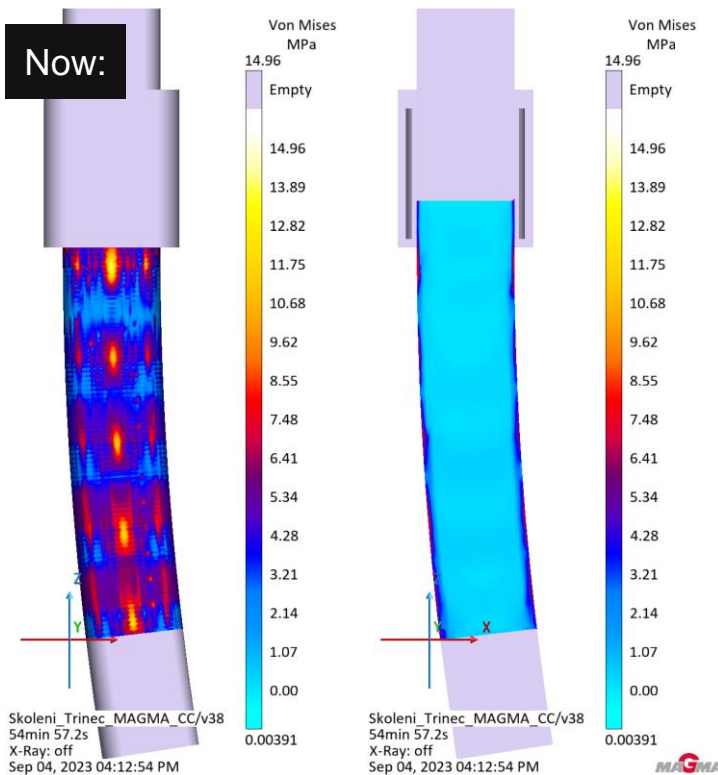
Before:

Clipping OFF



Clipping ON

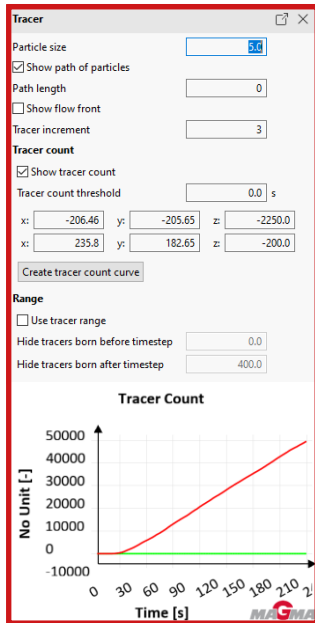
