



## ELECTRICAL DRIVES

***As a developer of electrical drives, LCM provides solutions from a single source. All relevant skills such as simulation, optimisation, electronics and prototyping are integrated perfectly with one another, which means we can install the ideal drive for your application – ensuring it is efficient, robust and cost-effective.***

### YOUR BENEFITS:

Modern drive systems are complex structures – consisting of individual mechanical, electromagnetic and electronic components. With our MagOpt software tool, we can create an overview of your drive system and optimise it according to your wishes. We then take that overview as a basis to develop the electrical drive: starting by simulating the design of the entire system and developing the electronics, including sensors and software, until we build up the prototype and perform the measurements on the test bench.

The energy converters and relevant power electronics are designed and produced by LCM. The proactive planning by our permanent staff from various fields of expertise ensures optimal integration into the overall system, both spatially and functionally. Our extensive machine infrastructure and years of experience equip us with the tools to subsequently support you in professional prototyping. And just to make sure that no doubts remain, we measure your drive and subject it to a thorough inspection.





#### OUR EXPERTISE INCLUDES:

- An interdisciplinary approach to developing and producing efficient, robust and powerful drives
- Optimisation of efficiency, torque, magnetic materials, constructed space and costs with our MagOpt optimisation tool
- Development and manufacture of modern power electronics
- Professional prototyping for electronics design, mechanics, winding technology and operating software
- Comprehensive measurement of drives on a variety of test benches with the latest measuring instruments to determine efficiency, dissipated and idle power, load cycles, temperature profiles, and much more.

#### CURRENT REFERENCES:

Our knowledge and expertise in electrical drives can be demonstrated by numerous projects that we have undertaken for customers in a wide variety of sectors. This is just a small selection of our references:

- Motor optimisation (costs, constructed space, power, efficiency, noise, etc.) of
  - Permanent-magnet synchronous motors (even with a mains connection)
  - Switched reluctance motors
  - Flux switching motors
  - Synchronous reluctance motors
  - Reluctance motors with ferrite magnets in the stator
  - Axial flux motors
  - Claw pole motors with SMC Flow Control
  - Bearingless motors with combined bearing and driving coils
- Drives with integrated power electronics
- Design and optimisation of actuators
  - Bone conduction implant system (hearing aid implant)
  - Actuator for fast-acting hydraulic digital valve

