

Calibration

How is the cavitation intensity calibrated?

What about estimates of the **erosion rate** in kilograms of the metal lost per unit time?

The answer follows in four steps.

Not all cavitation mechanisms are erosive.

***The first step* - to recognise different mechanisms - is made by the multidimensional vibro-acoustical method.**

***The second step* - to recognise which of the mechanisms are erosive. Here, additional information outside the method is needed (model tests, repair experience).**

The third step - to assess the relative erosion rate - is made by the method:

For erosive mechanisms, the cavitation intensity estimates it yields are proportional to the erosion rate.

The fourth step - to calibrate these estimates into the absolute erosion rate - is most often not needed. For the majority of applications, such as operation optimisation, repair programming, etc., the relative estimates suffice.

Attempts were made to make this absolute calibration *a priori*; they are not well tested.

The most reliable is, however, an *a posteriori* approach: The monitor logs the accumulated cavitation intensity between two overhauls and compares it to the metal loss found.

Some others working in this field claimed to be able to recognise cavitation erosiveness vibro-acoustically. That proved to be false.

Erosion calibration: An example

Erosion rate density (kg in 10,000 hours per 0.5 MW interval)

1/4 x Relative time spent in a 0.5 MW interval (%)

