Annual Report 2022

Januar 1 – Dezember 31, 2022

PVA TePla remains on a

profitable growth path

Revenue increases to

EUR 205.2 million (+ 32 %)

Gross-margin at

28.8 % (– 1,2 pp)

Order book grows to

EUR 324.3 million (+ 14 %)

EBIT margin at 12.2 % (+ 0,4 pp)

Foreword by the Management Board

Dear Shareholders,

It cannot be emphasized enough how important semiconductors are in our society today. The latent chip shortages in the last two years has shown us very clearly that practically nothing functions any more today without semiconductors. The consequences have been felt around the world: production lines in the automotive industry have come to a standstill in some cases, machine manufacturers have not been able to fulfill their orders on time, and households have often had to wait months for their new washing machine.

Impressively, we have reinforced our position as a reliable supplier in the semiconductor industry in these market conditions and played our part in ensuring that our customers have a stable and sustainable supply for their production. It is a source of great pride for us that our company is recognized on the market for its expertise and its commitment to the highest quality. Our financial figures for the reporting year are a testament to that:

In a challenging environment, our revenue grew by over 30% to EUR 205 million, and EBITDA was around EUR 30 million, also 30% higher than the previous year. We thus significantly exceeded our own targets set at the beginning of the year (revenue EUR 170 to 180 million, EBITDA between EUR 25 and 27 million). In particular, we saw strong growth momentum in the second half of 2022, with group revenue reaching EUR 74 million in the last quarter alone, an increase of 84 % compared to the same period in the previous year.

Our business model is underpinned by solid foundations. Our leading-edge systems for growing crystals enable silicon, silicon carbide, and calcium fluoride as well as other high-tech products to be manufactured for the semiconductor industry. Furthermore, we have used our PVA TePla metrology products to further strengthen our position along the whole of the value chain and we serve the increasing demand for quality control with our ultrasound electron scanning microscopes, laser measurement systems, and systems for vapor phase decomposition. In our industry segment, we are active in markets that are independent of the cycles in the semiconductor industry. Our specialized product categories, such as systems for manufacturing heat exchangers for hydrogen production and gas liquefaction as well as plasma nitriding systems for hardening steel surfaces or diffusion bonding systems for joining aluminum workpieces, are in demand on the market. The Semiconductor Systems and Industrial Systems business units are two pillars that provide the Group with highly prized stability even in times of geopolitical and economic uncertainty and change.

Enjoying the tailwind from the increasing demand for our products for semiconductor manufacture and for industrial applications, we are very confident that we will also be able to successfully expand our business in the future. Two structural and sustainable trends support our optimism here:

Firstly, manufacturing processes in the semiconductor industry are becoming ever more sophisticated, because advances in miniaturizing semiconductor chips are leading to ever smaller structures. The requirements for quality and precision in the manufacturing process are thus increasing exponentially with a view to guaranteeing efficient operations. This requires a high degree of process expertise as well as unconditional efficiency and reliability in production and represents a barrier to entry. As an international specialist in vacuum, plasma, and high-temperature processes, we are very well positioned to meet these requirements and to set new standards ourselves through our innovations. We will strengthen and expand these attributes for our business success.

Secondly, the structural trend toward increasing demand for semiconductors from various applications is marked by an emphatic dynamism. According to market experts, annual growth is likely to double at least, which in our opinion will mean that capacity requirements will continue to increase significantly. With our systems for growing crystals as an enabling technology, we are in an ideal position to participate in the predicted development. We will thus be in involved in the structural growth in the areas of cloud services, artificial intelligence, electromobility, the 5G mobile communications standard, Industry 4.0, and the Internet of Things (IoT).

Despite the export restrictions that the USA has imposed to counter China’s efforts to develop its own high-tech production capacity, the demand for capacity of this kind and the trend toward reshoring to politically and institutionally safer countries are expected to grow. For us this opens up potential for additional orders in the long term, as capacity will no longer be limited to a few major factories in Asia. However, our China business has now become more uncertain as a result of the developments described above. We will continue to keep a critical eye on the situation. However, with our strong technology, material and manufacturing expertise we are well positioned in the event of temporary shifts in demand to make use of the opportunities that are offered in more politically stable countries.

We can maximize our growth potential by integrating complementary technologies, opening up new markets, and expanding our customer base. A current example is the takeover of the French plant manufacturer MPA Industrie SAS, which will provide us with broad-based process expertise in silicon carbide coatings as well as with access to customers from the semiconductor, aviation and aerospace. Thanks to the synergies with our international sales network, we can drive the development of markets and make use of cross-selling opportunities.

We will gear our business organization consistently towards the future requirements of an international technology company in the years to come. This includes a dedicated focus of our business units and subsidiaries on the criteria for sustainable corporate governance. We want here not only to implement and highlight our environmental and social responsibility as a company more consistently, but also to meet the related increasing requirements of our customers and investors going forward. We will also intensify our efforts to attract young talents to PVA TePla and to retain specialists and managers for as long as possible in the company. PVA TePla is an attractive employer that offers diverse, international fields of work in one of the fastest growing industries worldwide. We can thus offer our new and existing employees security, career opportunities, and attractive conditions.

With a very good order backlog of EUR 324.3 million as of the end of 2022 and having made a very promising start to the 2023 fiscal year, PVA TePla is well positioned to make a success of the current fiscal year, too. The dynamism of the incoming orders extends across all product categories and provides us with a high level of visibility all the way to 2025. This offers additional security and predictability. We therefore expect a further increase both in sales revenue and in earnings in the current fiscal year. The forecasts assume that the consolidated sales revenues in 2023 will reach EUR 240 million to EUR 260 million, with EBITDA at around EUR 36 million to EUR 40 million.

We would like at this point to express our appreciation of our employees. With their commitment and their exemplary team spirit, they have made a key contribution to the success we have enjoyed in the past fiscal year. We also thank our customers, business partners and shareholders, who have accompanied and supported us on our path to continued growth and technological innovations. We will continue to everything in our power to justify your confidence and to manage the PVA TePla Group prudently, purposefully, and successfully.

Wettenberg, March 2023

PVA TePla AG
Sincerely yours,

Manfred Bender	**Jalin Ketter**	**Oliver Höfer**	**Dr. Andreas Mühe**
Chief Executive Officer	Chief Financial Officer	Chief Operating Officer	Chief Technology Officer

Management Board

Manfred Bender

Chief Executive Officer (CEO)
– joined PVA TePla AG as CEO 1st January 2021.

Jalin Ketter

Chief Financial Officer (CFO)
– joined the Management Board in June 2020.

Oliver Höfer

Chief Operating Officer (COO)
– joined the Management Board in December 2013.

Dr. Andreas Mühe

Chief Technology Officer (CTO)
– joined the Management Board in June 2020.

Supervisory Board

Alexander von Witzleben

Chairman of the Supervisory Board, Weimar
– Member and Chairman of the Supervisory Board of PVA TePla AG since June 2004

Prof. Dr. Gernot Hebestreit

Supervisory Board, Leverkusen
– Deputy Chairman of the Supervisory Board of PVA TePla AG since June 2008
– Chairman of the Audit Committee

Prof. Dr. Markus H. Thoma

Supervisory Board, Schoeffengrund
– Member of the Supervisory Board of PVA TePla AG since June 2014

Sustainability at PVA TePla

We have set ourselves the goal of meeting our environmental and social responsibility by designing our business processes in a sustainable way and thus playing our part in protecting the environment. We attach great importance to transparency and report regularly on our sustainability activities and performance.

Our sustainability strategy is based on the following pillars:

Environmental | **Markets and R&D** | **Social** | **Governance**

With innovation!
Through appreciation!
To success!

We want to reduce the emission of greenhouse gases and other polluting emissions. We focus here on optimizing production processes and employing environmentally friendly technologies, materials and a sustainable energy supply through increased the use of renewable energies.

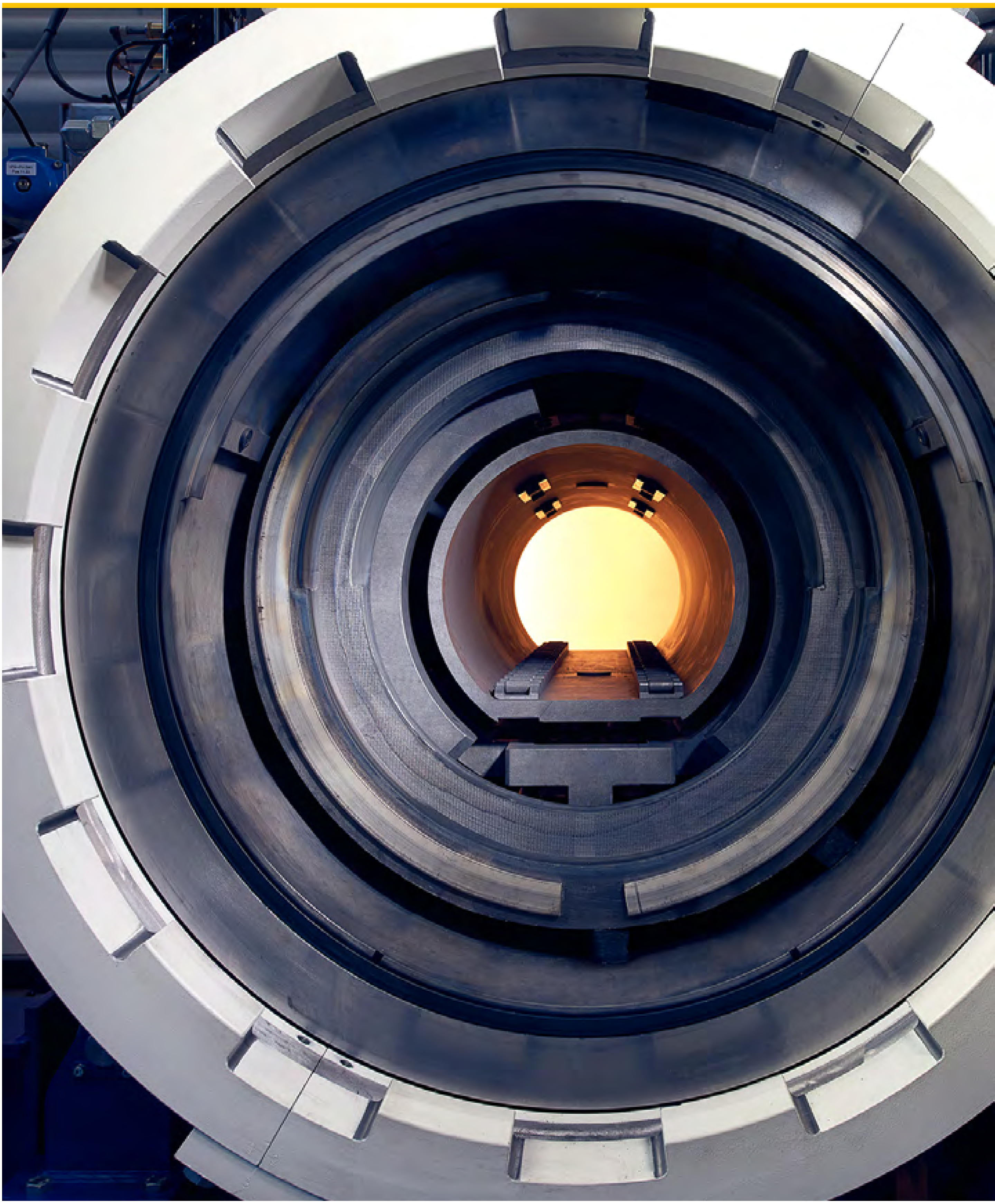
We place a special focus on markets and products that contribute to reducing energy consumption, conserving resources, and using more environmentally friendly production processes. Here we cooperate closely with our customers as well as our partners from the fields of science and research in order to develop innovative solutions for the challenges of the future.

We stand for the responsible use of resources. Our aim is to minimize the consumption of resources and the production of waste. We advocate a circular economy and are working toward reducing, reusing, or recycling our waste as much as possible.

Our responsibility does not end with our own business processes. We are committed to making our supply chains sustainable and responsible. We expect our suppliers to meet our requirements relating to environmental and social standards. We work together to promote sustainability along the entire value chain.

We are aware that our employees form the backbone of our company. We promote diversity in our workforce and are committed to the health and safety of our employees. In order to enhance employee satisfaction, we implemented targeted measures and create a positive work environment.

Contents



Report from the Supervisory Board

Dear Shareholders,

The 2022 fiscal year was the third year in a row to be marked by uncertainties about the further course of the COVID-19 pandemic. These uncertainties of course also concerned possible new restrictions and the economic impacts directly related with them. The fiscal year was additionally marked by the immense geopolitical challenges triggered by Russia's invasion of Ukraine, which fundamentally changed the general conditions of trade and also of the security of supply all around the world.

In this difficult environment, the PVA TePla Group succeeded in continuing on its course of profitable growth and in increasing consolidated sales revenues by over 30 % to EUR 205 million, an outstanding performance by the management and all of the Group's more than 600 employees.

Cooperation between the Supervisory Board and the Management Board

In the reporting year, the Supervisory Board performed in full the duties incumbent upon it under the law, the articles of association, and its rules of procedure. The Management Board and Supervisory Board work together very constructively in the interest of continuing PVA TePla's successful development.

We monitored and advised the Management Board in its management of the company on the basis of its detailed written and oral reports. In addition, there was a regular exchange of information between the chair of the Supervisory Board and the chair of the Management Board as well as the other members of the Supervisory Board and Management Board. In this way, the Supervisory Board was kept informed at all times about the intended business policy, corporate planning, including the financial, investment and personnel planning, the profitability of the company and the course of business, and the situation of the company and the Group. The Supervisory Board was directly involved at an early stage in all decisions of fundamental importance to the company and discussed them intensively and in detail with the Management Board. Where management decisions or actions required the approval of the Supervisory Board by law, the articles of association or its rules of procedure, the members of the Supervisory Board adopted appropriate resolutions after intensive examination and discussion. The members of the Management Board took part in meetings of the Supervisory Board and the Audit Committee; however, the Supervisory Board also met regularly without the Management Board in attendance.

Topics discussed in the plenary sessions of the Supervisory Board

Four regular meetings of the Supervisory Board were held in the reporting year, one of which was an in-person meeting with the option of attending by video and three were in-person meetings. All Supervisory Board meetings were attended by all members of the Supervisory Board.

An integral part of all the meetings was the reporting by the Management Board on the business situation with detailed information on the development of sales revenues, earnings and employment in the PVA TePla Group, the financial position and net assets, and the opportunities and risks. In addition, we dealt with acquisition projects and the company's opportunities and risks as and when they arose.

In preparation for these meetings, all members of the Supervisory Board received in sufficient time detailed reports on the situation of the companies in the PVA TePla Group as well as other information, such as internal control reports and minutes of meetings. On the basis of current financial figures and updated forecast reports and development plans (orders, sales, competition, market shares), the Supervisory Board was able to obtain an adequate picture of the business situation before and during the meetings. Deviations in the course of business from the budgets prepared were explained and justified in detail.

The meeting on March 17/18, 2022 focused on the annual and consolidated financial statements for fiscal 2021 and the corresponding discussions and resolutions. In addition, the Supervisory Board dealt with the draft agenda for the 2022 Annual General Meeting, which was noted and approved. The results of the report on the efficiency review of the Supervisory Board were explained in detail. To what extent the Management Board was meeting its targets and also its remuneration were reviewed on a regular basis.

A strategy updated and an overview of current M&A activities were the subject of discussion at the Supervisory Board meeting on June 22, 2022.

At its meeting on September 15, 2022, the Supervisory Board dealt with the acquisition of MPA Industrie SA and the adoption of the sustainability strategy, among other things.

Key topics of the meeting on October 31, 2022 included the technology strategy and alternative possibilities for organizing the energy sourcing against the backdrop of higher energy prices and in line with the sustainability strategy. In addition, we consulted with the Management Board on the Declaration of Conformity with the German Corporate Governance Code on the basis of the revised version from 2022; a resolution on this was not adopted at the time.

Individual resolutions of the Supervisory Board, such as the appointment of new managing directors or the approval to issue powers to authorized signatories, were additionally adopted using the circular resolution procedure.

Work in the Supervisory Board committees

The Audit Committee prepares resolutions and issues to be dealt with by the full Supervisory Board. It met six times in the reporting period. The meetings were held virtually (3) or in person (3). With the exception of one meeting on July 28, 2022 that Mr. Alexander von Witzleben was unable to attend, all members took part in all the meetings either in person or virtually. During its meetings, the Audit Committee assessed the effectiveness of the risk management and discussed the issues of compliance, internal audit, the internal control system, and accounting, the key areas of focus of the audit, and the annual and consolidated financial statements. The Audit Committee also addressed the expanded audit opinion of the auditor, especially the key audit matters, as part of its supervisory duties.

Corporate governance and declaration of conformity

At the meeting on October 31, 2022, the Management Board and Supervisory Board discussed the Declaration of Conformity with the German Corporate Governance Code in accordance with Section 161 of the German Stock Corporation Act (AktG) and agreed a resolution for the meeting in January 2023. Following its adoption, the Declaration of Conformity has been made permanently available to shareholders on the company website at https://www.pvatepla.com/investor-relations/corporate-governance.

The Management Board, also on behalf of the Supervisory Board, reports on corporate governance in the corporate governance statement on the company's website at: https://www.pvatepla.com/investor-relations/corporate-governance.

The Annual General Meeting was asked to elect the public audit firm „BDO Co. KG, Frankfurt am Main" as auditor and group auditor for the fiscal year 2022. The Supervisory Board and the Audit Committee have satisfied themselves of the independence of the auditor within the meaning of section 107 (3) sentence 2 AktG and have obtained and evaluated a corresponding declaration of independence.

Following approval by the Annual General Meeting, the Supervisory Board issued the engagement to the auditor and set the audit fee. The focal points of the audits of the annual and consolidated financial statements for 2022 were also agreed between the Audit Committee and the auditor.

In accordance with a resolution of the Supervisory Board, the auditor is also permitted to provide certain due diligence services including ancillary services, training services, and other advisory services in this context. Before the relevant services are specified, the Management Board and the Audit Committee examine on a case-by-case basis whether these services are permitted or compromise the auditor's independence.

The members of the Supervisory Board are responsible for the training and continuing education measures required for their tasks, for example in relation to changes in the legal framework and new, forward-looking technologies.

The self-evaluation was carried out on the basis of a detailed catalog of questions and interviews, thus performing the review of the efficiency of the Supervisory Board required by the Corporate Governance Code.

Audit and annual financial statements

BDO AG, Frankfurt am Main, which was elected as auditor by the Annual General Meeting on June 23, 2022, has audited the annual financial statements and the group management report as of December 31, 2022, including the combined management report, and issued an unqualified audit opinion on them.

The auditor has determined that these annual and consolidated financial statements have been prepared in accordance with the German Commercial Code (HGB) and the International Financial Reporting Standards (IFRS) and reflect a true and fair view of the net assets, financial position and results of operations.

The BDO AG auditing firm has audited the present summarized non-financial statement according to ISAE 3000 rev. with limited assurance (limited assurance). The „Independent Auditor's Report on a Limited Assurance Engagement" can be found started on pages 165. On this basis, the auditor has raised no objections to the reporting and the fulfillment of the requirements imposed on it. The auditor has also audited the remuneration report for the fiscal year 2022 and the associated information.

The financial statements together with the management reports and the respective auditors' reports were sent to each member of the Supervisory Board and Audit Committee. These were evaluated by the Supervisory Board and Audit Committee and discussed in detail at their meetings on March 16, 2023. The auditor reported on the main findings of their audit at these meetings. We have audited the annual financial statements, the management report and the auditors' statement on the assessment of the situation by the Management Board, as well as the proposal for the appropriation of net income, the consolidated financial statements and the Group management report. There were no objections. We therefore concur with the results of the audit. We adopt the annual financial statements and the consolidated financial statements prepared by the Management Board. The annual financial statements are thus approved in accordance with Art. 172 sentence 1 AktG.

We agree with the management reports and in particular the assessment of the further development of the company. The Supervisory Board concurs with the proposal of the Management Board to carry forward the reported unappropriated net income.

Personnel changes on the Supervisory Board and Management Board

There were no changes in the composition of the Management Board or of the Supervisory Board in 2022.

Thanks from the Supervisory Board

The Supervisory Board thanks the Management Board and all the employees for the work they have performed.

Wettenberg, March 2023

For the Supervisory Board

Alexander von Witzleben
Chairman of the Supervisory Board of PVA TePla AG

PVA TePla on the Capital Market

PVA TePla share shows its strength: robust recovery since the third quarter of 2022

Trends on the stock markets were marked by a large number of uncertainties in 2022, including economic woes, high inflation, rising interest rates, China's zero-Covid policy, and Russia's invasion of Ukraine. Technology stocks, which had previously been enthusiastically priced, came under pressure around the world. For example, the PHLX Semiconductor Index recorded a fall in share prices of 34.9 % (previous year: + 42.9 %). The DAX 40 index lost 13.8 % (previous year: + 15.7 %) and the SDAX, on which the PVA TePla shares have been listed since September 2021, slid 28.8 % (previous year: + 10.5 %). The DAXsubsector All Advanced Industrial Equipment index that is relevant to PVA TePla also lost half of its value in the reporting year, plunging 50.8 % (previous year: + 19.0 %).

In this capital market environment, the shares of PVA TePla AG could not buck the prevailing downward trend on the stock markets in the year under review. Nevertheless, there were grounds for optimism in the company's news flow in the reporting year and for confirming the short and medium-term earnings and growth trajectory. Both the company's business units benefited from the strong demand for process systems for manufacturing high-tech materials and complex components, which pushed the order backlog to a record high.

The PVA TePla shares initially suffered a significant fall in value from the first to the third quarter in the reporting year after they had started 2022 at a year-high of EUR 43.80. September finally saw them hit their lowest value when they were quoted at EUR 14.40. After that, the share made constant gains and by the end of February 2023 had recorded an impressive recovery of around 78 % to reach a price of EUR 25.66.

Performance of the PVA TePla shares

compared with DAXsubsector All Advanced Industrial Equipment (indexed)

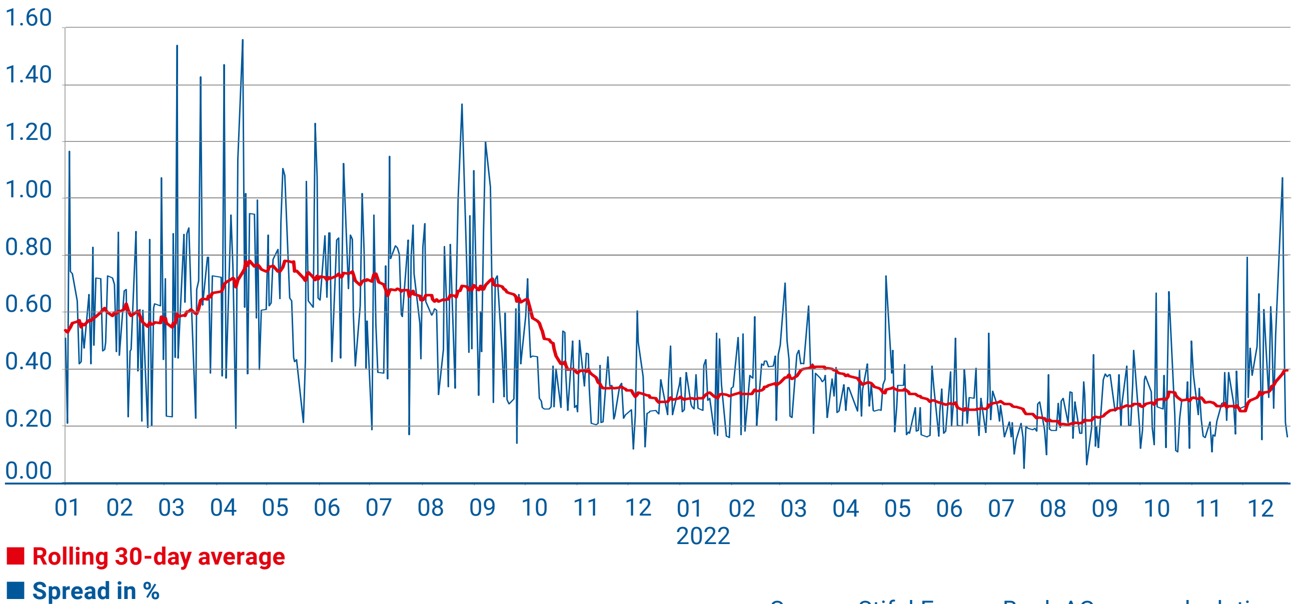
With share capital of EUR 21,749,988.00, PVA TePla AG's market capitalization stood at EUR 403.7 million at the end of 2022 (previous year: EUR 911.3 million). PVA TePla did not adopt or undertake any capital measures in the period under review.

Strong liquidity and good tradeability: PVA TePla shares remain attractive for investors

The trading liquidity of the PVA TePla shares remained stable in comparison with the previous year, with 114,000 shares traded each trading day on average through XETRA, tradegate, and the regional stock markets. Around 72 % of the trades (previous year: 72 %) were made on the XETRA trading platform here. That the tradeability of the PVA TePla shares remains attractive even in a negative stock market environment is demonstrated among other things in the significant drop in the average spread between bid and ask prices, as the figure below for 2021 to 2022 illustrates. For example, the average spread was halved from the previous year to reach a new best value of 0.30 %. This positive technical trading performance was supported by the increase in the free float to 86 % in the course of a private placement of 2.5 million shares of PA Beteiligungsgesellschaft mbH to institutional investors at the end of the first half of 2021. The remaining shares of PA Beteiligungsgesellschaft mbH were placed with institutional investors at a price per share of EUR 22.00 in the first quarter of 2023. Overall, the good tradeability of the PVA TePla shares enhances their attractiveness for investors.

Trend in the average spread

Spread in per cent between XETRA bid and ask prices 2021 to 2022



Source: Stifel Europe Bank AG, own calculations

Investor relations work

The dialog with the capital market and continual, transparent reporting on relevant company events and developments were important guiding principles for the investor relations work of PVA TePla also in the 2022 fiscal year. The aim is, on the one hand, to reinforce the confidence in the company's economic and technological profile and, on the other, to deliver the necessary transparency enabling analysts, shareholders, and potential investors to produce a verifiable and adequate evaluation of the company. PVA TePla invests efforts in explaining verifiably to all actors on the capital markets the company's business model, its technological developments and products, the international semiconductor market, and the growth and earnings potential.

In individual and group discussions at investor roadshows and conferences, many of which were held in person again following the exit from the corona pandemic, our management and investor relations team answered questions from investors and financial analysts on the PVA TePla Group's business strategy and performance and on industry and market trends. The number of discussions once again increased significantly due to the continued great interest in PVA TePla in 2022. The main focus of discussions with institutional and private investors was placed on explaining the long-term prospects in the semiconductor market – particularly in the areas of silicon and silicon carbide crystallization – as well as metrology and the operating profitability of the PVA TePla Group.

Research coverage expanded

In the fiscal year 2022, a total of ten international investment banks, brokerage firms, and investment boutiques regularly published equity research reports on PVA TePla AG. During the reporting year, Oddo BHF, Montega, and BNP Paribas initiated coverage on the company.

Institute	Location	Analyst	Rating	Target Price
Berenberg	London	Gustav Froberg	Buy	30.00 €
BNP Paribas	Frankfurt	Martin Jungfleisch	Sell	18.00 €
Deutsche Bank	Frankfurt	Uwe Schupp	Hold	40.00 €
Hauck & Aufhäuser	Hamburg	Tim Wunderlich	Buy	46.00 €
Jefferies	London	Constantin Hesse	Buy	21.00 €
Matelan	Bonn	Hartmut Moers	Buy	24.00 €
Montega	Hamburg	Miguel Lago Mascato	Buy	26.00 €
Oddo BHF	Paris	Melek Laabidi	Buy	26.00 €
SMC Research	Münster	Adam Jakubowski	Buy	29.00 €
Stifel	Frankfurt	Jürgen Wagner	Hold	21.00 €

PVA TePla research coverage 2022

Overall, based on their valuation models, analysts see predominantly further potential for an increase in the PVA TePla stock price. Only one institution recommends selling the stock.

The shareholder structure remained unchanged during the reporting year compared to the previous year, with a free float of 86 %. PA Beteiligungsgesellschaft mbH continued to hold approximately 14 % of the shares in PVA TePla AG until March 2, 2023. After the placement of the remaining shares in March 2023, the free float is now 100 %.

PVA TePla Stock Information

ISIN	DE0007461006
WKN	746100
Symbol	TPE
Reuters Instrument Code	TPG.DE
Bloomberg Symbol	TPE GY Equity
Share Type	Common Stock
Form of Shares	Registered Shares
First Listing	June 21, 1999
Market	Regulated Market
Markt Segment	Prime Standard
Supersector	Industrials
Sector	Industry
Subsector	Advanced Industrial Equipment
Index Membership	SDAX, CDAX, Prime All Share, DAXsubsektor Advanced Industrial Equipment
Number of Shares	21,749,988
Par Value	No-par value registered common shares, calculated at EUR 1.00
Share Capital	EUR 21,749,988.00

PVA TePla Stock Data

	2022	2021	2020	2019	2018
Price on 12/31 in EUR	18.56	41.90	19.60	15.30	12.20
Number of Shares	21,749,988	21,749,988	21,749,988	21,749,988	21,749,988
Market Capitalization in EUR million	403,679,777	911,324,497	426,299,765	332,774,816	265,349,854
Highest Price in EUR	44.60	50.60	20.90	15.90	18.40
Lowest Price in EUR	13.87	16.50	5.68	10.10	9.44
Spread Highest vs Lowest Price in %	221.6 %	206.7 %	268.0 %	57.4 %	94.9 %
Trading Volume on XETRA/Trading Day	82.149	83.985	51.775	25.117	59.050
XETRA Turnover in EUR million/Trading Day	1.858	2.695	0.618	0.307	0.807

Combined Management Report

Fundamentals of the Group

About this report

The PVA TePla Group publishes both financial and non-financial information in the 2022 annual report. The report offers a comprehensive overview of the economic, ecological, and social aspects of our activities. Based on the integrated reporting, the combined non-financial group management declaration in accordance with Sections 315b and 315c in conjunction with 289b to 289e of the German Commercial Code (Handelsgesetzbuch – HGB) is contained in the combined management report.

This content is marked with the following symbol:

The contents of the combined non-financial management statement, in conjunction with other information that can be found in this report, were prepared by reference to the standards of the Global Reporting Initiative (GRI). The GRI Index can be found at the end of the report.

Contents of the combined non-financial statement

Elements of the combined non-financial declaration in accordance with the German Commercial Code	Relevant section
Framework	Fundamentals of the Group – About this report
Business model	Fundamentals of the Group – Business activities and strategy
Sustainability management	Sustainability *
Risks	Risk and opportunity Management *

Aspects	Relevant section	Fields of action
Environmental matters	Our contribution to climate change mitigation *	– Increase in energy efficiency and reduction of CO_2 emissions – Waste
Employee matters	Responsibility for our team *	– Occupational health and safety – Training and education – Promotion of employee satisfaction – Diversity in the company ("diversity")
Respect for human rights	Sustainable corporate governance *	– Diligent selection of the actors within the supply chain and also the sales regions
Combating corruption and bribery	Sustainable corporate governance *	– Ensuring compliance at PVA and in the supply chain
Social matters		Because of its secondary importance for the understanding of PVA's business performance and development, the social issues aspect was not classed as material within the meaning of Section 289c HGB.*
R&D	Fundamentals of the Group – Research and development	– R&D activities as part of customer projects – Non-project-related R&D activities

* This section is part of the combined non-financial statement, which contains the information according to §§ 289c–289e HGB and § 315c HGB, and is unaudited as part of the financial statement audit according to § 317 Abs. 2 Satz 4 HGB. However, an assurance engagement with limited assurance in accordance with ISAE 3000 rev. has been conducted.

The reporting period covers the fiscal year from January 1 to December 31, 2022. In order to ensure that the report is as up to date as possible, it includes all relevant information available up to the time that the responsibility statement is issued on March 16, 2023.

The management report combines the management report of the PVA TePla Group and the management report of PVA TePla AG. In it we report on the development and performance of the business as well as the position and the expected development of the group and of the AG. The information on PVA TePla AG is contained in the section "Brief report on the single-entity financial statements of PVA TePla AG", including disclosures in accordance with the German Commercial Code. German Accounting Standard 20 (DRS 20), "Group management report", was applied.

The consolidated financial statements include the company and its subsidiaries. To make it clear which disclosures refer to the parent company and which to the Group, the parent company is always referred to as "PVA TePla AG". The terms "PVA TePla Group" or "Group" is used for disclosures relating to the Group. Where this distinction is not made and no other indication is given, the disclosures refer both to the Group and to the parent company. MPA Industrie SAS, which was fully taken over in November 2022, is not yet integrated in the sustainability reporting (except for its consideration under the EU taxonomy). It will be integrated in fiscal 2023. The balance sheet date is December 31.

Unless otherwise indicated, all amounts are stated in millions of euro (EUR million). The figures in these financial statements may contain rounding differences of +/– one unit (EUR '000, %, etc.) for reasons related to the calculations. Unless otherwise indicated in the text, margins and ratios refer to the sales revenues.

The forecast contains forward-looking statements based on assessments by management or third parties. Forward-looking statements can be associated with risks and uncertainties. Many of these risks and uncertainties are determined by factors outside the control of PVA TePla.

GRI disclosures in this section: GRI 2-01, GRI 2-02, GRI 2-03, GRI 3-02

Business activities and strategy

PVA TePla AG is an engineering company which develops and produces innovative and high-quality systems for efficient and resource-saving applications deployed the world over in areas such as renewable energies, semiconductors, e-mobility, medical technology, and aviation. This includes high-pressure, vacuum, and plasma processes as well as metrology systems for monitoring and controlling quality in production processes. The performance spectrum also covers services such as product and process development, soldering, welding and heat treatment.

We see ourselves here not simply as a system supplier, but also as a development and technology partner for our customers. This maximum degree of customer focus on the one hand ensures strong and long-term customer loyalty and, on the other, constitutes a further driver of innovation.

The constant expansion of our technology and product portfolio was based in the past on in-house developments and acquisitions of high-performance and innovative companies. We are continually investigating targeted additions to our portfolio in order to open up new or supplementary areas of business and regional markets and to realize PVA TePla's potential for growth.

With locations in Germany, France, Italy, the US, China, Taiwan, Korea and Singapore, the PVA TePla Group maintains business relationships around the world. PVA TePla focuses in particular on Asia and the US with a view to pursuing regional growth initiatives.

Sustainability is firmly embedded in our business activities. As a way to further increasing our enterprise value we are resolutely determined to make use of our company's performance, in particular in the areas of employees, R&D, and the environment as well as our opportunities in the related markets. With the adoption of our sustainability strategy in the past fiscal year, one of the targets we have set ourselves is to become CO_2-neutral[1] by 2024. We want to achieve this by preventing or reducing emissions as far as possible. In order to completely offset the remaining greenhouse gas emissions, we will invest in climate change mitigation projects and carbon offset certificates.

One focus of our research and development activities has always been to continually enhance the efficiency, longevity, and safety of our products. We enable our customers to do business on a sustainable basis in this way. For us, however, sustainability does not end with environmental issues. We have also defined clear targets and values for the areas of employee issues and corporate governance. For detailed information on the topic of sustainability at PVA TePla, please see the section "Sustainability" in this report.

GRI disclosures in this section: GRI 2-01, GRI 2-06, GRI 2-22, GRI 2-23

Organizational structure

PVA TePla AG, Wettenberg, is a stock corporation under German law and the parent company of the PVA TePla Group. The company is entered in the commercial register of Giessen Local Court under HRB 6845 and is domiciled at 35435 Wettenberg. PVA TePla AG's shares have been listed in the Prime Standard of the Frankfurt Stock Exchange since June 21, 1999 (ISIN: DE0007461006).

The operating activities of the group of companies are currently divided into two segments: **Semiconductor Systems** and **Industrial Systems**. The **Semiconductor Systems** segment, which accounted for 71 % of consolidated sales revenues in the period under review, provides solutions and systems for the semiconductor industry, in particular crystal growing systems, metrology systems for quality control, and plasma systems for removing surface contamination on wafers. The **Industrial Systems** segment covers solutions and systems for the semiconductor industry for the production, finishing, and inspection of innovative materials, for surface treatment, cleaning, and inspection as well as for monitoring production processes specially configured for the needs and requirements of other industrial areas such as the medical, electrical or tool industries. The proportion of sales revenue accounted for by the **Industrial Systems** segment was 29 % in the reporting year.

GRI disclosures in this section: GRI 2-01, GRI 2-02, GRI 2-06

[1] In relation to scope 1 and scope 2. Other greenhouse gases are converted into CO_2 equivalents in accordance with the Greenhouse Gas Protocol.

Governance structure

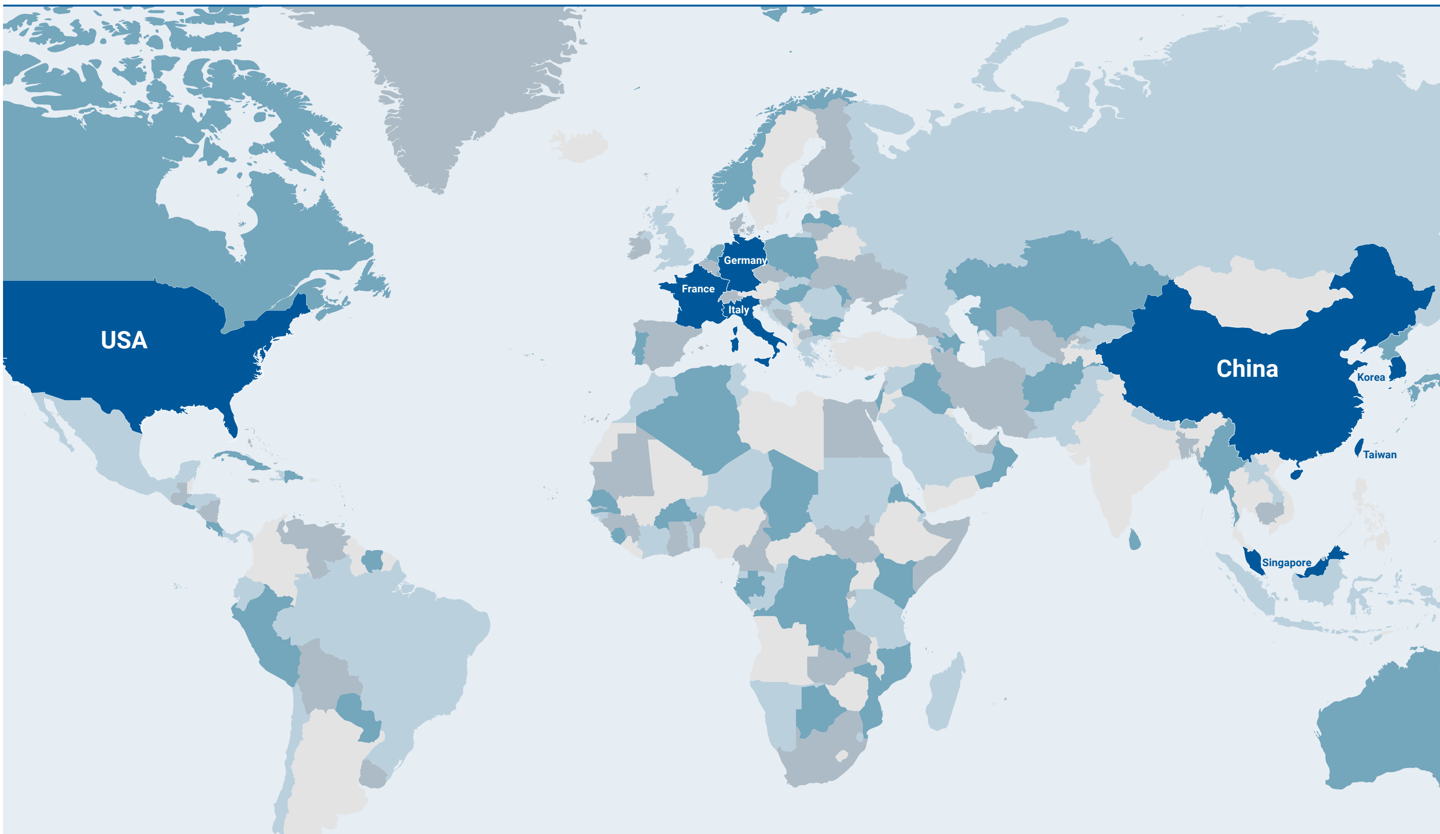
The executive bodies of the company are the Management Board, the Supervisory Board, and the Annual General Meeting. The company has a two-tier management and control system, consisting of the Management Board and the Supervisory Board. The duties and powers of these executive bodies are defined by the German Stock Corporation Act, the articles of association, and the rules of procedure of the Supervisory Board and of the Management Board.

The Management Board of PVA TePla AG currently comprises four members, who have the joint responsibility for managing the Group. The Supervisory Board, consisting of three members, not only appoints the Management Board, but also advises it on a regular basis and monitors its management. The Supervisory Board is directly involved in decisions of material significance for the company. In particular, it audits the annual financial statements and (group) management report and reports on this to the Annual General Meeting.

The two boards work closely together for the benefit of PVA TePla. Further details are explained in the section “Corporate governance statement and corporate governance report”.

