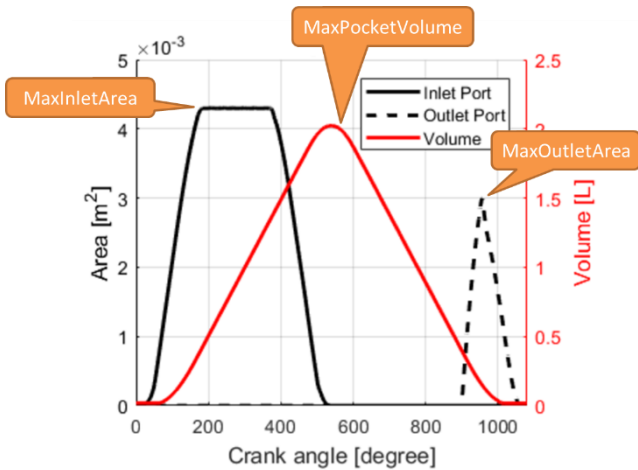# PULSIMSUITE NEWSLETTER

This is the PulsimSuite newsletter of Q4, 2020, presenting version 2.2.6. With your feedback, we have implemented new functionality of which we give you a brief overview here. Please keep on letting us know your good ideas!


A new module in PulsimSuite is the **screw compressor** (SC node). With this optional module, you are able to simulate the pulsations generated by a screw compressor, by specifying its characteristics, see the picture to the left.

A screw compressor generates pulsations in a higher frequency range than reciprocating machines, and the pulsation mitigation measures required for these screw compressors are therefore different (e.g. multi-bore orifice plates). Also, other issues require attention, such as oil flooding. We shall be adding the required functionalities to future releases of the screw compressor module.
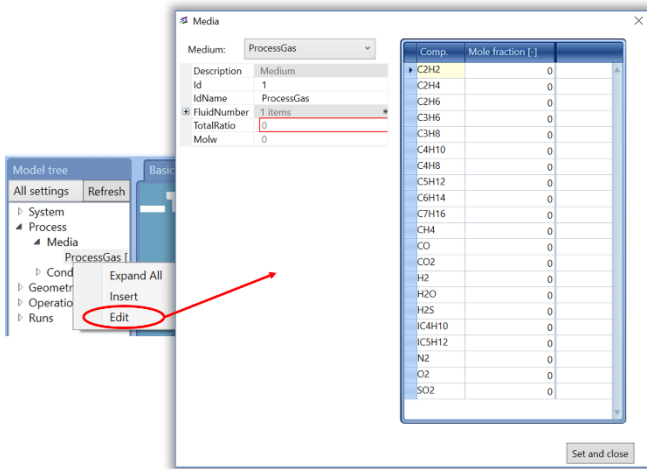

