

Challenge

Avoiding vibrations of high flow rate industrial pumping system.

Asymptotic analysis of a nonlinear mathematical model of a pumping system.

Goals

- Qualitative analysis of a nonlinear mathematical model of pumping.
- Analysis of hysteretic behaviour of the pump.



Benefits

Using asymptotic analysis, the physically correct solution to mathematical model was identified. The industrial partner was provided with a tool for virtual design of pumping systems.