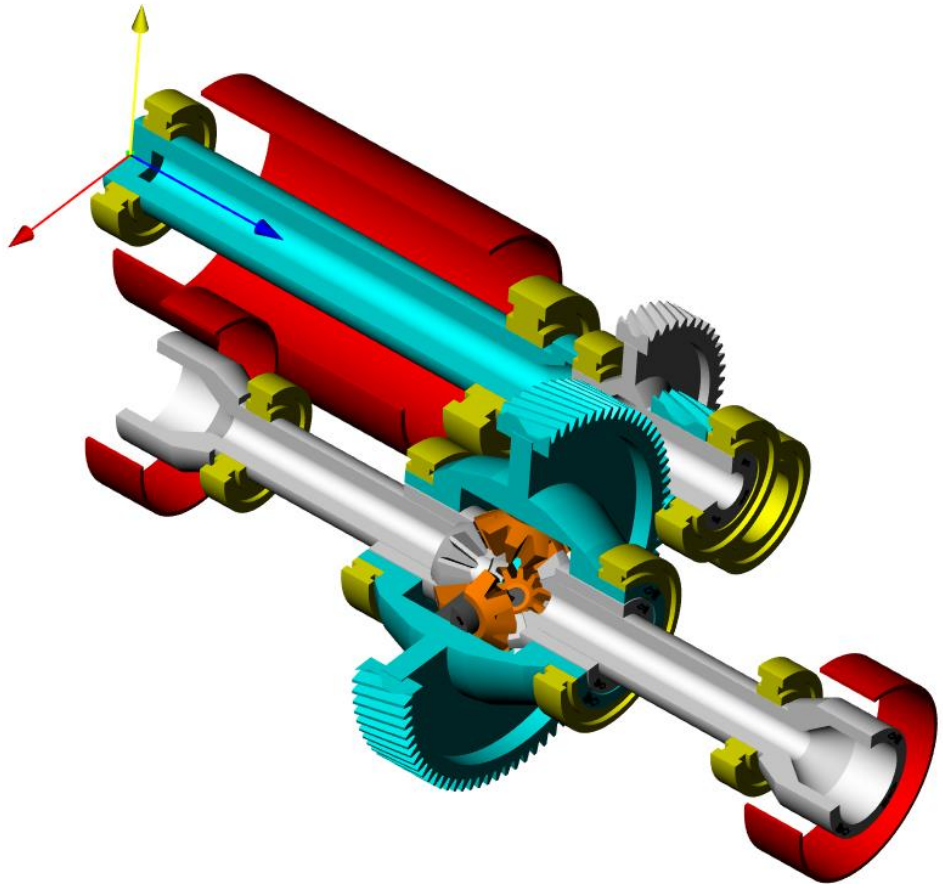
KISSsoft for EV-Drives

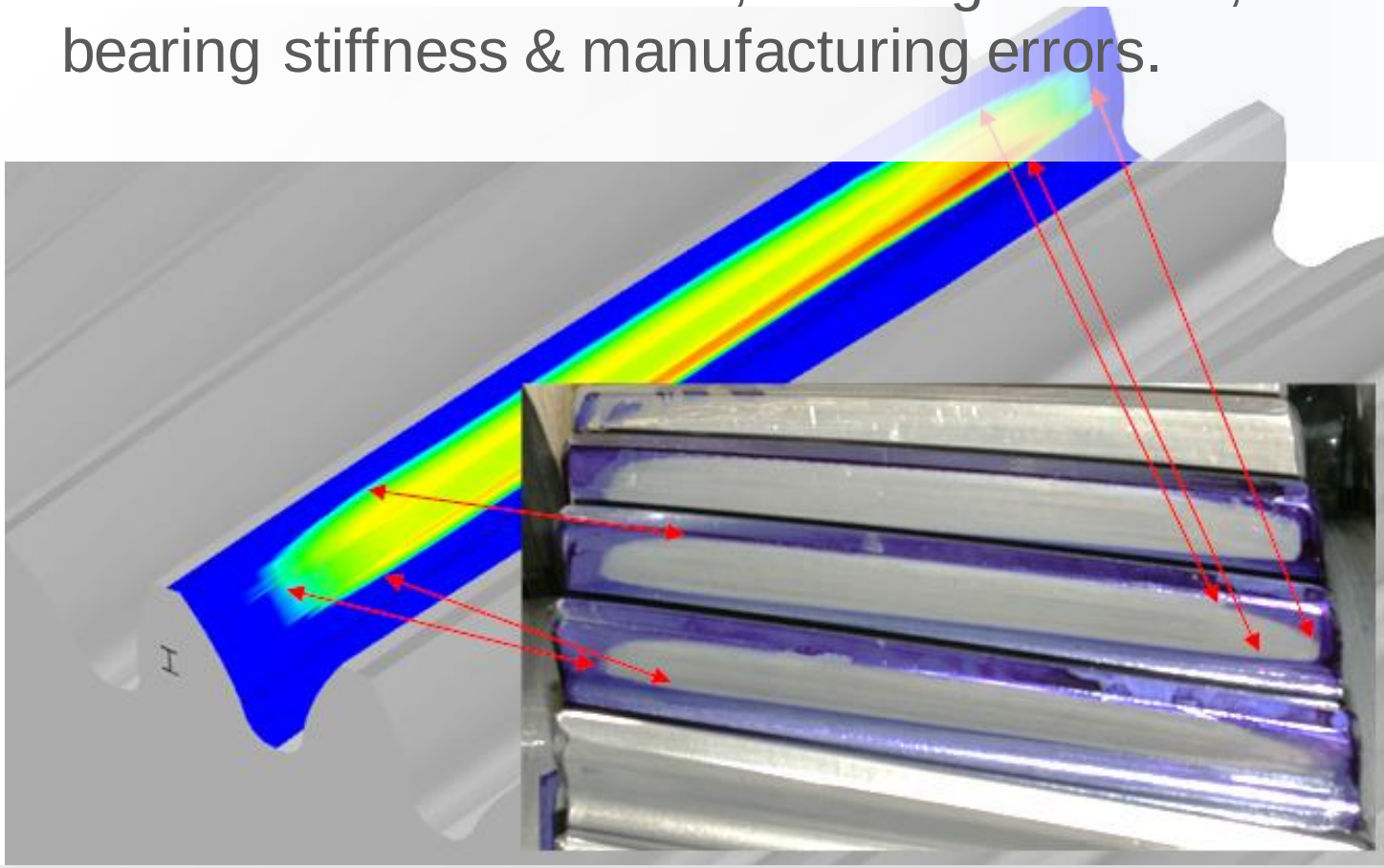


Topics

- LTCA for cylindrical gears.
- Noise reduction and gear optimization.
- e-drive gearbox efficiency.
- NVH simulation.

