

The GROB logo is displayed in a bold, blue, sans-serif font, enclosed within a blue rectangular border with rounded corners. The background of the entire page is a blurred industrial setting featuring a robotic arm and a cylindrical component with a copper coil on top.

GROB

INTERNATIONAL

2019

The GROB logo is printed vertically in a grey, sans-serif font on the side of a silver cylindrical metal component. The component is part of a larger assembly with a copper coil on top, and it is mounted on a dark surface. The background is a blurred industrial environment.

GROB

**GROB IS INVESTING DURING DIFFICULT TIMES
AND STRENGTHENS ITS FOURTH PILLAR
IN THE FIELD OF ELECTROMOBILITY**

DEAR EMPLOYEES, DEAR BUSINESS PARTNERS, DEAR FRIENDS OF THE GROB COMPANY,



Christian Grob, Chairman of the Supervisory Board

Last year was marked by trade conflicts, political uncertainties, global trouble spots, and the associated weakening of the global economy. The globalization that has been accelerated over the past years has come to a standstill and its effects can be clearly felt and seen in all markets. China, an important growth market, has lost momentum. Lower growth rates with a changed investment behavior are the re-

sult for the country. The close links and strong dependence on China have a direct impact on the general business development of companies in Germany.

Parallel to the immense global economic issues, the technological change in the powertrain segment is overlapping in the automotive industry. In recent years, we have generally only had to deal with classic market fluctuations that were easier to predict. Today, we are confronted with a complete system change, the course of which is difficult to predict. Five years ago we set out on the right course and embarked into the e-mobility era. Today, together with GROB Italy, we are able to offer all the technologies needed to manufacture an electric motor. We are also well positioned when it comes to battery modules and cells. The fact that we are on the right track was confirmed by the presentation of the Volkswagen Group Award, which we received for our outstanding achievements and high innovative strength in the field of e-mobility.

Our greatest challenge in such a difficult economic environment is to shape a transformation process. A double burden that must be mastered, especially as our company is currently undergoing a complete transformation due to the complete change in our product portfolio. Against this background, our so-called business units were established in the middle of this year, which will ensure faster output and a more targeted focus on the special features of the individual product groups.

As the workload in the business units is not yet balanced out, further shifts and capacity adjustments will be necessary. A great challenge for all of us, because the greatest possible flexibility is required here. Furthermore, all our cost-saving and optimization measures must be implemented in order to meet the new challenges. And this is where all employees can contribute.

We are thus in very exciting and turbulent times; in a time of change, when you have to somewhat reinvent yourself. Change

also means dealing with new things and moving out of one's familiar environment. We must all be aware of this and we must not lose any time to act.

In addition, we want to actively shape and control this process of change! The new opportunities must be seized. We are excellently positioned and have every opportunity to control and master this transformation. Our basis and our potential for it could not be better. It is only up to us how we actively shape this process.

My family and I are confident that we will survive this difficult time and look to the future strengthened. We would like to thank you for your dedication and commitment to the well-being of our company and wish you a blessed holiday season, all the best, and above all, health for the coming year 2020.

Your Grob Family

DEAR EMPLOYEES,

The change in drive technologies in the automotive industry is in full swing. Major industrial nations and global markets react very differently to new regulations to reduce carbon dioxide emissions in response to increasing environmental problems, such as global warming. Measures range from significantly stricter CO₂ fleet consumption targets in the EU, to changes in subsidies for "New Energy Vehicles" in China, to the slow start of e-mobility in the U.S. In China, electric mobility is being further expanded with the assertiveness of a controlled economy. The Chinese market has great potential for further growth in car production with combustion engines and electric drives. Although the proportion of purely electric or hybrid-powered vehicles on German roads has not increased noticeably to date, investments in production facilities for new drive technologies are running at full speed.

GROB's new developments in machines and plants for the mass production of electric drives and battery storage modules were launched in the market by us at

precisely the right time to meet the increasing demands of the automotive industry. GROB's vision is that we will also develop and produce machines and systems for electric drives and battery storage systems for future powertrains of e-mobility. In addition to these very extensive development measures in e-mobility, we have already positioned new machining centers for the automotive industry this

year, as well as for the worldwide market of universal machines, and will continue to do so in the coming year.

However, despite all the successes in the "electromobility" segment, we had to endure a difficult year due to the global economic slowdown. We were only able to achieve this because we introduced and implemented important strategic



CFO Wolfram Weber, CEO German Wankmiller, CSO Christian Müller (left to right)

measures in good time in order to adjust our company to the new circumstances. The coming year will certainly be an even more difficult one for the entire automotive industry and machine tool manufacturing, but also for GROB. We will continue to have to cope with high uncertainty, consumer reticence, and price wars. With our new machines and systems for machining technologies and e-mobility and our excellent workforce and the high motivation of a family-owned company, we have exactly the prerequisites that are needed now.

The entire management would like to thank you, dear employees, for your continuous commitment, cooperation, and motivation to take on new tasks and challenges.

We wish you all a great holiday season, spending time with your families, and plenty of time to relax.

Your Management

ANNUAL REVIEW

In view of the turbulent development of the global economy, especially in the automotive industry, our core business, it is crucial for us as a family-owned company to set the course even more deliberately than usual. This certainly includes investment in the future, such as the groundbreaking of our new plant in Italy or strengthening our sales organization with the further expansion of our branch office network and the creation of new technology centers. This makes direct contact with our clients via our global sales department and appearances in exhibitions, trade fairs, and technology days even more important. Last but not least, our company's sustainability is determined by our qualified junior staff. Last year, these principles continued to be the foundation of our activities to position GROB Group for sustainability.

