

KEB MOTOR MILESTONES

The **geared** motor plant in **Schneeberg**, Saxony

WELCOME TO THE WORLD OF INNOVATIVE DRIVE TECHNOLOGY

When quality and precision come together and tradition meets the modern, the result is high-end gear units and motors — Made in Germany. KEB Antriebstechnik unites exactly this interplay.

As a globally active family business, KEB has been supplying the plant and machine manufacturing industry with high-quality drive and control technology solutions for over 50 years. Within the KEB Group, KEB Antriebstechnik GmbH is the central competence centre for geared motors and servo geared motors and has been producing very successfully for the global market in Schneeberg, Saxony, since 1993.



OUR GOAL: TO SERVE THE NEEDS OF MACHINE AND PLANT ENGINEE-RING WITH OPTIMISED SOLUTIONS.

Our focus is on a wide range of geared motors and servo geared motors that are ideally matched to your application. From the extensive KEB product portfolio, our geared motors and servo motors can be combined with innovative KEB frequency inverters or customised brakes to generate tailor-made system solutions for you. KEB is your solution provider for drive technology and automation. Discover how our highly modern drive systems not only promote energy efficiency and sustainability, but also increase the productivity of your applications. KEB Antriebstechnik stands for cooperation at eye level and future-oriented technologies that you can rely on.

Browse through our exciting history and be inspired by our passion for precision and innovation. Enter the world of KEB Antriebstechnik – where your success is our mission.

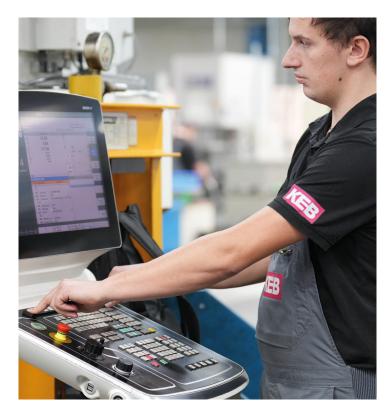




WHO ARE WE?

One headquarters, eleven subsidiaries and several international representative offices: Over the course of time, the KEB Group has developed into a globally active company. And KEB Antriebstechnik GmbH in Schneeberg is the competence centre for gearboxes and servo geared motors.

- Manufacturer and system provider for drive and automation solutions
- · Company headquarters in Barntrup, East Westphalia
- Owner-managed
- 1.550 employees
- Around ten per cent of employees work in research and development
- High level of consulting/service expertise
- 14 national subsidiaries/representative offices
- Four sales offices in Germany



OUR PRODUCTS

With our comprehensive product portfolio, we serve a wide range of customer applications. Thanks to the different gear unit types, motor types and other options, we provide a broad modular system to meet the individual needs of our customers. We also offer sustainable solutions in the field of drive technology through other business areas such as service and repair.

The KEB Group's products can be used to automate entire machines and processes.

- Internet of Things (IoT)
- Control technology and automation
- Drive technology / Drives
- · Brakes and clutches
- Motors and gear units



GEARED MOTORS IN SCHNEEBERG

KEB's predecessor company, Elektromotorenwerk THURM – Elmo for short – had been producing geared motors since it was founded. In the 1950s, the demand for geared motors increased rapidly and, despite various productivity improvements, production capacities were no longer sufficient in the 1960s. The logical consequence was the relocation of the production of geared motors to a specialised plant. The plant in Schneeberg was established due to political considerations. Production began there in the early 1970s and reached a production output of almost 350,000 geared motors in the 1980s.







THE SALES TRANSFORMATION

After reunification, many former East German companies lost a large proportion of their customers; they were hardly or not at all prepared for the new market economy conditions or had few competitive products in their range. As a result, many companies ceased their business activities due to a lack of prospects for economic success. Not so in the case of geared motors.

After the political and economic upheaval, Elektromotorenwerk THURM was renamed in April 1990 and transformed into a limited company. The subsequent monetary union led to a further deterioration in the situation. The sales of the previous years collapsed by half. It was only possible for the former THURM electric motor plant with its two main sites to continue as a going concern with a significant reduction in staff and an increase in productivity. However, attempts to jointly privatise the Thurm and Schneeberg plants failed.

At the end of 1992, the Schneeberg plant was successfully separated from the group of companies and privatised. At the beginning of 1993, it became part of the KEB Group. Immediately after the foundation of KEB Antriebstechnik, the course was set for the future. Sales reorganisation was at the centre of activities. KEB initially operated via the existing dealer network of the predecessor company. THURM already had a dealer network in Western Europe long before the fall of communism and was therefore not completely at the mercy of the collapsing Eastern markets. However, indirect sales had disadvantages for KEB. On the one hand, there was

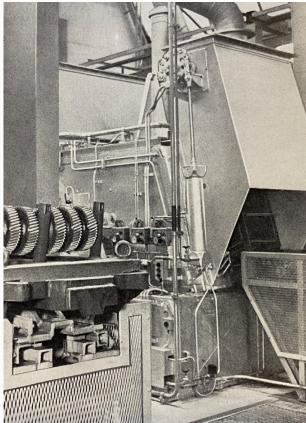
plant engineering and, on the other, this sales channel had economic disadvantages. Due to the additional sales level, KEB was unable to generate margins that maintained its substance. As there was also no direct contact with end customers or end users, the requirements for the expansion of the gearbox range could only be determined inadequately and there was a risk of developing products that missed the market.