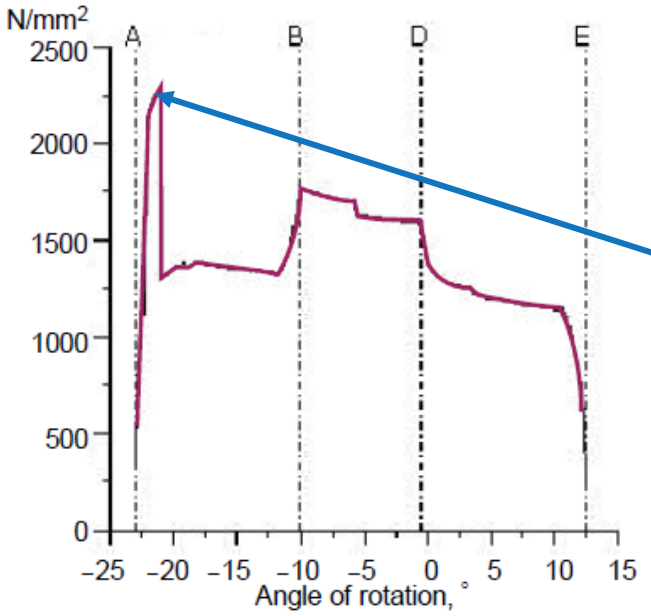
Loaded Tooth Contact Analysis

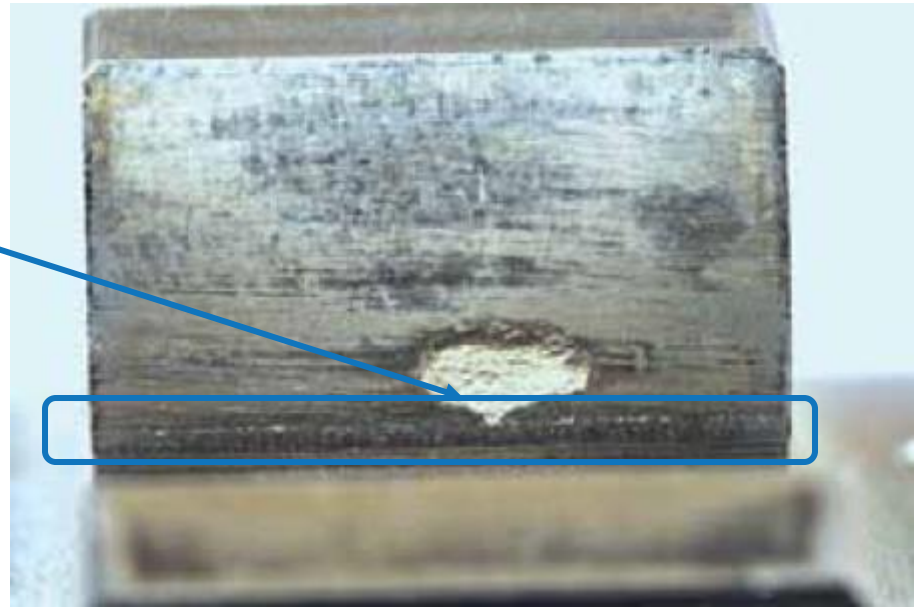
- Calculate contact pattern under load.
- Consider shaft deflection, housing stiffness, bearing stiffness & manufacturing errors.



Loaded Tooth Contact Analysis

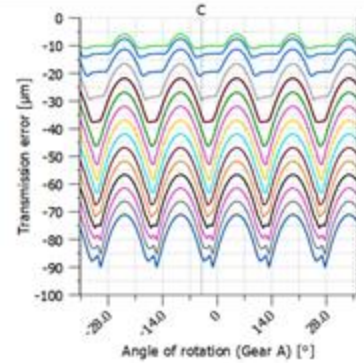
- Calculate stress over the whole tooth flank.
- Analyze damage cases.
- Optimize load distribution.

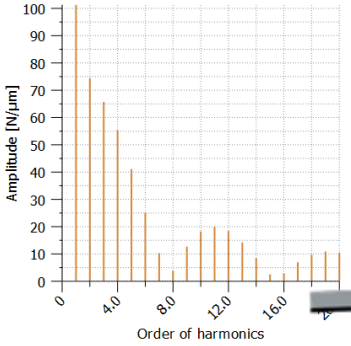


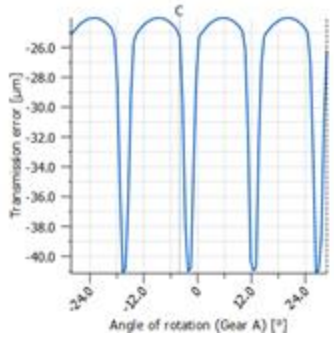


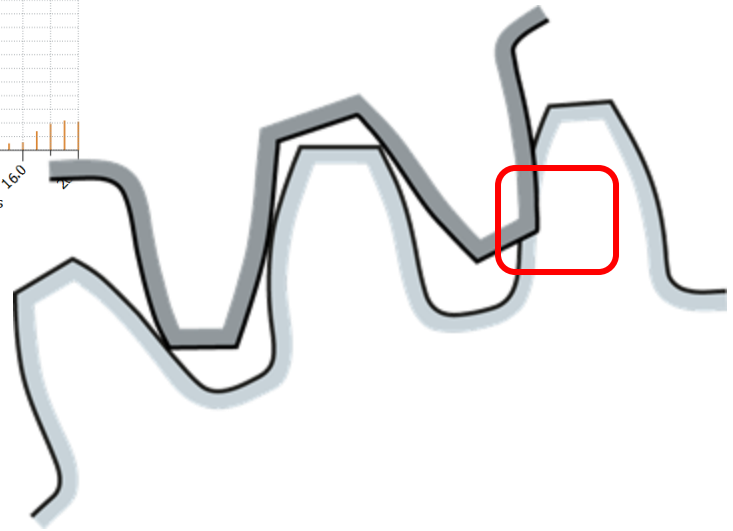
Loaded Tooth Contact Analysis

- Tooth deformation under load.
- Transmission error & harmonics.
- Contact shocks.



