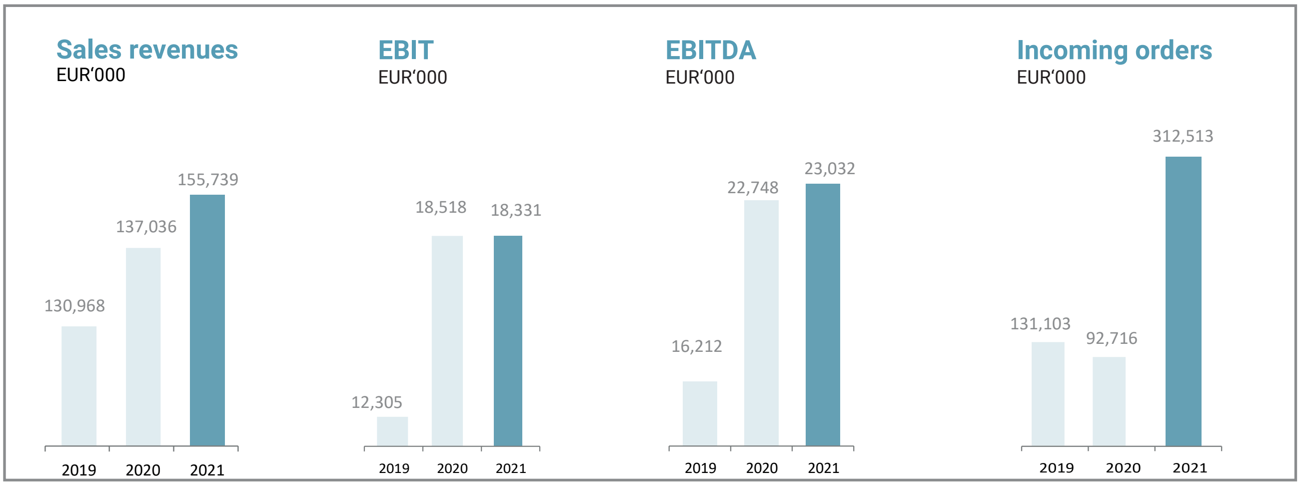
Be equipped for tomorrow's materials

Annual report 2021

IMPORTANT CONSOLIDATED FIGURES AT A GLANCE

in EUR'000	Jan. 1 - Dec. 31, 2021	Jan. 1 - Dec. 31, 2020	2019
Sales revenues	**155,739**	**137,036**	**130,968**
Semiconductor Systems	117,852	91,437	85,798
Industrial Systems	37,887	45,599	45,170
Gross profit	**46,759**	**43,174**	**37,697**
in % sales revenues	30.0	31.5	28.8
R&D expenses	6,999	4,593	4,753
EBITDA	**23,032**	**22,748**	**16,212**
in % sales revenues	14.8	16.6	12.4
Operating result (EBIT)	**18,331**	**18,518**	**12,305**
in % sales revenues	11.8	13.5	9.4
Consolidated net result	**12,155**	**12,729**	**7,713**
in % sales revenues	7,8	9,3	5,9
Total assets	**240,245**	**177,245**	**180,933**
Shareholders‘ equity	**82,789**	**69,314**	**57,315**
Equity ratio in %	34.5	39.1	31.7
Employees as of December 31	**565**	**553**	**528**
Incoming orders	**312,513**	**92,716**	**131,103**
Order backlog	**283,269**	**124,955**	**170,576**
Book-to-bill-ratio	2.01	0.68	1.00
Cash Flow from operating activities	**58,855**	**8,065**	**-591**
Net financial position	**55,533**	**26,778**	**21,031**



PVA TePla AG

AS A VACUUM SPECIALIST FOR HIGH-TEMPERATURE AND PLASMA TREATMENT PROCESSES, PVA TEPLA AG IS ONE OF THE WORLD´S LEADING SYSTEM ENGINEERING COMPANIES IN THE FIELDS OF HARD METAL SINTERING, CRYSTAL GROWING, THE USE OF PLASMA SYSTEMS FOR SURFACE ACTIVATION AND ULTRA-FINE CLEANING AS WELL AS SYSTEMS FOR QUALITY INSPECTION.

Dear Shareholders,

our group of companies is characterized by three strong product areas which are gaining an ever larger customer base through their technological leadership.

Crystal growing: we are the only company in the world with a range of equipment that can supply the booming semiconductor market with high-quality crystals from which wafers, as well as other high-tech products essential to the semiconductor industry can be manufactured. Examples include silicon, silicon carbide and calcium fluoride. These crystals are at the starting point of the semiconductor industry's value chain.

Quality inspection or metrology is another fast-growing field of work in this industry, with which we achieve great success with our customers. Ever smaller structure widths for semiconductor chips, the gigantic global investment projects of major semiconductor manufacturers that have been ongoing for many years, and not least the automation of corresponding inspection processes mean that our solutions continue to be an indispensable part of this industry. With our various technologies, we are able to meet the high quality inspection requirements of the world's leading semiconductor manufacturers.

The **Advanced Materials** area is also reporting high demand. New equipment technologies - such as diffusion bonding - are finding a large market in the renewable energies sector, among others. But the semiconductor industry is also a growing, important customer for high-temperature and vacuum systems.

Rising sales and earnings, thanks to the employees

Based on our fascinating customer solutions, we were also able to significantly increase Group sales and earnings in the past fiscal year. At this point, we would like to express our sincere thanks to the employees of the PVA TePla Group, who - under conditions that remain difficult in some cases - made the decisive contribution to this success. This commitment and a strong team spirit are crucial if we are to continue to be successful in the future. But now to the figures: With consolidated sales of EUR 155.7 million and EBITDA of EUR 23.0 million, corresponding to an EBITDA margin of 14.8%, we significantly exceeded our forecast and the previous year's figures.

The 2021 highlight: order intake and order backlog

At EUR 321.5 million, we achieved by far the highest order intake in our company's history. This reflects very well the potentials in the market already mentioned above. New highs were reached in all three product areas. This resulted in an order backlog of EUR 283.3 million at the end of 2021, which already extends into 2025 and ensures very good basic capacity utilization at our plants.

Inclusion in the SDAX

Inclusion in the S-Dax in September 2021 represents a milestone for our company on the capital market. It is the first time that the PVA TePla Group has been included in a DAX index. This puts us among the ranks of the 160 most valuable listed companies in Germany. This also expresses the fact that we are very well positioned with our product solutions for the semiconductor industry and other industrial fields.

Outlook and forecast

For the coming years, we expect further investments in the semiconductor industry, from which we will also benefit in many ways due to our broad technology portfolio. For the fiscal year 2022, we expect sales in the range of EUR 170 - 180 million and an EBITDA between EUR 25 and 27 million, again a significant increase compared to 2021 and are thus on track to achieve our medium-term target in the fiscal year 2024, with consolidated sales of EUR 250 million and an EBIT margin of 15%.

But we also do not want to conceal the difficulties along the way. We too are feeling the effects of the current political conflicts. Looking ahead, we must limit the impact of supply bottlenecks, counter rising material prices and continue to work on our cost efficiency. In addition, we are pursuing clear strategic priorities: We want to improve our presence on the world market. For example, we recently opened our own organization in South Korea, following the significant effects already achieved from the recent acquisition of OKOS Solutions, LLC in the USA, particularly in the metrology sector.

We would like to thank you for your trust in our company and would be pleased if you would continue to accompany us on our way.

Your

Manfred Bender
Chief Executive Officer

Jalin Ketter Chief Financial Officer	Oliver Höfer Chief Technology Officer	Dr. Andreas Mühe Chief Operating Officer

Report of the Supervisory Board of PVA TePla AG on the Fiscal Year 2021

Dear Shareholders,

Fiscal year 2021 was PVA TePla AG's first full fiscal year with a new Management Board team: Manfred Bender and his management team are focusing the company on growing markets, particularly in the semiconductor industry, and on a faster pace of growth. The personnel renewal of PVA TePla's management structure, which was intensively promoted by the Supervisory Board, has thus been successfully completed. It provides a strong foundation for the outstanding performance achieved by the company's approximately 580 employees in the past fiscal year. Despite the uncertainties caused by the ongoing COVID 19 pandemic, PVA TePla AG resolutely exploited the opportunities arising from the economic recovery of its key markets. The broad-based growth and high profitability of the businesses are impressive and speak for themselves. Sustainable technologies geared to adding value for society, such as digitalization and renewable energies, are a model for success.

In the reporting year, the Supervisory Board performed in full the duties incumbent upon it under the law, the Articles of Association, and the Rules of Procedure. We monitored and advised the Executive 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 Chairman of the Supervisory Board and the Chairman of the Executive Board as well as the other members of the Supervisory Board and Executive Board. In this way, the Supervisory Board was kept informed at all times about the intended business policy, corporate planning including 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 Executive Board. Where management decisions or actions required the approval of the Supervisory Board by law, the Articles of Association or the Rules of Procedure, the members of the Supervisory Board approved them after intensive examination and discussion.

Topics discussed in the plenary sessions of the Supervisory Board

Four regular meetings and one extraordinary meeting were held in the reporting year. Due to the special circumstances of the COVID 19 pandemic, the meetings were held as virtual meetings or in person with the option of attending in virtual form. All Supervisory Board meetings were attended by all members of the Supervisory Board. In a small number of cases, resolutions based on these meetings were adopted by circular resolution, e.g. on M&A projects, appointments of managing directors at subsidiaries, and management development. The Supervisory Board also met without the Executive Board. The subjects of these meetings were Executive Board and Supervisory Board issues.

The subject of our regular plenary discussions was the development of sales, earnings and employment in the PVA TePla Group, as well as the financial and earnings situation. In addition, we dealt with acquisition projects and risks to the Company as and when they arose. The Management Board reported to us on an ongoing basis on the impact of the COVID 19 pandemic on PVA TePla.

In preparation for these meetings, all members of the Supervisory Board received 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 19, 2021 focused on the annual and consolidated financial statements for fiscal 2020 and the corresponding discussions and resolutions. A further focus was the discussion of possible joint venture activities and potential projects in this connection. In addition, the Supervisory Board dealt with the draft agenda for the 2021 Annual General Meeting, which was noted with approval. The results of the report on the efficiency review of the Supervisory Board were explained in detail.

At the extraordinary Supervisory Board meeting on April 26, 2021, the compensation structure of the Executive Board, the Declaration of Conformity, the invitation to the Annual General Meeting and the formation of a joint venture were discussed.

At the meeting on June 18, 2021, the Supervisory Board again dealt intensively with the business situation and existing projects of the individual subsidiaries. Various M&A targets were also discussed in depth. Risk reporting by the subsidiaries was another focal point.

At the Supervisory Board meeting on September 16, 2021, the Executive Board informed the Supervisory Board in detail about the business development, in particular sales development, order intake and the earnings situation of the individual subsidiaries in the current year. The report on ongoing projects, such as interesting markets for the PVA TePla Group in connection with the topic of sustainability, took up a large amount of space. The rules of procedure of the Audit Committee were approved.

In the Supervisory Board meeting on November 2, 2021, the focus was on corporate planning for the years 2022 - 2024 for the PVA TePla Group, the holding company and the individual subsidiaries. The Supervisory Board received comprehensive reports from the managing directors of the largest subsidiaries on the status of projects and business planning. All budgets were approved. The liquidity and risk reports were discussed. The Declaration of Conformity with the Corporate Governance Code was discussed and approved. New targets for the Executive Board and Supervisory Board with regard to the proportion of women were resolved and set at a minimum of 20% in each case.

Work in the Supervisory Board committees

The Supervisory Board has had a committee for the first time since March 2021. The Audit Committee prepares resolutions and issues to be dealt with by the full Supervisory Board. The committee's tasks and members are detailed in the Corporate Governance Statement. At its constituent meeting on March 19, 2021, the Audit Committee elected Prof. Dr. Hebestreit as its Chairman. At the following meeting, the rules of procedure were adopted and submitted to the Supervisory Board for approval, and the meetings of the Audit Committee for 2021 and 2022 were scheduled. The work of the Audit Committee in the second half of the year focused on the FISG-induced preparation and implementation of the invitation to tender for the audit of the parent-company and consolidated financial statements from fiscal 2022. In addition, the main points of the audit of the parent-company and consolidated financial statements in 2021 were discussed with the auditors.

Corporate governance and declaration of conformity

At the meeting on November 2, 2021, the Executive Board and Supervisory Board discussed and resolved the Declaration of Conformity with the German Corporate Governance Code in accordance with § 161 of the German Stock Corporation Act (AktG). The current Declaration of Conformity has been made permanently available to shareholders on the company website at https://www.pvatepla.com/investor-relations/corporate-governance. The Executive Board, also on behalf of the Supervisory Board, reports on corporate governance in accordance with item F. 5 of the Code on the Company's website at: https://www.pvatepla.com/investor-relations/corporate-governance.

The Annual General Meeting was asked to elect the auditing company "Ebner Stolz GmbH & Co. KG, Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft" as auditor and group auditor for the fiscal year 2021. 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. In accordance with a resolution of the Supervisory Board, the auditors are also permitted to provide certain due diligence services including ancillary services, training services and other advisory services in this context. Following approval by the Annual General Meeting, the Supervisory Board awarded the contract to the auditors and set the audit fee. The focal points of the audits of the annual and consolidated financial statements for 2021 were also agreed between the Audit Committee and the auditors.

The members of the Supervisory Board are responsible for the training and continuing education measures required for their tasks, such as on 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.

Dependent company report
The Executive Board prepared a dependent company report for the reporting year in accordance with Art. 312 par. 3 German Stock Corporation Act (AktG). This report was audited by "Ebner Stolz GmbH & Co. KG, Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft" and issued an unqualified audit opinion with the following wording: "On completion of our audit in accordance with professional standards, we confirm that 1. the factual statements made in the report are correct, and 2. the payments made by the companies in the transactions listed in the report were not unreasonably high. The dependent company report was submitted to the Supervisory Board, which subjected it and the legal transactions and measures listed therein to an independent review in accordance with Art. 314 par. 2 AktG. This did not lead to any objections. At the meeting on March 18, 2022, the auditors reported on the main results of their audit.

Audit and annual financial statements
Ebner Stolz GmbH & Co. KG, Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft audited the annual financial statements and the consolidated financial statements as at December 31, 2021 as well as the combined management report for fiscal year 2021 of PVA TePla AG. 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 annual financial statements and consolidated financial statements as well as the management report and group management report have received an unqualified audit opinion. 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 the meeting on March 18, 2022. At this meeting, the auditors reported on the main findings of their audit. We have audited the annual financial statements, the management report and the auditors' statement on the assessment of the situation by the Executive 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 approve the annual financial statements and the consolidated financial statements prepared by the Executive Board. The annual financial statements are thus adopted 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 Executive Board to carry forward the reported unappropriated net income.

Personnel changes on the Supervisory Board and Executive Board
Alfred Schopf stepped down as Co-Chairman of the Executive Board at the end of June 2021.

There were no personnel changes on the Supervisory Board.

Thanks from the Supervisory Board
On behalf of the Supervisory Board, I would like to thank the members of the Management Board, the employee representatives and all employees of the PVA TePla Group for their active commitment and constructive cooperation in the past fiscal year.

Wettenberg, March 2022

For the Supervisory Board

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

PVA TEPLA ON THE CAPITAL MARKET IN THE FISCAL YEAR 2021

Stock market - Stock exchange

The DAX ended 2021 with a closing level of 15,885 points. This corresponds to an annual increase of 15.8% and is 405 points below the all-time high that the leading German index marked on 18 November. The MDAX and SDAX also reached new highs in 2021, gaining 14.1% and 11.2% respectively for the year.

After a subdued start to the year, marked by a hard lockdown in Germany and turbulence in the political transition of power in the USA, a strong rise followed from March onwards. Driven by hopes of an early end to the COVID-19 pandemic due to the vaccination campaign gaining momentum and the ultra-loose monetary policy of the central banks, the DAX climbed by 13.2% in the first half of the year.

At the beginning of the second half of the year, the DAX lost upward momentum. After rather quiet summer months, volatility increased again in the traditionally weak stock market month of September. In autumn, better-than-expected quarterly results led to a catch-up movement, which ended with increasing stress factors at an all-time high of 16,290 points in mid-November. The new Covid-19 mutation Omikron, geopolitical conflicts and a foreseeable end to the loose monetary policy dampened the buying mood. Overall, the DAX gained 2.3% in the second half of the year.

The development of PVA TePla shares

PVA TePla AG shares started the 2021 fiscal year at EUR 19.60. The low of EUR 16.92 was already recorded in mid-January. In the course of the following months, an upward trend set in, leading to a high for the year of EUR 49.20 on 15 November 2021 and a closing price for the year of EUR 41.90 on 31 December 2021, representing an increase in the share price of 114% compared to the start of the year. In addition to the generally good market sentiment on the stock exchange, PVA TePla shares also benefited from the excellent market outlook for companies in the semiconductor market. The very good company figures with the highest order intake figures in the company's history, which the PVA TePla Group was able to publish in the course of the year, underlined the promising prospects for the company. The entry into the SDAX in September 2021 - the first inclusion in the index family for PVA TePla shares in the history of the company and thus in the ranks of the 160 most valuable listed companies in Germany - once again underscored the very good development that the share has taken in recent years.

Liquidity of PVA TePla shares

The average daily trading volume of PVA TePla shares more than tripled year-on-year to 170,000 shares in the period under review (previous year: 51,000 shares). This once again significantly increased the attractiveness of the shares, particularly for institutional investors. The significant increase in the free float in June 2021 through the sale of part of the shares of the previous main shareholder PA Beteiligungsgesellschaft to institutional investors has contributed to increasing interest in the security through the associated potential increase in liquidity. Along with the increase in the share price, the market capitalisation has also climbed significantly and amounted to EUR 911 million as of 31 December 2021 (previous year: EUR 426 million).

Research coverage

In the 2021 financial year, a total of seven international banks and brokerage houses published regular equity research reports on PVA TePla. In the past year, PVA TePla shares were covered by the following financial analysts:

Bank	Analyst	City
Berenberg	Gustav Froberg	London
Deutsche Bank	Uwe Schupp	Frankfurt
Hauck & Aufhäuser	Tim Wunderlich	Hamburg
Jefferies	Constantin Hesse	London
Matelan	Hartmut Moers	Bonn
SMC Research	Adam Jakubowski	Münster
Stifel	Jürgen Wagner	Frankfurt

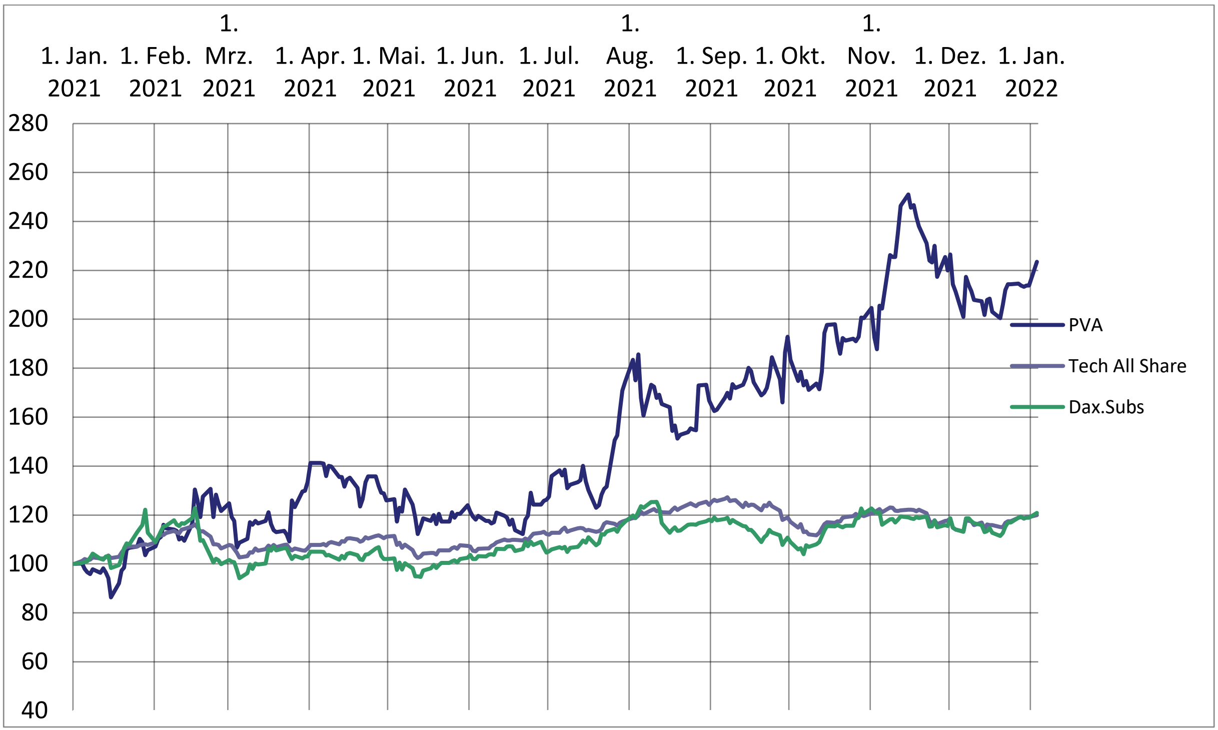
Jürgen Wagner of Stifel had taken up the observation and analysis (coverage) of the share in the course of 2021.

Our investor relations activities

Transparency and openness in a continuous dialogue with our shareholders and the participants in the capital market are our aspirations. Our investor relations work is aimed at strengthening confidence in our company and thus also in our share in the long term and achieving a fair valuation on the capital market. To this end, we provide our shareholders and the capital market with accurate, timely and relevant information both about the business of the PVA TePla Group and about the market environment in the relevant product areas in which we operate.

