Annual Report 2021

20 SUCCESSFUL YEARS

va-Q-tec

WE SOLVE THERMAL CHALLENGES

1992 - 1999

Basic principles of the technology for vacuum insulation panels (VIPs) are researched at the Bavarian Centre for Applied Energy Research (ZAE Bayern, task force Prof. J. Fricke).

01/04/2001

va-Q-tec is converted to a stock company, and starts operation in the premises of ZAE Bayern. Financing with a 2 Mio Euro Venture Capital round successfully closed.

First VIPs are produced at the technical plant of ZAE Bayern.

10/2001

va-Q-tec moves into the premises at Karl-Ferdinand-Braun Str. 7. Start of in-house production with a total of 5 staff.

First VIP production line starts to operate.

2003

va-Q-tec develops its first own thermo box: the va-Q-box.

2004

The first passive palletsize thermal container (va-Q-tainer) is launched.

First serial delivery of thermal boxes to a pharmaceutical company.

2009

Construction of the first hall at the new site in Kölleda / Thuringia.

New financing with Venture Capital and funding in Thuringia provides the necessary capital resources.

01/2011

Foundation of va-Q-tec UK Ltd. in Rochester / UK.

Start of the global rental business with va-Q-tainer.

06/2011

Foundation of va-Q-tec Korea GmbH in Seoul / South Korea.

va-Q-tec is awarded with Bloomberg New Energy Pioneer Award.

30/09/2016

IPO of va-Q-tec at the Frankfurt stock exchange in prime standard. Offering price: 12,30 € per share.

04/2017

Purchase of the „Stürtz-Areal" at Alfred-Nobel-Str. 33 and start of the renovations.

06/2017

Foundation of va-Q-tec Japan G.K.

01/2018

Opening of the facility in Langhorne/ USA.

04/2020

va-Q-nection, which combines „smart" thermoboxes, Block-Chain and Big Data, creates a completely new service in the industry and takes a revolutionary step towards „TempChain 4.0".

01/2021

va-Q-tec becomes the first supplier of temperature-controlled packaging solutions as well as a producer of high-tech insulation materials. va-Q-tec also achieves climate neutrality for its production sites during the year 2020.

01/2021

- Covid-19 vaccine distribution With its reliable boxes and containers, va-Q-tec supports vaccine distribution worldwide eirmod tempor invidunt ut labore.

03/2021

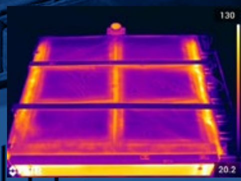
va-Q-tec announces strategic partnerships in two different industry sectors.

HUTCHINSON

uponor

08/2021

va-Q-steel va-Q-tec launches the innovative "va-Q-steel", a vacuum panel especially designed for very high and very low



09/2021

20th Anniversary The company celebrates its 20th anniversary at the production sites in Würzburg and Kölleda.

va-Q-tec TWENTY YEARS

11/2021

Financial Times Award va-Q-tec receives Financial Times Tech Champion award in the category "Manufacturing"

FT TECH CHAMPION 2021 FINANCIAL TIMES

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1 TO OUR SHAREHOLDERS

1.1 LETTER FROM THE MANAGEMENT BOARD

Dr. Joachim Kuhn (CEO), Stefan Döhmen (CFO)

Dear shareholders,

We are very proud to have continued on our profitable growth trajectory in 2021, and to have achieved the best financial year in the company's history. Revenues grew by a stunning 44 % to reach EUR 104.1 million. All areas – and not just the coronavirus TempChain – contributed to this growth. On average, over the last five years, revenues have grown by 24 % per year. EBITDA even climbed by as much as 64 % to EUR 18.7 million in 2021. EBIT grew to over EUR 5 million and EBT to around EUR 2.8 million – both key figures are now clearly positive. We have thereby clearly exceeded our guidance for 2021 in terms of revenues, and significantly improved profitability.

Our production capacities were expanded significantly and made fit for the future. To this end, we also successfully implemented a major investment program especially at our Kölleda site, attracting government grants worth millions of euros. Production was massively increased and the container and box fleets were significantly expanded – representing a great achievement by our production and technical teams. We have established two subsidiaries in Brazil and India, which will start operations in 2022, thereby consistently continuing on our internationalization course.

In 2021, we filed a total of 24 IP rights, including 22 patent applications and two utility model applications – the tech platform is growing and being actively protected. In the area of IT systems, too, we have once again significantly professionalized and strengthened our position, including with a new ERP system, in order to be well prepared for our next growth steps. Further steps were taken in the area of digitalization.

In view of the coronavirus pandemic and advancing climate change, effective health protection for all people worldwide and the responsible use of our resources represent the defining issues of our time. For this reason, our high-tech vacuum insulation technology is today being increasingly deployed in a wide variety of industries. We stand on the threshold of tapping further major application areas. With our experience from over twenty successful years of pioneering work, our goal is clear: we aim to develop va-Q-tec into the leading high-performance company in the area of thermal energy efficiency and high-performance thermal packaging for TempChain logistics.

In 2021, the increased availability of coronavirus vaccines in Germany and major vaccination campaigns worldwide led to massive growth in demand for temperature-controlled transport solutions. With our products, we can make a crucial contribution to achieving a climate-neutral economy. However, it is not only in the area of Temp-Chain logistics that business is performing very well: our high-tech vacuum insulation panels offer crucial advantages especially wherever secure and highly efficient insulation solutions are required in the tightest of spaces. This opens up further opportunities for the future and we will consequently maintain a high growth rate in the short and medium term following an extraordinary record year in 2021.

For this reason, our further growth is far from being based on a vaccine boom. In view of the coronavirus pandemic and advancing climate change, effective health protection for people worldwide and the responsible use of our resources represent the defining issues of our time. va-Q-tec's unique positioning was impressively underscored in 2021 when it ranked first in the Financial Times TechChampion Award in the Manufacturing category. With our products, we can make a crucial contribution to achieving a climate-neutral economy.

We are also particularly pleased that we clearly exceeded the revenue threshold of EUR 100 million on our twentieth corporate anniversary, thereby reaching a further major milestone. With an annual growth rate of more than 24 % over the last five years, we are leaving many competitors far behind and steadily gaining market shares. This performance impressively demonstrates the solid basis we have created at va-Q-tec for long-term corporate performance and success. At the same time, we have established a platform on which we can unite and drive technology innovations forward. In this way, we are constantly optimizing vacuum insulation and opening up further application areas for the future. For this reason, we are also convinced that we will leverage opportunities in the markets and continue va-Q-tec's profitable growth story in the coming years. Specifically, we expect by 2025, revenues are to grow to between EUR 160 and EUR 180 million with a targeted EBITDA margin of 22 to 26 %.

This expectation reflects the fact that the majority of our consumption of primary energy continues to flow into the thermal sector – in other words, precisely where we can and will save a great deal of energy with key va-Q-tec technology.

As an innovation driver, we are very proud to have pioneered vacuum insulation technology with our motivated team, and to have continued to advance it. Here, we have a lot of plans and aim to make a significant contribution to the fight against climate change. Let's get on with it!

We would like to thank you, our valued customers, business partners, the Supervisory Board for our fruitful collaboration, and, of course, our shareholders. We shape our business with courage, passion and responsibility. We would be delighted if you would continue to accompany us on this journey.

Your Management Board

Dr. Joachim Kuhn
CEO

Stefan Döhmen
CFO

1.2 SUPERVISORY BOARD REPORT

Dr. Gerald Hommel, Chairman of the supervisory board

Dear shareholders,

In the year of the company's 20th anniversary, va-Q-tec's revenue growth and operating momentum were outstanding – and this despite at times considerable restrictions due to the pandemic. As the Supervisory Board, we are particularly proud of this achievement by the company, the Management Board and all employees.

The Supervisory Board held seven meetings in the 2021 financial year. The Supervisory Board's main task is to consult with and supervise the Management Board. The subject of our regular consultations in the plenary sessions was, among other matters, va-Q-tec's financial position and performance as well as its organizational structure AG. An important focus was also on opportunities and risks. Further topics of our activities in the reporting period included, in particular, the critical evaluation of the strategy and business area development, the international orientation of va-Q-tec AG, overseeing the strong growth during the reporting period as well as corporate finance and liquidity, particularly the supervision of the capital increase in November 2021.

The Annual General Meeting was held on 20 May 2021. Despite the purely virtual format, attendance was high at 56 % of the share capital. All agenda items were approved by large majorities of in excess of 90 %. From the innovative, multimedia "Curve" event room at the Vogel Convention Center in Würzburg, the Management Board reported in detail on the performance of va-Q-tec AG in the 2020 financial year, for which the actions of the Management Board and Supervisory Board were approved by a clear majority. More than 100 questions from shareholders were answered. We would like to thank all shareholders for their active participation.

In the year under review, the Supervisory Board of va-Q-tec AG performed all of the duties incumbent upon it under the law, the bylaws and the rules of procedure with the requisite care and diligence, and in doing so was guided by the German Corporate Governance Code ("DCGK"). We advised and supervised the Management Board in its management of the company. The Management Board involved us directly, at an early stage and comprehensively in all fundamental decisions. It provided us with regular, timely and comprehensive information through written and oral reports both within and outside the context of meetings. In this connection, we were informed about all relevant aspects of business planning, including financial, investment and personnel planning, as well as the company's financial position and profitability. We – or the relevant Supervisory Board committees – thoroughly examined and discussed the Management Board's proposed resolutions. In addition, the Supervisory Board was in regular contact with the Management Board and was kept directly informed about the current business trends, especially with regard to the challenges relating to the coronavirus issue, and the main business transactions. In particular, due to the current performance of va-Q-tec AG during the pandemic, in addition to the regular meetings, a total of three telephone conferences were held with the participation of the Management Board and the entire Supervisory Board; furthermore, regular internal consultations took place within the Supervisory Board.

va-Q-tec AG has created a strong basis for the further development of the company, as presented in this annual report. The Supervisory Board conducted a critical evaluation of business transactions central to the company's development, and contributed corresponding suggestions and ideas for discussion with the Management Board. Measures and transactions requiring approval were consulted about and suitably decided upon between the Management and Supervisory boards.

Personnel changes in the Supervisory and Management boards

Dr. Burkhard Wichert was elected as a new member of the Supervisory Board by the Annual General Meeting of va-Q-tec AG. Dr. Wichert takes over from Uwe H. Lamann, who passed away in 2020.

No personnel changes occurred in the Management Board in the reporting period. Dr. Joachim Kuhn is Chair of the Management Board (CEO). Mr. Stefan Döhmen also continues to serve as the company's Chief Financial Officer (CFO).

Training and development of the Supervisory Board

In the 2021 financial year, the Supervisory Board fulfilled its training and development obligations responsibly, appropriately and in a variety of ways. The members of the Supervisory Board are responsible for the training and development measures required for their tasks, such as on corporate governance issues and changes to the legislative framework (e. g. due to the German Act Implementing the Second Shareholders' Rights Directive [ARUG II], the new German Corporate Governance Code [DCGK], and the German Financial Market Integrity Strengthening Act [FISG]), and are supported in this by the company. The Supervisory Board also regularly trains itself with regard to new technologies or the digitalization area.

In addition, the Supervisory Board was informed at an early stage about new products developed inhouse by the managers concerned, so that all members of the Supervisory Board were always well informed about current issues affecting the company. In addition, the individual members of the Supervisory Board continued the further training for which they themselves are responsible by way of studying relevant professional journals and literature as well as by participation in training measures offered outside the company.

The new member of the Supervisory Board, Dr. Wichert, was able to gain deep insights into the respective areas of the company through personal contacts and discussions with the Management Board as well as with employees at the first management level below the Management Board as part of the on-boarding process.

Meetings of the Supervisory Board and its committees

As part of its regular consultations, the Supervisory Board concerned itself with the operative and strategic position of va-Q-tec AG, with written and verbal reports by the Management Board providing it with extensive information about business and financial developments. The Supervisory Board held a total of seven plenary meetings. In accordance with the suggestions of the DCGK, telephone and video conferences should not be the rule. At va-Q-tec AG, personal attendance at meetings is the general case. All meetings of the full Supervisory Board and of the committees were held in person, with the possibility of participation in virtual form. The possibility of participation in virtual form was only used in a few individual cases.

The central part of the **first meeting on 26 March 2021** was the presentation, discussion and approval of the separate annual financial statements, the management report and the notes to both the separate and consolidated financial statements of va-Q-tec AG for the 2020 financial year. At the meeting, the auditors reported on the results of the audit in summary form. After extensive discussion, the Supervisory Board passed a unanimous resolution, on the recommendation of its Audit Committee, to approve and adopt the 2020 separate annual financial statements of va-Q-tec AG and to approve the 2020 consolidated financial statements, including the management reports. Further topics included the statement of conformity with the German Corporate Governance Code (DCGK), preparations for the Annual General Meeting and the proposal to replace Dr. Wichert on the Supervisory Board, as well as current business trends. In addition, plans to establish a subsidiary in Brazil were presented to the Supervisory Board. Possible adjustments to the corporate law structures of va-Q-tec AG and the adjustment of the compensation scheme for the Management Board to reflect current regulations were also topics of the meeting.

The **second meeting on 4 May 2021** focused on a discussion of current business trends and the Group's liquidity on the basis of the figures for the first quarter of 2021. The outlook for the remainder of the year, which was already characterized by high growth dynamics due to high demand for transport solutions for coronavirus vaccines, was also discussed. This additional demand encountered an already dynamically growing base business, which led to challenges in the production area. A further topic of the meeting related to risk management and personnel changes in the management of the two subsidiaries in the UK and Singapore. In addition, the Supervisory Board discussed ideas for establishing a subsidiary in China. In the course of the growing number of international subsidiaries, the topic of investment controlling, which is to be established on an even stronger basis, was addressed. Finally, the Supervisory Board discussed the preparations of the Management Board for the Annual General Meeting of va-Q-tec AG. Due to the coronavirus situation, this meeting will again have to be held virtually and will decide, among other matters, on a new Management Board compensation scheme more closely aligned with the current German Corporate Governance Code (DCGK).

The **third meeting on 21 May 2021,** following the Annual General Meeting, focused on a detailed presentation of the plans for a new subsidiary in China by the Business Development and Sales areas. The founding of this company is intended to improve local market development in the world's second largest pharmaceutical market. Due to the rapidly growing middle class (increased access to pharmaceutical products) and a simultaneously structurally aging population, a direct presence in China is particularly important for va-Q-tec for future growth. Due to complex customs and tax issues, a local company is necessary or advisable at the same time. The Supervisory Board again discussed changes relating to corporate law. For this purpose, an external expert reported.

At the **fourth meeting on 29 June 2021,** the focus was again on current business performance, as well as the liquidity and financing situation and strategy. In particular, the meeting focused on the wide range of measures to expand the scope for debt financing, which might also be accompanied by an equity measure. Given the very encouraging growth momentum, the Supervisory Board discussed the potential bottlenecks and obstacles to growth for the company. It is generally agreed that in a manufacturing company with disruptive products such as va-Q-tec, limitations to growth usually stem from a combination of restrictions in the areas of production and supply chain, sales, recruitment and financing (not least working capital). The management strives to continuously reduce such restrictions depending on urgency and importance. Particularly given potential consolidation trends in the industry and the stock market listing, sustained high growth momentum is crucial. The Supervisory Board is also closely monitoring such focus issues as part of the ongoing "Power 20+" efficiency projects. Further topics discussed at the meeting included the management teams in the UK and Singapore and the continuing plans to establish new subsidiaries in China and Brazil. According to the plans of the Management Board and the Business Development area, a further target for internationalization will be India – one of the largest pharmaceutical exporting countries and, due to the climatic challenges, particularly attractive for the company.

At the **fifth meeting on 23 September 2021,** Group business trends up until the end of August were analyzed and discussed in-depth. Overall, the Group was well above the previous year's level as of the end of August, although at the same time behind the original budget. The most striking aspect of the balance sheet analysis is the significant increase in inventories and trade accounts receivable, which tie up liquidity and have a negative impact on operating cash flow, which is significantly higher than planned before working capital is included. While the increase in trade accounts receivable was mainly due to the strong growth of the "small" subsidiaries, the need to build up higher reserve stocks of many materials and higher inventories of finished products in order to ensure the highest possible delivery capability in light of many "ad hoc" orders led to the significant increase in inventories. As a consequence, total assets grew significantly. In addition to various measures to reduce inventories, the possibility and options of a capital increase are also discussed in order to keep the equity ratio within the envisaged range. The Management Board and the Business Development area also reported on further refined plans to establish three new subsidiaries in Brazil, India and China, which had already been discussed in previous meetings.

At the **sixth meeting on 19 November 2021,** the Management Board reported on the current, very dynamic business performance and the current planning status for 2022. To this end, the sales managers of the two areas Thermal Energy Efficiency and TempChain reported on current targets and provided an outlook for the following financial year. In the TempChain area, the company is planning for continued dynamic growth thanks to its further expanded global presence (new subsidiaries), new partnerships and greatly enhanced perception as a "coronavirus helper". As far as the "Thermal Energy Efficiency" area is concerned, the focus is on developing further interesting technical applications (such as pipe insulation and mobility) that promise better margin potential thanks to their differentiation from the competition. The meeting also dealt with the further development of the structures under company law (SE conversion) and the planned further development of investment management to support the growing number of international subsidiaries. Further topics discussed at the meeting included the positive liquidity situation and further financing options, including against the backdrop of the capital increase completed in November 2021. One topic of the meeting was also the weak share price performance at the end of 2021, which failed to reflect the very positive operating trend despite numerous and intensive IR activities. Overall, the medium-term growth prospects do not yet appear to be fully priced in. However, analysts' consensus expectations are fully in line with what va-Q-tec can deliver. Public perception and media presence (underlined, for example, by the Financial Times Tech Champion Award) are also very positive in 2021.

The last meeting of the plenary Supervisory Board in the 2021 financial year was held on **16 December 2021.** The central topic was the presentation and explanation of the target figures for 2022 as well as the medium-term planning by the Management Board and the management of va-Q-tec Ltd.(UK). Overall, the company is expected to continue its very positive performance in 2021 into 2022 and beyond. The TempChain market for thermal boxes and containers continues to form the company's central growth area. The other target industries outside the healthcare sector are also already significant today and also hold out the prospect of promising opportunities. After in-depth discussion, the Supervisory Board approved the Group budget including the investment budget for the 2022 financial year as well as the medium-term planning.

Work in the Supervisory Board committees

At present, the Supervisory Board has set up three committees in order to perform its duties efficiently. Specifically, these are the General, Audit and Nomination committees. These prepare resolutions and issues to be dealt with by the full Supervisory Board. To the extent permitted by law, the Supervisory Board's decision-making powers have been devolved to committees. The committees' chairs report to the Supervisory Board on the work of the committees at the following full Supervisory Board meeting.

In addition to three meetings of the full General Committee and two meetings of the Nomination Committee, the General and Nomination committees held various further votes on the development of the new Management Board compensation scheme and on filling the vacant post on the Supervisory Board. One meeting of the General Committee was held in person, and the other meetings of the committees were held virtually. A total of three meetings of the Audit Comittee were held in presence.

The following table shows the individual attendance of the individual members of the Supervisory Board at the meetings of both the full Supervisory Board and its Audit Committee:

Individualized disclosure of Supervisory Board members' attendance at meetings

(Sitzungsanzahl / Teilnahme in %)	Supervisory Board plenum		Audit Committee		General Committee		Nomination Committee	
	Number	in %	Number	in %	Number	in %	Number	in %
Dr. Gerald Hommel Chair	7/7	100 %	3/3	100 %	3/3	100 %	2/2	100 %
Dr. Barbara Ooms-Gnauck (Deputy Chair since 14 August 2020)	7/7	100 %			3/3	100 %	2/2	100 %
Uwe Andreas Kraemer	7/7	100 %					2/2	100 %
Winfried Klar	7/7	100 %	3/3	100 %				
Dr. Eberhard Kroth	7/7	100 %	3/3	100 %	3/3	100 %		
Dr. Burkhard Wichert[1]	4/4	100 %						

[1] Dr. Burkhardt Wichert – AR Mitglied seit 21. Mai 2021

No conflicts of interest arose within the Supervisory Board during the reporting period.

Audit of the separate and consolidated financial statements

The consolidated financial statements of va-Q-tec AG were prepared on the basis of the International Financial Reporting Standards (IFRS), as applicable in the European Union, and the requirements of Section 315e (1) of the German Commercial Code (HGB). The auditors elected by the AGM, Rödl & Partner GmbH Wirtschaftsprüfungsgesellschaft, Steuerberatungsgesellschaft, Nuremberg, audited the separate financial statements of va-Q-tec AG as well as the consolidated financial statements, both for the financial year ending 31 December 2021, together with the combined management report for va-Q-tec AG and the va-Q-tec Group, including the financial accounts, and in each case awarded them unqualified audit certificates on 28 March 2022. The auditors also assured themselves that the Management Board has established an internal control and risk management system appropriate in its implementation and design to provide early warning of developments jeopardizing the company as a going concern.

At the Audit Committee meeting on 24 March 2022 and at the Supervisory Board meeting on 25 March 2022, the Supervisory Board discussed with the auditors and examined in depth the financial statements for va-Q-tec AG and for the va-Q-tec Group, the Management Board's proposal for the application of the unappropriated net result, as well as the reports prepared by the auditor. The auditor participated in the consultations on the financial statements at this Supervisory Board meeting and informed the Supervisory Board of its audit findings and its findings concerning the internal control and risk management system.

By resolution of 28 March 2022, the Supervisory Board follows the recommendation of the Audit Committee and approves the separate annual financial statements and the consolidated financial statements together with the combined management report of va-Q-tec AG for the 2021 financial year. The separate financial statements of va-Q-tec AG have been adopted as a consequence. The Supervisory Board also concurs with the Management Board's proposal concerning the application of the unappropriated net result.

Thanks and outlook

The Supervisory Board remains convinced of the outstanding potential for success of va-Q-tec AG, and appreciates the trusting and open cooperation that it enjoys with the Management Board. On behalf of the Supervisory Board, I would like to thank all employees of va-Q-tec AG for their extraordinary commitment in an outstanding anniversary year for va-Q-tec, which was characterized by enormous revenue growth. We would like to thank you, our shareholders, for your confidence in the company, the management and our work.

Dr. Gerald Hommel
Chairman of the Supervisory Board of va-Q-tec AG

va-Q-tec achieves Groupwide climate neutrality in 2021

Since its foundation more than twenty years ago, the efficient use of thermal energy has formed the core idea at va-Q-tec worldwide. After achieving climate neutrality at the German production sites in Würzburg and Kölleda in 2020, va-Q-tec took the next consistent step in its sustainability strategy with Groupwide climate neutrality in 2021. By continuously reducing its greenhouse gas emissions and offsetting the minor remaining volume through certified nature conservation projects, the Group achieves carbon footprint neutrality and thereby makes an important contribution to achieving the 1.5 degree target of the Intergovernmental Panel on Climate Change (IPCC).

Recording greenhouse gas emissions in accordance with the internationally recognized *Greenhouse Gas Protocol*

va-Q-tec's greenhouse gas emissions and carbon footprint are measured according to the *Greenhouse Gas Protocol (GHG Protocol)*, a standard that was also recognized at the COP26 Climate Conference in Glasgow in 2021. These internationally recognized documentation guidelines were coordinated by the World Resources Institute and the World Business Council for Sustainable Development and serve as the basis for numerous industry standards, such as ISO 14064 certification.

Offsetting through certified environmental projects

Continuous optimization of all value-added processes within the company enabled emissions to be cut to almost zero in 2021. va-Q-tec offsets its remaining emissions of around 3,000 tonnes of carbon dioxide with certified environmental projects.

In doing so, the company pays particular attention to giving something back to the region in which it operates. Consequently, the two projects the company supports are located in the immediate vicinity of two va-Q-tec branch operations: in Uruguay, where the company maintains a distribution site, former cattle pastures are being reforested, thereby making an important contribution to restoring ecological equilibrium within this region. The second project is located in the Rhön region, not far from the company's headquarters in Würzburg. Here, the company is supporting the renaturation of the existing moor and the reforestation of the yew forest in the Ibengarten nature reserve.

company 2021
www.natureOffice.com/DE-077-187750
carbon neutral
through CO2 offsetting

Key technology offers enormous potential to save thermal energy

The vacuum insulation panel (VIP), the core product of all va-Q-tec systems and services, insulates around ten times better than conventional insulation materials due to the vacuum it contains. Consequently, with the same insulation performance, it is ten times thinner than insulation materials such as polystyrene.

This key technology is already being deployed in a wide variety of sectors, such as the construction industry as well as in refrigerators and hot water tanks. However, it also enables the secure and temperature-stable transport of products in temperature-controlled logistics.

Thanks to the highly insulating properties of vacuum, va-Q-tec's entire product portfolio offers enormous potential for saving valuable thermal energy and reducing carbon dioxide emissions. One example from the thermal energy efficiency area – district heating pipes benefit significantly from VIP technology by avoiding up to 60 % of energy losses compared to conventional pipes when vacuum-insulated. The same applies to (industrial) hot water tanks: they save up to 50 % energy thanks to the unique thermal insulation. However, VIP technology can also achieve positive effects in the area of temperature-controlled logistics: transportation is considered one of the main sources of carbon dioxide emissions, accounting for almost 24 % of global emissions. A significant part of this is temperature-controlled logistics, which is often characterized by carbon-intensive (disposable) packaging, the use of toxic dry ice and diesel-powered refrigeration units. Here, va-Q-tec has been pursuing its own sustainable path for over ten years with a globally operating rental fleet of passive high-performance containers and boxes: thanks to vacuum insulation in the thermal containers' walls and the use of temperature storage elements that can be used many times over, power generators and the use of dry ice can be almost completely dispensed with.

va-Q-tec's commitment to the fight against the coronavirus pandemic continues

With its highly efficient key technology in the area of TempChain logistics and associated high product security, va-Q-tec to date has made a crucial contribution in the fight against the coronavirus pandemic. At the beginning of the pandemic, va-Q-tec's innovative products and services enabled test kits to be transported reliably at -20 °C. Since coronavirus vaccines received approval, the company has also ensured that they can be transported at stable temperatures. In 2021 alone, va-Q-tec estimates that almost two billion vaccine doses were delivered worldwide using va-Q-TempChain solutions.