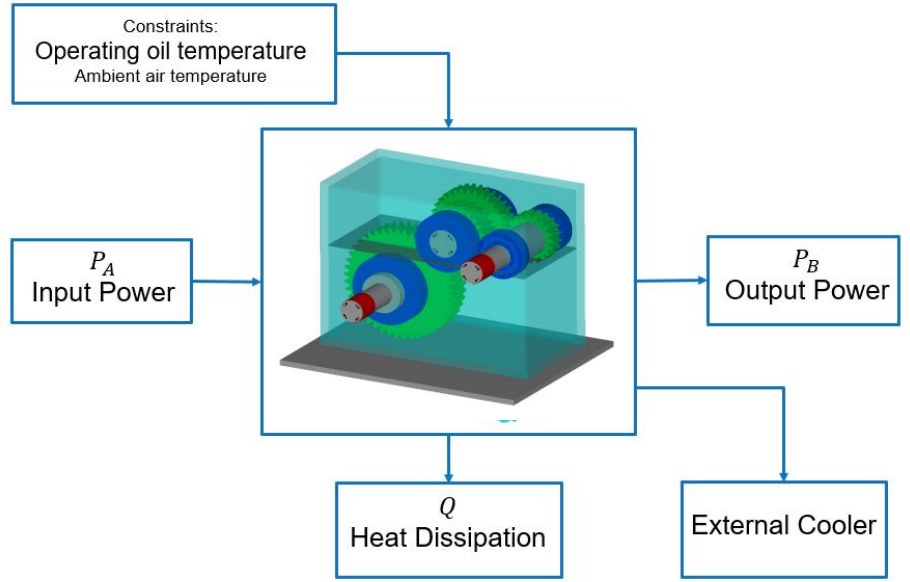






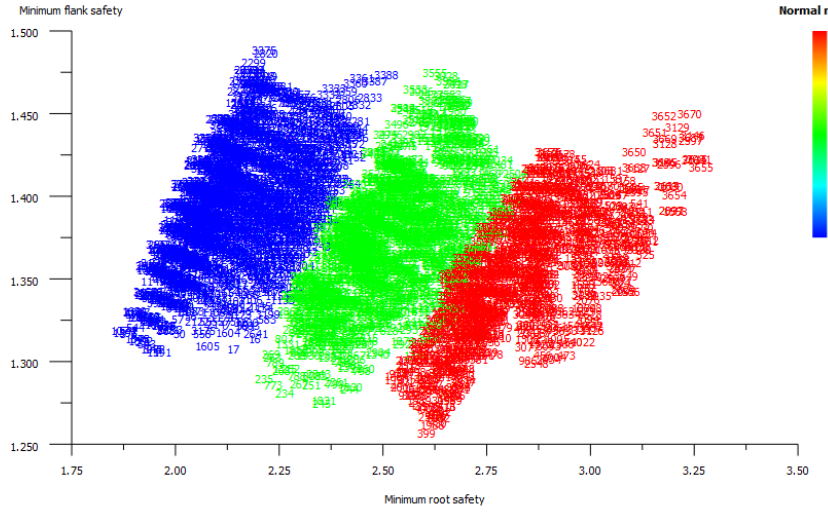
E-Drive Gearbox Efficiency

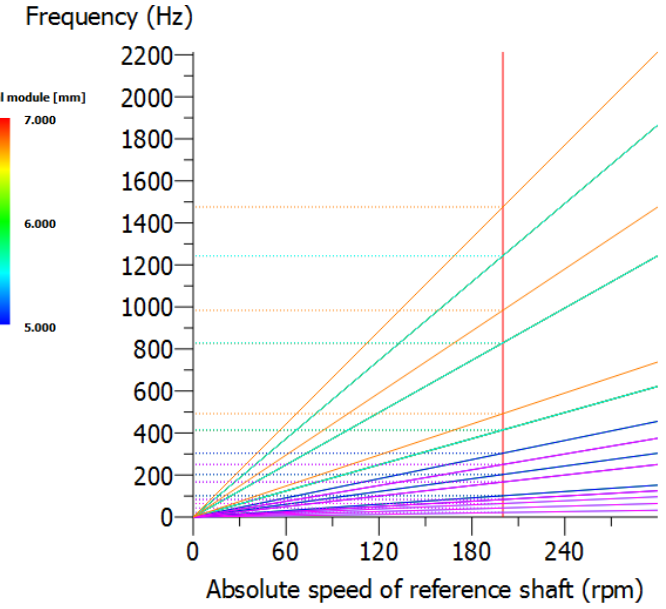
- Calculate losses.
- Calculate heat dissipation.
- Perform thermal balance (equilibrium).
- Calculate gearbox efficiency & oil temperature.