GRI disclosures in this section: GRI 2-09

Significant locations and consolidated group



The management and parent company of the Group is PVA TePla AG headquartered in Wettenberg, Germany. It holds various equity interests in Germany and aboard, which as of December 31, 2022 included eight German (previous year: eight) and nine foreign (previous year: eight) sales and production locations in France, Italy, China, Singapore, Korea, Taiwan and the US. Our equipment and systems are produced and assembled and our services (contract processing) provided in Germany at the Wettenberg, Jena, Westhausen and Coburg sites for the most part. Outside Germany, products are manufactured at the sites in Corona and Manassas (both in the US), Schio (Italy), and Chapelle d'Aurec (France).

In the 2022 fiscal year, PVA TePla AG acquired the high-tech SME MPA Industrie SAS, headquartered in La Chapelle-d'Aurec, France, in full as planned, having already held an equity interest of around 10 % in the company since the end of 2020. MPA Industrie SAS has process expertise in silicon carbide (SiC) components and SiC coatings especially in the aviation and aerospace field.

All the shareholdings of PVA TePla AG as of December 31, 2022 are presented in section "C. Companies Included in Consolidation, Principles of Consolidation and Currency Translation" of the notes to the consolidated financial statements.

GRI disclosures in this section: GRI 2-01, GRI 2-02, GRI 2-06

Management system

The Management Board of PVA TePla is independently responsible for managing the company, defines targets and the strategic orientation of the Group, and manages the implementation of its growth strategy. The primary objective of corporate development is to increase company value for all stakeholders and to generate sustained profitable growth. Our focus on value added is also reflected in the variable remuneration components for our management. By defining with market capitalization a multiyear performance criterion related to the long-term success of the company and by giving a high weighting to the long-term elements in the variable remuneration components, the remuneration system makes a significant contribution to the development of the group of companies.

Both short-term budgets and medium to long-term corporate goals are defined using key operating indicators. In order to support growth and at the same time increase profitability, we manage the Group on the basis of sales revenues and EBITDA (earnings before tax, interest, depreciation and amortization), the most important key financial performance indicators. These key performance indicators are calculated, analyzed and planned consistently throughout the Group using a standardized system and are monitored to check whether the defined targets are being met. We will additionally introduce, provisionally in the current 2023 fiscal year, a key figure for the volume of CO_2 emissions (scope 1 and 2, before offsetting) as one of the most important non-financial performance indicators.

in EUR million	2021	2022
Sales revenues	155.7	205.2
EBITDA	23.0	30.0

Most important performance indicators

Sales revenues: PVA TePla aims to increase sales revenues continually as the basis for profitable development of the company. Sales revenues and their development are calculated every month, broken down by region and application segment, and promptly submitted to the Management Board so that an early response to short-term changes can be initiated if needed.

EBITDA: EBITDA and the EBITDA margins are – like the sales revenues – determined on a monthly basis and submitted to the management as part of the internal reporting.

We use other performance indicators to manage our operating activities and evaluate the success of our company. The other financial performance indicators include incoming orders and order backlog, sales revenues by region, and various cost ratios.

GRI disclosures in this section: GRI 2-01, GRI 2-19, GRI 2-21

Research and development

We are an innovative company that develops and manufactures high-quality products. It is our firm conviction that innovations are a key driver of future growth. A core element of our activities in the area of research and development (R&D) also comprises close cooperation with our customers with a view to finding tailored solutions for their specific applications and organizing their workflows and processes more efficiently.

The responsibility for new developments and upgrades lies both with the Management Board and in the respective specialist departments and subsidiaries. Our employees are of particular importance when it comes to technological optimizations. Thanks to their comprehensive knowledge of the processes, they can suggest improvements and thus provide important impetus for the future development program.

Our aim is to diversify in markets that can make a contribution to a more sustainable world. To this end, we conduct screening of relevant markets and trends with a view to identifying opportunities that feature points of contact with our technologies and skills. We will integrate the sustainability strategy firmly in the technology strategy. We will enhance the ability to measure the characteristics of our systems relating to durability and safety for our customers. Another focus will involve analyzing our products for possible efficiency improvements and the possibility of further conserving resources.

Energy efficiency is important not only in the context of the production processes, but is already taken into consideration in product development. At the same time, the continual optimization of existing product lines is one of the core themes of our research and development. We are constantly committed to offering our customers innovative and advanced solutions of the highest quality in order to provide them with a decisive advantage in the competition to gain a leading position in their industries.

For example, the PVA TePla Group completed the “c.Bond”, a new product variant of the diffusion bonding systems, and delivered it to a customer working in industry-related research. Diffusion bonding is a process in which the materials to be joined are welded together at the contact surface under the influence of heat at the contact surface, where atoms from the two materials are diffused and then combine with each other at the interface. Aluminum and its alloys are often used in the semiconductor industry due to their specific properties, such as high corrosion resistance, low density, and high thermal conductivity. They are particularly used to produce functional equipment assemblies and heat exchanger structures. Diffusion bonding is of special importance in this context, as the process does not require the use of an additional material, thus allowing for a high degree of material purity and integrity, which is crucial for semiconductor production. High material purity and integrity ensure that no impurities enter the semiconductor production process, which could affect the performance or quality of the semiconductors.

The c.Bond system is distinguished by its directly heated press plates that allow conductive heating of the workpieces and thus results in a significant energy saving in comparison with traditional diffusion bonding systems. The efficiency of the system has been proved in comparative bonding trials. Diffusion bonding is a critical factor in the production of system components for the semiconductor industry. In a follow-up project, the PVA TePla Group is now working on a new cooling concept to further cut process times and increase the efficiency of the system.

Another important new development that PVA TePla has consistently driven in the last few years is the growing of crystals based on silicon carbide. In this field, a patent for growing crystals in a hydrogen atmosphere for components to be used in 5G and other high-frequency applications was registered in the period under review. Semiconductors produced from this substrate feature several advantages over traditional silicon solutions, which makes their use very interesting in particular in promising areas such as e-mobility and renewable energies, but also in aviation, and could lead to very high demand for corresponding crystal growing capacity.

In order to cater to the high demand that is expected, we have worked intensively on the development of new crystal growing processes in the past few years, while continuing to develop our crystal growing systems in line with that. In the area of crystal growing systems, PVA TePla has worked to optimize process control and replicability in the various segments. Specifically, sensor technology and data recording have primarily been optimized here in order to enable the use of artificial intelligence for process optimization in the future. An important goal here is to further optimize the yield. Yield optimization refers to how many functioning and high-quality silicon wafers can be sawed from a single cultivated crystal. Yield here describes the ratio between the number of silicon wafers produces and the number of silicon wafers that are free of defects. So a higher yield means that more functioning and high-quality wafers can be obtained from a crystal, which leads to greater efficiency and profitability of the production processes. In this connection, it is a matter of optimizing Czochralski systems, which are used to manufacture silicon crystals that are 300 mm in diameter and can be used to product “perfect silicon”.

In the silicon-based photovoltaics segment, work has been and continues to be carried out on process development and optimization for the future G12 wafer standard. The G12 wafer standard refers to the dimensions of silicon wafers that are used in the photovoltaics industry to manufacture solar cells. A G12 wafer is 300 mm in diameter and 200 micrometers thick. In comparison with previous wafer standards such as G1 or G2, the larger diameter allows a higher number of solar cells per wafer and thus higher production capacity. The process development and optimization for the G12 standard aims at increasing productivity in the manufacture of solar cells and reducing the related costs.

In the ultrasound systems business unit, developments have concentrated on the use of AI methods to conduct failure analysis on semiconductor components and for inline inspection controls of power modules for electromobility applications. A new developed algorithm enables defects to be identified using the ultrasound raw data, which means time-consuming manual categorization of the data recorded can be avoided. The evaluation software is increasingly being expanded by plug-ins based on AI and machine learning. In addition, work is being conducted on automating the systems as part of the Industry 4.0 strategy in order to allow them to be used in new fully automated semiconductor production systems. The new AWC (Auto Wafer Controller) software platform from PVA TePla enables the ultrasound systems to be connected to automated transport systems in accordance with the standardizations within the scope of the E84 SECS protocol. The E84 SECS protocol is a standard communication protocol in the semiconductor industry that is used to control systems and to exchange production data.

At the same time, the development of array transducer systems (2-channel arrays and 4-channel arrays) for use in fully automated wafer inspection systems is underway. Array transducer systems are ultrasonic sensors that combine multiple transducers on a single transducer module. They are used in ultrasound technology in order to investigate several areas at once and thus to increase the speed of the investigation.

A total of 26 employees worked in the field of research and development in the year under review. R&D expenses totaled EUR 6.5 million in fiscal year 2022, following EUR 7.0 million in the previous year. This produces an R&D ratio, as a proportion of revenue, of 3.2 % following 4.5 % in the previous year (reported in previous year: 5.1 %).[2] The lower R&D ratio is the result of the high level of sales revenues.

The development activities are conducted both in the context of research and development projects and in the context of customer orders. The latter are not included in the R&D ratio.

GRI disclosures in this section: GRI 2-04, GRI 2-06

Sustainability

Sustainability is an integral element of PVA TePla's strategic positioning that aims to create a shared value for the company and its stakeholders. The focus is placed on enabling every employee, for example through training or workshops or by implementing sustainable practices and processes, to work and do business on a sustainable basis. As an international company with strong regional roots, we know what a major role our employees, the community, and the preservation of the environment play in the success of our company. The comprehensive integration of environmental, social and governance aspects (ESG) in the organizational structures and processes and also in the business model ultimately creates long-term added value for all our stakeholders.

The PVA TePla Group attaches great value to the subject of sustainability and has embedded it as a strategic priority in the management of the Group. The Chief Financial Officer is currently responsible for implementing sustainability activities, supported by a sustainability team drawn from various units. Coordination with the Supervisory Board takes place on a regular basis.

As part of our continuous improvement processes, we will further expand our sustainability activities as a strategic priority in the years to come, while also updating or supplementing existing objectives and measures We will also define new targets and derive measures here in order to further enhance our sustainability performance.

Sustainability and its various aspects are taken into account in the strategy, in management, and in the day-to-day operating activities. Taking responsibility is consequently also an important and integral element of our corporate policy in our operations.

[2] Basis of calculation since fiscal 2022: R&D expenses according to income statement as a proportion of sales revenue; the previous year's value additionally contained project-related R&D expenditure.

The PVA TePla Group addresses a large number of sustainability issues that extend across all areas of the organization – starting from human resources management and procurement, through research and development, and all the way to production. Implementing strategic initiatives and monitoring their progress is the responsibility of the relevant divisional heads or of responsible officers they have designated. Because of the Group's decentralized organizational structure, they are supported by the subsidiaries on site as needed. These measures are implemented and reviewed on an ongoing basis in order to ensure that they play a continual role in the sustainable development of the company. If no other time period is referred to, all measures are understood to be ongoing.

GRI disclosures in this section: GRI 2-12, GRI 2-13, GRI 2-14, GRI 2-22, GRI 2-23

Materiality and stakeholder engagement

The focal points of the sustainability management in accordance with the CSR Directive Implementation Act (CSR-RUG) are derived from a materiality analysis that was conducted at the end of 2020. The process for identifying the key issues was based on the four steps of the GRI Standards. In order to filter the relevant areas, we first drew up a catalog of issues, which we then adjusted, consolidated, and clustered. In this process, the issues that are key for understanding the Group's business performance and development and that have significant impacts on PVA TePla as a result of its own business activities were identified as material. Internal and external stakeholder groups were involved in identifying the material issues, for example by means of a public stakeholder survey.

The company reviews each year whether the issues identified in this analysis are still relevant and complete. The annual review for 2022 did not produce any substantial change in the issues identified, but the designations have changed as a result of the focus for the first time on the GRI standards.

Because of its secondary importance for the understanding of PVA's business performance and development, the social issues aspect was not classed as material within the meaning of Section 289c HGB. For example, no donations are made and no sponsorship activities are conducted to or for political parties or similar organizations in Germany or abroad in principle. Donations and sponsorship activities for sporting, fundraising or similar events require the approval of the Management Board and are conducted only on a small scale, so they are not of any relevance for the understanding of the business performance and development.

GRI disclosures in this section: GRI 2-22, GRI 2-29, GRI 3-01, GRI 3-02

Sustainable corporate governance

The key characteristic of the PVA TePla Group's relationships with business partners, employees, competitors, shareholders, and the general public is its good reputation. Great importance is ascribed here to the unconditional commitment to values such as credibility, reliability, discretion, and integrity, accompanied by compliance with laws, directives, regulations, and internal standards. The sustainable business performance of the PVA TePla Group is based on fundamental values and principles that form an integral element of our corporate culture. We consider compliance with applicable laws and regulations to be an essential basis for conducting our business successfully. We attach great importance to fair competition and also to treating our business partners and employees fairly and with respect here.

Good corporate governance and compliance

In addition to legal requirements and internal provisions, the regulatory framework that PVA TePla is guided by also includes the German Corporate Governance Code. The declaration of conformity of the Management Board and Supervisory Board is reproduced in the corporate governance statement.

The PVA TePla Group has implemented a compliance management system to ensure that the policies on business ethics are embedded and correctly implemented throughout the entire company.

The cornerstone of compliance management is the code of conduct as currently published. It describes the risks associated with business activities and includes specific recommendations for conduct. The code of conduct is binding worldwide for all employees and executives of the PVA TePla Group. Furthermore, the Group will continue to standardize the communication of these principles to customers and suppliers by introducing the supplier code of conduct that is planned in the medium term.

The code of conduct contains regulations on data privacy, product safety, and environmental protection as well as requirements for combating corruption, bribery and restraints of competition.

The PVA TePla Group has implemented a variety of training portals and will continue to expand these in the future. Training courses on subjects such as occupational safety, IT security, compliance, data security, and conduct toward colleagues will be of great importance here.

A culture that involves paying attention to and reporting breaches is actively promoted and put into practice by executives of the PVA TePla Group. Employees are encouraged to report possible breaches and to play an active part in the implementation of the code of conduct. This is of crucial importance for the PVA TePla Group, as a significant loss of reputation, fines, and, in extreme cases, prison sentences for employees who have breached statutory regulations, could result from circumstances of this kind. Our aim is to completely prevent corruption and bribery (including conflicts of interest, money laundering, etc.) in order to strengthen a legally compliant and ethical work environment in which risks can be identified and prevented before they materialize.

GRI disclosures in this section: GRI 205, GRI 2-16, GRI 2-25, GRI 2-26, GRI 2-27

Whistleblowing

We have set up reporting lines for identifying ethical misconduct at an early stage. Prompt communications are of crucial importance for initiating preventive measures to avoid or mitigate major financial losses or reputational damage. If employees observe or receive information about potential or actual misconduct or a breach of internal rules or statutory regulations, irrespective of whether this has been committed by other employees or business partners, they should report the incident.

Number of whistleblowing cases: 0 (previous year: 0)

In addition to our employees, other stakeholders such as business partners, customers, suppliers, and shareholders are also valuable sources of information. They can also provide us with support in identifying breaches of ethical standards. We have introduced a whistleblower mechanism for this purpose, which can be accessed online by everyone (https://www.pvatepla.com/whistleblowing). Anyone can use it to report suspected cases in connection with corruption, bribes, conflicts of interest, antitrust legislation, or capital market law. Reports can be submitted anonymously if required.

In addition to our whistleblowing system, other reporting channels are also available to our employees to take action if they have any suspicions. Employees can get in touch with their manager, the works council, the company's management, corporate security, or the human resources department as points of contact.

The Management Board is informed immediately when a suspicious incident is reported.

GRI disclosures in this section: GRI 205, GRI 2-16, GRI 2-25, GRI 2-26

Risk and Opportunity Management

Good corporate governance is also based on handling risks and opportunities responsibly. With the help of the PVA TePla risk management system, the Management Board is able to identify and respond to Group-wide risks at an early stage. The functions of the risk management system are regularly reviewed by the internal audit department.

To be able to identify and respond appropriately to risks at an early stage, the PVA TePla Group conducts risk inventories on a regular basis and at least once a year. These serve to identify risks in various areas, such as production, supply chains, the environment or occupational safety. Ad hoc, event-driven risk inventories are additionally prepared if new risks emerge or existing risks change. The results of the risk inventories are integrated in the continual improvement of the processes and systems in order to minimize risks and support the security and continuity of our activities.

As part of its ESG risk management, the PVA TePla Group considers potential risks and opportunities along its value chain and takes both internal and external factors into account here. An outside-in approach is pursued here, in which external factors such as regulatory developments, social trends, or ecological conditions are analyzed in order to evaluate possible impacts on the company. At the same time, an inside-out approach is also pursued, which examines internal processes and workflows for potential risks that originate from the company and its business relationships and affect the aspects of sustainability that have been identified (see chapter "About this Report"). The aim is to obtain a comprehensive understanding of the impacts of these risks and to initiate suitable measures to minimize them and take advantage of opportunities. We are continually working on enhancing our ESG approach and involving our stakeholders even more closely in it. In the year under review, we did not identify any very likely, serious impacts originating from PVA TePla on the identified sustainability aspects.

For more information on how the risk management system of the PVA TePla Group works, please see the statements in the section "Risks and Opportunities" in this report.

Sustainability in the supply chain

We are aware that, in the course of our global purchasing activities, we can have a major influence on society and the environment in our procurements markets. That is why we are planning to implement a Group-side supplier code of conduct. Key parts of the German Act on Corporate Due Diligence in Supply Chains are taken into consideration on a voluntary basis.

We want to pursue a regional focus as far as possible in our procurement processes in order to promote the economies of the countries in question and reduce transport distances. However, we are aware that in some cases it is not possible or sensible to purchase from the region, for example if there are no suitable suppliers on site or the quality or availability of the products required is not given. We intend to continue to optimize our procurement processes and to take both economic and ecological aspects into consideration here.

Against the backdrop that supply chains continue to suffer constraints, we implemented measures in the period under review to ensure delivery capacity. For example, master agreements were entered into with some key suppliers, larger quantities of parts that can be used flexibly were procured in advance, and contacts with alternative suppliers were also established in some cases. More active management has additionally been implemented involving close monitoring of production on site.

The US conflict minerals legislation (in the Dodd-Frank Act) requires companies to disclose the origin of certain raw materials. This is intended to prevent conflict minerals such as tin, tungsten, tantalum, and gold (referred to as 3TG) from the Democratic Republic of the Congo or its neighboring states from entering supply chains and being used in the company's products without its knowledge. In addition, Regulation (EU) 2017/821 of the European Union, which came into force on January 1, 2021, lays down an expanded human rights due diligence obligation for companies in relation to 3TG by including all global conflict-affected and high-risk areas.

PVA TePla use gold and compounds containing gold, tungsten, and tantalum in some of its production and therefore demands certificates of origin from suppliers that are potentially affected by this issue.

Based on its own information, the PVA TePla Group did not purchase any conflict minerals from mines in relevant conflict-affected regions in the 2022 fiscal year.

GRI disclosures in this section: GRI 204, GRI 2-27

Respect for human rights

The issue of human rights violations is a high priority at the PVA TePla Group, as any breaches of human rights could pose the risk to the company of a loss of reputation, accompanied by a possible loss not only of market shares, but also of employees.

The PVA TePla Group respects human rights, which are recognized internationally, supports compliance with them, does not accept any child or forced labor within its companies and supply chains, stands for equal opportunities, and does not tolerate any form of discrimination. We explicitly reject any form of unequal or degrading treatment on the basis of gender, ethnic origin, religion or ideology, disability, sexual orientation, or age.

These principles apply throughout the whole Group and are embedded in writing in the current code of conduct as part of its corporate culture. We intend to introduce a harmonized supplier code of conduct throughout the Group in the future, which will define the ethical principles and conduct of the PVA TePla Group clearly and uniformly and which will be put forward to all employees, suppliers, and business partners as mandatory. We are setting ourselves the goal with this supplier code of conduct of creating a culture of integrity, transparency, and sustainability in our company. The aim of the PVA TePla Group is to prevent human rights violations within the Group and also along the supply chain.

The number of suspected cases of human rights violations that are reported is regarded as the relevant benchmark. No suspected cases of human rights violations were recorded in the period under review.

GRI disclosures in this section: GRI 2-06, GRI 2-08, GRI 2-27, GRI 2-29

Our contribution to climate change mitigation

As a manufacturing company, we are aware that our business activities have an impact on the environment, for example in the form of emissions, effluents, and waste. In order to play our part in climate change mitigation, we have set ourselves the goal of preventing direct and indirect greenhouse gas emissions wherever possible. Should emissions be unavoidable, we will reduce these as optimally as possible and offset the remaining portion in the future.

We want to play our part in overcoming the central challenge of climate change and we are committed as a company to protecting the environment. We have therefore established a sustainability team that reports directly to the Management Board and is responsible for corporate environmental protection.

The purpose of our sustainability team is to reduce our ecological footprint and create more environmentally friendly processes. We concentrate here in particular on the areas of energy, waste, and resource conservation.

Our target defined in the 2022 reporting year: net CO_2 neutrality (scope 1 and 2) by 2024.[3]

Increases in efficiency in the use of materials and energy as well as emissions and waste generation are key elements of corporate environmental protection for us. We are focusing on technical adjustments and modernizations to improve the energy efficiency in our research and development processes and also in our buildings. This includes for example purchasing electricity generated by renewable energies and optimizing production processes through the use of more energy-efficient equipment. In the period under review, we optimized our air conditioning and heating system at the Wettenberg site, for example, and thus ensured more efficient usage.

We want to increase our focus on generating energy from renewable sources on site ourselves in the future wherever this is economically viable. By doing so, we would like to reduce our dependence on external energy suppliers and play our part in the energy transition. We conduct regular reviews of electricity costs, consumption, and CO_2 equivalents and, where appropriate, switch electricity suppliers at sites that we own as part of our strategy to generate and use energy effectively.

Alongside our efforts to reduce the emissions from our production process, we also place a clear focus on energy efficiency when developing our products. Moreover, our products are used in forward-looking areas such as e-mobility, digitalization, and renewable energies.

[3] Other greenhouse gases are converted into CO_2 equivalents in accordance with the Greenhouse Gas Protocol.

Raising the awareness of employees about climate protection

We encourage our employees to play their part in climate protection. In our ESG newsletter that we launched in the year under review, we report on Group-wide climate protection measures and targets, among other things. We additionally provide support for employees who would like to get around in a climate-friendly way. For example, we have launched an ongoing process to replace leased vehicles with more efficient models. We are investing at our German locations in the installation of charging stations at the company's own parking lots in order to promote the switch to electromobility. In order to promote healthy behavior, the PVA TePla Group provides financial support for its employees at the German locations through the "JobRAd" company bike scheme: the employer leases bicycles and e-bikes, and enjoys tax incentives to do so, and provides them to the employees to use for free.

Energy consumption and greenhouse gas emissions

We have set ourselves the goal of reducing our energy consumption and minimizing our environmental impact. Our energy officers play an important role at the respective locations here. They are responsible for managing energy consumption and work on establishing standards and measures to ensure a harmonized approach. We have already made progress in this connection. For example, we have been able to reduce total heat consumption at our largest location in Wettenberg by 30 %. These successes give us the encouragement to continue boosting our efforts to enhance energy efficiency. In the medium-term, we are planning to introduce regular energy audits in order to further optimize our energy consumption and improve our environmental footprint.

The PVA TePla Group primarily uses electricity and, to a lesser extent, heat. In order to reduce the electricity consumption from non-renewable sources such as coal, solar panels have been installed on the roofs and facades of the company buildings at the Wettenberg and Jena locations. Our long-term goal is to reduce the use of fossil fuels as far as possible and to generate energy on site ourselves that accounts for around 20 % to 25 % of our energy consumption at the Wettenberg and Jena locations.

The principles and methods of the Greenhouse Gas Protocol[4] were used for the first time in the period under review to calculate the greenhouse gas inventory. Comparative values for the previous year were also recalculated in this process. The calculations are based in part on estimates or extrapolations from previous years' values.

[4] Greenhouse Gas Protocol | (ghgprotocol.org)

The following emissions are reported:

Scope 1:
Direct greenhouse gas emissions from combustion processes in stationary systems (e. g. natural gas, fuel oil), mobile sources (fuel for owned or leased mobile vehicles), and direct emissions of volatile gases (e. g. refrigerants, methane).

Scope 2:
Indirect greenhouse gas emissions from purchased or acquired electricity and district heating. Both the market-based and the location-based approach are used when calculating scope 2 emissions.

GRI designation	Key performance indicators	2022	2021
Energy	Energy consumption by energy source[5] Gas and heat (in kWh)	2,008,671	2,099,203
	Electricity consumption (in kWh)	6,836,386	6,470,126
CO_2 emissions	Scope 1 (in metric tons of CO_2e)	467.81	436.27
	Scope 2 (location based) (in metric tons of CO_2e)	2,983.67	2,853.82
	Scope 2 (market based) (in metric tons of CO_2e)	2,857.02	3,036.72
	Scope 1 + 2 (location based) (in metric tons of CO_2e)	3,451.48	3,290.08
	Scope 1 + 2 (market based) (in metric tons of CO_2e)	3,324.84	3,472.99

Electricity consumption totaled 6.8 million kWh in the reporting year (previous year: 6.5 million kWh). The 0.3 million kWh increase from the previous year was thus lower than the increase in production volume. At 2.0 million kWh, heating energy consumption was lower than the previous year's figure of 2.1 million kWh.

GRI disclosures in this section: GRI 2-04, GRI 302, GRI 305

[5] Verbrauch von Benzin, Diesel, Kühlmittel und sonstigen Energieträgern nur in geringfügigem Umfang, daher kein Ausweis.

Effluents and waste

The PVA TePla Group uses materials in its production processes that can have a negative impact on the environment if handled incorrectly. Waste such as electronic waste, adhesive residues, solvents, municipal solid waste, cardboard, paper and packaging materials.

The PVA TePla Group is planning in the future to conduct a comprehensive analysis of the consumption of resources within the organization and to develop a reduction and circular concept for waste, water, and other resources. The amount of waste generated in the PVA TePla Group will be calculated each year as the relevant performance indicator. The aim is to largely prevent, to recycle, or at least to dispose appropriately of waste that is generated in production in order to minimize negative impacts on the environment. The waste that is generated in the administration buildings, such as paper waste, will also be reduced by raising the awareness of the employees.

In general, the PVA TePla Group prefers to select disposal methods that enable the environmentally compatible and sustainable use of the waste, for example recycling or energy recovery. If this is not possible, the waste is disposed of, for example at special landfills. The employees of the PVA TePla Group are required to separate their waste properly and also to pay careful attention to their consumption of printer paper, packaging, and consumables, etc.

Processes and structures are continually optimized in order to handle resources efficiently and to minimize environmental impacts. The PVA TePla Group additionally implemented a new measure, the so-called “pendulum box”, for the reuse of transport and packaging materials in the period under review in order to further drive the efficient handling of resources and the minimization of environmental impacts. Transport and packaging materials that can be reused are systematically collected and taken for recycling.

When selecting and using raw materials, technologies, and production processes, the PVA TePla Group takes their environmental compatibility into consideration and complies with applicable regulations, such as the requirements of the European chemicals regulation REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) and the European RoHS (Restriction of Hazardous Substances (RoHS) directive. Materials that have the potential to cause harm are replaced where possible by less problematic substances.

Moreover, we focus on the efficient use of resources in our production lines. For example, we have replaced wood in devices by metal or steel where this has been possible in order to reduce wood consumption.

GRI disclosures in this section: GRI 301, GRI 306

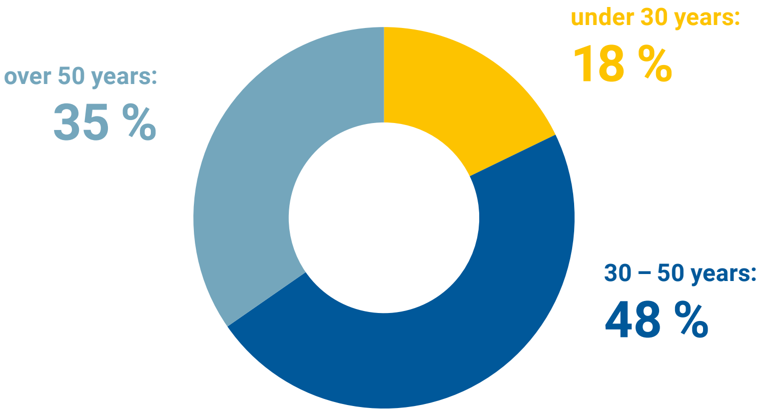
Responsibility for our team

Our human resources strategy is derived from the general corporate strategy. At the same time, the HR strategy is based on our corporate values and our cultural awareness. The general objectives of our human resources strategy are laid down by the management of the Human Resources (HR) corporate function in consultation with the Management Board. Our HR policy is geared towards long-term work, as both employees and our company benefit from long-term employment relationships.

Encouraging performance and options for exerting personal influence are also a key focus here, as are the upgrading and long-term development of the employees' individual skills and abilities. We are also aware that job security is an important concern not only for the individual employee, but also from a social perspective and for the region where they work. We want to fulfill this responsibility through forward planning.

We attach great importance to the subject of diversity and equal opportunity. It is our conviction that diversity encourages the exchange of knowledge, different viewpoints, and open cooperation. As a company, we endeavor to support a culture of diversity and equal opportunity and to prevent discrimination in any form. We are committed to treating all employees fairly irrespective of gender, age, ethnic origin and nationality, religion, sexual orientation, or disability, and to providing them with equal opportunities and access to career growth. We are planning to develop an implementation plan in the current fiscal year to promote diversity and the realization of equal opportunities. An important step here is the introduction of a suitable performance indicator to measure diversity that will allow us to document and monitor our progress in this area.

Age structure



Employees in total:
613

The PVA TePla Group employed a total of 613 staff in 2022, compared with 565 in 2021. The proportion of female employees was 19.6 %, the same as the previous year.

Looking at the number of women in management positions in the first and second levels below the Management Board, the ratio was 17.8 % in 2022 compared with 18.3 % in the previous year. These key figures cover all the companies in the Group; the holding company PVA TePla AG did not have a second management level below the Management Board in the period under review.

We are aware that increasing the proportion of women is a long-term process and one that requires a constant effort. We will rise to this challenge.

The average ago of our employees was 43, compared to 44.6 in the previous year, while the average length of service amounted to 8.0 years, compared to 8.8 years in the previous year. Staff turnover was 6.4 % in 2022 and 5.0 % in the previous year.

Key performance indicators	2022	2021
Employees, total	613	565
– of which male in %	80.4	80.4
– of which female in %	19.6	19.6
Consideration of women in management positions in % (1st and 2nd level below the Management Board)	17.8	18.3
Number of trainees	34	36
Average age in years	43	44,6
Average length of service	8.0	8.8
Staff turnover	6.4	5.0
Work-related accidents involving at least one lost day, ratio*	14.68	10.75

* Work-related accidents in the year per thousand employees

GRI disclosures in this section: GRI 2-07, GRI 401-1, GRI 405-1

Promotion of employee satisfaction

We are aware that the satisfaction of our employees has a significant influence on their performance and length of service as well as on the company's success. That is why we strive to ensure a high level of employee satisfaction in order to long-term commitment. Our goal is to keep the turnover rate as low as possible and the average length of service stable. We offer our employees exciting job opportunities as well as flexible working hour models, including flextime and working time accounts, part-time jobs, remote work, and many other benefits.

To promote and support our corporate strategy in the best possible way, we are committed to offering competitive remuneration and benefit packages.

In addition, we offer our employees an attractive work environment and provide them with support in the form of numerous offers and services. We want to enhance the satisfaction of our workforce in this way.

We intend to develop an implementation plan in the current fiscal year to further increase employee satisfaction. An important step here is to introduce a suitable performance indicator in the medium term for systematically recording the satisfaction of our employees in order to monitor and document our progress in this area. We will take measures to implement targeted improvements in the work environment and in the working conditions on the basis of the results of employee surveys.

Benefits at our locations in Germany:

- Flexible working hours
- 30 days annual leave
- Remote working
- "JobRad" bike leasing scheme
- Subsidized pension scheme
- Bonuses
- Subsidized staff cafeteria*
- Long-service bonuses
- Parking spaces*
- Company physician*
- Shopping benefits through employee discounts
- Development opportunities
- Modern workstations
- Accessibility*
- Company holidays
- Public transport connections
- Fitness center*
- Free coffee, subsidized soft drinks
- Health care

* not at all locations

The existing programs will be revised and harmonized with an international focus as part of our sustainability strategy.

GRI disclosures in this section: GRI 401-2

Occupational health and safety

As a responsible company, it is a matter of course for us that we take measures to protect the health of our employees and boost their performance. We endeavor to keep the number of accidents and the frequency of days lost due to illness as low as possible.

We have introduced a management system covering health and safety at the workplace so that our employees can work in a safe environment. This system is based on the legal requirements in each country in which we operate. The minimum requirement for occupational health and safety is compliance with the relevant legal provisions specific to each country. Other measures are additionally taken to promote the health and safety of our employees.

Different occupational safety requirements apply in the production, service, administration, and sales departments. Measures have therefore been implemented at the PVA TePla Group that are based on local circumstances and that help to ensure that employees are not exposed to any hazards during their work. These include, for example, the fire safety measures stipulated by law, which are implemented in the form of a central fire alarm system, firewalls, smoke ventilation systems and sprinkler systems, as well as common equipment that makes working life easier. This includes protective equipment such as hard hats, safety footwear, and safety goggles, for example. Additionally, a number of employees have group accident insurance.

Our approach to the continual improvement of our management system for ensuing health and safety at the workplace comprises regular reviews and assessments that aim to identify possible risks and weaknesses and to institute suitable measures for minimizing or eliminating these risks. We also diligently follow up on the impacts of our measures and monitor our progress in improving occupational health and safety for our employees. The measures and processes that are implemented aim to guarantee a high degree of safety for the PVA TePla Group's workforce.

Safety training for all employees is conducted on a regular basis at all locations, predominantly online.

Accidents and cases of illness are recorded and evaluated to measure occupational health and safety. Our aim is to keep the accident rate as low as possible and, at the same time, below the industry average. To this end, we compare ourselves against the accident insurance of the industrial economy.

In 2022, the accident frequency rate per 1,000 employees was 14.68 (work-related accidents with at least one day of downtime), compared to 10.75 in the previous year (a value of 1.1 was reported in the previous year's report due to a transmission error). The lower value in the previous year was the result of the cut in production times connected to the corona pandemic. The last recorded industry average for 2021 was 22.83.[6] As in the previous year, there were no work-related accidents that resulted in death in the 2022 fiscal year.

We attach great importance to the health of our employees. Preventive measures are instituted to avoid work-related disruptions and illnesses. One example here is that special attention is paid to ergonomics at the workstation, which we have improved at many locations in the last few year.

[6] https://www.dguv.de/de/zahlen-fakten/au-wu-geschehen/au-1000-vollarbeiter/index.jsp

As part of the company's health management system, employees are able to consult a company physician free of charge for general check-ups, eye tests, and vaccinations, etc, which can even be conducted directly on site. The confidentiality of employees' personal health data is guaranteed in order to ensure that this information is not used to treat employees in either a favorable or unfavorable way.

In addition, a fitness room, known as Fitness Point, in the company building at the Wettenberg location is available and free to use. Moreover, a health day is generally held at least once a year, on which various health promotion offers are introduced to the workforce.

As in previous years, we also upgraded other office premises in the period under review, installing ergonomic workstations with height-adjustable desks in order to provide our employees with a healthy work environment.

In view of the Covid-19 situation, in the past fiscal year PVA TePla also made sure that the health of the employees at the company's locations was safeguarded by comprehensive protection and hygiene concepts. In light of the extraordinary challenges impacting the health and safety of the employees, we constantly analyzed international and local developments and derived necessary measures to minimize the risks of infection at all our locations.

GRI disclosures in this section: GRI 403-1, GRI 403-2, GRI 403-3

Training and education

We are actively committed to promoting the training of new and junior employees and have set ourselves the goal of increasing the number of our trainees in line with our growth strategy. We will also introduce performance indicators in the future to measure the success of the strategy, which will provide us with an informative assessment of its effectiveness.

We expect investments in training and education to continue to rise in the medium-term as we aim to ensure that our workforce always has the necessary abilities to meet the challenges posed by the ever-changing business environment.

In order to fill the training spots for IT specialists, system integrators, industrial salespersons, mechanical and mechatronic engineers, the PVA TePla Group has a range of measures on offer at its locations in Germany, entering into sponsorships with schools and universities and offering orientation days and internships for pupils and students. Specific training programs have also been developed and established in order to the meet high demand for new employees with practical, hands-on training. The PVA TePla Group works in cooperation with other enterprises here, the apprentices are given basic training at training workshops before switching to advanced training on the PVA TePla Group in the second year. Cooperation projects are additionally in place with universities to train students (bachelor of science), where, among other things, the PVA TePla Group supervises term papers, undergraduate dissertations and master's theses. These programs were further intensified as part of the PVA TePla Group's training concept and supplemented by the dual training system offering an integrated degree program. To increase our attractiveness as a training organization, graduates of the relevant training courses, also of the integrated degree program, are generally offered a permanent position after they successfully complete their training.

34 trainees were employed in 2022.

Furthermore, investing in the continuous professional development of the current workforce is essential for achieving sustainable economic success. To enable employees to maximize their potential, the PVA TePla Group offers a wide range of opportunities for further development. The further training measures encompass personality, management, social and professional skills. Employees with relevant experience can take up suitable professional development options to specialize in related skills and thus take advantage of corresponding career opportunities within the Group. In this way, the PVA TePla Group ensures the ongoing development of its employees and their qualifications to meet new challenges.

The expenses for training and professional development totaled EUR 364 thousand in fiscal year 2022, compared with EUR 167 thousand in the previous year.

GRI disclosures in this section: GRI 404

EU taxonomy

1. Reporting requirements

For fiscal year 2022, non-financial companies required to prepare a non-financial report in accordance with Article 19a or Article 29a of Directive 2013/34/EU of the European Parliament and of the Council (the Accounting Directive) in the context of these disclosures have to state how and to what extent the undertaking's activities are associated with economic activities that qualify as environmentally sustainable in accordance with Regulation (EU) 2020/852 of the European Parliament and of the Council as well as the complementary delegated acts (hereinafter: the EU Taxonomy Regulation). In accordance with Article 3 of the EU Taxonomy Regulation, an economic activity qualifies as environmentally sustainable "where that economic activity:

a) contributes substantially to one or more of the environmental objectives set out in Article 9 in accordance with Articles 10 to 16;
b) does not significantly harm any of the environmental objectives set out in Article 9 in accordance with Article 17;
c) is carried out in compliance with the minimum safeguards laid down in Article 18; and
d) complies with technical screening criteria that have been established by the Commission in accordance with Article 10(3), 11(3), 12(2), 13(2), 14(2) or 15(2).

The environmental objectives specified in Article 9 are:

1. climate change mitigation (Article 10);
2. climate change adaptation (Article 11);
3. the sustainable use and protection of water and marine resources (Article 12);
4. the transition to a circular economy (Article 13);
5. pollution prevention and control (Article 14); and
6. the protection and restoration of biodiversity and ecosystems (Article 15)."

In accordance with the *draft commission notice on the interpretation and implementation of certain legal provisions of the Disclosures Delegated Act under Article 8 of EU Taxonomy Regulation on the reporting of Taxonomy-eligible and Taxonomy-aligned economic activities and assets (second Commission Notice)* of December 19, 2022, only the Taxonomy-eligibility and alignment for the two environmental objectives climate change mitigation and climate change adaptation have to be reported for the fiscal year 2022 (see question 2 of the draft commission notice). To avoid double counting, the analysis was primarily conducted for the environmental objective relating to climate change mitigation and subsequently supplemented by a review of other sales revenues, capital or operating expenditures for the environmental objective involving climate change adaptation to complete the work. No other taxonomy-eligible economic activities resulted from the review conducted for the environmental objective relating to climate change adaptation.

The PVA TePla Group does not perform any relevant economic activities involving natural gas or nuclear energy, and so the reporting does not include the tables on the non-disclosure of natural gas and nuclear energy activities.

No taxonomy-aligned activities that served to cover the Group's own internal consumption within the meaning of Annex 1, section 1.2.3 of Commission Delegated Regulation 2021/2178 were performed in the year under review.

The Taxonomy Regulation and the related delegated acts use formulations and requirements that are currently still subject to uncertainties of interpretation. How they are interpreted by the management of the PVA TePla Group is presented in this combined non-financial statement.

2. Analysis of the sales revenues

To begin with, all economic activities of the PVA TePla group of companies that relevant for external sales revenues were compared with the economic activities described in Annexes 1 and 2 of Commission Delegated Regulation 2021/2139 of June 4, 2021 in order to identify which economic activities are taxonomy-eligible in accordance with the EU Taxonomy Regulation in terms of climate change mitigation (environmental objective 1) and climate change adaptation (environmental objective 2). The analysis referred here to all the companies included in consolidation in the PVA TePla Group

The economic activities of the PVA TePla Group that are not covered by Commission Delegated Regulation 2021/2139 qualify as taxonomy-non-eligible in relation to the two climate objectives.

For the products manufactured by PVA, the analysis of PVA's economic activities and the comparison with the economic activities defined as taxonomy-eligible showed that the manufacture of the products is not itself a taxonomy-eligible economic activity within the meaning of the EU Taxonomy Regulation. That is because the systems and technologies of PVA TePla do not come under the specific description of the economic activity.

