# CROSSROADS

Annual report 2023

BOSCH

Bosch is a nexus – a place where paths intersect and the most disparate trends and developments converge. Here, input becomes output, and Bosch output becomes input for others.

Bosch can draw from its great technological potential as a diversified industrial group: mobility, capital goods, consumer goods, buildings, and energy. Barely any other company is so diverse, so networked, and so active in central areas of people's lives. Bosch rests on many pillars, and they give it its resilience and ensure its long-term business success. Not only that: Bosch also combines expertise from different industries in order to apply technologies across sectoral domains. A corporate structure such as ours creates a wealth of opportunities, but also challenges. A company that is so widely diversified and has such a broad footprint is constantly in the spotlight, and this on many different levels. Consequently, Bosch repeatedly finds itself at forks in the road, at crossroads, and has to decide which path to take.

And it is to this situation that "Crossroads," the title of this year's annual report, refers – how Bosch determines the company's future direction in times of fundamental change and uncertainty, how it orients to the growth opportunities of the future, and how its opens up new fields of business while optimizing existing ones. "Crossroads" epitomizes our quest to take the right path for Bosch.

# Table of contents

# The Bosch Group

# Key data

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| **Sales revenue** | **91,596** | **88,201** |
| percentage change from previous year | 3.8 | 12.0 |
| **Research and development cost** | **7,331** | **7,224** |
| as a percentage of sales revenue | 8.0 | 8.2 |
| **EBIT** | **4,503** | **3,474** |
| as a percentage of sales revenue | 4.9 | 3.9 |
| **EBIT from operations** | **4,824** | **3,816** |
| as a percentage of sales revenue | 5.3 | 4.3 |
| **Profit after tax** | **2,640** | **1,838** |
| **Capital expenditure** | **5,499** | **4,896** |
| as a percentage of depreciation | 161 | 141 |
| **Balance-sheet total** | **108,330** | **100,247** |
| **Equity** | **47,894** | **46,727** |
| as a percentage of total assets | 44 | 47 |
| **Dividend of Robert Bosch GmbH** | **170** | **162** |
| **Headcount at 12/31 of the year** | **429,416** | **421,338** |

# Bosch at a glance

The Bosch Group is a leading global supplier of technology and services. It employs roughly 429,000 associates worldwide (as of December 31, 2023). The company generated sales revenue of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. Universal trends such as automation, electrification, digitalization, and connectivity, as well as an orientation to sustainability, are increasingly determining the group's business operations. In this context, Bosch's broad footprint as a global and diversified technology company strengthens its innovativeness and robustness.

Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture intelligent, user-friendly, and sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral overall (scopes 1 and 2) since 2020. As part of this, residual emissions of 581,000 metric tons of $CO_2$ were offset with carbon credits in 2023. Year on year, this is a decrease of roughly 136,000 metric tons of $CO_2$, or 19 percent.[1]

1. Scopes 1, 2, and 3 are used in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. For further details about the Bosch Group's carbon neutrality (scopes 1 and 2), see the section "Strategy and innovation" (page 57).

The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which nearly 48,000 are software engineers.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG.

# Foreword

## Ladies and gentlemen,

"Crossroads," the title of this year's annual report, stands for the many fundamental decisions Bosch has to make with respect to its future course. In continuing our strategy, our sights are fixed on our aim, as a leading technology company, of helping shape tomorrow's world with innovations that are "Invented for life." In this context, we believe that our technological diversification – from mobility via industrial technology and consumer goods to energy and building technology – puts us at an advantage. As the past has repeatedly taught us, it contributes to our company's robustness and thus, in line with the mission handed down to us by the company founder Robert Bosch, to its independence. In times of upheaval, however, this diversification demands a lot from us. For when the markets in diverse areas of business are changing in many different ways – whether with respect to electrification, automation, connectivity, competitive structure, or even political environment – achieving our aims becomes a tough ask. And even if trends are clearly visible, it is frequently difficult to estimate how quickly they will take hold, not least because of snowballing regulations. This makes it more difficult to steer upfront investments and to make adjustments to our traditional business. What is required, therefore, is decision making in the face of considerable uncertainty, coupled with the willingness to regularly reconsider those decisions and, if necessary, revise them.

DR. STEFAN HARTUNG

Nonetheless, we made further progress toward our goals in 2023, even though our strategic challenges were compounded by the lack of any economic tailwind. We achieved our business targets, as the published figures show. And in many fields, we also strengthened our market position through acquisitions and partnerships, whether in semiconductors,

## Today's radically changing market calls for a strategy that is as clear as it is flexible and adaptable. It also calls for considerable tenacity.

in mobile hydraulics for industrial technology, or as a systems integrator in building technology. In 2023, moreover, we did a lot of groundwork to make Mobility, our biggest business sector, organizationally fit for fundamentally changing market requirements and the technological challenges of the future. In doing so, we firmly believe that we are creating the basis for a strong position as a future mobility provider.

Not only in 2024, but also in the years that follow, the road ahead will remain a demanding one for us. One core task is to make new technologies such as electromobility and the fuel cell economically viable. But it is not only these technologies we have to focus on. We are also working to improve our traditional business – the business in which we are currently successful and earn our money. This includes systematically carrying out any reorganization measures that are necessary. During phases of transformation in particular, there is also a need for active portfolio management. Yet some of our extensive adjustment measures will only bear fruit in future years. Our aim is further growth – through innovations, partnerships, and also acquisitions. At the very least, we want to roughly maintain our improved level of earnings in 2024, and to significantly surpass it in the years ahead. And through the highly efficient use of our capital resources, we want to secure the financial leeway we need for the inorganic growth of our business fields.

We will tackle the tasks ahead with confidence and respect. In doing so, we can rely on a strong team of more than 400,000 associates. We owe them, as well as our business partners and customers, our thanks. I would also like to thank you, our readers, for your interest in this year's annual report. For us, it has traditionally always been more than a statement of accounts. Beyond our business figures and targets, we want to provide some insights into the ambitions we have for ourselves and our company.

With best regards,

Dr. Stefan Hartung
Chairman of the board of management

# The Bosch board of management

Standing, from left: Stefan Grosch, Dr. Stefan Hartung, Dr. Markus Forschner, Dr. Frank Meyer
Seated, from left: Dr. Markus Heyn, Dr. Tanja Rueckert, Dr. Christian Fischer

Effective March 31, 2023, Filiz Albrecht stepped down from the board of management. Stefan Grosch joined the board of management as director of industrial relations effective April 1, 2023.

Dr. Frank Meyer joined the Bosch board of management effective February 1, 2024. He is responsible for the Energy and Building Technology business sector.

# Board of management

## Dr. Stefan Hartung
**Chairman of the board of management**

Technology, Innovation, and Quality

### Functions and services
- Communications and Governmental Affairs
- Corporate Affairs
- Field Quality Board
- Human Resources Senior Management Personnel
- Intellectual Property
- Quality Management
- Research and Advance Engineering
- Strategy, Organization, and Business Development
- Technology Development UNTIL SEPTEMBER 30, 2023
- Technology Manufacturing

### Business area
- Health Care Solutions

### Region
China

## Dr. Christian Fischer
**Deputy chairman of the board of management**

Consumer Goods business sector
Energy and Building Technology business sector UNTIL JANUARY 31, 2024

### Functions and services
- Growth Acceleration SINCE FEBRUARY 1, 2024
- Inhouse Consulting SINCE FEBRUARY 1, 2024

### Business areas
- BSH – Home Appliances
- Building Technologies UNTIL JANUARY 31, 2024
- Home Comfort[1] UNTIL JANUARY 31, 2024
- Power Tools
- Smart Home UNTIL JANUARY 31, 2024

### Regions
Africa, Southeast Asia UNTIL JANUARY 31, 2024

## Dr. Frank Meyer SINCE FEBRUARY 1, 2024
**Energy and Building Technology business sector** SINCE FEBRUARY 1, 2024

### Business areas
- Building Technologies SINCE FEBRUARY 1, 2024
- Home Comfort SINCE FEBRUARY 1, 2024
- Smart Home SINCE FEBRUARY 1, 2024

1. Known as Thermotechnology until March 31, 2023.

## Dr. Markus Heyn
Mobility business sector
Chairman of the Mobility sector board

### Functions and services
- Mobility sector board
  Commercial Affairs
  Operations
  Sales and Customers
  Technology
- Mobility sector functions
  Communications and Governmental Affairs
  Human Resources, People, and Culture
  Purchasing Direct Materials SINCE DECEMBER 1, 2023
  Strategy, Go-to-Market, and Business Excellence
- Mobility regional board SINCE JANUARY 1, 2024
  Americas
  China
  India
  South and East Asia
- Software Development Services

### Business areas[2]
- BEG Automotive Engineering Solutions
- Bosch eBike Systems
- Cross-Domain Computing Solutions
- Electrified Motion
- ETAS
- Mobility Aftermarket
- Mobility Electronics
- Mobility Platform and Services SINCE JULY 1, 2023
- Power Solutions
- Two-Wheeler and Powersports
- Vehicle Motion

2. Owing to a reorganization of the Mobility business sector, there has been a new organizational structure of the Bosch divisions since January 1, 2024. This applies especially to the divisions managed up to now as Automotive Aftermarket, Automotive Electronics, Automotive Steering, Chassis Systems Control, Electrical Drives, and Powertrain Solutions.

## Dr. Markus Forschner

### Finance and Performance Industrial Technology business sector UNTIL JANUARY 31, 2024

#### Functions and services

- Finance, Reporting, and Treasury
- Global Real Estate
- Internal Auditing UNTIL JANUARY 31, 2024
- Performance Controlling, Risk Management, Mergers and Acquisitions
- Performance Management UNTIL FEBRUARY 29, 2024
- Real Estate and Facilities
- Supply Chain Management
- Tax and Customs Duties UNTIL JANUARY 31, 2024
- Transformation and Performance Consulting UNTIL JANUARY 31, 2024

#### Business areas

- Bosch Manufacturing Solutions[3] UNTIL JANUARY 31, 2024
- Drive and Control Technology UNTIL JANUARY 31, 2024

#### Regions

Europe 1, Turkey

## Stefan Grosch SINCE APRIL 1, 2023

### Human Resources, Legal, Compliance, and Sustainability

#### Functions and services

- Bosch Management Support
- Compliance Management
- Human Resources People and Culture
- Human Resources Transformation
- Internal Auditing SINCE FEBRUARY 1, 2024
- Legal
- Sustainability, Environment, Health and Safety
- Tax and Customs Duties SINCE FEBRUARY 1, 2024

#### Regions

India, Southeast Asia SINCE FEBRUARY 1, 2024

## Filiz Albrecht UNTIL MARCH 31, 2023

### Human Resources, Legal, Compliance, and Sustainability

#### Functions and services

- Bosch Management Support
- Compliance Management
- Human Resources People and Culture
- Human Resources Transformation
- Legal
- Sustainability, Environment, Health and Safety

#### Region

India

## Dr. Tanja Rückert

### Digital Business and Services Industrial Technology business sector SINCE FEBRUARY 1, 2024

#### Functions and services

- Bosch Digital
- Cyber Security
- Global Business Services
- Information Technology and Digitalization
- Residential IoT Services UNTIL DECEMBER 31, 2023
- Security and Safety Things
- Software and Digital Solutions
- Software Next

#### Business areas

- Bosch Manufacturing Solutions SINCE FEBRUARY 1, 2024
- Connected Industry
- Drive and Control Technology SINCE FEBRUARY 1, 2024
- Bosch Global Service Solutions

#### Regions

Europe 2, Japan, Korea, North America, Oceania, South America

3. Known until April 30, 2023, as ATMO – Manufacturing Tools and Systems.

# Mobility sector board

Dr. Markus Heyn
Chairman

Dr. Uwe Gackstatter UNTIL OCTOBER 31, 2023
Volker Schilling SINCE NOVEMBER 1, 2023
Commercial Affairs

Klaus Mäder
Operations

Andreas Dempf
Sales and Customers

Dr. Mathias Pillin
Technology

# Presidents of the divisions

## 2023

Rupert Hoellbacher
Automotive Aftermarket

Michael Budde
Automotive Electronics

Dr. Gerta Marliani
Automotive Steering

Claus Fleischer
Bosch eBike Systems

Henning von Boxberg
Bosch Global Service Solutions

Thomas Quante
Building Technologies

Dr. Steffen Berns
Chassis Systems Control

Christoph Hartung
Cross-Domain Computing Solutions

Steffen Haack
Drive and Control Technology

Volker Schilling
Electrical Drives

Jan Brockmann
Home Comfort

Henk Becker UNTIL MAY 31, 2023
Thomas Donato SINCE JUNE 1, 2023
Power Tools

Dr. Thomas Pauer
Powertrain Solutions

## 2024

Owing to a reorganization of the Mobility business sector, there is now a new organizational structure of the Bosch divisions (valid since January 1, 2024).

Claus Fleischer
Bosch eBike Systems

Henning von Boxberg
Bosch Global Service Solutions

Thomas Quante
Building Technologies

Christoph Hartung
Cross-Domain Computing Solutions

Steffen Haack
Drive and Control Technology

Marco Zehe
Electrified Motion

Jan Brockmann
Home Comfort

Rupert Hoellbacher
Mobility Aftermarket

Michael Budde
Mobility Electronics

Dr. Thomas Pauer
Power Solutions

Thomas Donato
Power Tools

Dr. Gerta Marliani
Vehicle Motion

# Supervisory board report

## Ladies and gentlemen,

The Bosch Group is in the midst of a fundamental transformation, and this in an environment marked by great uncertainty. The company is faced with the demanding task of making necessary upfront investments in new technologies and extending its market position through acquisitions on the one hand, and of orienting its structures to future challenges and improving its competitiveness on the other. Moreover, the transformation has to be carried out in a global economic environment that is likely to remain weak. The supervisory board consults very closely with the board of management and the company in this balancing act between upfront investments in future growth and strengthening profitability and capital efficiency. The achievement of the company's business targets in 2023 was an important step in this direction. The supervisory board would like to thank the board of management and associates of the Bosch Group for their great dedication and for this achievement.

PROF. DR. STEFAN ASENKERSCHBAUMER

The supervisory board once again fulfilled its legal and regulatory obligations with great care in 2023. It solicited detailed information about business developments and the business prospects for the future. One focal point of reporting was the far-reaching organizational changes in the Mobility business sector. A further subject that was looked at in detail was the changes in the competitive landscape for consumer goods. The board of management reported regularly on its growth strategy with respect to potential in existing, adjacent, and new fields of business, as well as on necessary adjustment measures. The supervisory board also obtained information about the measures taken with respect to compliance, to the risk management system and the findings of risk reporting, to sustainability reporting, and to the challenges in new areas of technology. The main items on its agenda also included financial and investment planning, as well as the 2024 business plan.

**The Bosch Group is faced with the demanding task of achieving a balance between making considerable upfront investments in the markets of the future and strengthening profitability and capital efficiency.**

In addition, outside of board meetings, the chairman of the supervisory board was regularly informed by the chairman of the board of management about current developments and significant events in the company. As scheduled, the supervisory board was reconstituted at the end of March 2023. This did not lead to any changes. Since then, the employee representatives Christian Brunkhorst and Jörg Hofmann have retired from the board, in mid-2023 and at the end of 2023 respectively. They were succeeded in their roles by Adrian Hermes and Raphael Menez. The supervisory board would like to thank the former members for their dedication, and the new members for agreeing to play an active role. In addition to the already existing personnel committee, which is responsible for personnel issues on the board of management, an audit committee was set up at the end of March 2023. It is concerned with matters relating to areas such as accounting, the audit of the financial statements, and corporate governance systems.

EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft audited the Robert Bosch GmbH annual financial statements and consolidated financial statements, as well as the accompanying management reports, as of and for the year ended December 31, 2023. It furnished all these reports with an unqualified audit opinion. The audit committee and the supervisory board discussed these documents at length and subjected them to their own examination; all members of both bodies had access to the auditor's reports. Moreover, the auditor met with the audit committee and the supervisory board to report on the main findings of the audit. The supervisory board raised no objections, concurred with the results of the audit, and approved the Robert Bosch GmbH annual financial statements and the Bosch Group consolidated financial statements. Following its own review, the supervisory board endorsed the board of management's proposal for the appropriation of net profit.

Stuttgart, March 2024
For the supervisory board

Prof. Stefan Asenkerschbaumer
Chairman

# Supervisory board

## Prof. Stefan Asenkerschbaumer

**Stuttgart**

Chairman

Managing partner of Robert Bosch Industrietreuhand KG, formerly deputy chairman of the board of management of Robert Bosch GmbH

## Frank Sell

**Gerlingen**

Deputy chairman

Deputy chairman of the works council of the Feuerbach plant, and chairman of the central works council of the Mobility business sector as well as deputy chairman of the combined works council of Robert Bosch GmbH

## Nadine Boguslawski

**Hattersheim am Main**

Chief treasurer of Industriegewerkschaft Metall, Frankfurt am Main

## Dr. Christof Bosch

**Königsdorf**

Spokesperson for the Bosch family

## Christian Brunkhorst UNTIL JUNE 30, 2023

**Mühltal**

Representative of the chairman of Industriegewerkschaft Metall, Frankfurt am Main

## Dr. Arne Fischer

**Gemmrigheim**

Director of strategic projects, Power Solutions division, and chairman of the combined executives committee of the Bosch Group in Germany

## Prof. Elgar Fleisch

**St. Gallen**

Professor of information and technology management at the University of St. Gallen and ETH Zürich

## Klaus Friedrich

**Würzburg**

Chairman of the works council of Bosch Rexroth AG, Lohr am Main, and chairman of the central works council of Bosch Rexroth AG and member of the combined works council of Robert Bosch GmbH

## Mario Gutmann

**Bamberg**

Chairman of the works council of the Bamberg plant, and member of the central works council of the Mobility business sector as well as chairman of the economic committee of the Mobility business sector

## Adrian Hermes SINCE JULY 1, 2023

**Hattersheim am Main**

Representative of the chairman of Industriegewerkschaft Metall

## Jörg Hofmann UNTIL DECEMBER 31, 2023

**Frankfurt am Main**

President of Industriegewerkschaft Metall

## Prof. Michael Kaschke

**Oberkochen**

Chairman of the supervisory board of Karlsruhe Institute of Technology

President of Stifterverband

## Prof. Renate Köcher
**Konstanz**
Managing director, Allensbach Institute for Public Opinion Research

## Martina Koederitz
**Stuttgart**
Member of the supervisory board

## Matthias Georg Madelung
**Munich**
Member of the board of trustees of Robert Bosch Stiftung GmbH

## Kerstin Mai
**Hildesheim**
Chairwoman of the works council of the Cross-Domain Computing Solutions division, Hildesheim, and chairwoman of the combined works council of Robert Bosch GmbH

## Dr. Raphael Menez SINCE JANUARY 24, 2024
**Stuttgart**
Secretary of the regional directorate of the Industriegewerkschaft Metall trade union, Baden-Württemberg

## Oliver Simon
**Dunzweiler**
Chairman of the works council of the Homburg plant, and member of the central works council of the Mobility business sector

## Karin Solda
**Filderstadt**
Chairwoman of the works council at the Leinfelden-Echterdingen location and of the central works council of Robert Bosch Power Tools GmbH

## Peter Spuhler
**Weiningen**
Majority shareholder and president of the supervisory board of Stadler Rail AG

## Dr. Eberhard Veit
**Göppingen**
Managing partner of Robert Bosch Industrietreuhand KG

## Prof. Beatrice Weder Di Mauro
**Blonay**
Professor of international economics at the Geneva Graduate Institute, president of the Centre for Economic Policy Research (CEPR), and research professor at INSEAD

### HONORARY CHAIRMAN OF THE BOSCH GROUP

## Prof. Hermann Scholl
**Stuttgart**

# Industrial Trust and International Advisory Committee

## Robert Bosch Industrietreuhand KG

### GENERAL PARTNERS

Prof. Stefan Asenkerschbaumer
**Stuttgart**
Chairman of the shareholders' meeting

Dr. Eberhard Veit
**Göppingen**

### LIMITED PARTNERS

Dr. Christof Bosch
**Königsdorf**

Dr. Christian Fischer
**Stuttgart**

Prof. Elgar Fleisch
**St. Gallen**

Prof. Lino Guzzella
**Uster**

Dr. Stefan Hartung
**Ludwigsburg**

Prof. Michael Kaschke
**Oberkochen**

Prof. Renate Köcher
**Konstanz**

Peter Spuhler
**Weiningen**

## Robert Bosch International Advisory Committee

Prof. Stefan Asenkerschbaumer
**Stuttgart**
Chairman

Sigmar Gabriel
**Goslar**

Dr. Christoph Heusgen
**Berlin**

Baba N. Kalyani
**Pune**

Pascal Lamy
**Paris**

Yumiko Murakami
**Tokyo**

Paul Ryan
**Janesville**

Jing Ulrich
**Hong Kong**

Prof. Igor Yurgens
**Moscow**

# Business sectors

## Mobility

- **Bosch eBike Systems**
- **Cross-Domain Computing Solutions**
- **Electrified Motion**
- **Mobility Aftermarket**
- **Mobility Electronics**
- **Power Solutions**
- **Vehicle Motion**

- Bosch Engineering GmbH
- ETAS GmbH
- ITK Engineering GmbH
- Mobility Platform and Services
- Two-Wheeler and Powersports

## Industrial Technology

- **Drive and Control Technology**[1]

- Bosch Connected Industry
- Robert Bosch Manufacturing Solutions GmbH

## Energy and Building Technology

- **Building Technologies**
- **Home Comfort**
- **Bosch Global Service Solutions**

- Robert Bosch Smart Home GmbH

## Consumer Goods

- **Power Tools**
- **BSH Hausgeräte GmbH**

Other activities

- Bosch Healthcare Solutions GmbH
- grow platform GmbH
- Robert Bosch Venture Capital GmbH

1. Bosch Rexroth AG (100% Bosch-owned).

# Highlights 2023

## January

### China: new research and manufacturing location

Bosch is expanding its global research and manufacturing network for electrified and automated driving. In order to better serve local demand, the company plans to invest some 950 million euros in a new location in Suzhou over the next few years.

### Stakeholder: Bosch takes stake in garden equipment manufacturer

Bosch agrees to acquire some 12 percent of the share capital of the long-established Swedish company Husqvarna, with the aim of bolstering the existing battery alliance between the two companies. Husqvarna includes the Gardena subsidiary and its Flymo brand, both of which are also partners in the Bosch Power Tools division’s Power for All Alliance.

## February

### Acquisition: Bosch Rexroth takes over HydraForce

With the acquisition of HydraForce, Bosch Rexroth is expanding its hydraulics business. With a workforce of 2,100, this U.S. company develops and manufactures compact hydraulic valves and solutions at six manufacturing sites in the U.S., Brazil, the U.K., and China. Its activities will be integrated into Bosch Rexroth’s compact hydraulics business.

## March

### Egypt: foundation stone for first BSH factory in Africa

In Cairo, BSH Hausgeräte GmbH lays the foundation stone for its first factory in Africa. The company plans to invest some 50 million euros, and to start manufacturing stoves for African and other markets in the new factory from the end of 2024. With this factory, BSH plans to create roughly 1,000 skilled jobs in the region.

# Highlights 2023

## April

### Battery recycling: Europe's first fully automated plant

At the Battery Lifecycle Company location in Magdeburg, Germany, Europe's first fully automated plant is being built. Bosch Rexroth is supplying the necessary technology. In a reliable process, battery modules are chemically deactivated so that further processing can be done without the risk of electrocution. The residual energy from the modules is used to operate the recycling plant.

### Semiconductors: Bosch plans to acquire U.S. chipmaker

Bosch is expanding its business with silicon carbide chips, and plans to acquire parts of the TSI Semiconductors business in Roseville, California. With a workforce of 250, the company makes application-specific integrated circuits, or ASICs. Over the next few years, Bosch wants to invest heavily in the location and to retool its manufacturing facilities.

## May

### Sustainability: basic knowledge for everyone

To continue the development and manufacture of sustainable products, Bosch has introduced a worldwide training program for all associates involved in the product development process. The focus is on basic knowledge about sustainability along the value chain, and how associates can play a part in this. The courses are modular in design, and cover the most important aspects of Bosch's sustainability and circular-economy strategy.

## June

### New area of business: water-treatment systems

In the future, Bosch will supply water-treatment technology and offer newly developed systems designed especially for remote areas and offshore locations. With these special systems, water can be treated anywhere economically and without harming the environment, even in the remotest areas. Bosch Manufacturing Solutions has designed these systems to work without chemicals. The plan is to bring these systems to market in 2024.

# Highlights 2023

## July

### Building technology: Bosch strengthens its presence in North America

The Building Technologies division is growing: the Canadian company Paladin Technologies employs some 1,500 people at 35 locations in Canada and the United States, and provides security solutions and services in the integrator business. With its market presence in Canada and major U.S. conurbations, Paladin Technologies is an ideal complement to Bosch's integrator business.

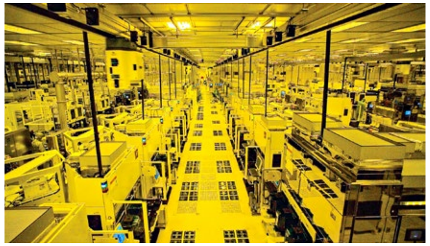

### Powertrain: green light for fuel cell

At its Feuerbach location in Germany, Bosch has now begun volume production of its fuel-cell powertrain system. Its pilot customer is the U.S. company Nikola, with its fuel cell-electric trucks. Production of the fuel-cell powertrain system is starting at the same time in Chongqing, China. Bosch operates along the entire hydrogen value chain, developing technology for its production and application.

## August

### Partnership: new wafer fab

TSMC, Bosch, Infineon, and NXP are jointly investing in the construction of a modern wafer fab in Dresden, Germany. All told, the joint venture will invest more than 10 billion euros, and roughly 2,000 jobs are to be created. Construction work will start in 2024, and 300-millimeter wafers are to be produced in the wafer fab from the end of 2027. TSMC will hold a 70 percent stake in the company, with Bosch and the other partners holding 10 percent each.



### Malaysia: new location opened

In southeast Asia as well, Bosch is investing heavily in the semiconductor business. At its Penang location, the company has now opened a new testing center for electronic chips. Construction cost roughly 65 million euros. By the middle of the next decade, Bosch plans to invest a further 285 million euros in the facility, and its workforce is set to grow to 400.

## September

### Mobility: Software for video perception

Video perception of vehicle surroundings will play an important role in the move from assisted to automated driving. In this context, Bosch not only offers a combined package of hardware and software. Its portfolio now also includes video-perception software as a standalone product. As a system-on-chip, the Bosch software can also be used hardware-independently, which provides more flexibility for automakers.

# Highlights 2023

## October

### Realignment: focus on systems integration

Bosch is realigning its Building Technologies division: in the future, it is to focus on its regional integrator business, with solutions and services for building security, energy efficiency, and building automation. The company plans to sell most of the Building Technologies division's product business. This includes the Video, Access and Intrusion, and Communication business units, which employ some 4,300 people worldwide.

## November

### Portugal: Bosch boosts its heat-pump production

Bosch is investing in expanding its development and manufacturing capacity for heat pumps. By 2026, for example, some 100 million euros will be invested in its Aveiro location. Alongside Eibelshausen in Germany and Tranås in Sweden, Aveiro is a major location in the company's European heat-pump network. By the end of the decade, Bosch will have invested more than 1 billion euros in extending this network.

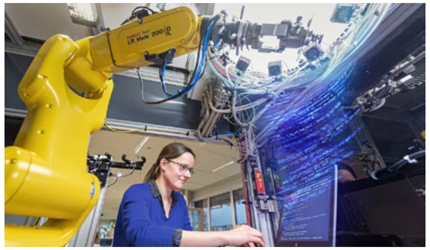
### Investment: Bosch wants to work with AI startup

Robert Bosch Venture Capital GmbH is the lead company in an investment round in the AI startup Aleph Alpha. All in all, the startup will receive more than 500 million dollars from the industrial consortium. This will make it easier for Aleph Alpha to speed up the development and commercialization of generative AI for applications in sectors such as industry, healthcare, finance, law, government, and security.

## December

### Manufacturing: Bosch brings generative AI to the shopfloor

Bosch is encouraging the use of artificial intelligence in manufacturing. On this subject, the company is initiating projects in which generative AI creates synthetic images. In two pilot plants in Germany, these artificial images are being used to develop and optimize solutions for automated optical inspection. Bosch expects that this can reduce the time between project planning and the ramp-up of AI applications from the six to twelve months taken at present to just a few weeks.



> "Our greatest asset in Roseville is the workforce, the approximately 250 associates, all of whom are established semiconductor experts."

DIRK KRESS
head of global semiconductor operations at Bosch

## Raw material for the 21st century

Our modern world would be unthinkable without semiconductors. They're already in everything from wearables and smartphones to vehicles, and now the global ramp-up of electromobility is sending demand skyrocketing. As one of the pioneers of this technology, Bosch has been producing semiconductors for more than 60 years, also at its plant in Reutlingen, Germany. Since the end of 2021, this has also included silicon carbide chips, which enable greater range and more efficient recharging for electric cars. With the acquisition of a wafer fab in Roseville, California, Bosch plans to significantly expand its production of this key technology. There, the first silicon carbide chips are scheduled to roll off the line in 2026 – which means that process engineer Allison Suba has her work cut out for her. To help get her up to speed, she's partnering with Reutlingen-based Tobias Huschnitt as part of an innovative, cross-border training scheme. Two associates, one goal: to help power the transformation of mobility.

Read full story

## How to make the move to alternative heating work

Heat pumps are a key technology for achieving the European climate targets in the building sector. This is why Bosch will be investing more than 1 billion euros in its European heat-pump development and manufacturing network by the end of this decade. In Aveiro, Portugal, new laboratories and production shops are being built, while in the Netherlands Bosch is bringing new hybrid systems onto the market. In Germany, the company is intensifying its services business, training heating installers, and working to remedy the lack of professional experts. Step by step, Bosch is expanding its activities in all parts of the heat-pump domain. A journey through Europe shows what is needed for sustainable heating to become established and for customers to choose heat-pump technology that combines ecology with economy.

Read full story

> "Training not only helps to counter the shortage of skilled workers, it also helps us to better meet demand. With good training, we increase the quality of our work and are around 20 percent faster when installing heat pumps."

ANDREAS HANF
heating engineer

## Hydrogen pioneers united

The mobility of the future is versatile. The key is technologies that complement each other. Bosch is not just pressing ahead with electromobility, but also wants to establish hydrogen as an important alternative. But as long as there is nowhere to fill up, nobody will buy a hydrogen vehicle. This is why Bosch Rexroth is helping companies like Maximator Hydrogen set up a hydrogen infrastructure. The two companies have developed a solution for the compression of hydrogen for filling stations, storage tanks, and pipelines. Bosch Rexroth is focusing on the drive technology for this. In 2024 alone, more than 70 hydrogen filling stations are to be set up, equipped with Bosch Rexroth and Maximator Hydrogen technology. The retail company Coop is one of their customers, and operates several hydrogen filling stations in Switzerland. In 2016, Coop opened the first public hydrogen filling station in Switzerland. What makes these pioneers tick? What hopes do they have in the new hydrogen-based mobility?

Read full story

"The special thing about our partnership with Bosch Rexroth is that everyone here is passionate and has a pioneering spirit."

MATHIAS KURRAS
CEO Maximator Hydrogen

"For us, Egypt is the gateway to the African markets. With our new plant, we're producing to meet tomorrow's needs."

LUIS ALVAREZ
CEO BSH Egypt

## Stoves for Africa

The air smells of cinnamon, mint, and cilantro. Bassent Helmy loves cooking, exploring different international cuisines, and spending time with her family. While Helmy slices vegetables, flips the meat sizzling in the pan, and checks on the dish in the oven, she explains the advantages of her new stove: several large cooking zones, rapid heating, and even distribution of heat to every corner of the oven. The Bosch FS90 is designed for preparing many dishes simultaneously, which makes it the perfect stove for North Africa. Focus groups from Egypt helped tailor the stove to local requirements. Since market launch in 2020, this use of a 360-degree UX approach for product development has proved to be right – more than 50,000 of these combined ranges have already been sold. By 2030, BSH Hausgeräte GmbH wants to break the one-million barrier. At the end of 2024, the company plans to open a factory in Egypt – its first in Africa. The aim is stoves from Africa, for Africa.

Read full story

“Generative AI is one of the biggest levers in manufacturing for achieving more efficiency and higher quality.”

LAURA BEGGEL
data scientist, Bosch Research

## Using AI to train AI

Old ways give rise to new departures. Generative artificial intelligence (AI) promises nothing less than that. As a leading company in the development and application of industrial AI, Bosch is pinning its hopes on this new technology. For example, Bosch has initiated projects in which synthetic images are created using generative AI to develop solutions for optical inspection or to optimize existing models. In this way, Bosch aims to fast-forward the process from planning to implementation of AI projects in manufacturing, so that it takes just a few weeks instead of several months. The software models for generative AI were developed by Bosch researchers, and now the Bosch plants are trialing them. Following a successful pilot phase, the generative AI approach is to be made available to all Bosch plants. A visit to a Bosch pilot plant in Hildesheim, Germany.

Read full story

## Bosch technology for Westminster Palace

It’s one of the world’s most famous buildings, one of England’s most photographed sights, and is regarded as the seat of British democracy: the Palace of Westminster. To guarantee the continued existence, as well as the security, of this more than 900-year-old complex, it is currently being extensively refurbished and modernized. Bosch technology is giving a helping hand. Over the past six years, the Bosch subsidiary Protec has put 12,000 fire alarms and an emergency PA system into operation. The project is a sizable one. The Palace’s main building alone has 1,100 rooms, and a footprint the size of 16 soccer fields. Some 14,000 people work there, and 7,000 tourists visit each day. A look behind the scenes at the Palace.

Read full story

“It’s a great honor for us to help protect and support the Palace of Westminster with our technology.”

RICHARD HEATON
project manager, Protec

# Robert Bosch Stiftung

Since it was established in 1964, Robert Bosch Stiftung GmbH has been carrying on the company founder's public welfare endeavors. Through its funding, the foundation works for a fair and sustainable future. It is not-for-profit, independent, and non-partisan. Its origins go back to the legacy of Robert Bosch. The entrepreneur and philanthropist formulated a dual mission of securing the company's future and continuing his social commitment.

## The future of medicine – customized treatment

At the Robert Bosch Hospital (RBK), an elderly patient is complaining of severe muscular pain. A DNA test shows that this pain is a side-effect of her cholesterol medication – which goes to show that, when it comes to medication, "one size fits all" doesn't apply. Depending on genetic makeup, people react differently to one and the same substance. At the Dr. Margarete Fischer-Bosch Institute for Clinical Pharmacology (IKP), which celebrated its 50th anniversary in 2023 and is part of the Bosch Health Campus in Stuttgart, scientists are working to improve pharmacotherapy. From DNA analyses, they can tell how people will react to certain treatments, and quickly transfer these insights to patient care – a process called "translation" in specialist jargon.

At the RBK, the elderly patient is then treated with a different medication, and issued with a digital medication card. The card contains information about many genetic variations that alter the way commonly used drugs work. Up to now, the RBK is the only hospital in Germany where this medication card is routinely used. Establishing its use nationwide could improve the healthcare of many people: an IKP study published in 2023 in collaboration with international researchers shows that it can reduce side-effects by nearly 30 percent.

The Bosch Health Campus is not just about excellent research and patient care. It also comprises a training center and the Robert Bosch Center for Innovative Health (RBIG). The latter aims to develop pioneering concepts for the German healthcare system. In many places, healthcare is deteriorating. Daily routine is marked by long waiting times, staff shortages, and time pressure. For the RBIG, the answer is to support and further develop health centers, which it calls PORT centers. They offer patients extensive and excellent primary and long-term care – adapted to local requirements.

## Healthcare pioneers

There are 11 such PORT centers in Germany. One of them is in the Neukölln district of Berlin. In a new building in the northern part of this district, which has a large migrant community, medical practices, therapists, and counseling offices have formed a "healthcare collective." Brochures provide information in German, Arabic, and Turkish. A café and various advice centers make it easier for people to reach out to experts. The trained nurse and healthcare expert Eva Weirich has an important role to play in this collective. As its community health nurse, she helps people find their way around the health system better and to manage their illnesses. Sometimes she simply builds bridges. “When advising parents, we often discover that someone still doesn’t have a pediatrician for their new-born child, or that they haven’t contacted their family doctor for fear of being rejected,” she says. “That’s where we can help.” Initiatives like this, which give people extensive, high-quality neighborhood healthcare, form the building blocks of a future healthcare system.


The community health nurse Eva Weirich welcomes visitors to the Berlin-Neukölln Health Collective.

## Tracking down good schools

The German school system also faces structural challenges: more and more is expected of schools, but teachers are in short supply and job pressure is rising. Nonetheless, many schools manage to provide first-class tuition, and to create a stimulating learning environment for their students. Robert Bosch Stiftung throws a spotlight on these good schools, makes their teaching concepts known to a wider audience, and in this way motivates other schools. Together with Heidehof Stiftung, it has conferred the annual German School Prize on Germany’s best schools since 2006. A multi-stage selection process precedes the award. Its core element is a visit by educational experts who sit on the judges panel.

One of them is Hermann Veith, an educational researcher from Göttingen. In early 2023, together with his fellow judges, he took a closer look at the Rothenburg elementary school in Berlin. When their taxi stops at the school on a late afternoon, the principal is already waiting for them at the open door. There are just a few children left wandering along the corridors, packing their belongings together before heading home. “Before we visit them, many schools think that strict inspectors are coming to judge their work,” Veith says. He has been a judge for the award for many years. It’s important to quickly dispel this suspicion, since an uninhibited atmosphere is important if the judges are to get an authentic picture of the school. Over the following two days, Hermann Veith visits lessons, looks at textbooks and exercises, observes how well the students learn, and talks with teachers and students. The quality of teaching is central to the judges’ assessment, but the physical surroundings and general atmosphere also play a role. The competition ends with the decision that the school will be one of the prizewinners. And although the Rothenburg elementary school doesn’t quite make it to the top in 2023, it receives an award worth 30,000 euros and is admitted to the prizewinner network.

Passive observer: The panel judge Hermann Veith takes time to sit in on a class.

## Research into school stress

To get a better insight into the situation in schools, Robert Bosch Stiftung regularly has a representative survey carried out. Known as the "German school barometer," its findings shows that teachers are increasingly observing anxiety, problems with concentration, and restlessness among their students. In 2023, this prompted the Stiftung to start funding a new research project, the "Education and mental health monitor." It aims to collect the first-ever data about the psychosocial care of children and adolescents in Germany. The head of the research project is Professor Julian Schmitz, a child and youth therapist based in Leipzig. His hypothesis is that many children and adolescents are still feeling the psychological after-effects of the Covid-19 pandemic – and that schools are not doing enough about this. "In schools, well-being has to be given the same status as grades in math and German," Schmitz says, adding that children have to feel well if they are to learn well.

## Stiftung strengthens its commitment in Middle East

The major social challenges and crises of 2023 are also reflected in the work of the Global Issues funding area. It was only in 2022 that the Stiftung began supporting dialogue between the Arab-Palestinian and Jewish sections of Israeli society. In this context, one of the projects it supports is the "School of Peace," situated halfway between Tel Aviv-Jaffa and Jerusalem. At this further education and community center, people of Jewish and Muslim faith regularly meet to discuss a variety of subjects, including the environment and climate action. The latter is a challenge that affects everyone in the region. One of them is the 25-year-old Nashwa Alrifahie, from Lod. She reports that a nearby rubber factory is

Spring 2023: women of different faiths meet to exchange views at the "School of Peace" further education and community center.

polluting the air, and that the streets are strewn with garbage. Because she feels that the municipal authorities are more concerned with the districts in which mainly Jewish citizens live, Alrifahie has decided to take matters into her own hands and signed up for an environmental course. Following the Hamas attack on October 7, 2023, Robert Bosch Stiftung decided to extend its funding in the region and to do even more for understanding and peace.

The Russian attack on Ukraine was also on the Stiftung's agenda in 2023 – and will remain there for some time. While emergency aid was the main focus in 2022, the Stiftung brought its support more into line with its established funding areas in 2023. At the end of the year, it decided to fund projects supporting civic society and the recovery of Ukraine for a further five years. One example is the Vidnova fellowship program. It supports refugee Ukrainians who are committed to helping their native country – also from exile.

## A meeting place for refugees from around the world

Refugees have barely any say in where they can find safety and what life will be like in their new home. And in international refugee policy as well, their standpoint has been given little attention so far. It is thanks to people like Rez Gardi that this is slowly changing. A Kurdish New Zealander lawyer, she has made it her mission to help refugees find a more powerful political voice – for example, by attending international conferences. At the UN Global Refugee Forum 2023 in Geneva, Gardi spoke out for her demands, and networked with other refugee leaders in the "R-Space." Initiated by Robert Bosch Stiftung and other partners, the space was one of the conference's official side events. For the first time, people with first-hand experience of displacement were offered a place where they could meet refugees from around the world and talk about how to improve their situation.

## Face to face with political representatives

One of the focal points of the Stiftung's work is democracy and the question of how people's enthusiasm for it can be (re)kindled. For many people in Germany, politicians are alien beings. But for roughly 350 people at least, this view has changed fundamentally. Selected at random from six electoral districts as part of the "Hello Bundestag" project, they met their Bundestag representatives and talked with them for a day about suggestions for improving the relationship between the populace and politicians. One of the participants was Martin Lehman from Erfurt. The 32-year-old network engineer was initially skeptical about even participating. But now his interest has been kindled, and he has joined an electoral district council that emerged from the project. For him, the difference between this council and social media is that a constructive exchange of views is still possible – especially when it comes to controversial issues such as climate action, migration, and the Ukraine war.


Linus Strothmann, the director of the "Hello Bundestag" project, presents the findings of the first electoral district meeting.

## Combating populism

Democracies worldwide face the threat of increasingly polarized societies and populism. This challenge was the subject of debate for 60 Robert Bosch Academy (RBA) fellows – internationally acclaimed experts and thought leaders – at the 2023 Richard von Weizsäcker forum. “The future is one of the biggest resources of democracy and the idea of a future under threat is one key element in political polarization,” said Ivan Krastev, an RBA fellow and director of the Bulgarian Center for Liberal Studies. “The future used to be a project, now it's only a projection of everything that worries us – with many obstacles and challenges like the rise of nationalism and climate change.” The forum included meetings in Berlin and a study trip to Saxony to acquaint the fellows better with eastern Germany. Their conclusion: Germany also has to take up the challenge and strengthen democracy.

**G 01**

### Total funding 2023
in millions of euros

**96.95**

| | |
|---|---|
| 35.47 | **Global Issues** |
| 33.25 | **Health** |
| 10.31 | **Education** |
| 17.92 | **Overall funding** |


Robert Bosch Academy fellows learn about the history of German partition on their study trip.

# **Group management report**
# of Robert Bosch GmbH as of December 31, 2023

The Bosch Group orients its business areas to the growth opportunities of the future. This involves the challenge of opening up areas of future importance that require considerable upfront investment, while at the same time adapting the existing business to the requirements of market developments. This has to be done in a global economic environment that is expected to remain weak. Despite these difficult conditions, the Bosch Group is making progress. In nominal terms, Bosch Group sales revenue rose by 3.8 percent in 2023, to 91.6 billion euros. Adjusted for exchange-rate effects, the increase was 8.0 percent, which is within the 6 to 9 percent growth corridor set as a target for 2023. At 5.3 percent, the EBIT margin from operations shows a significant improvement as forecast and exceeds the previous year's figure of 4.3 percent. Looked at by business sector, the picture is mixed. Strong growth in the Mobility, Industrial Technology, and especially Energy and Building Technology business sectors contrasts with declining sales revenue in Consumer Goods. As forecast, the main reason for the rise in sales revenue in Industrial Technology was the impact of the first-time consolidation of newly acquired companies. All business sectors show a significantly positive result for 2023. Industrial Technology and Energy and Building Technology performed especially well.

At the same time, many strategic projects continued to be driven forward. Among other things, special mention should be made of increasing electrification in many areas in response to tougher climate-action requirements, as well as of an even broader international footprint. Acquisitions and partnerships are strengthening both areas of future importance, such as semiconductors, and established business areas such as mobile hydraulics and the integrator business in building technology. One major project is the reorganization of the Mobility business sector to even better address future market, customer, and technology requirements.

The 2024 fiscal year is also expected to be very challenging: nonetheless, the aim is an increase in Bosch Group sales revenue in the range of 5 to 7 percent. Moreover, a comprehensive package of measures is intended to lay sound foundations for enduringly greater profitability. These measures will initially be a burden on result, as some of their effects will not be felt until after 2025. For this reason, the EBIT margin from operations for 2024 is expected to be roughly on the same level as the previous year. At the same time, we are committed to rigorously pursuing our long-term strategy.

# Fundamental information about the group

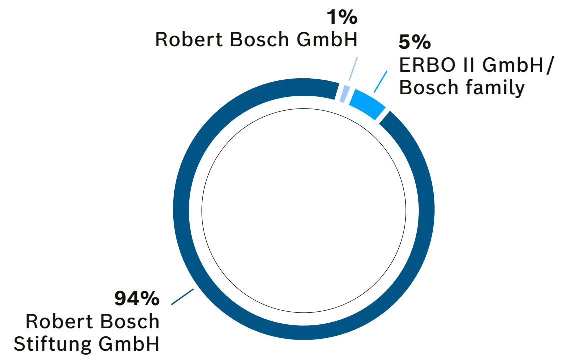
## The group

The Bosch Group is a global supplier of technology and services. It generates just under half its sales revenue outside Europe. The group encompasses around 470 fully consolidated subsidiaries and regional companies in more than 60 countries. The parent company is Robert Bosch GmbH, which is domiciled in Stuttgart, Germany. It started out as “Workshop for Precision Mechanics and Electrical Engineering,” founded in Stuttgart in 1886 by Robert Bosch (1861–1942). Robert Bosch Stiftung GmbH has been the majority shareholder in Robert Bosch GmbH since 1964.

Despite holding roughly 94 percent of the share capital of Robert Bosch GmbH, the not-for-profit foundation Robert Bosch Stiftung GmbH has no influence on the strategic or business orientation of the Bosch Group. A further roughly 5 percent of the share capital is held by the not-for-profit ERBO II GmbH, established by the founder’s descendants, and some 1 percent by Robert Bosch GmbH itself. Of the voting rights, some 93 percent are held by Robert Bosch Industrietreuhand KG, which itself holds a capital share of 0.01 percent. The approximately 7 percent of voting rights remaining are held by the founder’s descendants. This ownership structure guarantees the Bosch Group’s entrepreneurial independence.

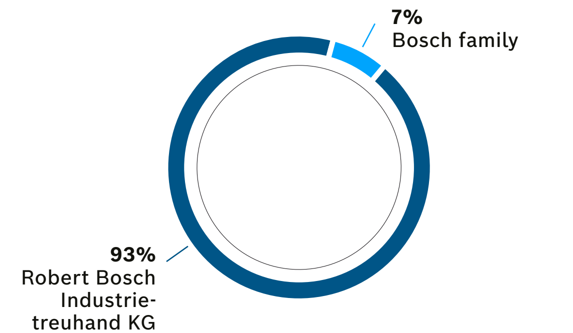
G 02

### Shareholders of Robert Bosch GmbH
Shareholding




G 03

### Shareholders of Robert Bosch GmbH
Voting rights



# Organization and competitive environment

With a workforce of more than 429,400 associates worldwide at year-end 2023, the Bosch Group is divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. Reporting is segmented in the same way. The group's business activities are shaped by universal trends such as increasing electrification, growing automation, digitalization, and connectivity, the ever greater importance of sustainability (especially climate action), and intense global competition. Nonetheless, the business sectors' markets and competitive environments vary, in some cases considerably.

In the case of the Mobility business sector (formerly Mobility Solutions), the Bosch Group has long competed mainly with a small number of major automotive suppliers. Its chief customers have been globally operating automakers and major regional producers. However, this market is changing due to increasing electrification, automation, connectivity, and multimodal mobility, as well as to the greater significance of software in vehicles. The integration of electronics and software into vehicles, as well as growing complexity, are having an impact on vehicle architectures. Our customers' purchasing behavior with regard to hardware and software varies depending on whether they pursue a strategy of in-house production or external procurement. In the software field, moreover, the combination and integration of functions that were previously separate is becoming increasingly important.

In the future, there will be an even stronger focus on extra-vehicular services that rely on software in the car or in the cloud. This will make it possible to update software throughout the lifecycle of the software-defined vehicle and to scale applications in other markets. It will also enable shorter time-to-market, end-to-end architectures, and hardware-agnostic software and services. As a result, new business models will also arise. The complexity involved in operating systems for vehicles means that many automakers are seeking support from software providers – providers that do not operate solely in the automotive segment.

These trends make the market attractive for additional providers, also from industries such as consumer electronics, semiconductors, and the services and internet sector, as well as for providers of mobility platforms. In addition, automakers are looking to increase the value they generate themselves in the promising areas of electronics, software, and electromobility. Other important factors influencing our business are the far-reaching technological changes in the shift from combustion technology to electrification, which are also changing the market and competitive landscape. As a result of the trends toward electromobility and the software-defined vehicle, for example, Chinese automakers have gained a strong market position. At the same time, they are increasingly making inroads into global markets, which is likely to further intensify competition. Despite the significant rise in automotive production in 2023, we expect further developments to be on the subdued side. The significant decline in the proportion of diesel-powered passenger cars in the key European and Indian markets, as well as the regionally very varied statutory standards for combustion engines, present further challenges.

Within Industrial Technology, the Drive and Control Technology division supplies hydraulics and factory automation components and systems in fairly fragmented markets with many competitors and customers. The nature of these competitors and customers is changing as a result of trends such as mobile machinery electrification, of the inroads being made by digital solutions, of further market consolidation in areas such as hydraulics, and of increased price pressure due to the growing significance of Asian suppliers.

In the Consumer Goods business sector, Power Tools and BSH Hausgeräte GmbH are focusing on responding to the changing needs and wishes of consumers and trading partners in their markets and offering them appropriate products and solutions. Both divisions compete with global and regional providers. The extraordinary boom in the consumer goods segment due to the Covid-19 pandemic came to an end in mid-2022. This boom had also triggered extensive pull-forward effects. Even before the pandemic, there was evidence of a global shift from traditional brick-and-mortar retail to online commerce. This trend was reinforced by the pandemic, even though traditional retail is currently regaining ground. A fundamental market shift can also be observed in the home appliances sector as a result of market consolidation. The competitive pressure from Asian, in particular Chinese, suppliers has increased overall, and takeovers have led to shifts in the competitive environment. In view of this, competition is intensifying in the consumer goods segments, and thus also cost pressure.

In Energy and Building Technology, the Building Technologies and Home Comfort (formerly Thermotechnology) divisions compete with a small number of international suppliers and many regional ones. We are currently seeing trends toward consolidation, especially in the heating and air-conditioning market. Moreover, the different domains that make up energy and building technology are converging. One market projected to grow over the long term, especially in Europe, is heat pumps as a replacement for and supplement to the fossil fuel-based technologies used up to now. And while Bosch expects the heat-pump market in Europe to stagnate in the years ahead, also due to uncertainties regarding government subsidies, this market trend will be reinforced over the long term by higher carbon pricing. The Bosch Global Service Solutions division offers its services in a market featuring both major international rivals and more minor local providers.

## Corporate governance

The members of the board of management of Robert Bosch GmbH define the strategy for the entire company and lead the company as a whole. In the 2023 fiscal year, the board of management comprised six members. Stefan Grosch took over from Filiz Albrecht as director of industrial relations and board of management member on April 1, 2023. Frank Meyer was appointed as the seventh member of the board of management, effective February 1, 2024. He is mainly assuming responsibility for Building Technologies and Home Comfort in the Energy and Building Technology business sector.

