



**75 YEARS OF
MOTION**

— 01 | 75 —

 **FAULHABER**

WE ARE FAULHABER

Foreword



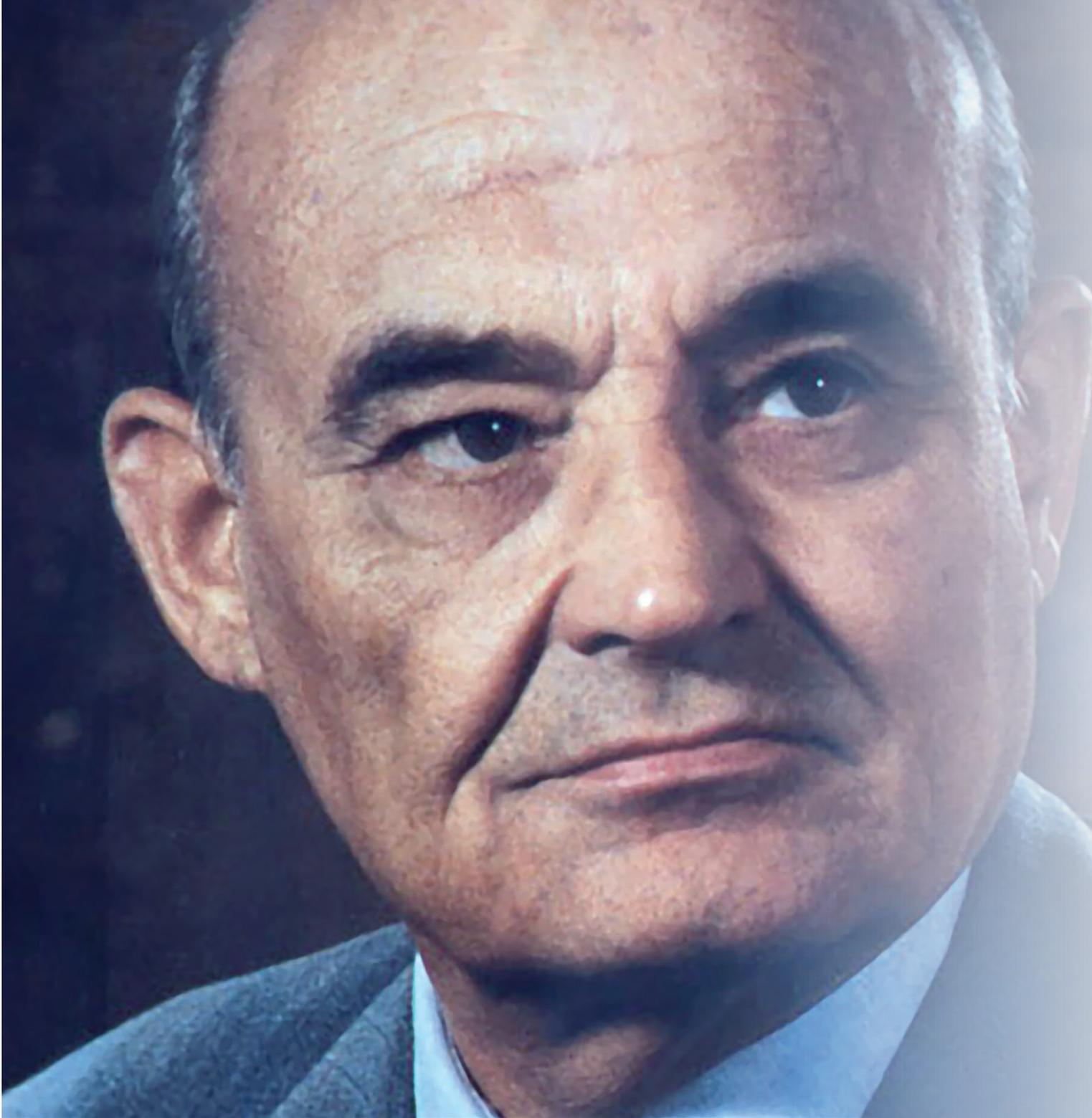
Dear colleagues, partners and family,

It brings me great pride and joy to celebrate 75 years of FAULHABER with you. The famous inventor Thomas Edison once said: "Genius is one percent inspiration and 99 percent perspiration." History is littered with great ideas – but if no one is there to bring them to life and make them a success, they remain just ideas.

Ever since it was founded by Dr. Fritz Faulhaber sen. in 1947 in post-war Germany, our company has not only overcome the challenges of its 75-year history, but also turned these challenges into success by learning from this history and keeping its gaze firmly on the future. Therefore, this year, when we look back on the past as a company, family and team, we should all take inspiration from the next great ideas that we can bring to life and that will help to shape our own future and that of subsequent generations.

As FAULHABER, we proudly look back on our company history, which is filled not only with ground-breaking inventions and innovations, but also – and especially – with the creative and can-do spirit of every individual member of our team that has made our company the success it is today. We can all truly say: WE ARE FAULHABER



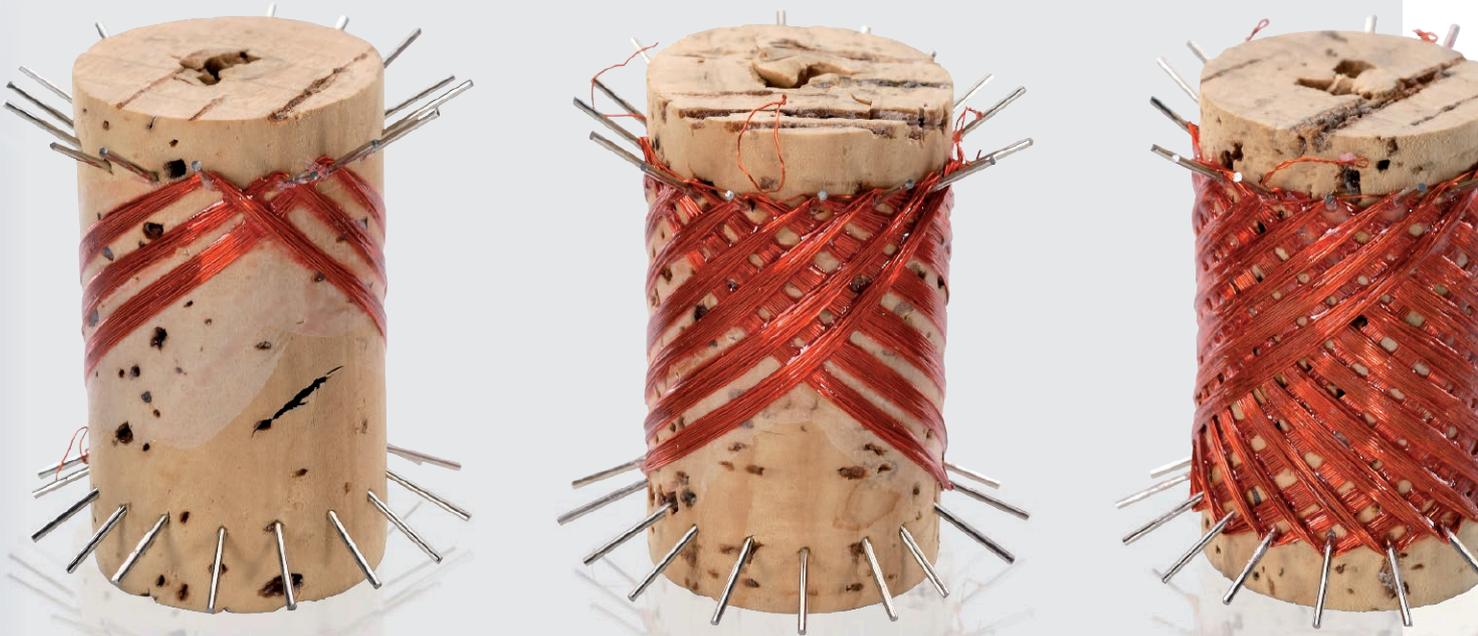


Inventor, founder, entrepreneur **Dr. Fritz Faulhaber sen.**

Born in 1912 in Chernivtsi, now part of Ukraine, Dr. Faulhaber grew up to be multi-talented, with scientific and inventor skills as well as an aptitude for practical work on the tooling machine and work bench. His aspiration to anticipate the requirements of the future earlier than others and develop corresponding solutions still drives the company today.