However, as a supplier, the PVA TePla Group supports key manufacturing processes and technology developments of other industrial undertakings with its systems and services.

The systems and types of equipment that the PVA TePla Group manufactures and supplies to its customer can be used in principle for the following economic activities:

- 3.1 Manufacture of renewable energy technologies
- 3.2 Manufacture of equipment for the production and use of hydrogen
- 3.3 Manufacture of low carbon technologies for transport
- 3.4 Manufacture of batteries
- 3.5 Manufacture of energy efficiency equipment for buildings
- 3.6 Manufacture of other low-carbon technologies

However, these economic activities are not performed by PVA itself, and consequently do not constitute taxonomy-eligible economic activities for PVA.

No net sales revenues are generated by the solar panels installed on the buildings of the PVA TePla Group.

No taxonomy-eligible sales revenues (numerator of the turnover KPIs) were thus identified for the fiscal year 2022. An analysis looking at the taxonomy alignment of sales revenues was consequently dispensed with. The denominator for the turnover comprises the sales revenues in accordance with IAS 1.82 (a), which were taken from the income statement.

3. Analysis of the capital expenditure

The values for the denominator for the CapEx KPI were taken from the data of the consolidated financial statements for fiscal 2022 and comprise property, plant and equipment and intangible asset combined, less goodwill.

To determine the numerator of the CapEx KPI, an analysis of the consolidated statement of changes in fixed assets for fiscal 2022 was performed. All additions to the assets that were also used to calculate the denominator for CapEx were examined to see if they were taxonomy-eligible and, based on that, whether they were taxonomy-aligned. The analysis here showed taxonomy-eligible capital expenditure for the fiscal year 2022 only on a small scale in the following categories.

- 6.4 Operation of personal mobility devices, cycle logistics
- 6.5 Transport by motorbikes, passenger cars and light commercial vehicles
- 7.7 Acquisition and ownership of buildings
- 8.1 Data processing, hosting and related activities

PVA's fleet of vehicles, which comes under Category 6.5 Transport by motorbikes, passenger cars and light commercial vehicles, was subjected to a detailed analysis in the 2022 year under review in comparison with the previous year's reporting. As according to *Commission Notice on the interpretation of certain legal provisions of the Disclosures Delegated Act under Article 8 of EU Taxonomy Regulation on the reporting of eligible economic activities and assets (2022/C 385/01)* all vehicles, even those with a combustion engine, can qualify as taxonomy-eligible, the PVA TePla's vehicle fleet constitutes a taxonomy-eligible asset class in the CapEx area. The analysis of the taxonomy alignment of this asset class in relation to compliance with these screening criteria for a substantial contribution to climate change mitigation showed that, in the context of the fleet, there are vehicles that comply with the technical screening criteria only to a negligible extent, which is why it is not possible to recognize any taxonomy-aligned capital expenditure. The analysis of the vehicles was carried out here at the line-item level.

Moreover, there were taxonomy-eligible additions in Category 6.4 as a result of bicycle leasing. As compliance with the 'do no significant harm' (DNSH) criteria could not be guaranteed for this category, the capital expenditure was classed as non-taxonomy-aligned.

The capital expenditure in Category 7.7 consisted of the purchase of buildings during the acquisition of MPA Industrie SAS. Category 8.1 primarily involved capital expenditure relating to servers and data centers in the year under review. As a significant contribution to climate change mitigation could not be unequivocally guaranteed for these two categories, the capital expenditure was classed as not taxonomy-aligned.

The analysis did not take into consideration any capital expenditure for parts of a plan to expand taxonomy-aligned economic activities or to convert taxonomy-eligible economic activities into taxonomy-aligned economic activities (known as CapEx plans), as PVA TePla's investment planning does not yet include any screening in relation to DNSH criteria or compliance with minimum protection.

4. Analysis of the operating expenditure

For the denominator of the operating expenditure KPI, the analysis records direct non-capitalized costs that relate to research and development, building renovation measures, short-term leases, maintenance and repair, and any other direct expenditures relating to the day-to-day servicing of assets of property, plant and equipment by the PVA TePla Group or third party to whom activities are outsourced that are necessary to ensure the continued and effective functioning of such assets. They are not recognized in the consolidated financial statements in this form, but were derived from income statement accounts as a result of an analysis and supplemented by the expenses for research and development (R&D).

To determine the numerator, the direct non-capitalized costs were subjected to an examination to see whether they relate to assets or processes associated with taxonomy-aligned economic activities, including training and other human resources adaptation needs, and direct non-capitalized costs that represent research and development; Taxonomy-eligible operating expenditure was identified in the following categories in fiscal 2022:

- 6.5 Transport by motorbikes, passenger cars and light commercial vehicles
- 7.7 Acquisition and ownership of buildings
- 8.1 Data processing, hosting and related activities

In Category 6.5, expenditure resulted primarily for the servicing and maintenance of the vehicles in the fleet. Expenditure in Category 7.7 primarily comprised expenses for maintenance on existing buildings. Category 8.1 primarily included expenditure for the maintenance and upkeep of a cloud-based database.

As the substantial contribution to climate change mitigation was either not given or could not be unequivocally guaranteed for these three categories, the operating expenditure identified as taxonomy-eligible was classed as not taxonomy-aligned.

The analysis of the R&D expenses did not identify any taxonomy-eligible R&D expenses for the reporting year 2022.

The analysis did not take into consideration any operating expenditure for CapEx plans, as PVA TePla's investment planning does not include any screening in relation to DNSH criteria or compliance with minimum protection.

Double counting in relation to capital expenditure and operating expenditure was ruled out, as the economic activities that are asserted are not connected with each other.

Template: Share of turnover from goods or services related to E.U. taxonomy indicators: 2022 turnover

				Criteria for a significant contribution					
Economic activities (1)	Code(s) (2)	Absolute turnover (3)	Proportion of turnover (4)	Climate change mitigation (5)	Climate change adaptation (6)	Water and marine resources (7)	Circular economy (8)	Pollution (9)	Biodiversity and ecosystems (10)
		k EUR	%	%	%	%	%	%	%
A. Taxnomy-eligible activities									
A.1 Ecologically sustainable activities (taxonomy-compliant)									
Turnover of ecologically sustainable activities (taxonomy compliant) (A.1)		0	0						
A.2 Taxonomy-eligible but not ecologically sustainable activities (non-taxonomy-compliant activities)									
Sales of taxonomy-eligible but not ecologically sustainable activities (non -taxonomy-compliant activities)		0	0						
Total (A.1 + A.2)		**0**	**0**						
B. Activities not eligible taxonomy									
Turnover not taxonomy-capable Activities (B)		205,225	100.00						
Total (A. + B.)		**205,225**	**100.00**						

Template: CapEx share of goods or services associated with E.U. taxonomy indicators: 2022 CapEx

				Criteria for a significant contribution					
Economic activities (1)	Code(s) (2)	Absolute turnover (3)	Proportion of turnover (4)	Climate change mitigation (5)	Climate change adaptation (6)	Water and marine resources (7)	Circular economy (8)	Pollution (9)	Biodiversity and ecosystems (10)
		k EUR	%	%	%	%	%	%	%
A. Eligible taxonomy occupations									
A.1 Ecologically sustainable activities (taxonomy-compliant)									
CapEx of ecologically sustainable activities (taxonomy compliant) (A.1)		0	0						
A.2 Taxonomy-eligible but not ecologically sustainable activities (non-taxonomy-compliant activities)									
6.4 Operation of devices for personal mobility, cycle traffic logistics		52	0.36						
6.5 Transportation by motorcycles, passenger cars and light commercial vehicles		383	2.69						
7.7 Acquisition and ownership of buildings		2,708	18.99						
8.1 Data processing, hosting and related activities		655	4.59						
CapEx taxonomy-eligible but not ecologically sustainable activities (non-taxonomy-compliant activities)		3,797	26.64						
Total (A.1 + A.2)		3,797	26.64						
B. Activities not eligible taxonomy									
CapEx of non-taxonomy-eligible activities (B)		10,458	73.36						
Total (A. + B.)		**14,255**	**100.00**						

DNSH criteria ("No Significant Impairment")										
Climate change mitigation (11)	Climate change adaptation (12)	Water and marine resources (13)	Circular economy (14)	Pollution (15)	Biodiversity and ecosystems (16)	Minimum safeguard (17)	Taxonomy-aligned proportion of turnover, year N (18)	Taxonomy-aligned proportion of turnover, year N-1 (19)	Category (enabling activity) (20)	Category (transitional activity) (21)
Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	%	E	T

DNSH criteria ("No Significant Impairment")										
Climate change mitigation (11)	Climate change adaptation (12)	Water and marine resources (13)	Circular economy (14)	Pollution (15)	Biodiversity and ecosystems (16)	Minimum safeguard (17)	Taxonomy-aligned proportion of turnover, year N (18)	Taxonomy-aligned proportion of turnover, year N-1 (19)	Category (enabling activity) (20)	Category (transitional activity) (21)
Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	%	E	T

Template: OpEx share of goods or services associated with E.U. taxonomy indicators: 2022 OpEx

				Criteria for a significant contribution					
Economic activities (1)	Code(s) (2)	Absolute turnover (3)	Proportion of turnover (4)	Climate change mitigation (5)	Climate change adaptation (6)	Water and marine resources (7)	Circular economy (8)	Pollution (9)	Biodiversity and ecosystems (10)
		k EUR	%	%	%	%	%	%	%
A. Eligible taxonomy occupations									
A.1 Ecologically sustainable activities (taxonomy-compliant)									
OpEx of ecologically sustainable activities (taxonomy compliant)		0	0						
A.2 Taxonomy-eligible but not ecologically sustainable activities (non-taxonomy-compliant activities)									
6.5 Carriage by motorcycle, passenger car and light commercial vehicle	6.5	100	1.14						
7.7 Acquisition and ownership of buildings	7.7	205	2.34						
8.1 Data processing, hosting and related activities	8.1	50	0.57						
OpEx taxonomy-eligible but not ecologically sustainable activities (non-taxonomy-compliant activities)		355	4.06						
Total (A.1 + A.2)		355	4.06						
B. Activities not eligible taxonomy									
OpEx of activities not eligible for taxonomy (B)		8,398	95.94						
Total (A. + B.)		**8,753**	**100.00**						

DNSH criteria ("No Significant Impairment")										
Climate change mitigation (11)	Climate change adaptation (12)	Water and marine resources (13)	Circular economy (14)	Pollution (15)	Biodiversity and ecosystems (16)	Minimum safeguard (17)	Taxonomy-aligned proportion of turnover, year N (18)	Taxonomy-aligned proportion of turnover, year N-1 (19)	Category (enabling activity) (20)	Category (transitional activity) (21)
Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	%	E	T

Macroeconomic environment and sector development

The macroeconomic and industry-specific conditions relate primarily to the subsidiaries of PVA TePla AG. As PVA TePla AG generates most of its income from profit transfer agreements with the subsidiaries, however, these general conditions are relevant not only for the PVA TePla Group as a whole, but also for the holding company as a stock corporation.

The underlying trend saw the global economy slow down under the impact of high energy prices and geopolitical uncertainty. In the economic reports it presented in the middle of December 2022,[7] the Kiel Institute for the World Economy (IfW) expects to see a weak economic performance for the world economy in the year under review. In the light of high energy prices, geopolitical uncertainty, and restrictive monetary policies on account of inflationary pressure across the board, economic momentum stalled over the course of 2022. Price hikes hit historic highs in many countries in the summer and fall, reaching levels not seen for 50 years. The inflation rate in the G7 countries was 8.4 % in October. The Chinese economy continued to face significant problems as a result of the corona pandemic and troubles in the property sector. The IfW thus expects growth in global gross domestic product (GDP) to be 3.2 % (previous year: 6.1 %). Some special factors contributed to this: supply constraints slackened, stresses in logistics chains eased, and economic activities in sectors especially hard hit by the corona pandemic continued their progress in returning to normal. Many companies were able to process their order backlogs that had accumulated in the previous quarters, for example. Moreover, the situation on the commodities markets, for materials such as oil, gas, and metals, gradually eased from spring onward. Extensive fiscal measures in Europe also provided support, limiting the impacts of the energy crisis on households and businesses.

Inflation and high energy prices put a brake on economic development in the eurozone

In the eurozone, the economy recovered in the first half of the year despite the economic impacts of the corona pandemic and the war in Ukraine. The continuing energy price shock and headwinds from the global economic environment, however, pushed the economy into a profound period of weakness, according to the IfW. Leading indicators of business and consumer confidence showed a marked deterioration in sentiment. High inflation reduced purchasing power at companies and in households. The economic experts in Kiel therefore assume GDP growth of 3.4 % (5.3 %) in the eurozone for the year under review. In Germany, high energy prices and the sharp increase in interest rates impacted economic development. In addition, the global economic environment was weak and provided little positive impetus for the economy. The IfW expects GDP growth of 0.6 % (1.5 %) for the eurozone.

Chinese economy suffers from corona measures

In China, the corona pandemic and problems in the real estate sector weighed on economic activity, according to the assessment by the IfW. However, the economy recovered over the course of the year from the production slump in the spring caused by restrictive lockdown measures. Exports experienced a strong expansion. Nominal imports, on the other hand recorded only marginal growth. A continuing robust expansion of exports was obstructed by the economic weakness in important overseas markets. The economy threatened to be dragged down again toward the end of the year as the number of Covid infections rose again. In December, however, the government decided to largely dispense

[7] https://www.ifw-kiel.de/de/publikationen/kieler-konjunkturberichte/2022/weltwirtschaft-im-winter-2022-wenig-auftrieb-viel-gegenwind-17875/

with large-scale mobility restrictions and quarantine measures. This raises the prospect of an end to the stop-and-go economy caused by the zero-Covid policy, according to the IfW. However, the economic consequences of a massive wave of infections coupled with a low vaccination rate among the population are difficult to predict. Since the start of the year, the government has endeavored to get a grip on the crisis in the property market by loosening monetary policy, including by reducing key interest rates and relaxing lending guidelines. In the assessment of the experts in Kiel, it will not be possible to overcome the problems in the real estate sector in the short term. The IfW expects GDP growth for China of 2.9 % (8.6 %) for 2022.

Clear slowdown in economic momentum in the US

In the year under review, economic development in the US has proceeded inconsistently in many areas of economic activity and has been marked by the extremely tight monetary policy introduced by the Federal Reserve (Fed). The massive hikes in interest rates aim to direct the sharply rising inflation rate back into the target range of just over 2 %. Here the Fed is explicitly accepting a significant reduction in economic output and a rise in unemployment. Total economic production in the United States decline slightly in the first half of the year according to the information of the IfW. Decisive here was weak dynamics in investments in property, plant and equipment, while residential investments fell significantly. Inventory adjustments additionally had a strong dampening effect. Exports, on the other hand, grew strongly, while imports experienced only a slight increase. The slow economic momentum continued in the second half of the year. The labor market continued to prove itself very robust, on the other hand. Despite the decline in total economic production from the start of the year under review, employment continued to grow strongly until recently, while at 3.7 % the unemployment rate was only slightly higher than the level recorded before the outbreak of the corona crisis. Inflationary pressures remained high. Energy and food prices continue to be subject to sharp rises. The inflation rate is expected to come to 8.0 % in the year under review. Monetary and financial policy remain tight; the Fed hiked its key rate from 0.00 % to 0.25 % at the beginning of the year under review to 4.25 to 4.50 % in December. The IfW expects a 1.9 % (5.9 %) increase in GDP for the current year.

Sector development

After experiencing a significant upswing since the middle of 2020, the semiconductor industry recorded a successive correction to growth estimates over the course of the year. Although the estimates of growth were adjusted downward in the course of the year, the semiconductor industry remains an important driver of growth in the global economy.

The shortage of semiconductor components led to extended lead times and higher prices, which in turn led to a reduction in the production of electronic equipment and devices. In response, original equipment manufacturers (OEMs) began to protect themselves against bottlenecks by stockpiling chips. Global economic growth slowed in the second half of the year because of factors such as high inflation, rising interest rates, increased energy costs, and continuing COVID-19 restrictions in China. Companies reacted to the economic uncertainty and the expectation of a global recession by cutting their spending. These factors combined to put a brake on the growth of the semiconductor market.

In January 2022, for example, the industry service provider IC Insights was still forecasting growth of 11 %[8], while at the end of November 2022 WSTS (World Semiconductor Trade Statistics) was expecting growth of only 4.4 %[9] and total volumes of USD 580 billion. The Gartner[10] research firm published a provisional estimate in January 2023 that the semiconductor market grew by 1.1 % to USD 601.7 billion in 2022, compared with USD 595 billion in 2021.

According to the analysts at SEMI, investments in equipment reached a new record high of USD 108.5 billion in 2022 based on an initial estimate, equivalent to a 5.9 % increase in comparison with the previous year. According to estimates by SEMI, Asia remained the most important region for equipment investments in 2022. The three most important destination countries are China, in first place, Taiwan and Korea. It is expected that the spending on plant and equipment will have grown in 2022 in all the regions covered, with the exception of Korea. This trend is also confirmed by the figures that are available up to 2021. The market is expected to shrink to USD 91.2 billion in 2023 and recover again from 2024 onward.[11]

[8] https://www.design-reuse.com/news/51210/2022-semiconductor-sales.html
[9] https://www.wsts.org/76/Recent-News-Release
[10] https://www.gartner.com/en/newsroom/press-releases/2023-01-17-gartner-says-worldwide-semiconductor-revenue-grew-one-percent-in-2022
[11] https://semi.org/en/news-media-press/semi-press-releases/global-total-semiconductor-equipment-sales-2022

Business development of the Group

2022 was a very successful year for PVA TePla. Thanks to forward-looking procurement planning and the build-up of inventories despite constraints in supply and logistics chains, we managed to significantly increase the sales revenues. We ended fiscal year 2022 with growth in sales revenues of 32 % to EUR 205.2 million and an EBIDTA margin of 14.6 %. The acceleration in growth momentum in the second half of the year under review and the resulting economies of scale were factors driving the positive development.

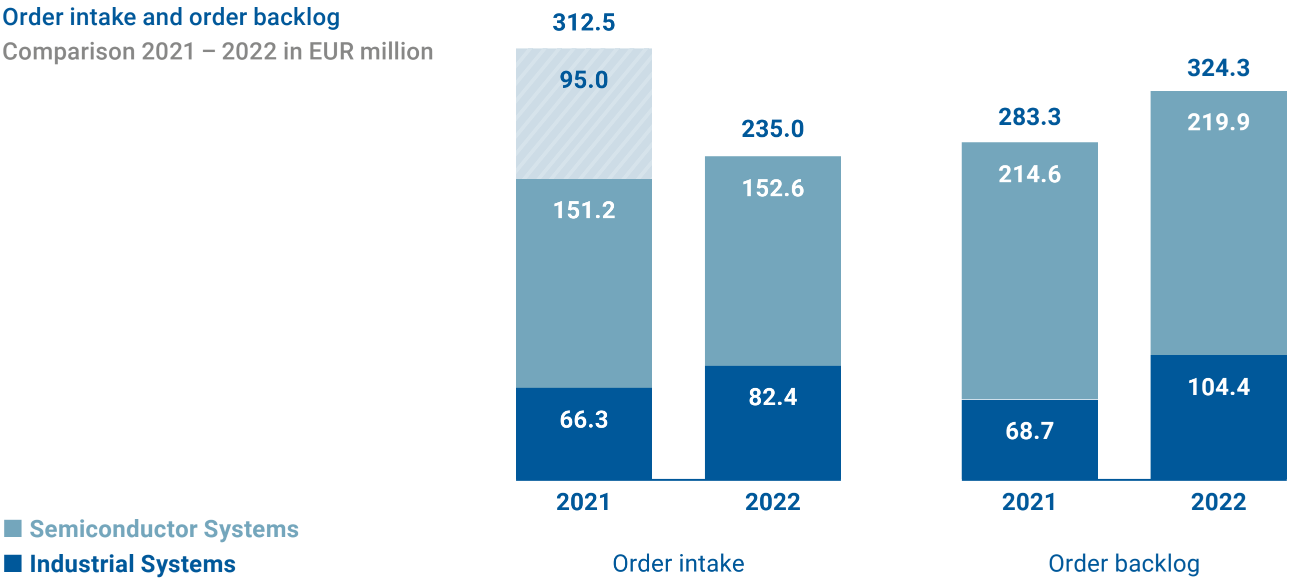
In our forecast for the fiscal year 2022, we had anticipated sales revenues in the range of EUR 170 million to EUR 180 million and earnings before interest, tax, depreciation and amortization (EBITDA) between EUR 25 million and EUR 27 million. We exceeded this forecast for 2022 significantly.

Key performance indicators of the PVA TePla Group

in EUR million	2021	2022	Change
Sales revenues	155.7	205.2	+ 49.5
Gross profit	46.8	59.1	+ 12.3
EBITDA	23.0	30.0	+ 7.0
EBITDA margin	*14.8*	*14.6*	*– 0.2 PP*
EBIT	18.3	25.1	+ 6.8
EBIT margin	11.8	12.2	+ 0.4 PP
Net result before tax	17.8	23.8	+ 6.0
Consolidated net result for the period	12.2	17.7	+ 5.5

Orders

Order intake and order backlog
Comparison 2021 – 2022 in EUR million



The order backlog of the PVA TePla Group increased from EUR 283.3 million as of the previous year's closing date to a very high level of EUR 324.3 million as of the reporting date. The reflects the stable demand and high visibility of the business. Of this figure, EUR 219.9 million was attributed to the Semiconductor Systems business unit (previous year: EUR 214.6 million) and EUR 104.4 million to the Industrial Systems business unit (previous year: EUR 68.7 million).

At EUR 235.0 million, incoming orders were lower than the high level of EUR 312.5 million recorded in the previous year. Adjusted by a major order from the wafer industry in 2021 that had a volume of EUR 95 million, however, it was possible to increase incoming orders in 2022. The book-to-bill ratio of 1.15 and the order backlog indicate a good order situation and sustainable growth. The book-to-bill ratio shows the ratio of incoming orders to sales revenues in a given period: a value higher than 1 indicates that incoming orders are higher than sales revenues, meaning a future increase in sales revenues can be expected.

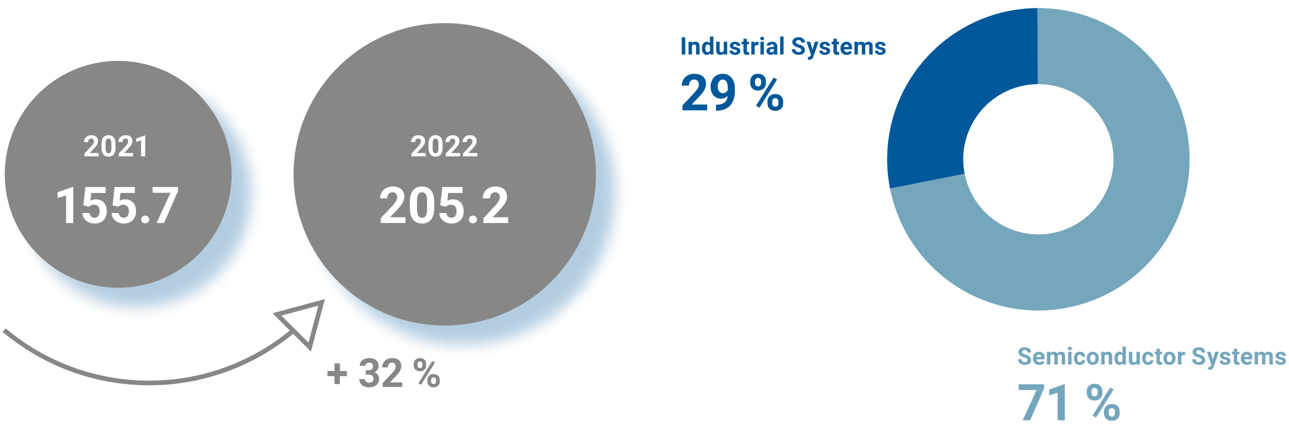
Incoming orders in the Semiconductor Systems division amounted to EUR 152.6 million (previous year: EUR 246.2 million). This essentially includes orders from the semiconductor industry for crystal growing and metrology systems.

Incoming orders in the Industrial Systems business unit reached EUR 82.4 million (previous year: EUR 66.3 million). The orders include technologies that are used in medical technology and the optical industry.

Sales revenues and results of operations

The broad-based momentum in demand in nearly all regional markets and areas of applications resulted in an increase in the consolidated sales revenues of 32 % from EUR 155.7 million in the previous year to EUR 205.2 million in fiscal 2022.

Consolidated sales revenues
Jan. 1 to Dec. 31 in EUR million



Of the total sales revenues, 71 % (previous year: 76 %) was attributed to the **Semiconductor Systems** segment and 29 % (previous year: 24 %) to the **Industrial Systems** segment. One customer headquartered in Germany contributed more than 10 % of the consolidated sales revenues in the period under review.

Growth momentum gathers pace in second half of 2022

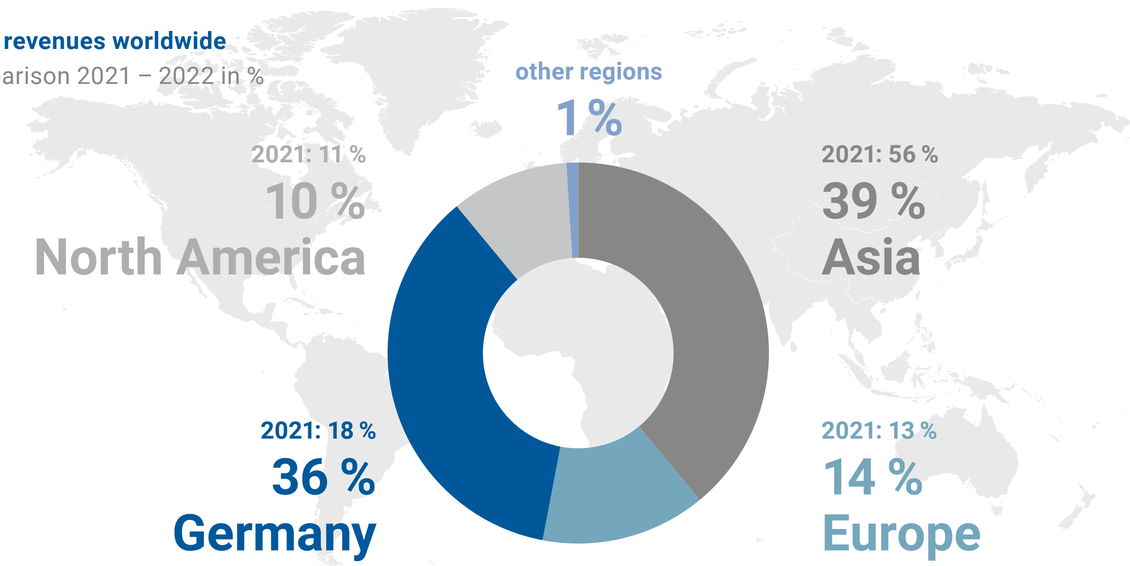
The PVA TePla Group recorded a significant jump in its growth momentum in particular in the second half of the year. Consolidated sales revenues totaled EUR 74.3 million in the fourth quarter alone, an increase of 83 % over the corresponding period in the previous year. They included EUR 2.5 million from the first-time full consolidation of MPA Industrie SAS headquartered in France, which was fully taken over at the end of 2022.

Asia remains the largest sales market

From a regional perspective, the Asian market was again the largest sales market, accounting for 39 % of sales revenues (2021: 56 %). Europe (excluding Germany) accounted for 14 % (2021: 13 %), Germany for 36 % (2021: 18 %). We generated 10 % of sales revenues in North America (2021: 11 %). The other regions contributed 1 % (2021: 2 %) to consolidated sales revenues.

Sales revenues worldwide

Comparison 2021 – 2022 in %



Gross margin solid in the year under review despite non-recurring expenses and market challenges

At EUR 146.2 million, the cost of sales (production costs of sales) were 34 % higher than the previous year's value of EUR 109.0 million and thus increased slightly more in proportion to the consolidated sales revenues. One of the reasons for this was a non-recurring item from a development order for a new generation of silicon crystal growing systems as part of a customer order. Also contributing to the increase were the overall higher business volume and some material and manufacturing costs that could not be passed on in full to end customers on account of the large order backlog. The gross margin of 28.8 % remained at a high level. Set against the previous year's value of 30.0 %, however, it fell by 1.2 percentage points.

Lower rate of increase in the operating expenses allows growth in earnings

Selling and distributing expenses totaled EUR 16.1 million in the reporting period, following EUR 13.2 million in fiscal 2021. The increase is attributed primarily to the higher business volume and partly to the international expansion of the distribution structures, especially in Asia and the US. Furthermore, we recorded moderate increases in the costs for packaging and shipping in the period under review. Set against the sales revenues (growth of 32 %), the selling and distributing expenses increased only at a lower rate of 22 %.

Administrative costs increased in absolute terms by EUR 0.2 million to EUR 11.5 million. As a proportion of the sales revenues, a 1.7-percentage point improvement in the administrative cost ratio to 5.6 % thus results, which is essentially based on economies of scale.

At EUR 6.5 million, research and development costs (R&D), which essentially include personnel and material expenses as well as write-downs on completed development projects, were EUR 0.5 million lower than the EUR 7.0 million of the previous year. The R&D ratio fell from 4.5 % to 3.2 % on account of the higher sales volume. Other development activities were charged to customers on a project-specific basis. Information on our research and development activities in the period under review is provided in the section “Fundamentals of the Group – Research and development”.

The other operating expenses increased from EUR 2.0 million to EUR 5.2 million. In addition to the higher sales volume, the background to this significant rise was primarily currency exchange losses resulting from the depreciation volatility of the euro, especially from currency hedges transacted for longer-term customer contracts denominated in US dollars.

Other operating income increased from EUR 5.0 million to EUR 5.4 million in the year under review. One reason for this development was higher income from exchange rate differences in comparison with the previous year. It was offset by year-on-year lower income from research and development grants.

Overall, the effects mentioned above resulted in an improvement in the key earnings figures: at EUR 30.0 million, earnings before interest, tax, depreciation and amortization (EBITDA) were significantly higher than the previous year’s figure of EUR 23.0 million. The EBITDA margin at 14.6 % was consequently virtually unchanged from the high level of the previous year (14.8 %).

Taking write-downs into consideration, an operating result (EBIT) of EUR 25.1 million is produced, set against EUR 18.3 million in the comparative period of 2021. This corresponds to an EBIT margin of 12.2 %, an improvement of 0.4 percentage points from the 11.8 % in the prior-year period. Similar to the sales revenue, PVA TePla also enjoyed significant momentum in the operating results in the second half of the year.

At an unchanged interest rate level for current and non-current financial liabilities, the financial result totaled EUR – 1.3 million, following EUR – 0.6 million in the previous year. The increase is primarily the result of non-cash write-downs on financial assets. These financial assets are used to obviate negative interest rates and to diversify risk.

This results in pre-tax earnings totaling EUR 23.8 million, a gain of 34 % on previous year’s value of EUR 17.8 million. On account of the lower tax rate of 26 % (previous year: 31 %), the income tax expense increased only slightly from EUR 5.6 million in the previous year to EUR 6.1 million. As a consequence, earnings after tax rose from EUR 12.2 million to EUR 17.7 million in the period under review. This corresponds to earnings per share of EUR 0.81, compared with EUR 0.56 in the previous year. No changes in the stock of shares in circulation arose in the year under review.

Business performance in the segments

Key figures in the segments

in EUR '000	Semiconductor Systems			Industrial Systems		
	2021	2022	+/–	2021	2022	+/–
Sales revenues	117,852	145,745	24 %	37,887	59,480	57 %
EBITDA	23,720	25,396	7 %	2,977	9,067	205 %
EBIT	21,391	22,874	7 %	1,935	7,797	303 %

Costs of the holding

2021 (EUR '000)	2022 (EUR '000)	+/– (%)
4,995	5,583	18 %

We have taken targeted measures at the holding level to modernize our IT infrastructure and carry out consulting activities related to acquisitions in order to drive our growth in a focused manner. These measures contributed to an increase in the holding's costs by 18 % to EUR 5.6 million.

Sales revenues in the Semiconductor Systems division rose to EUR 145.8 million in fiscal 2022, an increase of 24 % over the division's revenues totaling EUR 117.9 million in the same period the previous year. The increase in sales revenues were again driven by continued high demand for crystal-growing systems for the semiconductor wafer industry and for metrology systems. Earnings before interest, tax, depreciation and amortization (EBITDA) grew 7 % from EUR 23.7 million to EUR 25.4 million. The EBITDA margin was 17.4 % (previous year: 20.1 %) and was impacted by a non-recurring item that arose in the course of a customer order for the development of a new generation of systems for growing silicon crystals. After deducting write-downs, PVA TePla generated an operating result (EBIT) in the Semiconductor Systems segment of EUR 22.9 million, set against EUR 21.4 million in the previous year.

With growth of 57 %, the Industrial Systems business unit recorded an increase in sales revenues from EUR 37.9 million in the previous year to EUR 59.5 million. Key drivers in the business unit were high-temperature heat treatment systems. Earnings before interest, tax, depreciation and amortization (EBITDA) grew even more strongly, by 205 % from EUR 3.0 million to EUR 9.1 million. As a proportion of sales revenues, an EBITDA margin of 15.2 % is produced, set against 7.9 % in the previous year. At EUR 7.8 million, the operating result (EBIT) of the segment was also significant higher than the previous year's level of EUR 1.9 million.

Financial position

Principles and objectives of financial management

In the context of the financial management, PVA TePla ensures that the Group has sufficient liquid funds at all times, arranges the Group-wide management of liquidity, and reduces financial risks wherever economically practical. The PVA TePla Group does not engage in any speculative forward transactions.

The financial activities are based on the financial planning, which takes all key companies into consideration. Cash flow planning that is updated on a rolling basis is used to calculate the liquidity needs.

The financial and liquidity risks are described in the “Risks and opportunities” section.

Reporting on financial instruments

The PVA TePla Group uses derivative financial instruments as economic hedges to manage interest rate and exchange rate fluctuations. They serve to reduce earnings volatility arising from interest rate and currency risks. The fair values were calculated on the basis of the interest rates and exchange rates valid on the reporting date.

Liquidity

Cash flow from operating activities totaled EUR – 14.1 million in fiscal 2022. In connection with the processing of the high order backlog and the high inventory levels arising from the procurement strategy, contract assets (EUR + 21.6 million), trade receivables (EUR + 10.5 million), and inventories and advance payments (EUR + 27.4 million) increased significantly over the previous year.

Cash flow from operating activities fluctuates strongly from one reporting date to the next in the Vacuum Systems and Crystal Growing Systems business units due to the project structure of orders and methods of payment. Considerable advance payments are paid at the beginning of a project, while a negative cash flow emerges during order processing, and the remaining amount due, except for a small residual installment, is paid close to the delivery date.

Cash flow from investing activities totaling EUR – 21.3 million (previous year: EUR – 34.0 million) comprises payments in connection with the acquisitions of 100 % of the shares in MPA Industrie of EUR – 6.1 million, investments in non-current financial assets (EUR – 9.0 million), and investments in intangible assets and property, plant and equipment (EUR – 6.7 million).

Cash flow from financing activities amounted to EUR – 1.3 million (previous year: EUR – 1.5 million) and consisted mainly of reductions of leasing liabilities totaling EUR – 1.1 million (previous year: EUR – 1.0 million). Interest payments totaled EUR – 0.2 million (previous year: EUR – 0.3 million).

With cash totaling EUR 15.6 million (including exchange rate changes), term deposits of EUR 11.6 million, and as yet unutilized credit lines of EUR 41.3 million, the PVA TePla Group had available liquid funds of EUR 68.5 million at its disposal as of the 2022 reporting date. As of December 31, 2022, the PVA TePla Group reported a positive net financial position (balance of cash and cash equivalents and current and non-current financial liabilities) of EUR 16.4 million (previous year: EUR 55.5 million).

Asset position

Total assets increased slightly compared to December 31, 2021 by around 21 % to EUR 290.3 million (December 31, 2021: EUR 240.2 million).

Non-current assets grew significantly from EUR 168.5 million to EUR 217.6 million. Drivers within the non-current assets were primarily contract assets, i. e. construction contracts that are recognized according to the percentage of completion (POC method). These amounted to EUR 40.5 million, an increase of EUR 21.6 million from the value of EUR 18.9 million on the reporting date the previous year. At EUR 73.6 million, receivables and other financial assets were also significantly higher than in the previous year (EUR 32.6 million). Cash, non-cash equivalents and term deposits fell by EUR 30.5 million to EUR 27.2 million.

Within the non-current assets, financial assets declined by EUR 16.8 million to 9.0 million. This is connected in particular with the change in the non-current financial assets. Intangible assets rose by EUR 10.1 million to EUR 20.5 million (previous year: EUR 10.4 million). The increase is essentially the result of the initial consolidation of the subsidiary MPA Industrie SAS that was acquired.

Current liabilities rose by EUR 26.4 million to EUR 160.7 million. The reason for this was primarily the contract liabilities, which include advance payments for products and services and for customer-specific construction contracts to be recognized using the POC method, the amount of which exceeded the contract costs incurred including the share of profits. Contract liabilities increased by EUR 10.6 million and totaled EUR 113.5 million as of the reporting date. Trade payables rose by EUR 7.2 million from EUR 11.1 million in the previous year to EUR 18.3 million.

At EUR 25.6 million, non-current liabilities were higher than the level at the previous year's reporting date (December 31, 2021: EUR 23.2 million). The increase in non-current liabilities can primarily be attributed to the initial consolidation of MPA Industrie SAS and includes both liabilities to banks and non-current purchase price liabilities in connection with the company's acquisition.

Equity increased to EUR 104.1 million (December 31, 2021: EUR 82.8 million), the equity ratio was 35.9 % (December 31, 2021: 34.5 %).

Condensed report on the single-entity financial statements of PVA TePla AG

The management report and the group management report of PVA TePla AG have been combined. The following explanations are based on the annual financial statements of PVA TePla AG, which were prepared in accordance with the regulations of the German Commercial Code (HGB).

Management

The operating result is the key performance indicator for the management of the company.

Economic situation of PVA TePla AG

The company provides services to other group companies, and PVA TePla AG's revenue mainly results from service fees with subsidiaries. During the fiscal year 2022, the company employed an average of 48 (2021: 42) employees.

PVA TePla AG recorded sales revenue growth of around 14.4 % to EUR 12.1 million in fiscal 2022 in comparison with the previous year. At EUR 12.1 million, total operating performance was slightly higher than the previous year's level (EUR 11.8 million). Other operating income increased by 31.1 % to EUR 1.8 million, while material expenses totaled EUR 0.1 million following EUR 1.4 million in the previous year. Staff costs fell by 14.0 % to EUR 5.7 million. Write-downs declined from EUR 1.2 million to EUR 1.0 million. Other operating expenses increased by 37.5 % to EUR 9.2 million essentially on account of energy price rises and foreign exchange differences.

The operating result (EBIT) was EUR – 2.1 million, a 21.9 % improvement over the previous year. This exceeded the forecast for 2022. The financial result also improved by 61.3 % to EUR 20.4 million. After deducting taxes, PVA TePla AG reports a net profit of EUR 12.9 million for the fiscal year 2022. After offsetting against the existing retained earnings brought forward, net retained profit of EUR 56.2 million is produced, which will be carried forward to new account.

Net assets and financial position

Total assets increased marginally by EUR 0.8 million to EUR 153.2 million in the period under review.

The assets predominantly consist of property, plant and equipment, primarily including land, the carrying amount of which totaled EUR 15.3 million as of the reporting date (previous year: EUR 16.0 million), and financial assets totaling EUR 36.4 million (previous year: EUR 28.4 million), which primarily comprise shares in affiliated companies. The increase results from the acquisition of MPA Industrie SAS.

Current assets of EUR 99.7 million (previous year: EUR 106.7 million) primarily include the receivables, especially receivables from affiliated companies, as well as current securities and cash in hand.

The liabilities side is essentially determined by the equity of EUR 80.2 million and liabilities to affiliated companies totaling EUR 50.6 million.

The equity ratio was 52 % as of the reporting date (2021: 44 %).

Opportunities and risks

As the company acts as the holding company of the PVA TePla Group, PVA TePla AG's risks and opportunities are essentially the same as those of the Group. Please see the section "Risks and opportunities" in the combined management report in this regard.

Profit appropriation

The single-entity financial statements of PVA TePla AG (prepared in accordance with commercial law regulations) as of December 31, 2022 report a net profit of EUR 12.9 million (previous year: net profit of EUR 6.1 million) and a net retained profit of EUR 56.2 million (previous year: EUR 43.4 million). The Management Board and Supervisory Board propose that the net retained profit reported in the 2022 annual financial statements be carried forward to new account in the same amount. No dividends are to be distributed for fiscal 2022. There were no withdrawals from the share premium or retained earnings.

Forecast

Because of the nature of the company's business activities, its future development is closely linked to the development of the Group. We expect a slight increase in the company's operating result for 2023. For the economic and market-specific trends, please see the forecast for the Group.

Corporate governance statement and corporate governance report

The combined corporate governance statement of PVA TePla AG and of the Group in accordance with Section 289f HGB and Section 315d HGB includes the declaration of conformity with the German Corporate Governance Code ("GCGC") pursuant to Section 161 AktG, relevant disclosures on corporate governance practices, the description of the working methods of the Management Board and Supervisory Board as well as their composition, and the working methods of the committees of the Supervisory Board, the definitions of targets in accordance with Section 76 para. 4 and Section 111 para. 5 AktG, and the disclosures on the achievement of the targets, including the description of the diversity concepts.