2019



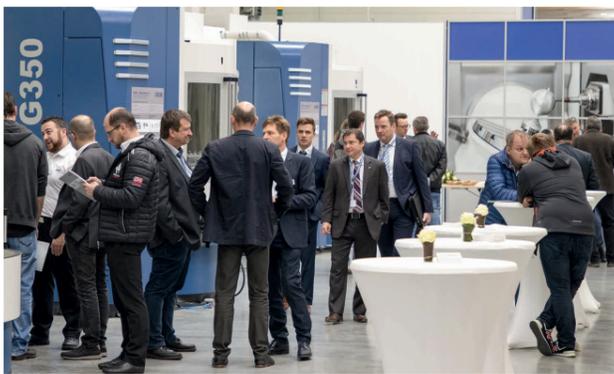
January – GROB receives the Chery Award



March – Groundbreaking of the GROB plant in Pianezza, Italy



March – Girls Day in Mindelheim



April – First in-house exhibition with various industries on different levels



April – Christian Müller (left) becomes new Chief Sales Officer for the GROB Group



May – GROB participates in the Moulding Expo in Stuttgart



June – GROB Systems receives the "Special Recognition Award"

The highest praise for us, is praise from our customers. Last year, we have received several unique prizes, such as the Volkswagen Group Award for E-Mobility in Germany, or the Honda Award in the U.S. These awards are not only a validation of our work for us, but also an incentive to fulfill our customers' requirements even better.

Christian Grob, GROB-Werke Chairman of the Supervisory Board



June – GROB Polska opens new Technology and Applications Center



July – Successful 5-Axis Technology Event at GROB Machine Tools, China



September – 78 trainees start their careers at the Mindelheim site



November – Technology Days at GROB in Mindelheim

RESTRUCTURING OF THE MINDELHEIM PRODUCTION PLANT

In 2011, the Mindelheim site started restructuring measures and investments to begin a new era for GROB Group. These activities are now completed and the paradigm shift to production-oriented timing was successfully implemented. The Mindelheim plant has reached its optimal size with the completion of Halls 9 to 13. Its connected areas provide ideal conditions for an outstanding logistics structure and optimum material flow of the four newly created business units.



BU New Technologies

H11

Process commissioning, battery and fuel cell application lab

BU Conventional Machining Systems

Pre-assembly of special-purpose assemblies

H13 BU Conventional Machining Systems

Pre-assembly, final assembly, process commissioning



Wolfram Weber
Business Unit After Sales

"Our After Sales BU provides attractive spare parts, services, and training offers to our customers to help make existing GROB systems even more efficient."



H5 Materials management

Large part production



H7

BU Conventional Machining Systems

Thermal spraying technology

Materials management

Small part production, sawing center



Christian Lisiecki

Director of Conventional Machining Systems
Business Unit

"Changes in customer structure and project scope towards smaller orders are putting pressure on our existing core business of system machines with automation and process technology. I am convinced that we set the right course to future success by creating this BU based on the four pillars mechanical construction, control engineering, production, and processing of projects, under one shared area of responsibility."

H1

BU New Technologies

Electrical cabinet construction, cable assembly

Materials management

Hardening, logistics





H10 **Material-management**

Warehouse logistics



H9 **BU Universal Machining Centers**

Pre-assembly, final assembly, process commissioning, motorized spindle assembly, testing, TAZ conventional machining systems and universal machining centers, service for universal machining centers



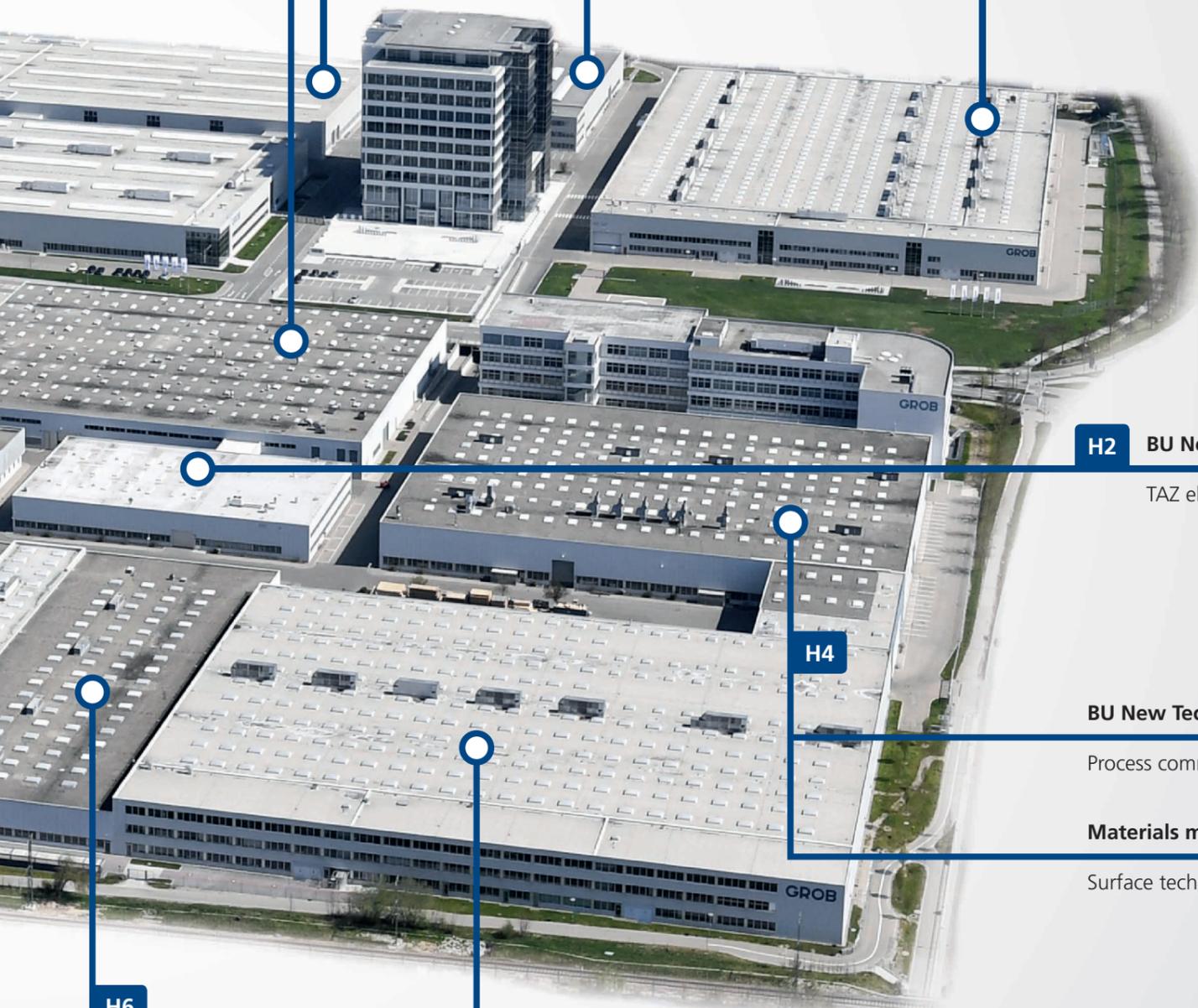
Johann Müller
Director of Universal Machining Centers Business Unit

"The BU Universal Machines provides continuous order processing for customer machines, from tender preparation to machine installation to service. Due to the innovative, modular construction approach with our own automation solutions, we guarantee high productivity and flexibility. As a competence leader in manufacturing technologies for the manufacturing of components, we use our own series products and special systems highly efficiently in our production and test them under real conditions."