For regions that are difficult to reach and sometimes have complicated and long transport routes, va-Q-tec's latest transport innovation, the va-Q-pal SI, offers a particularly practical solution. The advantages of these transport solutions are that they can also be used where no – or only lengthy – return logistics exist. This makes the va-Q-pal SI the ideal complement for the va-Q-tainer rental solution, which is designed for even lower product temperatures. Both products were used in the distribution of coronavirus vaccines in more than 100 countries worldwide last year. In the process, va-Q-tec's TempChain network of more than 40 service centers ensured smooth TempChain logistics: the boxes and containers are pre-cooled at the centers before being delivered to customers. After transport, the rental boxes and containers are returned to one of the service centers, from where, after quality checks, they are again shipped worldwide.

Especially in Africa as well as in parts of South America, however, recycling and reprocessing is for the most part very costly, or simply not possible. This is where the va-Q-pal SI comes into play. SI stands for "SuperInsulation" and delivers what it promises: the va-Q-pal SI not only offers a unique temperature holding time of up to 130 hours for product temperatures between -25 °C and +25 °C. Its environmentally compatible outer materials are also lightweight, recyclable and at the same time very robust thanks to the carton's elaborate honeycomb structure. As a consequence, va-Q-pal SIs are also being deployed in large quantities as part of the COVAX initiative, which aims to ensure fair access to Covid-19 vaccines worldwide. In 2021, va-Q-tec estimates that approximately 300 million vaccine doses were shipped in va-Q-tec TempChain transport solutions as part of COVAX.

The va-Q-pal SI impressively underscores va-Q-tec's successful product development. It is the only fully vacuum insulated pallet container in the world and is considered one of the best product innovations in the TempChain market in recent years. In 2021, the Systems business recorded the highest growth of all of the Group's divisions. The va-Q-pal SI played a crucial role here, precisely because of the specific advantages it plays in Covid-19 vaccines campaigns worldwide – and this just two years after the announcement of a marketable further development of the va-Q-pal product.

But even looking beyond the coronavirus pandemic, va-Q-tec has made and continues to make a key contribution to the distribution of vital vaccines. Last year, for example, several va-Q-pal SIs were flown to Benin in Africa to help distribute vaccines against the dangerous rotavirus. As medical care is set to gain further momentum in the future, especially in developing countries – and not only due to the corona-virus pandemic – production of the pallet shippers in Germany continues at a high level.

va-Q-tec and Uponor: Pioneering work in the thermal insulation of pipelines

Together with Uponor's business division Europe, one of the world's leading suppliers of systems for hygienic drinking water installation and energy-efficient heating and cooling, va-Q-tec has developed an innovative insulated system for heating networks in 2021. The outstanding insulation properties and high flexibility of the ***Uponor Ecoflex VIP*** *are impressive. This new type of insulation system raises local and district heating networks to a new level of energy efficiency: heat loss in local heating networks can be reduced by up to 60 % by installing the Ecoflex VIP.*

Thomas Raadts, Vice President Product Marketing at Uponor Building Solutions Europe, and Tobias Bock, Head of Business Unit Technics & Industry at va-Q-tec, provide insights into this promising partnership.

Mr. Raadts, why did Uponor choose an insulation solution that had not previously been used in local heating?

Raadts: When we contacted va-Q-tec in 2015, we had already for some time been looking for materials that would further improve the thermal performance of our Ecoflex pipes. Especially with pre-insulated pipes for local heating networks, thermal insulation plays a key role in the energy efficiency of the entire system. The 2009 Copenhagen Accord and the 2015 Paris Agreement reaffirmed how important this is. But finding an insulation material that met all our requirements in terms of performance and flexibility was proving to be a challenge. When va-Q-tec and their VIP technology were recommended to us, we realized very quickly that together we could revolutionize the market for pre-insulated pipes.

How did you go about developing the product? What did each of the partners bring to the table?

Raadts: We contributed our expertise in pipe development and our knowledge of product requirements for heating applications. We also have the expertise to manufacture such tubes efficiently and on an industrial scale. We had a rough idea of what the product concept for Ecoflex VIP should look like long before we started working together. This included requirements profiles for the properties of the end product and the insulation material to ensure an efficient manufacturing process. And va-Q-tec as a VIP specialist was able to contribute a suitable product that exactly met the requirements profile in terms of insulation performance, flexibility and long-term durability under real heating conditions.

Bock: That's right – Uponor provided the overall framework in terms of the required product characteristics to ensure strong performance in the intended application and an efficient large-scale production process. We complemented that with our application development expertise and experience. The question of how to get the VIP insulation into the pipes presented us with some technical challenges. For example, we had to adapt the VIP technology to the demanding technical conditions of the end application and feed it into the existing production process. Fortunately, we can rely on our long experience in similar markets, such as the water heater industry, and a versatile and high-performance product: va-Q-plus, a powder-based insulation material, and its unique production technology are generally very well suited for cylindrical and flexible shapes. The new aspect of this application was to bend the VIPs in two opposite directions.

So it's the unique product features that make VIPs the right solution for this application?

Bock: Exactly. Until now, planners and installers of heating networks have often had to decide whether to lay smaller pipes and accept higher heat losses due to lower insulation thicknesses in return, or to allow a lot of space in shafts for pipes with better insulation. With our product, planners can optimize the thermal energy efficiency of these heat networks to a high level. Especially in times of climate change and the urgent search for solutions to significantly reduce global energy consumption, VIPs make a significant contribution to meeting such challenges.

Raadts: The outstanding insulating properties of VIPs were particularly decisive for us. There's no other commercially available material that even comes close to VIPs in this respect. The panels are also flexible, which was an important requirement for the project. And they're very compact, which allowed us to significantly reduce the outer diameter of the tubes.

It sounds like VIPs are crucial to the product properties of the new Ecoflex VIP pipes.

Raadts: That's right. VIPs are a "game changer" for this market. The Ecoflex VIP combines two of the most sought-after features for pre-insulated piping systems – flexibility and excellent insulation performance – with the lowest lambda value on the market. Thanks to their reduced outer diameter, the piping takes up less space and also enables faster installation thanks to its flexibility and small bending radius. These properties make Ecoflex VIP pipes more energy efficient than conventional pipe systems. In heat networks made with Ecoflex VIP pipes, heat losses can be reduced by up to 60 % compared to pre-insulated pipes with soft foam and a comparable outer diameter. Ecoflex VIP also achieves up to 38 % better insulation performance compared to pipes with hard-foamed insulation. Thanks to the vacuum insulation panels, the pipes also consume fewer oil-based raw materials in production. This is important considering that the EU is supposed to be climate neutral by 2050. Local heating is an important component in reducing emissions. And with Ecoflex VIP, local heating networks will increasingly help to mitigate climate change and achieve global sustainability goals.

One gets the impression that with Uponor and va-Q-tec two partners have sought and found each other. Will there be more joint projects in the future?

Bock: I think this project is a prime example of how successful collaboration between two industry experts can be. Both partners worked at an extremely high professional level and adopted a solution-oriented approach to the challenges. We complemented each other very well and constantly drove the project forward – like gears meshing. For that reason we see great potential for future projects with Uponor.

Raadts: I see it that way, as well. Not only did our teams work well together, but our products complement each other just as perfectly in Ecoflex VIP pipes. We believe that combining the high insulating performance of VIP with our high-quality plastic pipes offers great potential, not only in the construction industry but also in other applications. So we're considering further joint projects with the aim of implementing the technology in a wider range of products. With the smart manufacturing process and an outstanding product, we've already laid the foundation.

1.3 CORPORATE GOVERNANCE / STATEMENT IN ACCORDANCE WITH SECTIONS 289F AND 315D HGB

1.3.1 Statement of conformity with the German Corporate Governance Code

The Management and Supervisory boards of va-Q-tec AG have approved the following statement pursuant to Section 161 of the German Stock Corporation Act (AktG) as of 23 March 2022:

Statement by the Management and Supervisory boards of va-Q-tec AG on the recommendations of the "Government Commission German Corporate Governance Code" pursuant to Section 161 AktG

Since issuing the last declaration of compliance on 4 May 2021, va-Q-tec AG has complied with the recommendations of the "Government Commission on the German Corporate Governance Code" published by the German Federal Ministry of Justice and Consumer Protection (BMJZ) in the official section of the Federal Gazette in the version of 16 December 2019 ("DCGK 2020") and intends to continue to comply with them in the future without exception.

1.3.2 Disclosures relevant to corporate governance practices

As a German stock corporation under German law, va-Q-tec AG has three executive bodies – the Annual General Meeting, the Supervisory Board and the Management Board. Duties and powers arise, in particular, from the statutory regulations and the company's bylaws. A Shareholders' General Meeting is held at least once a year. At the Annual General Meeting, the shareholders regularly pass resolutions on the appropriation of the unappropriated net result, the discharge of the Management and Supervisory boards, and the election of the auditor.

All shareholders who register in good time are entitled to attend the Annual General Meeting. Shareholders who are unable to attend in person have the option of having their voting rights be exercised by a bank, a shareholders' association, the proxies appointed by va-Q-tec AG who are bound by instructions, or another authorized person of their choice.

The Management and Supervisory boards set great store by an open corporate and management culture. Positive interaction within the company – a "good working climate" – is very important for the company's business and financial performance, and for satisfied customers, employees, partners and shareholders. This type of climate of interaction and open internal communication fosters awareness of, and compliance with, statutory regulations, ethical standards, as well as economic and social principles.

In order to ensure ethical behavior, va-Q-tec AG has established corresponding standards in a Groupwide corporate compliance policy. Core elements include, firstly, the basic values it codifies such as personal integrity, respect for diversity, and compliance in the context of business life. The Corporate Compliance Policy also sets out – in Group guidelines – instructions for business behavior in any ethically dubious situations. The compliance program is translated into practice and further developed in collaboration between the Management and Supervisory boards.

Apart from any exceptions specified and explained in the conformity statement, va-Q-tec AG complies with all statutory requirements in terms of good corporate governance as well as the recommendations of the German Corporate Governance Code. In the context of the capital market listing, the Management and Supervisory boards inform the employees on the relevant issues of capital market law, including with related documents.

1.3.3 Composition and working methodology of the Management Board

The Management Board of va-Q-tec AG manages the company's business at its own responsibility. It is bound by the company's interest in this context, and is obligated to enhance the company's sustainable value. It develops the company's strategic orientation, coordinates it with the company's Supervisory Board, and ensures that it is implemented. The Management Board discusses the current status of strategy implementation at regular intervals with the Management Board. It also caters for appropriate risk management and risk controlling within the company. The Management Board members perform their tasks according to statutory provisions, the company's bylaws, AGM and Supervisory Board resolutions, their respective employment contracts as well as the rules of business procedure for the Management Board, and work to ensure that the company and its subsidiaries also comply with them.

The Management Board works together closely and on a basis of trust with the Management Board for the company's benefit. The Management and Supervisory boards' joint objective is to implement the growth strategy and exploit the various application possibilities on offer for the Group's technologies. The Supervisory Board appoints the Management Board members, removes them from office and determines the allocation of their responsibilities. It can also appoint a Management Board Chair (CEO).

The Supervisory Board has set an age limit for the Management Board members in accordance with the recommendation of the DCGK. Management Board members should not be older than 65 at the time of their appointment.

The Management Board of va-Q-tec AG comprises two members as of 31 December 2021:

Name	Function	Management Board member since	Contract end
Dr. Joachim Kuhn	Management Board Chairman, Chief Executive Officer	01/04/2001	31/12/2023
Stefan Döhmen	Chief Financial Officer	01/07/2017	31/12/2022

The Management Board is jointly responsible for managing the company's business for the Group's benefit. The Management Board members are individually responsible for the areas allocated to them. Current CVs of the Management Board can be found on the company's IR website in the Corporate Governance section. The business allocation plan allocates the tasks to the individual Management Board members as follows as of 31 December 2021:

Dr. Joachim Kuhn: Chief Executive Officer – CEO:

- Production
- Sales and marketing
- Technology
- Personnel

Stefan Döhmen: Chief Financial Officer – CFO:

- Finance
- Financial communication (IR)
- Purchasing
- IT
- Legal

Besides his activity on the Management Board of va-Q-tec AG, Dr. Kuhn is a member of the Advisory Board of SUMTEQ GmbH, a company in which va-Q-tec AG holds a minority interest. Dr. Kuhn is also Chairman of the Board of Trustees of ZAE Bayern, the research institute from which va-Q-tec AG originated. The Management Board members do not engage in other secondary activities.

The Supervisory Board last updated and approved the rules of business procedure for the Management Board on 30 April 2019. These include, in particular, the regulations for the working methodology for the Management Board and the distribution of responsibilities between the Management Board members, as well as their collaboration with the Supervisory Board. They define a set of transactions requiring mandatory approval by the Supervisory Board. All Management Board resolutions are passed with a simple majority of the votes unless the law requires another majority. Management Board meetings are held regularly several times per month. The Management Board also remains in close contact between its regular meetings, both with each other and with the Supervisory Board.

Further information on the website concerning the Management Board can be found here:

- Compensation scheme for the Management Board pursuant to Section 87a AktG see Investor Relations website in the section Corporate Governance
- Compensation Report 2021 including the auditor's report pursuant to Section 162 AktG: on the Investor Relations website in the Corporate Governance section
- Rules of procedure for the Management Board, see Investor Relations website in the section Corporate Governance

1.3.4 Composition and working methodology of the Supervisory Board and its committees

Supervisory Board

The Supervisory Board of va-Q-tec AG regularly consults with and supervises the Management Board in its management of the company. The Supervisory Board performs its activities according to statutory provisions, the company's bylaws, and its rules of business procedure. The recommendations of the German Corporate Governance Code (DCGK) concerning the Supervisory Board are complied with, unless stated otherwise in the statement by the Management and Supervisory boards pursuant to Section 161 of the German Stock Corporation Act (AktG) as published on the company's website. In performing its tasks, it works together closely and on a trusting basis with the Management Board for the company's benefit, and appoints and recalls from office the Management Board members. Moreover, it also pays attention to diversity in the Management Board's composition, especially striving for an appropriate inclusion of women in this context. The members of the Management Board should complement each other in terms of their background, professional experience and expertise, so that the board can draw on the widest possible range of experience and specialist knowledge. Together with the Management Board, it caters for long-term corporate planning.

Supervisory Board resolutions are generally passed at its meetings. They can also be passed without convening a meeting, and voting can also occur verbally, in writing, by telephone, fax or email, if so ordered by the Supervisory Board Chair and to the extent that no Supervisory Board member immediately objects to such a procedure. Supervisory Board resolutions are passed with simple majorities, unless prescribed otherwise by law or the company's bylaws.

All Supervisory Board members are obligated to pursue the company's interests. In their decisions, the Supervisory Board members are not permitted to pursue their personal interests, or to exploit the company's business opportunities for themselves, for related natural or legal persons, or for another institution or association in which, or for which, they act. All Supervisory Board members must immediately disclose to the Supervisory Board conflicts of interest, especially those arising on the basis of a consultancy or board function at customers, suppliers, lenders or other third parties.

Pursuant to Section 2 (1) of the rules of business procedure for the Supervisory Board, the members in their entirety should possess the knowledge, capabilities and specialist experience to perform their tasks properly. Pursuant to Section 100 (5) AktG and Section 324 (2) of the Herman Commercial Code (HGB), at least one member of the Supervisory Board must also possess expertise in the accounting or auditing areas. The Supervisory Board sets specific targets for its composition, taking into consideration the recommendations of the German Corporate Governance Code.

The report of the Supervisory Board provides details of the work of this body. The curricula vitae of the members of the Supervisory Board are available on the company's website at *https://va-q-tec.com/en/company/management/* Information on the compensation of the members of the Supervisory Board can be found in the compensation report and on the company's IR website in the Corporate Governance section.

In the 2021 financial year, the Supervisory Board comprised the following members:

Name	Profession	Year of birth	Member since	Member of statutory supervisory boards of comparable domestic or foreign companies/ Further mandates
Dr. Gerald Hommel Chair (appointed until 2023)		1959	2014	None
Dr. Barbara Ooms-Gnauck Deputy Chair (appointed until 2023)	Lawyer and specialist in administrative law at Gnauck Rechtsanwälte GbR Co-shareholder of Gnauck Rechtsanwälte GbR	1957	2014	None
Uwe Andreas Kraemer (appointed until 2023)	Group CFO of enterprise software company Scandit AG, Zürich	1978	2015	None
Winfried Klar (appointed until 2023)	Management consultant, former auditor, tax advisor and CFO	1954	2013	None
Dr. Eberhard Kroth (appointed until 2023)	Managing Shareholder of RoPro4.0 GmbH	1956	2013	None
Dr. Burkhard Wichert (appointed until 2023)	Managing Director of pos pharma GmbH	1961	2021	None

In the interests of complementary collaboration, the Supervisory Board strives for sufficient diversity with regard to gender, internationality and different professional backgrounds, expertise and experience.

Taking into account the recommendations of the German Corporate Governance Code, the Supervisory Board has objectives for its composition, including a competency profile for the entire body, which are presented in the section “Objectives for composition, competency profile and diversity concept for the Supervisory Board”.

Composition and working methodology of the Supervisory Board committees

The Supervisory Board of va-Q-tec AG currently has three committees: an Audit Committee, a Nomination Committee and a General Committee.

The **Audit Committee** consisted of the following members in the 2021 financial year:

- Winfried Klar: Chair
- Dr. Gerald Hommel: Deputy Chair
- Dr. Eberhard Kroth: Member

Dr. Eberhard Kroth stepped down as a member of the Audit Committee at the end of the Audit Committee meeting on 16 December 2021. In his place, Dr. Burkhard Wichert was appointed as a member of the Audit Committee at the same time.

The Audit Committee concerns itself especially with questions relating to financial accounting and supervising the financial accounting process, the efficacy of the internal control system, the risk management system, compliance and the internal audit system, as well as the audit of the financial statements. The latter relates especially to the auditor’s independence, the services additionally rendered by the auditor, the awarding of the audit mandate to the auditor, determining the audit focus areas and agreeing the audit fee.

The **Nomination Committee** consists of the following members until the end of the respective period:

- Dr. Gerald Hommel: Chair
- Uwe Andreas Kraemer: Deputy Chair
- Dr. Barbara Ooms-Gnauck: Member

The **Nomination Committee** proposes suitable candidates to the Supervisory Board for its election proposals to the AGM.

The **General Committee** consists of the following members until the end of their respective period of office:

- Dr. Gerald Hommel: Chair
- Dr. Barbara Ooms-Gnauck: Deputy Chair
- Dr. Eberhard Kroth: Member

The Supervisory Board Chair chairs the General Committee. The General Committee consults on key corporate governance topics and prepares Supervisory Board resolutions. Along with long-term successor planning for the Management Board, the General Committee prepares Supervisory Board resolutions especially concerning the following matters:

- Appointment and removal from office of Management Board members as well as appointment of a Management Board Chair (CEO)
- Concluding, amending and terminating appointment contracts with Management Board members
- Structure of the Management Board compensation scheme including key contractual elements and total compensation of the individual Management Board members.

Self-assessment of the work of the Supervisory Board and its committees

The Supervisory Board and its committees regularly review, either internally or with the assistance of external advisors, how effectively the Supervisory Board as a whole, and its committees, perform their duties.

Immediately following the 2021 financial year, the Supervisory Board of va-Q-tec AG carried out an internal self-audit for the 2021 financial year. To this end, each member of the Supervisory Board answered a comprehensive catalog of questions and critically assessed his or her own activities. As a result of the evaluation of the self-assessment, it should be noted that the Supervisory Board is characterized not only by harmonious cooperation among the individual members and with the Management Board, but also by a high and qualified level of commitment and specific expertise on the part of each individual member. No fundamental need for change has emerged.

Overall, following in-depth discussion of the result of the internal self-audit, the Supervisory Board is convinced that it performed its duties responsibly and efficiently in the 2021 financial year.

1.3.5 Targets for the proportion of women on the Management Board and at the management level below the Management Board; target for the proportion of women on the Supervisory Board

Due to the small number of Management Board members, the Supervisory Board has set the ratio of proportion of women on the Management Board at 0 %.

For the first level below the Management Board, the ratio of proportion of women was set at 10.0 %.As of 31 December 2021, the proportion of women at the first management level below the Management Board stands at 13.6 %.

For itself, the Supervisory Board set a proportion of women at 16.66 %, corresponding to one in six members. This quota is met with the current composition of the Supervisory Board.

1.3.6 Diversity concept for the Management Board and long-term succession planning

In making proposals for the appointment of members of the Management Board, the Supervisory Board is guided by the objective of ensuring that the composition of the Management Board is as diverse and complementary as possible. The aim is to ensure that the Management Board as a whole has all the knowledge and experience that is considered essential in light of va-Q-tec's activities. When selecting members of the Management Board, the Supervisory Board considers their personal suitability, integrity, convincing leadership qualities, international experience, professional qualifications for the position to be assumed, past performance, knowledge of the company, and ability to adapt business models and processes in a changing world. The aspect of diversity is an important selection criterion when filling Management Board positions, including with regard to aspects such as age, gender, and educational and professional background. When selecting members of the Management Board, the Supervisory Board consequently also takes the following aspects into account, in particular:

- In addition to the specific technical knowledge as well as management and leadership experience required for the respective task, the Management Board members should cover as broad a spectrum of knowledge and experience as possible.
- With a view to the company's international orientation, the Management Board's composition should take into account internationality in the sense of different cultural backgrounds or international experience (for example, extended professional experience abroad relevant to va-Q-tec, or supervision of foreign business activities).
- The Management Board as a whole should have experience from the business areas that are important for va-Q-tec.

The Management Board as a whole should have many years of experience in the areas of technology (including information technology and digitalization), transformation processes, entrepreneurship, research and development, purchasing, production and sales, finance, as well as law (including compliance) and human resources.

It is considered helpful to have a variety of age groups represented on the Management Board.

The crucial factor in deciding whether to fill a specific position on the Management Board is always the interests of the company, taking into account all the circumstances of the individual case.

Implementation of the diversity concept for the Management Board

The diversity concept is implemented by the Supervisory Board as part of the procedure for appointing Management Board members. When selecting candidates, the Supervisory Board takes into account the requirements defined in the diversity concept for the Management Board.

In the period under review, no decisions were made regarding the appointment of members of the Management Board. In future, the diversity concept will be given due consideration by the Supervisory Board as part of the structured appointment process. In the case of reappointments, previous performance in office stands at the forefront of the decision-making process.

Long-term succession planning for the Management Board

Personnel issues such as long-term succession planning are prepared by the General Committee, and discussed by the Supervisory Board, including together with the Management Board. Succession planning takes into account the term of current Management Board contracts. The Supervisory Board draws up a candidate profile for open positions on the Management Board. The Supervisory Board ensures that the knowledge, skills and experience of all members of the Management Board differ and are balanced. Suitable candidates are invited for interviews on the basis of the specific requirements and stated criteria of the diversity concept. The recommendation for the resolution is prepared by the General Committee and submitted to the full Supervisory Board. In addition, the Supervisory Board has itself be regularly informed about succession planning for the level below the Management Board, and advises the Management Board in this regard. The appointment of the holders of certain management functions at the first level below the Management Board requires the approval of the Supervisory Board.

1.3.7 Targets for composition, competency profile and diversity concept for the Supervisory Board

Competency profile

The candidates proposed for election to the Supervisory Board should, on the basis of their knowledge, skills and experience, be able to perform the duties of a Supervisory Board member at an internationally active company. Particular attention is to be paid to the personality, integrity, willingness to perform, and professionalism of the persons proposed for election. The aim is to ensure that the Supervisory Board as a whole has all the knowledge and experience that is considered essential in light of va-Q-tec's activities. This includes, but is not limited to, skills and experience in the areas of healthcare, purchasing, manufacturing, finance, and legal (including compliance). In addition, the Supervisory Board should have knowledge and experience from the business areas important to va-Q-tec. In particular, the Supervisory Board should also include persons with management experience at a major international company as a result of holding an executive position, or as a member of a supervisory board or comparable body.

At least one member of the Supervisory Board must have expertise in the areas of financial accounting or auditing. The chair of the Audit Committee should have special knowledge and experience in the application of financial accounting principles and internal control procedures, and be familiar with the auditing of financial statements. In the event of an upcoming new appointment, a review should be undertaken as to which of the desirable skills on the Supervisory Board are to be strengthened.

Internationality

In light of the company's international orientation, care should be taken to ensure that the Supervisory Board includes a sufficient number of members with many years of international experience.

Diversity

Sufficient diversity should be ensured in the Supervisory Board's composition. In addition to appropriate consideration of women, this also includes diversity in terms of cultural origin, religion and ethnic background, as well as differences in professional backgrounds, experience and ways of thinking. When considering potential candidates for Supervisory Board positions, the aspect of diversity should be given appropriate consideration at an early stage in the selection process.

Independence

According to the German Corporate Governance Code (DCGK), more than half of the shareholder representatives should be independent of the company and the Management Board. A Supervisory Board member is independent of the company and its Management Board if he or she has no personal or business relationship with the company or its Management Board that could constitute a material and not merely temporary conflict of interest. When assessing the independence of its members from the company and from the Management Board, the shareholder side must, in particular, take into account whether the Supervisory Board member himself or herself, or a close family member of the Supervisory Board member:

- was a member of the company's Management Board in the two years preceding the appointment,
- currently or in the year up to his or her appointment, directly or as a shareholder or in a responsible function of a company outside the Group, maintains or has maintained a material business relationship with the company or a company dependent upon it (e.g. as a customer, supplier, lender or consultant),
- is a close family member of a member of the Management Board or,
- has been a member of the Supervisory Board for more than 12 years

In the Supervisory Board's opinion, all members of the Supervisory Board are currently independent of the company and its Management Board. Two members of the Supervisory Board act in an advisory capacity for the company. The Supervisory Board is of the opinion that none of these relationships is to be classified as material.