Declaration of conformity with the recommendations of the German Corporate Governance Code

The Management Board and Supervisory Board of PVA TePla AG headquartered in Wettenberg hereby declare that the recommendations of the "Regierungskommission Deutscher Corporate Governance Kodex" ("Government Commission German Corporate Governance Code") as amended on April 28, 2022 and published by the Federal Ministry of Justice and Consumer Protection in the official section of the Federal Gazette on June 27, 2022 (**"GCGC"**) have been complied with since the last declaration of conformity was issued with the exceptions presented below and will continue to be complied with in the future with the exceptions presented below.

- The code stipulates in point A.5 that the management report shall describe the main characteristics of the entire internal control system and risk management system and provide comment on the appropriateness and effectiveness of these systems.

  This recommendation may possibly not be complied with in full at this time.

  Reason: There is uncertainty about whether the comment issued by the Management Board satisfies in the full extent the requirement of A.5 of the GCGC, according to which a comment shall be provided on the appropriateness and effectiveness of the internal control and risk management system. For this reason, a departure from A.5 of the GCGC is declared as a precaution.

- Among other things the code stipulates in Point C.5 that the members of the management board of a listed company shall not accept the chairmanship of a supervisory board in a non-group listed company.

  This recommendation has not been complied with and will continue not to be complied with in the future. Alexander von Witzleben, who is a member of the management board of a non-Group listed company, currently performs a total of three supervisory board mandates of this kind in addition to his office as chair of the Supervisory Board of PVA TePla.

  Reason: Alexander von Witzleben has stated to the company that he has sufficient time to perform his duties as chair of the Supervisory Board of PVA TePla and that he is able to perform his duties with the due regularity and diligence. The Supervisory Board and Management Board of PVA TePla do not see any conflicts of interest or time as a result of his other mandates. Alexander von Witzleben has continually provided critical and intensive support and monitoring of the management of PVA TePla during his term of office.

- Among other things the code stipulates in Point C.7 that, in consideration of their independence from the company and the management board, members of the supervisory board shall not serve on the supervisory board for more than twelve years.

  This recommendation has not been complied with and will continue not to be complied with in the future. Alexander von Witzleben and Prof. Hebestreit have served on the Supervisory Board for more than twelve years.

  Reason: The Supervisory Board does not consider a fixed set limit on the length of membership of members of the Supervisory Board to be appropriate. The definition of such a limit would be based on the assumption that any longer duration of membership of the Supervisory Board alone disqualifies a Supervisory Board member from taking up another membership and calls into question the independence of the Supervisory Board member. There is no objective justification for such an assumption. Moreover, such a rigid set limit does not take account of individual factors that speak in favor of longer membership for individual Supervisory Board members.

- The code stipulates in Point D.4 that the supervisory board shall form a nomination committee, composed exclusively of shareholder representatives, which names suitable candidates to the supervisory board for its proposals to the General Meeting.

  This recommendation has not been complied with and will continue not to be complied with in the future. The Supervisory Board has decided not to establish a nomination committee.

  Reason: In the opinion of the Supervisory Board, the establishment of such a committee does not offer any additional increase in the efficiency of the board's work given the composition of the Supervisory Board and the consultation processes in the Supervisory Board. The Supervisory Board therefore leaves this function to the full Supervisory Board.

Section G of the GCGC contains recommendations on the remuneration of the management board. These are closely connected to the amendments in the Stock Corporation Act relating to management board remuneration made by the Gesetz zur Umsetzung der zweiten Aktionärsrechterichtlinie (Act implementing the Shareholder Rights Directive II). The Supervisory Board thoroughly revised the Management Board remuneration system in due consideration of the new management board remuneration requirements in the Stock Corporation Act in 2021 and submitted this new system to the company's Annual General Meeting in 2021 for approval. The Annual General Meeting approved this remuneration system. Since then the new system has applied to all Management Board employment contracts that are new and are to be entered into or that are to be renewed. On the basis of this system, the recommendations on management board compensation in Section G of the GCGC have been complied with subject to the following exceptions and will also continue to be complied with in the future subject to the following exceptions:

- The code stipulates in Point G.6 that the share of variable remuneration achieved as a result of reaching long-term targets shall exceed the share from short-term targets.

  This recommendation may possibly not be complied with in all cases in the future. With regard to the short and long-term variable remuneration, the same ranges of percentages were set for the share of the total target remuneration in the remuneration system, so that, depending on the specific definition within these ranges, the share of the short-term variable remuneration may exceed the share from the long-term variable remuneration. The Supervisory Board reserves the possibility to make appropriate arrangements

Reason: The long-term variable remuneration component is designed in such a way in the remuneration system that it accounts for a significant proportion of the total target remuneration in any event. As a result, the Supervisory Board believes that adequate long-term incentives are set and the long-term remuneration component makes a key contribution to the focus of the Management Board remuneration system on the long-term and sustainable development of the company. Individual situations may certainly arise, however, in which the Supervisory Board sees a particular need to provide in the interests of the company a specific significant incentive also with a view to short-term targets and then to set the ratio of the short-term to the long-term variable remuneration within the ranges defined in the remuneration system accordingly. The Supervisory Board would like to maintain this flexibility.

- Among other things the code stipulates in Point G.7 that, referring to the forthcoming financial year, the supervisory board shall establish the performance criteria for each Management Board member covering all variable remuneration components.

  This recommendation has not been complied with in this regard and will also continue not to be complied with in this regard in the future when the performance criteria are not set annually for the variable remuneration components, but some of these are set for a longer period by the Management Board employment contract. In accordance with the remuneration system, this can concern thresholds and percentages in relation to the Group EBIT as a financial performance criterion within the framework of the short-term variable remuneration and applies to the performance criterion of the long-term variable remuneration.

  Reason: From the point of view of the Supervisory Board, it is not necessary to set the performance criteria for all variable remuneration components for each upcoming and doing this would be associated with unnecessary expense. For example, thresholds and percentages in relation to the consolidated EBIT may also be suitable as a performance criterion for the short-term variable remuneration for a longer period. As the long-term variable remuneration is assessed over a period of three to five years, the performance criterion for this, namely the increase in the market capitalization, will also be set in line with the assessment period for three to five years and not for each upcoming fiscal year. This procedure helps to maintain legal certainty and predictability for the members of the Management Board. If the performance criteria for a medium-term period have already been conclusively determined, it is no longer necessary to set them for each upcoming fiscal year. Purely confirmatory resolutions would be of no additional benefit. Irrespective of this, each of the performance criteria that are set is based on the strategic and sustainable development of the company and the increase in the enterprise value.

- The code stipulates in Point G.10 that, taking the respective tax burden into consideration, variable remuneration amounts of management board members shall be invested predominantly in company shares or shall be granted as share-based remuneration. Granted long-term variable remuneration components shall be accessible to Management Board members only after a period of four years.

  This recommendation has not been complied with and will continue not to be complied with in the future. The amounts of the short-term variable remuneration are not invested in shares of the company or granted accordingly as share-based remuneration. The long-term variable remuneration does, however, approximate share-based remuneration, because the performance criterion is the development of the company's market capitalization. The assessment period is here between three and five years, meaning that a member of the Management Board can in the individual case access the granted long-term variable amounts even after less than four years.

  Reason: The Supervisory Board is of the opinion that sufficient synchronization of the Management Board remuneration with the shareholders' interests is achieved also by the design described above. As the strategic and sustainable development of the company has an impact on its market capitalization and thus on the amount of the long-term variable remuneration, the goal of share-based remuneration is also achieved by the design of the long-term variable remuneration that is used by the company.

- The code stipulates in Point G.11 that the supervisory board shall have the possibility to account for extraordinary developments to an appropriate extent. It shall be permitted to retain or reclaim variable remuneration if justified.

  This recommendation has not been complied with in this regard and will also continue not to be complied with in this regard in the future when retention or reclaim of variable remuneration is not provided for in the remuneration structure.

  Reason: The Supervisory Board is of the opinion that the remuneration structure provides sufficient incentive for long-term and sustainable corporate development even without such regulations, the legal claims for compensation are sufficient encouragement for the Management Board to act with due diligence, and there is reasonable assurance that these can also be enforced.

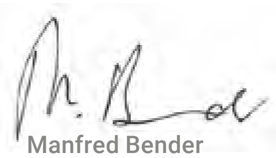
- The code stipulates in Point G.12 that if the contract of a management board member is terminated, the disbursement of any remaining variable remuneration components, which are attributable to the period until contract termination, shall be based on the originally agreed targets and comparison parameters and on the due dates or holding periods stipulated in the contract.

  This recommendation has not been complied with and will continue not to be complied with in the future.

  Reason: It is the conviction of the company that, if the contract of a Management Board is terminated, the possibility of settling any outstanding variable remuneration components of the Management Board member in question as a lump sum at the time the contract is terminated may be helpful and advantageous for the company in reaching an amicable settlement with the Management Board member in question. In addition, any impact that is inappropriate from the company's viewpoint from future developments that cannot be attributed to the departing Management Board member on their variable remuneration are ruled out in this way.

Wettenberg, January 2023

On behalf of the Management Board:



Manfred Bender
Chief Executive Officer

On behalf of the Supervisory Board:

Alexander von Witzleben
Chair of the Supervisory Board

Disclosures on corporate governance practices

The PVA TePla Group is a listed, international corporation headquartered in Wettenberg (Germany) and has a two-tier management system. The German Stock Corporation Act, our articles of association, the rules of procedure of the Management Board and of the Supervisory Board, and the recommendations of the German Corporate Governance Code (GCGC) implemented in a form specific to the company form therefore the basis for the division of responsibilities between the Management Board and the Supervisory Board and for the design of the management and monitoring structure in the Group. We organize our business activities on the basis of Group-wide standards that go beyond the requirements of the law and the GCGC. This also includes trust, respect, and integrity in our interactions with each other.

Chances and Risk Management, Including Internal Control System

The principles of responsible corporate governance include continual and forward-looking consideration of opportunities and risks that is geared toward producing a healthy balance between growth and profitability targets and the related risks.

The aim of the internal control system (ICS) in relation to the accounting process is to ensure that the external reporting is reliable by preparing financial statements that comply with the regulations. Regular reviews of accounting-related processes are conducted using internal controls in order to monitor the effectiveness of the ICS. The Audit Committee of the Supervisory Board additionally monitors the system's effectiveness.

Detailed information on the opportunity and risk management system as well as on the ICS of the PVA TePla Group is presented in the section "Risks and opportunities" of the combined management report and Group management report.

Compliance and code of conduct

For PVA TePla, responsible and legally compliant conduct is an indispensable prerequisite for a sustainably successful business activity. That is why the primary objective of our compliance management system is to guarantee that companies, executive bodies, and employees act lawfully in view of legal and internal company requirements and prohibitions and to prevent breaches of these. The basis of the compliance management is provided by the code of conduct as currently published. This code describes the risks associated with business activities and provides specific recommendations for conduct. The code of conduct is binding worldwide for all employees of the PVA TePla Group. In addition, the examples embodied by managers, open and fair communication at and between all levels in the company as well as close cooperation in partnership with customers and suppliers are important prerequisites for our business activities. At the same time, we expect our suppliers and business partners to share our approach to integrity and sustainability.

An electronic whistleblower system provides the possibility of submitting suspicious activity reports regarding white-collar crimes or breaches of the compliance regulations. The PVA TePla Group's aim is to completely prevent corruption and bribery (including conflicts of interest, money laundering, etc.) in order to strengthen in this way a legally compliant and ethical work environment in which risks can be identified and prevented before they materialize.

Sustainable corporate governance

The PVA TePla Group aspires to do business on a sustainable and responsible basis in all areas of the company. For us, this means complying with laws and legislation, conserving resources, promoting climate protection, and fulfilling its responsibility to employees and society. Based on our core values and the conviction that conducting business in a sustainable and responsible way increases the innovative capabilities and future viability of the group of companies, we aim to take environmental, social and governance aspects into account not only in our sustainability strategy, but also in our strategic orientation and in operating decisions.

For more information, please see the section “Sustainability” in this report and the combined non-financial statement contained therein.

GRI disclosures in this section: GRI 2-22, GRI 2-23, GRI 2-27

Working methods of the Management Board and Supervisory Board as well as composition and working methods of their committees

As a stock corporation domiciled in Germany, PVA TePla is managed in accordance with the management and monitoring structure laid down by law. The Management Board is independently responsible for managing the company and sets its strategic orientation. The Supervisory Board monitors and advises the Management Board and is directly involved in decisions of fundamental importance for the company. It appoints and dismisses the members of the Management Board, decides the remuneration system for the Management Board members, which is submitted to the Annual General Meeting for approval in accordance with Section 120a AktG, and sets their respective total remuneration. The Supervisory Board and the Management Board work together closely and in a spirit of trust in the interests of the company and with the aim of creating sustainable value. In accordance with the Management Board’s rules of procedure, certain decisions require the approval of the Supervisory Board.

Composition of the Management Board and allocation of responsibilities

The Management Board collectively manages the business operations. It consisted in the fiscal year 2022 of four members, Mr. Manfred Bender (CEO), Ms. Jalin Ketter (CFO), Mr. Oliver Höfer (COO), and Dr. Andreas Mühe (CTO). They are closely involved in the operating activities. In light of the low number of Management Board members, no Management Board committees have been established. Regardless of the overall responsibility of the Management Board, each Management Board member manages the business division allocated to them by the rules of procedure independently. A detailed presentation of the responsibilities is provided in the management organization chart in the Management Board’s rules of procedure.

An age limit of 65 is set for the members of the Management Board in its rules of procedure. The remuneration of the Management Board members is discussed in a separate remuneration report, which is available in the Investor Relations/ Corporate Governance area of our website.

Working methods of the Management Board

The Management Board of PVA TePla AG lays down the business targets, the strategic orientation, the corporate policy, and the organization of the Group. This includes in particular the management of the Group including its financial resources, the coordination and monitoring of the business units, the human resources planning, and the presentation of the company with regard to the capital markets and the general public.

Pursuant to the Management Board's rules of procedure and the schedule of duties, the chair of the Management Board (CEO) is responsible for managing and coordinating the Group Management Board in particular. The CEO represents the company and the Group in dealings with third parties and the personnel on matters which affect more than just parts of the company or Group. The CEO additionally bears particular responsibility for specific fields of activity in accordance with the schedule of duties as well as for the company's further strategic development.

Resolutions of the Management Board are adopted at meetings. The meetings are convened by the chief executive officer. Each member of the Management Board can request that a meeting be convened; the request shall include the matter they wish to discuss. The full Management Board makes decisions by resolution passed by a simple majority of the participating members. In the event of a tied vote, the chair has the casting vote. The chair additionally has a right of veto. However, the chair cannot enforce a decision against a majority vote of the Management Board. The Management Board's rules of procedure additionally lay down a catalog of measures that have to be discussed and decided on by the full Management Board. There is also a catalog of business transactions which require the approval of the Supervisory Board. Meetings of the Management Board also attended by the managing directors of the subsidiaries are additionally held on a regular basis.

The Management Board reports to the Supervisory Board regularly, promptly and comprehensively on key questions of the business development and performance, the corporate strategy, and possible risks.

Diversity concept for the Management Board and succession planning

When considering what personalities would best supplement the Management Board as a committee, the Supervisory Board also takes account of diversity as part of the long-term succession planning. The Supervisory Board understands diversity as a perspective for consideration to mean in particular different, mutually complementary professional profiles, professional, educational and life experiences, including in the international arena, ages, and appropriate representation of the genders.

Irrespective of individual criteria, the Supervisory Board is convinced that, ultimately, only an integrated assessment of all aspects of the individual personality can be the decisive factor when making an appointment to the Management Board of PVA TePla. The Supervisory Board considers the following criteria to be key for the Management Board as a whole:

- Many years of management experience in scientific, technical and commercial fields of activity
- International experience on the basis of place of origin and/or professional work
- A balanced age structure in order to guarantee continuity in the Management Board's work and to enable smooth succession planning

Potential succession issues are identified together with the Management Board and an action plan is adopted for the specific individual case. The Supervisory Board considers the following aspects in particular here:

- Early identification of suitable candidates from various subject areas and of different genders
- Systematic development of the managers through their successful assumption of duties with increasing responsibility, as far as possible in various businesses, regions, and functions
- Proven, successful strategic and operational drive to shape the future and leadership skills, especially in challenging conditions

Composition of the Supervisory Board

In accordance with the articles of association, the Supervisory Board of PVA TePla consists of three members who are elected by the Annual General Meeting. The composition of the board has not changed from the previous year.

The Supervisory Board currently comprises the following members:

- Alexander von Witzleben, chair of the Supervisory Board, German national, * 1963
- Prof. Dr. Gernot Hebestreit, deputy chairman, chairman of the Audit Committee, German national, * 1963
- Prof. Dr. Markus H. Thoma, Schöffengrund, member of the Supervisory Board, German national, * 1958

Alexander von Witzleben has served on the Supervisory Board of PVA TePla AG since 2004, Prof. Gernot Hebestreit since 2008, and Prof. Markus H. Thoma since 2014.

Résumés and disclosures on other mandates performed by the Supervisory Board members are available at https://www.pvatepla.com/management/. The remuneration of the Supervisory Board members is discussed in a separate remuneration report, which is available in the Investor Relations/Corporate Governance area of our website.

Working methods of the Supervisory Board

The Supervisory Board has the task of advising and supervising the Management Board in the management of PVA TePla AG. It has laid down rules of procedure for itself. The rules of procedure of the Supervisory Board are available in the Investor Relations/Corporate Governance area of the company's website.

The chair of the Supervisory Board is elected by its members. The Supervisory Board consults on a regular basis. It performs its activities in accordance with statutory provisions, the articles of association, its rules of procedure, and its resolutions. In accordance with the statutory regulations, the Supervisory Board monitors the Management Board in the exercise of its activities and the management of the company. In particular, the Supervisory Board monitors the Management Board in its critical discussion of fundamental questions relating to the company's focus. This involves, in particular, the annual company planning and the preparation of the financial statements as well as fundamental topics relating to the strategic alignment and further development of the company. The Supervisory Board also reports on the scope of its work in its report to the Annual General Meeting.

The Supervisory Board arranges to be informed in detail of the economic situation and the business development and performance of the company in four ordinary meetings a year. The Supervisory Board additionally holds extraordinary meeting in the event of particular external or in-house incidents. The meetings of the Supervisory Board are convened by the chair by giving no less than seven days' notice, except in urgent cases when the notice period can be shortened. The Management Board generally attends the meetings of the Supervisory Board, reporting verbally and in writing on the individual items of the agenda and proposed resolutions and answering the questions of the Supervisory Board members. Reports from the Management Board explaining key business performance indicators provide the Supervisory Board with insight into the development of the business situation. In addition to the meetings and reports, the members of the Supervisory Board obtain information in regular discussions with the Management Board.

The Supervisory Board reviews the efficiency of its work at regular intervals using a structured questionnaire.

Committees of the Supervisory Board

Given that the Supervisory Board comprises only three people, all members of the full board are members of the Audit Committee at the same time. The competences necessary for the Audit Committee are fulfilled by the full board.

The Supervisory Board has established an Audit Committee, which deals in particular with the auditing of the accounting, the monitoring of the accounting process, the effectiveness of the internal control system, the risk management system and the internal auditing system, as well as the auditing of the financial statements and compliance. The accounting comprises in particular the consolidated financial statements and the combined management report and Group management report (including the non-financial reporting), financial disclosures during the year, and the single-entity financial statements prepared in accordance with the German Commercial Code. The chair of the Audit Committee is Prof. Gernot Hebestreit. He meets the statutory requirements for independence and expertise in the fields of accounting and the auditing of financial statements. Alexander von Witzleben additionally fulfills the legal requirements in the area of accounting. The other member of the Audit Committee is Prof. Markus H. Thoma.

Diversity concept for the Supervisory Board

The Supervisory Board of PVA TePla AG, which currently (2022) consists of three members, pursues the aim, in light of the company-specific situation, the corporate purpose undertaken and the size of the company, of ensuring that the composition of the Supervisory Board takes the following elements into account:

With regard to the shareholders, all persons who do not face conflicts of interest should be represented on the Supervisory Board, especially those who do not face conflicts of interest that may arise because they perform an advisory or executive function at customers, suppliers, lenders, or other third parties.

The Supervisory Board has adopted a comprehensive requirements profile regarding its composition. A description of the competency profile can be found in the Investor Relations/Corporate Governance area of our website.

When submitting nominations to the Annual General Meeting, the Supervisory Board will continue to pay attention to diversity with regard to age, educational and professional background, international character, and the proportion of women.

GRI disclosures in this section: GRI 2-15

Competency profile of the Supervisory Board

The Supervisory Board has adopted a comprehensive requirements profile regarding its composition that includes both the competency profile required by the German Corporate Governance Code (GGC) and the diversity concept required in accordance with Section 289f HGB. The requirements profile is available on our website in the Investor Relations/Corporate Governance area.

Based on the targets set for its composition, the Supervisory Board has prepared the following overview of the current implementation status in the form of a qualifications matrix:

Competency requirements	Alexander von Witzleben	Prof. Dr. Gernot Hebestreit	Prof Dr. Markus H. Thoma
Length of membership			
Member since	June 2004	June 2008	June 2014
Personal aptitude			
Independence	Met	Met	Met
No overboarding	Overboarding in principle, but deviation in the declaration of conformity	Met	Met
Diversity			
Gender	Male	Male	Male
Year of birth (age)	1963 (59)	1963 (59)	1958 (64)
Nationality	German	German	German
International experience	Met	Met	Met
Educational background	Tertiary	Tertiary	Tertiary
Professional aptitude			
High-tech mechanical engineering	Met	Met	Met
Risk management/compliance		Met	
Corporate governance and supervision	Met	Met	
Financial expert in accounting (Section 100 para. 5 AktG)	Met	Met	
Financial expert in auditing (Section 100 para. 5 AktG)		Met	
Information technology			
Corporate social responsibility/ESG		Met	
Personnel management/human resources			
Natural sciences			Met
Engineering			Met

GRI disclosures in this section: GRI 2-09, GRI 2-10, GRI 2-11, GRI 2-15

Diversity

The Management Board and Supervisory Board of PVA TePla AG place emphasis on the diversity of the employees. For the PVA TePla Group, they form the basis for a productive and successful company. The activities have the aim of bringing together the right people to overcome the challenges we face and of creating a work culture that promotes the performance, motivation and satisfaction of our employees and our managers.

Management level below the Management Board

At PVA TePla AG – solely a management and functional holding company of small and medium-sized subsidiaries in the specialist mechanical engineering sector – there was only one management level below Management Board level in the period under review. A target of 33 % was set in November 2021 for the proportion of women in the management level below the Management Board at PVA TePla AG. The proportion currently stands at 33 %. Efforts will be made to maintain the proportion of women in the management level below the Management Board at the same figure as a minimum up to December 31, 2026.[12]

Management Board

The Supervisory Board fills Management Board positions primarily based on the professional and personal skills of the candidates. If candidates have the same level of skills, the Supervisory Board will take diversity into account and give due consideration to the proportion of women. When appointing Management Board members, the Supervisory Board will ensure not only that the appointed persons have the personal and professional skills and experience required to perform the functions of the office, but also seek to ensure that the members of the Management Board have a diversity of opinions and experience.

At the moment, the Management Board consists of three male members and one female member. The proportion of women on the Management Board is thus 25 %. A target of 20 % by December 31, 2026 has been set for the proportion of women on the Management Board. It is planned to adopt a new resolution that provides for a target size of at least the current proportion of women.

Supervisory Board

The Supervisory Board consists at the moment of three members, who are all men. A target of 0 was set in 2016 for a specific proportion of women on the Supervisory Board by December 31, 2021. A new target of 20 % by December 31, 2026 has been set for the proportion of women on the Supervisory Board. Regarding the issue of equality between men and women, the Supervisory Board is guided in particular by the professional and personal skills of the candidates when making proposals to the Annual General Meeting for the election of new Supervisory Board members. The Supervisory Board will take diversity into account if candidates have the same level of skills.

GRI disclosures in this section: GRI 2-09

[12] As part of our sustainability reporting, we report on the proportion of women in the first and second management levels of the Group, including all companies within the Group.

Other corporate governance disclosures

Transparent corporate communications

Open, transparent corporate communications are an essential and integral part of good corporate governance. In addition to clear and easily understandable contents, this aspect also requires equal access of all target groups to the information from the company. During the year under review, PVA TePla AG informed shareholders, financial analysts, the media, and interested members of the general public equally and promptly about the development of the company and key events.

All mandatory disclosures and additional supplementary information were made available promptly on the company's website. The company's publications, such as ad hoc disclosures, press releases, interim reports and the annual report as well as manager's transactions were and will continue to be published at the same time in German and English.

Dates of key recurring events, e.g. publication dates of the annual report and of the interim reports as well as the date of the Annual General Meeting, are compiled in a financial calendar. This is updated on an ongoing basis and can be found in the Investor Relations area of the website. The publication dates are based on the requirements of the Stock Exchange Rules and Regulations of the Frankfurt Stock Exchange applicable to equities in the Prime Standard segment.

Shareholders and Annual General Meeting

The shareholders of PVA TePla AG exercise their rights at the Annual General Meeting. The Annual General Meeting adopts resolutions on the appropriation of the profit, the formal approval of the actions of the members of the Management Board and of the Supervisory Board, and the election of the auditor, among other things. Shareholders can exercise their voting rights at the in-person Annual General Meeting either themselves or through a proxy of their choice, a proxy appointed by the company who is required to follow the shareholder's instructions, or by absentee ballot. Last year's Annual General Meeting was held completely online. The chair of the Supervisory Board chairs the Annual General Meeting and reports on the work of the Supervisory Board and its committees in the past fiscal year. The Management Board presents the annual financial statements, the consolidated financial statements, the combined management report and the proposal for the appropriation of profit agreed with the Supervisory Board as well as other proposed resolutions to be put to a vote.

The reports, documents and information, including the annual report, stipulated by law for the Annual General Meeting are made available on our website in the Investor Relations/Annual General Meeting area. The agenda of the Annual General Meeting as well as any countermotions or nominations that have to be made available are also published there.

GRI disclosures in this section: GRI 2-29

Acquisition-related disclosures (Sections 289a, 315a HGB)

Composition of the subscribed capital

As of December 31, 2022, the subscribed capital of PVA TePla AG came to EUR 21,749,988 and consisted of 21,749,988 no-par value bearer shares with a nominal value of EUR 1.00 each.

Restrictions which affect voting rights or the sale/transferability of shares

The Management Board is not aware of any restrictions which affect voting rights or the sale/transferability of shares. In particular, it is not aware of any restrictions that may result from agreements between shareholders.

Direct or indirect equity interests exceeding 10 % of the voting rights

According to disclosures filed with the company, PA Beteiligungsgesellschaft mbH, Wettenberg, Germany, and AIM International Mutual Funds (Invesco International Mutual Funds), Wilmington, Delaware, US, each held more than 10 % of the share capital and of the voting rights in PVA TePla AG as of December 31, 2022.

Bearers of shares conferring special rights

There were and are no shares in PVA TePla AG with special rights that impart the right of control.

Type of voting rights control where employees hold shares in the company

There are no employees with a share in PVA TePla AG's share capital who cannot directly exercise their control rights.

Statutory provisions and conditions of the articles of association on appointing and recalling members of the Management Board and on amending the articles of association

a) Appointment of members of the Management Board: The appointment Management Board members of PVA TePla AG is carried out in accordance with Section 84 AktG and Section 6(2) of the articles of association of PVA TePla AG. The following is established therein: "Article 2: The appointment of members of the Management Board, the revocation of their appointment as well as the concluding, the amendment and the termination of contracts of employment with members of the Management Board are effected by the Supervisory Board. The same applies to the appointment of a member of the Management Board as chairman or as spokesman of the Management Board."

b) Dismissal of members of the Management Board: In accordance with Section 84 (3) sentence 1 AktG, the Supervisory Board may revoke the appointment of Management Board members and the appointment as chief executive officer for good cause. Section 84 (3) sentence 2 AktG defines good cause as gross dereliction of duties, inability to properly manage the company's affairs, or a vote of no confidence by the Annual General Meeting, unless this vote of confidence took place for reasons that are evidently unsubstantiated. Under Section 84 (3) sentence 4 AktG, the recalling of Management Board members is valid until it has been finally and conclusively deemed invalid by a court of law.

c) Amendment of the company's articles of association: In accordance with Section 179 (1) sentence 1 AktG, any amendment to the articles of association requires a resolution by the Annual General Meeting. However, Section 179 (1) sentence 2 AktG authorizes the Supervisory Board to adopt a resolution on amendments to the articles of association that relate only to the wording. Section 179 (2) sentence 1 AktG states that an Annual General Meeting resolution to amend the articles of association requires a majority of at least three-quarters of the share capital represented at the time of the resolution. Under Section 179 (2) sentence 2 AktG, however, the articles of association may stipulate a different majority when the matter involves modifying the company's purpose and may also impose further requirements. On the basis of this statutory authorization, Section 14 (3) sentence 3 of the articles of association stipulates that resolutions designed to modify the company's articles of association are adopted by a simple majority of the votes cast, provided this is permitted by law.

Authority of the Management Board to issue or repurchase shares

The Management Board is authorized to increase the share capital of PVA TePla AG, with the approval of the Supervisory Board, on one or more occasions up to June 22, 2027 by a total of up to EUR 5,437,497 by issuing up to 5,437,497 new bearer shares against cash and/or non-cash contributions (authorized capital 2022/I).

The share capital of PVA TePla AG is furthermore contingently increased by up to EUR 5,437,497.00 through the issue of up to a 5,437,497 new bearer shares (contingent capital 2022/I). Contingent capital 2022/I serves exclusively to grant new shares to the holders of conversion or option rights that are issued in accordance with the authorization resolution of the Annual General Meeting of June 23, 2022 by PVA TePla AG or by companies in which PVA TePla directly or indirectly holds an equity interest of 100 %.

Material agreements subject to the condition of a change of control as a result of a takeover bid

The current master agreements with the banks are based on a largely unchanged shareholder structure and, in the event of a change in control, call for renegotiation or, in one case, specify that the bank has a right to cancellation. The provisions for a publicly funded research and development project also include a special right to cancellation in the event of a change in control. Moreover, a change of control will also result in a right to terminate some individual customer orders. There are no other agreements that are contingent upon a change of control as the result of a takeover bid.

Compensation agreements in the event of a takeover bid

In the event of a change of control, Management Board members receive benefits that shall not exceed 150 % of the severance payment cap (value of two years' remuneration including benefits).

Risks and opportunities

The PVA TePla Group's policy on risks and opportunities reflects the Group's commitment to achieving sustainable growth and increasing shareholder value while simultaneously managing appropriate risks and opportunities and avoiding inappropriate risks. Risk management is an integral part of planning and implementing the business strategy.

The business units of the PVA TePla Group are exposed to an array of risks that are inextricably linked to the corporate activities. Risk is understood to be the possibility that events or activities prevent the PVA TePla Group from achieving targets it has set or have a sustained negative impact on its earning potential. At the same time, it is important for the PVA TePla Group to identify and take advantage of opportunities for the company and to reinforce the Group's competitive position. Risks and opportunities are not offset against one another.

Risk and opportunity strategy

In the core activities of the PVA TePla Group, we make a conscious decision to enter into reasonable, manageable and containable risks, if at the same time they make appropriate compensation likely or are inevitable. The internal reporting system aims to allow us to monitor risks of this kind in the course of business more closely. In some cases, we allocate risks in supporting processes to other parties. This mainly includes taking out suitable insurance policies, for example covering potential loss events or liability risks, outsourcing risks to suppliers, and maintaining a generally low level of vertical integration. We thus reduce the degree of risk we face, ensure our flexibility in production and in the costs structures, and avoid or mitigate possible losses. Other risks that are not linked to core or support processes, on the other hand, are avoided where possible.

The risk policy of the PVA TePla Group is set by the Management Board. Responsibilities are defined for all relevant risks and opportunities. The hierarchical level of these responsibilities depends on the risk or opportunity in question. Our risk strategies are based on a regular risk inventory and assessment and comprise the following categories: identifying and monitoring risks, preventing, transferring, mitigating or accepting risks. We evaluate our opportunities strategy in the course of regular strategy processes and on the basis of opportunity inventories and assessments for our respective business units. The opportunities that are described are not necessarily the only ones that present themselves. And our assessments of the opportunities are subject to change as the group of companies, our markets, and our technologies are continually developing.

Risks are essentially listed if their occurrence would have a material negative impact on the net assets, financial position, and results of operations. PVA TePla may be exposed to other risks that have not yet been identified at the moment or that are not yet assessed as material at this point in time.

Principles and objectives of the internal control system (ICS) and risk management system (RMS)

The objective of our risk management system (RMS) is to identify, assess, and actively manage commercial risks connected to our business at an early stage. The Group-wide risk management encompasses all companies included in the consolidated group. The system is designed in such a way that it fulfills the relevant legal requirements and the relevant industry standards.

Due to the organizational structure, risk management is carried out locally in PVA TePla AG, in its subsidiaries and in the business processes. The members of the Management Board members and the managing directors are therefore responsible for central processes of the risk management system. To ensure this, the managing directors and employees are provided with a “risk manual” that sets out procedures for proper, forward-looking risk management. The manual covers specific risk management processes. It is aimed at all risk-related activities and measures, i. e. identifying, assessing, managing, reporting and monitoring risks. As part of this, risks facing the business units, the operating units and central areas are identified using defined risk categories and assessed in terms of how likely they are to occur and potential losses.

The early recognition of risks is a key element of the risk management system and is intended to regularly provide Management Board members with up-to-date information on the current risk situation within the PVA TePla Group. The duties of those in charge include developing and, where necessary, initiating measures to prevent, mitigate and hedge against risks. The responsible officers regularly monitor the material risks and the countermeasures implemented. The risk reports are regularly compiled and analyzed by central risk management and checked and discussed by the Management Board and Supervisory Board. In addition to the regular reporting, a regulated reporting system has been installed within the Group to immediately report the occurrence of unexpected risks on an ad hoc basis. Public reporting is done on a quarterly basis, but the ad-hoc reports can also be used in addition to the regular reporting process if necessary to address relevant topics in a timely manner.

The risk management system also includes an annual risk inventory, in which all of the risks relevant to the PVA TePla Group are reported and their relevance and possible effects are assessed. Measures to reduce identified risks are defined and their implementation is monitored. The risk management system enables the Management Board to identify and assess material risks at an early stage and to implement countermeasures when necessary. It additionally includes a compliance management system that focuses on the company’s risk exposure.

The adequacy, efficiency and effectiveness of the risk management system is reviewed on a regular basis at Management Board level and adjusted accordingly if necessary. The Management Board and the Supervisory Board regularly determine the areas where the PVA TePla Group is to be subject to an internal audit. Where necessary, external companies are engaged for these audits.

In addition to the controls implemented in the organization, the individual functional areas are also monitored by their managers. The Management Board and Supervisory Board define activities for the internal audit, which is supported by external service providers. This is intended to guarantee independent monitoring of the business processes and controls. The results of the internal audit are regularly provided to the Management Board and the Supervisory Board as well as the relevant specialist units in order to identify and implement improvements to the processes. The internal audit department is also responsible for independently reviewing the functioning, adequacy and effectiveness of the internal control system in the Group. In order to conduct the audit, the internal audit department has comprehensive information and review rights.

Opportunity management is also an integral part of the Group-wide management. The strategy process identifies and assesses the individual areas for opportunity. Just like risks, potential opportunities are reported and managed locally. Frequent reporting is carried out in order to identify at an early stage whether the market or the competition has developed in such a way or whether there have been occurrences within the Group that make reassessment necessary. As for risks, public reporting for opportunity management is also done on a quarterly basis, but the ad-hoc reports can also be used in addition to the regular reporting process if necessary to make relevant topics public in a timely manner.

The Management Board bears overall responsibility for our RMS and ICS. The Management Board regularly evaluates the company-wide risk and opportunity situation and discusses the results of the internal control processes at its meetings and also issues a general statement once a year on the adequacy and effectiveness of our ICS and RMS. The Management Board assesses the adequacy and effectiveness of the ICA and RMS on this basis at the end of each fiscal year. This information is also provided the Audit Committee of the Supervisory Board as part of the reporting on the effectiveness of the ICS and RMS. The Audit Committee is systematically involved in our ICS and RMS. It monitors the accounting and the accounting process as well as the appropriateness and effectiveness of the ICS, the RMS, and the internal audit system.

Non-financial statement, unaudited information:
The Management Board is not aware of any indication that the ICS or RMS were not appropriate or effective in their entirety as of the reporting date.

Regardless of this, there are inherent limitations in the effectiveness of any risk management and control system. No system – even it has been assessed as appropriate and effective – can guarantee for example that it will discover in advance all risks that actually arise or rule out every process breach in all circumstances.

Compliance management system (CMS)

The ICS and RMS also include a CMS that focuses on the company's risk exposure. Our CMS is based on the code of conduct and contains measures for preventing, identifying, and responding to compliance breaches. We attach great importance to compliance training and raising the awareness of the employees concerning this subject. In the coming year we will also continue to take an intensive look at the further development of our CMS and the implementation of appropriate measures.

The entire CMS will continually be adapted to the business-specific risks and the various local statutory requirements. The findings from the compliance risk management will be used here to derive measures for its continued development.

Accounting-related internal control and risk management system

As far as the processes in the financial reporting are concerned, identified risks are reviewed and assessed in particular with regard to their potential impact on disclosures in the respective financial reports. The aim is to provide important information at an early stage about potential changes in the fair value of assets and liabilities, possible impairments and important information for assessing the necessity of forming and reversing provisions.

The objective of the methods and measures in place is to secure the assets of the company and enhance operating efficiency. The internal control system (ICS) that has been implemented is intended to ensure the reliability of accounting and reporting and to ensure compliance with internal rules as well as legal regulations and the articles of association. The adequate separation of functions is ensured and appropriate spans of control have been implemented. Furthermore, it is ensured that responsibilities do not overlap and that tasks, expertise and responsibilities are pooled. Controls have also been integrated into the workflows.

Key components of these structures and controls include strict compliance with the dual control system of checks and balances for all essential accounting processes, defined access rights to IT systems, spot checks of employees at all levels by the respective superiors, and control over the organizational and operation structure including the key operational company processes within the scope of the certified quality management system. The essential features of the internal control system described above apply to all functional areas. In the accounting process, the implementation of the structural and process organization controls within the internal control system assures data integrity for the information that flows into financial reporting.

Consolidation and the Group accounting process are based on the decentralized preparation of financial statements by each of the Group companies. These financial statements are prepared and submitted in application of the IFRS standards and in the defined uniform Group-wide data formats. The central accounting system is connected with the ERP system through numerous interfaces.

The entire process is controlled and verified by the central Group Accounting and Controlling department. Here, the data is also verified with regard to form and content. All the employees involved in the process receive training at regular intervals. The parts of the internal control system relevant to financial reporting are reviewed in terms of effectiveness by the auditor as part of a risk-oriented approach.

In conclusion, we would like to point out that neither an ICS nor a risk management system can ensure with absolute certainty that the related objectives will be achieved. Like all discretionary decisions, resolutions to implement suitable systems can also be incorrect in principle. Controls may not be adequate on a case by case basis due to simple errors or mistakes, or changes to environment variables may be recognized too late in spite of corresponding monitoring.

Risk reporting on the use of financial instruments

Risks from financial instruments are described in detail in the Group notes under note 19 “Additional Disclosures on Financial Instruments”.

Risk assessment

The probability of occurrence of the risks is assessed and classified into one of the four levels “very low”, “low”, “high” or “very high”. These levels are supported by percentage ranges covering the probability of occurrence and can be further specified if necessary by time intervals in which the risk typically materializes.

When assessing the potential scope of losses, we also divide these into the four levels “very low”, “low”, “high” or “very high”. Limit values relating to the potential scope of losses in EUR in terms of the impact of EBITDA are assigned to each of these categories.

Unquantifiable risks, such as reputational damage, are assessed on a qualitative basis.

Economic Relevance	Probability of Occurrence			
	very low > 0 % – 5 %	low > 5 % – 20 %	high > 20 % – 50 %	very high > 50 % – 100 %
very high over EUR 12 million		Trade barriers		
high EUR 4 – 12 million	Sales markets		Information technology, Human resources	
low EUR 2 – 4 million			Procurement markets	
very low up to EUR 2 million				

Risks and opportunities of future operating activities

The PVA TePla Group differentiates between business opportunities and risks as well as between operational opportunities and risks. These constitute the pivotal areas for the Group. Opportunities and risks do not exist to the same extent in all subsegments. A general net presentation of risks is provided below.

In this report we discuss the most important financial and non-financial risks and opportunities for achieving the company's targets in 2023 and beyond. These include risks that are assigned to the category "high" as a minimum both in terms of the potential losses and in terms of their probability of occurrence. We additionally report on material risks from the previous year's report if our assessment has changed and on risks that we consider relevant for the understanding of the business or the environment.

Business Risks and Opportunities

Impacts resulting from Russia's war against Ukraine.

