

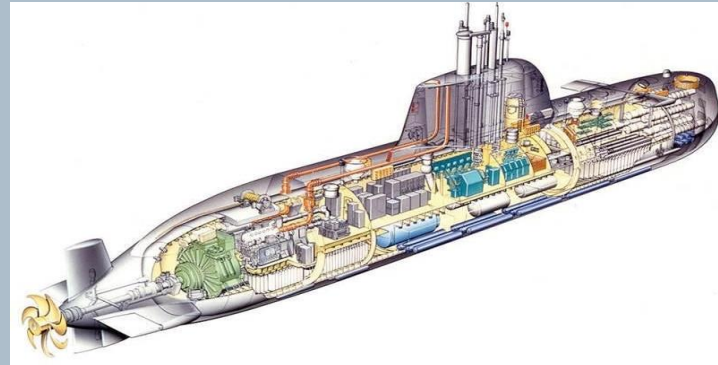
# ThyssenKrupp

## Overcoming design challenges in modern submarines with Simcenter Flomaster

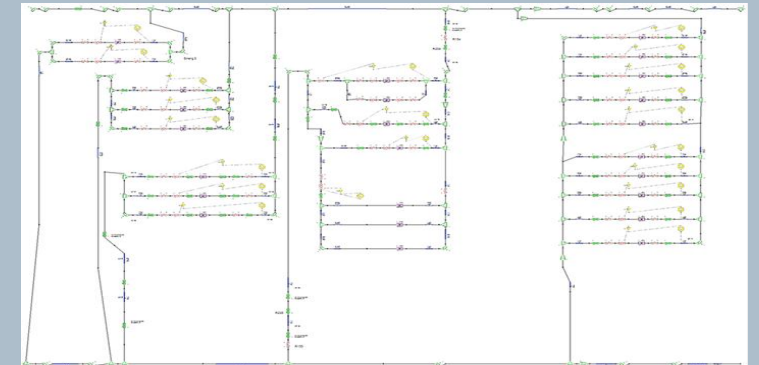


- Calculated duty points of the pumps and NPSH values
- Simulated the interferences during changes in rotating speeds of the pumps
- Checked the flow speeds in the pipelines according to mechanical and acoustic boards

Simcenter Flomaster helps ThyssenKrupp overcome design challenges in modern submarines



Conventional submarine layout



Simulation model of the complex cooling system

- With the Simcenter Flomaster software and the SQL-database a large number of engineers can also work in parallel on a large project, improving efficiency and reducing the design cycle

*“Simcenter Flomaster provides the functions that help engineers to find the best and most effective solution for pipe design and the needed power consumption of pumps. With this software you are able to calculate pressure drops, NPSH-values, flow rates, fluid velocities, oscillations etc. and furthermore, it is possible to calculate the heat transfer between solids and fluids (interaction)”*

T. Zikofsky, ThyssenKrupp Marine Systems