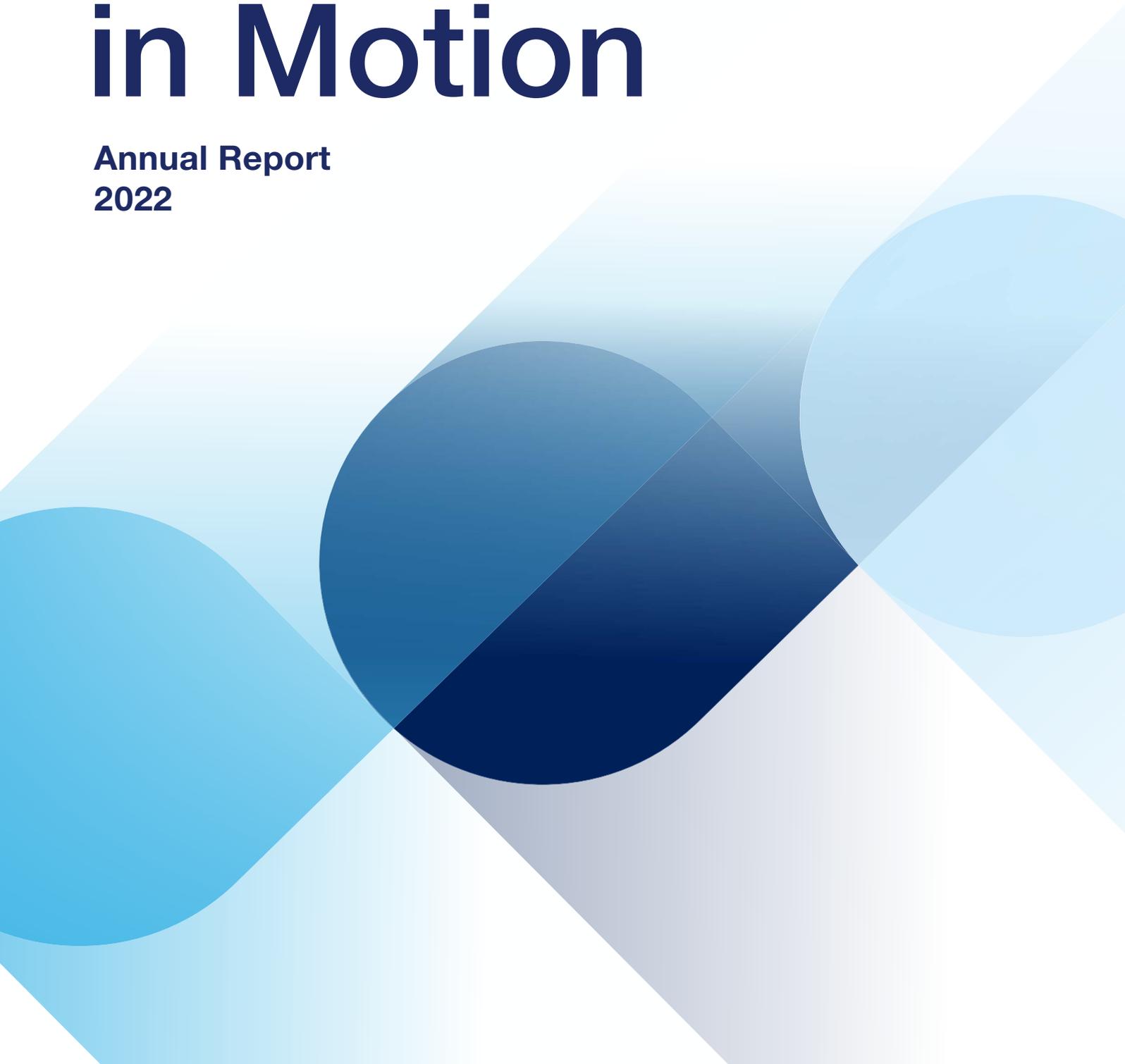


# Efficiency in Motion

Annual Report  
2022



# At a glance

**MAHLE is a leading international development partner and supplier to the automotive industry as well as a pioneer and technology driver for the mobility of the future.**

## 5

### **Business units**

Engine Systems and Components, Filtration and Engine Peripherals, Thermal Management, Electronics and Mechatronics, Aftermarket

## 152

### **Production locations**

## 12

### **Major research & development centers**

## 71,947

### **Employees** as at December 31, 2022

## EUR 12.4 bn

### **Sales in 2022**

**“Successful decarbonization is a key strategic goal at MAHLE. We are working flat out on promising technologies for the low-emissions mobility of tomorrow. Only if the state and society allow all technologies for sustainable transport will the transport transition succeed for the climate, the economy, and society.”**

**Arnd Franz**

Chairman of the Management Board and CEO of the MAHLE Group

# Our self-perception

The MAHLE Group is a leading global development partner in the automotive industry. We are pioneers and experts in our future-relevant strategic fields of electrification, thermal management (heating and cooling in the vehicle), and highly efficient and clean combustion engines including hydrogen, biofuel and e-fuel operation. True to our mission “Efficiency in Motion,” our operations are technology-open and we develop sustainable solutions for our passenger car and commercial vehicle customers in all major global markets as well as for all drive systems, taking into account the respective framework conditions and mobility requirements. In doing so, we rely on our expertise as a systems provider.

We use our strategic orientation to address megatrends such as the increasing importance of sustainability and climate protection, ongoing urbanization, global population growth, digitization, and electrification. We see these as an opportunity for further growth, but also as an obligation to design our technologies in a way that makes mobility as environmentally friendly as possible. With our background as a foundation, we have a shareholder structure that permits the Group to act both independently and with its focus on the long term. Within this framework, we are successfully developing MAHLE as a leading company and attractive employer.

This also means standing by our values—fairness, compliant behavior, cultural diversity and equal opportunities—and modeling them, in our interactions with employees, customers, or suppliers. Our founders made it explicitly clear that assuming social responsibility was one of the company’s objectives. This objective remains binding for us and informs our entrepreneurial decisions, both now and in the future.

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# The



# company

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# MAHLE Group figures



## Sales

MAHLE achieved sales of EUR 12.4 billion. Compared with the previous year, our sales rose organically by 9.7 percent.



## Employees

MAHLE employed 71,947 people worldwide (reference date: December 31, 2022).



## Research & development

Despite the difficult environment, we invested EUR 671 million in research and development in the year under review. Therefore, in absolute terms we invested slightly more than in the previous year.



## Result from business activities

The result from business activities was negative at EUR –165 million and was significantly below the previous year's value of EUR 58 million.

in EUR million	2022	2021	2020
Sales	12,434	10,933	9,774
EBITDA	671	793	435
EBIT	60	169	-192
Result from business activities	-165	58	-302
Consolidated net loss/net income	-332	-108	-434
Tangible fixed assets	2,998	3,008	2,959
Capital expenditure on tangible fixed assets (without first consolidation)	461	401	433
Equity	1,677	2,050	2,089
Dividend paid by MAHLE GmbH *	5.1	6.0	3.3
Employees (as at Dec. 31)	71,947	71,298	72,184

\* Proposal for the specified business year

# Product portfolio



## Electronics and Mechatronics

Electronic and mechatronic components play a decisive role in increasing the efficiency of the powertrain and the further development of electromobility. MAHLE already offers the right solutions here with its product ranges of electric drive systems, actuators, and auxiliary units as well as control and power electronics. They are used in many different applications and markets and are closely inter-linked technically. This means economies of scale and synergies can be achieved, which is a crucial success factor in the automotive industry. MAHLE already sells more than 8 million e-drives and electric auxiliaries per year for automotive, urban mobility, and industrial applications.



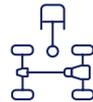
## Filtration and Engine Peripherals

To increase the efficiency and service life of engines and reduce emissions, MAHLE manufactures filters and oil coolers for motor and transmission applications for combustion engines as well as for alternative drives. MAHLE is developing solutions for active fuel cell drives in the area of alternative drives. The engine peripherals often differ even with an identical basic engine due to different regional emissions laws, individual body shapes, and different power classes.



## Thermal Management

Innovative products from the field of thermal management for batteries, fuel cells, power electronics, and electric actuators enable long cruising ranges, high efficiency, and a long service life and thus play a decisive role in shaping the path toward zero-emissions drives. And in the case of combustion engines, more efficient cooling systems significantly drive the reduction of fuel consumption. Innovations in air conditioners enable novel design concepts in the cabin and contribute to a high level of climate comfort in the vehicle as well as to increased efficiency.



## Engine Systems and Components

The development of piston systems and cylinder and valve train components has been one of the core MAHLE businesses for decades. We understand the interaction of all engine components and can therefore offer our customers optimal solutions. Our products are used worldwide in two-wheelers, passenger cars, commercial vehicles, and large engines. MAHLE will drive efficiency progress with state-of-the-art products. We are also developing engine components for the use of sustainable fuels such as hydrogen and e-fuels.



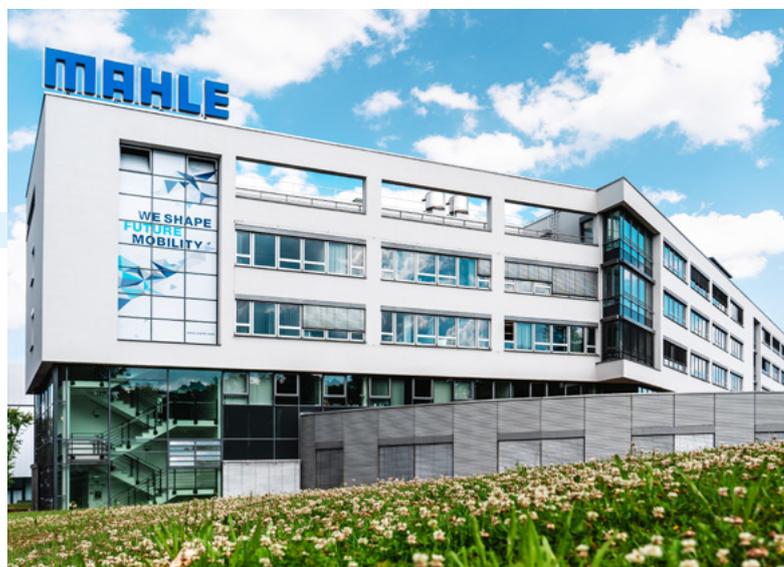
## Service solutions

We use the expertise of our business units to offer the market innovative workshop equipment and complete solutions for the professional maintenance and care of vehicles. The range includes solutions for all drive systems and vehicle classes. In addition to tools for classic vehicle diagnostics and for determining the condition of traction batteries, the portfolio also includes complete packages for testing of exhaust emissions and the digital calibration of driver assistance systems.

# The key points— 2022 in retrospect

**Significant progress on the road to climate neutrality, exciting collaborations and projects, and the joy of more awards: A few highlights.**

# Q1



## **All German production locations are carbon-neutral**

Critical milestone on the way to a climate-neutral group: all of the MAHLE German production locations are carbon-neutral, which the Group was able to announce as early as January 2022. Company-wide production will be in place by 2040. MAHLE is now focusing its attention on internal company structures and processes, one field of action: energy efficiency. Increasingly, the company is focusing on generating its own electricity and will be able to use its own photovoltaic systems to meet part of its electricity requirements with environmentally friendly solar power.

# Q2



## chargeBIG on track for growth

Since April 2022, chargeBIG has been an independent subsidiary of the MAHLE Group as a provider of scalable and low-cost charging infrastructure for electric vehicles. With chargeBIG, MAHLE is accelerating its transformation into a provider of sustainable mobility solutions. Since its market entry in 2018, chargeBIG has already sold 1,500 charging points to more than 20 customers. In addition, the subsidiary has undertaken a development cooperation with power electronics specialists to accelerate the market launch of its recently introduced chargeBIG POWER fast-charging solution.



## Investment in photovoltaic start-up Sunmaxx PVT

In April 2022, MAHLE Group became a strategic investor and cooperation partner of Sunmaxx PVT, a cleantech start-up for photovoltaic thermal systems for generating electricity and heat from solar energy. MAHLE is thus opening up a new business segment in the market for renewable energies. With the investment, Sunmaxx aims to accelerate product development, expand sales channels, and prepare for the start of production, which is planned for series production in 2023.



## German Innovation Award for magnet-free MCT electric motor

In June 2022, the German Design Council presented MAHLE with the German Innovation Award for its magnet-free MCT (magnet-free contactless transmitter) electric motor and named the “Winner” company in the category “Excellence in Business to Business E-Mobility Technologies.” The innovative motor does not require any rare earth metals and operates without wear or maintenance thanks to its contactless power transmission. Its efficiency is over 95 percent in the most frequently used driving conditions of the drive system. So far, such efficiency has only been achieved by Formula e-race cars. The new development can be used in everything from small cars to commercial vehicles.

# Q3

## MAHLE and Siemens sign a declaration of intent for wireless charging

MAHLE and Siemens signed a declaration of intent in August 2022 to cooperate in the field of wireless charging systems for electric vehicles. The two companies intend to jointly develop and test the complete system comprising infrastructure and automotive engineering. One of the areas of focus will be on promoting technological standards for inductive charging technology. In recent years, MAHLE has already reinforced its development activities in the field of wireless charging, including two funding projects by the German Federal Ministry of Economic Affairs and Climate Action: one for the development of a manufacturer-independent inductive charging system, the second for the development of a standardized measurement procedure for the electromagnetic compatibility of inductive systems.



## EUR 300 million for zero-emissions vehicle technologies

The European Investment Bank (EIB) supported the MAHLE Group's research and development of zero-emissions vehicle technologies. In August 2022, it granted a loan of EUR 300 million for this purpose. This is intended to help MAHLE further advance the electrification of vehicles and the decarbonization of road traffic. Investments are being made in the development of environmentally friendly technologies such as electric motors and battery components, thermal management, cooling and systems to improve air quality in the passenger cell, hydrogen and fuel cell components, and power electronics and traction motors. Funding is being provided to locations in Germany and seven other EU countries.

## Renewable energies on the rise

The MAHLE Group published its Sustainability Report for the year under review 2021 in September 2022. The report was examined and confirmed by external auditors for the first time. It is in line with the standards of the Global Reporting Initiative (GRI) and provides an overview of the progress of the group's sustainability strategy. This shows that MAHLE was able to achieve important milestones of its CO<sub>2</sub> roadmap, among other things, in 2021. Activities around health and safety, sustainable supply chains, and diversity and human rights are also included in the report.

# Q4



## Increased delivery performance

MAHLE has commissioned a highly automated warehouse for the aftermarket in Olive Branch, Mississippi (USA). From this location, deliveries for workshops and retailers are even faster, and returns are less frequent. Orders can be handled in record-breaking time: a mere 30 minutes. MAHLE has invested approximately six million euros in the 1,200 m<sup>2</sup> fully automated facility. Additional locations in Europe will be outfitted with similar systems beginning in 2023.

## Cooperation in the supply of fuel cell components

Cellcentric and MAHLE signed a declaration of intent in September 2022 to cooperate in the field of fuel cell technology. The joint venture, which is owned equally by Daimler Truck AG and Volvo Group AB, and MAHLE intend to develop components for commercial vehicles as well as for other applications with similar requirements. The focus is on a systems component: the flat membrane humidifier. Among other things, this innovation improves the durability of the fuel cell, thus ensuring a longer service life. The flat membrane humidifier is intended to be used in fuel cell systems for light commercial vehicles as well as in steady-state systems such as emergency power units.



## Charging infrastructure for small users

Charging electric vehicles with MAHLE technology is now also possible on a smaller scale: e.g. in apartment buildings, workshops, or small businesses. With the MAHLE chargeBIG6 solution, up to six electric vehicles can be charged simultaneously at the existing house connection in the future. This works via a central, small control unit that supplies three-phase charging points with a charging power of 11 or 22 kW each. With this charging distributor, twice as many electric vehicles can be charged as with the solutions currently offered on the market for this area of application. Thanks to certification, outside is also an option. MAHLE chargeBIG is thus expanding its range for larger applications to include a new target group.

# Three tracks. One goal.

**As part of its MAHLE Strategy 2030+, MAHLE is focusing on three fields of technology: electrification, thermal management, and efficient combustion engines. Only by using all three tracks will we achieve the climate goals. Our approach is therefore open to all technologies.**

The future of mobility is battery-electric or hybrid. This is particularly true for Europe, North America, and China. But clean and efficient combustion engines and hydrogen drives are also part of the drive mix of the future. This is because developments will vary greatly depending on the region of the world. This applies equally to passenger cars and trucks. In emerging markets in particular, the market for vehicles with internal combustion engines is expected to continue to grow, for example in India or South America. Here, among other things, sustainable fuels, such as e-fuels or biofuels, will rapidly contribute to the decarbonization of road transport.

The three technology fields set up the new strategic image for the MAHLE Group, which is now replacing the long-standing dual strategy. At the core is the new MAHLE mission “Efficiency in Motion,” which describes all the Group’s activities in the three strategic areas and serves as the strategic lever for implementing the MAHLE vision “We Shape Future Mobility.”

## **1. Electrification: the E-volution continues**

Electrification is where the greatest market momentum lies. Between 2022 and 2026, more than 20 electrified vehicle platforms from leading passenger car and commercial vehicle manufacturers will be launched on the market that rely on MAHLE technology and products. Our strategy is primarily focused on the e-drive and charging. We electrify all vehicle classes—from e-bikes and scooters to passenger cars and commercial vehicles. MAHLE already sells more than 8 million e-drives per year for automotive, industrial, and urban mobility applications.

## **2. More climate expertise: thermal management**

With our in-depth expertise in thermal management, an important element of electrification, we are a technology driver for e-mobility. Our strategy is aimed at further expanding our established status as a systems provider focusing on energy efficiency and air conditioning. MAHLE is one of the largest suppliers of thermal management systems for drives and passenger comfort with a global development and production network.

## **3. Open to technology in the future: modern combustion engines**

Highly efficient and clean combustion engines will remain a relevant factor worldwide for years to come. MAHLE pursues a strategy of cost leadership in components for internal combustion engines and thus remains a reliable partner for its customers. With lean structures, we will be competitive worldwide and take advantage of market opportunities. MAHLE will drive efficiency progress in this segment with state-of-the-art products. We see potential for the use of fuel cells and hydrogen engines, especially in the commercial vehicle sector. The internal combustion engine can make an immediate contribution to climate protection with non-fossil fuels, such as e-fuels.

## WE SHAPE FUTURE MOBILITY

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A glimpse of the mobile future:  
“We Shape Future Mobility” video



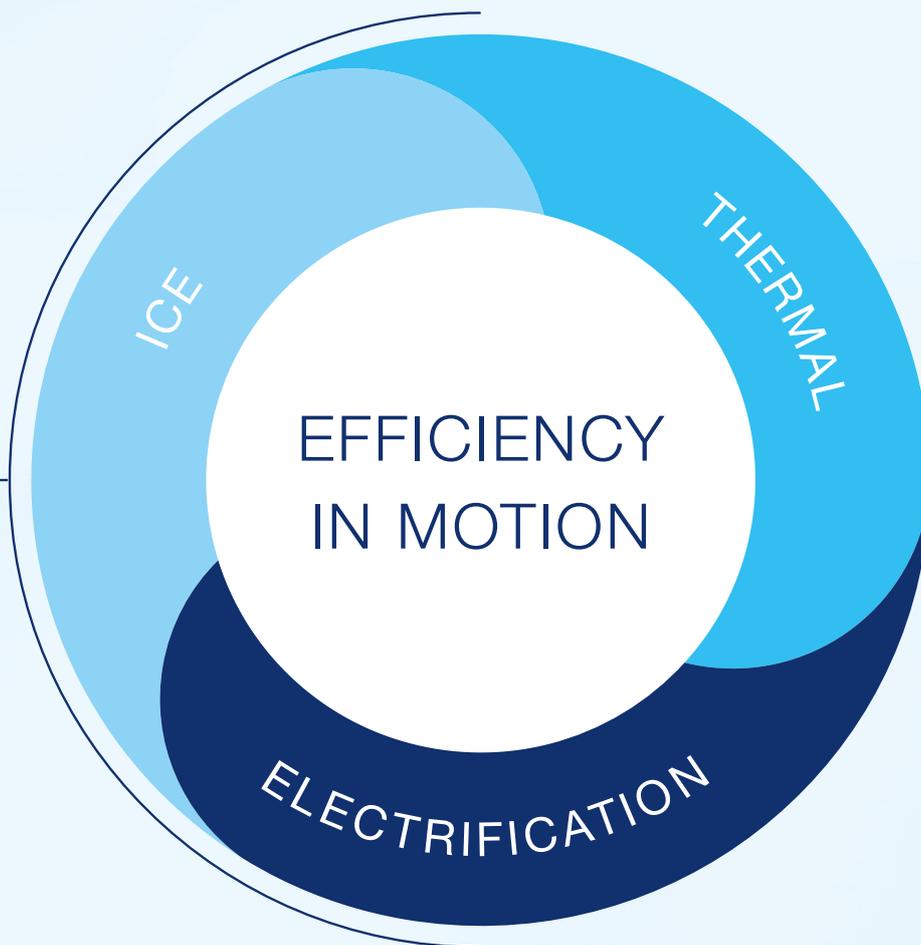
# 70%

will be the market share of newly produced passenger cars with battery electric drives as well as fuel cell and hybrid drive solutions in 2035.



# 40%

of all commercial vehicles worldwide will be produced as purely electric with battery, fuel cell, or hybrid drive by 2035.



# E-evolution with a system solution

**The MAHLE Strategy 2030+ is taking huge strides toward electrification for more sustainable mobility. At the product level, this continues to mean offering customers advantages with system competence. A look inside the glass vehicles shows how this is achieved for passenger cars, transport vehicles, and e-bikes.**

Whether passenger car, commercial vehicle, e-bike or forklift truck, electric drives of all sizes have long been an integral part of mobility. And market penetration will pick up speed in the coming years. MAHLE has set itself the goal of laying the foundation for the broad acceptance and widespread introduction of e-mobility with its systems solutions. The module's integrated functions simplify processes and reduce costs for customers.

One area in which MAHLE sees great potential for more efficiency is thermal management. Ultimately, the performance, cruising range, and service life of an electric vehicle also depend on the sophisticated management of heat flows. Keeping the battery and motor always at the right temperature prevents wear and tear. MAHLE develops solutions for the vehicle cabin, the powertrain, and the peripheral systems. Thermal management is required for all drive forms. The importance of battery electric vehicles and vehicles with fuel cells is increasing significantly.



## 1 Fluid management module for electric vehicles

Purified and demand-adjusted tempered fluid increases both the cruising range and service life of the e-drive.

## 2 Cabin filter

Conventional cabin filters with and without activated carbon are part of the HVAC (heating, ventilation and air conditioning) and remove dirt particles, gas molecules, and viruses from the air for passengers.

## 3 Air conditioning (HVAC)

Two- or three-zone temperature regulation and air distribution with adjustable footwell temperature and best-in-class acoustics create a feel-good climate.

## 4 Cooling module

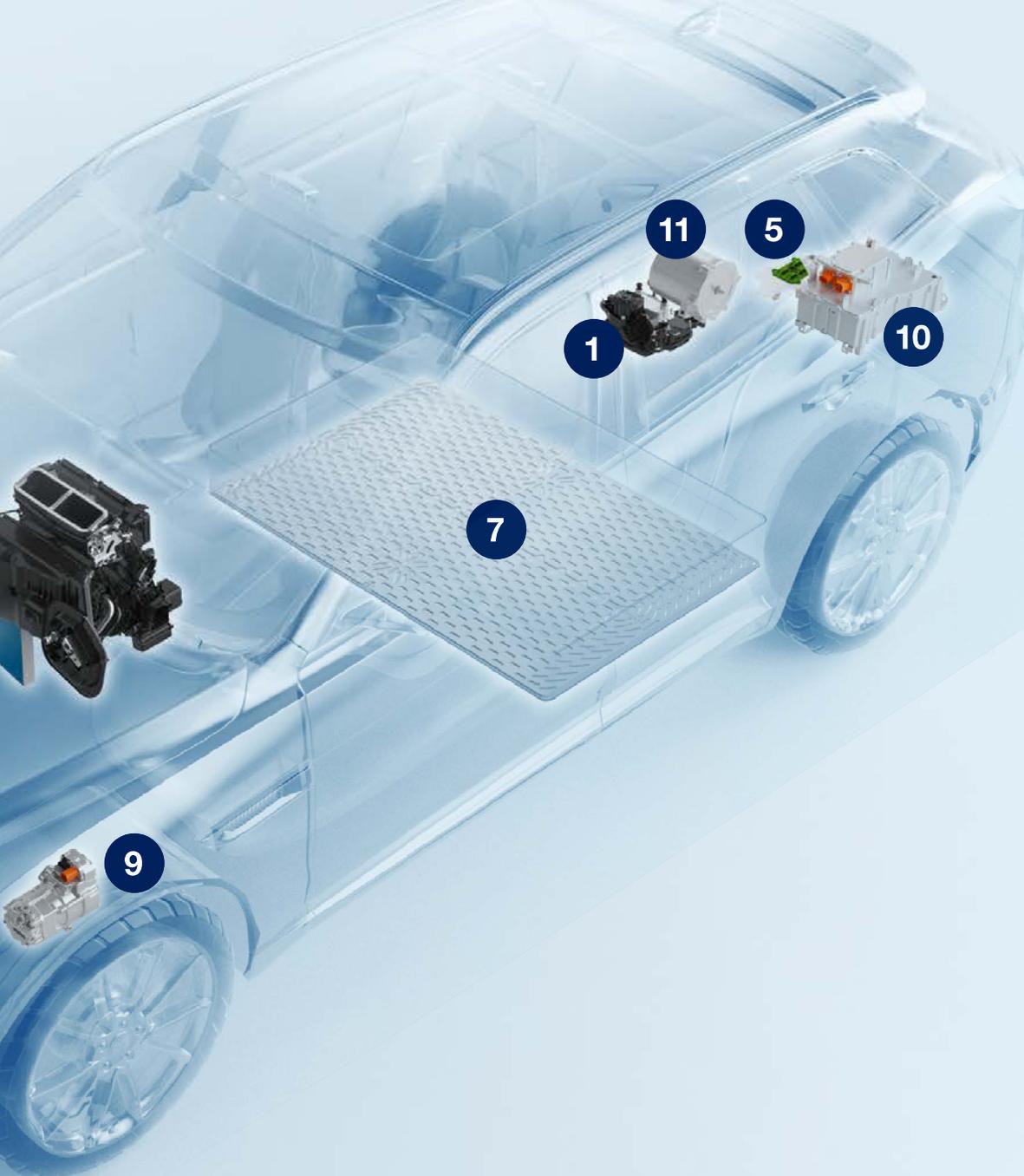
Highly efficient and compact—MAHLE cooling modules ensure perfect temperatures in the battery electric vehicle.

## 5 Electronics cooling plate

MAHLE cools power electronics for systems with high power closer to the component, thus also increasing the service life of the electrical components and interfaces.

## 6 Chiller

The chiller with the MAHLE electric expansion valve transfers coolant between different cooling circuits.



**7 Battery cooling plate**

The temperature control keeps the battery temperature below 40 °C and increases the service life of the battery.

**8 Indirect condenser**

An indirect condenser is cooled with water during air conditioning and conversely heats coolant for heating purposes in heat pump mode.

**9 Electric compressor**

The heart of the air conditioning and refrigerant circuit: MAHLE offers air conditioning compressors for all relevant performance ranges and vehicle types.

**10 The on-board charging system (OBC)**

The on-board charging system ensures safe and efficient charging while continuously monitoring the temperatures.

**11 MCT e-motor (magnet-free contactless transmitter)**

The innovative drive motor from MAHLE does without rare earths. The central feature of the new motor is the inductive and thus contactless power transmission. This allows the motor to function without wear and tear and ensures exceptional efficiency at high rpms. The efficiency is over 95 percent in the most frequently used driving conditions of the drive system.

# Transporting goods more sustainably

Decarbonization is also essential in the transportation sector. Therefore, the industry is in a phase of transition and open to more sustainable technologies. Battery-electric commercial vehicles are already in daily use, and the first hydrogen trucks, which are also driven by an electric motor, are already being tested in practice. In addition to the two solutions, e-fuels and hydrogen produced with green electricity allow existing vehicles with combustion technology to be used in a much more climate-friendly way. What ultimately ends up happening in transport is decided by users on the basis of total costs.

As a systems provider, MAHLE supports the vehicle manufacturer in all these challenges with sustainable technologies. From the interior air conditioning to the modular thermal management for the drive to the powerful electric motor, all systems are designed for different e-architectures. This ensures suitability for all regions, vehicle types, and purposes, and they also have a long service life. Thermal management for large e-vehicles in particular requires special solutions: With the battery-electric drive, for example, a lot of heat is generated at certain points during (fast) charging. The temperature range of the battery must also remain constant. The image shows in detail how it works.



## 1 Cooling module

The cooling module regulates the systems at different temperature levels and thus protects batteries and power electronics.

## 2 High-voltage heater (cabin and battery system)

By heating up the coolant, the high-voltage heater generates the optimum working temperature of the Li-ion battery in winter and provides warmth in the cabin.

