Operation optimisation - Francis

The six 48 MW Francis units in a plant were made according to the same plans. On only one of them, the runner was slightly modified. The units were operating in the same manner. In a multidimensional diagnostic test of cavitation, the six units were compared. The determined wicket-gate and global cavitation characteristics are presented on the following pages.
Optimisation

Note the high differences in the cavitation characteristics of the six turbines.

Cavitation intensity
[Component of the cavitation intensity influenced by a guide vane (% of the total)]
Optimisation

Cavitation intensity
Optimisation
Optimisation

Cavitation intensity
Optimisation

Cavitation intensity
Optimisation

Cavitation intensity
High differences in the threshold power values and the intensity itself enable useful operation optimisation.