# *Virtual Engineering …*

## *… Engineering Services for the Industry (Rotating Machinery)*
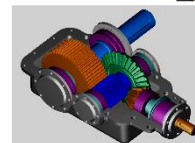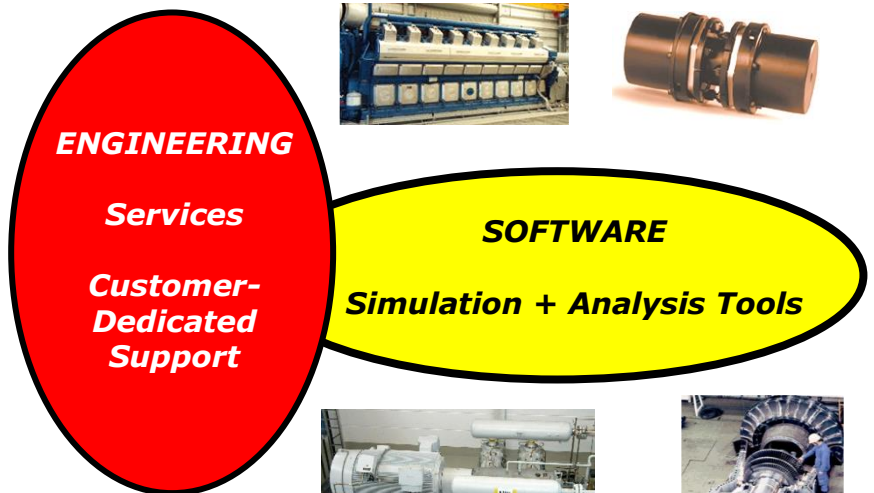
## *Computer Simulation of Drive Systems (Drivelines) in Industrial Applications (Rotating Machinery)*

### *Customer-Dedicated Engineering Services*

*Application and Distribution
of User-Friendly Software
for PCs (Windows 10 and later)*

**Laschet Consulting** is specialist in computer simulation technology. Due to longterm experiences in the simulation of complete drive systems, we offer a professional customer **CAE Service for Engineers** worldwide including consultation, analysis, and computer simulation of **TORSIONAL & LATERAL VIBRATIONS IN ROTATING MACHINERY**:

**ENGINEERING**

**Services**

**Customer-Dedicated Support**

**SOFTWARE**

**Simulation + Analysis Tools**

- **Turbomachinery**

- **Compressors** (all types)**, Pumps, Fans/Blowers/Ventilators, Generator Drives**

- **Vehicle and Ship Drivelines** (with E-drives or all types of engines)

- **Drive Systems in Aviation & Aerospace Applications**

- **Drives with Couplings, Clutches, Gear Stages, Universal Shafts, E-Motors, Reciprocating Engines**

- **Test Rig Optimization** considering dynamic effects

- **Driveline Matching** crucial for design & troubleshooting (measurements, field testings, and machine diagnosis)

Our **CAE 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, **Laschet Consulting** uses and distributes high-sophisticated simulation software in close cooperations with software & engineering companies like RBTS, Inc., USA with the rotordynamic software **ARMD** ([www.rbts.com](www.rbts.com)).

We present "**Service for Engineers**" regularly at international conferences and exhibitions: ASME, POWER-GEN, SAE, IMechE, VDI, HdT, EFRC, etc. Please also visit our **International Rotordynamic Seminars** in close cooperation with our partner RBTS, Inc., USA.

**International Seminar:
ROTOR DYNAMICS & BEARINGS**
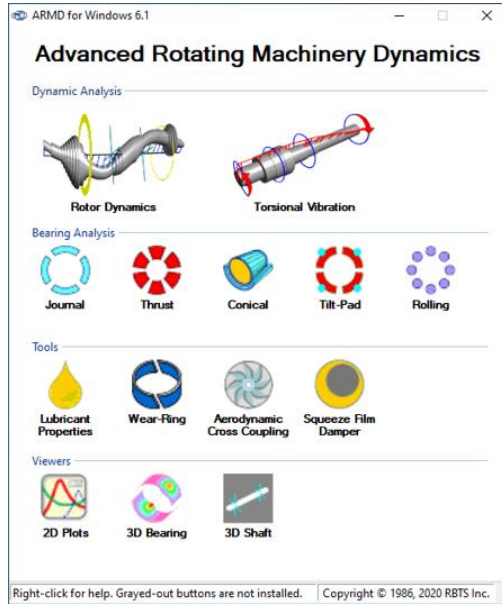
**Online Trainings
Online Short Courses**

**Measurements and field testings** are done via our cooperative partners worldwide. In all these cases we join the engineering results and provide a complete customer engineering solution including CAE and test results.

# The Professional Engineering Service …

… supported by RBTS' simulation software **ARMD** *– software & service available by* **Laschet Consulting**



**ARMD** consists of four main modules:

➢ **Rotor Dynamics**
➢ **Torsional Vibration**
➢ **Lubricant Performance**
➢ **Bearing Analysis**

With a variety of features, including:

➢ **A user-friendly interface**

➢ **Advanced project and file management system**

➢ **Graphics/text capabilities**

➢ **Intermodule communication and data exchange**



G:\ARMDWIN32\ROTLAT\031015-GASTURB-2.ROI
POWER GENERATION GAS-TURBINE ROTOR DYNAMIC MODEL
With SUPER IMPOSED MODE SHAPE

6.1876E

Axial length = 5.00000E+003 mm



5-Tilting Pads Load Between Pads

G:\ARMDWIN32\ROTLAT\Samples\MOTOR.SYG
MOTOR SYNCHRONOUS UNBALANCE RESPONSE ANALYSIS RESULTS IN GRAPHICS FORM



G:\ARMDWIN32\TORSION\Samples\SYNC-MOT.TOI
SAMPLE PROBLEM NUMBER 3.
TWO BRANCH SYSTEM; MOTOR-GEAR-COMPRESSOR DRIVE TRAIN. 0 TO 12 SEC.
TORSIONAL RESPONSE TO SYNCRONOUS MOTOR START-UP OF DRIVE SYSTEM.

2. COMPRESSOR 2STG

1. SYNCH. MOTOR