## 3 Air conditioning

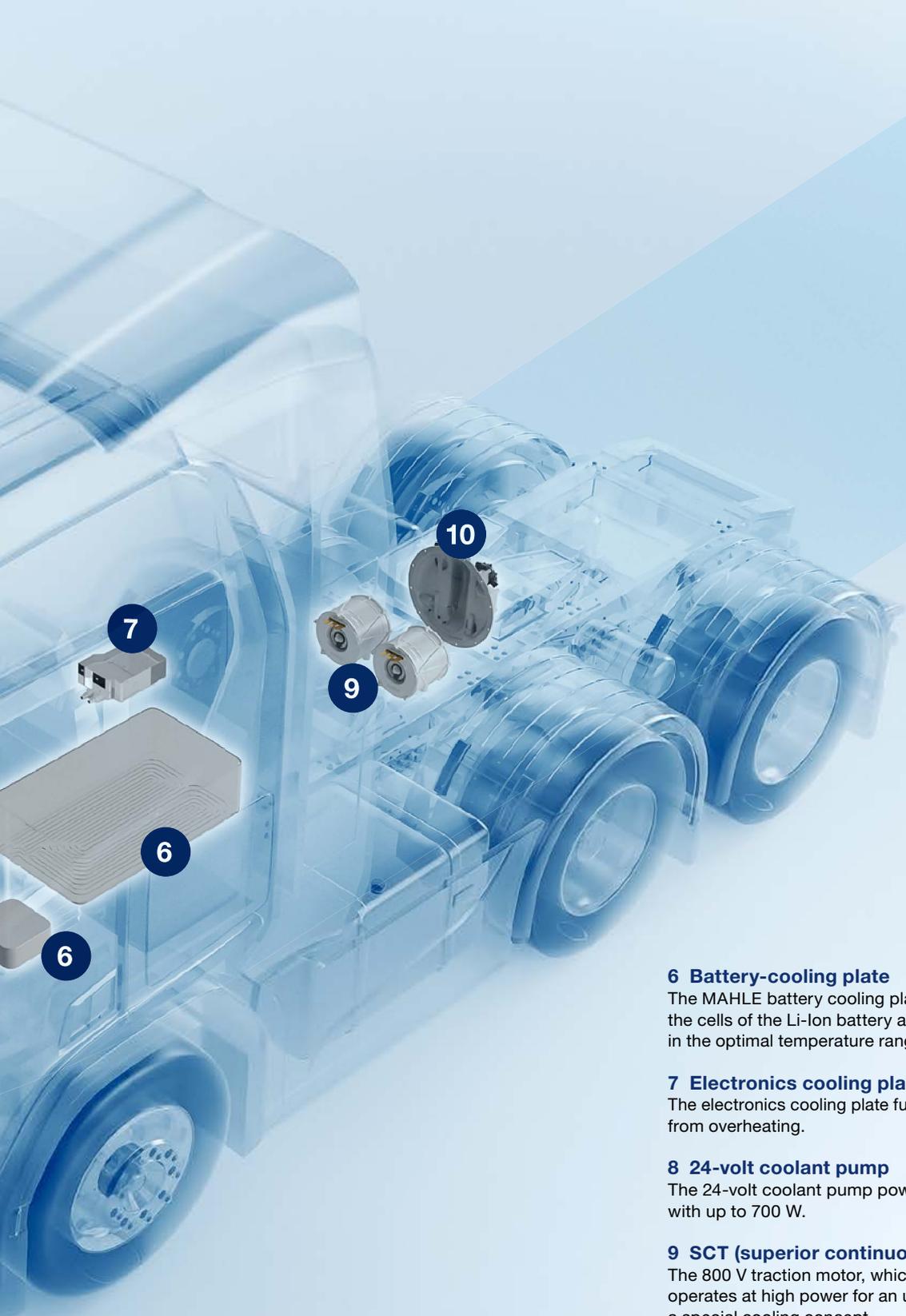
The air conditioning system regulates the temperature of the driver's workplace with minimal energy consumption, while the CareMetix® cabin filtration system filters out fine particulates and pollutants.

## 4 Electric air-conditioning compressor

The 800-volt electric compressor provides the necessary power to cool the battery and keep the driver's cabin pleasantly air-conditioned.

## 5 Chiller

The chiller optimally cools the water circuit for the temperature-sensitive Li-ion battery even at high outside temperatures.



#### **6 Battery-cooling plate**

The MAHLE battery cooling plates remain in thermal contact with the cells of the Li-Ion battery and keep the electric energy storage in the optimal temperature range.

#### **7 Electronics cooling plate**

The electronics cooling plate further protects electronic components from overheating.

#### **8 24-volt coolant pump**

The 24-volt coolant pump powers the coolant circuits as needed with up to 700 W.

#### **9 SCT (superior continuous torque) e-motor**

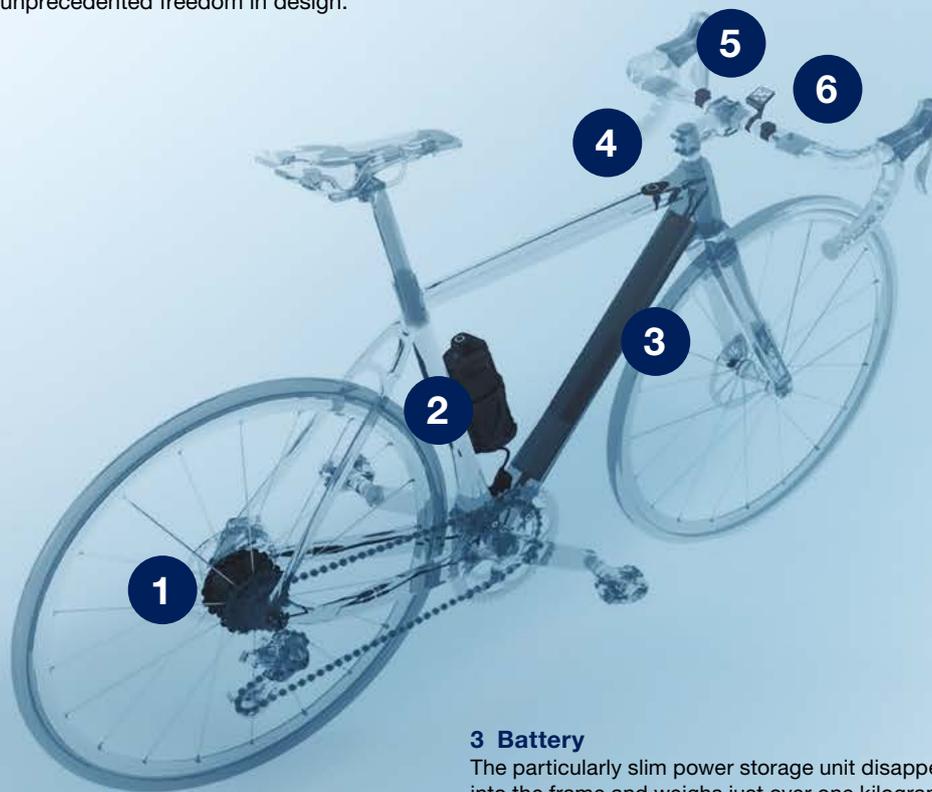
The 800 V traction motor, which is unique on the market so far, operates at high power for an unlimited period of time thanks to a special cooling concept.

#### **10 Oil management module**

The integrated and compact oil management module cools the traction motor to prevent it from overheating.

# An all-new take on cycling

Two-wheelers are playing a greater role in the new world of mobility. They have never been so versatile: bicycles, and especially e-bikes, are increasingly becoming an individual means of transport in cities and in the countryside. MAHLE wants to shape this development with smart ideas that improve the entire experience. No matter whether people are travelling in a city or in the countryside, an e-bike is always a good option. For the perfect experience, MAHLE offers a platform consisting of compact drive motors, tailor-made motor control, and a power-appropriate battery. In addition, connectivity components such as smart switches expand the possibilities. The lightweight and compact design gives bicycle manufacturers unprecedented freedom in design.



## 1 Motor

The lightest e-bike motor on the market, the MAHLE X20, can be switched on at the push of a button. Weighing just 1.4 kilograms, it delivers 23 newton meters directly to the wheel; in operation, this power is comparable to a mid-mounted motor with 55 newton meters of torque.

## 2 Range extender

For longer journeys, the lightest range extender on the market (e185) can be used with the X20 by attaching it to the frame like a water bottle. This provides an extra 60 kilometers of assistance.

## 3 Battery

The particularly slim power storage unit disappears completely into the frame and weighs just over one kilogram.

## 4 Smart switch

The iWOC is not only an elegant on/off switch for the drive. It is also used to select the type of electrical assistance.

## 5 Flexible switch

The electric shift button can be flexibly mounted anywhere on the handlebar. For example, it enables the drive to be controlled on curved handlebars.

## 6 Wireless display

The 2.1-inch display clearly shows all the information that is important on the e-bike and can be easily connected to a smartphone.

# Keeping everything running

**MAHLE offers its expertise throughout the life cycle of its vehicle technologies. That means high-quality spare parts and many services—from motorsports to workshop equipment. This is why we have the Aftermarket, Profit Center, and Services areas.**



## Sustainable outfitters: Aftermarket

With the growing series production of alternative drives, the spare parts and service business is also developing: A strong range here ensures long-lasting and more sustainable technologies. Thermal management in particular is gaining in importance as the number of electric and hybrid vehicles increases significantly. Across all technologies, workshops can rely on MAHLE equipment for vehicle diagnostics, battery testing, and service work to maintain air conditioning systems and automatic transmissions. MAHLE also supplies partners in the trade and engine repair, as well as electronic trading platforms worldwide with original equipment quality products. The aftermarket range is completed by services such as technical support at more than 30 locations worldwide as well as individual training courses and service information for all customers.

## The specialists: Profit centers and services

MAHLE has four units organized as profit centers for special market and customer segments: in addition to motor sports and special applications, these include the large and small engine components used in agriculture, the navy, or rail vehicles. A team for industrial thermal management completes the special area. The experts support the development of specific products.

In addition to the profit centers, the service divisions help customers with special questions regarding purchasing, sales, advance development, human resources, IT, and accounting and finance. In addition, the engineers at MAHLE Powertrain GmbH offer development expertise for both internal and external customers.

# Technology highlights

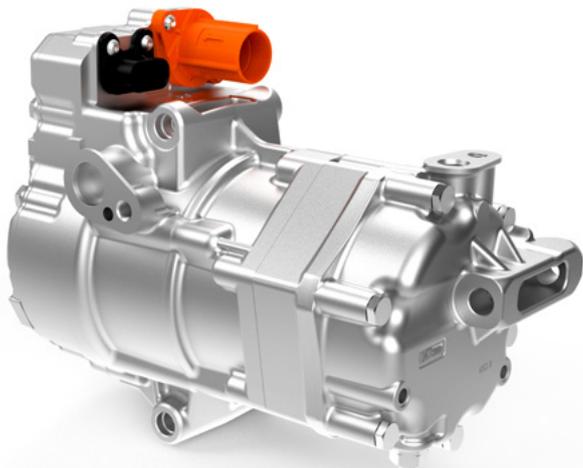
**What is new? Where has MAHLE set technological highlights? And what is becoming a trend? A small innovation show from the electric motor to workshop software.**



In the video: Insight from our innovation experts

## Bestseller in e-mobility

MAHLE is establishing itself as a supplier of e-mobility. The electric air-conditioning compressor is a fantastic example of such. Numerous series orders have already been received in the passenger car and commercial vehicle sectors. For 2022, the total order volume was approximately EUR 1.4 billion. Recently, MAHLE introduced the most powerful e-compressor currently on the market, with a peak output of 18 kW. E-compressors are the heart of thermal management in electric vehicles. The key component is important for the temperature control of the e-drive and thus crucial for the service life, charging speed, and cruising range of the battery.



## Eurobike Innovators' Prize

The innovative X20 drive system from MAHLE SmartBike Systems wins the Innovators' Prize at the Bike and Future Mobility trade fair Eurobike 2022 in July. A specialist jury of experts from the industry and media, as well as stakeholders from outside the sector, chose the lightest drive system on the market, weighing just 3.2 kilograms, as the winner in the "Components" category. The MAHLE e-bike business segment is presenting this innovation and other solutions for gravel, road, and urban bikes, including HMI and connectivity, at the Eurobike trade fair in Frankfurt am Main.



## Air conditioning with a system solution

The performance, cruising range, and service life of an electric vehicle also depend on the sophisticated management of heat flows. Good thermal management ensures greater efficiency and assists in CO<sub>2</sub> reduction. MAHLE relies on system solutions for this. Modules for cabin air conditioning, battery cooling, or fluid management simplify processes for customers and get more out of the complete system.

## Calibrating with AI

MAHLE has released an update on the increasing calibration effort in workshops for driver assistance systems. The TechPro@Digital ADAS 2.0 system uses artificial intelligence. This recognizes the vehicle together with the control unit and automatically adapts the digital calibration panel from MAHLE to the respective vehicle. This saves several process steps per vehicle. To simplify the learning process, the application features 3D tutorials.



## First battery check for workshops

MAHLE is the first supplier worldwide to enable independent workshops to perform battery diagnostics on electric vehicles. The TechPRO diagnostic tool has been equipped with new software for this purpose. It detects all existing defect codes in an average of 30 seconds and reports over 54,000 detailed OEM defect code descriptions. It will initially be available free of charge. In the future, MAHLE will develop suitable licensing models for its customers. This step opens up new, future-proof business areas for independent workshops beyond the combustion engine.

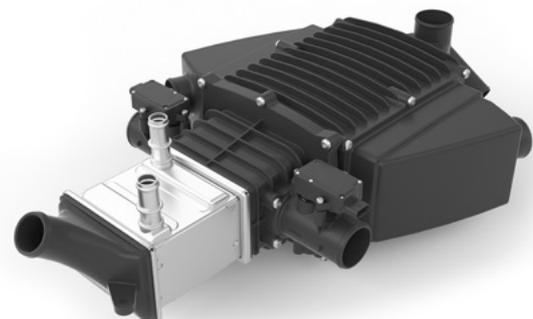


## The endurance runner

MAHLE has developed the electric motor with the greatest endurance. The SCT (superior continuous torque) electric motor can operate indefinitely at more than 90 percent of its peak power. This ratio, which is unique on the market to date, represents a technological leap forward and enables use in electric vehicles of all kinds—even under demanding conditions. This is made possible by a new cooling concept. With the SCT electric motor, MAHLE is now a full-range supplier in the field of electric drives and meets all needs from e-scooters to heavy-duty commercial vehicles, off-road and industrial applications.

## The substance for sustainable transport

MAHLE has suitable solutions for the sustainable use of hydrogen in transportation. In the fuel cell, a specially developed humidifier increases the service life of the cells. It uses the water created in the fuel cell to humidify the incoming air. For the efficient use of hydrogen as a fuel in the combustion engine, MAHLE presented the Power Cell Unit at the IAA Nutzfahrzeuge (International Motor Show for Commercial Vehicles in Germany)—a system consisting of pistons, piston rings, conrods, pins, and, if desired, cylinder liners, as well as a high-pressure impactor for flushing the crankcase.



# Efficiency in Motion

**A sustainable future needs efficiency. It saves resources, energy and ensures competitiveness. At MAHLE, we have the experience and dedication to save even the last microgram of CO<sub>2</sub> or to look at problems in a completely new way. We bring maximum efficiency in motion with system solutions for all drive concepts and vehicle types. This means we can shape sustainable mobility for the next generations together with our customers.**



Ladies and Gentlemen,

After two years full of external challenges, MAHLE is on the road to stability. The 2022 business year outlined in this report was characterized by the overlay of supply shortages, cost increases for materials and energy, and the continued presence of Covid-19. The global uncertainties led to another year of low production quantities in the automobile industry.

After three quarters with heavily burdened results, we were able to stabilize the earning power of the MAHLE Group toward the end of 2022. In addition to improvements in the operating business, the necessary sales price adjustments for MAHLE products in an inflationary environment made a significant contribution. We thank our customers around the world for working closely with us to manage these cost increases.

We are convinced that many of the key factors will experience further uncertainties in the current year 2023. Timely partnership solutions to supply and cost changes remain critical to success in the automotive value chain, just like our daily work on costs and efficiency.

Beyond operational improvements, successful decarbonization is a key strategic goal at MAHLE. We are working flat out on promising technologies for the low-emissions mobility of tomorrow. This is where we rely on the ingenuity of our engineers: only if the state and society allow all technologies for sustainable transport will the transport transition succeed for the climate, the economy, and society.

At MAHLE, we are making our own contribution: with electric drive motors for all types of vehicles, with charging solutions for vehicles and infrastructure, efficiency-enhancing components for fuel cells, and many other new products. But MAHLE will also continue to meet the global demand for components and systems for combustion engines that will run on sustainable fuels in the future.

The guiding principle for this sustainable orientation of our business is our mission "Efficiency in Motion." This means the efficient solutions for combustion engines, thermal management,

and electrification with which we are shaping the future of mobility. We would like to thank our customers across the world of mobility, our shareholders, the MAHLE Supervisory Board, the employee representatives and, in particular, our almost 72,000 employees at around 152 locations who bring our world one step closer toward an environmentally compatible and sustainable future every day for their trust, interest, and support.

MAHLE — We Shape Future Mobility

Sincerely,



**Arnd Franz**

Chairman of the Management Board and CEO of the MAHLE Group

# Report of the Supervisory Board

*Vadler and Jenken,*



Rarely has a business year been as difficult as 2022 was in the automotive supply industry. We hoped to be able to return to reasonably normal working conditions after the challenging pandemic years, but we were a long way off this, especially in the first half-year.

As a result of geopolitical events, the cost increases that had already begun in many material areas in the previous year intensified, and in some cases extremely. There were also massive supply chain problems for raw materials required for certain products, especially electronic components, which posed a challenge primarily for our Electronics and Mechatronics and Thermal Management business units. Agreements with our customers on passing on these cost increases, but also the increases in the general area of inflation (personnel, energy and freight costs, etc.) were able to take effect only to a certain extent in the last months of the business year. Nevertheless, a massive block of cost increases remained in our company, while our customers were able to achieve exceptionally high profit margins through clever pricing and portfolio policies. Therefore, we will continue to work closely with our customers in managing the effects of high inflation and energy costs in the current business year 2023.

Furthermore, the EU's plans to reduce CO<sub>2</sub> emissions in new vehicles are very far-reaching and it is quite difficult to surmise what the consequences of this decision will be. Instead of allowing technology-open competition between e-drives, green hydrogen, and sustainable fuels such as e-fuels, EU policy is limited to promoting pure BEV drives. However, we are firmly convinced that technological openness is essential for rapidly decarbonizing road transport. Therefore, this path must remain open in regulatory terms. In other regions of the world, for example in technologically leading countries such as Japan and South Korea, there is a deliberate focus on open technology drive strategies.

Despite the manifold tasks before us, we did not reduce our efforts and expenditures in the area of research and development in the 2022 business year. Even if this does not lead to short-term improvements in results, we are certain of the long-term prospects for success of this approach.

The Supervisory Board discussed and deliberated in detail on all decisions relating to the Group's business development.

It held a total of five meetings during the business year. In addition, there were several meetings of the Personnel Committee on current HR-related topics.

In the 2022 business year, the Supervisory Board performed all the duties incumbent upon it under the law, the Articles of Association, and the Rules of Procedure. In addition, regular verbal and written consultations took place between the Chairman of the Supervisory Board and the Chairman and members of the Management Board on strategic and operational issues.

During the year, the Supervisory Board was informed regularly, promptly, and comprehensively about the business development of the company, the Group, its business units, and its participations through oral and written reports from the Management Board as well as during the meetings.

In addition to the operational and strategic topics, the meetings also addressed the implementation of the law for equal participation of women and men in leadership positions. The Supervisory Board and the Management Board aim to significantly increase the current ratio of women at all management levels.

The Supervisory Board thanks all members who left the boards during the 2022 business year for their constructive cooperation: Mr. Martin Röhl, resigned as of April 30, 2022 and replaced by Mr. Udo Abelmann by court appointment on May 1, 2022; Mr. Josef Haering, resigned as of May 31, 2022, succeeded by Mr. Klaus Güntert as elected substitute member on June 1, 2022.

Our thanks go to Dr. Stefan Pischinger and Dr. Franz-Josef Paefgen for their many years of dedicated cooperation. Both left the Supervisory Board on December 31, 2022. Claudia Diem and Dr. Rolf Breidenbach were appointed to the Supervisory Board on January 1, 2023.

Mr. Arnd Franz was appointed as a member and then Chairman of the Management Board by the Supervisory Board on November 1, 2022.

Mr. Michael Frick, who was CFO from 2014 and interim CEO from May 1, 2022, left the company of his accord on November 30, 2022. The Supervisory Board thanks Mr. Frick for his many years of cooperation in the Group. Mr. Markus Kapaun was appointed as his successor by the Supervisory Board on November 1, 2022.

Anke Felder did not renew her employment contract as Managing Director for Human Resources and Director of Human

Resources, which expired on December 31, 2022, and left the company at her own initiative. Ms. Felder did an outstanding job during the extraordinarily challenging phase of the coronavirus pandemic. Dr. Beate Bungartz was appointed as her successor by the Supervisory Board with effect from January 1, 2023.

Mr. Wilhelm Emperhoff will retire on May 1, 2023. He was managing director of the Filtration and Engine Peripherals business unit from 2012 to 2019 and was responsible for the newly created Electronics/Mechatronics business unit from 2020. Mr. Emperhoff pursued this task with great dedication until his retirement. For this, he deserves the thanks of the Supervisory Board. Mr. Martin Wellhöffer, who was most recently Corporate Executive Vice President Sales and Application Engineering, will succeed him as managing director for the Electronics/Mechatronics business unit from May 1, 2023.

PricewaterhouseCoopers GmbH, the appointed auditor, audited the annual financial statements and management reports of the MAHLE Group and MAHLE GmbH for the 2022 business year, which were prepared in accordance with the German Commercial Code (HGB), and issued an unqualified audit opinion. The Supervisory Board concurred with the audit findings after a thorough analysis of the audit reports and the auditors' report at the Supervisory Board meeting.

The Supervisory Board approves the annual financial statements and the management reports of the MAHLE Group and MAHLE GmbH.

The Supervisory Board thanks all employees of the MAHLE Group for their extraordinary commitment in an exceptional year. Let's look forward to the 2023 business year with confidence.

Stuttgart/Germany, April 20, 2023

For the Supervisory Board



**Professor Dr. Heinz K. Junker**  
Chairman of the Supervisory Board of the MAHLE Group

# Members of the Supervisory Board

## **Prof. Dr.-Ing. Heinz K. Junker**

### **Chairman**

Former Chairman of the Management Board and CEO of MAHLE GmbH, Stuttgart/Germany

## **Jürgen Kalmbach**

### **Deputy Chairman**

MAHLE GmbH, Stuttgart/Germany

## **Udo Abelmann**

(since May 5, 2022)

Trade Union Secretary of the local IG Metall, Stuttgart/Germany

## **Rolf Berkemann**

Vice President Sales and Application Engineering Passenger Cars 1 Region Europe, MAHLE Group, Stuttgart/Germany

## **Dietmar Bichler**

Chairman of the Supervisory Board of Bertrandt AG, Ehningen/Germany

## **Dr. Rolf Breidenbach**

(since January 1, 2023)

Former Chairman of the Management Board and CEO of HELLA GmbH & Co. KGaA, Lippstadt/Germany

## **Nektaria Christidou**

Chairwoman of the Works Council of MAHLE Behr GmbH & Co. KG, Mühlacker and Vaihingen an der Enz/Germany

## **Claudia Diem**

(since January 1, 2023)

Attorney-at-law, former Member of the Executive Board of BW-Bank, Corporate customers Baden-Württemberg West and North, Stuttgart/Germany

## **Prof. Dr. jur. Wolfgang Fritzemeyer, LL.M.**

Lawyer, Munich/Germany, Attorney-at-Law (New York/USA), Solicitor (New South Wales/Australia)

## **Gerd Goretzky**

Advisor to the European Works Council of the MAHLE Group, Stuttgart/Germany

## **Klaus Güntert**

(since June 1, 2022)

Chairman of the Works Council of MAHLE GmbH, Rottweil plant/Germany

## **Josef Häring**

(until May 31, 2022)

Chairman of the Works Council of MAHLE GmbH, Rottweil plant/Germany

## **Prof. Dr.-Ing. Gisela Lanza**

Head of the Institute of Production Science at the Karlsruhe Institute of Technology (KIT), Karlsruhe/Germany

## **Dr. Michael Macht**

Former Chairman of the Management Board of Porsche AG and former Member of the Management Board of Volkswagen AG

## **Liane Papaioannou**

Chairwoman of the local IG Metall, Pforzheim/Germany

## **Dr. Franz-Josef Paefgen**

(until December 31, 2022)

Former CEO of AUDI AG and Bentley Motors Limited and former President of Bugatti International S.A.

## **Prof. Dr.-Ing. Stefan Pischinger**

(until December 31, 2022)

Chair of Thermodynamics of Mobile Energy Conversion Systems and CMP Center for Mobile Propulsion, RWTH Aachen University/ Germany

## **Thomas Raupach**

Deputy Chairman of the Works Council of MAHLE Ventiltrieb GmbH, Wölfersheim/Germany

## **Martin Röhl**

(until April 30, 2022)

Co-Chairman of the local IG Metall, Stuttgart/Germany

## **David Schmidt**

Chairman of the Works Council of MAHLE Pumpensysteme GmbH, Wustermark plant/Germany

## **Annette Szegfü**

Trade Union Secretary to the Executive Committee of IG Metall, Frankfurt/Germany

## **Dr. Bernhard Volkmann**

Former Member of the Management Board and CFO of MAHLE GmbH, Stuttgart/Germany

## **Georg Weiberg**

Former Head of Truck Product Engineering at Daimler AG, Stuttgart/Germany

## **Prof. Dr.-Ing. Jörg Zürn**

Former Head of Development Mercedes-Benz Vans at Daimler AG, Stuttgart/Germany

# Members of the Management Board

## **Arnd Franz**

### **Chairman of the Management Board**

(since November 1, 2022)

Automotive Sales and Application Engineering  
Aftermarket business unit  
Research and Advanced Engineering, Corporate Planning,  
Legal, External Affairs, Corporate Communications

## **Jumana Al-Sibai**

Thermal Management business unit  
Industrial Thermal Management profit center,  
Control Units profit center

## **Dr. Beate Bungartz**

(since January 1, 2023)

Human Resources, Corporate Executive Vice President  
Human Resources, Personnel Development, Corporate Real  
Estate Management

## **Georg Dietz**

Engine Systems and Components business unit  
Large and Small Engine Components profit center,  
Motorsports and Special Applications profit center,  
Environmental Management/Safety at Work for the group,  
Corporate Quality Management

## **Wilhelm Emperhoff**

(until April 30, 2023)

Electronics and Mechatronics business unit

## **Markus Kapaun**

(since November 1, 2022)

Finance, Controlling, Taxes, IT Services, Insurances,  
Revision and Risk Management, Mergers & Acquisitions

## **Martin Weidlich**

Filtration and Engine Peripherals business unit  
Corporate Operational Excellence, Production System &  
Consulting, Purchasing, Battery competence center

## **Martin Wellhöffer**

(from May 1, 2023)

Electronics and Mechatronics business unit

## **MEMBERS WHO HAVE STEPPED DOWN**

## **Matthias Arleth**

### **Chairman**

(January 1 to April 14, 2022)

Automotive Sales and Application Engineering  
Aftermarket business unit  
Motorsports and Special Applications profit center,  
Research and Advanced Engineering, Corporate Quality  
Management, Corporate Planning, Corporate Communications,  
Legal, External Affairs

## **Anke Felder**

(until December 31, 2022)

Human Resources, Corporate Executive Vice President  
Human Resources, Personnel Development, Corporate Real  
Estate Management

Corporate Communications ad interim

(April 15 to October 31, 2022)

## **Michael Frick**

### **Deputy Chairman**

(until April 14, 2022)

Finance, Controlling, Taxes, IT Services, Purchasing, Insurances,  
Revision and Risk Management, Mergers & Acquisitions

### **Chairman ad interim**

(April 15 to October 31, 2022)

Automotive Sales and Application Engineering  
Aftermarket business unit  
Motorsports and Special Applications profit center,  
Research and Advanced Engineering, Corporate Planning,  
Legal, External Affairs

# Members of the Management Board

as at May 1, 2023

F. l. t. r.:

Martin Wellhöffer  
Martin Weidlich  
Jumana Al-Sibai  
Arnd Franz  
Markus Kapaun  
Dr. Beate Bungartz  
Georg Dietz





# A worldwide network – our locations

**152 production locations**  
**12 major research & development centers**  
**71,947 employees\***

## Major research & development centers

### EUROPE

Northampton/Great Britain  
Šempeter pri Gorici/Slovenia  
Stuttgart - Bad Cannstatt/Germany  
Stuttgart - Feuerbach/Germany  
Valencia/Spain

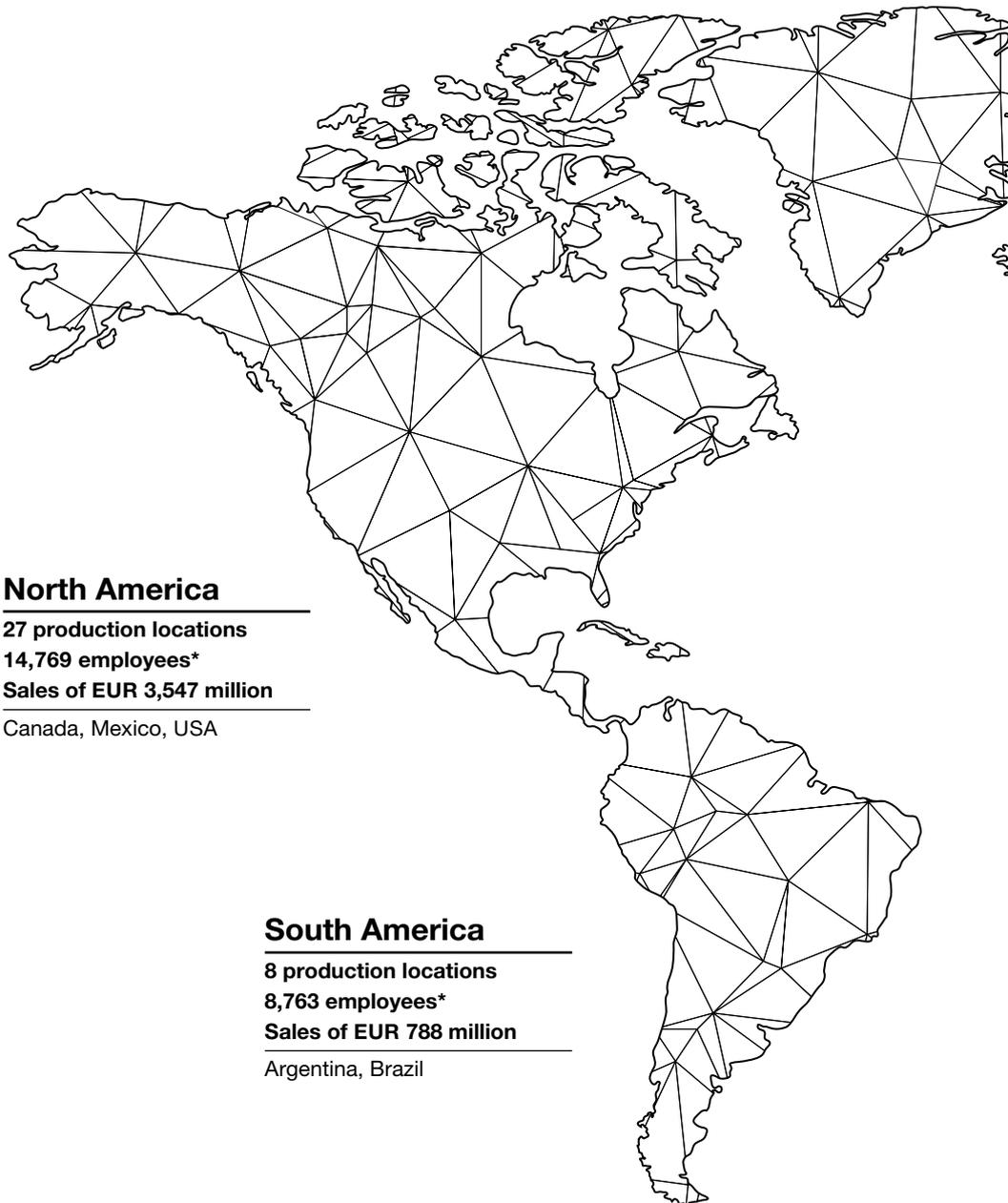
### NORTH/SOUTH AMERICA

Buffalo/USA (Amherst, Lockport)  
Detroit/USA (Farmington Hills, Troy)  
Jundiaí, São Paulo/Brazil

### ASIA/PACIFIC

Pune/India  
Shanghai/China  
Numazu/Japan  
Tokyo/Japan (Okegawa, Kawagoe)

\* As at December 31, 2022



## Europe

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**57 production locations**

**31,165 employees\***

**Sales of EUR 5,427 million**

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Austria, Bosnia and Herzegovina,  
Czech Republic, France, Germany,  
Great Britain, Hungary, Italy, Poland,  
Portugal, Romania, Slovakia,  
Slovenia, Spain, Türkiye

## Asia / Pacific

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**58 production locations**

**16,432 employees\***

**Sales of EUR 2,618 million**

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China, India, Indonesia, Japan,  
Philippines, Singapore, South  
Korea, Thailand

## Africa

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**2 production locations**

**818 employees\***

**Sales of EUR 54 million**

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South Africa

# Sustainab

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# ility



# Corporate social responsibility

**For MAHLE, being a business means taking responsibility for both the people who work for us and the impact our activities have on the environment and society. For us, entrepreneurial action and social commitment go hand in hand. We are working on using resource-efficient technologies, sustainable products and modern production processes to place less and less of a burden on people and the environment, at all our locations worldwide and along our value chain. In doing so, we want to become even better every day.**

## Responsibility for our employees



### MAHLE as an attractive employer

Thus, our work in HR focuses on recruiting and retaining talents, offering employees interesting opportunities for promotion and further development, and further strengthening our position as an attractive employer in all regions. We promote diversity and equal opportunities in the workplace and consider them linchpins of our company's success. After all, only with committed and motivated employees can we be sustainably successful as a company.