In individual or group discussions at investor roadshows and conferences, most of which were conducted virtually, management and Investor Relations answered investors' and financial analysts' questions about the PVA TePla Group's business strategy and development as well as industry and market trends. The number of discussions with investors once again increased significantly due to the increased interest in PVA TePla 2021. The main focus of discussions with institutional and private investors was on explaining the long-term prospects in the semiconductor market - particularly in the areas of silicon and silicon carbide crystallisation as well as metrology and the operating profitability of the PVA TePla Group.

PVA TePla share price performance from 1 January 2021 - 31 December 2021



Key figures for PVA TePla shares

		2021	2020
Earnings per share (EPS)	EUR	0.56	0.59
Highest price	EUR	49.20	19.62
Lowest price	EUR	16.92	6.42
Year-end price Dec. 31	EUR	41.90	19.60
PVA TePla share price performance	%	+113	+28
Compared to "Technology All Share" price development	%	+19	+21
compared to "DAXSubs. Advanced Industrial Equipment"	%	+19	+10
Number of shares at year-end	Mio.	21.75	21.75
Market capitalisation at year-end	Mio. EUR	911	426

Current shareholder structure

Freefloat	86%
PA Beteiligungsgesellschaft mbH	14%

Management and Group Management Report

-Combined management report-

1. GENERAL INFORMATION

Reporting 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 have been listed in the Prime Standard of the Frankfurt Stock Exchange since June 21, 1999 (ISIN: DE0007461006).

PVA TePla AG and its subsidiaries (hereinafter "PVA TePla Group") produce systems where technology companies manufacture and process materials, such as wafers, some of which are used in the semiconductor industry. The focus of operating activities in the PVA TePla Group is the development, manufacture and sale of processes, products, systems and services in materials technology, plasma and ion beam technology, metrology and inspection technology for finely structured objects and vacuum technology.

With locations in Germany, Italy, the USA, China, Taiwan and Singapore, the PVA TePla Group maintains business relationships around the world.

Basis of Presentation

Accounting and Auditing

PVA TePla AG prepares its consolidated financial statements and the interim report in accordance with the International Financial Reporting Standards (IFRS), as adopted by the EU. The annual financial statements are prepared in accordance with the provisions of the German Commercial Code (Handelsgesetzbuch - HGB). The Annual General Meeting on June 18, 2021, appointed Ebner Stolz GmbH & Co. KG Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft, Frankfurt am Main, as the auditor for the annual financial statements and the consolidated financial statements for fiscal 2021.

There are no business, personal, financial or other relationships between the audit firm, its bodies and audit staff and the PVA TePla Group that could establish doubt as to the auditor's independence. Ebner Stolz GmbH & Co. KG Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft was not involved in auditing or preparing PVA TePla AG's annual financial statements or consolidated financial statements.

A combined management report (hereinafter also referred to as the "management report") was prepared for fiscal 2021. This management report thus combines the management report of PVA TePla AG and the Group management report of the PVA TePla Group and was prepared in accordance with Sections 289, 289a, 289b, 289f, 315, 315a, 315b and 315d HGB and with the German Accounting Standards (DRS) no. 17 and 20.

Difference between Parent Company and Group
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 term "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.

Fiscal Year
PVA TePla AG's fiscal year 2021 began on January 1, 2021, and ended on December 31, 2021. The corresponding previous year thus covers the period from January 1, 2020, to December 31, 2020.

Rounding Differences
Unless otherwise indicated, all amounts have been 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.

Forward-Looking Statements
This management report contains forward-looking statements. These statements represent own estimates and assumptions, including from third parties (e.g. statistics relating to the industry and the global economy), at the time they were made or on the date of this report. Forward-looking statements are always subject to uncertainty. If these estimates or assumptions prove to be inaccurate or only partly accurate, actual results may deviate from expectations, in some cases substantially.

2. FUNDAMENTALS OF THE GROUP

2.1. Group Structure and Organization

Legal Structure of the Group
PVA TePla AG operates as a management and functional holding company of the PVA TePla Group and is responsible for managing the PVA TePla Group. It also organizes the PVA TePla Group's technology and associated intellectual property.

PVA TePla AG's responsibilities also include tasks relating to strategic orientation, such as expanding the product portfolio, acquisitions and financial issues for the Group as a whole. The holding company is also responsible for corporate identity, investor relations and marketing.

PVA TePla AG is the sole shareholder of the companies included in the consolidated financial statements. As of December 31, 2021, it directly (or indirectly) held a controlling interest in eight German (previous year: eight) and eight foreign (previous year: eight) subsidiaries in China, Italy, Singapore, Taiwan and the US. The holding company extended loans only to subsidiaries and their subsidiaries. The holding company is essentially funded by allocating apportionable costs (e.g., key services such as quality management, IT or accounting) to the operating companies, leasing buildings and intellectual property (including to third parties) and from interest income from lending to subsidiaries.

For further details, please see the notes on the consolidated group in section "C. Companies Included in Consolidation, Principles of Consolidation and Currency Translation" of the Group Notes.

Business Activities

The PVA TePla Group, headquartered in Wettenberg, Germany, is an independent technological leader supplying systems for the production and refinement of high-tech materials which are processed, for example, under high temperatures, vacuum, high pressure (mechanical and atmospheric) and in plasma.

Offering semiconductor systems for front and back-end production, the PVA TePla Group is a major technology partner and system supplier for the global semiconductor industry. This also means that it holds a key position in the value chains of rapidly growing global industries such as microelectronics, high performance electronics and e-mobility.

With systems for industrial crystal growing, quality inspection, plasma cleaning systems and related software and process technologies, it provides a wide range of processes and products for the semiconductor industry.

The PVA TePla Group also produces industrial systems, in particular vacuum sintering systems for manufacturing structural materials and hard metal tools, graphite cleaning and coating furnaces and brazing and diffusion bonding systems. A significant part of the industrial systems is also supplied to the semiconductor market. An attractive new long-term market is also currently emerging in the area of hydrogen production, for which high-quality heat exchangers – manufactured in diffusion brazing systems – are required.

The PVA TePla Group's subsidiaries act as system suppliers for their customers. They purchase the majority of the components needed and use only quality-assured subcontractors. Their major strengths include the ability to manage capacities flexibly and subject to the order situation thanks to their low level of vertical integration in production. This allows the companies to drive forward growth while limiting investment and with a comparatively low capital commitment. A small number of parts are also manufactured in-house (asset-light model). Systems are produced and installed and services (contract processing) provided mostly in Germany at the Wettenberg, Jena, Westhausen and Coburg sites. Outside Germany, products are produced at the Corona and Manassas (both US) as well as the Schio (Italy) sites.

A significant portion of payment obligations from customer orders are covered by advance payments, which has a positive effect on the Group's liquidity management. This, as well as Group-wide cash pooling, allows the PVA TePla Group to keep short-term debt financing from banks to a minimum.

Business Segments

The PVA TePla Group divides its business activities into two divisions: Semiconductor Systems and Industrial Systems. Management, planning and controlling of PVA TePla Group are based on these divisions. Reporting in these two segments is also structured accordingly.

The **Semiconductor Systems division** covers the following technological fields:

- Crystal growing systems: silicon wafer technology for microelectronics, silicon carbide wafer technology for high-performance electronics and additional crystal growing technologies for an array of applications

- Metrology systems: technologies for non-destructive quality control of wafers, complex semiconductor parts and high-tech industrial materials

- Plasma systems: production technologies for micro-electronic-mechanical systems (MEMS) and high-brightness light-emitting diodes (HB LED) as well as technology for the fabrication of ultra-thin wafers

The **Industrial Systems division** focuses mainly on the following technological fields:

- Industrial systems (Advanced Materials): technologies for manufacturing structural materials for the semiconductor industry, aviation and aerospace, energy technology and hard metal tools

- **Innovation center for vacuum process technology** – especially in vacuum brazing, vacuum heat treatment and diffusion bonding

The organizational units and how the subsidiaries are allocated to the divisions are shown below.

PVA TePla AG (Holding)

Semiconductor Systems

- PVA Metrology & Plasma Solutions GmbH, Wettenberg
- PVA Taiwan Ltd, Hsinchu, Taiwan
- PVA TePla America Inc., Corona, Kalifornien, USA
- PVA TePla Analytical Systems GmbH, Westhausen
- PVA Crystal Growing Systems GmbH, Wettenberg
- PVA TePla Singapore Pte. Ltd, Singapur
- PVA Vakuum Anlagenbau Jena GmbH, Jena
- PVA Semiconductor Systems Xián Ltd, VR China
- PVA SPA Software Entwicklungs GmbH, Coburg
- OKOS Solutions, LLC, Manassas, Virginia, USA
- PVA Holding, LLC, Wilmington, Delaware, USA

Industrial Systems

- PVA Industrial Vacuum Systems GmbH, Wettenberg
- PVA Control GmbH, Wettenberg
- PVA Löt- und Werkstofftechnik GmbH, Jena
- PVA TePla (China) Ltd, Peking, VR China
- PVA Italy srl., Bozen, Italien

Employees

Developments in Human Resources

First and foremost, the PVA TePla Group owes its economic success to its highly qualified and motivated team. The COVID-19 pandemic continued to impact the workplace during fiscal 2021, and a comprehensive range of protective measures and hygiene concepts were used to maintain the safety of employees.

The development of our personnel with an eye to the future has always been a key pillar of the PVA TePla Group strategy. High employee motivation will also be encouraged in the future so that customers can continue to enjoy outstanding service quality.

Personnel resources are managed in line with growth plans and the economic environment. Despite ongoing restrictions, 2021 was extremely successful and a slight increase in our headcount allowed us to meet growing demand and continue our growth strategy.

The shortage of skilled workers intensified during fiscal 2021. In order to fill the training spots for IT specialists in system integration, industrial salespersons, mechanical and mechatronic engineers, the locations in Germany have a range of measures on offer such as sponsorships with schools and universities as well as orientation days and internships for pupils and students. Specific apprenticeship programs were also developed for trainees in order to meet high demand for new employees with practical, hands-on training. In addition, collaboration projects were also set up with universities to train students (Bachelor of Science). The measures on offer include the supervision of semester, bachelor and master theses, as well as the provision of training for a growing number of students using the dual vocational training and study system. These programs will be further intensified as part of our training concept. To increase our attractiveness as a training organization, trainees who successfully complete their training are generally offered a permanent position. Employees are also encouraged to remain flexible in preparation for changes. 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 expertise. In this way, the PVA TePla Group is ensuring the ongoing development of its employees and their qualifications to meet new challenges.

Equally, the aim is to continue boosting the company's position as an attractive employer for current and future employees. Employees and applicants value the exciting job opportunities offered by the PVA TePla Group as well as flexible working hours, a culture of remote working, part-time working opportunities and many other benefits such as company bikes (the employer leases a bicycle and gives it to employees) as well as subsidized company pension schemes.

These are complemented with an attractive salary, which is constantly adjusted to the cost of living.

Company Diversity

Diversity in terms of the people who work at the PVA TePla Group is as great as our locations worldwide are numerous. It forms the basis of the company's performance and success. By encouraging diversity at our company and not relying only on the local population to make up the workforce at our various sites, we can bring together the right people and create a work culture that promotes motivation, performance and satisfaction among line employees and our managers.

Staff

As of the reporting date December 31, 2021, the PVA TePla Group employed 565 people (December 31, 2020: 553). In the Semiconductor Systems division, the staff headcount rose from 286 as of the end of the reporting period to 298. The number of employees in the Industrial Systems division in 2021 fell slightly to 224 (previous year: 226).

At 493 (previous year: 481), most employees were working in Europe. There were 44 employees (previous year: 43) in North America at the end of fiscal year 2021 and 28 (previous year: 29) in Asia.

At the end of 2021, 36 members of staff (previous year: 29) were enrolled in business or commercial training programs.

As of the end of 2021, PVA TePla AG employed a total of 43 people (previous year: 41).

2.2. Strategy

Key Market Influences

The PVA TePla Group operates in highly appealing expanding markets such as the semiconductor industry. Processes in vacuums, at high temperatures, at high pressure and in plasma, are essential for producing high-tech materials. The leading position in these areas of technology is supported in the long term by demand for the PVA TePla Group's range of services.

Expanding capacities in wafer production, vital for the growing microelectronics and high performance electrics industry, are a key driver of growth and established wafer manufacturers and new market players alike are all striving to significantly step up wafer production. Thanks to its leading market position in the area of silicon crystal growing systems, the PVA TePla Group is profiting strongly from this trend.

The high demand for electric vehicles represents another key opportunity to accelerate growth. According to market projections, silicon carbide (SiC) will increasingly be used for on-board and static charging facilities as the material boasts superior properties (heat resistance, etc.) to those of silicon. As an independent supplier of crystal growing systems for the production of SiC, the PVA TePla Group also anticipates a considerable surge in demand resulting from the expansion of SiC wafer capacities.

Non-destructive measuring and inspection of materials and components is – especially in the semiconductor industry – one of the most important stages of production. Increasingly strict design rules in the semiconductor industry along with the expansion of overall capacity for semiconductor production will also increase demand for metrology systems in the future. With its expansive range of different technologies, the PVA TePla Group is also excellently positioned in this area.

Strategy

The PVA TePla Group's value-based and growth-driven strategy is designed to reap maximum benefits from positive, long-term trends in customer markets with the objective of achieving well above-average growth compared to the sector as a whole while taking on only limited risk. The main way to achieve this is by refining the technology portfolio on an ongoing basis, bolstering sales efforts in growth markets and consolidating strategic partnerships with suppliers and customers.

It also aims to boost profitability in project and service business, maintain capital commitment at an appropriate level using the business model of a low level of vertical integration in production and to steer the company's net assets, financial position and liquidity situation with a view to the future.

In order to further develop the technology portfolio in line with customer requirements, research and development focuses mainly on productivity and volume increases in the manufacturing process of high-performance materials - also using alternative manufacturing technologies. This is complemented by the refinement and automation of metrology systems for even more detailed material inspection and production line control. This also includes the seamless integration of system technology and software control into the customer's infrastructure environment in line with Industry 4.0 requirements (see section "2.4. Research and development"). The PVA TePla Group's objective is to generate above-average growth in the area of future technologies, in particular in the Semiconductor Systems division. This will allow us to steadily increase profitability.

2.3. Management System – Financial Targets

The PVA TePla Group is headed by the Management Board of PVA TePla AG. It manages the company on its own responsibility, defines targets and the strategic orientation and manages how to implement the growth strategy. The Management Board is appointed, monitored and advised by the Supervisory Board of PVA TePla AG. The primary objective of corporate development is to increase shareholder value for all stakeholders in the long term and to generate sustained profitable growth. The planning required to manage the operational units and the resulting measures are based on long-term corporate planning, also taking into account developments in the competitive and market environment.

The PVA TePla Group uses exclusively financial indicators to manage the Group on a value- and growth-oriented basis. Planning and management are based chiefly on how sales revenues and earnings perform. The following two key financial performance indicators are calculated on a monthly basis (including for individual segments) and are the most important indicators for economic targets in fiscal 2021:

- **Sales revenues**

- **The operating result (before interest and taxes) before depreciation and amortization (EBITDA, EBITDA margin)**

These two key performance indicators are calculated, analyzed and planned on a Group-wide basis using a standardized system and are monitored with regard to meeting the financial targets. You can find detailed information on the development of the key financial performance indicators in the Economic Report and in the Forecast Report. Additional key financial performance indicators are also used for individual subsidiaries for micromanagement purposes (including incoming orders and the order backlog).

2.4. Research and Development

The Group-wide costs of research and development (R&D) totaled EUR 7.0 million in fiscal 2021, significantly higher than the previous year's figure of EUR 4.6 million.
It should also be noted here that the two PVA TePla Group divisions likewise essentially carry out product and process developments as part of customer orders. The expenses incurred for such work are therefore only partly reported under research and development. The PVA TePla Group does not capitalize any development costs and so research and development expenses are expensed in the period in which they are incurred. For more details, see the relevant explanations in the Group notes under Note "2. Research and development expenses".

In addition to development work on new products and the software for these, the PVA TePla Group's R&D activities in fiscal 2021 included ongoing improvement programs for existing product lines. The aim of this development work is generally to reduce the cost of ownership for customers. Research work is often conducted as part of publicly funded projects, including in collaboration with customers.

The following projects are examples of our R&D activities in fiscal 2021:

At the **Crystal Growing Systems business unit**, work continued at the silicon carbide (SiC) crystal growing segment work to complete a new system generation that is optimized for mass production of 6" SiC crystals and offers the possibility of developing 8" SiC growing processes. This system generation offers numerous improvements in terms of process stability and reproducibility, greater flexibility and far better networking and automation options for a larger machine park for mass production.

In the silicon crystal growing segment, significant further developments to the systems in the competence center for crystal growing were achieved. The systems are setting new benchmarks from a technological perspective. The system's modular configuration now offers the greatest possible freedom with regard to designing the process room.

Research conducted at the **Metrology Systems (Ultrasound) business unit** during the second half of 2021 focused on implementing algorithms in the evaluation software (machine learning) for inspection systems for the wafers and electronic modules used to control electric cars, hybrid drives and solar systems.

In the area of transducer development for ultrasound analytical systems, we continue to work intensively on the development and transfer to production of multi-channel lenses that offer a substantial improvement in sample throughput (the number of components inspected per hour).

At the **Metrology (Optical Microscopy) business unit**, the focus of R&D was on the further development of fully automated wafer inspection systems as well as modular Industry 4.0 solutions. The development of a completely new type of system for high-speed inspections using image capture on the move has enabled inspection times to be reduced by up to a factor of 20. The wafer throughput achieved as a result opens up a new customer group.

In the **Metrology (Laser) business unit**, as is also the case in ultrasound microscopy, there is a clear and growing requirement for automated defect detection and defect classification. With this in mind, the Laser business unit is pursuing research projects to evaluate the applicability and feasibility of different methods based on neuronal networks (a branch of artificial intelligence). These requirements must be fulfilled while also maintaining maximum sensitivity and reproducibility.

A key strategic goal of the R&D activities at the **Vacuum Systems business unit** is to participate in future megatrends. In addition to electric mobility and hydrogen technology, these include additive technologies. In this context, the business unit is highlighting various system concepts for sintering binder-based AM (Additive Manufacturing) parts. Initial results show that this process, which is familiar from the hard metal production, can be used to achieve substantially higher component densities than is the case with purely vacuum-sintered AM parts.

With regard to electric mobility and hydrogen technology, diffusion bonding offers interesting starting points for product innovations. The continuous further development of system technology for diffusion bonding keeps pace with the growing application potential of this technology. At the PVA TePla Innovation Lab, which operates in-house systems and conducts processes on behalf of customers, robust processes based on the above-mentioned development are developed for a range of tool steels, titanium, and aluminum alloys. In this case, R&D work concentrates on the following core topics: using diffusion bonding in the area of hydrogen mobility and AM technology along with process optimization with regard to higher system utilization.

Another interesting development is the implementation of ultrasound measuring technology at the **Innovation Lab**, illustrating the high degree of synergies between the individual business units of PVA TePla Group. Intensive R&D work carried out during 2021 led to the quantification of SAM test results in the context of diffusion bonding and vacuum brazing. This work will also continue in fiscal 2022.

3. ECONOMIC REPORT

3.1. Overview of Business Development

Macroeconomic and sector environment

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

Macroeconomic Environment

Following the collapse caused by the COVID-19 pandemic during the first half of 2020, the global economy continued to recover in 2021. However, developments during the year can be divided into two tiers. The first half of the year saw a surprisingly rapid recovery process although growth rates in many countries were exaggerated by basic effects. During the second half of the year, the pace of economic growth slowed considerably. Setbacks caused by the pandemic as well as supply-side bottlenecks led to delays in the recovery process. Although the COVID-19 pandemic continued to have a noticeable impact on economic activity, the infection waves became less uniform and the measures implemented in response were different. While some countries tolerated higher infection numbers without imposing containment measures, China pursued a strict zero-COVID-19 policy.

The International Monetary Fund (IMF) puts the price-adjusted increase in global economic output for the full year 2021 at 5.9% following the collapse of 3.1% during the previous year. Following on from several years of low inflation rates, last year saw unusually high price increases. Quite apart from basic effects, the second half of the year saw sharp increases as prices for fossil raw materials led to higher energy costs and persistent supply bottlenecks drove up transport costs and the prices of various consumer and industrial goods.

The recovery process in the developed economies did not proceed as smoothly as expected. The additional pressure on global production networks impacted these economies in particular, especially their manufacturing sectors. As a result, many countries failed to achieve the growth rates that had initially been predicted. In the US, the reduction in fiscal policy stimuli had a noticeable impact at the end of the year. Japan recorded the weakest general economic recovery among the G7 states. The recovery process differed significantly among the emerging and developing countries. China's economy grew by 8.1% over the full year 2021 although this dynamic slowed significantly at the end of the year. During the first quarter of 2021, GDP only grew by 4%, the lowest quarterly growth in one-and-a-half years. Turbulence in the Chinese real estate market, supply bottlenecks in the energy sector and a zero-COVID-19 policy slowed the economy. The latter effect also caused major disruptions to the global flow of goods. The spread of the delta variant in ASEAN countries, in the late summer resulted in major restrictions to economic life which caused the economies of Malaysia and Thailand to contract during the third quarter.

Although global trade in goods grew strongly by an estimated 10.6% for the full year 2021, the many logistical problems meant that this figure was lower than that of 2010, the year in which the global economy recovered from the financial crisis. Back then, global trade in goods accelerated by 13.9% within a year. Global industrial production increased in 2021 by an estimated 7.6%.

