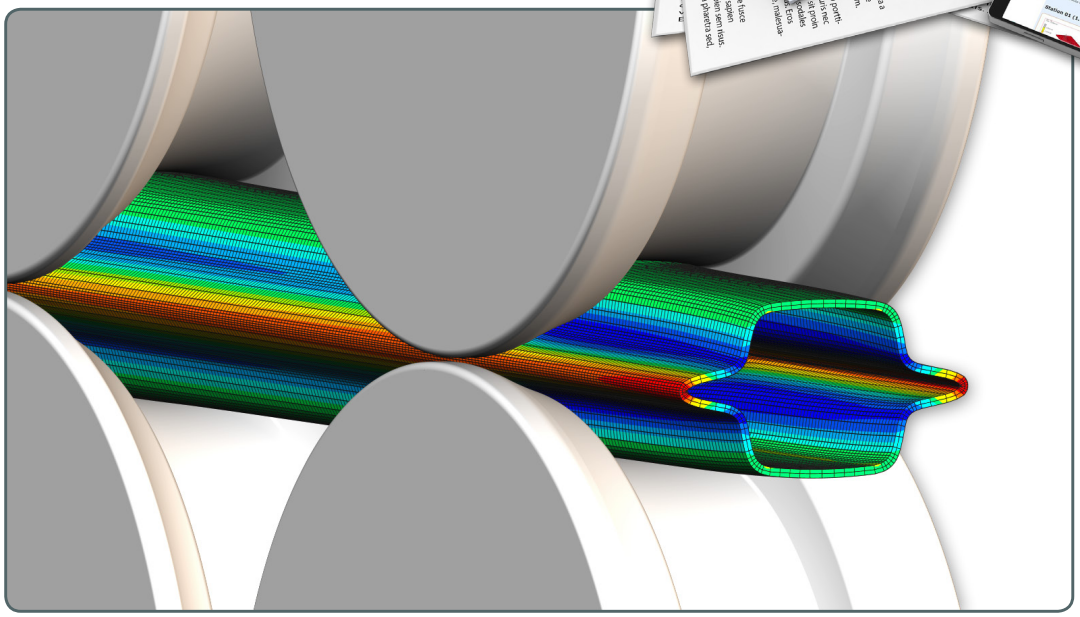
COPRA® FEA RF 2020

Release Notes

COPRA®
Finite Element Analysis for Roll Forming



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COPRA® FEA RF

What´s new in version 2020

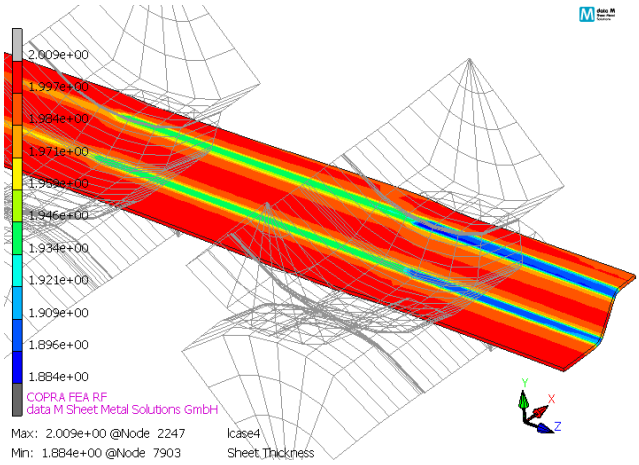
With over 20 years of FEA simulation experience in research and industry our specialists have contributed to the COPRA® FEA RF continuous improvement. The target of the new 2020 version is to:

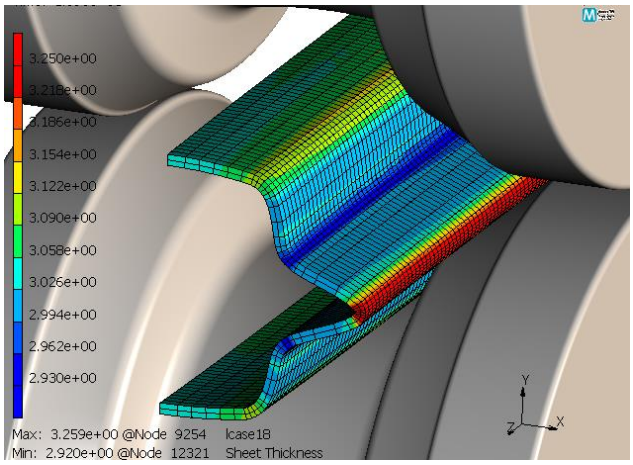
- Increase number of post-processing possibilities
- Improve the usability of the automatic report feature
- Enhance overall performance of the software in regard to its speed

NEW

New post-processing result: Sheet Thickness

Sheet thickness can be calculated and added to the result file as a contour plot. The user can request it while preparing the simulation (simulation run menu) or later on while post processing the simulation results.