In this light, we have strategically realigned our HR work and laid down an "HR Roadmap." In this way, we adapt existing HR structures and workflows and align them with the requirements of the accelerated transformation.

### Employer Branding

We are countering the increasing shortage of skilled workers worldwide with targeted and differentiated measures. To nurture the next generation of talent, we support local initiatives that introduce young people, especially girls, to careers in science, technology, engineering, and mathematics (STEM) at an early age.

Our employer branding activities focus on the values that MAHLE stands for as an employer. We reach our target groups worldwide through authentic insights into our "Employee Experience"—our world of work with diverse, international teams—both via social media and through personal conversations. We continuously optimize our marketing strategy to meet the changing needs of our target groups. Last year, our HR marketing and employer branding activities again received several awards, for example "PotentialPark," "MINT minded Company," and "Great Place to Work." MAHLE was also recognized as a top employer in the "Best Recruiters," "Leading Employers," and "Diversity Leaders" rankings.

## Talent acquisition and retention

Attracting talents continues to be a critical factor in achieving our global business goals. In view of the shortage of skilled workers, we rely not only on recruitment on the external labor market, but also on the internal mobility of our employees. In this way, we can transfer skills within the company and promote the exchange of knowledge. All these processes are supported by our global HR system landscape. This includes, for example, a new applicant management system that has been successfully introduced in 29 countries across the globe. We are thus on the way to an almost paperless recruitment environment, which offers many advantages for both internal and external applicants, as well as for our company. Improved communication, standardized selection procedures, and an efficient recruitment process provide more transparency and an enhanced applicant experience.

Retaining new and existing employees in value critical roles is also an important concern for us. In this context, we revised our leadership principles in 2020 and created a new understanding of leadership worldwide, which, in addition to our broad range of development opportunities, contributes significantly to establishing an appreciative working environment. This is complemented by employee retention measures that are specifically tailored to individual groups of employees: they range from support services for new entrants to reintegration measures after longer absences and a host of flexible working options to meet the increasing demands for work-life balance.

## Hybrid work

We want to create a working environment for our employees that has a positive impact on performance, satisfaction, commitment, and employee retention. One building block of this environment is our hybrid working culture, anchored in our “Global Remote Working Guideline,” which enables both face-to-face and remote working at all locations. Our employees should be allowed to do their work where they are most productive and where they can best align their work and their individual needs. In this way, we strengthen a global working culture characterized by flexibility, self-management, trust, and personal responsibility.

In order to adapt our infrastructure to the changing needs of a hybrid way of working, we have started to establish, among other initiatives, desk-sharing concepts and open-space offices. This has numerous positive effects: we create modern and inspiring workplaces with efficient use of space and thus strengthen our attractiveness as an employer, improve our ecological footprint, and reduce infrastructure costs.





# Learning and development

## Modern talent management

In the area of talent management, we continued the global roll-out of our “Talent Cycle.” This is an annual, globally aligned process to assess and recognize the performance of our employees. It contributes to a better feedback dialogue between managers and employees and provides orientation for individual development.

An essential element of the “Talent Cycle” is the annual performance and development dialogue. In this process, employees and managers agree on previously defined individual goals, exchange views on strengths and development needs, and jointly agree on new development goals. The entire process is handled and supported via our new HR system landscape.

## Newly designed learning and development landscape

We have also made great progress in implementing a new digital learning and development landscape. Our goal is to create more accessible and demand-driven learning opportunities worldwide. The basis for this is, in particular, a comprehensive global training and development catalogue, which contains cross-functional and function-specific learning content, is available to all employees and is continuously updated. The new offerings include, for example, access to a global e-learning platform from both company and private devices, extended language courses, or training on cyber security.

The respective training contents are derived from the new MAHLE competency model. This provides all employees with a clear orientation for their professional and personal development because it identifies the skills necessary for the success of the individual, team, and entire organization in the ongoing transformation. The model is based on our corporate strategy, our vision, and our leadership principles and also takes into account the dynamic changes in our business environment.

## MAHLE Competency Model

We are committed to the principle of lifelong learning and equip our employees worldwide with the skills needed in a changing mobility world, now and in the future. They are supported by targeted training and qualification programs for future job profiles and new areas of expertise.

To achieve our ambitious goals, we have also introduced a new global learning system. The new IT solution went live in eleven countries in 2022 and will be available in 17 languages for all MAHLE employees by the end of 2023.





## Diversity, equal opportunities, and nondiscrimination

For MAHLE as an international company, the promotion of diversity, equal opportunities, and nondiscrimination are fundamental and firmly anchored in our corporate values. We value our global workforce—regardless of gender and gender identity, nationality, ethnic origin, religion or belief, disability, age or sexual orientation. We promote diversity and inclusion of the different experiences and backgrounds of our employees and see this as an opportunity: through Diversity & Inclusion (D&I), we can increase our innovative performance and support our business goals.

Various local policies are in place to confirm our commitment to a discrimination-free workplace and to set rules and guidelines regarding the prevention of harassment. Our North and South American sites have launched employee-led Diversity&Inclusion(D&I) committees. These regular meetings are used to drive local initiatives and establish affinity groups.

To create a common understanding of the importance of diversity, equal opportunities, and equal treatment, we have developed a global D&I learning offer. Last year, we expanded this to include D&I learning paths in several languages. We also actively communicate both internally and externally on this topic and celebrate, for example, International Women’s Day or Diversity Day together with our diverse workforce.

### New targets for the proportion of women on the Supervisory Board and the Management Board

With regard to the proportion of women on the Supervisory Board of MAHLE GmbH, the Supervisory Board resolved in April 2022 that the target figure for the proportion of women on the Supervisory Board be set at 25 percent for the period up to June 30, 2025. The 2022 target of 20 percent was achieved. The target for the proportion of women on the Management Board of MAHLE GmbH is set at 29 percent by 30 June 2027—this currently corresponds to two out of seven members.

### Proportion of female executives worldwide

Globally, 15 percent of all management positions were held by female managers at the end of the year. At the first executive level below the Management Board, the share of women was 8.3 percent, and at the second executive level 11.2 percent. This corre-

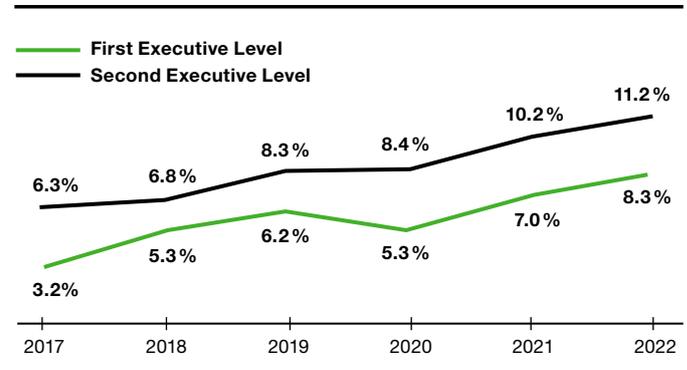
sponds to both an increase over the previous year and a continuously positive development over the last few years.

### New targets for the proportion of women in leadership positions

Our commitment to an inclusive and appreciative work environment is multifaceted and is supported by our Group-wide D&I strategy introduced in 2021. A central element includes the targeted promotion of women in leadership positions. It remains our goal to achieve a more balanced gender ratio in the company’s executive ranks. To this end, we set new five-year targets for women at both executive levels below the MAHLE Management Board in the reporting year: by June 30, 2027, the proportion of women at the first executive level must be increased to 10 percent and at the second executive level to 15 percent worldwide.

To achieve this, we rely on a mix of different measures. This includes, for example, an even more targeted focus on women when it comes to filling vacancies and recruitment, as well as a differentiated range of flexibility offers and “female empowerment” programs. As a global management tool to steer our activities, we have developed a D&I dashboard with key performance indicators.

**PROPORTION OF WOMEN ON FIRST AND SECOND EXECUTIVE LEVEL**



(Date 12/31/2022 w/o joint ventures)

# Sustainability

**For MAHLE, modern mobility is inextricably linked with sustainable thinking. Our products improve the carbon footprint of modern vehicles with systems for drive types such as hybrids, electric vehicles, and fuel cells, but also with solutions that enable the use of e-fuels.**

The company constantly strives to harmonize business success with the well-being of people and the environment. The necessary principles of our actions are ethically correct and law-abiding behavior, the health and satisfaction of our employees, the safety of their jobs, and the protection of the environment and resources along the entire value chain.

From an industry perspective, the year was marked by the continuation of numerous relevant legislative initiatives. Particularly noteworthy is the continued implementation of the EU Green Deal to achieve the EU's 2050 climate targets. The regulation of CO<sub>2</sub> and pollutant emissions for new vehicles are of particular importance for our company. MAHLE believes that a variety of technology solutions for mobility are needed to achieve the climate targets as quickly as possible. We advocate for a policy that enables a regulatory framework that takes into account the contribution of different propulsion technologies to sustainable road transport.

## Expansion of the program

Due to the new EU regulations, among other things, MAHLE has expanded its sustainability program in two areas in 2022. As the markets for sustainable business are growing and MAHLE will be subject to requirements from the European Taxonomy Regulation in the future, the strategic sustainability topic of "Sustainable Finance" has been part of the program since 2022. Accordingly, the Sustainability Steering Committee was expanded to include the managing director of finance. Together with the already established safety at work and health care, the topic of "Sustainable Finance" was defined as a strategically important field of action. Both fields of action are oriented toward the Sustainable Development Goals (SDGs) of the United Nations. In addition, targets have been set for reducing emissions from upstream chain and products (Scope 3). Starting from the base year 2019, emissions in the supply chain and through product use (Scope 3) are to be reduced by 28% each and direct and indirect emissions (Scope 1 and 2) by 49% by 2030. The targets for Scope 1, 2, and 3 have been submitted for validation to the Science Based Targets Initiative (SBTi).



**Comprehensive information about our sustainability activities can be found in our Sustainability Report, which we publish on the MAHLE website.**



[mahle.com/en/news-and-press/publications](https://mahle.com/en/news-and-press/publications)

## Good ratings

The external agencies' ratings for 2022 once again show good performance by MAHLE in the area of sustainability. Ecovadis, a cross-industry platform that enables customers to evaluate their suppliers according to sustainability aspects, awards MAHLE 57 out of 100 points, which corresponds to the silver status. Here the company is among the top quarter of companies in the comparison group. In the area of climate and water protection, MAHLE reports to the Carbon Disclosure Project (CDP). A rating of B on a scale of A to D corresponds to an above-average result in relation to all companies assessed by CDP. In 2022, MAHLE received an sustainability Risk Rating of 17.0 and was assessed by Morningstar Sustainalytics to be at a low risk of experiencing material financial impacts from sustainability factors.\*

\*in no event this rating shall be constructed as investment advice or expert opinion as defined by the applicable legislation. Copyright © 2023 Morningstar Sustainalytics. All rights reserved. This score contains information developed by Sustainalytics ([www.sustainalytics.com](http://www.sustainalytics.com)). Such information and data are proprietary of Sustainalytics and are provided for informational purposes only.



## More sustainable supply chain

Supply chains are experiencing greater demands for sustainability—and for several reasons. At the legal level, the framework conditions are becoming more stringent with the new Supply Chain Due Diligence Act. On the customer side, sustainability is more central than ever, for example when it comes to critical materials or responsible sourcing. We are taking measures on several levels to implement these requirements:

We have established new sustainability criteria in the purchasing process, aimed in particular at compliance with supply chain due diligence obligations. The newly introduced MAHLE Sustainable Purchasing Policy establishes the key sustainability principles for our purchasing organization.

In addition, the Supplier Code of Conduct was significantly expanded and declared mandatory. In order to comply with the Supply Chain Due Diligence Act, MAHLE takes a risk-oriented approach. In addition to risk analysis, the company also uses results from standardized questionnaires with self-reports by suppliers and audits. These audits are carried out in accordance with the standards of the VDA Responsible Supply Chain Initiative (RSCI), of which MAHLE has been a member since January 2023.

The audits assess a supplier's compliance with social standards as well as occupational safety and environmental protection standards in accordance with the Supply Chain Due Diligence Act.



## More renewable energy at MAHLE locations

With their new photovoltaic systems, the European MAHLE locations in Parma/Italy and Montblanc/Spain have been able to become less dependent on the volatile energy markets and now cover part of their electricity requirements locally, remotely, and carbon-neutrally from their own production.

The Spanish plant in Montblanc near Barcelona has brought the Group's most powerful photovoltaic system—2,200 kilowatt peak (kWp)—to the grid. The 10,000 sq. m. facility, with an annual output of 3,000-megawatt hours (MWh), saves about 700 metric tons of CO<sub>2</sub> per year. This means that a third Spanish plant now produces green energy for MAHLE. The European plant portfolio is gradually being expanded with further plants (including in Türkiye). MAHLE has thus reached the next milestone in its CO<sub>2</sub> reduction plan and is becoming more independent from fossil fuels and fluctuating prices in the energy market. The facilities will help us achieve climate-neutral production at all our plants worldwide by 2040.



# Social responsibility

**As a globally active company, MAHLE bears responsibility in many respects. Our innovations, resource-efficient technologies, and modern manufacturing processes help to reduce the burden on people and the environment. Furthermore, as a foundation-owned company, we assume social responsibility and, together with our employees, make a positive contribution to the common good.**

For many years now, we have been supporting social projects and initiatives in the vicinity of our worldwide locations. This includes global fundraising, projects, and initiatives to fight poverty and promote education and social interaction. This is supported by the commitment of our employees, who also volunteer and personally support their communities. Taking responsibility for the community and the common good forms an integral part of the MAHLE culture. In the following, we present some of the activities of the reporting year by way of example.



## Help for Ukrainian refugees in Poland

Poland, as one of Ukraine's neighboring countries, has been directly affected by the Russian invasion of Ukraine. Against this backdrop, MAHLE employees in Poland launched a collection campaign in 2022, in particular to support people who had been forced to flee their homes. In addition, other charitable activities took place throughout the year. In particular, donations were collected to finance food distributions and the purchase of clothing for pupils of local schools or to support orphanages, animal shelters, and social institutions.



## Education for children in India

Last year, 400 children growing up in less privileged circumstances received special education in India. They were taught special skills that, for example, plumbers, carpenters, or electricians perform and that are not part of the regular curriculum. This is to help the children earn an income after school because they usually cannot afford to go through vocational training. MAHLE was one of the sponsors of this initiative. In addition, workers in India collected clothes, toys, books, and food at "Thanksgiving" and distributed them to a local orphanage.





## Science education in South Africa

In South Africa, the partnership with the Science2Go initiative, which has already existed for many years, continued. This offers more than 80,000 pupils math and science lessons with 400 teachers, reaching some 110 schools in rural areas. Some of the investments were made in partnership with other organizations and companies.



## Diverse activities in North and South America

With a focus on the common good, numerous initiatives and projects took place in Brazil last year. In 2022, floods and landslides led to a severe natural disaster in the Brazilian city of Petrópolis. We immediately became involved here, in particular by donating items such as food and hygiene articles. Materials and equipment were also donated to the health sector during the Covid-19 pandemic.

Other initiatives include “Formare School”: This is a program where MAHLE employees can get involved by supporting young people in their preparation for working life. In the “Young Farmer Program,” 14 to 17-year-olds receive agricultural training. Both programs resumed in Brazil in 2022 after being interrupted by the Covid-19 pandemic. Numerous projects and initiatives for the common good were also implemented in the USA and Mexico in 2022. This included, in particular, fundraising activities for children. For example, US employees participated in the “Run for children” and in Aguascalientes/Mexico, funds were raised for children with disabilities to receive financial support and other items through crowdfunding and donation initiatives.



## Christmas campaigns in several countries



The Christmas season was used by various international locations to give people in need a wonderful Christmas. Our employees in Austria, for example, supported the Caritas Christmas card campaign (“Christkindlbriefaktion”). People in need received Christmas presents from our employees. The MAHLE locations in the Stuttgart area once again organized a Christmas wish campaign and turned to various social institutions in the region, including the Ukrainian church community in Stuttgart, to support the people in Ukraine. In Mexico, employees sponsored students at an inclusive school in Monterrey. In addition to Christmas presents, this also included the organization of a Christmas party. The locations in Poland also took part in several initiatives at Christmas time, including a nationwide fundraiser for people in need.

# Opening up opportunities – the international projects of the MAHLE FOUNDATION

**More than 150 projects worldwide support the MAHLE FOUNDATION per year. Whether health, education, art, culture or agriculture, every single initiative is geared toward the guiding principles of appreciation and a sense of responsibility toward people, the environment, and nature. This means the charitable organization is acting entirely in the spirit of the MAHLE founders.**

The founding brothers Hermann and Ernst Mahle combined economic success with social responsibility at an early stage. That is why they established the MAHLE FOUNDATION in 1964 and transferred 99.9 percent of their shares in the company to the foundation. The other 0.1 percent of their shares is held by the Verein zur Förderung und Beratung der MAHLE Gruppe (MABEG). However, the latter holds all voting rights. Such a separation of charitable foundation and industrial management was and is a special feature in the German economy and testifies to great social commitment. On this basis, the foundation today supports more than 150 projects around the world. These include initiatives in health care, youth welfare, education, and organic farming. With increasing globalization, the MAHLE FOUNDATION expanded its sphere of activity.



## Agriculture and food

**“Enough instead of more”**

The Save Our Seeds (SOS) organization is committed to sustainable food, agriculture, and rural development. At the top of the agenda are GMO-free agriculture and food production and keeping conventional and organic seeds pure. To this end, SOS organizes numerous lectures, symposia, and other discussion groups every year. It also promotes national and international cooperation. The MAHLE FOUNDATION has been supporting the SOS activities for many years.



## Art and culture

**Students make music with teachers**

One of the projects it supports in the field of culture is EINSAM-GEMEINSAM. It was started during the first phase of the coronavirus pandemic by the chamber orchestra Unter den Linden e. V. The idea is for musicians to meet families who are interested in music and initially play a private concert for them with the aim of celebrating the revival of musical life at the end of lockdown with a large, public family concert. In addition to the musical aspect, these private concerts provide a space to interact with other people.





## Education and upbringing



### Helping disadvantaged people

The CES Waldorf program supports traumatized children and their parents in one of the poorest neighborhoods in Bogota, the capital city of Colombia. Inspired by Waldorf education, and in addition to psychological support, it offers artistic projects intended to help children learn how to deal with their living situation, which is marked by extreme poverty and violence. CES Waldorf's social program has been running since 1977, and the MAHLE FOUNDATION has been a partner of this program for many years.

### Help for Ukraine

Together with the MAHLE Group, the MAHLE FOUNDATION supported the aid project "Ukraine: Escape from the war," an initiative from the Berlin association "Freunde der Erziehungskunst Rudolf Steiners e.V." Numerous MAHLE employees also participated in a fundraising campaign in 2022, where a total of EUR 300,000 was collected for children and adults affected by the war. The association "Freunde der Erziehungskunst" offers emergency educational support for children and adults in crisis situations worldwide.



## Health and nursing care

### Rural health care in India

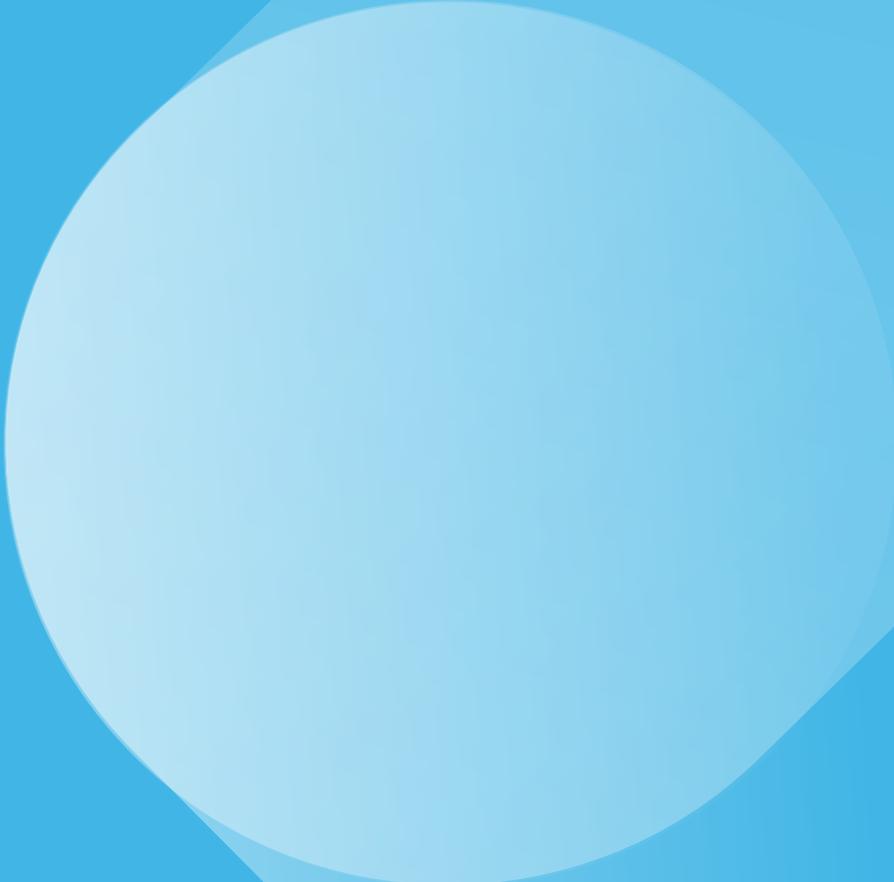
The MAHLE FOUNDATION supports the Shining Eyes association in the fight against tuberculosis and other illnesses in the rural West Bengal region of India. The on-site medical care can be improved with these resources. In particular, the construction of a children's clinic in Bolpur means severely ill and malnourished children and pregnant women can be treated, and illnesses can be detected at an early stage.



### Media skills for young parents

The MAHLE FOUNDATION has supported the "Screen free until 3" initiative since 2022 in order to educate young parents. The project works together with pediatricians' practices and points out the potential dangers of screen media that children may be exposed to in the first three years of life. Doctors must raise awareness of the issue and provide parents with a signal sticker for the yellow screening booklet, which contains simple tips. Their website contains important information.

# Group ma report



# Management

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# Fundamentals of the MAHLE Group

**“MAHLE – We Shape Future Mobility” – our vision is our compass. We strive to make mobility even more efficient, environmentally friendly, and comfortable.**

**We want to actively accompany the mobility transition in three fields of action: electrification, thermal management, and energy-efficient solutions for sustainably powered combustion engines.**

**In times of economic turbulence, our background as a foundation provides stability.**

## Business activities and corporate structure

MAHLE is a leading global development partner and supplier for the automotive industry. As a technological pioneer of the mobility of tomorrow, our goal is to make mobility more efficient, more environmentally friendly, and more comfortable. We want to actively accompany the mobility transition in the areas of electrification and thermal management, as well as in components for energy-efficient combustion engines. This includes the use of hydrogen and other non-fossil fuels. Our product portfolio thus covers all relevant technical aspects along the powertrain and air conditioning technology, as well as the combination of these elements.

MAHLE products are installed in millions of passenger cars and commercial vehicles, but our components and systems have also been used off the road for decades: in stationary applications, mobile machinery, marine applications, and rail transport.

The MAHLE Group is divided into five business units: Engine Systems and Components, Filtration and Engine Peripherals, Thermal Management, Electronics and Mechatronics, and Aftermarket. In addition, there are four profit centers that serve specific segments of the market and specific customer segments, as well as central service businesses.

We took advantage of the opportunities presented by globalization at an early stage and supplemented our product portfolio through strategically founding and acquiring new business activities. We have 152 production sites and twelve major research and development centers spread across five continents. At the end of 2022, around 72,000 employees worked at our company.

99.9 percent of the company shares are held by the non-profit MAHLE Foundation. 0.1 percent is held by the Verein zur Förderung und Beratung der MAHLE Gruppe e. V. (MABEG), which is also the holder of all voting rights and thus exercises the shareholder rights. With this structure, we secure our entrepreneurial independence and thus create the basis for long-term planning and far-sighted investment decisions.

### OWNERSHIP STRUCTURE OF THE MAHLE GROUP

MABEG Verein zur Förderung und Beratung der MAHLE Gruppe e. V.	MAHLE-STIFTUNG GMBH
Company shares <b>0.1 %</b>	Company shares <b>99.9 %</b>
Voting rights <b>100 %</b>	Voting rights <b>0 %</b>
No profit-participation rights	Receives dividends to finance MAHLE Foundation projects



design concepts and enable exceptional thermal comfort for vehicle occupants. In conjunction with powerful mechanical and electric compressors and electric auxiliary heaters, this brings decisive advantages in terms of fuel consumption and range in the overall vehicle air conditioning system. In the area of thermal management, we are one of the suppliers with the strongest sales figures on the market worldwide.

## **Electronics and Mechatronics business unit**

The Electronics and Mechatronics business unit is a growth driver in the MAHLE Group, particularly based on solutions for e-mobility. Our development and manufacturing expertise when it comes to electric motors as well as electronic and mechatronic systems form the foundation of this business unit. This business unit comprises products for the automotive industry, as well as other solutions for mobile applications.

Our portfolio includes electric drive systems, actuators, auxiliary components, as well as control and power electronics. When it comes to the products that are still needed for combustion engines, such as starter motors and alternators for agricultural and construction machinery or mechanical air conditioning compressors, we are a reliable partner. However, we also accompany our customers on their transformation toward e-mobility. Our focus is on e-mobility solutions, for example electric traction drives, on-board charging systems, or electric pumps, where we are helping to shape future mobility with innovative solutions. In addition to our activities in the automotive sector, we also supply e-drives for forklift trucks, golf carts, and electric scooters, for example, as well as compact lightweight drives for a large number of e-bike manufacturers.