Noise Reduction and Gear Optimization

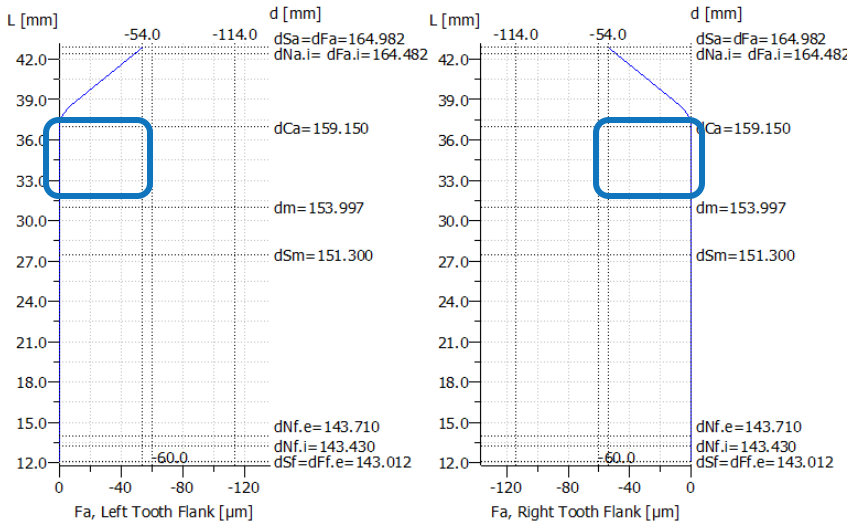
Optimization of gear macro geometry:
Select optimal geometric solutions and compare resulting gear mesh frequencies (GMF).