H3 **Material-management**

Construction mechanics

H12 **Training**



H2 **BU New Technologies**

TAZ electromobility



BU New Technologies

Process commissioning

Materials management

Surface technology

H4

H6

BU New Technologies

Pre-assembly

H8

BU New Technologies

Process commissioning

Materials management

Large part production

BU After Sales

Repair center, service



Robert Schmalholz
Director of New Technologies Business Unit

"The goal of the New Technologies BU is to establish e-mobility as a successful core competence with cutting-edge technology. The centralization of the BU's complete value chain provides optimal conditions for increased efficiency."

GROB ELECTROMOBILITY

GROB as Trailblazer in the Field of Electromobility

Volkswagen initiates the system change to e-mobility – and GROB is there. GROB won the contract for an important project for the MEB (Modular E-Drive Modular System) technology platform created especially for the electric car, thus making a decisive development contribution to Volkswagen's electric vehicle offensive.

With great media interest and in the presence of German Chancellor Angela Merkel, Volkswagen started series production of its ID.3 electric car on November 4, 2019, thus initiating a system change to e-mobility. The ID.3 is based on Volkswagen's Modular E-Drive System (MEB), which makes the best possible use of the possibilities offered by electromobility.



Battery module assembly is part of the GROB portfolio

FIRST LARGE-SCALE PRODUCTION PROJECT IN THE STATOR SECTOR WITH HAIRPIN TECHNOLOGY

For this project, which is crucial for Volkswagen, GROB delivered a rotor and a stator line to Salzgitter, and a components assembly line for manufacturing the final engine to the VW plant in Kassel, Germany. All machines for this project were designed and produced in Mindelheim.

The order comprised complete lines, including high-grade automation solutions, and posed an enormous challenge to all GROB

divisions involved. Due to the completely new assembly process, the innovative manufacturing processes for rotor and stator, as well as the high proportion of purchased parts within the line, the requirements for this project differed significantly from GROB's previous core competencies.

Despite the major challenges, the order was successfully implemented, upon which Volkswagen started production of the MEB's electric drive in Salzgitter and Kassel in the autumn of this year.

GROB AS A PIONEER IN THE FIELD OF ELECTROMOBILITY

In the important project for the "MEB stator," the "MEB rotor" and the assembly of the electric motor with the gearbox, GROB was able to distinguish itself as a recognized development partner and to assert itself against numerous competitors.

It has been shown that GROB has a lead over other suppliers due to its early start to development. GROB supplies everything from a single source, from engineering to complete development to turnkey systems, and thus covers all process steps leading to the stator, rotor and assembly. GROB's development expertise is also reflected in the fact that its stator production with hairpin technology is currently already in its third development stage.

Günter Wolf, the responsible sales manager for "Volkswagen" at GROB, is confident that "our many years of cooperation have also played an important role for Volkswagen in this project. We are well established among OEMs as a proven supplier of full service, well positioned worldwide, and represented in virtually all markets."

GROB WINS VW GROUP AWARD FOR E-MOBILITY

For its performance in the electric drive project, GROB-WERKE has been honored

for its "extraordinary performance and high willingness to innovate" in the field of "electric mobility" for the first time in the company's history. "Our company has previously been recognized for many outstanding achievements by our employees," said German Wankmiller, Chairman of the Board & CEO of GROB, at the award ceremony. "But we have never received an award in the 'e-mobility' category before. An award that honors us in a very special way, in this business segment that is also relatively new for us."

WIDE RANGE OF SERVICES IN THE FIELD OF E-MOBILITY

GROB offers its customers a wide range of state-of-the-art services and products in



GROB wins VW Group Award for E-Mobility



GROB laudation from Porsche CEO Oliver Blume on the occasion of the award ceremony:

We are honored to present you, one of our most important business partners, with the Volkswagen Group Award 2019 in the e-mobility category. With this award, we would like to pay tribute to your company's exceptional performance and high level of innovation with which you have contributed to Volkswagen AG's success. You have contributed to successful production with the development and installation of modern assembly lines for important components of electric vehicles. We would like to thank you for your dedication and look forward to undertaking projects in the future with you as our partner.

the field of electromobility. Customers can rely on the fact that all competencies and core processes in the company are available from one source and can therefore react quickly and flexibly to developments, changes and new schedules.

In the field of electric drive production and assembly, GROB offers a wide range of modular and process-reliable plant

technology for the assembly of stators, rotors and electric machines up to the complete e-axis.

In the field of battery systems, GROB has already delivered two systems for the production of battery modules from pouch cells. Two further systems for battery module assembly with prismatic cells are currently being implemented.

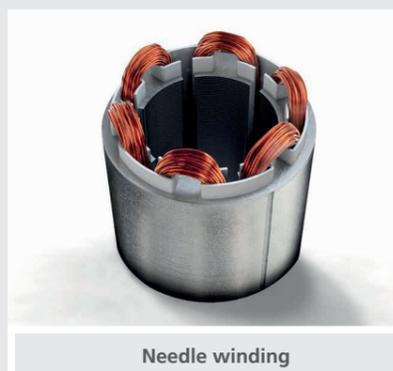
COMPETENCE CENTER FOR WINDING TECHNOLOGIES FOR ELECTRIC MOTOR PRODUCTION AT GROB



Continuous hairpin



Hairpin technology



Needle winding



Inserting technology

EMO HANNOVER 2019

Many Interesting Inquiries and Well-Positioned for the Future

This year's EMO was a complete success for GROB. Many inquiries were received and some deals were closed. GROB's numerous machine highlights and strong development capabilities in electric mobility showed that we are well-positioned for the historical paradigm shift in the automotive industry, and convinced the visitors of our booth with our consistently high quality and innovative technology.