The EU economic area

The supply-side disruptions impacted several key industries in the EU including the automotive as well as the mechanical engineering industry, slowing the pace of growth in those countries with a weighted industrial base. According to the IMF, gross domestic product in the 27 countries of the European Union rose by an estimated 5.2%. The large member states, Italy and France, staged a strong recovery from the collapse caused by the pandemic. However, they were forced to cope with severe slumps during the previous year, which explains why the basic effect plays a role in the growth rates. In Spain, which suffered the sharpest decline in GDP of all EU countries in 2020, the trend reversal was less dramatic because the tourism sector is still performing substantially below the pre-pandemic level. In the group of Central and Eastern European member states, Poland, Romania, Hungary and Croatia reported particularly dynamic economic growth. With growth of 2.7%, economic output in Germany during the past year was far slower than in most other Eurozone countries. However, it should be noted that the fall in GDP in Germany in 2020 was less dramatic than in the other major euro countries. Investments in the EU-27 are believed to have increased by 5.5%. In this context, investments in equipment grew by a particularly dynamic 10% although they fell more sharply than construction investments during the previous year. According to preliminary figures, machinery production in the EU in the period from January to November 2021 grew by 13% when adjusted for price and calendar effects following a 13% slump during the period from January to November 2020/2019. Growth in the Netherlands (up 38%) and Poland (up 20%) was substantially above average whereas Finland (up 4%) and Germany (up 8%) performed less well.

China

Viewed over the full year 2021, GDP growth of 7.9% (2020: 2.3%) is expected. In the third quarter of 2021, the Chinese economy grew by 4.9% compared with the same quarter in the previous year. This represents an increase of just 0.2% compared with the previous quarter. This indicates that the Chinese economy lost significant momentum over the course of the year. Three factors weighed on the Chinese economy and will probably continue to do so during the current fiscal year:

- The demand for electricity is significantly higher than the supply. In order to save energy, industrial companies in particular were affected by electricity cuts in September 2021.
- The real estate group Evergrande is grappling with an acute liquidity squeeze. This led to fears on the financial markets of a disorderly insolvency and follow-up insolvencies in the Chinese real estate market. The difficulties faced by one of the country's largest real estate groups are damaging the economic prospects for the real estate sector as a whole. As a result, new construction activities and investments in residential construction are lower in the third quarter. Since the assets of most Chinese households are held in real estate, the risk of a real estate crisis also casts a shadow over the consumer climate.
- Private consumption in China is also impacted by localized coronavirus outbreaks. The Chinese authorities respond to these outbreaks with comprehensive containment measures.

It is unclear how these three stress factors will develop in the future.

US

In the United States, GDP in 2021 grew by 5.7% (2020: -3.4%). A slow-down in economic activity was also observed in the US during 2021. For instance, third-quarter GDP growth was just 0.5% ahead of the previous quarter. Growth of 1.6% was achieved during the second quarter. Despite this rather moderate increase, GDP in the US is already 1.4% above the pre-pandemic level. The slow-down in growth during the current quarter was due in particular to the lower increase in private consumer spending. Investment growth has also slackened. In fact, investment in buildings and equipment even started to fall. September saw the United States report a record deficit in its balance of trade. Consequently, net exports also had a dampening effect on economic growth. However, there were indications that growth would accelerate during the fourth quarter of 2021. Deferred consumer spending is therefore likely to have caught up during the fourth quarter.

The figures for full-year GDP presented here, some of which are estimates, are based on a report by Deutsche Bank dated December 17, 2021.

Sector Development

Business conditions in the semiconductor markets of particular relevance for the PVA TePla Group and the markets for high-temperature systems developed positively in fiscal 2021.

- Following a 6.8% increase in sales revenues in 2020 to USD 440.4 billion, primarily attributable to growth in demand, the forecast issued by the World Semiconductor Trade Statistics (WSTS) for the semiconductor market expects global sales in the semiconductor industry to have increased significantly to USD 527 billion in 2021. It states that this is due in particular to continued strong growth in demand in the overall market from 2020 onwards.

- By the second half of 2020, industrial companies had swiftly reactivated their investment plans. Bolstered by strongly expansionary monetary policy, consumer demand as well as government investments contributed to the upswing in demand for investment goods. At key production locations for mechanical engineering, this allowed the industry to recover from the lows inflicted by the pandemic more quickly than in previous crises. During the first half of 2021, output in most countries was characterized by double-digit growth rates, sometimes in excess of 20%, thanks to the low basis values from the same period of the previous year. The same applies for revenues. Shortages of raw materials and upstream products as well as bottlenecks in transport capacities increasingly hampered the production processes later on. Estimates by Oxford Economics put the price-adjusted increase in sales revenue in the global engineering sector at 13% in 2021. Annual financial statements for sector revenue for the Netherlands (34%) but also India (21%), the United Kingdom (19%) as well as Japan (17%) are expected to be significantly above average. The lowest increases in sales revenue among the Top-10 engineering countries are most likely to be reported by Germany (7%) and South Korea (8%).

Key Developments in Fiscal 2021

PVA Crystal Growing Systems GmbH, a wholly owned subsidiary of PVA TePla AG, received an order amounting to EUR 95 million from the Siltronic Group on August 27, 2021, for the delivery of crystal growing systems for manufacturing silicon wafers for the semiconductor industry. This order will be recognized in revenue and in profit or loss for the PVA TePla Group in the years 2023 to 2025.

General Statement on Business Development and the Financial Position of the PVA TePla Group

The COVID-19 pandemic and its wide-ranging effects continued to weigh heavily on global economic growth in fiscal 2021 and impacted a series of customer markets of PVA TePla customers. Despite these adversities, the PVA TePla Group performed extremely well in fiscal 2021. The health and safety of our employees and business partners around the world has always been and remains our top priority.

Other central goals during the past fiscal year included safeguarding the supply chain and the PVA TePla Group's strong financial position. While the pandemic affected our markets and our supply chains in different ways, the PVA TePla Group remained a reliable partner for its customers and suppliers. The digital economy has become even more important. This underlines the necessity of significant capacity expansions by the companies operating in the semiconductor market. The PVA TePla Group's core skills – its wide range of product groups such as crystal growing, metrology systems for the semiconductor industry and systems for "Advanced Materials" – are essential to developing and building semiconductor parts, without which the advances made in digitalizing society and industry would be inconceivable.

Against the backdrop of the COVID-19 pandemic, the PVA TePla Group has enjoyed a very successful fiscal year 2021. Both sales revenues of EUR 155.7 million as well as the operating result before interest, taxes, depreciation and amortization (EBITDA) of EUR 23.0 million were not only significantly higher year on year but also ahead of the forecast originally published in March 2021. The pandemic led to some project delays, as customers were not always able to provide the relevant infrastructure to install the systems on time. No orders were canceled. There were no major delays in procurement. A high order backlog of EUR 283.3 million at the end of fiscal 2021 confirms the PVA TePla Group's sound financial position. As well as playing a key role in sales revenues targets for fiscal 2022, it will lay the foundations for continued growth in the years ahead. Furthermore, the PVA TePla Group's market position, with its unique technologies, opens up further growth potential in the medium and long term.

The PVA TePla AG Management Board expects global growth prospects for 2022 to grow in a generally positive direction. In some regions of the world, the ongoing COVID-19 pandemic and supply problems will push some of the recovery from 2022 into the year 2023. There is a considerable degree of uncertainty regarding key political developments such as trade relations between the US and China and the tensions between Russia, NATO, and the US regarding Ukraine.

Nevertheless, at the time of preparing the management report the PVA TePla AG Management Board was optimistic about the future. Thanks to its market position and current project discussions, the PVA TePla Group's economic situation is expected to develop positively beyond the end of fiscal 2021.

Comparison of Actual Development Against Business Development Anticipated in the 2020 Forecast Report

Forecast and Actual Development of the PVA TePla Group and PVA TePla AG

In conjunction with the publication of the 2020 financial figures in March 2021, the PVA TePla Group expected sales revenue and earnings to continue their course of substantial growth in fiscal 2021. Sales revenues at the PVA TePla Group were expected to be in the region of EUR 140 million to EUR 150 million along with earnings (EBITDA) at the level of EUR 18 million to EUR 20 million in fiscal year 2021.

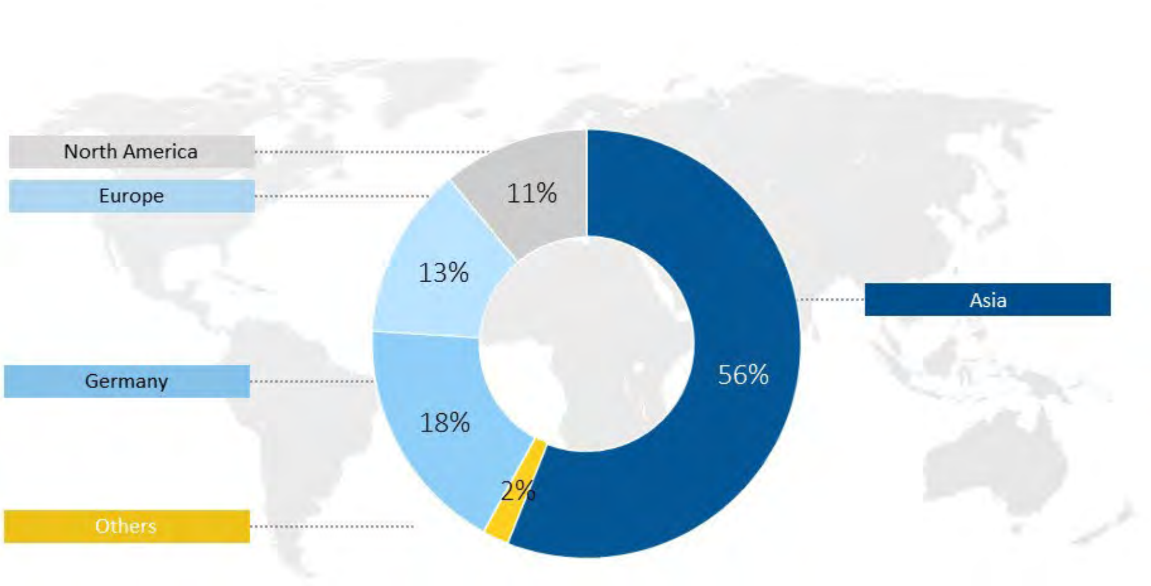
The PVA TePla Group thus easily outperformed the forecast with consolidated sales revenues of EUR 155.7 million and EBITDA of EUR 23.0 million, equivalent to an EBITDA margin of 14.8%. Some high-margin orders were processed early in the fourth quarter of 2021. Risks already incorporated in costs still did not materialize.

3.2. Group's Results of Operations: Sales Revenues

Regional Revenues

The PVA TePla Group generated consolidated sales revenues of EUR 155.7 million in fiscal 2021 (previous year: EUR 137.0 million). As such, sales revenues once again exceeded the figure for the previous year by 13.6%. The share of revenues generated from the Asian market was 56% (previous year: 55%). The German market accounted for 18% (previous year: 17%) of total sales revenues. A total of 13% (previous year: 21%) of consolidated sales revenues were generated in other European countries, with a further 11% (previous year: 6%) in North America. Other regions contributed 2% (previous year: 1%) to consolidated sales revenues.

Consolidated Sales Revenues by Region in Percent

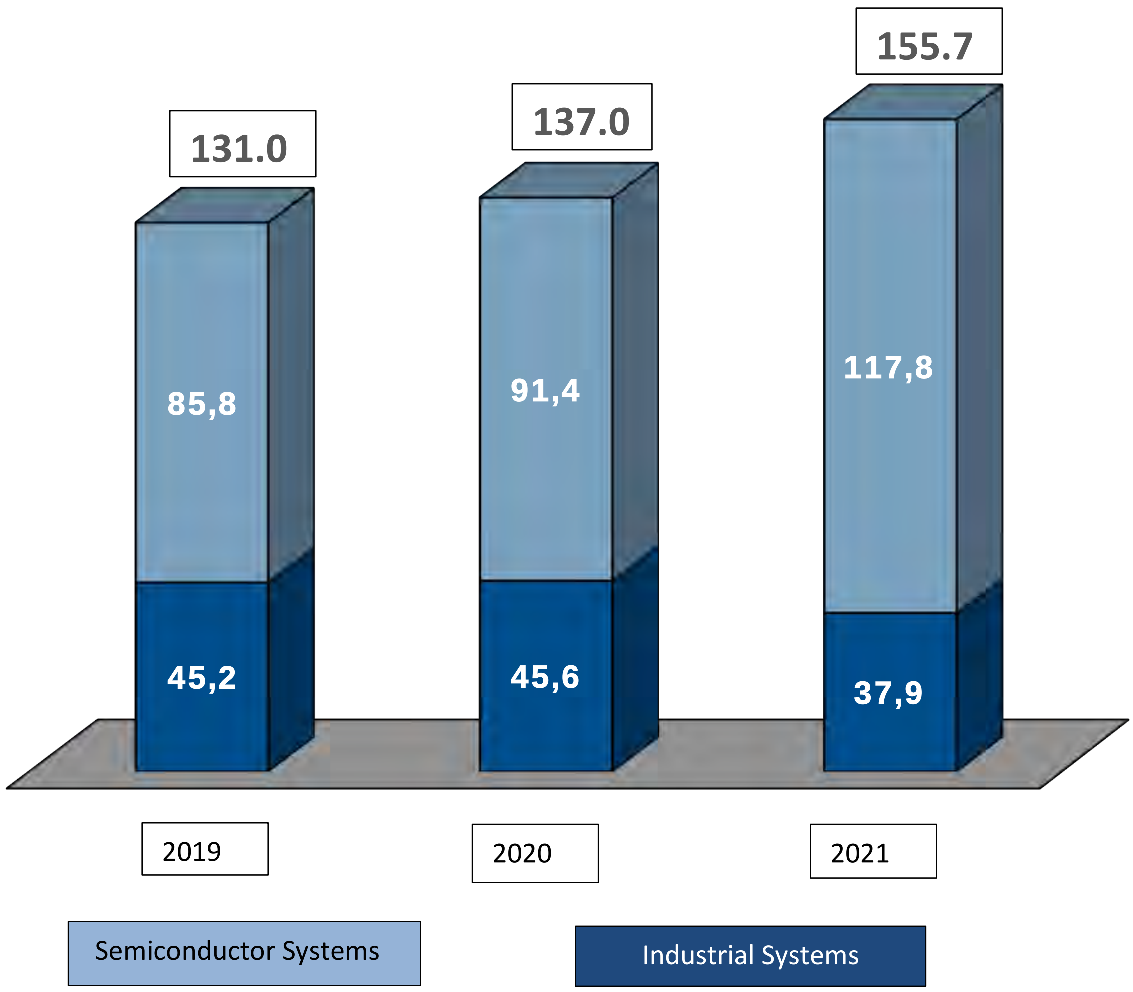


Changes in Segment Revenue

Sales revenues in the **Semiconductor Systems division** rose to EUR 117.8 million in 2021 (previous year: EUR 91.4 million), an additional upturn of 29%. Key growth drivers were sales revenues from crystal-growing systems for the semiconductor wafer industry and metrology systems. The plasma systems business unit also reported a very positive performance. All told, the Semiconductor Systems division accounted for 75.7% of the PVA TePla Group's total sales revenues.

The **Industrial Systems division** generated sales revenues of EUR 37.9 million (previous year: EUR 45.6 million). This division handled a major project in fiscal 2020. The proportion of total consolidated sales revenue achieved in the Industrial Systems division was 24.3%. Brazing systems for the electrical industry accounted for the lion's share of system sales revenues. The remaining sales revenues were distributed across the rest of the product portfolio, which includes systems for vacuum hard-metal sintering, diffusion brazing systems for complex, high-purity workpieces such as heat exchangers as well as plasma nitriding systems used to harden steel surfaces.

Consolidated Sales Revenues by Division in EUR million



Orders

Incoming orders

Incoming orders not only rose across all product areas but also reached the highest levels in each case since company's foundation. The strongest contributions to growth were made by the systems business for semiconductor silicon wafer production. The quality inspection systems also experienced substantial demand. The market in this area is profiting firstly from higher investments in the semiconductor industry and secondly thanks to the increasingly strict quality requirements in the semiconductor industry. The vacuum systems business achieved the highest incoming orders in its history.

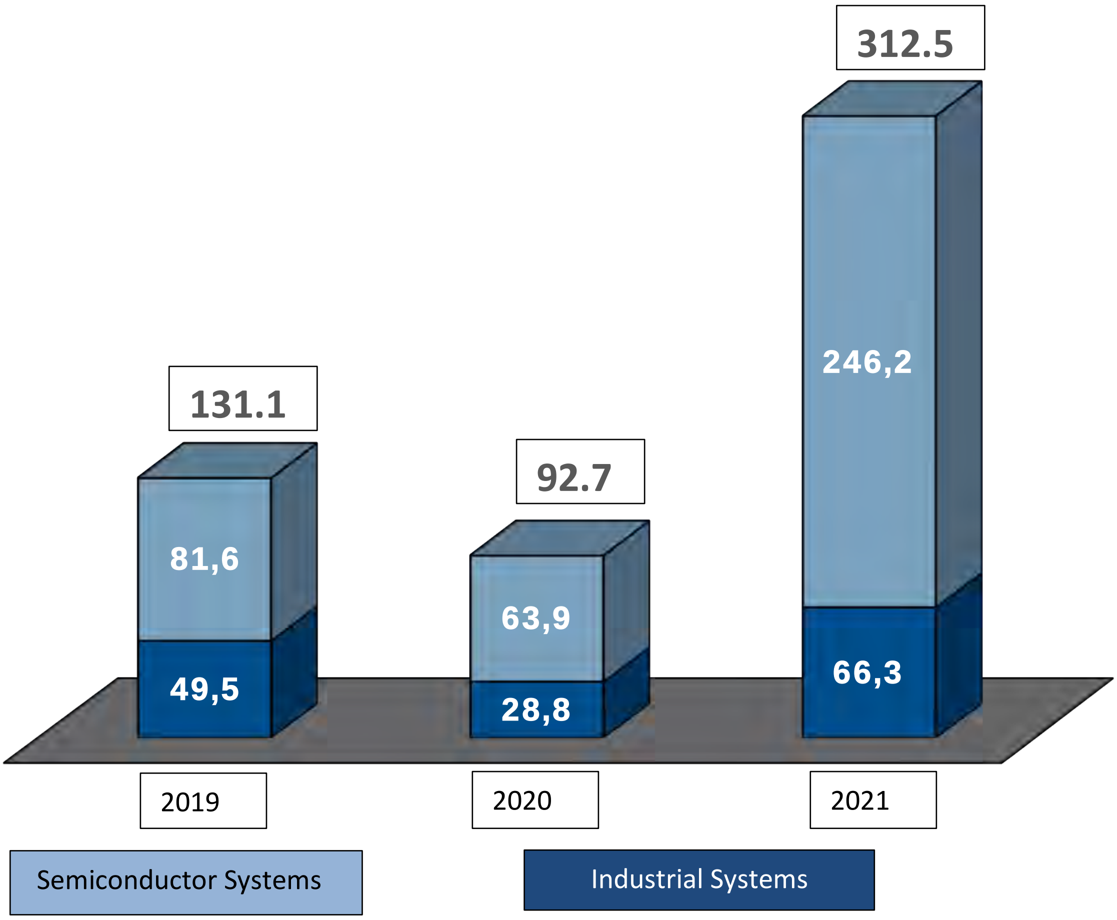
New orders from current business operations in the 2021 fiscal year were booked at EUR 312.5 million (previous year: EUR 92.7 million). The book-to-bill ratio was 2.0 (previous year: 0.7). The book-to-bill ratio shows the ratio of incoming orders to sales revenues in a given period. A book-to-bill ratio above 1 indicates that incoming orders are higher than sales revenues, meaning a future increase in sales revenues can be expected.

The **Semiconductor Systems division** generated incoming orders of EUR 246.2 million (previous year: EUR 63.9 million), thus accounting for about 78.8% of the Group's incoming orders. The two largest business units – crystal-growing systems and metrology systems – reported very strong growth in incoming orders. Even plasma systems, which are used for cleaning processes in the semiconductor industry, recorded much higher incoming order volumes than in previous periods.

The **Industrial Systems division** generated incoming orders of EUR 66.3 million in fiscal 2021 (previous year: EUR 28.8 million), thus accounting for 21.2% of the Group's incoming orders.

The majority of orders came from Europe. Brazing systems for the electrical industry accounted for a large share of incoming orders. Orders for diffusion brazing systems for the production of heat exchangers for hydrogen production and gas liquefaction were also a positive sign. Given the critical importance of hydrogen for the energy turnaround, a very interesting and promising market is opening up in this area for the PVA TePla Group.