The Robert Bosch GmbH supervisory board appoints, monitors, and advises the board of management. In making appointments to the supervisory board, Robert Bosch GmbH is subject to the German “Mitbestimmungsgesetz” (Codetermination Act). In view of the company’s size, the supervisory board has 20 members. Ten members are appointed by the shareholders with voting rights; the other ten members are elected by the employee representatives. Robert Bosch Industrietreuhand KG acts as a shareholder. In line with the mission handed down in the will of the company’s founder, Robert Bosch, it is responsible for safeguarding the company’s long-term existence and in particular its financial independence. The latter is intended to guarantee that the company remains entrepreneurially independent and able to act at all times.

Under German law, the supervisory board of a company subject to codetermination must set targets for the proportion of women in management positions. In December 2021, the supervisory board of Robert Bosch GmbH set such targets for Robert Bosch GmbH. These targets, which are to be met by the end of 2025, are 30.0 percent on the supervisory board and 16.67 percent on the board of management of Robert Bosch GmbH. As of December 31, 2023, six of the 20 members of the supervisory board of Robert Bosch GmbH were women. Women thus account for 30.0 percent. As of December 31, 2023, there was one woman on the board of management of Robert Bosch GmbH in the person of Tanja Rueckert, resulting in a 16.67 percent proportion of women among the board of management’s six members. Following the enlargement to seven management board members effected February 1, 2024, the aim is to reattain the target for the proportion of women.

In December 2021, the board of management of Robert Bosch GmbH adopted specific targets for the proportion of women on the two management levels below the board of management. These targets apply to Robert Bosch GmbH in Germany. They are 10.0 percent for the proportion of women on the first management level and 17.0 percent on the second management level. The deadline for achieving both targets was set as December 31, 2025. At the end of 2023, the proportion had reached 10.4 percent on the first management level (previous year: 9.7 percent) and 15.4 percent on the second management level (previous year: 14.6 percent).

In addition, subsidiaries in Germany that are subject to statutory codetermination set their own targets for the proportion of women on their respective supervisory boards, management bodies, and first two management levels, as well as a deadline for achieving them. Globally, the share of women executives across all management levels within the group rose to 20.0 percent in 2023 (previous year: 19.2 percent). We intend to continue to increase this percentage. At present, our aim is 25.0 percent, which we intend to reach by 2030.

# Description of business sectors

G 04

## Business sectors and divisions of the Bosch Group

| Mobility[1] | Industrial Technology | Consumer Goods | Energy and Building Technology |
|---|---|---|---|
| Bosch eBike Systems | Drive and Control Technology[2] | Power Tools | Building Technologies |
| Electrified Motion | | BSH Hausgeräte GmbH | Home Comfort[3] |
| Mobility Aftermarket | | | Bosch Global Service Solutions |
| Mobility Electronics | | | |
| Power Solutions | | | |
| Vehicle Motion | | | |
| Cross-Domain Computing Solutions | | | |

1. Since Jan. 1, 2024. See graph G05 for structural changes.
2. Bosch Rexroth AG (100% Bosch-owned).
3. Since Apr. 1, 2023. Formerly Thermotechnology.

# Mobility business sector

G 05

## Mobility: realignment

| Structure up to Dec. 31, 2023 | Structure after Jan. 1, 2024 | Unchanged |
| --- | --- | --- |
| Powertrain Solutions<br>Electrical Drives | Electrified Motion | Bosch eBike Systems |
| Automotive Aftermarket<br>Electrical Drives | Mobility Aftermarket | Bosch Engineering Group[1] |
| Automotive Electronics | Mobility Electronics | Two-Wheeler & Powersports |
| Powertrain Solutions<br>Electrical Drives | Power Solutions | **Other units** |
| Automotive Steering<br>Chassis Systems Control | Vehicle Motion | Mobility Engineering Solutions |
| Cross-Domain Computing Solutions<br>Powertrain Solutions | Cross-Domain Computing Solutions | |
| ETAS GmbH<br>Automotive Aftermarket | ETAS GmbH | |

1. Including Bosch Engineering GmbH, Commercial Vehicles and Off-Road, and ITK Engineering GmbH.

As a supplier of original automotive equipment, Bosch is engaged in a wide range of activities. To adapt to the changed market and customer environment, an organizational realignment took effect at the beginning of 2024. Given the significance of this realignment, we are already presenting the divisions as defined in the new structure, and will consistently use the name Mobility, and not Mobility Solutions, as the name of this business sector, even if our statements relate to 2023. For electromobility, a new Electrified Motion division has been established. The Electrical Drives division was dissolved at the beginning of 2024, and its activities reallocated to several divisions. Going forward, Power Solutions will focus on combustion technology, the hydrogen economy (fuel cells, electrolysis), and thermal systems. The braking control systems and steering systems units have been combined in the Vehicle Motion division. The spare parts business has been renamed from Automotive Aftermarket to Mobility Aftermarket and the business with semiconductors and sensors from Automotive Electronics to Mobility Electronics. The Cross-Domain Computing Solutions division remains responsible for driver assistance systems and automated driving, and has taken over the vehicle control unit business from Powertrain Solutions. Our subsidiary ETAS has assumed certain areas of responsibility from Automotive Aftermarket. The Bosch eBike Systems division and the Bosch Engineering Group remain unchanged. The other units are Two-Wheeler and Powersports as well as the Mobility Engineering Solutions service area, which is globally responsible for process, method, and tool development.

## Bosch eBike Systems

Bosch eBike Systems offers a comprehensive portfolio for pedelec manufacturers. This includes a modular system portfolio featuring various products such as drive units, batteries, and displays, as well as connected solutions featuring apps and cloud services. The various e-bike ABS applications can be integrated into the modular system. For manufacturers, specialist dealers, and consumers, the division also offers special services such as a hotline, diagnostics, and spare parts.

## Electrified Motion

In the shape of Electrified Motion, a division has been created specifically for electromobility. To achieve this, the electrification activities belonging to the former Powertrain Solutions division and the comfort actuators and electrical power drive business from the former Electrical Drives division were combined. Electrified Motion offers solutions for battery-electric powertrains for passenger cars and commercial vehicles, including off-highway vehicles. Its products range from electric motors, power electronics, and transmission technology to complete e-axles in which an electric motor, power electronics, and transmission are combined in a compact unit. In addition, the division offers electromechanical components and systems such as drives for e-bikes and e-scooters and for vehicle stabilization applications such as steering and brakes. The product portfolio also covers a wide range of motors and drive systems for convenience features such as window lifters, seat adjustment mechanisms, and sunroofs.

## Mobility Aftermarket

The sale of spare parts, either made in-house at Bosch or sourced externally, forms the basis of the business of Mobility Aftermarket, formerly known as Automotive Aftermarket. Besides its solutions for vehicles with combustion engines, Mobility Aftermarket develops portfolios and business models for electrification and automated driving. In the course of the reorganization, Mobility Aftermarket has taken over the original equipment business for wiper systems, including wiper blades, from the former Electrical Drives division and has combined these activities with its existing aftermarket business. Mobility Aftermarket provides testing and workshop technology as well as a range of spare parts for vehicles – from new and remanufactured exchange parts to repair solutions. Its portfolio also includes vehicle-servicing training, technical updates, and services such as workshop management systems, in combination with regional marketplaces and digital catalogues. In addition, Mobility Aftermarket is responsible for the concept behind the independent Bosch Car Service and AutoCrew workshop franchises.

### Mobility Electronics

In its role as an internal supplier, Mobility Electronics (formerly Automotive Electronics) continues to encompass the development, commercialization, and manufacture of ECUs (electronic control units). It also develops and manufactures semiconductor components for internal and external customers. The semiconductors are developed and marketed for automotive applications and for specific requirements of the consumer goods industry. Its semiconductors for automotive applications range from application-specific integrated circuits to power semiconductors and MEMS (microelectromechanical systems) sensors. In consumer electronics, Bosch Sensortec GmbH, based in Kusterdingen, Germany, supplies MEMS sensors for a diverse range of applications.

### Power Solutions

The Power Solutions division (formerly Powertrain Solutions) brings together combustion technology, the thermal systems business from the former Electrical Drives division, and components and systems for the hydrogen economy – fuel-cell technologies both for electric powertrains and for stationary applications in the field of electrolysis, plus other technologies for a decentralized power supply (solid-oxide fuel cells or SOFC). The portfolio also includes software and services.

Power Solutions operates in the markets for passenger cars, light and heavy commercial vehicles, off-highway vehicles, and stationary applications. The division's combustion-engine business comprises combustion components with solutions and systems based on diesel, gasoline, natural gas, ethanol, hydrogen, and synthetic fuels, as well as the 48-volt battery. It also comprises engine management systems and all software and services related to the combustion engine, fuel-supply modules, fuel injectors and pumps, ignition systems, exhaust-gas treatment systems, and sensors.

In its hydrogen activities, Bosch offers fuel-cell systems for mobility (polymer electrolyte membranes, or PEM) in the commercial-vehicle sector. These systems include both individual components – such as electric air compressors, hydrogen injectors, tank valves, control units, and sensors – and stacks, all the way up to complete power modules. For hydrogen engines and tank systems, components such as hydrogen injectors and tank valves are available. The product portfolio also includes electrolysis based on PEM technology.

In thermal systems, the core business is an extensive portfolio of components and systems for thermal management – such as pumps, electric blowers, and refrigerant compressors for cooling and refrigerant circuits – in vehicles featuring powertrains of all kinds.

### Vehicle Motion

The new Vehicle Motion division merges the previous Automotive Steering and Chassis Systems Control divisions and offers customers a combination of steering, braking, and occupant safety systems, as well as the respective sensors. The future aim is for integrated solutions to interact with the relevant actuators in the vehicle (steering, brakes, powertrain, and chassis) and in this way increase safety, agility, convenience and driving enjoyment, and energy efficiency. For example, the division offers vacuum-based and vacuum-independent electromechanical brake boosters that can be combined with braking control systems (ABS, ESP®). Combined systems (integrated power brakes) bring together brake boosters and braking control systems. Integrated power brakes and by-wire actuators also come under the heading of new braking systems. Among other things, these systems are intended to support the major mobility trends of electrified and automated driving and new by-wire architectures. The portfolio also includes electric power steering systems for passenger cars as well as electro-hydraulic and hydraulic steering systems for heavy commercial vehicles. The occupant protection systems encompass airbag control units and the associated crash sensor technology. Vehicle dynamics sensors include the sensors that provide vehicle-related signals as input to active safety systems.

### Cross-Domain Computing Solutions

Cross-Domain Computing Solutions is responsible for the business areas of driver assistance systems and automated driving, including parking systems and related services (advanced driver assistance systems, or ADAS). Its core task is to develop application-specific vehicle software as well as vehicle computers, control units, and sensors. As part of this work, the division develops and implements solutions for electric/electronic (E/E) vehicle architectures, driver assistance systems, and automated driving, as well as cockpit solutions, software, and services. Furthermore, the business of cross-domain vehicle control units (but not engine control units) has been transferred from Powertrain Solutions to Cross-Domain Computing Solutions.

### Other businesses

The subsidiary **Bosch Engineering GmbH**, based in Abstatt, Germany, develops a wide range of customized solutions based on tried and tested technology used in volume production – not only for sports cars, but also for railcars and other non-automotive mobile applications. Bosch's motor racing activities are also based at Bosch Engineering. Bosch Engineering manages the **Commercial Vehicles and Off-Road** unit, which is responsible for systems development, product management, and sales for the commercial and off-highway vehicle segments. **ITK Engineering GmbH**, based in Rülzheim, Germany, complements Bosch Engineering's services. It offers customized and bespoke systems- and software-development services under its own brand, with engineering operations separate from Bosch.

The **ETAS** portfolio includes basic vehicle software, middleware, development tools, cybersecurity solutions, and end-to-end engineering and consulting services for bringing the software-defined vehicle to fruition. With its product solutions and services, ETAS enables automakers and suppliers to develop, operate, and secure one-of-a-kind vehicle software. In addition, parts of the former Automotive Aftermarket division's diagnostics business for automakers have been integrated into ETAS.

For two-wheelers, three-wheelers, and powersports vehicles, the **Two-Wheeler and Powersports** business unit offers assistance systems such as ABS (antilock braking system) and MSC (motorcycle stability control), radar-based assistance systems such as adaptive cruise control, powertrain technology, display instruments, and connectivity solutions. The unit can draw on the products and resources of the Mobility business sector.

With the establishment of Bosch Mobility, the **Mobility Engineering Solutions** service area, headquartered in Bengaluru, India, has been made an integral part of the business sector. It will assume responsibility for process, method, and tool development in software engineering. Its range of tasks is divided between work as an internal service provider of software engineering for Mobility's divisions and as an external provider of software and service products.

## Industrial Technology business sector

The Industrial Technology business sector comprises the Drive and Control Technology division, with its other activities including the Bosch Manufacturing Solutions unit, which focuses on manufacturing equipment and automation solutions, and the Bosch Connected Industry business unit.

### Drive and Control Technology

Our subsidiary Bosch Rexroth AG, based in Lohr am Main, Germany, specializes in drive and control technologies for movement in machines and systems of any type and size. It has global application expertise in the market segments of mobile machinery, plant construction and engineering, and factory automation. With intelligent components, customized systems solutions, and services, Bosch Rexroth creates the necessary environment for applications with full connectivity. The division combines hydraulic, mechanical, and electrical solutions for mobile and industrial applications, electrical drive and control technology, and linear motion and assembly technology, including software solutions.

### Other businesses

**Bosch Manufacturing Solutions**, a provider of manufacturing equipment and automation solutions, develops models for customized and intelligent assembly and testing. These include the related manufacturing processes and technologies as well as digital and intelligent solutions and services along the entire product lifecycle. The **Bosch Connected Industry** business unit develops software solutions for internal and external customers with a focus on Industry 4.0.

## Consumer Goods business sector

The Consumer Goods business sector comprises the Power Tools and BSH Hausgeräte divisions.

### Power Tools

Robert Bosch Power Tools GmbH, based in Leinfelden-Echterdingen, Germany, is a supplier of power tools, garden tools, power-tool accessories, and measuring technology. The division's extensive product range is aimed at both professional use in trade and industry and the DIY market. Its range of accessories above all includes abrasive systems, drill bits, and saw blades, which are sold globally under the Bosch brand and regionally and segment-specifically under brands such as Diablo, sia abrasives, and Freud. Precision rotary tools for DIY applications are also sold under the Dremel brand.

### BSH Hausgeräte GmbH

The home-appliance manufacturer BSH Hausgeräte GmbH, based in Munich, Germany, has a product portfolio that ranges from washing machines and tumble dryers, through refrigerators and freezers, ovens, cooktops, extractor hoods, and dishwashers, to small appliances such as vacuum cleaners, automatic coffee makers, and food processors. The home-appliance specialist sells its products under the global Bosch, Siemens (under license), Gaggenau, and Neff brands. In addition, brands such as Balay in Spain, Profilo in Turkey, and Thermador in the U.S. serve their local markets. In addition, there are the Home Connect brand for the BSH ecosystem in the connected kitchen and various service brands, including BlueMovement.

## Energy and Building Technology business sector

The Energy and Building Technology business sector comprises the Building Technologies, Home Comfort (formerly Thermotechnology), and Bosch Global Service Solutions divisions.

### Building Technologies

The Building Technologies division has two areas of business: its global product business for security and communications solutions, and its regional systems integration business. The latter offers solutions and customized services for building security, energy efficiency, and building automation in selected countries. Both units focus on commercial buildings and infrastructure projects. The product portfolio encompasses video-surveillance, intrusion-detection, fire-detection, and voice-alarm systems, as well as access-control and professional audio and conference systems.

### Home Comfort

The Home Comfort division offers its customers a wide range of solutions for heating, cooling, well-being, and process heat. Its portfolio includes electric heat pumps and hybrid heat-pump solutions, condensing boilers, air-conditioning systems, ventilation equipment, air purifiers, solar thermal systems, and combined heat and power generation. In addition, the division is active in the business of constructing plant for commercial and industrial steam and hot-water generation, heating, and air conditioning. Home Comfort markets its solutions under international and regional brands such as Bosch, Buderus, IVT, Vulcano, and Worcester. It operates within a partner network of installers, architects, planners, and wholesalers.

### Bosch Global Service Solutions

The Bosch Global Service Solutions division provides technology-based services primarily for customers in the automotive, building, logistics, and pharmaceuticals industries, as well as communications technology. For example, it offers services such as emergency-call and monitoring services.

## Selected companies not allocated to business sectors

The subsidiary **Bosch Healthcare Solutions GmbH**, based in Waiblingen, Germany, operates in the medical technology sector, supplying sensors, software, and services. Its product range includes equipment and software solutions for decentralized laboratory diagnostics and the diagnosis of respiratory conditions.

The subsidiary **grow platform GmbH**, located in Ludwigsburg, Germany, offers a platform within the Bosch Group for developing and implementing new business models and incubating in-house startups, supporting them with business know-how in areas such as strategy, organization, controlling, human resources, infrastructure, marketing, and methods.

Through **Robert Bosch Venture Capital GmbH**, based in Gerlingen, Germany, we invest worldwide in technologies with future potential, such as the internet of things, artificial intelligence, and advanced computer architectures. The company provides capital for startups and industry-specific venture capital funds in Europe, the U.S., Israel, and China. Its "Open Bosch" program also fosters Bosch's collaboration with third-party startups.

# Prospects for the Bosch Group

## Fundamental strategic orientation and objectives

For a broadly diversified technology company like the Bosch Group, considerable opportunities are emerging from universal trends such as electrification, electronification, automation, digitalization, and sustainability, as well as from the further expansion of its international footprint. We have therefore aligned our overall strategy with these circumstances. The starting point for our goals and strategies is the objective of securing the company's future as enshrined in the will of the company's founder Robert Bosch – in other words, ensuring the company's strong development and securing its financial independence. Our long-term ambition is to continue offering products that are "Invented for life" – products that fascinate, that improve quality of life, and that help conserve natural resources. In this respect, "products" are not only physical products and services, but also the software-based solutions and services that go with them.

Against this backdrop, we aim to position the Bosch Group as a leading technology company. We want this aspiration to be reflected in our financial targets as well. With regard to sales revenue, our aim is average annual growth of 6 to 8 percent between now and 2030, given normal inflation rates of 2 to 3 percent. In this context, we take our lead from the European Central Bank's medium-term inflation target of 2 percent. A further strategic goal is to achieve stronger growth in emerging markets outside China, such as India, ASEAN, and Africa, but also in North America, where – in terms of the market available to us – we have not yet exhausted our market potential. In Europe, we want to develop our markets further. We intend to grow by innovating and by opening up new markets, but also by acquiring companies and entering into partnerships. In our existing businesses, we aim to achieve an overall EBIT margin from operations of at least 7 to 7.5 percent; the expansion of high-margin areas of business, both adjacent and new, is intended to further increase this margin, and thus also the free cash flow-to-sales revenue ratio, in the future.

As a rule, we stand by our broad diversification. However, we want to step up our efforts to improve our EBIT margin and our company's competitiveness overall. Focal points here, apart from portfolio management, cost efficiency, and restructuring, are increasing the productivity of research and development, strengthening our regional business, and promoting conditions that promote strong performance in all units and on every level of the hierarchy. The Lead, Work, Win #LikeABosch initiative aims to encourage the entrepreneurial attitude that this requires. Among other things, this involves a stronger focus on earnings and free cash flow and the measures relating to them, as well as the question of how executives can be better empowered and talent more deliberately cultivated.

## Ample opportunities

For the Bosch Group, there are considerable growth opportunities in both existing and adjacent and new areas of business. Our strategy is oriented to this. The fundamental condition for entering new fields of business is that the activities be compatible with our skills and expertise. Specifically, these are preparing for and implementing high-quality volume production, broad domain and industry knowledge, as well as technological expertise, also in complex and intelligent systems such as electronic and electromechanical systems with embedded software. Future developments will continue to be driven by the trends of digitalization, connectivity, electrification and electronification, sustainability, automation, and emerging markets, which we associate with our “Invented for life” ethos.

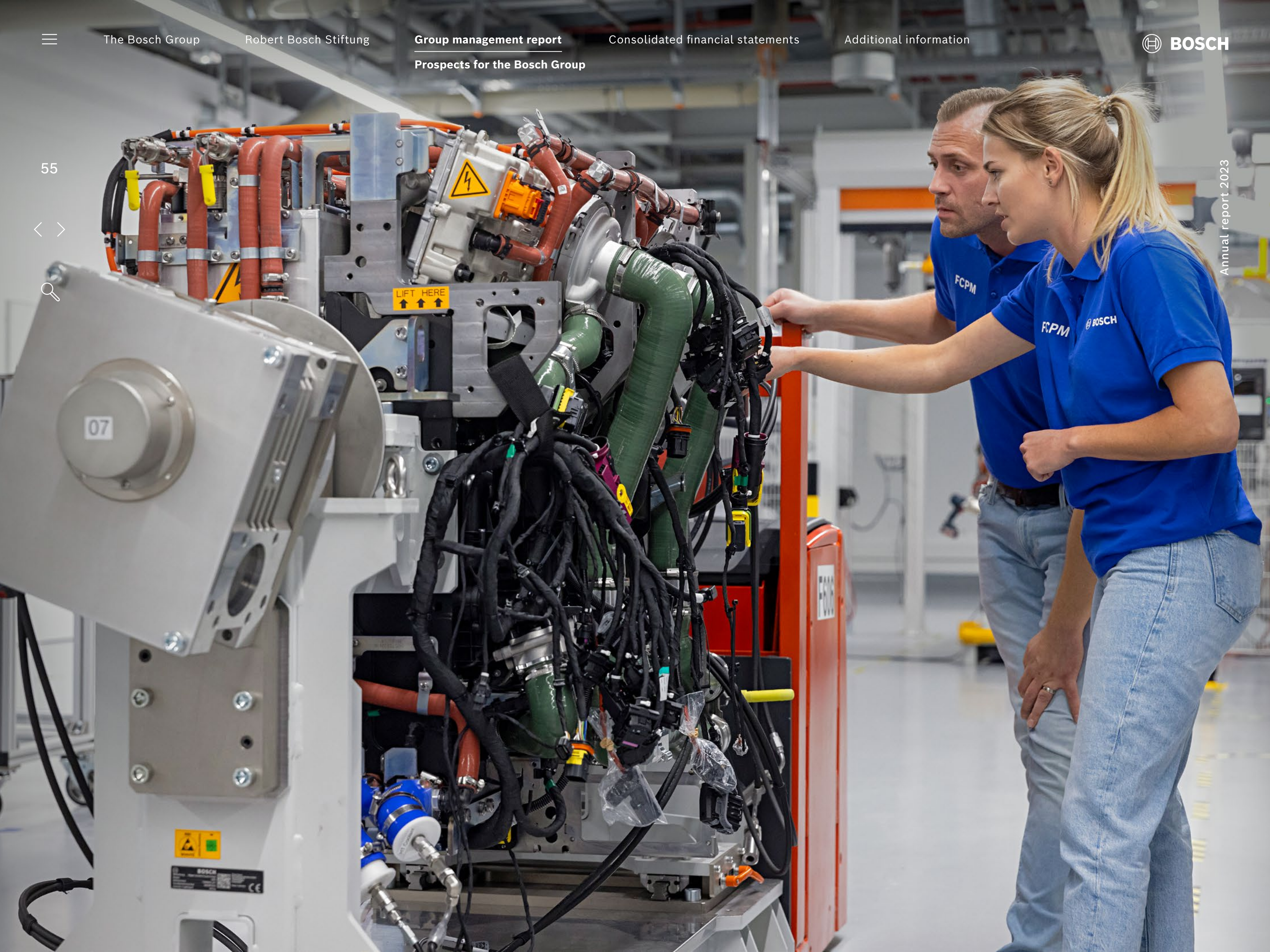
Electrification is of particular importance for Mobility, our biggest business sector. Emissions standards aimed at complying with climate targets and improving urban air quality are reinforcing the trend toward electromobility, along with customers’ desire for driving enjoyment. In our Industrial Technology business sector, the new solutions arising from the increasing convergence of electrical and hydraulic systems are presenting us with opportunities. In building technology, especially in heating and air-conditioning, the use of heat pumps and renewables is growing strongly in importance, and this is leading to market opportunities.

In addition to its significance for the Industrial Technology and Energy and Building Technology business sectors, automation especially affects the Mobility business sector with respect to partially and highly automated driving. Here, we expect strong market growth, mainly in partially automated driving. Where industrial technology is concerned, ample opportunities are arising from the increasing flexibility and connectivity of manufacturing operations. This offers new ways of enhancing product quality and productivity, adding functionality, and saving energy. It also opens up potential for services such as remote predictive maintenance. In the Consumer Goods and Energy and Building Technology business sectors as well, connectivity and increasingly smart products are creating additional potential for growth as a result of new services for areas such as maintenance.

In view of our expertise in many product segments and our know-how in software and sensor technology, we see huge potential for the development of Bosch’s business operations over the long term, also attuned to differing customer needs in different regions. We are also relying on our proficiency in the areas of connectivity and artificial intelligence, which we view as fundamental for the design of intelligent and user-friendly products, services, and processes. In general, we believe that sustainably manufactured products offer prospects for future market success. We want to further expand our presence in sales and manufacturing operations in the emerging markets of Asia, South America, central and eastern Europe, and Africa, which are home to much of the world’s population. In these regions, there is frequently a demand for affordable products – ones that meet the requirements of the local market with regard to people’s lifestyles, robustness, and repairability.

Current examples of opportunities in existing areas of business include the expansion of our position in the North American market through the integration of the North American hydraulics manufacturer HydraForce Inc. in Lincolnshire, Illinois, USA (HydraForce), acquired in 2023, and the expansion of the integrator business in Building Technologies through the acquisition of Paladin Technologies Inc. in Vancouver, British Columbia, Canada, and of PalAmerican Technologies Inc. in Tumwater, Washington, USA. The opening of a new test center for chips and sensors in Penang, Malaysia, is an example of our activities in emerging markets. Growth areas in the Mobility business sector include components and systems for electromobility and the driver assistance systems on offer. Further growth areas include semiconductors and the hydrogen economy, whether in fuel cells or electrolysis. Partnerships play a critical role in many areas, such as the partnership that has been announced in the field of medical technology.

When putting our strategy into practice, we continue to build on our high level of innovativeness – also in relation to our research and development expenditure – on quality, on our broad diversification and global presence, and on the Bosch culture. Our actions are based on the Bosch values: (1) Future and result focus, (2) Responsibility and sustainability, (3) Initiative and determination, (4) Openness and trust, (5) Fairness, (6) Reliability, credibility, legality, (7) Diversity, equity, inclusion.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# Strategy and innovation

## Group-wide topics

### Digitalization strategy

By digitalizing our products, we are adding to their qualities in order to enhance customer benefit in the “Invented for life” spirit. Through connectivity, we also want to generate additional software and service sales revenue and increase the efficiency of our processes. By “connected solutions,” we mean various combinations of hardware and software, as well as services. The discrete board of management responsibility accorded to digitalization underscores the importance we attach to this subject. We have developed an overarching digitalization strategy for the Bosch Group as a whole. It is intended to provide a common framework for the wide range of existing activities and a guiding principle for future ones. For this purpose, we have defined basic metrics such as recurring sales revenue and sales revenue from software and services as a basis for greater transparency and clear objectives in the future. These metrics are being gradually expanded at the division level in order to reflect the divisions’ diversity and thus their digitalization strategies.

Essentially, the overarching digitalization strategy for the entire Bosch Group focuses on five key areas: fascinating with customer-centric solutions, unlocking business potential through software and services, creating additional value by setting up digital ecosystems with partners, making Bosch faster and more efficient, and developing our associates and empowering digital talent. One key element for implementing our strategy is harnessing the power of artificial intelligence with respect to connected, internal processes such as development, production, logistics, and administration, as well as for the expansion of third-party business with digital solutions. For this purpose, we have formed strategic partnerships and launched a comprehensive program to support and coordinate the divisions’ ongoing initiatives for the use of generative AI (a form of artificial intelligence that generates its own content). We have also set up training programs to broaden in-house knowledge about the opportunities and requirements of digital business. Extensive training programs, especially in the form of in-house online training courses, serve to expand managers’ and specialists’ skills.

In a diversified company like the Bosch Group, it is the divisions that are responsible for adapting and implementing the fundamental strategic orientation in digitalization. In 2023, the focus was on developing the appropriate divisional strategies. Among other things, the divisions developed their own targets and defined the metrics that apply to them. A large number of programs are currently underway to flesh out and integrate the overall strategy into the business areas’ activities. Areas of interest include strengthening software platforms for software-defined vehicles in the Mobility business sector and, in Industrial Technology, building an ecosystem centered on ctrlX control software. For the divisions, digitalization is also a means of improving efficiency and profitability – whether through high-margin sales revenue from digital solutions or through the cost savings that result from the digitalization of business processes.

One example is the use of artificial intelligence in the shape of chatbots for call center services. Another example is in the field of quality assurance in manufacturing, where synthetic images are created using generative AI to develop solutions for optical inspection or to optimize existing models. To be able to offer best-in-class technologies, we also enter into partnerships with technology providers, such as the startup Aleph Alpha in the field of generative AI. We also invested in the startup via our subsidiary Robert Bosch Venture Capital.

With respect to artificial intelligence, AskBosch, our in-house language system based on generative AI, has been available to our associates in many countries since 2023. The underlying technology is also used by the Cross-Domain Computing Solutions division to analyze large data sets for image recognition even more accurately and efficiently, and to enrich them with contextual knowledge based on the situation. This in turn is a basic prerequisite for developing highly automated driving and many ADAS technologies. Further digital initiatives at Bosch include the wide-scale introduction of S/4HANA to consolidate and modernize the system landscape of the business management software.

## Sustainability

For Bosch, sustainability is the balance between the economic, ecological, and social elements of our business activities as part of responsible corporate governance. The highest specialist body for sustainability at Bosch is the corporate sustainability board, which is headed up by the chairman of the board of management of Robert Bosch GmbH and the management board member responsible for sustainability. The board's main task is to define the Bosch Group's sustainability goals and strategy.

Bosch's overall objective for sustainability covers six strategic themes: climate action, water, circular economy, diversity, human rights, and health. In the programs based on them, we are increasingly going beyond our direct sphere of influence to include supply chains and use of products sold. We want to become a leading player in climate action. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral overall since 2020 – both in scope 1 (direct emissions) and scope 2 (indirect emissions from procured power). We achieve carbon neutrality by applying four levers: increasing energy efficiency, generating our own energy from renewable sources (new clean power), purchasing electricity from renewable sources (green electricity), and – as a last resort – offsetting the remaining $CO_2$ emissions. In 2023, residual emissions of roughly 581,000 tons of $CO_2$ were offset through carbon credits. The terms “Scope 1, 2, 3” (scope 3: upstream and downstream emissions in the value chain) are used in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.

Our goal is to continuously improve the above-mentioned mix of measures so as to further reduce our impact on the climate. In the 2023 fiscal year, one of the ways we improved the mix of measures was by further expanding renewable power generation at our locations. In addition, we are sourcing green electricity for our locations in more and more countries. Since 2023, these countries have included Japan, Malaysia, Singapore, and South Korea.

We want to shape climate action beyond our immediate sphere of influence (scopes 1 and 2) and systematically reduce upstream and downstream emissions (scope 3) as well. By 2030, we want to decrease these emissions by 15 percent in absolute terms compared to 2018, the baseline year. This target was set independently of 2030 sales revenue. In other words, the quantity to be reduced will increase in line with the company's future growth. Upstream emissions in the Bosch value chain relate mainly to purchased goods and services as well as logistics, while downstream emissions arise mostly from the use of our products. Bosch's climate targets were reviewed and endorsed by the Science Based Targets initiative (SBTi) for the 1.5-degree pathway.

When it comes to the circular economy, we also want to make our products more sustainable across their entire lifecycle – from procurement and manufacturing, through use, return, and remanufacturing, to recycling and reuse. We therefore strive to either create loops within Bosch or to close them outside the company using established recycling processes. By doing so, we aim to reduce the amount of material used in our products, as well as their carbon footprint, and in this way help achieve our scope 3 target. One example of this is the use of recycled plastics in power tools and home appliances.

Bosch takes its lead from the United Nations Guiding Principles on Business and Human Rights. It also implements the requirements of the Act on Corporate Due Diligence Obligations in Supply Chains ("Lieferkettensorgfaltspflichtengesetz"), which came into effect in 2023. For example, we have set up a risk management system to ensure that our human-rights and environmental due diligence obligations are upheld. This applies both to our own actions and those of our suppliers.

Bosch also places great importance on occupational safety. We see preventing accidents and ensuring workplace safety as part of our responsibility. By 2025, we want to reduce the number of workplace accidents to 1.45 per 1 million hours worked.

### Robustness

The Covid-19 pandemic, chip shortages, and the war in Ukraine with its concomitant energy shortages have demonstrated the effectiveness of our crisis organization, but have also underscored the importance of robustness. China was still feeling the impact of the Covid-19 pandemic at the start of 2023, as the government lockdowns there lasted almost until the end of 2022. The chip shortages were largely overcome in the course of 2023. The Coordination Team Ukraine project was dissolved at the end of May 2023 and its tasks transferred back to the line organization. This team had been founded at the start of July 2022 as a successor to the Ukraine crisis team. Bosch's activities in Russia have essentially come to a standstill; the process for divesting the Russian plants, which served various business areas, was largely completed in the course of 2023.

Despite the generally tense energy situation in Germany and other European countries in the winter of 2022–2023, there were no restrictions on the supply of natural gas at Bosch. This was partly because we significantly exceeded our self-imposed target of using 15 percent less natural gas at our European locations, saving a total of some 20 percent during the heating period. The mild weather played a role here as well. As a precautionary measure, we have also increased our crude oil stocks to safeguard our delivery capability.

On a general level, we are working to increase our robustness by broadening our international footprint. Our strategy is to achieve an even better regional balance, also by improving our market penetration in countries where we have further growth potential. In particular, this means strengthening our activities in the Americas, especially the U.S., but also in countries such as India or regions such as ASEAN and Africa. We also analyze the structure of our supply sources with regard to the growing number of trade barriers and review the extent to which these sources are exposed to protectionist conditions and risks.


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## Mobility

### New organizational structure takes effect

Our vision is to shape a new era of mobility – mobility that is sustainable, safe, and exciting. We aim to maintain our role as the go-to partner for automotive systems and the associated hardware and software, and to become a leading provider of technology for the mobility lifecycle business. Until now, Bosch has primarily been a supplier of systems and components. However, customers are increasingly demanding a separation of hardware and software, with many hardware components likely to have less potential to offer a USP in the future. We expect that the driving experience and customer benefits will be increasingly defined by software; at the same time, the proportion of electronics will rise. In this context, it can be assumed that different customer requirements and regulations in the regions will lead to different demands on Bosch as a supplier. Our strategy is based on our expertise relating to the interaction between software and hardware, as well as to vehicle-specific subjects such as powertrain technology, vehicle dynamics, and safety. It is also based on our generally high level of electronics expertise. We also want to ramp up our activities in software and services, even if our focus will continue to be on hardware.

It is important to have an organization that provides the best possible responses to market and technological developments. Customer needs are changing ever more quickly, and we want to serve those needs even faster, with customized technologies and solutions from a single source. This is why one of our strategic focal points is the realignment of the Mobility (formerly Mobility Solutions) business sector as an integrated business sector with its own management team and P&L responsibility across the Mobility business areas. The new structure took effect at the start of 2024. Many of its divisions were assigned to horizontal and vertical domains in order to strengthen collaboration in areas such as electrification, vehicle dynamics, driver assistance systems, vehicle computers, and software. The new structure is described in detail in the section headed “Fundamental information about the group.”

The strategy should also be viewed in the context of market developments. Global vehicle production is still well off its 2017 peak of some 98 million units, although in 2023 it returned to its 2019 level (i.e., before the Covid-19 pandemic) of around 93 million units. The chip shortages have now largely been overcome. In the years ahead, however, we expect only slow growth in global vehicle production. We continue to base our planning on the assumption that production will not return to its 2017 level before the final years of this decade. Nonetheless, we believe that factors such as the rising share of connected software and electronics components in vehicle systems offer our company considerable growth opportunities.

At the same time, we need to provide fundamental answers to geopolitical developments, changes in the competitive landscape, growing regionalization, digitalization, and stricter sustainability requirements, also in the area of mobility. Other important trends are battery-electric powertrains, in which Chinese manufacturers and suppliers are already playing a major and growing role, and fuel cells. Hydrogen engines also offer new possibilities, and the significance of software and data will continue to grow as well. For future vehicle software architectures, we must adapt to the different approaches taken by manufacturers and position ourselves flexibly. In several domains, we expect to see a trend toward vehicle platforms with centralized electrical/

electronic architectures. This will likely mean that the number of electronic components and semiconductors in vehicles will continue to rise. Assisted driving will move even more toward partially and then fully autonomous driving. In addition, competition will change due to new market players in industries such as semiconductors and the internet and service sector, including mobile platform providers. We also aim to become a provider of solutions for software components and software platforms that are then used to enable functions in the vehicle. For this purpose, we are significantly expanding the activities of our subsidiary ETAS.

Our goals are to achieve over 6 percent average annual sales revenue growth in the Mobility business sector from 2023 to 2030 and to continue to gradually improve EBIT margin from operations despite continuing high levels of upfront investment. Our growth target assumes inflation rates of between 2 and 3 percent. In this context, we take our lead from the European Central Bank's medium-term inflation target of 2 percent. We expect growth opportunities particularly in battery-electric vehicles and fuel cells, vehicle dynamics, driver assistance systems, vehicle computers, software and services, semiconductors, and sensors. But our activities in eBike Systems, Two-Wheeler and Powersports, Commercial Vehicles and Off-Road, Mobility Aftermarket, and Bosch Engineering also offer considerable prospects for growth.

Achieving these targets also requires that we strengthen our competitiveness through cost efficiency and by systematically aligning our portfolio with future changes in the market and competitive landscape. Among other things, our far-reaching measures concern purchasing activities and manufacturing processes, as well as the global production network, administration, and sales. They are also concerned with strengthening productivity and efficiency in research, development, and product management. There are also plans to make greater use of generative AI in software development, such as by generating synthetic training data for automated driving. We expect generative AI to become increasingly important throughout the entire value creation process. Mobility's strategy also includes an overarching, long-term investment strategy for the business sector that is linked to financial targets. Mobility aims to significantly increase its competitiveness in order to achieve enduringly profitable growth.

Regarding the future viability of the Mobility locations in Germany, we have concluded a far-reaching agreement with the relevant employee representatives. One of its key components is a collective agreement for almost 80,000 associates in Germany. This agreement also sets out a process for the development of long-term objectives for the German Mobility locations that are bound by collective agreements. The agreement also relates to the reorganization of the Mobility business sector as of January 1, 2024. The adjustments that have been announced since 2023 include phasing out the production of combustion-engine components at the Munich location. Further adjustments will likely be necessary, particularly at our European locations, due to the phaseout of combustion technology. To safeguard the competitiveness of the powertrain business, we must also adjust headcount in the areas of development, sales, and administration at the Feuerbach and Schwieberdingen locations in Germany. In the field of automated driving, we also decided in 2023 not to invest any further resources in the hardware development of lidar sensors, given the technological complexity and delays in the market launch. The existing engineering capacity is to be allocated to other sensor technologies such as radar.

The Cross-Domain Computing Solutions division is also planning to improve the setup of its locations, particularly in the greater Stuttgart area. Measures here include a comprehensive cost-cutting and performance program, which will focus on efficiency in research and development along with administration and sales.

We are working on the competitiveness of the Mobility business sector's location structure outside Germany as well. This applies to locations belonging to different divisions in France. In the powertrain systems business, we are also adapting our activities relating to push belts for CVT (continuously variable transmission) at our factories in Ho Chi Minh City, Vietnam, and Tilburg, the Netherlands. And in the mechanical steering segment, which is becoming much less important, we have announced the closure of a plant in Penang, Malaysia.

### Outlook for powertrain technology

Future powertrain technology will be impacted to a large degree by emissions regulations. Besides $CO_2$ regulations, these include the new European Euro7/VII emissions standard, which we expect to come into force by summer 2024. Following the agreement reached by the European institutions in December 2023, it still has to be approved by the EU member states in the European Council and by the European Parliament. However, the technical regulations based on this will take more time. The new regulations are expected to apply to type approval for passenger cars and light commercial vehicles from the start of 2027 and for heavy commercial vehicles starting in mid-2028; in each case, they will apply to new vehicle registrations after a period of one year.

As a company, we are committed to the very ambitious Paris climate targets. In this spirit, we continue to pursue all technology paths and offer our customers a broad portfolio. We want to make any necessary structural changes as socially acceptable as possible. In the transformation in powertrain technology, we are committed to harmonizing the interests of ecology, business, and society. For this reason, our work focuses on improving our existing technology as well as on new technologies. The aim here is to reduce emissions from combustion engines, with regard to both the engine itself and exhaust-gas treatment. We also want to contribute to low-carbon mobility through a variety of developments, including components and systems for electric vehicles that run on green electricity.

In the transitional phase and in numerous applications (especially in heavy-duty and long-haul traffic), the modern combustion engine will continue to play an important role. It will also feature as part of hybrid configurations. Bosch's aim is to remain a long-term partner for systems and components through efficiency in capital expenditure and engineering work and to systematically exploit the opportunities that present themselves in existing areas of business. Nonetheless, we expect sales revenue in the combustion-engine business to decline from the middle of the decade onward, and in addition to adjustments there will be regional shifts, especially in Europe. Low-carbon and completely carbon-neutral fuels – such as renewable synthetic fuels – can help the existing global vehicle fleet play a role in achieving climate targets. Moreover, alternative fuels can complement electromobility where purely battery-electric powertrain solutions still face economic or physical challenges, such as in heavy trucks. In addition, low-carbon and carbon-neutral fuels can be used in countries in which the take-up of electromobility is slower as a result of the lack of recharging infrastructure. We also supply components for vehicles powered by natural gas and bioethanol in countries such as Brazil.

In addition to purely battery-electric powertrains, many automakers are equipping their combustion engines with hybrid solutions such as 48-volt technology. Both combustion engines and 48-volt batteries fall within the purview of the newly formed Power Solutions division. The 48-volt technology in particular helps manufacturers reduce combustion-engine consumption and to make these engines more environmentally friendly. One of the variants of 48-volt technology that Bosch offers in Europe is a battery with integrated power electronics. In this context, the very tight supply situation last year has improved significantly and is expected to normalize as further lines go into operation.

### The growth market for electromobility

In the electric passenger-car and commercial-vehicle segments, nearly all automakers have now announced ambitious sales and fleet-share targets. By 2030, we expect that significantly more than one-half of all new passenger cars will be electrified, as either battery-electric or hybrid models. For 2024, however, our assumption is that market developments will vary from region to region. While growth in China will remain largely constant, we expect to see a reluctance to buy among consumers in Europe, and especially in Germany, due to the expiration of the green bonus scheme. Considerable variations between products and delays in vehicle launches can be observed in the European and American markets. They mean a higher planning risk for suppliers and manufacturers.

To resolve these difficulties presented by electromobility, Bosch has established a discrete Electrified Motion division. We offer a wide range of solutions in the field of electric driving, from e-axles to electric motors and power electronics, and are therefore present in all relevant markets. This requires heavy upfront investment in development and production. In addition, there are the aforementioned challenges in the market. For this reason, a systematic focus on greater cost cuts and more standardization is needed to remain successful. These efforts are already paying off in China.

Our innovations in electromobility include new powertrain solutions, based on 800-volt technology, that shorten battery-charging times. These solutions went into production in 2023. The Bosch Car Service network is also extending its servicing and repair portfolio for electric and hybrid vehicles. One further new development is a connected energy and thermal management system that predictively (i.e., based on forecasts) gets the battery up to the right temperature when it needs charging. This cuts the time taken to recharge. Another new feature efficiently distributes electrical and thermal energy between the battery, the powertrain, and the air-conditioning system during driving. And with a view to recharging security, we are working with the startup Fetch AI to develop a digital passport for the electric car – independent of centralized data platforms.

### Fuel cells: a promising technology

Electrical machines and inverters can not only be used in battery-powered vehicles. They are also fundamentally suitable for vehicles powered by fuel cells. For the fuel-cell powertrain as well, we offer a comprehensive portfolio ranging from individual components to the stack (a combination of fuel cells that are connected with each other electrically) and entire fuel-cell systems. The ramp-up of fuel-cell technology depends heavily on the expansion of hydrogen infrastructure, and also depends on government policy. In this context, our activities relating to PEM fuel cells are initially focusing on the commercial vehicle sector.

We started production of our fuel-cell power module at the Feuerbach location in 2023. For fuel cells as well, we rely on a manufacturing network. In Germany, our Bamberg plant supplies the fuel-cell stacks and our Homburg plant supplies system components. In 2023, we also further ramped up manufacturing of the fuel-cell power module at our plant in Chongqing, China. The necessary components are supplied by our plant in Wuxi, China. In addition, we are establishing manufacturing capacity close to customers at our location in Anderson, South Carolina, USA. Together with the start of production of our fuel-cell power modules, a recycling plan also kicked off. With this, we aim to repurchase stacks when their useful life expires in order to recover the precious platinum that is used as a catalyst. For this purpose, we have concluded an agreement with the mobility provider Hylane GmbH in Cologne, Germany. This startup rents out hydrogen commercial vehicles, some of them equipped with Bosch fuel-cell powertrains.

In commercial vehicles, however, hydrogen can be used not only in fuel cells, but also in hydrogen engines. For these engines, we are working on both port- and direct-injection components and systems, as well as the necessary control units. This solution is particularly suitable for heavy commercial vehicles operating for lengthy periods with especially heavy loads, such as construction and agricultural vehicles. The currently available engine and powertrain technologies already provide a good basis for hydrogen engines. Much of the existing technology used for development and manufacturing can be repurposed. In addition, a hydrogen engine is made of steel and aluminum, which reduces dependencies on critical raw materials such as cobalt and their supply chains. We have already won a number of small-scale projects.

In addition, we are looking into PEM electrolysis and investing in the development of the associated components. Electrolysis uses electricity to split water into hydrogen and oxygen, thereby producing hydrogen. We started building prototypes for the electrolysis process at the beginning of 2023. We are also working on technologies in the field of stationary power generation based on solid-oxide fuel cells (SOFC).

### Vehicle dynamics as a growth area

The latest generation of the ESP® braking control system shows how hardware and software engineering are becoming separated on the one hand, yet are also cross-pollinating. The key innovation here is a new control concept: this software can intervene not only in the braking system but also in the electric powertrain and electric steering system. As a result, it can take preemptive action in critical situations. This allows the vehicle's driving stability and agility to be enhanced.

The new control system can be integrated into both a central vehicle computer and the ESP® control unit or other braking control systems, and is also available as a discrete software package. It will be part of a future vehicle management system – a software system solution that coordinates all aspects of vehicle motion by centrally controlling the brakes, steering, and powertrain. From 2024 onward, we expect additional synergy effects to arise from the integration of braking and steering systems under the roof of the new Vehicle Motion division.

## Software-defined vehicles

Software-defined vehicles require a new, centralized software and E/E architecture. Today, 30 to 50 individual control units are installed even in compact-class vehicles, and premium vehicles may feature more than 100. In the future, it will be possible to significantly reduce the number of control units by using powerful computers for the various vehicle domains, such as cockpit and connectivity functions. At the beginning of 2024, we presented an innovation at the Consumer Electronics Show in Las Vegas, Nevada, USA, in which infotainment and driver-assistance functions are combined in a software-intensive central computer and a powerful system-on-chip. In the future, the new software and E/E architectures will make it possible to update and continuously optimize software over the vehicle's lifecycle, within the limits set by the hardware.

This goes hand in hand with a growing separation of hardware and software. We are developing a uniform software and E/E architecture for the entire vehicle. We are also increasingly offering hardware-agnostic software that runs on chips made by different manufacturers. Among other things, this applies to the video-based perception of the vehicle's surroundings, which serves as the basis for assisted and automated driving and parking. At the same time, we are also working on hardware-only camera heads. We want our subsidiary ETAS to play a growing role in bringing the software-defined vehicle to fruition, and to offer basic vehicle software, middleware, engineering tools, cybersecurity solutions, and end-to-end engineering and consulting services, both on the external market and within the Mobility business sector.

## Driver assistance and automated driving

We are systematically improving our driver assistance systems for SAE levels 0 (such as lane-departure warning systems) to 2 (such as lane-keeping support systems and automatic cruise control) and also working on automated driving functions that significantly relieve drivers on freeways and in congested traffic. In addition, we are developing automated driving in stages in line with SAE Levels 3 and 4. By 2030, we expect the number of vehicles equipped with SAE Level 2 or Level 2 hands-free systems to at least double.

We use partnerships to augment our engineering proficiency, such as the engineering alliance with the Volkswagen Group subsidiary Cariad. The aim of this partnership is to make automated driving suitable for volume production. More specifically, these functions are Level 2 hands-free systems for urban, extra-urban, and freeway driving, as well as a system that assumes all driving functions on the freeway (SAE Level 3). In addition, an automated parking and charging service for electric vehicles is being tested in pilot projects such as an experimental Bosch parking garage in Ludwigsburg and the Cariad staff parking garage in Ingolstadt (both in Germany). In these garages, vehicles move driverlessly to the charging station and then back to their parking space. Building on our experience, we are also working on systems solutions for driverless maneuvering in automotive plants.

## A focal point of growth: semiconductors

In 2023 as well, we made a number of decisions that aim to further significantly expand our capacity and our market position in the semiconductor segment. In addition, our semiconductor business invested a total of some 630 million euros in 2023 in the corresponding production facilities and infrastructure. This includes the expansion of the cleanroom space in Reutlingen, Germany, which will give us more manufacturing capacity for processing 200-millimeter wafers. The further expansion of the Reutlingen location will primarily serve the growing demand for MEMS in the automotive and consumer sectors, as well as for silicon carbide power semiconductors, which play a key role in electromobility. In addition, it is planned to further expand the semiconductor location in Dresden, Germany, where we manufacture application-specific integrated circuits (ASICs) as well as power semiconductors, and where we also aim to start manufacturing MEMS on 300-millimeter wafers over the medium term. Over the next few years, Bosch plans to invest some 3 billion euros in the development and manufacture of microelectronics and systems based on them, both as part of its own investment plan and under the auspices of the European IPCEI ME (“Important Project of Common European Interest on Microelectronics”) funding program. We also opened a new test center for chips and sensors in 2023 at our location in Penang, Malaysia, and plan to expand the site further.

With regard to silicon carbide semiconductors, we completed the acquisition of TSI Semiconductors LLC’s manufacturing site in Roseville, California, USA. We have also applied for funding under the U.S. CHIPS Act to convert the site to the manufacture of silicon carbide power semiconductors on 200-millimeter wafers. In Germany, moreover, we have founded the European Semiconductor Manufacturing Company (ESMC) GmbH in Dresden together with TSMC, Infineon, and NXP. A 300-millimeter wafer fab for semiconductor production is to be built in order to meet the future capacity requirements of the rapidly growing automotive and industrial sectors. As the operator of the factory, TSMC holds a 70 percent stake in the company; Bosch, Infineon, and NXP each hold 10 percent. Total investment is expected to run to some 10 billion euros. The project is planned within the framework of the European Chips Act.

## Expansion and growth in additional areas

Following the boom during the Covid-19 pandemic, the e-bike market is in a consolidation phase. Fundamentally, however, we expect the market to continue to grow due to changes in mobility in many regions and to changes in leisure behavior. The focal point of our activities is our core European market. There is additional growth potential in North America and in certain countries in Asia Pacific, where we are already represented by our own sales organizations. In addition, we are continuously expanding our range of drives, batteries, control units, and digital solutions for e-cyclists, as well as services for specialist bicycle dealers. For example, displays can be personalized, riding modes can be set individually via new app features, and theft protection can be extended with a digital e-bike pass.

The Two-Wheeler and Powersports unit intends to continue growing its safety systems with its motorcycle ABS and motorcycle stability control system, also for high-volume smaller motorcycle classes, as well as its advanced rider assistance system (radar-based solutions). In addition, innovation fields such as software, connectivity, and electrification are becoming increasingly important in the motorcycle market as well. In the future, Bosch will make it possible to activate additional vehicle functions using an online update. In addition, a new electrical powertrain system debuted that delivers 6 kilowatts of power. The focus up to now has been on 3-kilowatt units. The new system is ideal for two-wheelers such as large scooters and classic motorcycles in urban environments and on cross-country trips. With engine control units, injectors, and other developments, we want to make the operation of combustion engines for two-wheelers and powersports vehicles more efficient.

