

Innovation in Motion



**TECHNOLOGIES
FOR A CLEANER PLANET**

**BECAUSE
FUTURE
MATTERS.**



Annual Report 2019/20

  English

TECHNOLOGIES FOR A CLEANER PLANET



OUR CORPORATE MISSION



TECHNOLOGIES FOR A CLEANER PLANET 04

01

MIBA SPIRIT 06

Shaping the future with a clear mission	08
Take chances – grow sustainably	10
The Miba Lighthouse	12
Competencies that will be in demand in the future	13

02

MIBA TECHNOLOGIES FOR A CLEANER PLANET 14

SUSTAINABLE ENERGY GENERATION	16
Wind power	17
Hydropower	20
Solar energy	21
Gas-fired power plants	22
SUSTAINABLE ENERGY TRANSMISSION	22
Power resistors for high-voltage direct current transmission	23
Energy-efficient and cost-effective charging of electric vehicles	23
How power grids become intelligent	23
SUSTAINABLE ENERGY STORAGE	24
The battery specialists in the Miba eMobility Team	25
SUSTAINABLE ENERGY USE	26
Mobility and powertrain technology	27
No powertrain without Miba technology	27
Sputter technology	28
Lead-free bearings	28
Sintered components make combustion engines cleaner	29
Smart bearings optimize maintenance and replacement tasks	29
Oilfree newcomer: the dry multidisk clutch	30
Miba railway products	30
Visual inspection in manufacturing	30
Miba technology for e-mobility	31
100 million Euros to be invested in e-mobility	32
The Miba eMobility Team	32
Our e-mobility pioneers in China	33
Smart power resistors	33
Miba FLEXcooler®	34
Europe-wide collaboration for Audi e-tron	35
Power fuses for electric vehicles	35
Stators and rotors for electric motors	36
Axial flux motors	36
Industrial applications	37



ENERGY GENERATION



ENERGY TRANSMISSION



ENERGY STORAGE



ENERGY USE



BECAUSE FUTURE MATTERS.



03

MIBA PEOPLE 38

Collaboration is the basis for innovation	40
Growth beyond borders	42
Miba Bearing Group continues to expand its global presence	43
Miba Campus	44
Global Graduate Program	45
Apprentices – our specialists of tomorrow	46



04

MIBA CORPORATE SOCIAL RESPONSIBILITY 48

Responsibility for our employees	50
Responsibility for our environment	52
Responsibility for society	56



05

MIBA FACTS 60

Key figures	62
Highlights	64
Awards	66
Management Board & Supervisory Board	68
Production sites	70
Product portfolio	72
Miba 2020 Strategy – Dynamic Evolution	74
General economic conditions	76
Miba's business performance	78

TECHNOLOGIES FOR A CLEANER PLANET.

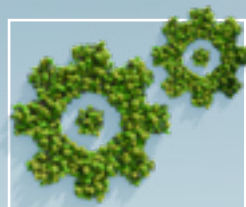
Our corporate mission of “Technologies for a cleaner planet” serves as a driving force in our daily work. It instills us with energy and provides us with guidance.

Through our innovations and technologies, we strive to contribute toward a cleaner planet. We develop and produce function-critical components for the sustainable generation, transmission, storage, and use of energy. And we contribute to making our planet cleaner by using resources with the utmost care and circumspection in our processes and our day-to-day work activities.

This illustration shows the sectors where Miba's technologies make such a contribution and the product segments we aim to continue to develop in the future.

CRADLE-TO-GRAVE: Miba technologies accompany the entire cycle of efficient generation,

transmission, storage and use of energy



PRODUCTION

PRODUCTION
OF MATERIALS

PRODUCTION
OF COMPONENTS
AND SYSTEMS

CAREFUL USE
OF RESOURCES
(e.g., energy, water)

AVOIDANCE
OF WASTE



ENERGY GENERATION

WIND POWER

SOLAR ENERGY

HYDROPOWER

GAS & DIESEL GENSETS

ELECTROLYSIS/HYDROGEN PRODUCTION



ENERGY TRANSMISSION

EFFICIENT TRANSMISSION OF ELECTRICITY
(e.g., high-voltage direct-current (HVDC)
transmission / medium-voltage direct-current
(MVDC) transmission)

SMART GRIDS
(intelligent interconnection and control of
electricity grids)

CHARGING INFRASTRUCTURE



ENERGY STORAGE

BATTERY MODULES & COMPONENTS

BATTERY THERMAL MANAGEMENT

ELECTRICAL SAFETY COMPONENTS
FOR BATTERIES

COATING SOLUTIONS FOR BATTERIES

CHARGING INFRASTRUCTURE
FOR ELECTRIC VEHICLES



ENERGY USE/ POWERTRAIN TECHNOLOGY

HIGHLY EFFICIENT INTERNAL
COMBUSTION ENGINES
CONVENTIONAL DRIVES

INTERNAL COMBUSTION ENGINES
WITH e-FUELS

HYBRID DRIVES

HIGHLY EFFICIENT ELECTRIC MOTORS

ACTUATORS

FUEL CELLS

INDUSTRIAL APPLICATIONS



REPAIR/ RECYCLING

BATTERY 2nd USE

REPLACEMENT
PARTS

MAINTENANCE

WELL-TO-TANK (production & provision)

TANK-TO-WHEEL (dispensing and use)

01 MIBA SPIRIT

SHAPING THE FUTURE RE-
QUIRES MOBILITY IN THINKING,
RETHINKING, AND THINKING
BEYOND WHAT WE KNOW.
AND IT REQUIRES A CLEAR
PURPOSE WORTH
WORKING FOR.

BECAUSE
FUTURE
MATTERS.

"OUR CORPORATE MISSION 'TECHNOLOGIES
FOR A CLEANER PLANET' GIVES US ENERGY,
PURPOSE AND MOTIVATION."

F. Peter Mitterbauer, CEO Miba AG



SHAPING THE FUTURE WITH A CLEAR MISSION.

How is Miba shaping its future? What are its values, objectives, and strategies? How is it responding to the megatrends of Decarbonization and Digitalization? What kind of expertise, but also what type of personalities will be in demand in tomorrow's job market? This is what seven young employees of Miba from various parts of the world discussed with CEO F. Peter Mitterbauer.

It was a Thursday in mid-March 2020. A few days later, the coronavirus pandemic would bring about lockdowns in many countries of the world. But on that Thursday, other topics were still the focus of the talk that Miba's CEO F. Peter Mitterbauer had with seven young employees from various parts of the world at the Miba Forum in Laakirchen; a talk about topics that will outlast the coronavirus crisis and thus impact the long-term future of Miba and its young employees.

CONTRIBUTING TOWARD DECARBONIZATION

One of these key topics was climate protection – and what contribution toward it can be achieved by decarbonization, that is, the step-wise transition towards a sustainable, CO₂-neutral generation, transmission, storage, and use of energy. Miba has been making substantial contributions in this respect. "From our early days on, it has always been our goal to make drivetrains more efficient – and it is thanks to our technologies that vehicles, ships, aircraft, construction and agricultural machines have become more energy-efficient, less polluting, and quieter,"

Mitterbauer told those young employees. "Another of our core segments is power electronics. Our products make the generation, transmission, and storage of electrical energy more efficient and more sustainable. All this is described in Miba's corporate mission: Technologies for a cleaner planet. Together, we strive to contribute toward a cleaner planet and a more livable world, day after day."

OUR MISSION: TECHNOLOGIES FOR A CLEANER PLANET

When he took over the CEO position of Miba in 2013, Mitterbauer introduced the corporate mission of "Technologies for a cleaner planet." And he did so for a good reason: "Contributing toward a cleaner planet constitutes a strong motivation for me personally. Guided by this mission, we are, after all, not only working for the future of the company, but also for that of our children and of society as a whole," believes Mitterbauer. "All of us are looking for the deeper purpose of our work, for its meaning for society. A meaningful corporate mission like ours delivers answers to these questions and, therefore, possesses tremendous power to give energy and motivation."

CAREFUL USE OF RESOURCES

Yet, the corporate mission of "Technologies for a cleaner planet" still goes beyond that. "It also includes that we contribute toward a cleaner world by using energy, water and other resources very carefully," explained Mitterbauer. This is why Miba, at all its locations around the globe, has been making every effort to reduce its consumption of energy and water and the amounts of waste generated in production processes. And all our employees can do their part by using resources as carefully as possible in their daily work.

THE MIBA SPIRIT: LIVING OUR CORPORATE MISSION

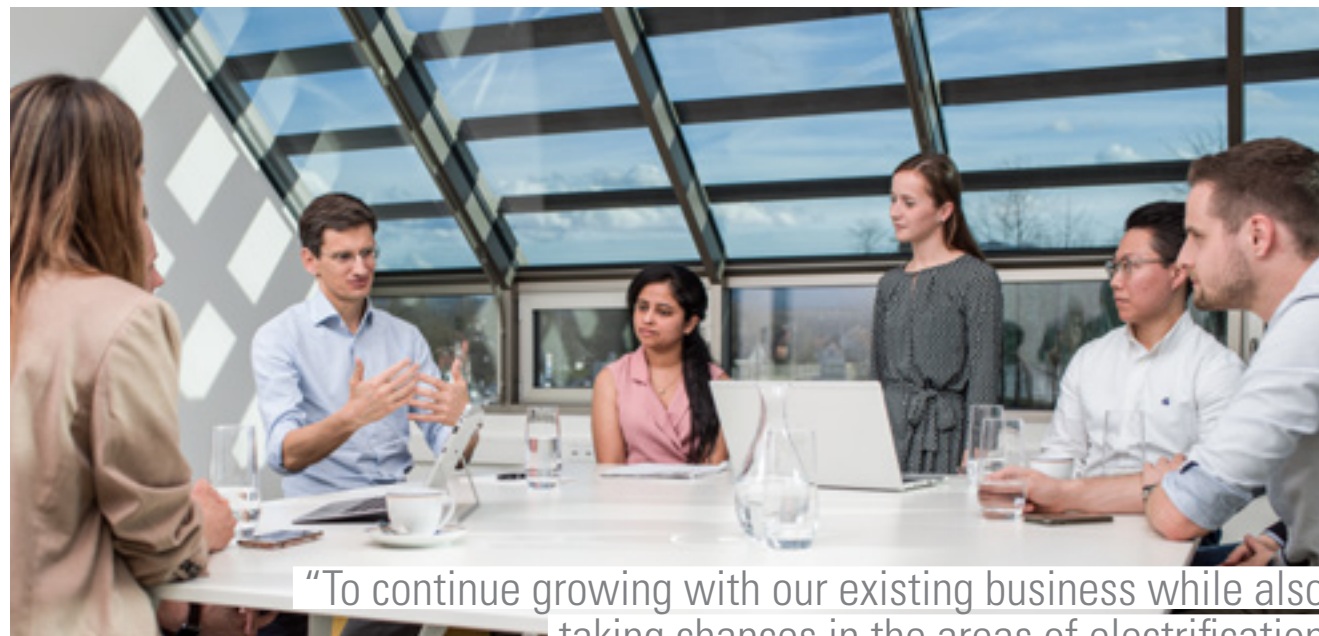
But how does Miba make its corporate mission come to life? "There is something that drives us, which we call the Miba Spirit," said Mitterbauer. The Miba Spirit means to never settle for what has already been achieved. To be very close to our customer and go the extra mile to find that better solution. And to embrace and try out new ideas and approaches. It also means to work together, to exchange ideas, and to help each other – across all department and division borders. After all, the Miba Spirit means to take responsibility. "It is this special Miba Spirit that drives us and makes us succeed," believes Mitterbauer.

MIBA EMPLOYEES WHO JOINED THE DISCUSSION WITH F. PETER MITTERBAUER:

- **Sanika Athavale** (India), Procurement Manager at Miba Automation Systems
- **Ozren Blagojevic** (Austria), Team Leader Quality (production) at Miba Sinter Austria
- **Stefan Blaschke** (Austria), Project Manager in Research & Development at Miba Friction Group
- **Tobias Kienesberger** (Austria), apprentice in his third year at Miba Gleitlager Austria
- **Bettina Lang** (Austria), Junior Consultant in the Digital Office of Miba AG
- **Daria Rakhmatulina** (Russia), Agile Master in the Miba IT department
- **Chen Zhao** (China), Business Development Manager, Miba eMobility Team

"Our corporate mission of 'Technologies for a cleaner planet' gives us purpose, energy, and motivation for our daily work tasks. Through our products and the careful use of resources, we strive to contribute toward a cleaner planet."

F. Peter Mitterbauer, CEO Miba



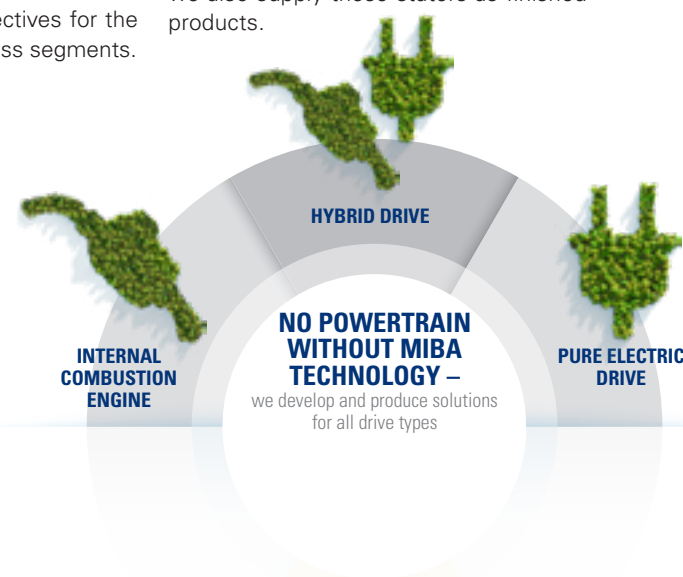
“To continue growing with our existing business while also taking chances in the areas of electrification and digitalization is the essence of our growth strategy.”

TAKE CHANCES – GROW SUSTAINABLY.

Miba has always been a healthy, financially independent company. “We focus on stability and long-term profitable growth”, explained CEO F. Peter Mitterbauer to the young staff members. But what strategy is behind it all? For Miba’s CEO, the answer is clear: “We want to further expand the business with our existing technologies that are very successful in the market. In addition, we will also seize opportunities in new markets or with new products. This interaction of existing and new solutions will be crucial to Miba’s success. Both are equally important, and, going forward, we will also invest in both.” Decarbonization and Digitalization are two megatrends where Miba sees excellent perspectives for the development of new business segments.

WIDE e-MOBILITY PRODUCT PORTFOLIO

The establishment of Miba eMobility GmbH in 2019 marked an essential milestone in this respect. Miba already offers its customers a wide product portfolio for pure electric driving and for hybrid vehicles which combine an electric motor with an internal combustion engine. F. Peter Mitterbauer named a few examples: “Our power resistors can be found around the world in the serial production of e-cars of several manufacturers. For the automotive industry, we also build manufacturing machinery for the stators of electric motors. And we also supply these stators as finished products.



“As a family-owned company, we focus on financial stability, independence, and sustainable growth. This provides security, especially during turbulent times.”

In addition, we offer our customers a number of solutions in the fields of battery systems and battery cooling.” Building on these and many other solutions, Miba aims to proactively shape e-mobility – and thus develop an additional business segment that ideally complements Miba’s existing portfolio. “This is fully consistent with our corporate vision of ‘No powertrain without Miba technology’. Whether conventional drives, hybrid technology, or pure electric driving – we want to offer our customers compelling products in each of these segments”, said Mitterbauer, describing Miba’s vision for the future of powertrain technology.