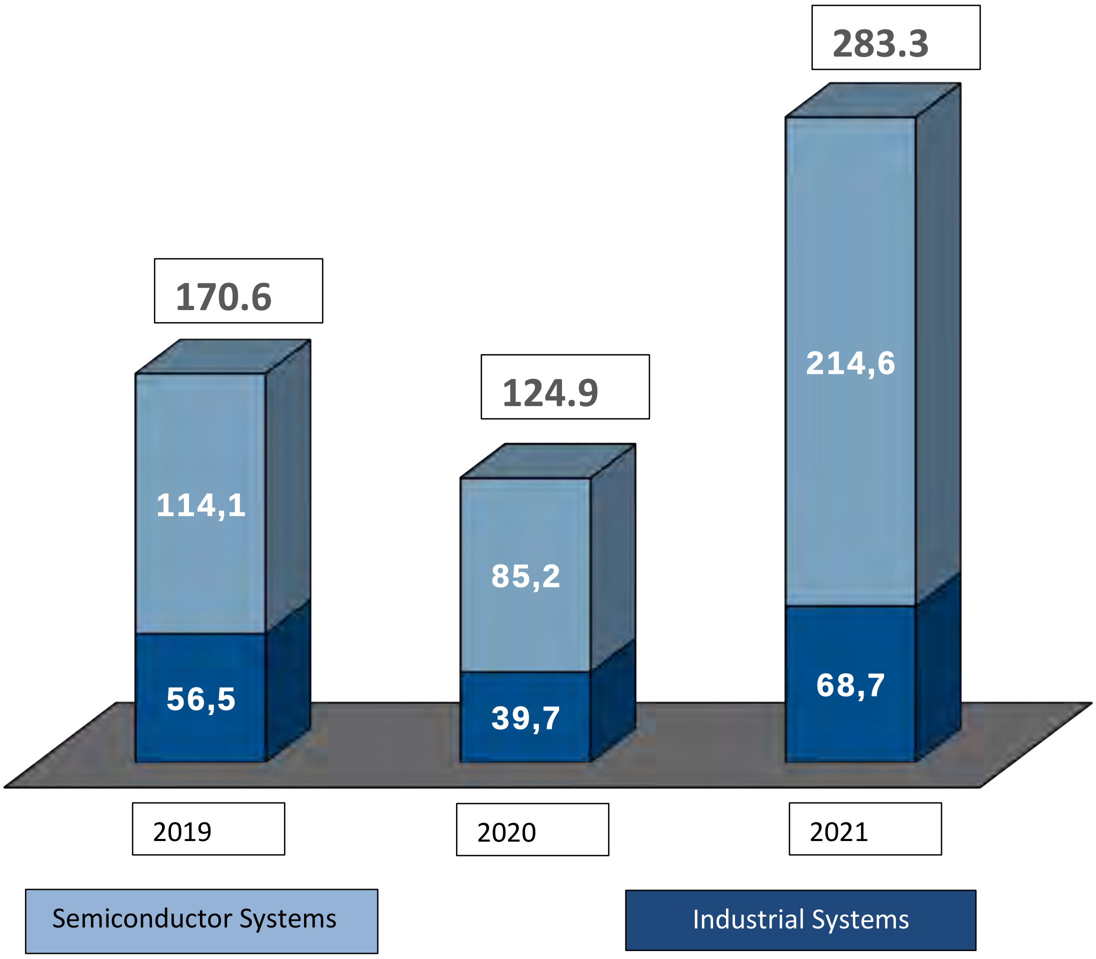
Incoming Orders by Division in EUR million



Order backlog

The PVA TePla Group's order backlog reached an all-time high of EUR 283.3 million in fiscal 2021 (previous year: EUR 124.9 million). As of December 31, 2021, the **Semiconductor Systems division** had an order backlog of EUR 214.6 million (previous year: EUR 85.2 million), with the figure for the **Industrial Systems division** coming to EUR 68.7 million (previous year: EUR 39.7 million).

Order Backlog by Division in EUR million



Earnings Performance

The PVA TePla Group ended fiscal 2021 with a good fourth quarter, boosting earnings before interest, taxes, depreciation, and amortization (EBITDA) substantially compared with the nine-month figures for 2021. Compared with 2020, EBITDA rose slightly to EUR 23.0 million (previous year: EUR 22.7 million). The forecast issued in March 2021 of an EBITDA target in the region of EUR 18 million to EUR 20 million was thus well exceeded. The EBITDA margin of 14.8% (previous year: 16.6%) was down on the previous year. Earnings before interest and taxes (EBIT) were EUR 18.3 million (previous year: EUR 18.5 million), representing an EBIT margin of 11.8% (previous year: 13.5%). Investments in further developing our technologies weighed on the EBIT margin. Consolidated profit after tax of EUR 12.1 million was slightly below the previous year's level (EUR 12.7 million). The return on sales after tax amounted to 7.8% (previous year: 9.3%).

Gross profit increased substantially to EUR 46.8 million (previous year: EUR 43.2 million). The gross margin for operating systems business was 30.0% (previous year: 31.5%). Selling and distributing expenses came to EUR 13.2 million in fiscal 2021, up slightly on the previous year's figure of EUR 12.4 million. However, these grew at a lower rate than sales revenues. The administrative cost ratio increased slightly to 7.3%, with administrative costs in 2021 coming in at EUR 11.3 million in absolute terms (previous year: EUR 8.9 million). As planned, research and development activities expanded significantly in fiscal year 2021 and came to EUR 7.0 million (previous year: EUR 4.6 million). The areas of crystal growing and metrology particularly benefited from the costs in research and development.

As of December 31, 2021, the net balance of other operating expenses and income was EUR +3.0 million (previous year: EUR +1.2 million). Other operating income of EUR 5.0 million (previous year: EUR 3.9 million) predominantly included income from exchange rate differences (EUR 1.7 million, previous year: EUR 1.7 million), income from grants in the context of R&D projects (EUR 1.5 million, previous year: EUR 0.8 million) and income from remuneration in kind (EUR 0.3 million; previous year: EUR 0.3 million). Other operating expenses in 2021 of EUR 2.0 million (previous year: EUR 2.7 million) were below the previous year and resulted primarily from expenses from exchange rate differences (EUR 1.4 million; previous year: EUR 1.9 million) and the write-down on current and non-current trade receivables (EUR 0.1 million; previous year: EUR 0.1 million).

In the **Semiconductor Systems division**, EBIT increased to EUR 21.4 million (previous year: EUR 16.3 million). The **Industrial Systems division** reported a decrease to EUR 1.9 million (previous year: EUR 6.7 million). “Holding costs” amounted to EUR 5.0 million (previous year: EUR 4.5 million).

The net balance of interest income and interest expenses was EUR -0.6 million (previous year: EUR -0.7 million). As in the previous year, this included EUR -0.1 million (previous year: EUR -0.2 million) due to discounting pension provisions and EUR -0.4 million (previous year: EUR -0.4 million) for interest payments and fees in connection with short and long-term credit financing.

Earnings before taxes (EBT) remained stable at EUR 17.8 million (previous year: EUR 17.8 million) with net earnings coming in at EUR 12.2 million (previous year: EUR 12.7 million). Income tax expense, which totaled EUR 5.6 million (previous year: EUR 5.1 million), comprised current tax expenses/tax refunds of EUR -4.9 million (previous year: EUR -3.3 million) and deferred tax expense of EUR -0.7 million (previous year: EUR -1.8 million).

3.3. Net Assets and Financial Position of the PVA TePla Group

Principles and Objectives of Financial Management at the PVA TePla Group

Financial management at the PVA TePla Group refers primarily to liquidity and capital structure management and the management of interest rates and currencies. The objective of the PVA TePla Group’s financial management is to maintain the company’s financial independence by ensuring sufficient liquidity. This aims to ensure the Group’s financial strength remains high at all times. Risks are to be avoided as far as possible or effectively hedged. Financial and liquidity risks are described in section “4. Report on Opportunities and Risks”. The PVA TePla Group does not engage in any speculative forward transactions and uses derivative financial instruments only where necessary.

Financing and Significant Financing Measures

In order to secure solid financing for future organic and inorganic growth, the PVA TePla Group signed a syndicated loan agreement in November 2020 for a mixed line of EUR 20.0 million (cash and guarantee line), EUR 80.0 million in guarantee lines and EUR 20.0 million in acquisition lines, as well as an option for further guarantee lines by up to EUR 40.0 million, cash lines by up to EUR 20.0 million and acquisition lines by up to EUR 20.0 million with a term of 60 months, renewable for another 24 months (“Asset position” and “Financial position” sections). An option to increase the existing guarantee lines by a further EUR 30 million was exercised in fiscal 2021. Further financing facilities of EUR 1.3 million are available as working capital financing. Government loans (COVID-19 pandemic assistance) of EUR 0.5 million were also utilized in the US. No final decision on the destination of this assistance in the corresponding organizational units has yet been made.

ASSET POSITION

The PVA TePla Group’s total assets increased significantly to EUR 240.3 million as of December 31, 2021, (previous year: EUR 177.2 million).

At EUR 71.8 million, non-current assets as at 31 December 2021 were above the previous year's level (previous year: EUR 47.3 million) due to investments in non-current securities and cash investments. Intangible assets were at the same level as the previous year at EUR 10.4 million (previous year: EUR 11.1 million).

The goodwill included in intangible assets is subject to an impairment test at least once a year. The rights of use in connection with accounting in accordance with IFRS 16 decreased slightly compared to the previous year to EUR 2.2 million (previous year: EUR 2.7 million).

At EUR 28.8 million, property, plant and equipment were similar to the previous year's figure of EUR 28.6 million. Non-current financial assets (EUR 25.8 million; previous year: EUR 0.4 million) essentially consist of cash investments with a term of more than one year. Deferred tax assets came to EUR 4.5 million (previous year: EUR 4.5 million).

Investments in fiscal 2021 were offset by EUR 4.7 million in write-downs (previous year: EUR 4.2 million), EUR 1.0 million of which (previous year: EUR 0.8 million) relate to the capitalization of right-of-use assets.

Current assets totaled EUR 168.5 million as of December 31, 2021 (previous year: EUR 130.0 million), higher than in the previous year. Inventories of EUR 59.2 million EUR (previous year: 67.6 million EUR) are below the prior-year level. Trade receivables and other receivables increased from EUR 24.8 million (previous year) to EUR 32.6 million as of December 31, 2021. Contract assets increased to EUR 18.9 million (previous year: EUR 7.7 million). Cash and cash equivalents rose sharply due to high advance payments for orders to EUR 57.7 million as of December 31, 2021 (previous year: EUR 29.7 million).

Financial position

As of December 31, 2021, non-current liabilities of EUR 23.2 million were at the same level as the previous year's figure of EUR 23.2 million. Pension provisions of EUR 15.9 million (previous year: 17.3 million EUR) continued to decline. Long-term provisions increased to EUR 1.3 million (previous year: EUR 0.3 million) due to higher compensation entitlements. Non-current financial liabilities fell to EUR 1.2 million (previous year: EUR 1.7 million) and, as of December 31, 2021, resulted exclusively from commitments from leases. Deferred tax liabilities rose to EUR 4.8 million (previous year: EUR 3.9 million). This rise is due mainly to differences when applying accounting principles under IFRS 15.

Current liabilities increased to EUR 134.3 million (previous year: EUR 84.7 million) as of December 31, 2021. At the end of fiscal 2021, other current provisions came to EUR 4.5 million (previous year: EUR 3.6 million). In particular, these include provisions for warranties. Current financial liabilities came to EUR 1.0 million (previous year: EUR 1.3 million) as of December 31, 2021. Liabilities to employees increased to EUR 6.3 million (previous year: EUR 4.8 million), chiefly in connection with higher earnings-related bonuses. Trade payables increased to EUR 11.1 million (previous year: EUR 8.0 million). As of December 31, 2021, contract liabilities of EUR 102.9 million were up on the previous year's figure of EUR 62.9 million.

EUR 86.6 million (previous year: EUR 25.3 million) of the guaranteed lines had been utilized as of the reporting date December 31, 2021. Based on the comprehensive consolidated result of EUR 12.1 million (previous year: EUR 12.7 million), equity increased significantly to EUR 82.8 million (previous year: EUR 69.3 million). The equity ratio fell to 34.5% at the end of fiscal 2021 (previous year: 39.1%) due to higher advance payments received at the end of the year.

Liquidity

In fiscal year 2021, cash flow from operating activities increased to EUR +58.9 million as a result of collecting customer payments (previous year: EUR +8.1 million). 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, which positively influence the net cash flow in case of large orders. Cash flow is negative during order processing, whereas close to the delivery date, the remaining amount due is paid, except for a small residual installment.

Cash flow from investment activities amounting to EUR -34.0 million (previous year: EUR +0.6 million) consisted mainly of investments in cash investments (EUR 35.0 million), some of which were offset by corresponding returns from cash investments with a term of more than three months (EUR 5.0 million), investments in intangible assets and property, plant and equipment (EUR -3.4 million) as well as the increase in the investment in a French plant manufacturer (EUR -0.4 million). Cash flow from financing activities amounted to EUR -1.5 million (previous year: EUR -4.3 million) and consisted mainly of reductions of leasing liabilities totaling EUR -1.0 million (previous year: EUR 0.8 million). Interest payments totaled EUR -0.3 million (previous year: EUR -0.3 million).

The EUR 23.0 million rise in cash to EUR 52.7 million (including exchange rate changes), as well as unutilized credit lines amounting to EUR 41.3 million along with additional term deposits (EUR 5.0 million), meant that the PVA TePla Group had available liquid funds of EUR 99 million at its disposal as of the 2021 reporting date. As of December 31, 2021, 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 55.5 million (previous year: EUR 26.8 million).

3.4. Net Assets, Financial Position and Results of Operations of the PVA TePla AG

In contrast to the consolidated financial statements, which are based on the IASB's IFRS standards as adopted by the EU, the annual financial statements of PVA TePla AG are prepared in line with the principles of the German Generally Accepted Accounting Principles in accordance with the provisions of Sections 242 to 256a and Sections 264 to 288 HGB and the special provisions of the German Stock Corporation Act (AktG). As PVA TePla AG generates most of its income from profit transfer agreements with the subsidiaries, the business performance described in the annual financial statements of PVA TePla AG is very similar to that shown in the PVA TePla Group's consolidated financial statements.

Results of Operations

PVA TePla AG generated sales revenues of EUR 10.5 million in fiscal 2021 (previous year: EUR 9.7 million), mainly from service charges and allocating charges to subsidiaries in Germany and abroad. The cost of materials amounted to EUR 1.3 million in the first half of 2021 (previous year: EUR 1.0 million). Personnel expenses increased to EUR 6.6 million (previous year: EUR 5.5 million). Depreciation amounting to EUR 1.2 million represented a slight increase compared with the prior-year figures (previous year: EUR 1.0 million). Other operating income came to EUR 1.4 million (previous year: EUR 1.1 million) and in 2021 could essentially be attributed to exchange rate gains (EUR 1.1 million). Other operating expenses totaled EUR 6.7 million in fiscal year 2021 (previous year: EUR 6.8 million). These chiefly comprise management costs for real estate, costs of IT infrastructure and consulting expenses. These also include exchange rate losses amounting to EUR 0.8 million. Income from profit transfer agreements with subsidiaries totaled EUR 15.0 million in fiscal 2021 (previous year: EUR 16.0 million). Expenses from profit and loss transfer agreements with subsidiaries amounted to EUR 2.3 million (previous year: EUR 0.0 million). Interest expenses amounted to EUR 0.4 million (previous year: EUR 0.5 million). Interest income came to EUR 0.4 million (previous year: EUR 0.6 million). Income taxes were EUR -3.7 million (previous year: EUR -2.9 million). Overall, PVA TePla AG generated earnings after taxes of EUR 6.3 million (previous year: EUR 10.8 million) and an annual result of EUR 6.1 million (previous year: EUR 10.7 million).

PVA TePla AG's order backlog of EUR 7.3 million at the end of fiscal year 2021 remained unchanged year on year (previous year: EUR 7.3 million).

Asset position

PVA TePla AG's total assets increased to EUR 152.4 million as of December 31, 2021, up on the previous year's figure of EUR 108.1 million. Fixed assets totaled EUR 45.3 million at the end of fiscal year 2021 (previous year: EUR 35.8 million). Property, plant and equipment declined slightly from EUR 17.1 million in the previous year to EUR 16.6 million as of December 31, 2021. Financial assets rose sharply to EUR 28.4 million (previous year: EUR 18.2 million), mainly as a result of long-term cash investments (EUR 10.0 million). Overall investments in fiscal 2021 amounted to EUR 10.9 million (previous year: EUR 1.1 million).

Total inventories, before being offset against advance payments, increased to EUR 4.5 million as of December 31, 2021 (previous year: EUR 3.3 million). Receivables from dependent companies decreased from EUR 46.7 million (previous year) to EUR 38.0 million as of December 31, 2021. Other assets declined from EUR 1.1 million to EUR 0.2 million. Cash and cash equivalents saw a significant increase to EUR 36.3 million in connection with existing cash pool contracts (previous year: EUR 23.0 million).

Financial position

As a result of advance payments received by the PVA TePla AG subsidiaries included in the cash pool method, liabilities increased considerably to EUR 70.0 million (previous year: EUR 35.0 million) Financial liabilities were further reduced and amounted to EUR 4 thousand as of December 31, 2021 (previous year: EUR 0.2 million). Pension obligations rose from EUR 8.1 million in the previous year to EUR 8.3 million. The only pension obligations recognized are those to former employees who reached the retirement age by December 31, 2014. New pension commitments are not granted. Other provisions increased to EUR 3.5 million as of December 31, 2021 (previous year: EUR 2.5 million). This stemmed predominantly from higher provisions for bonuses. PVA TePla AG's equity increased to EUR 67.3 million as of December 31, 2021 (previous year: EUR 61.2 million). The increase in total assets caused the equity ratio to fall to 44.2% (previous year: 56.6%). Retained earnings increased from EUR 37.2 million (previous year) to EUR 43.4 million as of December 31, 2021.

Profit Appropriation

The separate financial statements of PVA TePla AG (according to commercial law regulations) as of December 31, 2021, report a net profit of EUR 6.1 million (previous year: EUR 10.7 million) and retained earnings of EUR 43.4 million (previous year: EUR 37.2 million). The Management Board and Supervisory Board propose that the retained earnings reported in the 2021 annual financial statements be carried forward to a new account at the same amount. No dividends are to be distributed for fiscal 2021. There were no withdrawals from the share premium or retained earnings.

3.5. Overall Assessment of Net Assets, Financial Position and Results of Operations

The PVA TePla Group ended fiscal 2021 on a successful note. The Group is pursuing its strategy of bundling its diverse technological fields into three business units: Crystal Growing, Metrology and Advanced Materials. All our industrial businesses are in highly attractive markets in the semiconductor industry, in the “Advanced Materials” area for industrial applications, infrastructure, mobility and energy. Our offerings allow us to tap into growth trends such as digitalization and decarbonization, for instance, by helping our customers to manufacture high-quality semiconductor wafers and to conduct critical quality inspections across their value-added chain. With its systems, the PVA TePla Group establishes a unique link between material production and quality control for its customers.

The Group's profitable growth will be further accelerated in the years ahead. Our high order backlog with visibility extending to 2025 provides excellent conditions for this. We will support this goal by further expanding our sales organizations in countries of importance to the semiconductor industry, such as Korea, and by further strengthening our marketing activities. The goal of advancing process mastery in the systems we build has a key role to play in Group's sustainable growth. The most pressing example mentioned is the development of a process to manufacture SiC (silicon carbide) crystals. Power electronics made from this material play a vital role in electric mobility and other applications. Additional digital solutions and the integration of our systems into our customers' production flows – in particular, the road to AI (artificial intelligence) – are other projects that we will also be focusing on in the coming years.

In fiscal 2021, the PVA TePla Group made significant progress on this path.

The past fiscal year yielded a strong order book. Despite the heightened challenges encountered in procurement markets, the PVA TePla Group managed to maintain its supply chains and delivery capacities throughout the fiscal year to remain a reliable partner to its customers. This is also reflected by our strong financial performance in fiscal 2021, during which we exceeded our 2021 forecast of key controlling parameters. The PVA TePla Group increased its sales revenues by 13.6% to EUR 155.7 million and profits (EBITDA) by 1.2% to EUR 23.0 million.

Incoming orders rose year on year by 237% to reach EUR 312.5 million. The book-to-bill ratio was 2, thereby meeting expectations of a value greater than 1. All three business units not only increased their incoming orders significantly compared with the previous year but also set all-time highs for the PVA TePla Group.

4. SUPPLEMENTARY REPORT

The Russian military invasion of Ukraine in early 2022 and the resulting economic sanctions could cause us to re-evaluate current projects that involve the Russian market. Measurement uncertainties for existing projects to be implemented in the relevant areas amount to EUR 0.4 million. As a result of the increasingly fraught political and economic situation, supply bottlenecks on the part of our suppliers may cause delays in the realization of projects with the PVA TePla Group.

5. RISK AND OPPORTUNITY REPORT

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 divisions of the PVA TePla Group are exposed to an array of risks that are inextricably linked to corporate activities. Risk is understood to be the possibility of the PVA TePla Group's events or activities jeopardizing the ability of the Group or one of its divisions to reach its targets. At the same time, it is also important for the PVA TePla Group to identify opportunities for the company, take advantage of these opportunities and reinforce the Group's competitive position. Risks and opportunities are not offset against one another. The main risks and opportunities are described below.

Risk and Opportunity Strategy

The risk and opportunity strategy is embedded in the corporate strategy and is designed to secure the continuation of the company as a going concern and guarantee its further development. The resulting strategy assesses the risks and opportunities of business activities. In the core activities of the company/the Group, we make a conscious decision to enter into limited and containable risks, if they make appropriate compensation likely or are inevitable. In some cases, we allocate the risks to other parties. This mainly includes concluding suitable insurance policies. This process is conducted in close cooperation with an experienced and specialized insurance broker. It is regularly reviewed for efficiency and optimized where necessary.

Other risks that are not linked to core or support processes, on the other hand, are avoided where possible. To ensure this, managing directors and employees have access to 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, measuring, managing, reporting and monitoring risks. As part of this, risks facing the divisions, the operating units and central areas are identified using defined risk categories and assessed in terms of how likely they are to occur and their potential damage.

Risk and Opportunity Management

The scope of risk management includes the same companies as those included in the PVA TePla Group. Due to the organizational structure, risk management is carried out locally in the PVA TePla AG, in the subsidiaries and business processes. The Management Board members and Managing Directors are therefore responsible for central processes of the risk management system. 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, installing measures to prevent, mitigate and hedge against risks. Those responsible regularly monitor the main 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 regular reporting, a reporting system has been installed within the Group to immediately report the occurrence of unexpected risks. 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 which also includes the compliance management system enables the Management Board to identify material risks at an early stage and to implement countermeasures. The key features of the risk management system described above are applied throughout the Group. As far as processes in financial disclosure are concerned, this means that identified risks are reviewed and assessed, particularly for their potential impact on disclosures in the respective financial reports. The idea 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 to assess the necessity of forming and reversing provisions. The adequacy and efficiency of the risk management system is reviewed on a regular basis at Management Board level and adjusted where 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.