We also see opportunities for growth in the use our systems and components in other mobility markets. Through our Bosch Engineering unit, we also offer our radar and ultrasonic sensors for assistance systems and the automation of agricultural machinery. In 2024, we plan to premiere a radar sensor that allows height measurement while driving on uneven terrain, so that the height of a device above the ground can be set precisely. We also see opportunities for electrification in agriculture, as this can open up certain advantages for small to medium-sized machines such as high efficiency, low maintenance costs due to less fuel and fewer filters, and the use of locally produced electricity. Through Bosch Engineering, we offer motors for farm loaders, vineyard tractors, and farm tractors, among others. Another field is electrification solutions for boat drive systems. We combine our own components such as the electric motor, inverter, and transmission on a single platform, supplemented by other components such as the high-voltage battery, charger, and cable harnesses.

We are also debuting additional services. The target group here is mobility and logistics service providers. These services include solutions that provide uninterrupted information about the vehicle's condition and its lifecycle, and are therefore an aid for fleet customers and workshops. We also bring service providers and fleet customers together via our L.OS platform.


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## Industrial Technology

### Drive and Control Technology

In our Drive and Control Technology division (Bosch Rexroth), we are continuing to expand our activities as a provider of mobile and industrial hydraulics and of factory automation and connected manufacturing. The main elements of these efforts are the further development of the existing portfolio, innovations in software-based products and services, and the broadening of our international presence through the expansion of our sales and manufacturing network. The division is also strengthening its competitiveness through partnerships and acquisitions.

The markets for the division's two portfolio segments, hydraulics and factory automation, differ fundamentally. In the hydraulics segment, Bosch Rexroth has a strong position in a market that will grow moderately over the long term. In factory automation, by contrast, Drive and Control Technology is a niche provider in a large and rapidly growing market. In both segments, we want to grow faster than our respective markets. Cost competitiveness, a strong product portfolio, and a broad regional footprint are important factors here. In this context, we are strengthening our portfolio through partnerships and acquisitions.

In the area of innovation, Bosch Rexroth is focusing on new technologies such as the electrification of mobile hydraulics, where our eLION platform offers solutions for the electrification of mobile machinery. We are also using software functions as a way of further improving connected solutions for industrial hydraulics. In the future, digital twins of all products are to be made available on an online portal. Energy-efficiency improvements will also continue to play an important role. For example, a new series of large hydraulic motors is significantly lighter than the previous generation, which saves resources and reduces emissions during use. In factory automation, the pinpointed control of systems can help make operations more energy efficient. In the 2023 fiscal year, further important partners could be won over for Bosch Rexroth's ctrlX OS operating system with digital services. More than 90 partner companies are now part of the ctrlX world.

Innovation centers bring the diversity of the Drive and Control Technology portfolio to life for customers. In addition to the existing center in Ulm, Germany, new innovation centers opened in the 2023 fiscal year in Warsaw, Poland, Budapest, Hungary, and Lohr, Germany. One strategic focal point apart from innovation is international footprint. The local-for-local strategy (local value creation and supplier base) and improvements to competitiveness require additional investments and the optimization of structures. In this context, a decision was made in 2023 to merge several locations in the Stuttgart region as well as in Brazil and North America. The aim is to increase the share of value created in China and North America. In Europe, the newly opened plant in Brnik, Slovenia, and its expansion that has already been announced, as well as the expanded sites in Blaj, Romania, and Bursa, Turkey, will improve our regional footprint. At its location in Lohr, Germany, Bosch Rexroth has invested in a new logistics center and commissioned new energy-efficient systems and optimized processes in its foundry.

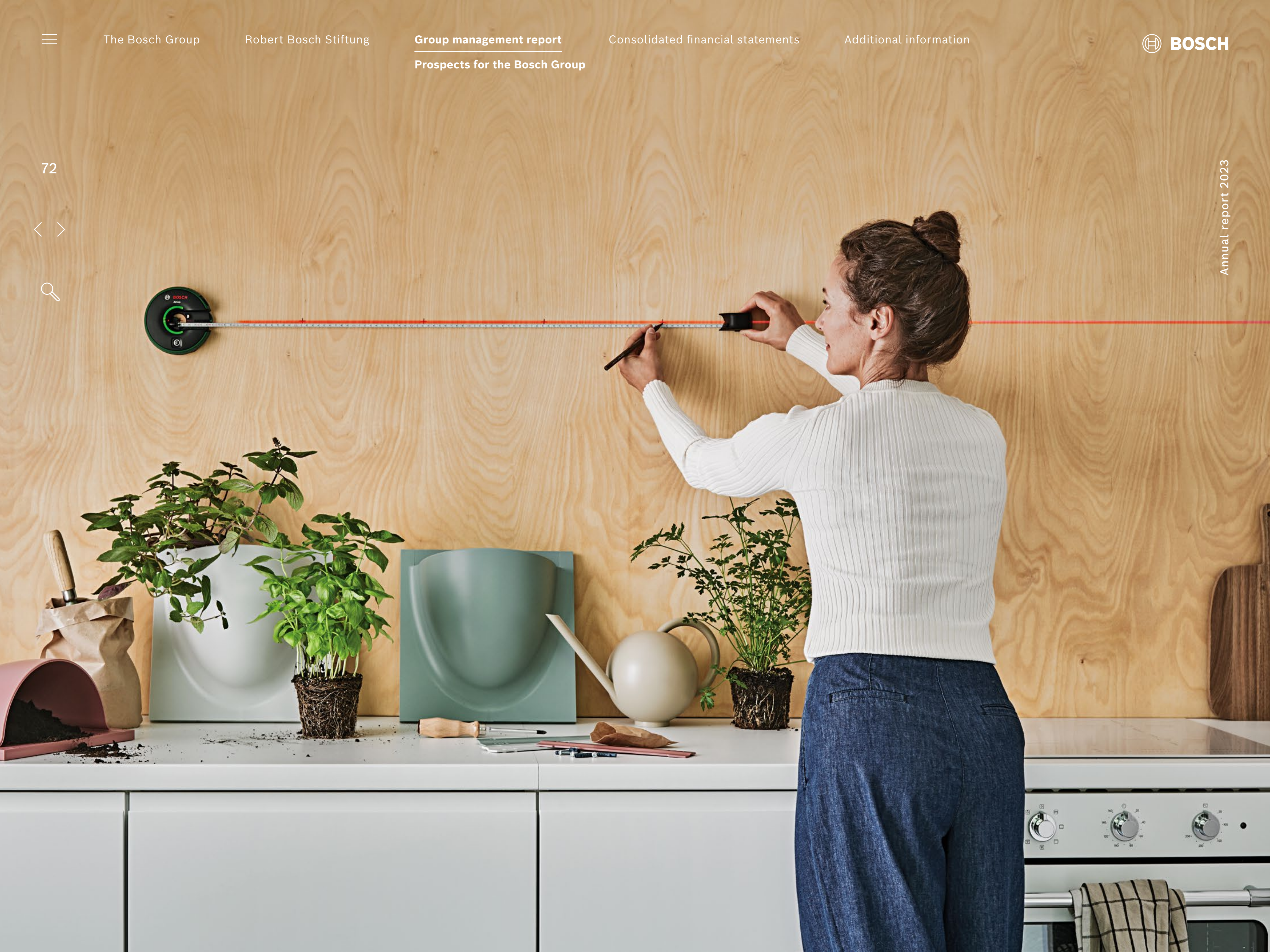
To expand market position in China, a strong local presence and an adapted product portfolio are crucial. To this end, the division has set up joint ventures with regional partners to develop and offer products for hydraulics, off-highway electrification, and automation. In September 2023, a joint venture agreement was signed with Zhuhai Enpower Electric Co. based in Zhuhai, China. It aims to develop and sell off-highway electrification products and applications. The establishment of the new company is still subject to approval by various bodies, including the antitrust authorities. The aim is that the joint venture will add to the electrified product portfolio in hydraulics, in order to offer technically complementary and competitively priced solutions for the Chinese market. To strengthen its automation business in China, joint venture agreements were signed with Zhejiang Hechuan Technology, based in Quzhou, China, in November 2023. Here too, official approvals are still pending.

The ramp-up of the plant in Querétaro, Mexico, opened in mid-2023, is intended to support the division's growth plans in North America with local and competitive production and procurement. The Fountain Inn location in South Carolina, USA, is being developed in parallel. Planning work for the new location in Charlotte, North Carolina, USA, is continuing. One significant step toward shoring up the hydraulics business, especially in North America, was the completion of the acquisition of HydraForce, Inc. in Lincolnshire, Illinois, USA, in February 2023. In the ongoing integration process, one particular focus is being placed on cultural and organizational integration within the Compact Hydraulics business unit.

## Other businesses

The **Bosch Manufacturing Solutions** unit also grew significantly in 2023 – both within the Bosch network and with third-party customers. Above all, this growth is being generated in the areas of strategic future importance for electromobility. In its business with third-party customers, the main focus is on assembly and testing systems for the growth markets of batteries, fuel cells, and electrical powertrains.

The **Bosch Connected Industry** business unit is responsible for business with connected industry-related software solutions for in-house and third-party customers. The product range has three main focal points: development software for mechanical engineers, software for the digital factory, and software for structuring and describing data. In the 2023 fiscal year, Bosch Connected Industry won an order to equip a battery-cell production facility for a major customer.



# Consumer Goods

## Power Tools

Bosch Power Tools operates in an environment that is both volatile and highly competitive. Following the extraordinary boom during the Covid-19 pandemic, the division now faces a persistently weak consumer climate and a weak construction and real estate sector. With product innovations and modifications as well as novel services, Power Tools continues to pursue a strategy of growth across its segments. The division is also systematically opening up new business areas. This means that its global structures have to be geared to growth potential and that further improvements on the cost side to be consistently implemented in order to strengthen competitiveness. This also includes structural measures, such as those in the corporate, development, and administrative units at the Leinfelden location near Stuttgart.

To be globally competitive, Power Tools will also undergo reorganization in 2024. To respond to changing market and customer requirements and leverage synergy effects across the entire value chain, it will combine the DIY and professional parts of the power tools segment into a single unit. In addition, the outdoor and garden tools businesses will be strengthened by merging them into one business unit. Investments will also be made in important growth areas such as the accessories business and the expansion of the division's North America business.

In the future, the Power Tools portfolio will be based even more strongly on local requirements and use-related needs, such as professional tools for emerging markets. This will be supported by a new regional structure with a sales structure to match. The aim is to provide solutions for markets with similar requirements in an optimally coordinated global product portfolio. As before, one focal point here will be the further expansion of the cordless device range and the two cross-manufacturer battery platforms in the 18-volt class: the "AmpShare" alliance for commercial applications and the "Power for All Alliance" for products for the home. In addition, it is expected that technical developments in the field of battery technologies will provide a boost to efficiency, such as a nearly 70 percent longer battery life for professional appliances. In 2023, Bosch acquired some 12 percent of the share capital of the Swedish company Husqvarna AB. In acquiring this stake, Bosch aims to strengthen the battery alliance between the two companies. Husqvarna also includes the Gardena subsidiary and its Flymo brand, both of which are also partners in the Power for All Alliance.

In the future, the division intends to focus particularly on the North American market, which on its own accounts for more than 40 percent of the worldwide power tool market. By tailoring its product portfolio more closely to the needs of the North American market and expanding its marketing activities and sales structures, Power Tools aims to address existing target groups even more effectively and expand into new segments. In addition, Power Tools is systematically moving into adjacent business areas such as handheld power tools for DIY applications and for trade and industry. Another example of a new segment that is set to drive growth in the accessories business is industrial, robot-assisted grinding. In this segment, Bosch acquired a stake in FerRobotics Compliant Robot Technology GmbH, Linz, Austria, a provider in the field of contact-sensitive automation, at the beginning of 2024. Power Tools is also continuing to drive forward the digitalization of its sales and marketing processes. In this context, online commerce is an important strategic focus. This is why the division is expanding not only its strategic alliances with multichannel and online retailers, but also the scope of information and interaction available online.

As part of the sustainability strategy in the power tools business, the World Wide Fund for Nature (WWF) Germany has been giving Power Tools the benefit of its expertise since March 2023, in an intensive sparring and consulting program on subjects such as the further development of its climate-action and packaging strategy. As a further element of this collaboration, which is set to run for at least five years, associates will receive training to raise their awareness and support the sustainable transformation of the company. The division strives to save raw materials, conserve resources, and design its products to optimize their recyclability. The measures Power Tools is developing in this context include the greater use of recycled materials in packaging and power tools. One current example is the re-release of the entire range of measuring technology for DIY: the product housings, accessories, and their packaging are largely made from recycled materials.

### BSH Hausgeräte

Demand for household appliances has cooled noticeably following record sales revenue during the Covid-19 pandemic. In addition to pull-forward effects, key reasons include weakness in real estate markets due to higher interest rates and high inflation rates. In Europe, this is having a particularly negative impact on the kitchen installation business. Moreover, competition is intensifying, particularly from Asian competitors. In addition, we are having to absorb major exchange-rate burdens in countries such as China and Turkey. Sustainability, environmental awareness, and healthy eating remain important for consumers. In addition, they are looking for more convenience through digital solutions and features. Innovation will therefore continue to play a significant role in the future.

The company's new 2030 growth and value-creation strategy defines its response to the significantly changed market conditions and sets ambitious growth targets. BSH aims to consolidate and expand its position in the home appliance industry worldwide. To grow faster than the market and enable the necessary investments, it has to significantly reduce complexity and costs. For this purpose, BSH is adapting its global organization – particularly in indirect areas – to changing conditions.

At the same time, BSH intends to consistently exploit its growth opportunities, to continue to strengthen its brand portfolio through innovations, and to further improve quality and resource efficiency. In the cooling appliances segment, for example, its new Green Collection uses a higher proportion of environmentally friendly materials and has either "A" or "B" energy-efficiency ratings. The $CO_2$ emissions attributable to the production materials, mainly steel, are roughly one-third lower than for models made of conventional materials. The next generation of dishwashers has an even stronger focus on energy efficiency, $CO_2$ reduction, and connectivity. BSH is also expanding its range of washing machines in energy-efficiency class A.

Another focus of innovation at BSH is smart kitchen appliances, all of which are part of the Home Connect ecosystem. The new ovens use image recognition to identify around 40 different dishes, suggest the best cooking method, and optimize baking and roasting with the help of artificial intelligence. Repair and update options for connected devices will also play a greater role in the future. Guaranteed spare parts availability of up to 15 years will help here, as will the possibility of remote maintenance for connected devices.

Home Connect has been connecting the appliances of various brands since 2014. In this app, household appliances can be connected so that they can be controlled via smartphone, tablet, smartwatch, Amazon Alexa, or Google Home. This lets consumers control their appliances remotely, receive status updates, and get use-based recommendations and tips. A network of more than 50 partners in various fields offers additional functions ranging from recipes to energy management. Home Connect is currently available in over 60 countries and 30 languages.

At the same time, BSH Hausgeräte is strengthening the robustness of its supply chains and focusing on local production. In 2022, construction work began on a new factory in Monterrey, Mexico. Pilot production of refrigerators for the North American market started there in October 2023. BSH Hausgeräte is also investing in Asia Pacific and Africa. Work to expand the capacity of its washing machine factory in Chennai, India, was completed in 2023. In addition, construction work began on a stove factory in Egypt to improve access to the African market and open up good growth prospects for the business there.

## Energy and Building Technology

### Building Technologies

The Building Technologies division aims to offer systems, solutions, and services that improve the safety and security of people, buildings, and material assets, and also enhance convenience and energy efficiency. In October 2023, the decision was made to comprehensively realign the division: in the future, it is to focus on its regional integrator business, with solutions and services for building security, energy efficiency, and building automation. Most of the Building Technologies division's product business is to be carved out as an independent unit and sold. This includes the Video, Access and Intrusion, and Communication business units. The product business with fire-alarm systems, by contrast, is to be continued. Because of its importance for systems integration, it is to be merged with the integrator business and continued.

The division's strategic focus is on further developing and strengthening its integrator business, with the aim of becoming a leading systems integration provider in selected markets and of seizing the good growth opportunities there. A further intention here is to strengthen the services business, with an attractive share of recurring sales revenue and thus greater independence of cyclical fluctuations. All in all, the product business has developed well and is strongly positioned in several focus segments. However, we have decided to look for a buyer who will take over all three business units, and who will further strengthen the business and give it a secure future.

In the regional systems integration business, Building Technologies offers connected and integrated solutions for security, convenience, and efficiency in commercial buildings – meaning it is positioned as a cross-domain, software- and product-independent provider. We want to expand this business. Its activities focus on the markets in Europe and North America, where we are expecting annual market growth of 4 to 5 percent, but they also extend to Singapore. Acquisitions are also part of our growth strategy. In the 2023 fiscal year, we acquired Paladin Technologies Inc., Vancouver, British Columbia, Canada, and PalAmerican Technologies Inc., Tumwater, Washington, USA, a provider of security solutions and system integration services. We also acquired the activities of West Coast Fire & Integration Inc., Yorba Linda, California, USA, which specializes in fire protection.

In building management in particular, connectivity is playing an increasingly important role. Due to changing customer needs and against the backdrop of the increasing scope of digitalization options, we are developing new connected services. The aim here is to manage processes in buildings more efficiently. This includes a service suite for digital building management that connects and integrates all service solutions on one cloud platform. An energy manager makes it possible to visualize, analyze, and evaluate the efficiency of a building's energy supply, distribution, and consumption. The potential savings identified and specific actions derived allow $CO_2$ emissions and energy costs to be deliberately reduced and resources to be conserved. A further service for fire alarm systems supports fault detection and the performance of predictive maintenance.

The product business with fire-alarm systems, which will be part of the systems integration business in the future, is operating in a growing market environment, with growth rates of around 4 percent. Its most recent solutions include a new version of its video-based fire-detection system. AI algorithms based on deep learning ensure a more accurate distinction to be made between real fires and false alarms, especially in challenging environments such as semi-open storage areas or outdoor areas where disruptive factors such as wind, moisture, or dust make detection difficult.

### Home Comfort

The Home Comfort division aligns its goals and strategy with the growing sustainability requirements in the building sector. Its claim is “Make. Home. Comfort. Green.” Formerly Thermotechnology, the division was renamed Home Comfort at the beginning of April 2023. The new name is intended to underline the product portfolio’s shift toward sustainable heating and air-conditioning technology as well as other products for comfort and well-being in the home, with greater connectivity also playing a role.

Electrification and renewable energy are becoming considerably more important. There is great potential for sustainability in heat pumps and hybrid heat-pump systems comprising a heat pump and a condensing boiler based on fossil-fuel technologies. While heat pumps are used in new buildings and in existing buildings that have been insulated, hybrid heat pumps are an alternative when modernizing energy consumption in poorly insulated structures. In such systems, the electricity for heat pumps is increasingly being generated from sustainable sources. In addition, the heat pumps can not only heat, but also cool if necessary.

To further expand our heat-pump business, we are investing in our European development and manufacturing network. For example, we are planning a new manufacturing site for heat pumps in Dobromierz, Poland. In Aveiro, Portugal, we are investing in new laboratories, two factory buildings, and additional heat-pump production lines. We are also bolstering our existing locations in Europe: At our Eibelshausen location in Germany, for example, early 2023 saw the start of production of the indoor units for an especially quiet and eco-friendly heat pump that runs on the natural refrigerant R290 (propane). This heat pump was developed jointly by teams from Wernau (Germany) and Aveiro, and is produced in a manufacturing network involving Aveiro, Eibelshausen, and Tranås, Sweden. The devices were designed in a user experience approach involving specialists from the heating trade. Development focused on design, functionality, and quieter operation.

In our Home Comfort division as well, we are pursuing a systematic digitalization strategy. We had sold more than a million connectable devices by the end of 2023. A Bosch energy manager makes it possible to link up the heat pumps and photovoltaic systems in the home. It controls the heat pump according to the photovoltaic power available, thus increasing the amount of locally produced electricity used for heating, cooling, and hot-water generation.

The division is also relying on its extensive network of partners to develop the heat-pump business, helping heating companies build up expertise in these new technologies and offering additional services. For partner companies, therefore, it has launched a certification program for heat pumps and split air-conditioning units in online and classroom formats. Moreover, a foundation service is intended to offer heating professionals the option of ordering a snug-fitting foundation for the outdoor units of air-source heat pumps from the Bosch Partner Portal, thus outsourcing this non-core activity. The service is currently in a pilot phase. In collaboration with Power Tools, Home Comfort offers trade-specific software that provides support with planning, quoting, and invoicing, and helps them with appointment coordination and timesheets.

Demand for air-to-air heat pumps for air conditioning is growing in Europe as well, especially for residential buildings. In all European markets, Home Comfort offers a diversified portfolio for all types of residential units, as well as for the commercial sector. This business is to be systematically expanded in Europe. The same goes for North America, where the focus will be on residential buildings. Home Comfort is also increasingly targeting the North American market for heat pumps. At the beginning of 2024, at the Consumer Electronics Show in Las Vegas, Nevada, USA, it presented an air-to-air heat pump developed specifically for the North American market, which is particularly suitable for use in colder climate zones such as Canada and the northern United States. This heat pump still provides full heating power down to minus 15 degrees Celsius. It meets the requirements set by the U.S. Department of Energy as part of the Residential Cold Climate Heat Pump Technology Challenge, and it is now set to move from laboratory to field testing.

The transformation associated with the increasing electrification of heating technology also requires structural measures. For this reason, adjustments are being made to the product portfolio for fossil fuel-based heating technology. In the future, the business unit concerned will focus in particular on hybrid solutions and sustainable fuels such as hydrogen, biomethane, and synthetic fuels for residential and commercial buildings. Today's broad portfolio for combustion-based products is being aligned with the changing requirements of the market, technology, and demand. This will allow administrative tasks to be reduced, as well as the cost of supporting and further developing components in product development. The planned portfolio measures will also alter the setup relating to fossil-fuel technologies at our research and development locations. Moreover, internal processes are to be simplified and duplicated tasks at locations reduced. This will also lead to personnel adjustments.

Moreover, collaboration with the Stuttgart-based Robert Bosch Smart Home GmbH, which offers web-enabled products for the home, was intensified in 2023. Important topics include the addition of a floor-heating thermostat and a universal multibutton switch to the product range. In addition, the changeover to “matter,” the upcoming manufacturer-independent smart home connection standard, is a key issue. The market launch of products that are compatible with this standard is planned for 2024.

### Bosch Global Service Solutions

The Bosch Global Service Solutions division focuses on services for customers in the areas of mobility (such as the eCall emergency call service and breakdown assistance), monitoring (such as cold-chain monitoring and emergency services for elevators), customer experience (such as customer support), and business services (such as IT service desks). In addition to customers in the automotive industry (manufacturers and fleet operators) and the logistics and buildings business, Global Service Solutions offers its solutions within the Bosch Group. Global Service Solutions focuses on sophisticated technology-based services and has significantly expanded its share of this business in recent years.

Consistent management of its portfolio of services serves to secure profitability. In addition to acquiring new customers (in sectors such as pharmaceuticals, healthcare, and life sciences) and expanding the portfolio with existing customers, innovations through new services are also important for growth. One example of this is the Child Presence Detection service – a system that uses an emergency call and alarm system to protect children from serious harm in overheated cars. Another innovation is the e-Charging Booking and Payment solution, which has seen Bosch Secure Truck Parking (booking platform for truck parking spaces) open the first public heavy-duty charging station in Eindhoven, the Netherlands, together with its cooperation partner TRAVIS.

## Selected companies not allocated to business sectors

We see the medical technology sector as an area of potential strategic importance for Bosch. Our subsidiary **Bosch Healthcare Solutions GmbH**, based in Waiblingen, Germany, is continuously expanding its medical technology portfolio. The company has signed an agreement with Randox Laboratories Ltd., based in Crumlin, United Kingdom, and Kearneysville, West Virginia, USA. In addition to the joint development of tests, the strategic partnership also focuses on strengthening Bosch Healthcare Solutions through access to the global distribution network of Randox Laboratories Ltd.

In addition, the unit's product range is constantly evolving. Besides various SARS-CoV-2 tests, the analyzer for near-patient rapid PCR testing now offers further tests to detect other infections. These include tests for hospital pathogens, mycoplasma, and sexually transmitted diseases. A number of other tests are in development; their launch is planned for 2024. Bosch Healthcare Solutions also offers a high-precision measurement device for determining the biomarker FeNO in exhaled breath. This biomarker is used in the diagnosis and treatment monitoring of asthma, one of the most common chronic respiratory diseases.

Since 2013, **grow platform GmbH,** based in Ludwigsburg, Germany, has provided a platform within Bosch for developing and implementing new business models. It is part of a global in-house innovation network in which new business models are evaluated and pursued in startup teams. For example, the core product of the startup Bosch Software Flow enables software release processes to be fully automated. The Bosch Cognitive Services business operates in the field of artificial intelligence, more specifically in the area of visual object recognition; it was integrated into the Mobility business sector in January 2024. One thing it does is help identify the required spare parts when those parts themselves have no connectivity. The tasks of grow include considering different development opportunities for startups that do not prove enough of a strategic fit with the Bosch divisions, such as involving external investors or operating them as new, discrete units.

Through **Robert Bosch Venture Capital GmbH**, based in Gerlingen, Germany, we invest in external technology startups around the world. This gives us early access to innovative technologies, including potentially disruptive ones. Investments by the company, which operates in the market as Bosch Ventures, focus on projects involving artificial intelligence, digitalization, mobility solutions, and future computer technologies. In the 2023 reporting year, Bosch Ventures invested in startups in fields including generative AI, quantum computing, robotics, energy-efficient chip cooling, AI-based logistics management, and antenna technologies.


BOSCH
ST 100
Harness assembly
BOSCH

# Report on economic position

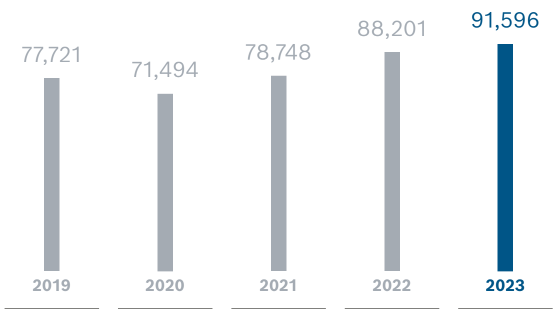
In a difficult business environment, the Bosch Group achieved its targets for sales revenue and result in 2023. Although it increased nominal sales revenue by only 3.8 percent to 91.6 billion euros, the exchange rate-adjusted growth rate of 8.0 percent is within the 6 to 9 percent target corridor set out in the forecast for 2023. Among the business sectors, the picture is mixed. The Mobility (formerly Mobility Solutions), Industrial Technology, and Energy and Building Technology business sectors posted especially strong exchange rate-adjusted growth. Adjusted for exchange-rate effects, therefore, all three sectors reached or exceeded their forecast level. In this context, Industrial Technology's growth is the result of the first-time consolidation of newly acquired companies. Contrary to our expectations, sales revenue in the Consumer Goods business sector declined. The main reason for this was the weak consumer goods market.

With an EBIT margin from operations of 5.3 percent, we achieved our target of significantly increasing margin from the previous year's figure of 4.3 percent. In addition to distribution cost and administrative expenses as well as research and development cost growing more slowly than sales revenue, changes in provisions played a role here. Once again in 2023, we also incurred considerable research and development expenditure in the pursuit of work on projects of future importance. At 2.2 billion euros, free cash flow developed positively. Significantly improved EBIT and NWC contributed to this. All business sectors reported a significantly positive EBIT from operations. EBIT margin was highest in Industrial Technology and in Energy and Building Technology. The Mobility business sector was able to significantly increase its EBIT margin from operations year on year. Consumer Goods discloses an EBIT margin from operations on a par with the previous year. With the exception of Consumer Goods, therefore, all business sectors achieved their forecast EBIT margin from operations.

G 06

## Development of sales revenue

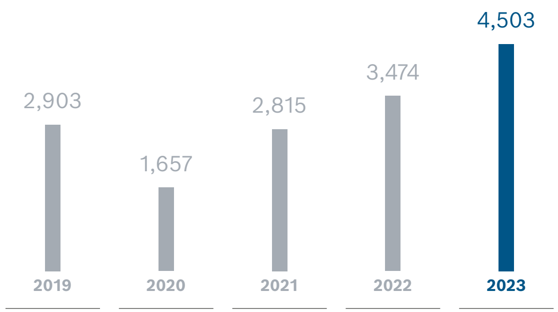
Bosch Group 2019–2023
in millions of euros




G 07

## Development of EBIT

Bosch Group 2019–2023
in millions of euros




## Key performance indicators

For an unlisted company such as the Bosch Group, profitability and efficient use of capital resources are crucial for financing future growth. Accordingly, we use the key performance indicators EBIT margin (earnings before financial result and taxes as a percentage of sales revenue; essentially corresponds to the EBIT margin from operations disclosed in the group management report), net working capital (NWC) as a percentage of sales revenue (as an internal performance indicator), and sales revenue growth. Starting in 2024, we will use free cash flow (FCF) instead of NWC as a performance indicator at the Bosch Group level, particularly for capital efficiency in the context of our incentive program. This is more comprehensive than NWC, and also takes factors such as capex development into account. We will continue to use NWC at the business-sector and division level.

Unlike EBIT as per income statement, the calculation of EBIT from operations disregards the earnings impact of higher depreciation and amortization from the remeasurement of assets at the former Automotive Steering division and BSH Hausgeräte following the complete acquisition of these former joint ventures in 2015. NWC is calculated from inventories, trade receivables, and contract assets, in each case before valuation allowances, plus capitalized deferred consideration to customers, minus trade payables and contract liabilities. An average value is calculated on the basis of the monthly actual values. NWC is measured as a percentage of sales revenue. The objective of NWC controlling is to keep the amount of capital tied up over the short term as low as possible. Free cash flow is determined essentially from the development of EBIT, NWC, and investments in property, plant, and equipment and intangible assets.

The main basis for monitoring this is our internal reporting, which takes its lead from the International Financial Reporting Standards (IFRSs). A monthly business report, which contains an up-to-date overview of the operating units' performance indicators, serves as the central reporting tool. It provides a year-on-year comparison and a plan-versus-actual comparison of selected performance indicators. The report is based on the business plan, which is embedded into longer-term strategic corporate planning. The planning method used is strongly geared toward targets and measures, and the focus is on developing and carrying out measures designed to achieve the planning targets.

The competitor-oriented benchmark values are used to define targets for the relevant performance indicators. They form the basis for the Bosch performance bonus – the short-term variable portion of specialists' and executives' remuneration, from section-manager level to the board of management. In 2023, unlike in previous years, the bonus was determined on the basis of EBIT margin (weighted at 50 percent), year-on-year organic sales revenue growth (weighted at 10 percent), and average NWC as a percentage of sales revenue (weighted at 40 percent). The greater weighting given to NWC in the control system underlined the importance of financial resources. This change from the previous year was an interim step toward making sales revenue, EBIT, and FCF the performance indicators relevant for the incentives program in the 2024 fiscal year. As in 2023, 10 percent of the bonus will be based on organic sales revenue performance. The EBIT margin from operations will be weighted at 60 percent and FCF at 30 percent. The same percentages apply at the business-sector and divisional level, where we will continue to use the respective NWC. The Bosch performance bonus is complemented by VALUE, a variable bonus program for long-term corporate success at senior executive and board of management level. It is calculated from the average Bosch performance bonus factor of the preceding three years.

## Macroeconomic and sector-specific environment

Global economic growth slowed further in 2023 compared to 2022, but exceeded our expectations. Negative factors such as high prices, higher interest rates, and geopolitical tensions had an above-average impact on the consumer goods market and mechanical engineering, as well as regionally, especially in Europe. The year 2023 was also characterized by marked changes in exchange rates, in particular the unexpectedly strong devaluation of the Chinese renminbi.

Global economic output rose 2.7 percent in 2023, significantly exceeding the forecast growth of around 1¾ percent. Nonetheless, momentum remained weak compared to previous years. All regions performed better than expected, especially North America and Europe. We had already pointed out considerable uncertainties for both regions in our forecast last year. The data for economic output is taken from Feri AG and the International Monetary Fund.

Economic output in the Americas rose 2.3 percent compared to our forecast of ½ percent. The main reasons for this were the stable labor market in the United States, rising real wages despite high inflation figures, and robust investment activity. The economy in Asia Pacific performed slightly better than forecast. Economic output rose 4.2 percent, compared to our forecast of 4 percent. This was due to strong 7.9 percent growth in India. In China, however, economic momentum was somewhat weaker than expected, with growth of 5.2 percent. Compared to the other major economic regions, the European economy grew the weakest at 0.9 percent. However, due to more favorable developments in southern European countries such as Spain and in non-EU countries in eastern Europe, the ¼ percent decline in economic output that we had expected did not materialize.

Global automotive production (including heavy commercial vehicles) increased, especially in the second half of 2023. At around 93 million vehicles, global production in 2023 exceeded the previous year's figure by 10.6 percent. It was therefore slightly above the level in 2019, the year before the Covid-19 pandemic. Regionally, the picture is a mixed one. In China, production rose 11.6 percent year on year, exceeding its 2019 level by 17.1 percent. Although production in the European Union and the United Kingdom rose 13.2 percent in 2023, it remains 14 percent below its 2019 level. Production in North America increased 9.5 percent despite the extensive strikes in the automotive industry there; this is still 3.3 percent below the 2019 level. The sources of the data for global automotive production for our internal forecast process are the third-party forecasts of S&P Global Mobility and Bosch in-house marketing analyses in the regions and at headquarters.

Among newly registered passenger cars, the changes in powertrain technology continued. The global share of newly registered all-electric vehicles rose to roughly 14 percent in 2023, up from 12 percent the previous year. Hybrid vehicles accounted for approximately 17 percent, up from roughly 13 percent. The increase in all-electric vehicles was again driven in particular by the increase in China. China is also the biggest market for all-electric vehicles and hybrid vehicles, followed by Europe. The share of newly registered diesel vehicles in the European Union and the United Kingdom fell to around 17 percent, down from roughly 19 percent the previous year. In the likewise important Indian market, the proportion of newly registered diesel vehicles fell to some 18 percent, down from roughly 19 percent the previous year.

On average across 2023, global production in the machinery sector, another important market segment for the Bosch Group, attained largely the same high level as the previous year. However, the significant decline in incoming orders since the end of 2021 led to a marked slowdown in production over the course of 2023. This applies in particular to the advanced economies, which fell short of the previous year's level, also in terms of the annual mean. In China, momentum was comparatively strong in 2023, but remained significantly below the growth rates before the Covid-19 pandemic.

In 2023, the construction sector, which influences developments in the Consumer Goods and Energy and Building Technology business sectors, once again lost momentum in countries important for us. This is shown by the trend in construction investment. In China, for example, this again fell noticeably due to financing problems at construction companies and considerable vacancy levels. In Europe, high energy prices and interest rates put the brakes on investment. In contrast, an increase was recorded in the United States. The weakness in construction activity is also likely to have affected demand for home appliances, where the extraordinary boom experienced during the height of the Covid-19 pandemic had already come to an end in mid-2022.

# Business developments

## Development of sales revenue

### Bosch Group sales revenue

In the Bosch Group, we generated sales revenue of 91.6 billion euros in 2023, compared with 88.2 billion euros in the previous year. Year on year, sales revenue rose a nominal 3.8 percent, or 8.0 percent after adjusting for exchange-rate effects. Adjusted for exchange-rate effects, we therefore achieved the growth corridor of 6 to 9 percent forecast for 2023. Price increases played a role here as well. In contrast to 2022, effects from changes in the consolidated group in the 2023 fiscal year came to 850 million euros net; deconsolidation played a subordinate role here.

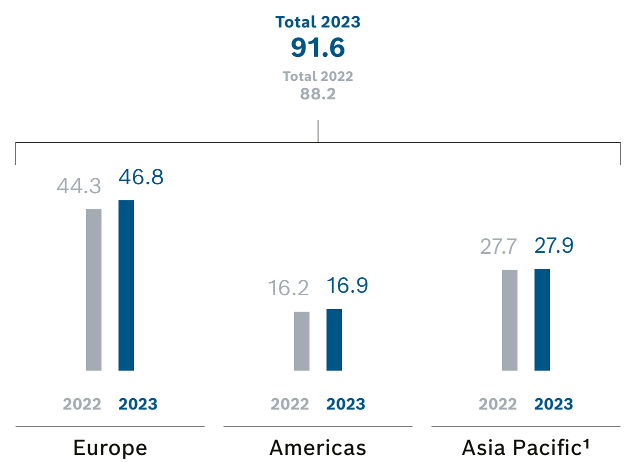
The newly consolidated companies relate in particular to the Industrial Technology business sector and its acquisition of HydraForce and Elmo Motion Control Ltd., based in Petah Tikva, Israel (Elmo Motion Control), which were included in the income statement for the first time. The negative impact of exchange-rate effects on sales revenue amounts to some 3.7 billion euros in total. These were primarily due to the euro's movements against the Chinese renminbi, the U.S. dollar, the Turkish lira, the Japanese yen, and the Argentinian peso. When determining the exchange rate-adjusted development of sales revenue for Turkey and Argentina, reference was made for the first time to inflation-adjusted sales revenue in order to eliminate the extraordinary effects from these hyperinflationary economies. Exchange-rate effects affected all business sectors, but hit Mobility and Consumer Goods disproportionately hard.

G08

Development of sales revenue, 2022–2023

Bosch Group sales revenue by region

in billions of euros

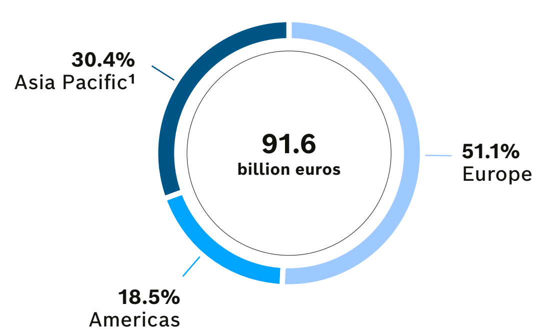



1. Including other countries and Africa.

G09

Sales revenue structure, 2023

Bosch Group sales revenue by region




1. Including other countries and Africa.

## Sales revenue by region

Regionally, the picture is mixed. Europe and North America showed the strongest growth, both nominally and adjusted for exchange-rate effects. In Europe, sales revenue increased 5.5 percent in nominal terms, and 7.9 percent after adjusting for exchange-rate effects. The negative exchange-rate effects are primarily attributable to the Turkish lira. Sales revenue in Germany increased 7.2 percent. In North America, sales revenue rose 6.2 percent in nominal terms and 8.0 percent after adjusting for exchange-rate effects. In South America, however, sales revenue were nominally 6.2 percent lower than the previous year; adjusted for exchange-rate effects, they rose 1.8 percent. The decisive factor here is the weak performance of the Argentinian peso. In Asia Pacific (including other countries and Africa), sales revenue rose by just 0.6 percent in nominal terms; adjusted for exchange-rate effects, however, they rose 8.6 percent. In particular, this reflects the depreciation of the Chinese renminbi. Moreover, sales revenue in China developed more slowly than in previous years. In contrast, we recorded growth in Japan and India.

From a regional perspective, the share of sales revenue generated in Europe rose to 51.1 percent, up from 50.3 percent in the previous year. The corresponding figures for the Americas were 18.5 and 18.3 percent respectively. Accordingly, the share from Asia Pacific (including other countries and Africa) fell to 30.4 percent, down from 31.4 percent in the previous year.

## Sales revenue by business sector

Our business sectors also varied in their development in 2023. We recorded strong sales revenue growth in Mobility and in Energy and Building Technology. The increase in Industrial Technology is due to the first-time consolidation

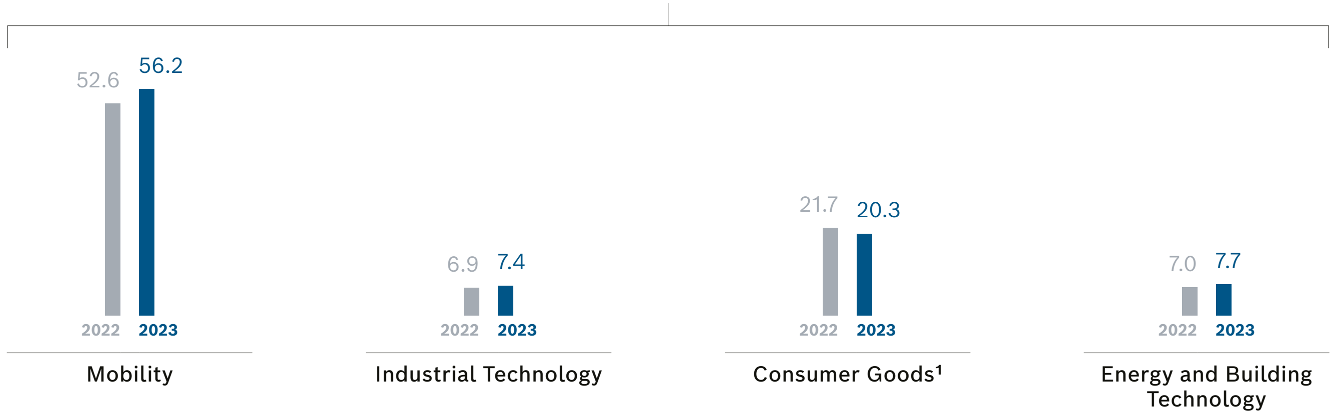
G 10

### Development of sales revenue, 2022–2023

Bosch Group sales revenue by business sector

in billions of euros

Total 2023
**91.6**
Total 2022
88.2




1. Including other activities.

of HydraForce and Elmo Motion Control. Sales revenue in Consumer Goods, by contrast, fell significantly.

In the Mobility business sector, sales revenue rose nominally by 6.9 percent to 56.2 billion euros; adjusted for exchange-rate effects, the increase amounted to 10.9 percent. We had expected sales revenue growth of up to 12 percent here. The considerable exchange-rate effects are offset by increases in volume and improvements in the product mix as well as price increases. The supply shortages for semiconductors were largely resolved over the course of 2023. This means we are benefiting from increased global automotive production as well as from good demand for many of our products. In particular, we were able to increase sales revenue in vehicle dynamics control systems (formerly Chassis Systems Control division, now Vehicle Motion), Cross-Domain Computing Solutions, and Bosch Engineering. The e-bike business felt the effects of the weakness in the consumer goods markets.

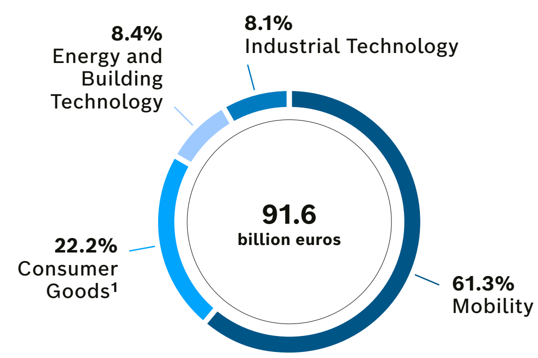
At 7.4 billion euros, sales revenue in the Industrial Technology business sector, including the first-time consolidation of HydraForce and Elmo Motion Control, were nominally 6.8 percent up on the previous year, or 10.2 percent after adjusting for exchange-rate effects. Adjusted for exchange-rate effects at least, that means we slightly surpassed our forecast of an increase in sales revenue of up to 10 percent. Without the first-time consolidations of the two above-mentioned companies, nominal sales revenue declined 0.9 percent year on year, or 2.3 percent after adjusting for exchange-rate effects. The business sector felt the effects of the increasing slowdown in the mechanical engineering sector.

The Consumer Goods business sector felt the effect of the weak demand for consumer goods, whether power tools or home appliances. As a result, business was even slower than expected. In our forecast, we had assumed sales revenue growth of up to 3 percent. At 19.9 billion euros (excluding other activities), sales revenue were down overall by a nominal 6.6 percent year on year; due to the considerable exchange-rate effects caused by the devaluation of the Turkish lira and the Chinese renminbi, the exchange rate-adjusted decline was only 1.2 percent.

G 11

## Sales revenue structure, 2023

Bosch Group sales revenue by business sector




1. Including other activities.

The Energy and Building Technology business sector sharply increased its sales revenue in 2023. Sales revenue rose 10.5 percent to 7.7 billion euros. Adjusted for exchange-rate effects, the increase was 13.2 percent, which exceeds our forecast of 8 percent. Here we benefited from heavy demand for energy-efficient and renewable heating technology in the Home Comfort division. Equally, the Bosch Global Service Solutions division achieved encouraging sales revenue growth. Sales revenue also grew in Building Technologies, albeit by a significantly smaller amount.

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## Most important items of the income statement

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Sales revenue | 91,596 | 88,201 |
| Cost of sales | –62,976 | –59,742 |
| **Gross profit** | **28,620** | **28,459** |
| Distribution cost and administrative expenses | –18,233 | –17,812 |
| Research and development cost | –7,331 | –7,224 |
| Other operating income and expenses | 1,441 | 52 |
| Result from companies included at equity | 6 | –1 |
| **Earnings before financial result and taxes (EBIT)** | **4,503** | **3,474** |
| Financial result | –527 | –561 |
| **Profit before tax** | **3,976** | **2,913** |
| Income tax expenses | –1,336 | –1,075 |
| **Profit after tax** | **2,640** | **1,838** |

The differences in our business sectors' fortunes mean that our sales revenue structure has changed. The share of sales revenue attributable to the Mobility business sector rose to 61.3 percent, up from 59.6 percent the previous year. The share of Industrial Technology is now 8.1%, compared with 7.9 percent in the previous year. The Consumer Goods business sector (including other activities) accounts for 22.2 percent, after 24.6 percent the previous year. The share contributed by the Energy and Building Technology business sector was 8.4 percent, following 7.9 percent in the previous year.

## Results of operations

### Bosch Group result

In the Bosch Group, we report an improved EBIT of 4.5 billion euros in 2023, compared with 3.5 billion euros the previous year. The application of IAS 29 led to a burden on result of roughly 280 million euros. In addition, the largely phased-out Russia business also had a negative effect. EBIT from operations increased to 4.8 billion euros from the previous-year figure of 3.8 billion euros. The EBIT margin from operations improved to 5.3 percent, compared with the previous year's figure of 4.3 percent. This means that we will achieve our forecast of a significant increase in EBIT margin from operations.

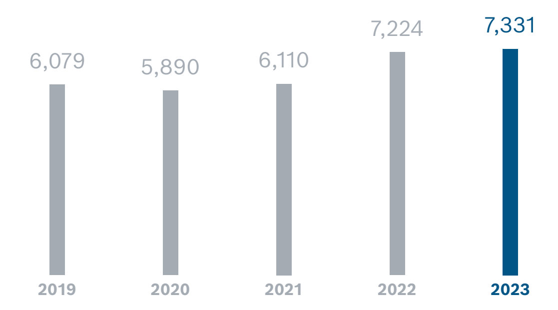
Administrative and distribution cost and research and development cost rose at a slower rate than sales revenue. In addition, restructuring cost was lower than in the previous year. There were also significantly positive effects in other operating income and expenses. A number of items played a role here, including gains from the reversal of provisions and lower expenses for the setup of provisions. One burdening

G 12

## Research and development cost

Total expenditure, Bosch Group, 2019–2023

in millions of euros

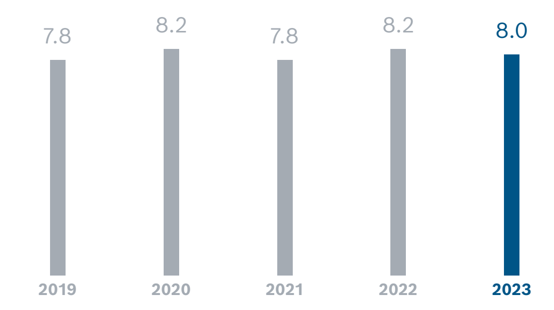



G 13

## Research and development cost

Total expenditure, Bosch Group, 2019–2023

as a percentage of sales revenue




factor is the higher cost of materials and personnel expenses. These have an effect on cost of sales, and result in a lower gross margin.

As in previous years, the calculation of EBIT from operations, unlike EBIT as per the income statement, disregards the earnings impact of higher depreciation and amortization from the remeasurement of assets at the former Automotive Steering division and BSH Hausgeräte following the complete acquisition of these former joint ventures in 2015. These effects came to around 320 million euros in 2023, and were thus slightly lower than the previous year's figure of roughly 340 million euros.

The factors mentioned are reflected in various income-statement items. In 2023, cost of sales rose 5.4 percent to 63.0 billion euros. It thus rose faster than sales revenue, which grew 3.8 percent. As a result, gross margin fell slightly to 31.2 percent, from the previous year's level of 32.3 percent. At some 3.4 billion euros, depreciation of property, plant, and equipment was roughly 50 million euros lower than the previous year's level of approximately 3.5 billion euros. Distribution cost and administrative expenses rose year on year by 2.4 percent to 18.2 billion euros.

Owing to considerable upfront investments, research and development cost came to 7.3 billion euros in 2023, compared with 7.2 billion euros the previous year; this means research and development intensity, at 8.0 percent, fell from the previous year's figure of 8.2 percent.

The Mobility business sector again accounted for the largest share of research and development cost in 2023, at 72 percent (previous year 73 percent). The main focus of these upfront investments continues to be electrification, fuel cells, and driver assistance systems – also with a view to automated driving – as well as automotive electronics, semiconductors, and sensors. The percentage attributable to the Industrial Technology business sector rose to 7 percent, from 6 percent in the previous year. The percentage attributable to the Consumer Goods business sector fell to 15 percent, from 16 percent in the previous year. At 6 percent, the share of Energy and Building Technology is slightly above the level of the previous year.

On balance, we disclose a negative financial result of 527 million euros in 2023, which is an improvement from the previous year's negative balance of 561 million euros. Higher income from securities, mainly investment funds, is a major factor here. Running counter to this, there was a fall in interest result and in the balance resulting from currency effects, including foreign currency derivatives. Against this backdrop, profit before tax came to 4.0 billion euros, compared with 2.9 billion euros in the previous year. Pre-tax profit rose to 4.3 percent, up from 3.3 percent in the previous year. The result after tax amounts to 2.6 billion euros, compared with 1.8 billion euros the previous year.

At 28.4 percent, our in-house key performance indicator of average NWC as a percentage of Bosch Group sales revenue, although slightly lower than the previous year's comparable figure of 28.8 percent, did not fall as sharply as expected. This average figure is impacted by the fact that improvements in absolute NWC relate above all to the second half of the year. The year-on-year comparison is based on the comparable internal figure for the previous year.

### Result situation by business sector

The result situation also varies by business sector, even if they all disclose a significantly positive result in relation to both EBIT and EBIT from operations. The main factors are the varying degrees of sales revenue growth, the varying intensity of upfront investments in areas of future importance, and the impact of production startups. On a business-sector level, EBIT margin developed encouragingly in Industrial Technology and Energy and Building Technology. But also the Mobility business sector was able to significantly increase its EBIT margin year on year. With the exception of Consumer Goods, all business sectors managed to reach their forecast EBIT margin from operations.

In the Mobility business sector, we disclose EBIT of 2.4 billion euros for 2023, compared with EBIT of 1.7 billion euros in the previous year. EBIT from operations comes to 2.5 billion euros, compared with the previous year's figure of 1.8 billion euros. This results in an EBIT margin from operations of 4.4 percent, compared with 3.4 percent the previous year. The increase is therefore in the lower half of our forecast corridor for a significant improvement in margin. Restructuring cost fell significantly year on year. The pressure on result remains very high. The main reasons for this are the heavy upfront investments in projects of future importance, production startups, and the increased cost of primary products.

Despite the weak market and the negative impact of the integration of HydraForce and Elmo Motion Control, the Industrial Technology business sector achieved a result of 672 million euros, meaning it was roughly able to maintain the previous year's level (683 million euros). That is equivalent to an EBIT margin of 9.1 percent (previous year 9.8 percent), and significantly exceeds our forecast margin of 8 percent. The business sector also benefited from intensive work on cost and structures, including the work done in previous years.