Russia attacked Ukraine on February 24, 2022 and has since conducted a war of conquest, which has led millions of refugees and the large-scale destruction of Ukraine's cities and infrastructure. The Western community of states has imposed sweeping sanctions on Russia. The impacts of the war on global trade and financial transactions as well as the suspensions of and restrictions on the supply of primary fossil fuels and agricultural goods has had negative economic consequences worldwide, including significantly higher prices for commodities and primary fossil fuels and a decline in production in some industrial sectors. However, alongside the indirect risks specified above, PVA TePla does not see any direct risks to its business or the supply of raw materials, intermediate products or components as a result of the war, as neither Russia or Ukraine are relevant sales or procurements markets for its products.

Impacts of the COVID-19 pandemic

The COVID-19 pandemic took on an endemic character in the majority of the markets relevant for PVA TePla and no longer had a material adverse impact on economic activities in the year under review. In China, the government decided to largely dispense with large-scale mobility restrictions and quarantine measures in December 2022, which raises the prospect of an end to the stop-and-go economy caused by the zero-Covid policy. The negative impacts on global production, trading and supply should thus gradually dissipate and the Chinese economy should revive. However, the possibility that the pandemic will flare up again is a risk. PVA TePla AG has set up a working group that keeps an eye on the impacts on health, safety, and order processing.

Trade barriers

As an international group of companies with a high share of export business, the PVA TePla Group is essentially susceptible to trade barriers or sanctions in customs policy or general trade and export bans. Geopolitical developments mean – in our opinion – that a trend towards intensification in these areas can be expected.

This concerns in particular the geopolitical conflict between the US and China and the possible threat of an impending conflict in Taiwan. For example, the US government drastically tightened its sanctions against the development of a high-tech Chinese semiconductor industry in the second half of 2022. This also affects equipment lines for the production of semiconductors globally. The PVA TePla Group continually reviews the need for export licenses and, in the case of high-risk orders, hedges the political risk through capital goods credit insurance policies as required. We are closely monitoring and regularly assessing a risk that may arise from sanctions imposed and threatened by the US on companies that supply China with equipment for the semiconductor industry. Abandoning the China sales market would definitely have significant impacts on PVA TePla AG and the development of its sales revenues and earnings.

The PVA TePla Group counters this potential development by operating regional subsidiaries in key markets, meaning that corresponding supply chains can alternatively be set up in the relevant countries and alternative strategies can be established in the face of any trade barriers that may arise. On the other hand, the development of new production locations on the part of our customers outside the sphere of influence of China could offer PVA TePla some compensation for any decline in its China business.

The economic, political and geopolitical environment

PVA TePla anticipates a diverse range of uncertainties relating to the global economic prospects and the geopolitical situation.

The economic development of the semiconductor market is hugely relevant for PVA TePla because of the close connection to the cyclical business of the semiconductor industry. In order to minimize the risks, PVA TePla AG has diversified its business, as a result of which other parts of the sales revenues, for example in the industrial area, follow the global economy instead. Should growth in certain markets grind to a halt again and production and cost structures cannot be successfully adjusted to take account of the new market environment, negative impacts on PVA TePla AG's revenue and earnings situation could nevertheless arise.

The strategy of maintaining a relatively low level of vertical integration allows a rapid response and high flexibility. The efforts we have undertaken in recent years to develop and offer our own processes for manufacturing high-quality materials has further improved the PVA TePla Group's market position. The PVA TePla Group also provides high-quality contract processing work such as plasma treatment, high-vacuum brazing, diffusion bonding and heat treatment of components in which greater demand has historically been seen in times of generally restrained capital expenditure.

Sustainability

The increasing ESG requirements set by governments, investors and customers as well as increases in risk premiums for the financing of carbon-intensive technologies can lead to additional costs or have an impact on demand. The growing requirements in the regulatory environment, but also the independent commitment in the form of the company's own sustainability and climate change mitigation targets can harbor additional liability risks. We address these risks through a clearly defined sustainability strategy.

In addition to measures for the sustainable development of our social working environment and our governance, measures to decarbonize our value added and our contribution to energy savings and increases in efficiency also come into the spotlight. On the product side, we are playing our part with technologies we have developed in-house, such as crystal cultivation based on silicon carbide, metrology, or diffusion bonding, together with innovations on the customer side. A large number of new market opportunities may result for the PVA TePla Group's process and systems technologies from the sustainability requirements.

Operational Risks and Opportunities

Information technology risks

Digital technologies are an ingrained part of PVA TePla's product and business portfolio. The increasing complexity of the IT landscape allows improvements in the efficient handling and mapping of processes, but also results in an increase in the potential risks. The increase that can observed worldwide in threats to digital structures and functions from cybercrime, industrial espionage or sabotage, also by state actors, create risks with regard to the security of products, systems and networks, as well as risks related to data confidentiality, availability and reliability. IT risks of this kind can have an impact on earnings. The failure of core IT systems, the publication of confidential data from research and development and the business development as well as the manipulation of IT systems or cyber-attacks with the aim of sabotage or extortion constitute key risk scenarios for PVA TePla. This would be the case if, for example, third party data and information was blocked or encrypted or published without permission. Other risks can also arise from defective internal IT structures if the mapped processes are implemented in IT systems in a way that is too inflexible, too complicated, or against the law. Security vulnerabilities, a lack of care, or inadequate contingency planning can quickly develop into incidents that affect the entire company, as key corporate functions from order processing and the sales activity to accounting and payments could be restricted or even fail.

Data privacy breaches resulting from the incorrect issuing of permissions or the failure to comply with the European Union's General Date Protection Regulation (GDPR) can result in negative public perceptions or fines. The growing importance of IT as well as the expanding networking of IT structures, both for the Group and for its products and services, require high levels of spending on maintenance and upgrades as well as on defense and protection.

Thanks to the redundant design of technical components, networks and locations as well as suitable contingency planning and IT security architecture, PVA TePla ensures the necessary availability of its business-critical systems and control over the systems in the field with access to all relevant data at all times. This currently includes the establishment of an IT security control center. This is designed to recognize cyber-attacks at an early stage and thus play a part in countering attacks using the latest defense methods. These risks can be further limited using suitable organizational, personnel and technical precautions and security measures relating to access control, access rights, anti-virus and data protection.

PVA TePla AG and its subsidiaries supplement the technical measures by raising the awareness of their employees. When it comes to IT security, employees are subject to clear codes of conduct and receive regular online training keeping them alert to the importance of IT security in the day-to-day business operations. A dedicated process ensures that IT risks are evaluated and appropriate measures are implemented. To safeguard and protect personal data, PVA TePla works with an external data protection agency and follows the recommendations for implementing the GDPR.

Sales market risks

Total revenues and earnings of the PVA TePla Group are based on the various systems, products and services from the two business segments Semiconductor Systems and Industrial Systems. We are thus active in a variety of markets and areas of application for different customer groups. PVA TePla is not only an equipment supplier, but in many cases also a development and technology partner for its customers. This ensures very strong customer loyalty. Together with the high requirements for process stability and failsafe performance of the systems, PVA TePla – as an established innovation partner for its customers – offers strong protection against new competitors and price competition. The ongoing expansion of the product range and of the technological basis, primarily along the value chain of the most important customer sectors such as semiconductor production, is closely connected with our strong innovative capability. But new developments such as diffusion bonding or crystal cultivation on a silicon carbide basis are also allowing us to open up new fields of business and thus reduce our dependence on individual markets and customers.

We have kept any vertical integration low so that we can flexibly adjust capacity and fixed costs in particular in highly volatile sales markets such as the semiconductor industry. This helps reduce our capacity utilization risks and maintain a high level of delivery capacity. This diversification across several levels aims to play a part in minimizing risk. The markets and industries that are addressed internationally differ in their structures and economic cycles. The systems' batch sizes and throughput times vary depending on the product category and reduce the dependencies on individual customers and product groups. We can thus shift and consolidate the sales revenue structure strategically with a greater focus on recurring income and lower independence on single large orders.

Procurement market risks

The results of our operational units depend on the reliable and effective control of our supply chain for components, parts and materials and on forward-looking workforce planning.

Risks on the procurement side arise from increases in commodity prices, the availability of intermediate products, and non-delivery. PVA TePla works to eliminate dependencies on individual suppliers and focuses on a forward-looking purchasing policy, order quantity optimization, and warehousing in order to ensure the availability of parts and delivery capacity. Longer delivery times are generally accepted by customers and higher prices can normally be passed on. The company can resort to alternative suppliers for nearly all components and focuses largely on Germany in geographical terms in order to minimize logistics risks. Dependencies on single suppliers are deliberately accepted only in individual cases, e. g. to protect expertise.

The year under review continued to record shortages of materials, workers, and product commissioning, although it was possible to observe a gradual easing of bottlenecks. In particular, constraints caused by Covid restrictions and project delays were resolved. With the available products and components, PVA TePla does not see a risk to the processing of the order backlog in both business segments for the foreseeable future, especially as stocks of certain key components were increased.

As a manufacturer of sophisticated technical systems that have to fulfill the highest requirements for quality, durability, and integration in production lines, the PVA TePla Group is exposed to increased warranty risks. A comprehensive information management system, continual quality controls, and documentation along the entire value chain minimize these risks. This begins with the definition of processes in production, service, and administration and in the qualification of the suppliers and continues with extensive quality requirements for the materials and semi-finished products that are used as well as with long-term strategic partnerships related to intermediate products and a personnel policy that focuses very sharply on qualification and quality awareness. Delivery capacity and on-time deliveries are important competitive factors. PVA TePla insists on all major suppliers having a suitable quality management system and appropriate third-party liability insurance coverage in place. By tapping other suppliers for key components and by acquiring smaller, appropriately specialized manufacturers, PVA TePla can reinforce its supplier base and put it extensively on a sound footing.

Personnel risks

The success of the PVA TePla Group is primarily influenced by its employees and their expertise. The skills and the commitment of the employees in all areas of the company are consequently critical for its success. Competition for skilled employees and managers is intense in the industries and regions in which the PVA TePla Group operates and is characterized by a shortage of skilled workers as well as by demographic challenges. There is additionally a basic risk of staff turnover. Consequently one of the company’s highest priorities for ensuring its success in the future is to ensure systematically that it attracts talent and recruits skilled staff and to integrate and retain them in the company for the long term. Strategic personnel planning, both for trainees, for qualified personnel and also for the management level, as well as partnerships with German universities and research institutes are intended to prevent a shortage of skilled workers. PVA TePla encourages the continuous professional development of its own employees and endeavors to inspire new hires for tasks in the company already during the supervision of their training. We regularly identify potential for improvement through a continual dialog with our employees and the works council. This potential is subsequently realized through specific measures in order to enhance the work environment and the working conditions at PVA TePla.

Another major focal point is diversity in the personnel and structured succession planning. We will continue to counter the risk of staff turnover by documenting expertise, extending redundancies, and holding performance reviews with employees. In addition, PVA TePla offers its employees a catalog of fringe benefits, professional development opportunities, and certain options allowing flexibility in the performance of their work, such as remote workstations or working time accounts in order to increase our attractiveness as an employer. Temporary staff shortages or high levels of absence due to illness, such as during the Covid-19 pandemic, can be cushioned in the short term through overtime, prioritizing tasks, and in part by agency workers.

Legal risks

The international business activities of the PVA TePla Group mean that the companies are exposed to various legal risks. National and international contract drafting and taxation are particularly important areas here. Direct impacts on the result of operations and the net asset situation are possible in these areas. The risk arising from sales and service contracts is essentially minimized through the use of standardized terms and conditions. In the case of special contracts, the wording and content are initially examined in-house, if applicable with the involvement of an external legal advisor. The company additionally relies on a country-specific, specialized network of consultants consisting of auditors, tax advisors, and attorneys who pay attention to multi-country Group concerns. The specialist knowledge required to assess the day-to-day business is provided by qualified employees. Product liability risks are covered by corresponding insurance policies.

The companies of the PVA TePla Group are additionally exposed to risks arising from litigation. These can include risks arising in particular in the areas of product liability, competition and antitrust law, capital market law, patent law, labor law, international tax law, and environmental law. As a research and technology company, PVA TePla owns a portfolio of intellectual property rights such as patents and trademarks. These can become the target of attacks and breaches. In general, the group of companies endeavors to keep all legal risks to a minimum and to control them.

As far this is possible and sensible, the companies of the PVA TePla Group limit liability risks and risks of damages in all countries in which they operate through contractual agreements and insurance cover, the nature and scope of which is continually adjusted to the current requirements. PVA TePla can here call on experience in a large number of countries, also outside of Europe. Losses from natural disasters are also covered by insurance policies, while impacts on operations could be cushioned by temporarily switching to other company sites.

Gaps in coverage and liability are closed in an integrated, worldwide insurance program encompassing all PVA TePla companies. The insurance premiums are adjusted through appropriate and acceptable deductibles. At present, as of the end of February 2023, there are no material legal disputes involving the holding company PVA TePla AG or its subsidiaries.

Research and development risks

Innovation is a key element of PVA TePla AG's corporate strategy. The goal is to stand out from the competition through technological and digital quality and quality control ensuring a high level of process stability and failsafe performance of the systems. One focus of development here is the ability of the systems to operate in production lines and their high throughput capacity. The R&D work also focuses on product innovations such as hot presses, the cultivation of crystals for innovative materials as well as metrology systems featuring a high degree of measurement precision and AI models in order to expand the company's product range. The risk the research and development projects may be delayed, expected budgets are overshot, or targets that have been set are not met is thus always latent.

For this reason, ongoing research and development projects are constantly monitored, regularly discussed and, if necessary, realigned. Decisions – for example on investments in new technologies – have to be made in such a way that the risks are kept to a minimum. However, market opportunities should be exploited proactively in order to establish a position and set the standards in new market areas as early as possible.

Financial risks

PVA TePla is exposed to various financial risks, including liquidity, credit, tax, currency, customs, and market price risks. Sophisticated liquidity planning results due to the highly individual character of the incoming orders and methods of payment. Currency risks are minimized and financial transactions are hedged by means of forward exchange contracts.

The terms and conditions of a syndicated loan require PVA TePla to comply with certain financial covenants relating to the gross debt ratio and the equity ratio. If these financial covenants are breached, the lender has the right to terminate the loan and demand that it be repaid. A renegotiation of the loan conditions could lead to an adverse development in the financing costs. Compliance with these conditions is monitored on an ongoing basis.

There are no other material financial and liquidity risks at the moment.

Summary of Risks

Despite the knock-on effects of the Covid-19 pandemic that persisted in the year under review, there was no material change in the PVA TePla Group's overall risk exposure in the past fiscal year 2022 compared to the fiscal year 2021. The dominant risks stemmed from the Human Resources and IT departments and from possible trade barriers. This last risk has grown compared with last year in our opinion.

The probability of occurrence of the personnel risks and the IT security risks as well as risks from the areas of geopolitics and sales markets have also increased compared with 2021, as have the risks of significantly weaker economic development. The probability of occurrence and the economic relevance of the following risks remain unchanged compared with 2021: risks arising from legal disputes, finance, sales/sales markets, research and development. We rate procurement market risks lower than in the previous year.

From today's perspective and supported by the result of an analysis of our risk-bearing capacity at Group level, there are, as before, no risks that jeopardize the company's continued existence as a going concern.

Opportunities for the Group's growth and earnings-oriented development

PVA TePla has implemented a number of measures and launched business initiatives to create the conditions for the further growth and earnings-oriented development of the Group and to identify and assess its opportunities and realize these in practice in a controlled way. Some of these measures and initiatives are intended for the medium and long term and thus extend over several reporting years, while some of the other measures described below are new and were launched in the year under review. The primary goals of the further development of our business model for our technological expertise are to improve our competitive position in the semiconductor industry, build up new business fields and expand our customer base. By doing so, we can shift and consolidate our revenue structure more strongly in the direction of recurring income.

PVA TePla is one of the leading-edge manufacturers of systems for sintering hard metal, for cultivating silicon and silicon carbide crystals, and for treating and cleaning surfaces. The Group has set standards also in technologies for non-contact and non-destructive quality control, such as ultrasound inspection systems. We build on our own research and existing expertise to develop innovations swiftly into marketable solutions. We can use the results of our developments in a variety of ways: to optimize systems operation, to improve equipment technologies, or to open up new business fields with new products. We will continue to pursue this successful strategy.

The strategy is supplemented by targeted acquisitions. They serve both to expand our own technical base and optimize vertical integration as well as to strengthen our market access and customer base. Acquisition targets are primarily companies that possess complementary technologies or cover other steps in the production process of the semiconductor industry.

The development of the semiconductor market in terms of technology and capacity will remain a very important economic driver for PVA TePla as a supplier in the semiconductor systems business field. In the short term, the semiconductor industry can benefit from the strong recovery in many consumer industries following the corona pandemic and from the continuing shortage of chips in some areas. In the medium term, numerous trends remain intact that point to increasing demand for memory chips, microprocessors, and sensors. Demand for plasma and metrology systems is correlated with trends in sales markets in the semiconductor industry (e. g. MEMS, LED, OLED/PLED, IGBT).

Further growth in these product areas of the PVA TePla Group is expected due to the anticipated structural growth in the semiconductor market in the medium term and new applications for plasma systems in the semiconductor/life science/industrial sectors. These include the continuing digitalization of many economic fields, 5G mobile communications technology, the Internet of Things, electromobility, and the efforts to expand automation in the context of Industry 4.0. The talks among market participants is that the market volume will double by the next decade to reach around USD 1 trillion. Manufacturers can be expected to maintain their high investments in equipment. PVA TePla aims to further strengthen its position in this attractive growth market. To this end, we are expanding our product range along the entire value chain. We offer our customers solutions for the increasing quality requirements, the advances in miniaturization, and the growing requirements relating to production speed. We thus foresee a significant increase in sales potential for our innovative metrology applications for quality control.

In the Industrial Systems division, the focus of business activities is on “advanced materials”. These include high-tech materials produced in high-temperature vacuum systems by way of joining technologies and hard metals produced in sintering systems. Silicon carbide ceramics and silicon carbide coatings are further examples of where processing requires systems from the PVA TePla product portfolio. In markets such as the tool industry and the electronics industry, the PVA TePla Group provides process technologies that will – in our opinion – remain a firm part of each respective value chain in the future. In joining technology, new user markets are emerging for the “diffusion bonding” application such as the gas and hydrogen industry. Additional examples of sectors in which these types of processes are used include the aviation industry and molding construction.

The listing of PVA TePla AG on the regulated market of the Frankfurt Stock Exchange in the Prime Standard segment creates transparency for the domestic and international investors and the general public. The listing enables the company to access growth and investment capital as and when necessary. The transparency requirements that are set contribute to noticeable confidence on the part of customers when making investment decisions and help the company stand out from the competition. This also includes the status as an independent company that is highlighted by the listing. Furthermore, the declaration of conformity with the German Corporate Governance Code that the Supervisory Board and Management Board issue every year is a clear statement to shareholders and stakeholders that the company is committed to putting control and transparency into practice and to building confidence.

Opportunities arising from economic developments in our primary markets that may result in the growth set out in the forecast report being exceeded can be seen for example in the de-escalation of political conflicts, the ending of (economic) war, an unexpectedly quick resolution to trade disputes, or the transformation of the COVID-19 pandemic into a global endemic disease. This could lead to lower market turbulence and risks for the PVA TePla Group than expected and described above.

Overall, the Management Board of PVA TePla AG sees attractive business opportunities on both the German and international markets. This assessment is based on the structural increase in demand from the semiconductor industry for an expanding range of applications and also on our innovative strength, which enables us to develop new technologies and solutions that we can use to embed ourselves more deeply in the value chain of the semiconductor industry and to open up new fields of business and grow our customer base.

General statement on the risk and opportunity situation

PVA TePla AG's risk strategy takes into account the particular features of an internationally oriented mechanical engineering company and is deliberately characterized by a focus on opportunities. Taking into consideration the existing management and control measures, none of the individual risks are classed as a threat to the company's continuing existence as a going concern and neither is a compound effect delivering the same threat seen should several individual risks occur at the same time. Situations of this kind are also not apparent in the future – from today's perspective. The specified risks can, however, have a negative impact on the net assets, financial position and results of operations and on the earnings.

Material changes in the risk situation result in particular from the increasing internationalization of the business activities. We are following the developments in the economic disputes between the US and China with some concern. Trade barriers and export restrictions can have a material impact on our business success. However, the (new) expansion of production capacity for semiconductors can offer suppliers such as PVA TePla striking sales opportunities. The COVID-19 pandemic that has now entered an endemic phase or the impacts of Russia's war against Ukraine no longer represent material risk exposures in the opinion of the Management Board. Overall, the Management Board does not see any material negative change in the Group's risks situation as at the end of February 2023 compared to the previous year.

Although the investment cycles in the semiconductor industry are subject to certain fluctuations, the growth phases are dominant on the whole. Studies show that the market has grown at an average rate of 5.8% since 2011. The economic recovery following the Covid-19 pandemic has pushed the availability of memory chips and the importance of the semiconductor industry as a key industry into the spotlight.

For PVA TePla AG, new opportunities on the global market may definitely open up from the continuing demand for equipment and systems for the semiconductor industry, its products in the field of metrology, new fields of business such as diffusion bonding, its solid financial position, its long-standing transparency resulting from its listing on the stock market, and its status as an independent, established manufacturer.

In light of the existing and potential financial reserves, the solid balance sheet situation, and a sophisticated insurance concept, the company's risk-bearing capacity is given at all times. The business opportunities outweigh the possible risks in our opinion.

No material risks were identified in the year under review that are associated with the PVA's operating activities, business relationships, products or services and that are very likely to have a significant negative impact on the sustainability aspects now or in the future.

Forecast

The forecasts for global economic growth in 2023 are mixed. The International Monetary Fund (IMF) has made a slight increase to its global growth outlook for 2023. As justification for this, it cites "surprisingly resilient" demand in the United States and Europe, easing energy costs, and the reopening of China's economy after Beijing abandoned its strict COVID-19 restrictions. The IMF is now forecasting 2.9 % growth for 2023, up from a 2.7 % in October.[13] In contrast, the most recent report by the World Bank[14] on global economic prospects forecasts that global economic growth will slow to 1.7 % in 2023 and 2.7 % in 2024, particularly in the face of elevated inflation, higher interest rates, reduced investment, and disruptions caused by Russia's invasion of Ukraine, while more than a third of the global economy is expected to see two consecutive quarters of negative growth this year. It is also expected that growth in the three largest economies, the United States, the European Union, and China, will continue to slow.[15]

J.P. Morgan Research forecasts that the global economy will grow at a pace of around 1.6 % in 2023, as financial conditions tighten and Europe's natural gas problems persist. J.P. Morgan Research assumes a recession is likely in the US before the end of 2023.[16]

In the assessment of the International Monetary Fund (IMF), global inflation is expected to fall to 6.6 % in 2023 and 4.3 % in 2024. Inflation will return to pre-pandemic levels only in the middle of the 2020s according to the World Economic Outlook produced by the IMF.[17]

Regardless of these different forecasts, it should be noted that economic projections are not always precise, as they are based on assumptions about future events that may or may not occur.

According to market experts, the growth trend in the semiconductor industry is likely to experience significant acceleration in the next few years. Instead of the average figure of 4 % recorded in the past ten years, the growth rate is expected to double to 8 % to 10 %. The leading global semiconductor manufacturers are planning investments totaling almost USD 140 billion per year from 2022 to 2024 – that is equivalent to around double the volume of investments made from 2016 to 2020.[18] This will have a direct positive impact on companies supplying equipment to the semiconductor industry and their subcontractors.

Market analysts at SEMI are forecasting that the global semiconductor manufacturing equipment market will contract to USD 91.2 billion in the current year before rebounding in 2024 driven by both the front-end and back-end segments. The semiconductor industry is expected to record considerable growth this decade, as new applications emerge in multiple markets. This will necessitate further investments to expand production capacity. SEMI expects the wafer fab equipment segment to record a 16.8% contraction to USD 78.8 billion in 2023 before rebounding 17.2 % to USD 92.4 billion in 2024.[19]

[13] https://www.weforum.org/agenda/2023/02/imf-raises-growth-forecasts-for-2023-and-other-economy-stories-3-february/
[14] https://www.worldbank.org/en/news/press-release/2023/01/10/global-economic-prospects
[15] https://www.cnbc.com/2022/10/11/imf-cuts-global-growth-forecast-for-2023-warns-worst-is-yet-to-come.html
[16] https://www.jpmorgan.com/insights/research/market-outlook
[17] https://www.imf.org/en/Publications/WEO/Issues/2023/01/31/world-economic-outlook-update-january-2023
[18] The Market, https://themarket.ch/analyse/riskantes-wettruesten-im-chipsektor-ld.6015
[19] https://semi.org/en/news-media-press/semi-press-releases/global-total-semiconductor-equipment-sales-2022

Despite the exacerbation of economic uncertainties as a result of Russia's attack on Ukraine and high energy prices that have driven up inflation and led to price volatility in the areas of procurement and transport, PVA TePla remains optimistic about the rest of the year. However, trade barriers between the US and China could also continue to create uncertainty.

PVA TePla benefits from a number of different megatrends. The increase in the demand for semiconductors and power electronics in electromobility, renewable energies, and the general trend toward digitalization are driving the development of new materials and technologies. We are confident that we will be able to make full use of the market potential thanks the combination of innovative technology, our production capacity, and our strong sales network.

We also see especially large growth potential in the area of quality inspections, which serve not only to reduce the amount of wasted materials and the costs of downstream process steps, but also to optimize and increase the efficiency of upstream process steps. Similarly, innovative materials such as silicon carbide, among others, which represents a promising alternative to materials that are traditionally used on account of its outstanding properties as a material for semiconductors, offer further potential. That is why we are making targeted investments here in research and development and the expansion of our production capacity. The acquisition of MPA Industrie SA, which brings with it broad-based process expertise in silicon carbide coatings, was an important step that will allow us reinforce our position in this promising market of the future.

Based on the large order backlog and a demand situation that continues to show stability, we expect consolidated sales revenues in the range of EUR 240 million to EUR 260 million and earnings before interest, tax, depreciation and amortization (EBITDA) of between EUR 36 million and EUR 40 million for fiscal year 2023.

General Statement by the Management Board

We are very pleased with our performance in fiscal 2022. We achieved and even clearly exceeded our corporate goals in the year under review. Our financial data show that we can be successful and have put our business activities on a sustainable basis even in times of challenging economic conditions. With our diversified business model, we have developed our position on promising markets of the future and reduced our dependence on developments in individual industries.

We instituted suitable measures to counter the challenges of the pandemic, the war in Ukraine and the subsequent energy crisis, supply chain disruptions, and inflation. We will continue to closely observe, analyze, and flexibly manage the developments on our procurement and production markets.

Our focus is on strong financial performance and investments in order ensure and promote our growth and our long-term success. Our strategic initiatives and our focus on sustainability and innovation will help us here also to be successful in the future and to continue our growth. Thanks to our large order backlog, we have good visibility up to 2025 and therefore expect a further increase both in sales revenue and in earnings in the current fiscal year.

Consolidated Financial Statements

for Fiscal Year 2022

Consolidated Financial Statements

Consolidated Balance Sheet

Assets

in EUR '000	Notes	Dec. 31, 2022	Dec. 31, 2021
Non-current assets			
Intangible assets	8	20,497	10,405
Right-of-use assets	19	2,650	2,161
Property, plant and equipment	9	33,997	28,823
Non-current investments	10	9,019	25,841
Deferred tax assets	13	6,581	4,477
Total non-current assets		72,743	71,707
Current assets			
Inventories	11	74,996	59,190
Trade and other receivables	12	73,568	32,555
Contract assets	12	40,466	18,917
Income tax assets		1,332	142
Cash, cash equivalents and term deposits	G	27,227	57,734
Total current assets		217,589	168,538
Total		290,331	240,245

Consolidated Balance Sheet

Liabilities and Shareholders' Equity

in EUR '000	Notes	Dec. 31, 2022	Dec. 31, 2021
Shareholders' equity			
Share capital	H	21,750	21,750
Other reserves	H	– 1,145	– 4,791
Retained earnings	H	83,491	65,830
Total shareholders' equity		**104,096**	**82,789**
Non-current liabilities			
Retirement pension provisions	15	11,453	15,886
Other provisions	16	906	1,316
Financial liabilities	14	5,073	1,223
Deferred tax laibilities	13	8,127	4,777
Total non-current liabilities		**25,558**	**23,202**
Current liabilities			
Other provisions	16	4,411	4,485
Financial liabilities	14	5,801	979
Liabilities to employees		7,273	6,289
Trade payabels		18,295	11,118
Contract liabilities	17	113,510	102,938
Provisions for taxes		8,681	3,451
Other liabilities		2,707	4,994
Total current liabilities		**160,678**	**134,254**
Total		**290,331**	**240,245**

Consolidated Income Statement

in EUR '000	Notes	Jan 1 – Dec 31, 2022	Jan 1 – Dec 31, 2021
Sales revenues	1	205,225	155,739
Cost of sales		– 146,167	– 108,981
Gross profit		59,058	46,758
Selling and distributing expenses		– 16,140	– 13,187
General administrative expenses		– 11,463	– 11,267
Research and development expenses	2	– 6,522	– 6,999
Other operating income	3	5,404	5,009
Other operating expenses	3	– 5,249	– 1,982
Operating result (EBIT)		25,088	18,331
Financial result	4	– 1,300	– 577
Net result before tax	4	23,788	17,754
Income taxes	5	– 6,130	– 5,599
Consolidated net result for the period		17,658	12,155
Earnings per share (basic/diluted)			
Earnings per share (basic) in EUR		0.81	0.56
Earnings per share (diluted) in EUR		0.81	0.56

Consolidated Statement of Comprehensive Income

in EUR '000	Jan 1 – Dec 31, 2022	Jan 1 – Dec 31, 2021
Consolidated net result for the period	17,658	12,155
Other comprehensive income		
Items that may be reclassified to profit or loss:		
– Currency changes	443	547
– Income taxes	–	–
Changes in the amount recognised in equity (currency differences)	443	547
Total of items that may be reclassified to profit or loss	443	547
Items that will never be reclassified to profit or loss:		
– Change in pension provision	4,303	1,089
– Income taxes	– 1,097	– 316
Changes recognized outside profit or loss	3,206	773
Total of items that will never be reclassified to profit or loss	3,206	773
Total comprehensive income	**21,307**	**13,475**

Consolidated Cash Flow Statement

in EUR '000	1.1. – 31.12.2022	1.1. – 31.12.2021
Consolidated net result for the year	17,658	12,155
Adjustments to the consolidated net result for the year reconciliation to the cash flow operating activities		
+ Income taxes	6,130	5,599
– Financial income	– 418	– 7
+ Financial expenses	1,718	584
= Operating result (EBIT)	**25,088**	**18,331**
+/– Income tax payments	– 2,920	– 3,235
+ Amortization and depreciation	4,940	4,701
–/+ Gains/losses on diposals of non-current assets	35	3
+/– Other non-cash expenses/income	804	271
–/+ Increase/decrease in inventories, trade receivables and other assets	– 55,624	– 9,393
+/– Increase/decrease in provisions	– 1,439	1,040
+/– Increase/decrease in trade payables and other liabilities	15,044	47,138
= Cash flow from operating activities	**– 14,073**	**58,855**
+ Receipts from associiated entities	319	–
– Cash flow from obtaining control of subsidiaries or other businesses less aquired cash	– 6,149	– 375
+ Receipts from intangible assets and property, plant and equipment	165	10
– Payment of intangible assets and property, plant and equipment	– 6,689	– 3,422
+ Receipts from financial assets	– 19	5,000
– Cash out from investments in financial assets	– 9,000	– 35,202
+ Interest receipts	92	7
= Cash flow from investing activities	**– 21,281**	**– 33,981**
– Payments for the repayment of leasing liabilities	– 1,103	– 1,025
– Payments from redumption of financial liabilities	– 3	– 236
– Payment of interest	– 199	– 251
= Cash flow from financing activities	**– 1,305**	**– 1,512**
Net change in cash and cash equivalents	– 36,660	23,363
+/– Effect of exchange rate fluctuations on cash	– 471	– 359
+ Cash and cash equivalents at the beginning of the period	52,734	29,730
= Cash and cash equivalents at the end of the period	**15,602**	**52,734**
= Cash, cash equivalents and term deposits	**27,227**	**57,734**
Term deposits	– 11,625	– 5,000
= Cash and cash equivalents in cash flow statement	**15,602**	**52,734**

Consolidated Statement of Changes in Equity

in EUR '000	Shares issued	Share capital	Retained earnings	Other reserves		Total shareholders' interest
	Number			Currency exchange	Pension provisions	
As at January 1, 2021	21,749,988	21,750	53,678	13	– 6,127	69,314
Net result			12,155			12,155
Other result				547	773	1,320
Total			12,155	547	773	
As at December 31, 2021	21,749,988	21,750	65,833	560	– 5,354	82,789
As at January 1, 2022	**21,749,988**	**21,750**	**65,833**	**560**	**– 5,354**	**82,789**
Net result			17,658			17,658
Other result				443	3,206	3,649
Total			17,658	443	3,206	21,307
As at December 31, 2022	**21,749,988**	**21,750**	**83,491**	**1,003**	**– 2,148**	**104,096**

Notes to the Consolidated Financial Statements 2022

A. Basis of presentation

Domicile and legal form of the company

PVA TePla AG, Wettenberg (hereinafter “PVA TePla AG”) is a stock corporation in accordance with German law. The company is entered in the commercial register of the Giessen Local Court under HRB 6845 and is domiciled in 35435 Wettenberg. PVA TePla AG’s shares are listed in the Prime Standard of the Frankfurt Stock Exchange (ISIN: DE0007461006) and have been included in the SDAX since September 20, 2021.

Business activities and business segments

PVA TePla AG and its subsidiaries (hereinafter “PVA TePla Group”) are engineering companies which develop and produce innovative and high-quality systems for efficient and resource-saving applications deployed over the world in such areas as renewable energies, semiconductors, e-mobility, medical technology and aviation. This includes high-pressure, vacuum and plasma processes as well as metrology systems for monitoring and controlling quality in production processes. The performance spectrum also covers services such as product and process development, soldering, welding and heat treatment. With locations in Germany, France, Italy, the USA, China, Taiwan, Singapore and South Korea, the PVA TePla Group maintains business relationships around the world.

The PVA TePla Group divides its business activities into two divisions: Semiconductor Systems and Industrial Systems. Management, planning and controlling of the PVA TePla Group is based on these two divisions. For the purposes of segment reporting, they form the two segments. The Semiconductor Systems division provides solutions and systems for the semiconductor industry, in particular crystal growing systems, metrology systems for quality control and plasma systems for removing surface contamination on wafers. The Industrial Systems division covers solutions and systems for the semiconductor industry for the production, finishing and inspection of innovative materials, for surface treatment, cleaning and inspection as well as monitoring production processes configured particularly for the needs and requirements of other industrial areas such as the medical, electrical or tool industries.

Accounting statements and general principles of presentation

The consolidated financial statements of the PVA TePla Group for the fiscal year ending December 31, 2022 have been prepared pursuant to Section 315e of the Handelsgesetzbuch (HGB – German Commercial Code) in accordance with the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) as they are to be applied in the European Union (EU). All International Financial Reporting Standards (IFRS), International Accounting Standards (IAS) and Interpretations issued by the IC Interpretations Committee (IFRS IC) that had to be applied in fiscal year 2022 were taken into consideration. Furthermore, all statutory disclosure and explanation obligations set out in the German Commercial Code that go beyond the IASB’s provisions were met.

The fiscal year for PVA TePla AG and its subsidiaries is the calendar year. PVA TePla AG’s fiscal year 2022 began on January 1, 2022 and ended on December 31, 2022. The corresponding previous year thus covers the period from January 1, 2021, to December 31, 2021.

The consolidated financial statements were prepared in accordance with the historical cost principle and on a going concern basis. This excludes derivative financial instruments and equity instruments held by the PVA TePla Group which are measured at fair value.

The consolidated income statement has been prepared in accordance with the cost of sales method of presentation. Should items in the consolidated statement of financial position or the consolidated income statement and the consolidated statement of comprehensive income have been combined in order to improve clarity of presentation or for reasons of materiality, these are explained in the Group notes. An explanation of the accounting policies used in relation to individual items of the consolidated statement of financial position, consolidated income statement and consolidated statement of comprehensive income is given within the individual chapter in the Group notes together with the relevant specific information.

The presentation in the consolidated statement of financial position distinguishes between current and non-current assets and liabilities. Assets and liabilities are classified as current if they are due within one year or within a longer normal operating cycle. Deferred tax assets and liabilities are generally recognized as non-current in the consolidated statement of financial position.

The reporting currency and the functional currency of the PVA TePla Group consolidated financial statements is the euro (EUR). Unless otherwise indicated, all amounts have been stated in thousands of euros (EUR '000). The figures in these financial statements may contain rounding differences of +/– one unit (EUR '000, % etc.) for reasons related to the calculations.

The PVA TePla Group's consolidated financial statements for the fiscal year from January 1, 2022 to December 31, 2022 were approved by the Management Board of PVA TePla AG and submitted to the Supervisory Board for review and approval on March 16, 2023.

B. Changes in accounting policies

New and updated standards and Interpretations adopted for the first time in fiscal year 2022

The accounting policies applied in the PVA TePla Group's consolidated financial statements for the fiscal year 2022 match those used in the previous year (fiscal year 2021). However, the PVA TePla Group also applied the following new and updated Standards and Interpretations adopted in European law by the European Union for the first time in fiscal year 2022. For the PVA TePla Group there were no material effects as a result of their initial application in fiscal year 2022.

Standard/Interpretation	Titele	Initial application PVA TePla Group	Adoption by the EU	Effects on the PVA TePla Group
Amendments to IFRS 3	References to the conceptual framework	January 1, 2022	took place on June 28, 2021	no impact
Amendments to IAS 16	Proceeds before intended use	January 1, 2022	took place on June 28, 2021	no material impact
Amendments to IAS 37	Onerous contracts – costs of fulfilling contracts	January 1, 2022	took place on June 28, 2021	no material impact
Annual improvements	Annual improvements to IFRSs 2018–2020 Cycle – amendments to IFRS 1, IFRS 9, IFRS 16 and IFRS 41	January 1, 2022	took place on June 28, 2021	no material impact

Standards and Interpretations with future mandatory application

The IASB/IFRS IC has issued the following statements that were not yet mandatory to apply in fiscal year 2022. The PVA TePla Group does not intend to apply these new/updated Standards and Interpretations early.

Standard/Interpretation	Titele	Initial application PVA TePla Group	Adoption by the EU	Effects on the PVA TePla Group
IFRS 17	Insurance contracts	January 1, 2023	took place on November 19, 2021	no relevance
Amendments to IFRS 17	Initial application of IFRS 17 and IFRS 9 – comparative information	January 1, 2023	took place on September 8, 2022	no relevance
Amendments to IAS 1 and IFRS practice statement 2	Disclosures on accounting methods	January 1, 2023	took place on March 2, 2022	effects are currently being analyzed
Amendments to IAS 8	Definition of accounting estimates	January 1, 2023	took place on March 2, 2022	effects are currently being analyzed
Amendments to IAS 12	Deferred tax related to assets and liabilities arising from a single transaction	January 1, 2023	took place on August 11, 2022	no impact
Amendments to IFRS 16	Lease liability in a sale and leaseback	provisionally January 1, 2024	no	effects are currently being analyzed
Amendments to IAS 1	Classification of liabilities as current or non-current, including deferral of effective date and classification of long-term debt with covenants	provisionally January 1, 2024	no	effects are currently being analyzed

C. Companies included in consolidation, principles of consolidation and currency translation

Companies included in consolidation

These consolidated financial statements include PVA TePla AG and its German and international subsidiaries over which it exercises control (PVA TePla Group). The Group exercises control when PVA TePla AG has exposure or rights to variable returns from its involvement with an investee and can also use its power over the investee to influence these returns. It is generally assumed that having a majority of the (direct or indirect) voting rights constitutes control. The subsidiaries to be included in the consolidated financial statements are consolidated in the consolidated financial statements from the time it is possible to exercise control until the time it is no longer possible to exercise control.

In the consolidated financial statements of the PVA TePla Group as of December 31, 2022, in addition to PVA TePla AG eight German (previous year: eight) and ten foreign (previous year: eight) subsidiaries were consolidated:

		Equity share (in %)	
Company	Corporate domicile	Direct shareholding December 31, 2022	Indirect shareholding December 31, 2022
PVA Industrial Vacuum Systems GmbH	Wettenberg, Germany	100	
PVA Crystal Growing Systems GmbH	Wettenberg, Germany	100	
PVA Metrology & Plasma Solutions GmbH	Wettenberg, Germany	100	
PVA TePla Analytical Systems GmbH	Westhausen, Germany	100	
PVA Löt- und Werkstofftechnik GmbH	Jena, Germany	100	
PVA Control GmbH	Wettenberg, Germany	100	
PVA SPA Software Entwicklungs GmbH	Coburg, Germany	100	
PVA Vakuum Anlagenbau Jena GmbH	Jena, Germany	100	
PVA Holding, LLC	Wilmington DE, USA	100	
OKOS Solutions, LLC	Manassas VA, USA		100
PVA TePla America, Inc.	Corona CA, USA	100	
PVA Italy S.r.l.	San Vito di Leguzzano, Italy	100	
MPA Industrie SAS	La Chapelle-d'Aurec, France	100	
PVA TePla Singapore Pte. Ltd.	Singapore	100	
PVA TePla (China) Ltd.	Peking, PR China	100	
PVA Semiconductor Systems Xi'an Ltd.	Xi'an, PR China	100	
PVA Taiwan Ltd.	Hsinchu, Taiwan	100	
PVA TePla Korea LLC	Gyeonggi-do, Korea	100	

Exemption in accordance with Section 264 (3) HGB

The following German subsidiaries of PVA TePla AG exercise the exemption option in accordance with Section 264 (3) HGB and are exempt from the obligation to prepare, audit and publish annual financial statements and a management report under the provisions of German commercial law applicable to corporations for fiscal year 2022:

- PVA Industrial Vacuum Systems GmbH, Wettenberg
- PVA Crystal Growing Systems GmbH, Wettenberg
- PVA Metrology & Plasma Solutions GmbH, Wettenberg
- PVA TePla Analytical Systems GmbH, Westhausen
- PVA Löt- und Werkstofftechnik GmbH, Jena
- PVA Control GmbH, Wettenberg
- PVA SPA Software Entwicklungs GmbH, Coburg
- PVA Vakuum Anlagenbau Jena GmbH, Jena

Changes in companies included in consolidation in the fiscal year 2022

On November 24, 2022, PVA TePla Korea LLC, Gyeonggi-do, Korea, was founded in which PVA TePla AG directly holds 100 % of the shares. With this foundation the PVA TePla Group expanded its presence on Asian markets. The company has assumed sales activities on the Korean and other Asian markets.