Now:



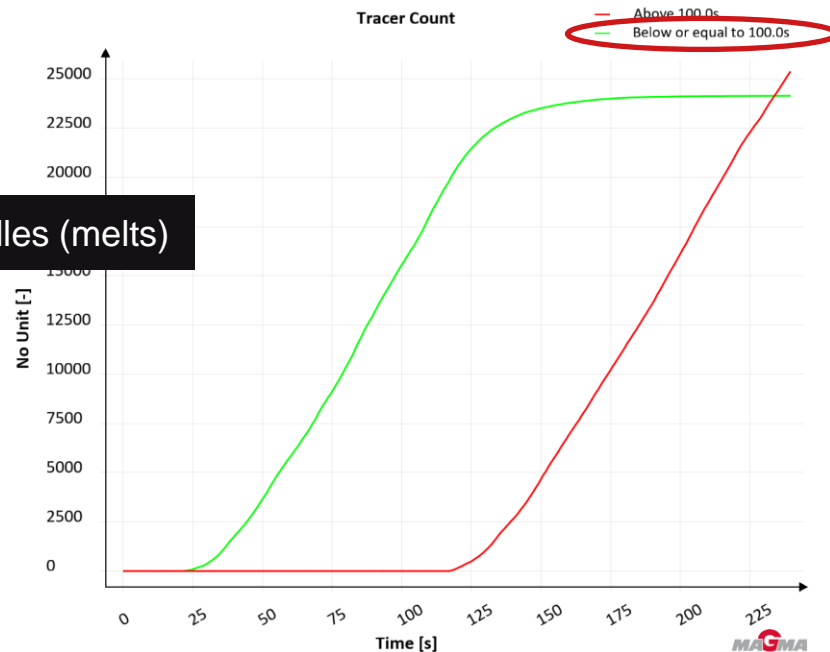
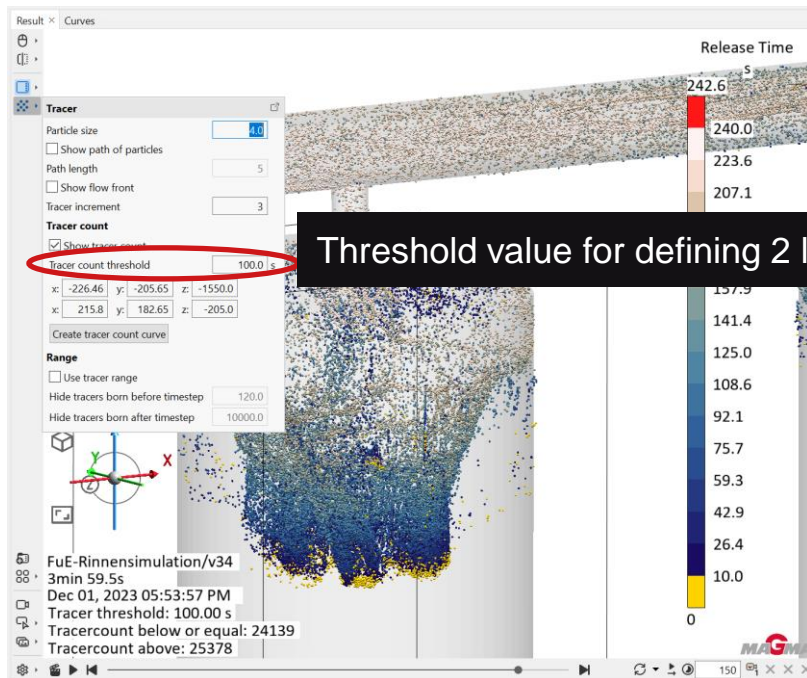
07.09.2023