Successful – GROB trade fair team in Hanover



Marveled at – The new GROB access-series



Christian Müller

Member of the Board & CSO

"Our new trade fair products, particularly the access series universal machining centers, the new linear pallet storage system PSS-L, and the chassis of the VW ID car series with its modular electrification kit (MEB) displayed at the stand, captured the visitor's particular interest. We are very proud that GROB was able to significantly contribute to the development of the MEB, especially since Volkswagen will build all future ID models with purely electric drive on this MEB."



German Wankmiller

Chairman of the Board & CEO

"The EMO showed that we were successful in positioning the area of universal machining centers of our company outside of the automotive industry in spite of the difficult frame conditions. Unfortunately, we must expect to face at least another two difficult years for the changes in drive technology, due to the current economic recession with its effects on the automotive industry. However, we are excellently positioned for the new challenges thanks to our new machines and systems for electric powertrain components, which helps us secure jobs for GROB Group in the long term."



Live in action – Robot cell of a G350 Universal Machining Center



Cordial – Florian and Christian Grob with Branch Managers



Representative – GROB's 1,700 m² booth



Forward-thinking – VW chassis with MEB stator and rotor by GROB



Florian Grob

"We had a really modern GROB stand that offered everything: our system and universal machining centers and an interesting presentation of GROB E-mobility and digitalization. What impressed me very much were our access machines on center stage as an eye-catcher."



Comprehensive – GROB know-how in winding technology

GROB ANNIVERSARIES

in Mindelheim, Germany & Worldwide

30 to 40 years



People celebrating anniversaries and pensions with between 30 and 40 years seniority

Martin	Bisle	Large part production
Jürgen	Bons	Mechanical commissioning
Hans	Döß	Machine commissioning administration
Otto	Ellenrieder	Large part production
Franz	Fiedler	Mechanical engineering
Lothar	Hohenadl	Mechanical pre-assembly
Stephan	Huber	Large part production
Franz	Karl	Electrical assembly commissioning
Robert	Karringer	Engineering assembly technology
Wolfgang	Mann	Electrical engineering management
Dieter	Rothermel	Machine commissioning

Walter	Schröttle	Complete production
Johann	Wiedemann	Fluid engineering
Dieter	Wolf	Grinding
Rainer	Zwenger	Machine assembly management
Ferdinand	Böck	31 years
Dieter	Dainku	33 years
Gerhard	Dolp	36 years
Karl	Donderer	31 years
Ulrich	Guggenmos	39 years
Günther	Kahr	33 years
Leonhard	Kempfle	33 years
Johann	Lochbrunner	37 years

Franz	Maier	31 years
Alois	Nägele	37 years
Edwin	Nägele	32 years
Franz	Reisch	31 years
Gerhard	Riedl	36 years
Hubert	Scholze	32 years
Johannes	Seltmann	30 years
Franz	Sontheimer	34 years
Hedwig	Spitz	33 years
Erwin	Zacher	39 years
Theodor	Zientner	36 years

25 years



People celebrating anniversaries with 25 years seniority

Jürgen	Baur	Management of universal machining centers assembly
Michael	Bisle	Fluid engineering
Wolfgang	Böhm	Strategic planning
Robert	Dreer	Process commissioning
Robert	Fiener	Testing & mechatronics
Roland	Fischer	Electrical commissioning
Christian	Grabmeier	Fixture pre-assembly
Gerhard	Hampp	Strategic planning
Martin	Kraus	Management of universal machining centers assembly
Michael	Materne	Information technology
Thomas	Müller	Electrical commissioning of universal machining centers
Wolfgang	Purwin	Processing of electrical engineering projects
Christian	Rogg	Mechanical engineering
Joachim	Schregle	Assembly/electromobility project management
Alexandra	Schropp	Finances
Manuela	Seyffert	Catering
Volker	Starcke	Tool technology
Torsten	Wolf	Mechanical engineering
Christian	Zerrle	Mechanical engineering



10 years

People celebrating anniversaries with 10 years seniority



People celebrating anniversaries with 10 years seniority

Peter Baur	Maximilian Guggemos	Georg Klucker	Andreas Port	Tobias Schlosser	Heiko Stoll
Franz Beckert	Willibald Hartmann	Stefan Knauer	Armin Preschl	Holger Schneider	Maximilian Stölzle
Sarah Beusch	Ira Hensel	Lisa Krausenböck	Alexander Prim	Markus Schneider	Daniel Thalhofer
Alexander Biber	Marcus Heublein	Alexander Losert	Alexander Pudrikov	Marcus Schorer	Dominik Walter
Valentin Birling	Roland Hilebrand	Florian Lutzenberger	Markus Rauch	Philip Schorer	Michael Wanner
Axel Buchner	Patrick Höglmeier	Frank Madlehner	Simon Rheinschmitt	Matthias Schubert	Ulrike Welle
Dominik Eckers	Andreas Hölzle	Stefan Maier	Dominik Rothermel	Maximilian Schuler	Max Wiedmann
Martin Fleschhut	Stanley Hotho	Florian Mauler	Silvio Ryll	Johannes Schwarz	Lisa Maria Wikstein
Markus Frank	Lale Karatas	Jens Müller	Prospero Salerno	Stefan Seitz	Martin Wille
Diego Galvao da Silva	Sebastian Keck	Thomas Naake	Johannes Schiegg	Jennifer Spannberger	Johannes Windrath
Stephan Götze	Hannes Kerler	Manuela Neth	Michael Schilling	Stephan Spengler	Tarik Yurtseven
Mario Gropp	Jennifer Klein				



Brazil

Brazil – People celebrating anniversaries with between 10 and 40 years seniority

Caio	Marin Gomes	Ricardo	Donisete Ferrari
Claudio Ignacio	do Monte	Rovertto	Fontanezi Filho
Douglas	Ruiz Bertonha Moreti	Rodrigo	da Costa Serafim
Fernando	Fernandes	Rogério Guilherme	Grigoletto
Fernando	Milani	Tiago Henrique	Bastos Pereira
Jose Augusto	Mendes	William	Kotaro Daimon
Leandro Thiago	dos Santos	Rodrigo	Malta da Silva
Leonardo	Angelo	Paulo Roberto	Rodrigues
Luiz Roberto	Mendonca Junior	Clayton	Moreira Salton
Marcelo	dos Santos Reis	Carlos Fagner	dos Santos Nunes
Mario	Quioshi Nakamichi	Paula	Prado Santos Mariano da Silva
Ricardo	Alves Evstratov		



