



Working with us, you benefit from the experience and knowledge that comes from two hundred years of Black Forest industrial heritage. www.gearvalley.com

Always on the move.
Customized gear technology and drive solutions.



Framo Morat GmbH & Co. KG
Franz-Morat-Straße 6
79871 Eisenbach
Germany
Phone +49 (0) 7657 88-0
Fax +49 (0) 7657 88-333
E-Mail info@framo-morat.com
www.framo-morat.com

Framo Morat B.V.
Westbaan 228
2841 MC Moordrecht
The Netherlands
Phone +31 (0) 182 610006
Fax +31 (0) 182 610631
E-Mail info@framo-morat.nl
www.framo-morat.nl



A long-standing process of progress.

The Black Forest is a unique landscape which from the very first captures the hearts and minds of visitors. And if they take time to delve deeper, they will discover another, equally unique landscape: that of the Black Forest's industrial heritage. Having developed over the centuries, this landscape is shaped by numerous mid-sized companies, including several world leaders and "hidden champions".

The town of Eisenbach where we are based is a good example of the pattern of industrial development characteristic of many places in the Hochschwarzwald, or Black Forest highlands. A mining village since the 15th century, Eisenbach became a flourishing center of the watchmaking industry in the 18th century.

This industry shaped the entire region for more than two hundred years and paved the way for the many manufacturers of precision engineering, precision turned parts, drives and fittings now located in the area. Framo Morat GmbH & Co. KG and our sister company, F. Morat & Co. GmbH are also based here in Eisenbach's "GearValley".

With the foundation of the first Morat company in 1863 by Johann Morat, we inherited the typical Black Forest virtues of reliability and perfectionism. This inheritance has passed through generations and we remain true to these virtues today. The precision and quality we deliver is something that we in GearValley can rightly be proud of.



High-tech products in 1800.

What would the Black Forest be without the cuckoo clock? Indeed, over the last 200 years the watchmaking industry has been key in enabling the region to become the high-caliber technology.



Deriving motion from energy for 150 years.

Since our parent company was founded in 1863, we have been developing and producing gears and worm gear sets and are now one of the leading suppliers for sector- and customer-specific drive solutions. Framo Morat is a reliable partner, supporting customers from the initial idea to volume production.

We can't be beaten when it comes to motion. Not only does Framo Morat boast great technical expertise and state-of-the-art production facilities, we also pay great attention to detail and have an absolute desire for perfection. After all, we are fully aware that every single gear in a high-quality drive is crucial.

We think globally but have local roots. We are a modern, international high-tech company still located at our original base in the Hochschwarzwald. We draw energy from our origins as we believe that only companies with a firm base are able to get things moving. And we do this day in, day out.