| customer | subheads | venue

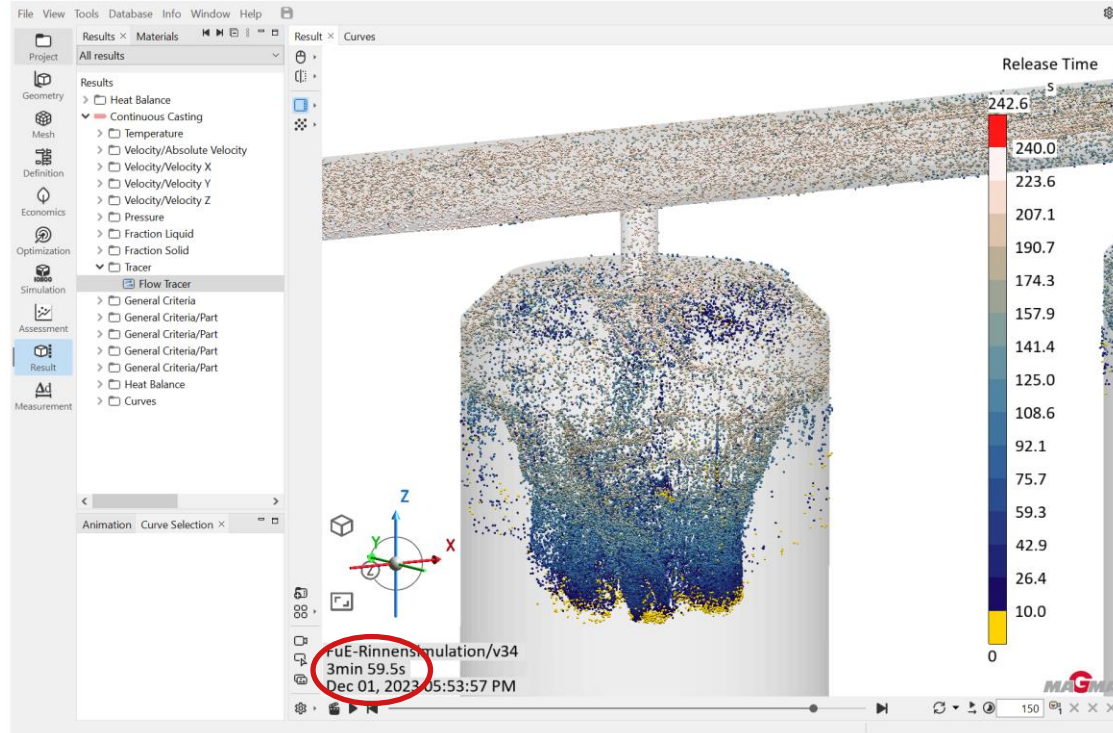
Tracer Count Functionality



Tracer Count Functionality

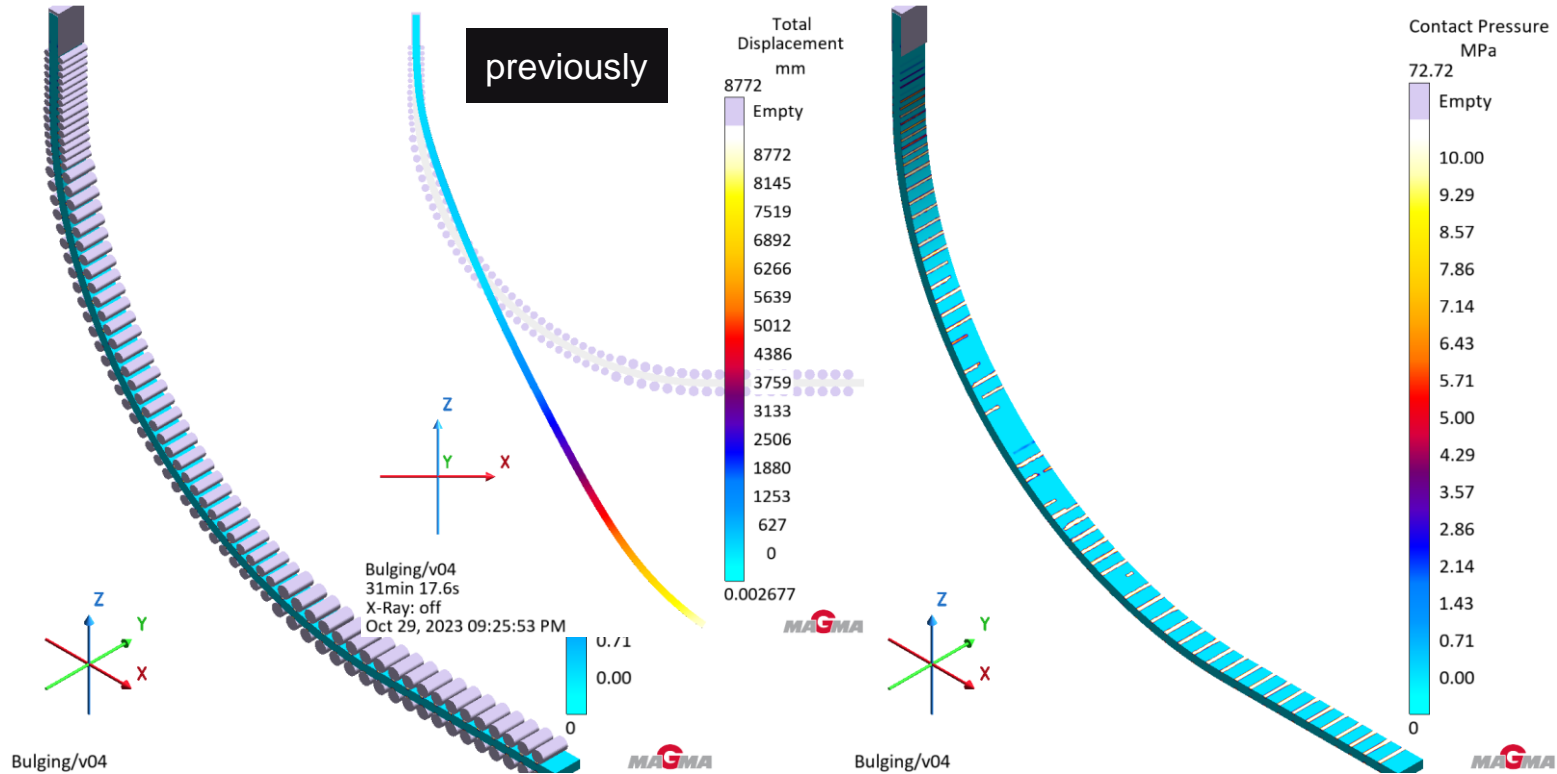