EBIT in the Consumer Goods business sector amounted to 683 million euros (previous year: 753 million euros). At

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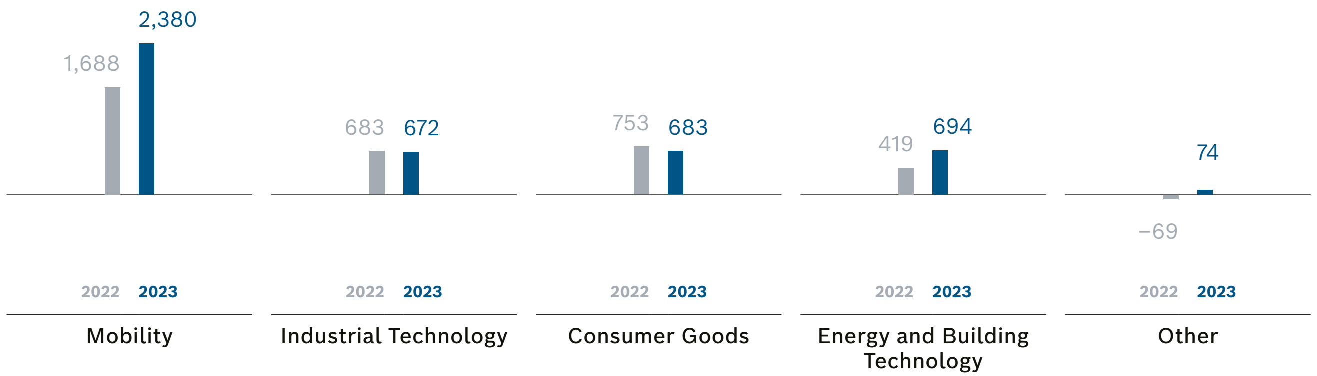
## EBIT by business sector

Bosch Group, 2022–2023

in millions of euros




896 million euros, EBIT from operations was also less than the previous year's 970 million euros. This means that the EBIT margin from operations is on a par with the previous year at 4.5 percent. We were therefore unable to achieve the forecast slight improvement in margin. This was above all due to the sharp drop in demand. The business sector was once again burdened by the winding down of most of its Russia business. Furthermore, there are burdens from currency effects as described by IAS 29. The Energy and Building Technology business sector sharply increased its EBIT to 694 million euros, compared with 419 million euros the previous year. Margin came to 9.0 percent, compared with 6.0 percent in 2022. That means we exceeded our forecast of a significant improvement in result. The Home Comfort division performed particularly well.

The main reason for the slight overall decrease in the Bosch Group's average NWC as a percentage of sales revenue was the development in the Mobility business sector. As expected, NWC improved significantly to 27.6 percent, compared to the previous year's figure of 28.8 percent. The other three business sectors were unable to achieve their forecast, even though considerable progress was made in the second half of the year and the absolute value of NWC at the end of the year was in some cases significantly lower than in the previous year.

In the Industrial Technology business sector, average NWC rose to 33.8 percent, compared to the previous year's figure of 32.3 percent. In the Consumer Goods business sector, average NWC rose to 29.6 percent, compared with 29.1 percent the previous year. In Energy and Building Technology, average NWC increased to 21.5 percent, compared to 20.6 percent the previous year.

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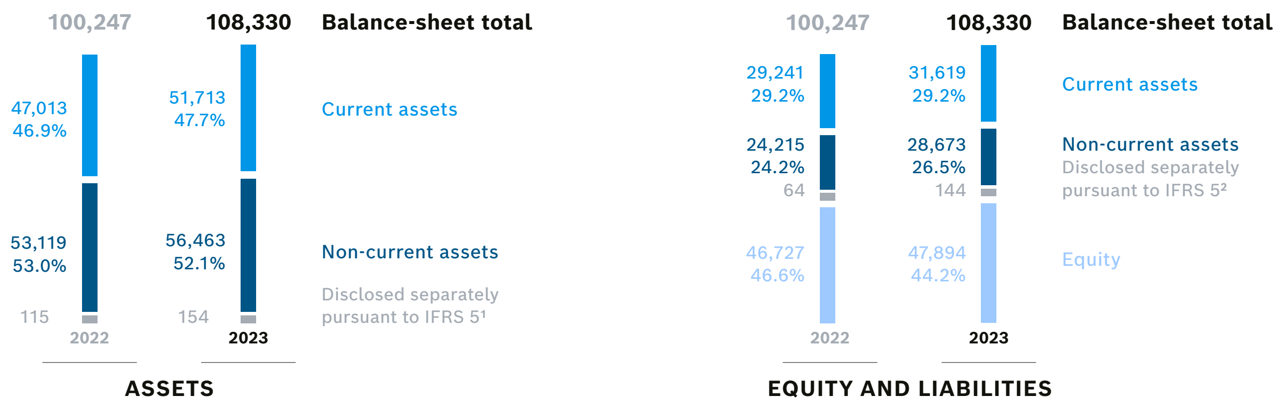
Balance-sheet structure
Bosch Group, 2022–2023
in millions of euros and as a percentage of balance-sheet total




1. Assets held for sale.
2. Liabilities directly associated with assets held for sale.

## Net assets and financial position

### Equity ratio and financial statement

The Bosch Group balance-sheet total as of the December 31, 2023, reporting date stood at 108.3 billion euros, exceeding the previous year's level of 100.2 billion euros. Compared to the previous year, the equity ratio fell 2.4 percentage points to 44.2 percent. The main reasons for the increase in the balance-sheet total are the higher liquidity as per the statement of financial position and higher property, plant, and equipment on the assets side as well as the higher non-current financial liabilities on the liabilities side.

On the assets side, our liquidity as reported in the statement of financial position rose to 26.7 billion euros as of the reporting date, compared with the previous year's 21.1 billion euros. Apart from cash and cash equivalents, liquidity as per the statement of financial position includes marketable securities and bank balances with a term of more than 90 days. This was mainly due to borrowing on the financial markets and a positive free cash flow.

The liabilities side saw changes mainly due to the issue of euro bonds and U.S. private placements in U.S. dollars. The financing structure is sound. The net financial position (defined as balance-sheet liquidity minus financial liabilities and provisions for pensions and similar obligations) is significantly positive. At 5.3 billion euros, it is virtually unchanged from its previous-year level. Due to the application of IFRS 5, assets held for sale and the liabilities associated with them are disclosed separately.

With a long-term rating of A (with a “stable” outlook) from the credit rating agencies Standard & Poor’s and Fitch, Robert Bosch GmbH has good ratings. The financial liabilities of the Bosch Group include schuldschein loans and registered bonds with a nominal value of 3.2 billion euros and bearing interest between 1.028 percent and 4.893 percent. There are also bonds with a nominal value of 6.5 billion euros and bearing interest between 1.75 percent and 4.375 percent, and U.S. private placements with a nominal value of 1.2 billion U.S. dollars and bearing interest between 6.19 percent and 6.42 percent. The average interest rate for the bonds, schuldschein loans, and registered bonds has risen to 3.358 percent from the previous year’s rate of 2.353 percent. The average interest rate for the U.S. private placements is 6.313 percent. The average residual term to maturity of the schuldschein loans and registered bonds is 5.00 years, compared with 5.27 years the previous year. The bonds’ average residual term to maturity is 9.59 years, compared with 5.96 years the previous year. The average residual term to maturity of the U.S. private placements is 8.38 years.

There is a syndicated credit line with an ESG component totaling 5 billion euros, the term of which was extended by one year to 2026. In addition, there are bilateral U.S. loan facilities with a volume of 950 million U.S. dollars. These facilities have not been used. In 2023, new bonds totaling 4.5 billion euros were issued, as were U.S. private placements totaling 1.2 billion U.S. dollars. Furthermore, we repaid 500 million euros of a schuldschein loan. In the reporting year, we issued up to 650 million U.S. dollars under our revolving 2.0 billion U.S. dollar commercial paper program. In addition, we took out a syndicated loan facility in the U.S. totaling 1.2 billion U.S. dollars. The loan was repaid early from the proceeds of the U.S. private placement.

## Capital expenditure

In 2023, as a result of many projects of future importance, capital expenditure on property, plant, and equipment rose to 5.5 billion euros from 4.9 billion euros the previous year. The capex ratio is 6.0 percent of sales revenue, compared with 5.6 percent in the previous year. Capital expenditure thus reached 161 percent of depreciation, compared with 141 percent in the previous year. As of the reporting date, existing investment commitments resulting from orders already placed total 1.5 billion euros, following a previous-year figure of 1.3 billion euros. Thanks to our comfortable liquidity position, we have ample financial resources at our disposal. We invested 620 million euros in intangible assets, compared with 647 million euros the previous year. These relate in almost equal parts to acquired software and capitalized development projects in the Mobility business sector.

By business sector, the lion’s share of capital expenditure – 3.8 billion euros, following 3.3 billion euros the previous year – once again went to Mobility. Among other things, the focus is on increasing investment in the areas of future importance: electromobility, fuel cells, and power electronics. In addition, there are investments in growth areas such as braking control systems, semiconductors and sensors, and driver assistance systems, as well as in our long-established business activities. Capital expenditure in Industrial Technology rose to 410 million euros, compared with 316 million euros the previous year. The focus of investment at Bosch Rexroth was on the construction of a new mobile-hydraulics plant in Querétaro, Mexico, the equipping of the new plant in Brnik, Slovenia, and logistics buildings in Lohr, Germany.

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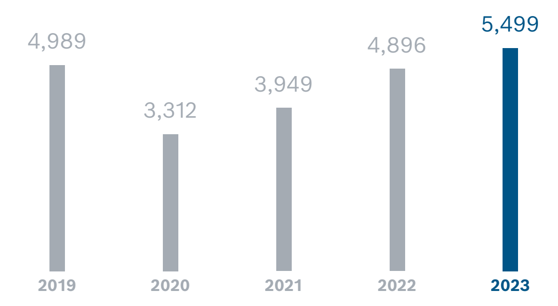
## Capital expenditure

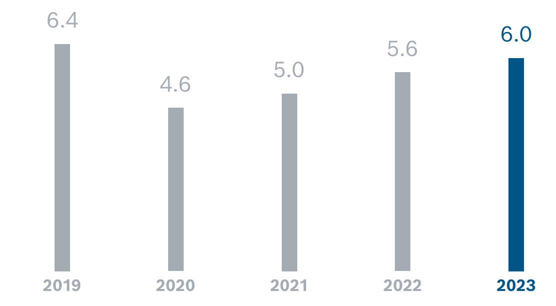
Bosch Group, 2019–2023
in millions of euros




G 17

## Capital expenditure

Bosch Group, 2019–2023
as a percentage of sales revenue




In the Consumer Goods business sector, capital expenditure was 839 million euros, compared with 845 million euros in the previous year. Major projects at BSH Hausgeräte are new factories: one in Monterrey, Mexico, for refrigerators and one in Madinat al-Aschir min Ramadan, near Cairo, Egypt, for stoves to support growth in emerging markets. Further investments relate to the location in Dillingen, Germany, where dishwashers are made. In addition, factories in Nazarje, Slovenia, and La Cartuja, Spain, were rebuilt following flooding in summer 2023. Capital expenditure in Power Tools focused on the expansion of manufacturing in the Accessories business unit at locations in the U.S., Italy, and Poland, as well as on battery production in Miskolc, Hungary.

In Energy and Building Technology, capital expenditure came to approximately 180 million euros, compared with 123 million euros the previous year. In Home Comfort, the focus was on expanding the heat-pump business with construction of a new plant in Dobromierz, Poland, and the extension of our existing factory and of warehouse space in Tranås, Sweden. In addition, there are other investments that are not allocated to the business sectors, such as the reorganization of the Paris location in France and the renovation of group headquarters in Gerlingen, Germany.

From a regional viewpoint, we invested 3.5 billion euros in our European locations, compared with 3.1 billion euros the previous year. Germany accounted for 2.1 billion euros of this, compared with 1.6 billion euros the previous year. We invested 1.3 billion euros in Asia Pacific, as in the previous year, and 767 million euros in the Americas, compared with 519 million euros in the previous year.

T02

## Bosch Group, statement of cash flows

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| **Liquidity at the beginning of the year (Jan. 1)** | **6,459** | **6,196** |
| Cash flow from operating activities | 8,430 | 1,859 |
| Cash flow from investing activities | –11,211 | –2,336 |
| Cash flow from financing activities | 3,961 | 701 |
| Other | –196 | 39 |
| **Liquidity at the end of the year (Dec. 31)** | **7,443** | **6,459** |

## Liquidity

The Bosch Group is financially strong. Liquidity at year-end as per the consolidated statement of cash flows (cash and cash equivalents) stood at 7.4 billion euros, compared with 6.5 billion euros the previous year. Cash flow from operating activities rose to 8.4 billion euros or 9.2 percent of sales revenue in 2023; the previous-year figure was 2.1 percent. The main reasons for the improvement are higher EBIT and the significantly reduced commitments in current assets, in particular as a result of inventory reduction and the increase in liabilities.

Cash flows from investing activities amounted to 11.2 billion euros, compared to the previous-year figure of 2.3 billion euros. The main reasons for the sharp increase are the outflows from investments – higher than in the previous year – in current securities and bank deposits with terms of more than 90 days in order to favorably invest the present high level of liquidity. Investing activities also increased, mainly due to higher participating interests, in particular the acquisition of HydraForce, Paladin Technologies, PalAmerican Technologies, and TSI Semiconductors, and capital expenditure on property, plant, and equipment.

Cash flows from financing activities, including repayments of lease liabilities, disclosed an inflow of 4.0 billion euros in 2023, as opposed to an inflow of just 0.7 billion euros the previous year. The main financing measures in 2023 were the issue of bonds totaling 4.5 billion euros and the U.S. private placements of 1.2 billion U.S. dollars.

For 2023, we disclose a positive free cash flow of 2.2 billion euros, compared with the negative sum of 4.0 billion euros in the previous year. Free cash flow is calculated as the sum of cash flows from operating activities, cash flows from investing activities (without participating interests and other financial investments), and the repayment of lease liabilities. The main reasons for the significant improvement in free cash flow were the significant improvements in EBIT and NWC. This was offset by a further increase in capital expenditure.

## Non-financial indicators

### $CO_2$ emissions

Once again in 2023, the Bosch Group with its more than 400 locations worldwide was carbon neutral overall (scopes 1 and 2). In 2023, residual emissions of roughly 581,000 tons of $CO_2$ were offset through carbon credits to achieve this. Compared with the previous year's level, this is a decrease of some 136,000 metric tons of $CO_2$, or 19 percent. Above all, this decrease was achieved by further switching from gray to green electricity. The calculation of emissions is based on the standards of the International Energy Agency (IEA, Emission Factors 2022) and the Intergovernmental Panel on Climate Change (IPCC).

In total, the Bosch Group's locations consumed 7,537 gigawatt-hours (GWh) of energy in 2023 (previous year: 7,696 GWh). Bosch requires energy primarily in the form of power for manufacturing plant and machinery, and in the form of thermal energy to heat and air-condition buildings and to operate facilities such as foundry furnaces.

### Occupational safety

The accident rate was around 1.49 accidents per million hours worked. Unfortunately, there were two fatal accidents in 2023 in which workers employed by third-party companies lost their lives. The total number of workplace accidents in 2023 was 1,073, compared with 1,153 in 2022.

## Headcount

The total number of Bosch Group associates rose to 429,416 at the end of 2023, compared with 421,338 at the end of 2022. Headcount thus increased at a slower rate than sales revenue. The number of Bosch associates thus increased by 8,078. Changes in the consolidated group primarily affected the Industrial Technology business sector, due to acquiring 1,824 associates at HydraForce. The acquisition of Paladin Technologies and PalAmerican added 1,577 associates to the Energy and Building Technology business sector and the acquisition of TSI Semiconductors added 220 associates to the Mobility business sector.

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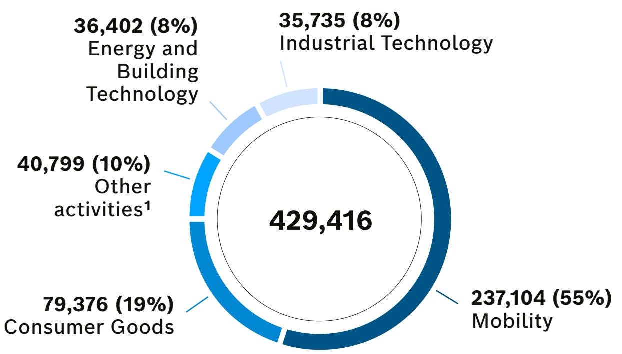
**Bosch Group headcount, 2023**
by business sector
as of Dec. 31, 2023




1. Corporate functions and research.

The workforce in the Mobility business sector rose to 237,104, compared with 233,077 at the end of 2022. The number of associates in the Industrial Technology business sector increased to 35,735, compared with 34,143 at the end of 2022. In the Consumer Goods business sector, the number of associates fell to 79,376, compared with 83,006 at the end of 2022. The number of associates in the Energy and Building Technology business sector rose to 36,402, compared with 34,437 at the end of the previous year. A total of 40,799 associates are employed in other activities, compared with 36,675 in the previous year.

The number of associates in research and development across all units worldwide grew again by 4,541 to stand at 90,084 at the end of the year. The expansion of the global research and development network affects almost all regions, and Asia Pacific (including other countries and Africa) most strongly. Regions outside Germany account for 63 percent of associates in research and development, with Asia Pacific accounting for 42 percent. The number of associates worldwide in the corporate sector for research and advance engineering ("Other activities") at year-end was 1,627, compared with the previous-year figure of 1,536.

Headcount increased in all regions, but at different rates. As a result, the percentage distribution of Bosch Group associates by region has changed marginally, with the absolute number of associates rising in all regions.

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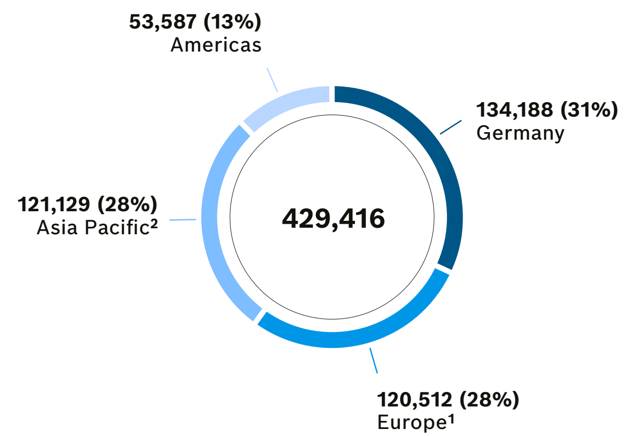
Bosch Group headcount, 2023
by region
as of Dec. 31, 2023



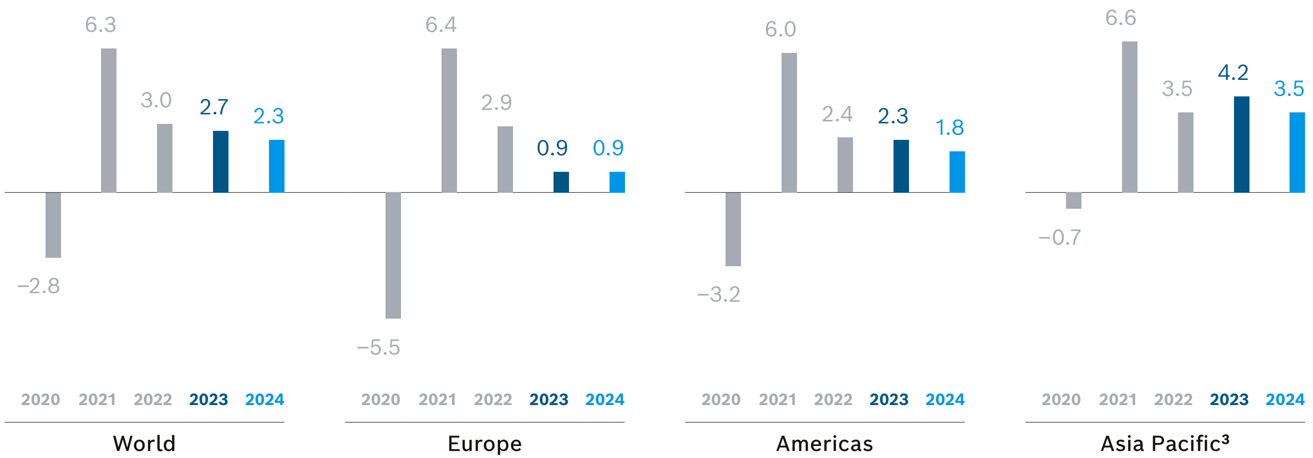

1. Excluding Germany.
2. Including other countries and Africa.

# Outlook

The 2024 fiscal year is likely to be challenging as well. High prices will continue to dampen demand for consumer goods. In addition, the significant increases in bank rates in 2022 and 2023 are likely to continue to brake economic momentum. On top of this, there is uncertainty as a result of geopolitical tension, also in the Middle East. The war in Ukraine also continues. Important elections will also be held in a number of countries. Depending on their outcome, the geopolitical landscape may change. Nonetheless, we aim to grow sales revenue by between 5 and 7 percent. Additional burdens resulting from the far-reaching changes in diverse business fields and the adjustment measures connected to them, combined with considerable upfront investments in areas of future importance, mean that we assume an EBIT margin from operations roughly on a par with 2023. We also aim to achieve an FCF-to-sales revenue ratio of at least 1 percent. Our reorganization measures in particular will not produce their full effect until 2025. In addition, we will work intensively to reduce our costs in order to strengthen competitiveness. Moreover, we will drive forward the implementation of our growth strategy. For this purpose, we want to strengthen our portfolio through acquisitions and partnerships.

G20

Economic growth by region, 2020–2024[1, 2]
Real GDP, percentage change on previous year




1. Some previous-year figures changed from the 2022 annual report following an audit.
2. Forecast figures for 2024.
3. Including other countries.

## Macroeconomic and sector-specific environment

Our plans are based on the assumption that global economic growth will remain weak in 2024 as well. For 2024, we forecast that global GDP will grow by between 2 and 2½ percent. For Europe, we expect developments to be weak. We see the prospects in the Americas as slightly more favorable. However, the consequences of the more restrictive monetary policy in the United States will likely dampen growth for the time being. Asia is once again expected to disclose the strongest growth. However, we expect that China will grow at a slower pace than in the previous year. The weak real-estate market is likely to brake developments there. The various geopolitical tensions are a further reason for the low-key outlook for the global economy. Moreover, the conflicts in the Middle East are again making global supply chains vulnerable, especially shipping routes. There is a risk of delayed deliveries and rising logistics costs, which will then make themselves felt in prices. Rising wages in North America and Europe may lead to further price increases.

Our assumption for 2024 is that the global inflation rate will fall further to between 3½ and 4 percent, following 5.8 percent in 2023 and 7.9 percent in 2022. However, this means that we still expect inflation to be higher than the average over the past decade. We therefore expect central banks to be cautious and unlikely to loosen the monetary-policy reins to any major extent. The persistence of comparatively high interest rates is likely to hold back consumption and construction investment in 2024 as well.

For the Americas, we expect that GDP will rise by 1½ to 2 percent year on year in 2024. On the basis of current data, our forecast for Europe is a just under 1 percent rise in economic output. In this context, we expect the European Union to grow by ¾ percent year on year. For Germany, we currently expect stagnation. Growth rates in Asia Pacific (including other countries) will likely weaken year on year, to 3½ percent. Here, we expect growth in China to slow to 4 percent. As their point of reference, our forecasts are based on the data sources of Feri AG and the International Monetary Fund, as well as on our own assessments.

For the automotive sector, our most important market, we so far expect to see a similar level of production in 2024 as in 2023 (including heavy trucks), at around 93 million vehicles. Our forecast process is based on the third-party forecasts of S&P Global Mobility and Bosch in-house marketing analyses in the regions and at headquarters.

## Bosch Group and business sectors

### Sales revenue forecast

In 2024, we expect that Bosch Group sales revenue will rise within a range of 5 to 7 percent. As in previous years, we do not disclose exchange-rate effects separately in our forecast. At between 7 and 9 percent, we expect the strongest growth in our Mobility business sector. By contrast, we expect to see slight growth of up to 1 percent in the Industrial Technology business sector. In the Consumer Goods business sector, our planning foresees growth of between 3 and 5 percent, following the decline of previous years. The forecast moderate growth of between 2 and 4 percent in Energy and Building Technology is the result of subdued expectations in Home Comfort, as the European heating market is expected to significantly lose momentum.

### Result forecast

Given the difficult economic environment and considerable upfront investments and adjustment measures, the Bosch Group's EBIT margin from operations is expected to be roughly on a par with 2023. In both the Mobility and Consumer Goods business sectors, we expect a significant improvement in EBIT margin from operations. In the Industrial Technology business sector, the EBIT margin is likely to be significantly lower than in the previous year, and in the Energy and Building Technology business sector considerably so. The forecast for the Energy and Building Technology business sector does not take the Building Technologies division's planned divestment of its product business into account.

## Expectation for NWC and FCF

For the Bosch Group, we expect an FCF-to-sales revenue ratio of at least 1 percent. For all business sectors, we expect average NWC to fall significantly from previous-year levels. For NWC, the year-on-year comparisons are based on the comparable internal figure for the previous year.

# Report on opportunities and risks

## Opportunities

On the whole, we see good growth opportunities for the Bosch Group. For us as a supplier of technology, additional sales opportunities are opening up through changes in markets and technology – especially as a result of electrification, electronification, automation, and digitalization. There is also the growing economic and social focus on sustainability, and the growth potential of emerging regions such as ASEAN and Africa. For the sake of greater clarity, the "Outlook for the Bosch Group" section describes in detail the opportunities and specific strategies we derive from them for the company as a whole and the business sectors.

## Risk report

### Risk management system

In the Bosch Group, risk management encompasses the entire company, including all essential operations, functional areas, divisions, and business sectors. It is thus a core responsibility for all managers on every level of the Bosch Group. As far as possible, risks are identified and managed where they arise: in other words, above all in the divisions and their regional subsidiaries. The latter organizational units are also primarily responsible for introducing measures to reduce or control risks.

While the corporate departments for compliance, risk management, and internal control system exercise a governance function for their respective systems, specialist departments such as the legal services and tax departments support, govern, and monitor directives and focal points. Internal auditing also helps assess the appropriateness and effectiveness of these tasks, and where necessary submits proposals for the introduction of appropriate improvements to the board of management and the heads of the specialist departments.

The Bosch Group risk management system takes its lead from the ISO 31000, COSO III (ERM), and IDW PS 340 standards. It includes the systematic recording and follow-up of relevant risks and, where necessary, the identification and follow-up of measures to deal with those risks. In this context, the corporate coordinating office for the risk management system is responsible for continuously improving the system.

A corporate risk management directive sets out principles and responsibilities. It was revised in 2023. Reporting to the supervisory board's newly established audit committee has also been made a fixed component of this directive. In addition, it now features a "disruption radar" for the early detection of risks that lie outside the planning period. "Disruption" refers to groundbreaking developments that profoundly change customer expectations and markets through new functions, technological innovations, and new business models, and in this way may significantly affect the Bosch Group's business. These disruptions are clustered according to the PESTEL model (political, economic, social, technological, environmental, legal) and classified in three phases: "identify and observe," "evaluate and test," and "implement initiatives." In addition, a cross-functional risk committee is tasked with identifying significant risk areas across the operating units and pinpointing potentially disruptive technological and strategic risks.

## Overall risk assessment

We are not currently aware of any risks, beyond those listed in this report, which could materially affect the net assets, financial position, and results of operations of the Bosch Group in 2024. From a current perspective, there are no risk exposures that could jeopardize the Bosch Group's continued existence as a going concern.

## Risk assessment on the basis of the risk management system

### Fundamental remarks

Risk assessment on the basis of the risk management system considers a time horizon up to 2027. The risk situation has not changed in principle, even though there have been methodological changes in the way risks are classified. The number of reported risks (at year-end 2023) has fallen further compared with previous years. The financial risk ("monetary risk") is calculated from a risk matrix of probability of occurrence and potential loss. It thus gives an indication of how high any likely losses are. This risk has fallen 31 percent year on year. While the likelihood of occurrence has remained the same, the potential loss has dropped significantly.

Here, the potential scale of loss is based on a three-point estimate for the worst-case, realistic, and best-case scenarios, in a ratio of 1:4:1. Risk reporting uses the residual method. Risks with a probability of occurrence of at least 50 percent are still considered in our annual or interim sales revenue and income forecasts as a matter of principle. The assessment is based on our current planning.

As a supplement to the procedure followed in previous years, we have formed a number of thematic focal points under which individual risks are clustered. These focal points take their lead from the size of the aggregate financial risk. Seven of these thematic focal points involve a financial risk in excess of 700 million euros.

The most significant focal point is changes in the market and competitive environment. As a result of greater volatility, it is becoming increasingly challenging to work existing markets, as well as to access new ones, and this is making the competitive situation as a whole tougher. Another focal point is macroeconomic developments, from which risks arise such as exchange-rate fluctuations, persistent inflation, and changes in interest rates. These are described in the section "Hedging policy and financial risks." One further risk cluster concerns the Bosch Group's global supply chains. Above all, the individual risks include the limited availability of electronic components (especially semiconductors), despite the improvements in the past fiscal year, the insolvency of critical suppliers, and loss events such as natural disasters at critical suppliers' or at our own locations, including the possibility of far-reaching production stoppages. In the "projects and customers" thematic area, we consider the risks relating to individual customers as well as delays in fundamental technological developments. There is also the thematic focal point of risks arising from legislation and regulations. These may lead to restrictions on competition or increased costs as a result of additional measures. This cluster also includes risks in the area of data protection. Geopolitical risks are a further category. This includes risks such as U.S.-Chinese

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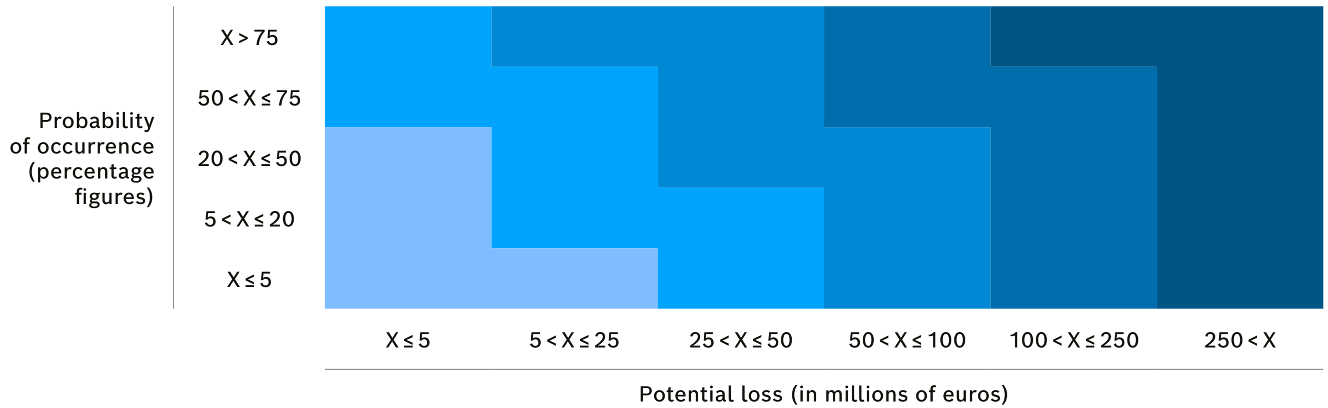
## Risk matrix of potential loss




trade, the war in Ukraine, and the conflict in the Middle East. Cybersecurity remains one of the seven most important risk categories. It includes risks with respect to core IT processes and connected products, and the danger of business processes being interrupted.

The 250-million-euro threshold for individual financial risks was exceeded by the risks of interrupted business processes in the cybersecurity category and the availability of electronic components, particularly semiconductors.

With respect to the thematic focal points and major individual risks, we are keeping a close watch on developments and are designing scenario-based measures. As concerns the changes in the market and competitive environment, we are using our growth strategy to strengthen our position in existing areas, to open up new areas of business, and to extend our global market footprint. On the subject of global supply chains, we are analyzing the structure of our procurement sources and monitoring the development of critical suppliers; this applies in greater measure to electronic components. Our response to risks relating to projects and customers is the close monitoring of milestones and greater consideration of superordinate levels. To reduce the risks arising from legislation and regulations, we closely monitor political developments in order to be able to adapt to changed framework conditions at an early stage. With respect to geopolitical risks, it is part of our strategy to balance our business internationally, and to grow more strongly in markets that have so far been under-represented.

We take comprehensive measures with respect to the biggest individual risk – interruption of business processes as a result of cyberattacks. Bosch's company-wide cybersecurity organization identifies and evaluates potential risks in connection with cyberthreats and develops appropriate measures to minimize them. Through regular security audits and checks, weaknesses are identified and remedied in order to minimize the risk of security breaches. Here, the cybersecurity organization works closely with the various company departments in order to ensure that security considerations are integrated right from the start of the development process. In addition, we collaborate with third-party partners and authorities in order to exchange information about current threats and to adopt best practices.

### Risks by business sector

Of the business sectors, Mobility has the highest financial risk. The biggest risk here is the availability of electronic components, especially semiconductors. We take extensive measures to keep any impact on customers to a minimum – for example, by including extra procurement sources. The Consumer Goods business sector is currently faced above all with risks resulting from changes in its competitive environment. The measures it takes include strengthening competitiveness by improving cost efficiency and revising its product strategy.

In proportion to their share of sales revenue, the financial risk of the Industrial Technology and Energy and Building Technology business sectors is lower than in the rest of the Bosch Group. In Industrial Technology, one material risk concerns the impact of the bankruptcy of critical suppliers. To minimize this risk, the situation at critical suppliers is monitored closely, in addition to adjustments to procurement strategy. In Energy and Building Technology, the highest risks result from uncertain regulatory policies for the heating market in the United Kingdom and Germany. Our strategy here is to supply technologies that are appropriate to the market and that satisfy requirements.

## Hedging policy and financial risks

### Hedging policy principles and financial derivatives

The business operations of the Bosch Group are impacted in particular by fluctuations in exchange and interest rates and additionally, on the procurement side, by commodity price risks. Business policy aims to limit these risks by means of hedging. Hedging transactions are managed at corporate level. Internal regulations and guidelines set down a mandatory framework and define the responsibilities related to investment and hedging transactions. According to these regulations, derivatives may only be used in connection with business operations, financial investments, or financing transactions; speculative transactions are not allowed. Trader limits are an important component of the guidelines. Hedges are generally concluded via banks with good credit ratings from leading agencies and taking into account current risk assessments in financial markets. The creditworthiness of the Bosch Group's banking partners is closely monitored, and the risk mitigated by counterparty limits.

To reduce the credit risk of the bank, fixed-term deposits are in some cases also entered into as secured deposits in triparty repo transactions. In such cases, the bank provides predefined securities as collateral. The transaction settlement, as well as the management and valuation of the securities, are managed by a clearing center. The decision-making bodies are committees for commodities, foreign currencies, and investments that meet at regular intervals. There is a functional segregation of trading, settlement, and control functions. Key tasks of the control function above all include determining risks and continuously checking compliance with instructions and guidelines.

Each month, the risk of financial investments is calculated using the value-at-risk concept. Risks relating to financial investments are assessed through ad hoc studies of asset-allocation strategy, and limited by diversifying investment. In foreign-exchange and investment committee meetings, the board of management member responsible is informed monthly about risk analyses and the results of investments and hedges.

## Currency risks

Currency risks from cash flows in business operations are mitigated by the central management of invoicing and purchasing currencies. The currency risk is determined on the basis of the worldwide consolidated cash flows in the respective currencies. Based on annual forecasts, estimated inflows and outflows in the various currencies for the reporting period are aggregated in a foreign exchange balance plan. The resulting net position is then used for the central management of currency exposures. The biggest net currency positions of the planned cash flow are in Chinese renminbi, U.S. dollar, British pound, and Mexican peso.

Hedging largely takes the form of forward exchange contracts; currency options and currency swaps are used to a lesser extent. These transactions, which are only entered into with banks, are subject to minimum requirements with respect to nature and scope. The risk attaching to material foreign currency items from operations is determined using the cash-flow-at-risk concept. These risk analyses and the hedge result are determined monthly and also presented to the management board member responsible in the foreign-exchange and investment committee meetings.

A sensitivity analysis in the notes to the financial statements shows the effect of a 10 percent change in the euro exchange rate on the profit before tax. The analysis includes the major currencies. In the case of the Chinese renminbi, the Hungarian forint, the Japanese yen, and the Mexican peso, the effect of such a change on profit before tax would in each case run into a low eight-figure sum. These effects with respect to the Czech crown and British pound would be a mid-range eight-figure sum. The U.S. dollar would be the only currency where the effect would be in the high eight-figure range. For the most part, the effects on earnings shown here result both from foreign-currency positions relating to operations and from loans within the Bosch Group if, by way of an exception, the loan was granted in a currency other than the local currency of the borrower – for example, because it can be repaid from expected cash flows in this currency. The currency risk presented in financial reporting deviates from the purely economic currency risk, as the latter is determined solely on the basis of the planned cash flow from operating activities.

## Interest-rate risks

Risks from changes in interest rates on investments and borrowings are limited by select use of derivative financial instruments. These are mainly interest rate swaps and interest rate futures. In a sensitivity analysis, the assets and liabilities subject to floating interest rates, fixed-rate securities, pension and money-market funds, and interest derivatives were considered. The effect of a 100-basis-point change in the market interest rate (based on the interest rate on the reporting date) on the profit before tax would be a mid-range eight-figure sum.

## Other price risks

Derivatives are used to limit the risks of fluctuating commodity prices. The analysis of the commodity-price risk took into account commodity-price derivatives measured as of the reporting date. The effect on the profit before tax of a change in the forward-rate level of 10 percent (starting from forward rate on the reporting date) would be a mid-range eight-figure sum. As of the reporting date, the Bosch Group is not aware that it is exposed to any significant other price risks.

## Share-price risks

The Bosch Group holds stock as a part of its financial investments used to cover non-current pension obligations. It also holds investments in quoted companies. The analysis of the share-price takes into account share portfolios, quoted investments, equity funds, and share derivatives. In the 2023 financial statements, these had a carrying amount of 5,028 million euros. A change in the share price of 10 percent (taking the share price on the reporting date as the baseline) would have an effect on the financial instruments recognized in equity of roughly 380 million euros. For the profit before tax, the effect would be 130 million euros. To reduce share-price risks, a broadly diversified investment strategy is pursued across various regions and sectors.

## Credit risks

The credit risk from customer receivables is recorded and monitored on an ongoing basis. Responsibilities and duties relating to credit risks are governed by an internal directive. This mainly concerns the stipulation of payment terms, fixing of credit limits, release of deliveries, and receivables monitoring.

The credit risk for trade receivables is reduced by processing invoices with the corresponding credit notes in a single work step; the net amount is reported in the statement of financial position. This procedure is only performed if there is a legal right to offset and the customer intends to settle the receivable on a net basis or to settle the receivable by offsetting against the corresponding liability. Moreover, trade receivables are partly secured by retention of title. For some trade receivables, collateral has been additionally provided in the form of guarantees, property liens, and mortgages. Due to the measures that have been taken, we do not see any material credit risk.

## Liquidity risks

Changes in financial assets and liabilities are monitored on an ongoing basis. Internal directives regulate the duties and responsibilities of liquidity management and planning. The liquidity risk is reduced by processing invoices for trade payables with the corresponding credit notes received in a single work step. This procedure is only performed if there is a legal right to offset and there is an intention to settle the liability based on the net amount or to settle the liability by offsetting against the corresponding receivable. Moreover, collateral is provided in the form of guarantees.

Thanks to our comfortable liquidity position, presented above in the section on net assets and financial position, we have ample financial resources at our disposal. We therefore evaluate the liquidity risk as low.

## Risks pursuant to the compliance management system

In 2023, we did not register any unusual corruption-related risks within the organization. As before, the general corruption-related risks concern the handling of special payments to our customers and business partners whose risk profile is high. Also as before, there are even more and even tighter national and international laws and official requirements with respect to effective compliance, data protection, and information security management systems. They relate above all to current technological developments such as artificial intelligence. The focus on data privacy, whistleblower protection, and more stringent prosecution of companies and natural persons remains.

The corporate compliance organization was further modified in 2023. For example, we have reorganized our internal investigation processes in Germany. We are also continuing to systematically digitalize our core compliance processes. To minimize risk, we have further extended our checks. In data privacy and information security, we have above all adapted our regulations and processes to new local requirements, such as the implementation of new data laws in China. We have also started to implement a revised training model in order to address subjects such as cybersecurity and artificial intelligence. We have continued to implement the European and local directives relating to whistleblower systems and protection, including the setup of new in-house reporting offices. In addition, the company-wide sensitization campaign has been continued. It aims to increase awareness and use of the whistleblower system and to reinforce trust in internal investigations. Moreover, we have extended our training program and revised our training courses.

## Foreign-trade risks

Geopolitical developments such as the war in Ukraine and the tense trade relations between the U.S. and China are leading internationally to new and tighter rules that restrict global free trade. They include export controls and sanctions regulations in many countries. These are backed up by sanctions of their own and past or future violations may lead to penalties, claims for damages, and damage to reputation. The challenges here are the abruptness with which new sanctions and the related tools are imposed, the extension of restrictions to include various business processes, and the steadily increasing general risk of evasion resulting from sanctions. With respect to the resulting economic, legal, and reputational risks, Bosch is continuously developing its export-control organization.

## Legal risks

With respect to emissions from diesel vehicles, various automakers are being investigated by German and non-German authorities. In occasional cases, these investigations also concern Bosch in its capacity as a supplier of engine control units. With respect to the events concerning various automakers' diesel vehicle emissions, Bosch is still a defendant in class and individual civil-law actions in a few countries. In 2023, Bosch was able to successfully conclude many proceedings relating to diesel emissions, including several class actions against Bosch in the United States and the Netherlands. In none of the proceedings concluded does Bosch acknowledge the validity of the claims brought forward, nor does it concede any liability. The proceedings and actions still pending, as well as possible further ones, still pose risks. Taken together, however, we now regard them as more minor than previously. In all these proceedings, Bosch is asserting its rights.

Bosch is also engaged in compensation discussions with customers in respect of potential civil-law risks associated with closed antitrust proceedings. Investigations by the antitrust authorities against Bosch are continuing in certain countries. The French antitrust authority has completed its investigations of BSH Hausgeräte in France for a possible violation of antitrust law and has notified BSH France of the allegations made as part of the ongoing proceedings. As part of a settlement, the authorities and BSH have agreed on the scope of a possible fine. The final decision is expected in the first half of 2024.

On the basis of the facts relating to antitrust law and engine control units that were available when the financial statements were prepared and that the board of management has assessed, the board of management believes that sufficient precautions have been taken in the form of provisions for legal risks. For the various legal risks outlined above, provisions throughout the group amount to 386 million euros. From the 2023 fiscal year, the board of management is not aware of any further legal risks that could, from a present perspective, materially impair the company's net assets, financial position, or results of operations.

# Consolidated financial statements
of Robert Bosch GmbH
as of December 31, 2023

# Consolidated income statement

## for the period from January 1 to December 31, 2023

T03

in millions of euros

| | Note | 2023 | 2022 |
|---|---|---|---|
| **Sales revenue** | 7 | **91,596** | **88,201** |
| Cost of sales | 8 | −62,976 | −59,742 |
| **Gross profit** | | **28,620** | **28,459** |
| Distribution and administrative cost | 8 | −18,233 | −17,812 |
| Research and development cost | 8 | −7,331 | −7,224 |
| Other operating income | 9 | 3,470 | 2,634 |
| Other operating expenses | 10 | −2,029 | −2,582 |
| Result from entities included at equity | 6 | 6 | −1 |
| **Earnings before financial result and taxes (EBIT)** | | **4,503** | **3,474** |
| Financial income | 11 | 3,980 | 3,829 |
| Financial expenses | 11 | −4,507 | −4,390 |
| **Financial result** | | **−527** | **−561** |
| **Profit before tax** | | **3,976** | **2,913** |
| Income taxes | 12 | −1,336 | −1,075 |
| **Profit after tax** | | **2,640** | **1,838** |
| of which attributable to non-controlling interests | | 539 | 538 |
| of which attributable to shareholders of the parent company | | 2,101 | 1,300 |

# Consolidated statement of comprehensive income

## for the period from January 1 to December 31, 2023

T04

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| **Profit after tax** | **2,640** | **1,838** |
| Change in debt instruments, measured at fair value | 384 | –483 |
| reclassified to profit or loss | 189 | 169 |
| Currency translation of subsidiaries outside the euro zone | –919 | 23 |
| reclassified to profit or loss | 26 | –289 |
| **Items that may be reclassified to profit or loss** | **–535** | **–460** |
| Change in equity instruments, measured at fair value | 37 | –985 |
| Remeasurement of pension provisions | –237 | 2,040 |
| **Items that will not be reclassified to profit or loss** | **–200** | **1,055** |
| **Other comprehensive income after tax** | **–735** | **595** |
| **Comprehensive income** | **1,905** | **2,433** |
| of which attributable to non-controlling interests | 396 | 478 |
| of which attributable to shareholders of the parent company | 1,509 | 1,955 |

# Consolidated statement of financial position

## for the year ended December 31, 2023

T05

### Assets

in millions of euros

| | Note | 12/31/2023 | 12/31/2022 |
|---|---|---|---|
| **Current assets** | | | |
| Cash and cash equivalents | 14 | 7,443 | 6,459 |
| Trade receivables | 15 | 17,081 | 16,528 |
| Other financial assets | 16 | 7,822 | 3,803 |
| Contract assets | 17 | 1,176 | 1,006 |
| Income tax receivables | | 379 | 267 |
| Other assets | 18 | 2,628 | 2,422 |
| Inventories | 19 | 15,184 | 16,528 |
| | | **51,713** | **47,013** |
| **Non-current assets** | | | |
| Financial assets | 16 | 14,538 | 14,021 |
| Contract assets | 17 | 695 | 567 |
| Income tax receivables | | 205 | 255 |
| Property, plant, and equipment | 20 | 24,616 | 23,014 |
| Right-of-use assets | 32 | 2,276 | 2,068 |
| Intangible assets | 21 | 11,055 | 10,254 |
| Investments measured at equity | 6 | 53 | 66 |
| Other assets | 18 | 1,008 | 871 |
| Deferred taxes | 12 | 2,017 | 2,003 |
| | | **56,463** | **53,119** |
| **Assets held for sale** | 6 | **154** | **115** |
| **Total assets** | | **108,330** | **100,247** |

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T05

## Equity and liabilities

in millions of euros

| | Note | 12/31/2023 | 12/31/2022 |
|---|---|---|---|
| **Current liabilities** | | | |
| Trade payables | 22 | 12,205 | 10,761 |
| Lease liabilities | 32 | 553 | 532 |
| Other financial liabilities | 23 | 2,772 | 2,210 |
| Contract liabilities | 24 | 1,820 | 1,644 |
| Income tax liabilities | 12 | 675 | 738 |
| Other liabilities | 25 | 8,418 | 8,506 |
| Other provisions | 25 | 5,176 | 4,850 |
| | | **31,619** | **29,241** |
| **Non-current liabilities** | | | |
| Financial liabilities | 23 | 10,399 | 5,457 |
| Lease liabilities | 32 | 1,798 | 1,635 |
| Contract liabilities | 24 | 836 | 806 |
| Other liabilities | 25 | 51 | 45 |
| Pension provisions | 26 | 9,666 | 9,384 |
| Other provisions | 25 | 5,324 | 6,316 |
| Deferred taxes | 12 | 599 | 572 |
| | | **28,673** | **24,215** |
| **Liabilities directly associated with assets held for sale** | 6 | **144** | **64** |
| **Equity** | 27 | | |
| Issued capital | | 1,200 | 1,200 |
| Capital reserve | | 4,557 | 4,557 |
| Retained earnings | | 39,776 | 38,483 |
| **Equity attributable to shareholders of the parent company** | | **45,533** | **44,240** |
| Non-controlling interests | | 2,361 | 2,487 |
| | | **47,894** | **46,727** |
| **Total equity and liabilities** | | **108,330** | **100,247** |

# Consolidated statement of changes in equity

T06

in millions of euros

| Note 27 | | | Retained earnings | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Other comprehensive income | | | | | | |
| | Issued capital | Capital reserve | Earned profit | Treasury stock | Currency translation | Financial instruments | Pensions | Total | Equity parent company | Equity non-controlling interests | Group equity |
| **1/1/2022** | **1,200** | **4,557** | **40,056** | **−62** | **−1,067** | **2,247** | **−4,500** | **−3,320** | **42,431** | **2,367** | **44,798** |
| Profit after tax | | | 1,300 | | | | | | 1,300 | 538 | 1,838 |
| Other comprehensive income after tax | | | | | 84 | −1,470 | 2,041 | 655 | 655 | −60 | 595 |
| **Comprehensive income** | | | **1,300** | | **84** | **−1,470** | **2,041** | **655** | **1,955** | **478** | **2,433** |
| Dividends | | | −143 | | | | | | −143 | −367 | −510 |
| Changes in ownership interests in subsidiaries | | | −1 | | | | | | −1 | | −1 |
| Other changes | | | 380 | | | −403 | 21 | −382 | −2 | 9 | 7 |
| **12/31/2022** | **1,200** | **4,557** | **41,592** | **−62** | **−983** | **374** | **−2,438** | **−3,047** | **44,240** | **2,487** | **46,727** |
| Profit after tax | | | 2,101 | | | | | | 2,101 | 539 | 2,640 |
| Other comprehensive income after tax | | | | | −772 | 418 | −238 | −592 | −592 | −143 | −735 |
| **Comprehensive income** | | | **2,101** | | **−772** | **418** | **−238** | **−592** | **1,509** | **396** | **1,905** |
| Dividends | | | −162 | | | | | 0 | −162 | −542 | −704 |
| Changes in ownership interests in subsidiaries | | | | | | | | | 0 | | 0 |
| Other changes | | | 111 | | | −165 | | −165 | −54 | 20 | −34 |
| **12/31/2023** | **1,200** | **4,557** | **43,642** | **−62** | **−1,755** | **627** | **−2,676** | **−3,804** | **45,533** | **2,361** | **47,894** |

# Consolidated statement of cash flows

T 07

in millions of euros

| | Note 28 | 2023 | 2022[2] |
|---|---|---|---|
| Earnings before financial result and taxes (EBIT) | | 4,503 | 3,474 |
| Depreciation and amortization[1] | | 4,961 | 5,045 |
| Gains/losses on disposal of non-current assets | | −125 | 17 |
| Result from investments measured at equity | | −6 | 1 |
| Other expenses and income, not cash effective | | 11 | 180 |
| Change in inventories | | 1,050 | −2,715 |
| Change in receivables and other assets | | −855 | −2,561 |
| Change in liabilities | | 1,326 | 1,256 |
| Change in pension provisions and other provisions | | −1,215 | −1,532 |
| Interest paid | | −411 | −240 |
| Interest and dividends received | | 701 | 507 |
| Other financial expenses and income, cash effective | | 4 | −224 |
| Income taxes paid | | −1,514 | −1,349 |
| **Cash flows from operating activities (A)** | | **8,430** | **1,859** |
| Acquisition of subsidiaries, net of cash acquired | | −1,426 | −1,152 |
| Disposal of subsidiaries, net of cash disposed of | | 14 | −21 |
| Additions to non-current assets | | −6,596 | −5,985 |
| Disposal of non-current assets | | 506 | 743 |
| Change in securities and time deposits (term of more than 90 days) | | −3,709 | 4,079 |
| **Cash flows from investing activities (B)** | | **−11,211** | **−2,336** |

1. After offsetting write-ups of EUR 63 million (previous year: EUR 2 million).
2. Some of the previous year's figures within cash-flows from operating activities have been restated; for further details see note 2 in the notes to the consolidated financial statements.

