



Service For Engineers

Computer Simulation of Drive Systems & Powertrains for the Marine Industry

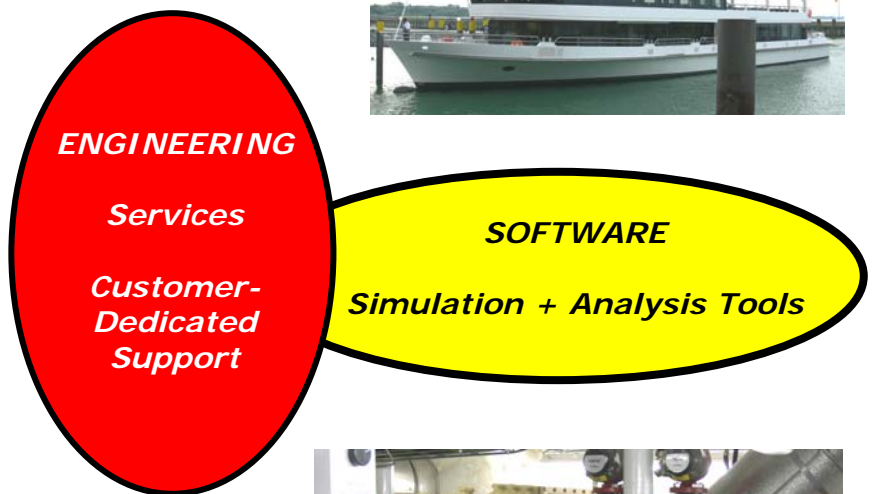
Customer-Dedicated Engineering Services

Application and Distribution of User-Friendly Software for PCs (Windows XP / Vista / 7)

ARLA is a specialist in computer simulation technology. Due to longterm experiences in the simulation of drive systems, ARLA offers a professional customer **SERVICE FOR ENGINEERS** worldwide including consultation concerning the detailed **torsional and lateral vibration analysis (TVA & LVA)**; ARLA analyzes the overall **DYNAMIC EFFECTS IN SHIP DRIVE SYSTEMS**:

- **Analysis of gear dynamics** (with all backlashes in the gear stages)
- **Special effects in marine applications** (like: crash-stop, dredging effects)
- **Multi-parameter analysis of excitability** (natural behavior, vibration modes, Campbell diagrams)
- **Interdependences of engine & transmission & P.T.O.**
- **Steady-state simulation for absorber & damper design**
- **Considering typical non-linear effects** (clutch, joint discs, dampers; angle or velocity dependent elasticities in rubber/soft couplings, dampers and friction elements)
- **Overall engine analysis with all auxiliary drives; special analysis of test rig design**
- **Customer solutions** (special software modules and engineering tasks)

ARLA's engineering service provides the customer with a project-oriented analysis and interpretation of vibrations caused by external or internal excitation or parametrically excited disturbances. Nonlinear characteristics like backlash or torque-angle-hystereses can be taken into account, too. In order to meet all customers' requirements, ARLA uses and distributes high-sophisticated simulation software. There are successful cooperations with well-known software companies. ARLA is also present at several international conferences and shows (ASME, SAE, VDI).



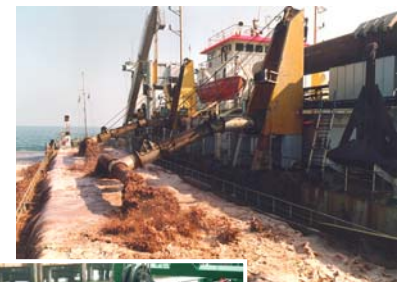
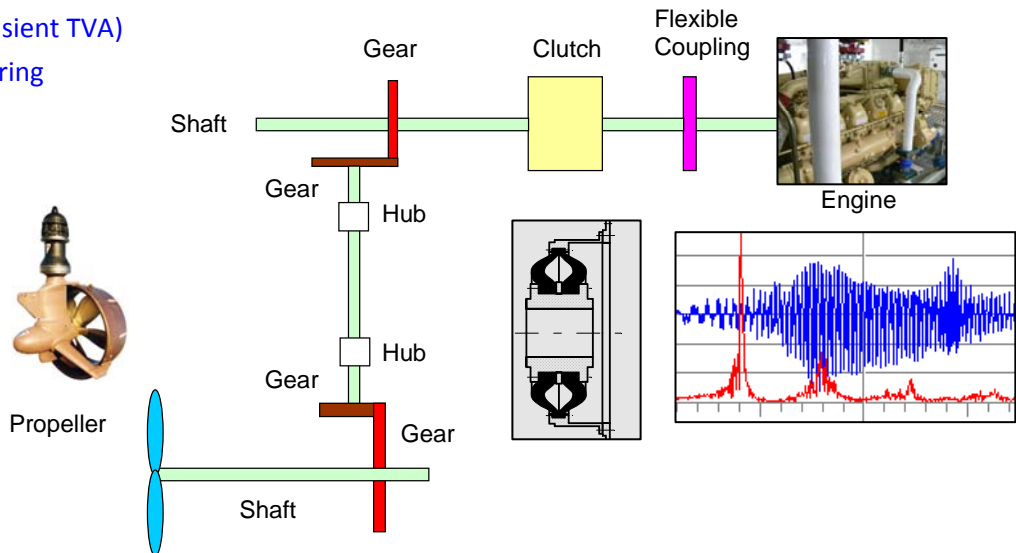


ARLA's High-Sophisticated Engineering Service ...

... Supported by Powerful Simulation Software Packages: ARMD & SimulationX

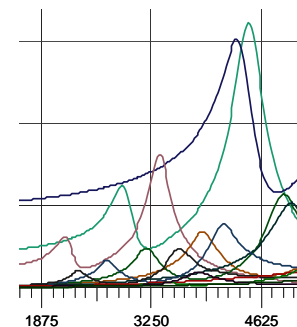
- **Simulation in the time-domain (ARMD™ & SimulationX)**

- mechanics (transient TVA)
- control engineering
- hydraulics
- pneumatics
- thermics
- interfaces to:
 - Matlab
 - Simulink
 - ADAMS
 - ANSYS



- **Rotordynamic & bearing simulation (ARMD™)**

- lateral & torsional vibrations (stability analysis, critical speed maps, response curves, steady-state simulation)
- analysis of rolling element & fluid-film (journal) bearings



- **Torsional vibration analysis (TVA)**

and advanced studies of transient effects supported by ARLA® Software Tools (for engineering purposes)

ARLA Maschinentechnik GmbH · Hansestr. 2 · D-51688 Wipperfuerth · GERMANY

Tel: +49 2267 6585-0 · Fax: +49 2267 6585-70 · E-mail: info@arla.de · www.arla.de