Process Time: Flow Tracer



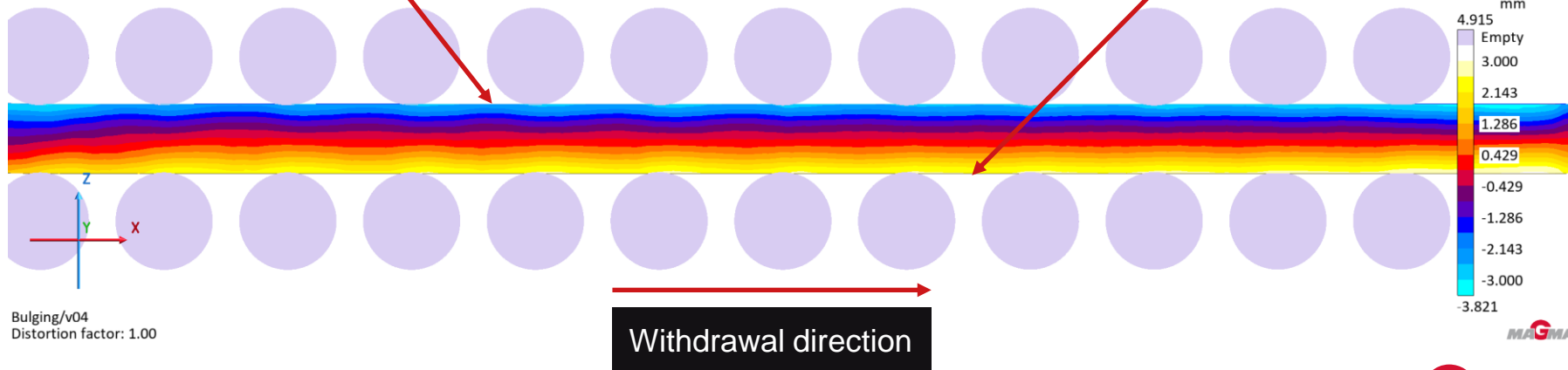
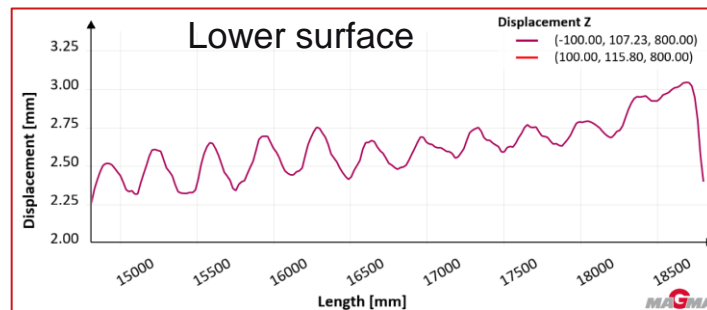
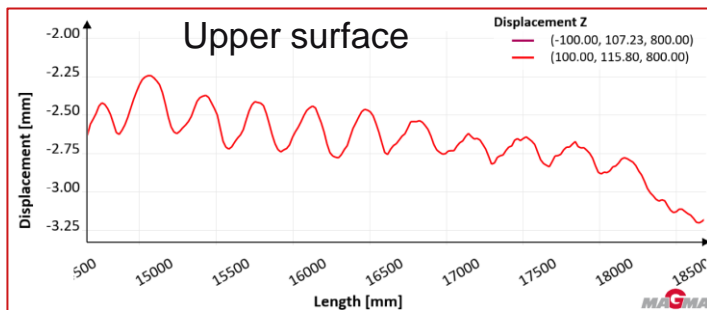
Influence of Rolls for Displacement (Stress)