SEIZING THE OPPORTUNITIES OF DIGITALIZATION

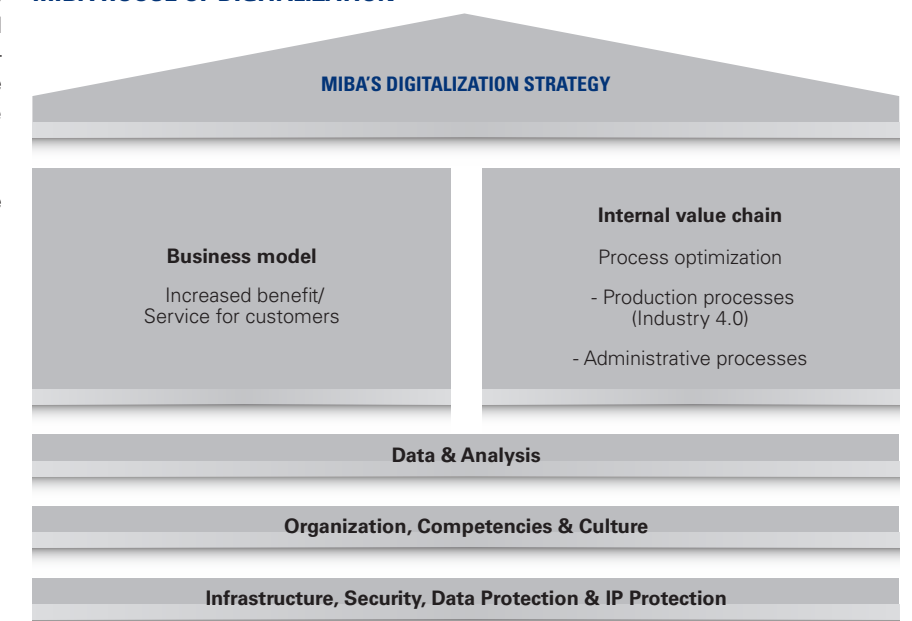
Digitalization has greatly changed our daily lives. And it has also changed the way we work and manufacture. Describing how Miba intends to capitalize on the opportunities of digitalization, F. Peter Mitterbauer said: “Our digitalization strategy rests on two pillars. On the one hand, we aim to develop new digital products and services with genuine added value for our customers. And, on the other hand, digitalization helps us make our internal processes more efficient, resource-saving, and quality-focused. The ‘Miba House of Digitalization’ is the model we use to describe this strategy.”

INNOVATION – THE POWER OF IDEAS

One of Miba’s core values is innovation. “To us, innovation means to never settle for what has already been achieved. And to always go the extra mile looking for a better solution for our customers”, explained Mitterbauer. He also made clear that innovation can not be limited to R&D departments: “Every employee can and, as a matter of fact, is expected to contribute his or her ideas – in production, in administration, and in sales. To make this happen, we focus on an open communication culture, flat hierarchies, and mutual appreciation in our interactions. Because we know that it is our employees who, with their expertise, their observations, and their new ideas, help Miba move forward, day after day.”



MIBA HOUSE OF DIGITALIZATION





"The Miba Lighthouse provides guidance and shows us the way. With it, we lead Miba into the future with a clear objective and on a safe course."

Principles that guide us: THE MIBA LIGHTHOUSE

With the Miba Lighthouse, the company has created a system that describes its mission, vision, values, and principles. In his talk with the young employees, Miba CEO Mitterbauer explained why this is so important: "The Miba Lighthouse serves us as a point of reference. It defines a clear aim for strategic decisions

and outlines the scope within which Miba operates". Thus, Miba's corporate strategy is founded on the Miba Lighthouse which, by the way, was developed in 2017 by a group of employees who spent several months intensively analyzing Miba and its principles.

"Curious, open-minded people eager to continue learning are a good match for us."

Worldwide collaboration: COMPETENCIES THAT WILL BE IN DEMAND IN THE FUTURE

Our employees contribute significantly toward our business success with their expertise, their personalities, and their experience. This is why they are so valuable to Miba. But what qualities does Miba expect of new recruits? "At Miba, employees from different parts of the world work together, across department or country borders. We consider teams of great diversity an opportunity because different experiences and approaches spawn new ideas. Curious, open-minded people eager to continue learning are a good match for us," replied Mitterbauer, adding: "We want to shape the future together with our employees. It is therefore essential that they are willing to take responsibility: for the company, for their colleagues, but also for themselves and for society".

WIDE-RANGING TRAINING AND EDUCATION PROGRAM

For their personal development, Miba offers its employees a wealth of training and education offerings – from apprenticeships to practical upskilling modules in the various business divisions and through to programs for specialists and managers. "Lifelong Learning is one of Miba's core values. Especially in times of great changes, continuous development, both professionally and personally, is indispensable. To that end, we offer our employees programs geared to their specific needs," said Mitterbauer in his talk with the young employees.



02 TECHNOLOGIES FOR A CLEANER PLANET

IT'S NOT JUST ABOUT
INNOVATIVE PRODUCTS.
IT'S ABOUT A SUSTAINABLE
FUTURE AND A CLEANER
PLANET.

BECAUSE
FUTURE
MATTERS.

"TO CONTRIBUTE TO A CLEANER
PLANET WITH OUR TECHNOLOGIES –
THAT IS WHAT DRIVES US"

Wolfgang Litzlbauer, Deputy CEO, Miba AG

SUSTAINABLE ENERGY GENERATION

With our products, we strive to make a substantial contribution to a sustainable and clean generation of energy. Therefore, we develop and manufacture solutions for wind power as well as for hydropower and solar systems. Also, Miba technologies help make gas-fired power plants cleaner and lessen their CO₂ footprint. We do all this with one goal in mind: to help make our planet cleaner and more liveable, consistent with our mission of "Technologies for a cleaner planet".

WIND POWER: BUOYED BY MIBA TECHNOLOGY



Wind is a key source in the clean energy mix of the future. And its importance continues to grow. In 2019, the world-wide wind power production capacity already reached 655 gigawatt. We at Miba have developed and produced wind power solutions for many years now and offer our customers a broad portfolio in this segment.

"With our products for wind power, we are making a valuable contribution to the generation of clean, sustainable energy."

Martin Liebl, Member of the Management Board of Miba AG

MIBA TEAMWORK

THE WIND POWER TEAM OF THE MIBA BEARING GROUP



"High-end wind turbines need our bearing technology for their gearboxes"

"Our team has grown constantly over the past three years."

Wind turbines need to meet ever-increasing performance requirements. While power densities required today are 1.5 to 2.5 megawatts, future turbines will have to generate 5 to 6 megawatts. And that without being able to enlarge the available installation space for the gearbox and the generator. "This is a task which the rolling bearings conventionally used in the planetary gearboxes of wind turbines can barely handle." "And this is why," according to the Wind Power Team of the Miba Bearing Group, "the manufacturers of wind turbine gearboxes increasingly switch to using Miba's bearing technology".

Some three years ago, two engineers at Miba began to focus their efforts on studying the use of the company's bearing technology in wind turbine gear-boxes and implemented first projects for customers. Since then, the related sales volume has grown constantly, and so has the team. Its members were recruited from such diverse fields as research & development, application engineering, manufacturing, sales, and order planning. Yet, there is one thing they all share: their enthusiasm for Miba bearing technology and its use in high-end wind turbines.

Miba's bearing technology for high-performing gearboxes in wind turbines



EBG Power Resistors: USED ON A LARGE NUMBER OF WIND TURBINES AROUND THE GLOBE

Large wind turbines generate more than two megawatts of power. One in every two of these turbines worldwide is equipped with power resistors supplied by EBG, a Miba subsidiary. They are used for the conversion and transmission of energy. EBG power resistors have been steadily gaining in importance in the wind

power segment, as their innovative technology makes them more compact than comparable products. Consequently, they help make the systems more efficient and long-lived. Due to their performance they can be operated with an advanced energy efficiency.



EBG power resistor



Miba optimizes wind power utilization.

Safe and effective: MIBA FRICTION COMPONENTS BRAKE ROTORS

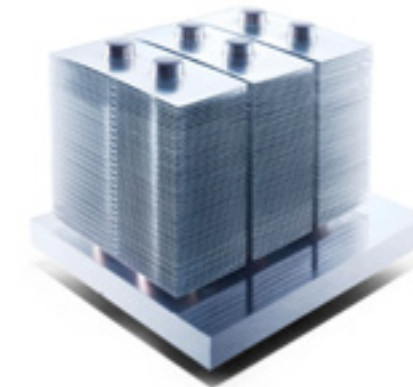


Friction technology for wind turbines

In order to avoid damage to wind turbines caused by strong winds, the rotors need to be slowed down or stopped. This increases the safety of wind turbine assemblies weighing approx. 300 tons and prevents power overloads. The safest method for this is to use brakes with friction components such as those offered

by Miba. They resemble bicycle disc brakes, but are much bigger so that they brake the rotors safely and effectively. Many wind turbine manufacturers rely on Miba technology. Our friction technologies are used throughout the world on a large part of wind turbine brakes.

Temperature Management for Power Electronics: SAFE COOLING TECHNOLOGY WITH A DIGITAL BONUS



Cooling technology from DAU

Cooling technology from Miba subsidiary DAU ensures that the power electronics equipment in the switchgear cabinets of wind turbines is always kept at the right temperature. Our aim is to achieve optimum cooling in ever-smaller installation spaces and thus protect power electronics critical to system function. Going forward, we intend to make our cooling technology digital and thus intelligent. How does that work? Via sensors on the

heat sink that measure the temperature of the electronic components and thus provide the entire system with data. As a result, the overall system can be optimized, and maintenance cycles can be planned with a high degree of accuracy. This saves users money, but also prevents damage and unnecessary maintenance work, thus contributing to greater sustainability and a lower CO₂ footprint.

Miba is a global technology leader: SYSTEMS FOR THE CONSTRUCTION OF OFFSHORE WIND TURBINE TOWERS

Offshore wind turbines are anchored to the seabed via foundation assemblies measuring up to 100 meters in height. These assemblies consist of steel tubes of approx. 30 meters in length that are welded together prior to their installation. Miba Automation Systems (MAS) designs and builds circumferential and longitudinal weld seam milling machines for its wind

power customers. These milling machines are used to pre-machine the various tube elements for offshore wind towers in such a way that a welded connection of optimum quality for assembly is obtained. Miba is the global technology leader in this market segment and has already sold quite a large number of such systems in recent years.



Miba milling systems are used in the construction of offshore wind turbines.

HYDROPOWER:

FULL ENERGY FLOW THROUGH MIBA EXPERIENCE



Miba's industrial bearings are used in hydropower plants around the globe.



"HYDRO BEARINGS" INCREASE THE EFFICIENCY AND PERFORMANCE OF TURBINES

Our industrial bearing production site in Brazil has been part of the Miba Group since the fall of 2019. Yet, that company has, for more than 40 years now, been one of the world's three biggest suppliers of so-called "hydro bearings"; that is, bearings for turbines in hydropower plants. Hydro bearings are used in

small (generated power below 30 megawatts), medium-sized (generated power between 31 and 80 megawatts), and large (above 80 megawatts) hydropower plants. Clients appreciate the wealth of expertise and decades of experience that our industrial bearings team brings to the table.

"Miba's production site for industrial bearings in Brazil is one of the world's largest suppliers of bearings for hydropower plants."

Clemens Honeder, Managing Director Miba Industrial Bearing Branch

CNC MACHINES FOR HYDROPOWER PLANT CONSTRUCTION

Miba Automation Systems, the machinery specialist of our group, develops and produces CNC machines for the construction of hydropower plants. Thanks to

direct CNC machining, components can be manufactured with a higher degree of precision and more efficiently.

SOLAR ENERGY:

SOAKING UP THE SUN WITH MIBA EXPERTISE



POWER ELECTRONICS FOR SOLAR PLANTS

Thick-film power resistors from Miba's subsidiary EBG can be encountered in almost all solar plants of renowned manufacturers. This specifically developed technology strikes the best balance be-

tween component size and performance, especially in comparison to wire wound resistors, as the EBG technology makes it possible to include a greater number of resistors in a single package. In addition,

heat sinks and heat pipes from Miba's subsidiary DAU protect the electronic components in solar plants against overheating.



GAS-FIRED POWER PLANTS:

MAXIMUM PERFORMANCE THROUGH MIBA EXPERTISE



HYDRODYNAMIC BEARINGS FOR MORE EFFICIENCY

Hydrodynamic bearings from Miba's Industrial Bearing Branch ensure that compressors, gearboxes, and turbines in gas-fired power plants can operate more efficiently and perform at a higher level. In addition, they increase system lifetime

and reduce wear. As a result, existing resources are utilized more effectively. This way, we also contribute to reducing the CO₂ footprint in power generation from fossil energy sources.



SUSTAINABLE ENERGY TRANSMISSION

When transmitting electrical energy, it is of paramount importance to keep energy losses along the transport-route to an absolute minimum. With our technologies, we at Miba are making an important contribution to this effect. Serving as key components of high-voltage direct current technology, our power resistors reduce transmission losses. In addition, they help make energy grids smart and thus more efficient. And they enable the energy-efficient and cost-effective charging of electric vehicles.



Transmitting Energy Over Long Distances: POWER RESISTORS FOR HIGH-VOLTAGE DIRECT CURRENT TRANSMISSION

When electricity is to be transported over long distances, such as from offshore wind farms to big cities in a country's interior, then this is where our EBG power resistors come in. In high-voltage direct current transmission scenarios (HVDC technology), they ensure that the alternating current

generated in the wind farms is converted into high-voltage direct current. This reduces energy losses by four percent. In the consumption region, the electricity will then be reconverted to alternating current and fed into the grid.



e-Charging: ENERGY-EFFICIENT AND COST-EFFECTIVE CHARGING OF ELECTRIC VEHICLES

Our power resistors are also part of the charging infrastructure for electric vehicles, more specifically, in so-called fast and ultrafast chargers with charge rates of 150 KW to 350 KW. In them, they serve an important protective function and ensure that the power electronics will continue to function smoothly in the event of a fault. Due to their compact design which achieves a markedly higher power density per size, our EBG power resistors help create a more compact and cost-effective charging infrastructure for electric vehicles. This benefits the environment and brings down the costs for end users.

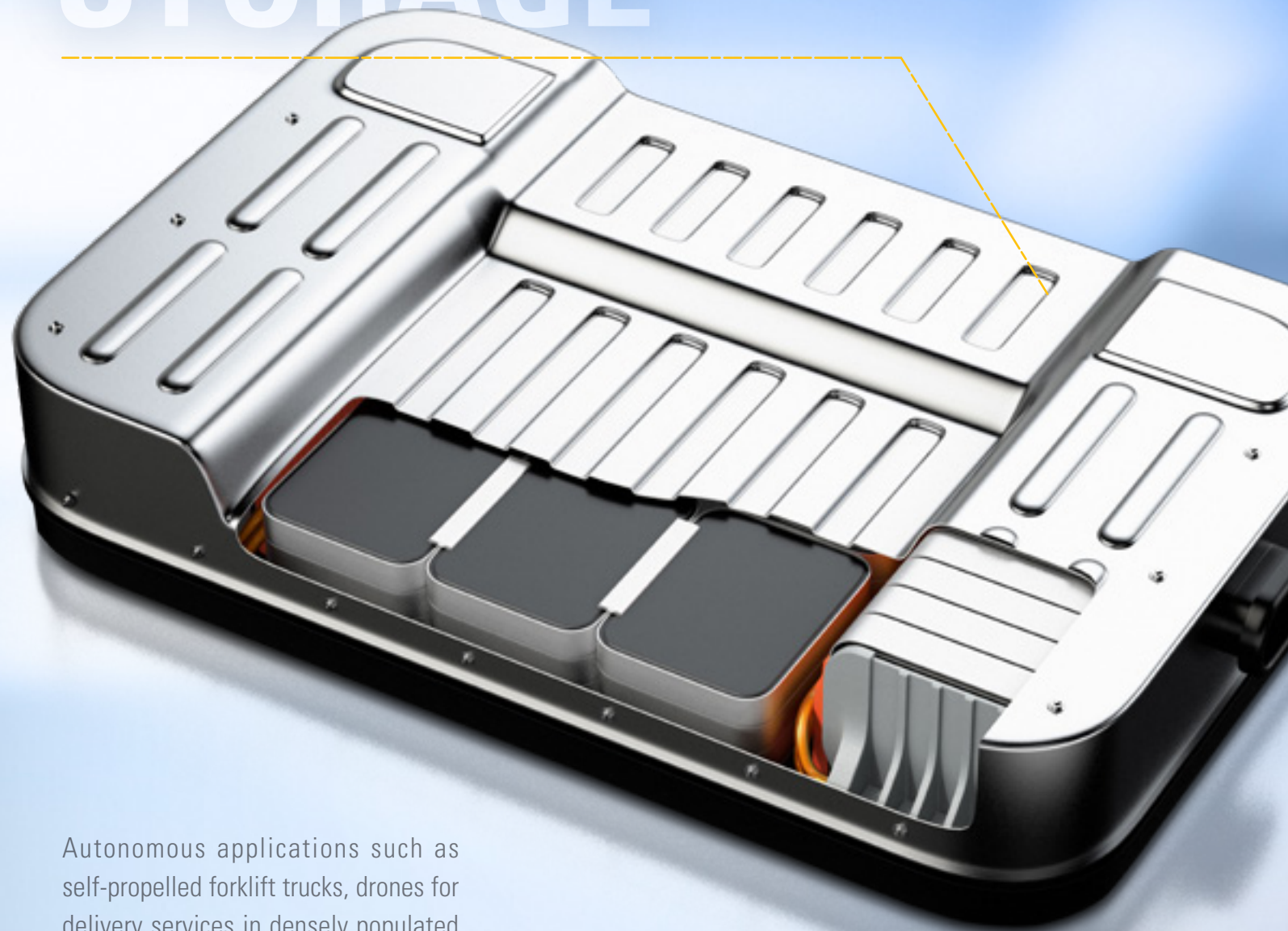


Smart Grids: HOW POWER GRIDS BECOME INTELLIGENT

Smart grids are intelligent energy grids where all interacting parts of the energy system are interconnected via a communication network. EBG high voltage resistors from Miba are used in smart grids in order to measure voltages in the power line and detect failures or defects. This safeguards the stability of the total grid. In sparsely populated, expansive regions in the U.S., for example, smart grids are used to centrally and closely monitor and control the power lines. EBG power resistors excel with their compact design, precision, and long-term stability. They make power lines more efficient and help avoid most grid outages.