USA

USA – People celebrating anniversaries with between 10 and 25 years seniority

Jürgen	Mutzel	Douglas	Schroeder
Lance	Murdock	Aaron	Green
Timothy	Pees	Jacob	Amstutz
Rodrigo	Romeiro	Chad	Webster
Brian K.	Schroeder	Derrick	Storer
Paul	Gladwell	Justin	Schick
Leif	Kibele	Derek	Schroeder
Charles	Oatmann III	Dustin	Siefker
Chad	Stachler	James	Marsteller III
Mark	Gerding	Cameron	Carter
Matthew	Hartman	Scott	Gable
Andrey	Tatarkov	Joseph	Lyon
Christian	Kell	Scott	Schroeder

GROB INTERNAL DEPARTMENTS

GROB Think Tanks for Interdisciplinary Development and Innovation

Our main production site in Mindelheim includes interdisciplinary departments and work groups that ensure GROB's continued technological leadership. They optimize processes and procedures in our company and help further develop and optimize machining centers and serial machines.

Offering our customers outstanding products that are at the cutting edge in the areas of technology and innovation lies at the core of GROB Group.

Three interdisciplinary departments and work groups help achieve this goal in these rapidly changing and challenging times. They continuously optimize processes and procedures and permanently further develop existing and planned machining centers and serial machines.

They include the GROB Production Systems & Consulting (AD-GPS) Department,

the Cycle Time and NC Program Optimization (TAKT/NC) Work Group, and the Testing & Mechatronics (KO-FE-TM) Department.

GPS WITH A LONG HISTORY OF PROCESS OPTIMIZATION

What began about 15 years ago as a "synchronous production system" at GROB has now evolved into a sophisticated continuous improvement process (CIP) and knowledge-based LEAN management. The LEAN Academy established for this purpose teaches the required competences and provides support for operative implementation.

GPS plans and optimizes structures, organizations, and processes in companies and their order processing and production processes. The department researches how to achieve and improve excellence in value-adding company divisions to future-proof our business.

TAKT/NC: CORE COMPETENCE AND MORE IN CONVENTIONAL MACHINING

In mid-2015, the "Cycle Time and NC Program Optimization" (TAKT/NC) Work Group was established to describe the possibilities for optimizing machining centers with respect to production and non-productive times. They quickly achieved their first successes in optimizing existing processes and developed the G-Trace Analyzer software tool. This tool is used to document nearly all projects via process commissioning in order to document the cycle time of the machine's delivery status and to determine any optimization potential during commissioning and afterwards. The software tool helps improve cycle times by five to seven per cent. The Work Group Specialists utilize the GPO (GROB Path Optimizer) tool to evaluate the analysis and select suitable methods if bore-to-bore movement optimization of the current tool is worthwhile.

TESTING & MECHATRONICS: THE INTERDISCIPLINARY PART OF THE DEVELOPMENT DEPARTMENT

The "Testing & Mechatronics" (KO-FE-TM) Department, part of Development, deals with a wide variety of tasks. This interdisciplinary team works together with various departments of the company and is responsible for the development and prototype testing of machine tools. It carries out simulations and basic analyses as early as in the development phase. The development of a "digital mechatronic twin" should be highlighted: It will allow the transfer of cost- and time-intensive testing and development loops from physical machines to a digital test area. The department is also responsible for various software solutions (NC cycles, Matlab, C#), mostly for permitting new machine functions. One example is the "Magazine pushbutton", which allows fully automatic tool magazine setup.





GROB JAPAN

E-Mobility Solutions for Japan

GROB's Japan business practically started in the US. Several years ago, first contacts with Japanese companies were made in the US via GROB Bluffton. The contacts involved reputable clients such as Honda, Mitsubishi, or Kawasaki Heavy Industries, which covered everything, from ship to airplane and lawnmower engines. In the beginning of this year, GROB founded a new branch in Yokohama, Japan to reinforce our connections with the headquarters of Japan's global players.

"Being present on the ground was an important step for us. This step was just as

important as providing convincing technical support," explains Endo Hideaki, Director of GROB Japan. "With the founding of this GROB branch we also hired new service staff. Other colleagues are currently in training in the US and Germany. Overall, I am optimistic that there is great potential for GROB machines in Japan."

GROB's first project in Japan is carried out for Nissan on behalf of ABB. For this purpose, GROB Italy will start to deliver an assembly line with insertion technology for stator manufacture to Japan this year.



GROB Japan – New member of our sales family



GROB FRANCE

The Universal Machining Center Market in View



GROB France – Isabelle Noir and Michel Gras

GROB has been supplying system machines to Renault all over the world, not only in France, for many years. In 2000, one particular order was to supply the largest flexible cylinder head and cylinder block manufacturing line in Latin America to Renault. To secure a foothold in the heavily contested French market for universal machining centers with its numerous different brands, GROB decided to establish its own sales and service branch in France. Currently, Michel Gras, the new Branch Manager of GROB France, is working with six staff on setting up a clear sales structure and a targeted job and customer list. "Our clients are mainly in the aerospace, automotive, mold and tool construction, and the pump and oil industries", says Michel Gras, excited

about the future. "But it's also important to make the GROB brand better known in France."

It is interesting to note that the e-mobility contract by ABB is important to GROB France as well. In addition to the assembly line with insertion technology for stator manufacture for Nissan in Japan, GROB will supply another stator manufacture line to Renault in France on behalf of ABB. After the contract was won by GROB Mindelheim and organized and implemented by GROB Italy, GROB France now supports the project by providing services. Thus, the traditional GROB plant network has expanded and evolved to become a network of GROB branch offices.