Improved rolls contact

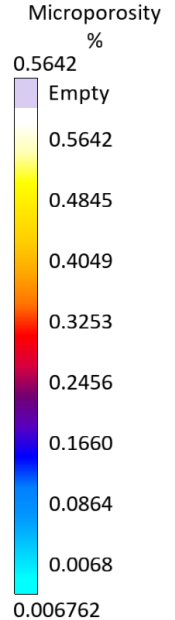
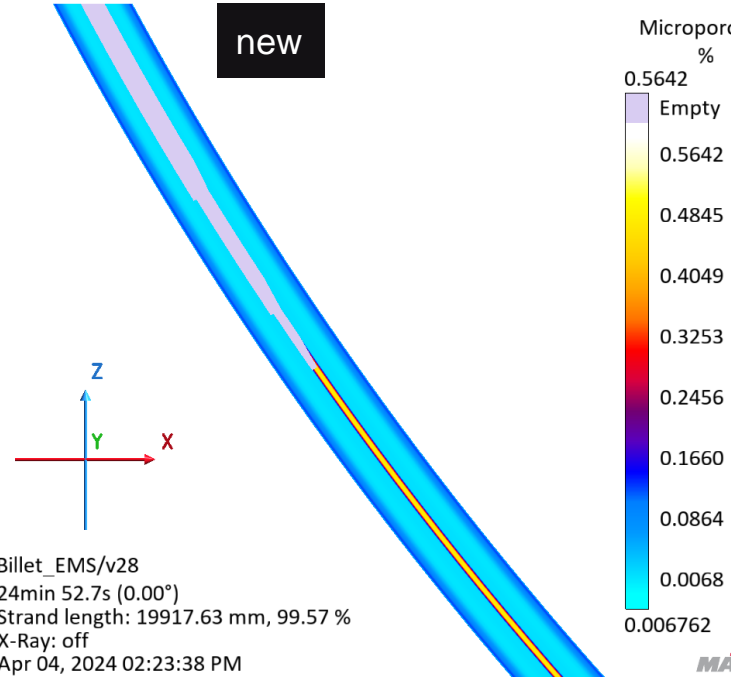
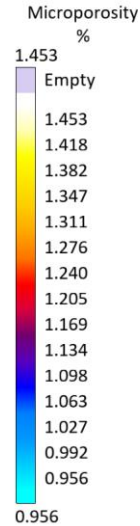
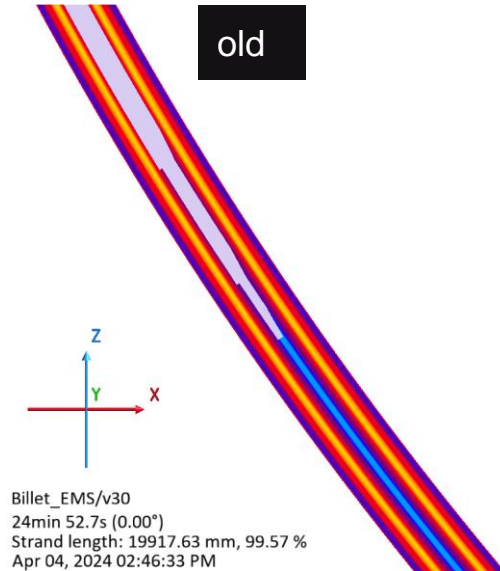