The idea: When developing an innovative camera for the renowned customer Voigtländer, Dr. Faulhaber played with the idea of using an electric motor to advance the film – but this proved impossible with the technology available at the time. However, the idea stuck with him. He decided to find a solution himself.



The problem: Most DC electric motors have a winding around a T-shaped iron core. The disadvantage of this design is that a cogging torque disrupts the concentricity and, due to the mass, the motor reaches its final speed slowly and is inefficient, therefore also consuming a lot of power. To Dr. Faulhaber, one thing was clear: The iron core had to go. He wanted to produce a self-supporting basket winding or bell-type armature winding, without the disruptive winding overhang and/or space-consuming coil support that were common at the time. In 1958, he had a breakthrough and submitted the patent application for an “electric motor with an ironless coil with self-supporting skew winding.” The patent was granted in 1965.

- 01 | 75 - '47



On June 5th, 1947, the US Secretary of State, George C. Marshall, presented the European Recovery Program. The program was intended to help to stabilize post-war Europe economically and politically and was recorded in the history books as the "Marshall Plan." During the deliberations, the deciding factor was the extraordinarily harsh "Hunger Winter" in Germany in 1946/47, which resulted in a high number of deaths.

The **start**
of a long
journey



On July 21st, 1969, after a five-day-long flight, the commander of the Apollo 11 mission, Neil Armstrong, became the first human to set foot on the moon, with the words **"That's one small step for man, one giant leap for mankind."** The recording shows his pilot, Buzz Aldrin, who was the second human to walk on the moon.

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69

- 01 | 75 -

'47

At a time when Germany – still marked by the consequences of the devastating war – was taking its first tentative steps toward rebuilding its economy, a young engineer was taking the leap into self-employment and founding the company “Dr. Fritz Faulhaber Feinmechanische Werkstätten GmbH” (Dr. Fritz Faulhaber Precision Mechanical Workshops GmbH) in Murrhardt, between Stuttgart and Schwäbisch Hall. It manufactured electrical devices and security locks.



#foundation #cameras
#sales #growth



- 06 | 75 -

'53

The innovative VITESSA camera model that Dr. Faulhaber helped to develop for Voigtlander came onto the market. Its extra-long mechanical advance rod with plunge-wind function for advancing the film was his invention and enabled a rapid sequence of images because the shutter was cocked and the film advanced simultaneously. However, Dr. Faulhaber was already thinking about the next step and wanted to replace the advance rod with a small gearmotor designed by him.



- 09 | 75 -
'56

In May 1956, Dr. Faulhaber sold the workshops to the company Ferdinand Wagner (Pforzheim) for the time being. He was used to making a note of his ideas on the back of calendar pages, packing paper and old cardboard boxes due to the initial shortage of resources and wanted to dedicate his efforts to new precision technical inventions. Later, the business was continued by Dr. Faulhaber and his first employees in one remaining room.

The female employees who worked in production from this time onward had particularly strong fine motor skills that were very helpful for carrying out the delicate work processes.

- 09 | 75 -
'56

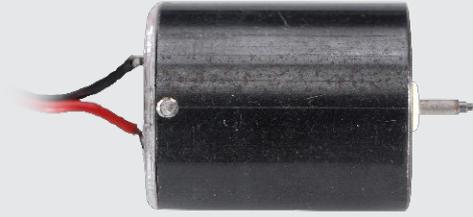
In September 1956, an assistant was hired: Karl Bessey, who had already trained as an apprentice precision mechanic in the Feinmechanische Werkstätten from 1950. He initially worked for the business in Vogelsang in Schönaich, where he collaborated with Dr. Faulhaber and an engineer from Voigtländer to further develop cameras – and micromotors.



- 10 | 75 -

57

In mid-1957, series production of microdrives with diameters of 15 and 20 mm began.



- 11 | 75 -

58

In 1958, Dr. Faulhaber developed an electric motor with an ironless coil with self-supporting skew winding, the patent for which was granted in 1965. It would become known around the world as the "FAULHABER winding" and is considered a milestone in the history of precision mechanics and as a quality seal for a unique drive technology – to this day.



- 13 | 75 -

'60

In 1960, the company relocated to a hut near Dr. Faulhaber's residence on Johann-Sebastian-Bach-Weg in Schönaich. Problems with a lack of space were continually overcome with improvised solutions.



-13 | 75 - '60

The advantages of the new motor technology were quickly recognized. At that time, batteries offered little capacity, so drives with high efficiency, low energy consumption, high dynamics and a low weight were in high demand. The first big series customers included Graupner; the company required motors for steering gears and propeller drives for model airplanes.



#seriesproduction #usa
#innovation #relocation
#bigcustomers

-14 | 75 - '61

With MicroMo Electronics Inc. in Shaker Heights, Ohio, the first sales subsidiary was founded in the USA in 1961. From there, drives were then sold primarily in the medical and aerospace (NASA) sectors.



- 15 | 75 - '62



In 1962, global exports from Germany were still being hampered by embargo regulations – one of the reasons why Dr. Faulhaber and the Swiss investor Hans Stüssi founded the company Minimotor SA in Agno am Luganer See in the Swiss canton of Ticino that year. From Switzerland, international sales could be processed smoothly. Moreover, FAULHABER gearhead production was to be consolidated at the new location. And after all, the proximity to the Swiss watchmaking industry and to gearing companies promised success.



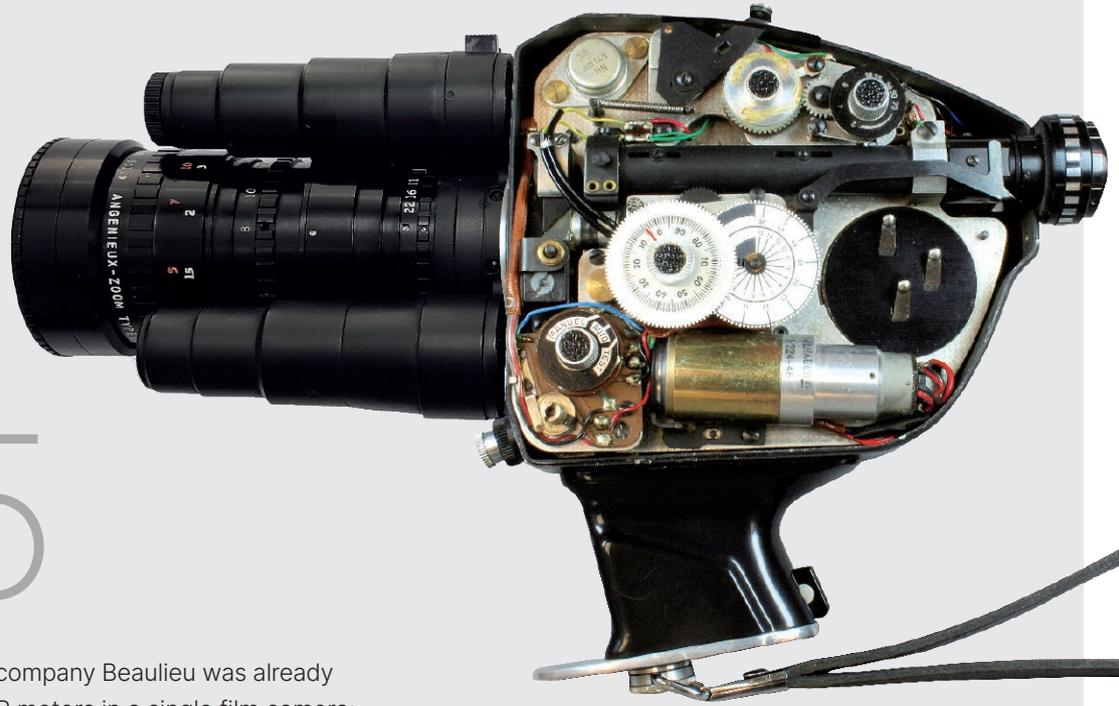
- 16 | 75 - '63

One especially significant customer from the early years was Grundig: In mid-1963, FAULHABER began producing motors for GRUNDIG's STENORETTE pocket dictating machine, which was initially equipped with an electromechanical centrifugal governor. In the second quarter of 1964, 600 motors were being manufactured and sold each week; by the following year, this figure had already risen to 1,000 – without the special features of the FAULHABER motors, pocket dictating machines would not have been conceivable at that time.

#swissmade #recordsales
#dictatingmachines
#film #faulhaberblue

- 18 | 75 -
'65

From 1965, the French company Beaulieu was already using three FAULHABER motors in a single film camera: For the zoom, autofocus and film advance. Very quickly, high quantities were produced for these applications.



