



# Gear Testing

## Focus

Experimental proof of load carrying capacity, excitation behavior or efficiency is obligatory in the development process of most transmissions.

At Fraunhofer CMI, together with our partners at Fraunhofer IPT and WZL in Germany, we will help you to get the most out of your existing gear set. By applying innovative testing methods we are capable of analyzing the gear running behavior and to derive custom optimization measures to your requirements.

Our experience in manufacturing related gear properties and the utilization of validated calculation models enable us to predict and improve gear running behavior. With this software based approach we can deliver the results you need in a timely and efficient manner. We are open to help you solve your challenge.

## Our Expertise

- Manufacturing related running behavior of gears. Evaluation of the influence of
  - manufacturing induced tooth flank topographies (e.g. bias error)
  - surface topographies
  - surface zone properties (e.g. boundary layer, residual stresses)

- Investigation and optimization of
  - gear acoustics
  - tooth root strength
- Scuffing analysis
- Gear efficiency measurement and optimization
- Planetary gear set dynamics
- Robust, tolerance based gear design for spur and bevel (incl. hypoid) gears

## Test Rigs

- Dyno test rigs
  - Acoustic measurements
  - Efficiency measurements
- Acoustic gear measuring cells
  - Cylindrical gear measuring cell
  - Planetary gear measuring cell
  - Bevel gear measuring cell
- Mechanical back-to-back test rigs
  - Load capacity tests
  - Test rigs for standardized axis distances of  $a = 91.5 \text{ mm}; 112.5 \text{ mm}; 200 \text{ mm}$
  - Variable center distances for industrial applications
  - Oil tests (scuffing, micro pitting, pitting)
- Analogous test rigs
  - Pulsatory test rigs
  - Two disc test rigs (friction coefficient, pitting strength)
- CMMs and various inspection equipment

## Industries Served

- Aerospace
- Automotive
- Industrial drives
- Windturbine industry



## Contact

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