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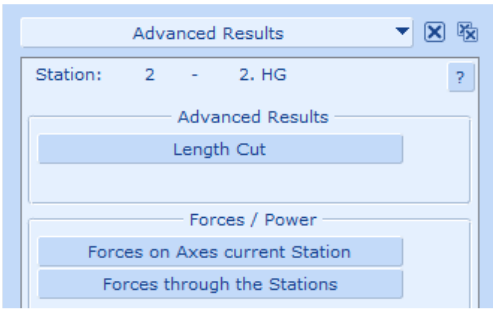
NEW

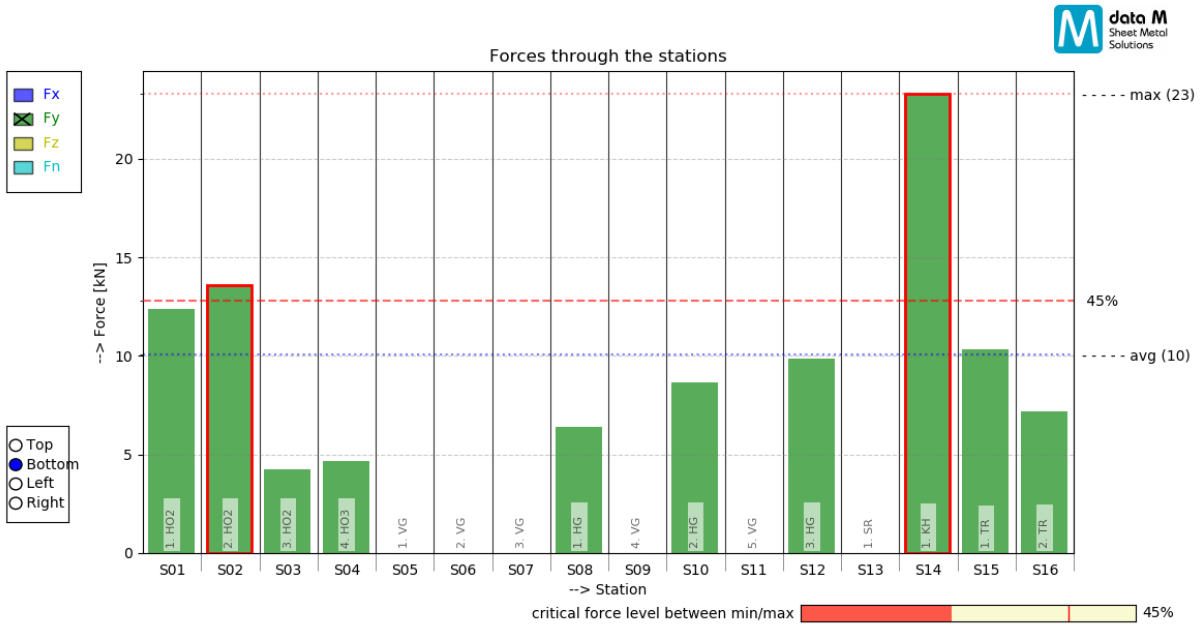
New post-processing result: Forming Forces through the stations

A new post-processing funcionality is now available where the user can generate a diagram of the forces through all the stations.



This functionality allows the user to select the force directions and the axes-types for which the forces are plotted.

The diagram can be added to the report. Additionally, a sequence of report items can be automatically generated with the use of the automatic report functionality and based on a (user defined) critical level of the forming force or forming energy respectively.



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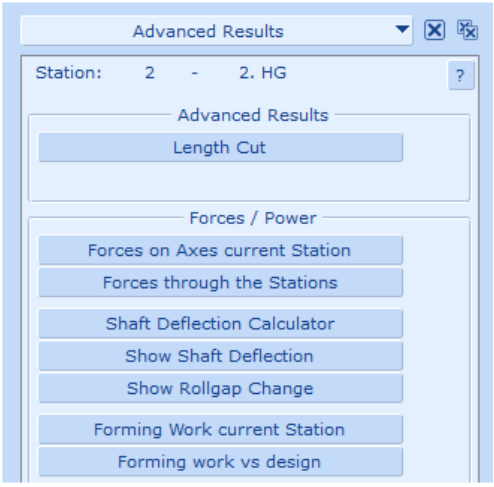
NEW