Side note



FAULHABER blue: Initially, the motors were supplied with a "black oxide coating" or with "nickel plating." The quality of one was insufficient, the cost of the other too high. Based on these criteria, the technical coating method of "zinc plating and passivating," otherwise used for building hardware and similar products, was advisable: yellow, iridescent, visually far from appealing – but the best that there was. However, in terms of esthetics, Dr. Faulhaber was not satisfied with this solution. As a compromise, all flange parts were given an eye-catching blue covering: "FAULHABER blue" was born. Previously, flange parts had been left untreated; later, they were covered in industrial black, like all motors.

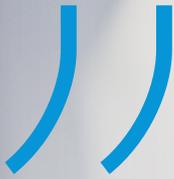
- 22 | 75 -
'69

With the sale of 310,000 motors, the sales figures had increased tenfold since 1960.



Looking back

Karl Bessey (managing partner): Mr. Bessey was one of the first people to be employed by FAULHABER and was a long-term associate and trusted partner of the founder, Dr. Fritz Faulhaber sen. He has been guiding the company for 72 years and has experienced every phase – foundation, growth, expansion and globalization.



I began my training to be a precision mechanic at FAULHABER (which was still Dr. Fritz Faulhaber Feinmechanische Werkstätten at the time) in 1950 as the result of an acquaintance's recommendation.

When Dr. Faulhaber worked for the company Voigtländer, I became his assistant.

In the subsequent period, we developed tools and machines for micromotors as well as the micromotors themselves. In 1957, I became plant manager. The working conditions were – to put it mildly – unconventional: Parts of the company were housed in the residence of Dr. Faulhaber, where we also received customers.

Dr. Faulhaber encouraged my professional development, but on top of this, we also had a good personal relationship. For example, we went skiing together and after he moved, I visited him regularly for meetings in Switzerland. I will end with a brief anecdote that I remember well: Once, Dr. Faulhaber called me from the USA. There were problems with IBM in Lexington. He asked me to get straight on a plane and come to him as quickly as possible. Naturally, I set off, and I made numerous stopovers at various airports before actually arriving at my destination – which was no small feat as, at that time, I still didn't speak a word of English.



- 23 | 75 - '70

After just ten years, the Beatles broke up, having been the most successful band in music history, based on the number of records sold. Increasingly frequent quarrels following the tragic death of their producer Brian Epstein led to the singer and bassist **Paul McCartney** announcing on April 10th, 1970, that he was leaving the band. **He, John Lennon, George Harrison and Ringo Starr** began solo careers.



Progress **needs** change

The reform policies of the President of the Soviet Union Mikhail Gorbachev fueled the hope for freedom among people in East Germany. The mass exodus of East German citizens to the West, a new opposition movement and the Monday demonstrations put pressure on the East German government. On November 9th, 1989, the Berlin Wall finally fell as part of a peaceful revolution.



- 42 | 75 - ' 89

- 23 | 75 -
'70

In 1970, electronics found their way into the drive technology of FAULHABER. The first optical encoders and pulse-width-modulated controllers were developed, enabling electronic regulation of the speed of the drives and also making it possible to position the drives for the first time.



#printing #encoder
#coppergraphite
#custommade

- 26 | 75 -
'73

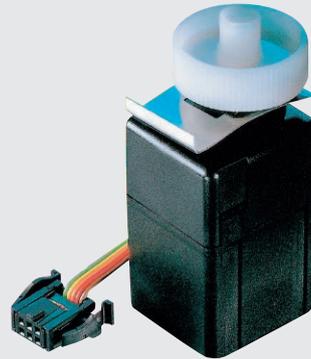


This was the year when FAULHABER brought the first motor with copper-graphite commutation onto the market. It was primarily used in television cameras and video-tape-recorder devices. Philips and CompuData, who used the motor in electronic-data-processing printers, were also among the first customers. The new motor had a long service life, even with a high power output and extreme loads.

Side note



Custom made: In the mid-1970s, the first customer-specific drives – motors designed to be used solely by one customer – were developed and manufactured. Even now, the customer-specific miniaturization of complex electronic and mechanical systems holds enormous innovation potential for numerous industries.



- 27 | 75 -
'74

In 1974, FAULHABER developed the color zone motor for the company Heidelberg Druckmaschinen. Initially with a standard solution and later with a special drive unit with integrated potentiometer feedback gear-head, one of the most successful customer developments was created. It enabled the automation of color zone adjustment, which had previously been performed manually.



- 29 | 75 -

'76

In 1976, revenue reached 8.6 million DM with 551,000 motors sold, the unit price of the motors having risen to 16 DM. In the meantime, the number of employees had reached the 100-person mark – but this was just a waypoint as the market was demanding more and more motors.

#boom #magnets #succession #repurchase



- 30 | 75 -

'77

For a significant increase in performance while using minimal space, in 1977, the SmCo magnet material from rare-earth elements was used for the first time instead of the AlNiCo magnets that had been common up until then. At the same time, the production of coils for an extremely slim winder drive that could be integrated in YASHICA cameras emerged as a great challenge – the solution was ultimately the development of the flyer-winding method. This was a truly ground-breaking invention at the time.