## **Aftermarket business unit**

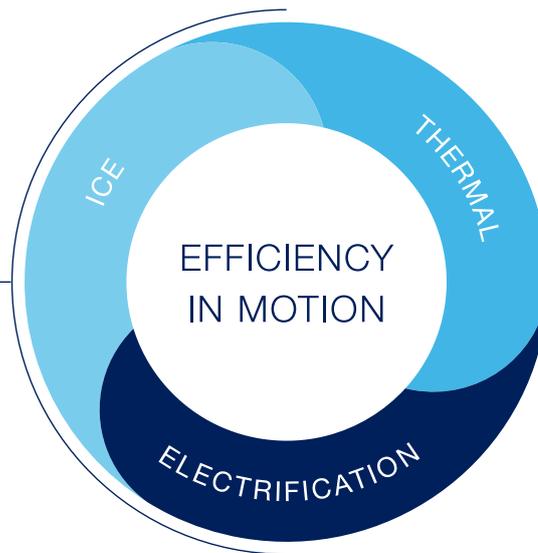
Our Aftermarket business unit supplies partners in trade, workshops, and engine repair, as well as electronic trading platforms worldwide with original equipment quality, service equipment, and a range of services. The expertise based on series production of original equipment is used for the product range in the automotive aftermarket. The Aftermarket offers spare parts for the entire MAHLE product range. These include engine components, filtration, and thermal management, as well as electronics, mechatronics, and other components in the engine periphery. MAHLE Service Solutions offers a wide range of solutions for workshop equipment, such as vehicle diagnostics, battery diagnostics and maintenance, exhaust gas analyzers, as well as service equipment for the maintenance of air conditioning systems and automatic transmissions.

Comprehensive services are also part of the aftermarket portfolio, such as technical support via our worldwide network, customized training, and service information. Given the diversity of today's vehicle technologies, our innovative solutions are an important building block for the success of our business partners. Our goal is to expand our competencies, services, and product areas even further and to position MAHLE as a full-service provider. With demand-oriented product management, fast and reliable logistics processes, and market-oriented pricing, we can also offer our customers individual repair solutions, making workshops even more efficient.

## **Profit Centers and Services**

Four business units serving specific market and customer segments are organized as profit centers: Motorsports and Special Applications, Large and Small Engine Components, Industrial Thermal Management, and Control Units. Thanks to this structure, we offer our customers maximum flexibility, as well as customized applications and components. In this way, we provide them with targeted support in the development of specific new products. In addition to the profit centers, our central service areas also contribute significantly to our success. They include, among others, Purchasing, Sales, Advanced Engineering, Human Resources, IT and Finance and Accounting. In addition, MAHLE Powertrain offers engineering services for both internal and external customers.

WE SHAPE  
FUTURE MOBILITY



## Group strategy

The automotive industry is rapidly developing into a mobility industry with new products and services. As a result, it is important to meet the requirements arising from global megatrends such as the need to meet the rising challenges of urbanization and the need to move toward zero-emissions and sustainable industry. There is no question that the mobility industry has to make a contribution to climate protection. At MAHLE, we see this not only as an opportunity for further growth, but also as an obligation to design our technologies in such a way that mobility on our planet becomes as environmentally friendly and climate-neutral as possible.

With our long-standing tradition as a supplier of powertrain components, the ongoing change in powertrain scenarios is by far the most important development for our company. In terms of the market's further development, we are expecting to see a significant increase in the global share of battery-powered electric vehicles as well as fuel cell and hybrid engine solutions. Despite continuous market growth of vehicles with combustion engines in emerging countries, our MAHLE market scenarios for newly produced passenger cars expect today's market share of electric drives to rise from just over 10 percent to around 70 percent in 2035. By then, we also expect around 30 percent of all commercial vehicles worldwide to be built purely electrically with batteries or fuel cells. This scenario results in the following market implications for MAHLE's Group strategy:

The future of mobility is electric or hybrid. New vehicles will largely be powered by electric drives, regardless of the energy source. Sys-

tem expertise is an essential key to success here. Automotive suppliers are striving for end-to-end system expertise with integrated solutions, which can reduce both complexity and costs. Automobile manufacturers are designing large cross-model vehicle platforms and need strong powertrain suppliers who can take on a larger portion of the value chain. In emerging markets, the market for combustion engine vehicles is expected to continue to grow, especially in South America. Hydrogen and alternative fuels are an important supplement when it comes to decarbonizing applications like commercial vehicles or agricultural and construction machinery.

Based on the market implications and our vision "We Shape Future Mobility" as well as our mission "Efficiency in Motion," MAHLE is working on the climate-neutral mobility of tomorrow with the aim of further expanding its position as a systems provider in three strategic areas.

1. In the area of electrification, MAHLE focuses on innovations in the field of electric drive, components for fuel cells and batteries, as well as electric charging and associated solutions that enable e-mobility with maximum efficiency through cutting-edge technology. In this respect, MAHLE is addressing precisely those topics that are currently still posing challenges for our customers: cruising range, performance, and fast-charging capability. The areas of application are vehicles of all kinds—from e-bikes and e-scooters to passenger cars and delivery vans to heavy-duty commercial vehicles, off-road and industrial applications.

2. The second strategic core area is thermal management—the vehicle’s heating and cooling. The aim here is to achieve energy efficiency and cabin comfort for sustainable mobility. MAHLE uses its in-depth expertise in the areas of powertrain, electronics, battery and in the passenger compartment to offer highly efficient and at the same time cost-optimized system architectures for all drive types and vehicle classes via a modular system approach.
3. In addition, MAHLE will continue to be an important competitive market player in combustion engine drives with superior products, lean cost structures, and long-standing relationships built on customer trust. As long as there is demand for combustion engines on the international markets, we can offer components for highly efficient engines that can also run on e-fuels, hydrogen, or other sustainable fuels. We advocate competition for innovations and technologies to make the transport of people and goods globally climate-neutral.

As an innovative technology group, we look to maintain our role as an important supplier and partner in shaping mobility with our three strategic core areas. The following strategic objectives are derived from this: with a clear focus on efficiency and profitability, we aim to achieve a leading market position in all core product groups. In addition, we want to further increase the share of business that is independent of combustion engines and reduce Scope 1–3 CO<sub>2</sub> emissions significantly as compared to the 2019 baseline. To achieve these goals, the motivation, commitment, and expertise of our employees is of paramount importance. Through continuous and active management of our product portfolio, we ensure that our strategic direction is implemented in a manner that is both consistent and economically successful. Already today, our sales are distributed evenly across our customer groups and core markets of Europe, North and South America, and Asia/Pacific. This balance needs to be reinforced in the future, especially through strong participation in growth markets.

# Economic report

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**Compared to the previous year, our sales increased by 13.7 percent to EUR 12.4 billion.**

**We reacted to the challenges posed by changing economic conditions and took active countermeasures.**

**Nevertheless, full compensation for the additional burdens could not be achieved. Our EBIT fell to EUR 60 million in the year under review.**

## Economic conditions

### Overall economic development

The global economic recovery lost significant momentum in 2022 compared with the previous year. This was due to several factors: The Russian invasion of Ukraine caused significant geopolitical disruption with far-reaching consequences. The persistent and developing inflationary pressure resulted in tighter monetary policy conditions and a strong appreciation of the US dollar against most other currencies. In addition, further waves of Covid-19 affected economic activity with negative impacts on international supply chains, while pandemic-related fiscal support was scaled back in many countries. According to the January report of the International Monetary Fund (IMF), the global economy grew by around 3 percent in 2022, following growth of around 6 percent in the previous year. In advanced economies, the increase amounted to a solid 3 percent, whereas this figure came to around 4 percent in emerging markets and developing economies.

According to the IMF, economic output in the euro zone was around 4 percent and thus below the previous year (around 5 percent). In particular, rising inflation and the energy crisis caused by the Russian invasion of Ukraine slowed growth. The growth of the German economy was around 2 percent and thus below the previous year (around 3 percent).

In the US, growth fell from around 6 percent in 2021 to around 2 percent in 2022. This was mainly due to higher interest rates and lower demand. At around 3 percent, growth in Brazil was also significantly lower than in the previous year (around 5 percent).

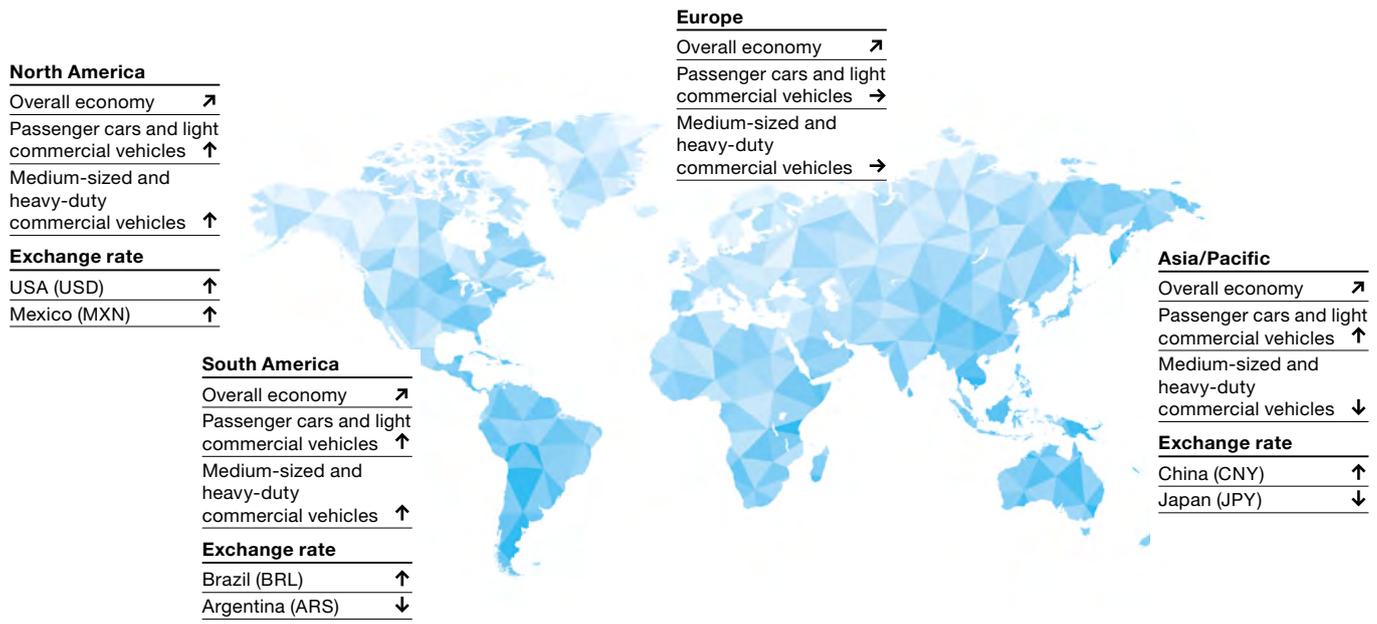
In the Asia/Pacific region, China still recorded growth of around 3 percent after around 8 percent in the previous year. This slowdown is due in particular to the zero-tolerance policy in relation to the Covid-19 pandemic and the consequent restriction of the country's economic growth. Japan was slightly below the previous year's level with an increase of around 1 percent.

### Exchange rate development

As an internationally operating group, MAHLE also conducts business in foreign currencies. The development of exchange rates is of central importance here because it affects the conversion of financial data for accounting purposes.

For MAHLE, exchange rate fluctuations are significantly associated with financial and economic risks. In order to minimize the risks, we strive for "natural hedging." By operating production sites in all major sales regions, we make the Group less dependent on currency volatility and exchange rate fluctuations.

Most of the trading currencies that are particularly relevant for our company appreciated against the euro in the 2022 business year as measured by the average market price (direct quotation). Compared with the previous year, the Brazilian real (+17 percent), the Mexican peso (+13 percent), the US dollar (+12 percent), and the Chinese renminbi (+8 percent) appreciated against the euro, including significant appreciation in certain cases. In contrast, the Turkish lira (-48 percent), the Argentine peso (-39 percent), and the Japanese yen (-6 percent) lost value against the euro.



Exchange rate development of various foreign currencies against the euro (EUR) as measured by the average market price (direct quotation) compared with the previous year: Argentine peso (ARS), Brazilian real (BRL), Chinese renminbi (CNY), Japanese yen (JPY), Mexican peso (MXN), US dollar (USD)

The directional arrows show the change of sales compared with the previous year:  
 ↑ ≥5%, ↗ 1.5% to 5%, → -1.5% to 1.5%, ↘ -1.5% to -5%, ↓ ≤-5%

## Development of the vehicle markets

### Development of the markets for passenger cars and light commercial vehicles

The production of passenger cars and light commercial vehicles increased worldwide by 7 percent to over 82 million vehicles in the reporting year. Compared to the previous year, the recovery in global production was impacted in the first half of the year by the ongoing semiconductor shortage as well as supply chains disruptions due to the Russian invasion of Ukraine and the lockdowns in China. While growth in global production in the second half of the year was driven particularly from Asia, production constraints remained in place in the Western regions.

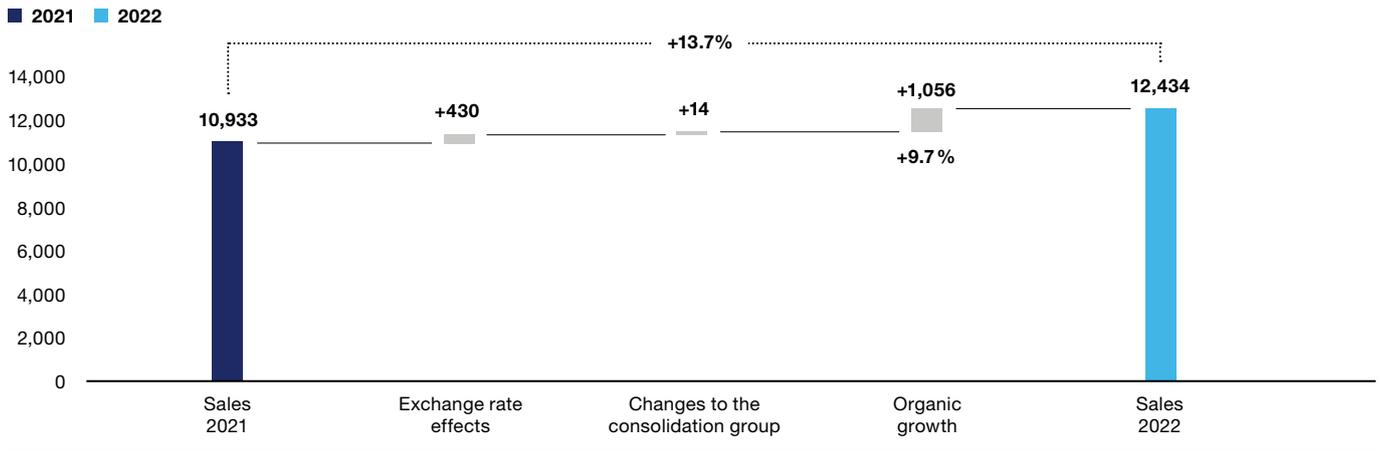
In Europe, production shrank by almost 1 percent, partly due to the ongoing semiconductor shortage and the sanctions in Russia, which caused production in this market to fall by more than half. North America grew by 10 percent due to high order backlogs. However, at the beginning of the year and again at the end of the year, there were production restrictions due to the limited availability of semiconductors. The South American market was also affected by the semiconductor shortage in the first half of the year, but benefited from a market recovery in the second half of the year and subsequently recorded growth of 9 percent. In China, produc-

tion in the first half of the year was significantly impacted by partial lockdowns as a result of Covid-19. However, the tax reduction for vehicles with a displacement of up to 2 liters at the beginning of the second half of the year led to very high sales and production figures. As a result, production in China increased by 7 percent. In India, vehicle production increased significantly by around 23 percent due to high demand.

### Development of the markets for medium-sized and heavy-duty commercial vehicles

The production of medium-sized and heavy commercial vehicles was significantly below the previous year's level at around minus 15 percent. The main reason for this was production in China, which fell by around 48 percent compared with the previous year. In addition to the cyclical decline, Covid-19 lockdowns, higher commodity prices, and more stringently regulated real estate loans had a negative impact. The European market showed slight growth of around 1 percent. North America, on the other hand, benefited from well-filled order books and was able to improve by around 11 percent compared with the previous year. Production in India showed the strongest growth globally at around 36 percent, reaching a higher level than before the pandemic.

**SALES BRIDGE**  
in EUR millions



## Business development

### Development of the MAHLE Group

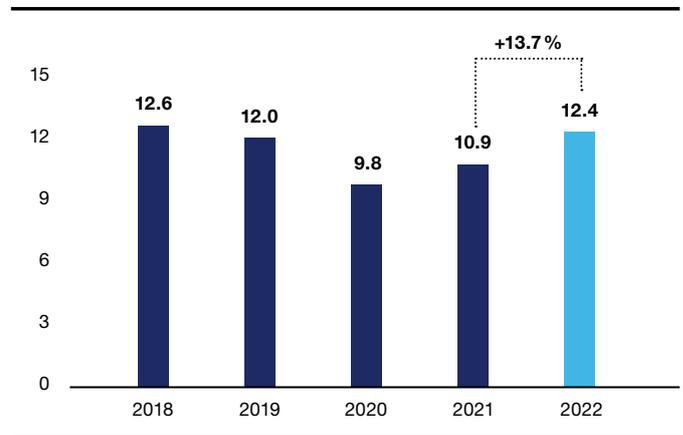
Sales of the MAHLE Group increased by 13.7 percent from EUR 10.9 billion to EUR 12.4 billion in the 2022 business year and were thus above the pre-crisis level of 2019.

In the first half of the year, sales development was hampered by a globally challenging and volatile market environment—including in particular the pandemic-related lockdowns in China, uncertainties regarding the stability of supply chains, and the Russian invasion of Ukraine. When the war broke out, our direct business activities in Russia were of subordinate importance to the Group; however, the war has had considerable indirect impacts on our business activities. The significant additional costs associated with the increased raw material, energy, and freight prices required continuous adjustments to our sales prices. These mainly took effect in the second half of the year, meaning that the development of sales was improved to a large extent by price adjustments in addition to an increase in volume. In addition, exchange rate effects in the amount of EUR 430 million and changes to the consolidation group in the amount of EUR 14 million had a positive impact. The positive exchange rate effects were mainly due to the appreciation of important trading currencies against the euro, such as the US dollar, the Brazilian real, and the Chinese renminbi. The changes in the consolidation group are due to the acquisition of the air conditioning business of Keihin Corporation (now Hitachi Astemo, Ltd.) with locations in Japan, Thailand, and the USA with effect from February 1, 2021.

The international positioning of the MAHLE Group, which has been steadily expanded in recent years, is reflected in the operation of

production and development locations in 29 countries. Through our global operations, we are close to our customers, can work intensively with them, and develop targeted innovations based on the requirements of the respective markets. At the same time, this allows us to react flexibly to regional market fluctuations. In addition to the regional distribution, the distribution of sales is also diversified according to customer groups. The share of sales of our ten largest customers is less than 50 percent.

### DEVELOPMENT OF SALES 2018 – 2022 in EUR billions



Despite this diversification in terms of sales, the performance of the MAHLE Group was dampened by a number of crises in the reporting year. In order to meet these challenges in the best possible way, we took countermeasures with targeted measures—also based on the crisis experiences of the two previous years:

Due to the changed overall economic conditions, which were particularly evident in the increased material, energy, and freight prices, we were in continuous exchange with key customers and suppliers in order to distribute these additional costs proportionately across the value chain in the form of price adjustments and price escalation clauses. In addition, MAHLE set up a Group-wide program in the reporting year that manages all activities to improve our liquidity in the short term. Within this framework, we have taken measures to focus our approach to investment and reduce capital employed. To mitigate the risk of a possible gas shortage at our sites, we have put together a global crisis team, which continuously assessed the uncertainties surrounding the energy crisis, identified savings measures, and developed preventive and reactive measures based on contingency plans.

In order to sustainably increase our profitability and secure our competitiveness, we have continued our global restructuring with undiminished consistency, following on from the previous year. The need for these measures was underpinned by the business development. In response to the transformation of the automotive industry and the resulting shift away from the combustion engine, increasing competitive pressure and site-specific capacity utilization, we had to discontinue production activities at the Vilanova i la Geltrú/Spain and Chavanod/France sites. In the Asia/Pacific region, we closed our site in Changchun/China.

## Development of the business segments

Despite a challenging market environment, all our business units and profit centers were able to increase their revenues organically. Our future fields in particular developed very positively. After our sales were largely stable in the first half of the year, we were able to improve sales in the second half of the year, most notably through successful price negotiations with our customers.

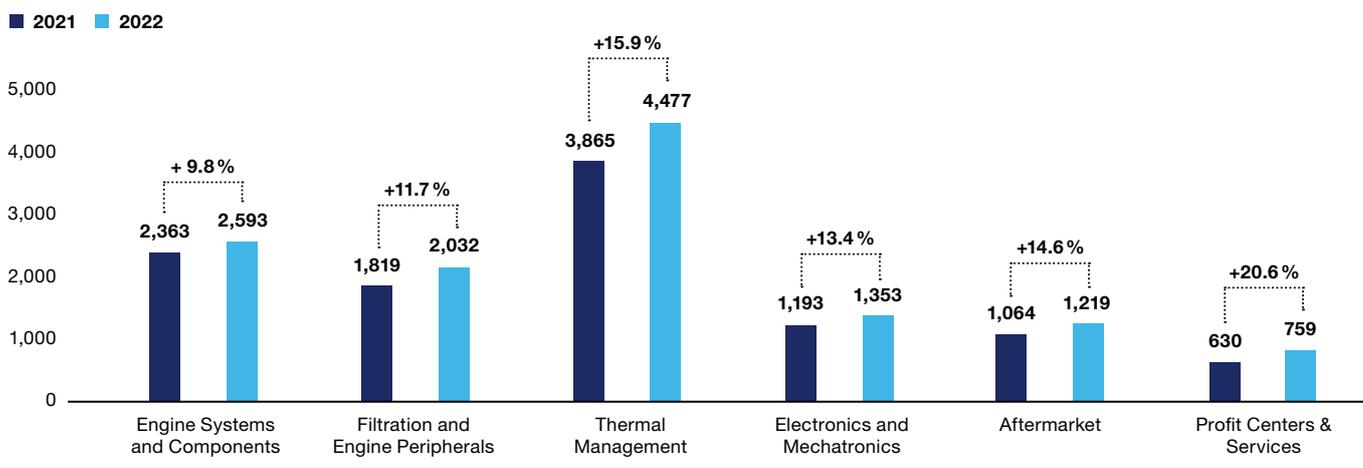
### Engine Systems and Components business unit

In our Engine Systems and Components business unit, we achieved revenues of EUR 2,593 million—around 9.8 percent above the previous year's figure. Adjusted for significantly positive exchange rate effects, organic sales growth amounted to 6.2 percent. Significant increases in sales were achieved in the product groups of power cell units, gasoline engine pistons for passenger cars, camshafts and cylinder liners, among others. In contrast, we recorded a decline in sales of aluminum pistons for commercial vehicles due to the technology shift toward steel pistons. From a regional perspective, we were able to significantly increase our sales, especially in the regions of North and South America, where we organically achieved a sales growth of 10.7 percent and 31.1 percent respectively. In the Asia/Pacific region, sales development was hampered by Covid-19 lockdowns and sharply declining demand for truck applications for commercial vehicles in China.

### Filtration and Engine Peripherals business unit

Sales of our Filtration and Engine Peripherals business unit in the year under review amounted to EUR 2,032 million and were thus around 11.7 percent above the previous year's figure. We also achieved significant organic sales growth of 8.7 percent. The increase is evenly distributed across almost all product groups,

## SALES BY BUSINESS SEGMENT in EUR millions



such as air filter and air intake modules and cylinder head covers. In the North America and Asia/Pacific regions, we achieved strong growth and were also able to post organic growth of 9.6 percent and 3.7 percent respectively. In Europe, we achieved sales growth adjusted for negative exchange rate effects of 15.0 percent. In order to further strengthen the business unit in the European region, a production site is currently being set up in Krotoszyn/Poland.

#### **Thermal Management business unit**

In the Thermal Management business unit, we were able to increase sales by 15.9 percent to EUR 4,477 million. Even adjusted for consolidation effects from the acquisition of the air conditioning business of the former Keihin Corporation (now Hitachi Astemo, Ltd.) on February 1, 2021 as well as exchange rate effects, sales increased by 9.1 percent. In the North America region, we achieved organic sales growth of 18.9 percent. The development in the Asia/Pacific region was positively characterized by strong growth in the passenger car business, counteracted by plant closures due to Covid-19 lockdowns. Sales in the region increased organically by 1.3 percent. In Europe, our strongest region in terms of sales, we also achieved organic growth of 4.2 percent. The Thermal Management business unit further expanded its product portfolio in the reporting year, consistently continued its growth with products for battery-electric vehicles and oversaw projects started in the area of electric auxiliary heaters and battery cooling plates, in particular. For example, sales in the battery cooling product area grew at a double-digit rate year-on-year. By further increasing its shares in the MAHLE Behr Group as of January 1, 2022, MAHLE has further expanded its core thermal management business.

#### **Electronics and Mechatronics business unit**

Sales in the Electronics and Mechatronics business unit in 2022 amounted to EUR 1,353 million and were thus around 13.4 percent above the previous year's level. Even adjusted for positive exchange rate effects, there was very clear growth of 10.6 percent. Our Electronics and Mechatronics segments in particular contributed to this as well as our Compressors segment. While the start-up of the first large-scale project in the field of electric water pumps was implemented in China, the start-up of the first large-volume production order with electric compressors was prepared in Hungary. In addition, we further expanded the product segment for electric oil pumps and prepared the start-up of the next on-board charger generation in Spain. In the European plants in Slovenia and Spain, we recorded significant increases in sales, helping Europe—i.e. the region with the highest sales—achieve significant organic growth of 20.1 percent. Sales also increased significantly in the other regions. In order to further strengthen our business in the Asia/Pacific region, we have bundled and further expanded our activities in the Electronics segment in Suzhou/China with those of the Compressors segment.

#### **Aftermarket business unit**

In the Aftermarket business unit, we generated revenues of EUR 1,219 million—14.6 percent above the previous year. After adjusting for negative effects from exchange rate conversion, sales in the Aftermarket business unit rose significantly by 15.4 percent. In terms of our global markets, sales in the South America region grew organically by 48.8 percent and thus were particularly strong. While the positive sales development in the South America region is attributable to engine components as well as filters and thermal products, whereas in Europe it resulted mainly from sales of filters. In the North America region, the engine components product group is recording the strongest sales increases. In Asia/Pacific, all product groups were negatively impacted by the zero-tolerance policy in China regarding the Covid-19 pandemic. Nevertheless, we were able to increase organic sales by 2.8 percent compared with the previous year. In Service Solutions, we again achieved significant growth in Europe and North America.

#### **Profit Centers and Services**

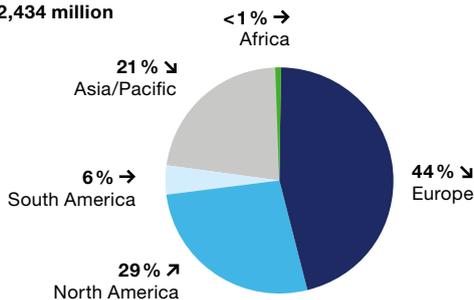
In our profit centers and services, we achieved revenues amounting to EUR 759 million and organic sales growth of 17.4 percent. All profit centers contributed to this positive result with double-digit growth rates. The Large and Small Engine Components and Motorsports and Special Applications profit centers performed particularly well, with sales increasing organically by 27.6 percent and 18.2 percent respectively.

## Development of the regions

Our sales increased strongly in most regions in the reporting year. While the increase in sales in the North America, Asia/Pacific, and South America regions is partly due to positive exchange rate effects, the development of sales in Europe was burdened by negative exchange rate effects. We were able to achieve significant increases in sales organically, with the exception of the Asia/Pacific region. Below, we provide an overview of how the regions performed in detail, based on sales by country of production.

### SALES BY REGION

Total:  
EUR 12,434 million



The directional arrows show the change in the proportion of sales compared with the previous year:

↑ ≥5%, ↗ 1.5% to 5%, → -1.5% to 1.5%, ↘ -1.5% to -5%, ↓ ≤-5%

#### Europe

In the Europe region, we achieved sales of EUR 5,427 million and thus growth of 8.5 percent compared with the previous year. Significant exchange rate effects resulted from the devaluation of the Turkish lira and the Polish zloty against the euro. Adjusted for the overall negative exchange rate effects, sales growth amounted to 9.7 percent—despite ongoing supply chain problems and shrinking vehicle markets. The two strongest business units in terms of sales, Engine Systems and Components and Thermal Management, increased their sales organically by 6.6 percent and 4.2 percent respectively.

#### North America

Sales in the North America region in the year under review amounted to EUR 3,547 million, rising 28.2 percent year-on-year. The region's sales were significantly influenced by the appreciation of important trading currencies such as the US dollar against the euro. Adjusted for exchange rate effects and effects of changes in the group of consolidated companies, organic sales growth amounted to 14.1 percent. We were able to benefit from the market recovery in both the passenger car and commercial vehicle sectors. All our business units achieved significant organic sales growth in the North America region.

#### South America

In the year under review, our sales in South America increased significantly by 33.7 percent to EUR 788 million. We benefited from the appreciation of the Brazilian real against the euro. However, even adjusted for exchange rate effects, our sales growth of 30.6 percent was considerable. Our organic growth in the region thus noticeably exceeded the general market trend. This was in part due to the high demand for engine components for commercial vehicles.

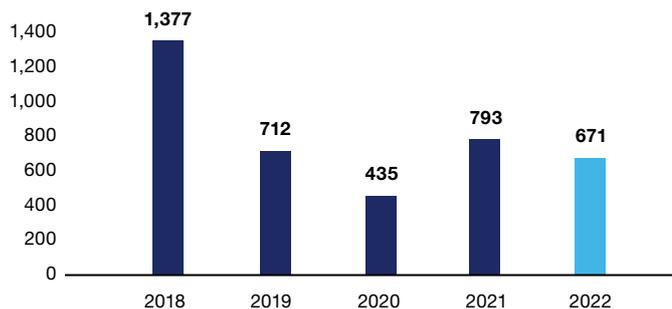
#### Asia/Pacific

In the Asia/Pacific region, we were able to increase our sales in the year under review to EUR 2,618 million—a rise of 3.7 percent. This is partly due to positive exchange rate effects from the appreciation of important trading currencies, such as the Chinese renminbi and the Indian rupee against the euro. Adjusted for exchange rate and consolidation effects, sales remained at the previous year's level. In China, we posted sales significantly below the previous year's level. This is due, in particular, to Covid-19-related plant closures. In India, on the other hand, we benefited from high demand and were able to significantly increase our sales.