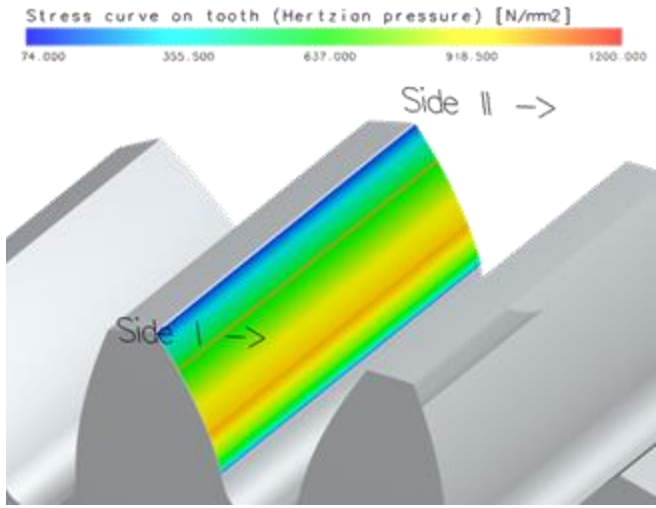




Noise Reduction and Gear Optimization

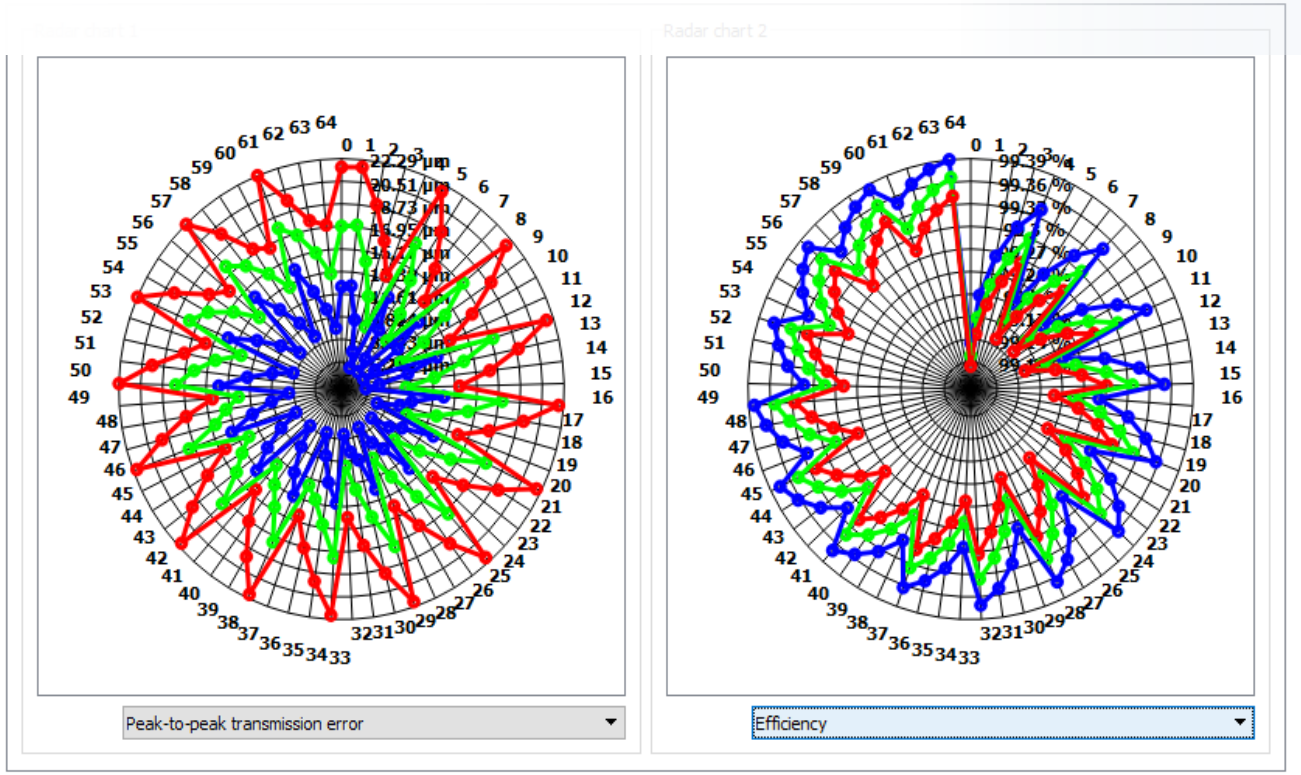
Design optimum gear micro geometry (modifications).
Choose from different modification types, e.g. tip or root relief, profile crowning etc…