Influence of Rolls for Displacement (Stress)

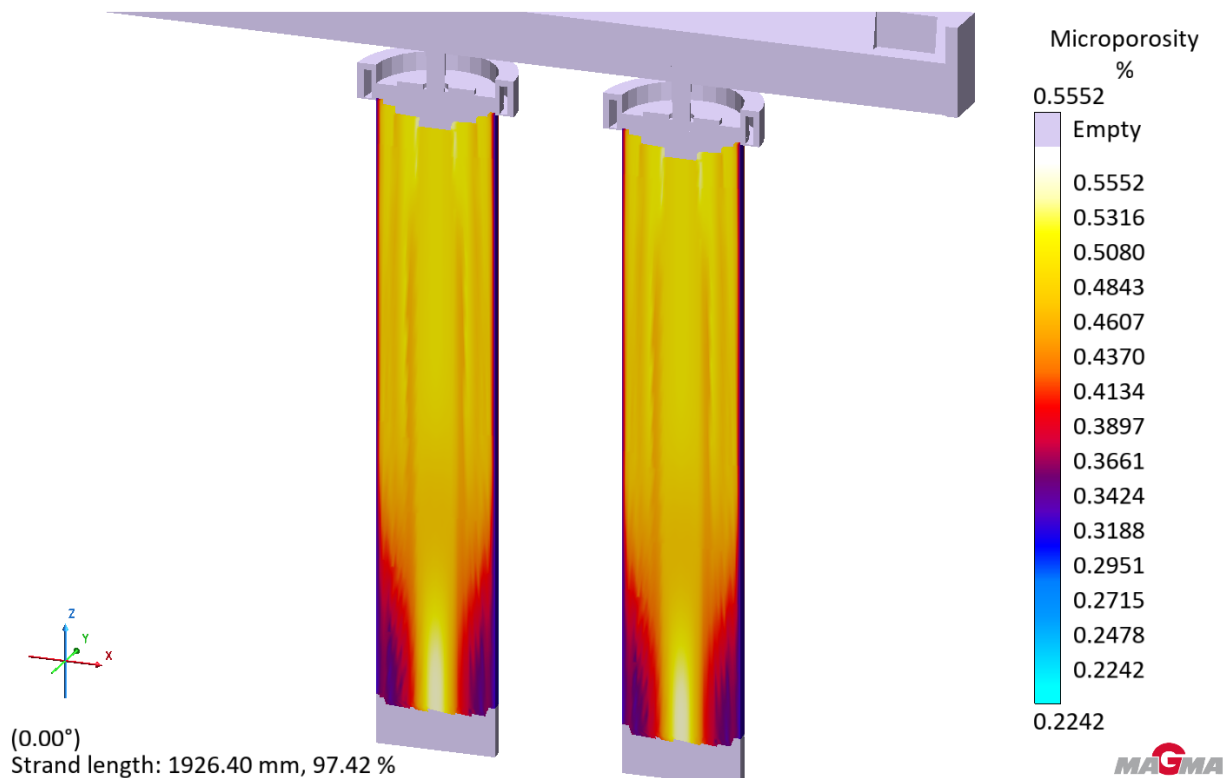
Displacement



Fixed Microporosity criteria

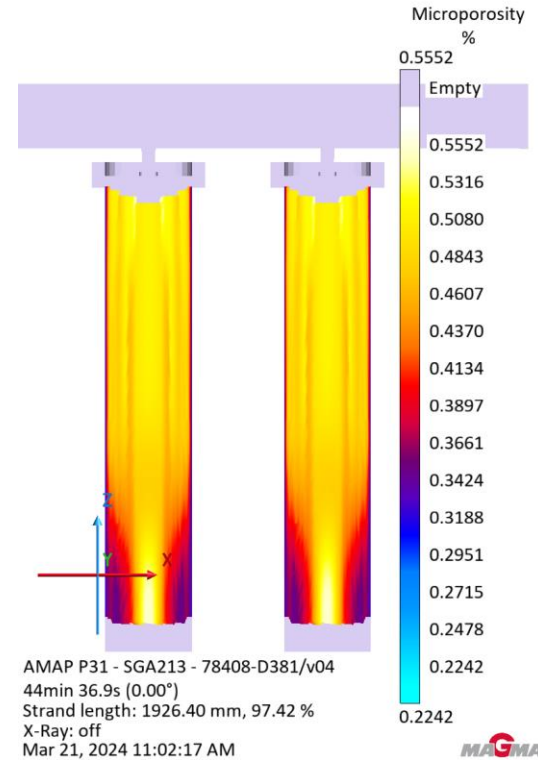
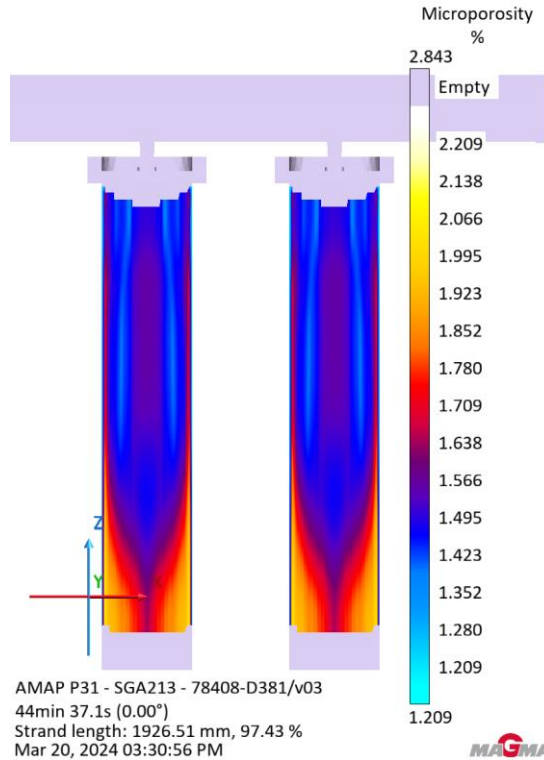