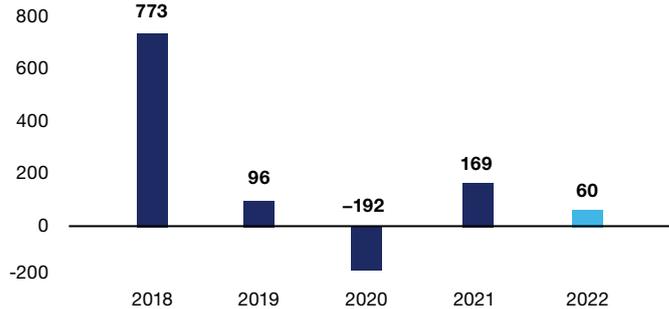
#### Africa

With an increase of 12.1 percent, sales in the Africa region rose significantly to EUR 54 million. Adjusted for exchange rate effects, sales increased by 10.4 percent. In the smallest region of our Group, revenues were primarily generated by the Thermal Management business unit.

**DEVELOPMENT OF EBITDA 2018–2022**  
in EUR millions



**DEVELOPMENT OF EBIT 2018–2022**  
in EUR millions



## Net assets, financial position, and results of operations

### Results of operations

In the 2022 business year, MAHLE generated sales of EUR 12.4 billion, compared to EUR 10.9 billion in the previous year. Adjusted for changes to the consolidation group and exchange rate effects, sales were 9.7 percent above the previous year's figure. In addition to the positive exchange rate effects and changes to the consolidation group, the strong increase was due to the adjustment of sales prices as well as an increase in volume. This means that, despite a challenging global market environment, our sales forecast—which assumed a slight organic increase in sales—was significantly exceeded.

The result from business activities amounted to EUR –165 million and was significantly below the previous year's positive figure of EUR 58 million. Before the Russian invasion of Ukraine at the end of February 2022, we were expecting a moderate improvement. Especially due to the indirect effects of the war, this forecast could not be achieved. The additional costs, mainly due to price increases in material, energy, freight, and personnel costs as well as special freight costs, had a considerable impact on the earnings position. We reacted to the challenges posed by the changes in the economic environment and took active countermeasures. Nevertheless, the additional burden could not be fully compensated by price adjustments, so that our operating income figures EBIT and EBITDA as well as operating result only used for internal steering were significantly lower than in the previous year. The operating result is a key figure similar to EBIT but adjusted for individual circumstances. The EBIT fell to EUR 60 million (previous year: EUR 169 million) and the EBIT margin fell noticeably to 0.5 percent (previous year: 1.5 percent). Adjusted for the effects of purchase price

allocations, amortization of goodwill, and release of badwill, the EBIT margin was 1.0 percent (previous year: 2.4 percent).

In detail, the main items of the income statement developed as follows: The cost of sales amounted to EUR 10,653 million and was thus EUR 1,397 million higher than in the previous year. The cost of sales ratio rose from 84.7 percent to 85.7 percent. This is due in particular to the very sharp rise in material prices at the beginning of the year—for aluminum, granulate, copper, and steel in particular—as well as higher personnel costs. This additional burden could not be fully offset by achieving productivity increases and price adjustments. In addition, the higher costs for freight and special freight to some extent weighed on both the cost of sales and the selling expenses. Our selling expenses rose by EUR 68 million to EUR 629 million. General administrative expenses rose from EUR 503 million to EUR 573 million. The ratio to sales remained at the previous year's level of 4.6 percent. Despite the difficult environment, we maintained a high level of expenditures in research and development activities and, at EUR 671 million, invested slightly more in absolute terms than in the previous year (previous year: EUR 666 million). Other operating income rose by EUR 52 million to EUR 602 million, while other operating expenses rose by EUR 140 million to EUR 431 million. Overall, this reduced the balance from EUR 258 million to EUR 171 million. This is primarily due to the fact that, compared to the previous year, special effects such as a tax refund in South America did not apply and positive effects from the revaluation of provisions for restructuring measures were lower. Higher expenses from exchange rate effects also negatively impacted this position.

**CONSOLIDATED INCOME STATEMENT**  
in EUR millions

	2022	in %	2021	in %
Sales	12,434	100.0	10,993	100.0
Cost of sales	-10,653	-85.7	-9,256	-84.7
<b>Gross profit on sales</b>	<b>1,781</b>	<b>14.3</b>	<b>1,677</b>	<b>15.3</b>
Selling expenses and general administrative expenses	-1,201	-9.7	-1,064	-9.7
Research and development expenses	-671	-5.4	-666	-6.1
Other operating income and expenses	171	1.4	258	2.4
Financial result	-244	-2.0	-148	-1.4
<b>Result from business activities</b>	<b>-165</b>	<b>-1.3</b>	<b>58</b>	<b>0.5</b>
Taxes on income	-135	-1.1	-139	-1.3
<b>Result after taxes</b>	<b>-300</b>	<b>-2.4</b>	<b>-81</b>	<b>-0.7</b>
Other taxes	-32	-0.3	-27	-0.3
<b>Consolidated net loss/net income</b>	<b>-332</b>	<b>-2.7</b>	<b>-108</b>	<b>-1.0</b>

**RECONCILIATION OF CONSOLIDATED NET LOSS/NET INCOME TO EBIT AND EBITDA**  
in EUR millions

	2022	in %	2021	in %
<b>Consolidated net loss/net income</b>	<b>-332</b>	<b>-2.7</b>	<b>-108</b>	<b>-1.0</b>
Taxes on income	135	1.1	139	1.3
Interest and similar expenses	268	2.2	148	1.3
Other interest and similar income	-25	-0.2	-17	-0.2
Income from other securities and long-term loans	0	0.0	0	0.0
Net income and expenses from financing from currency translation and financial instruments	15	0.1	8	0.1
<b>EBIT</b>	<b>60</b>	<b>0.5</b>	<b>169</b>	<b>1.5</b>
Depreciation, amortization, and impairments of intangible and tangible fixed assets	611	4.9	624	5.7
<b>EBITDA</b>	<b>671</b>	<b>5.4</b>	<b>793</b>	<b>7.3</b>

As in previous years, all cost items—except for research and development expenses as well as administrative expenses—were adversely impacted by effects from purchase price allocations under the German commercial code (HGB). In total, the effects from purchase price allocations before taxes amounted to EUR 60 million in 2022. This also includes amortization of goodwill of EUR 49 million and release of badwill of EUR 40 million.

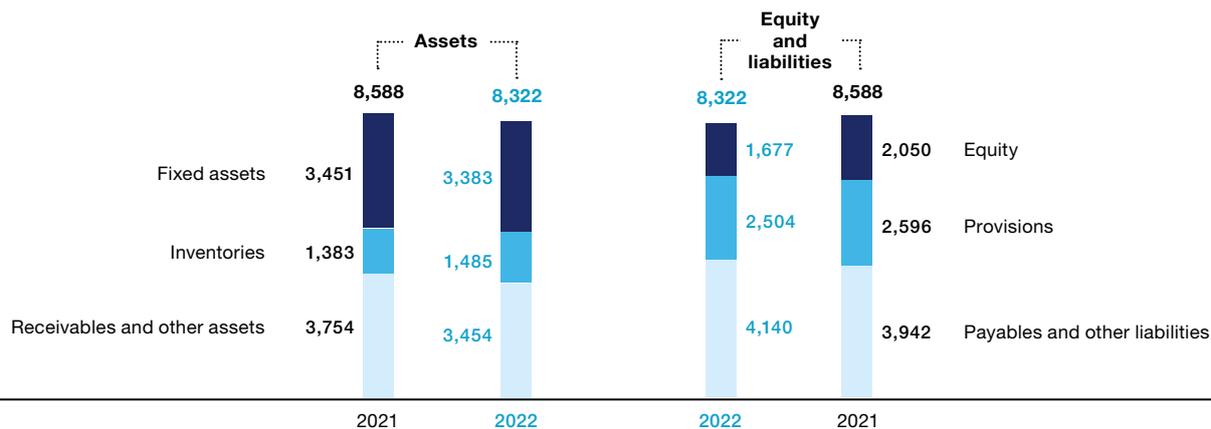
The financial result deteriorated by EUR 96 million to EUR -244 million in 2022 compared to the previous year. The main reason for this is the negative price development of the plan assets. Despite the negative Group result, a total of EUR 135 million was incurred in taxes on income. This is due, in particular, to withholding tax expenses not related to income and to tax burdens on positive results of individual companies that cannot be offset for tax purposes against losses of other Group companies. At the same time,

deferred taxes on temporary differences and loss carryforwards could not be fully recognized and valuation allowances were made on deferred taxes for temporary differences. In total, this resulted in a net loss of EUR 332 million (previous year: net loss of EUR 108 million).

### Net assets position

As of the balance sheet date on December 31, 2022, our balance sheet total had fallen by EUR 267 million to EUR 8,322 million compared to 2021. At EUR 3,383 million, fixed assets were EUR 68 million below the previous year's level. Since depreciation slightly exceeded investments, tangible fixed assets fell by EUR 10 million. Intangible fixed assets also fell by EUR 45 million. This is mainly due to the amortization of goodwill and hidden reserves that were disclosed as part of purchase price allocations.

**BALANCE SHEET STRUCTURE OF THE MAHLE GROUP**  
in EUR millions



The reduction in the balance sheet compared to the end of the previous year was largely due to current assets, which fell by EUR 133 million to EUR 4,685 million. This is due, in particular, to the significant reduction in cash holdings by EUR 506 million to EUR 604 million. Due to the challenging circumstances in the procurement markets, we made considerable efforts to limit the capital tied up in net working capital. Nevertheless, inventories rose by EUR 102 million to EUR 1,485 million. This is primarily due to exchange rate effects and higher purchasing prices. Driven by exchange rate effects, the higher sales level as well as outstanding receivables from negotiated price adjustments as of the balance sheet date, receivables and other assets also rose by EUR 258 million to EUR 2,580 million. The other assets amounted to EUR 253 million.

Equity declined by EUR 373 million to EUR 1,677 million in 2022. The decrease is primarily due to the net loss for the year, counteracted by positive exchange rate effects in the amount of EUR 21 million. The equity ratio fell accordingly from 23.9 percent to 20.2 percent, as the effect of the reduction in equity was not fully offset for by the balance sheet contraction. The acquisition of the air conditioning business of Keihin Corporation (now Hitachi Astemo, Ltd.) as of February 1, 2021 resulted in a carrying amount of goodwill of EUR 63 million as of December 31, 2022. Provisions fell to EUR 2,504 million, a decrease of EUR 92 million from the end of the previous year. This is primarily due to the decrease in provisions in the personnel area by EUR 106 million, in particular due to cash-out for restructuring measures. Similarly, the provisions for guarantee and risk fell by EUR 21 million. This was offset by the increase in provisions for pensions, primarily due to interest rate effects. Liabilities rose in total by EUR 232 million to EUR 4,024 million. This is primarily due to the increase in liabilities to banks in the amount of EUR 616 million, as MAHLE has concluded a loan with the European Investment Bank for EUR 300 million. The repayment of a corporate bond in the amount of EUR 500 million maturing in the first half of 2022 had a counteracting effect. Trade payables rose by EUR 111 million to EUR 1,369 million, partly due to the increased sales

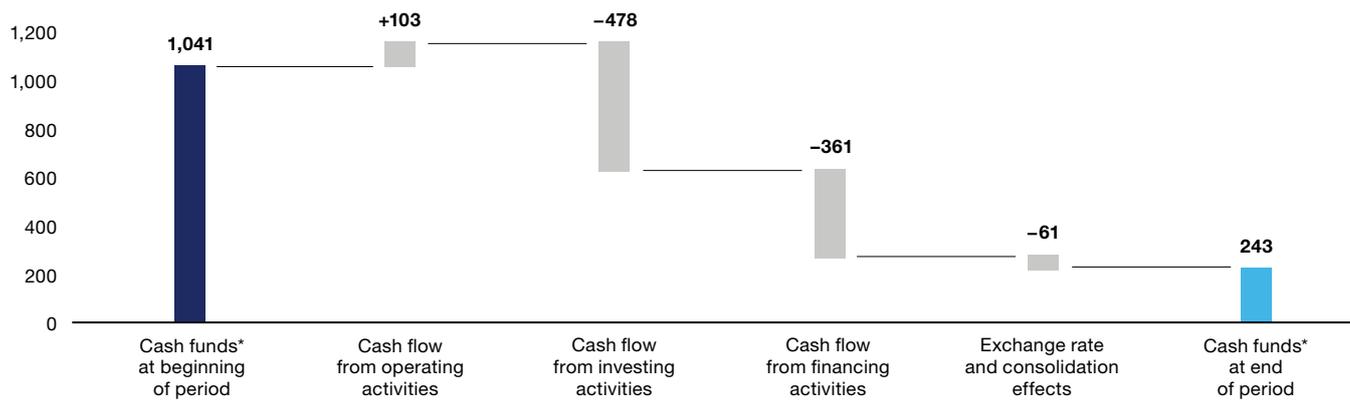
volume. Net debt on our balance sheet rose from EUR 1,056 million to EUR 1,678 million in the reporting year, in particular due to the high capital tied up in net working capital and the net loss for the year.

### Financial position

In the course of its global growth, MAHLE has broadly positioned and diversified its Group financing in recent years. In addition to a syndicated credit line, German private placement loans (Schuldscheindarlehen), and bilateral loans, euro-denominated corporate bonds form part of the financing portfolio. With a conservative financing policy, MAHLE pursues the long-term goal of an implicit investment grade risk. MAHLE was rated by Moody's for the first time in 2021 and received a Ba1 corporate family rating (outlook stable). On April 26, 2022, Moody's changed the outlook for MAHLE's ratings from stable to negative and confirmed the Ba1 rating. On September 30, 2022, Moody's downgraded the ratings of MAHLE GmbH from Ba1 to Ba2 (negative outlook).

A EUR 500 million corporate bond maturing in May 2022 was largely repayed with funds from the issue of a seven-year EUR 750 million corporate bond from 2021. In August 2022, MAHLE concluded a loan of EUR 300 million with the European Investment Bank. These additional funds complement the already existing syndicated credit line of EUR 1.8 billion, of which EUR 1.5 billion run until mid-2025. An additional financing component is formed by further firmly committed credit lines in the amount of around 189 million EUR with various remaining terms until mid-2024. As of the balance sheet date, the drawdown of firmly committed credit lines amounted to EUR 319 million. As a result, the unused, firmly committed credit lines amounted to EUR 1.7 billion at the end of the reporting year and, like the cash holdings, contributed to the financial stability of the MAHLE Group. Our cash holdings were diversified across various banks that were selected according to rating criteria.

## CASH FLOWS in EUR millions



\* Cash in hand, bank balances with an initial term of less than 3 months, and checks less liabilities to banks with an initial term of less than 3 months. The short-term liabilities which were netted against cash balances contained EUR 314 million that were related to short-term liabilities based on a committed credit line with a remaining tenor of more than one year.

We were able to close the 2022 business year with a cash inflow of EUR 103 million from the cash flow from operating activities. This was noticeably less than in the previous year and is mainly due to the Group's net loss for the year and a high level of capital tied up in net working capital, especially due to increased inventories and receivables. The net cash outflow of our cash flow from investing activities amounted to EUR 478 million, which was higher than in 2021, partly due to increased expenditure on tangible fixed assets. Cash flow from financing activities showed a net outflow of EUR 361 million (previous year: net inflow of EUR 345 million), which, in addition to interest and dividend payments, was primarily attributable to the use of liquid funds to repay the corporate bond. In particular, the loan of EUR 300 million concluded with the European Investment Bank had a counteracting effect.

### Investments

Despite the economic burden of a globally challenging and volatile market environment, we continued to focus on the technological transformation of the MAHLE Group. To this end, we invested EUR 461 million in tangible fixed assets in the reporting year, which is significantly more than in the previous year in absolute terms (previous year: EUR 401 million). The investment ratio, which reflects the relationship between investments and sales, was at the previous year's level of 3.7 percent. In important future areas, in particular in the Thermal Management, Electronics, and Mechatronics divisions, the investments significantly exceeded depreciation. We continued our investment restraint in combustion engine-dependent business units. Overall, this resulted in a ratio of investments to depreciation of 94 percent for the Group. This was substantially higher than the previous year's figure (previous year: 83 percent).

As in the previous year, the largest share of our investments in tangible fixed assets was made in our Thermal Management division. Regarding the structural transformation of our Group, investments were made in the construction of new buildings in North America and in the production of products for battery electric vehicles, in addition to investments in connection with customer projects. In the Electronics and Mechatronics business unit, we significantly increased investments in tangible fixed assets; in particular, investments were made in the preparation for the start-up of the next on-board charger generation in Spain. Another focus of investment was the expansion of production and development of electric compressors at our European and Asian plants. In view of the transformation in the automotive industry, we deliberately focused our investment activities in our Engine Systems and Components business unit. In the reporting year, we focused on expanding the capacity of a steel piston production line for commercial vehicles. In our Filtration and Engine Peripherals business unit, we invested in particular in the establishment of oil cooler production and the expansion of the plant infrastructure as part of the relocation of production activities from Mattighofen/Austria to Eastern Europe. In addition to investments in tangible fixed assets, we also used strategic acquisitions in the reporting year to expand our business segments as part of our strategy. To strengthen our core business in thermal management, we further increased our participation in the MAHLE Behr Group at the beginning of 2022.

# Additional performance indicators

The majority of our expenditures in research and development were in our strategic core areas of electrification and thermal management.

Our employees are an essential factor for our long-term success. Accordingly, in the year under review, our employees participated in a total of 72,056 qualification activities worldwide.

Our CO<sub>2</sub> emissions from the use of fossil fuels and the use of electricity decreased last year by more than 12 percent compared with 2021.

## Employees

Our employees are an essential factor for the long-term success of the MAHLE Group. Their expertise, motivation, and commitment are the basis for our sustainable development. Accordingly, in the year under review, despite the continuing pandemic restrictions, we also consistently invested in the further education and training of our workforce and pushed ahead with the switchover to flexible online formats here as well. Our employees participated in a total of 72,056 qualification activities worldwide (2021: 71,281). In addition, the expansion of our corporate e-learning offering enabled online courses to be completed by 30,631 learners (2021: around 26,300).

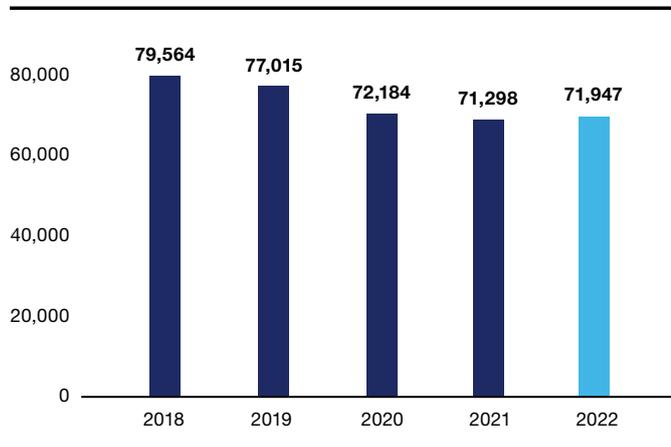
As of the end of 2022, the MAHLE Group had 71,947 employees worldwide. This corresponds to an increase in staff compared with the previous year by 649 persons or 0.9 percent. The main

reasons for this development are our organic growth, especially in future-oriented areas, a good order situation, strong production capacity utilization, especially in North America, and the increased expansion of our shared service centers worldwide. The worldwide absence rate (excluding joint ventures) in the reporting year amounted to 4.4 percent (previous year: 4.2 percent).

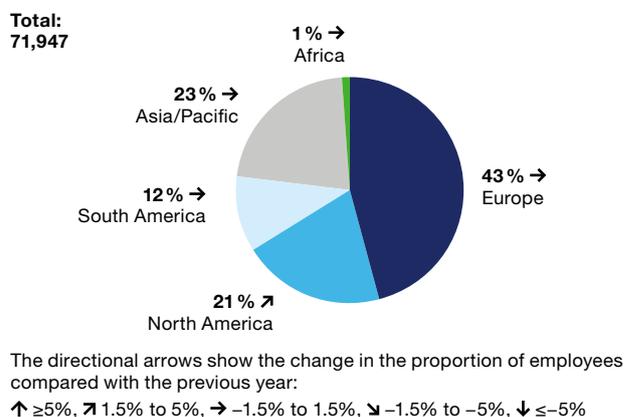
### Headcount by region

As at the reference date, 31,165 were employed at our locations in Europe, thus 1,282 people or 4.0 percent fewer than in 2021. Restructuring measures and capacity adjustments led to a decline in many European countries. This was due on the one hand to the difficult market situation and on the other hand to the general transformation of the automotive industry. The progressive expansion of

HEADCOUNT DEVELOPMENT 2018–2022



HEADCOUNT BY REGION



the Electronics and Mechatronics business unit, on the other hand, led to an increase in the number of employees in some European countries. In particular, the number of employees in Slovenia rose by 136 and in Bosnia and Herzegovina by 50 people.

In North America, as of the end of 2022, we counted a total of 14,769 employees and thus 1,570 people or 11.9 percent more than in 2021. The increase in personnel there was mainly in the Compressor and Thermal Management areas in Mexico and is due to a very good order situation, new production projects, and high production utilization.

In South America, at the end of the year under review 8,763 employees worked for us—that is 27 people or 0.3 percent more than in the previous year. After the major staff cutbacks at the beginning of the Covid-19 pandemic 2020, the growth trend from the previous business year continued.

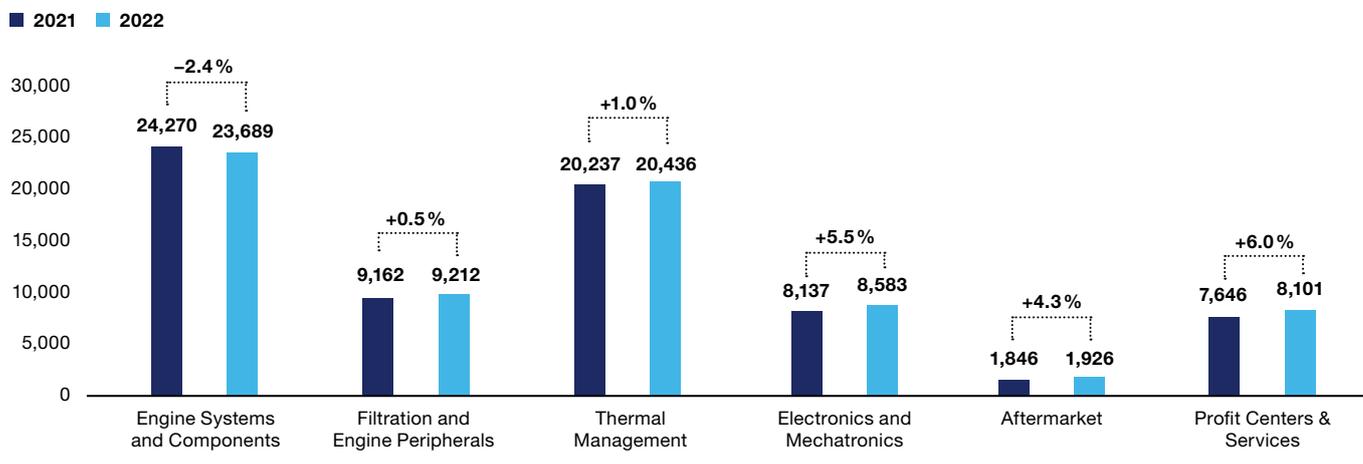
In the Asia/Pacific region, we had 16,432 employees at the end of the reporting year—that is 371 people or 2.3 percent more than in 2021.

In Africa, as at the reporting date of December 31, 2022, there were 818 employees working at our locations—that is 37 people or 4.3 percent fewer than in the previous year.

## Headcount by business segment

The number of employees in our Engine Systems and Components business unit decreased by 581 people. Nonetheless, the business unit remained the largest in the company, accounting for a total of around 32.9 percent of employees across 40 locations. The Filtration and Engine Peripherals business unit operated across 31 locations, employing 12.8 percent of the Group workforce—some 50 people or 0.5 percent more than in 2021. In the area of Thermal Management, our 44 locations housed 28.4 percent of our total workforce—i.e. 199 people more than in the previous year. At the end of the financial year, there were 8,583 employees in the Electronics and Mechatronics business unit, which corresponds to a 11.9 percent of the total workforce. At the end of 2022, our Aftermarket business unit, which is the smallest in terms of personnel, employed a total of 80 employees more than at the same time last year. In Profit Centers and Services, we recorded an increase in personnel of 455 employees compared with the previous year. This was mainly due to further expansion and relocation to shared service centers in Wrocław/Poland, Belgrade/Serbia, Monterrey/Mexico, and Pune/India.

### HEADCOUNT BY BUSINESS SEGMENT



# Technology and innovation

Despite the difficult environment, in the year under review, we invested EUR 671 million in research and development and thus in absolute terms slightly more than in the previous year. The majority of our expenditures were in our strategic core areas of electrification and thermal management. In relation to sales, this resulted in a ratio for 2022 of 5.4 percent (previous year: 6.1 percent). As at December 31, 2022, we employed 5,456 employees in this area. In the reporting year, MAHLE registered 384 new patents, in addition to 462 further records of invention.

## TOTAL RECORDS OF INVENTIONS IN 2022:

# 462

WITH 5,456 R&D EMPLOYEES

The entire automotive industry is in a state of change, and the pace of technological transformation has continued to accelerate. This is especially true for the advance of electromobility: many of our customers are adapting their plans accordingly, just like MAHLE itself.

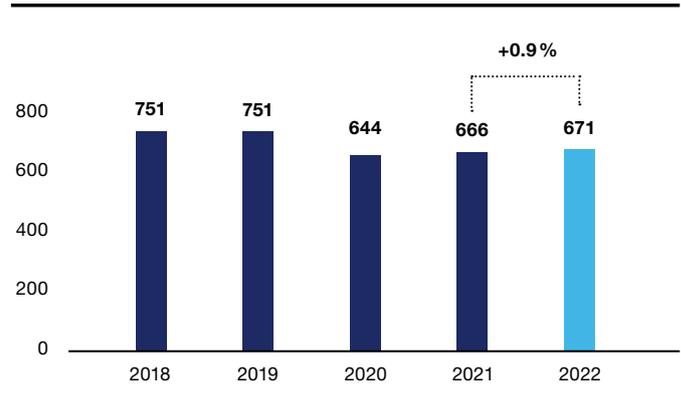
We support the vital contribution from the transport sector to climate protection through our openness to new technology when it comes to customers and markets. Accordingly, we are working on technologies for all forms of drive in our strategic core areas.

## Selected innovations in the 2022 business year

With the SCT (Superior Continuous Torque) electric motor, MAHLE introduced a motor in 2022 that can operate at high power for an unlimited period of time and can also be built without the use of rare earth metals at the customer's request. The new development is suitable for passenger cars, commercial vehicles as well as agricultural and construction machinery. This makes MAHLE a supplier offering the full range of products in the field of electric drives that covers all requirements from pedelecs to heavy-duty commercial vehicles, off-road and industrial applications. This load capacity is achieved in the new SCT electric motor through the use of an innovative integrated oil cooling system. The extremely compact design results in material cost and weight advantages in addition to performance benefits.

Thermal management plays a special role and is important across the board in the development of efficient and CO<sub>2</sub>-neutral drives, namely in heating and cooling in the vehicle. Its complexity and the demands on its performance increase considerably with battery electric drives and fuel cell systems. In view of the increasing diversification in the drive mix for commercial vehicles, MAHLE presented a modular design of the system at the IAA Transportation (International Motor Show in Germany). This means that the ideal system architecture can be developed for every application and every vehicle, and the multitude of individual driving profiles and

## R&D EXPENDITURE 2018–2022 in EUR millions



vehicle classes in the commercial vehicle sector can be covered, all in a highly efficient system with optimized costs.

At the Shipbuilding, Machinery and Marine Technology (SMM) trade fair in Hamburg in 2022, MAHLE presented thermal management solutions for the fuel cell periphery of electrically powered watercraft of all classes. Thanks to climate-neutral hydrogen production, they are zero-emissions vehicles.

In addition to the fuel cell, the use of hydrogen as a combustion fuel has the potential to make many heavy-duty and off-highway applications climate-neutral particularly quickly. Hydrogen engines are ideal for high load cycles with sudden load stage changes and are insensitive to heat, impurities, and vibrations. At the IAA, MAHLE presented for the first time a new power cell unit—a system consisting of pistons, piston rings, connecting rods, pins, and cylinder liner—as well as a high-pressure impact or for flushing the crankcase. This means that hydrogen can be used with exceptional efficiency and safety in combustion engines with a long service life.

MAHLE has also signed a declaration of intent with Siemens to cooperate in the field of wireless charging systems for e-vehicles. In future, the overall system consisting of infrastructure and automotive engineering will be developed and tested together. One focus here is the advancement of technological standards for inductive charging technology to enable broad acceptance of wireless charging.

In future, MAHLE Aftermarket will also use the charging plug in addition to the existing OBD port for battery diagnostics of e-vehicles. For this purpose, our service and spare parts division works together with a partner, who in turn evaluates the measured data in the cloud and provides valuable information about the condition of the vehicle battery. For example, any need for repairs can be predicted. Since the beginning of 2022, the new diagnostics solution has been tested in practice on passenger cars together with TÜV NORD Mobilität and a well-known European fleet operator.