SUSTAINABLE ENERGY STORAGE



Autonomous applications such as self-propelled forklift trucks, drones for delivery services in densely populated metropolitan areas, electric cargo bikes, or electric cars are all powered by electricity. And batteries form their heart supplying them with the necessary energy to keep them operational and functional. This is why Miba develops new solutions for the temperature management of batteries such as

the Miba FLEXcooler® for electric vehicles (see the chapter on e-mobility on page 34). And this is also why we acquired a stake in Upper-Austria-based Voltlabor, a manufacturer of battery systems.

MIBA TEAMWORK

THE BATTERY SPECIALISTS IN THE MIBA eMOBILITY TEAM

"Together, we create a worldwide supplier of battery systems"



In the summer of 2019, Miba acquired a stake in Voltlabor. Based in Bad Leonfelden, Upper Austria, Voltlabor specializes in the development and production of batteries. Ideally complementing one another, the skillsets of the two companies are pooled in order to leverage opportunities for growth. Their common objective is to create a major supplier for the development and production of battery

systems that, headquartered in Austria, will be operating globally. While Voltlabor has gathered comprehensive expertise as a manufacturer of integral battery systems, Miba's focus has been on the development and production of components. Miba makes its thermal management technologies for batteries available to this joint venture; these play a key role in ensuring the optimal function of the battery as a whole. In addition,

Miba shares its expertise in the industrialization of production processes, access to customers and markets around the world, and its production facilities on four continents. So far, Voltlabor has mainly produced battery systems for autonomous applications such as self-propelled forklift trucks. By partnering with Miba, it seeks to broaden its portfolio and market it on a global scale.



autonomous forklift truck

drone

Voltlabor battery system

compact construction machines

SUSTAINABLE ENERGY USE

Employing and consuming energy efficiently and thus sustainably is crucial to reaching ambitious climate targets. With our technologies for vehicles, ships, aircraft, construction and agricultural machinery, as well as industrial applications, we are making substantial contributions toward a cleaner planet.

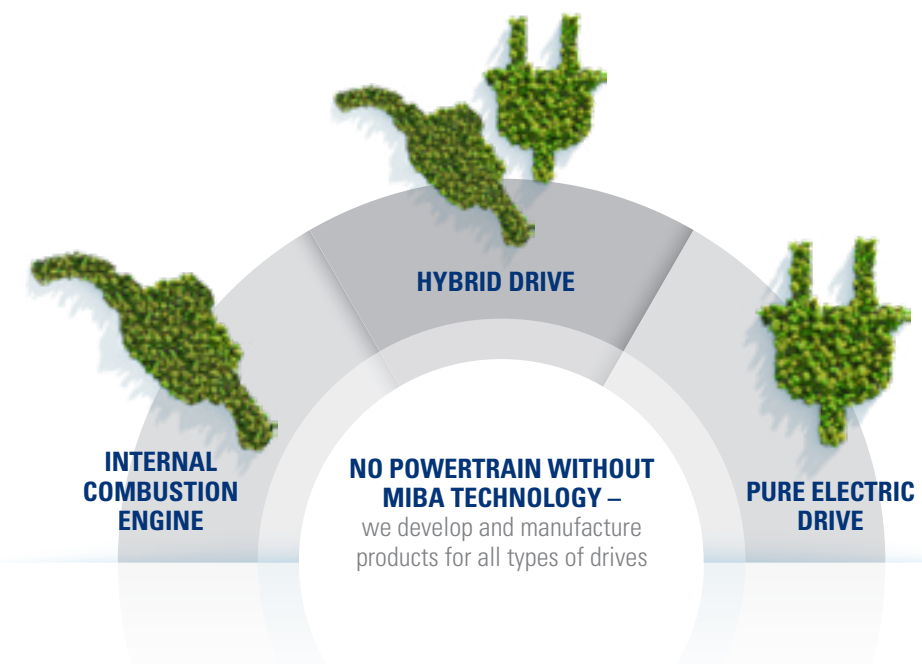
POWERTRAIN TECHNOLOGY: NO POWERTRAIN WITHOUT MIBA TECHNOLOGY



Miba follows a clear vision for the future of powertrain technology: be it internal combustion engines or hybrid or pure electric drives – we develop and manufacture products for all technologies. And, in doing so, we make an important contribution to a cleaner planet.

“To our clients, we are an innovative and reliable partner in the development of the powertrain systems of the future.”

Wolfgang Litzlbauer, Deputy CEO, Miba AG



Day after day, we strive to design components that make powertrains more efficient, eco-friendlier, and quieter. Miba technology can be encountered throughout the globe in engines, motors, transmissions, brakes, or clutches of cars, trucks, buses, aircraft, and agricultural or construction machinery. We work toward

further optimizing conventional drive technology, as we believe that combustion engines still offer a lot of development potential. Yet, we also develop and produce solutions for hybrid drives – that is, combinations of combustion engines and electric motors – and for pure electric drives.

SPUTTER TECHNOLOGY:

HOW WE MAKE FLYING MORE EFFICIENT AND ENVIRONMENTALLY FRIENDLY



Series-produced at Miba since 2016: our sputter technology that makes aircraft quieter and cleaner.

“Above 100 kph, the turbine is so quiet that the pilot will no longer hear it.”

Rainer Aufischer, Chief Engineer, Miba Bearing Group



Developed by Miba and series-produced since 2016, our sputter technology for aircraft turbines contributes significantly to the more sustainable utilization of energy in the aviation industry. The use of sputter technology in the coating of gear wheels in aircraft turbine gearboxes constitutes one of the key elements in the efforts to achieve a 15 percent improvement in fuel economy and a marked mitigation of aircraft noise. Pilots reported that, at velocities above 100 kph, they no longer heard any turbine noise and, only by looking at the electrical instruments, could tell that the turbines were operating.

Miba technology plays a key role in making all this possible. Turbine components enhanced with Miba's sputter coating technology are much smaller in size, reducing the necessary installation space. By using “cathode sputtering”, the efficiency level can be raised considerably, making turbines not only more efficient, but also quieter and eco-friendlier.

ABOARD ALMOST ALL MEDIUM-SIZED AIRCRAFT AROUND THE GLOBE

Miba sputter technology can be encountered aboard almost all medium-sized aircraft (single aisle aircraft) of world-leading manufacturers. In a next development step, we are working on a lead-free sputter coating solution in order to further reduce the environmental footprint.

Lead-Free Bearings: PROTECT THE ENVIRONMENT AND OUR EMPLOYEES

In 2018, lead was put on the SVHC (“Substance of Very High Concern”) list of the REACH Regulation. In response to this, we at Miba developed “Generation 2”: a lead-free alloy that, with the help of a sulfur additive, is able to imitate the lubricating characteristics of lead. In the solution developed by Miba, dry lubricants take the place of lead. What makes “Gen-

eration 2” so special is its high fatigue strength coupled with the robustness of lead-containing bronze. Not only does the completely lead-free product exert a low environmental impact, but it also helps protect the health of our manufacturing personnel. First prototypes have already been built and have aroused keen interest among our clients.



“The goal is to become entirely lead-free.”

Katrin Zorn, Head of Technology Competence Center, Miba Bearing & Coating

SINTERED COMPONENTS:

MAKE COMBUSTION ENGINES CLEANER



Sintered components from Miba reduce the weight, noise, and vibrations of internal combustion engines. And make them more efficient and less polluting.



Sintered component

“Sintered components from Miba bring greater efficiency, lower weight, and reduced noise and vibrations to combustion engines and hybrid motors.”

Bernd Badurek, Managing Director, Miba Sinter Group

SMART BEARINGS OPTIMIZE MAINTENANCE AND REPLACEMENT TASKS

New digital products generating genuine added value for our customers constitute a key development focus at Miba. For instance, sensor-equipped digital and thus smart bearings are capable of constantly measuring and evaluating data regarding their state. This is made possible by a specifically developed

telemetry unit featuring a data analytics system. With it, engine/motor failures can be detected early and maintenance cycles can be executed more accurately and effectively. In the case of ships, this helps avoid unnecessary port calls and premature maintenance jobs or replacements. We developed this smart bearing

in a joint effort together with the “Large Engines Competence Center” at Graz University of Technology: one of many examples of Miba's collaboration with research institutes and universities around the globe.

Oilfree Newcomer: THE DRY MULTIDISK CLUTCH

Dry multidisk clutches offer many advantages. Miba Friction Group develops the friction components for this new technology.

Multidisk clutches are a function-critical part in vehicle drives. Every drivetrain includes gear wheels that transmit torque from one level to the next via a so-called "positive engagement." When driving the vehicle around a corner, the torque is transmitted only to a fixed position. In the case of a multidisk clutch, this can also be done with "slip." It makes it easier to control the torque – more specifically, in a continuously variable manner. Nowadays, wet, that is, oiled multidisk clutches are being used. For this case and other

applications, the industry is developing a new, environmentally friendly, dry multidisk clutch technology. And Miba Friction Group is developing the pertinent friction technology.

DOING WITHOUT OIL SAVES ENERGY

But what are the specific advantages of dry multidisk clutches? They offer greater efficiency, and doing without oil helps save a lot of energy, because, with oil in the system, energy is needed to keep it in constant motion. Furthermore,

a dry system is able to achieve a higher torque density. All this saves energy, and, together with the avoidance of oil, contributes toward a more sustainable clutch technology.

"Dry multidisk clutches offer greater efficiency and overcome technical hurdles. Doing without oil saves you a lot of energy."

Falk Nickel, Head of R&D,
Miba Friction Group



Dry multidisk clutches

LONGER-LIVED AND QUIETER TRAINS THANKS TO MIBA TECHNOLOGY

Reliable, quiet brakes are among the most important parts of state-of-the-art high performance trains. Consequently, high performance friction linings from Miba, for example, are used on high speed trains. Even at velocities around 400 kph, they offer outstanding robustness, weather resistance, and noise reduction. Furthermore, many renowned manufacturers of

traction inverters rely on Miba power electronics for the control of electric motors in locomotives. Such inverters are used to control the motor speed and thus the velocity of a locomotive more efficiently than with a mechanical transmission. In addition, Miba bearings make locomotive engines more energy-efficient and thus environmentally friendly.

VISUAL INSPECTION IN MANUFACTURING

If the volume of rejects in production is reduced, then this will help save raw materials and energy. Visual inspections are an important point to start from. By using image recognition systems and non-contact measurement systems, nonconformities are detected and optimizations are made in the ongoing production process. For this purpose, Miba has assembled a team of specialists who are also looking into the use of artificial intelligence and deep learning methods in quality optimization.

e-MOBILITY:

MIBA OFFERS A BROAD PRODUCT PORTFOLIO



MIBA TECHNOLOGIES FOR e-MOBILITY

Today, Miba already offers a host of solutions for e-mobility. For hybrid drives just as much as for purely electric driving. As an innovative partner with decades of

automotive experience, and in close collaboration with our customers, we take part in proactively shaping future mobility and the market.



New and Additional Business Unit: 100 MILLION EUROS TO BE INVESTED IN e-MOBILITY UNTIL 2025

In order to promote our e-mobility effort, we have committed to a sizable investment program.

As a family-owned company with a long-term orientation, Miba has always pursued a clear strategy: to grow its existing business and to explore new opportunities on the side. One of those is e-mobility. Until 2025, we intend to invest more

than 100 million euros in establishing and expanding our e-mobility activities: in personnel resources, research and development, in additional production lines for pure electric and also hybrid drives, and in the expansion of our exist-

ing production sites. This is how we aim to proactively participate in shaping this market – by being a key development and manufacturing partner to our clients.

MIBA TEAMWORK

ELECTRIFIED BY AN IDEA: THE MIBA eMOBILITY TEAM

Miba started early on to take a look at electrification. In 2017, we set up the eMobility Innovation Lab, a central development team assembled to analyze new business opportunities and the application of Miba's expertise in the field of e-mobility and to develop solutions. Miba's business units have also taken a close look at electrification and its prospects. In April 2019, we merged all these activities into the

Miba eMobility Team. There, activities are coordinated, and developed and refined together. Our specialists are working on projects such as the development and production of battery coolers and battery systems, stators and rotors for electric motors, fuses for electric systems, and motors for auxiliary systems in electric vehicles. And there is no shortage of fun, either: in a recently organized e-kart race, team members had the chance to

try out electric drives on a racetrack. The eMobility Team keeps growing and is constantly on the lookout for additional, innovative people. We welcome specialists, but also team members who would like to develop their skillset and expertise in the field of e-mobility. Because we all have one goal: going forward, we also want to make Miba a talent factory for e-mobility enthusiasts.

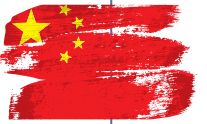
"We want to be a talent factory for e-mobility enthusiasts"

Roland Hintringer,
Managing Director
Miba eMobility GmbH



MIBA TEAMWORK

OUR e-MOBILITY PIONEERS IN CHINA



"Our power resistors are integrated in all electric vehicles of the world's largest manufacturer which is based in China."

Kim Wang, Vice President Marketing & Sales at Miba EBG China

In China, the trend toward electromobility has been more pronounced than elsewhere in the world. In recent years much has been invested in research and development for, and the market launch of, electric vehicles. Leveraging this trend, Miba EBG China, with its production plant for power electronics near Shenzhen, began early on to offer its power resistors to customers from China's electric

vehicle industry. Successfully so! Today, well-known major brands, including the world's largest e-car manufacturer, have products from Miba EBG China installed in their electric vehicles. Presently, 14 employees from Research and Development, Sales and Customer Service are supporting their Chinese e-mobility customers. "Our most rewarding task is the joint development of projects with our customers," says sales head Kim Wang.

"They can confidently rely on our technical expertise and competence in delivering solutions. Our team consists of eight women and six men. Thanks to our experience and technical training, we understand right away what our customers want and need. Furthermore, it makes us proud to be able to contribute to a more efficient use of energy and a cleaner planet through our work."

More Compact, More Efficient, More Reliable: SMART POWER RESISTORS

Miba power resistors are also found in hybrid and e-cars, especially in those from Chinese manufacturers. Yet, projects for major manufacturers have also been launched in Europe. In addition, substantial progress has already been achieved in the development of series-produced smart resistors for electric vehicles, but also for other applications:

performance, temperature and function of important parts of the electric drive system are monitored by means of sensors. The sensed data can be used to control and efficiently use the entire system. Compared to traditional products, smart power resistors are even more compact, more efficient and more reliable in their failure behavior.



FLEXIBLE BATTERY COOLING SYSTEM FOR ELECTRIC VEHICLES: MIBA FLEXcooler® ADAPTS TO SHAPE OF BATTERY CELLS



When developing electric drives, one of the biggest challenges is the thermal management of batteries. It is key to vehicle range and battery life and an important factor for successful fast charging. The current trend in development is toward liquid cooling. In that case, the main challenge is to achieve an optimum thermal connection between the battery cells and the heat sink. With the Miba FLEXcooler®, we at Miba have developed a battery cooling system whose flexible shape adapts perfectly to that of the battery cells.

FLEXcooler TECHNOLOGY DOES NOT REQUIRE GAP FILLERS

The Miba FLEXcooler® is the first liquid cooling system on the market which, due to the close connection between battery cells and cooling system, not only optimally absorbs and dissipates heat but also does not require any gap fillers, i.e., materials to fill the space between the battery cells and the cooling system. Another advantage of the Miba FLEXcooler® is its minimal weight. It can be used for prismatic, cylindrical and pouch battery cells.