The tree view functionality has been extended with several **editors** that make the definition of process data and simulation settings easier. Instead of having to use the tabular view in the "bottom tabs", you can click "edit" in the tree and fill out the data in a more user-friendly editor layout. These editors give you a better overview of the data you are providing, see for example the gas composition editor in the picture on the left.
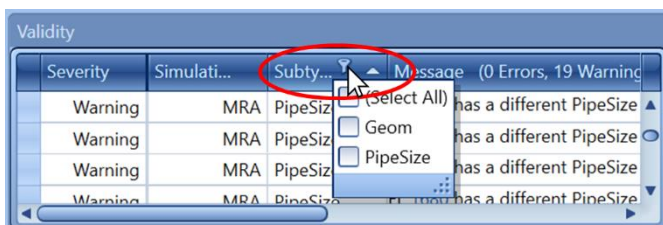
The **validity window** now gives more information on the displayed messages, so you can distinguish the different types of warning/error. Moreover, you can now not only order the messages (group by "warning" or "error"), but you can also apply a filtering, thus excluding warnings/errors of a specific type from the display. This helps you focus on the warnings that you want to work on.
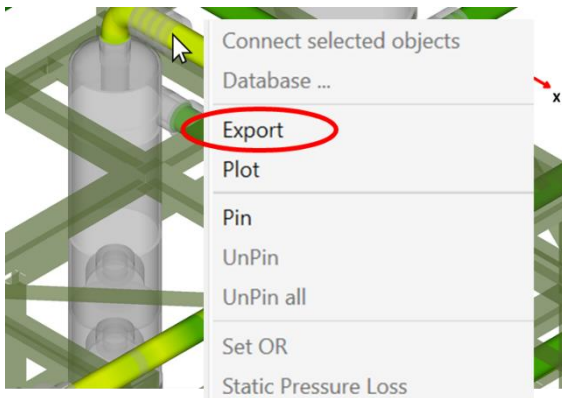
The hover-and-plot function has been extended with a data **export** option. When hovering with the mouse over results on the pipe system, right-click and simply select "export" instead of "plot". The exact same data that would be plotted on the screen can thus be saved to a text file. The file contains a matrix of semicolon-separated numbers, which can be loaded into Excel directly, for any post-processing and analysis you like. All harmonic frequencies and all speed-of-sound/RPM deviations are there.
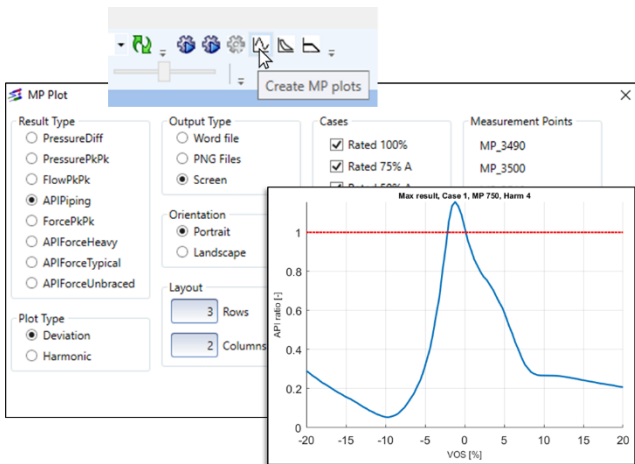
To generate standardized result diagrams for specific locations in the system, we introduced the new **MP plot** function. For one or several MP points in your model, you can plot the maximum pressure, flow, or force results. The "API ratio" graphs also visualize the margin with the allowable API level, as in the picture shown here.

It is also possible to plot the pressure difference between any two MP's in your model. This can for instance be used to show the pressure loss over (a part of) your pipe system, as a function of speed-of-sound or RPM.

You can control portrait/landscape, the number of graphs per page, and the number of rows and columns of graphs on the page.
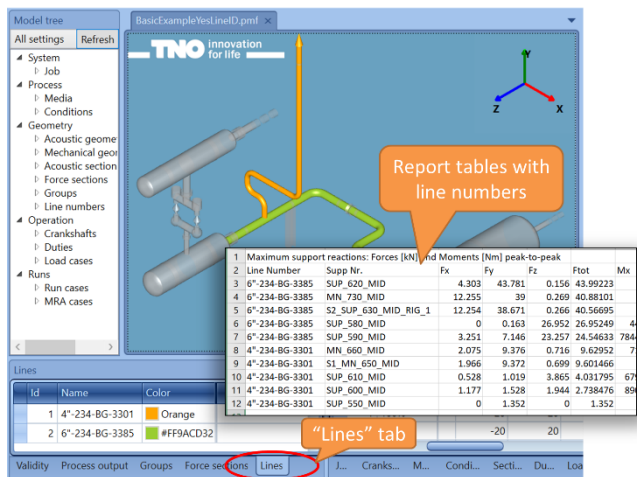
We have introduced **Line ID** that can be specified as a property of each pipe. These line numbers are presented in the generated Word/Excel reports. This way, you can for instance order the results by line ID.

We suggest you use the P&ID and/or isometric drawings line numbers. This way, the tabular results will be more easily relatable to specific parts of the pipe system, also for someone who is not familiar with the model's pipe numbers.

The support reaction forces in the mechanical reports are also <u>grouped</u> by line ID automatically.
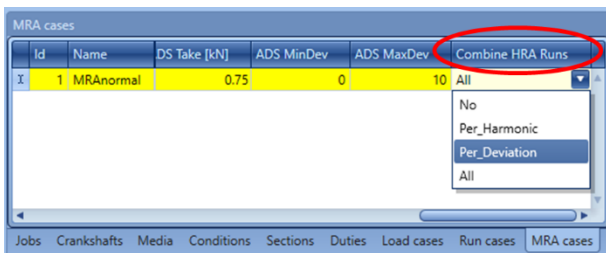
A new simulation speed improvement was implemented for the mechanical response calculations. In the **MRA cases** tab, a new column **Combine HRA Runs** is provided. By combining ANSYS harmonic response runs to be executed in a batch combining harmonics, deviations, or both, the total mechanical simulation time will be reduced.

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