Opportunity management is also an integral part of Group management. The strategy process identifies and assesses the individual areas for opportunity. Just like risks, 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.

Accounting-Related Internal Control and Risk Management System

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 system of checks and balances for all essential accounting processes, effective and precisely defined access rights for IT systems, spot checks of employees at all levels by the respective superior, and control over the structural and process organization 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.

In addition to these controls implemented in the organization, the individual functional areas are also monitored by superiors and, if applicable, the internal audit department. In this case, the internal audit department is responsible for reviewing the functioning and effectiveness of the internal control system. In order to conduct the audit, the internal audit department has comprehensive information and review rights.

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 according to uniform Group-wide standards and 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 of 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.

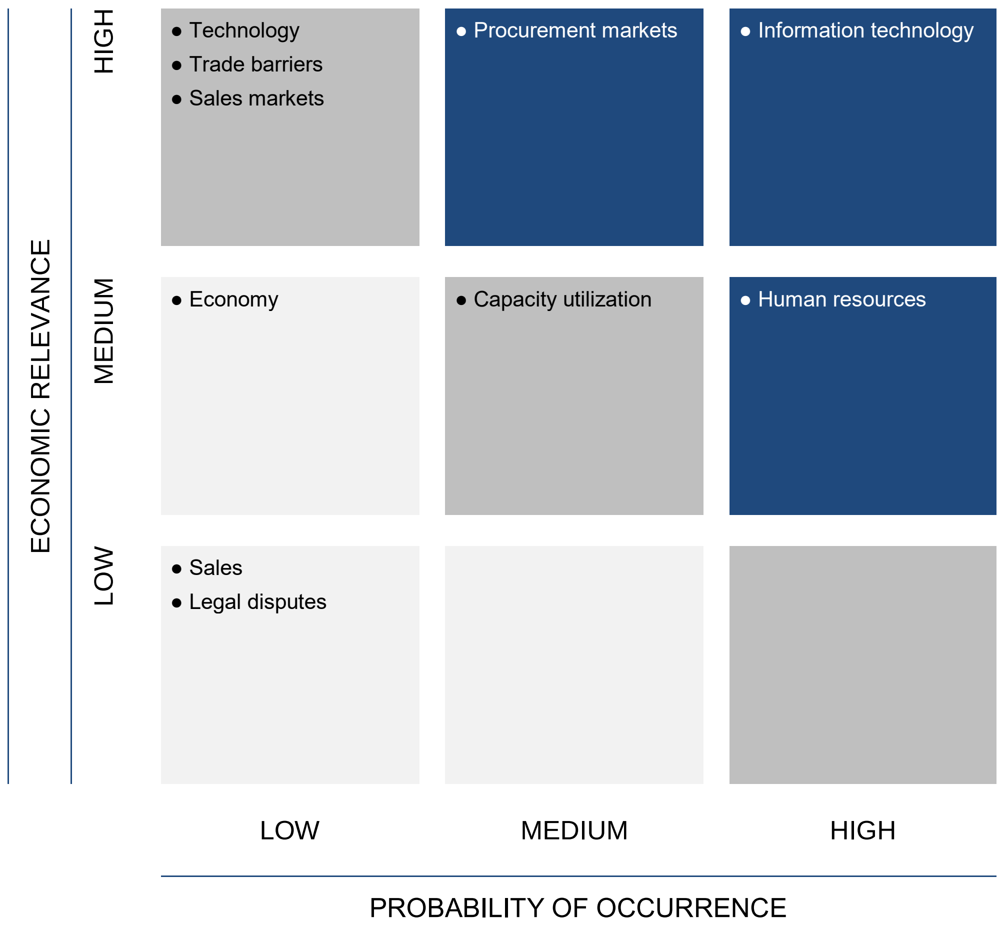
In conclusion, we would like to point out that neither an ICS nor a risk management system can ensure with absolute certainty that the related objectives will be achieved. Like all discretionary decisions, resolutions to implement suitable systems can also be incorrect in principle. Controls may not 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

Risks are assessed on the basis of probability of occurrence and the potential scale of the risk (economic relevance), in each case as either “low”, “medium” or “high”.



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. The following generally provides a net presentation of risks (by measures).

BUSINESS RISKS AND OPPORTUNITIES

Russia and Ukraine

The Russian attack on Ukraine in February 2022 and the resulting significant destruction of infrastructure in Ukraine caused by the hostilities as well as the wide-ranging sanctions imposed against the aggressor by western countries could soon trigger a series of constraining developments in the global economy. Events in this military conflict may also have a major impact on German companies and their employees. In this outlined scenario and in the relevant risk areas of the procurement market, sales markets and barriers to trade for the PVA TePla Group, all identifiable current and future risks will be evaluated accordingly on an ongoing basis.

Sales Markets

COVID-19 pandemic: The spread of COVID-19 has accelerated since fall 2020 and the number of new cases is increasing or at a consistently high level in many countries. Governments and local authorities are attempting to contain the spread of the virus by taking various countermeasures, which extend to large-scale lockdowns and opening restrictions for certain sectors of the economy. The extent and duration of individual effects on our business are difficult to predict and lie beyond our control. At Group level, a working group was set up at PVA TePla AG to carefully monitor and mitigate the various effects of the COVID-19 pandemic, with a focus on employee health and safety. This working group coordinates general decisions and the flow of information, which is then managed by the various subsidiaries. At the same time, the management responsible at the individual subsidiaries and in different countries is in charge of taking suitable measures in line with individual circumstances.

The economic, political and geopolitical environment

The PVA TePla Group anticipates considerable uncertainty in terms of global economic prospects. Above all, a renewed flare-up of the COVID-19 pandemic could stall the recovery achieved to date, even triggering a new recession, for example, if available vaccines prove less effective against new variants, which in turn could lead to renewed contact restrictions or lockdowns. Furthermore, significant macroeconomic challenges have not only failed to ease during the COVID-19 pandemic but have even intensified in some cases. Further escalation of the US-China trade conflict and greater decoupling would considerably worsen global growth prospects. Negative effects on confidence and investment activity would also impact the PVA TePla Group. Higher barriers to trade, protectionism, sanctions and especially technical regulations could negatively affect or completely block access to our sales markets. The escalating bottlenecks in supply chains, above all, due to the increasing non-availability of intermediate goods, especially electronic components, pose a significant risk to our revenue potential and our cost structure. The increasing likelihood of major defaults in the Chinese real estate sector with possible spillover effects on the entire real estate and financial markets would have a major negative impact on growth prospects in one of our key geographical markets and could even have implications for the global financial system and the global economy. A sharp increase in inflation rates could cause serious upheavals on global finance, capital and currency markets if central banks initiate the tightening cycle too quickly and aggressively. Heavily indebted countries (emerging as well as industrialized countries) could suffer from rising borrowing costs and a lack of investor confidence. Additional threats to the outlook could also result from growing market pressure on governments to intensify austerity measures and could even extend to waning market confidence in individual currency markets. Further material risks could arise as a consequence of geopolitical tensions (especially in the Middle East, in Hong Kong and Taiwan), relations between the European Union/US and Russia, the economic vulnerability of several emerging countries (including Argentina, Turkey, Venezuela) and incidents of political upheaval. We depend on the economic development of specific sectors – principally the semiconductor industry. Persistent or even worsening cyclical and structural headwinds in this core customer industry would have a negative influence on our business outlook. Another business risk could result from an abrupt slow-down in Chinese economic growth. A major terrorist attack, a serious case of cybercrime or a spate of such attacks or incidents in major economies could hamper global economic activity and damage the trust of consumers and companies. Furthermore, the highly interconnected global economy remains vulnerable to natural disasters or further pandemics. In general, the long-cycle business of our organizational units as well as the importance of long-term contracts for the PVA TePla Group result in a time lag between changes in macroeconomic conditions and the impact of these on our financial performance. Conversely, the short-cycle businesses respond quickly to fluctuations in demand. If the moderate growth in specific markets grinds to a halt again, we cannot guarantee that this will not have a negative impact. For example, planned purchases of our products, solutions and services could be changed, delayed or canceled. Furthermore, our customers could face deteriorating financing options. Contractually agreed payment terms could be altered to our disadvantage, especially regarding the amounts that customers are required to pay us in advance as part of long-term projects, which could have a negative impact on our financial situation. The PVA TePla Group's global business position and its extensive offering that follows different business cycles help offset the consequences of adverse developments in individual markets

Key markets for the PVA TePla Group

The semiconductor business, a key sector for the **Semiconductor Systems division**, is traditionally highly cyclical in nature. Although the semiconductor industry has enjoyed average annual growth rates well above those of most established industries in recent decades, this average includes periods of both robust growth and recession. Investments in new silicon wafer capacity, an essential market for the PVA TePla Group, were, in particular, subject to increasing fluctuation. Investments are being made in process technologies. These include systems for growing high-purity silicon crystals or silicon carbide crystals for high performance electronics - particularly in e-mobility - or metrology systems for nondestructive quality control in LED or MEMS production. Continuing advances in the digitalization of the company mean that increasing capacity is required to produce semiconductor material. The ongoing reduction of structure widths in chip production will also boost demand for metrology systems for examining chip quality. Major wafer and chip manufacturers have stepped up investments considerably since 2017. The expansion of our own wafer production for the semiconductor industry in China represents a further major growth opportunity for the PVA Group. This potential has already been underscored by orders in previous years. Silicon carbide for high-performance electronics is vital for a multitude of industries, including the automotive industry and renewable energies. The PVA TePla Group's systems technologies will bring about major sales opportunities in numerous regions in the years ahead.

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 for these products of the PVA TePla Group is expected due to the anticipated growth in the semiconductor market in the medium term and new applications for plasma systems in the semiconductor/life science/industrial sectors. The semiconductor market will see stronger growth in the medium term, driven by the acceleration in connectivity of billions of devices in industry and the private sector (i.e. "Internet of Things", "Industry 4.0" and cloud computing).

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 carbine ceramics and silicon carbide coatings are further examples of where processing requires systems from the PVA TePla product portfolio. The introduction of new technologies leading to the substitution of existing materials could have a lasting effect on demand for vacuum systems. A decline in demand, for example in the automotive, electrical, semiconductor or aviation industries, could also negatively affect incoming orders for vacuum systems. In markets such as the tool industry and the electronics industry, the PVA TePla Group provides process technologies that will 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 areas in which these types of processes are used include the aviation industry and molding construction. The semiconductor industry, in particular, is taking on increasing importance in this division. Special crystal growing processes and the "diffusion bonding" application described above are being used by more and more leading semiconductor manufacturers as they make it possible to implement increasingly strict design rules when manufacturing chips.

New regional markets, such as North America, in which products from this business area had previously been little represented, have been increasingly developed in recent quarters.

Economy

According to the IMF World Economic Outlook (January 2022), global economic growth of 4.4% for the full year 2022 appears possible. The first quarter of 2022 is likely to be weaker than initially expected due to the Omicron variant of the coronavirus. However, the outlook for the remaining quarters of 2022 remains extremely uncertain due to the ongoing pandemic. Disruptions to supply chains, high energy prices and high inflation (3.9% on average in the developed economies and 5.9% in the emerging and developing countries) will persist throughout the current year. The attack by Russia on Ukraine may cause this situation to deteriorate. A tighter monetary policy in the US combined with a persistent contraction of the Chinese real estate sector limit the prospects for growth in 2022. For several months, a shortage of labor across all countries has increasingly become an obstacle to the current upswing. However, a willingness by private households to spend some of their accumulated savings could deliver a powerful stimulus for growth. This would happen if restrictions to contain the coronavirus were relaxed and consumer sentiment improved.

The US economy is set to grow by 4.0% during the current year and the Eurozone by 3.9%. Growth of 3.3% is expected for Japan. The outlook for the United Kingdom is even more optimistic with growth expected to reach 4.7%.

The paths to recovery also vary in the emerging and developing countries. Despite facing many problems, China is set to achieve continued strong, albeit lower, growth of 4.8%. After the difficulties of the previous year, the ASEAN countries expected to grow by an average of 5.6%. On the other hand, the outlook of 2.4% for Latin America is cautious because the Brazilian economy is expected to be almost stagnant.

The PVA TePla AG Management Board believes that maintaining or expanding measures again to contain the COVID-19 pandemic over a longer period of time, meaning that Chinese and global economic growth does not pick up as forecast, represents a significant macroeconomic risk. Global economic uncertainty will likely be very high in fiscal 2022. The military escalation of existing conflicts could lead to a persistent slump in demand. The lack of demand and production losses caused by the outbreak of COVID-19 could continue to weigh heavily on global growth. On the other hand, however, the Management Board also believes that the semiconductor market is so vital for markets – in particular for China – that any risks that may occur as a result of economic developments will be absorbed and investment will continue unimpeded.

These market and economic risks are reduced by diversifying the range of products and services across different sectors including semiconductors, photovoltaic, tool making and hard metal technology, the production of high-quality metals and ceramics, the automotive and aircraft industries, and the electrical and electronic engineering sectors. The effects of cyclical, foreseeable fluctuations in market volume are primarily offset by increasing or decreasing out-sourcing levels, although unexpectedly high demand could give rise to production bottlenecks. 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 our own processes for manufacturing high-quality materials and to offer these to customers 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 customer demand has historically been seen in times of generally restrained capital expenditure.

Economic opportunities constitute developments that could cause the growth set out in the forecast report to be exceeded, for example the de-escalation of political conflicts or an unexpectedly quick resolution to trade disputes that result in lower market turbulence than that expected and described above.

Disruptive technologies

The risk of losing orders due to a new, unexpected technology appearing on the market (horizontal entry) is monitored and assessed worldwide. To do this, the latest research and technology trends and published studies are constantly observed and close contact is maintained with key customers and research institutes. In addition to ongoing development activities, technological product optimization is guaranteed through in-house development centers and by operating in-house service centers in which

materials are processed for customers. Here, the company's development departments stay abreast of the latest material quality requirements of customers. Earnings at the PVA TePla Group are largely dependent on our technological leadership and our ability to anticipate and adapt to changes in the markets and to optimize the cost base.
The introduction of new products and technologies requires a strong commitment in terms of research and development, which in turn can consume substantial financial resources and may not necessarily lead to success. Our results of operations could be negatively impacted by investments in technologies that do not function or cannot be integrated as expected or do not gain the anticipated market acceptance, or by the fact that products, solutions and systems, particularly in comparison with competitors, are not launched on time or even become obsolete. The technical complexity of our products and rapid technological advances pose research and development-related risks.

Medium and long-term success is dependent on developing marketable products and generating sufficient revenues within appropriate time frames in order to provide adequate cash flow for the PVA TePla Group's internal financing. The technical complexity of the products and the high standards demanded by our customers may also give rise to risks that can lead to increased warranty-related expenditures. Projects with particular and unusual technological challenges could entail handling risks. These risks are countered by the introduction of continuous project controlling. If, after thorough consideration of the risks and opportunities, a project does not meet the required risk profile, it may also be canceled.

As a supplier of technologies for the production and processing of materials, parts and components for high-tech industries, where vacuum and high temperatures play a key role for production, we have an opportunity to create additional demand with new areas of application for materials produced using the systems. New material requirements may also be introduced that require a new type of system in the PVA TePla Group's specialist fields. The semiconductor market, with its increasingly strict design rules, sets increasingly high standards in terms of the purity and complexity of components. Here, the PVA TePla Group systems play a key role in meeting customers' needs. In view of climate change, energy savings to slow down the pace of global warming are a priority. The production of green hydrogen that is essential for heat exchangers is just one example of the new market opportunities opening up for systems from the PVA TePla portfolio. New materials which lead to a considerably longer service life of devices and structures contribute to energy savings to a particular extent. New materials for lightweight construction also improve energy efficiency. This could significantly improve the opportunities for the PVA TePla Group's process and system technologies to develop and produce these materials around the world.

Trade Barriers

As an international Group with a high share of export business, the PVA TePla Group is essentially susceptible to trade barriers or sanctions. Geopolitical developments mean that there is still a trend towards intensification in both of these areas. This relates to Russia, but may also affect other regions such as the US and China, depending on political developments. 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. A susceptibility to trade barriers will always remain, as contracts with insurance companies are only a limited option when political risks escalate. 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 any trade barriers that may arise can be bypassed.

OPERATIONAL RISKS AND OPPORTUNITIES

IT

Digital technologies are an ingrained part of the business portfolio. The rise in cyber security threats around the world and the increasingly professional nature of computer crime create risks with regard to the security of products, systems and networks, as well as risks related to data confidentiality, availability and reliability. Like other technology companies, the PVA TePla Group is exposed to cyberattacks by sophisticated adversaries that are supported by organized crime as well as by state actors engaged in economic espionage or even sabotage. Various external data sources show that this trend has accelerated during the COVID-19 pandemic. In particular, there has been a substantial jump in the number of phishing attacks and harmful websites.

At PVA TePla Group, a global, growth-oriented business, the information technology (IT) in place in all divisions plays a major role. There are risks with regard to the three safety objectives:

• Confidentiality
• Integrity
• Availability

In particular, these cover unauthorized access, modifying or copying sensitive electronic company or customer data and system availability issues due to faults or disasters. Properly handling data ensures data accuracy and integrity and guarantees that systems function smoothly. High quality standards for our products also apply to handling our customers' and employees' data. Data security, transparency and data privacy are our top priorities. IT security technology such as firewalls and intrusion prevention systems, as well as multiple access protection, are used to mitigate the risk of unauthorized access and modifying or copying sensitive electronic company or customer data. Security is also heightened by restricting the number of authorizations issued for access to systems and information and by keeping back-ups of key data files. There is back-up IT infrastructure in place to protect against risks that could occur in the case of faults or disasters. As part of company-wide standards, commercial technologies are used to protect IT systems, which are standardized and updated on an ongoing basis to ensure they remain fit for the future. Ongoing efforts to boost automation improve process security and the quality of processing. The development and Group-wide use of IT governance processes, in particular the ongoing standardization of the IT risk management process, also help identify risks at an early stage and effectively reduce these risks. Our IT security program focuses on ongoing development of Group-wide security measures, including establishing an IT security control center. This is designed to recognize cyberattacks at an early stage, helping deal with attacks using the latest defense methods. To complement the technical measures, PVA TePla AG and its subsidiaries educate and train their employees intensively.

It is impossible to guarantee that measures taken to protect intellectual property and the portfolio will be successful at all times. There is also the risk of confidential information (data protection) being stolen or the integrity of our portfolio being compromised, for example, by attacks on our networks, social engineering, or the manipulation of data in critical applications. This would result in financial losses.

Procurement Markets

The results of our operational units depend on the reliable and effective control of our supply chain for components, parts and materials.
Capacity restrictions and supply bottlenecks that can be attributed to ineffective control of the supply chain could lead to production bottlenecks, delivery delays, quality problems and additional costs. We are reliant on third-party providers to supply us with upstream products, components and services. The production, assembly and functional inspection of our products by third parties can limit our ability to influence productivity, quality assurance, delivery dates and costs directly. Despite cooperating closely with suppliers to avoid supply-side problems, we cannot guarantee that supply problems will not occur in the future, especially if one supplier is available for critical supplier parts. Bottlenecks or delays can harm our business activities significantly. Unexpected increases in the price of components and raw materials due to market bottlenecks or other reasons could also negatively affect our performance. In addition, the PVA TePla Group may be confronted with the risk of delays and disruptions to supply chains as a result of catastrophes (including pandemics), military conflicts, cyber incidents or financial problems with some of its suppliers, especially if the PVA TePla Group fails to find alternative sources of supply or transport options in time or at all.

Care is taken to ensure that all major suppliers have adequate quality management systems and third-party liability insurance coverage in place. Very high market demand has repeatedly resulted in production bottlenecks for suppliers, in particular in vessel production. Developing links with additional suppliers and acquiring a suitable furnace manufacturer strengthened the supplier base in this area considerably.

Staffing
The success of the PVA TePla Group primarily depends on its employees and their expertise. However, competition for skilled employees and managers in the industries and regions in which the PVA TePla Group operates is intense and there is a risk of fluctuation. The Group's future success therefore largely depends on its ability to hire, integrate and retain qualified personnel. Strategic personnel planning, for qualified personnel and management level, as well as partnerships with German universities and research institutes are intended to prevent this from happening.
Another major focal point is diversity and structured succession planning. We will continue to counter this risk by documenting expertise, extending redundancies and holding performance reviews with employees. Should the personnel risk materialize, it is expected to impact the business activities and also the results of the PVA TePla Group depending on the extent of the bottlenecks in personnel.

Capacity Utilization
Through increased collaboration with temporary workers and, possibly, third-party companies as well as staff pooling within the PVA TePla Group, capacity can be used without causing future overcapacity by increasing headcount. The lack of larger orders can lead to overcapacity at PVA TePla Group production sites. This can be offset by reducing overtime, flextime and, where applicable, short-time working schemes.

Sales
In some regions, PVA TePla AG's subsidiaries work with commercial companies and depend on their agency activity to a certain extent. Subsidiaries, which play an active part in key sales markets for the PVA TePla Group, actively support sales activities and reduce dependency. The sales strategy is also regularly reviewed. Delays in delivering systems may result in penalty risks or extra costs. Stronger project management is intended to reduce delivery delays and further cut lead times. Sales could still be significantly affected by travel restrictions and quarantine measures imposed by individual countries or groups of countries as part of government measures to combat the COVID-19 pandemic, which could have a considerable impact on the sales and commissioning of our products.

Legal Disputes
At present, there are no major legal disputes involving PVA TePla AG or its subsidiaries. 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 specialist knowledge required to assess day-to-day business is provided by qualified employees. Product liability risks are covered by corresponding insurance policies.