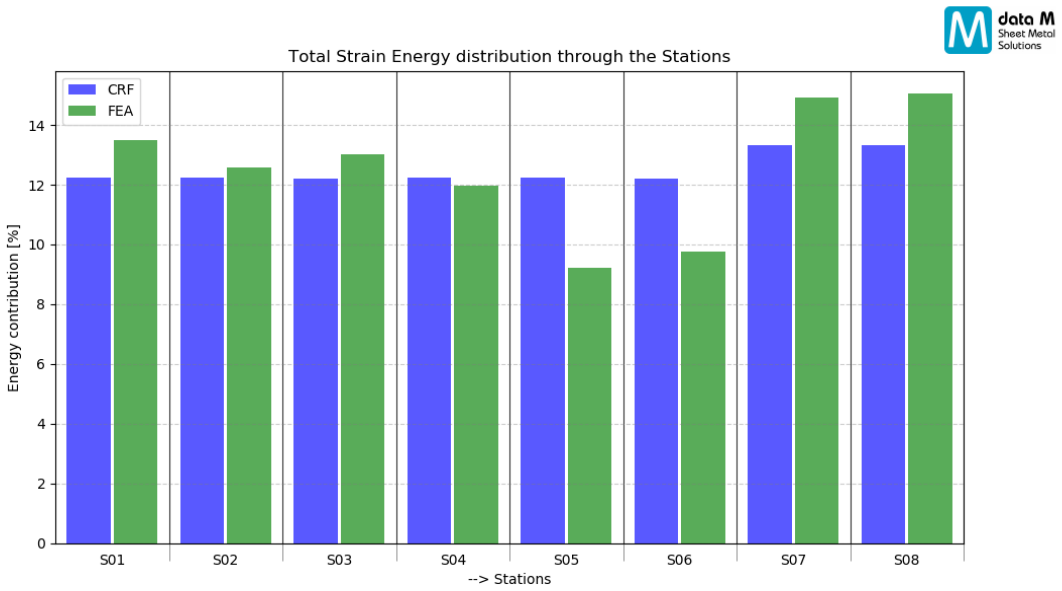
New post-processing result: Forming energy distribution - Simulated vs Designed

A new post-processing funcionality is now available where the user can generate a diagram comparing designed forming work (as foreseen in COPRA® RF) vs. simulated forming work for each station.

This new post processing result can also be selected as an automatic report item.

This development is a step towards an autonomous roll forming design optimization as it automatically identifies critical stations.





IMPROVED

Automatic Report: Improvements and new functionalities

- Report available as “email-html file” allowing the user to access it using any device and ready to be sent by email.
- Report available as pdf file.
- Possibility to influence the representation of rolls and sheet by using different “view files“. The rolls and sheet plot settings can be saved into a “view file” and used when needed. “View files” include the possibility to define:
  - Rolls: visible/invisible, solid/wireframe, faceting (relative/absolute, min/max levels)
  - Sheet: outlined/meshed
  - Results legend: number of levels, format, precision, background color
- New Automatic Report Topic: Yield Stress
- New Automatic Report Topic: Sheet Thickness
- New Automatic Report Topic: Forming Forces Through the stations
- New Automatic Report Topic: Forming energy distribution – Simulated vs Designed
- New Automatic Report Topic: Total Strain Energy Density
- Range setting for “Element Row XY”
- Shaft Deflection Diagram / Roll gap change

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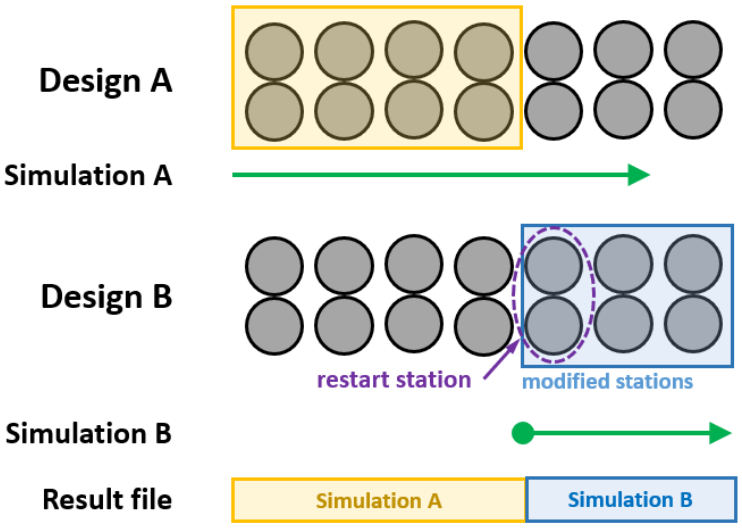
NEW

Restart functionality is now available in COPRA® FEA RF WireRolling allows the restart of a simulation in which the results of a previous simulation in a specific station are used as the input for the subsequent stations. The user can save time by modifying the tool design without the need to re-simulate the forming until the modified stations.



Additional Developments and Notes

+ Marc/Mentat 2019 FeaturePack1 included (also for COPRA® FEA RF WireRolling)

+ Representation of the complete sheet in case of a symmetrically simulated profile becomes a global setting.

+ CAD-Export: nurbs surfaces of simulated sheet in Parasolid (*.x_b) format

+ General usability improvements

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