Time availability

Each member of the Supervisory Board must ensure that he or she has sufficient time to perform his or her duties. The statutory restrictions on mandates and the /// upper limits recommended by the DCGK are taken into account. According to the DCGK, a Supervisory Board member who is not a member of the management board of a listed company should not hold more than a total of five supervisory board mandates at listed companies outside the group, or comparable functions, whereby a supervisory board chair position counts twice. Any person who is a member of the management board of such a company should not hold more than two supervisory board mandates in listed companies outside the group, or comparable functions, and should not chair the supervisory board of a listed company outside the Group. With regard to the exercise of the mandate at va-Q-tec, it must be taken into account that

- at least four, albeit as a rule six, ordinary meetings of the Supervisory Board are held each year, each of which requires appropriate preparation;
- sufficient time must be allowed for the audit of the annual and consolidated financial statement documents;
- depending on membership of one or more of the three Supervisory Board committees currently in existence, additional time is required to attend and adequately prepare for committee meetings; this applies in particular to the Audit Committee;
- additional extraordinary meetings of the Supervisory Board or of a committee may be necessary in order to deal with special issues.

Age limit and length of membership

In compliance with the age limit set by the Supervisory Board in its rules of procedure, the term of office of a Supervisory Board member should generally end at the close of the Annual General Meeting following the Supervisory Board member's 75th birthday.

Implementation of objectives for composition including competency profile and diversity concept; independent members on the Supervisory Board

The Supervisory Board takes into account the objectives for the composition and the requirements set out in the diversity concept as part of the selection process and the nomination of candidates for the Supervisory Board. In its current composition, the Supervisory Board meets the composition targets and fulfils the competency profile and diversity concept. The members of the Supervisory Board have the professional and personal qualifications deemed necessary. In their entirety, they are familiar with the sector in which the company operates and have the knowledge, skills and experience essential to va-Q-tec. A considerable number of Supervisory Board members are internationally active or have many years of international experience. In the 2021 financial year, the Supervisory Board included one female member. The Supervisory Board also includes an appropriate number of independent members. In the Supervisory Board's opinion, all members of the Supervisory Board are currently independent of the company and its Management Board. No controlling shareholder exists at present.

Interests held by the Management and Supervisory boards

As of the end of the 2021 financial year, the members of the Management Board, founders and members of the Supervisory Board held the following direct interests in the share capital of va-Q-tec AG:

Shareholder	Number of shares
CEO and founding families	3,355,433
CFO and Supervisory Board	58,281

COMBINED MANAGEMENT REPORT

2 COMBINED MANAGEMENT REPORT

Combined management report on the position of the company and the Group for the 2021 financial year

As a listed company, va-Q-tec Aktiengesellschaft (va-Q-tec AG) has prepared its consolidated financial statements in accordance with International Financial Reporting Standards (IFRS), as adopted by the European Union (EU), and the additional requirements of German commercial law pursuant to Section 315e (1) of the German Commercial Code (HGB). The management report of va-Q-tec AG and the Group management report have been combined in accordance with Sections 315 (5) and 298 (2) HGB. Unless otherwise stated, the following information relates equally to va-Q-tec AG and the va-Q-tec Group. The special features of va-Q-tec AG are contained in the section "Notes to the financial statements of va-Q-tec Aktiengesellschaft (HGB)".

2.1 BASIS OF THE VA-Q-TEC GROUP

2.1.1 Business model, market and strategic orientation

2.1.1.1 Business model and market

va-Q-tec (va-Q-tec AG together with its consolidated subsidiaries referred to as "va-Q-tec" or "the Group") is a leading global technology provider of highly efficient products and total solutions in the area of vacuum insulation and TempChain logistics. va-Q-tec offers customers from a wide range of industries high-performance insulation solutions that enable them to significantly increase their energy efficiency. With the TempChain portfolio, va-Q-tec, through high-tech thermal transport solutions, helps customers achieve temperature stability in the transport, production and storage of life science products such as vaccines based on mRNA technology in what is currently the largest application area in terms of sales. The Group's offerings in the Products, Systems, and Services divisions are also deployed in thermal logistics, the refrigerator and food industries, technical applications such as boilers and piping, the construction industry, and the mobility sector.

In the **"Products" division,** va-Q-tec develops, produces and sells highly efficient, thin vacuum insulation panels ("VIPs") for insulation as well as thermal energy storage components (Phase Change Materials – "PCMs") for the reliable and energy-efficient storage of thermal energy. VIPs are high-performance insulation panels suitable for particularly space-saving and energy-efficient thermal insulation. They operate on the principle of vacuum as a thermal insulator. PCMs are cold and heat storage materials that absorb and store thermal energy. By using different storage materials such as kerosenes or salt solutions and gels made from them, a wide variety of temperature ranges between –70°C and +70°C can be achieved.

The Group's **"Systems" division** develops, produces and sells passive thermal packaging, containers and boxes by combining VIPs and PCMs, which can constantly maintain a defined temperature range for up to 200 hours without the supply of external energy.

In order to realize temperature-sensitive logistics chains, the Group maintains a fleet of rental containers and boxes in its **"Services" division (Serviced Rental)** within a global partner network, which maintain TempChains securely worldwide. Since 2011 the subsidiary in the UK has been operating a fleet of rental containers produced in-house, with which temperature-sensitive shipments can be carried out more cost-efficiently and securely compared to actively refrigerated containers. For this purpose va-Q-tec has built up a comprehensive global partner network consisting of airlines, forwarders and service partners, such as Lufthansa, Turkish Cargo and SWISS. Since 2015, va-Q-tec has also been operating a business for thermal shipment boxes the company produces itself. Furthermore, va-Q-tec provides accompanying services in the area of preconditioning, preparation and shipment preparation of thermal packaging systems for well-known customers such as Kühne & Nagel and Swiss Post. Such integrated and rental-based shipment solutions ("TempChain as a service") from a single source are increasingly in demand from the healthcare industry.

In 2021, the **“Healthcare and Logistics”** target market again accounted for the largest share of revenue by far, at 78 %. Revenue in this target market is generated in the two divisions “Systems” and “Services” (subsumed together under the heading “Temperature Controlled Supply Chain”, also abbreviated as “TempChain”). va-Q-tec’s TempChain transport solutions are primarily used as high-performance solutions for secure, reliable and uninterrupted temperature chains for the global healthcare industry. TempChain solutions from va-Q-tec allow the transport and storage of medicines, vaccines, investigational drugs and clinical samples and other pharmaceutical and biotechnological products of all kinds. Food as well as electronic and optical devices can also be transported. For example, TempChain solutions from va-Q-tec are used to transport hepatitis drugs as well as urine and blood samples for doping tests at major international sporting events. Currently, the transport solutions are widely used in the national and international distribution of coronavirus vaccines. Examples for the use of va-Q-tec systems outside the healthcare sector include the transport of very sensitive optoelectronic devices, valuable and sensitive art objects and archaeological finds. For example, ASML, the world’s largest supplier of lithography systems for the semiconductor industry, is one of va-Q-tec’s largest customers using thermal containers and boxes for international shipments. The most important components of these systems are manufactured with extreme precision and are consequently particularly temperature-sensitive. ASML’s exceedingly complex machines play an important role in the production of modern, high-performance chips.

In the **Products division**, customers from the following target markets are addressed with a view to achieving the best possible thermal energy efficiency:

- Appliances and Food, e.g. insulation of refrigeration/freezing equipment and ultra-low freezers
- Technics and Industry, e.g. insulating water boilers, pipelines and laboratory equipment
- Building, e.g. building insulation (façades, roofs, floors)
- Mobility, e.g. insulation in refrigeration trucks, electric cars, trains and aircraft

The largest shares of revenue within the Products division is generated by the Appliances and Food as well as the Technics and Industry markets.

All va-Q-tec products are subject in their application areas to high demands on the performance and service life of the thermal insulation, usually with very limited installation space. Moreover, va-Q-tec offers consulting services in the thermal insulation area, for example in order to assign technical devices to higher energy efficiency classes by means of more efficient insulation.

Overall, va-Q-tec is represented in what it regards as attractive, structurally growing markets whose long-term growth is driven by thermal energy efficiency. For example, measures to enhance energy efficiency in all areas of life and production worldwide are likely to strengthen demand for energy-efficient products, systems and services from va-Q-tec as a result of ongoing climate change. This is especially true in what va-Q-tec considers to comprise the still small target markets of Technics and Industry, Building, and Mobility.

The Management Board also expects the European "Green Deal" or the pricing of carbon emissions agreed as part of the climate protection programs to lead to an increase in demand for good thermal insulation in various areas, especially in building insulation. The use of VIPs in such sectors can save valuable space in densely populated areas.

As energy efficiency requirements in industry continue to rise in the wake of growing primary energy prices and energy efficiency labeling, and error tolerances shrink, more and more production components are also becoming temperature-sensitive or need to be better insulated. This opens up further application possibilities for va-Q-tec, especially in the high temperature range. Further recent examples include: laboratory equipment, piping systems and boilers.

2.1.1.2 Strategic orientation

By consistently leveraging growth opportunities, va-Q-tec is pursuing the goal of continuing its positive business trend in the future with average annual revenue growth of 24 % in the period from 2016 to 2021, and of further expanding its strong position in its business areas and end markets.

In the Management Board's opinion, the va-Q-tec Group operates in a very dynamic, innovation-driven and global market environment. Given the aforementioned trends in the target markets, va-Q-tec has defined three strategic focus topics in order to exploit potential in the short term and to continue on its growth path in the medium and long term. The aim is to consolidate and expand the company's position as one of the world's leading suppliers of highly efficient products and solutions in the area of thermal insulation and TempChain logistics and to help shape temperature-controlled logistics in the long term. These three strategic focus topics are: **technology leadership, growth and profitability.**

I. Technology leadership

va-Q-tec is focusing on consolidating and further expanding its innovation and technology leadership in the area of thermal insulation and TempChain logistics. va-Q-tec is continuously working on innovative technologies, process innovations and new business models that can significantly change or drastically improve not only temperature chain logistics but also thermal insulation in many industries, such as mobility and technology. va-Q-tec aims to continuously enhance its own innovative capabilities. Advanced VIP grades suitable for higher temperatures above 400°C, for example, as well as new thermal packaging and novel materials lie at the heart of this approach. In addition, va-Q-tec is striving to further improve thermal logistics under the key concept of "TempChain 4.0" by means of "intelligent" boxes and containers in connection with corresponding software and simulation tools. In accordance with this objective, the Group invests in highly qualified personnel, product development and basic research. The strategy also includes selected investments, such as the investment in the materials start-up SUMTEQ GmbH and the high-tech start-up ING3D GmbH, which is developing a novel technology for the production of pure mineral lightweight materials, including 3D-printed insulation materials. In addition, va-Q-tec also pursues cooperation with technology partners in externally funded research and development projects, and particularly with the University of Würzburg. The medium-term goal remains to defend and further expand our position as a leading technology platform.

II. Revenue growth

va-Q-tec's end markets offer great sales opportunities thanks to the wide range of applications for high-performance thermal insulation technology. Accordingly, va-Q-tec's processes, organizational structure and business model are designed for scalability and the consistent leveraging of growth opportunities. The Group is on a clearly defined expansion path with its international presence, maintaining its solid financing base and focus on business relationships with major customers.

va-Q-tec serves high-growth markets that not only offer the company attractive target margins, but also require growth investments. Pharmaceutical and biotech customers are of great significance for va-Q-tec. In the temperature-managed logistics area, the global healthcare industry relies increasingly on va-Q-tec's high-quality passive solutions. Demand for thermal transport solution for coronavirus vaccines is further driving this demand.

At present, potential healthcare customers still frequently use packaging solutions based on conventional insulation materials, and basic water and ice combinations, for temperature retention. With increasing quality requirements made of the temperature chain (summarized in the pharmaceutical industry by regulatory authorities under the key concept of "Good Distribution Practices"), customers are replacing these simple solutions with high-performance thermal transport solutions. At the same time, va-Q-tec's rental models ("Serviced Rental") are aimed at customers for which a purchase of such packaging solutions is not economically viable. va-Q-tec also offers such customers a product with custom-fit rental solutions for high-performance thermal packaging, which is furthermore reusable and thereby helps to save resources. For this reason, va-Q-tec expects to grow further globally in the Healthcare and Logistics target market over the coming years, while outperforming the growth rates of the underlying markets for (healthcare) cold-chain logistics. The aim is to become the globally leading provider of services and packaging solutions in this target market.

In the other target markets of Appliances & Food, Technics & Industry, and Building, the company is also aiming to benefit from the growth opportunities arising from the trend towards energy efficiency, for example. The technology platform, which has evolved over the past years, is to be established in defined target markets.

- In the Appliances (refrigerators) area, va-Q-tec expects further growth in the medium term, as higher regulatory requirements for the energy efficiency classes of refrigerators mean that VIPs will increasingly have to be utilized. VIPs from va-Q-tec, with their insulating performance that can be verified in the manufacturing process of the original equipment manufacturer (OEM), will particularly benefit from this trend, in the Management Board's assessment. At the same time, the coronavirus pandemic also underscores the importance of secure, production-based supply chains: with production in Germany and/or Europe, the likelihood of a reliable, improved, continuous supply of VIPs to OEMs can be increased – with at the same shorter and overall lower shipment distances compared to competitors.
- In the area of e-commerce and food logistics, start-ups and major international providers are developing new business models for the delivery of food ordered online directly to the end consumer. The shipment of frozen and easily perishable food to the consumer is expected to be regulated even more stringently in the future. Overall, the Management Board believes the coronavirus crisis is increasing the importance of secure TempChains as it leads to higher demand for online grocery deliveries. High-performance thermal boxes from va-Q-tec are particularly suitable for such transports because they can maintain the necessary temperatures efficiently and for very long periods.
- In addition, growth in VIP product sales is anticipated in the target market of Technics and Industry, such as through having introduced energy efficiency classes for water boilers and piping insulation. Here, too, manufacturers equip their premium products with va-Q-tec VIPs in order to achieve classification in the best energy efficiency class. Moreover, requirements in lower efficiency classes are becoming more stringent.

The end market of mobility offers additional growth areas in the medium and long term: VIPs from va-Q-tec are suitable for installation in modern e-vehicles, as highly efficient insulation is required in both the bodywork and the engine compartment where space is at a premium. In conventional combustion engines, the waste heat from the engine is used to air-condition the car interior. As the heating or air conditioning system in electric vehicles is powered by the battery, however, poor thermal management significantly reduces travel range. By installing VIP insulation, the vehicle's range can thereby be significantly increased.

Medium-term outlook to 2025

In light of the attractive market environment and the growing importance of energy efficiency in a variety of application areas for which va-Q-tec can provide solutions, va-Q-tec expects revenue of between EUR 160 million and EUR 180 million by 2025. In addition, va-Q-tec aims to further expand its EBITDA margin by 2025 and expects a very significant improvement to a range between 22 % and 26 %.

III. Profitability

Profitability is indispensable in order to secure the company's long-term success and performance, as well as its competitiveness. Operating EBITDA profitability forms the third pillar of the corporate strategy and represents a significant corporate steering metric. In view of very high development, set-up and other start-up costs, this objective is of particular importance.

Various measures in the area of operational excellence and production optimization are being continuously advanced to deliver profitable growth. The Management Board's cost-cutting initiatives primarily concern measures to continuously optimize and harmonize quality, sales processes, organization, resource consumption and purchasing, and IT systems throughout the Group. Economies of scale accompany the expansion of the Group's business activities and corresponding sales revenue growth: the terms on which the Group can purchase intermediate products and third-party services improve significantly with the growing scope of business, and the rising purchasing volumes that accompany such growth. The cost increases for Group support functions such as personnel, marketing, financial accounting and controlling do not match the revenue growth rate. However, the stock exchange listing requires the highest quality level, entailing corresponding expenditure. To improve profitability, the company is further developing its value chain – towards downstream stages. These downstream stages include the manufacture and distribution of thermal boxes and containers, and business models such as the rental of thermal boxes and containers (Serviced Rental). This integration into further stages of the value chain to improve profitability forms a central component of the corporate strategy. In the phase of the company's development to date, the dominant focus continued to be on revenue growth. Through the operational and strategic measures described above va-Q-tec aims to further expand the EBITDA margin by 2025 and anticipates a very significant improvement to a range between 22 % and 26 %.

Group structure, employees, investments and steering

In the 2021 reporting period, two new subsidiaries were established, one in India and one in Brazil. A total of ten companies thereby formed the va-Q-tec Group as of the end of the reporting period, comprising the German parent company and nine foreign subsidiaries. The Group's three reporting segments are derived from these ten companies – the German segment (va-Q-tec AG), the UK segment (va-Q-tec Ltd., United Kingdom) and the Other segment, consisting of va-Q-tec Ltd. (South Korea), va-Q-tec Inc. (USA), va-Q-tec Switzerland AG (Switzerland), va-Q-tec Japan G.K. (Japan), va-Q-tec Uruguay S.A. (Uruguay), va-Q-tec SG Pte. Ltd. (Singapore), VA-Q-TEC INDIA PRIVATE LIMITED (India) and VA-Q-TEC DO BRASIL PARTICIPAÇÕES LTDA. (Brazil).

The parent company va-Q-tec AG wholly owned all nine foreign subsidiaries as of 31 December 2021.

In the German segment va-Q-tec AG, all three segments (Products, Systems and Services) are covered. The "Services" division has been responsible for the rental box business in the German segment since 2016.

va-Q-tec Ltd (UK) primarily comprises the "Services" segment with its focus on the rental business of (returnable) containers and boxes.

The "Other" division mainly comprises the business activities of the remaining foreign subsidiaries attributable to the Systems and Services divisions. The South Korean subsidiary is responsible both for the procurement of raw materials and input materials for the Group and for the sale of va-Q-tec products in its domestic market. In addition to sales activities, the subsidiary in the USA is primarily engaged in business development in North America. The company continued to realize significant investments in the hiring of personnel and business development at the US subsidiary. va-Q-tec Switzerland AG renders services (conditioning and cleaning of rental boxes, "fulfillment services") for Swiss Post and other customers in the cold-chain logistics area. Through its fleet of thermal boxes, Swiss Post makes recourse to the technology and process experience of va-Q-tec in Germany. As a sales company, the subsidiary in Japan pursues the objective of enhancing the perception of va-Q-tec as a locally rooted provider in the world's third-largest economy, and of distributing va-Q-tec products and services there. With the subsidiaries in Uruguay, Singapore, Brazil and India, the aim is to further intensify sales presence in Latin America, Singapore and Southeast Asia and on the Indian subcontinent. The companies in India and Brazil will commence operations in the 2022 financial year.

Group steering

To manage the three reporting segments, the management monitors these areas individually and across the Group based on detailed and regular reports. The management steers the allocation of resources based on this information and institutes countermeasures where performance falls short of target. A streamlined Group structure ensures the Group management can effectively control and coordinate the subsidiaries' important business decisions.

Key performance indicators used by management for the management of the Group are revenues, earnings before interest, tax, depreciation and amortization (EBITDA), as well as the equity ratio. Compared with the previous year, the steering system at va-Q-tec AG has not changed. The Group's specific steering metrics are presented in greater detail below.

Revenue growth represents the basic indicator of business growth and the attractiveness of the Group's products, systems and services. Viewed at the level of the reporting segments and geographic distribution, revenue also serves as an indicator of the success and performance of the Group's business models.

EBITDA serves as the metric for profitability. To this is then added as a subsidiary measure the EBITDA margin measured in relation to total income as a benchmark for the Group's operative performance and profitability. As a fast-growing technology company, va-Q-tec invests significant proportions of its financial resources in machinery, plant and its fleet of containers and boxes for rental services. A high level of depreciation during the phase of establishing infrastructure and fleet distorts the actual picture of financial performance. For this reason, EBITDA, as an earnings figure before depreciation presents a more meaningful metric of the company's performance.

The equity ratio provides information about the strength of the va-Q-tec Group's balance sheet, its capacity to withstand crises, its creditworthiness and its credit risk. In the medium term, the Management Board considers a target value for the Group's equity ratio in a range between 35 % and 40 % to represent a balanced relationship between debt and equity, and thereby between the risk of equity providers and creditors.

In the area of non-financial performance indicators, the number of employees serves as an indicator and central steering metric of the growth in the Group's operating activities.

The following overview shows the growth in the relevant steering metrics.

A detailed analysis of the key figures can be found in the section "Financial position and performance".

kEUR unless stated otherwise	2021	2020	21/20
Revenues	104,063	72,106	44 %
EBITDA (IFRS)	18,699	11,399	64 %
EBITDA margin (IFRS)	15 %	14 %	+1 pp
Equity ratio	36 %	35 %	+1 pp
Year-average number of employees	591	489	+102

The number of employees, including members of the Management Board, managing directors, trainees and interns, amounts to 625 (previous year: 519).

2.1.2 Research and development

The focus of va-Q-tec's business model is on developing and marketing world-leading technology innovations in energy-efficient and space-saving VIPs, high-performance PCMs, and thermal packaging systems. The research and development area is of strategic importance to secure and further extend the company's technology leadership in the thermal insulation areas. Group research at va-Q-tec operates across the whole company, developing technologies for future-viable products and solutions for the Group companies.

vva-Q-tec conducts internal and external research and development (R&D) projects with partner companies and institutes. Not only do such projects serve basic research on VIPs, but they also address the requirements of the five target sectors defined by va-Q-tec, which require excellent thermal insulation and thermal energy storage.

As a spin-off from a university – the Bavarian Centre for Applied Energy Research (ZAE Bayern) – va-Q-tec maintains partnerships with international associations, research institutions, universities and colleges, such as the University of Würzburg. Internally, the company has established its own R&D organization with extensive capacities for basic research and, in particular, application-oriented research.

The past years' successful R&D activities have created a portfolio of patents which is reflected in our leading technology platform.

The worldwide unique va-Q-check® quality control system enables the insulation of VIPs to be controlled before use, or boxes and containers to be approved for reuse through measuring internal gas pressure. va-Q-tec VIPs are thereby the only heat insulation worldwide whose performance and efficacy can be measured, documented and controlled at the place of use. This creates confidence in VIP technology and enables va-Q-tec to meet the high quality requirements of our demanding clientele. For example, the temperature requirements for TempChain transports can be met securely and demonstrably.

The patented va-Q-pro is a largely freely formable, powder-filled VIP, from which holes and sections can be cut on the production side and which can be manufactured in three-dimensional geometry. Thanks to these properties and flexible design latitudes, va-Q-pro can be used in a wide variety of applications, for example in the insulation of batteries in electric vehicles or in the insulation of aircraft areas, such as the galley.

In 2021, va-Q-tec conduct ongoing application-oriented basic research, for example in the application of VIPs in completely new temperature ranges. While conventional VIPs are typically used in the temperature range from –70°C to +70°C , va-Q-tec is working on extending this temperature range by optimally combining different covering materials and core materials, so that, for example, temperature classes from 80°C to 180°C or even in excess of 400°C are possible. The partnership with Cologne-based start-up SUMTEQ, in which va-Q-tec holds an interest, is of strategic importance in the area of basic research in relation to VIP core materials. The joint target of va-Q-tec and SUMTEQ is the pilot testing and market launch of SUMTEQ's submicroporous foams as a further high-performance insulation material. This strategic partnership offers both companies the opportunity to contribute their respective specialist and technical research and development expertise, and thereby generate added value for customers.

Furthermore, the interest in ING3D GmbH is of strategic importance in the application-oriented research area. With the 3D printing technology developed by ING3D, it is possible to manufacture extremely light, non-combustible and freely shapable lightweight materials. The Mineral Direct Laser Sintering (MDLS) process, for which ING3D has filed a patent application and which is the first purely mineral/ceramic printing process worldwide, opens up completely new possibilities in material production: the ceramic raw material used can be processed into ecologically compatible and at the same time cost-effective molded parts. This is achieved without the previously necessary plastic content in the starting material, and results in pure and ecologically compatible, lightweight objects. The end products can be deployed multifunctionally, thereby offering advantages in terms of acoustic and thermal insulation as well as fire protection, especially in small spaces. These properties and the combination with va-Q-tec's VIP insulation technology consequently also enable completely new approaches in the construction and automotive industries. In 2021, ING3D reached important milestones in terms of marketability and material properties of its products, which confirms the quality of the investment.

In the year under review, va-Q-tec worked mainly on expanding and improving its existing product portfolio:

The va-Q-steel panel solution, which will be further developed and newly launched on the market in 2021, enables previously unattained insulation values at both ultra-low temperatures and high temperatures of up to +400°C, and thereby the best possible reduction of energy losses. By using vacuum insulation even at high temperatures, va-Q-steel can now be deployed to boost the efficiency of fuel cells and high-temperature batteries, for example. Compared to previously available high-performance insulation materials (such as non-vacuumed, microporous silica insulating boards), va-Q-steel delivers approximately 200 % better insulation values. From conventional standard insulating materials – such as glass wool – va-Q-steel stands out even more clearly.

With the “va-Q-shell pipe” insulation system, which was further developed in 2021, pipelines can be thermally insulated in a cost-efficient, secure and environmentally compatible manner. This increases energy efficiency, such as in industrial plants, building installations as well as local and district heating networks. va-Q-shell pipe is suitable for insulating pipes that are not insulated in the factory, as well as for retrofitting. Thanks to its material properties, it thereby improves energy efficiency while reducing insulation thickness by up to 50 % and simultaneously increasing energy efficiency by up to 60 %. With va-Q-shell pipe, va-Q-tec has successfully expanded its product portfolio for increasing the energy efficiency of industrial plants, building installations as well as local and district heating networks.

In addition to the already established VIP half-shell insulation “va-Q-shell”, the boiler insulation system va-Q-patch was further developed during the reporting period. This is a laminated VIP completely encased in a robust polyethylene (PE) foam around 2 mm thick. This serves as a protective layer against mechanical stress as well as unwanted moisture. If required, the PE layers contain self-adhesive films for easy installation. The optional groove embossing of the VIP offers maximum flexibility, so that va-Q-patch can be easily and quickly installed into the existing insulation of boilers as well as industrial tanks and systems. This greatly improves energy efficiency in a manner that is cost-effective, quick and easy, including in older plants. For new storage tanks, va-Q-patch can achieve the energy efficiency label in the highest classes A or A+.

