Virtual Engineering …

… Engineering Services for Test Stands and Testing Machines

Computer Simulation of Complete Powertrains and Drivelines in Measuring and Testing Facilities:

Test Stands and Testing Machines for INDUSTRY & VEHICLES

Customer-Dedicated Engineering Services to Analyze Torsional & Lateral Vibrations in Drivelines & Powertrains (Drive Systems)

Dr.-Ing. Andreas Laschet is specialist in computer simulation technology. Due to longterm experiences in the simulation of complete drive systems, I offer a professional customer-dedicated **CAE Service for Engineers** worldwide. My personal wide expertise is based on 40 years professional experiences. My customers are well-known OEMs and numerous suppliers from various sectors: **INDUSTRY**, **AUTOMOTIVE**, **AVIATION**.

In particular I have special experiences in the simulation of dynamic effects in the drivelines of **TEST RIGS**, **TEST STANDS**, and complete **TESTING MACHINES** including the comparison with test results and CAE models.

All my **engineering services and project works** have proven to be successful during the last 40 years and contain a practice-oriented technical consulting at the time of research and development (R & D) which is part of the **"Virtual Engineering"** process. In addition to that I help in case of real problems optionally with an appraisal of damages (**"Troubleshooting"**). The overriding goal is always: to solve problems!

One of the key targets of my engineering support is the minimization of **TORSIONAL VIBRATIONS** and also the study of further dynamic effects like **LATERAL VIBRATIONS** (considering rotordynamic effects in high-speed machinery).

To realize these ambitious jobs successfully I count on **simulation tools** and above all on my own **experiences**.

Engineer's brain is the most important "tool". Even powerful software cannot replace the engineer.
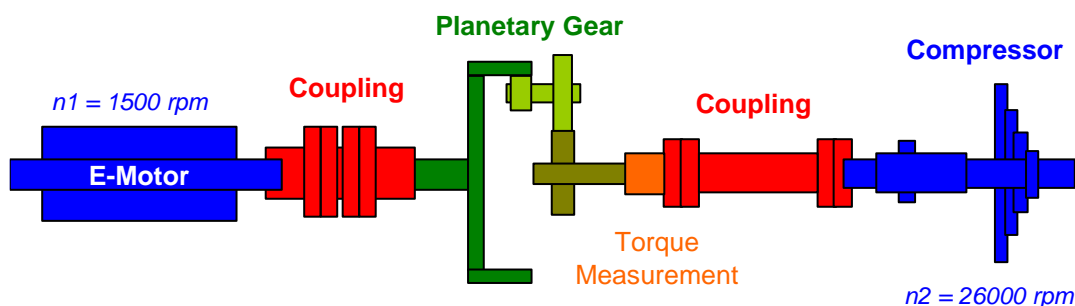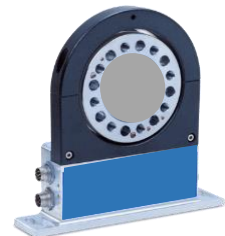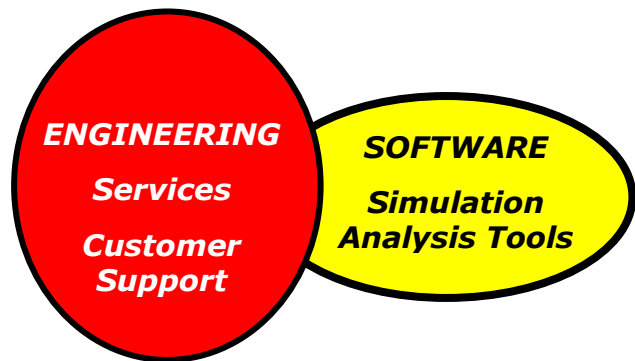
Applications of my CAE Engineering Services for "Drive Engineering"
in Test Stands and Testing Machines …

- Typical applications: **test stands for different components and units (like: couplings, gears, E-motors, gas/diesel engines, compressors, turbomachinery components/units)**

- **Configuration of test stands** with 2 objectives:
  a) for the purpose of optimizing the dynamic behavior of the entire test chain
  b) for the purpose of matching the drive train with the real system (compatible as far as possible and required)

- **Evaluation of measurement results and simulation results**
  for the purpose of system understanding and model matching

- **Detailed knowledge of the test object** (as a component/assembly as well as in the system network)

- **Tuning of different test cycles** with regard to the vibration behavior in the drive chain incl. test object

These are the typical subjects which I cover using reasonable CAE analysis methods:

- **"Torsional Vibration Analysis" (TVA)**

- **"Lateral Vibration Analysis" (LVA)** optionally with additional studies in **"Rotordynamic Analysis" (RDA)**

- Application of different **simulation methods** (including CAE model matching):
  a) **steady-state simulation** in the frequency domain for every operating speed
  b) **non-steady-state (transient) simulation** in the time domain; study of nonlinear effects; startup

You may also request my list of publications (technical papers, books) and customer references.
Note: Measurements are offered and performed by external partners.