General Statement by the Management Board
The Management Board of PVA TePla AG is responsible for the risk management of the Group and assesses the Group's risks and opportunities. The conclusions are summarized as follows:

Summary of Risks
Despite the multiple knock-on effects of the COVID-19 pandemic in fiscal 2021, there has been no material change to the PVA TePla Group's overall risk exposure compared to the fiscal year 2020. The main risks continue to stem from the market developments mentioned above, the related reticence of customers to invest, technological developments, the supplier risk and risks from trade barriers. The Management Board believes that the greatest risk is presented by a drawn-out international conflict along with the barriers to trade that may result. The probability that personnel risks and IT security risks will occur has risen slightly compared with 2020. Conversely, the probability of occurrence of risks from sales markets and the economy have declined while a possible risk arising from tax law with respect to fiscal 2020 no longer applies. The probability of occurrence and economic relevance of the following risks remain unchanged compared with 2020: risks arising from legal disputes, sales, technology, barriers to trade, capacity utilization, and the procurement market.

No risks are currently identified that, either individually or as a whole, pose a risk to the Group as a going concern.

Summary of Opportunities

The greatest opportunity for the PVA TePla Group is still designing and producing innovative products to manufacture top-quality materials and component parts, especially for the semiconductor industry. This is driven by ongoing advances in digitalization and the creation of new markets, such as e-mobility, resulting from this.

There have been no material changes to overall opportunities for the PVA TePla Group in comparison to the previous year.

6. FORECAST REPORT

The forecast report describes the expected business development of both PVA TePla AG and the PVA TePla Group in fiscal year 2022. The statements in this chapter were made on the basis of the current Group portfolio and customers' portfolios and assumptions on future macroeconomic and industry developments.

The actual results may, as usual in the project business, deviate substantially from the forecast development, if the underlying assumptions later prove to be incorrect. PVA TePla AG is under no obligation to update forward-looking statements or to adjust these to future developments. It assumes no guarantee or liability for ensuring that the business position, net assets, financial position or results of operations actually achieved match the assumptions and estimates. Neither the premises of our planning nor the following forecasts include effects from the Russian war against Ukraine.

6.1. Macroeconomic Environment Forecast

The growth of the global economy could reach 4.4% in 2022. The US and Eurozone economies are likely to grow by around 4% in the full year 2022. Consumption should remain strong because private households are in a comfortable financial situation thanks to their higher savings and capital gains. Furthermore, spending on services is likely to increase further once the burdens imposed on this sector by the pandemic subside.
Growth rates are likely to decline in the US and in the Eurozone during the course of 2022 compared with the previous year. The opposite is true for Japan and China. Following the most recent economic slowdown due to the pandemic, Japan is expected to grow strongly during the first half of 2022, not least due to impressive progress with regard to vaccination. Consequently, the annual growth rate is likely to accelerate to 2.7% in 2022. In China, the current weak level of investment in real estate – a tangible but frequently overstated burden on the economy – is set to reverse completely in 2022. The downturn in the real estate sector can be seen largely as a reaction to the credit squeeze imposed by the authorities.

6.2. Sector Development Forecast

According to the World Semiconductor Trade Statistics, the global semiconductor market will grow a further 8.8% in fiscal 2022 to reach USD 601 billion, whereas this growth applies to all product categories and regions. Deliveries of silicon wafers are expected to grow at an average growth rate over three years (from 2021 to 2024) of around 4.6%, held back only by limited capacities.

In its base scenario for the year 2022, Oxford Economics anticipates a price-adjusted increase in global machine sales of 5%, with above-average increases in the United Kingdom and in Germany. Growth in China as well as Japan is forecast in line with the global average while the US and South Korea are ranked below them with growth of 3%. The primary downside risks in the current base forecast are disrupted supply chains, the COVID-19 pandemic as well as higher inflation rates. In the event of the negative scenario of a "protracted COVID-19 period" with recurring virus mutations, growth in global sales revenues would be lowest for mechanical engineering in the short term. In this case, the global growth rate could be no more than 2%.

6.3. Expected Business Development

The PVA TePla Group outlook for fiscal 2022:

The PVA TePla Group's business development projection for the current fiscal year 2022 is based on the expectations and assumptions regarding general economic performance outlined above, specific sector developments, the order backlog as of December 31, 2021, and project expectations for the respective industrial business.

The forecast for fiscal 2022 assumes that the COVID-19 pandemic will not have a lasting negative impact on the global economy. However, there is ongoing uncertainty on the market, which applies particularly to the timely processing of projects.

At present, the political and economic implications of Russia's military invasion of Ukraine and the associated sanctions along with the overall economic impact on the PVA TePla Group are not yet clearly understood. Subject to these developments, and based on the existing project structure in the order backlog, the Management Board expects sales revenues for fiscal 2022 in the range of EUR 170 million and EUR 180 million and EBITDA of between EUR 25 million and EUR 27 million.

Medium term outlook for the PVA TePla Group:

For the 2023 fiscal year and beyond, the company anticipates considerable growth, both for sales revenues and earnings.

As a consequence, the PVA TePla Group anticipates strongly increasing demand for silicon carbine elements and wafers. For this reason, the company is reinforcing its research and development activities in this area and will be investing considerable funds in process development for 6-inch and 8-inch wafers. In the medium term, the company is expecting a considerable earnings contribution from this sector.

Advances in digitalization and rapid ongoing technical production optimization of e-mobility is accelerating demand for semiconductors, especially in the area of power electronics and thus also in PVA TePla Group systems.

PVA TePla AG Outlook for Fiscal 2022:
For the 2022 financial year, PVA TePla AG, which exercises almost entirely holding functions, expects sales revenues and operating earnings (EBITDA) to increase slightly year on year. Neither the premises of our planning nor the following forecasts include effects from the Russian war against Ukraine.

7. ASSUMPTION OF RELEVANT DISCLOSURES

Disclosures in accordance with Sections 289a, 315a of the German Commercial Code (Handelsgesetzbuch - HGB)

COMPOSITION OF SUBSCRIBED CAPITAL (NO. 1)

As of December 31, 2021, the issued share 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 (NO. 2)

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 SHAREHOLDINGS THAT EXCEED 10% OF VOTING RIGHTS (NO. 3)

According to disclosures filed with the company, PA Beteiligungsgesellschaft mbH, Wettenberg, Germany, and AIM International Mutual Funds (Invesco International Mutual Funds), Wilmington, Delaware, US, held more than 10% of the voting rights in PVA TePla AG as of December 31, 2021.

HOLDERS OF SHARES WITH SPECIAL RIGHTS (NO. 4)

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

TYPE OF VOTING RIGHTS CONTROL IN THE CASE OF EMPLOYEE SHAREHOLDINGS (NO. 5)

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 (NO. 6)

a) Appointing Management Board Members

The appointment of PVA TePla AG Management Board members is done in accordance with Section 84 of the German Stock Corporation Act (AktG), and Section 6 (2) of the PVA TePla AG Articles of Incorporation. 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) Recalling Management Board Members

In accordance with Section 84 (3) sentence 1 of the German Stock Corporation Act (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) Amending 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 resolve 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 resolved by simple majority of votes cast, provided this is permitted by law.

AUTHORITY OF THE MANAGEMENT BOARD TO ISSUE OR REPURCHASE SHARES (NO. 7)

As of December 31, 2021, the Management Board is authorized via Annual General Meeting resolution to issue new shares from authorized capital in the amount of EUR 10,874,994.00 by June 20, 2022. Furthermore, the Management Board is authorized via Annual General Meeting resolution to buy back shares amounting to 10% of authorized capital by June 18, 2023.

KEY AGREEMENTS CONTINGENT UPON A CHANGE OF CONTROL RESULTING FROM A TAKEOVER BID (NO. 8)

The current master agreements with the banks are based on a largely unchanged shareholder structure and, in case of a change in control, calls for renegotiation or, in one case, specifies 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 case of a change in control. 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 (NO. 9)

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

8. DEPENDENCY REPORT

In the past, PA Beteiligungsgesellschaft mbH held the majority of votes cast at Annual General Meetings. The Management Board of PVA TePla AG therefore prepared a dependency report for fiscal year 2021 pursuant to Section 312 of the AktG: "We declare that according to the information known to us at this time, our company engaged in legal transactions with dependent companies pursuant to Section 312 of the AktG and received appropriate compensation in all cases. The company did not take or fail to take any reportable measures."

9. COMPANY MANAGEMENT DECLARATION

The PVA TePla AG Management Board and Supervisory Board are committed to the recognized standards of good and responsible company management and align their management and monitoring in accordance with the requirements of the German Corporate Governance Code (the "Code"). The standards applied are set out in the Company Management Declaration in accordance with Section 289f in connection with Section 315d of the German Commercial Code (Handelsgesetzbuch - HGB). PVA TePla AG publishes the Company Management Declaration (Section 289f HGB) and the Group's Company Management Declaration (Section 315d HGB) on its website at https://www.pvatepla.com/en/investor-relations/corporate-governance. This declaration also contains the Declaration of Compliance relating to the German Corporate Governance Code in accordance with Section 161 AktG, which can be accessed at https://www.pvatepla.com/en/investor-relations/corporategovernance.

10. NON-FINANCIAL GROUP REPORT IN ACCORDANCE WITH SECTION 315B HGB

In accordance with the requirements of Section 315b (1), (3) HGB, the PVA TePla AG Management Board has prepared a non-financial Group report for fiscal 2021. The declaration is available in a separate non-financial report pursuant to Sections 315b, 315c HGB on the company's website at https://www.pvatepla.com/en/investor-relations/sustainability .

11. COMPENSATION REPORT

In accordance with the requirements of section 289f II (1a) in conjunction with section 315d HGB, the PVA TePla AG Management Board has prepared the compensation report for fiscal 2021. The report is available on the company website at https://www.pvatepla.com/en/investor-relations/corporate-governance .

Wettenberg, March 18, 2022

Manfred Bender
Chief Executive Officer

Jalin Ketter
Chief Financial Officer

Oliver Höfer
Chief Operating Officer

Dr. Andreas Mühe
Chief Technology Officer

RESPONSIBILITY STATEMENT

"To the best of our knowledge we assure that in accordance with the applicable reporting principles, the Consolidated Financial Statements give a true and fair view of the net assets, financial position and profit or loss of the Group, and the Group Management Report give a true and fair view of the development and performance of the business and the position of the Group, together with a description of the principle opportunities and risks associated with the expected development of the Group."

Wettenberg, March 18, 2022

PVA TePla AG

Manfred Bender
Chief Executive Officer

Jalin Ketter
Chief Financial Officer

Oliver Höfer
Chief Operating Officer

Dr. Andreas Mühe
Chief Technology Officer

Group Notes

CONSOLIDATED BALANCE SHEET

ASSETS EUR'000	Notes	Dec. 31, 2021	Dec. 31, 2020
Non-current assets			
Intangible assets	8	10,405	11,081
Right-of-use assets	19	2,161	2,695
Property, plant and equipment	9	28,823	28,596
Non-current investments	10	25,841	393
Deferred tax assets	13	4,477	4,531
Total non-current assets		**71,707**	**47,296**
Current assets			
Inventories	11	59,190	67,627
Trade and other receivables	12	32,555	24,802
Contract assets	12	18,917	7,674
Income tax assets		142	116
Cash, cash equivalents and term deposits	G	57,734	29,730
Total current assets		**168,538**	**129,949**
Total		**240,245**	**177,245**

LIABILITIES AND SHAREHOLDERS' EQUITY EUR'000	Notes	Dec. 31, 2021	Dec. 31, 2020
Shareholders' equity			
Share capital	H	21,750	21,750
Reserves	H	61,039	47,564
Total		**82,789**	**69,314**
Non-current liabilities			
Retirement pension provisions	15	15,886	17,335
Other provisions	16	1,316	327
Financial liabilities	14	1,223	1,700
Deferred tax laibilities	13	4,777	3,858
Total		**23,202**	**23,220**
Current liabilities			
Other provisions	16	4,485	3,628
Financial liabilities	14	979	1,252
Liabilities to employees		6,289	4,774
Trade payabels		11,118	7,991
Contract liabilities	17	102,938	62,859
Provisions for taxes		3,451	1,781
Other liabilities		4,994	2,426
Total		**134,254**	**84,711**

CONSOLIDATED INCOME STATEMENT

EUR '000	Notes	Jan. 1 - Dec. 31, 2021	Jan. 1 - Dec. 31, 2020
Sales revenues	1	**155,739**	**137,036**
Cost of sales		-108,981	-93,862
Gross profit		**46,758**	**43,174**
Selling and distributing expenses		-13,187	-12,408
General administrative expenses		-11,267	-8,900
Research and development expenses	2	-6,999	-4,593
Other operating income	3	5,008	3,939
Other operating expenses	3	-1,982	-2,694
Operating result (EBIT)		**18,331**	**18,518**
Finance revenues	4	7	7
Finance costs	4	-584	-680
Financial result and share of profit from associates		**-577**	**-673**
Net result before tax		**17,754**	**17,846**
Income taxes	5	-5,599	-5,117
Consolidated net result for the year		**12,155**	**12,729**
Earnings per share			
Earnings per share (basic) in EUR	6	0.56	0.59
Earnings per share (diluted) in EUR	6	0.56	0.59

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

EUR'000	Jan. 1 - Dec. 31, 2021	Jan. 1 - Dec. 31, 2020
Consolidated net result for the year	**12,155**	**12,729**
Other comprehensive income		
Items that may be reclassified to profit or loss		
Currency changes	547	-445
Income taxes	0	0
Changes recognised outside profit or loss (currency changes)	**547**	-445
Total of items that may be reclassified to profit or loss	**547**	**-445**
Items that will never reclassified to profit or loss		
Change in pension provisions	1,089	-401
Income taxes	-316	116
Changes recognized outside profit or loss (pension provision)	**773**	**-285**
Total of items that will never reclassified to profit or loss	773	**-285**
Total comprehensive income	13,475	**11,999**

CONSOLIDATED CASH FLOW STATEMENT

EUR '000	01.01. - 31.12.2021	01.01. - 31.12.2020
Consolidated net result for the year	12,155	12,729
Adjustments to the consolidated net result for the year reconciliation to the cash flow operating activities		
+ Income taxes	5,599	5,116
- Finance revenues	-7	-7
+ Finance costs	584	680
= Operating result (EBIT)	**18,331**	**18,518**
+/- Income tax payments	-3,235	-1,910
+ Amortization and depreciation	4,701	4,230
-/+ Gains/losses on disposals of non-current assets	3	2
+/- Other non-cash expenses/income	271	-653
-/+ Increase/decrease in inventories, trade receivables and other assets	-9,393	5,700
+/- Increase/decrease in provisions	1,040	-461
+/- Increase/decrease in trade payables and other liabilities	47,138	-17,362
= Cash flow from operating activities	**58,855**	**8,065**
- Cash flow from obtaining control of subsidiaries or other business less aquired cash	-375	-187
+ Receipts from intangible asstes and property, plant and equipment	10	0
- Payment of intangible asstes and property, plant and equipment	-3,422	-805
+ Receipts from financial assets	5,000	6,000
- Cash out from investments in financial assets	-35,202	-4,375
+ Interest receipts	7	7
= Cash flow from investing activities	**-33,981**	**640**
- Payments for the repayment of leasing liabilities	-1,025	-830
- Payments from redumption of financial liabilities	-236	-3,154
- Payment of interest	-251	-328
= Cash flow from financing activities	**-1,512**	**-4,312**
Net change in cash and cash equivalents	23,363	4,393
+/- Effect of exchange rate fluctuations on cash and cash equivalents	-359	-233
+ Cash and cash equivalents at the beginning of the period	29,730	25,570
= Cash and cash equivalents at the end of the period	**52,734**	**29,730**
= Cash, cash equivalents and term deposits	**57,734**	**29,730**
Term deposits with terms > three and >= twelve months	-5,000	0
= Cash and cash equivalents in cash flow statement	**52,734**	**29,730**

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

EUR'000	Shares issued		Revenue reserves	Other reserves		Total shareholders interest
				Currency exchange	Pension provisions	
	Number					
As at January 31, 2020	21,749,988	21,750	40,949	458	-5,842	57,315
Total			12,729	-445	-285	11,999
As at December 31, 2020	21,749,988	21,750	48,578	13	-6,127	69,314
As at January 1, 2021	**21,749,988**	**21,750**	**53,678**	**13**	**-6,127**	**69,314**
Total			12,155	547	773	13,475
As at December 31, 2021	**21,749,988**	**21,750**	**65,833**	**560**	**-5,354**	**82,789**

PVA TePla AG, Wettenberg

Notes to the Consolidated Financial Statements for Fiscal Year 2021

(January 1 - December 31, 2021)


PVA TePla

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 S-DAX since September 20, 2021.

Business activities and business segments

As a technology company, PVA TePla AG and its subsidiaries (hereinafter "PVA TePla Group") refine and produce materials, which are used for example in the semiconductor industry. The focus of operating activities in the PVA TePla Group is the development, manufacture and sale of processes, products, systems and services in materials technology, plasma and ion beam technology, metrology and inspection technology for finely structured objects and vacuum technology. With locations in Germany, Italy, the USA, China, Taiwan and Singapore, the PVA TePla Group maintains business relationships around the world.

The 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 focuses on the production of crystal growing systems for manufacturing silicon crystals, while the Industrial Systems division produces sintering systems for manufacturing hard metal tools. The machines operate with vacuum, temperature, plasma and pressure.

Accounting statements and general principles of presentation

The consolidated financial statements of the PVA TePla Group for the fiscal year 2021 ending December 31, 2021 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 2021 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 2021 began on January 1, 2021 and ended on December 31, 2021. The corresponding previous year thus covers the period from January 1, 2020 to December 31, 2020.

The consolidated financial statements were prepared in accordance with the historical cost principle and on a going concern basis. This excludes derivative financial instruments measured at fair value.

The consolidated statement of profit or loss has been prepared in accordance with the cost of sales method of presentation. In case items in the consolidated statement of financial position or the consolidated statement of profit or loss 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 statement of profit or loss 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, 2021 to December 31, 2021 were approved by the Management Board of PVA TePla AG and submitted to the Supervisory Board for review and approval on March 18, 2022.

B. Changes in accounting policies

New and updated standards and Interpretations adopted for the first time in fiscal year 2021

The accounting policies applied in the PVA TePla Group's consolidated financial statements for the fiscal year 2021 match those used in the previous year (fiscal year 2020). 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 2021. For the PVA TePla Group there were no material changes as a result of their initial application in fiscal year 2021.

Standard/ Interpretation	Title	Initial application PVA TePla Group	Adoption by the EU	Effects on the PVA TePla Group
Amendments to IFRS 4	Extension of the temporary exemption from applying IFRS 9	January 1, 2021	took place on December 15, 2020	no impact
Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16	Interest rate benchmark reform – phase 2	January 1, 2021	took place on January 13, 2021	no impact
Amendment to IFRS 16	(I) Covid-19-related rent concessions (ii) Covid-19-related rent concessions beyond 30 June 2021	January 1, 2021	took place on October 9, 2020 / August 30, 2021	no 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 2021. The PVA TePla Group does not intend to apply these new/updated Standards and Interpretations early.

Standard/ Interpretation	Title	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 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
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	provisionally January 1, 2023	no	no relevance
Amendments to IAS 1	Classification of debt as current or non-current, including deferral of effective date	provisionally January 1, 2023	no	effects are currently being analyzed
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	provisionally January 1, 2023	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, 2021, in addition to PVA TePla AG eight German (previous year: eight) and eight foreign (previous year: eight) subsidiaries were consolidated:

Company	Corporate domicile	Equity share [in %] Direct shareholding Dec. 31, 2021	Indirect shareholding Dec. 31, 2021
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 Taiwan Ltd.	Hsinchu, Taiwan	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 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 Italy S.r.l.	Bolzano, Italy	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 2021:

- 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 the consolidated group

The companies included in consolidation by the PVA TePla AG Group have not changed in fiscal year 2021. The acquisitions performed in the previous year are described in the notes to the consolidated financial statements (section C.) in the 2020 annual report.

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, 2021). 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, recognized hidden reserves and liabilities are adjusted in line with the treatment of the corresponding assets and liabilities. The costs of a company acquisition is 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 Group 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 profit or loss and recognized in the consolidated statement of profit or loss under 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 in equity under "Other reserves".

Most important exchange rates against the euro

EUR = 1	Average exchange rate		Closing rate	
	2021	2020	Dec. 31, 2021	Dec. 31, 2020
USA (USD)	1.18353	1.14128	1.13260	1.22710
China (CNY)	7.63402	7.87084	7.19470	8.02250
Singapore (SGD)	1.58965	1.57357	1.52790	1.62180
Taiwan (TWD)	33.02300	33.59800	31.50300	34.28800

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 to 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 bases its assessment of these judgments and estimate uncertainties on past experience, estimates from experts (lawyers, rating agencies 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 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 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, 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 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 to be included if it is reasonably certain that these options will be exercised. For more information, refer to the explanations in note 20.

The management of PVA TePla Group makes estimates on the anticipated impact of the COVID-19 pandemic, 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 COVID-19 pandemic is not 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]	2021	%	2020	%
Systems	122,164	79	111,009	81
After-sales service / IP	26,510	17	20,657	15
Contract processing	5,054	3	4,222	3
Others	2,011	1	1,148	1
Total	**155,739**	**100**	**137,036**	**100**

Sales revenues by time of performance

[EUR'000]	2021	%	2020	%
Sales revenues recognized at a point in time	138,804	89	118,154	86
Sales revenues recognized over time	16,935	11	18,882	14
Total	**155,739**	**100**	**137,036**	**100**

See segment reporting under note 18 for more information on sales revenues breakdowns.