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T07

in millions of euros

| | Note 28 | 2023 | 2022[2] |
|---|---|---|---|
| Acquisition of non-controlling interests | | –1 | –1 |
| Borrowing | | 7,141 | 2,042 |
| Repayment of financial liabilities | | –1,887 | –240 |
| Repayment of lease liabilities | | –588 | –590 |
| Dividends paid | | –704 | –510 |
| **Cash flows from financing activities (C)** | | **3,961** | **701** |
| **Change in liquidity (A+B+C)** | | **1,180** | **224** |
| **Liquidity at the beginning of the period (January 1)** | | **6,459** | **6,196** |
| Exchange rate-related change in liquidity | | –208 | 23 |
| Change in liquidity due to changes in the consolidated group | | 10 | 17 |
| Change in liquidity held for sale | | 2 | –1 |
| **Liquidity at the end of the period (December 31)** | | **7,443** | **6,459** |

2. Some of the previous year’s figures within cash-flows from operating activities have been restated; for further details see note 2 in the notes to the consolidated financial statements.

# Notes to the consolidated financial statements

## Principles and methods

### 1 — General information

Robert Bosch Gesellschaft mit beschränkter Haftung (Stuttgart Local Court, HRB 14000; referred to in the following as Robert Bosch GmbH) is headquartered in Stuttgart, Germany. Its business address is Robert-Bosch-Platz 1, 70839 Gerlingen, Germany. The shareholders of Robert Bosch GmbH are Robert Bosch Stiftung Gesellschaft mit beschränkter Haftung, Stuttgart (93.99 percent of the shares), ERBO II Gesellschaft mit beschränkter Haftung, Stuttgart (5.36 percent of the shares), and Robert Bosch Industrietreuhand KG, Stuttgart (0.01 percent of the shares), which performs the entrepreneurial ownership functions. Robert Bosch GmbH holds treasury stock equivalent to 0.64 percent of capital. For further information on the Bosch Group's business activities, please refer to the group management report.

The consolidated financial statements of Robert Bosch GmbH as of December 31, 2023, have been prepared in accordance with the International Financial Reporting Standards (IFRSs) as adopted by the EU at the end of the reporting period in accordance with Regulation (EC) No. 1606/2002 of the European Parliament and of the Council on the application of international accounting standards. In addition, the provisions of Sec. 315e (3) HGB [*Handelsgesetzbuch*: German Commercial Code] have been observed. The previous-year figures have been determined using the same principles.

To enhance the clarity and transparency of the consolidated financial statements, individual line items of the consolidated income statement and the consolidated statement of financial position have been combined. These items are explained separately in the notes to the consolidated financial statements. The income statement has been prepared using the function of expense method.

The group currency is the euro (EUR). Unless otherwise stated, all figures are in millions of euros (EUR million).

The consolidated financial statements prepared as of December 31, 2023, were authorized for publication by the board of management on March 6, 2024. The consolidated financial statements and group management report will be filed with the Company Register [*Unternehmensregister*] and published there.

### 2 — Changes in financial reporting

#### Accounting standards applied for the first time in the fiscal year 2023

The following new or revised standards became effective for the first time in the reporting year:

- IFRS 17 *Insurance Contracts* (including the amendments from June 2020 and December 2021),
- Amendments to IAS 1 *Presentation of Financial Statements* (Disclosure of Accounting Policies),
- Amendments to IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* (Definition of Accounting Estimates),
- Amendments to IAS 12 *Income Taxes* (Deferred Tax related to Assets and Liabilities arising from a Single Transaction),

- Amendments to IAS 12 *Income Taxes* (International Tax Reform – Pillar Two Model Rules).

The above amendments are not expected to have any material effects on the consolidated financial statements of Robert Bosch GmbH. Disclosures on possible effects from the implementation of the OECD Pillar Two Model Rules are presented in note 12 “Income taxes.”

## Accounting standards not adopted early

The EU endorsed amendments to the following accounting standards in the reporting year:

- IAS 1 *Presentation of Financial Statements* (Classification of Liabilities as Current or Non-current and Non-current Liabilities with Covenants) and
- IFRS 16 *Leases* (Lease Liability in a Sale and Leaseback).

The IASB also published amendments to the following standards in the reporting year:

- IAS 7 *Statement of Cash Flows* and IFRS 7 *Financial Instruments: Disclosures* (Supplier Finance Arrangements), which will become effective for fiscal years beginning on or after January 1, 2024, and
- IAS 21 *The Effects of Changes in Foreign Exchange Rates* (Lack of Exchangeability), which will become effective for fiscal years beginning on or after January 1, 2025.

These changes have yet to be endorsed by the EU.

The Bosch Group has not adopted the above amendments early.

First-time adoption of the above amendments is not expected to have any material effects on the consolidated financial statements of Robert Bosch GmbH.

## Correction of the previous year’s figures

In the fiscal year, the allocation of individual items under cash flows from operating activities was changed in the consolidated statement of cash flows. This relates in particular to the presentation of changes in inventories from customer development projects. Changes that were previously reported in the item “other expenses and income, not cash effective” are reported consistently with other changes in inventories in the items “change in inventories,” “change in receivables and other assets,” and “change in liabilities” from the reporting year onward.

In order to ensure the comparability of the previous year’s figures, the following restatements were made in the previous year’s figures in accordance with IAS 8.42: The line item “other expenses and income, not cash effective” was increased by EUR 313 million, while the line item “change in inventories” was reduced by EUR 459 million. The line item “change in receivables and other assets” was reduced by EUR 223 million, and the line item “change in liabilities” was increased by EUR 369 million.

## 3 — Currency translation

In the separate financial statements of the group companies, monetary assets and liabilities denominated in currencies other than the euro are measured at the closing rate, regardless of whether they are hedged or not. Exchange-rate gains and losses from revaluations are recorded in profit or loss.

Financial statements prepared in foreign currency are translated into euros in accordance with IAS 21 *The Effects of Changes in Foreign Exchange Rates*. Assets and liabilities are translated at the closing rate, while equity is translated at historical rates. The line items of the income statement are translated into euros at the annual average exchange rates. Any resulting exchange-rate differences are recorded directly in equity as a separate line item until the disposal of the subsidiaries.

For the most important non-euro currencies of the Bosch Group, the following exchange rates apply:

T08

| | | Closing rate | | Average rate | |
|---|---|---|---|---|---|
| | EUR 1 = | 12/31/2023 | 12/31/2022 | 2023 | 2022 |
| Australia | AUD | 1.63 | 1.57 | 1.63 | 1.52 |
| Brazil | BRL | 5.36 | 5.64 | 5.40 | 5.44 |
| Canada | CAD | 1.46 | 1.44 | 1.46 | 1.37 |
| China | CNY | 7.85 | 7.36 | 7.66 | 7.08 |
| Czech Republic | CZK | 24.72 | 24.12 | 24.00 | 24.56 |
| Hungary | HUF | 382.80 | 400.87 | 381.76 | 391.37 |
| India | INR | 91.90 | 88.17 | 89.33 | 82.72 |
| Japan | JPY | 156.33 | 140.66 | 151.90 | 137.99 |
| Korea | KRW | 1,433.66 | 1,344.09 | 1,413.29 | 1,357.94 |
| Mexico | MXN | 18.72 | 20.86 | 19.19 | 21.20 |
| Poland | PLN | 4.34 | 4.68 | 4.54 | 4.69 |
| Romania | RON | 4.98 | 4.95 | 4.95 | 4.93 |
| Switzerland | CHF | 0.93 | 0.98 | 0.97 | 1.00 |
| Turkey | TRY | 32.65 | 19.96 | 32.65 | 19.96 |
| United Kingdom | GBP | 0.87 | 0.89 | 0.87 | 0.85 |
| United States | USD | 1.11 | 1.07 | 1.08 | 1.05 |

The financial statements of consolidated entities in hyperinflationary economies are prepared in accordance with IAS 29 *Financial Reporting in Hyperinflationary Economies*. In the reporting year, this concerns the subsidiaries in Argentina and Turkey. To identify economies as hyperinflationary, reference is made to the pronouncements issued by the Center for Audit Quality's International Practices Task Force (IPTF). In accordance with IAS 29, non-monetary assets and liabilities, equity, and all line items of the income statement and statement of comprehensive income are indexed to the respective country's general price index. In Turkey, the consumer price index issued by the Turkish Statistical Institute TURKSTAT is used. On December 31, 2023, this stood at 1,859.38 (previous year: 1,128.45). Argentina uses the consumer price index set by the FACPCE, which stood at 3,533.19 on December 31, 2023 (previous year: 1,134.59). Monetary items of the statement of financial position are not restated. The gain or loss on the net monetary position is recognized in the financial result under expenses or income from exchange-rate fluctuations.

## 4 — Accounting policies

The accounting policies used in the preparation of the consolidated financial statements of Robert Bosch GmbH are presented in the notes to the individual line items of the income statement and the statement of financial position. The accounting policies applicable to financial instruments are presented together in note 30 "Additional disclosures on financial instruments."

In general, the accounting policies applied are unchanged from the previous year, with the exceptions outlined in note 2.

## 5 — Assumptions and estimates

The preparation of consolidated financial statements in accordance with IFRSs requires that assumptions and estimates be made for some line items. These assumptions and estimates have an effect on the amount and presentation of the assets and liabilities, income and expenses, and on the contingent liabilities disclosed in the reporting period. Uncertainty involved in these assumptions and estimates could result in actual outcomes that require a restatement to the carrying amount of assets or liabilities concerned in future periods. Assumptions and estimates mainly concern the following:

The determination of loss allowances on receivables and contract assets is based on estimates and assumptions with respect to the credit standing of individual customers. The measurement of inventories requires assumptions and estimates to be made, including for determining the net realizable value. The discounted future cash flows used as a basis for testing goodwill, other intangible assets, and property, plant, and equipment for impairment are based on estimates. Assumptions are also made in the determination of the discount rates and growth rates used. Determining lease terms requires assumptions and estimates with respect to the likelihood of options to terminate or extend the lease being exercised. The recognition of deferred tax assets is premised on their future recoverability being probable. Consequently, assumptions have to be made regarding future taxable income and the expected timing of the reversal of temporary differences. Further assumptions are required to determine the useful lives of items subject to wear and tear within property, plant, and equipment, as well as of intangible assets. The determination of carrying amounts of investments also involves making assumptions and estimates. Provisions for pensions and similar obligations are measured using actuarial methods. This requires various assumptions, including with respect to life expectancy, salary trends, the pension growth rate, and the discount factor. The recognition and measurement of other provisions is based on estimates of amounts and the probability of future events. To the extent possible, such estimates are based on past experience, and are regularly reviewed and adjusted as necessary. Assumptions and estimates are involved to a high degree in measuring provisions for legal risks and for possible compensation claims by customers. Uncertainties exist in particular with regard to the production volumes affected, the amount of claims, and the course of negotiations.

Macroeconomic trends in the reporting year, such as the development of inflation and rising interest rates, were appropriately taken into account in impairment testing of goodwill and other non-current assets, but also when calculating provisions. In the reporting year, there were no effects on the recognition and measurement of assets and only immaterial effects on the measurement of provisions.

With respect to the consideration of climate-related matters in the preparation of the consolidated financial statements, the relevant legislation is continuously monitored. The effects of legal requirements relating to internal-combustion engines, as well as structural changes such as the transition to electromobility and increasing electrification in many fields, must be assessed in terms of their impact on financial reporting. The assumptions on which the measurement of assets and liabilities is based, in particular when testing assets for impairment, must take the above-mentioned matters into account. This applies both to the underlying medium-term planning and to the valuation parameters used, in particular the growth rate. The useful lives applied to non-current assets must also be regularly reviewed, particularly in light of the effects of changes in legal requirements. In the reporting year, climate-related matters and other structural changes had no effects on the recognition and measurement of assets and liabilities.

As in the previous year, the credit risk for receivables from entities domiciled in Russia, Belarus, and Ukraine was reassessed on account of the continuing war in Ukraine and the sanctions and trade restrictions imposed as a result. This reassessment led to write-downs that were immaterial in scope. Further effects have arisen with regard to the planned sale of further subsidiaries based in Russia. Related disclosures are provided in note 6 “Consolidation.”

## 6 — Consolidation

### Basis of consolidation

Besides Robert Bosch GmbH, the consolidated financial statements include all subsidiaries over which Robert Bosch GmbH has control pursuant to the criteria set out in IFRS 10 *Consolidated Financial Statements*. These entities are included in the consolidated financial statements from the date on which the Bosch Group obtains control. Conversely, subsidiaries are no longer fully consolidated when control of the entity is lost.

The capital of the entities consolidated in the reporting year for the first time is accounted for pursuant to IFRS 3 *Business Combinations*, using the acquisition method of accounting. The acquisition-date cost of the investment is offset against the proportionate share of revalued equity. As a matter of principle, assets, liabilities, and contingent liabilities are carried at fair value. Remaining debit differences are accounted for as goodwill. Negative goodwill is recognized in profit or loss after reassessment. Any difference resulting from the purchase and disposal of non-controlling interests without loss of control is offset against equity.

All intercompany profits and losses, sales revenue, expenses, and other income, as well as receivables and liabilities or provisions, are eliminated. In the case of consolidation measures with an effect on profit or loss, income tax effects are considered and deferred taxes recognized.

### Consolidated group

Besides Robert Bosch GmbH, the consolidated group comprises a further 468 (previous year: 468) fully consolidated entities. The group developed as follows:

T09

| | Germany | Outside Germany | Total |
|---|---|---|---|
| **Included in consolidation at January 1, 2022** | **81** | **360** | **441** |
| Additions/formations in fiscal year 2022 | 3 | 40 | 43 |
| Disposals/mergers in fiscal year 2022 | −6 | −9 | −15 |
| **Included in consolidation at December 31, 2022** | **78** | **391** | **469** |
| Additions/formations in fiscal year 2023 | 3 | 20 | 23 |
| Disposals/mergers in fiscal year 2023 | −4 | −19 | −23 |
| **Included in consolidation at December 31, 2023** | **77** | **392** | **469** |

The consolidated group includes four special funds, as well as other investments.

In fiscal year 2023, the following companies were consolidated for the first time:

- Action Electric Ltd., Vancouver, BC, Canada,
- Automobility Services and Solutions Private Limited, Bengaluru, India,
- Bosch Electrical Drives SK s.r.o., Bratislava, Slovakia,
- Bosch Global Business Services S.R.L., Timişoara, Romania,
- Bosch Global Software Technologies Ltd., Tokyo, Japan,
- Bosch Mobility Platform & Solutions GmbH, Gerlingen, Germany,
- Bosch Mobility Platform & Solutions LLC, Wilmington, DE, United States,
- BSH Home Appliances (Vietnam) Co. Ltd., Ho Chi Minh City, Vietnam,
- eesy-ic GmbH, Erlangen, Germany,
- ELPRO Corporation, Tokyo, Japan,
- ETAS Ltd., York, United Kingdom,
- HydraForce, Inc., Lincolnshire, IL, United States,
- HydraForce China LLC, Lincolnshire, IL, United States,
- HydraForce Hydraulics, Ltd., Birmingham, United Kingdom,
- HydraForce Hydraulics, Ltda., Taboao da Serra, Brazil,
- HydraForce Hydraulics Systems (Changzhou) Co., Ltd., Changzhou, China,
- MoTeC (Europe) Limited, Oxford, United Kingdom,
- Paladin Technologies Inc., Vancouver, BC, Canada,
- Paladin Technologies (USA) Inc., Dover, DE, United States,
- PalAmerican Technologies Inc., Tumwater, WA, United States,
- Robert Bosch Semiconductor LLC, Wilmington, DE, United States,
- Service Maintenance Installation, Inc., Burnsville, MN, United States,
- susteco solutions GmbH, Berlin, Germany.

Due to changes to the consolidated group, sales revenue increased by EUR 850 million in the reporting year and total assets as of December 31, 2023, by EUR 1,516 million.

## Condensed financial information on fully consolidated subsidiaries with material non-controlling interests

T10

in millions of euros

| | Bosch Powertrain Systems Co., Ltd., Wuxi, China | | United Automotive Electronic Systems Co., Ltd., Shanghai, China | |
|---|---|---|---|---|
| | **2023** | 2022 | **2023** | 2022 |
| Current assets | 1,679 | 2,117 | 2,846 | 2,436 |
| Non-current assets | 419 | 475 | 1,506 | 1,555 |
| Current liabilities | 1,063 | 1,195 | 2,032 | 1,667 |
| Non-current liabilities | 3 | 7 | 236 | 252 |
| Sales revenue | 1,829 | 1,972 | 4,780 | 4,313 |
| Profit after tax | 366 | 426 | 520 | 476 |
| Comprehensive income | 286 | 397 | 374 | 431 |
| Cash flows from operating activities | 312 | 406 | 563 | 582 |
| Cash flows from investing activities | –50 | –73 | –219 | –353 |
| Cash flows from financing activities | –262 | –333 | –398 | –210 |
| Share of capital attributable to non-controlling interests | 34.0% | 34.0% | 49.0% | 49.0% |
| Profit/loss after tax attributable to non-controlling interests | 124 | 145 | 255 | 233 |
| Equity attributable to non-controlling interests | 351 | 473 | 1,021 | 1,015 |
| Dividends paid to non-controlling interests | 218 | 108 | 184 | 159 |

T11

in millions of euros

| | Bosch HUAYU Steering Systems Group, Shanghai, China | | Bosch Ltd., Bengaluru, India | |
|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 |
| Current assets | 1,192 | 1,204 | 1,108 | 1,032 |
| Non-current assets | 595 | 627 | 922 | 951 |
| Current liabilities | 1,051 | 1,058 | 540 | 558 |
| Non-current liabilities | 52 | 1 | 50 | 40 |
| Sales revenue | 1,866 | 1,836 | 1,834 | 1,695 |
| Profit after tax | 208 | 209 | 177 | 176 |
| Comprehensive income | 161 | 195 | 129 | 114 |
| Cash flows from operating activities | 275 | 144 | 187 | 211 |
| Cash flows from investing activities | –93 | –110 | –8 | –49 |
| Cash flows from financing activities | –121 | –168 | –214 | –96 |
| Share of capital attributable to non-controlling interests | 49.0% | 49.0% | 29.5% | 29.5% |
| Profit/loss after tax attributable to non-controlling interests | 102 | 102 | 52 | 52 |
| Equity attributable to non-controlling interests | 335 | 378 | 425 | 409 |
| Dividends paid to non-controlling interests | 85 | 69 | 47 | 22 |

The condensed financial information of the respective entities corresponds to the figures before consolidation entries.

### Joint ventures and joint operations

The accounting for joint arrangements in accordance with IFRS 11 *Joint Arrangements* is based on whether they are classified as a joint operation or a joint venture, which in turn depends on the contractually agreed rights and obligations of the parties to the arrangement. With regard to joint operations, the Bosch Group recognizes, in relation to its interest, its rights to the assets, liabilities, expenses, and revenue in the related line items in the consolidated financial statements. Investments in joint ventures within the meaning of IFRS 11 are accounted for using the equity method in accordance with IAS 28 *Investments in Associates and Joint Ventures*. The carrying amount of these interests is subsequently measured in accordance with the change in equity of the jointly controlled entity attributable to the Bosch Group, less any impairment, where appropriate.

The following joint ventures are subject to joint control in accordance with IFRS 11 and were recognized in the consolidated financial statements as of December 31, 2023, using the equity method in accordance with IAS 28:

- Bosch BASF Smart Farming GmbH, Cologne, Germany (50 percent),
- BS Systems GmbH & Co. KG, Zusmarshausen, Germany (50 percent),
- MAGURA Bosch Parts & Services GmbH & Co. KG, Bad Urach, Germany (50 percent),
- North America Fuel Systems Remanufacturing LLC, Kentwood, MI, United States (50 percent).

The share of capital indicated corresponds to the share of voting rights. The carrying amounts of the investments in the latter three entities were determined on the basis of the most recent available financial statements as of December 31, 2022.

### Condensed financial information on individually immaterial joint ventures

T12

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Carrying amount of the investments | 33 | 27 |
| Group share of profit after tax | 10 | 0 |
| Group share of other comprehensive income after tax | –1 | |
| Group share of comprehensive income | 9 | 0 |

The carrying amount of the investments in the above-mentioned individually immaterial joint ventures corresponds to the proportionate share in these entities' equity.

Since 2022, a cooperation arrangement has been in place between Robert Bosch GmbH and the Volkswagen group entity CARIAD SE, Wolfsburg, Germany, for the development of a software platform for partially and highly automated driving. The principal place of business of the joint operation is Ingolstadt, Germany. The development costs incurred are shared equally between the parties. Each party is granted rights to use and market the jointly developed results; the results of the development efforts are not marketed jointly.

### Associated entities

Pursuant to IAS 28, investments are also included in the consolidated financial statements using the equity method if significant influence can be exercised.

The following associated entities are accounted for using the equity method in accordance with IAS 28 as of December 31, 2023:

- ads-tec Energy plc, Dublin, Ireland (20.7 percent),
- plc2 Design GmbH, Endingen am Kaiserstuhl, Germany (25 percent).

To determine the carrying amount of ads-tec Energy plc, the most recent available financial statements as of December 31, 2022, were used.

## Condensed financial information on individually immaterial associated entities

T13

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Carrying amount of the investments | 20 | 39 |
| Group share of profit after tax | −4 | −1 |
| Group share of other comprehensive income after tax | 0 | |
| Group share of comprehensive income | −4 | −1 |

## Business combinations

### Business combinations in the reporting year

On February 3, 2023, 100 percent of the shares in HydraForce Inc., Lincolnshire, IL, United States, including its 13 subsidiaries, were acquired. The acquisition of HydraForce is intended to strengthen the Drive and Control Technology division's presence (Industrial Technology business sector) in North America and expand its global hydraulics business. The purchase price for the shares came to EUR 979 million and was settled by transferring cash. Allocated to the Industrial Technology business sector, the acquired entities are included in Robert Bosch GmbH's consolidated financial statements as of February 3, 2023. The transaction resulted in goodwill of EUR 452 million, which is deductible for tax purposes. The goodwill is allocated to the Drive and Control Technology division and represents part of the synergy potential and the value of the workforce. From the date of first-time consolidation, HydraForce contributed EUR 453 million to the group's sales revenue and a loss of EUR 4 million to the group's profit after tax.

On August 31, 2023, parts of the business of TSI Semiconductors LLC, Roseville, CA, United States, were acquired. The acquisition is intended to strengthen the semiconductor business by building up manufacturing capacity in North America. The purchase price came to EUR 130 million and was settled by transferring cash. The acquired business is allocated to the Mobility Solutions business sector and was included in the consolidated financial statements of Robert Bosch GmbH as of September 1, 2023. The business combination led to the recognition of goodwill of EUR 32 million, which is deductible for tax purposes. The goodwill is allocated to the Automotive Electronics division and represents part of the expected synergies and the value of the workforce. From the date of initial consolidation, sales revenue of EUR 6 million was generated and negative earnings after tax of EUR 25 million were incurred.

Effective August 31, 2023, 100 percent of the shares in Paladin Technologies Inc., Vancouver, BC, Canada, and Pal-American Technologies Inc., Tumwater, WA, United States, were acquired. The acquisition also included a subsidiary in Canada and two subsidiaries in the United States. The acquisition of Paladin Technologies, a leading provider of security solutions and services in the field of systems integration, is intended to expand the building services business in North America. Due to the complexity of the transaction, the final determination of the purchase price and the measurement of the acquired assets and liabilities had not yet been completed at the time the consolidated financial statements were released for publication. The provisional purchase price for the shares came to EUR 338 million and was mainly settled by transferring cash. The purchase price includes contingent consideration that will fall due over the next three years. Allocated to the Energy and Building Technology business sector, the acquired entities are included in Robert Bosch GmbH's consolidated financial statements as of September 1, 2023. The acquisition gave rise to provisional goodwill of EUR 205 million, which is not deductible for tax purposes and mainly represents part of the synergy potential and the value of the workforce. The goodwill is allocated to the Building Technologies division. From the date of first-time consolidation, Paladin Technologies contributed EUR 130 million to the group's sales revenue and a loss of EUR 4 million to the group's profit after tax.

The fair values acquired in the above business combinations are presented in the following table:

T14

in millions of euros

| | HydraForce | TSI Semiconductors | Paladin Technologies (provisional figures) | Total of fair values |
|---|---|---|---|---|
| **Current assets** | **225** | **8** | **140** | **373** |
| of which cash | 28 | | 1 | 29 |
| of which trade receivables | 79 | 2 | 93 | 174 |
| | | | | |
| **Non-current assets** | **980** | **129** | **328** | **1,437** |
| Property, plant, and equipment | 109 | 97 | 22 | 228 |
| Intangible assets | 859 | 32 | 294 | 1,185 |
| of which goodwill | 452 | 32 | 205 | 689 |
| Other assets including deferred taxes | 12 | | 12 | 24 |
| | | | | |
| **Current liabilities** | **122** | **4** | **73** | **199** |
| **Non-current liabilities** | **104** | **3** | **57** | **164** |
| Provisions | | 3 | | 3 |
| Liabilities including deferred taxes | 104 | | 57 | 161 |

The gross amount of trade receivables acquired amounted to EUR 178 million. Of this amount, EUR 4 million is expected to be uncollectible.

The following individually immaterial acquisitions were also closed in the reporting year:

- On February 28, 2023, 100 percent of the shares in eesy-IC GmbH, Erlangen, Germany, were acquired. The entity designs microchips that can also process analog signals, and is assigned to the Mobility Solutions business sector.
- On September 8, 2023, the business operations of West Coast Fire & Integration, Inc., Yorba Linda, CA, United States, were acquired. The entity specializes in fire protection, security, and voice/data solutions for buildings. Assigned to the Energy and Building Technology business sector, the acquisition is intended to further expand the systems integration business in North America.

The total purchase price amounted to EUR 33 million, and goodwill totaling EUR 29 million was recognized. On aggregate, as of the acquisition date the above individually immaterial business combinations contributed EUR 9 million to the group's sales revenue and generated a profit after tax of EUR 1 million.

Assuming that the business combinations had already taken place as of January 1, 2023, the Bosch Group's sales revenue would have amounted to EUR 92,518 million and its profit after tax to EUR 2,551 million.

### Business combinations recognized provisionally in the previous year

On November 30, 2022, the group acquired 100 percent of the shares in Elmo Motion Control Ltd., Petah Tikva, Israel, including its nine subsidiaries. The entity was included in the consolidated financial statements of Robert Bosch GmbH for the first time as of December 31, 2022, and is allocated to the Industrial Technology business sector. The final purchase price came to EUR 665 million and was settled by transferring cash. Elmo Motion Control Ltd. develops and manufactures high-end electric servo drives and motion controllers for industrial automation. The acquisition is intended to strengthen the Drive and Control Technology division's factory automation business.

Measurement of the acquired entity's assets and liabilities and the purchase price allocation had not been completed by the date on which the consolidated financial statements for the previous year were released for publication. The final amounts of the acquired assets and liabilities as of the date of first-time inclusion in the consolidated financial statements are presented in the table below:

T15

in millions of euros

| | Elmo Motion Control Ltd. |
|---|---|
| **Current assets** | **63** |
| of which cash | 19 |
| of which trade receivables | 14 |
| **Non-current assets** | **667** |
| Financial assets | 5 |
| Property, plant, and equipment | 4 |
| Intangible assets | 658 |
| of which goodwill | 503 |
| **Current liabilities** | **56** |
| **Non-current liabilities** | **9** |
| Provisions | 1 |
| Liabilities including deferred taxes | 8 |

The goodwill arising from the acquisition of EUR 503 million is assigned to the Drive and Control Technology division and is not tax deductible. It represents part of the expected synergy potential and the value of the workforce.

In relation to the provisional carrying amounts recognized in the previous year, only immaterial adjustments were made.

## Non-current assets held for sale and disposal groups

Non-current assets and disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction. The corresponding assets and disposal groups are available for immediate sale and the sale is highly probable. In accordance with IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*, they are measured at the lower of carrying amount or fair value less costs to sell, unless another standard prescribes a different measurement method. Any impairment loss in excess of the balance of non-current assets is recognized by recording current provisions.

As of December 31, 2023, the following operations meet the criteria for classification as a disposal group within the meaning of IFRS 5:

The planned divestment of the passenger car brake disc business, allocated to the Mobility Solutions business sector, had already been announced in the 2021 fiscal year. The reason for this decision is that brake disc production within the Bosch Group has hardly any synergies with existing business areas. The aim of the sale is to better utilize the potential of the business. The sale concerns shares held in the entities Buderus Guss GmbH, Breidenbach, and Robert Bosch Lollar Guss GmbH, Lollar, both in Germany. Contrary to the original intention, the transaction was not completed in the reporting year as the selling negotiations were delayed beyond the end of the reporting year. The contracts for the sale of both entities were signed on February 2, 2024, and the transaction is expected to be completed in the second quarter of 2024.

In the reporting year, the decision was made to sell the shares held in the Russian subsidiaries OOO Bosch Thermotechnik, Moscow, and OOO BSH Bytowije Pribory, St. Petersburg.

OOO Bosch Thermotechnik is active in the sale of heating appliances; the entity is assigned to the Energy and Building Technology business sector. OOO BSH Bytowije Pribory, which is part of the Consumer Goods business sector, sells household appliances and provides the associated customer service. The divestments are expected to be completed in the third and first quarters of 2024 respectively. The reason for the planned divestments is to be seen in the sanctions regime, and the resulting inability or only limited ability to continue manufacturing operations.

Also in the reporting year, the sale of the manufacturing activities belonging to Robert Bosch (France) S.A.S, Saint-Ouen, France, relating to electronic and mechatronic components for the automotive and consumer goods sectors was announced in order to secure the long-term prospects of these activities. The activities are assigned to the Mobility Solutions business sector and the transaction is scheduled for completion in the fourth quarter of 2024.

As part of the classification of the above operations as a disposal group, an expense of EUR 125 million was recognized in sundry other operating expenses in the reporting year. Of that amount, EUR 52 million is attributable to the impairment of non-current assets and EUR 73 million to the recognition of current sundry other provisions.

As of December 31, 2023, the main groups of assets held for sale and the directly associated liabilities are as follows:

T16

in millions of euros

| | 2023 |
|---|---|
| Cash and cash equivalents | 20 |
| Trade receivables | 30 |
| Inventories | 71 |
| Property, plant, and equipment and intangible assets | 23 |
| Other financial and non-financial assets | 10 |
| **Assets held for sale** | **154** |
| Trade payables | 32 |
| Pension provisions | 30 |
| Other provisions | 35 |
| Other financial and non-financial liabilities | 47 |
| **Liabilities directly associated with assets held for sale** | **144** |

The accumulated decrease in equity through other comprehensive income related to disposal groups amounts to EUR 13 million. Of this amount, EUR 5 million relates to the revaluation reserve from pensions and EUR 8 million to currency translation differences.

### Divestments completed in the reporting year

On May 10, 2023, the sale of the Russian subsidiaries OOO Bosch Power Tools (Consumer Goods business sector, production of power tools for professional applications), OOO Robert Bosch Saratov (Mobility Solutions business sector, production of components for motor vehicles), and Bosch Heating Systems LLC (Energy and Building Technology business sector, production of boilers), all located in Engels, was completed. The sale of OOO Robert Bosch Samara (Mobility Solutions business sector, production of components for motor vehicles), Samara, Russia, was closed on June 21, 2023. The divestments were made because the sanctions regime limited the aforementioned entities' ability to continue manufacturing operations.

In total, current assets of EUR 56 million (including cash of EUR 21 million) and non-current assets of EUR 5 million were sold, and current liabilities of EUR 16 million transferred. The loss of EUR 27 million resulting from the transactions was recorded in other operating expenses. An amount of EUR 22 million was reclassified from the currency translation reserve. The purchase prices totaling EUR 40 million were settled by transferring cash.

# Notes to the income statement

## 7 — Sales revenue

In accordance with IFRS 15 *Revenue from Contracts with Customers*, sales revenue is recognized when the customer obtains control of the goods or services and is thus able to direct the use of, and obtain substantially all the remaining benefits from, the goods or services. This is based on the assumption that there is a contract that creates enforceable rights and obligations; in addition, it must be probable that the Bosch Group will collect the consideration for the goods and services transferred. Revenue is recognized at the amount of the transaction price, i.e. the amount of consideration that the Bosch Group is expected to collect in exchange for the transfer of goods and services arranged. IFRS 15 sets forth a consistent, five-step model for determining the amount of revenue to be reported, which is generally applicable for all customer contracts.

In the sale of goods, control is typically transferred to the customer on delivery. Invoicing usually takes place at the same time. Revenue from services is mostly recognized once the service has been rendered in its entirety and invoiced. In the case of development work, milestone payments or downstream separate remuneration are also agreed. When invoicing the sale of goods, services, and development work, country- and industry-specific payment terms are granted; these averaged 46 days, as in the previous year. For customer-specific products that are allocable to the Mobility Solutions business sector and do not create an asset with an alternative use for the group, revenue is recognized over time; the same applies to plant engineering contracts in the Industrial Technology business sector and the Energy and Building Technology business sector. Revenue is recognized according to the percentage of completion, which can be determined using input or output methods. Output methods recognize revenue on the basis of the value to the customer of the goods or services transferred relative to the remaining goods or services promised under the contract. Input methods recognize revenue on the basis of costs incurred relative to the estimated total costs. Depending on the underlying business model, the Bosch Group uses input methods as well as output methods in determining the percentage of completion.

Sales revenue comes to EUR 91,596 million (previous year: EUR 88,201 million). Of this amount, EUR 56,182 million (previous year: EUR 52,573 million) is attributable to the Mobility Solutions business sector, EUR 7,418 million (previous year: EUR 6,946 million) to the Industrial Technology business sector, EUR 19,943 million (previous year: EUR 21,342 million) to the Consumer Goods business sector, EUR 7,693 million (previous year: EUR 6,964 million) to the Energy and Building Technology business sector, and EUR 360 million (previous year: EUR 376 million) to other activities.

Sales revenue includes an amount of EUR 1,542 million (previous year: EUR 1,287 million) that had been included in the balance of current contract liabilities at the beginning of the reporting year.

In relation to performance obligations not satisfied in full or in part as of the reporting date, an amount of EUR 118 million (previous year: EUR 118 million) is expected to be realized as sales revenue within the next two years and an amount of EUR 29 million (previous year: EUR 24 million) thereafter. These amounts relate to long-term construction contracts.

Sales revenue recognized over time amounts to EUR 55,581 million (previous year: EUR 44,484 million) in the Mobility Solutions business sector, EUR 0 million (previous year: EUR 35 million) in the Industrial Technology business sector, and EUR 944 million (previous year: EUR 743 million) in the Energy and Building Technology business sector. The previous year's figure for the Energy and Building Technology business sector has been restated.

A breakdown of sales revenue by region is provided in note 29 "Segment reporting."

## 8 — Functional costs

**Cost of sales** contains the cost of internally manufactured goods sold and the cost price of resold merchandise. The cost of internally manufactured goods sold contains materials and production cost that can be allocated directly, the allocable parts of indirect production overheads, including depreciation of production equipment and amortization of other intangible assets, and write-downs of inventories. Cost of sales also includes development work charged directly to customers and amortization of capitalized development work.

The **distribution and administrative cost** breaks down as follows:

T17

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Distribution cost | 13,409 | 13,374 |
| Administrative cost | 4,824 | 4,438 |
| | **18,233** | **17,812** |

The distribution cost includes personnel and non-personnel costs, depreciation charged in the distribution function, customer service, logistics, market research, sales promotion, shipping, advertising, and warranty costs.

**Research and development cost** contains both research cost and development cost that cannot be capitalized.

T18

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Total research and development cost | 7,564 | 7,483 |
| Development cost capitalized in the reporting period | −234 | −271 |
| Impairment losses on capitalized development cost | 1 | 12 |
| | **7,331** | **7,224** |

**Cost of materials** amounted to EUR 43,839 million in the reporting year (previous year: EUR 42,145 million).

## 9 — Other operating income

T19

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Income from exchange-rate fluctuations | 934 | 1,172 |
| Income from derivatives | 281 | 441 |
| Income from the reversal of loss allowances on trade receivables and other financial assets | 105 | 58 |
| Income from the disposal of non-current assets | 271 | 99 |
| Income from rent and leases | 9 | 8 |
| Income from the reversal of provisions | 958 | 216 |
| Sundry other operating income | 912 | 640 |
| | **3,470** | **2,634** |

The income from exchange-rate fluctuations is offset by expenses that are disclosed in other operating expenses.

Income from derivatives includes income from foreign exchange and commodity derivatives allocated to operating activities.

Income from the reversal of provisions mainly concerns the sundry other provisions.

Government grants are recognized pursuant to IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance* only if it is sufficiently certain that the assistance will be granted and the conditions attached to the assistance are satisfied. Grants related to income are presented as part of profit or loss in the period in which the related expenses are incurred. They are offset against the respective expenses. If there are no such expenses, the grants are disclosed in sundry other operating income. In the reporting year, grants related to income totaled EUR 395 million (previous year: EUR 207 million).

## 10 — Other operating expenses

T20

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Expenses from exchange-rate fluctuations | 1,045 | 1,245 |
| Expenses from derivatives | 161 | 400 |
| Loss allowances on trade receivables and other financial assets | 128 | 129 |
| Expenses from the disposal of non-current assets | 157 | 108 |
| Other taxes | 30 | 19 |
| Expenses from the recognition of provisions | 89 | 302 |
| Sundry other operating expenses | 419 | 379 |
| | **2,029** | **2,582** |

“Expenses from derivatives” includes expenses from foreign exchange and commodity derivatives allocated to operating activities.

## 11 — Financial result

T21

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Interest and similar income | 762 | 482 |
| Interest and similar expenses | –1,188 | –404 |
| **Interest result** | **–426** | **78** |
| Profit/loss from investments | –1 | 58 |
| Income from securities | 518 | 141 |
| Expenses from securities | –279 | –802 |
| Income from exchange-rate fluctuations | 1,670 | 1,819 |
| Expenses from exchange-rate fluctuations | –1,694 | –1,130 |
| Income from derivatives | 1,019 | 1,321 |
| Expenses from derivatives | –1,305 | –2,002 |
| Other income | 11 | 8 |
| Other expenses | –40 | –52 |
| **Other financial result** | **–101** | **–639** |
| **Financial result, total** | **–527** | **–561** |
| of which financial income | 3,980 | 3,829 |
| of which financial expenses | –4,507 | –4,390 |

The line item “interest and similar income” contains dividend income from shares of EUR 73 million (previous year: EUR 73 million) and income from investment funds of EUR 26 million (previous year: EUR 30 million). The line item “interest and similar expenses” does not include any negative interest income in the reporting year (previous year EUR 7 million).

The profit/loss from investments comprises dividend income as well as changes in the fair value of investments measured at fair value through profit or loss.

Income and expenses from securities include the changes in the fair value of securities measured at fair value through profit or loss, gains and losses on the disposal of securities measured at fair value through other comprehensive income, as well as impairment losses and income from the reversal of impairment losses on such securities.

The line items "income from derivatives" and "expenses from derivatives" contain transactions to hedge financial assets, mainly from foreign-currency derivatives.

Interest income and expenses are attributable to financial instruments not measured at fair value through profit or loss as follows:

T22

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | **Interest income** | **Interest expenses** | **Interest income** | **Interest expenses** |
| Financial assets measured at amortized cost (AC) | 324 | | 135 | 7 |
| Financial assets measured at fair value through other comprehensive income (FVOCI wR) | 202 | | 167 | |
| Financial liabilities measured at amortized cost (AC) | | 426 | | 176 |
| | **526** | **426** | **302** | **183** |

## 12 — Income taxes

Income tax obligations comprise certain and uncertain income tax liabilities.

In accordance with IAS 12 *Income Taxes*, deferred tax assets and liabilities are recorded for temporary differences between the tax carrying amounts and the carrying amounts in the consolidated statement of financial position unless they arise from the initial recognition of an asset or liability in a transaction that is not a business combination and that, at the time of the transaction, affected neither the profit before tax nor the taxable income. Deferred tax assets arising from tax losses and tax credits are recognized only if it is sufficiently certain that they can be utilized. The deferred tax item equals the estimated tax expense or relief in later periods. The tax rate applicable at the time of realization is taken as a basis. If it is uncertain whether recognized deferred tax assets can be realized, they are adjusted accordingly.

Income tax expenses are classified according to their origin as follows:

**T23**

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Current taxes | 1,401 | 1,478 |
| Deferred taxes | –65 | –403 |
| | **1,336** | **1,075** |

Current taxes contain tax income not related to the reporting period totaling EUR 11 million (previous year: tax expenses of EUR 32 million).

Deferred taxes break down as follows:

**T24**

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Temporary differences | –80 | –394 |
| Tax losses and tax credits | 15 | –9 |
| | **–65** | **–403** |

Deferred taxes are calculated on the basis of the tax rates that apply or are expected to apply given the current legislation in the individual countries at the expected time of realization. The corporate income tax rate for German companies is 15 percent. Taking into account the solidarity surcharge of 5.5 percent and the trade tax levied on profits recorded in Germany, the total tax rate is 30 percent (previous year: 30 percent). The tax rates outside Germany range between 6 percent and 35 percent (previous year: between 9 percent and 35 percent).

As of December 31, the deferred tax assets and liabilities presented in the statement of financial position are attributable to the following items:

T25

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | **Assets** | **Liabilities** | **Assets** | **Liabilities** |
| Receivables, other assets, and inventories | 1,143 | 738 | 1,160 | 680 |
| Securities and investments | 119 | 107 | 22 | 67 |
| Property, plant, and equipment | 250 | 747 | 229 | 673 |
| Right-of-use assets | | 462 | | 424 |
| Intangible assets | 293 | 919 | 203 | 1,019 |
| Other asset items | 420 | 63 | 270 | 71 |
| Liabilities | 1,119 | 152 | 1,194 | 132 |
| Lease liabilities | 491 | | 446 | |
| Provisions | 1,068 | 95 | 1,164 | 90 |
| Other liabilities | 7 | 373 | 10 | 276 |
| Tax losses and tax credits | 164 | | 165 | |
| **Total** | **5,074** | **3,656** | **4,863** | **3,432** |
| Netting | −3,057 | −3,057 | −2,860 | −2,860 |
| | **2,017** | **599** | **2,003** | **572** |

Of the reported deferred tax assets, EUR 88 million (previous year: EUR 120 million) relates to entities that incurred losses in the reporting year or in the previous year. It is assumed that sufficient taxable income or taxable temporary differences will be available in subsequent years to permit the deferred tax assets to be realized.

No deferred tax assets were recognized in the statement of financial position for the items presented in the table below, as it is not probable that sufficient taxable profit will be available in the future:

**T26**

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Temporary differences | 2,715 | 3,078 |
| Tax losses | 11,846 | 10,745 |
| Tax credits | 3 | 3 |
| | **14,564** | **13,826** |

The utilization of tax losses and tax credits for which no deferred tax assets have been recognized to date resulted in a reduction of the current tax expense in the reporting year of EUR 4 million (previous year: EUR 7 million).

The tax losses for which no deferred taxes were recognized expire as follows:

**T27**

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Within one year | 46 | 37 |
| Later than one year and no later than two years | 62 | 64 |
| Later than two years and no later than three years | 58 | 68 |
| Later than three years | 191 | 440 |
| Without expiry date | 11,489 | 10,136 |
| | **11,846** | **10,745** |

Deferred tax liabilities are recognized on temporary differences relating to investments in subsidiaries if these are expected to reverse in the following year due to planned dividend distributions. No further deferred tax liabilities were recognized on temporary differences in this connection as it is not probable that the temporary differences will reverse in the foreseeable future. As of the reporting date, retained profits of subsidiaries amount to EUR 8,051 million (previous year: EUR 8,244 million). If these profits are distributed, this could lead to an income tax or withholding tax expense at Robert Bosch GmbH or at the level of intermediate holding entities.

Deferred taxes recognized in other comprehensive income in the fiscal year are presented in the following table:

T28

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Change in equity instruments | –5 | 20 |
| Change in debt instruments | –3 | 42 |
| Remeasurement of pension provisions | –3 | –27 |
| | **–11** | **35** |

Deferred tax income of EUR 0 million (previous year: EUR 73 million) is attributable to the change in debt instruments measured at fair value through other comprehensive income, which was reclassified to profit or loss in the reporting year.

The basis for the expected income tax expense is the German tax rate of 30 percent (previous year: 30 percent). The difference between expected and disclosed income tax expense is attributable to the following factors:

T29

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Profit before tax | 3,976 | 2,913 |
| Expected income tax expense | 1,193 | 874 |
| Variances due to tax rate | –274 | –178 |
| Non-deductible expenses | 182 | 320 |
| Zero-rated income | –308 | –438 |
| Recognition/measurement of deferred tax assets | 407 | 194 |
| Withholding taxes | 238 | 216 |
| Tax effects not related to the reporting year | 23 | 81 |
| Other differences | –125 | 6 |
| **Income tax expense disclosed** | **1,336** | **1,075** |
| Effective tax rate | 34% | 37% |

“Variances due to tax rate” includes effects resulting from changed tax rates. In the reporting year, these resulted in deferred tax income of EUR 4 million (previous year: EUR 2 million).

“Other differences” mainly includes effects from tax credits, effects from temporary differences in connection with shares in subsidiaries, and effects from changes in permanent differences.

### International Tax Reform – Pillar Two Model Rules

In Germany, the country of domicile of Robert Bosch GmbH as the ultimate parent company of the Bosch Group, the act on ensuring a global minimum level of taxation for corporate groups (*Mindeststeuergesetz:* German Minimum Tax Act) came into force on December 28, 2023. This is based on the OECD's model rules on global minimum taxation (Pillar Two). The provisions of the law will become effective for fiscal years beginning after December 30, 2023. In addition, laws were passed in some other countries in 2023 to introduce a qualified domestic minimum tax. For the Bosch Group, the relevant German and foreign regulations are to be applied for the first time for the 2024 fiscal year. As a result, the Bosch Group was not subject to any tax expense from global minimum taxation in the reporting year.

In accordance with the regulations on global minimum taxation, a corporate group must pay a top-up tax for those countries in which its operating units/entities based there achieve an aggregate effective tax rate of less than 15 percent calculated in accordance with the regulations of the German Minimum Tax Act. The levying of a top-up tax is intended to ensure that the minimum tax rate of 15 percent is reached in each country.

Due to the high complexity of the regulations and the late entry into force of the German Minimum Tax Act, the project to implement the corresponding requirements in the Bosch Group had not yet been completed at the time the consolidated financial statements were released for publication. The quantitative effects of first-time application of the provisions of the German Minimum Tax Act can therefore not yet be reliably estimated. However, simulations based on available data, including from the previous year, have shown that a top-up tax is likely to be incurred in a few cases only, and that potential payments for the top-up tax are unlikely to be significant. Nevertheless, as the simulations carried out were not able to take into account all the adjustments required by law, it cannot be ruled out that the actual amount of top-up tax may be higher than currently assumed.

With regard to the recognition of deferred taxes, use is made of the exemption in IAS 12, which does not require deferred taxes to be recognized in connection with the global minimum taxation rules.

## 13 — Personnel expenses and headcount

### Disclosures on personnel expenses

Personnel expenses break down as follows:

T30

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Remuneration | 21,980 | 20,297 |
| Social security costs | 3,821 | 3,547 |
| Post-employment benefit costs | 1,020 | 978 |
| | **26,821** | **24,822** |

### Headcount

T31

| | Annual average 2023 | Annual average 2022 |
|---|---|---|
| EU countries | 221,376 | 217,499 |
| Rest of Europe | 33,536 | 33,666 |
| Americas | 53,606 | 47,540 |
| Asia, Africa, Australia | 120,849 | 115,106 |
| | **429,367** | **413,811** |

# Notes to the statement of financial position

## 14 — Cash and cash equivalents

T32

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Bank balances (term up to 90 days) | 7,443 | 6,459 |
| Cash | 0 | 0 |
| | **7,443** | **6,459** |

Disclosures on restricted cash and cash equivalents are provided in note 28 “Statement of cash flows.”

## 15 — Trade receivables

The accounting policies applicable to trade receivables are explained in note 30 “Additional disclosures on financial instruments.”

In the reporting year, trade receivables came to EUR 17,081 million (previous year: EUR 16,528 million). Trade receivables due in more than one year amounted to EUR 14 million (previous year: EUR 0 million).

Information about loss allowances on trade receivables is contained in the credit risk section of note 31 “Capital and risk management.”

## 16 — Other current and non-current financial assets

T33

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | up to 1 year | more than 1 year | up to 1 year | more than 1 year |
| Securities | 3,859 | 11,991 | 2,365 | 11,602 |
| Investments | | 2,123 | | 2,003 |
| Bank balances (term of more than 90 days) | 3,301 | 65 | 636 | 83 |
| Loan receivables | 104 | 14 | 95 | 14 |
| Derivatives | 132 | 41 | 285 | 33 |
| Receivables from finance leases | 37 | 146 | 36 | 147 |
| Sundry other financial assets | 389 | 158 | 386 | 139 |
| | **7,822** | **14,538** | **3,803** | **14,021** |

The securities classified as current assets are listed securities with a residual term of less than one year as well as securities which are intended for sale within a year.

Non-current securities consist of interest-bearing and other securities, investment funds, and shares. In the reporting year, shares and investments in corporations with a fair value of EUR 1,423 million (previous year: EUR 1,256 million) were sold. Related to this, an amount of EUR 165 million (previous year: EUR 398 million) was reclassified from the reserve from financial instruments to earned profit. Disposals of investments in corporations are carried out based on business-policy decisions.

The pledged securities have a carrying amount of EUR 1,609 million (previous year: EUR 1,366 million). The pledged securities satisfy the legal requirement to secure obligations to members of the workforce and bank guarantees. Fund units equivalent to at least the value of the claims were pledged as collateral.

The bank balances are partly invested as secured deposits in tri-party repo transactions. As of the reporting date, the secured deposits have a carrying amount of EUR 1,100 million (previous year: EUR 0 million). The bank provides collateral of the same amount in the form of securities.

Disclosures on loss allowances on loan receivables, sundry other financial assets, and finance lease receivables are contained in the section on credit risks in note 31 “Capital and risk management.”

Note 32 “Leases” contains additional disclosures on receivables from finance leases.

## 17 — Contract assets

In accordance with IFRS 15, any performance surpluses at contract level are presented as a contract asset. The asset constitutes the Bosch Group's right to consideration in exchange for goods or services it has transferred to the customer.

The contract assets from revenue recognition over time present the excess of the Bosch Group's performance, presented as sales revenue, over consideration already received from the customer. At the point in time when control is transferred to the customer, contract assets from development work have to be disclosed for all separate consideration to be subsequently reimbursed by the customer for separately commissioned research and development work.

T34

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | up to 1 year | more than 1 year | up to 1 year | more than 1 year |
| From revenue recognition over time | 676 | 41 | 562 | 9 |
| From development work | 500 | 654 | 444 | 558 |
| | **1,176** | **695** | **1,006** | **567** |

## 18 — Other current and non-current assets

T35

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | up to 1 year | more than 1 year | up to 1 year | more than 1 year |
| Prepaid expenses | 279 | 101 | 257 | 81 |
| Receivables from tax authorities (without income tax receivables) | 1,788 | 64 | 1,718 | 62 |
| Deferred consideration to customers | 108 | 331 | 112 | 432 |
| Sundry other assets | 453 | 512 | 335 | 296 |
| | **2,628** | **1,008** | **2,422** | **871** |

## 19 — Inventories

Inventories include raw materials, consumables, and supplies; work in process, finished goods, and merchandise; and prepayments. Inventories are stated at purchase cost or cost of conversion using the average cost method, or at net realizable value if lower. In addition to direct cost, cost of conversion includes an allocable portion of materials and production overheads as well as production-related depreciation that can be directly allocated to the production process. Appropriate allowance is made for risks of slow-moving goods or obsolescence associated with holding and selling inventories.

In the Mobility Solutions business sector, development cost incurred for research and development work separately commissioned and separately charged is recognized as work in process under inventories until the date when control is transferred (revenue recognition at a point in time), and not as research and development cost through profit or loss. This development work in process is generally measured on the same basis as all other work in process, except that no allowances for slow-moving goods or obsolescence are applied.

