

# The best of both worlds.

Customized gear technology and drive solutions of both metals & plastics.



## Combining local expertise & global presence.

Since the founding of Franz Morat GmbH in 1912, gear and drive engineering has been in a continuous state of development at the company's headquarters in Eisenbach, where the gearwheel is invented over and over. This former centre for the watch and clock industry has been characterised by the precision mechanics industry for centuries. Since then gearwheels, precision turned parts, drives and valves have been developed and produced in Black Forest's GearValley. Franz Morat Group, with subsidiaries in the United States, Turkey, Poland and México as well as a worldwide network of sales partners, is a globally operating manufacturer of high-quality drive solutions for many applications.

## Uniting metals & plastics.

With more than 100 years experience in metal processing and 50 years as a pioneer in plastic injection molding, Franz Morat Group has contributed to the development of many industries over several generations. Our core competencies lie in the production of high-precision gears, rotor shafts and worm gear sets made from various metals as well as technically advanced injection-molded parts from plastic. Within the Franz Morat Group, this results in solutions that benefit from the technical advantages of both material groups depending on the required specifications. We are also your reliable partner in drive engineering - no matter whether your project is standardized according to the modular design principle or tailored completely to your custom requirements. The results are custom drive solutions for a wide variety of industries and applications.



## Pioneering research & development.

In developing custom engineered drive solutions, Framo Morat and F. Morat cooperate closely under the umbrella of the Franz Morat Group. This integrates the advantages of metal and plastic into the process right from the start as part of the specification for your drive, ensuring that everything is used to its limits for your benefit. Our many years of experience make us your ideal partner, from development and design engineering to prototyping and testing all the way to series production and assembly. Numerous highly respected companies from a wide variety of industries rely on our development services and the resulting drive solutions.

### **Franz Morat Holding GmbH & Co. KG**

Franz-Morat-Straße 6  
79871 Eisenbach  
Phone +49 (0) 7657 88-0  
Fax +49 (0) 7657 88-333  
E-Mail [info@franz-morat.com](mailto:info@franz-morat.com)  
[www.franz-morat.com](http://www.franz-morat.com)

# Franz Morat Group



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 FMORAT CO

 FramoMorat



## Your idea - Our drive.

Custom drive solutions for the E-Motive sector.





# Always on the move.

Stay one turn ahead with E-Mobility solutions from Franz Morat Group.

Electrical mobility continues to gain momentum. The market for e-bikes & pedelecs is booming. With technical innovations, new models and attractive designs, there's no stopping the interest in motorized two-wheelers. In the automobile market, the high levels of technology being achieved are being showcased in vehicle models that have already been presented, or will be soon.

If you need a reliable, experienced partner to help you realize your e-mobility project, talk to us! We can supply individual components, assemblies or custom transmission units, in metal, plastic or a combination of the two materials! Let us inspire you: find out how to get that decisive inch of advantage over your competitors, using drive solutions supplied by the Franz Morat Group.

## You benefit from:

- More than 100 years of expertise in designing & developing custom drive components & complete systems
- A commercially solid, family-owned company, with a flexible organization and the ability to react rapidly to customer requirements and changing circumstances
- Project specific choice of materials according to your requirements (metals, thermoplastics or combinations of both)
- Individual configuration for the material determination regarding quality, reliability, weight & running noise
- All process steps from a single source

## Application examples



### Spur gear stage for E-Bikes

The advantages of pairing metal and plastic can be seen in this application. The high-precision spur gear stage for E-bike motors consists of a metal helical rotor shaft and a plastic gear. This gear stage ensures savings in weight as well as smooth operation and a long service life thanks to the "Made in Germany" quality.



### Rotor shaft for electric scooters

This rotor shaft is manufactured for one of the largest automotive suppliers in the bike industry and is used in electric scooter motors. We make use of our entire range of manufacturing, from turning and cutting to grinding, during the manufacturing process.



## Application examples



### Drive shaft for electric vehicles

This electric vehicle drive shaft is manufactured for one of the largest automotive suppliers, Continental. It establishes the connection from the electric motor to the transmission. To satisfy the high requirements set for quality and noise, the spherically ground gear is manufactured in a quality level of 3. All process steps, including hardening, are completed in house.



### Pinion shaft & rack for steering gear unit on a racing car

This combination of a polygon profile pinion shaft and rack is part of the steering gear unit of a 100% electrically powered lightweight racing car, developed by the Running Snail Racing Team at OTH (University of Applied Sciences) Amberg-Weiden, Germany. It transfers the rotary movement from the steering wheel to the wheels. The requirements the pinion shaft had to meet were maximum precision and high strength and hardness. In contrast to the previously used components, with which there was approx. three degrees play in the steering wheel, the new pinion shaft achieves play-free steering.



### Rotor shaft for industrial fork lift trucks

Rotor shafts for the drives of industrial trucks and fork-lift trucks require maximum precision during production in order to withstand the heavy loads in daily operation whilst offering very quiet running. We offer all process steps, such as turning, gearing, shaping, grinding and hardening from a single source.