In order to be able to supply regions of the earth with incomplete logistics infrastructure with medicines and, in particular, with coronavirus test kits, as well as vital vaccines, in 2021 va-Q-tec further developed the va-Q-pal SI pallet container, which was already launched in 2020. The va-Q-pal SI can be reused several times and, thanks to environmentally compatible materials, can also be recycled on site by the end recipient. At the same time, it features insulation properties comparable to the va-Q-tainer in the rental network, and is consequently ideally suited for temperature-controlled shipments to countries from which it is difficult to return empty rental containers.

With the stackable “va-Q-tray” thermal packaging system, food can be transported in such a way that it remains warm, cold or frozen for several days. The temperature holding time can optionally be extended by PCMs. With the va-Q-tray, for example, bakery branches can be supplied efficiently with fresh produce: constantly cooled, the costly and carbon-intensive use of refrigerated vehicles can be dispensed with in many cases. Thanks to its smooth surface, the va-Q-tray is also easy to clean, which has hygienic advantages.

va-Q-tec develops reusable PCM cooling batteries that can reliably cool in the cryogenic range at around −70°C. Up to now, PCM cold accumulators have usually been used for temperatures down to around −50°C. Currently, dry ice is mainly used for cooling at temperatures below −70°C, which requires a lot of energy to produce. When used for cooling, the dry ice is consumed and cannot be reused. In addition, certain safety regulations must be followed when using dry ice, as dry ice is a hazardous material due to the risk of asphyxiation associated with its use. Consequently, the amount of dry ice that can be transported by air freight is limited. For example, if a coronavirus vaccine is to be distributed worldwide as quickly as possible, this poses a logistical challenge that can slow distribution. As an alternative to dry ice, energy-efficient PCM cooling batteries can be used for power-free cooling. These are easier to handle and are not subject to any particular restrictions on use. This makes it possible to allocate more cargo slots in air transportation for the global distribution of a vaccine.

As part of the EU-funded RECO2ST project, va-Q-tec conducted research on novel application areas in the construction sector during the reporting period. For example, the project investigated how various components of a so-called retrofit kit can be used to optimize the energy efficiency of existing buildings. va-Q-tec VIPs form part of this retrofit kit. The field test of this technology was carried out on a building at Brunel University London. VIPs were installed on the outer walls. Insulation with VIPs can save a significant volume of space heating energy and thereby improve the carbon footprint.

In order to control logistic processes, va-Q-tec is developing state-of-the-art software and simulation solutions under the key concept of "TempChain 4.0". Resources in the IT area were further strengthened to this end in 2021. va-Q-tec is thereby making the TempChain smart, as it can be optimally controlled in combination with va-Q-tec thermal packaging. For example, the newly developed va-Q-nection service solution supports customers in the secure and regulatory-compliant monitoring of the TempChain during shipment. This innovation enables the temperature inside the thermal boxes to be traced in an uncomplicated and secure manner. The va-Q-nection app and TempChain service software enable the recipient to read the temperature report with a mobile device, regardless of location, without having to access the shipment and interrupt the TempChain by opening the shipment packaging.

The technology platform is secured through more than 200 industrial property rights and filings for industrial property rights. These relate mainly to efficient manufacturing methods for powder-filled VIPs as well as the va-Q-check® quality control system, a sensor technology to measure vacuums in VIPs. A total of 24 industrial property rights were filed, including 22 patents and two utility model designs.

The company made further investments in its research and development area in the year under review. Expenditure for this area amounted to kEUR 3,653, above the previous year's level (kEUR 2,694). Research and development costs of kEUR 358 in total (previous year: kEUR 359) were capitalized in the reporting period.

2.2 BUSINESS REPORT

2.2.1 Macroeconomic environment and Group-specific conditions

In its January 2022 publication, the International Monetary Fund (IMF) estimates that global economic growth in 2021 amounted to 5.9 %. Following a worldwide slump in the economy in 2020 as a result of the measures taken to contain the coronavirus pandemic, this marked the start of a noticeable recovery in the macroeconomic environment. However, the global economy starts 2022 in a weaker position than previously expected. Firstly, a new variant of the coronavirus virus is spreading with omicron, which led to new restrictions on economic activity, according to the IMF. Secondly, rising energy prices and supply chain challenges have led to higher and broader-based inflation than expected, especially in the USA and the Eurozone. Combined with a slower recovery in private consumption and geopolitical risks (Ukraine crisis), the growth outlook has therefore clouded over significantly. For 2022, the IMF consequently expects the global economy to grow by 4.4 %, which is clearly positive again but slightly weaker than in 2021.

The IMF recently reported high macroeconomic risks and uncertainties in view of the Ukraine crisis – the economic consequences are already very serious. Energy and commodity prices have risen sharply in the interim, adding to inflationary pressures created by supply chain disruptions and recovery from the Covid-19 pandemic. Should the conflict escalate further, the economic damage would be all the more devastating. Sanctions against Russia will also have a significant effect on the global economy and financial markets and will also have an impact in other countries. In many countries, this crisis is leading to a negative shock in terms of both inflation and economic activity, amid already persistently high inflationary pressures. According to the IMF, the crisis will lead to significant geopolitical upheavals at the same time as the global economy is in the process of recovering from the pandemic crisis.

Key revenue drivers for the va-Q-tec Group include the two target markets of Healthcare and Logistics as well as Appliances and Food, which together account for 88 % of Group revenue.

The market for temperature-controlled packaging systems in the pharmaceutical sector is influenced worldwide by sustainable trends, which will hardly be affected by the coronavirus pandemic, or will tend to accelerate further. Many life sciences products require temperature controlled storage and distribution. Among pharmaceuticals, the largest categories are vaccines, insulin, and biotech drugs made from living organisms, including various cancer drugs. The market for temperature-sensitive drugs has grown steadily in recent years and is estimated to be worth around USD 416 billion in 2022, according to industry association Pharmaceutical Commerce. Of the 100 top-selling drugs in the world, around 70 are temperature-sensitive. Regulation of transport chains is increasing and drugs are being developed and produced in a relatively decentralized manner globally. Market research agency Market Research Future is confident about the growth of this market in the coming years: in the period from 2020 to 2027, Market Research Future expects an average annual growth rate of 9.5 %, with va-Q-tec assuming that the subsegment of the market relevant to va-Q-tec (high-performance packaging systems) will grow at a faster rate. More stringent regulatory requirements made of TempChain logistics (according to "Good Distribution Practice") are making ever more efficient packaging systems necessary for pharmaceutical industry customers. At the same time, demands made of pharmaceutical manufacturers with regard to sustainability and waste avoidance are also rising, which puts reusable rental solutions, such as from va-Q-tec, in a particularly favorable position in the area of thermal boxes and containers.

Growth potentials in the Healthcare and Logistics target market arise from the increasing globalization of clinical research and pharmaceutical production. Our customers believe that the requirements for product safety ("Good Distribution Practice of medicinal products for human use" – GDP) are becoming increasingly stringent and subject to tighter regulatory control. At the same time, demand for temperature-sensitive biotech drugs is rising constantly. Today, 70 of the 100 top-selling drugs worldwide already have to be stored and transported under temperature control. Public perception of this future market has changed at the latest since the outbreak of the coronavirus: completely novel mRNA vaccines offer a way out of the global pandemic and, in the future, promising approaches for cancer immunotherapies and other diseases such as multiple sclerosis. The company expects demand for suitable high-performance transport solutions for both large-volume international shipments and the distribution of smaller volumes over the last mile to continue and grow further. Not least during the vaccination campaign in the course of the coronavirus pandemic, va-Q-tec technology has underlined that it can be of high importance for safe TempChains worldwide. Food logistics also represents an interesting growth area due to increasing regulatory and quality requirements.

va-Q-tec is convinced that it can outpace the rate of market growth with its high-quality offerings in the TempChain area, in other words, system solutions in sales as well as rental solutions (Serviced Rental of thermal packaging systems). Especially with groundbreaking rental solutions, va-Q-tec aims to enter markets that only conventional thermal packaging systems have served to date. At the same time, resources can be saved and packaging waste can be avoided via the reusable solution.

After the healthcare industry, manufacturers of refrigeration and freezing equipment are the second most important customer. According to an estimate by ResearchAndMarkets, the market for vacuum insulation panels will expand by 5.5 % per year on average between 2021 and 2026.

Overall, va-Q-tec addresses structural growth markets with its products business and its VIPs. In Germany, approximately 60 % of primary energy is harnessed for thermal purposes – refrigeration or heating in other words – according to the Working Group on Energy Balances (AGEB). Since the foundation of va-Q-tec over twenty years ago, an important goal has been to deploy the company's products in order to make the worldwide consumption of energy for thermal purposes as efficient as possible, and to reduce greenhouse gas emissions. For example, the vacuum insulation panels produced annually for the refrigerator industry already save the energy generated by many wind turbines. With rising consumer prices for primary energy worldwide, growing customer awareness of energy savings ("Fridays for Future") and more stringent legal regulations (eco-design guidelines, energy efficiency classes), the economic and political incentive to invest in thermal energy efficiency is increasing. This is leading to very interesting business opportunities for va-Q-tec products in the thermal energy efficiency area.

2.2.2 Business trends

After va-Q-tec had agreed in principle on the large-volume, international distribution of its vaccines with one of the world's largest vaccine manufacturers in a heads of terms agreement in November 2020, the final contract for the multi-year provision of high-tech transport containers for several thousand pallet deliveries per year was signed in January 2021. These are handled both in thermal containers that move within a global rental network and with the help of a container variant available for purchase (va-Q-pal). In addition to this partnership agreement, a further vaccine manufacturer prefers to ship vital products with the help of va-Q-tec's thermal containers. In 2021, primarily destinations within the EU were supplied. In addition, va-Q-tec is involved in a large number of projects at both national and international level with almost all vaccine manufacturers. Thanks to the early ramp-up of production and the approval of additional vaccines, the volume of vaccines to be distributed with va-Q-tec solutions has steadily increased over the course of 2021. For example, vaccine distribution accounted for 13 % of Group revenue after H1 2021 and a total of 23 % after FY 2021 (H1 2020: 1 %, FY 2020: 2 %). va-Q-tec

participated to a significant extent in vaccine logistics – the Group's strong growth in 2021 is based very much on this area and underlines its importance for the 2021 financial year.

Both in Germany and abroad internationally, many logistics companies use va-Q-tec's products when supplying vaccination centers, in other words, on the so-called "last mile". In Germany, too, va-Q-tec boxes were used to supply the population with vaccines. Internationally, for example, the Uruguayan government is relying on va-Q-tec solutions and services for national vaccine distribution – a particular challenge due to climatic conditions in Latin America. Further countries and regions, such as Catalonia, have followed suit.

Business outside the TempChain logistics segment also performed well in 2021. This is underlined by strategic partnerships announced in the reporting period with Hutchinson for thermal management in the mobility sector, and with Uponor in the area of highly energy-efficient and form-flexible pipe insulation:

va-Q-tec launched an innovative insulated system for local heating networks in 2021 together with Uponor, one of the leading suppliers of systems for drinking water installations and energy-efficient heating and cooling: the Uponor Ecoflex VIP. However, the product launch represents only the beginning for further joint product developments. By using VIPs, energy loss can be reduced by up to 60 % (for comparable outside diameters) compared to conventional soft foam insulated pipes. Compared with rigid foam-insulated PUR systems, the difference amount to around 38 %. VIP technology will also be used in other Uponor products in the future, such as in the drinking water sector.

The aim of the partnership with Hutchinson, one of the world's leading automotive and aerospace suppliers, is to jointly develop high-performance, efficient insulation solutions to improve the thermal management of aircraft and (electric) vehicles. As part of the partnership, va-Q-tec's VIPs will be combined with Hutchinson's products in various research and development projects in order to develop battery and cabin insulations for the automotive and aircraft industries, respectively, that not only provide good insulation but also meet all fire protection requirements.

Overall, business performance in 2021 was very encouraging thanks to va-Q-tec's in-demand product and service portfolio. Dynamic revenue growth continued with an 44 % growth rate within the Group. The high growth momentum already evident in the first half of 2021 accelerated once again in the second half, with vaccine logistics not the only growth driver in 2021.

Products division (sale of vacuum insulation panels and phase change materials)

In the Products division (sales of vacuum insulation panels and phase change materials), revenue reported further dynamic growth with an increase of 20 % to kEUR 22,032 compared to the previous year's basis (kEUR 18,303). The Products business continued the trend from the third and fourth quarters of 2020, particularly in the first half of the year. In the consumer markets of va-Q-tec's customers, growing demand for energy-efficient refrigerators and freezers has already been apparent since Q3/Q4 2020. This is partly due to the "stay-at-home" trend, which is driving demand for frozen foods, for example. In general, it should be emphasized that VIP technology is becoming increasingly important due to the new EU energy efficiency labels for refrigerators and freezers, which will come into force on 1 March 2021. Accordingly, revenue in this division increased more strongly than originally planned.

Systems division (sale of thermal packaging systems)

In the Systems division (thermal packaging), revenue increased by 86 % from kEUR 19,520 in the previous year to kEUR 36,379. Business with the va-Q-pal SI (SI = SuperInsulation) performed particularly well. In order to also be able to supply hard-to-reach regions with temperature-sensitive products such as coronavirus vaccines, va-Q-tec developed this disposable thermal container within a very short time. The solution is fully adapted to standardized pallet sizes and features a very good temperature holding time. For example, the product can maintain a frequently required temperature range of −20°C for more than 120 hours, including in extreme outdoor temperatures, without depending on external energy supply or even constant refilling of dry ice. However, the vaccines must not only be stored at a stable temperature until the very end, but must also be transported at an optimal temperature and securely to injection stations within sometimes extensive vaccination centers before they are administered. To ensure this, va-Q-tec also developed at short notice a solution based on va-Q-tray technology. For this purpose, the va-Q-tray was supplemented with a special inlay that enables temperature-stable storage of already prepared vaccine syringes.

Services division (Serviced Rental of thermal packaging systems)

va-Q-tec's Services division, which comprises the container and box rental business for the transport of temperature-sensitive goods, mainly from the pharmaceutical and biotech sectors, recorded a year-on-year increase of 35 % in 2021 to kEUR 44,090 (previous year: kEUR 32,657). Overall, in addition to its strong participation in vaccine distribution, va-Q-tec benefited from a further broadening of its customer base as well as a strong increase in the number of small thermal box rentals for "last mile" transports. The expansion of the Services division will continue in the future and is considered a key growth factor for va-Q-tec.

Overall, va-Q-tec with its products participated to a very significant extent in 2021 in high demand for transport equipment required for the distribution of temperature-sensitive coronavirus vaccines and medicines. Vaccine distribution accounted for a total of 23 % of Group revenues in the 2021 financial year (FY 2020: 2 %), underscoring the significant growth contribution of this application area. This high demand is giving an additional boost to an already very dynamic business: for years now, va-Q-tec has been benefiting from the increasing demand, such as for products for the production of biotech drugs and applications in the area of thermal energy efficiency. The Group is also likely to maintain a high rate of growth in the short and medium term, as the Management Board believes that this is not only being driven by a temporary vaccine boom, but also by sustained dynamic growth in the markets.

Capital increase

IIn November 2021, va-Q-tec raised gross issue proceeds of EUR 8.5 million in a capital increase against cash capital contributions. With the capital increase, va-Q-tec gains a further renowned, long-term investor in the form of Lupus alpha Asset Management AG, thereby expanding its shareholder base. At the same time, this strengthens equity in the short term in view of the strong revenue growth and the growth in total assets in 2021, and improves balance sheet ratios.

2.2.3 Non-financial performance indicators

Employees at va-Q-tec

As a technology company with extensive coverage of the value chain, va-Q-tec ascribes particular significance to its staff and their qualifications. The employees' knowledge, skills, further development and commitment are essential for va-Q-tec's further success and performance. Staff received both in-house and external training measures during the year under review. Along with corresponding functional training sessions for employees, the focus was on the cross-functional topic of project management.

va-Q-tec employs a high number of students, especially in research and development. A total of 21 working students were employed at va-Q-tec (previous year: 20). The average of employees grew in the previous by 102, from 489 in the previous year to 591 in the 2021 financial year. Including the members of the Management Board, managing directors, trainees and interns in the Group, the number of employees rose from 519 in the 2020 financial year to 625 in 2021.

2.2.4 Group business results and analysis of the financial position and performance

Results of operation

in kEUR	2021	2020	Δ 21/20
Revenues	104,063	72,106	+44 %
Total income	122,531	84,132	+46 %
Cost of materials and services	–50,754	–32,751	+55 %
Gross profit	71,777	51,381	+40 %
Personnel expenses	–33,082	–26,111	+27%
Other operating expenses	–19,996	–13,871	+44 %
EBITDA	18,699	11,399	+64 %
EBITDA margin on total income	*15 %*	*14 %*	
EBITDA margin on revenue	*18 %*	*16 %*	
Depreciation, amortization and impairment losses	–13,655	–12,299	+11 %
EBIT	5,044	–900	+660 %
Fair value measurement of SUMTEQ	–	647	–100 %
Net financial result	–2,246	–1,259	+78 %
EBT	2,798	–1,512	+285 %

Overall new order intake in the 2021 financial year was significantly above the previous year's level. As of 31 December 2021, the order book position also increased further compared to the previous year, supporting the company's positive outlook. Given this, va-Q-tec grew its revenues by 44 % to kEUR 104,063 in the 2021 financial year. The growth in revenue was driven by all three divisions.

With the half-year figures, the Management Board had specified the revenue forecast for the 2021 financial year in the upper range of a revenue range of EUR 90 million to EUR 100 million. In addition, the company expected EBITDA growth in the 2021 financial year to be disproportionately high compared with 2020 as a percentage of revenue. The final figures clearly exceeded this specific guidance in terms of revenue, met it in terms of absolute EBITDA growth, and achieved the lower end in terms of the EBITDA margin.

The German segment (va-Q-tec AG) contributed kEUR 75,269 of revenue (previous year: kEUR 49,363), the UK segment (va-Q-tec UK) kEUR 37,597 (previous year: kEUR 30,038), and the Other segment kEUR 20,973 (previous year: kEUR 9,768).

In the 2021 financial year, revenues generated with Products (sale of vacuum insulation panels) were up by kEUR 18,303, from kEUR 3,729 to kEUR 22,032 (+20 %). In the Systems division (sale of thermal packaging), revenue increased year-on-year by kEUR 16,859, from kEUR 19,520 to kEUR 36,379 (+86 %). The Group generated revenues of kEUR 44,090 with Services (Serviced Rental of thermal packaging), compared with kEUR 32,657 in the previous financial year (kEUR +11,433; +35 %).

Total income reported slightly stronger growth than the rate of revenue growth in the reporting period, rising by 46 % to kEUR 122,531 (previous year: kEUR 84,132). In addition to the significant increase in the level of changes in inventories, this was mainly due to own work capitalized in the amount of kEUR 11,328 (previous year: kEUR 6,379) included in this figure, which resulted primarily from the continued expansion of the container and box fleets produced in-house in the reporting period. Other operating income of kEUR 4,294 (previous year: kEUR 4,669) resulted mainly from the reversal of the special item from container sale-and-leaseback transactions. Until the end of 2018, this special item on the liabilities side arose from the sale of self-manufactured containers by the parent company va-Q-tec AG or va-Q-tec Ltd. (UK) to leasing companies and subsequent finance leaseback by the UK subsidiary, and is reversed over a period of five years (for further explanations, please refer to the section “Sale-and-finance-leaseback transactions” in the notes to the consolidated financial statements).

The cost of materials and purchased services rose by 55 % from kEUR 32,751 in the previous year to kEUR 50,754. The increase is primarily attributable to higher revenues in the Systems business, and logistics costs in the Serviced Rental segment. Due to the sharp reduction in air freight capacity caused by coronavirus, the ratio of cost of materials and services to total income increased by two percentage points from 39 % in 2020 to 41 % in the reporting period. In parallel, the gross profit ratio fell to 59 % in 2021 (previous year: 61 %).

Personnel expenses in 2021 were up by kEUR 6,971 compared with the prior year, rising from kEUR 26,111 to kEUR 33,082 (+27%). Measured in terms of total income, this corresponds to a significantly reduced ratio of 27% (previous year: 31 %). In addition to usual wage and salary increases, the rise in absolute terms mainly reflects the year-on-year increase in the average number of employees by 102 individuals.

Other operating expenses increased by kEUR 6,125, from kEUR 13,871 in the prior-year period to kEUR 19,996 in 2021 (+44 %). Measured against total income, this results in a stable other operating expense ratio of 16 % (previous year: 16 %), unchanged from the previous year. The main negative factors in the third and fourth quarters included higher freight costs, consultancy costs for efficiency and productivity improvements in production, and stronger marketing and sales activities again compared with the previous year. Due to the company’s dynamic growth and the growing rental business with boxes, other personnel expenses as well as insurance payments and contributions also show an increase.

Overall, earnings before interest, tax, depreciation and amortization (EBITDA) rose by kEUR 7,300, from kEUR 11,399 to kEUR 18,699 (+64 %). This corresponds to a slightly improved EBITDA margin of 15 % in 2021, compared with 14 % in 2020, in relation to total income. In terms of revenues, it represents an improvement from 16 % in 2020 to 18 % in 2021. Due to the effects described, the EBITDA margin guidance was met only at the lower end. Adjusted for the net balance of foreign currency income and expenses, EBITDA would have increased by kEUR 5,734, from kEUR 12,220 in the previous year to kEUR 17,954 (+47%). This would correspond to a constant EBITDA margin of 15 % in 2021, after adjusting for the net balance of foreign currency income and expenses (2020: 15 %), in relation to total income. In terms of revenues, it would represent a ratio of 17% in 2021 (2020: 17%).

Depreciation and amortization increased by 11 % from kEUR 12,299 to kEUR 13,655 in line with the significant year-on-year growth in investing activities.

The operating result (EBIT) in 2021 amounted to kEUR 5,044. Compared to the previous financial year, this represents a significant EBIT improvement of kEUR 5,944 (previous year: kEUR −900). Adjusted for the net balance of foreign currency income and losses, EBIT would have increased by kEUR 4,378, from kEUR −79 in the previous year to kEUR 4,299.

The net financial result amounted to kEUR −2,246 after kEUR −1,259 in the previous year and reflects the increased use of borrowed capital, primarily in the form of the bond placed in November 2020.

For the 2021 financial year, earnings before tax (EBT) reported a strong improvement to kEUR 2,798 compared with the previous financial year (kEUR −1,512) and turned significantly positive, as did earnings after tax of kEUR 2,162, compared with kEUR −1,435 in the previous year).

German reporting segment (va-Q-tec AG)

kEUR unless stated otherwise	2021 (IFRS)	2020 (IFRS)	Δ 21/20
Revenues	75,269	49,363	+52 %
EBITDA	6,705	1,718	+290 %
Equity ratio	45 %	46 %	−1 pp
Average number of employees	528	440	+88

In the German reporting segment (va-Q-tec AG), revenues grew from kEUR 49,363 in the previous year to kEUR 75,269 in 2021 (+52 %). EBITDA increased by 290 % to kEUR 6,705 in 2021 (previous year: kEUR 1,718). The increase in revenue and earnings was mainly due to higher level of sales of containers produced in-house to the subsidiary in the UK and the strong growth in the Systems business (sales of thermal packaging) in the wake of coronavirus vaccine logistics. The number of employees rose by 88 year-on-year to 528 (previous year: 440), mainly in production at the Würzburg and Kölleda plants.

UK reporting segment (va-Q-tec UK Ltd)

kEUR unless stated otherwise	2021 (IFRS)	2020 (IFRS)	Δ 21/20
Revenues	37,597	30,038	+25 %
EBITDA	15,327	11,348	+35 %
Equity ratio	31 %	26 %	+5 pp
Average number of employees	58	49	+9

The UK reporting segment comprises mainly the rental of temperature-managed containers for the global pharmaceuticals industry. Revenues in this segment rose significantly in 2021, by kEUR 7,559 (+25 %), from kEUR 30,038 in the previous year to kEUR 37,597. While the UK reporting segment benefited from vaccine deliveries, it also initially had to accept a delayed start-up of new projects, including due to coronavirus, which prevented even more significant growth. In addition, given significantly reduced and more expensive air freight capacities, a major customer partly ordered the large one-way solution va-Q-pal SI from the Systems division instead of rental containers from va-Q-tec. EBITDA in this segment rose by 35 % year-on-year from kEUR 11,348 in 2020 to kEUR 15,327 in 2021 thanks to the significant revenue growth as well as lower-than-average cost increases reflecting optimized logistics processes for the container fleet, despite sharply reduced and expensive air freight capacities. The number of employees rose by 9 to 58 (previous year: 49).

Other reporting segment

kEUR unless stated otherwise	2021 (IFRS)	2020 (IFRS)	Δ 21/20
Revenues	20,973	9,768	+115 %
EBITDA	1,196	−289	+314 %
Equity ratio	−7%	−18 %	−11 pp
Average number of employees	39	30	+9

The subsidiaries in India, Brazil, Singapore, Korea, Switzerland, Japan, Uruguay and the USA, which together form the Other reporting segment, also contributed significantly to the Group's revenue growth. The 115 % increase in revenues also significantly increased the segment's share of unconsolidated revenues in 2021 from 11 % in the previous year to 16 %. This was mainly due to significant growth in internal revenues in the regions. The subsidiaries in Korea, Japan and the USA performed especially well this year. All subsidiaries in the Other reporting segment are extremely important for local presence, the expansion of regional operating activities, and the perception of va-Q-tec as a reliable global and regional partner. Revenue increased by kEUR 11,205 (+115 %), from kEUR 9,768 in the previous year to kEUR 20,973 in 2021. EBITDA amounted to kEUR 1,196 (previous year: kEUR −289, +314 %). The number of employees rose to 39 as of 31 December 2021 (previous year: 30).

Financial position

Principles and goals of financial management

va-Q-tec's financing strategy is oriented to providing the financial resources required for strong growth. Recourse is made in this context to various financing instruments such as loans, leasing, factoring, overdrafts and government subsidies. Existing financing instruments were optimized continuously in terms of their structures and interest rates. In total, va-Q-tec has adequate and good financial resources for the needs of a rapidly growing company as of 31 December 2021 with bank balances plus open credit lines of more than EUR 15.0 million.