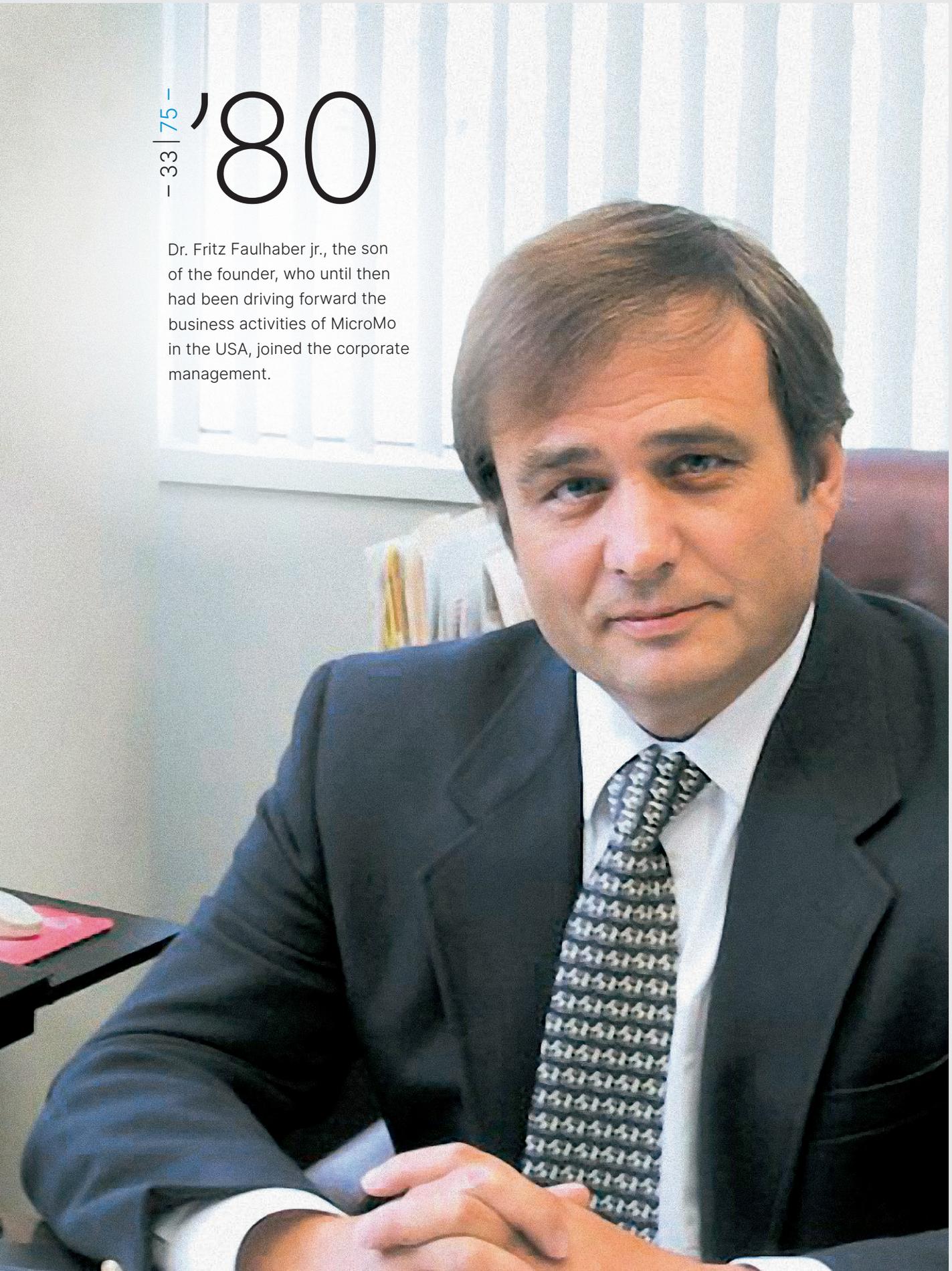
- 36 | 75 -

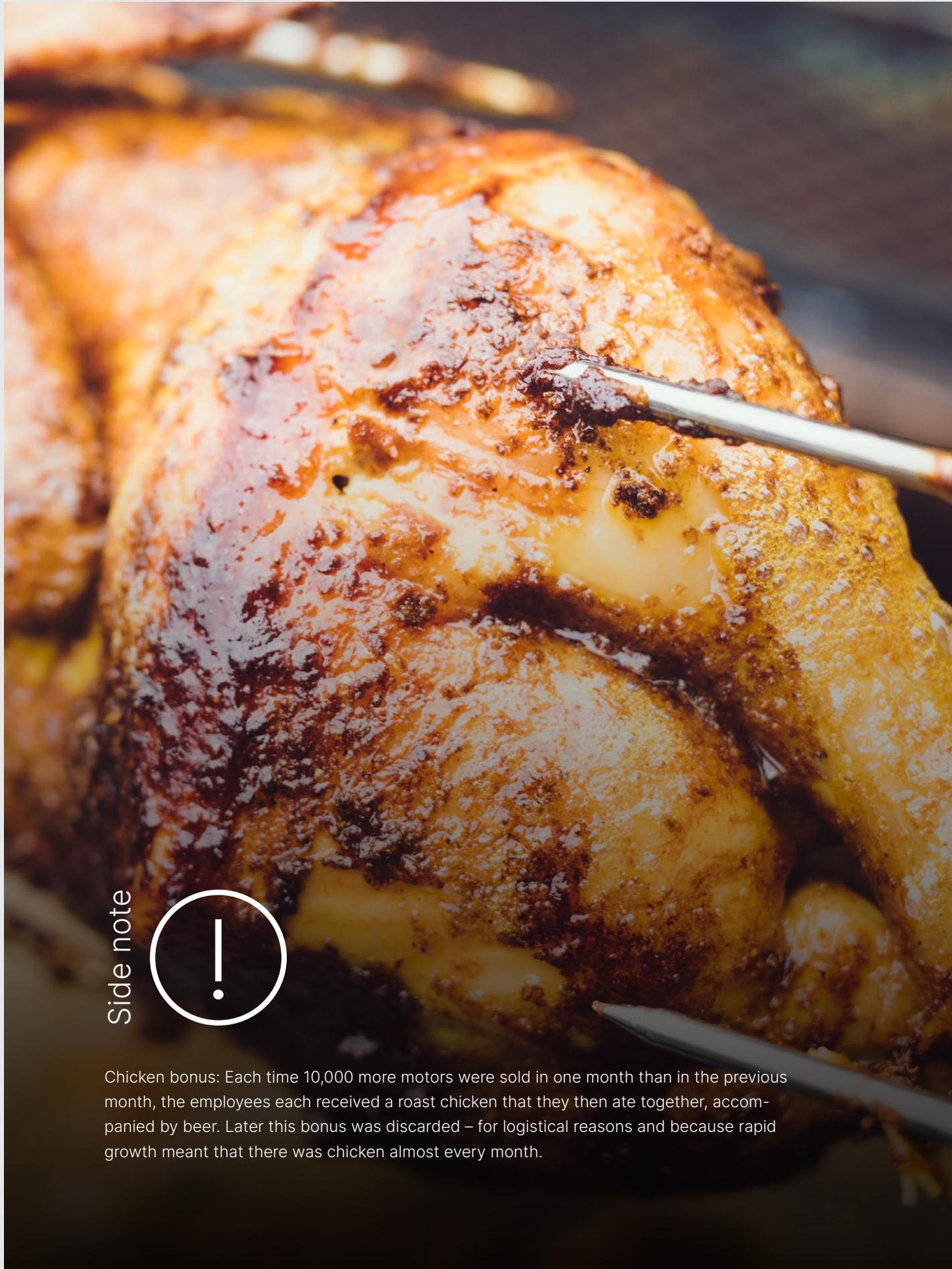
'83

In 1983, some operational units in Schönaich were turned into a spin-off company named Feinwerktechnik GmbH, or FWT for short. For this purpose, the old premises in Mozartstraße were bought back, including the building constructed in Vogelsang by Dr. Faulhaber in 1947. The “new” location became home to the construction and winding department as well as gearhead manufacturing and cutting-edge toolmaking. Since Minimotor in Switzerland could not produce certain gearhead types due to there being too many differences in the standards to be complied with compared to the standard product line, FWT was working on its own gearhead-manufacturing program in parallel.

- 33 | 75 -
'80

Dr. Fritz Faulhaber jr., the son of the founder, who until then had been driving forward the business activities of MicroMo in the USA, joined the corporate management.





Side note

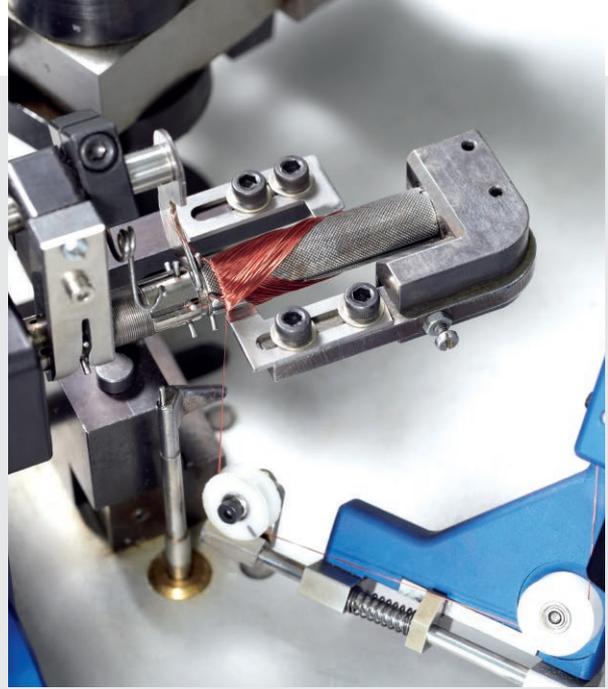


Chicken bonus: Each time 10,000 more motors were sold in one month than in the previous month, the employees each received a roast chicken that they then ate together, accompanied by beer. Later this bonus was discarded – for logistical reasons and because rapid growth meant that there was chicken almost every month.

Side note



In the 1980s, automation in production increased; assembly line manufacturing was used for some products. More and more new production facilities were required. As the company could not buy machines for the skew winding that it had patented itself – and nor did it want to – it developed its own flyer- and linear-winding machines in large numbers and built all controllers in-house too. The plastic injection technology was improved by purchasing cutting-edge Arburg machines. At this time, the first brushless DC-servomotors were also developed.



- 38 | 75 -
'85

IT – then still called electronic data processing – found its way into the production planning system. The new setup revolutionized the way in which the company was organized: card index boxes disappeared and screens took over the desks; everyone had to change their approach and learn how to use a mouse and keyboard.

#chickenbonus
#rationalization
#IT #2000000

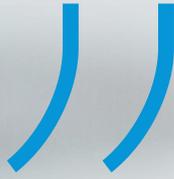
- 42 | 75 -
'89

At this point, the company employed 220 people and sales exceeded the two-million mark for the first time. Large volumes were being sold to customers in the security sector, for example RACAL, 3M, Dalton and Sensormatic, for applications such as helmet ventilation, respirators and surveillance cameras.



Looking back

Hubert Renner (managing director): Mr. Renner joined FAULHABER in 1983 as a toolmaker and helped to shape numerous processes, but also many employees, as he rose through the ranks to the top of the company.