Inventories break down as follows:

**T36**

in millions of euros

| | **2023** | 2022 |
|---|---|---|
| Raw materials, consumables, and supplies | 5,879 | 6,390 |
| Work in process | 3,377 | 3,635 |
| Finished goods and merchandise | 5,842 | 6,378 |
| Prepayments | 86 | 125 |
| | **15,184** | **16,528** |

In the reporting year, the change in impairment losses of EUR 31 million was recognized as an expense in profit or loss (previous year: EUR 140 million). No inventories were pledged as collateral.

## 20 — Property, plant, and equipment

**Property, plant, and equipment** are measured at cost less depreciation and, if necessary, impairment losses. Depreciation is charged on a straight-line basis over the economic useful life.

Depreciation is based on the following ranges of useful lives:

**T37**

| | **Useful life** |
|---|---|
| Buildings | 10–50 years |
| Plant and equipment | 8–11 years |
| Other equipment, fixtures, and furniture | 3–25 years |

In accordance with IAS 36 *Impairment of Assets*, impairment losses are recorded on property, plant, and equipment if their recoverable amount has fallen below their carrying amount. Impairment losses are reversed if the reasons for the impairment loss from previous years no longer apply. Repair costs are recognized in the income statement.

In accordance with IAS 23 *Borrowing Costs*, **borrowing costs** are capitalized if they are directly attributable to the acquisition, construction, or production of a qualifying asset. All other borrowing costs are expensed in the period in which they are incurred. Write-downs on capitalized borrowing costs are reported in cost of sales. In the reporting year, borrowing costs of EUR 15 million (previous year: EUR 9 million) were capitalized. The underlying borrowing rate is 3.0 percent (previous year: 2.0 percent).

**Government grants** are recognized pursuant to IAS 20 only if it is sufficiently certain that the assistance will be granted and the conditions attached to the assistance are satisfied. Grants related to assets are deducted in order to calculate the carrying amount of the asset.

T38

in millions of euros

| | Land, buildings belonging to operating assets | Investment property | Plant and equipment | Other equipment, fixtures, and furniture, leased products | Prepayments and assets under construction | Total |
|---|---|---|---|---|---|---|
| **Gross values 12/31/2021** | 12,501 | 35 | 28,378 | 13,142 | 2,673 | 56,729 |
| Transitional effects from IAS 29 | 181 | 1 | 810 | 70 | 20 | 1,082 |
| **Gross values 1/1/2022** | 12,682 | 36 | 29,188 | 13,212 | 2,693 | 57,811 |
| Changes in consolidated group | 92 | | 35 | 63 | –1 | 189 |
| Additions | 319 | 2 | 961 | 921 | 2,693 | 4,896 |
| Reclassifications | 426 | –1 | 1,215 | 397 | –2,037 | |
| Disposals | –143 | –9 | –1,235 | –770 | –40 | –2,197 |
| Exchange-rate differences | 45 | 1 | 324 | 39 | 5 | 414 |
| Assets held for sale | –18 | | –54 | –20 | –7 | –99 |
| **Gross values 12/31/2022** | 13,403 | 29 | 30,434 | 13,842 | 3,306 | 61,014 |
| **Depreciation 12/31/2021** | 5,332 | 15 | 19,865 | 10,083 | 30 | 35,325 |
| Transitional effects from IAS 29 | 88 | 1 | 656 | 51 | –4 | 792 |
| **Depreciation 1/1/2022** | 5,420 | 16 | 20,521 | 10,134 | 26 | 36,117 |
| Changes in consolidated group | 8 | | 29 | 51 | | 88 |
| Additions | 384 | | 1,914 | 1,170 | 6 | 3,474 |
| Reclassifications | 8 | | –51 | 44 | –1 | |
| Disposals | –83 | –6 | –1,024 | –728 | –8 | –1,849 |
| Write-ups | –1 | | –1 | | | –2 |
| Exchange-rate differences | 15 | 1 | 229 | 26 | | 271 |
| Assets held for sale | –18 | | –54 | –20 | –7 | –99 |
| **Depreciation 12/31/2022** | 5,733 | 11 | 21,563 | 10,677 | 16 | 38,000 |
| **Carrying amounts 12/31/2022** | 7,670 | 18 | 8,871 | 3,165 | 3,290 | 23,014 |

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T38

in millions of euros

| | Land, buildings belonging to operating assets | Investment property | Plant and equipment | Other equipment, fixtures, and furniture, leased products | Prepayments and assets under con- struction | Total |
|---|---|---|---|---|---|---|
| **Gross values 1/1/2023** | **13,403** | **29** | **30,434** | **13,842** | **3,306** | **61,014** |
| Changes in consolidated group | 86 | | 167 | 37 | 14 | 304 |
| Additions | 213 | | 1,193 | 854 | 3,239 | 5,499 |
| Reclassifications | 184 | 8 | 1,419 | 497 | −2,108 | |
| Disposals | −134 | −1 | −1,316 | −704 | −48 | −2,203 |
| Exchange-rate differences | −198 | | −545 | −199 | −51 | −993 |
| Assets held for sale | −89 | | −65 | −27 | −1 | −182 |
| **Gross values 12/31/2023** | **13,465** | **36** | **31,287** | **14,300** | **4,351** | **63,439** |
| **Depreciation 1/1/2023** | **5,733** | **11** | **21,563** | **10,677** | **16** | **38,000** |
| Changes in consolidated group | 10 | | 66 | 25 | 4 | 105 |
| Additions | 368 | | 1,886 | 1,158 | 9 | 3,421 |
| Reclassifications | −10 | 4 | 13 | −5 | −2 | |
| Disposals | −91 | | −1,097 | −667 | | −1,855 |
| Write-ups | −39 | | −19 | −4 | −1 | −63 |
| Exchange-rate differences | −90 | | −365 | −169 | | −624 |
| Assets held for sale | −68 | | −65 | −27 | −1 | −161 |
| **Depreciation 12/31/2023** | **5,813** | **15** | **21,982** | **10,988** | **25** | **38,823** |
| **Carrying amounts 12/31/2023** | **7,652** | **21** | **9,305** | **3,312** | **4,326** | **24,616** |

The depreciation charge for the reporting year contains the following impairment losses:

- Land and buildings: EUR 3 million (previous year: EUR 23 million),
- Plant and equipment: EUR 1 million (previous year: EUR 19 million),
- Other equipment, furniture, and fixtures, assets under construction: EUR 2 million (previous year: EUR 17 million).

The corresponding expenses are recognized in functional costs.

Purchase commitments for items of property, plant, and equipment amounted to EUR 1,489 million (previous year: EUR 1,325 million); there were no restrictions on title in either the reporting year or the previous year. Government grants for assets of EUR 58 million (previous year: EUR 25 million) were deducted from the additions in the reporting year.

Investment property comprises rented land and buildings which were measured at depreciated cost in accordance with IAS 40 *Investment Property*. Measured at fair value, the portfolio comes to EUR 29 million (previous year: EUR 24 million). The fair values were calculated at corporate headquarters by the competent specialist department. The residential property in Germany and Asia allocated to level 3 of the fair-value hierarchy pursuant to IFRS 13 *Fair Value Measurement* is measured using the discounted earnings or comparative method based on the ImmoWertV [*Verordnung über die Grundsätze für die Ermittlung der Verkehrswerte von Grundstücken*: Ordinance on principles to assess the market value of land] and taking the current fabric and market values of the individual properties into account. Rental income from investment property came to EUR 5 million (previous year: EUR 3 million), maintenance expenses totaled EUR 2 million (previous year: EUR 2 million).

## 21 — Intangible assets

Acquired and internally generated intangible assets are recognized pursuant to IAS 38 *Intangible Assets* if a future economic benefit will flow to the entity from the use of the asset and the cost of the asset can be reliably determined. These assets are generally carried at cost and amortized using the straight-line method over their economic useful life. The useful life of acquired and internally generated intangible assets is generally four years. The useful life of intangible assets recognized in the context of business combinations is generally between ten and twenty years, in exceptional cases up to fifty years.

Goodwill is tested annually for impairment. Intangible assets subject to wear and tear are only tested for impairment if there is an indication that they may be impaired. Impairment losses are recorded in accordance with IAS 36 if the recoverable amount of the asset concerned has fallen below its carrying amount. Impairment losses are reversed if the reasons for the impairment loss from previous years no longer apply.

T39

in millions of euros

| | Acquired intangible assets (without goodwill) | Acquired goodwill | Internally generated intangible assets | Total |
|---|---|---|---|---|
| **Gross values 12/31/2021** | 9,039 | 5,834 | 1,693 | 16,566 |
| Transitional effects from IAS 29 | 2 | 1 | | 3 |
| **Gross values 1/1/2022** | **9,041** | **5,835** | **1,693** | **16,569** |
| Changes in consolidated group | 368 | 900 | 29 | 1,297 |
| Additions | 328 | | 319 | 647 |
| Disposals | –76 | | –295 | –371 |
| Exchange-rate differences | 23 | 24 | 1 | 48 |
| Assets held for sale | | | | |
| **Gross values 12/31/2022** | **9,684** | **6,759** | **1,747** | **18,190** |
| **Amortization 12/31/2021** | **5,595** | **808** | **1,013** | **7,416** |
| Transitional effects from IAS 29 | 1 | | | 1 |
| **Amortization 1/1/2022** | **5,596** | **808** | **1,013** | **7,417** |
| Changes in consolidated group | 11 | | 17 | 28 |
| Additions | 717 | | 233 | 950 |
| Disposals | –171 | | –293 | –464 |
| Exchange-rate differences | 5 | –1 | 1 | 5 |
| Assets held for sale | | | | |
| **Amortization 12/31/2022** | **6,158** | **807** | **971** | **7,936** |
| **Carrying amounts 12/31/2022** | **3,526** | **5,952** | **776** | **10,254** |

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T39

in millions of euros

| | Acquired intangible assets (without goodwill) | Acquired goodwill | Internally generated intangible assets | Total |
|---|---|---|---|---|
| **Gross values 1/1/2023** | **9,684** | **6,759** | **1,747** | **18,190** |
| Changes in consolidated group | 501 | 721 | 5 | 1,227 |
| Additions | 335 | 0 | 285 | 620 |
| Disposals | –138 | –3 | –401 | –542 |
| Exchange-rate differences | –138 | –54 | 1 | –191 |
| Assets held for sale | 0 | | | 0 |
| **Gross values 12/31/2023** | **10,244** | **7,423** | **1,637** | **19,304** |
| **Amortization 1/1/2023** | **6,158** | **807** | **971** | **7,936** |
| Changes in consolidated group | 7 | | 1 | 8 |
| Additions | 710 | | 239 | 949 |
| Disposals | –144 | | –401 | –545 |
| Exchange-rate differences | –99 | –1 | 1 | –99 |
| Assets held for sale | | | | |
| **Amortization 12/31/2023** | **6,632** | **806** | **811** | **8,249** |
| **Carrying amounts 12/31/2023** | **3,612** | **6,617** | **826** | **11,055** |

Amortization of internally generated and acquired intangible assets is recognized in functional costs.

The amortization charge for the reporting year contains the following impairment losses:

- Acquired intangible assets (without goodwill): EUR 0 million (previous year: EUR 1 million),
- Internally generated intangible assets: EUR 1 million (previous year: EUR 12 million).

The impairment losses recognized on internally generated intangible assets relate to capitalized development projects and are attributable to the Energy and Building Technology business sector. They are recognized in research and development cost. The impairment losses were charged because an economic benefit was no longer expected.

Goodwill from business combinations represents the difference between the purchase price on the one hand and the proportionate share of equity at acquisition-date fair value on the other. Goodwill is allocated to the divisions (cash-generating units) that are expected to benefit from the synergies of the business combination and is subjected to an annual impairment test. In accordance with the requirements of IAS 36, an impairment loss is recorded when the recoverable amount is below the carrying amount of the net assets of a cash-generating unit (including the goodwill allocated to it). An asset's recoverable amount is the higher of its fair value less costs of disposal and its value in use. The recoverable amount for all cash-generating units is determined based on fair value less costs to sell, which is derived from the future cash flows. Fair value is largely determined by the present value of the perpetual annuity, which in turn is influenced above all by the applicable discount rate and the growth rate assumed. This is based in particular on a risk-free interest rate, a market-risk premium, as well as business sector-specific beta factors and leverage ratios. Fair value less costs to sell is assigned to level 3 of the fair value hierarchy in accordance with IFRS 13. The cash flows are determined by reference to business plans with a planning period of five years and based on the medium-term planning approved by management. Planning reflects expectations concerning future market shares, growth in the respective markets, technological change, and the profitability of products and services. It is based on past experience and the group's internal assessments as well as market studies, if available. This is used to derive the factors relevant for determining future cash flows, such as EBIT, change in net working capital, and planned capital expenditure. Cash flows after the detailed planning period are determined by reference to an expected long-term growth rate. In the Mobility Solutions business sector, the expected far-reaching technological change from combustion technology to electrification and the associated change in the market and competitive landscape are important factors influencing the business. While it is assumed that sales revenue in the combustion engine business will decline from the middle of the decade, it is also assumed that more than half of all new passenger cars will be electrified by 2030, and that this will generate corresponding sales revenue. Electrification and the use of renewable energy will also become considerably more important in the Energy and Building Technology business sector. Despite the expected technological changes, the effects of which are taken into account in medium-term planning, there were no significant changes to the planning assumptions in the reporting year, meaning that the growth rate in particular remained unchanged compared with the previous year.

The parameters used in impairment testing are presented in the following table:

T40

Percentage figures

| | Mobility Solutions | | Industrial Technology | | Consumer Goods | | Energy and Building Technology | |
|---|---|---|---|---|---|---|---|---|
| | **2023** | 2022 | **2023** | 2022 | **2023** | 2022 | **2023** | 2022 |
| Growth rate | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| After-tax discount rate | 10.7 | 10.2 | 10.4 | 10.0 | 9.6 | 9.2 | 10.0 | 9.2 |

A risk-free interest rate of 2.8 percent (previous year: 2.0 percent) and a market-risk premium of 6.5 percent (previous year: 6.5 percent) are assumed. The standard tax rate used is 30 percent (previous year: 30 percent).

In both the reporting year and the previous year, the annual impairment test did not give rise to any need to recognize an impairment loss on goodwill.

The sensitivity analysis of the cash-generating units to which goodwill is allocated considered the following assumed changes: an increase in the after-tax discount rate of 0.5 percentage points, a reduction in the growth rate of 0.5 percentage points, and a reduction in EBIT of 5 percent. An increase in the discount rate would have led to an impairment loss of EUR 49 million in the Building Technologies division (Energy and Building Technology business sector). A 0.5 percentage-point reduction in growth rate would have resulted in an impairment loss of EUR 4 million. A decrease in EBIT would have resulted in an impairment loss of EUR 40 million. The goodwill recognized in the Building Technologies division in 2021 and 2023 related to its integrator business.

Goodwill of EUR 6,617 million (previous year: EUR 5,952 million) is attributable to the divisions (cash-generating units) as follows:

T41

in millions of euros

| Division | Reportable segment | 2023 | 2022 |
|---|---|---|---|
| Powertrain Solutions | Mobility Solutions | 384 | 400 |
| Automotive Aftermarket | Mobility Solutions | 358 | 371 |
| Cross-Domain Computing Solutions | Mobility Solutions | 126 | 123 |
| Automotive Electronics | Mobility Solutions | 122 | 75 |
| Drive and Control Technology | Industrial Technology | 2,504 | 2,074 |
| Power Tools | Consumer Goods | 431 | 428 |
| BSH Hausgeräte GmbH | Consumer Goods | 548 | 548 |
| Building Technologies | Energy and Building Technology | 883 | 673 |
| Home Comfort (formerly Thermotechnology) | Energy and Building Technology | 993 | 997 |
| Bosch Global Service Solutions | Energy and Building Technology | 145 | 137 |
| Other | | 123 | 126 |
| | | **6,617** | **5,952** |

The changes in goodwill are attributable to business combinations and currency effects. Further information about entities acquired is contained in the section on business combinations in note 6 “Consolidation.”

## 22 — Trade payables

T42

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Trade payables | 12,190 | 10,729 |
| Notes payable | 15 | 32 |
| | **12,205** | **10,761** |

The Bosch Group has concluded reverse factoring agreements for a share of the trade payables amounting to EUR 647 million (previous year: EUR 522 million). Under these programs, suppliers can assign their receivables from Bosch Group companies to the commercial bank offering the program in return for a discount and thus receive the discounted invoice amount early. The companies of the Bosch Group settle the invoice amount with the bank on the originally agreed due date. Due to the connection with the operating business, it was decided not to reclassify the corresponding liabilities to financial liabilities.

Trade payables due in more than one year came to EUR 56 million (previous year: EUR 0 million).

Further disclosures on trade payables are contained in the section on liquidity risks in note 31 “Capital and risk management.”

## 23 — Other current and non-current financial liabilities

T43

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | up to 1 year | more than 1 year | up to 1 year | more than 1 year |
| Bonds | 749 | 6,797 | | 1,992 |
| Schuldschein loans, registered bonds | | 3,199 | 500 | 3,198 |
| Liabilities to banks | 194 | 118 | 328 | 75 |
| Commercial papers | 588 | | 328 | |
| Loans | 76 | 33 | 102 | 49 |
| Derivatives | 304 | 30 | 182 | 6 |
| Sundry other financial liabilities | 861 | 222 | 770 | 137 |
| | **2,772** | **10,399** | **2,210** | **5,457** |

The line item “bonds” contains bonds with a nominal value of EUR 6.5 billion and bearing interest between 1.75 percent and 4.375 percent as well as U.S. private placements with a nominal value of USD 1.2 billion and bearing interest between 6.19 percent and 6.42 percent. The bonds’ average residual term to maturity is 9.59 years, compared with 5.96 years the previous year. The average residual term to maturity of the U.S. private placements is 8.38 years.

The financial liabilities of the Bosch Group additionally include schuldschein loans and registered bonds with a nominal value of EUR 3,203 million and bearing interest between 1.028 percent and 4.893 percent. The average residual term to maturity of the schuldschein loans and registered bonds is 5.00 years, compared with 5.27 years the previous year.

The average interest rate for the bonds, schuldschein loans, and registered bonds has risen to 3.358 percent from the previous year’s rate of 2.353 percent. The average interest rate for the U.S. private placements is 6.313 percent.

Sundry other financial liabilities also include financial liabilities to members of the workforce.

Further disclosures on other financial liabilities are contained in the section on liquidity risks in note 31 “Capital and risk management.”

## 24 — Contract liabilities

In accordance with IFRS 15, existing performance obligations to customers at contract level for which consideration has been or will be received must be recognized as contract liabilities.

Contract liabilities break down as follows:

T44

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | up to 1 year | more than 1 year | up to 1 year | more than 1 year |
| From revenue recognition over time | 70 | 60 | 35 | 53 |
| From development work | 1,132 | 453 | 1,050 | 419 |
| From other items | 618 | 323 | 559 | 334 |
| | **1,820** | **836** | **1,644** | **806** |

Contract liabilities from development work include advance payments from customers for separately contracted research and development work. Contract liabilities from other items mainly include advance payments from customers for deliveries of goods and other outstanding performance obligations.

# 25 — Other liabilities, other provisions, and contingent liabilities

## Other liabilities

T45

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | up to 1 year | more than 1 year | up to 1 year | more than 1 year |
| Accruals in the personnel area | 3,143 | | 3,190 | |
| Accruals in the sales and marketing area | 2,654 | | 2,809 | |
| Other accruals | 1,280 | | 1,244 | |
| Tax liabilities (without income taxes) | 927 | | 824 | |
| Deferred income | 66 | 19 | 73 | 17 |
| Sundry other liabilities | 348 | 32 | 366 | 28 |
| | **8,418** | **51** | **8,506** | **45** |

The accruals in the personnel area mainly relate to vacation and salary entitlements as well as accrued special payments, while those in the sales and marketing area mainly pertain to bonus and commission payments.

## Other provisions

Pursuant to IAS 37 *Provisions, Contingent Liabilities, and Contingent Assets*, other provisions are recognized if there is a current obligation from a past event which will probably lead to an outflow of resources embodying economic benefits in the future. In addition, it must be possible to reliably estimate the amount of this outflow. Other provisions are measured at full cost. Provisions due in more than one year are stated at their discounted settlement amount if the effect is material. Discounting is based on a current pre-tax market interest rate with matching maturities. Individual provisions in the personnel area are recognized and measured in accordance with IAS 19 *Employee Benefits*.

A breakdown of other provisions is presented in the following table:

T46

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | up to 1 year | more than 1 year | up to 1 year | more than 1 year |
| Tax provisions (without income taxes) | 22 | 21 | 31 | 22 |
| Provisions in the personnel area | 990 | 2,658 | 1,008 | 2,720 |
| Provisions in the sales and marketing area | 2,281 | 1,555 | 2,178 | 1,452 |
| Sundry other provisions | 1,883 | 1,090 | 1,633 | 2,122 |
| | **5,176** | **5,324** | **4,850** | **6,316** |

Provisions in the personnel area relate to obligations from personnel adjustment measures, long-service bonuses, early phased retirement, and from other special benefits. Provisions in the sales and marketing area mainly take account of losses from delivery and warranty obligations, including risks from recall, exchange, and product liability cases. Sundry other provisions are recognized, among other things, for risks from purchase commitments, environmental protection obligations, litigation risks, and legal risks.

Other provisions developed as follows:

T47

in millions of euros

| | 1/1/2023 | Changes in consolidated group | Amounts used | Amounts reversed | Amounts added | Other changes | 12/31/2023 |
|---|---|---|---|---|---|---|---|
| Tax provisions (without income taxes) | 53 | 1 | –11 | –9 | 10 | –1 | 43 |
| Provisions in the personnel area | 3,728 | 0 | –756 | –337 | 1,039 | –26 | 3,648 |
| Provisions in the sales and marketing area | 3,630 | 6 | –1,250 | –522 | 2,038 | –66 | 3,836 |
| Sundry other provisions | 3,755 | 14 | –433 | –1,091 | 724 | 4 | 2,973 |
| | **11,166** | **21** | **–2,450** | **–1,959** | **3,811** | **–89** | **10,500** |

Additions include an amount of EUR 254 million relating to the reversal of the discount (previous year: EUR 21 million).

Other changes include effects from currency translation and reclassification to liabilities directly associated with assets held for sale.

With respect to emissions from diesel vehicles, various automakers are being investigated by German and non-German authorities. In occasional cases, these investigations also concern Bosch in its capacity as a supplier of engine control units. With respect to the events concerning various automakers' diesel vehicle emissions, Bosch is still a defendant in class and individual civil-law actions in a few countries. In 2023, Bosch was able to successfully conclude many proceedings relating to diesel emissions, including several class actions against Bosch in the United States and the Netherlands. In none of the proceedings concluded does Bosch acknowledge the validity of the claims brought forward, nor does it concede any liability. The proceedings and actions still pending, as well as possible further ones, still pose risks. Taken together, however, we now regard them as more minor than previously. In all these proceedings, Bosch is asserting its rights.

Bosch is also engaged in compensation discussions with customers in respect of potential civil-law claims associated with closed antitrust proceedings. Investigations by the antitrust authorities against Bosch are continuing in certain countries. The French antitrust authority has completed its investigations of BSH Hausgeräte in France for a possible violation of antitrust law and has notified BSH France of the allegations made as part of the ongoing proceedings. As part of a settlement, the authority and BSH have reached an agreement on the scope of a possible fine. The final decision is expected in the first half of 2024.

On the basis of the facts relating to antitrust law and engine control units that were available when the consolidated financial statements were prepared and that the board of management has assessed, the board of management believes that sufficient precautions have been taken in the form of provisions for legal risks. For the various legal risks outlined above, provisions throughout the group amount to EUR 386 million (previous year: EUR 505 million).

The increased demand from the automotive industry and the high demand for semiconductors from the consumer electronics, IT, and communications sectors have in recent years caused bottlenecks in the global supply of semiconductors, which were exacerbated by disruptions of production at certain semiconductor manufacturers. The semiconductor bottlenecks were largely overcome in the course of the reporting year. The commercial risk still existing as of the reporting date was assessed taking into account the relevant assumptions and estimates and has been reflected in the consolidated financial statements. The same applies to the commercial risk from further delivery obligations that may lead to compensation claims by customers. Applying IAS 37.92, no further disclosures are made.

### Contingent liabilities

No provisions were recognized for the following contingent liabilities, as it is more likely than not that they will not occur:

T48

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Contingent liabilities from guarantees | 26 | 130 |
| Contingent liabilities to tax authorities | 48 | 20 |
| Other contingent liabilities | 14 | 22 |
| | **88** | **172** |

## 26 — Provisions for pensions and similar obligations

Pursuant to IAS 19 *Employee Benefits*, pension provisions are recognized using the projected unit credit method, taking estimated future increases in pensions and salaries into account, among other things. The expense from unwinding the discount on pension provisions is reported in the financial result under interest expenses.

The workforce of the companies included in the consolidated financial statements have certain rights in connection with the company pension scheme, depending on the conditions existing in the various countries. The benefit obligations include both currently claimed benefits and future benefit obligations of active associates or associates that have left the company.

The group's post-employment benefits include both defined contribution plans and defined benefit plans. In the case of defined contribution plans, the company pays contributions to state or private pension or insurance funds, either based on legal or contractual provisions or on a voluntary basis. The payment of these contributions does not give rise to any further payment obligations for the company. The defined benefit plans are funded or unfunded pension systems, as well as systems financed by insurance premiums.

Plan assets are invested based on the underlying defined benefits granted. Asset-liability studies are performed regularly for this purpose. The funding status is an important controlling variable in this context. Bosch continuously monitors it with the involvement of external experts. The investment strategy is derived from the corresponding governance guidelines. External asset managers are tasked with investing the assets.

The major defined benefit plans and post-employment medical-care plans operated by the Bosch Group are described below. These plans are subject to actuarial risks such as longevity risks, interest fluctuation risks, and capital market risks.

### Germany

The company pension scheme ("Bosch pension plan"), introduced on January 1, 2006, is a defined contribution plan with salary-based contributions for accumulating retirement benefits. The Bosch pension plan is partly funded via an external pension fund, Bosch Pensionsfonds AG. The value of the assets of Bosch Pensionsfonds AG is offset against the pension obligation calculated using the projected unit credit method.

During the vesting period, employer and employee contributions are added to the assets of Bosch Pensionsfonds AG up to the tax-allowed ceiling in accordance with Sec. 3 No. 63 EStG [*Einkommensteuergesetz*: German Income Tax Act]. Contributions that exceed the tax-allowed ceiling are allocated to the unfunded obligation. Irrespective of whether contributions are allocated to Bosch Pensionsfonds AG or to direct commitments, the amount of the total entitlement develops in line with the performance of the Bosch pension fund. Entitlements to retirement benefits from commitments predating the introduction of the Bosch pension plan were transferred to the Bosch pension plan. For a constantly decreasing number of associates in the vesting period, a transitional arrangement guarantees a fixed rate of return on the defined benefit obligation.

On reaching retirement, or in the event of death, the earned benefits are paid out in the form of a lump-sum payment, in installments, or as a lifelong annuity, depending on the beneficiary's choice. For benefits triggered from January 1, 2016, onward, a fund-based retirement pension payment is made through Bosch Pensionsfonds AG. Owing to the low likelihood of claims being made against Bosch, the Bosch pension plan is treated as a defined contribution plan from the beginning of the pension phase.

### Japan

The majority of the pension obligations are corporate pension plans (CPPs) in the form of funded career average pension plans. The benefits are based on salary-dependent contributions that are subject to interest. The rate of return depends on the structure of the pension plan.

There are also pension obligations from unfunded retirement allowance plans, the benefits of which are based on years of service and final salary.

All benefits are paid out as lump-sum payments on termination, death, or reaching retirement age. In some CPPs, associates can draw pension payments after a certain period of service.

### Switzerland

Bosch has a funded pension plan. The Bosch pension plan is organized as a foundation. All the demographic and financial risks are borne by the foundation and regularly assessed by the foundation's board of trustees. In the case of a deficit, adjustments can be made such as a change in the pension factors or an increase in future contributions.

Pension plans are governed by the BVG [*Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge*: Swiss Pension Fund Law]. All benefits are defined by law, and the BVG stipulates the minimum benefits to be paid. The Bosch pension plan meets all legal requirements.

Both employer and employees make contributions to the Bosch pension plan. The benefits are paid out either as a lump sum or a lifelong annuity.

### United Kingdom

Bosch finances a closed final-salary-based defined benefit plan. The pension obligation is funded via a trust association which is legally independent of Bosch, and which is operated in accordance with the law. The trustees are required to comply with the legal requirements. There is a restructuring plan that is expected to be completed in 2024.

The benefits earned are paid out on reaching retirement age, or in the event of occupational disability or death.

## United States

Bosch operates the Bosch pension plan as well as other smaller defined benefit and funded pension plans. These were merged into one plan, the Bosch pension plan, at the end of the reporting year; at the same time, the termination of the Bosch pension plan was resolved and the corresponding process initiated. The termination is subject to approval by the U.S. Pension Benefit Guaranty Corporation. The termination process is expected to take between 18 and 24 months.

This does not affect unfunded pension plans that provide benefits for certain members of management or for members of the Bosch pension plan whose income lies above the statutory contribution assessment basis. The benefits depend on age, years of service, and salary, and are paid out on reaching retirement age or in the event of death. The pension plans are closed to new entrants.

In addition, Bosch finances unfunded plans for post-employment medical care. The level of benefits and the contributions for pensioners vary depending on location, age, and years of service. The benefits include healthcare benefits and life assurance contributions for pensioners and their spouses. The plans are also closed to new entrants.

Actuarial calculations and estimates are made for all defined benefit plans. Besides assumptions about life expectancy, and taking index-linked developments into account, the calculations are based on the following parameters, which vary from one country to another depending on local economic circumstances:

T49

Percentage figures

| | Germany | | Japan | | Switzerland | | United Kingdom | | United States | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| Discount factor | 3.6 | 4.1 | 1.3 | 1.1 | 1.4 | 2.1 | 4.5 | 4.8 | 4.7 | 4.9 | 3.7 | 4.2 |
| Projected salaries | 3.0 | 3.0 | 2.9 | 2.9 | 1.9 | 1.9 | 3.0 | 3.1 | 3.5 | 3.5 | 3.1 | 3.1 |
| Projected pensions | 2.2 | 2.6 | n.a. | n.a. | 0.0 | 0.0 | 2.8 | 2.9 | n.a. | n.a. | 2.0 | 2.4 |

n.a. Not applicable

To determine the discount factor in the euro zone, reference was made to corporate bonds rated AA by at least one leading rating agency as of the reporting date.

Projected salaries are future salary increases estimated on the basis of the economic situation and inflation, among other factors.

The pension trend (projected pensions) for inflation-linked pension payments is based on the development of country-specific, recognized indices.

The pension plans are measured using the current mortality tables as of December 31 of the fiscal year concerned. As of December 31, 2023, the following mortality tables are used:

T50

| | |
|---|---|
| Germany | Heubeck 2018G mortality tables |
| Japan | 2020 MHLW Standard Table |
| Switzerland | BVG 2020 with CMI_2016 improvement factors, LTR of 1.5 percent |
| United Kingdom | 116 percent for males, 108 percent for females of S3PXA tables with 2019 CMI projections and 1.5 percent long-term improvement |
| United States | Pri-2012, projected by MP2021; aggregate for some plans, collar adjustments for others |

As of December 31, 2022, the following mortality tables were used in the key countries:

T51

| | |
|---|---|
| Germany | Heubeck 2018G mortality tables |
| Japan | 2020 MHLW Standard Table |
| Switzerland | BVG 2020 with CMI_2016 improvement factors, LTR of 1.5 percent |
| United Kingdom | 116 percent for males, 108 percent for females of S3PXA tables with 2019 CMI projections and 1.5 percent long-term improvement |
| United States | Pri-2012, projected by MP2021; aggregate for some plans, collar adjustments for others |

For the key regions, the present value of the defined benefit obligation can be reconciled to the provision as follows:

T52

in millions of euros

| | Present value of the obligation | Plan assets | Other assets | Unrecognized asset | Provision |
|---|---|---|---|---|---|
| **12/31/2023** | | | | | |
| Germany | 14,565 | –5,523 | 0 | 0 | 9,042 |
| Japan | 165 | –237 | 2 | 96 | 26 |
| Switzerland | 918 | –1,111 | 27 | 169 | 3 |
| United Kingdom | 233 | –289 | 56 | 0 | 0 |
| United States | 1,500 | –1,415 | 106 | 0 | 191 |
| Other | 645 | –249 | 7 | 1 | 404 |
| | **18,026** | **–8,824** | **198** | **266** | **9,666** |
| **12/31/2022** | | | | | |
| Germany | 13,579 | –4,825 | 0 | 0 | 8,754 |
| Japan | 188 | –247 | 4 | 83 | 28 |
| Switzerland | 810 | –1,002 | 26 | 168 | 2 |
| United Kingdom | 222 | –272 | 50 | 0 | 0 |
| United States | 1,551 | –1,443 | 85 | –1 | 192 |
| Other | 631 | –237 | 12 | 2 | 408 |
| | **16,981** | **–8,026** | **177** | **252** | **9,384** |

The development of the net liability of the defined benefit obligation is presented in the following table:

T53

in millions of euros

| | Present value of the obligation | Plan assets | Other assets | Unrecognized asset | Provision |
|---|---|---|---|---|---|
| **1/1/2023** | **16,981** | **−8,026** | **177** | **252** | **9,384** |
| Pension cost charged to profit or loss | | | | | |
| Current service cost | 694 | | | | 694 |
| Past service cost | 0 | | | | 0 |
| Gains/losses from plan settlements not related to past service cost | −1 | | | | −1 |
| Net interest income/expense | 693 | −322 | | 5 | 376 |
| Other | 0 | 5 | | | 5 |
| | **1,386** | **−317** | | **5** | **1,074** |
| Remeasurement | | | | | |
| Return on plan assets (excluding amounts included in net interest) | | −365 | | | −365 |
| Gains/losses arising from changes in demographic assumptions | 1 | | | | 1 |
| Gains/losses arising from changes in financial assumptions | 374 | | | | 374 |
| Experience gains/losses | 269 | | | | 269 |
| Other adjustments | | 0 | | 8 | 8 |
| | **644** | **−365** | | **8** | **287** |

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T53

in millions of euros

| | Present value of the obligation | Plan assets | Other assets | Unrecognized asset | Provision |
|---|---|---|---|---|---|
| Contributions | | | | | |
| Employer | | −448 | | | −448 |
| Beneficiaries | 17 | −17 | | | 0 |
| | **17** | **−465** | | | **−448** |
| Benefits paid[1] | −941 | 341 | | | −600 |
| Special events (plan settlement) | 0 | 0 | | | 0 |
| Transfers | 0 | 0 | | | 0 |
| Currency translation | −56 | 10 | | 1 | −45 |
| Changes in consolidated group | 4 | −2 | | | 2 |
| Changes in other assets | | | 21 | | 21 |
| Disposal groups | −9 | 0 | 0 | 0 | −9 |
| **12/31/2023** | **18,026** | **−8,824** | **198** | **266** | **9,666** |

1. Including EUR 97 million for transfer payments to Bosch Pensionsfonds at the beginning of the pension phase for payment of a fund-based retirement pension.

T54

in millions of euros

| | Present value of the obligation | Plan assets | Other assets | Unrecognized asset | Provision |
|---|---|---|---|---|---|
| **1/1/2022** | **20,089** | **−8,893** | **294** | **173** | **11,663** |
| Pension cost charged to profit or loss | | | | | |
| Current service cost | 678 | | | | 678 |
| Past service cost | 0 | | | | 0 |
| Gains/losses from plan settlements not related to past service cost | −1 | | | | −1 |
| Net interest income/expense | 252 | −128 | | 1 | 125 |
| Other | 0 | 5 | | | 5 |
| | **929** | **−123** | | **1** | **807** |
| Remeasurement | | | | | |
| Return on plan assets (excluding amounts included in net interest) | | 1,255 | | | 1,255 |
| Gains/losses arising from changes in demographic assumptions | 3 | | | | 3 |
| Gains/losses arising from changes in financial assumptions | −3,350 | | | | −3,350 |
| Experience gains/losses | −66 | | | | −66 |
| Other adjustments | | | | 80 | 80 |
| | **−3,413** | **1,255** | | **80** | **−2,078** |

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T54

in millions of euros

| | Present value of the obligation | Plan assets | Other assets | Unrecognized asset | Provision |
|---|---|---|---|---|---|
| Contributions | | | | | |
| Employer | | −421 | | | −421 |
| Beneficiaries | 16 | −16 | | | 0 |
| | **16** | **−437** | | | **−421** |
| Benefits paid[1] | −830 | 326 | | | −504 |
| Special events (plan settlement) | 0 | 0 | | | 0 |
| Transfers | 40 | −10 | | | 30 |
| Currency translation | 119 | −129 | | −2 | −12 |
| Changes in consolidated group | 31 | −15 | | | 16 |
| Changes in other assets | | | −117 | | −117 |
| **12/31/2022** | **16,981** | **−8,026** | **177** | **252** | **9,384** |

1. Including EUR 69 million for transfer payments to Bosch Pensionsfonds at the beginning of the pension phase for payment of a fund-based retirement pension.

The plan assets comprise the following components:

T 55

Percentage figures

| | Germany | | Japan | | Switzerland | | United Kingdom | | United States | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| **Cash and cash equivalents** | **2** | **4** | **0** | **0** | **1** | **3** | **5** | **1** | **2** | **0** |
| **Equity instruments** | **50** | **52** | **30** | **29** | **27** | **26** | **0** | **24** | **0** | **10** |
| of which Europe | 63 | 62 | 10 | 10 | 43 | 42 | 0 | 27 | 0 | 14 |
| of which North America | 17 | 18 | 39 | 38 | 38 | 36 | 0 | 59 | 0 | 68 |
| of which Asia Pacific | 12 | 11 | 51 | 52 | 6 | 5 | 0 | 14 | 0 | 9 |
| of which emerging markets | 7 | 8 | 0 | 0 | 12 | 13 | 0 | 0 | 0 | 9 |
| of which other | 1 | 1 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 0 |
| **Debt instruments** | **44** | **41** | **65** | **66** | **28** | **29** | **92** | **72** | **98** | **90** |
| of which government bonds | 26 | 35 | 75 | 75 | 21 | 21 | 46 | 94 | 28 | 42 |
| of which corporate bonds | 73 | 64 | 22 | 22 | 77 | 55 | 54 | 6 | 71 | 56 |
| of which other debt instruments | 1 | 1 | 3 | 3 | 2 | 24 | 0 | 0 | 1 | 2 |
| **Property** | **3** | **3** | **0** | **0** | **34** | **37** | **0** | **0** | **0** | **0** |
| of which owner-occupied | 85 | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| of which non-owner-occupied | 15 | 3 | 0 | 0 | 100 | 100 | 0 | 0 | 0 | 0 |
| **Insurance** | **0** | **0** | **5** | **5** | **0** | **0** | **3** | **3** | **0** | **0** |
| **Other** | **1** | **0** | **0** | **0** | **10** | **5** | **0** | **0** | **0** | **0** |

Quoted prices in an active market are available for equity instruments. For the other classes of assets, there are in most cases no quoted prices in an active market. The “other” line item mainly contains investments in infrastructure facilities.

### Duration and estimated maturities of the pension obligation

The weighted duration of the pension obligation as of December 31, 2023, is 10.4 years (previous year: 10.6 years).

## Estimated maturities of the undiscounted estimated pension payments

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in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Less than one year | 923 | 874 |
| Between one and two years | 970 | 929 |
| Between two and three years | 1,046 | 998 |
| | **2,939** | **2,801** |

The estimated contributions to plan assets in fiscal year 2024 amount to EUR 473 million (previous year: EUR 439 million).

The estimated benefits to be paid directly in fiscal year 2024 amount to EUR 575 million (previous year: EUR 539 million).

## Sensitivity of the defined benefit obligation in relation to actuarial parameters

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Percentage figures

| | Germany | | Japan | | Switzerland | | United Kingdom | | United States | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| **Discount factor** | | | | | | | | | | |
| Increase of 0.25 percentage points | −1.2 | −1.2 | −1.8 | −1.9 | −2.7 | −2.5 | −3.2 | −3.2 | −2.4 | −2.5 |
| Decrease of 0.25 percentage points | 1.2 | 1.3 | 1.9 | 1.9 | 2.9 | 2.7 | 3.3 | 3.3 | 2.5 | 2.6 |
| **Projected salaries** | | | | | | | | | | |
| Increase of 0.25 percentage points | n.a. | n.a. | 0.8 | 0.8 | 0.2 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 |
| Decrease of 0.25 percentage points | n.a. | n.a. | −0.7 | −0.7 | −0.2 | −0.2 | −0.2 | −0.2 | 0.0 | 0.0 |
| **Projected pensions** | | | | | | | | | | |
| Increase of 0.25 percentage points | 0.6 | 0.6 | n.a. | n.a. | 2.6 | 2.6 | 1.9 | 1.9 | n.a. | n.a. |
| Decrease of 0.25 percentage points | −0.6 | −0.6 | n.a. | n.a. | −2.5 | −2.5 | −1.7 | −1.7 | n.a. | n.a. |
| **Life expectancy** | | | | | | | | | | |
| Increase by one year | 1.9 | 1.9 | n.a. | n.a. | 3.1 | 3.1 | 4.9 | 4.9 | 3.1 | 3.1 |

n.a. Not applicable

The sensitivity analyses of the defined benefit obligation for the main actuarial assumptions are based on the same methods as those used for the post-employment benefit obligations presented in the consolidated statement of financial position (projected unit credit method). In each case, one assumption was changed and the other assumptions were left unchanged. This means that possible correlation effects were not considered.

### Defined contribution plans

Defined contribution plans mainly include employee contributions to statutory pension schemes and employer contributions for the company's defined contribution plans. Expenses for defined contribution plans amounted to EUR 1,718 million (previous year: EUR 1,642 million).

## 27 — Equity

The issued capital of EUR 1,200 million and capital reserve of EUR 4,557 million correspond with the items of the statement of financial position disclosed by Robert Bosch GmbH. The issued capital is divided between the shareholders as follows:

### Shareholders of Robert Bosch GmbH

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Percentage figures

| | Shareholding | Voting rights |
|---|---|---|
| Robert Bosch Stiftung GmbH | 93.99 | |
| Robert Bosch Industrietreuhand KG | 0.01 | 93.17 |
| ERBO II GmbH | 5.36 | |
| Robert Bosch Familientreuhand KG | 0.00 | 6.83 |
| Robert Bosch GmbH (treasury stock) | 0.64 | |

Retained earnings contain undistributed profits generated in the past by the entities included in the consolidated financial statements, as well as accumulated other comprehensive income. The amount recognized outside profit or loss in the reporting year under financial instruments increases the revaluation reserve from equity instruments by EUR 34 million (previous year: decrease of EUR 987 million) and the revaluation reserve from debt instruments by EUR 384 million (previous year: decrease of EUR 483 million). As in the previous year, the other changes reported in the consolidated statement of changes in equity in the reporting year mainly comprise effects from the disposal of equity instruments.

Retained earnings also include treasury stock of EUR 62 million (previous year: EUR 62 million).

The board of management proposes to distribute a dividend of EUR 170 million.

### Non-controlling interests

The non-controlling interests in the equity of the consolidated subsidiaries mainly comprise the non-controlling interests in United Automotive Electronic Systems Co., Ltd., Shanghai, Bosch Powertrain Systems Co., Ltd., Wuxi, Bosch HUAYU Steering Systems Group, Shanghai, all China, and Bosch Ltd., Bengaluru, India. Condensed financial information on the above entities is included in note 6 “Consolidation.”

# Other notes

## 28 — Statement of cash flows

The statement of cash flows presents cash inflows and outflows from operating activities, investing activities, and financing activities.

Cash flows are derived indirectly, starting from EBIT. EBIT is earnings before the financial result and before tax. Cash flows from operating activities are adjusted for non-cash expenses and income (mainly depreciation and amortization of non-current assets) and take into account changes in working capital as well as cash-effective financial expenses, financial income, and taxes.

Investing activities mainly comprise additions to non-current assets including leased products, the acquisition and disposal of subsidiaries, and changes in securities and time deposits with a term to maturity of more than 90 days. Within the changes in securities and time deposits, cash inflows and outflows are netted, as these are essentially revolving asset reallocations. In the reporting year, the investment of financial liabilities taken out as time deposits with a term of more than 90 days and in money market funds in particular led to a cash outflow from investing activities.

Financing activities combine the cash inflows and outflows from borrowing and repayment of financial liabilities, from the repayment of lease liabilities, and from dividends.

Changes in items of the statement of financial position contained in the statement of cash flows cannot be directly derived from the statement of financial position, as they have been adjusted for exchange-rate effects and changes in the consolidated group.

Interest and dividends received contains interest received of EUR 677 million (previous year: EUR 464 million) and income received from equity investments of EUR 24 million (previous year: EUR 43 million).

The liquidity reported in the statement of cash flows includes cash and cash equivalents of EUR 7,443 million (previous year: EUR 6,459 million). In the reporting year, cash and cash equivalents of EUR 103 million (previous year: EUR 201 million) were subject to restrictions, including EUR 86 million (previous year: EUR 185 million) in Russia and in Ukraine as a result of restrictions on capital movements in the two countries.

Changes in liabilities from financing activities during the reporting year and the previous year are presented in the following table:

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in millions of euros

| | | Cash-effective changes | | Non-cash changes | | | |
|---|---|---|---|---|---|---|---|
| | **1/1/2023** | **Borrowing** | **Repayment** | **Changes in consolidated group** | **Exchange rate-related changes** | **Other changes** | **12/31/2023** |
| Bonds | 1,992 | 5,576 | | | –24 | 2 | 7,546 |
| Schuldschein loans, registered bonds | 3,698 | | –500 | | | 1 | 3,199 |
| Other financial liabilities | 732 | 1,565 | –1,387 | 88 | –27 | –71 | 900 |
| Lease liabilities | 2,167 | | –588 | 32 | –27 | 767 | 2,351 |
| | **8,589** | **7,141** | **–2,475** | **120** | **–78** | **699** | **13,996** |

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in millions of euros

| | | Cash-effective changes | | Non-cash changes | | | |
|---|---|---|---|---|---|---|---|
| | **1/1/2022** | **Borrowing** | **Repayment** | **Changes in consolidated group** | **Exchange rate-related changes** | **Other changes** | **12/31/2022** |
| Bonds | 2,011 | | –21 | | | 2 | 1,992 |
| Schuldschein loans, registered bonds | 2,225 | 1,497 | –25 | | | 1 | 3,698 |
| Other financial liabilities | 367 | 545 | –194 | | 10 | 4 | 732 |
| Lease liabilities | 2,066 | | –590 | –5 | –3 | 699 | 2,167 |
| | **6,669** | **2,042** | **–830** | **–5** | **7** | **706** | **8,589** |

The other changes in lease liabilities mainly comprise the effects of new or amended lease agreements.

# 29 — Segment reporting

## Disclosures on operating segments

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in millions of euros

| | Mobility Solutions | | Industrial Technology | | Consumer Goods | |
|---|---|---|---|---|---|---|
| | **2023** | 2022 | **2023** | 2022 | **2023** | 2022 |
| External sales revenue | 56,171 | 52,477 | 7,467 | 6,944 | 19,943 | 21,342 |
| Intersegment sales revenue | 205 | 193 | 806 | 664 | 468 | 507 |
| **Total sales revenue** | **56,376** | **52,670** | **8,273** | **7,608** | **20,411** | **21,849** |
| EBIT from operations | 2,518 | 1,813 | 679 | 686 | 896 | 970 |
| of which: result from entities included at equity | 10 | –1 | | | | |
| Amortization and depreciation of intangible assets, right-of-use assets, and property, plant, and equipment | 3,408 | 3,411 | 297 | 224 | 1,023 | 995 |
| Impairment losses on intangible assets, right-of-use assets, and property, plant, and equipment | | 18 | | | 6 | 70 |
| Non-cash expenses (without depreciation and amortization) | 3,089 | 2,506 | 225 | 255 | 766 | 710 |
| Non-cash income | 1,725 | 988 | 80 | 104 | 275 | 151 |
| Additions to property, plant, and equipment | 3,799 | 3,270 | 410 | 316 | 839 | 845 |
| Net working capital | 15,567 | 15,125 | 2,795 | 2,522 | 6,040 | 6,310 |

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in millions of euros

| | Energy and Building Technology | | Other | | Consolidation | | Group | |
|---|---|---|---|---|---|---|---|---|
| | **2023** | 2022 | **2023** | 2022 | **2023** | 2022 | **2023** | 2022 |
| External sales revenue | 7,563 | 6,952 | 335 | 353 | | | 91,479 | 88,068 |
| Intersegment sales revenue | 489 | 440 | 201 | 153 | –2,169 | –1,957 | | |
| **Total sales revenue** | **8,052** | **7,392** | **536** | **506** | **–2,169** | **–1,957** | **91,479** | **88,068** |
| EBIT from operations | 696 | 422 | 76 | –69 | | | 4,865 | 3,822 |
| of which: result from entities included at equity | –4 | | | | | | 6 | –1 |
| Amortization and depreciation of intangible assets, right-of-use assets, and property, plant, and equipment | 216 | 229 | 63 | 78 | | | 5,007 | 4,937 |
| Impairment losses on intangible assets, right-of-use assets, and property, plant, and equipment | 2 | 8 | | | | | 8 | 96 |
| Non-cash expenses (without depreciation and amortization) | 381 | 278 | 53 | 50 | | | 4,514 | 3,799 |
| Non-cash income | 134 | 87 | 36 | 36 | | | 2,250 | 1,366 |
| Additions to property, plant, and equipment | 180 | 123 | 271 | 342 | | | 5,499 | 4,896 |
| Net working capital | 1,730 | 1,502 | –196 | –152 | | | 25,936 | 25,307 |

Based on the internal management and reporting structure, the Bosch Group is divided into four business sectors. These are the reportable segments and result from the combination of divisions in accordance with the criteria set forth in IFRS 8 *Operating Segments*. Business operations within the business sectors are the responsibility of the divisions.

The Mobility Solutions business sector mainly comprises the following areas of business: powertrain products and solutions, systems for active and passive driving safety, assistance and convenience functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, concepts, technology, and services for the automotive aftermarket, steering systems for passenger cars and commercial vehicles, connected mobility services, and a wide-ranging portfolio for e-bikes.

The Industrial Technology business sector combines the following activities:

- Automation technology (technologies for drives, controls, and motion)
- Industry 4.0 software activities and projects

The operations of the Consumer Goods business sector comprise the production and distribution of:

- Power tools (tools for professionals, industry, and DIY, accessories, garden tools, as well as industrial tools and measuring equipment)
- Household appliances (appliances for cooking, dishwashing, laundry, drying, cooling, freezing, floor care, etc.)

The Energy and Building Technology business sector comprises the following activities:

- Security systems (video surveillance, public address systems, evacuation systems, and access control)
- Services to increase energy efficiency in non-residential buildings
- Thermotechnology (heating and hot-water boilers including open- and closed-loop control systems and products and services to increase comfort in the home)
- Service solutions (business solutions for internal and external customers, shared services for the Bosch Group)

Operating segments which are not reportable are combined and presented in the category “Other.” This mainly relates to financial, holding, and other service companies as well as operations that are not allocated to a business sector.

The divisions allocated to a business sector are aggregated into a single reportable segment, as they have similar economic characteristics. Above all, the economic performance of all the divisions aggregated in one segment depends to a similar extent on the same core markets (automotive production, capital goods, consumer goods, and energy and building technology).

Line items allocable to financing activities are not included in segment reporting as they are not part of the reported earnings.

The main controlling variables reported to the board of management are sales revenue growth, EBIT from operations as a percentage of sales revenue (EBIT adjusted for negative effects on earnings from purchase price allocations in the fiscal year 2015), and net working capital as a percentage of sales revenue as an indicator of the capital that is generally tied up in the short term. EBIT is earnings before the financial result and before tax. Net working capital is an average of inventories, trade receivables, and contract assets, in each case before valuation allowances, plus capitalized deferred consideration to customers, less trade payables and contract liabilities.