In November 2021, va-Q-tec placed 325,498 new ordinary registered shares at EUR 26.10 per share as part of a capital increase against cash capital contributions and excluding statutory subscription rights. As a consequence, the company's share capital increased by EUR 325,498.00 (corresponding to just under 2.5 % of the share capital) from the current EUR 13,089,502.00 to EUR 13,415,000.00. va-Q-tec generated gross issue proceeds of kEUR 8,495 in the process. The cash capital increase provides va-Q-tec with the appropriate scope for maneuver for future investments at this point in time in order to further drive the high growth of the company and at the same time maintain stable balance sheet ratios during the strong expansion of business activities in 2021. According to current planning, it will be possible to make the necessary investments in strong organic growth from the operating business from the 2022 financial year onwards.

Under the terms of the multibank master loan agreement, which runs until 31 December 2023, va-Q-tec has made its inventories available to the syndicate banks as collateral for the credit lines, and has undertaken to maintain a minimum equity ratio of 30 % as well as minimum EBITDA metrics. In addition, the company has undertaken not to fall below a liquidity level of kEUR 5,000 for the term of the bond. In addition, the Management Board is continuously in talks with banks and financial institutions with regard to short- and medium-term debt financing instruments.

Liquidity

kEUR	2021	2020
Net cash flow from operating activities	3,280	7,405
Net cash flow from investing activities	–24,222	–11,819
Net cash flow from financing activities	13,571	14,124
Net change in cash and cash equivalents	–7,324	9,644

Before changes in working capital, va-Q-tec approximately doubled its cash flow from operating activities to kEUR 13,333 in 2021 from kEUR 6,745 in 2020, not least due to the significant improvement in EBITDA (+98 %).

Net cash flow from operating activities including working capital changes amounted to kEUR 3,280 in 2021, kEUR 4,125 below the level of kEUR 7,405 in the prior year. The reason for this is the significant increase in working capital due to the extensive build-up of inventories to handle the anticipated international business and to exploit its inherent sales opportunities, particularly in the second half of the year. In addition, inventories were built up as a precautionary measure to safeguard against any delivery shortfalls and delays in view of global logistics and materials procurement issues. Last but not least, trade receivables also increased significantly in line with the Group's revenue growth.

Cash flow from investing activities increased from kEUR –11,819 in the prior-year period to kEUR –24,222 in 2021 and was thereby very significantly above the level of the previous year. The purchase of property, plant and equipment resulted in kEUR –22,080 of cash flow, compared with kEUR –11,351 in the previous-year period. Due to the expected higher demand in the wake of the coronavirus pandemic, an increased need for investment was identified, which will normalize again in the current financial year. While especially the investments already realized in 2017 and 2018 formed the basis for the further expansion of the company towards a revenue level of EUR 100 million and above, at the same time the company has had to invest more at short notice in the container fleet in the expectation of very strong revenue growth in 2021 – as well as for future growth. The expansion of production capacities was also subsidized by the government as part of a program.

Cash flow from financing activities of kEUR 13,571 (previous year: kEUR 14,124) results primarily from the capital increase carried out in November 2021 and further financing of the container fleet.

Net assets and capital structure

Assets

kEUR	31/12/2021	31/12/2020
Non-current assets		
Intangible assets	4,273	2,955
Property, plant and equipment	82,649	69,636
Investment property	1,020	1,614
Capitalized contract costs	38	73
Financial assets	4,972	3,503
Other non-financial assets	1,298	1,056
Deferred tax assets	2,040	2,471
Total non-current assets	**96,290**	**81,308**
Current assets		
Inventories	18,469	11,615
Trade receivables	12,432	6,532
Other financial assets	2.380	927
Tax assets	22	3
Other non-financial assets	5,168	1,549
Cash and cash equivalents	9,810	17,134
Non-current assets held for sale	594	
Total current assets	**48,875**	**37,760**
Total assets	**145,165**	**119,068**

Compared with 31 December 2020, property, plant and equipment increased significantly, by kEUR 13,013, from kEUR 69,636 to kEUR 82,649 as of 31 December 2021. Total non-current assets rose by kEUR 14,982, from kEUR 81,308 to kEUR 96,290 as of 31 December 2021. This increase was mainly due to investments in production capacities and intangible assets. In November 2021, the sale of part of the land reported under the item "Investment property" was notarized. Due to the still missing prerequisites for the transfer of ownership, the sale did not take place economically until February 2022. As of the 31 December 2021 reporting date, this portion of the land is consequently reported under current assets as "Non-current assets held for sale".

Inventories increased by kEUR 6,854 to kEUR 18,469 (previous year: kEUR 11,615) in line with revenue growth, which is also attributable to a higher level of reserve stocks, pre-production due to coronavirus and equipment for the foreign companies. In line with revenue growth, trade receivables increased by kEUR 5,900 to kEUR 12,432 as of 31 December 2021 (31 December 2020: kEUR 6,532). Current other financial assets increased by kEUR 1,453, from kEUR 927 to kEUR 2,380 as of 31 December 2021, due to receivables from the factoring company, such as for deposits. For the aforementioned reasons, total current assets rose from kEUR 37,760 as of 31 December 2020 to kEUR 48,875 as of 31 December 2021. Cash and cash equivalents decreased by kEUR 7,324, from kEUR 17,134 to kEUR 9,810. In the same period, for the aforementioned reasons, total assets reported a considerable rise from kEUR 119,068 to kEUR 145,165 as of 31 December 2021.

Investments

The focus of investment activity in 2021 was on continued investment in production capacity in Würzburg and Kölleda, the expansion of the container fleet for the global container rental business and the expansion of the thermal box fleet, particularly in light of the very dynamic demand in the TempChain sector, which was not only for vaccine logistics. A total of kEUR 26,117 (previous year: kEUR 12,433) gross was invested in property, plant and equipment, of which kEUR 7,061 was invested in the container fleet (previous year: kEUR 4,034) and kEUR 2,703 in intangible assets (previous year: kEUR 1,853).

Property, plant and equipment, net of depreciation and other movements, reported a significant increase from kEUR 69,636 to kEUR 82,649. After a large part of the basic investments had already been made in 2017 and 2018, additional investments in new capacities are unavoidable in the context of the significantly higher demand expected in 2021 and beyond (coronavirus vaccine shipments). At the same time, it was also possible to take advantage of government subsidy programs to expand the site in Kölleda.

Equity and liabilities

kEUR	31/12/2021	31/12/2020
Equity		
Issued share capital	13,415	13,090
Treasury shares	–54	–54
Additional paid-in capital	54,020	46,158
Cumulative other comprehensive income	0	–42
Retained earnings	–15,734	–17,896
Total equity	**51,647**	**41,256**
Non-current liabilities and provisions		
Provisions	189	96
Bond	23,362	22,064
Bank borrowings	23,451	25,170
Other financial liabilities	4,695	3,857
Other non-financial liabilities	4,628	5,425
Total non-current liabilities and provisions	**56,325**	**56,612**
Current liabilities and provisions		
Provisions	247	190
Bank borrowings	13,741	3,919
Other financial liabilities	8,888	6,434
Contractual liabilities	189	40
Trade payables	8,628	5,978
Tax liabilities	63	44
Other non-financial liabilities	5,437	4,595
Total current liabilities and provisions	**37,193**	**21,200**
Total assets	**145,165**	**119,068**

The Group's equity increased by kEUR 10,391 to kEUR 51,647 as a result of the consolidated profit and the capital increase. Despite the parallel very significant increase in total assets, the equity ratio increased slightly to 36 % as of 31 December 2021 (31 December 2020: 35 %). The ratio thereby lies within the target range of 35 to 40 %.

Long-term bank borrowings consist primarily of real estate loans with terms of 15 to 20 years, and fixed interest rates at the current low level. Non-current banks borrowings decreased slightly from kEUR 25,170 in total to kEUR 23,451. At the same time, current bank borrowings increased by kEUR 9,822, from kEUR 3,919 to kEUR 13,741, including due to the higher current portion of non-current loans.

Non-current other financial liabilities rose from kEUR 3,857 to kEUR 4,695. Within this item, lease liabilities, in particular, increased from kEUR 3,410 to kEUR 4,341. Non-current other non-financial liabilities decreased by kEUR 730, from kEUR 5,425 to kEUR 4,695, primarily due to the scheduled discontinuation of special items for container profits. Development banks disbursed to va-Q-tec a total of kEUR 695 of funding for investments in the reporting period (previous year: kEUR 265), mainly for the Kölleda site. Other current financial liabilities rose by a total of kEUR 2,454, from kEUR 6,434 to kEUR 8,888. Other current non-financial liabilities increased on a net basis by kEUR 842 to kEUR 5,437 (31 December 2020: kEUR 4,595). Within this item the special item for deferred container profits reduced by kEUR 702, as scheduled, while, among other items, tax liabilities increased by kEUR 904 and liabilities for employee bonuses and profit-sharing increased by kEUR 270 as a result of the significantly improved results.

Bank borrowings plus equipment leasing thereby accounted for 27% of total assets at kEUR 39,207 (31 December 2020: kEUR 33,051, 28 %). For this reason, the total volume of finance leases decreased further by kEUR 1,940, from kEUR 3,956 in the 2020 year to kEUR 2,016 in the 2021 financial year. Current liabilities and provisions stood at kEUR 37,193 in the financial year under review, representing 26 % of total equity and liabilities (31 December 2020: kEUR 21,200, 18 %). The Group's non-current liabilities and provisions amounted to kEUR 56,325 as of 31 December 2021, corresponding to 39 % of total assets (31 December 2020: kEUR 56,612; 48 %). Trade payables rose to kEUR 8,628, compared with kEUR 5,978 in the previous year.

Overall statement on business progress

va-Q-tec can look back on a very successful 2021 financial year. The high year-on-year rate of revenue and earnings growth accelerated once again, and profitability, both EBIT and EBT, improved significantly further. Group revenue is recording very strong growth, driven by all three divisions. The Group participated to a large extent in the demand for qualified thermal transport solutions for coronavirus vaccines, which accounted for 23 % of total revenues (previous year: 2 %). This significantly enhanced public perception of va-Q-tec as a reliable partner for the pharmaceutical and life science industries also led to strong growth. Customer demand remains high in a market that is expanding by around 10 % annually. As a technology and innovation leader, va-Q-tec is benefiting disproportionately in this context. The Group is setting the trend towards passive, energy-efficient and carbon-saving thermal transport solutions. In the Products business (sale of VIPs), va-Q-tec is benefiting from the trend towards greater energy efficiency, and also sets trends itself, such as with particularly high-performance insulation systems for pipelines and applications in the mobility area.

EBITDA again increased at a significantly disproportionate rate of 64 % to reach kEUR 18,699. The EBITDA margin as a percentage of revenue improved by two percentage points to 18 %. Adjusted for the net balance of foreign currency income and expenses, EBITDA would have increased by kEUR 5,732, from kEUR 12,220 in the previous year to kEUR 17,954 (+47%), corresponding to an unchanged ratio of 17% of revenues. EBIT was very clearly positive at kEUR 5,044. EBT was also clearly in positive territory at kEUR 2,798. This significantly improved overall profitability at the EBIT and EBT levels.

2.3 FORECAST

2.3.1 Outlook

The following forecasts for the trend in management metrics were made under the assumption of the macroeconomic conditions for 2022 described above. They are also based on the expected positive growth rates in the market for VIPs and insulation materials overall. A fast growth dynamic is expected in the market for thermal packaging and services, particularly in the high-performance thermal packaging segment. These assumptions are underpinned by the estimates of the market research institutes mentioned above, which already expect growth in the (lower) double-digit percentage range (see 2.2.1 Macroeconomic environment and Group-specific conditions). Material uncertainties with regard to the guidance derive from any macroeconomic effects of the current situation in Ukraine, such as on energy prices, the supply chain or inflation in general, etc. va-Q-tec expects to benefit disproportionately from the megatrends of energy efficiency, the regulation of cold chains (product safety), and the globalization of value chains. Also taking into consideration the opportunities and risks entailed in operating activities as outlined in section 2.4.2, the company identifies growth levers in tapping new markets and application areas in terms of both products (e.g. last mile to the pharmacy, the utilization of rental containers for temperature-sensitive goods outside the pharmaceuticals industry, TempChain 4.0 applications, requirements relating to personalized drugs) and geography (new and further developed regional and national markets such as Latin America and India).

Overall statement

For the 2022 financial year, va-Q-tec expects furthe revenue growth to a revenue range between EUR 115 million and EUR 122 million.

For earnings before interest, tax, depreciation and amortization (EBITDA), the company generally expects moderately fast year-on-year growth in the 2022 financial year and, on the basis of operational economies of scale and a changed product mix with a growing proportion of higher-margin products and services, a rate of growth outstripping its rate of revenue growth. Due to possible additional costs and uncertainties resulting from the current geopolitical upheavals (Ukraine crisis), the company is taking the precaution of expecting a constant to slightly increasing EBITDA margin compared with 2021.

The equity ratio is expected to remain constant in the 2022 financial year.

The company believes that the number of employees will increase slightly in 2022 as the international business expands.

As a consequence, the Management Board of va-Q-tec AG expects above-average revenue growth compared with the target markets, accompanied by stable to slightly rising EBITDA profitability compared with 2021.

2.3.2 Forward-looking statements

This report includes forward-looking statements based on current assumptions and forecasts of the management of va-Q-tec AG. Such statements are subject to risks and uncertainties. These and other factors can lead the company's actual results, financial position, development or performance to differ significantly from the estimates provided here. The company assumes no obligation of any kind to update such forward-looking statements and adjust them to future events or developments.

This document is an English translation of an original German document; in the event of discrepancies, the original German version shall prevail and take precedence over the English translation of the document. For technical reasons, formatting differences may arise between the accounting documents contained in this document and those published due to legal requirements.

For reasons of better readability, the masculine form is predominantly used in this annual report. Nevertheless, the information refers to persons of any gender.

2.4 REPORT ON OPPORTUNITIES AND RISKS

2.4.1 Risk management and internal control system

Risk management va-Q-tec is based on three main aspects:

- a risk-aware corporate culture
- a formalized risk management system
- the internal control system

Anchoring risk awareness within the corporate culture

All successful business activity is connected with the conscious assumption of risks. It is crucial to the corporate governance of va-Q-tec that existing and newly added risks be handled in such a way to enable them to be managed actively, and incur as few losses as possible. Opportunities in a business sense should also be leveraged to enhance the company's value for all stakeholders. va-Q-tec enjoys a high degree of "risk awareness", which is communicated openly and transparently. From the Management Board's perspective, risk awareness that is translated into practice forms one of the most efficient instruments for handling risks. If employees are aware of risks and manage them professionally, the risk of losses being incurred because of risks materializing is diminished. Risks are disclosed and managed both proactively and transparently in such an environment. The establishment and company-wide communication of compliance guidelines also fosters greater awareness of compliant behavior. A compliance management system is in place that defines a code of conduct for both internal and external business activity. The compliance officer appointed in this context records, processes and reports to the Supervisory Board and its Audit Committee on all relevant compliance cases.

Risk management system

Risk management at va-Q-tec refers to the systematic engaging with risks, understood as negative events whose occurrence can incur losses and/or unforeseen costs within the company. To meet this requirement, internal and external risks for all segments and subsidiaries are systematically surveyed, measured, steered, managed and reported to the Management and Supervisory boards with the risk management system.

To supplement the existing internal and external control system, the Group management of va-Q-tec has implemented a formalized risk management system (RMS) for this purpose, which undergoes constant further development. The RMS is based on the experience gained in recent years in identifying risks, such as the findings of the risk inventory compiled during the preparation of the risk inventories. At the meetings of the Management Board, the Audit Committee and the Supervisory Board, the developments and changes in existing risks and the emergence of new risks regularly form the subject of consultations. As in the previous year, the risk situation in the 2021 financial year was evaluated on the basis of two risk inventories as of the reporting date. In the interim, a regular exchange of information on the risk situation also occurred between those responsible for risk officers, risk managers, the Management Board and the Supervisory Board. Furthermore, the RMS was continuously further developed during the course of the 2021 financial year.

The aims of the risk management system at va-Q-tec are, as a matter of principle, to avoid, reduce and transfer risks, including through corresponding insurance cover, for example. Along with compliance with regulatory requirements, systematic risk management secures long-term and sustainable competitiveness. As part of the RMS, the early warning system is designed to give early warning of going concern risks that could potentially jeopardize the company, whether cumulatively or in the aggregate of their individual events. Risk management at va-Q-tec is not only a security instrument but also a management instrument. Moreover, risks that are identified offer new business opportunities and competitive advantages.

The RMS is based on a reporting process, two biannual risk inventories and risk assessments during the course of the year. As part of the risk inventory, the respective decision-makers and experts within the specialist areas appraise all significant risks. Risks identified within the va-Q-tec Group are measured according to their potential loss and taking event probabilities into account. The risks identified as part of the risk analysis are categorized into risk classes according to their event probability and impact, by multiplying their respective effect by their respective event probability. The bandwidth of event probabilities and effects starts with "very low" and ends with "very high". Risks can thereby be differentiated and prioritized according to the resultant expected risk value. The specialist areas are required to identify and report new risks as part of risk appraisal during the course of the year. The information that is aggregated in this manner is summarized in risk files that are addressed and reported to the Management Board of the va-Q-tec Group. All risks – newly added as well as existing – are also to be monitored and reported continuously. As there is an ongoing high focus on the area of risk management, particularly due to the global coronavirus pandemic and, more recently, the Ukraine crisis, we further developed the methodology for assessing risks at va-Q-tec in the reporting year. This primarily led to even more diligent monitoring of cumulative risks. The risk inventory is therefore also considered on a cumulative or aggregated basis. In other words, the occurrence of several risks over time or at different locations, which appear immaterial when considered individually, is analyzed and the materiality threshold is derived accordingly. Requisite countermeasures are launched quickly, and subsequently monitored.

New risks and significantly changed risks also form fixed agenda items at all regular management meetings, and at all Management and Supervisory board meetings. They are discussed as part of results briefings between the Management Board of the va-Q-tec Group and the managers of the specialist areas. A review is also conducted as to whether risk minimizing measures that have already been taken are sufficient or whether further steps are to be initiated (such as in terms of ad hoc capital market communications). The Group's risk management system enables the management to identify significant risks at an early stage, initiate countermeasures and monitor their implementation. The auditor also examines the risk early warning system to ensure it is suited to the early identification of going concern risks.

Accounting-related internal control system

va-Q-tec operates a clear organizational, corporate, as well as control and supervision structure. Planning, reporting, controlling and early warning systems and processes exist across the company for the comprehensive analysis and management of earnings-relevant risk factors and going concern risks. The functions in all areas of the (Group) financial accounting process (such as financial accounting, financial bookkeeping and controlling) are clearly allocated. To date, va-Q-tec AG has refrained from operating a separate internal audit function due to the company's somewhat small dimensions and limited complexity. The audit area agreed for this year was carried out by a qualified internal employee during the year.

Use is mainly made of standard software (Navision) as far as installed financial systems are concerned. Standard consolidation software is used to prepare separate and consolidated financial statements. Here, existing structures have to be adjusted constantly to reflect the company's growth and changing conditions, such as capital market requirements.

The IFRS consolidated financial statements are prepared based on a standard reporting format for submission by all Group companies to the central administration in Würzburg. The validation processes applied there and additional plausibility checks ensure that the separate financial statements of the subsidiaries and of va-Q-tec AG are complete and correct.

The internal control and risk management system relating to the financial accounting process ensures that business transactions are recorded, processed and appraised correctly from a financial accounting standpoint, before being transferred to external financial reporting.

Payment transactions are performed electronically with embedded control mechanisms (two sets of eyes principle with a selected group of individuals). External service providers implement payroll transactions.

The organizational, corporate as well as controlling and supervisory structure determines the framework of the ICS. Clear statutory and in-house regulations and guidelines ensure a standard and proper financial accounting process. Check mechanisms within the areas directly involved in the financial accounting process, review by the internal control function, backup from the independent auditors and early risk identification by the risk management function are designed to ensure that (Group) financial accounting is free of error.

2.4.2 Operating risks

va-Q-tec measures risks based on their estimated event probabilities and potential effects on the company's financial position and performance, as well as reputation. Measurement of risk loss levels and event probabilities leads to the following examples of key risk indicators.

Event probability	Loss level in EUR	Risk indicator
very low	0 – 50,000	1
low	50,000 – 500,000	4
medium	500,000 – 1,000,000	9
high	1,000,000 – 5,000,000	16
very high	> 5,000,000	25

The Management Board applies the following scheme to measure the characteristic of a risk based on its risk indicator:

Risk indicators	Risk characteristic
0 – 5	Low
5 – 15	Medium
> 15	High

Overall, the following section presents risks after instituting countermeasures.

Risks in the value chain

As a manufacturing company, va-Q-tec has to make recourse to suppliers for intermediate products. va-Q-tec procures the main raw materials, consumables and intermediate products from a limited number of key suppliers worldwide. Global trade and supply chains are vulnerable to disruption. In this respect, va-Q-tec could be exposed to the risk of delays and interruptions in the supply chain as a result of global economic and geopolitical dynamics (including inflation), extreme events (including pandemics and wars such as currently in Ukraine), cyber incidents or financial difficulties at suppliers, in particular if it is not possible to establish alternative sources of supply or transport options in a timely manner, or at all. In addition, the Group is dependent on the supply of certain raw materials. Global demand, availability and pricing of these commodities have been volatile recently, especially in light of the situation in Ukraine, and we expect them to continue to fluctuate in the future, including in the wake of stronger carbon pricing. It is consequently the objective in the purchasing strategy of va-Q-tec to reduce dependency on individual or a few suppliers by qualifying and selecting new suppliers ("dual" or "multiple" sourcing). As in previous years, in 2021 the company continued to newly qualify and select second and third tier suppliers for intermediate products and materials. The company also consciously includes international suppliers in its selection in order to avoid regional dependency. The Group has no production facilities in Ukraine and manufactures almost all of its products in Germany. Preliminary products or raw materials are not sourced from Ukraine; the customer base in Ukraine and Russia is very small. Overall, we do not expect the current situation in Ukraine to have any direct material impact on our business operations, either on the revenue side or in terms of disruptions in the value chain.

For va-Q-tec AG as a whole, a medium risk exists due to the limited number of suppliers and noticeable cost inflation for preliminary products and services.

Production stoppages and operational interruptions represent a further risk. Such risks may also arise in particular from extreme weather events or natural disasters as a result of climate change and pandemics. The company depends on the continuous operation of its production systems in order to ensure that it can meet delivery requirements, especially to major industrial customers whose value chains are closely intermeshed with that of va-Q-tec. va-Q-tec manufactures at two geographically separate sites in Würzburg and Kölleda. Stoppage at one site has no significant effects on the other site, where production can continue. Where possible and economically feasible, the individual production systems are also decoupled from each other through technical measures, so the stoppage of an individual system does not restrict the operation of other plants.

Besides the outage of existing systems, a risk can also arise in the insufficient overall capacity of the production systems. Along with productivity and efficiency improvements to the existing systems, the company's strong growth can also require early and forward-looking investment in capacity expansions, as the requisite plants sometimes require long delivery times. The company could nevertheless be surprised by sudden market developments, potentially being unable to satisfy all customer orders on the customers' requested dates. Through regular ad hoc reporting on new order trends between the sales areas and the Management Board, the company endeavors to identify such developments at an early stage and counteract them with appropriate measures. For example, such measures can temporarily consist of higher levels of reserve stocks, additional working shifts or the utilization of less appropriate plant for production, in order to bridge the time gap until additional capacities are commissioned. The Management Board also gauges the risk of long-lasting production outage from the aforementioned reasons as low, and appraises the risk of insufficient capacity as low following material growth investments.

Rental services (Serviced Rental) are particularly dependent on external logistics providers, which are not only responsible for operative processes at the network stations – for cleaning, warehousing and cooling processes, in other words – but also for transporting the preconditioned containers and boxes to the end-customers. This can lead to interruptions to operations, loss compensation claims and damage to reputation. Auditing and close-meshed controlling by the company's own logistics specialists serve to assure the quality of Serviced Rental for the pharmaceuticals industry globally. For this reason, the Management Board gauges this risk as medium.

Personnel risks

The company's operating activities and success depend on qualified managerial and key personnel. The company's very well trained personnel has acquired specific knowledge, skills and commercial contacts, in part through working for the company for many years. va-Q-tec counters the risk of losing such staff not only through measures aimed at employee loyalty, but also through diversifying the knowledge base through the workforce: key staff departures at va-Q-tec are avoided through employee development, diversification of the knowledge base within the company, and compensation in line with the market. Employee motivation and satisfaction is also boosted through performance-based compensation components, regular further training and the good corporate culture with the possibility to help shape disruptive business models. The risks to which va-Q-tec is exposed due to a change of key staff are appraised as medium level risks.

Market and competition risks

The Group in its business activities has a strong focus on major industrial customers. This initially leads to a higher level of customer concentration. The company is constantly reducing the resultant risk through its growing number of customers, as well as diversification. Further protection exists thanks to a high level of customer loyalty, especially in the healthcare industry. The Group generally endeavors to establish and maintain a close, trusting and sustainable business relationship with all partners, employees and customers, and consequently gauges such risk as medium, and as a risk that can be reduced further.

Revenue in 2022 is based to a not insignificant extent on the thermal logistics for coronavirus vaccines. Should their production and distribution not (or no longer) take place to the expected extent, or should demand for intercontinental transport solutions diminish (such as due to regionalized production), this could have a material impact on the company's revenue and earnings expectations.

As a fast-growing company, va-Q-tec might potentially be unable to effectively advance and shape its growth. The Group has almost completed a period of heavy investment in personnel, sales activities, rental fleets, infrastructure and research and development, and is also adapting agilely to short-term opportunities in the wake of the coronavirus pandemic. To this extent, were actual growth to prove lower than planned, the risk exists of a negative effect on operating profits. As a matter of principle, the Management Board decides on such future investments with due objectivity and sense of proportion, and always based on specific expectations about market trends, as well as taking into consideration the ability to finance such investments. Insufficiently researched and/or excessively early investments are avoided as a consequence. At the same time, significantly higher actual growth than planned generates the risk of a negative effect on the customer relationship due to non-compliance with delivery deadlines, delivery bottlenecks etc., and thereby also on the operating results. Here, too, sound judgement and the early identification of market developments through regular coordination with the sales areas constitute an important instrument to reduce risk, thereby identifying in good time the requirement for capacity expansions, with early decisions being made by the Management and Supervisory boards concerning the necessary investments in production plants and buildings. The Management Board assesses the residual risk as medium.