MIBA TEAMWORK

EUROPE-WIDE COLLABORATION FOR AUDI e-tron

Seven partners from four countries cooperate in the “i-HeCoBatt” research project. The Miba FLEXcooler® is equipped with sensors and made smart.

Together with Audi and other partners, Miba has been working on a development for the Audi e-tron, within the scope of the EU research project “i-HeCo-Batt” (Intelligent Heating and Cooling Solution for Enhanced Range EV Battery Packs).^{*} For this project, the Miba FLEXcooler® is equipped with sensors and made smart. The sensors provide the vehicle’s control unit with important information about the temperature distribution in the battery. Therefore its functions can be controlled and optimized while in use. This increases battery performance and lifetime. It will need to be replaced less often, which constitutes a key benefit in terms of environmental protection. In addition, the temperature data obtained form the basis for new digital functions such as early service alerts and analyses of the battery data via cloud solutions. The consortium of this EU research project consists of seven partners from industry, research, and startups from Austria, Germany, France, and Spain.



The team of the EU project at a meeting in the Miba Forum

^{*} i-HeCoBatt: LC-GY-01-2018 This project has received funding from the European Union's Horizon 2020 Research and Innovation Program under grant agreement N° 824300



UPPER AUSTRIAN INNOVATION AWARD

A big success for our Battery Components Team: in the fall of 2019, Miba received the Upper Austrian Innovation Award for the development of the FLEXcooler® battery cooling system.

Safety first: POWER FUSES FOR ELECTRIC VEHICLES

When an electric vehicle gets into an accident, or if there is a problem with its electrical system, then one thing matters most: to immediately switch off the current flow so that there no longer is any dangerous voltage or current present in the vehicle. This is important to protect both driver and rescue workers. Therefore, Miba is developing fuse systems, so-called power fuses, for premium-segment vehicles whose electric circuits carry voltages between 800 and 1,000 volts. In the case of an accident or malfunction, they will immediately interrupt the electric circuit. With this innovation,

we make an important contribution toward improving the function and enhancing the safety of electric vehicles.



Miba Power Fuses – innovative, power-dense, and reliable

Stators and Rotors:

HOW WE ENHANCE THE EFFICIENCY AND POWER DENSITY OF ELECTRIC MOTORS

Our goal is to provide rotors and stators that make electric motors more efficient and power-dense.

Stators and rotors are the main components of electric motors. As its name suggests, the stator is a stationary component which generates an electromagnetic field that drives the rotating rotor. Over the years, Miba has progressed into one of the leading suppliers of the so-called pin winding technology for stators. With this method, a significantly higher copper fill factor can be achieved, that is, more copper can be applied into the stator. Conventional electric motors have copper fill factors of up to 45 percent –

Miba's technology increases this factor to up to 70 percent. Why is that important? The more copper is applied into the stator, the more efficient is the motor. As a result, the battery used can be designed smaller. For high performing sports cars and trucks, we offer the production of stators and rotors; for the passenger car segment, we build manufacturing equipment for stators. In both segments, we rely on a strong engineering team that covers the entire motor development or assists our customers with motor layout and ensures efficient manufacturability.

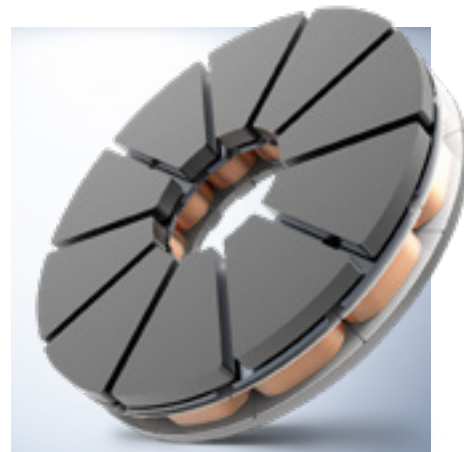


Axial Flux Motors:

MIBA DRIVE FOR ELECTROHYDRAULIC PUMPS

Miba's axial flux motors are characterized by their disc-shaped design and high torque density. Possible applications are found in electrically driven pumps where these characteristics are of particular relevance. Closely cooperating with our customers, we thus manage to save installation space and weight. For example, in rear axle steering systems of commercial vehicles, where we actively contribute to reducing tire wear on trucks during cornering

and thus to lowering the emissions of commercial vehicles. The electric motors developed for this purpose can be scaled to the requirements of the specific use case. In developing custom-tailored electric drives, Miba ventured out into entirely new territory. Meanwhile, Miba has already made great progress in the development of industrial manufacturing processes for such products and gets prepared for serial production in 2021.



Industry: Certified as Sustainable and Environmentally Friendly PATHWAYS TOWARD AN EVEN CLEANER INDUSTRY

We want to be at the cutting edge of making turbines, compressors, pumps, or transmissions in industrial applications cleaner and more sustainable.

HYDRODYNAMIC BEARINGS FOR INDUSTRY

Our industrial bearings operation, the Miba Industrial Bearing Branch, develops and produces bearings and seals for high performance applications. They are referred to as hydrodynamic bearings. They can be found in hydropower plants, turbines, compressors, transmissions, industrial pumps, and facilities that operate at high performance levels and where energy efficiency is of particular importance.

What do industrial bearings do? Their purpose is to receive loads from the rotor of the facility, at standstill and during operation, and to transmit these loads elsewhere. Besides, industrial bearings are responsible for the correct positioning of rotor and stator to one another, regardless of the operating situation and the loads the rotor and the stator are being subjected to. Unlike conventional bearings, industrial bearings receive loads on a thin film of liquid.

RESEARCH AND DEVELOPMENT

For the Miba Industrial Bearing Branch with its six locations in Europe, the U.S., and in Brazil, it is a mission of the heart to find ways to make industry more environmentally friendly. This is why our sites in Göttingen and Osterode are certified to the "Environmental Management System". In addition, we collaborate with many universities and colleges throughout Germany.

03 MIBA PEOPLE

**THE FUTURE IMPACTS US ALL.
WE WANT TO SHAPE IT
TOGETHER.**

BECAUSE
FUTURE
MATTERS.

**"OUR EMPLOYEES SHAPE THE FUTURE OF MIBA.
THROUGH THEIR EXPERTISE, THEIR IDEAS,
AND THEIR COMMITMENT TO WORLDWIDE
COLLABORATION."**

MARTIN LIEBL, MANAGEMENT BOARD MEMBER OF MIBA AG

COLLABORATION IS THE BASIS FOR INNOVATION



We at Miba work together throughout the globe, across country borders, departments, or divisions. Because we know: the greater the diversity of our team, the more expertise and experi-

ence will there be to share. This drives our inventiveness and innovative spirit, the most important prerequisites for a successful future.

MIBA TEAMWORK

TEAM SPIRIT AND INNOVATIVE IDEAS AT OUR "DIGITAL INNOVATION CAMP"

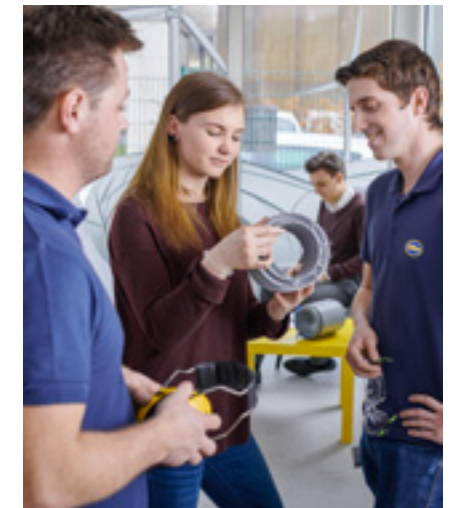
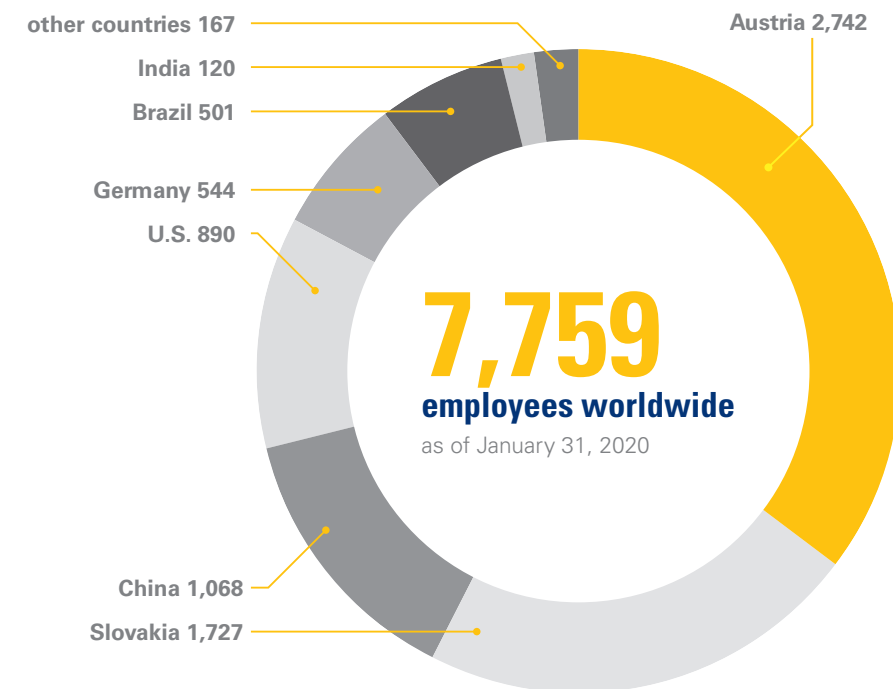


In September 2019, eight international teams came to the Digital Innovation Camp in Linz, Austria.

Eight international teams, three days filled with fun, hard work, and a common goal, to impress the jury and put a digital idea into practice. This was what the Digital Innovation Camp, hosted in Linz, Austria, in September 2019, was all about. Throughout the summer, 84 ideas for new, digital projects at Miba had been submitted from various countries and divisions. Out of these, the eight most

promising ideas were shortlisted for the camp. Finally, a jury of experts selected four ideas that were to be allotted the necessary time and resources for a more detailed development. In February 2020, these teams presented the results elaborated during the previous few months to Miba's Management Board and discussed further steps for the implementation of their ideas.

Miba employees by countries



**Average
length of service
of Miba employees**
fiscal year 2019/20

8.7

years

**Average
age of Miba
employees worldwide**
fiscal year 2019/20

39

years

**Worldwide
percentage of female
employees at Miba**
fiscal year 2019/20

25.1

%



GROWTH BEYOND BORDERS

“Local-to-local” is what we at Miba call the principle of producing in close proximity to our customers. This is why we continuously invest in the construction and expansion of production facilities.

In November 2019, we inaugurated a new production site in **India** for Miba Drivetec India (MDI). By relocating to the new premises, MDI has more than doubled its site area from 1,000 m² to 2,600 m². In **China**, we opened the new production site of EBG China in Qingxi

in the Shenzhen region. This move has increased EBG China's production area to 12,000 m², thus almost doubling it. On top of that, Miba is building an additional, second plant for Miba Precision Components (China) – MPCC – in Suzhou near Shanghai. Adding this second site will double MPCC's currently available space to approx. 48,000 m².



Inauguration of the new site in Pune, India



Groundbreaking at Miba site in Vrabie, Slovakia



Second Miba plant in Suzhou, China



Qingxi site of Miba EBG, China

MIBA BEARING GROUP CONTINUES TO EXPAND ITS GLOBAL PRESENCE

The joint venture in the bearing segment between Miba and the Zollern Group was launched on October 1, 2019.

Holding 74.9 percent, Miba is majority owner and has the industrial leadership. As a result, two production plants for industrial bearings in **Osterode** (Germany) and in **Cataguases** (Brazil) and one plant for engine bearings in **Braunschweig** (Germany) have become part of the Miba family. Miba now runs 12 bearing plants around the globe. And the goal is a clear one: to create the world's strongest supplier of bearings.

The partnership was kicked off by our top management paying visits to the new locations. All employees were informed about our strategies, plans, and values and welcomed to the Miba team with goodie bags. In recent months, the intensive and partnerlike cooperation with the new sites has already yielded a number of good results.



The staff of the plant for industrial bearings in Osterode



Group photo during the welcoming visit to the plant for engine bearings in Braunschweig

“We want to create the world's strongest supplier of bearings.”

Wolfgang Litzlbauer, Deputy CEO Miba AG and CEO Miba Bearing Group



The team of the plant for industrial bearings in Cataguases, Brazil



“The expertise of our employees forms the backbone of our success.”

Bernhard Reisner, Vice President Human Capital, Miba AG

MIBA CAMPUS

OUR TRAINING AND EDUCATION PROGRAMS

Lifelong Learning is one of Miba's core values. Curiosity and thirst for knowledge form the basis for innovation and thus an important foundation for future success. This is why, in the fiscal year 2019/20, we invested about EUR 2.7 million in training and upskilling measures for our employees. Our wide range of programs is comprised within the curriculum of the Miba Campus.

The heart of the Miba Campus is the Miba Leadership Academy (MLA). Just as important to us are apprenticeships, basic training, and special programs for specific locations or divisions that are, for example, focused on conveying technical

expert knowledge or the development of managers. In our training-on-the-job programs, less experienced employees are accompanied by more seasoned colleagues who explain workflows and share important additional information.

2.7

million euros
were invested in training and developing employees in the fiscal year 2019/20

507

persons
have completed Miba's worldwide management training programs since 2003.



Miba Leadership Academy: THE HEART OF THE MIBA CAMPUS

The Miba Leadership Academy is the global training and development curriculum for expert and managerial personnel within the group. It comprises three segments.

BUSINESS LAB

The Business Lab focuses on fostering entrepreneurship, self-management, and communication. Graduates of the Business Lab have a better understanding of Miba, are aware of economic relationships, and know the tools of intercultural communication. In two modules, participants gain insights into our business divisions, meet with members of our top management, and visit several of our sites in Upper Austria.

EXPERT LAB

The Expert Lab aims at strengthening leadership skills and promoting thinking outside the box. In view of their advanced leadership skills, Expert Lab graduates

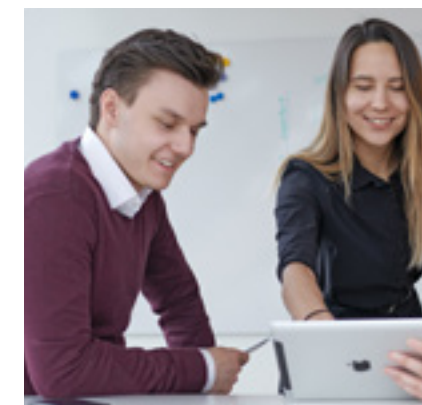
are excellent in managing processes and major projects and also generate new interdivisional impulses for Miba. This lab is primarily geared toward seasoned experts with a proven track record at Miba who have the potential for key positions.

LEADERSHIP LAB

The Leadership Lab prepares managers or experts from various departments for top management positions. Its focus is on strengthening leadership skills and fostering strategic thinking. Graduates of the Leadership Lab are able and willing to develop into executives who will help move Miba forward strategically. They drive innovation and promote corporate development.

Training sessions of the Expert Lab and the Leadership Lab take place in Austria, Slovakia, the U.S. and China.

MLA attendees who have completed the Expert Lab or the Leadership Lab also have the opportunity to complement their training with an MBA degree from the LIMAK Austrian Business School.



Global Graduate Program: INTERNATIONAL TRAINEE PROGRAM AT MIBA

Since 2015, we have been offering the Global Graduate Program (GGP), an international trainee program for academic graduates from all over the world. During their 18-month journey with intensive training and project work in various countries with a Miba presence, our “globalites” get acquainted with Miba and their future positions within the group.



APPRENTICES

OUR SPECIALISTS OF TOMORROW

We at Miba firmly believe in developing apprentices. This is why we offer apprenticeships to young people around the globe.

TRAINED FOR TOMORROW'S WORK ENVIRONMENTS

We offer apprenticeship programs in Austria, but also – in forms adapted to regional requirements – in other countries where we operate. We predominantly train our apprentices to become process technicians, metal technicians, electrotechnicians, surface technicians, mechatronics technicians, and IT specialists. We prepare young people for the work environments of tomorrow, which is why we include digital learning and simulation programs or robots in their training. However, training at Miba goes far beyond the workbench: in addition to thorough job-related training, we offer our apprentices language courses, traineeships abroad, and personality development and outdoor training programs.