GROB VIETNAM

A Special Kind of Turnkey Project

Last year, GROB delivered an entire cylinder head line with 15 twin-spindle G520 and four single-spindle G500 modules with innovative machine technology and a cylinder block line to Vietnam for a turnkey project at the newly established VinFast automotive production plant in Vietnam. The cylinder block line includes 22 G520 and four G500 machining centers as well as three modular special-purpose machines with state-of-the-art automation technology, tools, and clamping fixtures. A flagship project for

GROB, with VinFast relying on the expertise and technology of GROB to produce its very first vehicles.

To optimally supervise this turnkey project, GROB founded a new branch office in Haiphong, Vietnam, which launched at the beginning of this year and is now staffed with six employees. In addition to Vietnam, this branch office supervises other markets in Southeast Asia, which will be crucial for GROB's system and universal machining center business in the future.



GROB Vietnam – Turnkey and Asia strategy



GROB USA

Electromobility Gaining Momentum in the US



Successful – First 5-AXIS LIVE! event in August



Interested – Event participants during a tour of the site

On the one hand, we see decreased investment in machining, but a faster and more robust development in e-mobility than expected. On the other hand, we invested over 11M Euros in a new GROB office and staff building despite the profound and uncertain change in the US automotive industry. The US automotive market currently has two faces, but GROB Bluffton remains optimistic about the continued positive development of the company.

The demand in the US electromobility market is increasing faster and more robustly than expected. This development is reflected in more requests from the area of electromobility at GROB Bluffton. Investment in the area of combustion

engines is in sharp decline, and the question of what drive technology to invest in and how much to invest will remain unsolved for some time.

This process is exacerbated in the US because economic growth continues to decline due to global politics. Fortunately, GROB Bluffton's double lineup in the areas of combustion engines and electromobility makes it very robust, so that the plant can offset negative market developments much more easily.

FIRST SUCCESSFUL PROJECTS IN THE FIELD OF ELECTROMOBILITY

For years, GROB Bluffton sales staff have been actively trying to get a foot in the door of the initially small US electro-

mobility market. They achieved their first successes with Japanese automotive companies in the US. Although the first large-scale e-mobility project initiated by GROB Mindelheim is processed by GROB Japan for Nissan in Japan and on behalf of ABB, it has helped GROB Bluffton gain an excellent reputation in the electromobility market.

In the meantime, additional electromobility orders were received, e.g. by General Motors for a stator line, which was fully processed by GROB USA and was already delivered to GM in Detroit. Ford recently ordered two stator lines as well, the first being designed and built in the GROB plant in Mindelheim, Germany. The second stator line will be a copy manufactured in Bluffton. Both

lines will be delivered to Detroit in late 2020. Tesla submitted an order as well. It is for a rotor assembly, which will be completely designed and manufactured in Bluffton, and delivered to Nevada in mid-2020.

5-AXIS LIVE EVENT IN THE TRADITIONAL MACHINING MARKET

On August 20, 2019, GROB Bluffton successfully hosted its first "5-AXIS LIVE!" event with over 150 visitors. Together with eight select partners (Blum-Novotest, Caron Engineering, CAMplete, hyperMILL, MAPAL, SCHUNK, SECO, and SIEMENS), GROB presented the complete gamut of its 5-axis machines, focusing on the aerospace and tool- and mold-making industries.

A G550 was used for a live demonstration to show the event participants that GROB machines can machine heavy materials optimally, fully meeting the industries' requirements. In his keynote address, external speaker Greg Jones, Vice President of Smartforce Development at AMT, presented possible future modes of working for better on-the-job training.

NEW OFFICE AND STAFF BUILDING COMPLETED AND OCCUPIED

The new three-story office and staff building at the Bluffton site was completed after a construction time of approximately 500 days. With a total surface of 45,919 ft², its 2nd floor offers space for 45 workstations and 7 conference rooms for Sales, and space for 73 workstations and 2 conference rooms for Mechanical Engineering on the top floor. The ground floor features a cafeteria with 396 seats. The cafeteria opened on October 21, 2019, and two months later, we already see that it is very popular with staff and customers alike.



Modern – Office and staff building inaugurated



GROB BRAZIL

Brazil – A Somewhat Different Market for Mechanical Engineering



EXPOMAFE in São Paulo – The experienced B. GROB do Brasil Trade Fair Team

Brazil has experienced stronger economic fluctuations than almost every other industrial nation in the world. In Brazil, there is often only a thin line between double-digit growth rates and recession. And yet, B. GROB do Brasil has braved this development time and again. Even now, B. GROB do Brasil has almost two years of orders on hand despite a five-year recession. An Analysis.

It must be due to B. GROB do Brasil's history that it is a somewhat different, German-Brazilian company. Even when it was founded in 1956, during a time when the German economy was regaining its footing, only few German medium-sized businesses considered investing overseas. Throughout the decades, GROB's first overseas production plant could develop amidst the turbulence of Brazil's economy, despite horrendous inflation rates and exceptionally difficult economic and sociopolitical circumstances.

In the 1990s for example, at the beginning of "Intercompany Business", it was a herculean task to convince clients that the technology, quality, and price of GROB machines "made in Brazil" was an interesting global alternative. With this feat, the company could gain some independence from the development of the national market.

INCREASING IMPORTANCE OF THE BRAZILIAN MARKET

Then came the 2000's when the Brazilian currency soared to historical heights relative to the US Dollar, increasing 25% in value, making exports of Brazilian goods practically impossible.

Even then, B. GROB do Brasil tried to counteract those difficulties with mas-

sive cost cuts, rationalization, and investment – something that remains essentially unchanged. Because entrepreneurial foresight, courage, stamina, and maybe a modicum of luck have always been more important for B. GROB do Brasil than for almost any other GROB production plant.

TURNING A GLOBAL CRISIS INTO AN OPPORTUNITY

Brazil's economy proved to be surprisingly resistant in the global crisis starting in 2007. However, favorable economic conditions can only provide



The market penetration we have reached shows the important contribution GROB has made to the recent technological engine revolution in Brazil. It also shows that GROB is the strongest partner in Brazil's powertrain industry.

Michael Bauer, CEO of B. GROB do Brasil

support, but not drive sales. Consistent marketing and the strategic realignment of the company created excellent conditions to continue B. GROB do Brasil's success story. It requires much courage, persistence and persuasion to convince a market of traditional four-axis universal machining centers that five-axis universal machining centers such as the G350 and G550 are better long-term alternatives.