# Purchasing

The reporting year was again challenging from a purchasing perspective. The market environment continued to be characterized by the effects of the Covid-19 pandemic and the need to safeguard the stability of supply chains and call-off figures. These varied greatly from region to region. There were particularly significant implications in China with global repercussions. The Russian invasion of Ukraine created further significant uncertainties in the market and caused considerably higher commodity prices, unpredictability with regard to energy supply and impaired supply chains.

In particular, the sharp rise in raw material prices at the beginning of the year put a strain on MAHLE's material costs. Persistently high costs for freight, sharply rising prices in indirect purchasing—especially in the area of energy—as well as increased reprocessing costs of raw materials also led to additional burdens. The overall situation was further exacerbated by existing and worsening shortages in the semiconductor market and in the case of some raw materials.

In order to counter the additional price demands from suppliers, MAHLE has adapted and partially restructured the process for dealing with these demands. Furthermore, we have launched various initiatives as part of a Group-wide program to reduce material costs. In addition to a large-scale negotiation offensive, in close cooperation with selected suppliers, the potential for reducing material costs through technical or process-related adjustments was also increasingly identified, evaluated, and implemented. In addition, there is an increasing focus on reducing CO<sub>2</sub>-equivalent emissions. Even in this challenging environment, we were able to maintain process reliability and the quality of the goods and services purchased. The continuous consolidation but also diversification of our supplier portfolio remains important.

# Production

Our production continued to face many challenges in 2022 due to economic and geopolitical developments, as well as supply chain disruptions. Some European locations in particular had to take prompt action due to the Russian invasion of Ukraine, as well as rising energy costs and raw material shortages. These served to limit internal cost increases while ensuring multi-directional supply.

In addition, the focus was on increasing awareness when it comes to costs, as the transformation in the automotive industry and volatile markets also have a strong impact on our production. The key is to continuously strengthen the operational excellence of production, in particular through the implementation of projects and continuous knowledge transfer and development in the area of lean management and digitalization.

The central strategic focus on operational excellence increasingly relies on elements such as lean management and our unified pro-

duction system. Based on the value streams, we evoke holistic process improvements. A “MAHLE Production System (MPS) Learning Factory” was established in Stuttgart to transfer knowledge to the organization in the most practical setting possible. This includes training offers with live simulation in a production area specially built for various target groups. Furthermore, the training of lean experts and trainers was intensified.

In order to best enable the manufacturing sites in their operational processes, new, digital technologies are being used worldwide. An Industrial Internet of Things platform is being piloted in individual plants. This allows a range of digital use cases in production to be mapped—e.g. real-time visualization of machine states and energy monitoring down to machinery level. The focus here is primarily on the consistent standardization of global production sites, also with regard to cyber security. This gives the new data-driven solutions a framework from a legal and security technology perspective. MAHLE combines the synergies of the lean and digitalization activities for the factories under the motto of “Lean Digital Factory.”

An important component in the implementation of all activities is the use of synergies across the entire Group. For this purpose, a new communication platform was created that facilitates global communication.

# Quality management

Quality is the bedrock of our success. Innovative, fault-free, and reliable products and systems are essential for this. The core elements of our annual business plan are accordingly quality goals, which we define in a top-down manner—and flesh out from the bottom up—and consolidate via the operational business areas. In addition, a Group-wide quality management system has been used in all our business processes for many years.

MAHLE RECEIVED MORE THAN

# 80

QUALITY AWARDS IN 2022

We successfully continued the “MAHLE Quality Improvement Program” in 2022. The aim is to continuously improve the quality of our products and services, reduce reject costs, and strengthen quality awareness and the Group-wide application of agreed standards. Training for employees is also part of the program, as are projects to coordinate activities, standardize procedures, and optimize our products and processes.

In this way, we want to further reduce risks and eliminate potential sources of defects as early as the product development stage. We reduce risks in series production through extensive quality assurance measures, such as regular audits.

The broad scope of the “MAHLE Quality Improvement Program” improves Group-wide communication and encourages regular dialogue between our teams. All results flow into our processes and optimize them. In November 2022, MAHLE held an event as part of the global “World Quality Day,” where all our production sites could exchange information about quality performance as well as the current status, priorities, improvements, and successes in the area of quality management.

Our customers provide the data on our quality performance in different formats. Through our standardized reporting, all locations have access to this information—in a standardized form—in order to promptly determine necessary corrective measures in the event of deviations.

In 2022, customer complaints in the automotive sector decreased by 7 percent compared with the previous year. We were able to keep the number of defective parts delivered stable at a low level in the year under review. In addition, our customers once again acknowledged the quality of our products more than 80 times in the 2022 business year.

## Safety at work, the environment and climate protection

MAHLE promotes sustainability in all areas of the Group. Special attention is paid to safety at work, the environment, and climate protection. MAHLE bears responsibility for the well-being and safety of its employees. To minimize occupational risks, we implement technical, organizational, and personal protection measures. The basis for this are regular risk assessments, from which we continuously derive measures to improve occupational safety and targets for safety at work. We check compliance with the objectives and implementation of the measures through regular audits and observation walkarounds.

### ACCIDENT RATE FELL BY

# 17 %

### IN COMPARISON WITH THE PREVIOUS YEAR

The accident rate indicates the number of accidents per million hours worked that resulted in lost time or reassignment to light duties. In the 2022 business year, it stood at 3.5, which equates to around 17 percent less than in the previous year. Overall, we were able to continue the positive trend of the last five years. Five years ago, we were still recording 6.8 accidents per million hours worked, in 2022, the figure was only about half as high. The introduction and maintenance of a safety at work management system in accordance with ISO 45001 is an important pillar for improving workplace safety in our plants. In this regard, we were able to make further progress. Thus, at the end of 2022, there were already 103

MAHLE locations certified according to ISO 45001. We are still planning to gradually certify all production sites in the coming years.

Our approach to the environment and climate protection ranges from research and development to production and recycling of our products. Existing products, consumables, processes, and machinery are continuously evaluated and improved to minimize the impact on the environment. We also continue to work on introducing environmental management systems according to ISO 14001 and/or EMAS at our sites. At the end of 2022, 140 sites are certified according to at least one of these standards. In addition, 13 sites were certified according to the ISO 50001 energy management system.

In 2022, we worked on integrating climate-relevant aspects even more strongly into our core processes. Our CO<sub>2</sub> emissions from the use of fossil fuels and the use of electricity decreased last year mainly due to the increased purchase of less carbon-intensive electricity by more than 12 percent compared with 2021. The largest share of our carbon footprint comes from the upstream emissions from the raw materials and services we purchase and from the use of our products (Scope 3 categories 1 and 11 according to the GHG Protocol). We have accordingly also set ourselves targets for the reduction of Scope 3 emissions in addition to the targets for Scope 1 and 2, which have already been adopted in 2020. We have submitted these science-based climate targets to the Science Based Targets Initiative (SBTi).

Our management approach to greenhouse gas was awarded a “B” (on a scale from A to D) by the CDP in December 2022. In addition to the CO<sub>2</sub> roadmap, an important focus in 2022 was the preparation for the implementation of the German Supply Chain Due Diligence Act (Lieferkettensorgfaltspflichtengesetz) to ensure that human rights and environmental protection principles are observed throughout our sphere of influence.

Our sustainability activities have been awarded a “silver medal” by EcoVadis as of February 2022.

The detailed results of our activities will be presented in the 2022 sustainability report.

# Opportunity and risk report

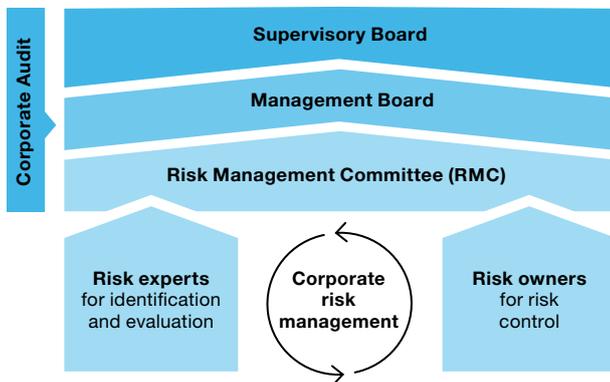
**By systematically considering market and technology trends, we ensure that we identify opportunities and risks at an early stage.**

**New opportunities and risks arise from the increasing awareness of the markets in terms of ecological and sustainability aspects, as well as from new standards for the reduction of emissions.**

**To continue to minimize operational risks, we have strengthened various initiatives such as systematically upgrading our cyber security.**

We assess opportunities and risks from our business operations with the help of a management system. In this way, we gain insights from which we draw conclusions and adjust our actions accordingly. Our Group-wide Internal Audit department regularly checks the compliance and efficiency of our processes and control systems using annually revised audit plans.

## SCHEMATIC DIAGRAM OF RISK MANAGEMENT AT MAHLE



Focal points of risk can change due to the transformation of the automotive industry and the effects of the general geopolitical situation as well as the Covid-19 crisis, which can be seen, for example, in a shortage of semiconductors or sharp cost increases. To manage this, we have implemented a systematic risk management process with the following focal points.

## Market and technology trends

We identify long-term market and technology trends in a systematic scenario-based approach. The starting point is a base scenario that also includes the developments of our business units, regions, products, and markets up to 2035. Based on this, we subject our company to a stress test in various dimensions with the “Extreme Scenarios 2035,” for example for markets, regions, drive types, numbers built, and technologies. By systematically considering market and technology trends, we ensure that we identify opportunities and risks at an early stage. Findings from these analyses are incorporated into decisions about future business areas and new production processes. We map the measures derived from this in the strategic and budget planning. In the course of management reporting, we monitor whether and how the steps adopted are implemented.

Opportunities and risks arise, for example, from the increasing awareness of the markets for environmental and sustainable aspects, as well as from new standards for the reduction of emissions. That is why we incorporate all relevant topics into our international research and development activities at an early stage and rely on a wide range of technologies to increase the efficiency of all powertrain solutions, as well as a holistic, intelligent thermal management system. This enables us to offer our customers competitive and innovative products. Due to our steadily growing portfolio of electric traction drives, power electronics and auxiliary units, as well as other products in the electric powertrain, we are benefiting from the expanding market of electrified motor vehicles. We have strengthened these activities in a targeted manner through several acquisitions, which have since been integrated into our Group. With the help of acquisitions, we have also significantly expanded our thermal management business in recent years and added air conditioning compressors to our product portfolio, as well as

strengthening our regional footprint in Asia. MAHLE thus has the necessary resources and expertise to develop components for the growing market of hybrid and electric vehicles.

Geopolitical tensions or even war-like conflicts such as the Russian invasion of Ukraine, interruptions in the logistics chain from raw materials to finished components, economic fluctuations or even economic slumps, changes in the political framework conditions in individual regions or countries, trade difficulties, other developments affecting the global economy and the increasing number of competitors, especially from Asia, can have a strong impact on market developments and accordingly also on the business development of our company. In this vein, we always keep an eye on developments in this context. In general, our diversified positioning and global presence serve as important stabilizing factors and help us to deal with market and customer risks. Our highly diversified customer and product portfolio also contributes to this. This ensures at least partial compensation for possible declines in demand in individual markets or from individual customers. Accordingly, we consider a global market slump like the one in the economic crisis of 2009, which could lead to a strong impact on our profit, to be one of the greatest risks for our Group. This also includes largely unforeseeable events such as the Covid-19 pandemic and its consequences, for example the global shortage of semiconductors, or major geopolitical events such as the Russian invasion of Ukraine and consequent sharp price increases, energy shortages, and cuts in the availability of raw materials. With appropriate early warning systems and action plans in place, we limit the consequences of such to the best of our ability. The plans and discussions about an end to the combustion engine and further general driving bans are major sources of uncertainty for the entire automotive industry, especially in Europe, the USA, and China. We take appropriate measures in an effort to mitigate any economic effects of a technology shift at an early stage. These could also result from possible changes in the legal situation, such as certain countries placing a ban on internal combustion engines in passenger cars from a certain point in time. To prepare for such future scenarios, we look to our strategy of actively supporting the shift toward more sustainable mobility in the areas of electrification and thermal management, as well as components for clean combustion engines. We want to continuously increase the share of sales that is independent of the combustion engine.

## Procurement and production

The focus of our risk management is to jointly maintain the global supply of purchased parts and minimize negative impacts from procurement markets. Regular supplier assessments to identify risks are the basic prerequisite for this. We have stepped up these activities in recent years and are continuously making them more professional. We take care to ensure that our suppliers stay independent. In addition, we use a risk monitoring tool worldwide that provides a quick overview of (natural) disasters, strikes, and insolvencies, in particular. This increases transparency and thus reduces risk in the supply chain. Specific emerging risks that could lead

to bottlenecks in the supply of purchased parts and thus to production interruptions—such as the Covid-19 pandemic since 2020, the supply difficulties with semiconductors and plastic granulates since 2021, the Russian invasion of Ukraine since February 2022 and the resulting energy crisis in Europe—are reported to the Supply Risk Committee and managed by focus/task force teams. The Supply Risk Committee is led by the Central Purchasing management and consists of members from a number of different departments across the company, including Sales, Logistics, Production, Development, Controlling, and Quality in order to achieve the best possible limitation of risk. The optimization of processes in the factories was again a constant focus with regard to quality and safety standards, in the year under review. In order to continue to minimize operational risks, we have strengthened a number of initiatives that should, above all, enable our production facilities to respond to current fluctuations in the market and events in the world of politics and the economy. This includes, in particular, the systematic and standardized upgrading of our cyber security in the operational areas to secure unrestricted production and the addition of further digital elements to complement that production. The further establishment and realignment of specific task forces, with a strong focus on energy supply security at this time, also make an essential contribution to risk assessment and the adaptation of measures for the production sites. The risk posed by the energy crisis had a strong impact on the way we work and required cross-plant and cross-functional action to prevent major shortages.

The committees' cooperation with members from different departments, for example from Logistics, Purchasing, and Production, was successfully continued. This ensures Group-wide transparency at all times and—in the case of unplanned incidents—determines the urgency of action required in order to safeguard the production processes and value chains of the factories in the best possible way at all times.

Our Group is audited and certified according to recognized ISO standards and similar requirements in our sector, for example with regard to quality, environmental protection, and safety at work. Our company is thus subject to important external controls to limit risk. We have obtained cover for business interruptions resulting from damages as well as liability risks to an economically reasonable extent through insurance policies.

To prevent quality issues and warranty claims and similar risks, we have defined cross-functional countermeasures. For example, our development processes are constantly put to the test and optimized, also with the aim of limiting the risks that could arise from further increasing demands from our customers to take over enhanced scopes in terms of warranty or additional costs due to delayed series launches. Development processes are also being optimized to minimize risks in view of the increased product safety requirements. To the extent required by law, financial burdens caused and revealed as of the balance sheet date from quality issues and warranty claims, which are likely to result in cash outflows after the balance sheet date, are covered by provisions within the scope of risk provisioning.

# Financial management

With our systematic Group-wide financial management, we ensure that we make optimal use of the financing options available on the banking and capital markets. Liquidity risk is covered by diversified financing facilities with staged maturity profiles that significantly exceed our Group's foreseeable financing requirements. When designing our financing mix, we take into account security, flexibility, and cost aspects. The aim is to secure the financial independence of our Group, limit financing risks, and ensure that we can take advantage of business opportunities at any time. We identify currency risks with our Group-wide planning and reporting system. In accordance with uniform Group-wide principles, we counteract these risks to a large extent and use non-predictive hedging transactions over a horizon of up to 24 months for this purpose. As a rule, hedging transactions relate to OTC FX forwards or swaps in the form of portfolio hedges. The use of derivative financial instruments is necessarily linked to the existence of an operational underlying transaction. Expected and not yet invoiced currency risks are covered with continuously declining hedging grades. The resulting hedging relationship generates valuation units under the critical term match method. The interest rate risk is subject to value-at-risk analyses. OTC hedging transactions and other financial transactions give rise to counterparty risks with financial institutions, which we identify and assess uniform Group-wide reporting system. If defined limits are exceeded, the counterparty risk is reduced through targeted risk diversification.

## Human resources, IT, and accounting

Today and in the future, employee engagement is a cornerstone of our success. Highly qualified and motivated employees are of central importance to us. That is why it is important to us to recruit suitable staff and to continuously support, develop, and retain employees in our company in the long term. In order to be able to establish direct contact with potential applicants at an early stage and recruit qualified employees, we have developed a comprehensive personnel marketing concept and established a recruiting organization. In this way, we reduce the risk of vacancies not being filled, or taking a long time to be filled. In order to secure the future of our Group in the long term and to be able to take advantage of opportunities arising from changes in the market and technology, we align our human resources planning with developments in relevant markets as well as strategically important technologies and business areas. Performance-based remuneration and modern pension schemes as well as training and development measures aim to motivate and retain employees in strategically important positions. In the IT area of responsibility, specifications, processes and security technologies protect against unauthorized data access or misuse by internal and external perpetrators. Defined security standards include not only technical specifications of hardware and software, but also functional security structures and organizational precautions. The IT systems classified as critical for operations are operated largely redundantly and are also secured

via a back-up data center. Detailed back-up and recovery procedures reduce the risk of serious disruptions in particular by securing access procedures and mirroring and archiving data on a daily basis. These measures are for the protection against cyberattacks, which are now seen as one of the biggest risks due to known incidents in the industry. In the accounting process, the internal control and risk management system aims to ensure the compliance and effectiveness of accounting and financial reporting. In addition to guidelines and principles, the system includes measures designed to prevent or detect reporting errors. The consolidated financial statements are prepared centrally on the basis of the data reported by the subsidiaries. We ensure compliance with the MAHLE guidelines through systemic controls, specialist advice, audit routines, and plausibility checks of the data performed by Group Accounting as well as through management reviews.

## Regulations and legislation

Guidelines as well as organizational and work instructions ensure compliance with statutory requirements. By involving internal and external experts in the processes at an early stage, we minimize risks and take advantage of opportunities that could arise, for example, from tax, labor, competition, patent, antitrust, data protection and environmental regulations and laws, as well as trade regulations. Key elements of our compliance structure are the MAHLE Business Code, our global compliance organization, the whistleblowing system for internal and external compliance-related communications, and the training concept for the relevant risk areas and measures for prevention.

## Overall assessment

Overall, no risks are currently observable that could endanger the continued existence of our Group, provided that development-impairing risks or extreme global crises, such as the coronavirus pandemic, do not occur multiples times in quick succession.

# Outlook

**In the vehicle market for passenger cars and light commercial vehicles, we expect subdued development, meaning that the level of vehicle production from 2019 is still likely to not be achieved in many regions.**

**For MAHLE, we expect a significant improvement in sales, EBIT, and operating result.**

**In order to meet the numerous challenges, we will intensify the measures enacted to improve the liquidity and earnings situation in the coming business year.**

## Overall economic development

For 2023, the IMF forecasts in its January report that global economic output will grow by around 3 percent. This forecast is subject to great uncertainty and depends largely on the further development of the Russian invasion of Ukraine, inflation, and the accompanying tightening of monetary conditions. The IMF predicts that growth in emerging markets and developing markets will be significantly higher at around 4 percent in 2023 than in the advanced economies at around 1 percent.

### IMF FORECAST AROUND

# 3 %

### GLOBAL ECONOMIC GROWTH IN 2023

For the eurozone, the IMF expects a rise of less than 1 percent, impaired in particular by the effects of the Russian invasion of Ukraine. In contrast, falling inflation expectations are favoring economic output in the eurozone. Germany's economic output is predicted to remain at the previous year's level. In North America, growth is expected to be around 1 percent in the USA. In this context, economy is suffering primarily from decreased demand. In Brazil, the largest economy in South America, the economy is also expected to grow by around 1 percent. For the Chinese economy, the IMF forecasts growth of over 5 percent and thus growth above the previous year, in particular due to the renunciation of the

zero-tolerance policy with regard to the Covid-19 pandemic. The Japanese economy is expected to grow by around 2 percent, roughly the same level as in the previous two years.

## Development of the vehicle markets

### Development of the markets for passenger cars and light commercial vehicles

We expect global production of passenger cars and light commercial vehicles to be subdued in 2023. The market continues to be burdened by several elements of uncertainty. At present, it is difficult to predict how long the Russian invasion of Ukraine and the associated indirect effects on vehicle production will last. In addition to geopolitical tensions and the intensification of the recession risk, persistent supply bottlenecks for semiconductors, other raw materials and intermediate products play an important role, as these could lead to significant production losses. In addition, there are massive price increases that could further reduce purchasing power.

In North America, the pre-crisis level will probably not be reached again for several years. In Europe, we do not expect vehicle production to reach pre-crisis levels for many years. In addition, the Russian invasion of Ukraine and the expected weak economic development cloud the outlook considerably. In South America, which

**North America**

- Overall economy\* →
- Passenger cars and light commercial vehicles ↗
- Medium-sized and heavy-duty commercial vehicles →

**South America**

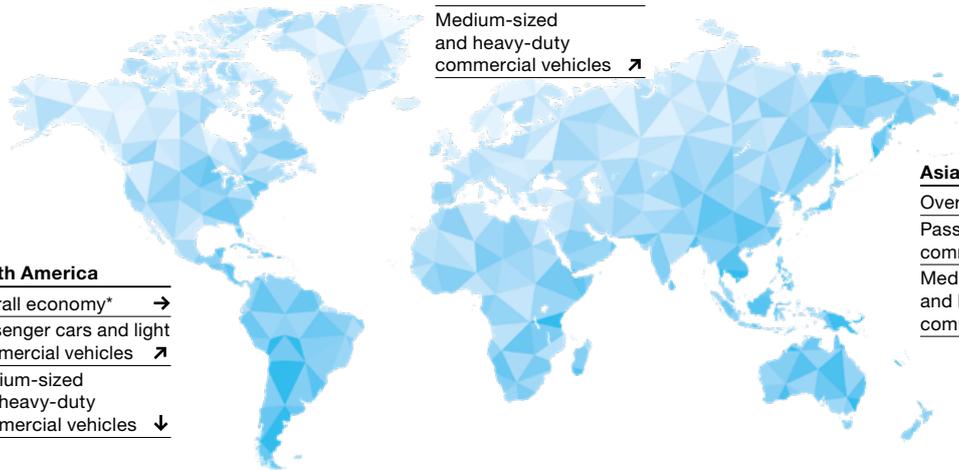
- Overall economy\* →
- Passenger cars and light commercial vehicles ↗
- Medium-sized and heavy-duty commercial vehicles ↓

**Europe**

- Overall economy\* →
- Passenger cars and light commercial vehicles →
- Medium-sized and heavy-duty commercial vehicles ↗

**Asia/Pacific**

- Overall economy\* ↗
- Passenger cars and light commercial vehicles ↘
- Medium-sized and heavy-duty commercial vehicles ↑



The directional arrows show the change compared with the previous year:  
 ↑ ≥5%, ↗ 1.5% to 5%, → -1.5% to 1.5%, ↘ -1.5% to -5%, ↓ ≤-5%

\* IMF forecast from January 2023

is less affected by the supply bottlenecks in the passenger car market, the trend toward a recovery should initially continue. The same applies to the Asia/Pacific region: moderate growth is forecast in some Asian submarkets. In China, however, production figures are expected to decline due to subdued economic development and the effects of the expiring tax reduction, among other factors. Moreover, the development of the Covid-19 pandemic there is difficult to predict.

**Development of the markets for medium-sized and heavy-duty commercial vehicles**

In the medium-sized and heavy commercial vehicle segment, we expect growth in 2023. In particular, the regional recovery trends in most parts of Asia are contributing to this. We expect the strongest upward trend in China, after the cyclical trough was probably reached in 2022. In Europe and North America, we currently expect only slight growth. The ongoing war in Ukraine, high price increases for goods, raw materials and goods transport, more difficult financing conditions as well as the subdued economic forecasts lead to great uncertainties and could significantly dampen growth expectations and have a negative impact on the vehicle markets.

# Development of the MAHLE group

For the 2023 business year, we expect the market environment to remain challenging. The resulting effects on global economic dynamics and especially on the automotive markets are difficult to assess. Provided the situation does not deteriorate economically or geopolitically, we nevertheless forecast strong organic sales growth for 2023. We expect a significant improvement in EBIT as well as in operating result.

Despite the economic burden, we continue to focus on the technological transformation and our strategic goals. We will press ahead with our future topics with great intensity and focus our attention in the short and medium term on positioning our company sustainably and successfully for the future. At the same time, we are focusing on securing and expanding our competitiveness in terms of both product portfolio and processes. To this end, we are driving forward the structural reorganization of the Group globally, consistently continuing the reviews of our worldwide locations and product portfolio, and strengthening our Group-wide cost discipline through targeted programs. We assume that further significant efforts will be required to manage the technological and structural transformation. In response to the transformation in mobility and the resulting shift away from the combustion engine, as well as increasing competitive pressure, we have already announced the discontinuation of production activities at the Mattighofen/Austria site and the gradual relocation of selected product groups to Eastern Europe. In addition, we have announced the closure of the Oyama/Japan site and the complete relocation of production activities to Thailand.

## FOCUS FOR

# 2023

## PRESS AHEAD WITH FUTURE TOPICS

At the same time, we are preparing for further burdens. In order to meet the many challenges posed by the changed economic conditions, especially rising energy prices and wage costs, a proportional distribution of additional costs across the value chain will also be unavoidable in the coming business year. Furthermore, we will intensify the additional measures initiated to improve the earnings and liquidity situation.

We are preparing our internal processes for the future and working consistently on new ideas. For example, we are making MAHLE resilient to the serious threat of cyberattacks by introducing comprehensive security concepts. In addition, we are actively driving forward the digital transformation in order to contribute to process optimization and standardization through an even broader range of applications.

Another focus is on meeting the global challenges in the area of climate protection and protection of the environment. We counter these in particular with our openness to technology. This is reflected concretely in our business activities, such as the development of products that support the transition to CO<sub>2</sub>-efficient drives. In order to further reduce our carbon footprint, we rely primarily on renewable energies generated in-house and lower energy consumption by increasing energy efficiency. The largest share of our carbon footprint comes from the upstream emissions from the raw materials and services we purchase and from the use of our products (Scope 3 categories 1 and 11 according to the GHG Protocol). We have accordingly also set ourselves targets for the reduction of Scope 3 emissions in addition to the targets for Scope 1 and 2, which have already been adopted in 2020. In line with our targets, we aim to reduce Scope 1 and 2 emissions by 49% from their 2019 level by 2030 and to be CO<sub>2</sub>-neutral by 2040. Scope 3 emissions in the supply chain and from product use are each to be reduced by 28% from their 2019 levels by 2030.

We see economic success as the foundation for the implementation of our future strategies. It allows us to invest in research and development, establish new business areas, and make acquisitions to complement our portfolio. In order to maintain and expand a strong base, we strive for sales growth with clear priority on sustainable profitability. Our financial independence and resilience to potential crises are always a priority for us. Accordingly, we pay attention to a healthy balance sheet structure and a moderate net debt ratio. The supporting pillars of our financial policy are therefore a solid equity base and long-term secured liquidity based on a stable operating cash flow and diversified instruments and sources of financing.

This report contains forward-looking statements that are based on current estimates of future developments and are accordingly subject to risks and uncertainties that are beyond our control and cannot be assessed precisely. This may cause actual results to differ from the statements made here.