Customer-specific system production (POC method) [EUR'000]	Dec. 31, 2021	Dec. 31, 2020
Revenue from customer-specific system production	14,159	7,483
Contract costs	-11,492	-6,452
Gains from customer-specific system production	**2,667**	**1,031**

There were no significant financing components resulting from contracts with customers in fiscal year 2021 or in the previous period.

[EUR'000]	Performance obligations not yet fulfilled as of the end of the reporting period: expected to be fulfilled in ≤ 12 months	expected to be fulfilled in > 12 months
Overall scope of contractual obligations contracted at December 31, 2021 but not yet (fully) fulfilled	134,817	148,452
Overall scope of contractual obligations contracted at December 31, 2020 but not yet (fully) fulfilled	105,445	19,510

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 is 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 considered 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 to be 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. Sales revenues are otherwise 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 primarily uses input-based methods to determine revenue generated from longer-term production of systems for specific customers, primarily 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 with 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, intangible assets are capitalized.

Research and development expenses reported on the income statement amount to EUR 6,999 thousand in fiscal year 2021 (previous year: EUR 4,593 thousand). The related income from research and development grants were recognized in other operating income at a level of EUR 1,526 thousand (previous year: EUR 762 thousand).

3. Other operating income / other operating expenses

[EUR'000]	2021	2020
Foreign exchange gains	1,721	1,653
Grants for research and development projects	1,526	762
Remuneration in kind (e.g. company car)	320	312
Income from the reversal of provisions	234	28
Income from the reversal of specific bad debt allowances on receivables	156	682
Insurance compensation	310	72
Income from the disposal of fixed assets	1	7
Damages	-	55
Miscellaneous operating income	1,019	368
Other operating income	**5,008**	**3,939**

[EUR'000]	2021	2020
Foreign exchange losses	-1,405	-1,865
Expenses for the recognition of specific bad debt allowances on receivables	-88	-114
Expenses from the disposal of fixed assets	-4	-8
Miscellaneous other operating expenses	-485	-707
Other operating expenses	**-1,982**	**-2,694**

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

[EUR'000]	2021	2020
Other interest and income	7	7
Finance income	**7**	**7**

Finance income is entirely attributable to income from cash equivalents measured at amortized cost.

[EUR'000]	2021	2020
Expenses from derivative financial instruments	-	-33
Interest expense for pension provisions	-125	-154
Interest expenses for loans from banks	-176	-179
Arrangement and commitment fees	-191	-252
Interest expenses for lease liabilities	-66	-61
Write-downs on securities	-24	-
Other interest and similar expenses	-3	-1
Finance expenses	**-584**	**-680**

Finance expenses for financial liabilities not measured at fair value through profit or loss amount to EUR -242 thousand and relate to interest expenses for loans from banks and leasing 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]	2021	2020
Current tax expenses	-4,880	-3,295
Deferred tax expenses	-4,878	-3,281
Previous period tax charges (-)/income	-2	-14
Deferred tax expense (-)/income (+)	-719	-1,822
Credit from tax loss carryforwards	-126	-1,121
Other deferred taxes	-593	-701
Income taxes	**-5,599**	**-5,117**

Deferred taxes of EUR -316 thousand (previous year: EUR 116 thousand) were recognized directly in equity without affecting the consolidated income statement. These are 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 2021 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: 13.4%). In fiscal year 2021, the country-specific income tax rates used for foreign companies range between 15% and 30% (previous year: 11% and 28%).

[EUR'000]	2021	%	2020	%
Net result before tax	**17,754**		**17,846**	
Expected tax expenses	**-5,149**	**-29**	**-5,175**	**-29**
Tax payable abroad	52	0	77	0
Increase in taxes due to non-deductible expenses	-234	-1	-221	-1
Tax reductions due to tax-free income	289	2	89	0
Effects concerning deferred tax assets from tax loss carryforwards	53	0	495	3
Tax back payments (-)/tax refunds (+) for previous years	-321	-2	19	0
Other tax effects	-290	-2	-401	-2
Current tax expenses	**-5,599**	**-32**	**-5,117**	**-29**

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 reported directly in equity are not recognized on the consolidated income statement but 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

	2021	2020
Numerator [in EUR'000]:		
Consolidated net result for the period	12,155	12,729
Denominator [in shares]:		
Weighted average number of no-par shares outstanding	21,749,988	21,749,988
Earnings per share [EUR]: (Basic/diluted)	**0.56**	**0.59**

As in the previous year, in fiscal year 2021 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 per share as of December 31, 2021 in comparison to December 31, 2020.

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]	2021	2020
Cost of raw materials, consumables and supplies and of goods purchased and held for resales	-58,305	-54,434
Cost of purchased services	-5,788	-4,668
Total cost of materials	**-64,093**	**-59,102**

Cost of materials is included in the cost of sales. The materials ratio (cost of materials to total sales revenues) amounted to 41.2% in fiscal year 2021, compared to 43.1% in the previous year.

Total staff costs

[EUR'000]	2021	2020
Wages and salaries	-39,556	-36,500
Social charges	-7,254	-6,653
Total staff costs	**-46,810**	**-43,152**

As a proportion of sales revenues, staff costs increased to 30.1% in fiscal year 2021 after 31.5% in the previous year. The absolute increase is largely due to new staff and higher remuneration. Social security contributions in fiscal year 2021 include pension expenses of EUR 275 thousand (previous year: EUR 300 thousand). 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 of EUR 180 thousand (previous year: EUR 9 thousand) and a government grant in accordance with IAS 20 in this context.

	2021	2020
Number of employees by function (average for year)		
Production and service	302	296
Engineering, research and development	99	94
Administration	70	63
Sales	87	87
Total	**558**	**539**

In fiscal year 2021, there were also an average of 32 apprentices and trainees (previous year: 28) and 18 marginal part-time employees, employees on parental leave and those with long-term illnesses (previous year: 15).

Depreciation, amortization and impairment

[EUR'000]	2021	2020
Amortization of intangible assets	-774	-651
Depreciation on rights	-1,044	-849
Depreciation of property, plant and equipment	-2,883	-2,730
Depreciation, amortization and impairment	**-4,701**	**-4,230**

F. Notes to the consolidated statement of financial position

8. Intangible assets

[EUR'000]	Goodwill	Other intangible assets	Advance payments	Total
Cost				
Jan. 1, 2020	**12,748**	**9,306**	**-**	**22,054**
Exchange differences	-	-6	-	-6
Changes to the companies included in consolidation	-	56	-	56
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**
Accumulated amortization, depreciation and write-downs				
Jan. 1, 2020	**4,850**	**5,733**	**-**	**10,583**
Exchange differences	-	-4	-	-4
Additions	-	651	-	651
Disposals	-	-17	-	-17
Transfers	-	-	-	-
Dec. 31, 2020	**4,850**	**6,363**	**-**	**11,213**
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**
Net carrying amounts				
Dec. 31, 2020	**7,914**	**3,167**	**-**	**11,081**
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, which is the excess of the purchase price over the fair value of the net assets acquired.

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 unit (CGU) **[EUR'000]**	**Dec. 31, 2021**	**Dec. 31, 2020**
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	**7,914**	**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 fiscal 2020, is also an independent cash-generating unit of the Semiconductor Systems division.

In the Industrial Systems division, there is only one separate cash-generating unit, PVA Industrial Vacuum Systems GmbH based in Wettenberg. The goodwill of PlaTeG GmbH was transferred to this company after its merger in the 2015 fiscal year.

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 1.1822 (previous year: 1.1241). 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 10.6% (previous year: around 9.6%).

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

For the Analytical Systems business unit, we expect average geometric growth in sales revenues (CAGR determination) of 7% (previous year: 14%) (0.5% in perpetual annuity) in the next three years due to the continued high level of investments in the semiconductor industry and the further effects of sales activities.
In the Crystal Growing Systems business unit, we are anticipating a significantly higher level of sales revenues until 2024, which brings the perpetual annuity back down to the current level.

The goodwill test has shown no requirement for recognizing impairment losses, either in fiscal year 2021 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 is developing on an ongoing basis, the forecasts in fiscal year 2021 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 assumes that the economic impact of the current pandemic 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 therefore only capitalized if all the requirements of IAS 38.57 are met. Research and development costs that cannot be capitalized are recognized through profit or loss in the period in which they are incurred. If an internally generated intangible asset meets the requirements for recognition, it is 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. Internally generated intangible assets that are not yet complete are subject to an annual impairment test.

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, 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). Impairment testing is also performed 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 assessments the PVA TePla Group uses detailed budget and forecast calculations for its 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	Plant and machinery	Equipment, fixtures and fittings	Assets under construct ion	Total
Cost					
Jan. 1, 2020	**33,465**	**10,985**	**8,710**	**89**	**53,249**
Exchange differences	-8	-138	-33	-	-179
Changes to the companies included in consolidation	-	9	8	-	17
Additions	25	59	1,426	1	1,511
Disposals	-	-196	-828	-	-1,024
Transfers	-	-	88	-89	-1
Dec. 31, 2020	**33,482**	**10,719**	**9,371**	**1**	**53,573**
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**
Accumulated amortization, depreciation and write-downs					
Jan. 1, 2020	**12,390**	**6,259**	**4,415**	**-**	**23,064**
Exchange differences	-8	-134	-11	-	-153
Additions	924	797	1,009	-	2,730
Disposals	-	-154	-510	-	-664
Transfers	-	-	-	-	-
Dec. 31, 2020	**13,306**	**6,768**	**4,903**	**-**	**24,977**
Jan. 1, 2021	**13,306**	**6,768**	**4,903**	**-**	**24,977**
Exchange differences	7	123	27	-	157
Additions	925	796	1,162	-	2,883
Disposals	-	-	-256	-	-256
Transfers	-	-	-	-	-
Dec. 31, 2021	**14,238**	**7,686**	**5,836**	**-**	**27,761**
Net carrying amounts					
Dec. 31, 2020	**20,176**	**3,951**	**4,468**	**1**	**28,596**
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 in the amount of EUR 18,000 thousand to secure the PVA TePla AG loans for financing new facilities in Wettenberg. One of these loans was replaced in full in fiscal 2020. As in the previous year, the second loan had not been utilized as of December 31, 2021.

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 2021 or in the previous year.

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 the 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, 2021	Dec. 31, 2020
Non-current securities	25,054	0
Trade receivables	1,714	1,788
Investments in associates	750	375
Other non-current receivables	37	18
Gross value	**27,555**	**2,181**
Less impairment losses	-1,714	-1,788
Non-current financial assets	**25,841**	**393**

Non-current financial assets essentially comprise long-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]	2021	2020
Write-downs on January 1	**1,788**	**2,007**
Currency exchange differences	-	-
Addition	-	.
Utilization	-	-
Reversals	-74	-219
Write-downs on December 31	**1,714**	**1,788**

The reversal of impairment totaling EUR 74 thousand (previous year: reversal of EUR 219 thousand) recognized in fiscal year 2021 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 securities and derivative financial instruments, financial assets of the PVA TePla Group comprise primarily cash and cash equivalents as well as term deposits and current and non-current trade receivables which result directly from its operating activities.

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;
- Investments in debt instruments measured at fair value with changes in other comprehensive income;
- Equity investments measured at fair value with changes in other comprehensive income; or
- Fair value measurement through profit or loss.

Classification is based on the company's business model for managing the financial assets and the contractual cash flow characteristics. If the financial asset is 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, it is measured at amortized cost.
The financial assets 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 securities, trade receivables, cash and cash equivalents as well as time deposits, are allocated to the amortized cost 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 changes resulting from this are recognized in profit or 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 is directly or indirectly observable on the market; or
- *Level 3*: Measurement method, with which the lowest input factor material for measurement is not directly or indirectly observable on the market.

11. Inventories

[EUR‘000]	Dec. 31, 2021	Dec. 31, 2020
Raw materials and operating supplies	22,397	20,417
Work in progress	40,938	51,905
Finished products and goods	769	1,722
Gross value	**64,104**	**74,044**
Less impairment losses	-4,914	-6,417
Inventories	**59,190**	**67,627**

In fiscal year 2021, changes of impairment of EUR +1,505 thousand (previous year: EUR -1,078 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 and other receivables and contract assets

[EUR'000]	Dec. 31, 2021	Dec. 31, 2020
Trade receivables concerning product sales and services	19,239	14,080
Advance payments	6,402	2,929
Other current receivables	7,149	8,001
Contract assets	18,917	7,674
Gross value	**51,707**	**32,684**
Less impairment losses	-235	-208
Trade and other receivables and contract assets	**51,472**	**32,476**

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

[EUR'000]	Dec. 31, 2021	Dec. 31, 2020
POC receivables (gross value)	14,524	4,661
less advance payments received	-8,447	-2,475
Subtotal	**6,077**	**2,186**
Contract assets (not including POC method)	4,304	1,244
Unconditional payment entitlements (down payment invoices)	8,536	4,244
Contract assets	**18,917**	**7,674**

[EUR'000]	2021	2020
Write-downs on January 1	**-208**	**-776**
Addition	-88	-114
Utilization	0	0
Reversals	+61	+682
Write-downs on December 31	**-235**	**-208**

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.

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 past 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 recognized separately in the Group income statement under "Impairment from financial assets". 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, 2021 Deferred tax assets	Dec. 31, 2021 Deferred tax liabilities	Dec. 31, 2020 Deferred tax assets	Dec. 31, 2020 Deferred tax liabilities
Non-current assets	152	480	43	579
Inventories	964	0	1,021	0
Trade receivables	0	3,359	0	2,484
Tax loss carryforwards	586	0	658	0
Provisions for pensions	2,106	0	2,419	0
Other provisions	442	785	217	625
Others	227	153	173	170
Total	**4,477**	**4,777**	**4,531**	**3,858**
Balance of deferred tax	**-300**		**673**	

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. These loss carryforwards relate to PVA TePla America Inc., Corona, USA, in the amount of USD 2,699 thousand (previous year: USD 3,418 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.

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 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 reported 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 were 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

	December 31, 2021			December 31, 2020		
[EUR'000]	Current	Non-current	Total	Current	Non-current	**Total**
Liabilities from leases	971	1,223	2,194	1,027	1,700	**2,727**
Loans from credit institutes	8	-	8	225	-	**225**
Total	**979**	**1,223**	2,202	**1,252**	**1,700**	**2,952**

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. An extension option for a further two years was exercised. The total financing framework amounts to EUR 40 million. EUR 20 million of this can be used as a mixed line (cash and guarantee line). EUR 20 million of this line is available for M&A activities and will be converted into an amortizing loan when utilized. A further EUR 80 million is available as a guarantee facility. There are options to increase both the cash facilities and the guarantee facilities by EUR 40 million each. The option to increase the guarantee facilities was exercised in the amount of EUR 30 million in fiscal year 2021.

Interest is according to EURIBOR with a graduated margin based on the debt ratio. As in the previous year, as of December 31, 2021, no cash lines had been utilized and EUR 87.9 million (previous year: EUR 25.2 million) of the guaranteed lines had been utilized as of the end of each reporting period. The syndicated loan agreement defines financial covenants for compliance with standard financial ratios. These financial covenants were met in both fiscal year 2021 and in the previous year.

Further financing facilities of EUR 1.3 million are available as working capital financing. As in the previous year, this had not been utilized as of December 31, 2021.

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

[EUR'000]	2021	2020
Due		
Up to 1 month	86	91
Between 1 and 3 months	170	180
Between 3 months and 1 year	968	756
Between 1 and 5 years	1,223	1,700
More than 5 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 or 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 in profit or loss. Gains or losses from derecognition are also recognized in profit or 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 in profit or loss.

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

15. Provisions for pensions

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, 2021	Dec. 31, 2020
Income trend	3.00	3.00
Pension trend	1.25	1.25
Staff turnover	1.50	1.50
Interest rate	1.05% - 1.31%	0.63% - 0.95%

[EUR'000]	2021	2020
Present value of future pensions on Jan. 1	17,335	17,223
Additions through company acquisition	-	-
Current service expense for services provided by employees in the fiscal year	114	140
Interest expense	125	154
Changes in the estimation of financial reporting	-	-
Pension payments	-599	-558
Actuarial gains (-) and losses (+)	-1,089	376
Present value of future pensions on Dec. 31	**15,886**	**17,335**

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

As of December 31, 2021, it can be assumed that EUR 655 thousand (previous year: EUR 604 thousand) will be fulfilled within the next twelve months and EUR 15,231 thousand (previous year: EUR 16,731 thousand) will be fulfilled at a later date (over a very long term for some portions). On December 31, 2021, the weighted average term of defined pension plans was 14.2 years (previous year: 14.6 years).

Sensitivity analyses

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

[EUR'000]	Increase	Reduction
Discount rate (0.25% change)	+16	-17
Future pension increases (0.25% change)	+17	-16

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 2021, the corresponding expenditure amounted to EUR 3,054 thousand (previous year: EUR 2,655 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 Group 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 Group income statement under operating expenses and the interest expense under finance costs. Gains or losses from curtailments or settlements are recognized directly in profit or loss.

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

16. Other provisions

[EUR'000]	Jan. 1, 2021	Changes to the companies included in consolidation	Utilization	Reversal	Addition	Dec. 31, 2021
Warranty	**2,821**	-	-2,081	-361	2,819	**3,198**
Subsequent costs	**-**	-	-		135	**135**
Archiving	**54**	-	-5	-	5	**54**
Penalties	**133**	-	-56	-	16	**93**
Other	**948**	-	-358	-13	1,745	**2,321**
Total	**3,956**	**-**	**-2,500**	**-374**	**4,720**	**5,801**

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.

Other provisions contain non-current components in the amount of EUR 1,316 thousand (previous year: EUR 327 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, 2021	Dec. 31, 2020
Contract liabilities (net exposure)	59,366	3,259
Advance payments received concerning product sales and services	43,572	59,600
Contract liabilities	**102,938**	**62,859**

EUR 52,896 thousand of the EUR 62,859 thousand advance customer payments recognized under "Contract liabilities" as of December 31, 2020 (December 31, 2019: EUR 78,605 thousand) were recognized as sales revenues (EUR 52,727 thousand) in fiscal year 2021.

[EUR'000]	Dec. 31, 2021	Dec. 31, 2020
Advance payments received	62,813	9,799
less contract costs incurred (incl. share of profit)	-3,447	-6,540
Contract liabilities (net exposure)	**59,366**	**3,259**

As of December 31, 2021, contract liabilities (POC method) include outstanding advance payment from customers with legally enforceable payment claims amounting to EUR 398 thousand (previous year: EUR 751 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 statement of cash flows

[EUR'000]	Dec. 31, 2021	Dec. 31, 2020
Cash in bank	33,013	27,717
Cash in hand	8	9
Cash investment	24,713	2,004
Cash funds according to the balance sheet	**57,734**	**29,730**
Term deposits with an agreed term of between four and <= twelve months	-5,000	-
Cash funds according to the consolidated statement of cash flows	**52,734**	**29,730**

Payments for investments in intangible assets and property, plant and equipment include cash acquisitions only. EUR 46 thousand was reclassified from inventories to property, plant and equipment in fiscal year 2021 (previous year: EUR 0.5 million). 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 statement of cash flows as cash flows from financing activities.

			Non-cash changes			
[EUR'000]	Jan. 1, 2021	Cash changes	Acquisitions	Foreign exchange differences	Other changes	Dec. 31, 2021
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**

[EUR'000]	Jan. 1, 2020	Cash changes	Non-cash changes: Acquisitions	Non-cash changes: Foreign exchange differences	Other changes	Dec. 31, 2020
Non-current financial liabilities	**3,231**	-1,667	+361	-	-225	1,700
Current financial liabilities	**1,308**	-2,302	+904	-	+1,342	1,252
Total	**4,539**	**-3,969**	**+1,265**	**-**	**+1,117**	2,952

Presentation of significant accounting policies

Cash and cash equivalents as well as term deposits comprise cash in hand, immediately available bank balances, term deposits with a term of up to twelve months 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 statement of cash flows. A distinction is drawn between three areas: Operating, investing and financing activities. According to the statement of cash flows, 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 also calculated using the indirect 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, 2021, 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.

Contingent and authorized capital

As in the previous year, there is no contingent capital as of December 31, 2021.

The Annual General Meeting on June 21, 2017 authorized the Management Board to increase the company's share capital with approval of the Supervisory Board on one or more occasions during the period until June 20, 2022 by a total of up to EUR 10,874,994 by issuing 10,874,994 new no-par value bearer shares against cash or non-cash contributions with shareholders' pre-emption rights disapplied to the extent permitted by law. No capital increases from this authorized capital were resolved in fiscal year 2021.

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 2021 (according to commercial law regulations) amounting to EUR 43,358 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]	2021		2020	
Segment information	External sales revenues	Internal sales revenues	External sales revenues	Internal sales revenues
Industrial Systems	37,887	5,652	45,599	3,561
Semiconductor Systems	117,852	1,154	91,437	849
Total PVA TePla Group	**155,739**	**6,806**	**137,036**	**4,410**

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

EBIT by division

[EUR'000]	2021	2020
Segment information		
Industrial Systems	1,935	6,740
Semiconductor Systems	21,391	16,280
Holding costs	-4,995	-4,502
Consolidation	-	-
Total PVA TePla Group	**18,331**	**18,518**

Reconciliation of segment earnings to earnings after taxes

[EUR'000]	2021	2020
Operating result (EBIT)	**18,331**	**18,518**
Financial result	-577	-673
Net result before tax	17,754	17,846
Income taxes	-5,599	-5,117
Consolidated net result for the period	**12,155**	**12,729**

Sales revenues by region

[EUR'000]	2021	in %	2020	in %
Asia	87,626	56	75,592	55
Germany	28,572	18	23,345	17
Europe (not including Germany)	20,262	13	28,916	21
North America	17,349	11	8,770	6
Other	1,929	1	413	1
Total PVA TePla Group	**155,739**	**100**	**137,036**	**100**

In fiscal year 2021, sales revenues of EUR 25.4 million (previous year: EUR 45.7 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 -88 thousand (previous year: EUR 114 thousand) in the income statement on current and non-current trade receivables to cover known risks in fiscal year 2021. Risks from advance payments are avoided with advance payment guarantees. There are no discernible risks from other receivables. As of December 31, 2021, 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 (possibly uncertain) general economic conditions (e.g. in 2020 the economic impact of the COVID-19 pandemic). In this way risk-clustered default rates are determined.