In November 2022, PVA TePla AG acquired the remaining approximately 90 % of the shares in MPA Industrie SAS, La Chapelle-d'Aurec, France (hereinafter "MPA Industrie SAS"). As a result PVA TePla AG obtained control of MPA Industrie SAS and now holds 100 % of the shares. The business purpose of the acquired company is the construction of systems for coating surfaces.

The acquisition considerably strengthens the PVA TePla Group portfolio in the area of industrial plant engineering with mature process expertise for silicon carbide (SiC) components and SiC layers in the industrial and semiconductor sectors.

The fair values of the identified assets and liabilities of MPA Industrie SAS at the time of acquisition are shown in the tables below:

EUR '000	Fair values
Assets	
Intangible assets	4,338
Property, plant and equipment	2,418
Inventories	4,217
Trade receivables	1,372
Cash and cash equivalents	608
Deferred tax assets	128
Other assets	667
Total assets	**13,748**
Liabilities	
Retirement pension provisions	223
Other provisions	142
Trade payables	794
Financial liabilities	5,901
Provisions for taxes	0
Deferred tax liabilities	1,143
Non-current liabilities	1,536
Total liabilities	**9,739**
Net assets	**4,009**
Consideration transferred	9,018
Fair value of the previously held stake in MPA Industrie SAS	750
Net assets	4,009
Goodwill	**5,759**

Key differences of fair values to carrying amounts related to the recognition of previously uncapitalized intangible assets of EUR 4,315 thousand. This related to the technology used and the order backlog. The total purchase price to be paid in cash was EUR 9,018 thousand, of which EUR 6,757 thousand was to be paid in fiscal year 2022 and an additional EUR 2,261 thousand in fiscal years 2023 to 2026. Taking account of the cash and cash equivalents acquired of EUR 608 thousand, the net cash outflow from the acquisition was EUR 8,410 thousand. Remeasurement of PVA TePla Group's existing 10 % stake in MPA Industrie SAS at the acquisition date indicated that the carrying amount essentially corresponded to the fair value.

The variable payments to be made in the fiscal years 2023 to 2026 (earn out clauses) depend on revenue and profit targets. The results-related variable purchase price component is limited on the downside (EUR 0 thousand) and the upside (EUR 2,550 thousand). At the acquisition date this variable purchase price component was measured with a fair value of EUR 2,261 thousand.

Goodwill of EUR 5,759 thousand resulted essentially from the acquisition of intangible assets which did not meet the conditions for separate recognition (e. g. human capital such as employee qualifications and expertise). PVA TePla AG is of the opinion that the goodwill recognized in fiscal year 2022 is not deductible for tax purposes. In the PVA TePla Group, MPA Industrie SAS and its goodwill is allocated to the Industrial Systems division.

For the period since the initial consolidation to December 31, 2022, the acquired company contributed revenue of EUR 2,458 thousand and earnings of EUR 187 thousand. If MPA Industrie SAS had been fully consolidated as of January 1, 2022, then for the fiscal year 2022 the revenue contribution would have been EUR 6,579 thousand and the earnings contribution EUR 61 thousand.

The expensed non-recurred costs of the acquisition totaled EUR 91 thousand.

Before gaining control, PVA TePla AG had a receivable from dividend distributions of EUR 310 thousand.

Changes in companies included in consolidation in the fiscal year 2021

The companies included in consolidation by the PVA TePla AG Group did not change in the previous year.

Principles of consolidation

The financial statements of PVA TePla AG and its subsidiaries included in the consolidated financial statements were prepared in accordance with standardized recognition and measurement principles as of the reporting date of the consolidated financial statements (December 31, 2022). Recognition, measurement, consolidation and classification principles were consistently applied in all companies to be consolidated in the consolidated financial statements. All intragroup assets and liabilities, equity, income, expenses and cash flows relating to transactions between companies included in the consolidated financial statements are eliminated in full as part of consolidation. In consolidation processes affecting profit or loss, income tax effects were taken into account and deferred taxes were recognized.

Capital consolidation of the subsidiaries is based on the acquisition method. The cost of a business combination is then allocated to the identifiable assets acquired and identifiable liabilities and contingent liabilities assumed in accordance with their fair values at the acquisition date. Deferred taxes are recognized on hidden assets and liabilities recognized in the context of the initial consolidation, to the extent that this recognition was not implemented on a tax basis. In subsequent periods the hidden assets and liabilities recognized are adjusted in line with the treatment of the corresponding assets and liabilities. The costs of a company acquisition are measured as the total of consideration transferred, measured by the fair value at the time of acquisition, and the non-controlling interest in the acquired company. Costs incurred as part of a company acquisition are recognized as expenses.

An excess of acquisition costs of the business combination over the net fair values of the identifiable assets and identifiable liabilities and contingent liabilities is accounted for as goodwill. If the fair value of the net assets acquired exceeds the total consideration transferred, the PVA TePla Group reassesses whether all assets acquired and all liabilities assumed were identified correctly. Furthermore, the PVA TePla Group reviews the procedures used to calculate the amounts. If, after remeasurement, the fair value of the net assets acquired still exceeds the total consideration transferred, the difference is recognized through profit or loss in the consolidated income statement.

Non-controlling interests in the acquired company are measured at the corresponding share in the identifiable net assets of the acquired company and reported in equity under the separate “Non-controlling interests” item in the PVA TePla Group’s consolidated statement of financial position. In subsequent periods, non-controlling interests are updated, taking account of ongoing profits and losses, distributions and currency differences. Transactions with non-controlling interests that do not result in a loss of control are recognized through other comprehensive income as equity transactions.

Currency conversion

The items recognized in the financial statements of the individual subsidiaries of PVA TePla AG are measured on the basis of the respective functional currency. The reporting currency of the consolidated financial statements of the PVA TePla Group is the euro (EUR).

Transactions in foreign currency are converted into the corresponding functional currency at the rate on the date of the transaction. Monetary assets and liabilities in foreign currency are translated at the closing rate. Exchange differences are taken into consideration in the consolidated income statement in “Other operating expenses” or “Other operating income”. Non-monetary assets and liabilities that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the date of the transaction.

The financial statements of the companies included in consolidation, whose functional currency is different from the Group’s reporting currency (euro), are translated as follows – assets and liabilities are translated at the prevailing rate at the end of the reporting period (middle rate), equity at historical rates and income and expenses at the average rate for the year. Exchange differences resulting from changes to exchange rates across fiscal years are recognized on a cumulative basis in equity under “Other reserves”.

Most important exchange rates against the euro

EUR = 1	Average exchange rate		Closing rate	
	2022	2021	Dec. 31, 2022	Dec. 31, 2021
USA (USD)	1.05388	1.18353	1.06660	1.13260
China (CNY)	7.08010	7.63402	7.35820	7.19470
Singapore (SGD)	1.45197	1.58965	1.43000	1.52790
Korea (KRW)	1,358.07118	1,354.06000	1,344.09000	1,323.16000
Taiwan (TWD)	31.31900	33.02300	32.72300	31.50300

D. Management judgments and estimation uncertainties

For the PVA TePla Group's consolidated financial statements, it is necessary to make estimates and assumptions to a limited extent, which have an impact on the recognition, amount and the presentation of recognized assets and liabilities, income and expenses and contingent liabilities. Owing to the ongoing COVID-19 pandemic and the political risks that apply, these management judgments and estimates are subject to increased uncertainty.

In particular, material management judgments and estimate uncertainty apply with regard to recognition and measurement to the difference between fair value and carrying amount in the context of the first time consolidation at the acquisition date, the assessment of variable purchase price components (earn-out-agreements) in the context of the acquisition of new entities (see note C), the measurement of goodwill (see note 8, the measurement of goodwill (see note 8), impairment losses on receivables and contract assets (see note 12 and note 19), the recognition and measurement of deferred tax assets on loss carryforwards (see note 13) and the amount and probability of pension provisions (see note 15) and other provisions (see note 16) incl. the measurement of long-term compensation components analogous to cash-settled share-based payment within the meaning of IFRS 2 (see note 22.). Management judgments with regard to recognition particularly relate to the assessment whether the preconditions for offsetting of deferred tax assets against deferred tax liabilities are met in a given case. Management bases its assessment of these judgements and estimate uncertainties on past experience, estimates from experts (lawyers, Ratingagencies and associations, etc.) and the results of carefully weighing up different scenarios. Actual events and developments that lie beyond the control of management may deviate considerably from the expressed developments and assumptions. For this reason, the management of the PVA TePla Group examines the estimates and assumptions made on an ongoing basis. Changes in estimates are recognized in profit or loss as soon as better information is available.

In revenue recognition, material management judgments and estimate uncertainties are taken into account when determining separate performance obligations, when determining the date on which the performance obligations are met, when determining the method of assessing the progress of performance with projects to be recognized over time, when determining significant financing components and when allocating the transaction price to separate performance obligations:

- Determining whether a performance commitment is to be considered a separate performance obligation (e. g. with installation, training, maintenance, service and guarantees) can in individual cases be associated with not inconsiderable discretionary judgments.

- Depending on the specific facts and circumstances in the individual case performance obligations resulting from contracts with the PVA TePla Group's customers in connection with producing systems and providing services are recognized either over a period of time over the performance period according to the progress of performance (the POC method) or are recognized at a particular point in time as soon as the goods are delivered or the services are performed. When producing systems for specific customers, a judgment must be made as to whether, in this specific case, an asset is created that has no alternative possible use and, in addition, (in the event of an assumed termination of the contract by the customer) whether there exists a right to payment for the service already provided, including an appropriate profit mark-up, that is enforceable in a court of law.

- With projects to be recognized over time, the method that most reliably measures the progress of performance must be determined. The PVA TePla Group uses primarily input-based methods to determine revenue generated from producing systems for specific customers, especially the cost-to-cost method. The degree of completion is determined as the ratio of the costs incurred as of the end of the reporting period to estimated total costs. In the opinion of the management of the PVA TePla Group, the cost-to-cost method is generally most appropriate in order to assess the progress regarding the production of systems that have to be recognized over time, as there is a direct relation between the cost behavior pattern of the PVA TePla Group and the transfer of control to the customer. Estimating the progress of performance is based on experience values and is monitored and adjusted on an ongoing basis.

- If the time the service is provided and the time of payment are different, significant financing components must be taken into account when determining the transaction price. When determining whether or not there are any significant financing components in the individual case, all relevant facts and circumstances relating to the case in question must be assessed on the basis of judgment.

- In the event of multiple performance obligations, the estimated contract price is to be allocated to the identified performance obligations on the basis of the respective relative standalone selling prices. The PVA Group only uses other adequate methods to estimate the standalone selling prices if the prices of individual goods and services cannot be directly observed on the market. Depending on the specific facts and circumstances in the individual case, the following methods are used: adjusted-market-assessment approach, expected-cost-plus-a-margin approach or (in the case of certain restrictive requirements) the residual method.

When accounting for leases pursuant to IFRS 16, material judgments relate to individual property leases, which include extension options after the end of the basic term (including subsequent automatically renewing lease terms). When measuring lease liabilities, optional lease terms are included if it is reasonably certain that these options will be exercised. For more information, refer to the explanations in note 20.

As there are no material business relationships to suppliers and customers from Ukraine and Russia, the PVA TePla Group is not directly impacted by the consequences of the ongoing Russia-Ukraine war. However, there can be indirect effects for the PVA TePla Group as the political and overall economic consequences of the Russia-Ukraine war currently cannot be foreseen. In this context, the judgments and estimates made by the management of PVA TePla Group are subject to increased uncertainty, particularly in determining impairment losses on trade receivables using the expected credit loss model and by testing for impairment on goodwill. In line with the assumptions used here, the Russia-Ukraine war is not currently expected to have a significant impact on the net assets, financial position, and results of operations of the PVA TePla Group.

E. Notes to the consolidated statement of profit or loss

1. Sales revenues

The PVA TePla Group generates its sales revenues principally through the sale of systems. Additional revenue is generated from services and by supplying spare parts (referred to collectively as after-sales service/IP) and services for customers at their own systems (contract processing). The normal contract durations and payment conditions of customer contracts of these PVA TePla Group activity areas are shown below, although individual contracts may have different payment conditions.

Activity areas	Contract durations	Payment conditions
Systems	3 – 18 months	30 – 40 % when order is received; 50 – 65 % on delivery; 5 – 10 % on acceptance
After-sales service/IP	1 – 6 weeks	100 % upon delivery (e. g. spare parts) or 100 % when service is provided (e. g. contract processing; repairs)
Contract processing	1 – 4 weeks	

Sales revenues by activity area

EUR '000	2022	%	2021	%
Systems	167,099	81	122,164	79
After-sales service/IP	30,688	15	26,510	17
Contract processing	6,388	3	5,054	3
Others	1,050	1	2,011	1
Total	**205,225**	**100**	**155,739**	**100**

Sales revenues by time of performance

EUR '000	2022	%	2021	%
Sales revenues recognized at a point in time	138,290	67	138,804	89
Sales revenues recognized over time	66,935	33	16,935	11
Total	**205,225**	**100**	**155,739**	**100**

For more information on sales revenues breakdowns see segment reporting under note 18.

Customer-specific system production (POC method)

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Revenue from customer-specific system production	60,055	14,159
Contract costs	– 47,019	– 11,492
Gains from customer-specific system production (POC method)	**13,036**	**2,667**

There were no significant financing components resulting from contracts with customers in fiscal years 2022 or 2021.

Performance obligations not yet fulfilled as of the end of the reporting period

EUR '000	expected to be fulfilled in ≤ 12 months	expected to be fulfilled in > 12 months
Overall scope of contractual obligations contracted at December 31, 2022 but not yet (fully) fulfilled	154,575	169,741
Overall scope of contractual obligations contracted at December 31, 2021 but not yet (fully) fulfilled	134,817	148,452

Presentation of significant accounting policies

Sales revenues are measured on the basis of the consideration specified in a contract with a customer that the PVA TePla Group expects to receive and realize when the customer obtains control over the agreed goods and services. Control can be transferred at a particular point in time or over a period of time. Sales revenues are recognized without sales tax, taking account of sales deductions such as credit notes, trade discounts and similar. If the time the service is provided and the time of payment are different, significant financing components must be taken into account when determining the transaction price.

The contracts with customers regularly include various performance commitments (products and services), which may be classified as a separate performance obligation and which may subsequently be allocated as part of the contract price. Determining whether a product or service is classified as a separate performance obligation may be associated with not inconsiderable discretionary judgments. If several products or services are provided to one customer, either these are specified on a contractual basis in separate individual contracts or combined in a standard contract consisting of several performance obligations. If products or services in separate individual contracts are contracts in close time correlation with a customer, the economic interdependencies are combined in a multi-component agreement.

Performance obligations resulting from contracts with the PVA TePla Group's customers and relating to producing systems are only recognized over the production time as a percentage of work completed (POC method) if an asset is created that has no alternative possible use and, in addition (in the event of an assumed termination of the contract by the customer), where there exists a right to payment for the service already provided, including an appropriate profit mark-up, that is enforceable in a court of law. Otherwise sales revenues are recognized for a particular point in time as soon as the goods are delivered or the services are performed, the transfer of risk has taken place and no technical risks or specific opposing contractual regulations exist. Income from services is recognized either at a point in time or over a period of time, depending on the specific facts and circumstances for the case in question.

When using the POC method, sales revenues are recognized over a period of time according to the progress of the service. The work performed, including the share in the result, is reported in sales revenues over the production time. The percentage of work completed for a specific project is determined using the method that most accurately measures the services performed, whereby both input and output methods can be consistently applied to similar performance obligations and in similar circumstances. The PVA TePla Group uses primarily input-based methods to determine revenue generated from producing longer-term systems for specific customers, especially the cost-to-cost method. The degree of completion is determined as the ratio of the costs incurred as of the end of the reporting period to estimated total costs. The ratio of these two figures produces the share of project revenues to be realized as of the end of the reporting period (cumulative work). Sales revenues recognized using the POC method are reported either under "Contract assets" or "Contract liabilities". If the cumulative work (contract costs including share of profits) exceeds the advance payments in an individual case, the construction contracts are recognized as assets under "Contract assets". If the net amount remains negative after deducting the advance payments, this is recognized under "Contract liabilities (POC method)". Advance payment invoices that have already been issued and due (but still not paid) are recognized under "Contract assets" and "Contract liabilities". Anticipated losses from contracts are taken into account on the basis of identifiable risks and are immediately included in the order result in full. Contract revenue includes revenue from contracts and, in accordance with IFRS 15, contract modifications, i. e. contract amendments and additions. Contract assets and contract liabilities are reported under current assets or current liabilities, as the PVA TePla Group generally realizes these within one year.

2. Research and development expenses

The PVA TePla Group is engaged in high-tech mechanical engineering in single unit and small series production. The continued development of products is closely linked to research into new procedures and processes and the development of new product features. The activities of the two divisions are closely interconnected on an iterative basis, so that the research and development activities generally cannot be reliably separated from each other. In addition, in light of the uncertainties in future market trends an estimate of probable benefits is too unreliable. In this context, the PVA TePla Group does not capitalize any development costs, so that the research and development expenses are recognized in the periods in which they are incurred.

Renowned research and development institutions work for the PVA TePla Group to a minor extent under cooperation agreements (service contracts). Provided adequate indications as to the usability of the development results are available and the other IAS 38 conditions are met, the development costs incurred are capitalized as intangible assets.

In fiscal year 2022, research and development expenses reported on the consolidated income statement amount to EUR 6,522 thousand in fiscal (previous year: EUR 6,999 thousand). The related income from research and development grants were recognized in other operating income at a level of EUR 993 thousand (previous year: EUR 1,526 thousand).

3. Other operating income/other operating expenses

EUR '000	2022	2021
Foreign exchange gains	2,784	1,721
Grants for research and development projects	993	1,526
Remuneration in kind (e.g. company car)	383	320
Insurance compensation	99	31
Income from the reversal of provisions	62	234
Income from the disposal of fixed assets	12	1
Income from the reversal of specific bad debt allowances on receivables	8	156
Miscellaneous operating income	1,063	1,019
Other operating income	**5,404**	**5,008**

EUR '000	31.12.2022	31.12.2021
Foreign exchange losses	– 3,883	– 1,405
Expenses for the recognition of specific bad debt allowances on receivables	– 139	– 88
Expenses from the disposal of fixed assets	– 29	– 4
Miscellaneous other operating expenses	– 1,198	– 485
Other operating expenses	**– 5,249**	**– 1,982**

Presentation of significant accounting policies

All income generated as part of operating activities but without relation to the PVA TePla Group's core business is recognized under other operating income. Other operating income is measured at the fair value of the consideration received/to be received less any rebates and other similar deductions.

All expenses that cannot be clearly allocated to either production, administration or sales are recognized by the PVA TePla Group under other operating expenses. This also includes expenses that are only indirectly associated with ordinary business, provided there is no requirement to allocate these to financing.

4. Financial result and share of profit from associates

EUR '000	2022	2021
Income from investments	318	–
Other interest and income	100	7
Financial income	**418**	**7**

In respect to other financial income, EUR 57 thousand relate to income from finance instruments measured at fair value and EUR 43 thousand on income from cash and cash equivalents measured at amortized cost.

EUR '000	2022	2021
Write-downs on securities	– 1,189	– 24
Interest expense for pension provisions	– 180	– 125
Arrangement and commitment fees	– 131	– 191
Interest expenses for loans from banks	– 122	– 176
Interest expenses for lease liabilities	– 70	– 66
Other interest and similar expenses	– 26	– 3
Finance costs	**– 1,718**	**– 584**

Financial expenses for financial liabilities not measured at fair value through profit or loss amount to EUR – 192 thousand (previous year: EUR – 242 thousand) and relate to interest expenses for loans from banks and lease liabilities.

Presentation of significant accounting policies

The PVA TePla Group recognizes all income and expenses that result from financing activities and are not part of operating activities under finance income/finance costs. Finance income and finance costs are generally recognized through profit or loss on an accrual basis using the effective interest method.

5. Income taxes

EUR '000	2022	2021
Current tax expenses	– 6,961	– 4,880
Deferred tax expenses	– 7,365	– 4,559
Previous period tax charges (–) / income (+)	404	– 321
Deferred tax expense (–) / income (+)	831	– 719
Credit from tax loss carryforwards	136	– 126
Other deferred taxes	695	– 593
Income taxes	**– 6,130**	**– 5,599**

Deferred taxes of EUR – 1,097 thousand (previous year: EUR – 316 thousand) were recognized directly in equity without affecting the consolidated income statement. These are almost fully attributable to effects recognized in equity for pension provisions.

The difference between the expected income tax expense anticipated and the figure actually recognized is shown in the reconciliation below. Anticipated tax expenses were calculated by multiplying the tax rate for fiscal year 2022 of 29 % (previous year: 29 %) by earnings before tax. This tax rate is a combined income tax rate comprising the standard corporation tax of 15 % (previous year: 15 %) plus a solidarity surcharge of 5.5 % (previous year: 5.5 %) and an effective trade tax rate of 13.6 % (previous year: 13.6 %). In fiscal year 2022, the country-specific income tax rates used for foreign companies range between 17 % and 28 % (previous year: 15 % and 30 %).

EUR '000	2022	%	2021	%
Net result before tax	**23,788**		**17,754**	
Expected tax expenses	**– 6,899**	**– 29**	**– 5,149**	**– 29**
Tax payable abroad	218	1	52	0
Changes in tax rate differences from different trade tax rates	13	0	0	0
Increase in taxes due to non-deductible expenses	– 188	– 1	– 234	– 1
Tax reductions due to tax-free income	106	0	289	2
Effects concerning deferred tax assets from tax loss car-ryforwards	– 107	0	53	0
Tax back payments (–) / tax refunds (+) for previous years	404	2	– 321	– 2
Other tax effects	323	1	– 290	– 2
Current tax expenses	**– 6,130**	**– 26**	**– 5,599**	**– 32**

Deferred taxes were measured after they had been incurred using the tax rate stated above or country-specific tax rates for companies outside Germany. Deferred taxes from differences in tax rates for foreign companies are due to the fact that PVA TePla Group subsidiaries outside Germany are subject to different tax rates than companies in Germany.

Presentation of significant accounting policies

Current tax assets and tax liabilities are measured as the amount expected to be recovered from or paid to the tax authorities. The amount is calculated based on the tax rates and tax laws applicable at the end of the reporting period or soon to apply in the countries where the PVA TePla Group operates and generates taxable income. Current taxes relating to items which are to be reported directly in equity are not recognized on the consolidated income statement but also directly in equity.

The management regularly assesses individual tax issues in order to determine whether, in view of prevailing tax regulations, there is any scope for interpretation. If it is likely that the amounts reported in the tax declarations will be not realized (uncertain tax items), tax provisions are established. The amount is determined from the best possible estimate of the expected tax payment (expected value or most likely value of the tax uncertainty).

For more information on recognizing deferred taxes, see the explanations on significant accounting policies in note 13.

Other taxes, e. g. transport taxes or taxes on assets and capital, are recognized as operating expenses.

6. Earnings per share

	2022	2021
Numerator (in EUR '000): Consolidated net result for the period	17,658	12,155
Denominator (in shares): Weighted average number of no-par shares outstanding	21,749,988	21,749,988
Earnings per share (EUR): **(Basic/diluted)**	**0.81**	**0.56**

As in the previous year, in fiscal year 2022 no options were granted which would entitle employees, Management or Supervisory Board members to purchase shares in PVA TePla AG. As a result, there were no dilution effects in earnings for the 2022 and 2021 fiscal years.

Presentation of significant accounting policies

Basic earnings per share are calculating by dividing the profit or loss attributable to holders of ordinary shares in PVA TePla AG by the weighted average number of ordinary shares in circulation during the fiscal year.

In the calculation of the diluted earnings per share, the earnings attributable to the bearers of ordinary shares in PVA TePla AG are divided by the weighted, average number of ordinary shares outstanding during the fiscal year and by the weighted average number of ordinary shares which would result from the conversion of all potential ordinary shares with a dilutive effect for ordinary shares.

7. Supplementary information about the type of expenses

Total cost of materials

EUR '000	2022	2021
Cost of raw materials, consumables and supplies and of goods purchased and held for resales	– 90,302	– 58,305
Cost of purchased services	– 9,256	– 5,788
Total cost of materials	**– 99,558**	**– 64,093**

Cost of materials is included in the cost of sales. The materials ratio (cost of materials to total sales revenues) amounted to 48.5 % in fiscal year 2022, compared to 41.2 % in 2021.

Total staff costs

EUR '000	2022	2021
Wages and salaries	– 44,056	– 39,556
Social charges	– 8,170	– 7,254
Total staff costs	**– 52,226**	**– 46,810**

As a proportion of sales revenues, staff costs increased to 25.4 % in fiscal year 2022 after 30.1 % in 2021. The absolute increase is largely due to new staff. Social security contributions in fiscal year 2022 include pension expenses of EUR 382 thousand (previous year: EUR 275 thousand).

In 2021, reduced working hours were in effect in conjunction with the COVID-19 pandemic, and were requested for 27 employees on average from January 2021 to September 2021. Reduced working hours have no longer been in effect for any employees since October 2021. The PVA TePla Group received reimbursements in 2021 of EUR 180 thousand (2020: EUR 9 thousand) and a government grant in accordance with IAS 20 in this context.

Number of employees by function (average for year)

Number of employees by function (average for year)	2022	2021
Production and service	329	302
Engineering, research and development	108	99
Sales	95	87
Administration	73	70
Total	**605**	**558**

The average number of employees is determined without taking into account executive bodies, apprentices/trainees, minor employments, employees in parental leave and long-term sick employees.

In fiscal year 2022, there were also an average of 33 apprentices and trainees (previous year: 32) and 20 marginal part-time employees, employees on parental leave and those with long-term illnesses (previous year: 18).

Depreciation, amortization and impairment

EUR '000	2022	2021
Intangible assets	– 785	– 774
Right-of-use assets	– 1,118	– 1,044
Property, plant and equipment	– 3,037	– 2,883
Depreciation, amortization and impairment	**– 4,940**	**– 4,701**

F. Notes to the consolidated statement of financial position

8. Intangible assets

EUR '000	Goodwill	Other intangible assets	Advance payments	Total
Cost				
Jan. 1, 2021	12,764	9,530	–	22,294
Exchange differences	–	6	–	6
Changes to the companies included in consolidation	–	–	–	–
Additions	–	85	23	108
Disposals	–	– 2	–	– 2
Transfers	–	– 9	–	– 9
Dec. 31, 2021	12,764	9,610	23	22,397
Jan. 1, 2022	12,764	9,610	23	22,397
Exchange differences	–	8	–	8
Changes to the companies included in consolidation	5,761	4,416	–	10,177
Additions	–	405	–	405
Disposals	–	– 18	–	– 18
Transfers	–	411	– 23	388
Dec. 31, 2022	18,525	14,832	–	33,357
Accumulated amortization, depreciation and write-downs				
Jan. 1, 2021	4,850	6,363	–	11,213
Exchange differences	–	5	–	5
Additions	–	774	–	774
Disposals	–	–	–	–
Transfers	–	–	–	–
Dec. 31, 2021	4,850	7,142	–	11,992
Jan. 1, 2022	4,850	7,142	–	11,992
Exchange differences	–	7	–	7
Changes to the companies included in consolidation	–	79	–	79
Additions	–	785	–	785
Disposals	–	– 3	–	– 3
Transfers	–	–	–	–
Dec. 31, 2022	4,850	8,010	–	12,860
Net carrying amounts				
Dec. 31, 2022	13,675	6,822	–	20,497
Dec. 31, 2021	7,914	2,468	23	10,405

The intangible assets of the PVA TePla Group essentially comprise software and the goodwill arising in connection with company acquisitions.

To the extent they are finite, the useful life of any other recognized intangible assets is around five years. There are currently no other intangible assets with an indefinite useful life.

Goodwill is tested at the level of the following listed smallest cash-generating units (CGU) within the PVA TePla Group and thus at the lowest level at which goodwill is monitored for internal management purposes.

Cash-generating units (CGU)

EUR '000	Dec. 31, 2022	Dec. 31, 2021
MPA Industrie SAS, La Chapelle-d'Aurec	5,761	–
PVA TePla Analytical Systems GmbH, Westhausen	4,831	4,831
PVA Crystal Growing Systems GmbH, Wettenberg	2,734	2,734
PVA Metrology & Plasma Solutions GmbH, Wettenberg	193	193
PVA SPA Software Entwicklungs GmbH, Coburg	90	90
PVA Industrial Vacuum Systems GmbH, Wettenberg	50	50
OKOS Solutions, LLC, Manassas, USA	16	16
Goodwill	**13,675**	**7,914**

In the Semiconductor Systems division goodwill is tested separately for five cash-generating units. In addition to PVA TePla Analytical Systems GmbH based in Westhausen, PVA Crystal Growing Systems GmbH, based in Wettenberg, has also been treated as an independent cash-generating unit since 2015. The goodwill of PVA TePla AG was transferred to this company after leasing the business operations. PVA Metrology & Plasma Solutions GmbH, Wettenberg, has also been treated as an independent cash-generating unit since 2015. The goodwill of Munich Metrology GmbH was transferred to this company after the merger in the 2015 fiscal year. In fiscal year 2018, the goodwill of PVA SPA Software Entwicklungs GmbH, based in Coburg, was added and has since been treated as an independent cash-generating unit. OKOS Solutions, LLC, acquired in 2020, is also an independent cash-generating unit of the Semiconductor Systems division.

In the Industrial Systems division, since 2022 goodwill has been tested separately for two cash-generating units. Since 2015, PVA Industrial Vacuum Systems GmbH, based in Wettenberg, has been a cash-generating unit to which the goodwill of PlaTeG GmbH was transferred after its merger in fiscal year 2015. In fiscal year 2022, the goodwill of MPA Industrie SAS, based in La Chapelle-d'Aurec, was added.

The recoverable amount of each cash-generating unit is calculated as its value in use using the discounted cash flow method. Key assumptions include assumptions regarding the development of incoming orders, sales revenues, margins, investments and personnel. The values of these parameters are based on past experience and foreseeable future developments. The underlying assumptions of key planning indicators (such as cash flows, growth in sales revenues, discount rates) reflect past experience and are set according to external information sources. Planning is based on a financial planning horizon of three years. For an impairment test, growth of 0.5 % has been set for cash flow for the following period (previous year: 0.5 %). The underlying USD/EUR exchange rate is 1.1549 (previous year: 1.1822). Cash flows are discounted using the weighted cost of capital approach (WACC approach) while taking into account specific tax effects of the companies. The parameters market risk and beta have the largest effect on the calculation of impairment. The cost of capital for the units under review was 13.6 % (previous year: around 10.6 %).

The following developments were assumed for cash-generating units with significant goodwill:

For the Analytical Systems business unit (PVA TePla Analytical Systems GmbH), no material sales revenue growth is anticipated in the next three years (detailed planning period). Within the scope of corporate planning, also factoring in the high sales revenue achieved in fiscal year 2022, the PVA TePla Group management anticipates a normalization of investment activities for the Analytical Systems business unit. In the Crystal Growing Systems business unit (PVA Crystal Growing Systems GmbH), in the next three years (detailed planning period) double-digit sales revenue growth is still anticipated to 2024, which subsequently will decline not inconsiderably. In both the CVD systems business unit (MPA Industrie SAS) (detailed planning period) and in the Crystal Growing Systems business unit, double-digit sales revenue growth is anticipated in the next two years to 2024. In all business units, a growth rate of 0.5 % is anticipated for the perpetual annuity, the same level as the previous year.

The goodwill test showed no requirement for recognizing impairment losses, either in fiscal year 2022 or in the previous year. As part of a sensitivity analysis for the cash-generating units (CGUs) of the PVA TePla Group to which material goodwill was allocated, an increase of the discount rate by one percentage point, a reduction of the long-term growth rate by 0.5 percentage points and a 25 % reduction of the cash flow was assumed. None of the changes to the parameters described, either in isolation or in combination, results in an impairment requirement for a cash-generating unit.

As the COVID-19 pandemic and the Russia-Ukraine war are developing on an ongoing basis, the forecasts in fiscal year 2022 are subject to not inconsiderable uncertainty regarding the length and extent of the impact on cash flow. The management prepared the underlying estimates and assumptions on the basis of the best available information and deployed a scenario which as-sumes that the economic impact will not be of a long-term nature.

Presentation of significant accounting policies

Individually acquired intangible assets are measured at cost on initial recognition. The costs of intangible assets acquired as part of a business combination correspond to the fair value at the time of acquisition. For internally generated intangible assets to be capitalized, the asset must be expected to provide a future benefit to the PVA TePla Group and it must be possible to reliably calculate the costs.

Development projects are to be capitalized if all the requirements of IAS 38.57 are met. If an internally generated intangible asset meets these requirements for recognition, it is to be measured at production cost at initial recognition. Production costs include all costs directly attributable to the production process and an appropriate share of general production-related overhead costs. Research and development costs that cannot be capitalized are to be recognized directly through profit or loss at the time the cost is incurred. As activities in the areas of research and development at the PVA TePla Group are closely interconnected on an iterative basis, research and development activities generally cannot be reliably separated from each other. In addition, in light of the uncertainties about future market trends an estimate of probable benefits is unreliable. In this context, the PVA TePla Group does not capitalize any development costs, so that the research and development expenses are recognized in the periods in which they are incurred. Renowned research and development institutions work for the PVA TePla Group to a minor extent under cooperation agreements (service contracts). Provided adequate indications as to the usability of the development results are available and all the other IAS 38.57 conditions are also met, the development costs incurred are capitalized as intangible assets.

For the purposes of subsequent measurement of intangible assets, a distinction is drawn in IFRS between intangible assets with finite and indefinite useful lives. The consolidated financial statements of the PVA TePla Group include only intangible assets with finite useful lives – with the exception of goodwill. They are recognized at cost less any accumulated depreciation and any accumulated impairment losses. Intangible assets with determinable useful lives are amortized on a straight-line basis over the contractual or estimated useful life. Amortization of intangible assets is allocated to the functional areas utilizing the assets concerned. The useful lives are reviewed annually and, if necessary, prospectively adjusted to meet future expectations. The useful lives of intangible assets recognized by the PVA TePla Group range from three to eight years.

Purchased (derivative) goodwill resulting from the capital consolidation of subsidiaries is recognized as a separate asset item in the PVA TePla Group's consolidated statement of financial position. Internally generated (original) goodwill, on the other hand, may not be capitalized.

Impairment of goodwill

Goodwill in the PVA TePla Group is tested for impairment once a year (in the fourth quarter). In addition, Impairment testing also takes place if there are any circumstances indicating that the goodwill might be impaired. The value of goodwill is reviewed using a single-stage process in the cash-generating unit (CGU) to which the goodwill was allocated. This impairment test compares the carrying amount of a cash-generating unit with the recoverable amount. If the carrying amount is higher than the recoverable amount, the recoverable amount is written down through profit or loss. The impairment loss is allocated to goodwill and higher amounts will, in accordance with specific restrictions, be distributed proportionately between the assets of the cash-generating unit. Impairment losses for goodwill cannot be reversed at a later date if the reasons for impairment in previous years cease to apply.

The recoverable amount of each cash-generating unit is calculated as its value in use using the discounted cash flow method. For its impairment tests the PVA TePla Group uses detailed budget and forecast calculations for the cash-generating units based on the financial budgets approved by management and also used for internal purposes. Generally such budget and forecast calculations cover a detailed planning period of three years. From the fourth year, a long-term growth rate is determined and used to forecast future cash flows. The discount rate is based on the segment-specific weighted average cost of capital of the companies (WACC approach) and contains a reasonable risk premium.

Impairment of other intangible assets, property, plant and equipment and right-of-use assets

For right-of-use assets, property, plant and equipment and intangible assets with a finite useful life, the PVA TePla Group assesses whether there are indications of impairment as of the end of each reporting period. If facts or changed circumstances indicate that the carrying amount of an asset may not be recoverable, the asset is subjected to an impairment test. In addition, an impairment test is conducted at the end of each fiscal year for intangible assets with useful lives that cannot be determined or that have not yet been used for operational purposes.

This impairment test compares the carrying amount of the asset to be tested with the recoverable amount. The recoverable amount is the higher of fair value less the costs to sell and the value in use of an asset. Fair value less costs to sell is the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal. Value in use is the present value of estimated future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life.

The recoverable amount is calculated for each asset on an individual basis or, if this is not possible, for the cash-generating unit (CGU) to which the asset is allocated. If the carrying amount is higher than the recoverable amount, the recoverable amount is written down through profit or loss. Impairment losses are recognized in the consolidated income statement under "Other operating expenses". If the conditions for an impairment loss on property, plant and equipment or intangible assets with a finite useful life recognized in previous years no longer apply, the impairment is reversed through profit or loss up to a maximum of amortized cost. Reversals are recognized in the consolidated income statement under "Other operating income".

9. Property, plant and equipment

EUR '000	Land	Technical equipment and machinery	Equipment, fixtures and fittings	Assets under construction	Total
Cost					
Jan. 1, 2021	**33,482**	**10,719**	**9,371**	**1**	**53,573**
Exchange differences	14	126	46	–	186
Changes to the companies included in consolidation	–	–	–	–	–
Additions	169	1,695	1,291	203	3,358
Disposals	–	–	– 619	–	– 619
Transfers	120	– 5	– 24	– 4	87
Dec. 31, 2021	**33,784**	**12,535**	**10,065**	**200**	**56,584**
Jan. 1, 2022	**33,784**	**12,535**	**10,065**	**200**	**56,584**
Exchange differences	12	82	29	–	123
Changes to the companies included in consolidation	2,276	216	363	–	2,855
Additions	1,431	2,089	2,641	418	6,579
Disposals	– 5	– 530	– 721	– 420	– 1,676
Transfers	–	–	32	–	32
Dec. 31, 2022	**37,498**	**14,392**	**12,409**	198	**64,497**
Accumulated amortization, depreciation and write-downs					
Jan. 1, 2021	**13,306**	**6,768**	**4,903**	**–**	**24,977**
Exchange differences	7	123	27	–	157
Changes to the companies included in consolidation	–	–	–	–	–
Additions	925	796	1,162	–	2,883
Disposals	–	–	– 256	–	– 256
Transfers	–	–	–	–	–
Dec. 31, 2021	**14,238**	**7,686**	**5,836**	**–**	**27,761**
Jan. 1, 2022	**14,238**	**7,686**	**5,836**	**–**	**27,761**
Exchange differences	6	105	19	–	130
Changes to the companies included in consolidation	200	87	150	–	437
Additions	944	847	1,246	–	3,037
Disposals	– 5	– 524	– 334	–	– 863
Transfers	–	–	–	–	–
Dec. 31, 2022	**15,383**	**8,201**	**6,917**	**–**	**30,501**
Net carrying amounts					
Dec. 31, 2022	**22,115**	**6,191**	**5,492**	**198**	**33,997**
Dec. 31, 2021	19,546	4,848	4,229	200	28,823

The PVA TePla Group has received financial incentives from various public authorities under government business development programs, including funding for the construction of production facilities. Investment subsidies and tax-free investment contributions received are deducted from the carrying amount of the relevant assets.

Land has been encumbered with a charge of EUR 18,000 thousand to secure the PVA TePla AG financing facility in the form of a syndicated loan agreement.

There are no other material restrictions on ownership or title in respect of the property, plant and equipment reported.

No write-down losses on property, plant and equipment were recognized in fiscal year 2022 or in the previous year.

In fiscal year 2022 as well as in 2021 no borrowing costs have been capitalized in fixed assets.

Presentation of significant accounting policies

Property, plant and equipment are carried at historical cost less any accumulated straight-line depreciation and any accumulated write-down losses. Cost in this context includes expenses directly attributable to the acquisition. Investment subsidies and tax-free investment contributions received are deducted from the carrying amount of the relevant assets. If the costs of property, plant and equipment assets cover a longer period of time, interest incurred on loans before completion is capitalized as an element of cost in accordance with the requirements of IAS 23. The costs of property, plant and equipment acquired as part of business combinations correspond to the fair value at the time of acquisition. Subsequent costs are only capitalized if it is probable that this will provide a future benefit to the PVA TePla Group and the costs can be reliably calculated.

