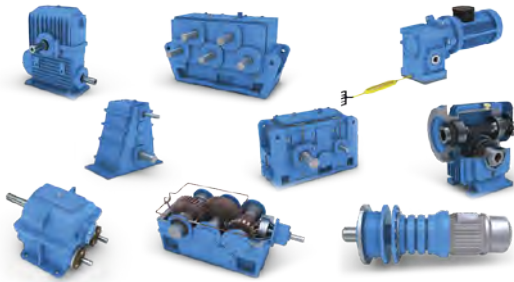


GEARBOX BASICS

eLearning courses designed to increase productivity and profits



Learning made Simple, Visual, and Interactive

This course introduces the learner to key principles of gearbox operation, as well as typical classification, components, and specification of gearboxes. Featuring a variety of detailed 3D gearboxes used in light-, medium-, and heavy-duty industrial applications, the course supplies fundamental knowledge relevant for gearbox purchasers and suppliers alike. Learners in quality, manufacturing, or engineering roles in the industry will also find value in this course.

Credit Hours **2**

Learning Objectives

- Understand the significance of power, torque, and speed in gearbox operation.
- Differentiate between various types of industrial gearboxes.
- Recognize the critical components responsible for the success of gearboxes in a variety of industrial applications.
- Identify the information a gearbox supplier generally requires from a purchaser to supply the correct gearbox for an application.
- Relate gearbox specification criteria mentioned in the course to the gearbox selection details provided in a typical gearbox supplier catalogue.

Table of Contents

I. Gearbox Concepts

- Common Gearbox Elements
- Power Transmission and Power
- Motion Control and Torque
- Power-Torque Relationship

II. Gearbox Classification

- Mounting Arrangement
 - Foot and Shaft Mounted
- Axis Configurations
 - Parallel and Co-Axial
- Fixed or Variable Ratio
 - Fixed and Variable Ratio
- Number of Connecting Shafts
- Number of Stages

III. Gearbox Components

- Gears and Shafts
- Lubrication Components
 - Lubricating Oil and Oil Film
 - Dip-Lubricated Gearboxes
 - Spray-Lubricated Gearboxes
- Fans and Cooling Components
- Bearings, Gearcase Structure, and Foundation
 - Gear Forces
 - Force Reaction with Bearings
 - Foundation and Support Components

IV. Gearbox Specifications

- Gearbox Application
 - What is a Service Factor?
 - How to Use a Service Factor
- Applicable Standards and Legislative Requirements
- Duty
- Type and Speed Requirement
- Local Environment
- Connection Requirements
- Additional Requirements
- How to Read a Gearbox Nameplate