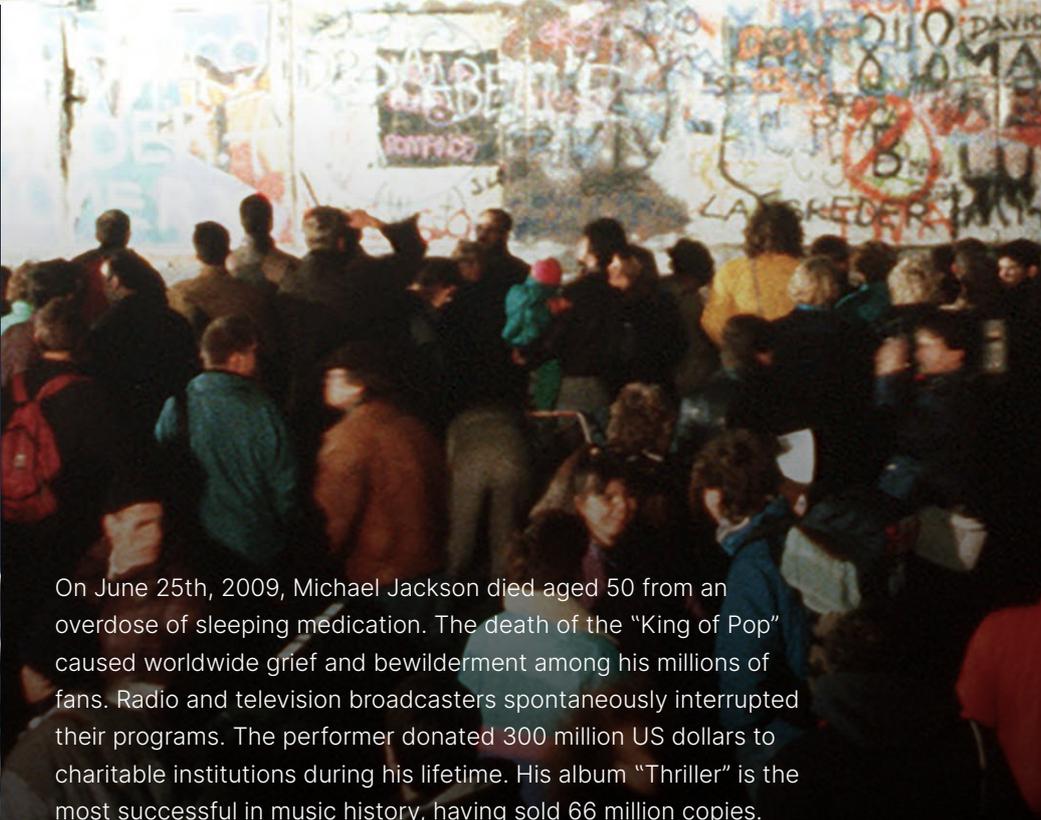
I joined FAULHABER in 1983 as a toolmaker. We had just bought a house and, since FAULHABER was offering 1 DM more per hour, I accepted. The start wasn't particularly promising: On my first workday it was raining and I found that my workstation in the workshop was wet – I immediately learned the meaning of the company's nickname "Vereinigte Hüttenwerke" (a play on words: The full phrase means "Integrated Iron and Steel Works," but "Hütte" also means "hovel" in German). My first task wasn't in the job description either: Getting up on the roof and plugging the leaks.

Things got better after that. Just one year later I was made deputy manager of final assembly. Over the course of my career, I have had many interesting roles where I have been able to contribute to the success of the company in a position of responsibility. An important event in my career was when the former managing director, Mr. Willi Rebmann, handed over the new time management department and the overhaul of the workstations to me. This resulted in new ideas on modern assembly methods and automation, whose implementation I was heavily involved in (DEMO, WESI, KOMA, FAME, AMOR, MOND, INKA ...)

In my opinion, the most important achievement is that we combined the various companies as FAULHABER Drive Systems under the leadership of Dr. Fritz Faulhaber, Mr. Frech-Walter and Dr. Bertolini: one company – one ownership – one strategy. As a result, we are now able to utilize the company's full potential.



- 43 | 75 -
, 90



On June 25th, 2009, Michael Jackson died aged 50 from an overdose of sleeping medication. The death of the "King of Pop" caused worldwide grief and bewilderment among his millions of fans. Radio and television broadcasters spontaneously interrupted their programs. The performer donated 300 million US dollars to charitable institutions during his lifetime. His album "Thriller" is the most successful in music history, having sold 66 million copies.



Success stories are a **team effort**

For over 40 years, between 1949 and 1989/90, Germany was divided into two states: The democratic Federal Republic of Germany in the West and the communist dictatorship of the German Democratic Republic in the East. Far-reaching political reforms in the Soviet Union and its satellite states led to a peaceful revolution by the courageous citizens of East Germany and, after the fall of the Berlin Wall, to the reunification of the two German states on October 3rd, 1990.

- 62 | 75 - '09

- 43 | 75 -
'90

Due to the company's growth, the FAULHABER factory premises had finally reached its limits in terms of capacity. The managing partners decided to plan a brand-new building, which opened in 1990 – over the following year, the company moved into its newly constructed premises on the site of today's headquarters at Daimlerstraße 23 in the industrial park in Schönaich.



#newbuilding #slump
#subcontracting
#automation

- 46 | 75 -
'93

Once the two-million mark had been achieved, the quantities suddenly dropped significantly and in 1993 reached a low of just 1.4 million. After a lot of hesitation, in order to avoid letting anyone go, the decision was made to reduce working hours. Nevertheless, the company showed courage, optimism and entrepreneurial vision and invested in automation.



- 50 | 75 - '97

Despite significant automation, coil production at the location in Schönaich still required a lot of manual work: The application of epoxy with a brush and the assembly of gearheads were difficult to automate but contributed considerably to the final price. To counteract the growing cost pressure, FWT founded a contract processing company in Albertirsa, Hungary, not far from the Ferihegy International Airport. In autumn 1997, the company, Ikertechnika Kft., commenced operations with seven employees.

Side note



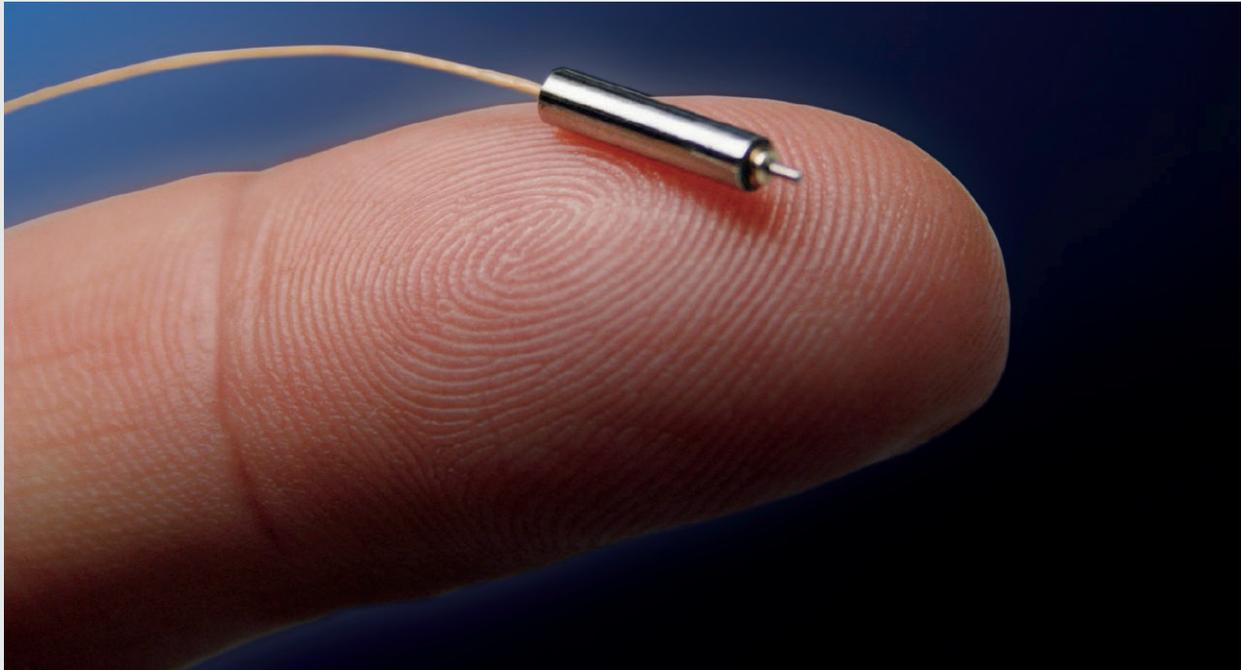
Under the management of Hubert Renner, a brand-new, highly organized concept was created for cutting-edge, partially automated production, while a CAD-supported development department was also set up. A modern machine could cope with eight million units per year, delivery times that were nowhere near reasonable with manual production. By then, delivery times were crucial because customers were demanding shorter delivery periods for smaller quantities – and the same prices. In the 1980s, a delivery time of 25 weeks was entirely normal for 1,000 units, but now it was to be less than four weeks for just 50 units – at prices appropriate for orders of 10,000s: Flexibility was becoming ever more important.

