



## Your idea - Our drive.

Custom engineered drive solutions for the medical & rehabilitation device industry.





### Drive unit for curved stair lifts

The stair lift drive developed by Franz Morat actually consists of a total of three drives: the main drive for the lift's upward and downward movements, one for swiveling the seat (making it easy to get on and off), and a drive for tilt correction so that the seating position is always horizontal despite differing gradients within a stair section.





# Always on the move.

Stay one turn ahead with drive solutions from Franz Morat Group.

Demographic changes are continually changing our society. High-precision drive elements ensure the high requirements for use near patients are met in medical and rehabilitation technology. There can be no compromises when it comes to people's health. The requirements for drive units vary considerably depending on the application. Paramount examples include smooth running, leak resistance, ease of cleaning, high power density or low weight. Common to all requirement profiles, however, is the challenge of ensuring top quality, reliability and operational safety, because any failure could have fatal consequences.

With decades of expertise in producing gear components and developing complete drive systems and an in-house production that covers all processing steps critical to quality, Franz Morat Group is your ideal partner.

## 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



### Worm gear unit for motorized motion rails

Two worm gear units have been built into a shoulder motion rail: one raises and lowers the patient's arm; the other carries out a rotational movement of the shoulder. This generates a movement corresponding to the natural pattern for the shoulder. Maximum accuracy is required for post-operative movement of the shoulder, which is moved over the top dead center. Too great a gear backlash can be painful for the patient so our gears are produced with a total play of less than 1.5°.



### The "Stair Climber"

A three-stage spur gear was developed for a stair-climbing aid. The Stair Climber can easily be attached to a conventional wheelchair so that persons weighing up to 160 kg can be transported up and down stairs. Particular attention was given to the quality of the gear components because of the extremely high demands made of the drive regarding performance and quiet running. Framo Morat won the contract to supply the drives because of the high quality we were able to guarantee.



## Application examples



### Adjustment system for operating tables

Medical applications pose the very highest of demands regarding precision, quiet running and long service life. This is also the case for the worm gear sets made of stainless steel, with which all moving parts of an operating table can be adjusted.



### Wheel hub drive for hospital intralogistics

Automated guided vehicles (AGVs) are used in hospitals, for example, as state-of-the-art goods transport systems. They can connect multiple buildings and floors to each other. In doing so, they supply various areas with food, medication, laundry, mail, and much more. The Framo Morat drive unit is ideal for use in medical facilities due to its low noise emissions and long service life.



### Two-component mixer

This drive is used in dental practices. At the touch of a button it automatically doses and mixes two viscous, paste-like substances in the correct proportion and in the desired quantity. The challenge posed by this application consisted in designing the drive for an upgraded model – a quieter and smaller drive but twice as powerful.



# The best of both worlds.

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



## Producing drive components & systems.

With 100+ years of experience in the areas of gearwheel technology, worm gear sets and drive systems, Franz Morat Group supplies a comprehensive range of products that cover a wide spectrum of applications. In addition to our complete range of standard products, we also design and implement custom engineered drive solutions.

Franz Morat Group is your reliable partner for worm, spur or planetary gears, complete gearmotors and complex drive systems – and for your drive concept, too!



## Uniting metals & plastics.

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 thermoplastics. This results in solutions that incorporate the technical advantages of both material groups depending on the required specifications. You benefit from over 100 years of expertise and an experienced partner who offers all process steps from a single source.



### Metal machining:

Turning, Milling, Gear Hobbing, Gear Shaping, Broaching, Hardening, Cylindrical Grinding, Honing, Profile & Hob Grinding



### Plastic injection molding:

Mold Design & Tool Making, Over 60 injection molding machines, All technical thermoplastics (incl. PEEK™), Subsequent processing



## Pioneering research & development.

In developing custom engineered drive solutions, Framo Morat and F. Morat cooperate closely under the umbrella of the Franz Morat Group. 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.



### Drive technology:

Specification, Development & Design, Prototyping, Testing & Quality Control, Serial Production, Assembly & Use



# A long standing process of progress.

Deriving motion from energy for more than 100 years.



## 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, Black Forest. Today, the Franz Morat Group is a globally operating manufacturer of high-quality drive solutions for many industries and applications. The company counts over 600 employees and runs subsidiaries in the United States, Turkey, Poland and México.



## Providing industry expertise & innovative ideas.

From highly complex 3-axis drive systems for curved stairlifts or component mixing units for dental technology, to highly precise miniaturized gears for post-operative shoulder mobility splints for rehabilitation after surgery, all the way to gear components or complete drive units for operating table control systems – Franz Morat Group has been a reliable partner of the most renowned global players in the rehabilitation & medical technology industry for generations.



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## Franz Morat Group

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