And yet, B. GROB do Brasil has mastered this change so convincingly that the national market is now the company's backbone. In 2011 and 2012, the growth rates went through the roof with annual increases of up to 30%. This development was used to start additional investment and optimization

programs, which affected practically the whole company.

Over the years, not only were investments made into new machines for production and whole production processes were improved by introducing line assembly, but also investments were made in two halls with a total surface of 15,000 m².

This realignment increased productivity by up to 5% annually and helped B. GROB do Brasil become a leader in the system and universal machining center business.



Historic – B. GROB do Brasil in 1974 after the second expansion stage

GROB DOMINATES BRAZIL'S SYSTEM BUSINESS

GROB is the uncontested leader in Brazil's system business, particularly in the automotive industry. Nearly all automotive plants in Brazil use GROB machines for machining engine blocks and cylinder heads.

- In the São Carlos **Volkswagen** plant, the engine blocks for the 3- and 4-cylinder in-line engine (EA111) and the engine blocks and cylinder heads of its successor (EA211) were manufactured on GROB machines.
- **Ford** manufactures all engine blocks and cylinder heads for the 1.5L Dragon as well as cylinder heads and engine blocks for the Fox engine (1.0L/3 cylinders) in Taubaté and Camaçari.
- GROB delivered 2 engine block lines for the CSS Prime Engine family for **General Motors** in Joinville. A third engine block line and a complete assembly line are scheduled to be delivered next year.
- In 2000, GROB received an order for a flexible machining center line for machining cylinder heads and engine blocks for **Renault** in Curitiba, and two years ago, an order for a new cylinder head line together with modifying the existing engine block line for the new HR-16 engine.
- **Fiat Chrysler Automobiles** in Betim also relies on GROB block and head lines for the new Firefly engine with automation. Furthermore, FCA has again ordered block and head lines for its new turbo engines, which are currently in delivery.
- Honda Sumaré Brazil, Peugeot SA Resende Rio de Janeiro, Scania Brazil, Cummins Guarulhos, and Volvo Curitiba are other GROB clients.



GROB CHINA

E-Mobility Advancing in China



Growth market China – Expanded production area of GROB Machine Tools, China

On the one hand, OEMs have extensive investment plans in the area of electromobility, on the other hand, there is clearly less investment in new manufacturing lines for combustion engines. There are currently two sides to the Chinese market, so GROB China will continue to invest in electromobility.

The Chinese market is characterized by a decrease in automotive sales and the trade conflict between China and the US. The range of needed components has shifted from parts for traditional combustion engines to components for electric vehicles. In addition, light structural components for premium vehicles are becoming more important, presenting vast opportunities for GROB China.

Thanks to our F-series, GROB can offer solutions for the manufacturing of such parts. The first G600F was delivered to a Chinese customer in October of this year. Numerous other F-series machines have been sold to tier 1 suppliers since then, and will be delivered in the coming months.

In the universal machining center business, GROB China could also gain numerous clients in various industries, and continues to export machines to India and Korea.

THE ELECTROMOBILITY MARKET IS BECOMING INCREASINGLY POPULAR

The number of electric vehicles registrations is slowly increasing. Almost every OEM and many tier 1 suppliers are planning investments in the electromobility industry, especially in the electric motors area. Since many clients retrofit existing machines for financial reasons, the GROB Service Team has prepared to meet this requirement and can retrofit existing machines in the Dalian plant or directly at the client's site. We have already won contracts for retrofitting by two large OEMs.

Furthermore, GROB is in contact with numerous clients to provide support for the development and production of electric motors (e.g. hairpin prototypes or electric motors with continuous hairpin).

EXTENSIVE INVESTMENT IN ELECTROMOBILITY

GROB China is investing in a prototype system for the manufacture of hairpin stators to satisfy the market development in the area of electric drives. For this purpose, an approx. 450 m² Application Center is created in the new 6,700 m² hall extension. The goal is to train GROB staff in new technologies so they can familiarize interested clients with GROB technologies in the area of electromobility. The Technical Application Center (TAC) for electromobility will launch at the beginning of next year and present the first stator prototypes to GROB clients. In the medium-term, GROB China will also create the conditions to produce assembly systems for electromobility.

The hairpin stator manufacturing system includes ten stations. Its process sequence is similar to the system of the Mindelheim GROB plant. It includes all process steps required for the complete and independent manufacture of stator hairpins at the Dalian plant, from providing wires to bending the hairpins (three

stations), widening, twisting and cutting up to laser welding, electric measurement and impregnation. To thoroughly test the system, the first step will be to produce a specifically designed GROB hairpin stator by the second quarter of 2020. The second step is to manufacture B and C model stators in cooperation with our clients, which they can use in their test series.

OPEN HOUSE EVENT AT GROB DALIAN

An Open House Event took place at GROB China on October 18, 2019 under the motto "Effectivity² – Made by GROB" with the partners MAPAL, QUAKER-HOUGHTON, and REGO-FIX. GROB's comprehensive know-how in the areas of aerospace and tool and mold construction was particularly impressive for some of the 146 participants. It was impressive because some participants only knew GROB from the automotive industry and knew very little about GROB's universal machining centers. Another Open House Event took place at the GROB branch in Shanghai on 13 November.

SECOND EXPANSION STAGE OF GROB PLANT IN CHINA COMPLETED

After founding GROB China in 2012 with 12,000 m² of production space and after the first expansion stage to 13,700 m² in 2014, the second expansion stage with an additional 6,700 m² of space was completed in May 2019.

NEW TOTAL AREA	<ul style="list-style-type: none"> • 32,400 m²
REASON FOR THE EXPANSION	<ul style="list-style-type: none"> • Increase production flexibility • Secure major contracts • Widen product range
RESULT	<ul style="list-style-type: none"> • All GROB products can now be assembled in the plant • Projects, including automation, linear gantries, and transport systems, can now be set up and accepted directly in the plant



Open House Event – To strengthen the 5-axis technology market



GROB ITALY

Breaking Ground for GROB's First Electric Mobility Plant



Expectant – Groundbreaking of the new plant in Italy



Great public interest – The region is excited about the groundbreaking event

Two years after the acquisition of DMG meccanica, last spring's groundbreaking ceremony for the fifth GROB plant marked another milestone for GROB's electromobility offensive to expand our electromobility expertise.