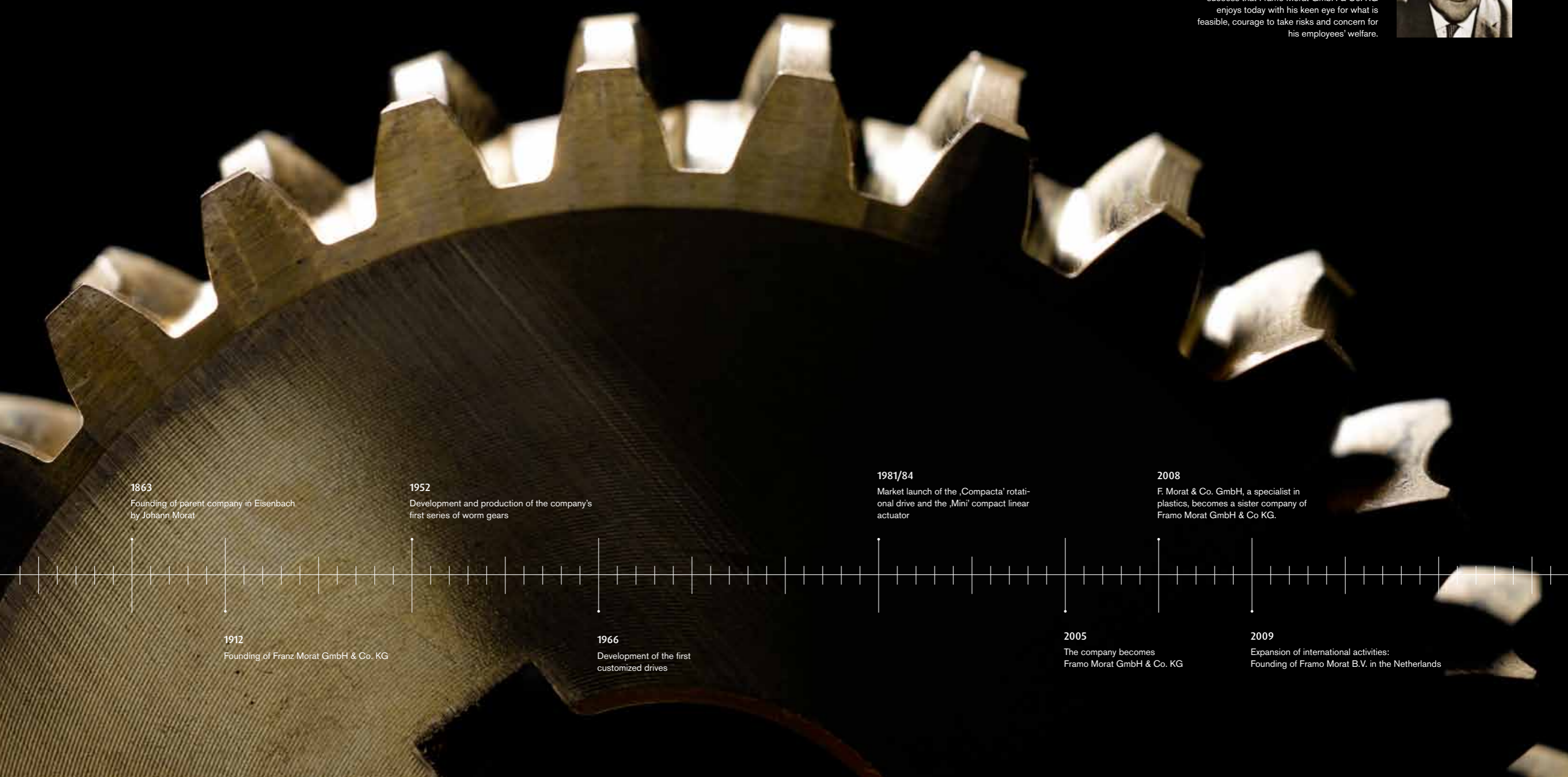
Franz Morat senior

In the year 1912 Franz Morat senior founded the Franz Morat GmbH & Co. KG, a successful and innovative company that actively participates in the markets. The early production contained clockworks, counting devices, gears, drives and shafts.



Franz Morat junior

As the company-founder's son, he became the general manager at the headquarters in Eisenbach and managed the company between 1945 and 1977 as the sole, personally liable partner. He laid the foundations for the success that Framo Morat GmbH & Co. KG enjoys today with his keen eye for what is feasible, courage to take risks and concern for his employees' welfare.



1863

Founding of parent company in Eisenbach by Johann Morat

1952

Development and production of the company's first series of worm gears

1981/84

Market launch of the 'Compacta' rotational drive and the 'Mini' compact linear actuator

2008

F. Morat & Co. GmbH, a specialist in plastics, becomes a sister company of Framo Morat GmbH & Co KG.

1912

Founding of Franz Morat GmbH & Co. KG

1966

Development of the first customized drives

2005

The company becomes Framo Morat GmbH & Co. KG

2009

Expansion of international activities: Founding of Framo Morat B.V. in the Netherlands

Turning things into a knack.

Our drive solutions go that little bit further.

We specialize in gear technology. Our product range includes rotor shafts, gears with internal and external teeth, pinions and chain sprockets, all of which can be customized. We work with a number of materials, including steel, aluminum, various non-ferrous metals and plastics, to satisfy customers' needs. This assures you the perfect product for your application.

Framo Morat is also renowned for its worm gear sets. Having produced in excess of 60 million gear sets, with center distances of between 17 and 125 mm, we rank among the market leaders. After gear technology and worm gear sets, our third largest department is drive technology. Innovative standard drives such

as the 'Compacta' slip-on geared motor with integrated limit switches and the extremely short 'Mini' linear actuator have proved themselves in countless applications and sectors.