[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**

[EUR'000]	Dec. 31, 2020	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)	14,080	189	5,969	4,553	1,284	2,085
Contract assets (gross carrying amount)	7,674	-	7,674	-	-	-
Weighted average default rate (%) FY 2020	-	-	0.4%	0.4%	0.6%	0.9%
Weighted average default rate (%) FY 2019	-	-	0.2%	0.3%	0.4%	0.5%
Impairment	-208	**-118**	**-49**	**-16**	**-7**	**-18**

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 analysis 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 6,829 thousand (previous year: EUR 2,985 thousand) as of December 31, 2021. In what follows, the expected net payment from currency hedging instruments is shown.

[EUR'000]	Dec. 31, 2021	Dec. 31, 2020
Expected net payments		
Up to 1 month	-55	-32
Between one and three months	-122	-53
Between 3 months and 1 year	-73	-10
Between 1 and 5 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, 2021, the other reserves in equity would have been EUR 585 thousand lower (EUR 715 thousand higher) (December 31, 2020: EUR 382 thousand lower (EUR 467 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, 2021, the other reserves in equity would have been EUR 207 thousand lower (EUR 253 thousand higher) (December 31, 2020: EUR 144 thousand lower (EUR 180 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, 2021	Carrying amount for each valuation category				Not within valuation categories (excluded from the scope of IFRS 7)	
	Financial assets		Financial liabilities			
[EUR'000]	Fair value through profit or loss	At amortized cost	Fair value through profit or loss	At amortized cost		Total carrying amounts
Non-current assets						
Financial assets	-	25,841	-	-	-	**25,841**
Current assets						
Trade and other receivables	-	26,153	-	-	6,402	**32,555**
Cash and 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**

Dec. 31, 2020	Carrying amount for each valuation category				Not within valuation categories (excluded from the scope of IFRS 7)	
	Financial assets		Financial liabilities			
[EUR'000]	Fair value through profit or loss	At amortized cost	Fair value through profit or loss	At amortized cost		Total carrying amounts
Non-current assets						
Financial assets	-	393	-	-	-	393
Current assets						
Trade and other receivables	-	18,148	-	-	6,654	24,802
Cash and cash equivalents and term deposits	-	29,730	-	-	-	29,730
Non-current liabilities						
Financial liabilities	-	-	-	1,700	-	1,700
Other financial liabilities	-	-	-	-	-	-
Current liabilities						
Financial liabilities	-	-	-	1,252	-	1,252
Trade payables	-	-	-	7,991	-	7,991
Other liabilities	-	-	-	-	2,426	2,426
Total	**-**	**48,271**	**-**	**10,943**	**9,080**	**68,294**

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.

Net gains and losses on financial instruments by valuation category

[EUR'000]	2021	2020
Financial assets and financial liabilities at fair value through profit or loss	-70	+107
Financial assets measured at amortized cost	+348	+776
Financial liabilities measured at amortized cost	-58	-95
Total	**+220**	**+788**

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. All changes in derivative hedging instruments were cash changes (previous year: EUR -25 thousand non-cash changes on remeasurement).

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, 2021	Dec. 31, 2020
Equity	82,789	69,314
Total assets	**240,245**	**177,245**
Equity ratio	34.5%	39.1%

Equity increased to EUR 82,789 thousand in fiscal year 2021 (previous year: EUR 69,314 thousand).

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.

[EUR'000]	Land	Equipment, fixtures and fittings	Total
Cost			
Jan. 1, 2020	**1,886**	**989**	**2,875**
Exchange differences	-27	-	-27
Changes to the companies included in consolidation	461	-	461
Additions	452	603	1,055
Disposals	-	-120	-120
Transfers	-	-	-
Dec. 31, 2020	**2,772**	**1,472**	**4,244**
Jan. 1, 2021	**2,772**	**1,472**	**4,244**
Exchange differences	43	33	76
Changes to the companies included in consolidation	-	-	-
Additions	754	336	1090
Disposals	-576	-80	-656
Transfers	-	-	-
Dec. 31, 2021	**2,993**	**1,761**	**4,754**
Accumulated amortization, depreciation and write-downs			
Jan. 1, 2020	**368**	**332**	**700**
Exchange differences	-	-	-
Additions	440	409	849
Disposals	-	-	-
Transfers	-	-	-
Dec. 31, 2020	**808**	**741**	**1,549**
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**
Net carrying amounts			
Dec. 31, 2020	**1,964**	**731**	**2,695**
Dec. 31, 2021	**1,578**	**583**	**2,161**

In fiscal year 2021, expenses for leases which were not capitalized amounted to EUR 283 thousand (previous year: EUR 277 thousand), EUR 95 thousand (previous year: EUR 141 thousand) of which related to short-term leases and EUR 188 thousand (previous year: EUR 136 thousand) to leases for low-value assets.

In fiscal year 2021, total cash outflow for leases amounted to EUR 1,374 thousand (previous year: EUR 1,168 thousand), EUR 1,091 thousand (previous year: EUR 891 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.

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 only operates as lessor 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 statement of profit or loss.

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 from leases are reported separately in the consolidated statement of financial position under “Capitalized right-of-use assets”. Depreciation, amortization and impairments of capitalized right-of-use assets are recognized in function costs. 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 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 2021, as in the previous year, all leases entered into by the PVA TePla Group as lessor were classified 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 and the lease installments in other operating income pro rata when incurred.

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 would 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, 2021, 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 relatives and companies which are controlled, jointly controlled or significantly influenced by this group of persons.

In fiscal year 2021 and in the previous fiscal year, in connection with an existing consulting contract business relationship existed between PVA TePla AG and the main shareholder Peter Abel, who can exercise a significant influence on PVA TePla AG in connection with an existing consulting agreement with PA Beteiligungsgesellschaft mbH, Wettenberg, attributable to Peter Abel. The volume of the business transactions amounted to EUR 302 thousand (previous year: EUR 320 thousand). Furthermore, there were liabilities of EUR 0 thousand as of December 31, 2021 (previous year: EUR 212 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 the 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); since January 1, 2021
Alfred Schopf (CEO); until June 30, 2021
Jalin Ketter (CFO)
Oliver Höfer (COO)
Dr. Andreas Mühe (CTO)

Total remuneration of the executive board

[EUR'000]	2021	2020
Short-term benefits	1,969	1,629
Share-based payments	0	0
Post-employment benefits	0	0
Termination benefits	0	0
Other long-term benefits	782	264
Total	**2,751**	**1,893**

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, 2021, the fair value of each of these long-term bonus components calculated using the Black-Scholes price model was EUR 247 thousand (previous year: EUR 88 thousand) for three members of the Management Board and EUR 305 thousand (previous year: EUR 0 thousand) for one member of the Management Board. A liability of EUR 1,046 thousand (previous year: EUR 264 thousand) was thus recognized under "Other provisions" as of December 31, 2021. The total expense for these long-term bonus components was EUR 782 thousand in fiscal year 2021 (previous year: EUR 264 thousand). The following input factors were used in the Black-Scholes model. Anticipated volatility was derived from historical peer group volatility (median).

	Dec. 31, 2021	Dec. 31, 2020	Jun. 26, 2020
Dividend yield [%]	0.0	0.0	0.0
Expected volatility [%]	38.7	48.3	57.3
Risk-free interest rate [%]	-0.7	-0.8	-0.7
Residual term at measurement date [years]	1.5	2.5	3.0
Market capitalization (6 month average) [EUR million]	780	275	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 2021 or the previous year. There were no unusual transactions with related parties.

EUR 134 thousand was paid to former members of the Management Board as pensions in fiscal year 2021 (previous year: EUR 133 thousand). As of December 31, 2021, there was a provision of EUR 2,175 thousand for these pension obligations (previous year: EUR 2,360 thousand).

Detailed information on the remuneration system and the remuneration components can be found in the 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]	2021	2020
Fixed compensation	123	100
Variable compensation	-	-
Total	**123**	**100**

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 statement of profit or loss.

23. Auditor fees and services

[EUR'000]	2021	2020
Audit of annual financial statements	232	285
Other assurance or valuation services	-	-
Tax consulting services	-	-
Other services	-	15
Total	**232**	**300**

Fees for audits of financial statements of 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 services relate primarily to consultancy services in connection with company transactions.

EUR 0 thousand of the above fees incurred in fiscal year 2021 relate to the previous year (previous year: EUR 150 thousand).

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 reporting period

The Russian military invasion of Ukraine in early 2022 and the resulting economic sanctions could cause us to re-evaluate current projects that involve the Russian market. Measurement uncertainties for existing projects to be implemented in the relevant areas amount to EUR 0.4 million. As a result of the increasingly fraught political and economic situation, supply bottlenecks on the part of our suppliers may cause delays in the realization of projects with the PVA TePla Group.

Wettenberg, March 18, 2022

PVA TePla AG

Manfred Bender
Chief Executive Officer

Jalin Ketter
Chief Financial Officer

Dr. Andreas Mühe
Chief Technology Officer

Oliver Höfer
Chief Operating Officer

Independent Auditor's Report

To PVA TePla AG, Wettenberg, Germany

Report on the audit of the consolidated financial statements and 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 statement of financial position as at December 31, 2021, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated cash flow statement for the fiscal year from January 1 to December 31, 2021, and the notes to the consolidated financial statements, including a summary of significant accounting policies. We have also audited the management report and group management report (hereinafter: combined management report) of PVA TePla AG, Wettenberg, for the fiscal year from January 1 to December 31, 2021. In accordance with German legal requirements, we have not audited the content of the group management declaration published on the Company's website, to which reference is made in section 9 of the combined management report, or the separate non-financial group report, to which reference is made in section 10 of the combined management report.

In our opinion, based on the findings of our audit, the accompanying consolidated financial statements

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 Abs. 1 HGB and give a true and fair view of the financial position of the Group as of December 31, 2021 and of its financial performance for the fiscal year from January 1 to December 31, 2021 in accordance with these requirements and

the accompanying combined management report as a whole provides a suitable 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 audit opinion on the combined management report does not cover the above-mentioned components of the combined management report that were not audited as to their substance.

In accordance with § 322 (3) sentence 1 HGB, we declare that our audit has not led to any reservations concerning the correctness 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 German generally accepted standards for the audit of financial statements 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. Furthermore, in accordance with Article 10 (2) (f) EU-APrVO, we declare that we have not performed any prohibited non-audit services as defined in 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 to December 31, 2021. 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.

In the following we present the key audit matters in our opinion:

1) Revenue recognition

2) Valuation of work in progress

Re 1) Revenue recognition

a) The risk to the financial statements

In the consolidated financial statements of PVA TePla AG, Wettenberg, sales revenues of EUR 155.7 million are reported in the consolidated income statement.

In accordance with IFRS 15.35 c), the prerequisite for recognizing revenue from equipment orders over a specific period is that an asset is created with no alternative use and that there is also a legally enforceable legal claim to payment for the services already provided, including an appropriate profit mark-up. If these conditions are met, revenue is recognized over time in accordance with the stage of completion. The service rendered, including the proportionate share of profit or loss, is recognized in sales over the period of completion and the stage of completion is determined on the basis of the contract costs recognized to date in relation to the expected total contract costs (cost-to-cost method).

Furthermore, contracts with customers regularly contain various performance promises, which may be classified as separate performance obligations and to which a portion of the contract price is attributable.

The Company's disclosures on revenue recognition in accordance with IFRS 15 are included in sections D. and E. 1) and F. 12) of the notes to the consolidated financial statements.

The determination of whether a product or service is considered a separate performance obligation, as well as the determination of the expected contract costs under the cost-to-cost method, is subject to judgments by the Management Board. Furthermore, the individual contractual assessment of whether the requirements of IFRS 15.35 c) for revenue recognition over time are met, as well as the allocation of the purchase price to the performance obligations, may require complex judgments by the reporting entity. Against this background, we considered these matters to be of particular significance in the context of our audit.

b) Audit procedure and conclusions

We performed an assessment of the basic accounting policies by asset type and the calculation models used in the period-based revenue recognition under the cost-to-cost method. Furthermore, we assessed the legal situation in individual countries and examined on a 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.

On the basis of risk-oriented selected samples of multi-component contracts and the allocations of revenue to the individual performance obligations made here, we assessed the estimates and assumptions made by the legal representatives as part of statement-related audit procedures.

With regard to the audit of estimates of expected production costs under the cost-to-cost method, we refer to the particularly important audit matter 2) Valuation of work in progress.

Our audit procedures did not give rise to any objections with regard to revenue recognition.

Re 2) Valuation of work in progress

a) The risk to the financial statements

In the consolidated financial statements of PVA TePla AG, Wettenberg, assets amounting to EUR 40.9 million are reported under the balance sheet item "Inventories" within "Work in progress". They are measured at cost, taking into account production and material overheads. The valuation of inventories is subject to discretionary decisions by management with regard to the determination of overhead surcharges and the contract costs and revenues still to be expected. Against this background, the significance for the determination of the stage of completion in the course of the pro rata revenue recognition in the case of period-based revenue recognition in accordance with IFRS 15 on the basis of the cost-to-cost method, and due to the amount involved, the valuation of "work in progress" was of particular importance for our audit.

The Company's disclosures on inventory valuation are included in section F. 11 of the notes to the consolidated financial statements.

b) Auditing procedures and conclusions

First, we assessed the correctness of the transfer of manufacturing costs from the upstream systems. We then examined the hourly production rates and material overhead rates used in the valuation with regard to the costs taken into account in their calculation as well as any idle capacity costs to be eliminated. In particular, we critically reviewed the assumptions made by management and checked their plausibility. We examined the parameters used in the calculation of hourly rates and 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 on a sample basis. With regard to the expected contract costs, we evaluated risk reports, minutes of Executive Board and Supervisory Board meetings and contract controlling reports and discussed these facts and estimates with management and other designated employees. 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.

In order to identify orders with potential cost increases, mass data analyses of the manufacturing costs were also carried out, taking into account the respective cost types and their expected occurrence over the course of production. Any anomalies were then critically examined and discussed with the employees responsible for the orders.

We did not identify any material errors in the valuation methods applied or in the calculations and consider the assumptions made to be balanced and appropriate.

Other information

The legal representatives or the Supervisory Board are responsible for the other information. The other information includes:

the components of the combined management report referred to in the section "Audit Opinions" which have not been audited as to their substance,

the assurance pursuant to § 297 (2) sentence 4 HGB on the consolidated financial statements and the assurance pursuant to § 315 (1) sentence 5 HGB on the combined management report,

the separate non-financial report within the meaning of Section 289b (3) HGB, to which reference is made in the combined management report in section 10,

the report of the Supervisory Board,

the other parts of the annual report, but not the consolidated financial statements, not the audited content of the combined management report, and not our associated auditor's report.

The Supervisory Board is responsible for the Report of the Supervisory Board. The legal representatives and the Supervisory Board are responsible for the declaration pursuant to § 161 of the German Stock Corporation Act (AktG) on the German Corporate Governance Code, which forms part of the Group management declaration contained in section 9 of the combined management report. Otherwise, the legal representatives are responsible for the other information.

Our audit opinions on the consolidated financial statements and the combined management report do not cover the other information, and accordingly we do not express an opinion or any other form of conclusion on it.

In connection with our audit of the consolidated financial statements, our responsibility is to read the above-mentioned other information and, in doing so, evaluate whether the other information is

materially inconsistent with the consolidated financial statements, the content of the audited information in the combined management report or our knowledge obtained in the audit, or

otherwise appears to be materially misstated.

If, based on our work performed, we conclude that there is a material misstatement of such other information, we are required to report that fact. We have nothing to report in this regard.

Management's Responsibility 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 § 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.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern. Furthermore

Furthermore, they are 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 a suitable view of the Group's position and is consistent in all material respects with the consolidated financial statements, complies with German legal requirements, and suitably 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 the 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 opinion 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 the EU-APrVO and in compliance with 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.

During the audit, we exercise professional judgment and maintain a critical attitude. In addition

identify and assess the risks of material misstatement of the consolidated financial statements and the combined management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinion. The risk of not detecting material misstatements is higher for noncompliance than for inaccuracy, as noncompliance may involve fraud, 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 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 cause the Group not to be able to continue as a going concern.

Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner 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.

We assess the consistency of the combined management report with the consolidated financial statements, its compliance with the law, and the understanding of the Group's position given by it.

perform audit procedures on the forward-looking statements made by management in the combined management report. Based on sufficient appropriate audit evidence, we verify in particular the significant assumptions underlying the forward-looking statements made by management and evaluate the appropriateness of the information derived from these assumptions. We do not express an independent opinion on the forward-looking statements or on the underlying assumptions. There is a significant unavoidable risk that future events may differ materially from the forward-looking statements.

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

We 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 the safeguards that have been put in place.

From the matters we discussed 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 those matters in our auditor's report unless law or regulation precludes public disclosure of the matter.

Other statutory and other legal requirements

Report on the audit of the electronic reproductions of the consolidated financial statements and the combined management report prepared for disclosure purposes in accordance with Section 317 (3a) of the German Commercial Code (HGB)

Audit Opinion

In accordance with Section 317 (3a) of the German Commercial Code (HGB), we have performed a reasonable assurance audit to determine whether the reproductions of the consolidated financial statements and the combined management report (hereinafter also referred to as "ESEF documents") contained in the file "PVA_AG_KAuKLB_ESEF-2021-12-31.zip" and prepared for disclosure purposes comply in all material respects with the requirements of Section 328 (1) 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 does not extend to the information contained in these reproductions or any other information contained in the aforementioned file.

In our opinion, the reproductions of the consolidated financial statements and the combined management report contained in the above-mentioned file and prepared for disclosure purposes comply, in all material respects, with the requirements of Section 328 (1) HGB regarding the electronic reporting format. We do not express any opinion on the information contained in these reproductions or on the other information contained in the above-mentioned file beyond this opinion and our opinions on the accompanying consolidated financial statements and the accompanying combined management report for the fiscal year from January 1 to December 31, 2021 contained in the preceding "Report on the audit of the consolidated financial statements and combined management report".

Basis for the audit opinion

We conducted our audit of the reproductions of the consolidated financial statements and the combined management report contained in the above-mentioned file in accordance with

§ Section 317 (3a) of the German Commercial Code (HGB) in accordance with the IDW Auditing Standard: Auditing of Electronic Reproductions of Financial Statements and Management Reports Prepared for the Purposes of Disclosure in Accordance with

§ Section 317 (3a) HGB (IDW PS 410 (10.2021)) and the International Standard on Assurance Engagements 3000 (Revised). Our responsibility thereafter is further described in the section "Auditor's Responsibility for the Audit of the ESEF Documents". Our auditing practice has complied with the quality assurance system requirements of the IDW Quality Assurance Standard: Requirements for Quality Assurance in the Auditing Practice (IDW QS 1) applied.

Responsibility of the legal representatives and the Supervisory Board for the ESEF documents

The legal representatives of the Company are responsible for the preparation of the ESEF documents with the electronic reproductions of the consolidated financial statements and the combined management report in accordance with section 328 (1) sentence 4 no. 1 HGB and for the certification of the consolidated financial statements in accordance with section 328 (1) sentence 4 no. 2 HGB.

Furthermore, the Company's management is responsible for the internal controls as they deem necessary to enable the preparation of the ESEF documents that are free from material non-compliance, whether due to fraud or error, with the electronic reporting format requirements of Section 328 (1) HGB.

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 non-compliance, whether due to fraud or error, with the requirements of Section 328 (1) HGB. During the audit we exercise professional judgment and maintain a critical attitude. In addition, we

identify and assess the risks of material non-compliance with the requirements of Section 328 (1) HGB, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinion.

Obtain an understanding of internal control relevant to the audit of the 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 technical specification requirements for that file as set out in Delegated Regulation (EU) 2019/815, as applicable at the reporting date.

we assess whether the ESEF documents allow for a content identical XHTML reproduction of the audited consolidated financial statements and the audited combined management report.

we assess whether the markup of the ESEF documents with inline XBRL technology (iXBRL) in accordance with Articles 4 and 6 of Delegated Regulation (EU) 2019/815 as applicable at the reporting date enables an adequate and complete machine-readable XBRL copy of the XHTML reproduction.

Other disclosures pursuant to Article 10 EU-APrVO

We were elected as auditors and group auditors by the Annual General Meeting on June 18, 2021. We were appointed by the Audit Committee of the Supervisory Board on June 18, 2021. We have served as auditors of the consolidated financial statements of PVA TePla AG, Wettenberg, without interruption since fiscal year 2007.

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 audit opinion

Our audit opinion should always be read in conjunction with the audited consolidated financial statements and the audited combined management report and the audited ESEF documentation. The consolidated financial statements and combined management report converted to ESEF format - including the versions to be published in the Federal Gazette - are merely electronic reproductions of the audited consolidated financial statements and the audited combined management report and do not replace them. In particular, the ESEF opinion and our audit opinion contained therein can only be used in conjunction with the audited ESEF documents provided in electronic form.

Auditor in charge

The auditor responsible for the audit is Mr. Thomas Klemm.

Frankfurt am Main, March 18, 2022

Ebner Stolz GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft

Marcus Grzanna
Certified Public Accountant

Thomas Klemm
Certified Public Accountant

FINANCIAL CALENDAR

Date	
May 5, 2022	Interim Report Q1
June 23, 2022	Shareholders´ Meeting 2022
August 04, 2022	Half year report 2022
November 03,2022	Interim report Q3 2022

IMPRINT

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