MIBA TEAMWORK

MIBA'S APPRENTICE NEWSROOM TEAM

"We have already visited the newsroom of a major newspaper and attended a photography seminar."



The team of apprentice editors meets once a month to discuss content for the Apprentice Blog or Facebook posts.

They take care of our Apprentice Blog, create content for the Miba website, or make posts on Facebook. We are talking about our team of apprentice editors which was founded more than five years ago. Four young employees meet once a month and coordinate the content and workload for the following weeks. They are supported by the Miba Communications team. Their activities also included visits to the newsroom of a major daily and a photography seminar. What is more, our apprentice editors have already

contributed to a special issue for apprentices of a regional newspaper. Whenever team members take part in one of our events for apprentices such as outdoor training or field trips or attend traineeships abroad, they try to take as many photos as possible and write a report and post it online. As our way to say thank you, we organize a Christmas party for our apprentice editors or a seminar where they can acquire additional knowledge and skills for their job.

"An apprenticeship at Miba marks the starting point of an exciting future career."

Harald Neubert,
Management Board
member of Miba AG



APPRENTICESHIP AND SECONDARY SCHOOL DIPLOMA

At Miba, our apprentices are given the chance to combine their apprenticeship with taking a secondary school leaving exam. For the Austrian part of this program, we closely cooperate with KTLA, the Kremstaler Technische Lehrakademie. In Slovakia, we have launched the "Young Star" project at Miba Steeltec where our apprentices also have the opportunity to combine their training with obtaining a secondary school diploma.

UPSKILLING APPRENTICESHIP PROGRAM FOR PRODUCTION WORKERS

Since 2015, Miba has been offering production workers who would like to upskill themselves an apprenticeship to become metal-machining workers ("Lehre im zweiten Bildungsweg"). Under this program, participants undergo training in addition to their regular work responsibilities. A big effort, as they, in addition to their working hours, need to spend a considerable amount of time on attending classes and studying for exams.



BECAUSE
FUTURE
MATTERS.

04 MIBA CORPORATE SOCIAL RESPONSI- BILITY

**RESPONSIBILITY DOES NOT
END AT THE FACTORY GATE.
GREAT TO KNOW WHEN
COMPANIES DO IN FACT
THINK THAT WAY.**

**"ENTREPRENEURSHIP MEANS TAKING
RESPONSIBILITY. FOR OUR EMPLOYEES.
AND FOR THE PEOPLE IN THE REGIONS WE
OPERATE IN."**

HARALD NEUBERT, MANAGEMENT BOARD MEMBER OF MIBA AG

RESPONSIBILITY FOR OUR EMPLOYEES

Miba is a family-owned company rooted in strong values. Therefore, it is only natural that we assume responsibility for our employees.

We know that our employees, through their daily efforts, their dedication, and their expertise, are essential to our

success. Therefore, we not only ensure our personnel's safety at the workplace, but also offer them health and fitness

programs. And we support parents with childcare, making it easier for them to combine work with family life.



OUR EMPLOYEES' HEALTH IS OUR MOST VALUABLE ASSET



Every accident at work is one too many. That is why we train our employees in avoiding potential hazards and accidents at work, pay close attention to cleanliness and orderliness in all areas, and make sure that workplaces are strictly designed to ergonomic standards. In Austria and other countries around the world, we have also installed corporate healthcare programs. They support our employees in being and staying fit.

MIMI HEALTH PROGRAM

In Upper Austria, we launched the health program "MiMi", standing for "Miba für Mitarbeiter – Mitarbeiter für Miba" ("Miba for Employees – Employees for Miba"). But MiMi is more than just an acronym: MiMi is also the face of our health program offered at our locations in Upper Austria. The positive feedback speaks for itself. In the fiscal year 2019/20, for example, the "SchichtFit – Gesundheit in der Schichtarbeit" ("Shift-Fit – Health in Shift Work") program which we organized for our production staff attracted more than 300 participants. On top of that, we provided the "Powertankstelle" ("Recharge Your Batteries") and "Stress lass nach" ("Reduce Stress") training programs. Furthermore, about 100 persons have regularly been using the exercise room in the new Miba Forum.

Miba Sinter Austria purchased six exoskeletons for its toolmaking employees. The objective is to use these supporting, ergonomic work aids to sustainably improve workplace design and workflows so as to prevent musculoskeletal disorders.



Exoskeletons help prevent musculoskeletal disorders

ders in our employees. Our vast healthcare portfolio also includes vaccination campaigns, smoking cessation seminars, individual coaching for specific health problems, or discounts at gyms. We also support joint sporting activities of our employees – such as participation in running events and other sports events.

HEALTHY AND FIT EMPLOYEES THROUGHOUT THE WORLD

We are committed to promoting the health and fitness of our employees, also outside of Austria. In China, we introduced an employee health program in which the "Lanlan" mascot gives advice on topics such as safety at work, healthy sitting postures, or doing more physical exercise. In early 2020, the health management program at Miba Steeltec was awarded as the second best out of 67 evaluated companies in Slovakia. Miba Sinter Slovakia has been offering training in proper sitting postures at the workplace on a regular basis. And we also introduced a safety and health program in Brazil.



HOW WE MAKE IT EASIER TO COMBINE WORK WITH FAMILY LIFE

Apart from flexible work time models for mothers and fathers, it is primarily our childcare programs that make Miba so family-friendly.

CONTRIBUTION TO MORE EQUAL OPPORTUNITIES

Better reconciliability of work and family life mainly promotes one thing: equal career opportunities for women and men. This is why it is so important to us. Six years ago, we opened an in-house crèche in Laakirchen for the children of our employees. We have been running this facility in cooperation with the Upper Austrian "Hilfswerk". It offers room for up to 24 toddlers aged between 1 and 3 years.

The 2019 summer break was the already fifth time that we provided day care for school-age children of our employees in Upper Austria. On our premises in Laakirchen, a total of 85 children divided up into three age groups were looked after for three weeks in the month of August. This program helps bridge the relatively long school holidays in Austria and avoid childcare bottlenecks. We organized this holiday program in

cooperation with Otelo, the open technology lab. The focus was on a playful contact with technology as well as on experiments and workshops. However, there was no shortage of field trips and fun activities, either. Furthermore, we also organized summer-holiday childcare in Slovakia for 40 kids at Miba Sinter Slovakia.

125

children
took part in our summer
holiday programs in Austria
and Slovakia.



Dressed in carnival costumes: the children of our crèche during a visit to the Miba Forum.



“Every day, at all our locations around the globe, we are working toward reducing energy and water consumption and avoiding waste.”

Franz Almhofer-Amering, Head of EHS
(Environment, Health, Safety), Miba AG

WE TAKE RESPONSIBILITY FOR OUR ENVIRONMENT

Last year, we once again succeeded in further optimizing our consumption of energy and water and the amount of waste generated. And, in doing so, we have made another important contribution toward a cleaner planet.

For us at Miba, our corporate mission of “Technologies for a cleaner planet” also means to ensure the frugal use of resources in all production and administrative processes and in our daily work. Therefore, we have for years been making strong efforts around the globe to reduce the use of energy and water and to avoid waste.

USING ENERGY MORE EFFICIENTLY

Our target is to achieve annual increases in energy efficiency by 1 percent. Miba has been accomplishing that for a few years in a row now. Once again, in the past fiscal year, Miba’s locations

succeeded in using energy 1.2 percent more efficiently, thus saving 3,665 MWh. The energy saved could be used to charge about 100,000 e-cars. This accomplishment has been made possible by the implementation of numerous measures. In addition to various major projects such as the replacement of hundreds of lamps, which has helped us save more than 1,000 MWh, continuous improvement has been brought about mainly by numerous minor optimizations. These included, for example, the more efficient utilization of compressed air and aircon systems, or the optimization and modernization of our machinery.



100,000 e-cars

could be charged with the energy saved by Miba during the past year.

DIGITALIZATION HELPS CONSERVE RESOURCES

Going forward, digitalization and the resulting Big Data analytics, that is, the collection and evaluation of large amounts of operating data, are expected to make internal processes yet more efficient and sustainable. Data analytics and the use of smart technologies make it possible to use machinery more efficiently and utilize resources such as energy and water more effectively.

LEADERS IN DECARBONIZATION

Miba also participates in the “Leaders in Decarbonization” initiative that promotes decarbonization and its members’ independence from fossil energy sources and strives to position Upper Austria as Europe’s leading energy transition region. Initiated by Upper Austria’s state government and Energiesparverband Oberösterreich, this project pursues the vision of “climate-neutral economic activity”.

2.5 MILLION LITERS OF WATER SAVED

The responsible use of water is of particular importance to us. In the past fiscal year, we significantly surpassed our annual target of improving the efficiency of our water use by 0.2 percent, achieving an improvement rate of 1.02 percent. This equates to 2.5 million liters of water saved, an amount that would fill 17,000 bathtubs.



17,000 bathtubs

could be filled with the amount of water we saved during the past year.

1,700 TONS LESS WASTE GENERATED

Since 2017, it has been Miba’s declared aim to reduce the quantities of waste it produces. Achieving an improvement by 5.5 percent in the past fiscal year, we significantly surpassed our annual target of 0.2 percent, even doubling the extent of waste reduction as compared to the preceding year. 1,700 tons of reduction equal the quantity of waste generated annually by 3,500 Europeans.



3,500 Europeans

generate, in one year, the quantity of waste that we have managed to avoid.

RESPONSIBILITY FOR SOCIETY

To us, entrepreneurial success is both a mission and an incentive to give something back to society. This is why we promote educational programs as well as social and cultural projects.

SPONSORSHIP OF EDUCATION AS AN INVESTMENT IN THE FUTURE

For young people, a good education is the cornerstone of a successful future. Therefore, we promote educational pro-

grams that give children and adolescents extra inspiration and support.



Teach for Austria promotes equal opportunities in the educational system. As a 'Gold Partner', we are one of the key supporters of this important initiative.

teach for austria

TEACH FOR AUSTRIA FOR GREATER EQUALITY OF OPPORTUNITIES

Miba supports the "Teach for Austria" educational initiative that, with a focus on volatile schools in disadvantaged areas, promotes equal opportunities in the educational system. At Teach for Austria, university graduates become temporary teachers. This initiative was first extended to Upper Austria in the scholastic year 2018/19. As a 'Gold Partner', Miba has been part of this initiative from day one and helped introduce Teach for Austria in Upper Austria.



WISSENSFABRIK ÖSTERREICH BRINGS SCIENCE & TECHNOLOGY TO THE CLASSROOM

"Wissensfabrik Österreich" ("Knowledge Factory Austria") is an education platform that promotes projects in the STEM subjects (science, technology, engineering, mathematics), business, and language development for children. Sponsored by Miba and other companies, it provides teaching materials and teacher training. Specifically, the "Knowledge Factory" offers two products for schools: "NaWi – geht das?" ("Natural science – how does it work?"), and "KiTec – Kinder entdecken Technik" ("Children discover technology").



CAP – A MECHATRONICS APPRENTICESHIP IN PARALLEL TO UPPER SECONDARY SCHOOL

"CAP – a mechatronics apprenticeship in parallel to the upper secondary school cycle" is an initiative supported by Miba, which enables students to complete a full-fledged mechatronics apprenticeship in parallel to the upper cycle of their secondary schooling. The training takes place at fortnightly intervals – on Friday afternoons and Saturdays – at WIFI in Linz, and concludes with a final apprenticeship examination taken shortly after the secondary school leaving exam. In addition, a holiday work placement and attendance at management courses are compulsory.



"Invest in education, and you will harvest a better society."

This is the mission statement of "ALPHA. MEINE CHANCE", a project of the Austrian Red Cross

ALPHA. MEINE CHANCE. HELP WITH READING DEFICITS

Invest in education, and you will harvest a better society: This is the mission statement of "ALPHA. MEINE CHANCE" ("ALPHA. MY OPPORTUNITY"), a project of the Upper Austrian Red Cross, under which voluntary reading coaches accompany and support children with reading deficits to complement their school education. We have been supporting this initiative in the districts of Gmunden and Vöcklabruck.



TALENT PROGRAM AT TU WIEN

The talent program at TU WIEN (Vienna University of Technology) offers students a platform for getting to know successful enterprises, contacting them, and in this way building a professional network. They receive support from the TU Career Center.



OTELO FUTURES SPACE – UNDERSTANDING DIGITAL INNOVATION

In cooperation with Otelo, the "Open Technology Lab," we created the educational format "Otelo futurespace – the digital playground." The futurespace provides a digitalization playground with various labs and tasks.



SCHULE IM AUFBRUCH

"Schule im Aufbruch" is not a classical organization, but a network. School principals, teachers, parents, students, representatives of the schools inspectorate, and members of universities and colleges are collaborating in this initiative. The network advocates a new learning culture in terms of creativity and promotion of talent.



DELTA AKADEMIE – ADDITIONAL HIGH-QUALITY TRAINING FOR STUDENTS

The Delta Akademie at Leoben University for Mining, Metallurgy, and Materials is an additional program that selected students of this university can pursue in parallel to their studies. The central idea behind the Delta Akademie is to support the career prospects of 20 to 25 selected students per year and to determine the potential of responsible young managers for enterprises.



LISA – INTERNATIONAL SCHOOL IN UPPER AUSTRIA

LISA (Linz International School Auhof) is Upper Austria's only international school that offers graduation with an International Baccalaureate diploma (IB Diploma) as well as the Austrian "Matura" (school leaving examination). The language of instruction is English.



START – SCHOLARSHIPS FOR COMMITTED STUDENTS WITH A MIGRATION BACKGROUND

Promoting the integration of committed young people with a migration or, more specifically, a refugee background is important to us at Miba. This is why we support the START Initiative that awards scholarships primarily for language courses and further education programs.

SOCIAL COMMITMENT IN ALL OF MIBA'S REGIONS AROUND THE GLOBE

We support disadvantaged people and foster selected projects worldwide.

CHRISTMAS CHARITIES AROUND THE GLOBE

Instead of buying Christmas presents for our customers, every year we donate money to a social institution in a country in which Miba has production sites. In 2019, our Christmas donation went to the clothing boutique of the Red Cross in Gmunden and to the Red Cross market in Vöcklamarkt.



MIBA'S CHRISTMAS CHARITIES:

2019	Austria	Red Cross	Donation to social markets in Gmunden and Vöcklamarkt
2018	USA	Macomb County Warming Center	Place to sleep and meals for homeless people in winter
2017	Brazil	Casa da Criança Jesus de Nazaré	Donation to a crèche in a disadvantaged quarter of Indaiatuba
2016	Slovakia	Dobry Anjel	Donation for families in which one or several persons are severely ill
2015	Austria	Laakirchen Refugee Initiative	Language courses, meeting cafés, and many other things
2014	China	Suzhou Social Welfare Home	Learning materials for children
2013	Austria	Caritas Learning Centers	Support of children with learning difficulties
2012	USA	Morgan High School in McConnellsville	Financial contribution toward ACT college entrance exam
2011	India	Donation toward the construction of an orphanage	
2010	Slovakia	Children of Slovakia Foundation	Afternoon childcare/school and leisure activities
2009	Romania	Father Georg Sporschill	Concordia social projects/construction of an apprentice workshop
2008	Austria	Kinderdorf Altmünster	Construction of a sports and leisure park



ELIJAH – SUPPORT FOR ROMA FAMILIES IN ROMANIA

For several years now, Miba has been supporting the projects of Father Georg Sporschill SJ. One of them, the ELIJAH association, helps families and children of the Roma minority living in Romania cope with their difficult situation and build a future.



KAKIHE – RUNNING FOR WATER WELLS IN CAMBODIA

Miba is a partner in KAKIHE, an association founded by two of our employees. Every year, KAKIHE organizes the “Fünf-Brücken-Lauf” (“Five Bridges Run”) along the Traun River. The entry fees for this event go toward providing Cambodians with better access to drinking water.



LEBENSILFGE GMUNDEN

Since 2001, we have been supporting Lebenshilfe Gmunden, an organization that helps people with mental disabilities lead an integrated and self-determined life.

ARTS AND CULTURE ENRICH OUR LIVES

A vast and varied range of arts and culture offerings is important to us. Therefore, we support select ensembles and events in Upper Austria and around the world.

“Arts and culture are an integral part of a fulfilling life.”

F. Peter Mitterbauer,
CEO Miba AG



SALZKAMMERGUT FESTWOCHEN GMUNDEN

Miba was first established in the Salzkammergut more than 90 years ago. This is where, today, we employ around 2,600 people. Especially as a family-owned enterprise with such strong regional roots, we consider it important to support and sponsor special cultural initiatives such as the Festwochen. As part of this partnership, we give out free tickets to our employees.