Customized drives are gaining in importance in our product range all the time. We work with the customer to define specifications, then Framo Morat handles all development work, including design and construction of prototypes, culminating in the volume production launch. We are also your one-stop shop for even highly complex drive solutions, including electronic components such as motor control or bus interfaces, drive and gear technology, assembly concepts, certification and supply logistics.

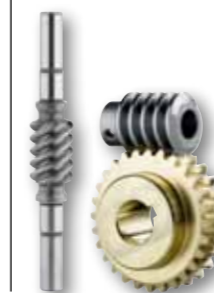
Gear technology

We can produce customized rotor shafts, gears with internal and external teeth, pinions and chain sprockets.



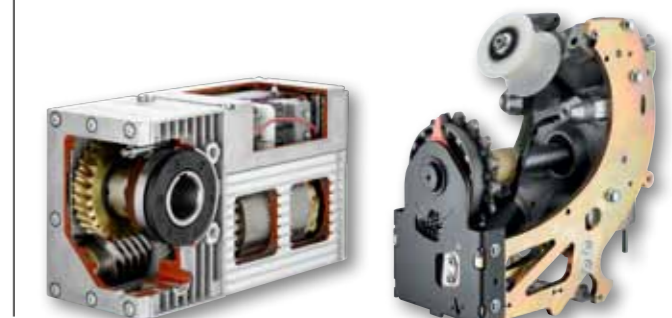
Worm gear sets

Having produced in excess of 60 million gear sets, Framo Morat is a leading international supplier. A large number of these were customized products.



Drive technology

Innovative standard drives such as the Compacta slip-on gear motor with integrated limit switches and drive solutions developed from scratch for partners are in use in countless applications.



Fully committed to perfection.

We don't compromise on quality or environmental protection.

Mistakes can happen wherever people are at work, but these mustn't impact on product quality. With this in mind, we designed all our processes to recognize and eliminate mistakes early on. Inline measurements and visual error analyses at all key stages ensure reproducible and high-quality results. We strive for 'zero defects' in all products, be this the measurement accuracy of gears or shafts, surface quality or cleanliness.

Our quality management system is ISO 9001 certified. All processes are defined in detail and our staff undertake to observe all requirements. The same applies to our suppliers and contractual partners, who are also expected to have a zero-compromise approach to quality.

Through attentive, careful and responsible work, every single member of staff helps to avoid mistakes, detect the causes of mistakes at an early stage and remedy such issues.

But we don't just place very high requirements on the quality of our products. Environmental protection is also a very important issue for us and one which we have made a corporate goal by certifying our company in line with ISO 1400. When we develop products or introduce new production methods, we always focus on minimizing our environmental impact through the use of raw materials and energy as well as considering waste products, waste water, emissions and noise.

Framo Morat – our quality and environmental protection principles

- We are committed to superlative quality. Our goal: zero defects in all parts.
- Qualified and motivated staff is the best precondition for satisfying high-quality standards.
- The careful and responsible behavior of every individual prevents mistakes and rectifies their causes.
- Environmental protection is a natural commitment for us.

Good products don't come about through chance.

We deploy quality assurance methods such as FMEA, SPC and machine capability analysis to ensure optimum quality and reproducibility of results in all processes.



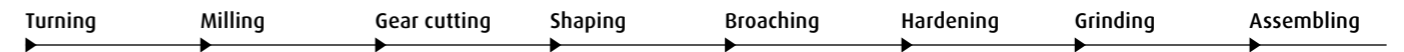
Everything under control. Every detail counts.



Framo Morat enjoys a high degree of vertical integration. Processes such as turning, gear cutting, external cylindrical grinding, profile grinding, generation grinding, hobbing and shaping are undertaken in-house where we have full control of all the parameters crucial to quality. Our extensive fleet of machines, including state-of-the-art measuring and testing equipment, is housed in an area of 18,000 square meters and allows us to check the quality of all our components. We are also one of the few manufacturers in our sector to have its own hardening furnace. Case hardening or carbonitriding allows us to specifically

influence the material characteristics of our components, especially their surface hardness and robustness.