For these reasons, it was decided to switch the sale of gear units to the

no direct contact with customers and their applications in machine/

For these reasons, it was decided to switch the sale of gear units to the direct sales channel and to retain the dealer structure only as a supplement. The consistent sales focus on the KEB network brought direct access to the applications and needs of the market. The 1990s were a difficult and challenging time. Together, however, we were able to overcome them and lay the foundations for the company's successful development.





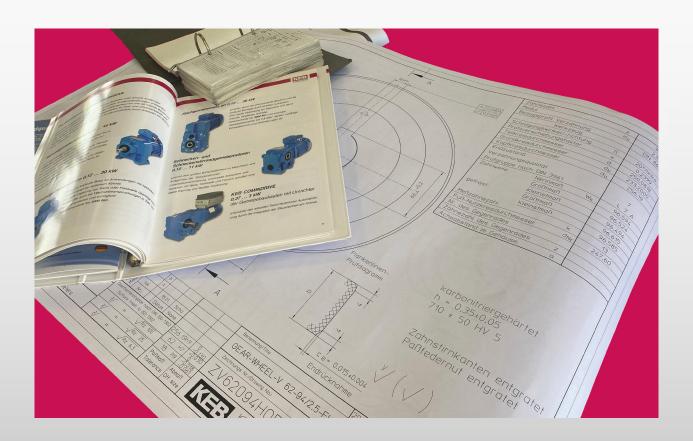
EMERGENCE OF NEW SERIES OF GEAR UNITS

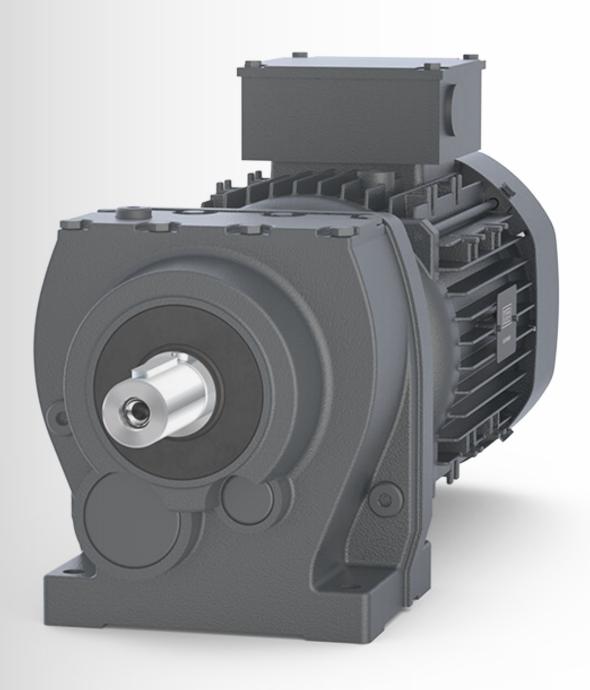
The change in sales was followed by extensive new developments and the expansion of the gear unit portfolio in the 2000s. Initially, KEB continued to offer the helical gearbox motors from the ZG series, which dated back to the pre-reunification era, in various gearbox sizes. These could be combined with three to five motor sizes. The power spectrum ranged from 0.12 kW to 45 kW. Both foot-mounted and flange-mounted versions were available, as well as a shaft-mounted version for the helical worm geared motors. The gear unit variants offered by KEB were already inadequate for the time. Although KEB was able to fulfil some of the individual customer requirements with its product portfolio, it did not have a suitable solution for many applications and customer requests. The result: The gear units were sold on price and this necessary sales approach had a negative impact on KEB's profitability. A change was needed!

In order to guarantee the company's long-term success and launch it into a successful future, KEB gradually began to develop additional gear unit types in order to close the product gap with its market competitors — not with a high development budget, but with a very small core team and limited financial resources in line with the situation at the time.



Today, the extensive KEB gear unit range includes the classic helical gear unit, the parallel shaft gear unit, the bevel gear unit and the worm gear unit. These gear unit variants are produced at the Schneeberg site and can be combined with numerous motor variants. In addition, KEB also offers a planetary gear unit.





THE SERVOMOTOR IS DEVELOPED

Customer satisfaction and needs have always taken centre stage at KEB. In the 2010s, the increasing demand from many customers for powerful yet very compact motors led to the development of a completely new type of motor at KEB — the servomotor.