PHILHARMONIC FIVE

Four soloists from the ranks of the Vienna Philharmonic Orchestra and an exceptional pianist together make up the Philharmonic Five. Miba has been sponsoring this ensemble since the beginning of 2019.



WIENER KONZERTHAUS

VIENNA KONZERTHAUS

In addition to its range of classical offerings, the Vienna Konzerthaus also serves as a venue for contemporary music and international jazz. Thus, it offers something for everyone's taste.

THE CLEVELAND ORCHESTRA

CLEVELAND ORCHESTRA

The Cleveland Orchestra is one of the five biggest symphony orchestras in the U.S. There, Miba is operating seven production sites, the largest of which is in Ohio. Thus, it is only natural for us to actively support this orchestra.

05 MIBA FACTS

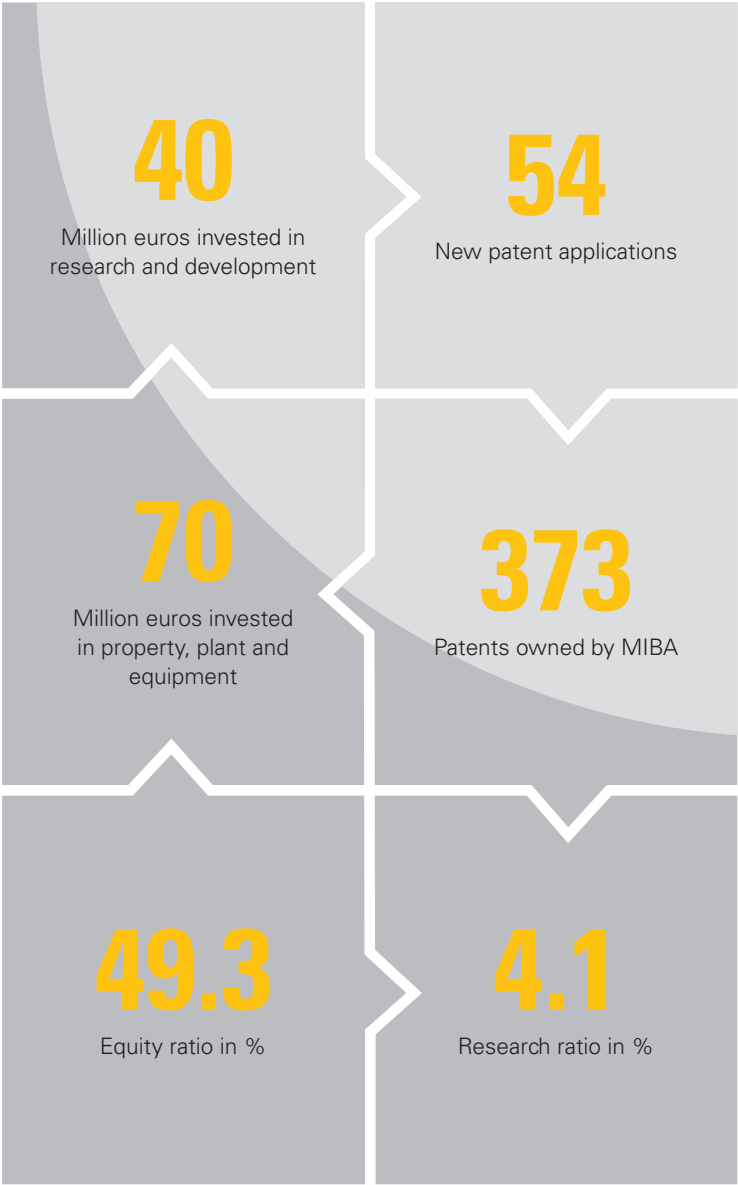
**SECURITY, STABILITY,
AND LONG-TERM FOCUS –
THAT’S WHAT IT TAKES
IN TIMES LIKE THESE.**

**“FINANCIAL INDEPENDENCE FORMS THE BASIS
FOR INVESTING IN THE FUTURE. AS A FAMILY-
OWNED COMPANY, WE THINK LONG-TERM AND
MAKE DECISIONS GUIDED BY A CLEAR OBJEC-
TIVE AND WITH A STEADY HAND.”**

Markus Hofer, CFO, Miba AG

KEY FIGURES

FISCAL YEAR 2019/20



REVENUE IN EUR MILLION

2011/12	593
2012/13	607
2013/14	610
2014/15	669
2015/16	719
2016/17	752
2017/18	888
2018/19	985
2019/20	977



HEADCOUNT

2015/16	5,398
2016/17	5,803
2017/18	6,860
2018/19	7,355
2019/20	7,759



INVESTMENTS IN PROPERTY, PLANT AND EQUIPMENT IN EUR MILLION

2015/16	78
2016/17	67
2017/18	79
2018/19	83
2019/20	70



R&D EXPENDITURE IN EUR MILLION

2015/16	32
2016/17	35
2017/18	40
2018/19	41
2019/20	40

HIGHLIGHTS 2019/20



March 22, 2019

Groundbreaking ceremony for the construction of the second, additional Miba plant in Suzhou near Shanghai. Adding this second site will double Miba's production and office space in Suzhou from 24,000 to 48,000 m².



April 26, 2019

For further growth in the e-mobility segment, Miba has been establishing an e-mobility Cluster in Vorchdorf, Austria. At the end of April, first parts of the Miba eMobility Team moved into their new offices. They share that site with Miba High Tech Coatings.



July 12, 2019

Miba acquired a 25.1 percent stake in Voltlabor, a company based in the north-eastern part of Upper Austria. This company specializes in the development and production of batteries for electric drives. Since the expertise of the two companies is perfectly complementary, it will be pooled in order to leverage opportunities for further growth. The aim is to create a major player for the development and production of battery systems that is based in Austria and operates worldwide.



June 11, 2019

Miba's CEO F. Peter Mitterbauer was one of 56 representatives of Austrian businesses who signed the "Pledge to America's Workers" in Washington, D.C. – a commitment to continue to invest substantially in programs to train, educate and upskill our almost 1,000 employees in the U.S.



August 22, 2019

85 children took part in Miba's holiday program in Upper Austria. Since the summerbreak at schools is relatively long, we offer our employees a three-week childcare program in August. We also had a holiday program in Slovakia, with 40 children participating.



August 26, 2019

Groundbreaking ceremony for the expansion of Miba Steeltec in Vrable, Slovakia. The production area will be expanded by about one third to 16,500 m². In addition, the building will feature space for new offices, also for accommodating the first R&D department of the Miba Friction Group outside Austria.



September 12, 2019

84 project ideas for digital innovations were submitted throughout the summer by Miba employees from various parts of the world. In a three-day workshop in Linz, Austria, the best 8 of them were refined and presented to a jury. The winning teams were allotted resources for further developing their ideas.



November 21, 2019

In Pune, India, Miba Drivetec India (MDI) opened its new factory building. With this new production site, MDI expanded its premises from about 1,000 to 2,600 m².



October 22, 2019

More than 200 experts and managers from all countries that Miba is active in flocked to Laakirchen for the Miba Convention. This event also kicked off the work on our new corporate strategy for the years until 2027 when Miba will celebrate the 100th anniversary of its foundation. The evening of the convention ended with an outdoor foodmarket where Miba's top executives helped to cook.



October 1, 2019

Launch of the joint venture in the bearing segment between Miba and the Zollern Group. Holding 74.9 percent, Miba is majority owner of this new venture and has industrial leadership. As a result, a plant for engine bearings in Braunschweig and two production plants for industrial bearings in Osterode and in Cataguases (Brazil) became part of the Miba family.

AWARDS 2019

Underpinned by a good partnership with all stakeholders, Miba's efforts and activities again earned multiple awards in 2019.



1 AWARD FOR DIGITALIZATION

Miba took home one of the prizes for digitalization-related activities awarded for the first time last year by the Upper Austria chapter of the Federation of Austrian Industries (Industriellenvereinigung).



2 EXPORT AWARD IN GOLD

From among more than 50 participating companies from all over Austria, Miba emerged as category winner. With this award, the high-profile jury recognized Miba's long-standing worldwide growth strategy and the large number of innovations that form the bedrock of its success.



3 INEO

On the occasion of the Ineo Gala in Wels, Miba Gleitlager Austria GmbH and Miba Frictec GmbH were recognized, already for the third time, as exemplary training companies for apprentices. Ineo (standing for Innovation – Sustainability – Commitment – Orientation) is a quality seal of the WKO (Austrian Economic Chamber) for companies that demonstrate exceptional commitment to training apprentices.

4 UPPER AUSTRIAN INNOVATION AWARD

For the development of the Miba FLEXcooler®, we received the Innovation Award of the province of Upper Austria.



5 LEADING EMPLOYER AWARD – BEST EMPLOYER IN UPPER AUSTRIA

At the Leading Employer awards gala, Miba was named best employer in Upper Austria. Nationwide, it ranks among the top 1 percent.



6 AUSTRIA'S LEADING COMPANIES

Miba was voted Upper Austria's best internationally active business enterprise. It also placed 3rd nationwide.



7 PEGASUS

Much to our delight, we won a Pegasus in gold. We were voted Upper Austria's best "Lighthouse" company.



8 US-A-BIZ AWARD

Given out by the Austrian Trade Commission in Los Angeles, this award is considered the "Oscar" for Austrian businesses operating in the U.S. Miba claimed this award in gold in the "Investment" category.



9 ZDRAVÁ FIRMA ROKA

In Slovakia, Miba Steeltec was lauded for its efforts for promoting and protecting the health of its employees and received the runner-up award in the "Manufacturing Companies" category.



10 BOSCH SUPPLIER AWARD

The Miba Sinter Division won this award in the "Direct Purchasing – Mobility Solution" category.



11 GREATER SUZHOU BEST EMPLOYER AWARD

In August, MPCC received the award for best employer in Suzhou.

12 DQS CERTIFICATE

Miba Sinter Brazil received the DQS certificate for its management system for health and safety in the workplace.



13 BAE SYSTEMS

EBG was presented the Gold Supplier Award 2019.



14 CNHTC AWARD

Miba Precision Components (China) Bearing received this award in the "Quality of the Year" category.

WEICHAI POWER AWARD

Weichai Power conferred this award on MPCC in the "Supplier of the Year" category.

WEICHAI POWER AWARD

MPCC also emerged victorious in the "Sales of the Year" category.

JDEC

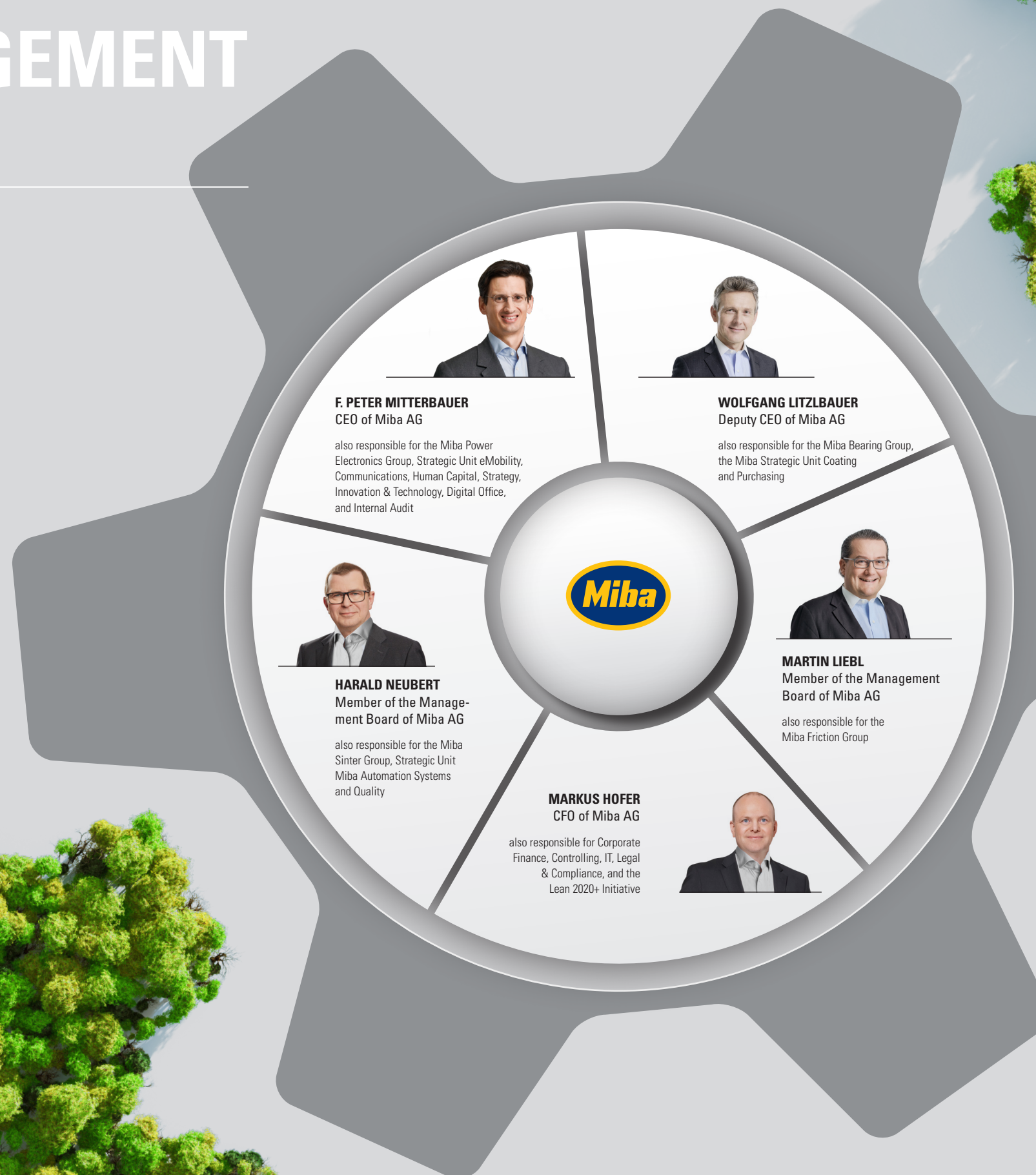
MPCC claimed another "Supplier of the Year" title.

WUXI DIESEL

MPCC won the "Innovation of the Year" category.



