

Damping data

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In this tab a damping file can be imported. A damping file contains linear and quadratic damping coefficients for six degrees of freedom. These coefficients are put at the main diagonal of the damping matrices; off-diagonal terms are not applied in aNyMOOR. The damping coefficients can be the results of decay tests, for example. Using a damping file is not obligatory.

The file should contain two columns, separated by spaces and/or tabs. The first column contains linear damping coefficients for all 6 degrees of freedom, the second column contains quadratic damping coefficients. The units of the linear damping coefficients are [kN/m/s] and [kNm/rad/s], the units of the quadratic coefficients are [kN/(m/s)²] and [kNm/(rad/s)²]. Here is an [example](#) showing linear damping for surge, sway, roll and yaw.

Next, the following check boxes are available:

- Scale damping file
- Wichers damping
- Use Aranha approximation

Scale damping file

When a damping file is available this damping data can be scaled with the scale factor from the Ship data tab. This is done when the check box "Scale damping file" is selected. The scale factors can be found in the table above.

Wichers damping

The so-called Wichers damping is applied when the check box "Wichers damping" is selected. This is a calculation method for viscous damping, with and without current, for tanker shaped vessels. When selected the "Relative loading condition" should be given. This is the actual draft of the vessel as percentage of the maximum draft. The value should be in the range 40..100 %.

More information can be found in the PhD thesis "Simulation model for a single point moored tanker" by J.E.W. Wichers.

Use Aranha approximation

The Aranha method is applied for the correction of wave drift forces due to current. It has two additional properties which can be selected:

1. Check box "Without current": use Aranha without taking current into account
2. Check box "Newman correction on P-matrix": use Aranha with the Newman correction on the P-matrix

More information about the Aranha damping can be found [in a pdf-file](#).



It is not possible to use Aranha damping in combination with a regular wave.