Transfer prices between the operating segments are determined at arm’s length.

The main items included in non-cash expenses are bad debt allowances, additions to provisions, as well as losses on the disposal of items of property, plant, and equipment, and of intangible assets.

The main items included in non-cash income are income from the reversal of provisions.

## Reconciliation statements

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in millions of euros

| | 2023 | 2022 |
|---|---|---|
| **Sales revenue** | | |
| Sales revenue of reportable segments | 93,112 | 89,519 |
| Sales revenue of “Other” | 536 | 506 |
| Consolidation | −2,169 | −1,957 |
| Differences in the consolidated group | 117 | 133 |
| **Group sales revenue** | **91,596** | **88,201** |
| **Earnings** | | |
| EBIT from operations of reportable segments | 4,789 | 3,891 |
| EBIT from operations of “Other” | 76 | −69 |
| Adjustments from purchase price allocations | −321 | −342 |
| Differences in the consolidated group | −41 | −6 |
| Financial income | 3,980 | 3,829 |
| Financial expenses | −4,507 | −4,390 |
| **Profit before tax** | **3,976** | **2,913** |
| **Net working capital** | | |
| Net working capital of reportable segments | 26,132 | 25,459 |
| Net working capital of “Other” | −196 | −152 |
| Reconciliation of average values to carrying amounts as of 12/31 | −3,848 | −976 |
| Valuation allowances on segment assets | −2,308 | −2,313 |
| **Group net working capital** | **19,780** | **22,018** |

## Disclosures by key countries

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in millions of euros

| | Sales revenue by registered office of the customer | | Non-current assets[1] | |
|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 |
| **Europe** | **46,769** | **44,334** | **23,902** | **22,590** |
| of which Germany | 18,854 | 17,589 | 14,447 | 13,596 |
| of which United Kingdom | 3,868 | 3,563 | 740 | 719 |
| of which France | 3,087 | 3,050 | 397 | 409 |
| of which Italy | 2,643 | 2,596 | 567 | 566 |
| **Americas** | **16,952** | **16,167** | **5,756** | **4,179** |
| of which United States | 12,402 | 12,077 | 4,448 | 3,501 |
| **Asia** | **26,622** | **26,369** | **8,103** | **8,388** |
| of which China | 17,201 | 17,580 | 5,243 | 5,476 |
| of which Japan | 2,789 | 2,461 | 565 | 466 |
| **Other regions** | **1,253** | **1,331** | **186** | **179** |
| | **91,596** | **88,201** | **37,947** | **35,336** |

1. Non-current assets consist of intangible assets, right-of-use assets, and property, plant, and equipment.

The customer structure of the Bosch Group in the reporting year and in the previous year does not reveal any concentration on individual customers.

## 30 — Additional disclosures on financial instruments

In accordance with IAS 32 *Financial Instruments: Presentation*, a financial instrument is any contract that gives rise to a financial asset of one entity and to a financial liability or equity instrument of another entity.

Financial assets and financial liabilities are recognized in the statement of financial position when the Bosch Group becomes party to the contractual provisions of the financial instrument. For regular way purchases or sales, however, the settlement date is the relevant date for initial recognition and for derecognition from the statement of financial position. On initial recognition, financial assets and financial liabilities are measured at fair value and classified in accordance with IFRS 9 *Financial Instruments*. Unless subsequent measurement is at fair value through profit or loss, directly attributable transaction costs are taken into account on initial recognition. The fair-value option pursuant to IFRS 9 is not exercised. Hedge accounting is not used in the Bosch Group.

On initial recognition, financial assets are classified either as at amortized cost (AC), at fair value through profit or loss (FVPL), or at fair value through other comprehensive income (FVOCI). The classification depends on the business model underlying the financial assets as well as the contractual cash flow characteristics of the asset. Classification is determined by

- whether the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows (“hold” business model), whether the objective is achieved by both collecting contractual cash flows and selling financial assets (“hold and sell” business model), or solely by selling financial assets (“sell” business model), and
- whether the contractual cash flows are “solely payments of principal and interest” (SPPI).

The business model is determined on the basis of the Bosch Group’s corporate management. For this purpose, the financial instruments are grouped together by their underlying business model. The contractual cash flow characteristics are reviewed at the level of the individual financial instrument.

Financial assets whose cash flows are solely payments of principal and interest on the principal amount outstanding and held within the “hold” business model are measured at amortized cost (AC). These are trade receivables, cash and cash equivalents, bank balances, loan receivables, and sundry other financial assets. These assets are subsequently measured using the effective interest method; impairment gains and losses, or gains or losses from the derecognition of assets, are recognized in profit or loss.

If the group also intends to collect cash flows from selling financial assets (“hold and sell” business model), the financial assets are measured at fair value through other comprehensive income (with recycling, FVOCI wR). Gains and losses are recorded in other comprehensive income in this case. Cumulative changes in fair value are reclassified to profit or loss when the instruments are sold. Impairment losses are likewise reclassified from other comprehensive income to profit or loss. Interest income is recognized in profit or loss using the effective interest method. Most of the Bosch Group’s interest-bearing securities are measured in this category.

Financial assets that do not satisfy the cash flow criterion owing to there not being solely payments of principal and interest on the principal amount outstanding are measured at fair value through profit or loss (FVPL). Changes in fair value and income from these assets are recognized immediately in profit or loss. This category mainly comprises interests in partnerships, shares in investment funds, certain interest-bearing securities, and derivatives with a positive fair value which are mainly used to limit currency, interest, and commodity risks in accordance with internal risk management.

The group may, at initial recognition, irrevocably designate equity instruments that are not held for trading as measured at fair value through other comprehensive income (no recycling, FVOCI nR) rather than as measured at fair value through profit or loss. In that case, all changes in value are recognized in other comprehensive income. Cumulative changes in value are not reclassified to profit or loss even when the financial asset is sold. Dividend income, however, is recognized in profit or loss. As this measurement method appropriately presents the net assets and results of operations, the Bosch Group has decided to apply this option to investments in corporations and to shares reported under securities.

With regard to financial assets (not including equity instruments) that are not measured at fair value through profit or loss, IFRS 9 requires loss allowances to be recognized for any expected credit losses. The extent to which expected losses are recognized is determined based on three stages that differ in terms of the extent to which the credit risk on financial assets has significantly increased since initial recognition. Stage 1 includes all financial assets whose credit risk has not increased significantly and whose outstanding payments are up to 30 days past due. For such assets, credit losses are recognized in relation to the probability of a default occurring over the next 12 months. If the borrower's credit risk has increased significantly, the financial instrument is allocated to stage 2, and loss allowances are recognized at an amount equal to the expected losses over the lifetime of the financial asset. A significant increase in credit risk is assumed when either agreed payments are more than 30 days past due or information is available about a deterioration in the borrower's financial situation. If there is additional evidence that the financial asset is credit-impaired, it is allocated to stage 3. Such evidence includes payments more than 90 days past due, observable data about significant financial difficulty of the borrower, a high probability that the borrower will enter bankruptcy, and significant changes in the issuer's technological, economic, regulatory, or market environment.

The simplified approach to impairment is used for trade receivables, contract assets, and lease receivables. Accordingly, a loss allowance is always recognized at the lifetime expected credit losses irrespective of any changes in the credit risk since initial recognition of the financial asset. As a practical expedient, a loss allowance table is used in the Bosch Group for receivables that are not credit-impaired, which determines the expected losses over the remaining term as a flat-rate percentage in relation to the number of days past due. Historical probabilities of default are used as a basis, supplemented by forward-looking parameters of relevance for the credit risk. If there is any information available about financial difficulty of the borrower, the assets are analyzed individually and a loss allowance for credit-impaired receivables is recognized. According to internal group guidelines, the carrying amounts of receivables are generally adjusted via a loss allowance account. Loss allowances are not recognized if receivables are collateralized or credit insurance exists.

Financial liabilities are generally subsequently measured at amortized cost using the effective interest method. In the Bosch Group, this applies to trade payables, bonds, schuldschein loans, registered bonds, liabilities to banks, commercial papers, loan liabilities, and other financial liabilities. The main exception to this rule concerns financial liabilities held for trading, which are measured at fair value through profit or loss. In the Bosch Group, these are derivatives with a negative fair value.

When determining the fair value of financial assets and financial liabilities, the input factors of the valuation techniques pursuant to IFRS 13 are categorized as follows:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the accounting entity can access at the measurement date
- Level 2: Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs that are not based on observable market data

The fair value of current financial assets and liabilities is assumed to correspond to their carrying amount.

Financial assets are derecognized when the rights to cash flows have expired, e.g. after completion of bankruptcy proceedings or after a court ruling. They are also derecognized when the Bosch Group transfers substantially all risks and rewards from a financial asset. Financial liabilities are derecognized when the obligations specified in the contract have been discharged or canceled, or when they have expired.

Financial assets and financial liabilities are offset and presented as a net amount in the statement of financial position when there is a legal right to offset and the group either intends to settle on a net basis, or when the asset and the liability are to be settled at the same time.

## Net gain/loss by category

The table below presents the net gains and losses from financial instruments recognized in the income statement, classified by the categories defined in IFRS 9:

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in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Financial assets measured at amortized cost (AC) | 382 | 540 |
| Financial assets measured at fair value through other comprehensive income (FVOCI wR) | –79 | 172 |
| Financial assets and financial liabilities measured at fair value through profit or loss (FVPL) | 285 | –922 |
| Equity instruments measured at fair value through other comprehensive income (FVOCI nR) | 95 | 108 |
| Financial liabilities measured at amortized cost (AC) | –478 | –325 |

The net gain/loss from equity instruments measured at fair value through other comprehensive income includes dividend income. In all other categories, foreign-currency gains and losses as well as interest income and expenses are disclosed. The net gain/loss from financial assets and financial liabilities measured at fair value through profit or loss additionally includes the result from changes in the fair values of investments, securities, and derivatives. Moreover, the net gain/loss from financial assets measured at amortized cost discloses the gains/losses from the measurement of receivables and loans. The gain/loss from financial assets measured at fair value through other comprehensive income includes the gains/losses from the release of the reserve from financial instruments in equity.

The dividend income of EUR 95 million (previous year: EUR 108 million) reported in net gains/losses from investments in equity instruments includes dividend income amounting to EUR 8 million (previous year: EUR 4 million) from equity instruments derecognized in the reporting year.

The measurement gains and losses from securities and investments recognized in other comprehensive income are presented in the statement of comprehensive income.

## Carrying amounts and fair values by category

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### Assets

in millions of euros

| | | 2023 | | 2022 | |
|---|---|---|---|---|---|
| | Category pursuant to IFRS 9 | Carrying amount | Fair value | Carrying amount | Fair value |
| **Cash and cash equivalents** | **AC** | **7,443** | | **6,459** | |
| **Trade receivables** | **AC** | **17,081** | | **16,528** | |
| **Current other financial assets** | | **7,822** | | **3,803** | |
| Securities | FVPL | 3,606 | 3,606 | 2,003 | 2,003 |
| | FVOCI wR | 253 | 253 | 362 | 362 |
| Bank balances | AC | 3,301 | | 636 | |
| Loan receivables | AC | 104 | | 95 | |
| Derivatives | FVPL | 132 | 132 | 285 | 285 |
| Receivables from finance leases | n.a. | 37 | | 36 | |
| Sundry other financial assets | AC | 389 | | 386 | |
| **Non-current financial assets** | | **14,538** | | **14,021** | |
| Securities | FVOCI nR | 2,808 | 2,808 | 2,821 | 2,821 |
| | FVOCI wR | 4,529 | 4,529 | 4,521 | 4,521 |
| | FVPL | 4,654 | 4,654 | 4,260 | 4,260 |
| Investments | FVPL | 145 | 145 | 164 | 164 |
| | FVOCI nR | 1,848 | 1,848 | 1,701 | 1,701 |
| | n.a. | 130 | | 138 | |
| Bank balances | AC | 65 | 65 | 83 | 83 |
| Loan receivables | AC | 14 | 14 | 14 | 14 |
| Derivatives | FVPL | 41 | 41 | 33 | 33 |
| Receivables from finance leases | n.a. | 146 | 146 | 147 | 147 |
| Other financial assets | AC | 158 | 158 | 139 | 139 |

AC At amortized cost
FVPL At fair value through profit or loss
FVOCI wR At fair value through other comprehensive income, with recycling
FVOCI nR At fair value through other comprehensive income, no recycling
n.a. Not applicable

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## Equity and liabilities
in millions of euros

| | | 2023 | | 2022 | |
|---|---|---|---|---|---|
| | Category pursuant to IFRS 9 | Carrying amount | Fair value | Carrying amount | Fair value |
| **Trade payables** | **AC** | **12,205** | | **10,761** | |
| **Current other financial liabilities** | | **2,772** | | **2,210** | |
| Bonds | AC | 749 | | | |
| Schuldschein loans, registered bonds | AC | | | 500 | |
| Liabilities to banks | AC | 194 | | 328 | |
| Commercial papers | AC | 588 | | 328 | |
| Loans | AC | 76 | | 102 | |
| Derivatives | FVPL | 304 | 304 | 182 | 182 |
| Sundry other financial liabilities | AC | 861 | | 770 | |
| **Non-current financial liabilities** | | **10,399** | | **5,457** | |
| Bonds | AC | 6,797 | 7,291 | 1,992 | 1,916 |
| Schuldschein loans, registered bonds | AC | 3,199 | 3,124 | 3,198 | 3,014 |
| Liabilities to banks | AC | 118 | 118 | 75 | 75 |
| Loans | AC | 33 | 33 | 49 | 49 |
| Derivatives | FVPL | 30 | 30 | 6 | 6 |
| Other financial liabilities | AC | 222 | 222 | 137 | 136 |

AC At amortized cost
FVPL At fair value through profit or loss
FVOCI wR At fair value through other comprehensive income, with recycling
FVOCI nR At fair value through other comprehensive income, no recycling
n.a. Not applicable

The carrying amounts of the financial assets and liabilities, classified by IFRS 9 measurement categories, are as follows:

T66

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Financial assets measured at amortized cost (AC) | 28,555 | 24,340 |
| Financial assets measured at fair value through other comprehensive income (FVOCI wR) | 4,782 | 4,883 |
| Equity instruments measured at fair value through other comprehensive income (FVOCI nR) | 4,656 | 4,522 |
| Financial assets measured at fair value through profit or loss (FVPL) | 8,578 | 6,745 |
| Financial liabilities measured at fair value through profit or loss (FVPL) | 334 | 188 |
| Financial liabilities measured at amortized cost (AC) | 25,042 | 18,240 |

The tables presented below show the fair values of financial assets and financial liabilities measured at fair value determined by using the fair value hierarchy in accordance with IFRS 13:

T 67

in millions of euros

| | Category pursuant to IFRS 9 | 2023 Level 1[1] | Level 2[2] | Level 3[3] | Total |
|---|---|---|---|---|---|
| **Financial assets** | | | | | |
| Securities | FVPL | 42 | 7,656 | 562 | 8,260 |
| | FVOCI wR | 157 | 4,625 | | 4,782 |
| | FVOCI nR | 2,806 | 2 | | 2,808 |
| Investments | FVPL | | | 145 | 145 |
| | FVOCI nR | 972 | | 876 | 1,848 |
| Derivatives | FVPL | 8 | 165 | | 173 |
| | | | | | |
| **Financial liabilities** | | | | | |
| Derivatives | FVPL | 5 | 329 | | 334 |

1. Fair value is measured on the basis of quoted, unadjusted market prices in active markets.
2. Fair value is measured on the basis of market data such as share prices, exchange rates, or interest curves using market-based valuation techniques.
3. Fair value is measured on the basis of unobservable market data.

T68

in millions of euros

| | | 2022 | | | |
|---|---|---|---|---|---|
| | Category pursuant to IFRS 9 | Level 1[1] | Level 2[2] | Level 3[3] | Total |
| **Financial assets** | | | | | |
| Securities | FVPL | 251 | 5,550 | 462 | 6,263 |
| | FVOCI wR | 53 | 4,830 | | 4,883 |
| | FVOCI nR | 2,808 | 13 | | 2,821 |
| Investments | FVPL | | | 164 | 164 |
| | FVOCI nR | 714 | | 987 | 1,701 |
| Derivatives | FVPL | 19 | 299 | | 318 |
| | | | | | |
| **Financial liabilities** | | | | | |
| Derivatives | FVPL | 15 | 173 | | 188 |

1. Fair value is measured on the basis of quoted, unadjusted market prices in active markets.
2. Fair value is measured on the basis of market data such as share prices, exchange rates, or interest curves using market-based valuation techniques.
3. Fair value is measured on the basis of unobservable market data.

Investments measured at fair value through other comprehensive income include the equity investments in Ceres Power Holdings plc (fair value of EUR 71 million; previous year: EUR 134 million), in Husqvarna AB (EUR 518 million; previous year: EUR 182 million), in Nikola Corporation (EUR 6 million; previous year: EUR 14 million), in Powercell Sweden AB (EUR 24 million; previous year: EUR 63 million), and in Weifu High Technology Group Co., Ltd. (EUR 250 million; previous year: EUR 321 million).

The fair value of financial assets and liabilities measured at amortized cost is determined on the basis of observable market data such as share prices, exchange rates, and interest curves (level 2).

At the end of the fiscal year, items are reviewed to determine whether they need to be reclassified between individual levels of the fair-value hierarchy. There were no reclassifications in the reporting year. In the previous year, a small volume of securities measured at fair value through other comprehensive income were reclassified from level 1 to level 2, as they were no longer measured at their stock market price. A small volume of securities were reclassified from level 2 to level 1, as measurement at stock market price was possible as of the previous year. The table presenting the changes in financial assets allocated to level 3 includes reclassifications relating to this level.

Equity investments measured at fair value through profit or loss and those measured at fair value through other comprehensive income are allocated to level 3. Various methods are used to determine the fair values, mainly based on price information from third parties and financing rounds carried out in the reporting year; the discounted cash flow method is also applied. In addition, in certain cases, cost is used as the best estimate of fair value.

Units in a closed fund are also allocated to level 3 (reported under securities). The fair value of the fund units is notified by the asset management firm; it is measured based on the fund's net asset value. The fair value is dependent on changes in the market value of the respective investments within the fund.

Changes during the reporting year and the previous year in financial assets allocated to level 3 are presented in the tables below:

T69

in millions of euros

| | 1/1/2023 | Additions | Disposals | Reclassi-fications | Changes recognized in other comprehen-sive income | Changes recognized in profit or loss | Other changes | 12/31/2023 |
|---|---|---|---|---|---|---|---|---|
| Investments FVOCI nR | 987 | 82 | −16 | −11 | −159 | | −7 | 876 |
| Investments FVPL | 164 | 9 | −1 | | | −25 | −2 | 145 |
| Securities FVPL | 462 | 67 | | | | 33 | | 562 |

T70

in millions of euros

| | 1/1/2022 | Additions | Disposals | Reclassi-fications | Changes recognized in other comprehen-sive income | Changes recognized in profit or loss | Other changes | 12/31/2022 |
|---|---|---|---|---|---|---|---|---|
| Investments FVOCI nR | 857 | 203 | −43 | | −8 | | −22 | 987 |
| Investments FVPL | 151 | 11 | −6 | | | 16 | −8 | 164 |
| Securities FVPL | 271 | 154 | | | | 37 | | 462 |

Changes recognized in profit or loss are presented in the financial result, while changes recognized in other comprehensive income are reported in the gains/losses on financial instruments.

Due to the IPO of an entity, the Bosch Group's corresponding equity investment in the entity was reclassified from level 3 to level 1. There were no reclassifications in the previous year. Neither in the reporting year nor in the previous year were there any reclassifications of securities allocated to level 3.

## 31 — Capital and risk management

### Capital management

The Bosch Group's goal is to achieve sustainable growth through innovation while maintaining its financial independence. To achieve this goal, it is necessary to maintain a high internal financing ability, along with unrestricted access to capital markets, which is ensured by a solid A rating at a minimum. Capital structure and other financial performance indicators, such as free cash flow, are tracked as part of financial planning. As of December 31, 2023, the Bosch Group's equity ratio as a percentage of total assets was 44 percent (previous year: 47 percent). Depending on market circumstances, the volume required, and the preferred currency, the Bosch Group generally raises debt capital on capital markets in the form of bonds, schuldschein loans, registered bonds, and commercial paper programs. Bilateral and syndicated loan facilities with banks are also in place.

### Hedging policy and financial derivatives

The business operations of the Bosch Group are impacted in particular by fluctuations in exchange and interest rates and additionally, on the procurement side, by commodity price risks. Business policy aims to limit these risks by means of hedging. Hedging transactions are managed at corporate level.

Internal regulations and guidelines set down a binding framework and define the responsibilities relating to investment and hedging transactions. According to these regulations, derivatives may only be used in connection with business operations, financial investments, or financing transactions; speculative transactions are not allowed. Trader limits are an important component of the guidelines. Hedges are generally concluded via banks with good credit ratings from leading agencies and taking into account current risk assessments in financial markets. The creditworthiness of the Bosch Group's banking partners is closely monitored, and the risk mitigated by counterparty limits.

To reduce the credit risk of the bank, fixed-term deposits are in some cases also entered into as secured deposits in triparty repo transactions. In such cases, the bank provides predefined securities as collateral. The transaction settlement, as well as the management and valuation of the securities, are managed by a clearing center. Further information is provided in note 16 "Other current and non-current financial assets."

The decision-making bodies are committees for commodities, foreign currencies, and investments that meet at regular intervals. There is a functional segregation of trading, settlement, and control functions, with the latter primarily charged with continuously monitoring compliance with instructions and guidelines.

Each month, the risk of financial investments is calculated using the value-at-risk concept. Risks relating to financial assets are monitored using ad hoc asset allocation studies and limited by diversifying investment. In foreign-exchange and investment committee meetings, the member of the board of management responsible is informed monthly about risk analyses and the results of investments and hedges.

### Currency risks

Currency risks from cash flows in business operations are mitigated by the central management of invoicing and purchasing currencies. The currency risk is determined on the basis of the worldwide consolidated cash flows in the respective currencies. Based on annual forecasts, estimated inflows and outflows in the various currencies for the reporting period are aggregated in a foreign exchange balance plan. The resulting net position is then used for the central management of currency exposures.

The biggest net currency positions of the planned cash flows are in CNY, USD, GBP, and MXN.

Hedging largely takes the form of forward exchange contracts; currency options and currency swaps are used to a lesser extent. These transactions, which are only entered into with banks, are subject to minimum requirements with respect to nature and scope.

The risk attaching to material foreign currency items from operations is determined using the cash-flow-at-risk concept. These risk analyses and the hedge result are determined monthly and also presented to the member of the board of management responsible in the foreign-exchange and investment committee meetings.

To present the currency risks for the most important foreign currencies of the Bosch Group in accordance with IFRS 7 *Financial Instruments: Disclosures*, all monetary assets and monetary liabilities denominated in foreign currency for all consolidated companies were analyzed as of the reporting date and sensitivity analyses carried out for the respective currency pairs, in terms of the net risk.

A change in the EUR of 10 percent (taking the closing rate as the baseline) against the foreign currencies listed in the table would have the following effects on the profit before tax:

T71

in millions of euros

| | 10% increase in EUR | | 10% decrease in EUR | |
|---|---|---|---|---|
| | **2023** | 2022 | **2023** | 2022 |
| AUD | 2 | 0 | –2 | 0 |
| BRL | –4 | –6 | 4 | 6 |
| CAD | 9 | 5 | –9 | –5 |
| CHF | 2 | 2 | –2 | –2 |
| CNY | 27 | –23 | –27 | 23 |
| CZK | –54 | –16 | 54 | 16 |
| GBP | 39 | 33 | –39 | –33 |
| HUF | –22 | –24 | 22 | 24 |
| INR | –7 | –12 | 7 | 12 |
| JPY | –33 | –22 | 33 | 22 |
| KRW | –2 | 2 | 2 | –2 |
| MXN | –26 | –9 | 26 | 9 |
| PLN | –19 | –5 | 19 | 5 |
| TRY | –15 | –1 | 15 | 1 |
| USD | –89 | –69 | 89 | 69 |

A change in the USD of 10 percent (taking the closing rate as the baseline) against the foreign currencies listed in the table would have the following effects on the profit before tax:

T72

in millions of euros

| | 10% increase in USD | | 10% decrease in USD | |
|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 |
| CNY | –19 | –8 | 19 | 8 |

For the most part, the effects on the reported profit or loss result from foreign currency positions relating to operations as well as from loans within the Bosch Group if, by way of an exception, the loan was granted in a currency other than the local currency of the borrower – for example, because it can be repaid from expected cash flows in this currency. The currency risk presented in financial reporting deviates from the purely economic currency risk, as the latter is determined on the basis of forecast cash flows from operations.

## Interest-rate risks

Risks from changes in interest rates on investments and borrowings are limited by select use of derivative financial instruments. These are mainly interest rate swaps and interest rate futures.

An analysis of the interest-rate risk was carried out in accordance with IFRS 7. The sensitivity analysis considered assets and liabilities subject to floating interest rates, fixed-rate securities, pension and money market funds, as well as interest derivatives.

A change in the market interest rate by 100 basis points (taking the interest rate on the reporting date as the baseline) would have the following effect on the gains/losses on financial instruments recognized in equity and the profit before tax:

T73

in millions of euros

| | Increase in market interest level by 100 basis points | | Decrease in market interest level by 100 basis points | |
|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 |
| Reserve from financial instruments | –223 | –220 | 223 | 220 |
| Profit before tax | –60 | –8 | 60 | 8 |

## Share-price risks

The Bosch Group holds stock as part of its financial investments used to cover non-current pension obligations. It also holds investments in publicly quoted companies. The analysis of the share-price risk in accordance with IFRS 7 took into account share portfolios, quoted investments, equity funds, and share derivatives with a total carrying amount of EUR 5,028 million (previous year: EUR 4,854 million).

A change in the share price of 10 percent (taking the share price on the reporting date as the baseline) would have the following effect on the gains/losses on financial instruments recognized in equity and the profit before tax:

T74

in millions of euros

| | 10% increase in share price | | 10% decrease in share price | |
|---|---|---|---|---|
| | **2023** | 2022 | **2023** | 2022 |
| Reserve from financial instruments | 378 | 353 | –378 | –353 |
| Profit before tax | 130 | 132 | –130 | –132 |

To reduce share-price risks, a broadly diversified investment strategy is pursued across various regions and sectors.

## Other price risks

Derivatives are used to limit the risks of fluctuating commodity prices. The analysis of the commodity-price risk in accordance with IFRS 7 took into account commodity derivatives measured as of the reporting date.

A change in the forward-rate level of 10 percent (taking the forward rate on the reporting date as the baseline) would have the following effect on the profit before tax:

T75

in millions of euros

| | 10% increase in forward rates | | 10% decrease in forward rates | |
|---|---|---|---|---|
| | **2023** | 2022 | **2023** | 2022 |
| Profit before tax | 62 | 39 | –62 | –39 |

As of the reporting date, the Bosch Group is not aware that it is exposed to any further significant other price risks as defined by IFRS 7.

The Bosch Group holds several physical power purchase agreements (PPAs) with terms of up to 16 years, under which electricity is purchased at a fixed price for its own use, as well as the associated green electricity certificates. The physical PPAs are therefore subject to the own-use exception and are for the most part not accounted for as derivatives in accordance with IFRS 9. The physical PPAs contain additional clauses to an insignificant extent. In these cases, the PPA is accounted for as a derivative in accordance with IFRS 9.

### Credit risks

The maximum credit risk for each category of financial instruments is the carrying amount of the financial assets recognized in the statement of financial position.

The credit risk from customer receivables is recorded and monitored on an ongoing basis. Responsibilities and duties relating to credit risks are governed by an internal directive. This mainly concerns the stipulation of payment terms, fixing of credit limits, release of deliveries, and receivables monitoring.

The credit risk for trade receivables is reduced by processing invoices with the corresponding credit notes in a single work step; the net amount is reported in the statement of financial position. This procedure is only performed if there is a legal right to offset and the customer intends to settle the receivable on a net basis or to settle the receivable by offsetting against the corresponding liability. Moreover, trade receivables are partly secured by retention of title. For some trade receivables, collateral has been additionally provided in the form of guarantees, property liens, and mortgages.

The table below shows the remaining credit risk for trade receivables:

T76

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Trade receivables (before offsetting of credit notes) | 17,865 | 17,410 |
| Offsetting of credit notes | –784 | –882 |
| Trade receivables (carrying amount) | 17,081 | 16,528 |
| Financial guarantee contracts (received) | –2,203 | –2,039 |
| **Remaining credit risk** | **14,878** | **14,489** |

The following table presents the development of loss allowances on trade receivables (credit-impaired and not credit-impaired) as well as on loan receivables and sundry other financial assets (according to the three-stage approach to impairment) for the reporting year and the previous year:

T77

in millions of euros

| | Trade receivables | Loan receivables and sundry other financial assets | |
|---|---|---|---|
| | | Stage 1 | Stage 2/3 |
| **1/1/2022** | **250** | **6** | **108** |
| Changes in consolidated group | 0 | 0 | 0 |
| Amounts added | 79 | 1 | 9 |
| Amounts utilized | –20 | 0 | 0 |
| Amounts reversed | –13 | –2 | –5 |
| Exchange-rate differences | –6 | 0 | 0 |
| **12/31/2022** | **290** | **5** | **112** |
| Changes in consolidated group | –4 | 0 | 0 |
| Amounts added | 94 | 1 | 13 |
| Amounts utilized | –25 | 0 | 0 |
| Amounts reversed | –76 | –2 | –1 |
| Exchange-rate differences | –19 | 0 | 0 |
| **12/31/2023** | **260** | **4** | **124** |

As of December 31 of the reporting year, loss allowances on contract assets amount to EUR 11 million (previous year: EUR 16 million) and loss allowances on finance lease receivables amount to EUR 2 million (previous year: EUR 2 million).

The following table shows the gross carrying amounts of trade receivables:

T78

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Trade receivables | 17,341 | 16,818 |
| of which not exposed to default risk | 5,520 | 5,123 |
| of which credit-impaired | 317 | 293 |
| of which not credit-impaired | 11,504 | 11,402 |
| not due | 10,411 | 10,096 |
| up to 30 days past due | 668 | 812 |
| 31–90 days past due | 214 | 271 |
| 91–180 days past due | 98 | 105 |
| more than 180 days past due | 113 | 118 |

The development of loss allowances on securities measured at fair value through other comprehensive income is presented in the following table:

T79

in millions of euros

| | Stage 1 | Stage 2/3 |
|---|---|---|
| **1/1/2022** | **13** | **30** |
| Changes in consolidated group | 0 | 0 |
| Additions | 9 | 57 |
| Amounts utilized | | 0 |
| Amounts reversed | –17 | –31 |
| Reclassifications | 7 | –7 |
| Exchange-rate differences | 0 | 0 |
| **12/31/2022** | **12** | **49** |
| Changes in consolidated group | 0 | 0 |
| Additions | 11 | 40 |
| Amounts utilized | 0 | 0 |
| Amounts reversed | –14 | –46 |
| Reclassifications | 2 | –2 |
| Exchange-rate differences | 0 | 0 |
| **12/31/2023** | **11** | **41** |

Derivative transactions are entered into in accordance with either the German master agreement for financial forward transactions or the ISDA (International Swaps and Derivatives Association). These do not satisfy the set-off criteria of IAS 32 as netting is only enforceable in the case of insolvency.

The credit risk for derivatives with a positive fair value that do not currently satisfy the set-off criteria of IAS 32 (offsetting only enforceable in the case of insolvency of the contracting party) is presented in the following table:

T80

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Derivatives with a positive fair value | 173 | 318 |
| Amounts not offset in the statement of financial position | | |
| Derivatives | –106 | –82 |
| Cash collateral received | –54 | –77 |
| **Remaining credit risk** | **13** | **159** |

## Liquidity risks

Changes in financial assets and liabilities are monitored on an ongoing basis. Internal directives regulate the duties and responsibilities of liquidity management and planning. The company has liquidity reserves in the form of highly liquid assets totaling EUR 11,302 million (previous year: EUR 8,824 million). There is a syndicated credit line with an ESG component totaling EUR 5 billion, the term of which was extended by one year to 2026. Furthermore, there are bilateral U.S. loan facilities with a volume of USD 950 million. These facilities have not been drawn. In 2023, new bonds totaling EUR 4.5 billion were issued, as were U.S. private placements totaling USD 1.2 billion. Furthermore, we repaid EUR 500 million of a schuldschein loan. In the reporting year, we issued up to USD 650 million under our revolving USD 2.0 billion commercial paper program. In addition, we took out a syndicated loan facility in the U.S. totaling USD 1.2 billion. The loan was repaid early from the proceeds of the U.S. private placements.

The liquidity risk is reduced by processing invoices for trade payables with the corresponding credit notes received in a single work step. This procedure is only performed if there is a legal right to offset and there is an intention to settle the liability on a net basis or to settle the liability by offsetting against the corresponding receivable. Moreover, collateral is provided in the form of guarantees.

The table below shows the remaining liquidity risk for trade payables:

**T81**

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Trade payables (before offsetting of credit notes) | 12,989 | 11,643 |
| Offsetting of credit notes | –784 | –882 |
| Trade payables (carrying amount) | 12,205 | 10,761 |
| Financial guarantee contracts (issued) | –6 | –8 |
| **Remaining liquidity risk** | **12,199** | **10,753** |

The liquidity risk for derivatives that do not currently satisfy the set-off criteria of IAS 32 (offsetting only enforceable in the case of insolvency) is presented in the following table:

**T82**

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Derivatives with a negative fair value | 334 | 188 |
| Amounts not offset in the statement of financial position | | |
| Derivatives | –106 | –82 |
| Cash collateral provided | | –1 |
| **Remaining liquidity risk** | **228** | **105** |

The undiscounted cash outflows of the non-derivative and derivative financial liabilities are presented in the tables below:

T83

in millions of euros

| | Carrying amount | Undiscounted cash flows | | | | | |
|---|---|---|---|---|---|---|---|
| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 et seq. |
| **Non-derivative financial liabilities** | | | | | | | |
| Trade payables | 12,205 | 12,149 | | | | 64 | |
| Bonds | 7,546 | 1,045 | 282 | 282 | 1,032 | 1,005 | 7,100 |
| Schuldschein loans, registered bonds | 3,199 | 100 | 651 | 877 | 713 | 40 | 1,348 |
| Liabilities to banks | 312 | 198 | 92 | 26 | 0 | 0 | 3 |
| Commercial papers | 588 | 588 | | | | | |
| Lease liabilities | 2,351 | 632 | 536 | 397 | 307 | 212 | 670 |
| Loans | 109 | 77 | 16 | 8 | 4 | 3 | 5 |
| Other financial liabilities | 1,083 | 863 | 25 | 64 | 24 | 1 | 110 |
| | | | | | | | |
| **Derivatives** | | | | | | | |
| Gross settlement | 269 | | | | | | |
| Cash outflows | | 10,375 | 604 | 48 | 37 | | |
| Cash inflows | | 10,114 | 596 | 47 | 37 | | |
| Net settlement | 65 | | | | | | |
| Cash outflows | | 43 | 7 | 1 | 1 | 2 | 11 |

T84

in millions of euros

| | Carrying amount | Undiscounted cash flows | | | | | |
|---|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 et seq. |
| **Non-derivative financial liabilities** | | | | | | | |
| Trade payables | 10,761 | 10,761 | | | | | |
| Bonds | 1,992 | 48 | 798 | 35 | 35 | 35 | 1,387 |
| Schuldschein loans, registered bonds | 3,698 | 581 | 78 | 629 | 863 | 698 | 1,370 |
| Liabilities to banks | 403 | 337 | 1 | 73 | 0 | 0 | 4 |
| Commercial papers | 328 | 328 | | | | | |
| Lease liabilities | 2,167 | 583 | 482 | 342 | 260 | 206 | 599 |
| Loans | 151 | 102 | 27 | 8 | 8 | 4 | 6 |
| Other financial liabilities | 907 | 771 | 31 | 10 | 1 | 1 | 94 |
| | | | | | | | |
| **Derivatives** | | | | | | | |
| Gross settlement | 145 | | | | | | |
| Cash outflows | | 5,271 | 22 | | | 10 | |
| Cash inflows | | 5,127 | 21 | | | 10 | |
| Net settlement | 43 | | | | | | |
| Cash outflows | | 38 | 3 | | | 2 | |

The undiscounted cash outflows contain interest and principal payments. All on-call financial liabilities are allocated to the earliest possible period. Variable interest payments were calculated using the most recent interest rate determined before the respective reporting date.

## 32 — Leases

Contracts that convey the right to control the use of an identifiable asset for a period of time in exchange for consideration are accounted for as leases in accordance with IFRS 16.

### Bosch as lessee

The lessee generally recognizes leases based on the right-of-use approach. With certain exceptions, this requires recognizing right-of-use assets and liabilities for the payment obligations under the lease in the statement of financial position. These accounting requirements are not applied to short-term leases and leases of low-value assets; lease payments under such leases are recognized in functional costs on a straight-line basis over the lease term. In addition, the requirements of IFRS 16 are not applied to leases of intangible assets.

Lease liabilities are measured at the present value of the lease payments over the lease term. Lease payments include fixed payments for lease components and non-lease components as well as variable lease payments based on an index or an interest rate. The payments are generally discounted using the incremental borrowing rate for the appropriate currency and lease term. In determining the lease term, termination and extension options are considered if it is reasonably certain that they will be exercised.

At the commencement date, right-of-use assets are recognized at the amount of the lease liability, plus initial direct costs and less any lease incentives received. Right-of-use assets are typically depreciated over the lease term, with depreciation recognized in functional costs.

As lessees, entities of the Bosch Group have entered into leases mainly for land and buildings and, to a lesser extent, vehicles, plant and equipment, and other equipment, fixtures, and furniture.

The right-of-use assets recognized in the statement of financial position and the corresponding depreciation charge are as follows:

T85

in millions of euros

| | 2023 | | 2022 | |
|---|---|---|---|---|
| | Carrying amount | Depreciation | Carrying amount | Depreciation |
| Land and building | 1,821 | 436 | 1,696 | 435 |
| Plant, fixtures, and furniture | 186 | 60 | 162 | 40 |
| Vehicles | 269 | 149 | 210 | 134 |
| | **2,276** | **645** | **2,068** | **609** |

In the previous year, depreciation includes impairment losses of EUR 24 million relating to right-of-use assets of the BSH Hausgeräte division's Russian subsidiary (Consumer Goods business sector). The impairment losses were recognized on account of the applicable sanctions and the associated changes in the economic and legal environment.

Additions to right-of-use assets came to EUR 882 million in the reporting year (previous year: EUR 856 million).

The following amounts were additionally recognized in the income statement:

T86

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Interest expenses relating to lease liabilities | 89 | 59 |
| Expenses relating to short-term leases | 175 | 132 |
| Expenses relating to leases of low-value assets | 87 | 86 |
| Expenses for variable lease payments | 25 | 26 |

Cash outflows from leases totaled EUR 964 million in the reporting year (previous year: EUR 893 million). The maturity analysis of future lease payments is contained in the section on liquidity risks in note 31 “Capital and risk management.”

## Bosch as lessor

Lessors are required to classify a lease as either a finance lease or an operating lease.

Finance leases transfer substantially all the risks and rewards incidental to ownership to the lessee. For such leases, a receivable is recognized at the amount of the net investment in the lease and disclosed under financial assets.

The receivables from finance lease agreements mainly stem from products leased by the Building Technologies division. As a rule, the agreed lease term is ten years. The receivables are due as follows:

T 87

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| **Gross investment in finance leases, not discounted** | | |
| due no later than one year | 42 | 42 |
| due later than one year and no later than two years | 36 | 36 |
| due later than two years and no later than three years | 30 | 30 |
| due later than three years and no later than four years | 26 | 26 |
| due later than four years and no later than five years | 22 | 21 |
| due later than five years | 46 | 49 |
| | **202** | **204** |
| **Present value of outstanding minimum lease payments** | | |
| due no later than one year | 37 | 36 |
| due later than one year and no later than two years | 33 | 32 |
| due later than two years and no later than three years | 27 | 27 |
| due later than three years and no later than four years | 24 | 23 |
| due later than four years and no later than five years | 20 | 20 |
| due later than five years | 44 | 46 |
| | **185** | **184** |
| **Unearned finance income** | **17** | **20** |

In relation to finance leases, finance income in the reporting year came to EUR 6 million (previous year: EUR 6 million) and losses on disposal amounted to EUR 3 million (previous year: EUR 4 million). There were no unguaranteed residual values.

Under operating leases, the lessor retains substantially all the risks and rewards incidental to ownership. The assets concerned are recognized in property, plant, and equipment and, unless recognized as sales revenue, the lease payments received are recorded in other operating income.

The outstanding undiscounted minimum lease payments from operating lease agreements with entities of the Bosch Group as lessors stem mainly from activities of the Building Technologies and BSH Hausgeräte GmbH divisions. They are due as follows in the reporting year:

T88

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Within one year | 51 | 41 |
| Later than one year and no later than two years | 9 | 5 |
| Later than two years and no later than three years | 3 | 3 |
| Later than three years and no later than four years | 2 | 2 |
| Later than four years and no later than five years | 2 | 1 |
| Later than five years | 2 | 2 |
| | **69** | **54** |

In the reporting year, income from operating leases came to EUR 57 million (previous year: EUR 51 million).

## 33 — Related party disclosures

As shareholder, Robert Bosch Industrietreuhand KG exercises the majority of voting rights at Robert Bosch GmbH. In addition, Robert Bosch Industrietreuhand KG is responsible for the internal audit of the Bosch Group. The related costs incurred of EUR 21 million (previous year: EUR 20 million) were borne by Robert Bosch GmbH. As in the previous year, there were only immaterial other transactions and outstanding balances as of the reporting date.

A part of the pension obligations and funds has been outsourced to Bosch Pensionsfonds AG. Robert Bosch GmbH is the sole shareholder of Bosch Pensionsfonds AG. In the fiscal year, contributions were made to the plan assets of Bosch Pensionsfonds AG to finance pension obligations. For further details, see note 26 “Provisions for pensions and similar obligations.”

Robert Bosch Stiftung GmbH, Stuttgart, is the lessee of several properties belonging to Robert Bosch GmbH, Stuttgart. As of the reporting date, Robert Bosch GmbH has a liability of EUR 47 million (previous year: EUR 33 million) to Robert Bosch Stiftung GmbH.

## Business transactions with related entities

Related entities of the Bosch Group include the joint ventures, associated entities, and the entities in which non-controlling interests are held (investees) as well as entities not consolidated on materiality grounds. Transactions with these entities are presented in the following table:

T89

in millions of euros

| | Goods and services sold | | Goods and services purchased | | Receivables | | Liabilities | |
|---|---|---|---|---|---|---|---|---|
| | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 |
| Joint ventures | 83 | 84 | 24 | 1 | 10 | 10 | 19 | 23 |
| Associated entities and investees | 55 | 116 | 20 | 76 | 25 | 8 | 102 | 60 |

The following business relationships existed with entities not consolidated on materiality grounds in the reporting year:

- Goods and services sold: EUR 113 million
- Goods and services purchased: EUR 207 million
- Receivables: EUR 209 million
- Liabilities: EUR 86 million

All transactions with related parties were at arm’s length.

## Total remuneration of key management personnel

The key management personnel are the general partners of Robert Bosch Industrietreuhand KG and any limited partners who are concurrently members of the board of management of Robert Bosch GmbH, as well as the members of the supervisory board and the members of the board of management of Robert Bosch GmbH.

Total remuneration of key management personnel breaks down as follows:

T90

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Short-term benefits | 24 | 24 |
| Post-employment benefits | 13 | 37 |
| Other long-term benefits | 6 | 6 |
| Termination benefits | 2 | 0 |

For obligations from pensions and deferred compensation, provisions totaling EUR 77 million (previous year: EUR 59 million) have been recognized.

Share-based payments are not made.

Beyond this, the companies of the Bosch Group have not conducted any reportable transactions with key management personnel.

## 34 — Remuneration of members of the board of management and supervisory board

The total remuneration of the members of the board of management comes to EUR 27 million in fiscal year 2023 (previous year: EUR 25 million), and that of the former members of the board of management and their dependants to EUR 22 million (previous year: EUR 26 million). An amount of EUR 275 million (previous year: EUR 274 million) has been accrued for pension obligations to former members of the board of management and their surviving dependants.

The remuneration of the members of the supervisory board comes to approximately EUR 2 million.

## 35 — Auditor's fees

The fees of the group auditor for audit and advisory services in Germany amount to:

T91

in millions of euros

| | 2023 | 2022 |
|---|---|---|
| Fees for | | |
| Audit services | 8 | 7 |
| Other assurance services | 1 | 0 |
| Tax advisory services | 1 | 1 |
| Other services | 6 | 7 |

# List of shareholdings of the Bosch Group

as of December 31, 2023

## A. Subsidiaries

### 1. Fully consolidated entities

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Germany** | AJNS New Media GmbH | Berlin | **100.0** |
| | AS Abwicklung Dritte Produktion GmbH i.L. | Stuttgart | **100.0** |
| | AS Abwicklung und Solar-Service GmbH | Stuttgart | **100.0**[1] |
| | AS Guss Beteiligungsgesellschaft mbH | Stuttgart | **100.0** |
| | Bosch Access Systems GmbH | Aachen | **100.0**[1] |
| | Bosch Automotive Service Solutions GmbH | Pollenfeld-Preith | **100.0**[1] |
| | Bosch Building Automation GmbH | Verl | **100.0**[1] |
| | Bosch Charging Solutions GmbH | Stuttgart | **100.0**[1] |
| | Bosch Energy and Building Solutions GmbH | Ditzingen | **100.0**[1] |
| | Bosch Engineering GmbH | Abstatt | **100.0**[1] |
| | Bosch Global Software Technologies GmbH | Stuttgart | **100.0**[1] |
| | Bosch Healthcare Solutions GmbH | Waiblingen | **100.0**[1] |
| | Bosch Hilfe GmbH | Stuttgart | **100.0** |
| | Bosch Industriekessel GmbH | Gunzenhausen | **100.0**[1] |
| | Bosch KWK Systeme GmbH | Lollar | **100.0**[1] |
| | Bosch Mobility Platform & Solutions GmbH | Gerlingen | **100.0**[1] |
| | Bosch Pensionsgesellschaft mbH | Stuttgart | **100.0**[1] |
| | Bosch Rexroth AG | Stuttgart | **100.0**[1,2] |
| | Bosch Rexroth Vermögensverwaltung GmbH i.L. | Lohr am Main | **100.0**[1] |
| | Bosch Sensortec GmbH | Kusterdingen | **100.0**[1] |
| | Bosch Service Solutions GmbH | Stuttgart | **100.0**[1] |
| | Bosch Service Solutions Leipzig GmbH | Leipzig | **100.0**[1] |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | Bosch Service Solutions Magdeburg GmbH | Magdeburg | 100.0[1] |
| | Bosch Sicherheitssysteme Engineering GmbH | Nuremberg | 100.0[1] |
| | Bosch Sicherheitssysteme GmbH | Stuttgart | 100.0[1,2] |
| | Bosch Sicherheitssysteme Montage und Service GmbH | Amt Wachsenburg | 100.0[1] |
| | Bosch Solar Services GmbH | Arnstadt | 100.0[1,2] |
| | Bosch Solar Thin Film GmbH | Arnstadt | 100.0[1] |
| | Bosch Solarthermie GmbH | Wettringen | 100.0[1] |
| | Bosch Technology Licensing Administration GmbH | Gerlingen | 100.0[1] |
| | Bosch Telecom Holding GmbH | Stuttgart | 100.0[1,2] |
| | Bosch Thermotechnik GmbH | Wetzlar | 100.0[1,2] |
| | Bosch Wohnungsverwaltungsgesellschaft mbH & Co. KG | Stuttgart | 100.0[3] |
| | Bosch.IO GmbH | Berlin | 100.0[1] |
| | BSH Hausgeräte GmbH | Munich | 100.0[1,2] |
| | BSH Hausgeräte Service GmbH | Munich | 100.0[1] |
| | BSH Hausgeräte Service Nauen GmbH | Nauen | 100.0[1] |
| | BSH Hausgerätewerk Nauen GmbH | Nauen | 100.0[1] |
| | BSH Vermögensverwaltungs-GmbH | Munich | 100.0[1] |
| | Buderus Guss GmbH | Breidenbach | 100.0[1] |
| | COBI.Bike GmbH | Frankfurt am Main | 100.0[1] |
| | Constructa-Neff Vertriebs-GmbH | Munich | 100.0 |
| | DAA GmbH | Hamburg | 100.0[1] |
| | eesy-ic GmbH | Erlangen | 100.0 |
| | ELPRO Messtechnik GmbH | Schorndorf | 100.0[1] |
| | ETAS GmbH | Stuttgart | 100.0[1,2] |
| | EVI Audio GmbH | Straubing | 100.0[1] |
| | Gaggenau Hausgeräte GmbH | Munich | 100.0[1] |
| | grow platform GmbH | Stuttgart | 100.0[1] |
| | Holger Christiansen Deutschland GmbH | Wilnsdorf | 100.0[1] |
| | Hörburger GmbH | Waltenhofen | 100.0[1] |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | ITK Engineering GmbH | Rülzheim | **100.0** |
| | ITK Holding GmbH | Rülzheim | **100.0**[1] |
| | Moehwald GmbH | Homburg | **100.0**[1] |
| | Neff GmbH | Munich | **100.0**[1] |
| | Pollux Solar-Service GmbH | Arnstadt | **100.0** |
| | Residential IoT Services GmbH | Stuttgart | **100.0**[1] |
| | Robert Bosch Automotive Steering GmbH | Schwäbisch Gmünd | **100.0**[1, 2] |
| | Robert Bosch Elektronik GmbH | Salzgitter | **100.0**[1] |
| | Robert Bosch Fahrzeugelektrik Eisenach GmbH | Eisenach | **100.0**[1] |
| | Robert Bosch Hausgeräte GmbH | Munich | **100.0**[1] |
| | Robert Bosch Lollar Guss GmbH | Lollar | **100.0**[1] |
| | Robert Bosch Manufacturing Solutions GmbH | Stuttgart | **100.0**[1, 2] |
| | Robert Bosch Power Tools GmbH | Leinfelden-Echterdingen | **100.0**[1] |
| | Robert Bosch Risk and Insurance Management GmbH | Stuttgart | **100.0**[1] |
| | Robert Bosch Sechste Vermögensverwaltungsgesellschaft mbH | Gerlingen | **100.0**[1] |
| | Robert Bosch Semiconductor Manufacturing Dresden GmbH | Dresden | **100.0**[1] |
| | Robert Bosch Smart Home GmbH | Stuttgart | **100.0**[1] |
| | Robert Bosch Steering Columns GmbH | Stuttgart | **100.0**[1] |
| | Robert Bosch Venture Capital GmbH | Gerlingen | **100.0**[1] |
| | Robert Bosch Wohnungsgesellschaft mbH | Stuttgart | **100.0**[1] |
| | Security and Safety Things GmbH | Munich | **100.0** |
| | SEG Hausgeräte GmbH | Munich | **100.0**[1] |
| | susteco solutions GmbH | Berlin | **100.0** |
| | WeWash GmbH | Munich | **100.0**[1] |
| | WOGE Service- und Regiebetrieb GmbH | Stuttgart | **100.0**[1] |

1. These companies make use of the exemption provided for in Sec. 264 (3) HGB.
2. These companies make use of the exemption provided for in Sec. 291 (2) HGB.
3. This company makes use of the exemption provided for in Sec. 264b HGB.