Logistically, the requirements could only be met with a modern SAP system, particularly as the stock stored in-house was to be kept to a minimum – as were the storage costs. It was not possible to achieve all these goals. A lot of thought was put into whether and how the warehouse should also be automated; this was especially relevant considering the numerous order-picking errors, some of which had serious consequences, caused by parts that looked similar: Mix-ups were an all-too-human mistake in this case.

The masterstroke was to gradually introduce an additional machine every two years, thereby ensuring the quality desired by the customer and avoiding the impact of human errors as much as possible.



FAULHABER presented the smallest brushless micromotor in the world with a diameter of just 1.9 mm. This engineering achievement in miniaturization spurred on medical progress. Just one year later, an equally tiny motor was used in an intracardiac blood pump.



Side note



At the start of this decade too, innovation was the dominant theme at FAULHABER. It remained the company's explicit goal to create innovative products that were ahead of their time by precisely the right amount so that customers would trust them and understand the added value that they represented. A quote from Dr. Fritz Faulhaber jr. sums up this approach: "It is our philosophy to always be technologically ahead by a nose length – but the nose shouldn't be a meter long." In line with this maxim, FAULHABER planned its next big step toward globalization.

The company's decades of experience of customer-specific developments paid off because many solutions automatically became part of the standard product line once they were being produced in large quantities. As the complexity and diversity of these products increased, FAULHABER started thinking in terms of product platforms. For this purpose, stringent project management, supported by a powerful CAD and product-data-management system, was introduced.

The company's development work increased dramatically, while the company also distinguished itself as a leading development partner for highly complex applications, from medical technology to aerospace. The range spans from customer specifications, for which entirely new drive solutions must be devised, to complete assemblies that go beyond the drive itself which, in special cases, must not only be developed for customers but also produced by FAULHABER.

- 54 | 75 -
'01

FAULHABER developed a customer-specific drive module for an innovative blood glucose meter and produced the entire assembly.



#worldrecord #cad
#assemblies #expansion

- 56 | 75 -
'03



The microsystems business division of Myonic AG is adopted into the FAULHABER Group as "MPS Micro Precision Systems AG" (Switzerland). MPS forms the framework for a group of companies with a total of 400 dedicated and highly qualified employees at the time of the takeover. These employees develop and produce micromechanical solutions for demanding markets: The watchmaking industry, automation, medical and orthopedic instruments and the defense industry. For this, the company draws on its 80 years of experience in the areas of miniature bearings and ball screws, high-tech production and assembly, as well as its long-term partnerships with customers and suppliers.



- 59 | 75 -
'06

The production capacities in Hungarian Albertirsa were exceeded by far. In addition, for some manufacturing steps, the production carried out there was already too expensive, for example parts recycling. Planning for a new building and the search for another location in neighboring Romania began. The new building was fully air conditioned in line with the most modern standards and designed for clean room conditions because the entire production of micromotors (penny motor, 3- and 5-mm SMOOVY® motor, etc.) was to take place there. In 2006 the building expansion in Albertirsa was opened – followed by the new location, FAULHABER Motors Romania S.R.L. in Jimbolia, Romania, the next day.

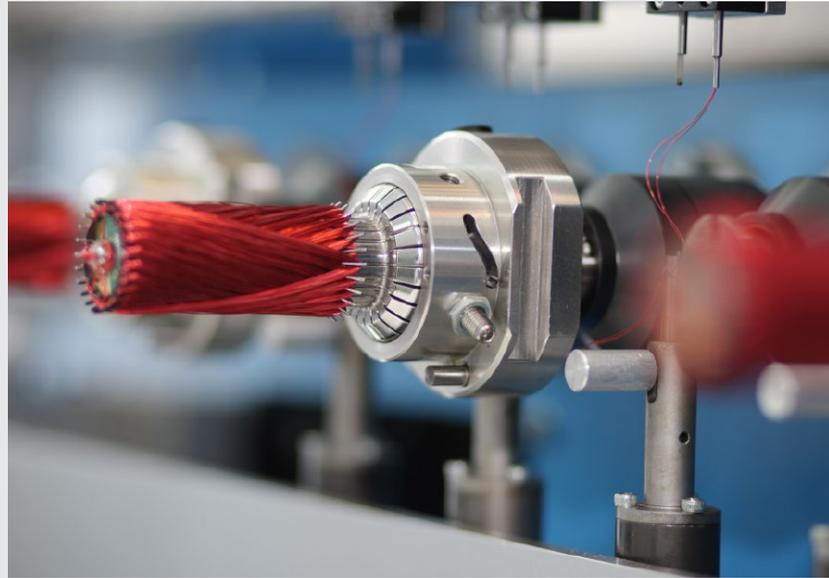
- 60 | 75 -
'07

FAULHABER celebrated its 60th anniversary and opened the third construction phase in Schönaich. In Northern Europe, FAULHABER began a collaboration with PIEZOMOTOR. The Swedish company is a world leading developer and manufacturer of sophisticated micromotors based on piezoelectric materials.



- 61 | 75 - '08

State-of-the-art coil winding machines, such as the LION, take over coil production for the BX4 series.



#romania #60years
#expansion #awards



- 62 | 75 - '09

The company received the TOP 100 Innovation Award for the first time – three further awards followed by 2020.



Looking back

Nicole Blumenhagen (production supervisor): Ms. Blumenhagen has been working at FAULHABER since 2000 and has successfully and with great dedication taken on many new tasks during this time. Now, she is delighted to be able to pass on her valuable knowledge and her experience to colleagues at FAULHABER Drive Systems.



I actually joined FAULHABER by chance – I was literally just driving by.

From the car, my passenger pointed to the company building and said that I could work there. I then applied blindly and was actually hired to work in production. To start with, I worked in winding – that means coil production.

A few promotions later, I became production supervisor.

A helpful mentor during my career was our wonderful shift supervisor, Mr. Alfred Bauer, who always was on hand to patiently provide me with advice and support.

One of the first highlights for me personally was the relocation of flat motor production to Hungary because I was allowed to go there to train our local colleagues. The period after 2009 was very emotional for me too because unfortunately FAULHABER had to let some people go for the first time due to the lack of orders. But things improved again after that. I have experienced every phase of automation and production modernization that has ensured that we are still competitive today. On the whole, I can say that I have grown professionally and as a person during this time. I have learned to work with all kinds of people, to organize myself efficiently and to take responsibility for my team – my “girls” – and I have made many friends.



- 63 | 75 -

10



With the song "**Satellite**," **Lena Meyer-Landrut** won the Eurovision Song Contest on May 29th. After a dry spell of 28 years in this competition, the singer discovered by Stefan Raab won the title for Germany **with 246 points**, beating the acts from Turkey and Romania.

Drawing on **tradition**, yet ready for the future

In June of this year, Elizabeth II, Queen of the United Kingdom, celebrated her 96th birthday, but also her 70th jubilee. This made her the longest reigning monarch in British history. The occasion was celebrated with a four-day program and an extra public holiday for "her subjects."



-75|75- '22

Side note



From the Four Asian Tigers to the empire of the dragon. At the start of the new decade, FAULHABER wasn't the only company wondering how to respond to the breathtakingly fast development of the Asian markets. The potential seemed immense. However, the Asian market has its own laws. It quickly became clear that European business practices were not suitable here. To be successful in this market, businesses needed to be able to adapt and had to be open to the market and the culture. In addition, important European customers had already built production locations in China and it made perfect sense for FAULHABER to provide local support. But the company also had its eye on potential Asian customers. The Chinese excel at producing millions of units of a standardized series. However, they rarely want to produce small series of diverse and highly specific products. This market segment – customer-specific special solutions in smaller quantities, rather than standard products – is where FAULHABER saw its opportunity to enter the Asian market. Based on these considerations, the company management decided to found a subsidiary of the company and establish a local, nationwide sales structure to offer local customers the capacities and expertise for tailor-made special solutions.

