

GEAR AND POWER TRANSMISSION RESEARCH LABORATORY

The Ohio State University is home to the premier gear dynamics and power-transmission research laboratory in the country. This facility is dedicated to:

- Enhancing gear and power transmission technology through fundamental and applied research
- Providing graduate and undergraduate students with applied educational and research opportunities
- Ensuring that industry partners are updated on the latest in gear and transmission technologies

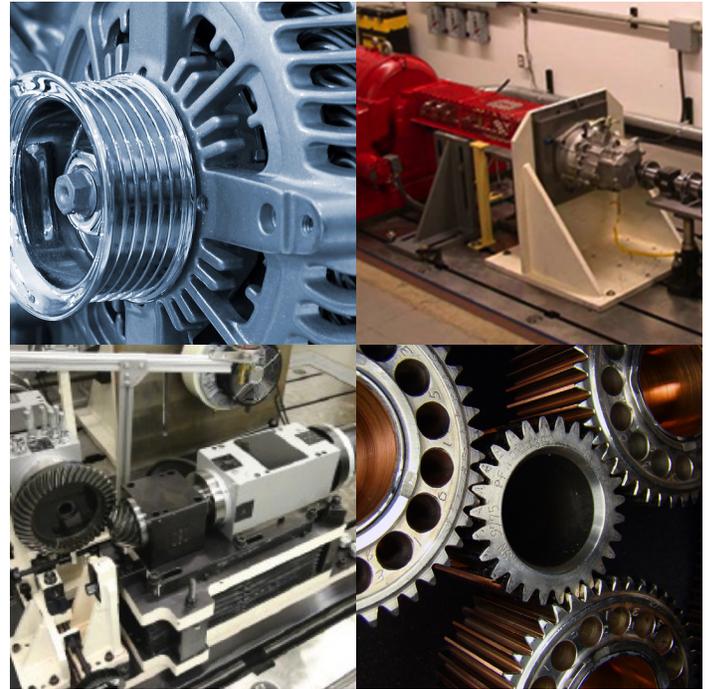
The gear lab focuses on noise reduction, increased power density, increased efficiency, improved reliability, and reduced cost. Research is consistently being performed in dynamics and acoustics, design and contact mechanics, tribology, fatigue, and efficiency. With a membership of nearly 80 industry partners, the work being performed is constantly evolving and adapting to industry needs.

CAPABILITIES

The gear lab consists of more than 6,000 square feet of laboratory space dedicated to four distinct measurement areas:

- gear dynamics
- gear efficiency
- gear fatigue
- gear metrology

Each area holds multiple custom test stands for evaluating gears and their interaction. In addition to testing, the gear lab has the ability to model the gears being tested. The software programs being used include WindowsLDP, RMC, SplineLDP, and HAP. Windows LDP allows for load distribution modeling of parallel axis gears, determination of transmission error, contact and bending stresses, tooth forces, film thickness, surface temperature, and power loss. It also allows optimization of micro-geometry, robustness analysis, and manufacturing and spacing error analysis. Run Many Cases (RMC) is a tool that allows quick design of macro-geometry for parallel axis gears. SplineLDP is very similar to WindowsLDP, but it intended for splines rather than parallel axis gears. HAP allows modeling of load distributions for hypoid gears.



THE OHIO STATE UNIVERSITY

The Center for Design and Manufacturing Excellence (CDME) is the manufacturing port of entry into Ohio State. With a dedicated staff of product engineers and participation by research faculty, CDME is able to move at the speed of industry while continuing to innovate. Equipment, facility and staff are all utilized in the most efficient productive manner for any project.

CDME provides industry with a simple expeditious way to access all the technical and physical assets of the university and surrounding research community. Easy contract mechanisms and unambiguous business terms allow industry certainty around the value proposition of the engagement before any project begins.

CONTACTS

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Gear and Power Transmission Research Lab

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