Groundbreaking was celebrated in Pianezza Town Hall on March 12, 2019 in the presence of Christian Grob, German Wankmiller, the Managing Directors of GROB Italy, Mayor Antonio Castello, and other local industry representatives and with keen media attention. The new plant in Italy is built with an investment volume of 10 million Euros on a 24,000 m² site. It includes 4,800 m² of production spaces and reserves for future extension, as well as a three-story office and staff building with a total square footage of approximately 3,300 m². Furthermore, a showroom for GROB machine tools will also be created.

After its completion in spring 2020, the new GROB Italy plant will have three times the surface of the current site. The

number of employees will be doubled from 75 to approximately 150. "Our takeover of DMG meccanica two years ago was an important step towards further expanding our e-mobility expertise," explains Christian Grob, GROB Supervisory Board Chairman, at the groundbreaking ceremony in Pianezza, Italy. "Now, by building the first GROB production plant for electromobility, we are even better placed to meet the wide-ranging requirements of the automotive industry."

WIDE RANGE OF CLIENTS FOR GROB ITALY

GROB Italy's main customers are headquartered, for example, in China. This includes MAGNA, VALEO SIEMENS, and WOLONG. GROB Italy has excellent connections to China partly thanks to former DMG meccanica's tradition, and partly because even in 2017, GROB-WERKE and DMG meccanica celebrated a historic premiere with their first joint presentation at the CWIEME (Coil Winding, Insulation and Electrical Manufacturing

Exhibition) electromobility fair in Shanghai, China. This presentation was worth it: The CWIEME Shanghai is the largest and broadest exhibition and conference for coil winding, insulation, and electrical manufacturing throughout Asia, making it the most important venue of the transformer, electric motor, and power generation industry.

Other important customer's of GROB Italy outside of China are MAHLE in Slovenia, ABB for NISSAN in Japan, RENAULT in France, and SEG Automotive in Hungary and India. The current ABB project for NISSAN, for which GROB Italy supplies the stator production system with insertion technology to Japan, receives technological and service support by GROB Japan and GROB France.

GOOD PERSPECTIVES FOR GROB ITALY

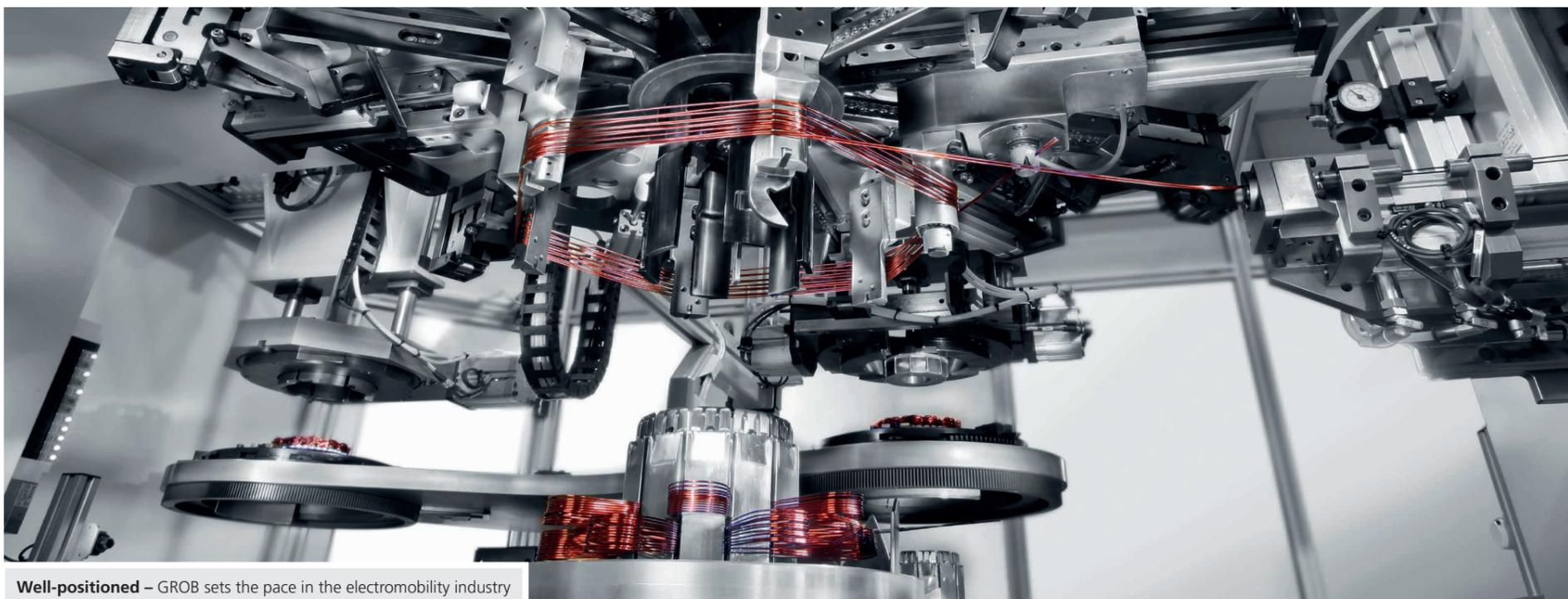
Since DMG meccanica became part of GROB Group in 2017 and was renamed GROB Italy S.r.l. the year after, the Italian plant has almost doubled its sales

and number of employees. The plant followed the global GROB standards. A committed research and development team is currently formed at GROB Italy so new technologies and innovations can be developed.

With its round wire insertion technology, GROB Italy covers an important area of the various winding procedures and perfectly supplements the winding technology of GROB-WERKE. This has made the plant an important part of GROB Group's electromobility expertise.

THE NEW GROB ITALY PLANT AT A GLANCE:

- Location: Pianezza by Turin, Italy
- Investment volume: 10 M Euros
- Site area: 24,000 m²
- Production area: 4,800 m²
- Office and staff building: 3,300 m²
- Estimated opening: mid-2020



Well-positioned – GROB sets the pace in the electromobility industry



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Bluffton, Ohio, USA
Detroit, Michigan, USA
Querétaro, Mexico

SOUTH AMERICA

São Paulo, Brazil

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