Depreciation is recognized on a straight-line basis over the expected useful life of the asset; in the case of tenants' fixtures or leasehold improvements, if appropriate, in accordance with the shorter term of the lease. Depreciation of property, plant and equipment is allocated to the functional areas utilizing the respective assets. Depreciation is conducted according to the following economic useful lives:

	Years
Buildings	25 – 33
Technical equipment and machinery	3 – 20
Other equipment, operating and office equipment	2 – 14

Expenditure for maintenance and repairs is expensed in the period in which it is incurred. The cost and the related cumulative depreciation are derecognized when property, plant and equipment are scrapped or disposed of, with any book gains or losses recognized in profit or loss. Such book gains or losses are recognized in the consolidated income statement under “Other operating income” or “Other operating expenses”.

Write-downs of property, plant and equipment

For more information on the write-downs of property, plant and equipment, see the explanations on significant accounting policies in note 8.

10. Non-current financial assets

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Non-current securities	9,001	25,054
Trade receivables	1,706	1,714
Investments in associates	–	750
Other non-current receivables	18	37
Gross value	**10,725**	**27,555**
Less impairment losses	– 1,706	– 1,714
Non-current financial assets	**9,019**	**25,841**

Non-current financial assets essentially comprise long Remaining term cash investments and term deposits with a remaining term of more than twelve months. Non-current financial assets also include trade receivables that are either already due or to be due shortly if, as expected, their realization is not expected within twelve months of the end of the reporting period, interests in associates and trade receivables from system sales in the ordinary course of business.

EUR '000	2022	2021
Write-downs on January 1	**1,714**	**1,788**
Currency exchange differences	–	–
Additions	–	–
Utilization	–	–
Reversals	– 8	– 74
Write-downs on December 31	**1,706**	**1,714**

The reversal of impairment totaling EUR 8 thousand (previous year: reversal of EUR 74 thousand) recognized in fiscal year 2022 is due to payments received in connection with impaired non-current receivables.

Presentation of significant accounting policies

Financial assets are based on a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. In addition to derivative financial instruments, financial assets of the PVA TePla Group comprise primarily cash and cash equivalents (including term deposits), current and non-current trade receivables and financial investments (shares, bonds, fund units et al). Financial assets are recognized in the consolidated statement of financial position if the PVA TePla Group has a contractual right to receive cash or other financial assets from a third party.

At initial recognition, a financial asset is allocated to one of the following categories and measured:

- Amortized cost measurement or
- Fair value measurement.

Classification is based on the business model for managing the debt instruments and the contractual cash flow characteristics. Measurement of debt instruments at amortized cost takes place if they are held within a business model whose objective is to collect contractual cash flows and the contractual terms result in cash flows on specific dates that are solely repayments and interest on the principal amount outstanding. Debt instruments not measured at amortized cost are measured at fair value through profit or loss.

For investments in equity instruments not held for trading which are thus measured at fair value through profit and loss, there is the option of recognizing the fair value changes in other comprehensive income. In this case amounts recognized in other comprehensive income are not subsequently reclassified to the consolidated income statement. This option is examined on an instrument-specific basis and irrevocably fixed.

The financial assets (with the exception of shares and fund units) held by the PVA TePla Group are mainly non-derivative financial assets with contractual payments representing solely interest and repayments on the outstanding nominal amount and which are held with the objective of collecting the contractually agreed cash flows. Accordingly, these financial assets, which are primarily cash and cash equivalents (including time deposits) as well as trade receivables are allocated to the amortized cost category. On the other hand, the shares and fund units held are allocated to the fair value measurement through profit or loss category.

Write-downs for debt instruments measured at amortized cost are recognized at the amount equal to the expected credit loss. They are adjusted as of the end of each reporting period to take into consideration changes in the financial instrument’s credit risk since initial recognition and are generally measured at an amount equal to the lifetime expected credit loss.

If there are objective substantial indications for impairment of a financial asset, it is tested individually for impairment. Such indications for the existence of impairment include worsened creditworthiness of a debtor and the resulting payment interruptions or a threat of insolvency. For finance receivables and other receivables, the expected credit loss is determined on the basis of defaults expected in the next twelve month or in the remaining term. A review is carried out as of the end of each reporting period to assess whether the credit risk has increased significantly. The credit risk assessment is based on quantitative and qualitative information, such as information on credit default swaps, past experience and forward-looking assumptions. Forward-looking assumptions comprise sector and country-specific expectations on how credit risk will develop.

The following information and expectations, among other indications, may suggest a significant increase in the credit risk:

- Significant change in the financial instrument‘s internal or external credit rating;
- An adverse change in business, financial or economic conditions that has a significant impact on the customer‘s creditworthiness;
- Indications that a customer is facing considerable financial difficulties; or
- Failure to observe payment terms.

Trade receivables, on the other hand, use a simplified model to recognize the expected credit loss, based on an impairment matrix. For more information, refer to the explanations under note 12.

Derivative financial instruments

The PVA TePla Group occasionally enters into forward exchange contracts to hedge exchange rate risks in connection with sales in foreign currencies (exchange rate hedging). Interest rate hedges are also used to hedge interest rate risks for financing investments in new buildings. This kind of derivatives is measured at fair value, both on initial recognition and on subsequent measurement. The resulting changes are recognized through profit and loss. The PVA TePla Group does not apply the option to designate a hedging relationship (hedge accounting).

Under exchange rate hedging, the measurement effects resulting from changes to exchange rates are recognized at the fair value of the derivative under other operating expenses or other operating income. Conversely, the corresponding changes in the market value of interest rate hedges are reported through profit or loss in the financial result (“Finance income” or “Finance costs”). All derivative financial instruments with a positive market value are recognized under “Other receivables” and those with a negative market value are reported under “Other liabilities” (in each case as current).

Fair value measurement

The PVA TePla Group measures certain financial instruments at fair value as of the end of each reporting period. The fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In measuring fair value it is assumed that the transaction in which the asset is sold or the liability is transferred takes place either on the principal market for the asset or liability, or the most advantageous market for the asset or liability if there is no principal market.

The PVA TePla Group applies measurement methods that are appropriate in the circumstances and for which there are sufficient data to measure fair value. In doing so, the use of relevant, observable inputs is maximized and that of unobservable inputs is minimized. All assets and liabilities for which the fair value has been calculated or reported in the consolidated financial statements are assigned to the following levels of the measurement hierarchy based on the lowest input factor that is material overall for measurement:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities on the measurement date;
- Level 2: Measurement method, with which the lowest input factor material for measurement at fair value is directly or indirectly observable on the market; or
- Level 3: Measurement method, with which the lowest input factor material for measurement are fair value is not directly or indirectly observable on the market.

11. Inventories

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Raw materials and operating supplies	38,362	22,397
Work in progress	41,844	40,938
Finished products and goods	618	769
Gross value	**80,824**	**64,104**
Less impairment losses	– 5,828	– 4,914
Inventories	**74,996**	**59,190**

In fiscal year 2022, changes of impairment of EUR – 915 thousand (previous year: EUR 1,505 thousand) were recognized in the income statement.

Presentation of significant accounting policies

Inventories are recognized at cost in accordance with the weighted average cost method or net realizable value, whichever is lower. In accordance with IAS 2, cost includes not only directly attributable costs, but also production and material overheads as well as write-downs. Fixed overheads are taken into account on the basis of normal capacity utilization of the production facilities. The cost of idle production capacity is recognized in the consolidated income statement under cost of sales. Write-downs are charged on inventories when their costs exceed the expected net realizable value. The net realizable value is the expected disposal proceeds less any costs which are incurred until the sale.

12. Trade receivables, other financial assets and contract assets

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Trade receivables concerning product sales and services	29,679	19,239
Advance payments	17,984	6,402
Other current receivables	7,372	2,149
Securities	18,906	5,000
Contract assets	40,466	18,917
Gross value	**114,407**	**51,707**
Less impairment losses	– 373	– 235
Trade receivables, other financial assets and contract assets	**114,034**	**51,472**

Accounts receivable are not interest-bearing and are generally due within 30 to 90 days.

EUR '000	Dec. 31, 2022	Dec. 31, 2021
POC receivables (gross value)	56,383	14,524
less advance payments received	– 39,111	– 8,447
Subtotal	**17,272**	**6,077**
Contract assets (not including POC method)	4,495	4,304
Unconditional payment entitlements (down payment invoices)	18,699	8,536
Contract assets	**40,466**	**18,917**

EUR '000	2022	2021
Write-downs on January 1	**– 235**	**– 208**
Additions	– 139	– 88
Utilization	–	–
Reversals	+ 1	+ 61
Write-downs on December 31	**– 373**	**– 235**

Presentation of significant accounting policies

Trade receivables are carried at the fair value of the consideration provided (transaction price) from the time they were incurred. Trade receivables are not discounted as they generally do not contain any significant financing components and are usually due within one year.

Systems produced for specific customers to be recognized over a period of time using the POC method and for which the contract costs incurred including the share of profits exceed the advance payments are recognized under contract assets. In addition, performance agreements (equipment orders) to be recognized at a point in time are also reported under contract assets.

Trade receivables and contract assets are subsequently accounted for at amortized cost (less impairment losses). The PVA TePla Group uses a simplified method for calculating expected credit losses in order to determine impairment using the expected credit loss model. The impairment is then calculated using an impairment matrix based on historical experience with credit losses and adjusted for future-oriented factors specific to the borrower and the economic conditions. The default risks for credit impaired trade receivables and contract assets are subject to a special review on the basis of the individual case. Indications of credit impairment include primarily significant financial difficulties of the borrower or the likelihood of insolvency. Impairment is recognized using an allowance account through profit or loss in the consolidated income statement. If, in subsequent periods, the reasons for impairment no longer apply, impairment losses are reversed through profit or loss up to a maximum of the original cost. Impairment losses on trade receivables and income from reversals of impairment losses are reported on a net basis and are recognized in a separate item in the consolidated income statement. Impairment losses on doubtful trade receivables and contract assets integrate customer rating assessments. Should a customer's financial data deteriorate, there can be deviations from the anticipated impairment losses.

13. Deferred tax assets/liabilities

EUR '000	Dec. 31, 2022		Dec. 31, 2021	
	Deferred tax assets	Deferred tax liabilities	Deferred tax assets	Deferred tax liabilities
Non-current assets	455	2,260	152	480
Inventories	3,276	–	964	–
Trade receivables	–	5,247	–	3,359
Tax loss carryforwards	780	–	586	–
Retirement pension provisions	829	–	2,106	–
Other provisions	448	620	442	785
Financial liabilities	785	–	–	–
Others	8	–	227	153
Total	**6,581**	**8,127**	**4,477**	**4,777**
Balance of deferred tax	**– 1,546**		**– 300**	

Tax loss carryforwards are reviewed for potential utilization and capitalized using a company-specific tax rate on the basis of a multi-year budget. Loss carryforwards were recognized if their utilization is possible within two to five years based on the current budget. As the utilization of the loss carryforwards within the forecast period is likely, they were classified entirely as recoverable. No deferred taxes on loss carryforwards were recognized for losses of EUR 547 thousand.

No deferred taxes were recognized for differences between the carrying amounts in IFRS individual statements of financial position and in the tax basis of the investments ("outside basis differences") as PVA TePla AG is able to control the timing of the reversal of temporary differences and there are no plans to sell investments indefinitely. As at December 31th 2022 the total amount of retained earnings of PVA TePla Group's subsidiaries that is significant in this context is EUR 22,451 thousand.

Presentation of significant accounting policies

In accordance with IAS 12, deferred taxes are formed for all temporary differences between the carrying amounts in the tax base and those in the IFRS consolidated statement of financial position. If the asset is realized or the liability is settled, temporary differences result in amounts for which tax is payable or deductible. Taxable temporary differences result in a deferred tax liability and tax-deductible temporary differences result in the recognition of deferred tax assets. Deferred taxes are also to be recognized on loss carryforwards, provided these are expected to be used in the future. The deferrals are made at the level of the anticipated tax change or tax relief in subsequent fiscal years on the basis of the tax rate applicable at the time of realization.

The carrying amount of the deferred tax assets is reviewed each year at the end of the reporting period and reduced if it is no longer likely that there is sufficient taxable income to realize the asset in full or in part. In the event of a change in tax rates, the resulting effects on deferred tax assets and liabilities are taken into consideration in profit or loss. In line with IAS 12, deferred tax assets and liabilities are not discounted and are recognized in the consolidated statement of financial position as non-current assets and liabilities.

Deferred tax assets and deferred tax liabilities are offset if the PVA TePla Group has a legally enforceable claim to set off current tax assets against current tax liabilities and if the deferred tax assets and deferred tax liabilities relate to income taxes levied on the same taxable entity by the same tax authority.

Current and deferred taxes are recognized through profit or loss as an expense, unless they relate to items that are to be recognized directly in equity. In this case, the taxes are also reported directly in equity.

Estimates regarding deferred taxes on loss carryforwards are highly dependent on how the taxable entity’s earnings perform. This means that the actual amounts reported in future periods may differ from the estimates.

14. Financial liabilities

EUR '000	December 31, 2022			December 31, 2021		
	Current	Non-current	Total	Current	Non-current	Total
Liabilities from leases	1,170	1,538	2,708	971	1,223	2,194
Loans from credit institutes	4	1,574	1,648	8	–	8
Settlement accounts for former owners of MPA	4,327	–	4,257	–	–	–
Earn out	300	1,961	2,261	–	–	–
Total	**5,801**	**5,073**	**10,874**	**979**	**1,223**	**2,202**

PVA TePla AG has a financing facility in the form of a syndicated loan agreement (club deal). The club deal was entered into for a basic term of five years in November 2020. By using the contractual extension options the term was extended by one year in 2021 and by another year in 2022 (maturity date November 2027). As of December 31, 2022 the total financing framework amounted to EUR 160 million (previous year: EUR 150 million) comprising a mixed cash and guarantee line in the amount of EUR 20 million (previous year: EUR 20 million), a EUR 20 million line for M&A activities (previous year: EUR 20 million)and a guarantee facility in the amount of EUR 120 million (previous year: EUR 110 million).Furthermore, the syndicated loan partners granted additional bilateral guarantee facilities in the amount of EUR 30 million in 2022. EUR 115.9 million (previous year: EUR 87.9 million) of the guarantee lines were utilized as of the reporting date December 31, 2022. As in the previous year, the cash line had not been utilized as of December 31, 2022. Interest is according to EURIBOR with a graduated margin based on the debt ratio. The syndicated loan agreement defines financial covenants for compliance with standard financial ratios. These financial covenants were met in both fiscal year 2022 and in the previous year.

PVA TePla AG has a further working capital facility of EUR 500 thousand which has not been utilized as of the reporting date (as was the case in the previous year).

The payment obligations from the leases carried on the statement of financial position are structured as follows:

EUR '000	2022	2021
Due		
≤ one month	98	86
> one month and ≤ three months	188	170
> three months and ≤ one year	801	715
> one year and ≤ five years	1,622	1,223
> five years	–	–

Presentation of significant accounting policies

In addition to derivative finance instruments, financial liabilities of the PVA TePla Group comprise primarily loans from credit institutes, lease liabilities and trade payables. Financial liabilities are recognized in the consolidated statement of financial position if the PVA TePla Group has a contractual obligation to transfer cash of other financial assets to a third party. All financial liabilities are measured at fair value upon initial recognition (less any directly attributable transaction costs).

At initial recognition, financial liabilities are classified either at amortized cost or at fair value through profit or loss (FVTPL). A financial liability is classified as FVTPL if it is classified as held for trading, is a derivative or is designated as a derivative on initial recognition.

Financial liabilities at FVTPL are measured at fair value and net gains or losses, including interest expenses, are recognized in profit and loss. In subsequent measurements, other financial liabilities are measured at amortized cost using the effective interest method. In particular these include trade payables, which are generally not interest-bearing and are due within 30 to 60 days. Interest expenses and currency translation differences are recognized through profit and loss. Gains or losses from derecognition are also recognized through profit and loss.

Financial liabilities are derecognized if the underlying obligation relating to the liability is settled, canceled or expires. Gains or losses from derecognition are recognized through profit and loss.

For more information on lease liabilities, see the explanations on significant accounting policies in note 20.

15. Retirement pension provisions

Provisions for pension obligations are recognized on the basis of pension plans for commitments to pay retirement, invalidity and dependents' benefits. The amount of benefit usually depends on the number of years of service and the salary of the respective employee.

Pension commitments exist at PVA TePla AG, PVA Industrial Vacuum Systems GmbH, PVA Crystal Growing Systems GmbH, PVA SPA Software Entwicklungs GmbH and PVA Vakuum Anlagenbau Jena GmbH, all based in Germany. These comprise exclusively old commitments. New pension commitments are no longer granted. There are no pension obligations abroad. No material plan assets exist to cover future pension obligations within the PVA TePla Group.

The measurement of pension obligations is supported by actuarial reports. Biometric parameters have been calculated on the basis of the 2018 G mortality tables issued by Professor Klaus Heubeck. The resulting residual risks from accounting pension obligations are related to risks from the change in actuarial parameters, which are shown in the table below. The most significant change risk relates to interest rates.

in %	Dec. 31, 2022	Dec. 31, 2021
Income trend	3.00	3.00
Pension trend	1.25	1.25
Staff turnover	1.50	1.50
Interest rate	3.70 % – 4.25 %	1.05 % – 1.31 %

EUR '000	2022	2021
Present value of future pensions on Jan. 1	15,886	17,335
Additions through company acquisition	227	–
Current service expense for services provided by employees in the fiscal year	82	114
Interest expenses	180	125
Changes in the estimation of financial reporting	–	–
Pension payments	– 619	– 599
Actuarial gains (–) and losses (+)	– 4,303	– 1,089
Present value of future pensions on Dec. 31	**11,453**	**15,886**

The current service cost is essentially recognized in the cost of sales and in general administrative costs.

As of December 31, 2022, it can be assumed that EUR 668 thousand (previous year: EUR 655 thousand) will be fulfilled within the next twelve months and EUR 10,785 thousand (previous year: EUR 15,231 thousand) will be fulfilled at a later date (over a very long term for some portions). On December 31, 2022, the weighted average term of defined pension plans was 11.6 years (previous year: 14.2 years).

Sensitivity analyses

While keeping to the other assumptions, the changes reasonably assumed possible on December 31, 2022 (and 2021) would have influenced the defined pension plans as follows, based on actuarial gains and losses:

EUR '000	Dec. 31, 2022		Dec. 31, 2021	
	Increase	Reduction	Increase	Reduction
Interest rate (0.25 % change)	– 358	+ 269	– 381	+ 731
Pension trend (0.25 % change)	+ 234	– 326	+ 650	– 309

Defined contribution plans

Defined contribution plans of relevance to PVA TePla AG take the form of the employer's statutory pension insurance contributions, pension fund contributions and direct insurance contributions. In fiscal year 2022, the corresponding expenditure amounted to EUR 3,554 thousand (previous year: EUR 3,054 thousand).

Presentation of significant accounting policies

Pension provisions relate exclusively to defined benefit plans. The costs for providing these is calculated using the projected unit credit method, under which an actuarial valuation is carried out as of the end of each reporting period. Recognized provisions for defined benefit plans are determined using actuarial models based primarily on key assumptions including discount rates, mortality rates, salary and pension trends. Remeasurements, comprising actuarial gains and losses (excluding interest expense), are recognized directly in other comprehensive income. The remeasurements recognized in other comprehensive income are part of other reserves and are no longer reclassified in profit or loss to the consolidated income statement in subsequent periods. Past service cost is recognized as in staff costs when the plan amendment occurs.

Interest expense is calculated by multiplying the discount rate by the pension obligation. The defined benefit costs include the service cost (including current service cost, past service cost and any gains or losses from the plan being amended, curtailed or settled) and the interest expense.

The PVA TePla Group reports the service cost in the consolidated income statement under operating expenses and the interest expense under finance costs. Gains or losses from curtailments or settlements are also recognized in profit or loss.

Payments for defined contribution plans are recognized as staff costs in the functional area when the eligible employee has performed the work.

16. Other provisions

EUR '000	Jan. 1, 2022	Changes to the companies included in consolidation	Utilization	Reversal	Addition	Dec. 31, 2022
Warranty	3,198	88	– 2,593	– 14	2,320	2,999
Subsequent costs	135	–	– 90	– 45	181	181
Archiving	54	–	–	–	–	54
Penalties	93	–	– 93	–	–	–
Other	2,321	54	– 711	– 315	733	2,082
Total	**5,801**	**142**	**– 3,487**	**– 374**	**3,234**	**5,316**

In general, contracts with customers include warranty periods and periods for reporting defects following the completion of the specific projects. These obligations are not considered as separate performance obligations and are therefore included in the total contract costs as estimated. If required, amounts are recognized under other provisions in accordance with IAS 37.

As of December 31, 2022, other provisions contain non-current components of EUR 906 thousand (previous year: EUR 1,316 thousand). These relate primarily to provisions for variable remuneration components and archiving. All remaining other provisions are current in nature.

Presentation of significant accounting policies

In accordance with IAS 37, a provision is recognized if a PVA TePla Group company has a current (legal or constructive) obligation as a result of past events, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and it is possible to reliably estimate the amount of the obligation. The amount to be carried as a provision is the best estimate of the expenditure required to settle the present obligations as of the end of the reporting period.

Provisions that will not result in an outflow of resources in the following year are recognized at the discounted settlement amount as of the end of the reporting period, taking into account expected cost increases. The present value of a provision is calculated using pre-tax interest rates that take into consideration current market expectations regarding the interest effect and the risks specific to the obligation. In the event of discounting, the increase in provisions over time is recognized as a finance cost. The estimates are examined as of the end of each reporting period.

Claims for reimbursement (e. g. due to insurance contracts) are only capitalized as a separate asset when the receipt of the reimbursement is virtually certain. In the consolidated income statement, the expense from establishing a provision less the reimbursement is recognized.

17. Contract liabilities

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Contract liabilities (net exposure)	49,664	59,366
Advance payments received concerning product sales and services	63,846	43,572
Contract liabilities	**113,510**	**102,938**

EUR 66,716 thousand of the EUR 102,938 thousand advance customer payments recognized under "Contract liabilities" as of December 31, 2021 (previous year: EUR 62,859 thousand) were recognized as sales revenues (EUR 52,896 thousand) in fiscal year 2022.

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Advance payments received	57,678	62,813
less contract costs incurred (incl. share of profit)	– 8,014	– 3,447
Contract liabilities (net exposure)	**49,664**	**59,366**

As of December 31, 2022, contract liabilities (POC method) include outstanding advance payments due from customers with legally enforceable payment claims amounting to EUR 1,820 thousand (previous year: EUR 398 thousand).

Presentation of significant accounting policies

Systems produced for specific customers to be recognized over a period of time using the POC method and for which the advance payments received exceed the contract costs incurred, including the share of profits, are recognized under contract liabilities. Advance payments received from customers relating to product sales and services that are not accounted for using the POC method are also recognized under contract liabilities.

G. Notes to the consolidated cash flow statement

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Cash in bank	12,465	33,013
Cash in hand	11	8
Cash investment	14,751	24,713
Cash funds according to the balance sheet	**27,227**	**57,734**
Term deposits with a remaining term of more than three months	– 11,625	– 5,000
Cash funds according to the consolidated cash flow statement	**15,602**	**52,734**

Payments for investments in intangible assets and property, plant and equipment include cash acquisitions only. In fiscal year 2022, EUR 250 thousand was reclassified from inventories to property, plant and equipment (previous year: EUR 46 thousand). This did not affect cash.

The following table shows the changes in financial liabilities whose cash flows have been or will be shown in the consolidated cash flow statement as cash flows from financing activities.

EUR '000	Jan. 1, 2022	Cash changes	Non-cash changes			Dec. 31, 2022
			Acquisitions	Currency effects	Other changes	
Non-current financial liabilities	1,223	–	3,535	–	315	5,073
Current financial liabilities	979	– 1,106	4,629	–	1,299	5,801
Total	**2,202**	**– 1,106**	**8,164**	**–**	**1,614**	**10,874**

EUR '000	Jan. 1, 2021	Cash changes	Non-cash changes			Dec. 31, 2021
			Acquisitions	Currency effects	Other changes	
Non-current financial liabilities	1,700	–	–	–	– 477	1,223
Current financial liabilities	1,252	– 1,261	–	–	988	979
Total	**2,952**	**– 1,261**	**–**	**–**	**511**	**2,202**

Presentation of significant accounting policies

Cash and cash equivalents as well as term deposits comprise cash in hand, immediately available bank balances, term deposits as well as immediately available financial investments that are subject to only insignificant fluctuations in value and, measured from the time of acquisition, have a remaining term not exceeding three months. Cash and cash equivalents as well as term deposits are measured at amortized cost. For more information, refer to the explanations under note 10.

Cash flows for the fiscal year are recognized in the statement of Group cash flows in order to present information on the changes in the PVA TePla Group's cash funds according to the consolidated cash flow statment. A distinction is drawn between three areas: Operating, investing and financing activities. According to the cash flow statment, cash fund contains cash and cash equivalents as well as time deposits with a term of up to three months.

Cash flows from operating activities are calculated in accordance with the indirect method by adjusting profit or loss before income taxes to account for non-cash transactions of and transactions associated with investment or financing. As with cash flows from financing activities, cash flows from investing activities are calculated using the direct method, i. e. by comparing gross cash payments and gross cash receipts.

H. Notes to the consolidated statement of changes in equity

Share capital

As of December 31, 2022, the issued share capital of PVA TePla AG consisted of 21,749,988 no-par value shares (previous year: 21,749,988 no-par value shares) each with a nominal value of EUR 1.00.

Conditional and authorized capital

As in the previous year, there is no conditional capital as of December 31, 2022.

The Annual General Meeting of PVA TePla AG authorized the Management Board, with approval of the Supervisory Board, to increase the company's share capital on one or more occasions during the period until June 22, 2027 by a total of up to EUR 5,437,497 by issuing 5,437,497 new no-par value bearer shares against cash or non-cash contributions. The authorization may be utilized in partial amounts. The Management Board is authorized, with the approval of the Supervisory Board, to determine the further content of share rights and the conditions for issuing shares. In the case of capital increases against non-cash contributions, the Management Board is authorized, with the approval of the Supervisory Board, to exclude subscription rights. With capital increases against cash contributions, shareholders are to be granted subscription rights to new shares. The new shares should then be assumed by at least one company within the meaning of Section 186 (5) sentence 1 German Stock Corporation Act with the obligation to offer them to shareholders for subscription.

The Management Board is authorized, with the approval of the Supervisory Board, to exclude shareholders' subscription rights in the case of capital increases against cash contributions,

aa) to realize fractional shares,

bb) if dilution protection is necessary to grant holders of conversion or option rights issued or to be issued by PVA TePla AG or companies in which PVA TePla AG directly or indirectly has a 100 % holding, a subscription right to new shares to the extent they would be entitled after exercising the option or conversion rights or after fulfillment of conversion obligations,

cc) if the new shares in application of Section 186 (3) sentence 4 German Stock Corporation Act against cash contributions at an issue price which is not significantly lower than the stock market price of the shares already listed and the proportionate amount of the share capital represented by the shares issued in accordance with Section 186(3) Sentence 4 German Stock Corporation Act with exclusion of subscription rights do not exceed 10 % of the capital stock at the time of entry of this authorization in the Commercial Register or – if this amount is lower – at the respective time of exercise of the authorization. The following shall be counted towards the limit of 10 % of the share capital stock:

(1) Shares to service bonds with conversion or option rights issued or to be issued of PVA TePla AG or companies in which PVA TePla AG directly or indirectly has a 100 % holding, insofar and to the extent that the bonds are issued during the term of the authorization in analogous application of Section 186 (3) sentence 4 German Stock Corporation Act with the exclusion of subscription rights, and
(2) Treasury shares sold during the term of this authorization in accordance with Section 186 (3) sentence 4 German Stock Corporation Act with the exclusion of shareholder subscription rights.

No capital increases from this authorized capital were resolved in 2022.

Profit appropriation

The Management Board and Supervisory Board propose that the retained earnings reported in PVA TePla AG's annual financial statements for fiscal year 2022 (according to commercial law regulations) amounting to EUR 12,884 thousand be carried forward to a new account at the same amount. There were no withdrawals from the share premium or retained earnings.

I. Other disclosures

18. Segment reporting

The PVA TePla Group is divided into the divisions Industrial Systems and Semiconductor Systems. Management, planning and controlling of PVA TePla Group are based on these two divisions. Segment reporting therefore follows the organizational structures of PVA TePla Group's internal management system (management approach).

Sales revenues by division

EUR '000	2022		2021	
	External sales revenues	Internal sales revenues	External sales revenues	Internal sales revenues
Segment sales				
Industrial Systems	59,480	12,115	37,887	5,652
Semiconductor Systems	145,745	818	117,852	1,154
Total PVA TePla Group	205,225	12,933	155,739	6,806

Transactions involving intersegment sales and revenues are conducted at arm's length conditions.

EBIT by division

EUR '000	2022	2021
Segment information		
Industrial Systems	7,797	1,935
Semiconductor Systems	22,874	21,391
Holding costs	– 5,583	– 4,995
Consolidation	–	–
Total PVA TePla Group	25,088	18,331

Reconciliation of segment earnings to consolidated net result for the period

EUR '000	2022	2021
Operating result (EBIT)	25,088	18,331
Financial result	– 1,300	– 577
Net result before tax	23,788	17,754
Income taxes	– 6,130	– 5,599
Consolidated net result for the period	17,658	12,155

Sales revenues by region

EUR '000	2022	in %	2021	in %
Asia	80,239	39	87,626	56
Germany	73,396	36	28,572	18
Europe (not including Germany)	28,827	14	20,262	13
North America	19,570	10	17,349	11
Other	3,193	1	1,929	1
Total PVA TePla Group	**205,225**	**100**	**155,739**	**100**

In fiscal year 2022, sales revenues of EUR 39.5 million (previous year: EUR 25.4 million) relate to sales revenues with one customer of the Group with a sales share exceeding 10 % of total sales and relate to the Semiconductor Systems segment.

19. Additional disclosures on financial instruments

Finance risks

In addition to derivative finance instruments, financial liabilities of the PVA TePla Group comprise primarily loans from credit institutes, lease liabilities and trade payables. The main purpose of these financial liabilities is to finance operating activities of the PVA TePla Group. In addition to derivative financial instruments, financial assets of the PVA TePla Group comprise primarily cash and cash equivalents, term deposits as well as current and non-current trade receivables which result directly from its operating activities.

When engaging in its operating activities, the PVA TePla Group is exposed to various finance risks. These include default, liquidity and market risks (currency and interest risks). The risk report as part of the Group management report contains a presentation of the risk management system in respect to the targets, methods and processes. Financial risk management is implemented in line with principles specified by the company. These regulate hedging currency, interest and credit risks, cash management as well as short and long-term financing. The objective is to reduce finance risks, taking into account hedging costs and the resulting risks taken. Derivative finance instruments are used to hedge underlying transactions if appropriate. Derivative financial instruments are used solely as hedging instruments, meaning that they are not employed for trading or other speculative purposes. To minimize counterparty risk, the transactions are only entered into with counterparties with a first-class credit rating. The basic details of the financial policy are established annually by the Management Board and monitored by the Supervisory Board. The Management Board is directly responsible for the implementation of the financial policy and ongoing risk management.

Default risks

The credit risk is the risk that a business partner might fail to meet his obligations within the framework of a financial instrument or a general customer agreement and that this might lead to a financial loss. In the course of its operating activities, the PVA TePla Group is exposed to default risks (especially arising from trade receivables) as well as risks in connection with financing activities, including deposits with banks and financial institutions, currency transactions and other financial instruments.

When engaging in its operating activities, the PVA TePla Group grants supplier credits to a broad range of customers. Theoretically, the maximum default risk is shown by the carrying amounts of the financial assets recognized in the consolidated statement of financial position. The PVA TePla Group recognized impairment of EUR – 139 thousand (previous year: EUR – 88 thousand) in the income statement on current and non-current trade receivables to cover known risks in fiscal year 2022. Risks from advance payments are avoided with advance payment guarantees. There are no discernible risks from other receivables. As of December 31, 2022, as in the previous year, the PVA TePla Group had no other significant agreements that reduce the maximum exposure to credit risk.

The creditworthiness of customers is regularly reviewed. The risk of default is mitigated by credit checks and dunning. In its operating business, outstanding accounts receivables and contract assets are monitored locally (decentralized) and on an ongoing basis. The PVA TePla Group has control procedures in place to ensure that services are only provided to customers who have proven to be creditworthy in the past and to ensure that the default risk for these transactions remains within acceptable limits. Default risks are taken into account through appropriate impairment losses. Impairment losses are analyzed as of the end of each reporting period using an impairment matrix to determine the expected credit losses. Flat-rate specific valuation allowances are based on previous experience with credit losses in the form of historical default rates adjusted for forward-looking factors specific to the borrower (e. g. anticipated insolvency ratios) and the general economic conditions. In this way risk-clustered default rates are determined.

EUR '000	Dec. 31, 2022	Impairment matrix not applied	Impairment matrix			
			Not past due	< 30 days past due	30 – 90 days past due	> 90 days past due
Trade receivables (gross carrying amount)	29,679	249	16,890	6,926	2,811	2,803
Contract assets (gross carrying amount)	40,466	–	40,466	–	–	–
Weighted average default rate (%) FY 2022	–	–	0.3 %	0.3 %	0.4 %	0.6 %
Weighted average default rate (%) FY 2021	–	–	0.2 %	0.3 %	0.4 %	0.6 %
Impairment	**– 373**	**– 156**	**– 168**	**– 21**	**– 11**	**– 17**

EUR '000	Dec. 31, 2021	Impairment matrix not applied	Impairment matrix			
			Not past due	< 30 days past due	30 – 90 days past due	> 90 days past due
Trade receivables (gross carrying amount)	19,239	224	6,334	5,532	1,845	5,302
Contract assets (gross carrying amount)	18,917	–	18,917	–	–	–
Weighted average default rate (%) FY 2021	–	–	0.2 %	0.3 %	0.4 %	0.6 %
Weighted average default rate (%) FY 2020	–	–	0.4 %	0.4 %	0.6 %	0.9 %
Impairment	**– 235**	**– 140**	**– 46**	**– 14**	**– 6**	**– 29**

Liquidity risks

The PVA TePla Group attaches extreme importance to maintaining solvency at all times. To ensure solvency at all times and to achieve the highest level of financial flexibility, revolving liquidity planning is prepared for the PVA TePla Group. A liquidity reserve is held in the form of credit facilities and cash on hand.

For more information on the maturities of financial liabilities, see the disclosures on the relevant statement of financial position items in note 14. The maturity analyses of the derivative financial liabilities can be found in the following section.

Market risks

Market risk is the risk that the fair value or future cash flows of a financial instrument might fluctuate as a result of changes in market prices. Market risk includes currency and interest risks.

Currency risk is defined as the risk that the fair value or future cash flows of a financial instrument are subject to fluctuations as a result of changes in currency prices. Fluctuating exchange rates impact the presentation of PVA TePla AG assets and liabilities in the consolidated financial statements, to the extent that assets and liabilities are denominated in currencies other than the euro. Foreign currency risks with a significant impact on the Group's cash flows are hedged.

Foreign currency risks in the context of operating activities primarily arise when planned transactions are settled in a currency other than the functional currency (EUR). These planned transactions relate in particular to expected future sales revenues invoiced in US dollars. To manage the currency risk, as far as possible the PVA TePla Group attempts to achieve cash inflows and outflows with matching time and currency.

PVA TePla AG, PVA Metrology & Plasma Solutions GmbH as well as PVA TePla Analytical Systems GmbH enter into foreign exchange forward contracts to hedge payment obligations. These derivative financial instruments have a term to maturity of up to one year and hedge payment obligations of EUR 10,215 thousand (previous year: EUR 6,829 thousand) as of December 31, 2022. In what follows, the expected net payment from currency hedging instruments is shown.

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Expected net payments		
≤ one month	– 91	– 55
> one month and ≤ three months	– 45	– 122
> three months and ≤ one year	289	– 73
> one year and ≤ five years	–	–

Interest income and expenses from financial instruments at the German companies are recognized in the functional currency (EUR). This means that foreign currency risks can only arise from the financial instruments and assets held by the individual companies outside Germany that would be taken directly to currency reserves in equity. For this reason, only an equity-based sensitivity analysis is performed.

If the value of the euro had been 10 % higher (lower) compared to the US dollar on December 31, 2022, the other reserves in equity would have been EUR 768 thousand lower (EUR 939 thousand higher) (previous year: EUR 585 thousand lower (EUR 715 thousand higher).

If the value of the euro had been 10 % higher (lower) compared to the other currencies relevant to the Group on December 31, 2022, the other reserves in equity would have been EUR 231 thousand lower (EUR 282 thousand higher) (previous year: EUR 207 thousand lower (EUR 253 thousand higher)).

Interest risks result from non-current variable-interest liabilities. Such risks are minimized by the PVA TePla Group on the basis of ongoing observation of global interest policy, and if necessary, interest hedging measures.

The company is mainly subject to interest rate risk in the euro area. Taking the existing and planned debt structure into account, the company uses interest rate derivatives (interest rate swaps) in order to counteract interest rate risks.

A sensitivity analysis of the interest risks is shown below. These represent the effects of changes in market interest rates on interest payments, interest income and expenses, other earnings components and, where applicable, equity.

Categories of financial instruments

Dec. 31, 2022	Carrying amount for each valuation category				Not assigned to a measurement category (excluded from the scope of IFRS 7)	Total carrying amounts
EUR '000	Financial assets		Financial liabilities			
	Fair value through profit or loss	At amortized cost	Fair value through profit or loss	At amortized cost		
Non-current assets						
Financial assets	–	9,000	–	–	19	9,019
Current assets						
Trade receivables and other financial assets	18,906	30,186	–	–	24,476	73,568
Cash and cash equivalents and term deposits	–	27,227	–	–	–	27,227
Non-current liabilities						
Financial liabilities	–	–	1,961	3,112	–	5,073
Other financial liabilities	–	–	–	–	–	–
Current liabilities						
Financial liabilities	–	–	300	5,501	–	5,801
Trade payables	–	–	–	18,295	–	18,295
Other liabilities	–	–	145	8	2,554	2,707
Total	**18,906**	**66,413**	**2,406**	**26,916**	**27,049**	**141,690**

Categories of financial instruments

Dec. 31, 2021	Carrying amount for each valuation category				Not assigned to a measurement category (excluded from the scope of IFRS 7)	Total carrying amounts
EUR '000	Financial assets		Financial liabilities			
	Fair value through profit or loss	At amortized cost	Fair value through profit or loss	At amortized cost		
Non-current assets						
Financial assets	–	25,841	–	–	–	25,841
Current assets						
Trade and other receivables	–	26,153			6,402	32,555
Cash, cash equivalents and term deposits	–	57,734	–	–	–	57,734
Non-current liabilities						
Financial liabilities	–	–	–	1,223	–	1,223
Other financial liabilities	–	–	–	–	–	–
Current liabilities						
Financial liabilities	–	–	–	979	–	979
Trade payables	–	–	–	11,118	–	11,118
Other liabilities	–	–	251	–	4,743	4,994
Total	–	109,728	251	13,320	11,145	134,444

In all valuation categories the carrying amount is a reasonable approximation for the fair value. For this reason, there is no separate presentation of carrying amounts and market values. PVA TePla AG's financial instruments measured at fair value are allocated to Level 2, at which valuation of the financial instruments is based on stock exchange or market prices of similar instruments or on valuation models based on input parameters observable in the market. The fair values of both forward exchange contracts and interest hedges were determined on the basis of discounted expected future cash flows. For the remaining durations of the finance instruments the relevant market interest rates are used.

The "Other financial liabilities" (current and non-current) items contain purchase price components from acquisitions measured at fair value through profit or loss. Fair value is calculated as the present value of the anticipated discounted cash flows on the basis of the planned future business development of the relevant company. The measurement parameters for calculating fair value are unobservable market data (Level 3).

Net gains and losses on financial instruments by valuation category

EUR '000	2022	2021
Financial assets and financial liabilities at fair value through profit or loss	– 1,132	– 70
Financial assets measured at amortized cost	– 529	+ 348
Financial liabilities measured at amortized cost	– 84	– 58
Total	– 1,745	+ 220

The net result from the financial assets and liabilities measured at fair value through profit or loss results from changes in the market value of derivative hedging instruments. In both fiscal years 2022 and 2021, all changes in derivative hedging instruments were cash changes.

Capital management

At the PVA TePla Group the primary objective of capital management is to ensure the financial flexibility required to achieve the growth and return targets. The focus of capital management is on the company's equity and on the borrowing required to finance operating activities. The PVA TePla Group manages the capital structure and makes adjustments taking account of the changes in the general economic situation. The key indicator for capital management is the equity ratio. Actual management is performed by optimizing yields and setting limits on the commitment of funds. Further objectives of capital management include ensuring the Group's liquidity by agreeing appropriate and sufficient credit lines and maintaining the current ratio of advance payments, as well as optimizing the financial result in order to improve returns.

EUR '000	Dec. 31, 2022	Dec. 31, 2021
Equity	104,096	82,789
Total assets	**290,331**	**240,245**
Equity ratio	35.9 %	34.5 %

20. Disclosures on leases

Leases as lessee

The capitalized right-of-use assets relate to buildings and individual objects of operating and office equipment leased by the PVA TePla Group in the context of leases as lessee. The PVA TePla Group has rented premises for production and administration at normal market conditions from third parties at its sites in Munich, Jena, Westhausen, Coburg, Manassas/Virginia (USA), Corona/California (USA), Beijing (China) and Singapore. In addition, the PVA TePla Group is leasing a limited number of company vehicles, including pool vehicles as well as company cars for Management Board members, Managing Directors and in individual cases for employees with a high share of external activities.

