QForm Extrusion 8.2.3 new facilities and features

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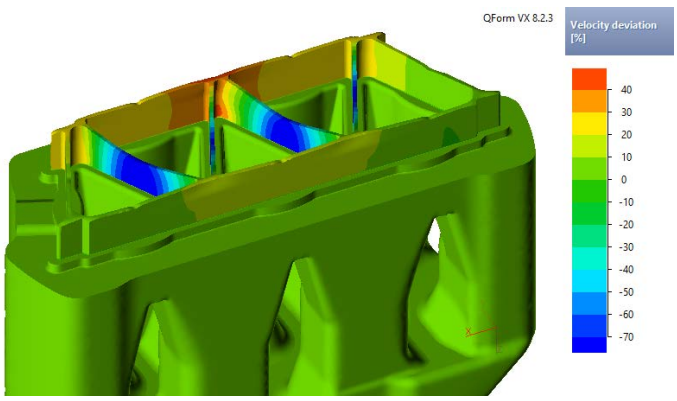
The new version of QForm Extrusion has some amazing new features, additional specialised models and options. Of course, many existing features have also been improved. For better comprehension we will divide the new information into two groups, i.e. specific features that are intended for simulation of profile extrusion processes and general modifications and improvements including new interface features. All of them are listed below.

I. Profile extrusion simulation module improvements

1. Extrusion module has been significantly extended and improved to increase its accuracy and extend facilities for analysis of the results.
2. Improved import of geometry files from CAD systems that have some specific peculiarities such as NX and Solid Edge.
3. Improved algorithms of coupled simulation of material flow and die set deformation in case of large die displacement.
4. More advanced remeshing method when simulating coupled deformation.
5. New and more precise algorithm for solving coupled temperature problem in dies and extruded material.
6. Some specific extrusion process parameters have been added to the Simulation state tab, i.e. extrusion ratio, die filling time and extrusion load.
7. New field showing the velocity deviation from the average profile velocity has been added.



8. The new “Distance from stop-mark” field has been added.
9. The new fields “Material streams borders” and “Material streams” have been added.
10. The “Plastic strain in profile” field is changed to just “Plastic strain” field and it is available now for the entire material flow domain (not just for the profile).
11. Possibility to display tool simulation results after the very first iteration, i.e. before coupling with the material flow has been added for better understanding of the die set behaviour under the loading.

12. Flow stress data for all aluminium alloys used for extrusion simulation have been verified and updated.
13. Ram displacement is added to the graphs.
14. Several important diagnostic messages have been added.
15. New hyperbolic sine expression for the flow stress of deformed material.

II. General features, options and improvements

1. For better visualization of the simulation results we added the ability to export in *vrml*-file format for colored 3D printing.
2. For better control of a computer performance the priority of QForm Solver is now set to "Normal" allowing other programs to run on the same computer more effectively. For the same purposes it is also possible for the user to set the number of logical processors to be used for a particular simulation.
3. "Process templates" have been added for even faster setup of similar simulations.
4. The screen image with picture of the simulation results and legend can be copied to the clipboard with one click. The same can be done for any graph.
5. The user can set the resolution of a still picture or video clip to be recorded and saved.
6. The left side control panel tabs can be switched to compact view to make more screen space for the other information.
7. Velocity vectors are now colored for easier analysis while a workpiece body is not hidden and the vectors are shown on its surface.
8. The batch mode has new options, i.e. starting simulation from the selected operation, starting from the beginning of the list, recalculating scheduled tasks again.
9. In the license control window, the QExDD license duration is displayed among the other QForm features
10. Programming has become even easier because the LUA code can be now debugged directly in QForm when running user defined subroutines.
11. Directions of main stress components are now displayed in the standard subroutines "Stress tensor".