Improved Microporosity Prediction



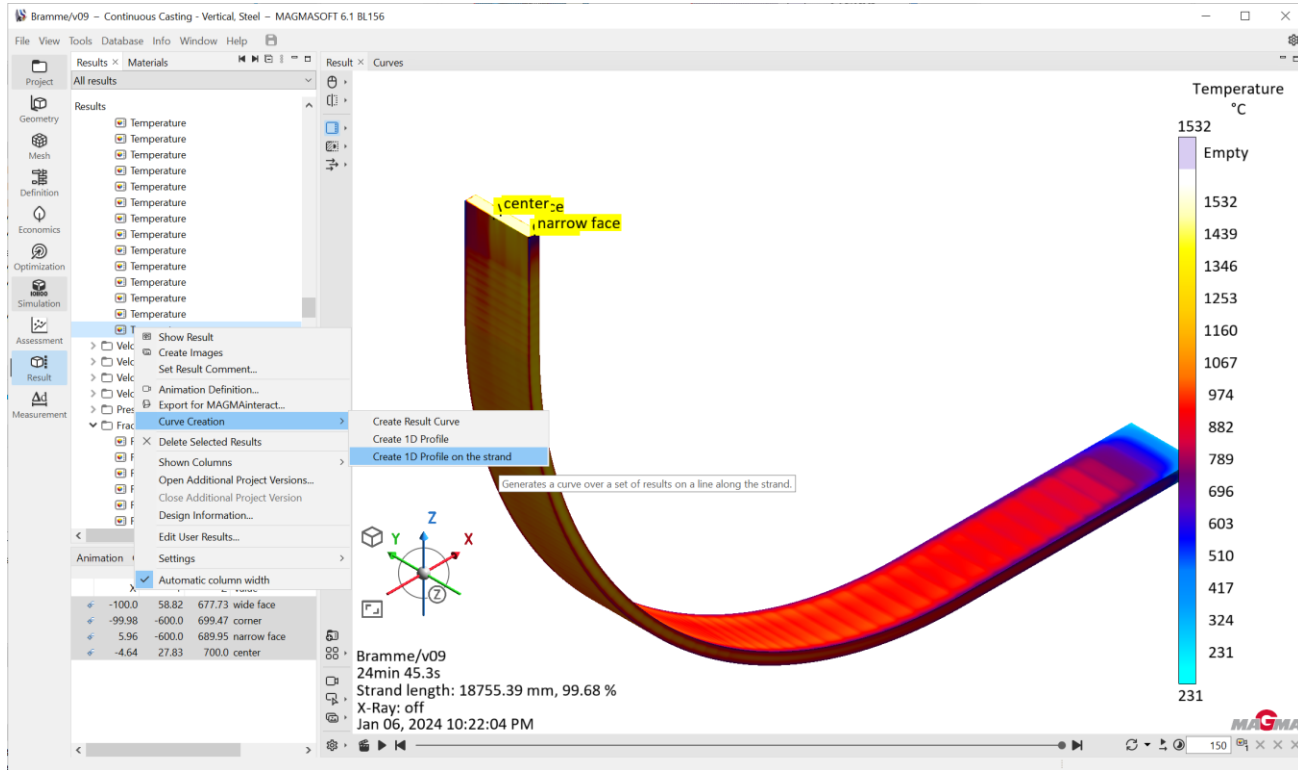
MS 6.1

Fixed Microporosity criteria



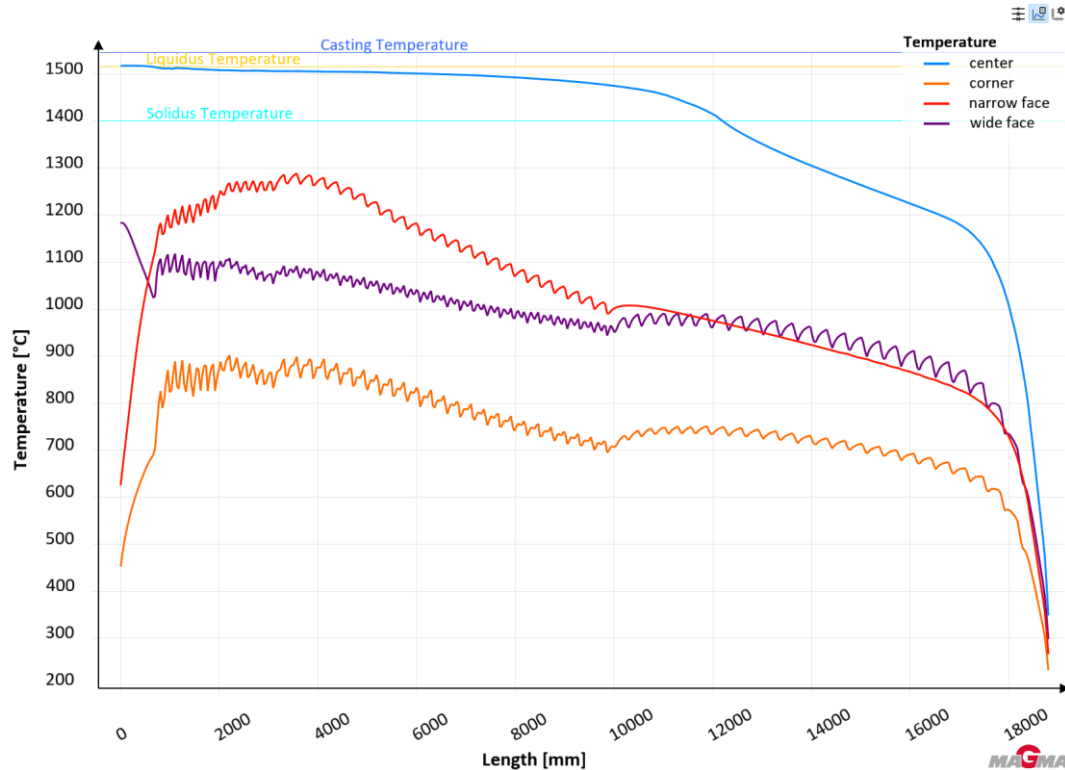
1D Profil with 1 click in CC

In CC it is possible to generate a 1D-profile for the total strand with only 1 click