#asia #china
#comet

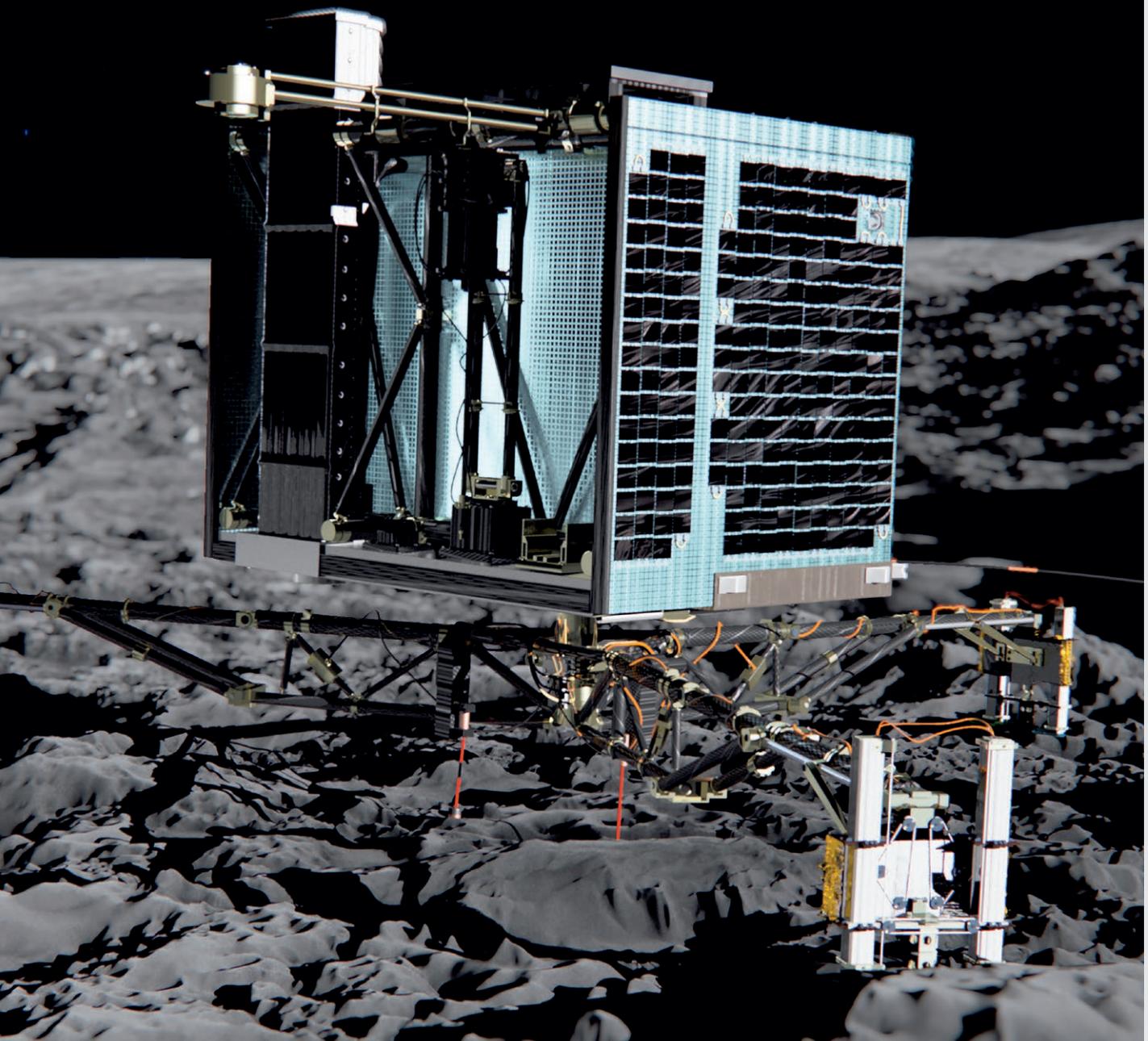


- 63 | 75 -
'10

FAULHABER Drive System Technology (Taicang) Co., Ltd. was founded in China. The new location was opened with a ceremony involving representatives of the local authorities and the Minister of Economic Affairs for the federal state of Baden-Württemberg. At the same time, FAULHABER presented its products at the EXPO in Shanghai.

- 67 | 75 -
'14

At the end of May 2014, the space probe Rosetta turned onto a flight path toward the comet 67P/Churyumov-Gerasimenko to approach the comet and then map it in August, thereby preparing for the landing of Philae. On November 12th, after an eventful journey of over 10 years, the 100-kg ballistic lander touched down on the comet – with FAULHABER motors on board.



— 68 | 75 —

'15

With help from FAULHABER, the British company Steeper brought the innovative myoelectric hand prosthesis bebionic onto the market. A DC-micromotor of series 1024 SR that was predestined for this application was still in the development phase when Steeper turned to FAULHABER with this project in 2013. Through close cooperation, project teams from both companies were able to drive forward the development of the motor series and hand prosthesis simultaneously and bring the project to a successful conclusion. Every finger and the thumb are moved by one of these drives.



#newmarkets #climateprotection #newcustomers



- 69 | 75 -
'16

When the flat roof of one of the buildings in Schön-aich was due for renovation, FAULHABER decided to contribute to climate protection and have a photovoltaic system installed on the new roof. The 576 individual modules on a surface of 928 square meters – the equivalent of roughly 3.5 tennis courts – supply up to 147,339 kilowatt hours of solar energy per year. All this energy is to be used by the company itself. This measure contributes at least 4.3 percent of the company's overall power consumption and saves 88 tonnes of CO₂ each year.

Side note



At the start of the new decade, FAULHABER was following a more dynamic strategy for entering new markets. New market opportunities were to be identified earlier, target industries defined and new products specially developed to meet the requirements of each industry. FAULHABER now has a particularly strong presence in medical technology: Drives are used in everything, from laboratory automation with analysis devices, surgery with operating room robots and intracardiac pumps to new technologies in implantology and prosthetics. In addition to medical technology, aerospace and automation technology are important markets that benefit from solutions developed by FAULHABER to meet the market's specific needs. Passengers' expectations regarding comfort and usability on board airplanes are continuously rising. Operating functions that were previously performed manually are rapidly becoming automated. Therefore, the aerospace industry is looking for lightweight, energy-saving and yet powerful drives. This is where FAULHABER comes in. Even on the ground, supposedly small market niches offer potential: For example, the tattoo scene is experiencing a real boom. Lightweight, ergonomic tattoo machines that enable long, fatigue-free operation are in particularly high demand.

-70|75-
17

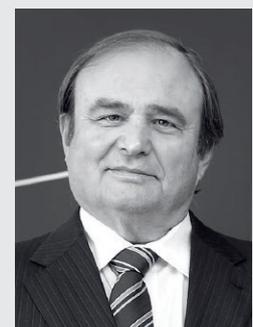
At the 2017 Hannover Messe, German Chancellor Dr. Angela Merkel visited the FAULHABER stand during her traditional opening tour. Gert Frech-Walter, member of the FAULHABER GROUP management team and managing director of FAULHABER Germany, and Karl Faulhaber, managing director of FAULHABER Switzerland and managing partner, presented selected product highlights and application examples to the German Chancellor, who was accompanied by the Prime Minister of partner country Poland, Beata Szydło. Dr. Merkel was particularly fascinated by the filigree micro drive with an outer diameter of 1.9 mm as the technological cornerstone for minimally invasive heart pumps.



Side note



On February 6th, 2017, Dr. Fritz Faulhaber jr. passed away at the age of 68. For the FAULHABER Group, his death represented not only the loss of a great and visionary company figure, but also a passionate engineer whose urge to invent was just as strong as his father's. It is thanks to him that all the companies that form the legacy of his father, Dr. Fritz Faulhaber sen., were brought together, thereby setting the course for the future. His spirit lives on in the Suncoast Science Center in Clearwater, Florida – his foundation into which he poured his heart and soul so that young talented engineers can put into practice and produce their ideas and dreams.