# Consolidated financial statements

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# Consolidated balance sheet

As at December 31, 2022, in EUR '000

	Dec. 31, 2022	Dec. 31, 2021
<b>ASSETS</b>		
<b>A. Fixed assets</b>		
<b>I. Intangible assets</b>		
1. Purchased concessions, industrial and similar rights and assets, as well as licences in such rights and assets	151,858	166,548
2. Goodwill	166,385	196,934
3. Prepayments	562	706
	<b>318,805</b>	<b>364,188</b>
<b>II. Property, plant, and equipment</b>		
1. Land, leasehold rights, and buildings including buildings on third-party land	972,343	942,177
2. Technical equipment and machinery	1,403,764	1,473,926
3. Other equipment, fixtures, and furniture	143,712	154,436
4. Prepayments and assets under construction	477,824	437,368
	<b>2,997,643</b>	<b>3,007,907</b>
<b>III. Financial assets</b>		
1. Shares in affiliated companies	1,323	2,934
2. Shares in associated companies	25,517	41,682
3. Equity investments	15,844	5,800
4. Loans to companies in which participations are held	90	90
5. Long-term securities	13,105	16,409
6. Other loans	10,868	12,310
	<b>66,747</b>	<b>79,225</b>
	<b>3,383,195</b>	<b>3,451,320</b>
<b>B. Current assets</b>		
<b>I. Inventories</b>		
1. Raw materials, consumables, and supplies	699,020	622,976
2. Work in process	197,137	190,789
3. Finished goods and merchandise	689,797	657,173
4. Prepayments	14,373	14,200
5. Prepayments received	-115,428	-102,554
	<b>1,484,899</b>	<b>1,382,584</b>
<b>II. Receivables and other assets</b>		
1. Trade receivables	1,957,390	1,869,953
2. Receivables from affiliated companies	9,054	1,094
3. Receivables from companies in which investments are held	757	988
4. Other assets	612,609	449,545
	<b>2,579,810</b>	<b>2,321,580</b>
<b>III. Securities</b>	17,104	4,502
<b>IV. Cash in hand, bank balances, and checks</b>	603,545	1,109,722
	<b>4,685,358</b>	<b>4,818,388</b>
<b>C. Prepaid expenses</b>	29,830	34,173
<b>D. Deferred tax assets</b>	210,896	184,681
<b>E. Excess of plan assets over post-employment benefit liability</b>	12,317	99,540
	<b>8,321,596</b>	<b>8,588,102</b>

	Dec. 31, 2022	Dec. 31, 2021
<b>EQUITY AND LIABILITIES</b>		
<b>A. Equity</b>		
I. Subscribed capital	150,000	150,000
II. Capital reserves	166,430	166,430
III. Retained earnings	1,493,586	1,718,523
IV. Equity impact from currency translation	-161,164	-180,781
V. Consolidated unappropriated retained earnings	5,177	6,070
VI. Non-controlling interests	23,395	189,722
	1,677,424	2,049,964
<b>B. Badwill</b>	<b>63,380</b>	<b>103,411</b>
<b>C. Provisions</b>		
1. Provisions for pensions and similar obligations	843,646	800,832
2. Provisions for taxes	78,802	87,659
3. Other provisions	1,582,014	1,707,955
	2,504,462	2,596,446
<b>D. Liabilities</b>		
1. Bonds	780,000	1,280,000
2. Liabilities to banks	1,501,772	885,705
3. Payments received on account of orders	10,395	10,588
4. Trade payables	1,369,198	1,258,184
5. Liabilities on bills accepted and drawn	58,973	64,535
6. Liabilities to affiliated companies	1,163	772
7. Liabilities to companies in which investments are held	2,641	2,372
8. Other liabilities	299,455	289,371
<i>thereof from taxes: 107,308 (prev. yr.: 82,802)</i>		
<i>thereof relating to social security and similar obligations: 33,435 (prev. yr.: 36,615)</i>		
	4,023,597	3,791,527
<b>D. Deferred income</b>	<b>52,733</b>	<b>46,754</b>
	8,321,596	8,588,102



# Consolidated income statement

From January 1 to December 31, 2022, in EUR '000

	2022	2021
<b>1. Sales</b>	<b>12,433,824</b>	<b>10,933,096</b>
2. Cost of sales	-10,653,099	-9,255,978
<b>3. Gross profit on sales</b>	<b>1,780,725</b>	<b>1,677,118</b>
4. Selling expenses	-628,722	-560,386
5. General administrative expenses	-572,532	-503,198
6. Research and development expenses	-671,308	-665,560
7. Other operating income	601,543	549,148
<i>thereof from currency translation: 242,796 (prev. yr.: 165,418)</i>		
8. Other operating expenses	-430,914	-291,096
<i>thereof from currency translation: -261,337 (prev. yr.: -159,451)</i>		
	-1,701,933	-1,471,092
	<b>78,792</b>	<b>206,026</b>
9. Investment income	728	87
<i>thereof from affiliated companies: 617 (prev. yr.: 8)</i>		
10. Income from other securities and long-term loans	10	20
11. Result from associated companies	1,301	976
12. Other interest and similar income	24,714	17,115
<i>thereof from affiliated companies: 178 (prev. yr.: 67)</i>		
<i>thereof income from discounting: 118 (prev. yr.: 3)</i>		
<i>thereof negative interest income: 447 (prev. yr.: 1,157)</i>		
13. Impairment of financial assets and of securities	-3,292	-18,711
14. Interest and similar expenses	-267,711	-147,566
<i>thereof to affiliated companies: -29 (prev. yr.: -14)</i>		
<i>thereof expenses from discounting: -30,890 (prev. yr.: -55,800)</i>		
	-244,250	-148,079
<b>Result from business activities</b>	<b>-165,458</b>	<b>57,947</b>
15. Taxes on income	-134,558	-138,712
<i>thereof income from deferred income taxes: 29,614 (prev. yr.: 25,323 expense)</i>		
<b>16. Result after taxes</b>	<b>-300,016</b>	<b>-80,765</b>
17. Other taxes	-32,289	-27,356
<b>18. Consolidated net loss</b>	<b>-332,305</b>	<b>-108,121</b>
19. Consolidated unappropriated retained earnings prior year	6,070	3,439
20. Dividend distribution	-6,000	-3,300
21. Withdrawal from retained earnings	223,469	93,252
22. Profit applicable to non-controlling interests	-84,605	-80,450
23. Loss applicable to non-controlling interests	198,548	101,250
<b>24. Consolidated unappropriated retained earnings</b>	<b>5,177</b>	<b>6,070</b>

# Consolidated cash flow statement

From January 1 to December 31, 2022, in EUR '000

	2022
<b>1. Cash flows from operating activities</b>	
Profit for the period (consolidated net loss including profit and loss applicable to non-controlling interests)	-332,305
+/- Depreciation, amortization, and write-downs of fixed assets/reversals of write-downs of fixed assets	612,895
+/- Increase/decrease in provisions	-10,597
+/- Other non-cash expenses/income	6,890
-/+ Increase/decrease in inventories, trade receivables, and other assets not related to investing or financing activities	-301,516
+/- Increase/decrease in trade payables and other liabilities not related to investing or financing activities	133,980
-/+ Gain/loss on disposal of fixed assets	-5,904
+/- Interest expense/interest income	225,899
- Other investment income	-2,029
+/- Expenditure/Income of exceptional size and incidence	-60,814
+/- Interest payments/receipts related to interest other than for the provision of capital	1,700
+/- Income tax expense/income	164,172
- Cash payments relating to expenditure of exceptional size and incidence	-147,389
-/+ Income taxes paid	-182,343
	<b>102,639</b>
<b>2. Cash flows from investing activities</b>	
+ Proceeds from disposal of intangible fixed assets	559
- Payments to acquire intangible fixed assets	-12,874
+ Proceeds from disposal of tangible fixed assets	14,568
- Payments to acquire tangible fixed assets	-460,849
+ Proceeds from disposal of long-term financial assets	9,874
- Payments to acquire long-term financial assets	-1,642
+ Proceeds from disposals of entities included in the basis of consolidation	1
- Payments to acquire entities included in the basis of consolidation	-49,582
+ Cash receipts from the investment of cash funds for short-term cash management	52,583
- Cash payments for the investment of cash funds for short-term cash management	-51,814
+ Interest received	16,734
+ Dividends received	4,416
	<b>-478,026</b>

	2022
<b>3. Cash flows from financing activities</b>	
+ Proceeds from the issuance of bonds and from borrowings	471,588
– Cash repayments of bonds and borrowings	–691,955
+ Proceeds from grants / subsidies received	3,961
– Interest payment due to leasing agreements	–22
– Interest paid	–96,030
– Dividends paid to shareholders of the parent entity	–6,000
– Dividends paid to minority shareholders	–42,732
	<b>–361,190</b>
<b>4. Cash funds at end of period</b>	
Net change in cash funds (subtotals 1–3)	–736,577
+/- Effect on cash funds of exchange rate movements and remeasurements	–61,456
+/- Effect on cash funds of changes in the basis of consolidation	402
+ Cash funds at beginning of period	1,041,051
	<b>243,420</b>
Cash-in-hand, bank balances, and checks	1,109,722
– Bank balances with an initial term of more than 3 months	–21,410
+ Liabilities to banks with an initial term of less than 3 months	–47,261
<b>Cash funds at beginning of period</b>	<b>1,041,051</b>
<i>thereof from proportionately consolidated entities</i>	<i>39,442</i>
Cash-in-hand, bank balances, and checks	603,545
– Bank balances with an initial term of more than 3 months	–9,973
+ Liabilities to banks with an initial term of less than 3 months	–350,152
<b>Cash funds at end of period</b>	<b>243,420</b>
<i>thereof from proportionately consolidated entities</i>	<i>56,645</i>

The short-term liabilities which were netted against cash balances contained EUR 313,624k (previous year: EUR 20,692k) that were related to short-term liabilities based on a committed credit line with a remaining tenor of more than one year.

Cash funds amounting to EUR 5,620k that are restricted on disposal are included.

# Consolidated statement of changes in equity

From January 1 to December 31, 2022, in EUR '000

	PARENT COMPANY		
	Subscribed capital	Capital reserves	Retained earnings
<b>As at December 31, 2020</b>	<b>150,000</b>	<b>166,430</b>	<b>1,811,451</b>
Capital increase	0	0	0
Withdrawal from retained earnings	0	0	-93,252
Dividend distribution	0	0	0
Currency translation	0	0	0
Other items	0	0	11
Changes in the consolidation group	0	0	313
Consolidated net loss	0	0	0
<b>As at December 31, 2021</b>	<b>150,000</b>	<b>166,430</b>	<b>1,718,523</b>
Capital increase	0	0	0
Withdrawal from retained earnings	0	0	-223,469
Dividend distribution	0	0	0
Currency translation	0	0	0
Other items	0	0	-378
Changes in the consolidation group	0	0	-1,090
Consolidated net loss	0	0	0
<b>As at December 31, 2022</b>	<b>150,000</b>	<b>166,430</b>	<b>1,493,586</b>

<sup>1</sup>Including effects from hyperinflation adjustments for the countries Argentina and Türkiye in accordance with GAS 25

	Equity impact from currency translation <sup>1</sup>	Consolidated unappro- priated retained earnings	Total	Non-controlling interests <sup>1</sup>	Consolidated equity
	<b>-278,837</b>	<b>3,439</b>	<b>1,852,483</b>	<b>236,188</b>	<b>2,088,671</b>
	0	0	0	1,560	1,560
	0	93,252	0	0	0
	0	-3,300	-3,300	-16,657	-19,957
	98,227	0	98,227	8,360	106,587
	142	0	153	-19,108	-18,955
	-313	0	0	179	179
	0	-87,321	-87,321	-20,800	-108,121
	<b>-180,781</b>	<b>6,070</b>	<b>1,860,242</b>	<b>189,722</b>	<b>2,049,964</b>
	0	0	0	40	40
	0	223,469	0	0	0
	0	-6,000	-6,000	-46,103	-52,103
	18,031	0	18,031	3,145	21,176
	496	0	118	-9,466	-9,348
	1,090	0	0	0	0
	0	-218,362	-218,362	-113,943	-332,305
	<b>-161,164</b>	<b>5,177</b>	<b>1,654,029</b>	<b>23,395</b>	<b>1,677,424</b>

# Notes to the consolidated financial statements

## General information

The present consolidated financial statements of MAHLE GmbH are prepared in accordance with Section 290 et seq. of the German Commercial Code (HGB).

## Consolidation group

The consolidated financial statements include MAHLE GmbH (parent company), headquartered in Stuttgart/Germany and registered with the district court in Stuttgart (commercial register number 638), as well as 22 domestic and 127 foreign subsidiaries. Furthermore, 13 companies were consolidated proportionately according to the percentage of shares, and six companies were valued according to the equity method. The consolidated companies are included in the list of shareholdings.

The following company was fully consolidated for the first time during 2022:

— MAHLE Shared Services d.o.o. Beograd, Serbia, as of January 1

Two companies were merged in the reporting year.

One fully consolidated company was liquidated in the business year 2022.

In the business year, ten companies were excluded from the consolidated financial statements due to immateriality. Two companies were not valued according to the equity method due to their immateriality.

## Key changes to the consolidation group

During 2022, no significant changes occurred within the consolidation group.

## Exemption provisions for domestic companies

The following subsidiaries are applying the exemption according to Section 264, paragraph 3, respectively Section 264b HGB, with regard to the disclosure of their annual financial statements and/or the preparation of the management reports:

MAHLE Aftermarket GmbH, Stuttgart; MAHLE Aftermarket Deutschland GmbH, Schorndorf; MAHLE Beteiligungen GmbH, Stuttgart; MAHLE Blechtechnologie GmbH, Stuttgart; MAHLE Filtersysteme GmbH, Stuttgart; MAHLE Immobilien GmbH, Stuttgart; MAHLE Industrial Thermal Systems GmbH & Co. KG, Kornwestheim; MAHLE Industriebeteiligungen GmbH, Stuttgart; MAHLE Industriemotoren-Komponenten GmbH, Stuttgart; MAHLE International GmbH, Stuttgart; MAHLE Kleinmotoren-Komponenten GmbH & Co. KG, Stuttgart; MAHLE New Mobility Solutions GmbH, Kornwestheim; MAHLE Powertrain GmbH, Stuttgart; MAHLE Ventiltrieb GmbH, Stuttgart; MAHLE Versicherungsvermittlung GmbH, Stuttgart.

## Method of consolidation

Consolidated subsidiaries, using the book value method prior to December 31, 2009, will continue to be consolidated under the same method as in prior years. Thereby, the value of the investment held by the parent company, at the time of acquisition and first consolidation, is to be offset against the attributable share of the subsidiary's equity book value. In the case of companies that were consolidated for the first time from 2010 onward, the assets, liabilities, prepaid expenses, and deferred income acquired were revalued at fair value as part of the purchase price allocation at the time that the company became a subsidiary.

As at the balance sheet date, total goodwill of EUR 166,385k is disclosed, which contains goodwill of EUR 16,415k that occurred in the financial statements of the entities included in the consolidation group. Goodwill is amortized over ten years due to the relevant markets that are dominated by a small number of suppliers and have high barriers to market entry. These markets have shown that the average useful life of acquired goodwill is historically ten years. Additionally, the recoverability of goodwill is tested (impairment test) at least once a year to determine if an impairment exists according to GAS 23.129, sentence 1. Thereby, the amount of the write-down is determined by comparing the fair value of the investment in the subsidiary with the total of the carrying amount of the net assets held by the subsidiary in the consolidated financial statements and the net carrying amount of goodwill. In 2022, no goodwill impairments were necessary. As at the balance sheet date a carrying amount of badwill of EUR 63,380k is disclosed for the air conditioning business from former Keihin Corporation (now Hitachi Astemo, Ltd.) acquired in 2021. On the one hand, this badwill arose from losses expected to be incurred in subsequent business years.

The goodwill will be released to income in line with the losses incurred in subsequent business years. Another portion of goodwill was attributable to a favorable bargain purchase and will be released to income over the weighted average remaining useful life of the identified fixed assets. In 2022, an amount of EUR 40,031k was released.

In addition, MAHLE Beteiligungen GmbH increased its shareholding in MAHLE Behr GmbH & Co. KG from 70.71 to 75.71 percent and its shareholding in MAHLE Behr Verwaltung GmbH from 70.71 to 75.71 percent as at January 1, 2022, through the acquisition of shares from non-controlling shareholders. This resulted in goodwill of EUR 17,846k.

Thereby, the increase in shares in subsidiaries without affecting their status as subsidiaries was recognized as acquisition.

The result from the change in the equity value was disclosed in the consolidated income statement after deduction of income taxes.

The intra-group supply of goods and services as well as mutual receivables and liabilities were offset, and intercompany profits and losses were eliminated.

Deferred taxes resulting from consolidation measures with effect on income were recorded using a tax rate of 22 percent.

## Accounting and valuation principles

The existing accounting and valuation methods were retained.

Acquired intangible assets and property, plant, and equipment are valued at acquisition costs or manufacturing costs minus depreciation or amortization. Depreciation was performed on a straight-line basis using standard useful lives. If lower valuations were provided, impairments were recorded. Internally developed trademarks and similar rights and assets were not capitalized. Furthermore, the intangible assets contain hidden reserves disclosed as part of the purchase price allocation of the acquisitions. These comprise trademark rights, non-compete clauses, customer relationships, technological licenses, and development services. Depending on the categories, the useful lives for intangible assets were based on three to ten years.

Financial assets were stated at the lower of acquisition cost or fair value if the impairment is expected to be permanent.

Inventories are capitalized at acquisition cost or manufacturing cost. Unfinished and finished goods are valued by considering the appropriate share of material, production overhead, and depreciation of fixed assets. If the market prices or fair values were lower than the book values, or marketability was limited, devaluations were performed as necessary.

Receivables and other assets are recorded at nominal values. Appropriate write-downs are recorded to account for receivables with recognizable risks of nonpayment; a general valuation allowance is set up to cover the general credit risk.

Prepaid expenses were recorded for payments made before the balance sheet date for expenditures related to a specific time period after this date.

Provisions for taxes and other provisions are to adequately cover uncertain liabilities and anticipated losses from pending transactions. The valuation is based on the settlement amount taking into account necessary cost increases. Provisions with a remaining term of more than one year were discounted by using the average market interest rate of the past seven fiscal years provided by the German Central Bank. If appropriate, an average local market interest rate of the past seven years was determined for the remaining term in order to depict the actual economic situation for the discounting of obligations in foreign currency.

Provisions for pensions and similar obligations are calculated group-wide in accordance with actuarial principles (using the projected unit credit method) and discounted with the average rate of ten years in accordance with Section 253 HGB to present value. In 2022, the calculation was based on the following discount rates: domestic 1.07 to 1.92 percent, foreign 0.51 to 4.09 percent. The option to assume a standardized remaining term of 15 years was not utilized. Expected salary increases of 1.79 to 5.40 percent, anticipated labor turnover rates of 3.00 to 6.96 percent and for domestic companies a pension trend of 1.50 percent were taken into consideration. The mortality tables recognized in each country were used as a basis for the calculation.

Assets that serve exclusively to settle pension-related obligations and cannot be utilized to settle claims of any other creditors (plan

assets in the form of long-term securities) were offset against the provisions at their fair value. Excess amounts are recorded within the item "Excess of plan assets over post-employment benefit liability."

Liabilities are stated at their settlement amount.

Receivables, bank balances, and liabilities in foreign currency with a remaining term of less than one year were valued using the mid spot rate applicable at the balance sheet date. If the remaining term was more than one year, the valuation was based on the exchange rate applicable at the acquisition date or the lower or higher exchange rate at the balance sheet date.

Changes in exchange rates, commodity price variations, and interest rates represent a risk to operational business that is very difficult to estimate. To minimize this risk, appropriate hedging transactions such as derivatives are used. These transactions are only established with banks that have a prime credit rating. Their use is based on standard guidelines, subject to strict internal controls, and restricted to the hedging of operational business as well as that of related investments and financing activities.

If effective hedging relationships existed between the underlying operating transactions and/or highly probable transactions (basically future deliveries of goods and services) and the currency or interest hedging transaction, they were combined into a hedge accounting evaluation unit and valued together under the so-called "net hedge presentation method" (Einfrierungsmethode).

Deferred income has been recorded for payments received prior to the balance sheet date for income related to a specific time period after this date.

Deferred tax assets and liabilities are set up to account for all temporary and quasi-permanent differences between financial reporting balance sheets according to the German Commercial Code (HGB) and tax values. Furthermore, deferred taxes for tax loss and interest carry forwards and tax credits were capitalized, provided the tax benefit was reasonably recoverable within the next five years. Deferred taxes were determined using tax rates that are expected to apply at the time of recovery and are based on the regulations adopted at the balance sheet date. Deferred tax assets and liabilities are presented as a net value. The tax rates fall within a range of 5.00 to 35.00 percent.

## Currency conversion

The financial statements of foreign companies were, if not prepared in euro, converted as follows:

### Equity:

In accordance with the regulations of GAS 25

### Other balance sheet items:

Spot rate (average between bid and ask) at the balance sheet date

### Income statement items:

Average exchange rate for the year

Exchange rate differences in connection with the use of the closing rate method were shown as "Currency translation Jan. 1" within the consolidated statement of fixed assets. Differences arising from the conversion of movements during the current year were shown in a separate column.

Any difference arising from the translation of the balance sheet items into euro was included under "Equity impact from currency translation" in the consolidated shareholders' equity.

The "thereof" information on currency conversion in the income statement includes both unrealized and realized exchange rate differences.

For the company in the hyperinflation country Argentina and for the first time for two companies in the hyperinflation country Türkiye, the financial statements were prepared based on a general price index in accordance with GAS 25.

# Notes to the consolidated balance sheet

## Receivables and other assets

in EUR '000	Dec. 31, 2022	
	Carrying amount	Thereof with a remaining term of more than 1 year
Accounts receivables		
<i>Trade receivables</i>	1,957,390	525
<i>Receivables from affiliated companies</i>	9,054	814
<i>Receivables from companies in which investments are held</i>	757	0
Other assets	612,609	49,757
<b>Total</b>	<b>2,579,810</b>	<b>51,096</b>

During the previous year, trade receivables (EUR 1,042k), receivables from affiliated companies (EUR 843k) as well as other assets (EUR 10,188k) had a remaining term of more than one year.

Trade receivables are included in the amount of EUR 859k (previous year: EUR 38k) from affiliated companies and EUR 757k (previous year: EUR 988k) from companies in which investments are held.

Only other assets contain receivables against shareholders amounting to EUR 2k (previous year: EUR 58k). Prepaid expenses do not include the differences between net loan proceeds and liabilities to banks (debt discounts) (previous year: EUR 88k).

## Equity

The consolidated unappropriated retained earnings equal those of the parent company and contain the amount carried forward from the previous year of EUR 70k.

## Provisions for pensions and similar obligations as well as other provisions

Notes for offsetting pursuant to Section 246, paragraph 2, sentence 2 HGB:

in EUR '000	Dec. 31, 2022	
		Carrying amount
Settlement amount of offset liabilities		571,243
Acquisition costs of assets		148,513
Fair value of assets		278,362
Offset income		320
Offset expenses		695

The difference for discounting with the seven-year average rate according to Section 253, paragraph 6, sentence 1 HGB amounts to EUR 44,029k.

Other provisions primarily relate to outstanding credit notes and rebates, outstanding purchase invoices, guarantee and warranty risks, as well as obligations arising from restructuring and employment contracts. The revaluation of provisions for restructuring measures resulted in an overall positive income of exceptional size and incidence amounting to EUR 18,651k.

## Liabilities

in EUR '000	Dec. 31, 2022			
	Carrying amount	With a remaining term of up to 1 year	With a remaining term of more than 1 year	Thereof with a remaining term of more than 5 years
Bonds	780,000	0	780,000	750,000
Liabilities to banks	1,501,772	255,120	1,246,652	210,994
Payments received on account of orders	10,395	10,395	0	0
Trade payables	1,369,198	1,366,421	2,777	13
Liabilities on bills accepted and drawn	58,973	58,973	0	0
Liabilities				
<i>to affiliated companies</i>	1,163	1,163	0	0
<i>to companies in which investments are held</i>	2,641	2,641	0	0
Other liabilities	299,455	278,466	20,989	11,045
<b>Total</b>	<b>4,023,597</b>	<b>1,973,179</b>	<b>2,050,418</b>	<b>972,052</b>

During the previous year, liabilities to banks (EUR 128,024k), payments received on account of order (EUR 10,588k), trade payables (EUR 1,255,718k), liabilities on bills accepted and drawn (EUR 64,535k), liabilities to affiliated companies (EUR 772k), liabilities to companies in which investments are held (EUR 2,372k), and other liabilities (EUR 264,215k) had a remaining term of up to one year.

The liabilities to affiliated companies contain trade payables of EUR 143k (previous year: EUR 118k). The liabilities to companies in which investments are held contain trade payables of EUR 162k (previous year: EUR 461k).

The liabilities contain payables to shareholders amounting to EUR 60k (previous year: EUR 0k).

No bank liabilities are secured by property liens or similar rights (previous year: EUR 0k).

## Deferred taxes

Deferred tax assets arise predominantly from differing accounting treatment of intangible assets, property, plant, and equipment, and provisions. The temporary differences in provisions essentially include different carrying amounts between the tax balance sheet and the consolidated balance sheet related to provisions for pensions and similar obligations and provisions that are not tax-deductible, such as provisions for anticipated losses.

The deferred tax liabilities result predominantly from temporary differences relating to tangible fixed assets and plan assets due to different depreciation methods and carrying amounts in the tax and consolidated balance sheet. In addition, the identified fair values disclosed as part of the purchase price allocations of the acquisitions lead to deferred tax liabilities, in particular in intangible fixed assets.

Deferred tax assets were set up for tax loss carry forwards that are recoverable within five years. As at December 31, 2022 an allowance for deferred tax assets on temporary differences is included, as their realization is not deemed sufficiently likely.

## Off-balance-sheet transactions

As at the balance sheet date, off-balance-sheet transactions exist in connection with significant rental and leasing agreements in particular for buildings and land (EUR 147,918k). Moreover, off-balance-sheet transactions are in place in connection with factoring (EUR 80,513k). These off-balance-sheet transactions led to a diversification of financing sources as at the balance sheet date. Through these transactions, cash outflows are generally postponed into the future.

No material risks are anticipated from these transactions.

## Contingent liabilities

	Dec. 31, 2022
in EUR '000	Carrying amount
Contingents from notes	4,930
Guarantees	100

To our knowledge, the underlying obligations can be fulfilled in all cases by the companies concerned. We do not expect the contingent liabilities to be claimed.

The contingent liabilities do not include any obligations concerning retirement benefits.

## Other financial obligations

	Dec. 31, 2022
in EUR '000	Carrying amount
Purchase commitments from investments	305,670
Financial obligations resulting from rent and lease agreements	99,580
Others	70,946
<i>thereof to affiliated companies</i>	168

The other financial obligations do not include any obligations concerning retirement benefits.

## Notes to the consolidated income statement

The income statement of the MAHLE Group has been prepared according to the cost of sales method. Sales are thus matched with the expenses incurred in their realization, which are allocated in principle to the Production, Sales, General Administration, and Research and Development functions.

The cost of sales comprises the material and production costs incurred in the realization of sales, the landed costs of the trade business, and the costs of the allocation to provisions for warranties. Furthermore, this item also contains depreciation and amortization on the hidden reserves disclosed as part of the purchase price allocations of the acquisitions. These include technologies, technical equipment and machinery, as well as land and buildings.

The selling expenses include, in particular, personnel and non-personnel expenses, depreciation allocated to the Sales function, as well as logistics, market research, sales promotion, shipping and handling, and advertising costs. Furthermore, they also contain amortization on the hidden reserves disclosed as part of the purchase price allocations of the acquisitions. These include trademark rights, non-compete clauses, and customer relationships.

The general administration expenses include personnel and non-personnel expenses as well as depreciation allocated to the General Administration function.

The personnel and non-personnel expenses and depreciation allocated to the Research and Development function are of substantial significance to the MAHLE Group. In order to present the economic situation of the Group more clearly, they have been included as a separate item in the breakdown.

Other operating income contains EUR 199,606k income related to other periods. This income is mainly related to the reversal of provisions. Income from financing includes gains of EUR 34,452k (previous year: EUR 39,997k) from currency translation and gains of EUR 255k (previous year: EUR 0k) from financial instruments. Income related to other periods includes income of exceptional size and incidence from the release of provisions for restructuring. Furthermore, other operating income contains income of exceptional size and incidence from the release of goodwill of EUR 40,031k.

Other operating expenses contain EUR 4,600k expenses relating to other periods. These expenses are mainly related to disposals of depreciable fixed assets. Expenses from financing include losses of EUR 48,171k (previous year: EUR 43,388k) from currency translation and expenses of EUR 1,454k (previous year: EUR 4,414k) from financial instruments.

The functional areas include expenditure of exceptional size and incidence for additions to provisions for restructuring measures.

## Sales by area of operation

in EUR '000	2022
Engine Systems and Components business unit	2,593,238
Filtration and Engine Peripherals business unit	2,031,688
Thermal Management business unit	4,477,446
Electronics and Mechatronics business unit	1,352,829
Aftermarket business unit	1,219,306
Profit centers and services	759,317
<b>Total</b>	<b>12,433,824</b>

## Sales by geographical market (target area)

in EUR '000	2022
Europe	5,182,413
North America	3,686,287
South America	752,120
Asia/Pacific	2,724,280
Africa	88,724
<b>Total</b>	<b>12,433,824</b>

## Personnel expenses

in EUR '000	2022
Wages and salaries	2,375,489
Social security expenses	529,066
Old age pension expenses	54,596
<b>Total</b>	<b>2,959,151</b>

## Depreciation, amortization, and impairments of intangible and tangible fixed assets

in EUR '000	2022
<b>Total</b>	<b>611,051</b>
<i>thereof impairments</i>	<i>371</i>

## Subsequent valuation of the purchase price allocation for the acquisitions\*

in EUR '000	2022
Depreciation and amortization within cost of sales	54,335
Amortization within selling expenses	10,504
Release of subsidies within other operating income	13,227
Amortization of goodwill	48,721
Release of badwill	40,031

\* Concerns MAHLE Behr, former Delphi Thermal entities, former Keihin Thermal entities, MAHLE Electric Drives, MAHLE Electronics, and former BHS entities.

For a better presentation, amortization of goodwill and release of badwill were included in the table compared to previous year.

## Other notes

### Average annual number of employees\*

	2022
Direct employees	39,213
Indirect employees	31,756
<b>Total</b>	<b>70,969</b>

\* Excluding apprentices

The total average annual number of employees includes a pro rata figure of 2,283 employees from proportionately consolidated companies.

## Derivatives

Derivatives in accordance with Sections 285 and 314 HGB not yet settled as at the balance sheet date can be broken down as follows:

in EUR '000	Dec. 31, 2022	Dec. 31, 2022
	Nominal amounts*	Fair value**
Transactions relating to currency	2,869,792	25,474
Transactions relating to commodities	15,870	1,062

\* The nominal amounts of the derivative financial instruments are based on absolute values, i.e., long and short positions are added with their nominal values.

\*\* The fair value of currency and commodity related transactions corresponds to the market value of the derivatives as at the balance sheet date, which is identified in accordance with the net present value method.

The derivative contracts as at December 31, 2022, are placed in relation to third parties exclusively with banks. Evaluation units were established for currency hedging transactions with an effective relationship to the underlying transaction. Provisions of EUR 1,060k were set up for all other hedging transactions that have resulted in anticipated losses.

## Evaluation units

For two intercompany loans in transaction currency USD, an evaluation unit was created with German private placement loans in USD (Schuldscheindarlehen) with identical amounts and matching maturities (natural hedge). As the positions are countervailing, the effectiveness of the hedging relationship is ensured. The volume in transaction currency is USD 213,000k.

The following evaluation units were created from derivatives and are shown with their netted values:

in EUR '000	Type of evaluation unit	Dec. 31, 2022	Balance sheet item
		Amount of hedged transaction	
<b>Currency exposure</b>			
Recorded values	Portfolio hedge	85,222	Trade receivables
	Portfolio hedge	23,685	Bank balances
	Portfolio hedge	-255,106	Liabilities to banks
	Portfolio hedge	-88,595	Trade payables
Remaining currency exposure from eliminated transactions with affiliated companies	Portfolio hedge	1,398,615	
Future transactions	Portfolio hedge	-157,824	

in '000	Dec. 31, 2022
	Volume of hedges
<b>Currency exposure in transaction currency</b>	
CAD	-22,683
CHF	7,500
CNH	-25,610
CNY	-343,019
CZK	81,425
EUR	-19,224
GBP	-17,457
HUF	7,265,703
JPY	8,318,043
MXN	-345,334
PLN	233,826
RON	-67,328
RUB	929,997
THB	1,005,840
TRY	-72,908
USD	1,016,701
ZAR	245,640

The changes in value in the underlying and hedging transactions are offset during the hedging horizon, since risk positions (underlying transactions recognized on the balance sheet) are immediately hedged by means of forward exchange transactions of the same amount, in the same currency, and with the same maturity period in accordance with the guidelines of the Group risk management.