MANAGEMENT BOARD



SUPERVISORY BOARD

DKFM. DR. WOLFGANG C. BERNDT
Chairman of the Supervisory Board

independent, member of the Supervisory Board of Miba AG since June 27, 2008

PROF. KR ING. SIEGFRIED WOLF

independent, member of the Supervisory Board of Miba AG since June 25, 2015

ELFRIEDE SCHÖBER
delegated member,

member of the Supervisory Board of Miba AG since 2016, member of the Finance Committee

DI DR. HC. MULT. PETER MITTERBAUER
Honorary Chairman

DIPL. BW. ALFRED HEINZEL
Vice Chairman,

independent, member of the Supervisory Board of Miba AG since June 4, 2003

DR. THERESE NISS

independent, member of the Supervisory Board of Miba AG since July 17, 2018

JOHANN FORSTNER
delegated member

member of the Supervisory Board of Miba AG since 2009

30 PRODUCTION SITES AND 7,700 EMPLOYEES WORLDWIDE

WE DEVELOP AND PRODUCE IN ALL MARKETS THAT ARE IMPORTANT TO OUR CUSTOMERS

as of January 31, 2020; employee numbers rounded

MIBA SINTER GROUP

Miba Sinter Austria
Vorchdorf, Austria

Miba Sinter Slovakia
Dolný Kubín, Slovakia

Miba Sinter USA
McConnellsville, OH, USA

Miba Precision Components (China) – Sinter Branch
Suzhou, China

Miba Sinter Brasil
Indaiatuba, Brazil

Sintercom India*
Pune, India

MIBA BEARING GROUP

ENGINE BEARING BRANCH**

Miba Gleitlager Austria
Laakirchen, Austria

Miba Bearings US
McConnellsville, OH, USA

Miba Precision Components (China) – Bearing Branch
Suzhou, China

Miba Bearings Materials
Aurachkirchen, Austria

ABM Advanced Bearing Materials*
Greensburg, IN, USA

BHW Plain Bearings
Braunschweig, Germany

INDUSTRIAL BEARING BRANCH

Miba Industrial Bearings Germany
Göttingen, Germany

Miba Industrial Bearings U.S.
Grafton, WI, USA

Miba Industrial Bearings U.S.
Columbus, NE, USA

Miba Industrial Bearings U.S. (Houston)
Deer Park, TX, USA

Miba Industrial Bearings Germany (Osterode)**
Osterode, Germany

Miba Industrial Bearings Brasil**
Cataguases, Brazil

MIBA FRICTION GROUP

Miba Frictec
Roitham, Austria

Miba Steeltec
Vráble, Slovakia

Miba HydraMechanica
Sterling Heights, MI, USA

Miba Drivetec India
Pune, India

Miba Precision Components (China) – Friction Branch
Suzhou, China

Fibertec Štětí
Štětí, Czech Republic

EUROPE

5,100 employees
17 production sites

AMERICAS

1,400 employees
9 production sites

ASIA

1,200 employees
4 production sites

MIBA STRATEGIC UNITS

STRATEGIC UNIT COATING

HighTech Coatings
Vorchdorf, Austria

Miba Coatings U.S.
McConnellsville, OH, USA

Miba Precision Components (China) – Coating Unit
Suzhou, China

STRATEGIC UNIT MIBA AUTOMATION SYSTEMS

Miba Automation Systems
Aurachkirchen, Austria

SEP Automation*
Hornstein, Austria

STRATEGIC UNIT eMOBILITY

Miba eMobility GmbH
Laakirchen, Austria

Voltlabor*
Bad Leonfelden, Austria

MIBA POWER ELECTRONICS GROUP

EBG Elektronische Bauelemente
Kirchbach, Austria
St. Stefan, Austria

DAU
Ligist, Austria

EBG China*
Qinqi, China

EDMS
Šentjernej, Slovenia

* Affiliated companies:
Advanced Bearing Materials (75%),
Sintercom (26%), EBG Shenzhen (55%),
Voltlabor (25,1%), and SEP (49%)
** Miba holds a 74.9% stake and has
industrial leadership

PRODUCT PORTFOLIO

OUR TECHNOLOGIES FOR A CLEANER PLANET



SINTERED COMPONENTS

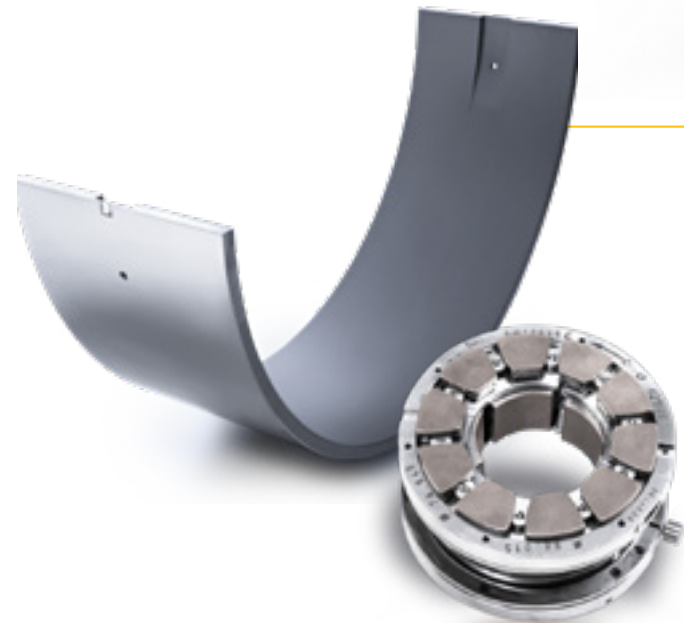
Miba sintered components are playing a significant role in increasing efficiency and improving fuel economy. They are used in engines, transmissions, and steering systems of passenger cars. What makes this technology so special is the complex design which integrates several functions into one component, as well as high precision, high strength, and low weight.



BEARINGS

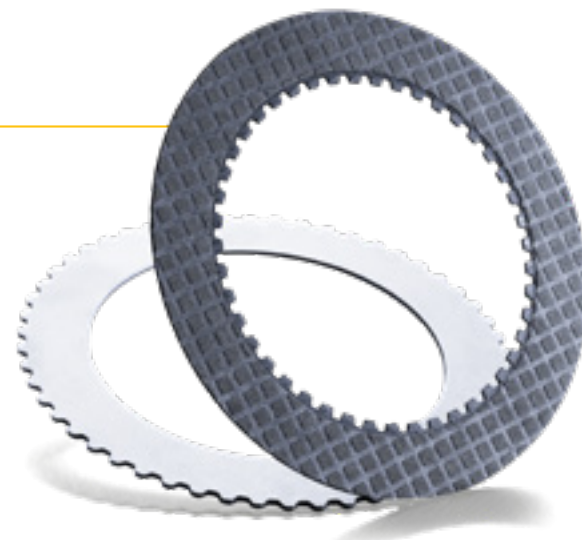
Engine bearings are components in internal combustion engines that are crucial to engine function and service life. They support crankshafts and camshafts, minimize friction during operation, and protect the engine from damage or failure. Components produced by the Miba Bearing Group withstand higher ignition pressures, thus increasing engine efficiency. They are used in the diesel and gas engines of ships, heavy-duty vehicles, locomotives, and power plants.

Industrial bearings: Miba produces hydrodynamic bearings. These are used in large-scale industrial facilities and serve as a critical part of the machine in maintaining the radial position and alignment. In compressors, they support the rotating shaft of turbo machines. Hydrodynamic bearings are also used in high-energy pumps, generators, and in transmissions, where they bear the load of rotating components.



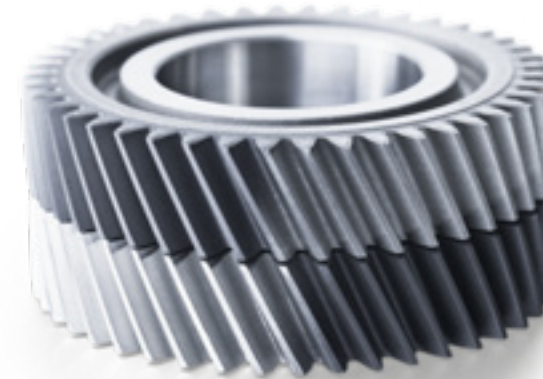
FRICION MATERIALS

Friction materials are crucial to the performance of clutches and brakes, optimizing speed and power. Miba Friction Group components reduce weight and the size of transmissions and axles. Friction materials by Miba are used in tractors, construction machinery, trucks, passenger cars, high-speed trains, motorcycles, aircraft, and also in wind turbines.



POWER ELECTRONICS COMPONENTS

The Miba Power Electronics Group is continually working on custom-tailored power electronics solutions. DAU heat sinks and EBG resistors contribute to the efficient generation, transmission and utilization of electrical energy. EBG high-power resistors are also used in electrified vehicles.



COATINGS

Miba develops customized coating solutions for finishing functional surfaces. The pertinent core technologies are polymer and anti-friction coatings, electroplated coatings, and PVD coatings. Our coatings ensure optimum functionality and maximum service life. Miba coatings are used in components for engines and transmissions of passenger cars, trucks, and Formula 1 race cars, as well as in other high-performance applications.

SPECIAL MACHINERY

Special machinery from Miba is used for the high-precision and high-speed machining of small to very large components. Miba Automation Systems is a leader in bearing technology, robotics, and automation, as well as in mobile and stationary special machinery. The wind industry is also one of the company's key markets. Miba's extensive product portfolio ranges from prototype construction and development through to machinery construction for electric motor stators.



e-MOBILITY SOLUTIONS

We develop and produce a vast variety of solutions for e-mobility. This is how we aim to proactively participate in shaping the market. High power resistors made by the Miba Group are used in many series-produced electric vehicles. In addition, Miba builds manufacturing plants for e-motor stators for the automotive industry and also offers the production of these stators. Yet, we also offer a number of solu-

tions for hybrid vehicles, for example, sintered components, and friction materials. Furthermore, Miba is actively engaged in many development projects for electric vehicles – including a flexible digital and thus intelligent cooling solution for batteries, power fuse systems for high voltage batteries, an axial flux motor as a novel electric motor concept, coating solutions for fuel cells, or cooling solutions for power electronics in e-cars.

MIBA 2020 – DYNAMIC EVOLUTION

OUR CORPORATE STRATEGY

As a technology leader and global company, we are making an active contribution to technical progress and global economic growth. Global population growth, climate change and the scarcity of resources call for innovative solutions. We are preparing for these tasks

and have defined our priorities for the next few years. Change also always means new possibilities and opportunities to be exploited. With Miba 2020, we are heading into the future with confidence, a clear vision and strategy, and ambitious targets.

OUR MISSION

Innovation in Motion – Technologies for a cleaner planet

OUR VISION

No powertrain without Miba technology

OUR GOALS

- Profitable growth to over EUR 1 billion
- Increase in revenue from our core business and through M&A
- Global number 1 in our market segments

OUR STRATEGY

Strive for technology leadership in demanding, financially attractive market segments. Dynamic evolution as the overarching guiding concept, supported by three main pillars: Global Growth, Innovation and Technology, People

OUR VALUES

- Technology Leadership
- Lifelong Learning
- Entrepreneurship
- Passion for Success



GENERAL ECONOMIC CONDITIONS

DEVELOPMENT OF THE GLOBAL ECONOMY¹

In 2019, world economic growth amounted to 2.9 percent, significantly down from the previous year (3.7 percent); this was mainly due to trade policy uncertainties, geopolitical tensions between the U.S. and its trading partners (especially China, but also Europe), and the sluggish development in various emerging markets. Against this backdrop, the IMF, in the fall of 2019, downward-revised its growth forecasts, expecting lower growth rates than recently for the next few years (2019: 3.5 percent and 2020: 3.6 percent). It must be stressed that these forecasts were made before the outbreak of the global coronavirus crisis. At the beginning of March 2020, the IMF already expected growth to be significantly lower than in 2019.² How much and how long the coronavirus crisis will affect the global economy cannot be predicted at the present time and will depend on the further spread of the pandemic.

In 2019, growth already declined markedly in the U.S., in Europe, and in Asia. For Germany, for example, the IMF recorded a decrease in the growth rate of one percentage point, from 1.5 percent to a mere 0.5 percent in 2019. China's economy also grew more slowly than previously, with a decline from 6.5 percent growth in 2018 to 6.1 percent in 2019.

According to the IMF, the industrialized nations achieved 1.7 percent growth in 2019, down from 2.4 percent in 2018. In the U.S., economic growth slowed down to 2.3 percent in 2019, 0.6 percentage points lower than in 2018. GDP growth in the euro zone was significantly weaker: having been at 1.9 percent in 2018, it fell to 1.2 percent in 2019. The emerging markets grew by 3.7 percent overall in 2019, and thus less strongly than in the previous year (4.5 percent). In addition to China's declining economic growth, India's economic growth also weakened significantly by 2 percentage points to 4.8 percent in 2019. Brazil, on the other hand, recorded a growth rate of 1.2 percent in 2019, compared to 1.3 percent in 2018.

SECTOR PERFORMANCE

The further weakening of the global economy in the course of the year is also partially reflected in the development of the sectors that are relevant to Miba. Generally, the year under report again showed that Miba, with its very broad product portfolio and its focus on many regional markets, is well positioned to cope with volatile developments in individual segments.

In 2019, the global automotive industry suffered significant downturns, with the number of passenger cars produced plummeting 6.4 percent to 67.1 million.³ In Europe, the number of passenger cars produced was down 4.8 percent from 2018, and the number of registrations fell by 1.9 percent. Likewise, in the U.S., passenger car production figures dropped sharply from around 2.8 million to around 2.5 million units (-9.8%). In China's passenger car market, following 2018's first-ever decline since the 1990's, production figures continued their downward trend, decreasing by 9.2 percent. In contrast, China's market for electric vehicles largely remained the same in 2019.⁴

The situation in Brazil is different: as in the previous year, the passenger car market continued to grow in 2019, with production figures up 2.5 percent from 2018.

The developments in the worldwide truck market in 2019 differed from region to region. In total, 4.14 million heavy trucks were produced worldwide, a 1.4 percent decrease from 2018.⁵ The situation in China was different. There, truck production increased by 4.1 percent in 2019. In the EU, the number of newly produced heavy trucks was approx. 195,000, a 5.2 percent decrease from the previous year. In the U.S., around 346,000 heavy trucks were produced in 2019, i.e., about 5.6 percent more than in 2018 (approx. 328,000). Totalling about 20.2 million, also the number of light commercial vehicles (LCV) produced worldwide decreased by 2 percent from 2018. This was mainly due to downward trends in Asia, Oceania, and Africa.⁶

The global shipbuilding industry is currently characterized by strong competitive pressure and consolidation. There is also overcapacity; only 28 percent of the decision-makers in the commercial shipping segment surveyed by SMM stated that they intend to make new purchases by the end of 2020.⁷

In the EU, the registrations of tractors for agriculture in 2019 increased by 5 percent from the previous year.⁸ For the worldwide construction industry, a growth rate of 8 percent can be assumed for 2019.⁹ The worldwide wind energy industry continued to grow in 2019. Wind turbine capacity reached 655 gigawatts, up 9.5 percent from 2018.¹⁰

1 Cf. International Monetary Fund (IMF): World Economic Outlook Update, January 2020; information retrieved on: March 18, 2020

2 Cf. <https://blogs.imf.org/2020/03/04/potential-impact-of-the-coronavirus-epidemic-what-we-know-and-what-we-can-do/>, information retrieved on: March 18, 2020

3 Cf. for all automobile production figures: Organisation Internationale des Constructeurs d'Automobiles (OICA): World Motor Vehicle Production by Country and Type 2018-2019, Cars, <http://www.oica.net/wp-content/uploads/Passenger-Cars-2019.pdf>, information retrieved on: March 18, 2020

4 Cf. <https://cleantechnica.com/2020/01/13/china-2019-electric-vehicle-market-share-grows-to-4-7-despite-tighter-incentives/>, information retrieved on: March 19, 2020

5 Cf. for all heavy truck production figures: OICA: World Motor Vehicle Production by Country and Type 2018-2019, Heavy Trucks: <http://www.oica.net/wp-content/uploads/Heavy-Trucks-2019.pdf>, information retrieved on: March 18, 2020

6 Cf. OICA: World Motor Vehicle Production by Country and Type 2018-2019, Light Commercial Vehicles: <http://www.oica.net/wp-content/uploads/Light-Commercial-Vehicles-2019.pdf>, information retrieved on: March 18, 2020

7 Cf. SMM Maritime Industry Report, https://www.smm-hamburg.com/fileadmin/smm/2020/pdf/sm20_maritime-industry-report_2019.pdf, information retrieved on: March 19, 2020

8 Cf. https://cema-agri.org/images/publications/press_releases/2020-03-09_Economic_Press_Release_Tractor_Registrations_2019_final.pdf, information retrieved on: March 18, 2020

9 Cf. https://www.eulerhermes.com/en_global/economic-research/sector-reports/Construction.html, information retrieved on: March 18, 2020

10 "Wind Power in the Global Shift towards Renewable Energy", presentation by Stefan Gsänger, World Wind Energy Association

