The aim is to simplify the structure and operation of the VF-cooling system. Using Apros® simulation model for example different sizes and configurations of orifice plates can be investigated easily and effectively.

Therefore it was essential to investigate the process as a whole rather than focusing at individual consumers. In addition, the requirements for pressure levels and mass flows were in some cases in contradiction with each other. For example, in order to achieve the desired pressure level, the flow should be restricted to extend that the requirement for mass flow is not met. Without a good simulation model this task would have been practically impossible considering the complexity of the system and demanding requirements. However, using a simulation model different sizes and configurations of orifice plates could be investigated easily and effectively. This made it possible to find an optimal design for the system. The new orifice plates and other process changes were successfully implemented for both units during the project.

The dimensioning of new orifice plates proved to be challenging since process changes in one part of the system has an effect to other cooling water consumers.

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