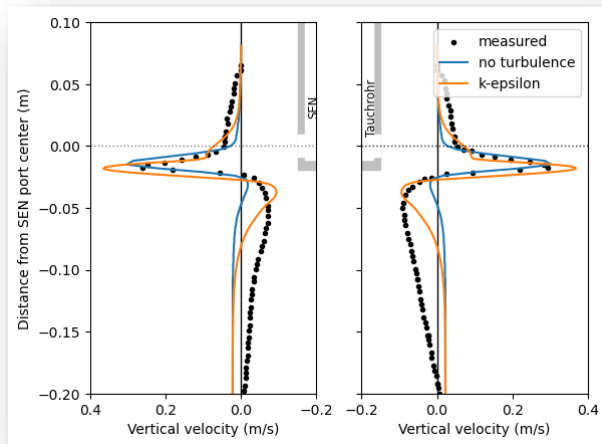


1D Profil with 1 click in CC

In CC it is possible to generate a 1D-profil for the total strand with only 1 click



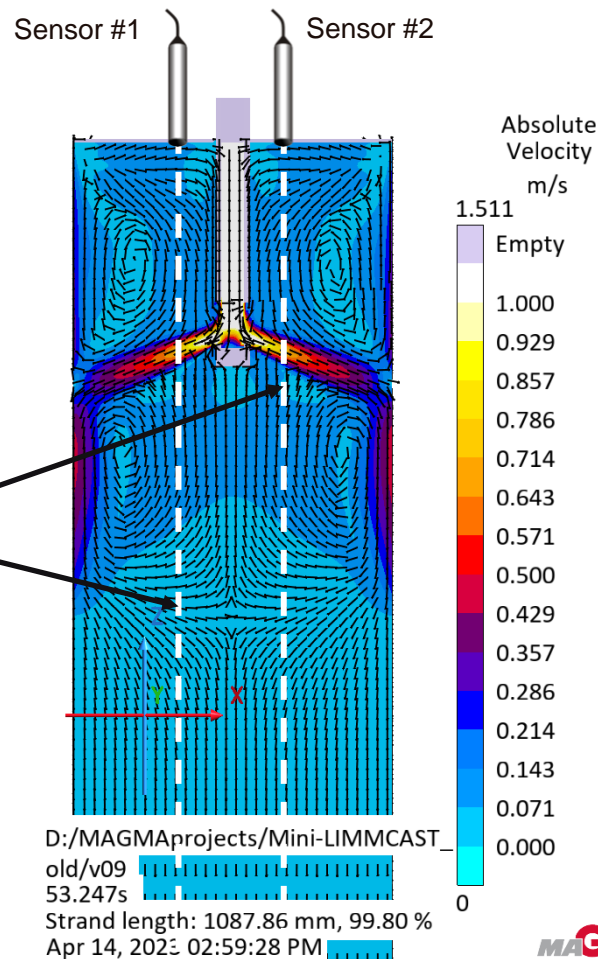
K-EPSILON RNG TURBULENCE MODEL



Experiment:

Timmel, K. (2014). PhD Thesis, TU Bergakademie Freiberg

<https://tubaf.gucosa.de/api/gucosa%3A22984/attachment/ATT-0/>



...it might be a
better world...

MAGMA ECONOMICS
Also for MAGMA CC user ☺ !

...at least for the
MAGMASOFT® user!

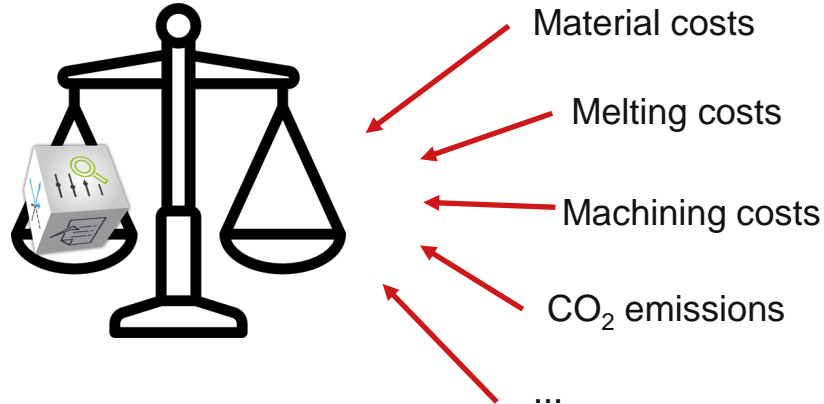
MAGMA ECONOMICS

Using existing data in MAGMASOFT® to evaluate costs/CO₂

...not only quality



...also costs & CO₂ are evaluated!



Thank you for your attention.

Erik Hepp and Evgenii Shvydkii

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