MIBA'S BUSINESS PERFORMANCE



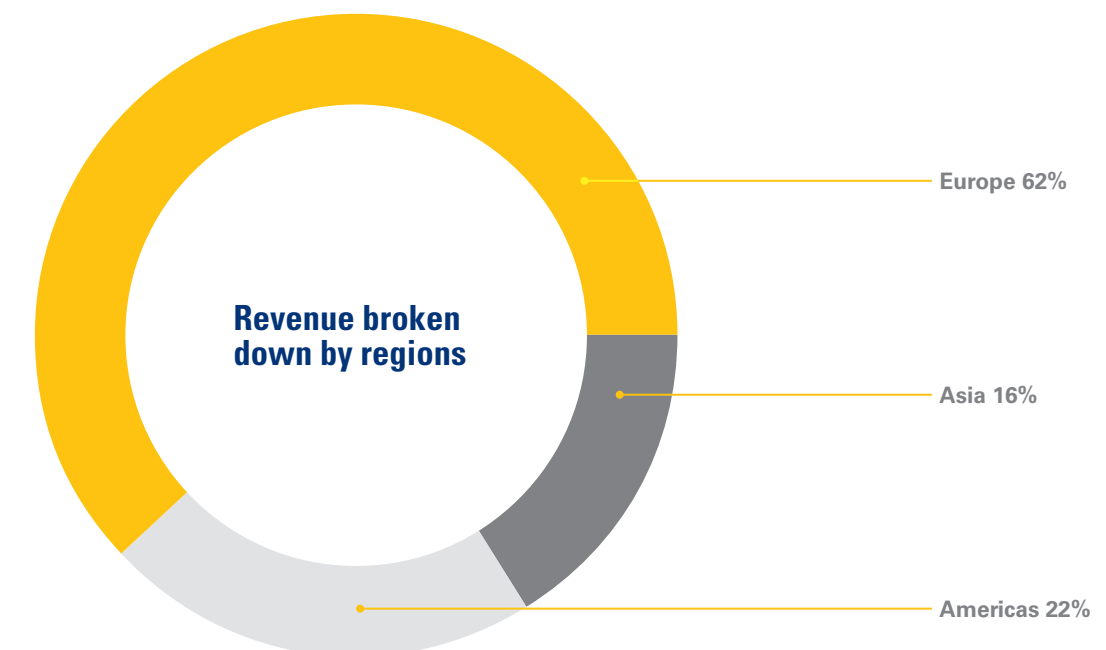
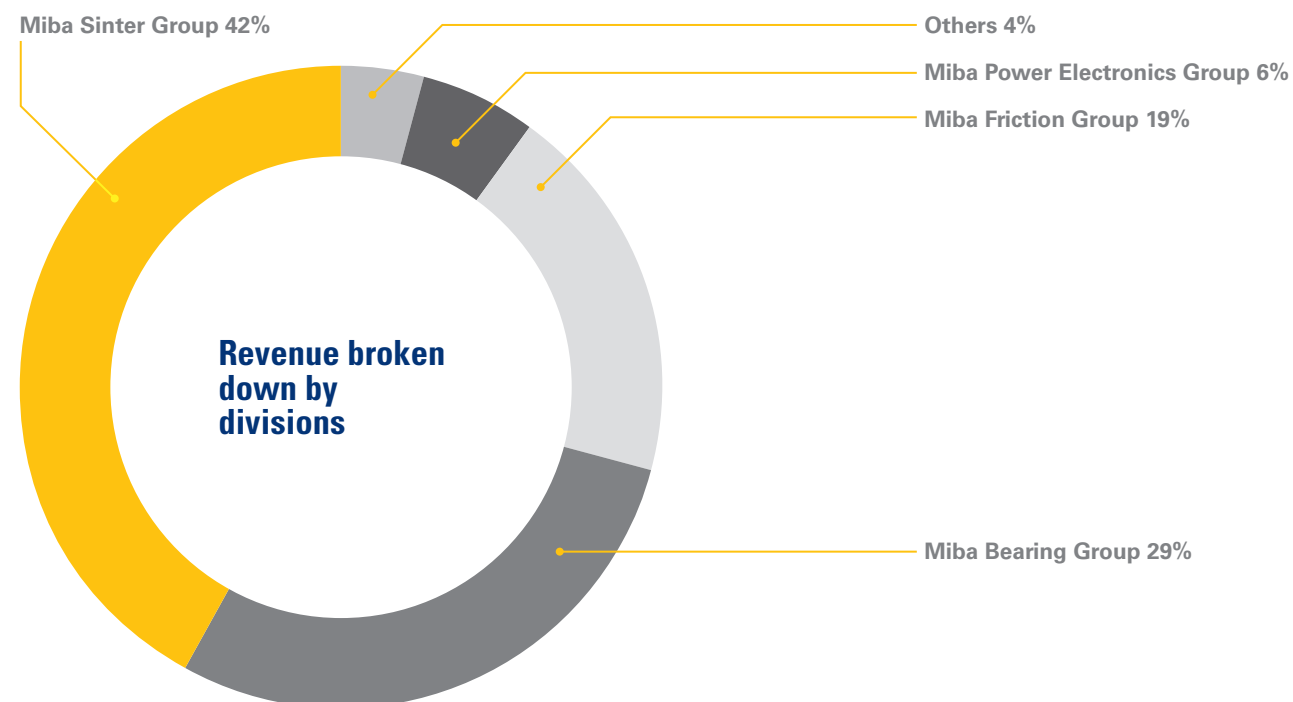
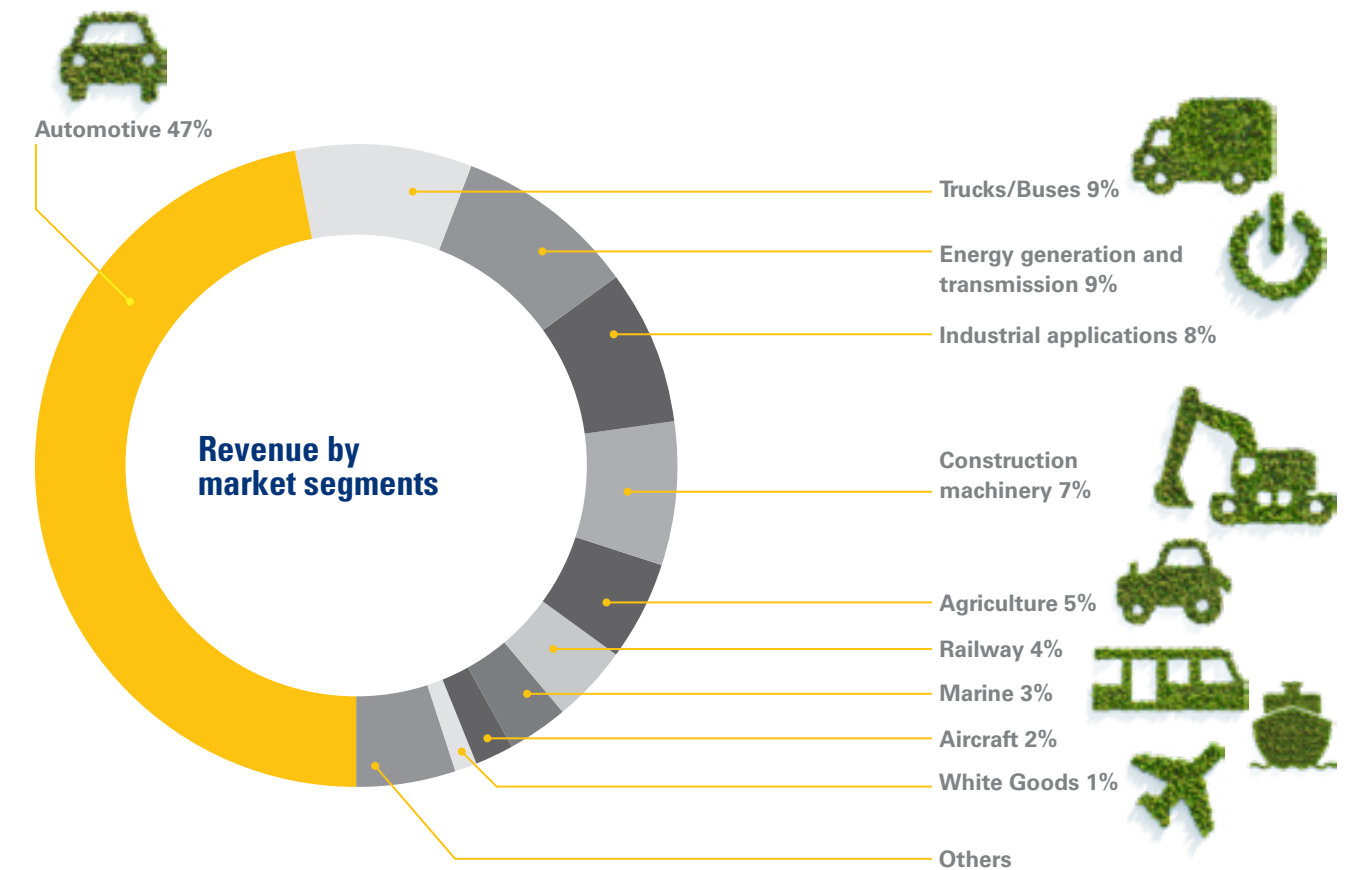
PERFORMANCE OF THE MIBA GROUP

This last fiscal year, Miba succeeded in further strengthening or consolidating its position in its core markets. Despite sharp declining trends in some markets, the Miba Group generated revenue of EUR 976.9 million, thus almost matching the previous year's level.

At the end of the fiscal year 2019/20, Miba once again showed a high degree of financial independence. Its equity ratio was at 49.3 percent, a high level well above the industry average.

With 115 million euros in the past fiscal year, Miba has again invested heavily in the future of the company: more than 70 million in property, plant, and equipment, 40 million in research and development, and a new all-time high of 2.7 million euros in educating, training and upskilling its employees.

Miba's research-spending ratio has always been very high. In the past fiscal year, it amounted to 4.1 percent.



DIVISION PERFORMANCE

The **MIBA SINTER GROUP** develops and produces high-precision, high-strength powder-metallurgical components that are mainly used in engines, transmissions, and electrical steering systems. In the last fiscal year, the business activities of the Miba Sinter Group were impacted by the very challenging developments in the automotive industry. Even so, Miba managed to maintain its revenue at a steady level.

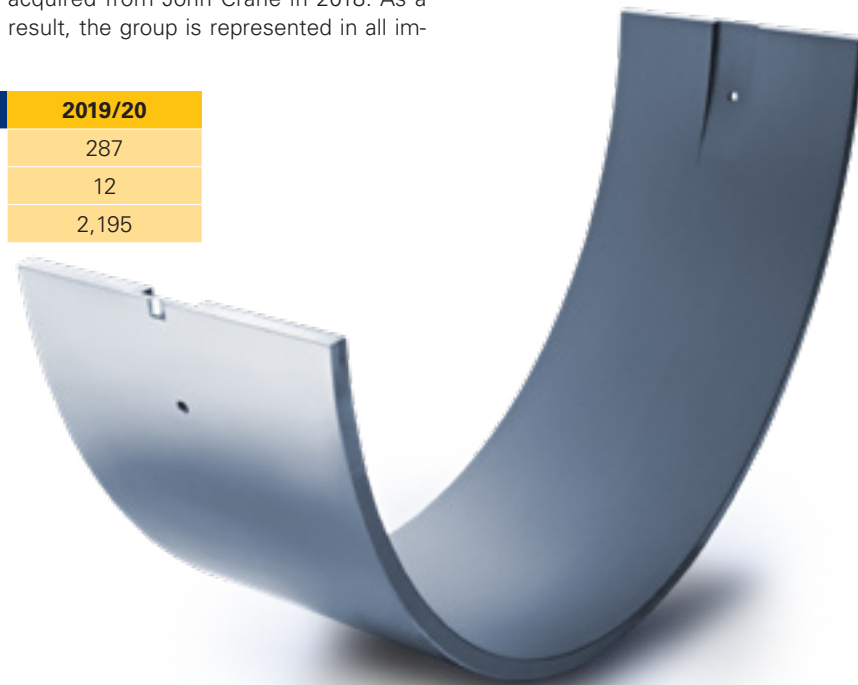
MIBA SINTER GROUP (2019/20)	2019/20
Revenue (in EUR million)	414
Production sites (worldwide)	6
Employees (as of January 31, 2020)	2,984



For the **MIBA BEARING GROUP**, which comprises Miba's engine bearings and industrial bearings branches, the last fiscal year was highlighted by the creation of a joint venture with the German Zollern Group. Miba contributed its engine bearing plants to this venture, while Zollern contributed two plants for industrial bearings and one plant for engine bearings. Miba holds a 74.9 percent stake and has industrial leadership. Apart from the nine production sites of this joint venture, the Miba Bearing Group also includes three plants for industrial bearings acquired from John Crane in 2018. As a result, the group is represented in all im-

portant customer markets with a comprehensive product portfolio for engine and industrial bearings. In addition, the Miba Bearing Group succeeded in developing a new business segment for engine bearings used in wind turbine transmissions.

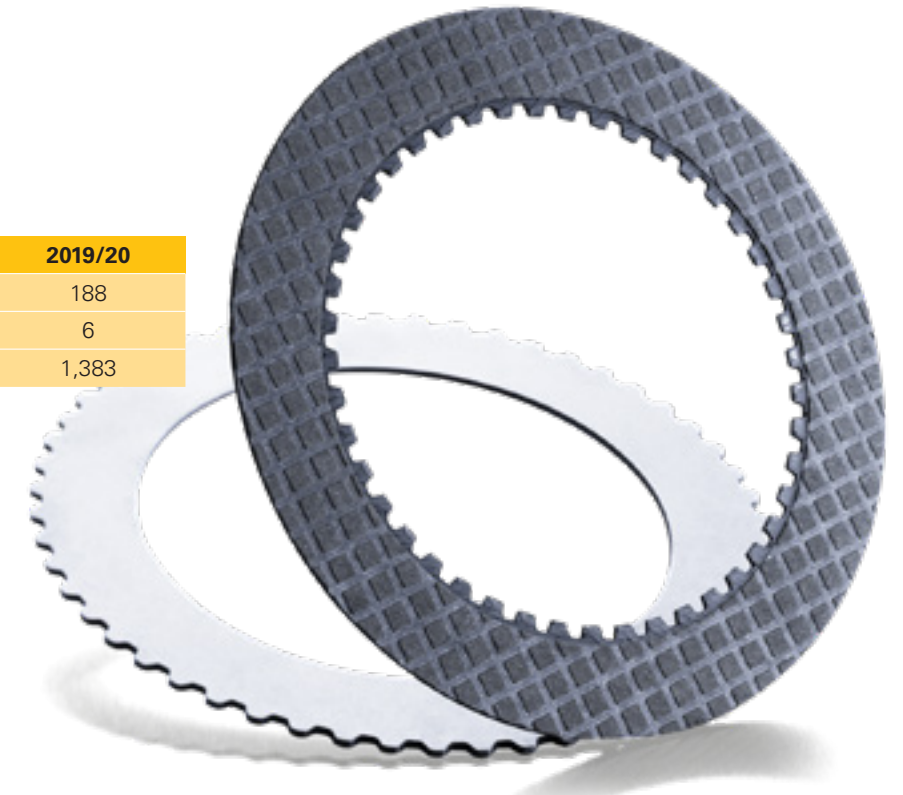
MIBA BEARING GROUP (2019/20)	2019/20
Revenue (in EUR million)	287
Production sites (worldwide)	12
Employees (as of January 31, 2020)	2,195



For the **MIBA FRICTION GROUP** the last fiscal year was highlighted by two large investments in production sites. In India, Miba Drivetec India (MDI) opened a new production site. By relocating to the new premises, MDI more than doubled its available area from 1,000 m² at its previous location to 2,600 m². In Slovakia, Miba Steeltec is expanding the production space at its site in Vrable near Nitra from currently about 11,000 m² to about 16,500 m². This project also includes the establishment of the first R&D depart-

ment of the Miba Friction Group outside Austria. The market environment for the Miba Friction Group was particularly difficult in the Off-Highway segment. In the Automotive segment, the revenue level of the previous year was reached again.

MIBA FRICTION GROUP (2019/20)	2019/20
Revenue (in EUR million)	188
Production sites (worldwide)	6
Employees (as of January 31, 2020)	1,383



In the last fiscal year, also the **MIBA POWER ELECTRONICS GROUP** opened a new production site, located in Qinqxi near Shenzhen. The production space of the new site totals 12,000 m², almost double that of the previous facility. In the industrial applications segment, the Miba Power Electronics Group was faced with a difficult market environment for its power resistors and cooling technologies. Applications for e-mobility helped increase this division's revenue; in addition to already very successful sales in China, we received first orders from European customers.

MIBA POWER ELECTRONICS GROUP (2019/20)	2019/20
Revenue (in EUR million)	54
Production sites (worldwide)	5
Employees (as of January 31, 2020)	493



EDITORIAL DETAILS

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PLEASE NOTE:

This annual report also includes statements concerning the future that are based on Miba AG’s current estimates and assumptions, made to the best of its knowledge. Disclosures using the words “shall”, “may”, “will”, “expects”, “assumes”, “plans”, “intends”, or similar formulations, are indicative of such statements concerning the future. Projections relating to Miba AG’s future performance are estimates that have been arrived at based on the information available at the time when this annual report went to press. If the assumptions underlying these projections do not materialize, or if risks occur at magnitudes other than those calculated, then actual results may deviate from projections. Rounding differences may occur when rounded amounts and percentages are added. The present annual report has been prepared with the utmost care to ensure the accuracy and completeness of all its disclosures. Rounding, typesetting and printing errors cannot, however, be entirely ruled out. To improve readability, we have largely omitted gender-specific differentiation. In the interest of equal treatment, all terms shall generally apply to both genders. The number of employees expresses the headcount including all temporary workers.



This report was printed on environmentally certified paper.