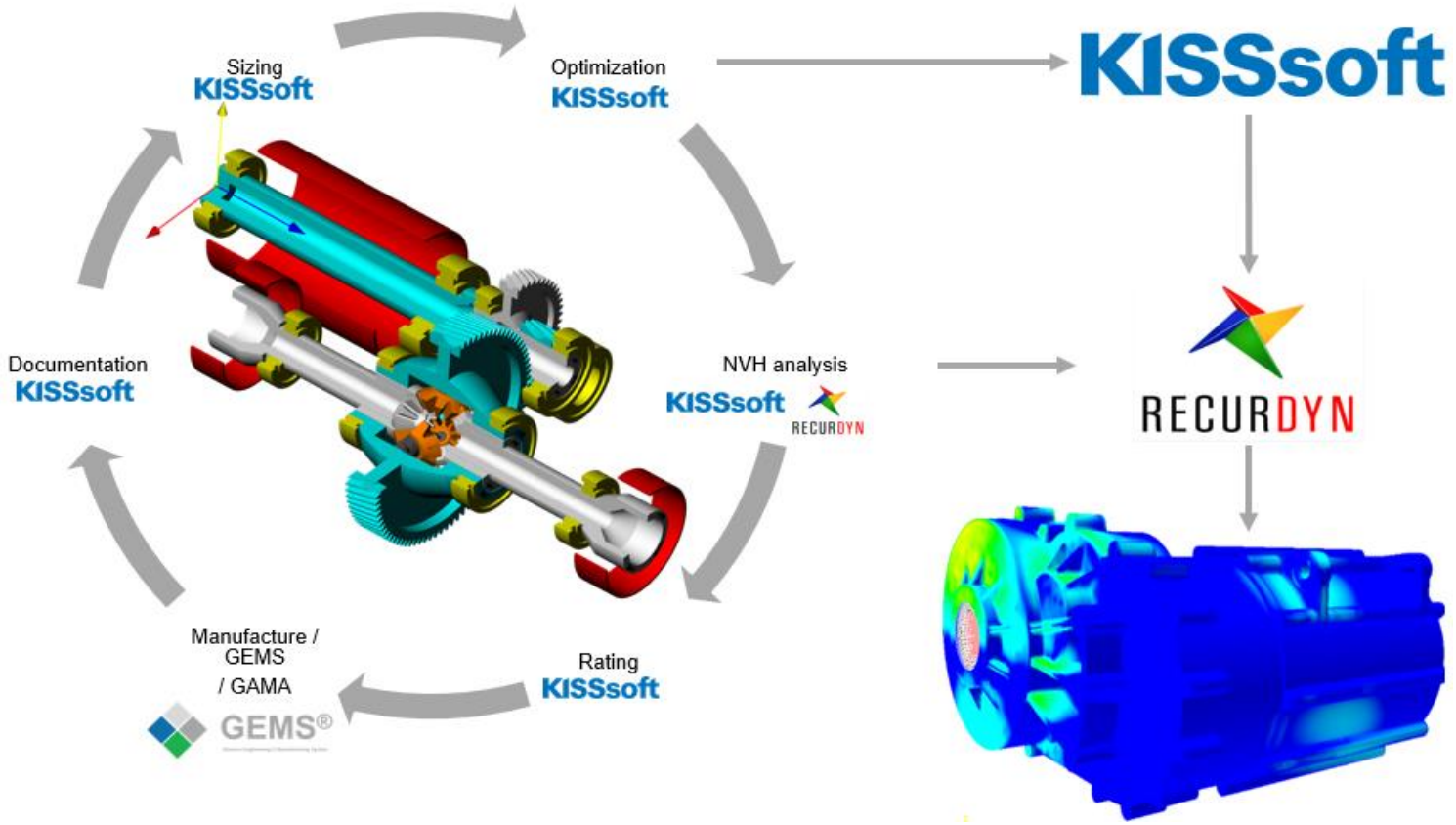
Noise Reduction and Gear Optimization

Search for optimal modification parameters for different torque levels.



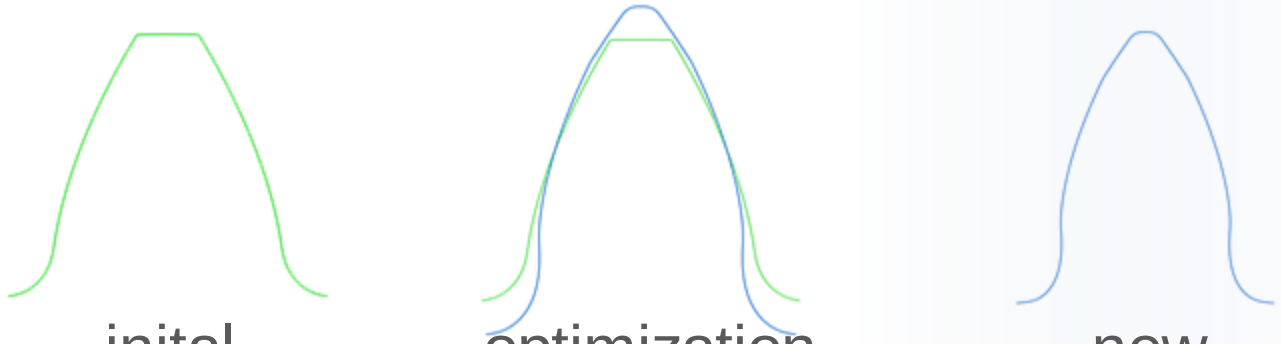
NVH (Noise Vibration Harshness) Analysis

Interface to RECURDYN.



NVH (Noise Vibration Harshness) Analysis

Example initial design vs. new design (with ERP).



Thank you for your attention!