#politics #mourning #celebration

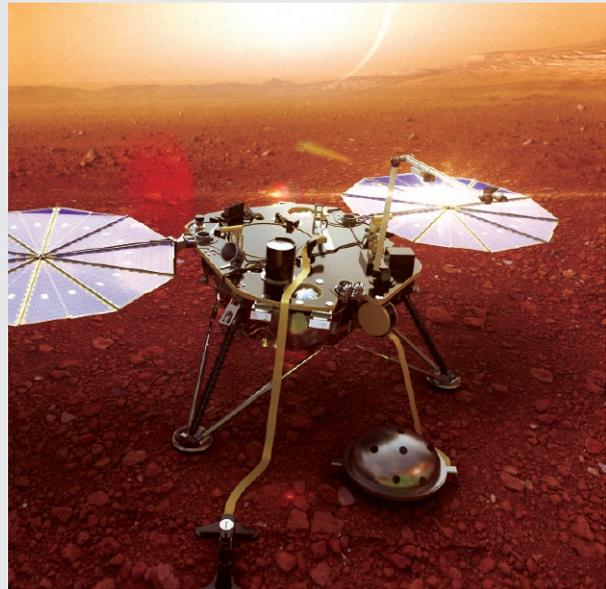
- 71 | 75 - '18

In the "Factory of the Year" competition, FAULHABER claimed the top prize in the "Outstanding small-batch production" category. The jury was convinced above all by the continuous quest to improve processes, the strong automation and the synchronisation across all production locations.



- 71 | 75 -
18

Is there seismic activity on Mars? InSight (**In**-terior Exploration using **Seismic Investigations, Geodesy and Heat Transport**) is a Mars mission in NASA's Discovery Program. On board: The SEIS – Seismic Experiment for Interior Structure. At the end of November 2018, the probe landed on Mars and the most sensitive seismometer ever made set to work using six FAULHABER stepper motors with planetary gearheads.



#marsmission
#sustainability
#wheelchairraces
#leadershipchange

Side note



In 2020, FAULHABER became one of the first production companies in Germany to achieve CO₂ neutrality – this now applies to all production sites. Not only are the CO₂ emissions generated during production offset through the company's participation in climate protection projects, but also emissions that arise during business trips by car, plane or other means of transport. FAULHABER is committed to the continuous improvement of its environmental impact. Therefore, as early as 2015, the company employed CO₂-neutral logistics for the shipment of goods. Through the implementation of various measures, such as solar roofs at various production sites, we have been able to achieve a 12% increase in the proportion of the electricity requirement covered by our own, regenerative sources. It is our declared goal to continuously improve this share.





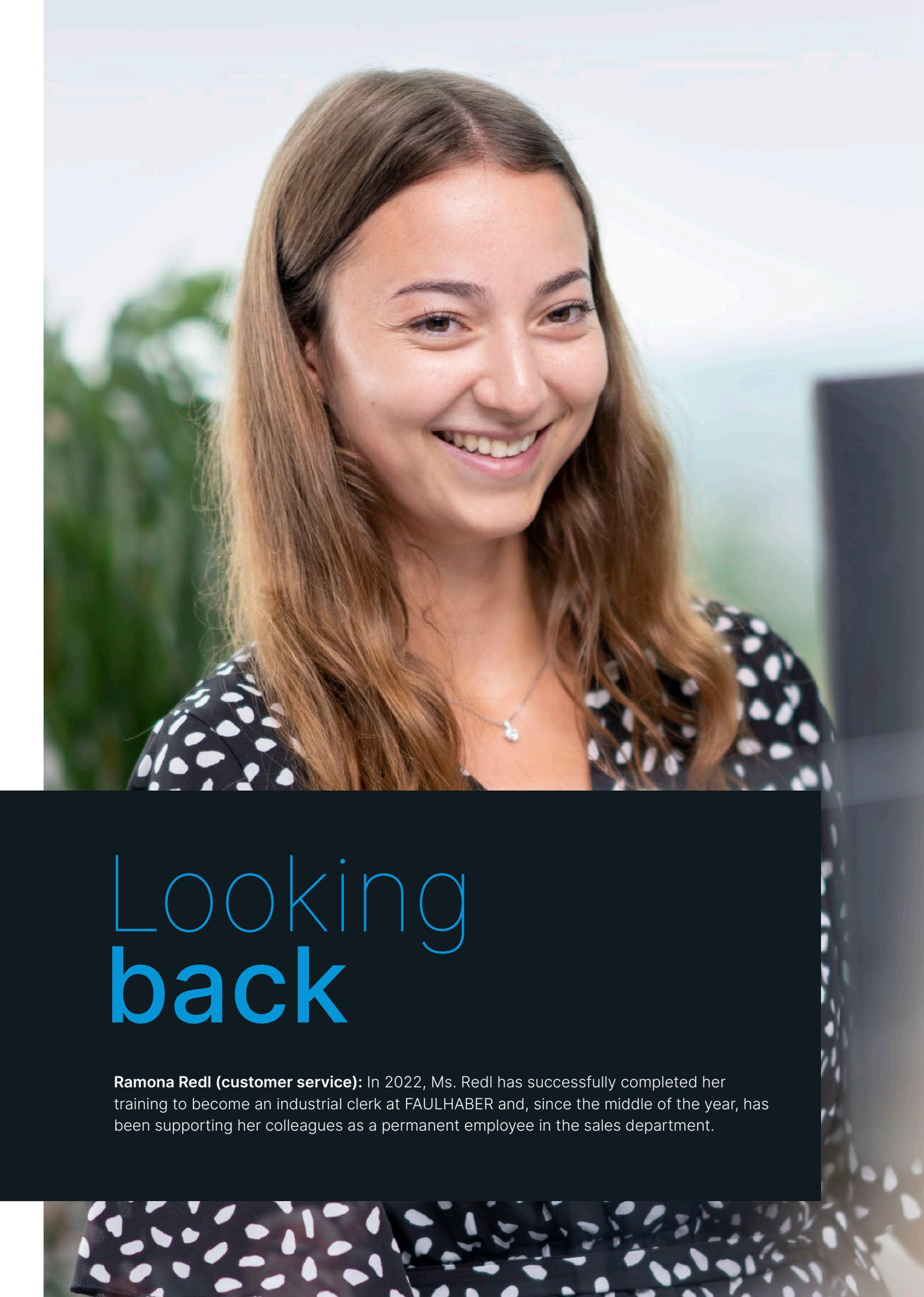
- 73 | 75 - '20

Like the Olympic Games, the Cybathlon competition is held every four years. The athletes participate in six different disciplines. In the "Wheelchair Race" category, pilots with a severe walking disability complete a defined obstacle course in a motorized wheelchair. Having already won two first place trophies, this is the main discipline for the HSR Enhanced team of the University of Applied Sciences Rapperswil and its sponsor and drive partner FAULHABER.

- 75 | 75 - '22

In January 2022, due to retirement, the previous managing directors, Dr. Thomas Bertolini and Gert Frech-Walter, handed over the reins to the new five-person management team around Karl Faulhaber. During their time at the company, the two men succeeded in realizing their vision of synchronous production across all locations, as well the integration of the international subsidiaries into the FAULHABER Group. The new leadership team comprises Karl Faulhaber (Sales, Marketing), Hubert Renner (Order Management), Markus Dietz (Finance, Controlling), Lutz Braun (HR, Legal) and Dr. Udo Haberland (R&D, Innovation) and, in the anniversary year, has received from their predecessors a leading company that has received many awards in its field.



A portrait of a young woman with long, wavy brown hair, smiling warmly. She is wearing a black top with white polka dots and a simple necklace with a small pendant. The background is a bright, out-of-focus indoor setting with greenery.

Looking back

Ramona Redl (customer service): In 2022, Ms. Redl has successfully completed her training to become an industrial clerk at FAULHABER and, since the middle of the year, has been supporting her colleagues as a permanent employee in the sales department.



After hearing only positive things about FAULHABER from my acquaintances, I applied online via the homepage – as you can see, it worked.

This year, I took the exam to become an industrial clerk. Prior to this, I gained experience of the usual departments. I must say that my trainer, Mr. Maier, and the employees responsible for training in all the departments truly supported me well throughout. Mr. Chiavola in particular helped me to prepare as well as possible for my oral exam. The other colleagues in the departments were also very kind – but I had the most fun working in sales. There are two events from my training period that I will remember for a long time: When I left the order processing department, all my colleagues, including those from shipping, came together and gave me a gift – I was very touched.

The other story was really funny: I was in charge of reception when the phone rang. When I answered, the caller explained his tooth pain to me in great detail because he thought Dr. Fritz Faulhaber was a dental surgery.



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 **FAULHABER**

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