The intensification of the competitive environment also represents a significant risk. This may result in increased pressure on prices and margins or a loss of market share. Existing competitors, known potential competitors and barriers to market entry are constantly monitored and strategies and measures are adapted accordingly. The company guards itself against such risk through two strategic levers, namely cost optimization measures and innovative products and services. Cost optimization includes, for example, increasingly automated production and the particularly efficient purchasing of intermediate products, with selective backwards integration to upstream value chain steps. The innovation topic includes research and development activities, which have already led to commercially successful, high-quality and particularly differentiated products since the company was formed. The company's range of products and services is distinguished from that of its competitors in many aspects: examples include the possibility to test the quality of the insulation in situ, or the production of VIPs with sections extracted and in three-dimensional form. Overall, the Group gauges the risk due to newly emerging competitors or a more aggressive competitive situation as medium.

Brexit

In order to prepare va-Q-tec continuously for the UK's withdrawal from the EU, which has meanwhile occurred, a cross-divisional and cross-border Brexit team was formed. Together with operating of the UK subsidiary va-Q-tec Ltd., the other Group companies, customers and logistics partners, the consequences of Brexit have been and are being identified, and measures to avoid disruptions in the supply chain have been and are being developed. These include, for example, technical enhancements in Groupwide ERP systems in order to be able to respond to extended customs requirements on the system side. Generally, less revenue is calculated in pounds sterling than costs are incurred in pounds sterling. If the pound depreciates against the euro, opportunities for va-Q-tec will arise as a consequence. Possible tax benefits could also create opportunities for va-Q-tec. Overall, va-Q-tec consequently considers Brexit-related risk to be low.

Coronavirus

Since the beginning of the 2020 financial year, va-Q-tec has been affected by the coronavirus pandemic. The very dynamic situation and its consequences, as well as different regulations worldwide, could expose va-Q-tec to the risk of various negative effects. Key potential impacts include risk to employee health and safety, and the closure of offices and manufacturing facilities due to coronavirus cases. In addition, vaccination and testing standards implemented in some countries could lead to loss of employees, among other consequences. Events and trade fairs where va-Q-tec participates are also impacted by these effects. The Group could experience negative effects on its business due to supply chain constraints, delays in bringing certain products or product life cycles to market, or changes in installation and service capacity. Further important potential effects include reductions in revenue due, for example, to the postponement of investments, redistribution of government subsidies or financial difficulties on the part of our customers. In contrast to other industries, va-Q-tec's supply chain is less designed for just-in-time processes. Short-term disruptions in the supply chain can be partially offset as a consequence. Based on an assessment of the consequences, the Management Board views this risk in a differentiated manner and assesses it as a medium risk overall, taking into consideration the risks identified to date and experience with the pandemic since 2020. Increasing drug and vaccine deliveries due to the coronavirus outbreak may provide va-Q-tec with an opportunity to enjoy greater demand in the healthcare and logistics area. As a consequence, a medium risk due to coronavirus remains in the overall picture. Current developments and restrictions are being closely monitored on an ongoing basis together with our employees, customers, suppliers and partners.

Cyclical target markets

Especially the target markets of Appliances and Food, Technics and Industry, and Building are dependent on the economic situation. The Management Board gauges this risk as low, as the underlying drivers of va-Q-tec's business (increasing regulation and energy efficiency) are less susceptible to economic cycles.

Cybersecurity

We are seeing a continued increase in cybersecurity threats worldwide and a higher level of professionalism in cybercrime, particularly during the coronavirus pandemic. With its business in the TempChain area, va-Q-tec's products, solutions and services are exposed to a particular cyber risk. However, the number and criticality of attacks on va-Q-tec have not changed significantly. va-Q-tec places great emphasis on cybersecurity to protect customers and the Group itself from cyberattacks. For this reason, a package of measures was developed centrally with the involvement of an external service provider, involving all relevant areas of the company and integrating cybersecurity resources, expertise and competence in a central team. In addition to the technical and organizational controls it has established, va-Q-tec is continuously raising employee awareness so that staff can detect attacks at an early stage and respond to them in an improved manner. This is especially important during the coronavirus pandemic, as a large number of employees are continuing to work remotely. As cyber security is a responsibility shared by all parties involved as well as various stakeholders, va-Q-tec is also constantly developing its ability to protect against cyberattacks when they occur. Overall, the Management Board assesses the risk from cyberattacks as medium.

Adherence to laws and compliance as well as legal risks

In connection with its global business activities, va-Q-tec must ensure compliance with patent, antitrust and competition law, anti-corruption laws, data protection regulations and other laws such as tax and customs regulations. In order to comply with requirements, the Group has established compliance, participation and risk management systems and will continue to develop them significantly in 2021. Nevertheless, no guarantee exists that we can avoid all risks in every jurisdiction with these systems. Risks exist here, for example, in the form of customs and tax regulations in connection with new subsidiaries or the global rental services, as well as in relation to product liability and similar matters. Furthermore, va-Q-tec is occasionally involved in patent disputes both as plaintiff and defendant. Since the last financial year, patent litigation has been pending in Germany concerning the alleged infringement of a patent by va-Q-tec AG, and the action was upheld in the first instance. Even though va-Q-tec AG immediately appealed the first-instance ruling and filed a nullity suit against the patent in question, it cannot be completely ruled out that the courts will ultimately rule in the plaintiff's favor.

All these risks could result in material consequences and have a negative impact on business and on the financial position and performance. In addition, they could lead to criminal or administrative fines, claims for damages, and reputational damage. Consequently, we continuously counter these risks with targeted measures such as employee training and regular reporting at all Management and Supervisory board meetings. For this reason, the Management Board considers the risk from compliance incidents and legal risks to be medium.

Financial risks

va-Q-tec's central finance department utilizes revolving liquidity plans in order to monitor liquidity risk. The Group was, and is, solvent at all times. Interest risks deriving from existing long-term lending facilities are partly hedged through interest-rate swaps. The Group is exposed to interest-rate risk on its short-term overdrafts, although such risk is currently unlikely to materialize.

va-Q-tec is an internationally active company whose assets, liabilities, revenues, costs and profits are denominated in various currencies, with the US dollar (USD), the British pound (GBP), the Swiss franc (CHF) and the South Korean won (KRW) currently representing the most important foreign currencies. Currency risks are limited due to the fact that most invoicing occurs in euros (the company's functional currency) as well as by way of the company's internationalization. Significant changes in exchange rates could nevertheless have material effects on va-Q-tec's financial position, net assets position and results of operations, which are reported in euros.

The currency risks arising from the issue in 2020 of the CHF bond were hedged by derivative hedging transactions (cross-currency swaps/CCS) for the portion of CHF 24 million over the term of the bond. The CCS thereby eliminate the EUR-CHF currency risk resulting from the interest and redemption payments for the entire term of the bond for the secured portion.

Overall, the Group gauges risks in its financial area as medium.

Liquidity was secured at all times in the 2021 financial year and was adequate for the needs of a rapidly growing company. A comfortable level of unutilized overdraft lines existed as of the reporting date. For this reason, the Management Board gauges liquidity risk as low at present.

In an overall view of risks, va-Q-tec is predominantly exposed to general business risks (performance risks) and financial risks. At present, the Management Board does not identify any individual or cumulative risks as going concern risks. The company is positioned both strategically and financially to leverage the business opportunities on offer to it.

2.4.3 Future development opportunities

va-Q-tec possesses extensive knowledge relating to compliance with rules and regulations in relevant countries and regions. Laborious and expensive qualification measures at healthcare industry customers – along with corresponding quality assurance and process documentation – provide the requisite expertise for the successful implementation of packaging solutions for customers. Only a few companies are currently capable of successfully combining the necessary characteristics of thermal packaging within a complex, reliable and at the same time user-friendly offering. With its technology platform, va-Q-tec is one of the few companies worldwide to meet the high requirements. Increasingly complex regulation makes it necessary for a company to constantly further develop itself and research new technologies. In such an environment, high barriers to entering the market for thermal packaging are beneficial for va-Q-tec.

The coronavirus crisis impressively demonstrates the importance of stable and secure supply chains. This is particularly true for the pharmaceutical industry, as the shipment of numerous medicines requires reliable shipment solutions with stable temperatures. In view of the growing appreciation for our temperature-controlled logistics solutions, we consequently expect additional demand impulses in the medium term – especially from the pharmaceutical industry – even after the coronavirus crisis has been overcome.

Demand for VIPs is also increasing in the other target markets as a result of regulations: customers in the "Technology and Industry" target market are currently facing a change in the regulatory environment in important core markets: like many household appliances, boilers for heating systems are now subject to the "Ecodesign Directive", i.e. their energy efficiency is made transparent to the end consumer via a labelling system in energy efficiency classes. Moreover, equipment with high energy consumption and a low energy efficiency class is excluded from the European domestic market. Customers of va-Q-tec currently use VIPs mainly to position premium boilers in the highest efficiency classes. In future, and with more stringent regulation, we believe VIP-insulated boilers from the premium segment will also encounter demand in the mass market. In 2021, va-Q-tec made a further innovation in this area market-ready with the va-Q-patch system described above.

New markets

Since it was founded, va-Q-tec has worked on developing new products and services that open up additional markets and application possibilities for vacuum insulation. Along with basic research and product predevelopment – such as VIPs for entirely new temperature ranges – examples here include food logistics and the mobility area.

In the e-commerce area, start-ups and large international providers are currently developing, at an accelerated pace, new business models for the delivery of food ordered online directly to the consumer, including due to the coronavirus-related lockdown measures. We believe the shipment of easily perishable food to the end-customer will be regulated even more stringently in the future. The high-performance thermal packagings of va-Q-tec are very well suited to such shipments.

With va-Q-med thermal boxes, va-Q-tec can ensure secure logistics without temperature deviations directly to pharmacies. In Germany alone, almost 20,000 pharmacies need to be supplied with shipment and temperature logistics in accordance with “Good Distribution Practices”. With the va-Q-med box, va-Q-tec has the opportunity to play a crucial role in shaping the future of pharmacy and last-mile logistics. This also offers opportunities in the area of logistics for online pharmacies.

In personalized medicine, each patient should be treated with extensive consideration of individual circumstances, beyond the functional diagnosis of disease. This also includes the ongoing adaptation of therapy to reflect the progress of recovery and gene-based medications. Such forms of therapy will become increasingly important in the future. At the same time, they are often very sensitive to temperature. va-Q-tec’s particularly temperature-stable and high-performance thermal boxes and containers are especially suitable for such medications.

To date, both va-Q-tec’s existing thermal packaging and thermal packaging in development, as well as its Service Rental, are designed for deployment almost exclusively in the healthcare industry. However, a trend to increasingly temperature-sensitive goods and manufacturing processes is now identifiable in many industries. As a consequence, growth opportunities arise from the development of new application areas with va-Q-tec technologies, such as food transport and the opto-electronics industry.

The target market of mobility also offers strong growth opportunities for va-Q-tec: in the future, thermal management in vehicles with both conventional and electric engines will become increasingly significant. Carbon dioxide can be saved in conventional vehicles through insulation measures in vehicle cabins and through storing heat energy from the cooling cycle. In vehicles with electric engines, range depends on the optimal working temperature of the vehicle battery as well as the electricity consumed by peripheral functions, such as heating and interior air conditioning.

In va-Q-tec's opinion, vehicle manufacturers and their suppliers could extend the range of their vehicles by using vacuum insulation. The partnership with Hutchinson in the mobility area that was established in 2021 underlines the relevance of these topics for the automotive and aerospace sectors.

In the building sector, the opportunity arises to benefit from ever more stringent energy efficiency standards for new buildings and renovations. va-Q-tec VIPs could be used here to enhance energy efficiency, as underlined by, for example, the RECOST project, which will be continued in 2021.

Along with the aforementioned market opportunities in terms of products and services, the Management Board also identifies considerable future growth opportunities in geographic expansion. The internationalization of business activities and the company's entry into new global markets open up major sales opportunities for the Group. Equally, its international presence can be exploited to tap new sources of raw materials, consumables and intermediate products, and for efficient purchasing.

Innovative services and offerings

In the Products division (vacuum insulation panels), work was carried out on the further development of the existing portfolio and the new development of a panel class for medium and high temperatures. Novel high-temperature panels, such as va-Q-steel, which was launched on the market in 2021, can be used wherever temperatures of up to approximately 400°C prevail on the one hand, and where very good insulation is required on the other, such as for ovens for industry and food. With such VIPs, va-Q-tec can revolutionize the market for high-temperature insulation.

With the stackable "va-Q-tray", a thermal packaging system, food can be transported in such a way that it remains warm, cold or frozen for hours, or in some cases days. The temperature holding time can optionally be extended by PCMs. With the va-Q-tray, for example, bakery branches can be supplied efficiently with fresh produce: in contrast to existing styrofoam systems, the va-Q-tray meets the highest hygiene and temperature chain requirements, can be used universally (e.g. as a portable refrigerator), and as a combinable system with non-insulated standard containers. In addition to hygiene benefits, this also results in cost savings as additional refrigerated vehicles can be dispensed with.

In the future, the innovative combination of hardware and IT solutions – referred to as "TempChain 4.0" – will become ever more important. Such new services and offerings, consisting of intelligent boxes, fleet data management, live tracking of temperature data, and predictive analysis in the area of temperature-controlled shipments can be offered to customers with a premium.

Climate change and carbon dioxide

In line with the Glasgow Climate Pact (COP 26), va-Q-tec is working with its VIP technology to support the reduction of carbon emissions. This applies in particular to the business activities of va-Q-tec's customers or end users, whose carbon emissions can be materially reduced through better thermal energy efficiency and insulation. The transition to a decarbonized economy consequently represents an opportunity for va-Q-tec.

By way of summary, the Management Board is of the opinion that the opportunities pertaining to the development and growth of the business outweigh the aforementioned risks.

2.4.4 Risk reporting on the deployment of financial instruments

The Group is exposed to various financial risks due to its operating activities. The Group's risk management aims to minimize the potential negative effects on the Group's financial position. Financial instruments are only deployed to a limited extent at va-Q-tec.

In the German reporting segment, almost 82 % of revenue and approximately 97% of purchases were processed in euros. In the UK reporting segment, some revenues were generated in US dollars. The costs attributable to such revenues are largely also incurred in US dollars. Risk-reducing natural hedging consequently exists for the US dollar. Significant foreign currency losses could nevertheless occur in the event of stronger exchange rate fluctuations. For this reason, the Management Board gauges the remaining currency risk relating to the US dollar as medium.

Interest rate hedging instruments continue to be in place in order to hedge interest payments on long-term loans at a standard market interest rate level. The cross-currency swap concluded to hedge the currency risks resulting from the CHF bond is shown as hedge accounting in accordance with IFRS. The real estate loans taken out in 2018 were largely financed on a long-term basis with fixed interest rates over the term on the basis of the current, low interest level. No interest-rate hedge was arranged for existing variable interest overdrafts.

No separate financial instruments are held to hedge against default on receivables. The risk of defaults on receivables is relatively low due to the high credit standing of the customer base. To further improve liquidity, the factoring implemented in 2019 at va-Q-tec AG and additionally at the UK subsidiary va-Q-tec Ltd. in 2021 was also continued in 2021. Reverse factoring is currently only implemented for a small number of customers with long receivables terms (such as in Italy) as is customary in the market.

Above and beyond the financial instruments described here, the Group holds no further financial instruments that are important for appraising the Group's position or prospective development. Please refer to the sections on "Financial instruments" and "Risk management" in sections 4.4 and 4.6 of the notes to the consolidated financial statements for more details.

2.5 TAKEOVER LAW DISCLOSURES AND NOTES PURSUANT TO SECTIONS 289A AND 315A HGBB

2.5.1 Composition of the subscribed share capital

The share capital of va-Q-tec AG amounts to EUR 13,415,000.00, and is divided into 13,415,000 ordinary registered shares. The share capital is fully paid in. The shares carry the same rights and obligations. Each share grants one vote at the Shareholders' General Meeting. Exceptions to this include shares the company itself holds (treasury shares), from which no rights accrue to va-Q-tec AG, such as the right to vote at the Shareholders' General Meeting. As of the balance sheet date, va-Q-tec AG held 13,566 treasury shares (previous year: 13,566). For information about changes in the treasury share position, please refer to the notes to the consolidated financial statements in this annual report.

2.5.2 Restrictions affecting voting rights or the transfer of shares

The shareholders in the share pool have undertaken to exercise their voting rights uniformly. The Management Board is not aware of any further currently valid restrictions affecting voting rights or the transfer of shares.

2.5.3 Interests in the share capital exceeding 10 % of the voting rights

Pursuant to the German Securities Trading Act (WpHG), all investors reaching, exceeding or falling below voting rights thresholds pursuant to Section 21 WpHG through purchase, sale, or in another manner, are required to report such transactions to the respective company and to the German Federal Financial Supervisory Authority (BaFin). To this extent, the Management Board of va-Q-tec AG is aware of the following individuals and companies whose interests exceed 10 % of the voting rights:

Name	Country	Number of shares	Interest in the share capital
Share pool of the families of Dr. Joachim Kuhn and Dr. Roland Caps	Germany	3,355,433	25.01 %
TOTAL		3,355,433	25.01 %

Rules concerning the appointment and recall from office of Management Board members

Pursuant to Section 84 of the German Stock Corporation Act (AktG), and the bylaws of va-Q-tec AG, the Supervisory Board appoints the members of the Management Board. Pursuant to the company's bylaws, the Management Board consists of one or several individuals. The Supervisory Board determines the number of Management Board members. If the Management Board consists of several members, Management Board resolutions are passed with a simple voting majority. If the Supervisory Board has appointed a Management Board Chair (CEO) and if the Management Board consists of at least three members the vote of the Management Board Chair is decisive given an equal number of votes on a resolution.

Rules concerning bylaw amendments

Amendments to the bylaws require a resolution of the Shareholders' General Meeting. Resolutions by the Shareholders' General Meeting require a simple voting majority unless a greater majority is imperative by law.

Management Board authorizations relating to the issuing and repurchase of shares

va-Q-tec AG has both approved share capital and contingent share capital as follows:

Approved share capital

By resolution of the Annual General Meeting of 14 August 2020, the Management Board was authorized, with the approval of the Supervisory Board, to increase the company's share capital by up to a total of EUR 6,544,751.00 up to and including 13 August 2025 (Approved Capital 2020/1), whereby shareholders' subscription rights may be excluded. In accordance with the company's bylaws, the Management Board, with the approval of the Supervisory Board, made use of this authorization by resolution dated 10 November 2021, excluding shareholders' subscription rights, to the extent of EUR 325,498.00, corresponding to 325,498 shares. Following the capital increase, the Supervisory Board amended the bylaws of va-Q-tec AG correspondingly. Accordingly, the Management Board is authorized, with the approval of the Supervisory Board, to increase the company's share capital by up to a total of 6,219,253 new no par value registered shares (ordinary shares) against cash and/or non-cash capital contributions by up to a total of EUR 6,219,253 up to and including 13 August 2025 (Authorized .

Contingent capital

Pursuant to Section 6.5 of the company's bylaws, the share capital is conditionally increased by EUR 6,500,000 through issuing up to 6,500,000 new ordinary registered shares (Contingent Capital 2020/1). Contingent Capital 2020/1 serves exclusively to grant shares upon the exercise of conversion or warrant rights, or upon fulfilment of conversion obligations, to the holders or creditors of convertible bonds, bonds with warrants and/or participating bonds (or combinations of such instruments) (collectively "bonds") issued on the basis of the authorization resolution of the Annual General Meeting of 14 August 2020 under agenda item 7 letter b).

Significant agreements in the case of a change of control due to a takeover offer and compensation agreements in the case of a takeover offer

No significant agreements on the part of the company exist that are subject to a change of control following a takeover offer.

2.6 CORPORATE GOVERNANCE STATEMENT

Besides relevant disclosures concerning corporate governance practice as well as a description of the working methodologies of the Management and Supervisory boards, the corporate governance section, as a part of the annual report, also includes the statement of conformity pursuant to Section 161 of the German Stock Corporation Act (AktG). The corporate governance section together with the statement of conformity pursuant to Section 161 AktG is also available on the Internet at *www.va-Q-tec.com* in the Investor Relations section.

2.7 NOTES TO THE (HGB) FINANCIAL STATEMENTS OF VA-Q-TEC AKTIENGESELLSCHAFT

va-Q-tec AG is the parent company of the va-Q-tec Group and is headquartered in Würzburg. The business activities of va-Q-tec AG essentially comprise the development, production and distribution of products and services as well as the management of the va-Q-tec Group. The administration as well as the production of smaller production series are located at the Würzburg site. Würzburg is also the location of one of the TempChain service centers, through which thermal containers and boxes are rented. In addition, va-Q-tec AG has a production site in Kölleda, Thuringia, where the majority of the Group's products are manufactured. va-Q-tec AG prepares its annual financial statements in accordance with the provisions of the German Commercial Code (HGB) and the German Stock Corporation Act (AktG). This company is by far the most significant entity in the va-Q-tec Group. For this reason, the statements relating to the fundamentals of the va-Q-tec Group and the general conditions of the business report also predominantly apply to va-Q-tec AG. va-Q-tec AG is integrated into the va-Q-tec Group's controlling system. In this context, va-Q-tec AG covers all three business areas: the sale of VIPs, the distribution of thermal boxes and containers, and the rental of thermal boxes. The most significant performance indicators of va-Q-tec AG correspond to those of the Group. The organization, corporate structure, management responsibility, corporate strategy and financing strategy correspond to those of the Group. No significant changes occurred in the organization, corporate structure, management structure or financing strategy in the 2021 financial year.

Business performance of the single entity va-Q-tec AG

The specific business performance of va-Q-tec AG essentially corresponds to the performance of the "German segment" of the va-Q-tec Group, which is presented in the section "Group business results and analysis of the financial position and performance". Business performance in 2021 was characterized by meeting high demand for TempChain transport solutions, in particular for vaccine transports. In addition, business with VIPs also grew dynamically. The Group's products and solutions are mainly manufactured centrally at the two German production sites by va-Q-tec AG, and sold or leased via local subsidiaries. The production and logistics capacities of va-Q-tec AG as well as the entire supply chain together with supporting activities (IT, marketing, sales processing) were greatly expanded as a consequence of the rapid growth. The financing measures, in particular the capital increase, which were carried out centrally at the parent company for all Group companies, were also significant for the business of va-Q-tec AG.

Results of operations of the single entity va-Q-tec AG

At kEUR 77,616, the revenues of va-Q-tec AG were 52 % higher than in the previous year (kEUR 50,975), and total income also increased by a significant 55 %, or kEUR 31,281, year-on-year to reach kEUR 87,923 (kEUR 56,642), primarily due to dynamic business with transport solutions for coronavirus vaccines and more intercompany business.

Revenues include revenues generated with Group companies in the amount of kEUR 26,812 (previous year: kEUR 14,516). This extreme increase (+85 %) underscores the growing importance of the subsidiaries for the overall growth of va-Q-tec AG as well as for the business development of the German parent company itself.

Own work capitalized at va-Q-tec AG rose again significantly in the 2021 financial year, by kEUR 1,938 to kEUR 4,492 (previous year: kEUR 2,554).

The increase in inventories of finished goods and work in progress totaled kEUR 3,577 in the past financial year, significantly higher than in the previous year (kEUR 940). This reflects the growth in reserve stocks at va-Q-tec AG and the increase in local stocking at the subsidiaries in response to the freight and logistics challenges posed by the coronavirus pandemic.

The growth in other operating income of kEUR 65, from kEUR 2,173 in the previous year to kEUR 2,238 in 2021, is mainly due to higher income from foreign currency differences of kEUR 587 (previous year: kEUR 63). Other operating income also included the reversal of the special item for grants and subsidies in the amount of kEUR 352 (previous year: kEUR 393) and intercompany income in the amount of kEUR 921 (previous year: kEUR 1,163).

At kEUR 38,331, the cost of materials and purchased services was significantly higher than in the previous year (kEUR 22,904), reflecting not only the growth in revenue but also the increased costs of inventory build-up and the temporary workers required for the short-term capacity expansion. Accordingly, the ratio rose year-on-year to 44 % of total income (previous year: 40 %).

As the company continuously invests in new growth areas and has to reflect the dynamic growth operationally, personnel expenses have also increased further in 2021, from kEUR 21,798 to kEUR 27,545 (kEUR 5,747). In all areas of the company, both existing employees were further developed and experienced employees were recruited from outside. At a total of 26 %, however, personnel costs rose at a much slower rate than total income, with the result that the personnel cost ratio fell very significantly from 38 % in the previous year to 31 % in the financial year under review.

Other operating expenses were kEUR 5,439 or 52 % higher than in the previous year and amounted to kEUR 15,880 (previous year: kEUR 10,441). The further doubling of transport costs, which already comprised the largest item within these expenses in the previous year, was the main contributor to this increase, along with high consulting costs for efficiency improvements and in connection with the capital increase. The share of other operating expenses in operating performance nevertheless remained constant year-on-year at 18 % in the 2021 financial year.

Overall, earnings before interest, tax, depreciation and amortization (EBITDA) rose by kEUR 4,667, from kEUR 1,500 to kEUR 6,167 (+311 %). This corresponds to a slightly improved EBITDA margin of 7% in 2021, compared with 3 % in 2020, in relation to operating output.

Depreciation and amortization continued to rise in line with the strong growth and the higher level of investment activity required accordingly, such as in new buildings and equipment, and increased by kEUR 1,354, from kEUR 4,477 in the previous year to kEUR 5,831. This corresponds to a ratio of 7% of total income (previous year: 8 %).

The net financial result of kEUR –1,304 was significantly higher than the prior-year figure (kEUR –587). The increase in interest expenses reflects the greater utilization of short-term lines and the issue of the CHF bond at the end of 2020.

Overall, the operating result, or earnings before interest and tax (EBIT), rose by kEUR 3,313, from kEUR –2,977 in the previous year to kEUR 336. This corresponds to an EBIT margin of 0.4 % in 2021 compared with –5.3 % in 2020, based on total income.