In fiscal year 2022, expenses for leases which were not capitalized amounted to EUR 379 thousand (previous year: EUR 283 thousand), EUR 169 thousand (previous year: EUR 95 thousand) of which related to short-term leases and EUR 210 thousand (previous year: EUR 188 thousand) to leases for low-value assets.

In fiscal year 2022, total cash outflow for leases amounted to EUR 1,552 thousand (previous year: EUR 1,374 thousand), EUR 1,173 thousand (previous year: EUR 1,091 thousand) of which related to payments of principal and interest for leases.

Individual property leases include extension options after the end of the basic term (including the subsequent automatically renewing lease terms) which are included in each measurement of the lease liabilities.

Leases as lessor

The PVA TePla Group only leases its own equipment and systems to customers or parts of its own or leased office buildings to a very minor extent.

EUR '000	Land and buildings	Equipment, fixtures and fittings	Total
Cost			
Jan. 1, 2021	**2,772**	**1,472**	**4,244**
Exchange differences	43	33	76
Changes to the companies included in consolidation	–	–	–
Additions	754	336	1,090
Disposals	– 576	– 80	– 656
Transfers	–	–	–
Dec. 31, 2021	**2,993**	**1,761**	**4,754**
Jan. 1, 2022	**2,993**	**1,761**	**4,754**
Exchange differences	37	10	47
Changes to the companies included in consolidation	–	–	–
Additions	660	933	1,593
Disposals	– 33	–	– 33
Transfers	–	–	–
Dec. 31, 2022	**3,657**	**2,704**	**6,361**
Accumulated amortization, depreciation and write-downs			
Jan. 1, 2021	**808**	**741**	**1,549**
Exchange differences	–	–	–
Additions	607	437	1,044
Disposals	–	–	–
Transfers	–	–	–
Dec. 31, 2021	**1,415**	**1,178**	**2,593**
Jan. 1, 2022	**1,415**	**1,178**	**2,593**
Exchange differences	–	–	–
Additions	650	468	1,118
Disposals	–	–	–
Transfers	–	–	–
Dec. 31, 2022	**2,065**	**1,646**	**3,711**
Net carrying amounts			
Dec. 31, 2022	**1,592**	**1,058**	**2,650**
Dec. 31, 2021	1,578	583	2,161

Presentation of significant accounting policies

Pursuant to IFRS 16, a lease is an agreement, where the lessor against a payment or a series of payments transfers to the lessee the right to use an asset for a stipulated period of time. This also applies to agreements where the transfer of such a right is not expressly stated. As part of its business transactions, the PVA TePla Group is the lessee of property, plant and equipment. The PVA TePla Group operates as lessor only in connection with leasing its own systems and buildings to a very minor extent.

For the leases in which the PVA TePla Group is the lessee, recognizes a right-of-use asset with a corresponding lease liability for all lease payments to be made over the term of the contract. For leased assets of lower value and for short-term leases (less than twelve months) the practical expedients are utilized and the payments recognized as expenses on a straight-line basis in the consolidated income statement.

The cost of a right of use is determined from the present value of all future lease payments plus any lease payment at or before inception of the lease as well as the costs for the contract performance and the estimated costs for the dismantling or the restoration of the leased asset. Subsequent measurement is at cost less any accumulated amortization and accumulated impairment losses. The right-of-use assets are reported in a separate item with the relevant description under “Capitalized right-of-use assets”. Depreciation, amortization and impairment of capitalized right-of-use assets are recognized in function costs in the consolidated income statement. The right-of-use assets are amortized over the underlying asset’s economic life, where the relevant leasing payments and also the transfer of title to the underlying asset at the end of the lease term or the exercise of a purchase option is highly probable. In all other cases the right-of-use assets are amortized over the term of the lease.

Lease liabilities recognized in “Financial liabilities” are initially recognized at the present value of the outstanding lease payments. In the context of subsequent measurement, the carrying amount of the lease liability is increased by the annual lease expense and reduced by the lease payments made. The resulting interest expenses are recognized in the consolidated income statement within “Finance costs”.

For more information on the amortization of right-of-use assets from leases, see the explanations on significant accounting policies in note 8.

Leases in which the PVA TePla Group is the lessor are classified as operating or finance leases. Lease agreements are classified as finance leases if all risks and rewards incidental to ownership are transferred to the lessee. In fiscal year 2022, as in the previous year, all leases entered into by the PVA TePla Group as lessor were to be recognized as operating leases. As a result, lease assets were recognized in the PVA TePla Group consolidated statement of financial position under “Property, plant and equipment”. The lease installments are recorded pro rata at the time they occur and are recognized in the consolidated income statement under “Other operating income”.

21. Contingent liabilities and other financial obligations

When engaging in its business activities, the PVA TePla Group is occasionally involved in legal disputes. The management is not aware of any events which considerably impair the earnings, liquidity or financial position and earnings situation. Account is taken of the risks from legal disputes by establishing suitable provisions.

As of December 31, 2022, as in the previous year, there were no material other financial obligations, both in relation to purchasing equipment for property, plant and equipment or for leases signed but not yet commenced.

22. Related parties

Related parties as defined by IAS 24 are legal or natural persons which can exercise at least a significant influence over PVA TePla AG or are subject to control, joint control or a significant influence by PVA TePla AG. Related parties are also key management personnel, their close rela-tives and companies which are controlled, jointly controlled or significantly influenced by this group of persons.

In fiscal year 2022, there were no business relationships as referred to by IAS 24. In 2021, there were business relationships between PVA TePla AG and the main shareholder Peter Abel, who in connection with an existing consulting agreement with PA Beteiligungsgesellschaft mbH, Wettenberg, attributable to Peter Abel, can exercise a significant influence on PVA TePla AG. Due to the sale of an important share package, he could not exercise significant influence on PVA TePla AG in fiscal year 2022. In the previous year, the volume of the business transactions amounted to EUR 302 thousand.

Transactions with related parties with reference to the PVA TePla Group relate to business transactions with companies included in the consolidated financial statements. For information on the volume of these transactions, please see the presentation of sales revenues in segment reporting under note 18. This also shows intra-Group sales. All intra-Group transactions are handled at arm's length conditions and are eliminated in full when preparing the consolidated financial statements. They therefore have no impact on the net assets, financial position and results of operations of the PVA TePla Group.

Members of the Management Board

Manfred Bender (CEO)
Jalin Ketter (CFO)
Oliver Höfer (COO)
Dr. Andreas Mühe (CTO)

Total remuneration of the executive board

EUR '000	2022	2021
Short-term benefits	1,825	2,155
Share-based payments	–	–
Post-employment benefits	–	–
Termination benefits	–	–
Other long-term benefits	– 315	782
Total	**1,510**	**2,937**

At the 2020 Annual General Meeting, the three members of the Management Board were granted – and, at 2021 Annual General Meeting, one member of the Management Board was granted – a long-term incentive. This bonus was determined on the basis of the development of the PVA TePla AG market capitalization between the day of the 2020 Annual General Meeting (June 26, 2020)/the day of the 2021 Annual General Meeting (June 18, 2021) and the day of the 2023/2024 Annual General Meeting. This is a long-term compensation component which is accounted for in the same way as cash-settled share-based payment transactions as defined by IFRS 2. For each Management Board member, the long-term incentive is 0.5 % of the increase in market capitalization, adjusted for any capital increases made in the intervening period. Each of the three long-term incentive components is capped at an amount of EUR 250 thousand. The fourth long-term bonus component is capped at an amount of EUR 500 thousand. As of December 31, 2022, the fair value of each of these long-term bonus components calculated using the Black-Scholes price model was EUR 210 thousand (previous year: EUR 247 thousand) for three members of the Management Board and EUR 101 thousand (previous year: EUR 305 thousand) for one member of the Management Board. A liability of EUR 731 thousand (previous year: EUR 1,046 thousand) was thus recognized under "Other provisions" as of December 31, 2022. The total expense for these long-term bonus components was EUR – 315 thousand in fiscal year 2022 (previous year: EUR 782 thousand). The following input factors were used in the Black-Scholes model. Anticipated volatility was derived from historical peer group volatility (median).

	Dec. 31, 2022	Dec. 31, 2021	June 26, 2020
Dividend yield [%]	0.0	0.0	0.0
Expected volatility [%]	45.1	38.7	57.3
Risk-free interest rate [%]	2.3	– 0.7	– 0.7
Residual term at measurement date [years]	0.5	1.5	3.0
Market capitalization (6 month average) (EUR million)	393	780	248

Non-current payments are due in connection with the long term performance-based compensation. All other remuneration listed is payable over the short term. Employer contributions to pension insurance are not paid. There are no pension commitments for any current Management Board members. No real share options were granted to members of the Management Board in fiscal year 2022 or the previous year. There were no unusual transactions with related parties.

EUR 136 thousand was paid to former members of the Management Board as pensions in fiscal year 2022 (previous year: EUR 134 thousand). As of December 31, 2022, there was a provision of EUR 1,622 thousand for these pension obligations (previous year: EUR 2,175 thousand).

Detailed information on the remuneration system and the remuneration components can be found in the separate remuneration report of the PVA TePla Group.

Members of the Supervisory Board

- Alexander von Witzleben, Erlenbach ZH, Switzerland (Chairman, Deputy Chairman of the Audit Committee)
  Arbonia AG, Arbon/Switzerland President of the Board of Directors and CEO)

  Member of the following other supervisory bodies:
  VERBIO Vereinigte BioEnergie AG, Leipzig (Chairman of the Supervisory Board)
  KAEFER Isoliertechnik GmbH & Co. KG, Bremen (Member of the Advisory Board)
  Siegwerk Druckfarben AG & Co. KGaA, Siegburg (Member of the Supervisory Board)
  Feintool International Holding AG, Lyss (President of the Administration Board)
  Artemis Holding AG, Aarburg/Switzerland (Member of the Advisory Board)

- Prof. Gernot Hebestreit, Leverkusen (Deputy Chairman, Chairman of the Audit Committee)
  Grant Thornton AG Wirtschaftsprüfungsgesellschaft, Düsseldorf (partner, member of the Management Board)

  Member of the following other supervisory bodies:
  Comvis AG, Essen (Deputy Chairman of the Supervisory Board)

- Prof. Markus H. Thoma, Schöffengrund (member of the Audit Committee)
  Professor of Plasma and Astronautics at the University of Giessen

  Member of the following other supervisory bodies:
  Nationales Zentrum für Plasmamedizin e.V. (member of the Board of Trustees)

Total remuneration of the Supervisory Board

EUR '000	2022	2021
Fixed compensation	155	123
Variable compensation	–	–
Total	155	123

The remuneration of the Supervisory Board does not include any performance-related components.

Detailed information on the remuneration system and the remuneration components can be found in the remuneration report of the PVA TePla Group.

Presentation of significant accounting policies

Related parties as defined by IAS 24 are such parties which PVA TePla AG controls, exercises joint control or exercises a significant influence on PVA TePla AG. Subsidiaries, joint ventures and associates as also considered as related parties for PVA TePla AG as well as subsidiaries and joint ventures of PVA TePla in relation to each other. The same also applies to subsidiaries that are not consolidated. Related parties are also key management personnel, their close relatives and companies which are controlled, jointly controlled or significantly influenced by this group of persons.

Cash-settled share-based payment

For cash-settled share-based payment transactions, a provision is to be established initially and as of the end of each reporting period until settled, at the fair value of the share appreciation rights. This is done by mandatorily applying an option pricing model, taking into account the terms and conditions on which the share appreciation rights were granted, and the extent to which the employees have rendered service to date. The fair value of the amount to be paid to the employee in reference to the share appreciation rights, which are settled in cash, is recognized as expense with a corresponding increase in the provisions over the period in which the employees acquire an unconditional entitlement to these payments. The provision is remeasured at the end of each reporting period and on the settlement date based on the fair value of the share appreciation rights. All changes in the provisions are recognized in the consolidated income statement.

23. Auditor fees and services

EUR '000	2022	2021
Audit of annual financial statements	273	232
Other assurance or valuation services	3	–
Tax consulting services	–	–
Other services	–	–
Total	276	232

Fees for audits of financial statements of BDO AG Wirtschaftsprüfungsgesellschaft, Frankfurt am Main (previous year: Ebner Stolz GmbH & Co. KG Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft, Frankfurt am Main) related primarily to the audit of the consolidated financial statements and the financial statements of PVA TePla AG and various audits of financial statements of its subsidiaries including audit focus points agreed with the Supervisory Board. Other assurance or valuation services relate to confirmation of covenants.

24. Declaration of Compliance in accordance with Section 161 of the German Stock Corporation Act

The Management Board and Supervisory Board of PVA TePla AG issued the Declaration of Compliance on the recommendations of the German Corporate Governance Codex (GCGC) in accordance with Section 161 of the Aktiengesetz (AktG – German Stock Corporation Act).

The full declaration is permanently available on the company's website at
https://www.pvatepla.com/investor-relations/corporate-governance/.
Available on the website are also the Declarations on Corporate Governance published in previous fiscal years.

25. Significant Events after the End of the Reporting Period

On January 17, 2023, it was announced that the PVA TePla AG Supervisory Board had appointed the CFO Jalin as Speaker of the Management Board. The acting CEO Manfred Bender leaves the company for personal reasons as of June 30, 2023, a few months before the regular expiry of his contract by mutual agreement.

With the exception of these matters, no further events of particular importance occurred which had an impact on the net assets, financial position, and results of operations of the PVA TePla Group.

Wettenberg, March 16, 2023

PVA TePla AG

Manfred Bender	**Jalin Ketter**	**Oliver Höfer**	**Dr. Andreas Mühe**
CEO	CFO	COO	CTO

Responsibility statement by the legal representative

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group, and the combined management report includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.

Wettenberg, March 16, 2023

PVA TePla AG

Manfred Bender	**Jalin Ketter**	**Oliver Höfer**	**Dr. Andreas Mühe**
CEO	CFO	COO	CTO

Independent Auditor's Report

To PVA TePla AG, Wettenberg

Report on the Audit of the Consolidated Financial Statements and of the Combined Management Report

Audit Opinions

We have audited the consolidated financial statements of PVA TePla AG, Wettenberg, and its subsidiaries (the Group), which comprise the consolidated balance sheet as at December 31, 2022, and the consolidated income statement, consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated cash flow statement for the fiscal year from January 1, 2022 to December 31, 2022, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In addition, we have audited the combined management report (report on the position of the Company and the Group) of PVA TePla AG for the fiscal year from January 1, 2022 to December 31, 2022. In accordance with German legal requirements, we have not audited the content of the components of the combined management report mentioned under "Other Information".

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

– the accompanying consolidated financial statements comply in all material respects with IFRSs as adopted by the EU and the additional requirements of German law pursuant to § 315e (1) HGB and give a true and fair view of the financial position of the Group as of December 31, 2022 and of its financial performance for the fiscal year from January 1, 2022 to December 31, 2022 in accordance with these requirements and
– the accompanying combined management report as a whole provides a appropriate view of the Group's position. In all material respects, this combined management report is consistent with the consolidated financial statements, complies with German legal requirements, and accurately presents the opportunities and risks of future development. Our opinion on the combined management report does not cover the content of the components of the combined management report mentioned under "Other Information".

Pursuant § 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 the combined management report.

Basis for the Audit Opinions

We conducted our audit of the consolidated financial statements and the combined management report in accordance with Section 317 HGB and the EU Regulation on Auditors (No. 537/2014; hereinafter "EU-APrVO") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW). Our responsibility under those regulations and standards is further described in the section "Auditor's Responsibility for the Audit of the Consolidated Financial Statements and the Combined Management Report" of our auditor's report.

We are independent of the Group companies in accordance with European law and German commercial and professional regulations and have fulfilled our other German professional obligations in accordance with these requirements.

In addition, in accordance with Article 10 (2) letter (f) EU-APrVO, we declare that we have not provided non-audit services prohibited under Article 5 (1) EU-APrVO.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements and the combined management report.

Key audit matters in the Audit of the Consolidated Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the fiscal year from January 1, 2022 to December 31, 2022. These matters were considered in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon; we do not provide a separate opinion on these matters.

We have identified the following matters as the key audit matters to be reported in our audit opinion:

1. Overtime recognition of revenue in accordance with IFRS 15
2. Valuation of work in progress
3. Balance sheet presentation of a company acquisition

1. Overtime recognition of revenue in accordance with IFRS 15

Matter

In the consolidated financial statements of PVA TePla AG, Wettenberg, sales revenue of EUR 205.2 million is reported in the consolidated income statement. Of this amount, EUR 138.3 million is recognized on a point in time basis and EUR 66.9 million on a overtime basis.

The individual contractual assessment of whether the requirements of IFRS 15.35c) for the recognition of revenue over time are met, the determination of whether a product or service should be accounted for as a separate performance obligation, and the allocation of the purchase price to the performance obligations can require complex judgments by the accounting entity. Furthermore, the determination of the expected contract costs in the context of the application of the cost-to-cost method involves discretionary judgments by the Management Board.

Due to the complexity of the necessary judgments and discretionary decisions, this is a particularly important audit matter.

The Company's disclosures on revenue recognition in accordance with IFRS 15 are included in sections D. “Management judgements and estimation uncertainties” and E.1. “Revenue” and F.12. “Trade and other receivables and contract assets” of the notes to the consolidated financial statements.

Auditor's response

As part of our audit, we first obtained an understanding of the processes, procedures and internal control system relating to the proper recognition of revenue by means of a test of design and implementation audit. In doing so, we assessed the basic accounting methods and the calculation system used in the overtime revenue recognition according to the input-based cost-to-cost method. We also assessed the client's assessment of the legal situation in individual countries and examined on a representative sample basis whether there is a legal entitlement to payment for services already rendered in accordance with IFRS 15.37 on an individual contract basis.

With regard to the audit of estimates of the expected and actual production costs incurred to determine the percentage of completion under the cost-to-cost method, we performed interviews with the project managers and controlling staff as well as substantive audit procedures for a representative sample of the orders in hand at the reporting date. Specifically, for this sample, we tested the cost of sales incurred by reconciling the material costs and labor hours recorded in the fiscal year with supporting documentation.

2. Valuation of work in progress

Matter

In the consolidated financial statements of PVA TePla AG, Wettenberg, assets amounting to EUR 41.8 million are reported under the balance sheet item "Inventories" within "Work in progress".

Work in progress is measured at cost, taking into account production and material overheads as well as depreciation. The valuation of inventories is subject to the discretionary decisions of the legal representatives with regard to the determination of the contract costs still to be expected and the determination of value adjustments to the lower net realizable value as of the reporting date. Due to the discretionary decisions and the materiality of work in progress, this is a particularly important audit matter.

The Company's disclosures on inventory valuation are included in sections D. "Management's judgment and estimation uncertainties" and F.11. "Inventories" of the notes to the consolidated financial statements.

Auditor's response

As part of the audit, we first examined the valuation procedure and the valuation methods and assessed their appropriateness. In a next step, we assessed the ongoing correct transfer of the valued labor hours and direct material costs from the upstream systems as well as the permissibility of their capitalization as production costs. We then examined the production hour rates and material overhead rates used in the valuation and their determination with the applicable costs. We examined the cost items included in the calculation of the hourly production rates and material overhead rates to ensure that they were correctly derived from the accounting system.

Furthermore, our audit procedures focused on the correct valuation of work in progress at the lower of cost and net realizable value. To this end, we tested the expected sales proceeds against any contractually agreed fees or the fees for comparable types of plant using representative samples. With regard to the expected contract costs, we evaluated controlling and risk reports as well as minutes of Executive Board and Supervisory Board meetings and discussed selected facts and estimates with controlling employees and the legal representatives. The forecast quality of the expected production costs was additionally assessed on the basis of completed orders by comparing the expected production costs with the actual production costs incurred on a sample basis.

3. Balance sheet presentation of a company acquisition

Matter

In November 2022, PVA Tepla AG acquired a further 89.6 % of the shares in MPA Industrie SA, based in La Chapelle d'Aurec, France, having already acquired 10.4 % of the shares in fiscal year 2021.

A fixed purchase price of EUR 6.75 million was paid for the 89.6 % share acquisition. In addition, there was a contingent purchase price payment (earn-out) of EUR 2.3 million measured at fair value, which was recognized as part of the acquisition costs at the balance sheet date and correspondingly recognized as a financial liability. The contingent purchase price component is determined according to contractually defined formulas, which are to be paid in each case depending on the future earnings situation of MPA Industrie SAS and staggered in the financial years 2023, 2024, 2025 and 2026, and is limited to a maximum amount of EUR 2.55 million.

The acquired assets and liabilities were recognized at fair value on the date of acquisition of the additional 89.6 % interest in the reporting year and thus the date on which control was first obtained. Taking into account acquired net assets of EUR 0.8 million attributable to PVA Tepla AG and capitalized other intangible assets of EUR 3.2 million after deferred taxes, acquired goodwill amounted to EUR 5.8 million.

Due to the complexity of identifying all of the assets and liabilities acquired, as well as the scope for discretion in determining their fair values of the assets and liabilities acquired and the measurement of the contingent purchase price liability, this business combination represented a particularly important audit matter in the context of our audit.

PVA TePla AG's disclosures on business combinations are included in section C. "Scope of consolidation, consolidation principles and currency translation" and section D. "Management judgements and estimation uncertainties" of the notes to the consolidated financial statements.

Auditor's response

As part of our audit of the accounting treatment of the acquisition, we first inspected and understood the contractual agreements. We have assessed whether the date of acquisition has been appropriately reflected in the accompanying consolidated financial statements.

In assessing the valuation of the future contingent payments for the determination of the contingent purchase price liability and for the valuation of the acquired assets and liabilities, we obtained, with the assistance of valuation specialists, an understanding of the system and process of the planning calculations on which these payments are based and verified the plausibility of the assumptions made, including the expected growth rates, taking into account industry-specific market expectations. We reconciled the discount rates used with the available market data.

Where fair values were determined on the basis of valuation models, we assessed the appropriateness and accuracy of the models used and the plausibility of the assumptions made regarding the underlying parameters. We also assessed the allocation of goodwill to the appropriate cash-generating unit.

In addition, we verified the completeness and accuracy of the disclosures required by IFRS 3.

Other Information

The legal representatives or the Supervisory Board are responsible for the other information. The other information comprises:

- the summarized non-financial statement contained in the chapters of the combined management report and insofar as they are tabulated in the section "About this report" as being unrelated to the management report and marked as unaudited, as well as the chapter "EU taxonomy"
- the section "Corporate Governance Statement and Corporate Governance Report" in the combined management report
- the information contained in the combined management report that is not part of the management report and is marked as unaudited
- the other parts of the annual report with the exception of the audited financial statements and combined management report and our audit opinion

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

In connection with our audit of the consolidated financial statements, we have a responsibility to read the other information and, in doing so, evaluate whether the other information

- is materially inconsistent with the consolidated financial statements, the combined management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misrepresented.

If, based on our work, we conclude that there has been a material misstatement of such other information, we are required to report that fact. We have nothing to report in this regard.

Responsibility of the legal representatives and the Supervisory Board for the Consolidated Financial Statements and the Combined Management Report

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with IFRSs as adopted by the EU and the additional requirements of German law pursuant to Section 315e (1) HGB and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error. Furthermore, management is responsible for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error (i. e. manipulation of the accounting system or misstatement of assets).

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern. They are also responsible for disclosing, as applicable, matters related to going concern. Furthermore, they are responsible for preparing the financial statements on a going concern basis unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

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

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and the combined management report.

Auditor's responsibility for the audit of the Consolidated Financial Statements and the Combined Management Report

Our objective is 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 combined management report as a whole provides a suitable view of the Group's position and is consistent, in all material respects, with the consolidated financial statements and with our audit findings, complies with German legal requirements and suitably presents the opportunities and risks of future development, and to issue an auditor's report that includes our audit opinions on the consolidated financial statements and the combined management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and EU-APrVO and German generally accepted standards for the audit of financial statements 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 combined 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 the combined management report due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinion. 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 because fraud may involve collusion, forgery, intentional omissions, misleading representations, or the override of internal control.
- obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of the arrangements and actions relevant to the audit of the combined 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 those systems.
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- conclude on the appropriateness of the going concern basis of accounting used by management 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 our auditor's report to the related disclosures in the consolidated financial statements and the combined management report or, if such disclosures are inadequate, to modify our respective audit opinions. We draw our conclusions based on the audit evidence obtained up to the date of our audit opinion. However, future events or conditions may result in the Group being unable 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 represent the underlying transactions and events in such a way that the consolidated financial statements give a true and fair view of the net assets , financial position and results of operations of the Group in accordance with IFRSs as adopted by the EU, and the additional requirements of German law pursuant to § 315e Abs. 1 HGB.
- obtain sufficient appropriate audit evidence regarding the accounting information of the entities or business activities within the Group to express opinions on the consolidated financial statements and the combined management report.

We are responsible for directing, supervising and performing the audit of the consolidated financial statements. We are solely responsible for our audit opinions.

- evaluate the consistency of the combined management report with the consolidated financial statements, its conformity with German law and the overall presentation of the Group's position in the consolidated financial statements.
- perform audit procedures on the prospective information made by management in the combined management report. On the basis of sufficient appropriate audit evidence, we evaluate in particular the significant assumptions underlying the prospective information made by management and evaluate the appropriateness of the information derived from these assumptions. We do not express an independent opinion on prospective information or on the underlying assumptions. There is a significant unavoidable risk that future events may differ materially from the prospective information.

We communicate with those charged with governance, 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.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements and discuss with them all relationships and other matters that may reasonably be thought to bear on our independence and, where relevant, actions taken or safeguards applied to address any threats to independence. From the matters we communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure of the matter.

Other legal and regulatory requirements

Report on the assurance on the electronic rendering of the Consolidated Financial Statements and the Combined Management Report prepared for publication purposes in accordance with section 317 (3a) hgb. 3a HGB

Assurance Opinion

Pursuant to Section 317 (3a) HGB, we have performed a reasonable assurance engagement to determine whether the rendering of the consolidated financial statements and the combined management report (hereinafter also referred to as “ESEF documents”) contained in the file “PVA-2022-12-31-en.zip” and prepared for publication purposes comply in all material respects with the requirements of Section 328 (1) HGB of the German Commercial Code regarding the electronic reporting format (“ESEF format”). In accordance with German legal requirements, this audit extends only to the conversion of the information contained in the consolidated financial statements and the combined management report into the ESEF format and therefore neither to the information contained in these renderings nor to any other information contained in the aforementioned file.

In our opinion, the rendering of the consolidated financial statements and the combined management report contained in the aforementioned file and prepared for publication purposes comply, in all material respects, with the electronic reporting format requirements of Section 328 (1) HGB. Beyond this assurance opinion and our audit opinions on the accompanying consolidated financial statements and the accompanying combined management report for the fiscal year from January 1, 2022 to December 31, 2022 contained in the preceding “Report on the audit of the Consolidated Financial Statements and the Combined Management Report”, we do not express any audit opinion on the information contained in these reproductions or on the other information contained in the abovementioned file.

Basis for the Assurance Opinion

We conducted our audit of the rendering of the consolidated financial statements and the combined management report contained in the abovementioned file in accordance with Section 317 (3a) HGB and IDW Auditing Standard: Audit of Electronic Reproductions of Financial Statements and Management Reports Prepared for Publication Purposes in Accordance with Section 317 (3a) HGB (IDW PS 410 (06.2022)). Our responsibility thereafter is further described in the section “Auditor‘s Responsibility for the Audit of the ESEF Documents”. Our auditing firm has applied the requirements of the IDW Quality Management Standards, which implement the IAASB‘s International Standards on Quality Management.

Responsibility of the legal representatives and the supervisory board for the ESEF documents

The Company's management is responsible for the preparation of the ESEF documents containing the electronic renderin of the consolidated financial statements and the combined management report in accordance with section 328 (1) sentence 4 no. 1 HGB and for the tagging of the consolidated financial statements in accordance with section 328 (1) sentence 4 no. 2 HGB.

Furthermore, management is responsible for such internal control as management determines is necessary to enable the preparation of ESEF documents that are free from material intentional or unintentional non-compliance with the requirements of Section 328 (1) HGB regarding the electronic reporting format.

The Supervisory Board is responsible for overseeing the process of preparing the ESEF documents as part of the financial reporting process.

Auditor's Responsibility for the Audit of the ESEF Documents

Our objective is to obtain reasonable assurance about whether the ESEF documents are free from material intentional or unintentional non-compliance with the requirements of Section 328 (1) HGB. We exercise professional judgement and maintain professional skepticism throughout the audit. We also

- identify and assess the risks of material intentional or unintentional non-compliance with the requirements of Section 328 (1) HGB, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our assurance opinion.
- obtain an understanding of internal control relevant to the audit of ESEF documents 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 those controls.
- evaluate the technical validity of the ESEF documentation, i.e. whether the file containing the ESEF documentation complies with the requirements of Delegated Regulation (EU) 2019/815, as amended at the reporting date, regarding the technical specification for that file.
- evaluate whether the ESEF documentation provides a consistent XHTML representation of the audited consolidated financial statements and the audited combined management report.
- evaluate whether the tagging of the ESEF documents with inline XBRL technology (iXBRL) in accordance with Articles 4 and 6 of Delegated Regulation (EU) 2019/815, as applicable on the reporting date, provides an adequate and complete machine-readable XBRL copy of the XHTML rendering.

Further information pursuan to article 10 EU-APrVO

We were elected as auditors by the Annual General Meeting on June 23, 2022. We were appointed by the Chairman of the Audit Committee on September 13, 2022. We have served as auditors of the consolidated financial statements of PVA TePla AG without interruption since fiscal year 2022.

We declare that the audit opinions contained in this audit opinion are consistent with the additional report to the Audit Committee pursuant to Article 11 EU-APrVO (Audit Report).

Other matters – use of the Auditor’s Report

Our auditor’s report must always be read together with the audited consolidated financial statements and the audited combined management report as well as the assured ESEF documents. The consolidated financial statements and combined management report converted to the ESEF format – including the versions to be published in the German Federal Gazette – are merely electronic renderings of the audited consolidated financial statements and the audited combined management report and do not replace them. In particular, the ESEF report and our assurance opinion contained therein are to be used in solely in conjunction with the assured ESEF documents provided in electronic form.

Auditor in charge

The auditor responsible for the audit is Saskia Scheffer-Hüller.

Frankfurt am Main, March 22, 2023

BDO AG
Auditing Company

gez. Dr. Jan Faßhauer
Certified Public Accountant

gez. Saskia Scheffer-Hüller
Certified Public Accountant

Independent Practitioner's Report on a Limited Assurance Engagement of the Combined Non-Financial Statement[1]

To PVA TePla AG, Wettenberg

We have performed a limited assurance engagement on the combined non-financial statement included in the combined management report according to the table "Contents of the combined non-financial statement" in the section "About this report", for the period from January 1 to December 31, 2022 (hereinafter the "non-financial statement").

Not subject to our assurance engagement are the external sources of documentation or expert opinions stated in the combined non-financial statement.

Responsibility of the Executive Directors

The executive directors of the Company are responsible for the preparation of the combined non-financial statement in accordance with §§ 315c in conjunction with 289c to 289e HGB and Article 8 of REGULATION (EU) 2020/852 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18. June 2020 on establishing a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088 (hereinafter the "EU Taxonomy Regulation") and the Delegated Acts adopted thereunder, as well as for making their own interpretation of the wording and terms contained in the EU Taxonomy Regulation and the Delegated Acts adopted thereunder, as set out in section "EU taxonomy" of the combined non-financial statement.

This responsibilities of the executive directors include the selection and application of appropriate non-financial reporting methods, and making assumptions and estimates about individual non-financial disclosures of the group that are reasonable under the given circumstances. In addition, executive directors are responsible for such internal control as they have determined necessary to enable the preparation of a combined non-financial statement that is free from material misstatement, whether due to fraud or error.

The EU Taxonomy Regulation and the delegated acts issued thereunder contain wording and terms that are still subject to considerable interpretation uncertainties and for which clarifications have not yet been published in every case. Therefore, the executive directors have disclosed their interpretation of the EU Taxonomy Regulation and the Delegated Acts issued thereunder in the "EU taxonomy" section of the combined non-financial statement. They are responsible for the defensibility of this interpretation. Due to the immanent risk that indeterminate legal terms may be interpreted differently; the legal conformity of the interpretation is subject to uncertainties.

[1] We have performed a limited assurance engagement on the German version of the combined non-financial statement and issued an Independent Practitioner's Report in German language, which is authoritative. The following text is a translation of the original German Independent Practitioner's Report.

Independence and Quality Assurance of the Assurance Practitioner's Firm

We have complied with German professional regulations on independence as well as other professional conduct requirements.

Our auditing firm applies the national legal regulations and professional pronouncements - in particular the Professional Charter for German Public Auditors and German Sworn Auditors (Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer) in the exercise of their Profession as well as the IDW Quality Assurance Standard issued by the Institute of Public Auditors in Germany (IDW): Requirements for Quality Management in the Audit Firm (IDW QS 1). which implement the IAASB's International Standards on Quality Management – and accordingly maintains a comprehensive quality management system that includes documented policies and procedures with regard to compliance with professional ethical requirements, professional standards as well as relevant statutory and other legal requirements.

Responsibility of the Independent Practitioner

Our responsibility is to express a conclusion with limited assurance on the consolidated non-financial statement based on our assurance engagement.

We conducted our assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information", issued by the IAASB. This standard requires that we plan and perform the assurance engagement to obtain limited assurance about whether any matters have come to our attention that cause us to believe that the group's combined non-financial statement, other than the external sources of documentation or expert opinions mentioned in the combined non-financial statement, are not prepared, in all material respects, in accordance with §§ 315c in conjunction with. 289c to 289e HGB and the EU Taxonomy Regulation and the Delegated Acts issued thereunder, as well as the interpretation by the executive directors disclosed in the section "EU taxonomy" of the combined non-financial statement.

In a limited assurance engagement, the procedures performed are less extensive than in a reasonable assurance engagement, and accordingly, substantially lower level of assurance is obtained. The selection of the assurance procedures is subject to the professional judgment of the assurance practitioner.

In the course of our assurance engagement, we have, among other things, performed the following assurance procedures and other activities:

- Gain an understanding of the structure of the Group's sustainability organization and of the stakeholders' engagement.
- Inquiries of the legal representatives and the employees responsible for the materiality analysis in order to gain an understanding of the procedure for identifying material topics and corresponding reporting boundaries of PVA TePla
- A risk assessment, including a media analysis, of relevant information about PVA TePla's sustainability performance during the reporting period
- Assessment of the suitability of the internally developed definitions
- Assessment of the design and implementation of systems and processes for the identification, processing and monitoring of environmental matters, employee matters and social matters, human rights, anti-corruption and anti-bribery, including the consolidation of data
- Inquiries of group level employees and legal representatives responsible for determining disclosures about concepts, due diligence processes, results and risks, as well as for performing internal control procedures and consolidating disclosures

- Inspection of selected internal and external documents
- Analytical assessment of the data and trends of the quantitative disclosures reported for consolidation at Group level
- Assess local data collection, validation, and reporting processes and the reliability of reported data
- Reconciliation of selected data with the corresponding data in the combined financial statements and the other components of the management report
- Assessment of the process for identifying taxonomy-eligible and -aligned economic activities and the corresponding disclosures in the combined non-financial statement
- Assessment of the overall presentation of the disclosures

Practitioner's Conclusion

Based on the work performed and the evidence obtained, nothing has come to our attention that causes us to believe that the combined non-financial statement for the period from January 1 to December 31, 2022 included in the combined management report according to the table "Contents of the combined non-financial statement" in the section "About this report" is not prepared, in all material respects, in accordance with § 315c in conjunction with § 289c to § 289e HGB and the EU Taxonomy Regulation and the Delegated Acts issued thereunder as well as the interpretation by the executive directors as disclosed in section "EU taxonomy" of the combined non-financial statement .

We do not express an assurance opinion on the external sources of documentation or expert opinions mentioned in the combined non-financial statement.

Restriction of Use and Reference to Limitation of Liability

We draw attention to the fact that the assurance engagement was conducted for the Company's purposes and that the report is intended solely to inform the Company about the result of the assurance engagement. Consequently, it may not be suitable for any other purpose than the aforementioned. Accordingly, the report is not intended to be used by third parties to make (financial) decisions based on it. Our responsibility is to the Company alone. We do not accept any responsibility to third parties. Our conclusion was not modified in this respect.

General Engagement Terms

This engagement is based on the "Special Engagement Terms of BDO AG Wirtschaftsprüfungsgesellschaft" of March 1, 2021, agreed with the Company as well as the "General Engagement Terms and Conditions for Auditors and Auditing Firms" of January 1, 2017, issued by the IDW (https://www.bdo.de/de-de/impressum-datenschutzerklarung-rechtliche-hinweise/auftragsbedingungen).

Frankfurt am Main, March 22, 2023

BDO AG Wirtschaftsprüfungsgesellschaft

gez. Dr. Jan Faßhauer German Public Auditor	gez. Viola Möller Partner Sustainability Services

GRI Content Index

PVA TePla AG has reported on the information indicated in this GRI Index for the period January 1 to December 31, 2022, with reference to the GRI Standards.

GRI 1: Foundations 2021		
GRI 2 – General Disclosures 2021		
GRI-Standard	**Disclosure Reference**	**Verweis**
GRI 2-01	Organization profile	– Fundamentals of the Group – Business activities and strategy – Organizational structure – Significant locations and consolidated Group – Management system
GRI 2-02	Entities considered in the organization's sustainability reporting	– Fundamentals of the Group – Management system – Significant locations and consolidated Group
GRI 2-03	Entities considered in the organization's sustainability reporting	– Fundamentals of the Group
GRI 2-04	Correction or restatement of information	– Research and development – Energy consumption and greenhouse gas emissions
GRI 2-06	Activities, value chain, and other business relationships	– Business activities and strategy – Organizational structure – Significant locations and consolidated Group – Research and development – Respect for human rights
GRI 2-07	Employees	– Responsibility for our team
GRI 2-08	Non-employees	– Respect for human rights
GRI 2-09	Leadership structure and composition	– Management Board – Governance structure – Working methods of the Management Board and Supervisory Board as well as composition and working methods of their committees – Diversity“
GRI 2-10	Nomination and selection of the highest governing body	– Working methods of the Management Board and Supervisory Board as well as composition and working methods of their committees
GRI 2-11	Chairperson of the highest governing body	– Supervisory Board – Working methods of the Management Board and Supervisory Board as well as composition and working methods of their committees
GRI 2-12	Role of the highest governing body in overseeing the management of impacts	– Report from the Supervisory Board – Sustainability
GRI 2-13	Delegation of responsibility for the management of impacts	– Sustainability
GRI 2-14	Role of the highest governing body in sustainability reporting	– Report from the Supervisory Board – Sustainability
GRI 2-15	Conflicts of interest	– Working methods of the Management Board and Supervisory Board as well as composition and working methods of their committees – Declaration of conformity with the recommendations of the German Corporate Governance Code
GRI 2-16	Reporting critical concerns	– Good corporate governance and compliance – Whistleblowing

GRI 2-19	Compensation policy	– Management system
GRI 2-21	Ratio of annual total compensation	– Management system
GRI 2-22	Statement of application for sustainable development strategy	– Business activities and strategy – Sustainability – Materiality and stakeholder engagement – Disclosure on corporate governance practices
GRI 2-23	Commitment statement on principles and practices	– Business activities and strategy – Sustainability – Disclosure on corporate governance practices
GRI 2-25	Procedure for addressing negative impacts	– Good corporate governance and compliance – Whistleblowing
GRI 2-26	Procedure for obtaining advice and reporting concerns	– Good corporate governance and compliance – Whistleblowing
GRI 2-27	Compliance with laws and regulations	– Sustainable corporate governance – Sustainability in the supply chain – Achtung der Menschenrechte
GRI 2-29	Approach to stakeholder engagement	– Materiality and stakeholder engagement – Respect for human rights – Other corporate governance disclosures
GRI 3 – Material Topics 2021		
GRI 3-01	Process to determine material topics	– Materiality and stakeholder engagement
GRI 3-02	List of material topics	– Contents of the combined non-financial statement – Materiality and stakeholder engagement
GRI 200 – Economy		
GRI 204	Procurement practices 2016	– Sustainability in the supply chain
GRI 205	Anti-corruption 2016	– Good corporate governance and compliance – Whistleblowing
GRI 300 – Environment		
GRI 301	Materials 2016	– Effluents and waste
GRI 302	Energy 2016	– Energy consumption and greenhouse gas emissions
GRI 305	Emissions 2016	– Energy consumption and greenhouse gas emissions
GRI 306	Effluents and Waste 2016	– Effluents and waste
GRI 400 – Social		
GRI 401	Employment 2016	– Responsibility for our team – Promotion of employee satisfaction
GRI 403	Occupational Health and Safety 2018	– Occupational health and safety
GRI 404	Training and Education 2016	– Training and education
GRI 405	Diversity and equal opportunities 2016	– Responsibility for our team

Financial calendar

May 4, 2023	Interim Report Q1
June 28, 2023	Shareholders’ Meeting
August 3, 2023	Half year report
November 2, 2023	Interim Report Q3

Imprint

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