COPRA[®] FEA RF 2022.1





33

Solutions



COPRA[®] FEA RF

What's new in version 2022.1

With over 25 years of FEA simulation experience in research and industry our specialists have contributed to the COPRA[®] FEA RF continuous improvement. The new 2022.1 version presents a wide range of developments

- Increase software capabilities
- Enhance the usability of the software from a roll forming industry perspective.
- Improve the existing documentation to allow a better understanding of the available functionalities and their usage

Export of Simulated Profile Results to LS-DYNA:

NEW Professional Version

Often roll formed profiles are not the final product. Instead, they are an intermediary product that still goes through further steps in order to reach its final shape. Recognizing the importance of using accurate representations of roll formed profiles in subsequent analysis allows for an improved design and simulation workflow. Results from roll forming simulations can be exported into a LS-DYNA Key-file and used as a pre-state condition in LS-DYNA simulations.

NEW

Export of Simulated Profile Geometry as STL:

Professional Version

Quality assessment has never been easier. Profile geometry can be exported as a STL file, a widely used file format, and easily compared against 3D scan measurements. Exporting the simulated profile geometry as STL replaces the existing possibility of exporting the simulated profile geometry as IGES.

NEW

Display of Minimum and Maximum Values of the Currently Plotted Results:

What is the maximum value of a certain result? And the minimum? Where do I find them? User can now get these questions answered by the click of a button – a marker is displayed in the model indicating the location and magnitude of extreme values for the currently selected result quantity. Special tools supports the user to easily focus on a representative area of the workpiece. Additionally, magnitude of extreme values can be displayed in the corner of the graphics window.



NEW Post-Processing Tools to Investigate End Flare:

Roll forming induces residual stresses which are then released during the cutting process, causing the profile ends at the cut-off to undergo additional deformation. COPRA[®] FEA RF 2022.1 introduces a set of functionalities to help designers to better understand and visualize defects introduced by the cutting process in the profile.



NEW

'Diamond' Remeshing to Prevent Collapsing Elements (Advanced Restart):

Professional Version

Profiles with small-radii are, typically, a challenge to simulate. Elements located in the areas with small-radii tend to collapse and cause the simulation to stop. To face this challenge, the new version of COPRA[®] FEA RF introduces a new remeshing possibility. Elements with a tendency to collapse are remeshed into an optimized shape ("Diamond" element) which can handle the excessive deformation.





Advanced Restart from a Symmetrical to an Asymmetrical Model: **IMPROVED**

Professional Version

Advanced restart from a symmetrical to an asymmetrical model, a feature that can help accelerate numerical analysis and reduce engineering time, was further improved. Users can now benefit from it when designing closed sections, e.g., tubes, and when taking into account friction in roll forming simulations.

Automatic Import of Already Existing Meshes: **IMPROVED**

Professional Version

Manually modifying a mesh can be difficult and time consuming but important and necessary when meshes with specific characteristics are desired. To avoid that the user has to redo all the manual modification steps again and again, COPRA® FEA RF offers the possibility to select an already existing mesh and import it into a different simulation model. The possibilities in COPRA® FEA RF 2022.1 are even greater. The user can now define portions of an already existing mesh and import them into another mesh. The two meshes are then automatically combined.



Check out COPRA® FEA RF InfoCenter for a video-tutorial on how to automatically import already existing meshes.

COPRA[®] Process Control Dashboard with Live and History Information:

IMPROVED Professional Version

New information is available in the COPRA® Process Control dashboard. The new data includes charts displaying information about the evolution of the simulation's numerical stability and performance and it allows users to detect and anticipate simulations issues at an early stage.

Additional Developments and Notes

- + Sheet Overhang in Navigation Toolbar
- + Cross-Sections can be moved to Improve Their Visualization
- + New COPRA[®] FEA RF InfoCenter Content
- + Improved Sheet Monitoring in Friction Simulations to Avoid Sheet Braking
- + Marc/Mentat 2022.2 Included (also for COPRA[®] FEA RF WireRolling)
- + Improved Software Stability and Usability