The risk of potential future changes in cash flows arising from highly probable underlying transactions, basically future deliveries of goods and services, is offset by using hedging transactions. The hedge ratio of such future transactions is reduced over time; the further such transactions are in the future. The hedging horizon for currency-related hedging transactions that are included in hedge accounting relationships is generally two years. Past experience has shown that this strategy has led to an effective hedging of cash flows in forecast evaluation units.

The hedging quota of a planned exposure increases over its lifetime. When the planned exposure finally turns into a booked exposure it will have been hedged fully via consecutive individual hedging steps. At this stage, the exposure is hedged via a portfolio of individual hedges that have been added gradually over time. At any given point in time, a number of individual booked exposures can mature, each with their own portfolio of hedges covering the exposure. The entirety of several booked exposures with their respective hedges creates a portfolio hedge.

The critical term match method is used to measure the effectiveness of the hedging relationship.

## Report on post-balance sheet date events

No further events with a retroactive effect on the consolidated financial statements occurred after the end of the reporting period.

Against the background of the macroeconomic and geopolitical situation, a challenging market environment will remain for the business year 2023. The resulting effects on global economic momentum and on the automotive markets are difficult to assess. The various challenges posed by the changed economic conditions, especially rising energy prices and wage costs, will lead to further burdens. Accordingly, these factors may have an impact on our sales figures and results, which cannot be reliably estimated at the time of preparing this report.

## Appropriation of earnings

### Unappropriated retained earnings

in EUR '000	2022
Net loss MAHLE GmbH	-84,480
Withdrawal from retained earnings	89,587
Amount carried forward from prior year	70
<b>Unappropriated retained earnings MAHLE GmbH</b>	<b>5,177</b>

### Proposed utilization of retained earnings

in EUR '000	2022
Unappropriated retained earnings	5,177
Dividend distribution to MAHLE-Stiftung GmbH	-5,100
<b>Carry forward to new account</b>	<b>77</b>

## Remuneration of the members of the Management Board of MAHLE GmbH (parent company)

in EUR '000	2022
Supervisory Board	816
Management Board	17,138

The total remuneration of the Management Board comprises fixed and variable components as well as severance payments. The fixed portions for 2022 amounted to EUR 5,158k, while EUR 11,933k is attributable to the variable compensation for 2022 and severance payments. The remuneration shown also includes an adjustment for the previous year. The fixed portions include benefits in kind, which consist primarily of the noncash benefits of having company cars. Expenses for pension entitlements earned by active members of the Management Board in the current business year amount to EUR 676k. The entitlement to other long-term benefits attributable to the business year (included in the above-mentioned fixed remuneration) amounts to EUR 619k.

Remunerations paid to former members of the Management Board and their descendants totaled EUR 2,736k.

An amount of EUR 36,309k is set aside for this group of persons in the pension provision as at December 31, 2022.

## Auditor's fee

The total auditor's fee recorded as expense for 2022 for the Group auditor PricewaterhouseCoopers GmbH, pursuant to Section 314, paragraph 1, number 9 HGB consists of the following:

in EUR '000	2022
Services for audit of financial statements	957
Other assurance services	72
Tax advisory services	247
Other services	2,438
<b>Total</b>	<b>3,714</b>

Stuttgart/Germany, March 17, 2023

The Management Board of MAHLE GmbH



Arnd Franz



Jumana Al-Sibai



Dr. Beate Bungartz



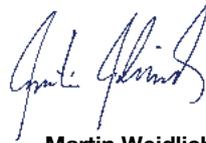
Georg Dietz



Wilhelm Emperhoff



Markus Kapaun



Martin Weidlich

# Consolidated statement of fixed assets

From January 1 to December 31, 2022, in EUR '000

	Acquisition/manufacturing costs							
	BUSINESS YEAR 2022							
	Jan. 1, 2022	Jan. 1, 2022						Dec. 31, 2022
Accumulated acquisition/manufacturing costs	Currency translation	Changes at the Group	Additions	Disposals	Reclassifications	Currency translation of current year <sup>3</sup>	Accumulated acquisition/manufacturing costs	
<b>I. Intangible assets</b>								
1. Purchased concessions, industrial and similar rights and assets, as well as licences in such rights and assets	822,334	-1,428	0	57,887	258,085	1,976	441	623,125
2. Goodwill	478,731	0	75	18,098	3	0	0	496,901
3. Prepayments	706	1	0	62	7	-200	0	562
	<b>1,301,771</b>	<b>-1,427</b>	<b>75</b>	<b>76,047</b>	<b>258,095</b>	<b>1,776</b>	<b>441</b>	<b>1,120,588</b>
<b>II. Property, plant, and equipment</b>								
1. Land, leasehold rights, and buildings including buildings on third-party land	1,767,307	10,799	0	27,725	5,873	49,233	1,586	1,850,777
2. Technical equipment and machinery	5,998,186	44,150	0	94,192	132,107	215,224	26,636	6,246,281
3. Other equipment, fixtures, and furniture	544,863	2,107	0	21,163	12,087	12,332	2,172	570,550
4. Prepayments and assets under construction	448,755	2,059	0	318,363	2,605	-278,565	414	488,421
	<b>8,759,111</b>	<b>59,115</b>	<b>0</b>	<b>461,443</b>	<b>152,672</b>	<b>-1,776</b>	<b>30,808</b>	<b>9,156,029</b>
<b>III. Financial assets</b>								
1. Shares in affiliated companies	12,336	1,060	-508	103	1,121	0	25	11,895
2. Shares in associated companies	41,682	0	0	0	4,066 <sup>1</sup>	-11,561	-538	25,517
3. Equity investments	5,800	229	0	7	613	11,585	-1,164	15,844
4. Loans to companies in which participations are held	90	0	0	0	0	0	0	90
5. Long-term securities	17,765	238	0	934	5,511	0	2	13,428
6. Other loans	69,446	-14	0	2,958	1,199	-24	12	71,179
	<b>147,119</b>	<b>1,513</b>	<b>-508</b>	<b>4,002</b>	<b>12,510</b>	<b>0</b>	<b>-1,663</b>	<b>137,953</b>
	<b>10,208,001</b>	<b>59,201</b>	<b>-433</b>	<b>541,492</b>	<b>423,277</b>	<b>0</b>	<b>29,586</b>	<b>10,414,570</b>

<sup>1</sup> Includes results from continuation of equity approach as well as disposal due to dividend payments

<sup>2</sup> Thereof shares in affiliated companies measured according to the equity method: EUR 664k

<sup>3</sup> Including effects from hyperinflation adjustments for the countries Argentina and Türkiye in accordance with GAS 25

Depreciation/amortization									Carrying amounts		
BUSINESS YEAR 2022									Dec. 31, 2022	Dec. 31, 2022	Dec. 31, 2021
Jan. 1, 2022	Jan. 1, 2022										
Accumulated depreciation/amortization	Currency translation	Changes at the Group	Depreciation/amortization of the business year	Write-ups of the business year	Disposals	Reclassifications	Currency translation of current year <sup>3</sup>	Accumulated depreciation/amortization	Carrying amounts	Carrying amounts	
655,786	-939	0	73,479	0	257,470	0	411	471,267	151,858	166,548	
281,797	0	0	48,721	0	2	0	0	330,516	166,385	196,934	
0	0	0	0	0	0	0	0	0	562	706	
<b>937,583</b>	<b>-939</b>	<b>0</b>	<b>122,200</b>	<b>0</b>	<b>257,472</b>	<b>0</b>	<b>411</b>	<b>801,783</b>	<b>318,805</b>	<b>364,188</b>	
825,130	4,414	0	53,875	0	4,460	-609	84	878,434	972,343	942,177	
4,524,260	35,059	0	391,423	1,051	126,924	-332	20,082	4,842,517	1,403,764	1,473,926	
390,427	1,610	0	43,314	0	11,255	1,125	1,617	426,838	143,712	154,436	
11,387	-153	0	239	0	711	-184	19	10,597	477,824	437,368	
<b>5,751,204</b>	<b>40,930</b>	<b>0</b>	<b>488,851</b>	<b>1,051</b>	<b>143,350</b>	<b>0</b>	<b>21,802</b>	<b>6,158,386</b>	<b>2,997,643</b>	<b>3,007,907</b>	
9,402	1,196	0	36	0	61	0	-1	10,572	1,323	2,934	
0	0	0	0	0	0	0	0	0	25,517 <sup>2</sup>	41,682	
0	0	0	0	0	0	0	0	0	15,844	5,800	
0	0	0	0	0	0	0	0	0	90	90	
1,356	26	0	85	397	753	0	6	323	13,105	16,409	
57,136	4	0	3,171	0	0	0	0	60,311	10,868	12,310	
<b>67,894</b>	<b>1,226</b>	<b>0</b>	<b>3,292</b>	<b>397</b>	<b>814</b>	<b>0</b>	<b>5</b>	<b>71,206</b>	<b>66,747</b>	<b>79,225</b>	
<b>6,756,681</b>	<b>41,217</b>	<b>0</b>	<b>614,343</b>	<b>1,448</b>	<b>401,636</b>	<b>0</b>	<b>22,218</b>	<b>7,031,375</b>	<b>3,383,195</b>	<b>3,451,320</b>	

# Shareholdings

Shareholdings in companies included in consolidation, associated companies, proportionately consolidated companies, and other companies which serve the permanent business operations.

As at December 31, 2022

Name and location	Share in equity in %
PARENT COMPANY	
MAHLE GmbH, Stuttgart/Germany	
<b>1. Fully consolidated subsidiaries</b>	
<b>a) Fully consolidated subsidiaries of MAHLE GmbH with direct shareholding quota</b>	
MAHLE Aftermarket Deutschland GmbH, Schorndorf/Germany	100.00
MAHLE Aftermarket France SAS, Décines/France	100.00
MAHLE Aftermarket GmbH, Stuttgart/Germany	100.00
MAHLE Aftermarket Inc., Farmington Hills, Michigan/USA	100.00
MAHLE Aftermarket Italy S.p.A., Parma/Italy	100.00
MAHLE Aftermarket Ltd., Northampton/United Kingdom	100.00
MAHLE Aftermarket Otomotiv Ticaret Anonim Şirketi, İzmir/Türkiye	100.00
MAHLE Aftermarket Pte. Ltd., Singapore/Singapore	100.00
MAHLE Aftermarket S. de R.L. de C.V., Lerma/Mexico	100.00
MAHLE Aftermarket S.L.U., Torrejón de Ardoz/Spain	100.00
MAHLE Aftermarket South Africa (Pty) Ltd., Johannesburg/South Africa	100.00
MAHLE ANAND Filter Systems Private Limited, New Delhi/India	50.00 <sup>1</sup>
MAHLE Anéis Participações Ltda., Mogi Guaçu/Brazil	100.00
MAHLE Automotive Technologies (China) Co., Ltd., Shanghai/China	100.00
MAHLE Automotive Technologies (Suzhou) Co., Ltd., Changshu/China	100.00
MAHLE Behr GmbH & Co. KG, Stuttgart/Germany	77.46
MAHLE Behr Verwaltung GmbH, Stuttgart/Germany	75.71
MAHLE Beteiligungen GmbH, Stuttgart/Germany	100.00
MAHLE Blechtechnologie GmbH, Stuttgart/Germany	100.00
MAHLE Componente de Motor SRL, Timisoara/Romania	100.00
MAHLE Componentes de Motor de México, S. de R.L. de C.V., Ramos Arizpe/Mexico	100.00
MAHLE Componentes de Motores S.A., Murteide/Portugal	100.00
MAHLE Componenti Motori Italia Srl, Grugliasco/Italy	100.00
MAHLE Composants Moteur France SAS, Chavanod/France	100.00
MAHLE Compresores, S. de R.L. de C.V., Juarez/Mexico	100.00
MAHLE Compressores do Brasil Ltda., Jaguariúna/Brazil	100.00
MAHLE Compressors Hungary Kft., Balassagyarmat/Hungary	100.00
MAHLE de México S. de R.L. de C.V., Ramos Arizpe/Mexico	100.00
MAHLE Donghyun Filter Systems Co., Ltd., Hwasung/South Korea	100.00
MAHLE Smartbike Systems S.L.U., Palencia/Spain	100.00
MAHLE Electric Drives (Taicang) Co., Ltd., Taicang City/China	99.87
MAHLE Electric Drives Bosnia d.o.o., Laktaši/Bosnia and Herzegovina	100.00
MAHLE Electric Drives Bovec d.o.o., Bovec/Slovenia	100.00

As at December 31, 2022

Name and location	Share in equity in %
MAHLE Electric Drives India Private Limited, Coimbatore/India	94.46
MAHLE Electric Drives Italy S.r.l., Reggio Emilia/Italy	100.00
MAHLE Electric Drives Japan Corporation, Numazu-shi, Shizuoka/Japan	100.00
MAHLE Electric Drives Komen d.o.o., Komen/Slovenia	100.00
MAHLE Electric Drives Slovenija d.o.o., Šempeter pri Gorici/Slovenia	100.00
MAHLE Electronics & Mechatronics Technology (Suzhou) Co., Ltd, Changshu/China	100.00
MAHLE Electronics S.L.U., Motilla del Palancar/Spain	100.00
MAHLE Engine Components (Chongqing) Co., Ltd., Chongqing/China	100.00
MAHLE Engine Components (Nanjing) Co., Ltd., Nanjing/China	100.00
MAHLE Engine Components (Thailand) Co., Ltd., Bangkok/Thailand	99.75
MAHLE Engine Components (Yingkou) Co., Ltd., Yingkou/China	100.00
MAHLE Engine Components India Private Limited, Pithampur/India	100.00
MAHLE Engine Components Japan Corporation, Okegawa-shi/Japan	100.00
MAHLE Engine Components Slovakia s.r.o., Dolný Kubín/Slovakia	100.00
MAHLE Engine Components USA, Inc., Morristown, Tennessee/USA	100.00
MAHLE Engine Systems UK Ltd., Northampton/United Kingdom	100.00
MAHLE Engineering Services India Private Limited, Pune/India	40.00 <sup>2</sup>
MAHLE Filter Systems (Tianjin) Co., Ltd., Tianjin/China	100.00
MAHLE Filter Systems Canada, ULC, Tilbury/Canada	100.00
MAHLE Japan Ltd., Tokyo/Japan	100.00
MAHLE Filter Systems North America, Inc., Troy, Michigan/USA	100.00
MAHLE Filter Systems Philippines Corporation, Cavite/Philippines	100.00
MAHLE Filter Systems UK Ltd., Northampton/United Kingdom	100.00
MAHLE Filtersysteme Austria GmbH, St. Michael ob Bleiburg/Austria	100.00
MAHLE Filtersysteme France SAS, Seboncourt/France	100.00
MAHLE Filtersysteme GmbH, Stuttgart/Germany	100.00
MAHLE Filtration Systems (Hubei) Co., Ltd., Wuhan/China	100.00
MAHLE Filtre Sistemleri A.S., Gebze/Türkiye	100.00
MAHLE France SAS, Rouffach/France	100.00
MAHLE Guangzhou Filter Systems Co., Ltd., Guangzhou/China	100.00
MAHLE Holding (China) Co., Ltd., Shanghai/China	100.00
MAHLE Holding (India) Private Limited, Pune/India	100.00
MAHLE Holding Austria GmbH, St. Michael ob Bleiburg/Austria	100.00
MAHLE Holding España S.L.U., Montblanc/Spain	100.00
MAHLE Immobilien GmbH, Stuttgart/Germany	100.00
MAHLE Immobilien Schweiz AG, Grenchen/Switzerland	100.00
MAHLE Indústria e Comércio Ltda., Mogi Guaçu/Brazil	100.00
MAHLE Industrial Thermal Systems GmbH & Co. KG, Kornwestheim/Germany	60.00 <sup>2</sup>

As at December 31, 2022

Name and location	Share in equity in %
MAHLE Industriebeteiligungen GmbH, Stuttgart/Germany	100.00
MAHLE Industriemotoren-Komponenten GmbH, Stuttgart/Germany	100.00
MAHLE Industries UK Ltd., Northampton/United Kingdom	100.00
MAHLE Industries, Incorporated, Farmington Hills, Michigan/USA	100.00
MAHLE International GmbH, Stuttgart/Germany	100.00
MAHLE Kleinmotoren-Komponenten GmbH & Co. KG, Stuttgart/Germany	100.00
MAHLE Luxembourg Sàrl, Luxembourg/Luxembourg	100.00
MAHLE Manufacturing Management, Inc., Farmington Hills, Michigan/USA	100.00
MAHLE Manufacturing Service Japan Corporation, Tokyo/Japan	100.00
MAHLE Metal Leve S.A., Mogi Guaçu/Brazil	70.00
MAHLE Motor Parçaları San. ve Tic. A.Ş., Izmir/Türkiye	100.00
MAHLE Polska Spółka z o.o., Krotoszyn/Poland	100.00
MAHLE Powertrain, LLC, Plymouth, Michigan/USA	100.00
MAHLE Powertrain GmbH, Stuttgart/Germany	100.00
MAHLE Powertrain Ltd., Northampton/United Kingdom	100.00
MAHLE RUS, OOO, Dobrino/Russia	100.00
MAHLE S.A.U., Vilanova i la Geltrú/Spain	100.00
MAHLE Services (Thailand) Ltd., Samut Prakan/Thailand	100.00
MAHLE Shanghai Filter Systems Co., Ltd., Shanghai/China	95.00
MAHLE Shared Services México, S. de R.L. de C.V., Monterrey/Mexico	100.00
MAHLE Shared Services Poland Spółka z o.o., Wrocław/Poland	100.00
MAHLE Shared Services d.o.o. Beograd, Belgrade/Serbia	100.00
MAHLE Siam Electric Drives Co. Ltd., Samut Prakan/Thailand	100.00
MAHLE Siam Filter Systems Co., Ltd., Samut Prakan/Thailand	74.90
MAHLE Sistemas de Filtración de México S.A. de C.V., Monterrey/Mexico	100.00
MAHLE Trading (Shanghai) Co., Ltd., Shanghai/China	100.00
MAHLE Trading Japan Co., Ltd., Tokyo/Japan	100.00
MAHLE Tri-Ring Valve Train (Hubei) Co., Ltd., Macheng/China	65.00
MAHLE Ventiltrieb GmbH, Stuttgart/Germany	100.00
MAHLE Versicherungsvermittlung GmbH, Stuttgart/Germany	100.00
MAHLE Vöcklabruck GmbH, Vöcklabruck/Austria	100.00
MAHLE ZG Transmissions GmbH, Eching/Germany	100.00
MG Immobilienentwicklungs- und Ansiedlungsgesellschaft mbH, St. Michael ob Bleiburg/Austria	100.00
MAHLE New Mobility Solutions GmbH, Kornwestheim/Germany	100.00
OSCON, LLC, Wilmington, Delaware/USA	100.00
PT. MAHLE Indonesia, Pasirranji/Indonesia	99.92

As at December 31, 2022

Name and location	Share in equity in %
<b>b) Fully consolidated subsidiaries of MAHLE Behr GmbH &amp; Co. KG with direct shareholding quota</b>	
MAHLE ANAND Thermal Systems Private Limited, Chakan/India	60.00
MAHLE Behr Berga GmbH, Stuttgart/Germany	100.00
MAHLE Behr Charleston Inc., Charleston, South Carolina/USA	100.00
MAHLE Behr Components Spain S.L.U., L'Espluga de Francolí/Spain	100.00
MAHLE Behr Dayton L.L.C., Dayton, Ohio/USA	100.00
MAHLE Behr France Hambach S.A.S., Hambach/France	100.00
MAHLE Behr France Rouffach S.A.S., Rouffach/France	100.00
MAHLE Behr Gerenciamento Térmico Brasil Ltda., Arujá/Brazil	100.00
MAHLE Behr Holding GmbH, Stuttgart/Germany	100.00
MAHLE Behr Holýšov s.r.o., Holýšov/Czech Republic	100.00
MAHLE Behr Italy s.r.l., Grugliasco/Italy	100.00
MAHLE Behr Japan K.K., Tokyo/Japan	100.00
MAHLE Behr Kirchberg GmbH, Kirchberg/Germany	100.00
MAHLE Behr Korea Inc., Busan/South Korea	100.00
MAHLE Behr Manufacturing Management, Inc., Troy, Michigan/USA	100.00
MAHLE Behr Mexico, S. de R.L. de C.V., Ramos Arizpe/Mexico	100.00
MAHLE Behr Mnichovo Hradiště s.r.o., Mnichovo Hradiště/Czech Republic	100.00
MAHLE Behr Mt Sterling Inc., Mount Sterling, Ohio/USA	100.00
MAHLE Behr Námestovo s.r.o., Námestovo/Slovakia	100.00
MAHLE Behr Ostrava s.r.o., Mošnov/Czech Republic	100.00
MAHLE Behr Ostrov s.r.o., Mnichovo Hradiště/Czech Republic	100.00
MAHLE Behr Ostrów Wielkopolski Sp. z o.o., Ostrów Wielkopolski/Poland	100.00
MAHLE Behr Rio Bravo, S. de R.L. de C.V., Ramos Arizpe/Mexico	100.00
MAHLE BEHR RUS LLC, St. Petersburg/Russia	100.00
MAHLE Behr Senica s.r.o., Senica/Slovakia	100.00
MAHLE Behr Service America L.L.C., Troy, Michigan/USA	100.00
MAHLE Behr Service Asia Co., Ltd., Shanghai/China	100.00
MAHLE Behr Service GmbH, Stuttgart/Germany	100.00
MAHLE Behr Service Mexico, S. de R.L. de C.V., Ramos Arizpe/Mexico	100.00
MAHLE Behr South Africa (Pty) Ltd., Durban/South Africa	100.00
MAHLE Behr Spain S.A.U., Montblanc/Spain	100.00
MAHLE Behr Thermal Systems (Jinan) Co., Ltd., Jinan/China	100.00
MAHLE Behr Thermal Systems (Qingdao) Co., Ltd., Qingdao/China	100.00
MAHLE Behr Thermal Systems (Thailand) Company Limited, Thanu/Thailand	100.00
MAHLE Behr USA Inc., Troy, Michigan/USA	100.00
MAHLE Engineering Services India Private Limited, Pune/India	60.00 <sup>2</sup>
MAHLE Industrial Thermal Systems GmbH & Co. KG, Kornwestheim/Germany	40.00 <sup>2</sup>

As at December 31, 2022

Name and location	Share in equity in %
<b>c) Fully consolidated subsidiaries of MAHLE Metal Leve S.A. with direct shareholding quota</b>	
MAHLE Argentina S.A., Rafaela/Argentina	100.00
MAHLE Filtroil Indústria e Comércio de Filtros Ltda., Mogi Guaçu/Brazil	60.00
MAHLE Hirschvogel Forjas S.A., Queimados/Brazil	51.00
MAHLE Metal Leve GmbH, St. Michael ob Bleiburg/Austria	100.00
<b>d) Fully consolidated subsidiaries of MAHLE Industrial Thermal Systems GmbH &amp; Co. KG with direct shareholding quota</b>	
MAHLE Industrial Thermal Systems (Tianjin) Co., Ltd., Tianjin/China	100.00
MAHLE Industrial Thermal Systems America, L.P., Belmont, Michigan/USA	99.00
MAHLE Industrial Thermal Systems Námestovo s.r.o., Námestovo/Slovakia	100.00
<b>2. Affiliated companies, not consolidated on account of their immateriality for the presentation of the net assets, financial position, and results of operations</b>	
<b>a) Affiliated companies of MAHLE Behr GmbH &amp; Co. KG with direct shareholding quota</b>	
MAHLE Behr Sweden AB, Gothenburg/Sweden	100.00
<b>b) Other affiliated companies with direct shareholding quota</b>	
Compañía Rosarina S.A., Rosario/Argentina	99.99
MAHLE chargeBIG GmbH, Stuttgart/Germany	100.00
MAHLE Australia Pty Ltd., Melbourne/Australia	100.00 <sup>3, 5</sup>
MAHLE Industrial Thermal Systems America, Inc., Belmont, Michigan/USA	100.00
MAHLE Industrial Thermal Systems Verwaltung GmbH, Kornwestheim/Germany	100.00
MAHLE Kleinmotoren-Komponenten Verwaltungs GmbH, Stuttgart/Germany	100.00
MAHLE New Ventures GmbH, Stuttgart/Germany	100.00
MAHLE Pumpensysteme GmbH, Stuttgart/Germany	100.00
Ueno Industry Co. Ltd., Tokyo/Japan	100.00
Ueno Tech Co., Ltd., Tokyo/Japan	100.00
<b>3. Proportionately consolidated companies</b>	
<b>a) Subgroup Behr-Hella Thermocontrol that is managed by MAHLE Behr GmbH &amp; Co. KG and another company</b>	
PARENT COMPANY	
Behr-Hella Thermocontrol GmbH, Stuttgart/Germany	50.00
<b>Companies included in subgroup accounts of Behr-Hella Thermocontrol GmbH with direct shareholding quota</b>	
Behr-Hella Thermocontrol (Shanghai) Co., Ltd., Shanghai/China	100.00
Behr-Hella Thermocontrol EOOD, Sofia/Bulgaria	100.00
Behr-Hella Thermocontrol Inc., Farmington Hills, Michigan/USA	100.00
Behr-Hella Thermocontrol India Private Limited, Pune/India	100.00
Behr-Hella Thermocontrol Japan K.K., Yokohama/Japan	100.00
BHTC Finland Oy, Tampere/Finland	100.00
BHTC Mexico S.A. de C.V., San Miguel de Allende/Mexico	100.00

As at December 31, 2022

Name and location	Share in equity in %
<b>b) Proportionately consolidated group of companies that is managed by MAHLE Behr GmbH &amp; Co. KG and another company</b>	
PARENT COMPANY	
Shanghai MAHLE Thermal Systems Co., Ltd., Shanghai/China	50.00
<b>Subsidiaries with direct shareholding quota</b>	
Chengdu MAHLE Automotive Thermal Systems Co., Ltd., Chengdu/China	100.00
Ningde MAHLE Automotive Thermal Systems Co. Ltd., Ningde/China	100.00
Shenyang MAHLE Automotive Thermal Systems Co., Ltd., Shenyang/China	100.00
<b>c) Other proportionately consolidated companies with direct shareholding quota that are managed by MAHLE Behr GmbH &amp; Co. KG and another company</b>	
Dongfeng MAHLE Thermal Systems Co., Ltd., Wuhan/China	50.00
<b>4. Associated companies, consolidated using the equity method</b>	
<b>a) Associated companies of MAHLE Behr GmbH &amp; Co. KG with direct shareholding quota</b>	
Dongfeng-Paninco Automobile Aluminum Heat Exchanger Co.Ltd., Shiyan/China	50.00 <sup>5</sup>
<b>b) Other associated companies with direct shareholding quota</b>	
Cofap Companhia Fabricadora de Peças Ltda., Mauá/Brazil	31.65 <sup>5</sup>
LangFang Kokusan Electric Co., Ltd., Langfang/China	40.00 <sup>5</sup>
MAHLE Filter Systems Land Corporation, Cavite/Philippines	39.99 <sup>4</sup>
Pt Federal Izumi Manufacturing, Bogor/Indonesia	41.94 <sup>5</sup>
Retromotion GmbH, Stuttgart/Germany	45.75 <sup>5</sup>
SiEVA d.o.o., Šempeter pri Gorici/Slovenia	20.00 <sup>4</sup>

<sup>1</sup> Shareholding 50 % + 1 share

<sup>2</sup> From the Group's perspective, company is included at 100 %

<sup>3</sup> Affiliated company, consolidated using the equity method

<sup>4</sup> The company was not measured using the equity method on account of its immateriality for the presentation of the net assets, financial position, and results of operations

<sup>5</sup> Financial statements according to local GAAP

# Auditor's report

This audit report is issued on financial statements prepared in German language.

## Independent auditor's report

To MAHLE GmbH, Stuttgart

### Audit Opinions

We have audited the consolidated financial statements of MAHLE GmbH, Stuttgart, and its subsidiaries (the Group), which comprise the consolidated balance sheet as at 31 December 2022, and the consolidated income statement, consolidated statement of changes in equity and consolidated cash flow statement for the financial year from 1 January to 31 December 2022, and notes to the consolidated financial statements, including the presentation of the recognition and measurement policies. In addition, we have audited the group management report of MAHLE GmbH for the financial year from 1 January to 31 December 2022.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the requirements of German commercial law and give a true and fair view of the assets, liabilities and financial position of the Group as at 31 December 2022 and of its financial performance for the financial year from 1 January to 31 December 2022 in compliance with German Legally Required Accounting Principles, and
- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to § [Article] 322 Abs. [paragraph] 3 Satz [sentence] 1 HGB [Handelsgesetzbuch: German Commercial Code], we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

### Basis for the Audit Opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with § 317 HGB in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements and on the group management report.

### Other Information

The executive directors are responsible for the other information.

The other information comprises the annual report – excluding cross-references to external information – with the exception of the audited consolidated financial statements, the audited group management report and our auditor's report.

Our audit opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information mentioned above and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report disclosures audited in terms of content or with our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

## **Responsibilities of the Executive Directors and the Supervisory Board for the Consolidated Financial Statements and the Group Management Report**

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with the requirements of German commercial law, and that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with German Legally Required Accounting Principles. In addition, the executive directors are responsible for such internal control as they, in accordance with German Legally Required Accounting Principles, have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, provided no actual or legal circumstances conflict therewith.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

## **Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report**

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements, and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.

- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with German Legally Required Accounting Principles.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Stuttgart, March 17, 2023

**PricewaterhouseCoopers GmbH**  
Wirtschaftsprüfungsgesellschaft

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