Due to a tax loss in the 2021 financial year, no income tax expense was incurred. All tax loss carryforwards are carried forward to the following year.

In the 2021 financial year, va-Q-tec AG recorded a very significant year-on-year improvement in EBT of kEUR 2,596 to a level of kEUR –967 (kEUR –3,564), which is mainly due to the effects in total income described above.

Net assets of the single entity va-Q-tec AG

The net assets of va-Q-tec AG report the following changes in the 2021 financial year: total assets increased by kEUR 17,007 from kEUR 115,560 to kEUR 132,567 as of the 31 December 2021 balance sheet date. Non-current assets increased by kEUR 16,162 to kEUR 95,996 (2020: kEUR 79,834). The increase derived mainly from the increase in property, plant and equipment as well as loans extended to associated companies. Inventories rose by kEUR 5,638 to kEUR 16,587 (2020: kEUR 10,948), mainly due to the increase in finished goods to ensure high availability of products for customers despite the coronavirus situation, as well as to secure the supply chain in view of the ongoing coronavirus pandemic. Receivables and other assets rose by kEUR 4,714 to kEUR 16,724 (2020: kEUR 12,010), mainly due to the higher level of revenue and higher tax receivables. The equity of va-Q-tec AG grew by kEUR 7,347 to kEUR 60,448 (2020: kEUR 53,102), mainly as a result of the capital increase. The equity ratio thereby remains unchanged at 46 % despite the significant expansion in total assets.

In the 2021 financial year, va-Q-tec AG invested kEUR 22,788 in non-current assets (2020 kEUR 8,930). Of this amount, kEUR 2,598 related to intangible assets (2020: kEUR 1,646), mainly software, and kEUR 14,397 to property, plant and equipment (2020: kEUR 6,914), mainly buildings, machinery and equipment, and operating and office equipment. In the 2021 reporting year, the sale of part of the land at Heuchelhof with a carrying amount of kEUR 594 was contractually agreed. However, the transfer of ownership did not take place until the 2022 financial year, after all requirements for the sale had been met. Otherwise, no significant disposals of non-current assets occurred in the 2021 financial year.

Financial position of the single entity va-Q-tec AG

The financing strategy of va-Q-tec AG is geared towards providing the necessary financial resources for its own strong growth and the growth of the Group as a whole, for which va-Q-tec AG manages and secures financing and liquidity requirements worldwide. Recourse is made in this context to various financing instruments such as loans, leasing, factoring, overdrafts and government subsidies. Existing financing instruments were optimized continuously in terms of their structures and interest rates. For further details, please refer to the relevant comments for the Group.

Capital structure

Significant financing measures and projects

In November 2021, va-Q-tec placed 325,498 new ordinary registered shares at EUR 26.10 per share as part of a capital increase against cash capital contributions and excluding statutory subscription rights. As a consequence, the company's share capital increased by EUR 325,498.00 (corresponding to just under 2.5 % of the share capital) from the current EUR 13,089,502.00 to EUR 13,415,000.00. va-Q-tec generated gross issue proceeds of kEUR 8,495 in the process. The cash capital increase provides va-Q-tec with the appropriate scope for maneuver for future investments at this point in time in order to further drive the high growth of the company and at the same time maintain stable balance sheet ratios during the strong expansion of business activities in 2021.

Long-term investments are financed through equity and long-term loans. In addition, a multibank agreement in the amount of kEUR 11,000 has been in place with the principal banks of va-Q-tec AG since September 2016, which bundles existing current account lines and creates a uniform and scalable facility for the short-term financing of current assets. The contract was last extended in November 2020 under slightly modified conditions and is currently limited until 31 December 2023. Bank borrowings plus equipment leasing account for kEUR 33,851, or 26 % of total assets (previous year: kEUR 27,088, or 23 %). Of the bank borrowings, kEUR 5,702 (previous year: kEUR 3,097) have a remaining term of up to one year. In the 2021 financial year, financial liabilities of the company in the amount of kEUR 174 (previous year: kEUR 740) are subject to covenant regulations relating to the separate and consolidated financial statements of va-Q-tec AG. In addition to land charges and other collateral, the agreements require a minimum equity ratio of 30 % in each case. Under the terms of the multibank agreement, va-Q-tec has made its inventories available to the syndicate banks as collateral for the credit lines, and has undertaken to maintain a minimum equity ratio of 30 % as well as minimum EBITDA metrics. As in the previous year, these key figures were complied with. In addition, the company has undertaken not to fall below a free liquidity level of kEUR 5,000 within the Group for the term of the bond. The investment grants and subsidies received are deferred in the special item for grants (kEUR 4,133; previous year: kEUR 3,790). The company received investment grants from the government of Lower Franconia between 2017 and 2020 for investments at the new site in Würzburg. The investment grants were used for structural investments, machinery and equipment, and the overall investment for the building in Würzburg. Furthermore, the company received various investment grants from the Thüringische Aufbaubank between 2008 and 2021 for the various construction phases, machinery and equipment at the Kölleda site. Provided that the eligibility conditions, as expected for the current projects and audited and confirmed for the expired projects, are met, the grants received do not have to be repaid.

Compared to the previous year, trade payables increased by kEUR 1,472 to kEUR 5,894 (previous year: kEUR 4,422). This corresponds to 4 % of total assets (previous year: 4 %). As in the previous year, trade payables have a remaining term of up to one year. The growth of the subsidiaries' foreign activities was also co-financed by the parent company in 2021. For this purpose, va-Q-tec AG provides the subsidiaries with financial resources in the form of equity or loans as required. Loans to affiliated companies increased by kEUR 5,560 to kEUR 12,063 in the 2021 financial year (previous year: kEUR 6,502). At the same time, receivables from affiliated companies increased from kEUR 9,631 to kEUR 11,864. It is expected that further investments in the subsidiaries will have to be made in the future on an event-led basis in order to leverage the business potential of the Group's international expansion. SUMTEQ GmbH, Cologne, Germany, also progressed according to plan on its path to piloting and launching submicroporous foams. From this, va-Q-tec expects to use the new materials as a further high-performance insulating material. The shareholding amounts to 15.0 %. Existing loans to the subsidiaries or the shares held in the subsidiaries are recoverable due to their performance in 2021, as well as their positive prospects for 2022 and subsequent years. Future loans should decrease as the companies begin to generate profits. The financing of the subsidiaries is sustainable for va-Q-tec AG from a liquidity standpoint. The further expansion of the UK container fleet was again largely financed by leasing companies in 2021. In 2021, among other activities, containers were resold by va-Q-tec AG to leasing companies, leased back from them as an installment plan and then subleased to the UK subsidiary. In 2021, letters of guarantee for payments amounting to kEUR 2,116 were issued to lessors for the UK subsidiary (previous year: kEUR 4,768). As of the balance sheet date, cumulative payment obligations of the subsidiary in the amount of kEUR 5,396 (previous year: kEUR 6,050) are subject to guarantee declarations by va-Q-tec AG.

Liquidity

The cash flow statement is as follows:

kEUR	2021	2020
Net cash flow from operating activities	596	–168
Net cash flow from investing activities	–22,789	–8,075
Net cash flow from financing activities	8,353	23,397
Cash and cash equivalents at the end of the period	–2,713	11,126

At kEUR 596, the cash inflow from operating activities in 2021 was slightly higher than in the previous year (2020: kEUR –168), due in part to the strong improvement in net profit for the period. The cash outflow from investing activities in the 2021 financial year amounted to kEUR –22,789 (2020 cash outflow: kEUR –8,075). The figure reflects the high level of investment activity at the two sites in Würzburg and, in particular, in Kölleda, where production capacities were significantly expanded. The cash inflow from financing activities amounted to kEUR 8,353 in 2021 (2020: kEUR 23,397) and included, in particular, the cash inflow from the capital increase of kEUR 8,495. In the previous year, the figure was affected by the first-time bond issue in Switzerland.

Cash and cash equivalents decreased significantly by kEUR 9,480 year-on-year to kEUR 1,790 (previous year: kEUR 11,270). Compared with the temporarily very high level in 2020, the cash holdings, available current account lines and other financing options nevertheless result in a solid liquidity cushion for va-Q-tec AG for 2022 that is appropriate for the growth phase.

Non-financial performance indicators of the single entity va-Q-tec AG

The non-financial performance indicators of va-Q-tec AG correspond to those of the va-Q-tec Group, which are presented in the section “Non-financial performance indicators”. As of 31 December 2021, va-Q-tec AG had a total of 532 employees (2020: 456 employees). The average number was 503 employees in the 2021 financial year (415 employees in 2020).

Opportunities and risks of the single entity va-Q-tec AG

va-Q-tec AG is essentially subject to the same opportunities and risks as the va-Q-tec AG Group. As the parent company of the va-Q-tec AG Group, va-Q-tec AG is integrated into the Groupwide internal control and risk management system. Explanations and quantitative statements are provided in the opportunities and risks report.

Forecast report for the single entity va-Q-tec AG

The expected business performance of va-Q-tec AG is essentially subject to the same influences as those of the Group. Explanations and quantitative statements are contained in the “Forecast” section of the Group management report. For the 2021 financial year, we expect va-Q-tec AG to achieve revenue growth of at least 10 % and anticipate EBITDA slightly above the previous year’s level.

CONSOLIDATED FINANCIAL STATEMENTS AND NOTES TO THE FINANCIAL STATEMENTS OF VA-Q-TEC AG FOR THE 2021 FINANCIAL YEAR

3 CONSOLIDATED FINANCIAL STATEMENTS AND NOTES TO THE FINANCIAL STATEMENTS OF VA-Q-TEC AG FOR THE 2021 FINANCIAL YEAR

CONSOLIDATED INCOME STATEMENT

kEUR	Notes	2021	2020
Revenues	**7.1.1**	**104,063**	**72,106**
Changein inventories		2,846	978
Work performed by the company and capitalised	7.1.2	11,328	6,379
Other operating income	7.1.3	4,294	4,669
Total Income		**122,531**	**84,132**
Cost of materials and services	7.1.4	–50,754	–32,751
Gross profit		**71,777**	**51,381**
Personnel expenses	7.1.5	–33,082	–26,111
Other operating expenses	7.1.6	–19,996	–13,871
EBITDA		**18,699**	**11,399**
Depreciation, amortization and impairment losses	7.1.7	–13,655	–12,299
Earnings before interest and tax (EBIT)		**5,044**	**–900**
Result from fair value valuation of investments	**7.1.8**	**–**	**647**
Finance Income		6	12
Finance expenses		–2,252	–1,271
Net financial result	**7.1.9**	**–2,246**	**–1,259**
Earnings before tax (EBT)		**2,798**	**–1,512**
Income tax	7.1.10	–636	77
Net income		**2,162**	**–1,435**
Consolidated net income attributable to owners of va-Q-tec AG		**2,162**	**–1,435**
Earnings per share – basic /diluted in EUR	**7.1.11**	**0.16**	**–0.11**

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

kEUR	Notes	2021	2020
Net Income		**2,162**	**–1,435**
Consolidated other comprehensive income	7.2.2.1		
Currency translation differences		–145	129
Derivative financial instruments			
Unrealized gains /losses (pre-tax)		271	–208
Taxes on unrealized gains /losses and on reclassifications		–84	63
Derivative financial instruments (after tax)		187	–145
Total other comprehensive income that will be reclassified to profit or loss		**42**	**–16**
Consolidated total comprehensive income		**2,204**	**–1,451**
Consolidated total comprehensive income attributable to owners of va-Q-tec AG		**2,204**	**–1,451**

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

Assets

kEUR	Notes	31/12/2021	31/12/2020
Non-current assets			
Intangible assets	7.2.1.1	4,273	2,955
Property, plant and equipment	7.2.1.2	82,649	69,636
Investment property	7.2.1.3	1,020	1,614
Contract assets	7.2.1.8	38	73
Financial assets	7.2.1.4	4,972	3,503
Other non-financial assets	7.2.1.5	1,298	1,056
Deferred tax assets	7.1.11	2,040	2,471
Total non-current assets		**96.290**	**81,308**
Current assets			
Inventories	7.2.1.6	18,469	11,615
Trade receivables	7.2.1.7	12,432	6,532
Other financial assets	7.2.1.4	2,380	927
Current tax assets		22	3
Other non-financial assets	7.2.1.5	5,168	1,549
Cash and cash equivalents	7.2.1.9	9,810	17,134
Non-current assets held for sale	7.2.1.10	594	
Total current assets		**48,875**	**37,760**
Total assets		**145,165**	**119,068**

Equity and liabilities

kEUR	Notes	31/12/2021	31/12/2020
Equity	**7.2.2.1**		
Issued share capital		13,415	13,090
Treasury shares		–54	–54
Additional paid-in capital		54,020	46,158
Consolidated total other comprehensive income		0	–42
Retained earnings		–15,734	–17,896
Total equity		**51,647**	**41,256**
Non-current liabilities			
Provisions	7.2.2.2	189	96
Bonds issued	7.2.2.3	23,362	22,064
Bank borrowings	7.2.2.4	23,451	25,170
Other financial liabilities	7.2.2.5	4,695	3,857
Other non-financial liabilities	7.2.2.6	4,628	5,425
Total non-current liabilities		**56,325**	**56,612**
Current liabilities			
Provisions	7.2.2.2	247	190
Bank borrowings	7.2.2.4	13,741	3,919
Other financial liabilities	7.2.2.5	8,888	6,434
Liabilities from contracts with customers	7.2.2.7	189	40
Trade payables	7.2.2.8	8,628	5,978
Tax liabilities		63	44
Other non-financial liabilities	7.2.2.6	5,437	4,595
Total current liabilities		**37,193**	**21,200**
Total Equity and liabilities		**145,165**	**119,068**

CONSOLIDATED STATEMENT OF CASHFLOW

kEUR	Notes 7.3	2021	2020
Cash flow from operating activities			
Net income		2,162	–1,435
Current income taxes recognised income statement		145	25
Income taxes paid		–23	–17
Net finance costs recognised income statement		2,246	1,259
Interest paid		–1,967	–1,147
Depreciation on contract assets		62	126
Non-cash gain from fair value valuation of investments		–	–647
Depreciation, amortisation and impairment losses		13,656	12,299
Gain/loss from disposal of non-current assets		38	–518
Change in other assets		–5,338	–1,311
Change in other liabilities		4,160	1,037
Change in provisions		148	83
Other non-cash expenses or income		–1,956	–3,009
Cash flow from operating activities before working capital changes		**13,333**	**6,745**
Change in inventories		–6,561	–981
Change in trade receivables		–5,690	24
Change in trade payables		2,198	1,617
Net cash flow from operating activities		**3,280**	**7,405**

kEUR	2021	2020
Cash flow from investing activities		
Payments for investment in intangible assets	–2,874	–1,257
Proceeds from disposal of property, plant and equipment	759	830
Payments for investments in property, plant and equipment	–22,080	–11,351
Payments for investments in contract assets	–27	–41
Net cash flow from investing activities	**–24,222**	**–11,819**
Cash flow from financing activities		
Proceeds from issuing shares	8,495	–
Payments for share issue costs	–442	–
Proceeds from bonds	–	23,059
Payments for bonds transaction costs	–	–1,099
Proceeds from bank loans	21,149	13,328
Repayments of bank loans	–13,114	–18,413
Proceeds from government grants	428	265
Payments for leases liabilities	–2,945	–3,016
Net cash flow from financing activities	**13,571**	**14,124**
Change in cash and cash equivalents before exchange rate effects	**–7,371**	**9,710**
Effect of exchange rate changes on cash and cash equivalents	47	–66
Net change in cash and cash equivalents	**–7,324**	**9,644**
Cash and cash equivalents at start of period	**17,134**	**7,490**
Cash and cash equivalents at end of period	**9,810**	**17,134**

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

kEUR	Issued share capital	Treasury shares	Additional paid-in capital
01/01/2020	**13,090**	**–54**	**46,158**
Net income	–	–	–
Consolidated other comprehensive income	–	–	–
Consolidated total comprehensive income	**–**	**–**	**–**
31/12/2020	**13,090**	**–54**	**46,158**
01/01/2021	**13,090**	**–54**	**46,158**
Net income	–	–	–
Consolidated other comprehensive income	–	–	–
Consolidated total comprehensive income	**–**	**–**	**–**
Issue of treasury shares	325	–	8,170
Share issue related costs	–	–	–308
31/12/2021	**13,415**	**–54**	**54,020**

in kEUR	Retained earnings	Cumulative other comprehensive income		Equity attributable to parent company owners	Total equity
		Currency translation reserves	Derivative financial instruments		
01/01/2020	**–16,461**	**–26**	**–**	**42,707**	**42,707**
Net income	–1,435	–	–	–1,435	–1,435
Consolidated other comprehensive income	–	129	–145	–16	–16
Consolidated total comprehensive income	**–1,435**	**129**	**–145**	**–1,451**	**–1,451**
31/12/2020	**–17,896**	**103**	**–145**	**41,256**	**41,256**
01/01/2021	**–17,896**	**103**	**–145**	**41,256**	**41,256**
Net income	2,162	–	–	2,162	2,162
Consolidated other comprehensive income	–	–145	187	42	42
Consolidated total comprehensive income	**2,162**	**–145**	**187**	**2,204**	**2,204**
Issue of treasury shares	–	–	–	8,495	8,495
Share issue related costs	–	–	–	–308	–308
31/12/2021	**–15,734**	**–42**	**42**	**51,647**	**51,647**

4 GENERAL INFORMATION

4.1 INFORMATION ABOUT THE COMPANY

The company va-Q-tec AG, which has its headquarters at Alfred-Nobel-Strasse 33, 97080 Würzburg, Germany, is entered in the commercial register of Würzburg under commercial register sheet number 7368. Along with va-Q-tec AG itself, the consolidated financial statements of va-Q-tec AG also include its subsidiaries (hereinafter also referred to as “va-Q-tec”, the “va-Q-tec Group” or the “company”). va-Q-tec is a technologically leading provider of highly efficient products and solutions in the thermal insulation area. The company develops, produces and markets innovative products for reliable and energy-efficient temperature control and insulation – vacuum insulation panels (“VIPs”) and phase change materials (“PCMs”). Furthermore, va-Q-tec produces passive thermal packaging systems (containers and boxes) through optimally combining of VIPs and PCMs. To implement temperature-sensitive logistics chains, va-Q-tec offers, within a global partner network, the rental of containers and boxes that meet demanding thermal protection standards. Along with Healthcare & Logistics as the main market, va-Q-tec addresses the following further markets: Appliances & Food, Technics & Industry, Building, and Mobility.

These consolidated financial statements of va-Q-tec for the financial year from 1 January to 31 December 2021 were approved for publication by the Management Board on 23 March 2022.

4.2 BASIS OF PREPARATION OF THE FINANCIAL STATEMENTS

va-Q-tec AG is the ultimate parent company of the va-Q-tec Group and consequently prepares the consolidated financial statements for the smallest and largest group of companies. va-Q-tec prepares its consolidated financial statements as of 31 December 2021, in accordance with International Financial Reporting Standards (IFRS), as adopted by the EU, and the additional requirements of German commercial law pursuant to Section 315e (1) HGB. The term IFRS also comprises all still valid International Accounting Standards (IAS) as well as all interpretations and amendments of the International Financial Reporting Standards Interpretations Committee (IFRS IC) – formerly the International Financial Reporting Interpretations Committee (IFRIC) – and of the former Standing Interpretations Committee (SIC).

These consolidated financial statements were prepared on the basis of historical cost. Exceptions to this include derivative financial instruments and investments that were recognized at fair value on the reporting date. The corresponding note is provided as part of the respective accounting policies.

Historical cost is generally based on fair value, which represents the consideration rendered in exchange for the asset.

Fair value is the price that would be received to sell an asset or be paid to transfer a liability in an orderly transaction between market participants at the measurement date. This applies irrespective of whether the price is directly observable, or has to be estimated by applying a valuation method.

The fair value that is to be determined for certain disclosures and calculation methods is not always available as a market price. Frequently, it has to be calculated on the basis of various measurement parameters. Depending on the availability of observable parameters and the significance of such parameters for fair value measurement overall, the fair value is allocated to one of the levels 1, 2 or 3 (fair value hierarchy). This allocation is implemented on the following basis:

- Level 1 inputs comprise quoted prices (unadjusted) on active markets for identical assets or liabilities to which va-Q-tec can access at the measurement date.
- Level 2 inputs comprise inputs other than Level 1 quoted prices, for which the value of the asset or liability is either directly observable, or can be derived indirectly from other prices.
- Level 3 inputs are unobservable inputs for the asset or liability.

As a rule, the Group classifies assets and liabilities as current if they will be realized or settled prospectively within twelve months after the reporting date. If assets and liabilities comprise both a current and a non-current element, they are divided into their term components and reported as current and non-current assets or liabilities in accordance with the balance sheet structure.

The consolidated income statement is prepared according to the nature of expense method.

The consolidated financial statements are prepared in thousands of euros (kEUR), which is both the functional and the reporting currency of va-Q-tec. Differences of up to one unit (EUR, %) relate to arithmetic rounding differences.

4.3 EFFECTS OF NEW ACCOUNTING STANDARDS

The va-Q-tec Group has applied uniform accounting methods for all the periods presented in its IFRS consolidated financial statements. These comply with IFRS entailing mandatory application in the EU in the 2021 financial year.

The accounting policies applied correspond to those applied in the previous year, as a matter of principle.

The following new standards and interpretations or amendments to existing standards and interpretations required mandatory application for financial years commencing from 1 January 2021, and were applied for the first time by the company.

Standard	Title	Mandatory application for financial years commencing from
Amendments to IAS 39, IFRS 4, IFRS 7, IFRS 9 And IFRS 16	Interest Rate Benchmark Reform – Phase 2	01/01/2021
Amendments to IFRS 16	Covid-19-Related Rent Concessions beyond 30 June 2021	01/04/2021

All new accounting policies presented in the table did not have a material effect on the consolidated financial statements.

The following standards and interpretations and amendments to existing standards and interpretations were approved by both the IASB and the EU, and come into force for financial years commencing after 1 January 2022. The company has not applied these regulations early.

Standard	Title	Mandatory application for financial years commencing from
Amendments to IFRS 1, IFRS 9, IFRS 16 and IAS 41	Annual Improvements to IFRSs – 2018/2020 Cycle	01/01/2022
Amendments to IFRS 3	Reference to the Conceptual Framework 2018	01/01/2022
Amendments to IAS 16	Proceeds before Intended Use	01/01/2022
Amendments to IAS 37	Onerous Contracts – Cost of Fulfilling a Contract	01/01/2022
IFRS 17	Insurance Contracts	01/01/2023
Amendments to IAS 1 and IFRS Practice Statement 2	Disclosure of Accounting Policies	01/01/2023
Amendments to IAS 8	Definition of Accounting Estimates	01/01/2023

All standards listed are applied by va-Q-tec only from the date of mandatory first-time adoption. According to the analyses that have been conducted, no significant effects arise for accounting and measurement for the 2022 financial year.

The following standards will become effective in the forthcoming years, but have not yet been endorsed by the EU:

Standard	Title	Mandatory application for financial years commencing from
Amendments to IAS 1	Classification of Liabilities as Current or Non-current	01/01/2023
Amendments to IAS 12	Deferred Tax related to Assets and Liabilities arising from a Single Transaction	01/01/2023
Amendments to IFRS 17	Initial Application of IFRS 17 and IFRS 9 – Comparative Information	01/01/2023

The company is currently examining the potential effects on va-Q-tec's consolidated financial statements from standards or amendments to standards that have not yet been endorsed by the EU.

4.4 ACCOUNTING JUDGEMENTS AND ESTIMATES

In applying the accounting policies, the Group's management has made discretionary decisions that af-fect the amounts reported in the consolidated financial statements. Accordingly, assumptions and esti-mates are to be made to a certain extent when preparing consolidated financial statements that affect the amount and the reporting of recognized assets and liabilities, income and expenses, and contingent liabilities in the reporting period.

The assumptions and estimates are based on premises that in all cases reflect the currently available status of information at the time of each case. The expected future business trend also particularly re-flects the circumstances prevailing at the time when the consolidated financial statements were pre-pared, as well as a realistically imputed future trend in the environment. As a result of developments in these overall conditions differing from the management's assumptions and lying outside its sphere of influence, the resultant amounts can differ from the originally expected estimated values. No empirical values exist in relation to the effects of the Covid-19 pandemic, as a consequence of which a significantly higher level of uncertainty exists about future business trends, which has significantly influenced the assumptions and estimates in the reporting period. Due to the ongoing situation, the Management Board assumes that future assumptions and estimates will also be influenced by the Covid-19 pandemic and additionally by Russia's war against Ukraine, which began in February 2022 and whose direct and indirect effects on the business activities of va-Q-tec AG are also not yet foreseeable.

The estimates and assumptions that are applied are presented in the notes to the individual items of the statement of financial position and income statement in section 3 "Accounting policies". The main effects impacting the amounts arise in the following areas:

- Determining useful economic lives for intangible assets and for property, plant and equipment, including assets leased as part of finance leases.
- Assessment of the lease term and determination of the relevant discount rate for the accounting treatment of leases and assessment of sale-and-leaseback agreements.
- Impairment testing of assets based on appraisal of identifiable risks.
- Impairment testing of deferred tax assets in relation to tax loss carryforwards.
- Assessing the derecognition criteria of trade receivables as part of factoring agreements.
- Estimating market yield curves as part of measuring derivative financial instruments.
- Best possible estimate of the most probable settlement amount as part of the recognition and measurement of provisions.
- Best possible estimate of the event probability and the settlement amount in the context of the accounting and measurement of litigation risk.
- Assessing any requirement to separate, and measuring, embedded derivatives.
- Recognition of additional costs during the period of initiation of contracts with customers.
- Determination of the expected credit loss using the simplified approach for trade receivables and contract assets.