Compared to three-phase motors, servomotors can offer many advantages: For example, the compact and lightweight design and the high-power density. For this reason, servomotors have become significantly more important in drive and automation technology and have even often replaced the classic three-phase AC motor in individual applications — for example in dynamic drives. An open eye for trends and technically driven innovations is part of the DNA of KEB Antriebstechnik, which reached a new level with the development of servo motors.

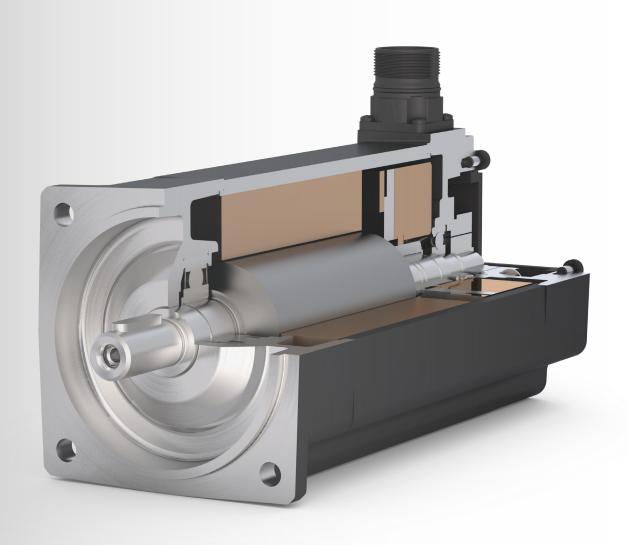
With the development of servo motors, the company has advanced into a new area and has successively acquired the necessary development and manufacturing expertise. Just as the design of a servomotor differs from that of a three-phase motor, so do the manufacturing technologies. Be it the winding technology, the housing processing or the assembly. All of this was not an easy task for the employees, of course, but it was also



successfully mastered. Today, the servo motor is an integral part of the KEB product portfolio and, like the three-phase motor, can be used with the various gear units from the KEB modular system.

In combination with the KEB drive controllers COMBIVERT F6 and Servo Drives S6, powerful drive systems are created.





DIGITALISATION AND AUTOMATION

Once again, KEB is looking positively into the future: the goal of harmonising economic efficiency and sustainability not only involves sales measures and expanding the product range, but also increasing production capacities and creating production capabilities. In addition, customer requirements for short delivery times, fast response times and flexibility with regard to product modification options are becoming ever more stringent. As a result, production processes need to be digitalised and machines need to be automated — a field in which KEB is at home with its products.

In the spirit of continuous improvement, the production processes and production facilities are constantly put to the test, i.e. aligned with the achievement of customer requirements and company goals. The next step is usually optimisation. Processes often need to be made more efficient and more networked, or orientated towards customer requirements. The same applies to machine capacities. In addition, financial resources are required to make the necessary investments in new machines and equipment. Stator production is the first production area in which both the focus on the corporate objective and customer requirements have been consistently realised. In this area, processes have been consistently digitalised and machines and plants have been automated where it makes sense and is economical to do so.



Everything is optimised down to batch size 1 - in addition, stator production is flexibly geared towards the production of a wide range of variants for servo or three-phase motors and material provision is based on the surgeon-nurse principle. The joining of the housings with robot support and a state-of-the-art impregnation system complete the production process.

OUR PHILOSOPHY: DRIVE TECHNOLOGY, INTEGRATED INTO AUTOMATION

With a view to the upcoming years, we will continue to implement new products and production processes. Our customers receive these directly from us, as we offer geared motors and drives from a single source, such as the S6 product family with servomotors from KEB Antriebstechnik. We will continue to be at your side as a system solution provider in the core areas of Control & Automation, Drives, Motors & Gears and Brakes & Clutches.

We come from drive technology – that is our strength.





THE COMPLETE RANGE OF SOLUTIONS FROM MACHINE OPERATION TO THE MOTION AXIS



MAKE YOUR AUTOMATION WORK

Our own standards for production, service, engineering and training are high. We score points with in-depth expertise, know-how and industry experience. Our customers receive high-quality drive and automation solutions from a single source, and this is precisely what makes KEB a suitable solution provider.

Today's KEB system is the result of continuous technical development and offers perfectly harmonised products, from software and drive controllers to motors, gear units, brakes and clutches. With high-quality components and systems, KEB products contribute to greater efficiency and performance. And, of course, we also use these products in our own production to keep pace with developments in the field of automation and digitalisation, true to the motto, Make Your Automation Work".

You too can rely on us and benefit from perfectly harmonised components.

We look forward to hearing from you. Let's shape the coming decades together.



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The Schneeberg site is located in the Erzgebirge in the direct neighbourhood of Zwickau and Chemnitz.