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Europe** | | | |
| **Austria** | Bosch General Aviation Technology GmbH | Vienna | **100.0** |
| | Bosch Industriekessel Austria GmbH | Bischofshofen | **100.0** |
| | Bosch Rexroth GmbH | Pasching | **100.0** |
| | BSH Finance and Holding GmbH | Vienna | **100.0** |
| | BSH Hausgeräte Gesellschaft mbH | Vienna | **100.0** |
| | Robert Bosch AG | Vienna | **100.0** |
| | Robert Bosch Holding Austria GmbH | Vienna | **100.0** |
| | | | |
| **Belgium** | Bosch Rexroth N.V. | Anderlecht | **100.0** |
| | Bosch Thermotechnology N.V. / S.A. | Mechelen | **100.0** |
| | BSH Home Appliances S.A. | Brussels | **100.0** |
| | Robert Bosch Produktie N.V. | Tienen | **100.0** |
| | Robert Bosch S.A. | Anderlecht | **100.0** |
| | sia Abrasives Belgium N.V. / S.A. | Mollem | **100.0** |
| | The KOBI Company B.V. | Leuven | **100.0** |
| | | | |
| **Bulgaria** | Bosch Digital EOOD | Sofia | **100.0** |
| | BSH Domakinski Uredi Bulgaria EOOD | Sofia | **100.0** |
| | | | |
| **Croatia** | BSH kućanski uređaji d.o.o. | Zagreb | **100.0** |
| | | | |
| **Czech Republic** | Bosch Powertrain s.r.o. | Jihlava | **100.0** |
| | Bosch Rexroth spol.s.r.o. | Brno | **100.0** |
| | Bosch Thermotechnika s.r.o. | Prague | **100.0** |
| | BSH domácí spotřebiče s.r.o. | Prague | **100.0** |
| | Robert Bosch odbytova s.r.o. | Prague | **100.0** |
| | Robert Bosch, spol.s.r.o. | České Budějovice | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Denmark** | Bosch Rexroth A/S | Hvidovre | **100.0** |
| | BSH Hvidevarer A/S | Ballerup | **100.0** |
| | ELPRO NORDIC ApS | Roskilde | **100.0** |
| | Holger Christiansen A/S | Esbjerg | **100.0** |
| | Kassow Robots ApS | Copenhagen | **100.0** |
| | Robert Bosch A/S | Ballerup | **100.0** |
| | | | |
| **Finland** | Bosch Rexroth Oy | Vantaa | **100.0** |
| | BSH Kodinkoneet Oy | Helsinki | **100.0** |
| | Robert Bosch Oy | Vantaa | **100.0** |
| | | | |
| **France** | Bosch Automotive Service Solutions S.A.S. | Saint-Ouen | **100.0** |
| | Bosch Rexroth DSI S.A.S. | Vénissieux | **100.0** |
| | Bosch Rexroth S.A.S. | Vénissieux | **100.0** |
| | Bosch Security Systems France S.A.S. | Drancy | **100.0** |
| | BSH Electroménager S.A.S. | Saint-Ouen | **100.0** |
| | e.l.m. leblanc S.A.S. | Drancy | **100.0** |
| | ETAS S.A.S. | Saint-Ouen | **100.0** |
| | Gaggenau Industrie S.A.S. | Lipsheim | **100.0** |
| | Holger Christiansen France S.A.S. | Olivet | **100.0** |
| | Robert Bosch (France) S.A.S. | Saint-Ouen | **100.0** |
| | Robert Bosch Automotive Steering Marignier S.A.S. | Marignier | **100.0** |
| | Robert Bosch Automotive Steering Vendôme S.A.S. | Vendôme | **100.0** |
| | | | |
| **Greece** | BSH Ikiakes Syskeves A.B.E. | Athens | **100.0** |
| | Robert Bosch S.A. | Koropi (Athens) | **100.0** |
| | | | |
| **Hungary** | Automotive Steering Column Kft. | Eger | **100.0** |
| | Bosch Rexroth Kft. | Budapest | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | BSH Háztartási Készülék Kereskedelmi Kft. | Budapest | **100.0** |
| | ELPRO Systems Kft. | Budapest | **100.0** |
| | Robert Bosch Automotive Steering Kft. | Maklár | **100.0** |
| | Robert Bosch Elektronika Gyártó Kft. | Hatvan | **100.0** |
| | Robert Bosch Energy and Body Systems Kft. | Miskolc | **100.0** |
| | Robert Bosch Kft. | Budapest | **100.0** |
| | Robert Bosch Power Tool Elektromos Szerszámgyártó Kft. | Miskolc | **100.0** |
| | | | |
| **Ireland** | Robert Bosch Ireland Ltd. | Dublin | **100.0** |
| | | | |
| **Italy** | ARESI S.p.A. | Brembate | **100.0** |
| | Bosch Automotive Service Solutions S.r.l. | Parma | **100.0** |
| | Bosch Rexroth Oil Control S.p.A. | Milan | **100.0** |
| | Bosch Rexroth S.p.A. | Cernusco | **100.0** |
| | Bosch Security Systems S.p.A. | Milan | **100.0** |
| | BSH Elettrodomestici S.p.A. | Milan | **100.0** |
| | Centro Studi Componenti per Veicoli S.p.A. | Modugno (Bari) | **100.0** |
| | EDiM S.p.A. | Villasanta | **100.0** |
| | Freud S.p.A. | Milan | **100.0** |
| | Holger Christiansen Italia S.r.l. | San Lazzaro di Savena | **100.0** |
| | ROBERT BOSCH S.p.A. Società Unipersonale | Milan | **100.0** |
| | Tecnologie Diesel S.p.A. Società Unipersonale | Modugno (Bari) | **100.0** |
| | | | |
| **Kazakhstan** | BSH Home Appliances LLP | Almaty | **100.0** |
| | TOO Robert Bosch | Almaty | **100.0** |
| | | | |
| **Latvia** | Robert Bosch SIA | Riga | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Luxembourg** | BSH électroménagers S.A. | Senningerberg | **100.0** |
| | Ferroknepper Buderus S.A. | Esch-sur-Alzette | **100.0** |
| | | | |
| **Netherlands** | Bosch Energy and Building Solutions B.V. | Nieuwegein | **100.0** |
| | Bosch Power Tools B.V. | Breda | **100.0** |
| | Bosch Rexroth B.V. | Boxtel | **100.0** |
| | Bosch Security Systems B.V. | Eindhoven | **100.0** |
| | Bosch Thermotechniek B.V. | Deventer | **100.0** |
| | Bosch Transmission Technology B.V. | Tilburg | **100.0** |
| | BSH Huishoudapparaten B.V. | Amsterdam | **100.0** |
| | Digicontrol Benelux B.V. | Apeldoorn | **100.0** |
| | ELPRO Benelux B.V. | s'-Hertogenbosch | **100.0** |
| | Hacousto Holland B.V. | Berkel en Rodenrijs | **100.0** |
| | ItoM Services B.V. | Eindhoven | **100.0** |
| | Nefit Vastgoed B.V. | Deventer | **100.0** |
| | Robert Bosch Asset Managing C.V. | Boxtel | **100.0** |
| | Robert Bosch B.V. | Boxtel | **100.0** |
| | Robert Bosch Finance Nederland B.V. | Boxtel | **100.0** |
| | Robert Bosch Holding Nederland B.V. | Boxtel | **100.0** |
| | Robert Bosch Investment Nederland B.V. | Boxtel | **100.0** |
| | | | |
| **Norway** | Bosch Rexroth AS | Ski | **100.0** |
| | BSH Husholdningsapparater AS | Oslo | **100.0** |
| | Robert Bosch AS | Trollåsen | **100.0** |
| | | | |
| **Poland** | Bosch Rexroth Sp. z o.o. | Warsaw | **100.0** |
| | BSH Sprzet Gospodarstwa Domowego Sp. z o.o. | Warsaw | **100.0** |
| | ROBERT BOSCH Sp. z o.o. | Warsaw | **100.0** |
| | SIA Abrasives Polska Sp. z o.o. | Goleniów | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Portugal** | Bosch Car Multimedia Portugal, S.A. | Braga | **100.0** |
| | Bosch Security Systems, S.A. | Ovar | **100.0** |
| | Bosch Termotecnologia S.A. | Lisbon | **100.0** |
| | BSHP Electrodomésticos, S.U., Lda. | Carnaxide | **100.0** |
| | Robert Bosch, S.A. | Lisbon | **100.0** |
| | | | |
| **Romania** | Bosch Automotive S.R.L. | Blaj | **100.0** |
| | Bosch Global Business Services S.R.L. | Timişoara | **100.0** |
| | Bosch Rexroth Sales S.R.L. | Blaj | **100.0** |
| | Bosch Service Solutions S.R.L. | Timişoara | **100.0** |
| | BSH Electrocasnice S.R.L. | Bucharest | **100.0** |
| | ROBERT BOSCH S.R.L. | Bucharest | **100.0** |
| | S.C. Hörburger s.r.l. | Sibiu | **100.0** |
| | | | |
| **Russian Federation** | OOO “Construction & investments” | Khimki | **100.0** |
| | OOO Bosch Rexroth | Moscow | **100.0** |
| | OOO Bosch Thermotechnik | Moscow | **100.0** |
| | OOO BSH Bytowije Pribory | St. Petersburg | **100.0** |
| | OOO Robert Bosch | Moscow | **100.0** |
| | | | |
| **Serbia** | BSH Kućni Aparati d.o.o. Beograd | Belgrade | **100.0** |
| | Robert Bosch d.o.o. Beograd | Belgrade | **100.0** |
| | | | |
| **Slovakia** | Bosch Electrical Drives SK s.r.o. | Bratislava | **100.0** |
| | BSH Drives and Pumps s.r.o. | Michalovce | **100.0** |
| | Robert Bosch spol.s.r.o. | Bratislava | **100.0** |
| | Robert Bosch Production Slovakia, s.r.o. | Bernolákovo | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Slovenia** | Bosch Rexroth d.o.o. | Brnik – Aerodrom | **100.0** |
| | BSH Hišni Aparati d.o.o. Nazarje | Nazarje | **100.0** |
| **Spain** | Bosch Rexroth, S.L.U. | Madrid | **100.0** |
| | Bosch Service Solutions, S.A.U. | Madrid | **100.0** |
| | BOSCH SISTEMAS DE FRENADO, S.L.U. | Madrid | **100.0** |
| | BSH Electrodomésticos España, S.A. | Zaragoza | **100.0** |
| | ROBERT BOSCH ESPAÑA FÁBRICA ARANJUEZ S.A.U. | Aranjuez | **100.0** |
| | ROBERT BOSCH ESPAÑA FÁBRICA CASTELLET S.A.U. | Castellet | **100.0** |
| | ROBERT BOSCH ESPAÑA FÁBRICA MADRID S.A.U. | Madrid | **100.0** |
| | ROBERT BOSCH ESPAÑA, S.L.U. | Madrid | **100.0** |
| **Sweden** | Bosch Rexroth AB | Stockholm | **100.0** |
| | Bosch Thermoteknik AB | Tranås | **100.0** |
| | BSH Home Appliances AB | Stockholm | **100.0** |
| | Robert Bosch AB | Kista | **100.0** |
| **Switzerland** | Bosch Rexroth Schweiz AG | Buttikon | **100.0** |
| | BSH Hausgeräte AG | Geroldswil | **100.0** |
| | Bosch Thermotechnik AG | Pratteln | **100.0** |
| | ELPRO-BUCHS AG | Buchs | **100.0** |
| | Elpro Group AG | Buchs | **100.0** |
| | Robert Bosch AG | Zuchwil | **100.0** |
| | Robert Bosch Internationale Beteiligungen AG | Oberdorf | **100.0** |
| | Scintilla AG | Zuchwil | **100.0** |
| | sia Abrasives Industries AG | Frauenfeld | **100.0** |
| **Turkey** | Bosch Fren Sistemleri Sanayi ve Ticaret A.S. | Bursa | **84.5** |
| | Bosch Rexroth Otomasyon Sanayi ve Ticaret A.S. | Bursa | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | Bosch Sanayi ve Ticaret A.S. | Bursa | **100.0** |
| | Bosch Termoteknik Isitma ve Klima Sanayi Ticaret A.S. | Manisa | **100.0** |
| | BSH Ev Aletleri Sanayi ve Ticaret A.S. | Istanbul | **100.0** |
| | | | |
| **Ukraine** | MBT Trade T.B.O. | Kyiv | **100.0** |
| | SC “Robert Bosch Production Ukraine” | Krakovets | **100.0** |
| | Robert Bosch Ltd. | Kyiv | **100.0** |
| | TOV BSH Pobutova Technika | Kyiv | **100.0** |
| | Zelmer Ukraine T.B.O. | Kyiv | **100.0** |
| | | | |
| **United Kingdom** | Bosch Automotive Service Solutions Ltd. | Brixworth | **100.0** |
| | Bosch Lawn and Garden Ltd. | Stowmarket | **100.0** |
| | Bosch Rexroth Ltd. | St. Neots | **100.0** |
| | Bosch Service Solutions Ltd. | Denham | **100.0** |
| | Bosch Thermotechnology Ltd. | Worcester | **100.0** |
| | BSH Home Appliances Ltd. | Milton Keynes | **100.0** |
| | ELPRO UK Ltd. | Worthing | **100.0** |
| | ETAS Ltd. | York | **100.0** |
| | Five AI Limited | Cambridge | **100.0** |
| | Gas Alarm Systems Limited | Nelson | **100.0** |
| | HydraForce Hydraulics, Ltd. | Birmingham | **100.0** |
| | Lynteck Limited | Nelson | **100.0** |
| | MoTeC (Europe) Limited | Oxford | **100.0** |
| | Protec Camerfield Limited | Nelson | **100.0** |
| | Protec Fire and Security Group Limited | Nelson | **100.0** |
| | Protec Fire Detection Plc | Nelson | **100.0** |
| | Protec Fire Detection (Export) Limited | Nelson | **100.0** |
| | Robert Bosch Investment Ltd. | Worcester | **100.0** |
| | Robert Bosch Ltd. | Denham | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | Robert Bosch UK Holdings Limited | Denham | **100.0** |
| | sia Abrafoam Ltd. | Alfreton | **100.0** |
| | sia Abrasives (G.B.) Ltd. | Greetland | **100.0** |
| | sia Abrasives Holding Ltd. | Greetland | **100.0** |
| | sia Fibral Ltd. | Greetland | **100.0** |
| | Worcester Group Ltd. | Worcester | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Americas** | | | |
| **Argentina** | Bosch Rexroth S.A.I.C. | Buenos Aires | **100.0** |
| | Robert Bosch Argentina Industrial S.A. | Buenos Aires | **100.0** |
| | | | |
| **Brazil** | Bosch Rexroth Ltda. | Itatiba | **100.0** |
| | Bosch Soluções Integradas Brasil Ltda. | Campinas | **100.0** |
| | Bosch Telecom Ltda. | São Paulo | **100.0** |
| | HydraForce Hydraulics, Ltda. | Taboao da Serra | **100.0** |
| | Robert Bosch Direçáo Automotiva Ltda. | Sorocaba | **100.0** |
| | Robert Bosch Ltda. | Campinas | **100.0** |
| | | | |
| **Canada** | Action Electric Ltd. | Vancouver, BC | **100.0** |
| | Bosch Rexroth Canada Corporation | Welland, ON | **100.0** |
| | BSH Home Appliances Ltd./ Électroménagers BSH Ltée | Mississauga, ON | **100.0** |
| | Freud Canada Inc. | Mississauga, ON | **100.0** |
| | Paladin Technologies Inc. | Vancouver, BC | **100.0** |
| | ROBERT BOSCH INC. | Mississauga, ON | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Chile** | Bosch Rexroth Chile S.p.A. | Santiago de Chile | **100.0** |
| | Robert Bosch S.A. | Santiago de Chile | **100.0** |
| | | | |
| **Colombia** | BSH Electrodomesticos S.A.S. | Bogotá | **100.0** |
| | Robert Bosch Ltda. | Bogotá | **100.0** |
| | | | |
| **Costa Rica** | Robert Bosch Service Solutions – Costa Rica Sociedad Anonima | Heredia | **100.0** |
| | | | |
| **Mexico** | Bosch Rexroth, S.A. de C.V. | Mexico City | **100.0** |
| | BSH Home Appliances S.A. de C.V. | Mexico City | **100.0** |
| | Frenados Mexicanos, S.A. de C.V. | Aguascalientes | **100.0** |
| | Robert Bosch México Sistemas Automotrices, S.A. de C.V. | San Luis Potosí | **100.0** |
| | Robert Bosch México Sistemas de Frenos, S. de R.L. de C.V. | Juárez | **100.0** |
| | Robert Bosch México Sistemas de Seguridad, S.A. de C.V. | Hermosillo | **100.0** |
| | Robert Bosch México, S.A. de C.V. | Mexico City | **100.0** |
| | Robert Bosch Sistemas Automotrices, S.A. de C.V. | Juárez | **100.0** |
| | Robert Bosch Tool de México, S.A. de C.V. | Mexicali | **100.0** |
| | Robert Bosch, S. de R.L. de C.V. | Toluca | **100.0** |
| | SPLT México, S.A. de C.V. | Mexico City | **100.0** |
| | | | |
| **Panama** | Robert Bosch Panama Colón, S.A. | Panama City | **100.0** |
| | | | |
| **Peru** | BSH Electrodomésticos S.A.C. | Callao/Lima | **100.0** |
| | Robert Bosch S.A.C. | Lima | **100.0** |
| | | | |
| **United States** | Automotive Steering Column LLC | Florence, KY | **100.0** |
| | Bosch Automotive Service Solutions LLC | Wilmington, DE | **100.0** |
| | Bosch Automotive Workshop Services LLC | Wilmington, DE | **100.0** |
| | Bosch Aviation Technology LLC | Novi, MI | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | Bosch Brake Components LLC | Oakbrook Terrace, IL | **100.0** |
| | Bosch grow platform LLC | Wilmington, DE | **100.0** |
| | Bosch Mobility Platform & Solutions LLC | Wilmington, DE | **100.0** |
| | Bosch Rexroth Corporation | Lehigh Valley, PA | **100.0** |
| | Bosch Security Systems LLC | Burnsville, MN | **100.0** |
| | Bosch Thermotechnology Corp. | Londonderry, NH | **100.0** |
| | BSH Home Appliances Corporation | Irvine, CA | **100.0** |
| | Climatec, LLC | Phoenix, AZ | **100.0** |
| | Elmo Motion Control Inc. | Nashua, NH | **100.0** |
| | ELPRO Services, Inc. | Marietta, OH | **100.0** |
| | ETAS Inc. | Wilmington, DE | **100.0** |
| | FHP Manufacturing Company | Fort Lauderdale, FL | **57.0** |
| | Freud America Inc. | High Point, NC | **100.0** |
| | HydraForce, Inc. | Lincolnshire, IL | **100.0** |
| | HydraForce China LLC | Lincolnshire, IL | **100.0** |
| | Nimbus Holdings LLC | Wilmington, DE | **100.0** |
| | Paladin Technologies (USA) Inc. | Dover, DE | **100.0** |
| | PalAmerican Technologies Inc. | Tumwater, WA | **100.0** |
| | Robert Bosch Automotive Steering LLC | Florence, KY | **100.0** |
| | Robert Bosch Finance LLC | Mt. Prospect, IL | **100.0** |
| | ROBERT BOSCH FUEL SYSTEMS LLC | Kentwood, MI | **100.0** |
| | Robert Bosch LLC | Farmington Hills, MI | **100.0** |
| | Robert Bosch North America Corporation | Oakbrook Terrace, IL | **100.0** |
| | Robert Bosch Semiconductor LLC | Wilmington, DE | **100.0** |
| | Robert Bosch Tool Corporation | Mt. Prospect, IL | **100.0** |
| | Service Maintenance Installation, Inc. | Burnsville, MN | **100.0** |
| | sia Abrasives, Inc. USA | Raleigh, NC | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Asia Pacific (including other countries)** | | | |
| **Australia** | Bosch Automotive Service Solutions Pty. Ltd. | Clayton | **100.0** |
| | Bosch Rexroth Pty. Ltd. | Kings Park | **100.0** |
| | Bosch Security Systems Pty. Ltd. | Sydney | **100.0** |
| | BSH Home Appliances Pty. Ltd. | Heatherton | **100.0** |
| | MoTeC PTY LTD | Croydon South | **100.0** |
| | MoTeC Holdings PTY LTD | Docklands | **100.0** |
| | Protec Fire Detection Pty Ltd | Sydney | **100.0** |
| | Robert Bosch (Australia) Pty. Ltd. | Clayton | **100.0** |
| | sia Abrasives Australia Pty. Ltd. | Rowville | **100.0** |
| | | | |
| **Botswana** | Bosch Rexroth Botswana (Pty) Ltd. | Gaborone | **100.0** |
| | | | |
| **China** | Bosch (Chengdu) Information Technology Service Co., Ltd. | Chengdu | **100.0** |
| | Bosch (China) Investment Ltd. | Shanghai | **100.0** |
| | Bosch (Donghai) Automotive Test & Technology Center Co., Ltd. | Donghai | **100.0** |
| | Bosch (Hulunbeier) Automotive Test and Technology Centre Co., Ltd. | Yakeshi | **100.0** |
| | Bosch (Ningbo) e-scooter Motor Co., Ltd. | Ningbo | **100.0** |
| | Bosch (Shanghai) Digital Technology Ltd. | Shanghai | **100.0** |
| | Bosch (Shanghai) Investment Consulting Co., Ltd. | Shanghai | **100.0** |
| | Bosch (Shanghai) Security Systems Ltd. | Shanghai | **100.0** |
| | Bosch (Shanghai) Smart Life Technology Ltd. | Shanghai | **100.0** |
| | Bosch (Shanghai) Venture Capital Investment Co., Ltd. | Shanghai | **100.0** |
| | Bosch (Zhuhai) Security Systems Co., Ltd. | Zhuhai | **100.0** |
| | Bosch Automotive Aftermarket (China) Co., Ltd. | Nanjing | **100.0** |
| | Bosch Automotive Components (Changchun) Co., Ltd. | Changchun | **55.0** |
| | Bosch Automotive Products (Changsha) Co., Ltd. | Changsha | **100.0** |
| | Bosch Automotive Products (Chengdu) Co., Ltd. | Chengdu | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | Bosch Automotive Products (Suzhou) Co., Ltd. | Suzhou | **100.0** |
| | Bosch Automotive Service Solutions (Suzhou) Co., Ltd. | Suzhou | **100.0** |
| | Bosch Automotive Steering (Jinan) Co., Ltd. | Jinan | **100.0** |
| | Bosch Automotive Systems (Wuxi) Co., Ltd. | Wuxi | **100.0** |
| | Bosch Automotive Technical Service (Beijing) Co., Ltd. | Beijing | **100.0** |
| | Bosch Connected Mobility Solutions Ltd. | Wuxi | **100.0** |
| | Bosch Electronics Trading (Suzhou) Co., Ltd. | Suzhou | **100.0** |
| | Bosch HUAYU Steering Systems (Nanjing) Co., Ltd. | Nanjing | **100.0** |
| | Bosch HUAYU Steering Systems (Wuhan) Co., Ltd. | Wuhan | **100.0** |
| | Bosch HUAYU Steering Systems (Yantai) Co., Ltd. | Yantai | **100.0** |
| | Bosch HUAYU Steering Systems Co., Ltd. | Shanghai | **51.0** |
| | Bosch Hydrogen Powertrain Systems (Chongqing) Co., Ltd. | Chongqing | **60.0** |
| | Bosch Innovation and Software Development (Wuxi) Co., Ltd. | Wuxi | **100.0** |
| | Bosch Laser Equipment (Dongguan) Limited | Dongguan | **100.0** |
| | Bosch Power Tools (Chengdu) Co., Ltd. | Chengdu | **100.0** |
| | Bosch Power Tools (China) Co., Ltd. | Hangzhou | **100.0** |
| | Bosch Powertrain Systems Co., Ltd. | Wuxi | **66.0** |
| | Bosch Rexroth (Beijing) Hydraulic Co., Ltd. | Beijing | **100.0** |
| | Bosch Rexroth (Changzhou) Co., Ltd. | Changzhou | **100.0** |
| | Bosch Rexroth (China) Ltd. | Hong Kong | **100.0** |
| | Bosch Rexroth (Xi’an) Electric Drives and Controls Co., Ltd. | Xi’an | **100.0** |
| | Bosch Security Systems Ltd. | Hong Kong | **100.0** |
| | Bosch Thermotechnology (Beijing) Co., Ltd. | Beijing | **100.0** |
| | Bosch Thermotechnology (Shanghai) Co., Ltd. | Shanghai | **100.0** |
| | Bosch Thermotechnology (Wuhan) Co., Ltd. | Wuhan | **100.0** |
| | Bosch Trading (Shanghai) Co., Ltd. | Shanghai | **100.0** |
| | BSH Electrical Appliances (Jiangsu) Co., Ltd. | Nanjing | **100.0** |
| | BSH Home Appliances (China) Co., Ltd. | Nanjing | **100.0** |
| | BSH Home Appliances Co., Ltd. | Chuzhou | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | BSH Home Appliances Holding (China) Co., Ltd. | Nanjing | **100.0** |
| | BSH Home Appliances Ltd. | Hong Kong | **100.0** |
| | BSH Home Appliances Service Jiangsu Co., Ltd. | Nanjing | **100.0** |
| | BSW Household Appliances Co., Ltd. | Wuxi | **100.0** |
| | ETAS Automotive Technology (Shanghai) Co., Ltd. | Shanghai | **100.0** |
| | Gaggenau Home Appliances (Shanghai) Co., Ltd. | Shanghai | **100.0** |
| | Guangzhou sia Abrasives Company Ltd. | Guangzhou | **100.0** |
| | HydraForce Hydraulics Systems (Changzhou) Co., Ltd. | Guangzhou | **100.0** |
| | Le-AutomatiX (Shanghai) Co., Ltd. | Shanghai | **100.0** |
| | Le-HydrauliX (Suzhou) Co., Ltd. | Suzhou | **100.0** |
| | Le-HydrauliX BoWei (Shanghai) Co., Ltd. | Shanghai | **50.0** |
| | Robert Bosch Company Ltd. | Hong Kong | **100.0** |
| | Shanghai Bosch Rexroth Hydraulics & Automation Ltd. | Shanghai | **100.0** |
| | Taixiang Vehicle Replace Parts (Shenzhen) Co., Ltd. | Shenzhen | **100.0** |
| | United Automotive Electronic Systems (Chongqing) Co., Ltd. | Chongqing | **65.0** |
| | United Automotive Electronic Systems (Liuzhou) Co., Ltd. | Liuzhou | **100.0** |
| | United Automotive Electronic Systems Co., Ltd. | Shanghai | **51.0** |
| | | | |
| **Egypt** | BSH Home Appliances Holding LLP | New Cairo | **100.0** |
| | BSH Home Appliances LLC | New Cairo | **100.0** |
| | | | |
| **Ghana** | Bosch Rexroth Ghana Ltd. | Accra | **100.0** |
| | | | |
| **India** | Automobility Services and Solutions Private Limited | Bengaluru | **100.0** |
| | Bosch Automotive Electronics India Private Ltd. | Bengaluru | **100.0** |
| | Bosch Chassis Systems India Private Ltd. | Pune | **100.0** |
| | Bosch Global Software Technologies Private Limited | Bengaluru | **100.0** |
| | Bosch Ltd. | Bengaluru | **70.5** |
| | Bosch Rexroth (India) Private Limited | Ahmedabad | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| | BSH Household Appliances Manufacturing Private Limited | Mumbai | **100.0** |
| | ETAS Automotive India Private Ltd. | Bengaluru | **100.0** |
| | Robert Bosch Automotive Steering Private Limited | Pune | **100.0** |
| | Robert Bosch India Manufacturing and Technology Private Limited | Bengaluru | **100.0** |
| | | | |
| **Indonesia** | PT. Robert Bosch | Jakarta | **100.0** |
| | PT BSH Home Appliances | Jakarta | **100.0** |
| | | | |
| **Israel** | BSH Home Appliances Ltd. | Herzliya | **100.0** |
| | Elmo Motion Control Ltd. | Petah Tikva | **100.0** |
| | | | |
| **Japan** | Bosch Corporation | Tokyo | **100.0** |
| | Bosch Engineering K.K. | Yokohama | **100.0** |
| | Bosch Global Software Technologies Ltd. | Tokyo | **100.0** |
| | Bosch Rexroth Corporation | Tsuchiura-shi | **99.9** |
| | Bosch Security Systems Ltd. | Tokyo | **100.0** |
| | ELPRO Corporation | Tokyo | **100.0** |
| | ETAS K.K. | Yokohama | **100.0** |
| | FA Niigata Co., Ltd. | Niigata | **100.0** |
| | Fuji Aitac Co., Ltd. | Saitama | **100.0** |
| | Gunma Seiki Co., Ltd. | Gunma | **100.0** |
| | Nippon Injector Corporation | Odawara | **50.0** |
| | | | |
| **Korea** | Bosch Electrical Drives Co., Ltd. | Sejong | **100.0** |
| | Bosch Rexroth Korea Ltd. | Busan | **100.0** |
| | ETAS Korea Co., Ltd. | Seoul | **100.0** |
| | KB Wiper Systems Co., Ltd. | Daegu | **100.0** |
| | Robert Bosch Korea Limited Company | Daejeon | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Malaysia** | Bosch Power Tools Engineering Sdn. Bhd. | Penang | **100.0** |
| | Bosch Rexroth Sdn. Bhd. | Kuala Lumpur | **100.0** |
| | BSH Home Appliances Sdn. Bhd. | Kuala Lumpur | **100.0** |
| | Robert Bosch (Malaysia) Sdn. Bhd. | Penang | **100.0** |
| | Robert Bosch Power Tools Sdn. Bhd. | Penang | **100.0** |
| | Robert Bosch Automotive Steering Sdn. Bhd. | Penang | **100.0** |
| | Robert Bosch Sdn. Bhd. | Kuala Lumpur | **100.0** |
| | Robert Bosch Semiconductor Manufacturing Penang Sdn. Bhd. | George Town Pulau Pinang | **100.0** |
| | | | |
| **Morocco** | BSH Electroménagers (SA) | Casablanca | **100.0** |
| | Robert Bosch Morocco S.A.R.L.-A.U. | Casablanca | **100.0** |
| | | | |
| **Mozambique** | Bosch Rexroth Mozambique Lda. | Maputo | **100.0** |
| | Bosch Rexroth Matola Lda. | Matola | **100.0** |
| | | | |
| **Namibia** | Bosch Rexroth Namibia (Pty.) Ltd. | Walvis Bay | **100.0** |
| | | | |
| **New Zealand** | BSH Home Appliances Ltd. | Auckland | **100.0** |
| | | | |
| **Philippines** | Bosch Service Solutions, Inc. | Manila | **100.0** |
| | Robert Bosch Inc. | Manila | **100.0** |
| | | | |
| **Singapore** | AquaEasy Pte. Ltd. | Singapore | **100.0** |
| | Bosch Rexroth Pte. Ltd. | Singapore | **100.0** |
| | BSH Home Appliances Pte. Ltd. | Singapore | **100.0** |
| | ELPRO Pte. Ltd. | Singapore | **100.0** |
| | Robert Bosch (South East Asia) Pte. Ltd. | Singapore | **100.0** |
| | Robert Bosch Security Solutions Pte. Ltd. | Singapore | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **South Africa** | Bosch Rexroth South Africa (RF) (Pty) Ltd. | Johannesburg | **100.0** |
| | BSH Home Appliances (Pty.) Ltd. | Johannesburg | **100.0** |
| | Corgam Property Investments Pty. Ltd. | Kempton Park | **100.0** |
| | Hydraulic and Automation Warehouse Pty. Ltd. | Kempton Park | **100.0** |
| | Hytec Engineering Pty. Ltd. | Kempton Park | **100.0** |
| | Hytec Fluid Technology Pty. Ltd. | Kempton Park | **100.0** |
| | Bosch Rexroth Africa Development (RF) (Pty.) Ltd. | Kempton Park | **100.0** |
| | Hytec South Africa (RF) (Pty) Ltd. | Kempton Park | **75.0** |
| | Robert Bosch (Pty.) Ltd. | Midrand | **100.0** |
| | Tectra Automation Pty. Ltd. | Kempton Park | **100.0** |
| | | | |
| **Taiwan** | Bosch Rexroth Co. Ltd. | Taipei City | **100.0** |
| | BSH Home Appliances Private Limited | Taipei City | **100.0** |
| | Robert Bosch Taiwan Co., Ltd. | Taipei City | **100.0** |
| | | | |
| **Thailand** | Bosch Automotive Thailand Co. Ltd. | Rayong | **87.9** |
| | BSH Home Appliances Ltd. | Bangkok | **100.0** |
| | Robert Bosch Automotive Technologies (Thailand) Co., Ltd. | Rayong | **100.0** |
| | Robert Bosch Ltd. | Bangkok | **100.0** |
| | | | |
| **United Arab Emirates** | BSH Home Appliances FZE | Dubai | **100.0** |
| | BSH Home Appliances General Trading LLC | Dubai | **100.0** |
| | Robert Bosch Middle East FZE | Dubai | **100.0** |
| | | | |
| **Vietnam** | Bosch Vietnam Co., Ltd. | Dong Nai Province | **100.0** |
| | Bosch Global Software Technologies Co. Ltd. | Ho Chi Minh City | **100.0** |
| | BSH Home Appliances (Vietnam) Co. Ltd. | Ho Chi Minh City | **100.0** |
| | | | |
| **Zambia** | Bosch Rexroth Zambia Ltd. | Kitwe | **100.0** |

## 2. Non-consolidated entities

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Germany** | Advanced Driver Information Technology GmbH | Hildesheim | **100.0** |
| | AIG Planungs- und Ingenieurgesellschaft mbH | Stuttgart | **100.0** |
| | Bosch Climate Solutions GmbH | Stuttgart | **100.0** |
| | Bosch Management Support GmbH | Leonberg | **100.0** |
| | Bosch Pensionsfonds AG | Stuttgart | **100.0** |
| | BSH Altersfürsorge GmbH | Munich | **100.0** |
| | Circular Economy Solutions GmbH | Göttingen | **100.0** |
| | eAx solutions GmbH | Stuttgart | **100.0** |
| | ECP Energiecontracting GmbH | Heidelberg | **81.0** |
| | Elmo Motion Control GmbH | Viernheim | **100.0** |
| | for you Insurance Services GmbH | Gerlingen | **100.0** |
| | GFI – Gesellschaft für Infrastrukturdienste mbH | Reutlingen | **100.0** |
| | Home Connect GmbH | Munich | **100.0** |
| | HydraForce Hydraulics GmbH | Zweibrücken | **100.0** |
| | Joos MSR GmbH | Spraitbach | **51.0** |
| | Kassow Robots GmbH | Ulm | **100.0** |
| | Koller + Schwemmer GmbH | Nuremberg | **100.0** |
| | Mobility Media GmbH | Gerlingen | **100.0** |
| | Prüfzentrum Boxberg GmbH | Boxberg | **100.0** |
| | Service- und Betriebsgesellschaft Heidehof mbH | Stuttgart | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Europe** | | | |
| **Austria** | ITK Engineering GmbH | Premstätten | **100.0** |
| **Belarus** | Robert Bosch OOO | Minsk | **100.0** |
| **Bulgaria** | Robert Bosch EOOD | Sofia | **100.0** |
| **Croatia** | Robert Bosch d.o.o. | Zagreb | **100.0** |
| **Czech Republic** | KR Soft s.r.o. | Prague | **100.0** |
| **Estonia** | Robert Bosch OÜ | Tallinn | **100.0** |
| **Georgia** | Robert Bosch Ltd. | Tblisi | **100.0** |
| **Greece** | Bosch Rexroth S.A. | Athens | **100.0** |
| **Italy** | Elmo Italy S.R.L. | Milan | **100.0** |
| **Lithuania** | UAB Robert Bosch | Vilnius | **100.0** |
| **Netherlands** | Semiconductor Ideas To The Market (ItoM) B.V. | Eindhoven | **100.0** |
| | ItoM Enschede B.V. | Enschede | **100.0** |
| **Poland** | Elmo Motion Control Poland Sp. z o.o. | Warsaw | **100.0** |
| **Romania** | Bosch Servicii Termotehnica S.R.L. | Bucharest | **100.0** |
| | BSH Electrocasnice Manufacturing S.R.L. | Bucharest | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Slovenia** | BSH Hišni aparati I.D. INVALIDSKA DRUŽBA d.o.o. | Nazarje | **100.0** |
| | Robert Bosch d.o.o. | Ljubljana | **100.0** |
| **Spain** | Bosch Automotive Service Solutions S.A.U. | Madrid | **100.0** |
| | BOSCH HOME COMFORT GROUP SERVICE ESPANA, S.L. | Madrid | **100.0** |
| | ITK Systems Engineering, S.L.U. | Barcelona | **100.0** |
| **Switzerland** | Elmo Motion Control AG | Biel | **100.0** |
| **United Kingdom** | Bosch Automotive Training Limited | Motherwell | **100.0** |
| | Camerfield Limited | Nelson | **100.0** |
| | Face Macanda Limited | Nelson | **100.0** |
| | Firepro Systems Limited | Nelson | **100.0** |
| | HydraForce Ltd. | Birmingham | **100.0** |
| | LAGTA Group Training Limited | Motherwell | **100.0** |
| | XL Fire Detection Systems Ltd. | Nelson | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| Americas | | | |
| **Brazil** | Bosch Management Support Ltda. | Campinas | **100.0** |
| | Metapar Usinagem Ltda. | Curitiba | **100.0** |
| | Robert Bosch Centro de Comunicação Limitada | Joinville | **100.0** |
| | sia Abrasivos Industriais Ltda. | São José dos Pinhais | **100.0** |
| | | | |
| **Canada** | ETAS Embedded Systems Canada Inc. | Waterloo, ON | **100.0** |
| | | | |
| **Ecuador** | Robert Bosch Sociedad Anónima – Ecuabosch | Guayaquil | **100.0** |
| | | | |
| **Mexico** | Bosch Management Services México, S.C. | Mexico City | **100.0** |
| | | | |
| **Paraguay** | Robert Bosch Sociedad Anonima | Asunción | **100.0** |
| | | | |
| **Peru** | Bosch Rexroth S.A.C. | Lima | **100.0** |
| | | | |
| **United States** | Bosch Management Services Corporation | Wilmington, DE | **100.0** |
| | Bosch Solar Energy Corp. | Detroit, MI | **100.0** |
| | HydraForce India LLC | Lincolnshire, IL | **100.0** |
| | HydraForce Japan LLC | Lincolnshire, IL | **100.0** |
| | HydraForce Korea LLC | Lincolnshire, IL | **100.0** |
| | HydraForce Sweden LLC | Lincolnshire, IL | **100.0** |
| | ITK Engineering, LLC | Farmington Hills, MI | **100.0** |
| | | | |
| **Uruguay** | Robert Bosch Uruguay S.A. | Montevideo | **100.0** |
| | | | |
| **Venezuela** | Robert Bosch S.A. | Caracas | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Asia Pacific (including other countries)** | | | |
| **Angola** | Robert Bosch, Limitada | Luanda | **100.0** |
| **Australia** | Pacifica Group Pty. Ltd. | Melbourne | **100.0** |
| **Bangladesh** | Robert Bosch (Bangladesh) Ltd. | Dhaka | **100.0** |
| **Cambodia** | Robert Bosch (Cambodia) Co., Ltd. | Phnom Penh | **100.0** |
| **China** | Elmo Motion Control Technology (Shanghai) Co., Ltd. | Shanghai | **100.0** |
| | Freud International Trading (Shanghai) Co., Ltd. | Shanghai | **100.0** |
| | ITK Engineering Technology (Wu Xi) Co., Ltd. | Wuxi | **100.0** |
| | KB Wiper Systems (JiangYin) Co., Ltd. | Jiangyin | **100.0** |
| | Shanghai Boyuan Jiacheng Venture Investment Partnership | Shanghai | **99.0** |
| **Egypt** | Bosch Rexroth Egypt LLC | Cairo | **100.0** |
| | RBEG LLC | Cairo | **100.0** |
| | Robert Bosch Holding-Egypt LLC | Cairo | **100.0** |
| | Robert Bosch Ltd. | Cairo | **100.0** |
| **Ghana** | Robert Bosch Ghana Ltd. | Accra | **100.0** |
| **India** | KB Wiper Systems India Private Ltd. | Oragadam | **100.0** |
| | MIVIN Engineering Technologies Private Ltd. | Bengaluru | **100.0** |
| | Newtech Filter India Private Limited | Nalagarh | **100.0** |
| | Precision Seals Manufacturing Ltd. | Chakan | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Indonesia** | PT Aquaeasy Technology Indonesia | Jakarta | **100.0** |
| | PT Bosch Rexroth | Jakarta | **100.0** |
| | PT KB Wiper Systems Indonesia | Cikarang | **100.0** |
| | PT Robert Bosch Automotive | Jakarta | **100.0** |
| **Iran** | Bosch Tejarat Pars | Tehran | **100.0** |
| **Israel** | Robert Bosch Technologies Israel Ltd. | Tel Aviv | **100.0** |
| **Japan** | Bosch Service Solutions Corporation | Tokyo | **100.0** |
| | ITK Engineering Japan, Inc. | Tokyo | **100.0** |
| | Kanto Seiatsu Kogyo Co., Ltd. | Honjo | **92.9** |
| **Kenya** | Robert Bosch East Africa Ltd. | Nairobi | **100.0** |
| **Korea** | Elmo Motion Control APAC Ltd. | Hwaseong | **100.0** |
| **Laos** | Robert Bosch (Lao) Sole Co., Ltd. | Vientiane Capital | **100.0** |
| **Malaysia** | Robert Bosch (Penang) Sdn. Bhd. | Penang | **100.0** |
| **Morocco** | Bosch Rexroth Morocco S.A.R.L. | Casablanca | **100.0** |
| **New Zealand** | Bosch Rexroth Ltd. | Auckland | **100.0** |
| | Robert Bosch Ltd. | Auckland | **100.0** |
| **Nigeria** | Robert Bosch Limited | Lagos | **100.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Saudi Arabia** | BSH Home Appliances Saudi Arabia LLC | Jeddah | **51.0** |
| | Robert Bosch Saudi Arabia Ltd. | Riyadh | **100.0** |
| **Singapore** | Elmo Motion Control (Singapore) PTE Ltd. | Singapore | **100.0** |
| | WhatsEGG Pte. Ltd. | Singapore | **78.6** |
| **South Africa** | Hägglunds Drives South Africa (Pty.) Ltd. | Fourways | **100.0** |
| **Sri Lanka** | Robert Bosch Lanka (Pvt.) Ltd. | Colombo | **100.0** |
| **Thailand** | FMP Distribution Ltd. | Bangkok | **50.1** |
| | FMP Group (Thailand) Ltd. | Rayong | **50.7** |
| | Pacific BBA (Thailand) Ltd. | Bangkok | **100.0** |
| | WhatsEgg (Thailand) Co. Ltd. | Bangkok | **70.0** |
| **Tunisia** | Robert Bosch Tunisie S.A.R.L. | Tunis | **100.0** |

# B. Joint ventures and associated entities

## 1. Entities measured using the equity method

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Germany** | Bosch BASF Smart Farming GmbH | Cologne | **50.0** |
| | BS Systems GmbH & Co. KG | Zusmarshausen | **50.0** |
| | MAGURA Bosch Parts & Services GmbH & Co. KG | Bad Urach | **50.0** |
| | plc2 Design GmbH | Endingen am Kaiserstuhl | **25.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Europe** | | | |
| **Ireland** | ads-tec Energy plc | Dublin | **20.7** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Americas** | | | |
| **United States** | North America Fuel Systems Remanufacturing LLC | Kentwood, MI | **50.0** |

## 2. Entities not measured using the equity method on materiality grounds

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Germany** | Alltrucks GmbH & Co. KG | Munich | **33.3** |
| | Blauhut & Partner Informationssysteme GmbH | Egling | **42.9** |
| | European Center for Information and Communication Technologies – EICT GmbH | Berlin | **20.0** |
| | Aranea Battery Solutions GmbH | Stuttgart | **50.0** |
| | MAGURA Bosch Parts & Services Verwaltungs-GmbH | Bad Urach | **50.0** |
| | Siliconally GmbH | Dresden | **38.8** |
| | SupplyOn AG | Hallbergmoos | **42.1** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Europe** | | | |
| **Hungary** | Kazántrade Kft. | Budapest | **30.0** |
| | | | |
| **Italy** | BARI SERVIZI INDUSTRIALI Società consortile a r.l. | Modugno | **50.0** |
| | Oleodinamica Gambini S.r.l. | Modena | **20.0** |
| | | | |
| **Netherlands** | Euroradiators Holding B.V. | Boxtel | **49.0** |
| | Nederlandse Veiligheidsdienst Groep Meldkamer B.V. | Goes | **20.0** |
| | Tradeplace B.V. | Amsterdam | **20.0** |
| | | | |
| **Poland** | Loos Centrum Sp.z o.o. | Warsaw | **26.0** |
| | | | |
| **United Kingdom** | Megasets Ltd. | London | **25.1** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Americas** | | | |
| **Brazil** | PEÇA AI.COM S.A. | São Paulo | **20.0** |
| | | | |
| **Mexico** | PartsTech S.A. de C.V. | Guadalajara | **49.0** |
| | | | |
| **United States** | Shop-Ware Inc. | San Francisco, CA | **21.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Asia Pacific (including other countries)** | | | |
| **Australia** | FMP Group (Australia) Pty. Ltd. | Ballarat | **49.0** |
| | The Yield Technology Solution Pty. Ltd. | Hobart | **28.7** |
| | | | |
| **China** | HEFEI M&B Air Conditioning Equipment Co., Ltd. | Heifei | **40.0** |
| | | | |
| **India** | AMP Solar Infrastructure Private Limited | New Delhi | **26.0** |
| | Autozilla Solutions Pvt. Ltd. | Hyderabad | **26.0** |
| | Hinduja Renewables One Pvt. Ltd. | Mumbai | **26.0** |
| | Prebo Automotive Pte. Ltd. | Pune | **40.0** |
| | Simyog Technology Pvt. Ltd. | Bengaluru | **24.7** |
| | | | |
| **Israel** | Electra Industries Ltd. | Rishon LeZion | **40.0** |

## C. Other investments

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Europe** | | | |
| **Austria** | RobArt GmbH | Linz | **24.8** |
| **Netherlands** | Intrinsic ID B.V. | Eindhoven | **28.2** |
| **United Kingdom** | Sunlight.io Ltd. | Cambridge | **27.0** |

| Region/country | Company name | Registered office | Percentage share of capital |
|---|---|---|---|
| **Asia Pacific (including other countries)** | | | |
| **China** | Boyuan (Shanghai) Investment Management Co., Ltd. | Shanghai | **50.0** |
| **Israel** | Allegro Artificial Intelligence Ltd. | Ramat Gan | **20.4** |

Stuttgart, March 6, 2024

Robert Bosch Gesellschaft mit beschränkter Haftung
The board of management

Dr. Stefan Hartung
Dr. Christian Fischer
Dr. Markus Forschner
Stefan Grosch
Dr. Markus Heyn
Dr. Frank Meyer
Dr. Tanja Rückert

# Auditor's report



## Independent auditor's report

To Robert Bosch Gesellschaft mit beschränkter Haftung

### Opinions

We have audited the consolidated financial statements of Robert Bosch Gesellschaft mit beschränkter Haftung, Stuttgart and its subsidiaries (the Group), which comprise the consolidated income statement and consolidated statement of comprehensive income for the fiscal year from January 1 to December 31, 2023, the consolidated statement of financial position as at December 31, 2023, the consolidated statement of changes in equity and the consolidated statement of cash flows for the fiscal year from January 1 to December 31, 2023, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of Robert Bosch Gesellschaft mit beschränkter Haftung for the fiscal year from January 1 to December 31, 2023. In accordance with the German legal requirements, we have not audited the content of the statement on corporate governance pursuant to Sec. 289f (4) HGB ["Handelsgesetzbuch": German Commercial Code] included in the "Corporate governance report" section of the group management report (disclosure on female representation on executive boards).

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 IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at December 31, 2023, and of its financial performance for the fiscal year from January 1 to December 31, 2023, 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. We do not express an opinion on the content of the statement on corporate governance referred to above.

Pursuant to Sec. 322 (3) Sentence 1 HGB, 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 opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and 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 opinions on the consolidated financial statements and on the group management report.

## Other information

The supervisory board is responsible for the supervisory board report. The executive directors are responsible for the other information. The other information comprises the corporate governance statement mentioned above pursuant to Sec. 289f (4) HGB (disclosures on the quota for women on executive boards). Furthermore, the other information comprises additional parts to be included in the annual report, of which we obtained a version prior to issuing this auditor’s report, in particular the sections: “Foreword”, “Board of management”, “Supervisory board report”, “Supervisory board”, ”Industrial Trust and International Advisory Committee”, “Business sectors”, “Highlights 2023”, “Stories 2023” and “Robert Bosch Stiftung”, but not the consolidated financial statements, not the group management report disclosures whose content is audited and not our auditor’s report thereon.

Our 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 opinion or any other form of assurance conclusion thereon.

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

- is materially inconsistent with the consolidated financial statements, with the group management report or 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 IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB, and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they 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 unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

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 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 Sec. 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 opinions. The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting a material misstatement resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- 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 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 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 IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express 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 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 6, 2024

EY GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft

| | |
|---|---|
| Somes | Bürkle |
| Wirtschaftsprüferin | Wirtschaftsprüfer |
| [German Public Auditor] | [German Public Auditor] |

# Additional information

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# Ten-year summary of the Bosch Group

T92

in millions of euros

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | **2023** |
|---|---|---|---|---|---|---|---|---|---|---|
| Sales revenue | 48,951 | 70,607 | 73,129 | 78,066 | 78,465 | 77,721 | 71,494 | 78,748 | 88,201 | 91,596 |
| Research and development cost[1] | 4,959 | 6,378 | 6,911 | 7,264 | 5,963 | 6,079 | 5,890 | 6,110 | 7,224 | 7,331 |
| as a percentage of sales revenue | 10.1 | 9.0 | 9.5 | 9.3 | 7.6 | 7.8 | 8.2 | 7.8 | 8.2 | 8.0 |
| EBIT | 3,030 | 4,587 | 3,335 | 4,916 | 5,502 | 2,903 | 1,657 | 2,815 | 3,474 | 4,503 |
| as a percentage of sales revenue | 6.2 | 6.5 | 4.6 | 6.3 | 7.0 | 3.7 | 2.3 | 3.6 | 3.9 | 4.9 |
| Profit after tax | 2,637 | 3,537 | 2,374 | 3,274 | 3,574 | 2,060 | 749 | 2,499 | 1,838 | 2,640 |
| as a percentage of sales revenue | 5.4 | 5.0 | 3.2 | 4.2 | 4.6 | 2.7 | 1.0 | 3.2 | 2.1 | 2.9 |
| Capital expenditures | 2,585 | 4,058 | 4,252 | 4,345 | 4,946 | 4,989 | 3,312 | 3,949 | 4,896 | 5,499 |
| as a percentage of sales revenue | 5.3 | 5.7 | 5.8 | 5.6 | 6.3 | 6.4 | 4.6 | 5.0 | 5.6 | 6.0 |
| as a percentage of depreciation | 138 | 146 | 141 | 140 | 159 | 146 | 101 | 116 | 141 | 161 |
| Depreciation of property, plant, and equipment | 1,868 | 2,788 | 3,022 | 3,095 | 3,103 | 3,421 | 3,282 | 3,393 | 3,474 | 3,421 |
| Total assets | 61,924 | 77,266 | 81,875 | 81,870 | 83,654 | 87,861 | 91,369 | 97,723 | 100,247 | 108,330 |
| Equity | 29,541 | 34,424 | 36,084 | 37,552 | 39,176 | 41,079 | 40,166 | 44,304 | 46,727 | 47,894 |
| as a percentage of total assets | 48 | 45 | 44 | 46 | 47 | 47 | 44 | 45 | 47 | 44 |
| Dividend of Robert Bosch GmbH | 102 | 142 | 138 | 241 | 242 | 119 | 67 | 143 | 162 | 170 |
| Headcount as of December 31 of the year | 290,183 | 374,778 | 389,281 | 402,166 | 409,881 | 398,150 | 395,034 | 402,614 | 421,338 | 429,416 |
| Personnel expenses | 15,325 | 20,369 | 21,056 | 22,266 | 22,219 | 23,824 | 22,483 | 23,766 | 24,822 | 26,821 |

1. Up to 2017: including development work charged directly to customers.

# Publishing details


## Published by

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