But it's not just machines that deliver optimum product quality, but also the people who work with them. We employ more than 300 members of staff, 70 percent of whom have trained as specialists and 10 percent of whom are currently undergoing further or advanced training. All Framo Morat staff have the opportunity to continually improve their skills and knowledge – for their own benefit and that of our customers.



The gradual process of attaining the perfect product

With our high degree of vertical integration, we are able to perform all key production stages in-house. This is your assurance of optimum product quality.



Shaping internal and external teeth

Teeth with a bevel of up to 45° can be produced on our shaping machines. We machine workpieces with a diameter of up to 300 mm and a tooth width of up to 100 mm (module 6).



Hardening, case hardening, carbonitriding, carburizing

Only a few gear technology manufacturers have hardening furnaces and Framo Morat is one of them. Workpieces or batches measuring up to 1000 x 600 x 600 mm and weighing 600 kg can be finished in our multi-purpose batch furnaces.



Generation grinding external teeth on shafts and gears

Our grinding machines allow us to grind external teeth on shafts and gears up to a workpiece diameter of 145 mm and a tooth width of up to 400 mm (module 3).



Your Idea – Our Drive.

Special challenges require special solutions.

Framo Morat isn't just renowned for its extensive production expertise; our customers also value us as an experienced partner in innovative drive solutions. A separate development team for customized drives supervises every project from specification to volume production and ensures that the final result is both technically and economically sound.

The fascinating thing about customized projects is that no two are ever the same. Our vast experience in drive technology does

however mean that we don't have to reinvent the wheel every time. Our customers benefit from this wealth of knowledge and experience as they can rely on us to rise to even the most complex of challenges.

Countless drive solutions, from worm, spur or planetary gears to complex drive systems, have already been produced in this way. We are proud of the fact that our solutions have helped many well-known customers enjoy success and we want you to join them!

Framo Morat – your development partner for drive technology

- We have vast experience from a multitude of customer projects
- We supervise your project from specification to application
- You receive a complete solution, optimized in terms of function and costs
- We provide outstanding quality for all our drives and components

Framo Morat – your development partner for drive technology

Specification

Customer input is the impetus for all new drive solutions. It defines the parameters according to which the drive is designed.



Development

We develop a solution with optimized technology and costs for the given application from the customer specification.



Design

Our experts use state-of-the-art CAD and calculation software for optimizing gear parts to produce the detailed design.



Prototypes

Working with the customer, prototypes are used to check whether the solution contains all the desired characteristics.



Testing

Compliance with the specification requirements is checked in detail. Extensive testing simulates loading in the field.



Production

Our high degree of vertical integration and continuous quality management assures outstanding results with competitive conditions.



Assembly

Once all components have undergone quality testing, the drive units are fully pre-assembled and supplied to the customer ready for installation.



Application

Framo Morat has already developed and produced numerous drive solutions, from worm, spur and planetary gears to complex drive systems.



Renewable energy

Such as tracking solutions for photovoltaic and solar heat systems, gearbox solutions for use in wind turbines

Rehabilitation and mobilization

Such as drives for stair lifts and stair climbers, drives for wheelchairs, walking aids for rehabilitation after surgery

Medicine and dental technology

Complete solutions such as two-component mixing devices for use in dental labs, drive systems for lab and operating tables

Mechanical and automotive engineering

Such as drive units for processing foodstuffs, worm gears for woodworking machines, gear adjustment units for tractors, spindle units for caravan maneuvering equipment

The driving force.

We are what drives many sectors.



The right drive for the right application

Framo Morat drive solutions can be used in many areas, including medical technology, renewable energies and mechanical engineering.

No matter what sector you work in, you are very likely to find Framo Morat drives and components closer to home than you might expect – even if it's just the actuator in the blinds in your office, for example. Our products are used in a vast range of applications. Framo Morat drives can be found in trackers for tracing solar modules, in transport lifts and pitch gears in wind turbines, in swimming pool covers and stair lifts, in dental labs

and operating tables, as components in metering pumps, gear motors and machine tools. But wherever they are used, they provide a reliable service and often go unnoticed. There is no application we can't find a solution for – no matter what your requirements, Framo Morat drives will deliver the motion you want.