5 CONSOLIDATION

5.1 CONSOLIDATION SCOPE

The consolidation scope is derived by applying IFRS 10 (Consolidated Financial Statements). In the consolidated financial statements of va-Q-tec AG as of 31 December 2021, the following subsidiaries were fully consolidated:

Name	Headquarters	Equity interest 31/12/2021	Equity interest 31/12/2020
va-Q-tec Limited (UK)	Rochester, UK	100 %	100 %
va-Q-tec Inc. (USA)	East Rutherford, NJ, USA	100 %	100 %
va-Q-tec Ltd. (Korea)	Joong-gu, Incheon, Republic of Korea	100 %	100 %
va-Q-tec Switzerland AG (Switzerland)	Zürich, Schweiz	100 %	100 %
va-Q-tec Japan G.K. (Japan)	Tokyo, Japan	100 %	100 %
va-Q-tec Uruguay S.A. (Uruguay)	Montevideo, Uruguay	100 %	100 %
va-Q-tec SG PTE. Ltd. (Singapore)	Singapore	100 %	100 %
va-Q-tec India Ltd. (India)	New Delhi, India	100 %	0 %
va-Q-tec do Brasil Ltda. (Brasil)	Sao Paulo, Brazil	100 %	0 %

va-Q-tec AG and its subsidiaries together form the va-Q-tec Group. Please refer to the segment reporting for key financial information about the subsidiaries.

5.2 CONSOLIDATION SCOPE CHANGES AND OTHER ACQUISITIONS AND DISPOSALS

In December 2021, va-Q-tec formed a subsidiary in New Delhi, India. va-Q-tec India Ltd. is intended to establish a stronger local presence to support commercial activities in India. In the future, the new location will act as a central hub for va-Q-tec's rental business and as a fulfillment station.

Furthermore, va-Q-tec founded a subsidiary in São Paulo, Brazil, in December 2021. The company va-Q-tec do Brasil Ltda. is intended to strengthen commercial activities in South America. No significant revenues have been generated with either company to date, and there has been no significant impact on earnings.

The interest in SUMTEQ GmbH of 15.00 % (previous year: 15.00 %) and in ING3D GmbH of 15.00 % (previous year: 15.00 %) are recognized at fair value under financial assets. These companies exert no significant influence companies on va-Q-tec AG.

5.3 CONSOLIDATION PRINCIPLES

The consolidated financial statements are based on uniform accounting principles. The annual financial statements of the companies included in the consolidation scope were adjusted where required in order to align them with the accounting policies applied in the Group. All of the annual financial statements of the companies included in the consolidated financial statements are prepared on the basis of the reporting date of the consolidated financial statements.

Subsidiaries are those companies where the Group holds existing rights that endow it with the current capability to manage the companies' relevant activities. Relevant activities are those activities that significantly affect the companies' profitability. For this reason, control exists if the Group is exposed to variable returns from its relationship to a company, and as a result of its power over the relevant activities it has the capability to influence these returns. In the va-Q-tec Group, the ability of control is based in all cases on a direct voting majority held by va-Q-tec AG. Inclusion of companies in the consolidated financial statements of va-Q-tec AG begins on the date from which the possibility of control exists. It ends if such control ceases.

As part of capital consolidation (consolidation of the investment account), the carrying amounts of the participating interests are offset with the subsidiary's proportional equity. As all subsidiaries comprise companies that va-Q-tec has founded, initial consolidation has not resulted in any differential amount.

Intragroup transactions are fully adjusted. This entails the offsetting of significant receivables, liabilities and provisions between the consolidated companies, and the elimination of intercompany profits and losses. Intragroup revenues are offset with the corresponding expenses. Tax deferrals required pursuant to IAS 12 are applied to any temporary differences on consolidation.

5.4 FOREIGN CURRENCY TRANSLATION

The consolidated financial statements have been prepared in accordance with the functional currency concept. The functional currency of va-Q-tec AG is the primary currency of the economic environment in which the va-Q-tec Group operates. This corresponds to the euro, which also corresponds to the reporting currency for the consolidated financial statements. The functional currency of the subsidiaries in the USA, South Korea, Switzerland, Japan, Singapore and India is in each case the national currency, as these subsidiaries conduct their business independently in their respective markets. The functional currency of the UK company corresponds to the euro. The functional currency of the subsidiary in Uruguay is the US dollar.

In the financial statements of each Group company, business transactions denominated in foreign currencies are translated into the functional currency applying the rates valid on the transaction date. Monetary assets and liabilities denominated in foreign currencies are translated applying the rate prevailing on each reporting date. Non-monetary assets and liabilities measured at cost are translated at the exchange rate prevailing on the date when they are initially recognized on the statement of financial position. The foreign currency gains and losses arising from these translations are recognized in the consolidated income statement under other operating income or other operating expenses.

To prepare the consolidated financial statements, the assets and liabilities of the Group's foreign subsidiaries whose functional currency is not the euro are translated into euros applying the exchange rates on the reporting date. Income and expenses are translated at the average rate for the period, unless translation exchange rates during the period are subject to sharp fluctuations. In such cases, the exchange rates on the transaction date would be applied. Translation differences from the translation of foreign operations into the Group currency are recognized under consolidated other comprehensive income, and accumulated within equity.

The exchange rates into euros for the significant currencies in the Group applied for the translation are presented in the following table:

	Closing rate		Average rate	
	31/12/2021	31/12/2020	2021	2020
British pound	0.8403	0.8990	0.8600	0.8887
US dollar	1.1326	1.2271	1.1835	1.1396
South Korean won	1,346.3800	1,336.0000	1,353.9181	1,344.3756
Swiss Francs	1.0331	1.0802	1.0814	1.0702
Japanese Yen	130.3800	126.4900	129.8548	121.7004
Singapore-Dollar	1.5279	1.6218	1.5896	1.5726

6 ACCOUNTING POLICIES

6.1 CONSOLIDATED INCOME STATEMENT

Revenues

Revenue from the sale of goods is recognized when an asset is transferred and the customer obtains control of the asset, a transaction price has been agreed or can be determined, and payment is probable. Sales revenues from services are recognized to the extent that the service has been rendered, and the amount of the revenue can be measured reliably. Payments for unreturned thermal boxes in connection with rental services rendered are reported as revenue. Rebates, bonuses, VAT and other taxes associated with the service are deducted from sales revenues. All reported revenues represent revenues from contracts with customers.

Sales revenues are recognized at the transaction price of the consideration received or to be received, and reflect the amounts that are to be received for goods and services as part of ordinary business activity.

Sector-typical payment terms with customers not include any significant financing components. Warranty obligations under contracts between the company and its customers do not constitute separate performance obligations and are recognized as a provision.

With regard to the opening and closing balances and impairments of receivables from contracts with customers, we refer to the notes on trade receivables. For the composition of revenues by business segment, please refer to the notes on revenues, and for the composition by region please refer to the segment reporting.

Net financial result

Interest income and interest expenses reported under the net financial result are deferred and accrued in accordance with their respective terms, taking the outstanding loan sum and the applicable interest rate into account. The effective interest method is applied in this context.

Income taxes

The expense for taxes on income represents the sum of current income tax expense and deferred tax. The current income tax expense is calculated on the basis of taxable income for the year. Taxable earnings differ from the earnings before tax reported in the consolidated income statement, as these do not include income and expense items that were taxable or tax-deductible in other years, as well as items on which no tax is generally incurred, or which are generally not tax-deductible.

Deferred taxes are recognized in accordance with the balance sheet liability method as presented in IAS 12 (Income Taxes). This entails forming deferred tax items for temporary differences between tax valuations and valuations on the consolidated balance sheet, as well as for tax loss carryforwards. Deferred tax assets are only taking into consideration if it is probable that the corresponding tax benefits will also be realized. Loss carryforwards for which deferred tax assets have been formed are expected to be utilized within the five-year planning period. The carrying amount of deferred tax assets is reviewed each year on the reporting date, with an impairment loss being applied if it is no longer probable that sufficient taxable income will be available to fully or partially realize the asset.

Deferred tax liabilities are formed for taxable temporary differences arising from interests in subsidiaries, unless the Group can control the reversal of the temporary differences, and it is probable that the temporary difference will not reverse within the foreseeable future.

Deferred tax assets and deferred tax liabilities are offset to the extent that they relate to the same taxpayer, and exist in relation to the same tax authority.

To measure deferred tax, future years' tax rates are applied if the related legislation has already been enacted, or the legislative process has essentially been concluded. Deferred taxes are recognized in profit or loss, as a matter of principle. To the extent that the charges or reliefs underlying deferred taxes are carried directly to equity, the formation or release of deferred taxes also occurs directly in equity.

Earnings per share

Earnings per share (basic earnings per share) are calculated on the basis of IAS 33 (Earnings Per Share). Basic earnings per share are calculated by dividing the after-tax profits attributable to the parent company shareholders by the weighted average number of shares in issue during the financial year under review. At the end of the financial year under review, as in the previous year, only ordinary shares were issued, so that the consolidated net income does not have to be allocated to different classes of shares. Diluted earnings per share are not shown separately as, as in the previous year, no potentially diluting instruments were outstanding as of 31 December 2021.

6.2 CONSOLIDATED STATEMENT OF FINANCIAL POSITION

6.2.1 Assets

Intangible assets

Pursuant to IAS 38, intangible assets are capitalized if a future economic benefit is expected from utilization of the asset, and the costs of the asset can be calculated reliably.

Individually purchased intangible assets are recognized at purchase cost on initial recognition, and intangible assets that the company has generated itself are recognized at production cost. In subsequent periods, intangible assets are measured at cost less cumulative amortization and any cumulative impairment losses. Research costs are expensed in the period in which they are incurred.

Intangible assets with limited useful life are amortized straight-line over their useful life, and impairment-tested as soon as any indications emerge that they might have become impaired. The estimated useful life and amortization method are reviewed at the end of the annual reporting period, and any changes to the estimated value are taken into account in subsequent measurement. Amortization is based on the following useful lives:

Software	3 – 5 years
Internally generated intangible assets	6 years

Gains or losses on the derecognition of intangible assets are calculated as the difference between net disposal proceeds and the asset's carrying amount, and recognized in profit or loss within other operating income or other operating expenses in the period in which the asset is derecognized.

An intangible asset arising from internal development (or the development phase of an internal project) is recognized if the corresponding criteria of IAS 38.57 are shown to have been met. Capitalized production costs of internally generated intangible assets comprise costs directly attributable to the development process, and development-related overheads.

Property, plant and equipment

Property, plant and equipment are utilized for business purposes, and measured at cost less cumulative depreciation and cumulative impairment losses.

The purchase costs of an item of property, plant and equipment comprise all costs attributable to the purchase of the asset. Repair and maintenance charges are expensed in the income statement in the financial year in which they are incurred. Internally generated assets are initially measured at directly attributable production cost plus production-related overheads.

Borrowing costs that are directly attributable to the acquisition, construction or production of a so-called qualifying asset as part of the cost of that asset are capitalized as part of cost pursuant to IFRS.

Property, plant and equipment is depreciated straight-line in accordance with its type of use and duration of use. Property, plant and equipment is depreciated straight-line in accordance with its type of use and duration of use. Property, plant and equipment is depreciated straight-line in accordance with its type of use and duration of use. Depreciation is based mainly of the following useful lives:

Buildings, outdoor and other facilities	
Buildings	33 – 40 years
Outdoor and other facilities	5 – 20 years
Production equipment and machinery	
Production plants	8 – 21 years
Other production equipment and machinery	3 – 25 years
Operating and office equipment	3 – 15 years
Container fleet	5 years
Box fleet	2 – 5 years

If any indications of impairment exist, property, plant and equipment are tested for potential impairment accordingly.

Gains or losses arising from the disposal or derecognition of an item of property, plant and equipment are calculated as the difference between disposal proceeds and the asset's carrying amount, and recognized in profit or loss among other operating income or other operating expenses.

Investment property

Investment property comprises land and buildings held to generate rental income and for the purposes of value appreciation, rather than being utilized for the company's own production, to deliver goods or render services, for administrative purposes or for sale as part of ordinary operating activities. Investment property is measured at cost less accumulated depreciation and impairment losses.

If indications of impairment exist, investment property is tested for potential impairment accordingly.

Contract assets

Contract assets include development costs that do not already meet the criteria for capitalization in accordance with other standards. These are primarily customer-specific developments that are performed during the contract initiation period, are directly related to an expected contract, and are expected to recover the related costs. Firstly, such costs are incurred for the modification or qualification of products from the company's existing product range according to customer-specific requirements, and, secondly, for the implementation of va-Q-tec products or services into the customer's processes. In addition, these costs create new or improve existing resources for the company that will be used for the future fulfillment of performance obligations.

Additional costs for customer-specific developments during the contract initiation. for which the amortization period would not exceed one year are expensed immediately.

Capitalized contract assets are amortized simultaneously with the transfer of the goods or services to which the contract assets relate.

Impairment testing

Intangible assets with indefinite useful lives, as well as intangible assets that are not yet ready for utilization, are not amortized, but are instead tested annually for impairment. Assets that are amortized are impairment-tested where an indication exists that the asset's carrying amount may no longer be recoverable. An impairment loss is recognized equivalent to the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount of an asset is the higher of an asset's fair value less costs to sell, and its value in use. The value in use in this context is calculated on the basis of the estimated future cash flows from the utilization and disposal of the asset, applying the discounted cash flow method. A pre-tax interest rate in line with market conditions is applied as the discounting rate in this context. If no recoverable amount can be calculated for an individual asset, the recoverable amount is calculated for the smallest identifiable group of assets (cash-generating unit) to which the respective asset can be allocated.

If the reasons for the impairment loss no longer apply at a later date, a reversal of the impairment loss is realized up to the level of the new recoverable amount, as a matter of principle. Such reversals of impairment losses are limited to the amortized carrying amount that would have arisen without the impairment loss applied in the past.

No indicators of potential impairment were identified. Accordingly, no impairment losses or reversals of impairment losses pursuant to IAS 36 were applied in either the period under review, or in the previous year.

Leases

Leasing

Leases comprise all agreements that transfer the right to use a specific asset for a fixed period of time in return for payment. This also applies to contracts where the transfer of such a right is not expressly described. As a lessee, va-Q-tec uses real estate and vehicles, in particular.

Group as lessee

Based on the opportunities and risks associated with a leased asset, an assessment was made until 31 December 2018 as to whether economic ownership of the leased asset was attributable to the lessee (so-called finance leases) or the lessor (so-called operating leases) in accordance with IAS 17.

In the case of an operating lease, the lease instalments or rental payments were expensed straight-line in the income statement. Assets accounted for under a finance lease are recognized at the inception of the lease at the lower of the present value of the lease payments or the fair value of the leased property or equipment, and, in subsequent periods, less accumulated depreciation and other accumulated impairment losses. Depreciation was calculated applying the straight-line method, taking into account the asset's residual value. The payment obligations resulting from the future lease installments were discounted and carried under financial liabilities.

As of 1 January 2019, the Group as lessee generally recognizes rights of use for leased assets in property, plant and equipment and liabilities for payment obligations entered into at present values under other financial liabilities. The leasing liabilities include the following leasing payments:

- fixed payments, including de facto fixed payments, less lease incentives still to be paid by the lessor,
- variable payments linked to an index or interest rate,
- expected amounts that are likely to be paid due to residual value guarantees,
- the exercise price of a purchase option, if exercise is considered sufficiently certain, and
- contractual penalties for terminating the lease, if the assumed term of the lease takes into ac-count that a termination option is exercised.

Lease payments are discounted at the marginal borrowing rate. The interest rate is calculated on the basis of the risk-free reference interest rate, taking into account the term of the leases in the relevant Group currency (in EUR thousands) plus a risk premium corresponding to va-Q-tec's rating. If necessary, country- and currency-specific adjustments to the base rate are applied. The risk premium is structured uniformly throughout the Group, as no significant differences in credit risk exist within the Group. In the financial year under review, leasing-specific adjustments were not necessary as, for example, collateral had no material impact on the interest rate. Changes in leases and revaluations of lease liabilities are generally recognized directly in equity against the right of use. The lease is recognized in the income statement if the carrying amount of the right of use has already been reduced to zero, or if it derives from a partial or early termination of the lease.

The right to use the leased asset was capitalized in proportion to the lease liability. At the start of the lease, the value of the right of use corresponds to the present value of the corresponding lease liability. In subsequent periods, the right of use is measured at amortized cost. The Group also conducts impairment tests if corresponding indicators exist.

The Group utilizes the relief provisions of IFRS 16 for short term leases (leases with terms of less than 12 months) and low value assets. A benchmark of kEUR 5 is applied for low-value assets. Payments from leasing obligations with a term of no more than twelve months are expensed at the time of payment in accordance with the option. In addition, va-Q-tec does not generally present the leasing and service components separately from one another in accordance with the option offered by the standard.

Sale-and-finance-leaseback transactions

As part of sale-and-finance-leaseback transactions, until 31 December 2018 the Group sold containers to leasing companies, and then leased them back. As a result of the leaseback, the Group re-assumed all significant risks and rewards connected with ownership, and classified the lease as a finance lease. The revenues from these sale-and-finance-leaseback transactions were eliminated in full. As all containers are produced and leased back via sale-and-finance-leaseback transactions in the same period, the related additions from own work performed by the enterprise and capitalized were offset with the same disposals of equal amount, and reported under changes to the cost of the container fleet under property, plant and equipment. Initial recognition of the finance lease asset was according to the general regulations of IAS 17, and resulted in a capitalization of the leased asset and the corresponding liability.

The excess of the cash accruing to va-Q-tec (sales price) resulting from the sale of containers over the carrying amount or the own work capitalized could not be recognized immediately in profit or loss in the case of sale-and-finance-leaseback transactions, but was instead recognized on the liabilities side of the balance sheet under non-financial liabilities as deferred income (special item for deferred container profits). This deferred income is released through profit or loss over the 5-year lease duration, and reported under other operating income in the consolidated income statement. The existing special item will be released by 31 August 2023.

Since 1 January 2019, a sale-and-leaseback transaction must first be examined on the basis of the criteria of IFRS 15 to determine whether the transfer of an asset constitutes a sale. If the transfer of an asset does not meet the requirements for accounting for a sale as set out in IFRS 15, the asset continues to be recognized, and the proceeds received are recognized as a financial liability, in accordance with IFRS 9.

Group as lessor

The Group acts as lessor in operating leases. This concerns the rental of containers and boxes to third parties that is of a short-term nature as a rule. As part of these leases, the opportunities and risks associated with ownership are not transferred to the lessee, with the consequence that the leased containers and boxes are reported under non-current assets. Revenues from rentals are presented within revenues. Income from the temporary rental of premises not continuously used by the company is reported in other operating income.

Inventories

Inventories are measured at the lower of cost and net realizable value. When calculating purchase costs, ancillary purchase costs are added, and purchase price reductions are deducted. Production costs include direct materials and manufacturing costs, as well as the production-related share of fixed and variable overheads. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and the estimated costs necessary to make the sale. The loss-free valuation entails applying inter alia discounts accounting for marketability.

Non-current assets held for sale

The Group classifies non-current assets or disposal groups as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. In this case, the assets or disposal groups are no longer depreciated or amortized, but are instead measured at the lower of carrying amount and fair value less costs to sell. Immediately prior to classification as held for sale, assets are tested for impairment using the applicable specific rules. In the event of a subsequent increase in fair value less costs to sell, the impairment loss is reversed; this is limited to the impairment loss previously recognized for the asset or disposal group.

Financial instruments and financial assets

Financial assets comprise especially receivables and cash. Recognition and measurement is performed in accordance with IFRS 9. Financial assets are recognized if the Group is contractually entitled to receive cash or other financial assets from third parties. Purchases and sales of financial assets are recognized as of the settlement date, as a matter of principle. Financial assets are initially recognized at fair value, plus transaction costs where relevant. Transaction costs of financial assets that are measured at fair value through profit or loss are expensed. Subsequent measurement is performed in accordance with allocation to the categories of financial assets pursuant to IFRS 9.

The classification and measurement of financial assets is based, firstly, on the so-called cash flow condition (exclusively cash flows from interest and capital repayments) in accordance with the specific form of the contractually agreed cash flows from an individual financial asset. Secondly, this also depends on the business model according to which portfolios of financial assets are managed. va-Q-tec's business model for managing portfolios of financial assets reflects how the company manages its financial assets to generate its cash flows. Depending on the business model, cash flows arise from the receipt of contractual cash flows, the sale of financial assets, or both.

On the basis of these criteria, va-Q-tec applies the following valuation categories for financial assets:

Financial assets measured at amortized cost include all assets whose contractual provisions result in cash flows at specified dates that exclusively represent interest and principal payments on the outstanding principal amount in accordance with the cash flow condition of IFRS 9, provided that such assets are held with the intention of receiving the contractual cash flows expected over their respective terms. Trade receivables, receivables included among other financial assets, and cash and cash equivalents are allocated to this measurement category. These assets are initially measured at fair value. This is regularly equal to the transaction price at the time of acquisition. Subsequent measurement through profit or loss is based on the effective interest method.

Financial assets at fair value through profit or loss include all financial assets whose cash flows are not collected via sale or that do not represent exclusively interest and principal payments in accordance with the cash flow condition established in IFRS 9. Changes to the fair values of financial assets in this category, including derivative financial instruments, are expensed. The gain or loss arising from measuring derivative financial instruments is expensed under the net financial result, unless the derivative is included as a hedging instrument as part of the hedge (hedge accounting), and is effective as such. In the year under review as well as in the previous year, no hedging transactions were carried out for financial assets.

Pursuant IFRS 9, individual financial assets are tested for potential impairment on each reporting date. If any objective indications of impairment exist, an impairment loss is expensed equivalent to the difference between the asset's carrying amount and the present value of its expected future cash flows, and recognized within a separate impairment account. If the level of the impairment reduces in subsequent periods due to events that have occurred objectively after the date when the impairment was recognized, the impairment is reversed in the equivalent amount through profit or loss. Impaired receivables are derecognized if they are assessed as uncollectible. In accordance with IFRS 9, the simplified approach is also applied to the determination of expected credit losses on trade receivables, and expected credit losses are recognized as an impairment loss over the entire term of the receivable. The Group also applies the simplified approach to contract assets.

The Group derecognizes a financial asset if the contractual rights to the cash flows from an asset expire, or it receives rights to receive cash flows in a transaction in which all significant risks and opportunities connected with the ownership of the financial asset are also transferred. A portion of such transferred financial assets that originate or remain within the Group is recognized as a separate asset or separate liability.

6.2.2 Equity and liabilities

Equity

Equity comprises cash and non-cash capital contributions that substantiate a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments are recognized at the issue proceeds received, less directly attributable transaction costs. Transaction costs comprise costs that would not have been incurred without the issue of the equity instrument. These are deducted from additional paid-in capital taking all tax effects into account. The consolidated statement of changes in equity presents the development of the consolidated equity of the va-Q-tec Group for the 2021 and 2020 financial years.

Treasury shares

va-Q-tec applies the cost method to recognize the treasury shares it acquired for the first time in 2016, whereby the costs to purchase the treasury shares are reported within a separate item within equity.

Share-based payment

The company currently has no arrangements for equity-settled share-based payment transactions with employees. The "Other disclosures" section provides further information about share-based payment within the va-Q-tec Group.

Government grants

A government grant is not recognized until reasonable assurance exists that the company will comply with the conditions attaching to it, and that the grant will be received. They are recognized in profit or loss in the period in which the Group bears the corresponding expenses that are to be offset by the grants. Government grants whose most important condition is the purchase, construction or other type of acquisition of long-term assets are recognized as non-financial liabilities on the statement of financial position. They are released through profit or loss within other operating income based on the corresponding asset's useful life. In 2021, va-Q-tec AG received kEUR 428 of public grants to purchase non-current assets (previous year: kEUR 265).

Provisions

Provisions are reported if a current legal or constructive obligation has arisen for the Group from a past event that is likely to result in a future outflow of resources embodying economic benefits, and the level of this obligation can be estimated reliably.

The amount recognized as a provision corresponds to the best possible estimate of the consideration required to settle the current obligation as of the reporting date, whereby risks and uncertainties connected with the obligation are taken into account. All significant cost factors are included in the measurement of provisions. If the interest effect is material, non-current provisions with a remaining term of more than one year are reported at the discounted settlement amount as of the balance sheet date. If it is to be expected that the economic benefit required to settle an obligation for which a provision has been formed will be reimbursed wholly or partly by third parties, the receivable is recognized as an asset if it is as good as certain that the reimbursement will occur, and the level of the receivable can be measured reliably.

Provisions for warranties are formed on the date when the respective goods are sold, or the corresponding services are rendered. The level of the provision is based on historical trends, and an estimate of future warranty cases.

Financial liabilities

Financial liabilities comprise mainly bank borrowings, trade payables, and other financial liabilities. They are measured at fair value on initial recognition, and subsequently – except derivative financial instruments measured at fair value – at amortized cost applying the effective interest method, less directly attributable transaction costs where relevant.

To hedge foreign currency risks, certain derivative financial instruments are assigned to fixed obligations agreed in foreign currencies as hedging instruments in order to hedge the associated risk. These derivative financial instruments are recognized at fair value as other financial liabilities. The effective portion of changes in the fair value of derivative financial instruments designated as cash flow hedges and qualifying for hedge accounting in accordance with IFRS 9 is recognized directly in equity. Any ineffective portion of the change is recognized in profit or loss. The amount recognized in equity is recognized in the consolidated income statement in the period in which the hedged item affects profit or loss.

7 NOTES

7.1 CONSOLIDATED INCOME STATEMENT

7.1.1 Revenues

The revenues are composed as follows:

kEUR	2021	2020
Products	22,032	18,303
Systems	36,379	19,520
Services	44,090	32,657
Other	1,562	1,626
Group, total	**104,063**	**72,106**

The Products business comprises the production and sale of vacuum insulation panels and heat storage components. These products are sold in the following sectors: Healthcare & Logistics, Appliances & Food, Technics & Industry, Building, and Mobility. Revenue reported dynamic year-on-year growth of 20 % and continued the trend from the third and fourth quarters of 2020, particularly in the first half of the year. This was mainly due to strong demand for energy-efficient refrigerators and freezers and the market launch of new products such as vacuum-insulated conduits.

The Systems business comprises the sale of thermal packaging to customers in the Healthcare & Logistics sector. The enormous 86 % increase in revenue in the Systems business during the financial year under review was very much influenced by the sale of boxes and and the container variant available for purchase (va-Q-pal) for the distribution of coronavirus vaccines and other temperature-sensitive products.

The Services business comprises the container and box rental business for the transportation of temperature-sensitive goods, predominantly products from the pharmaceuticals and biotech sectors as well as for the semiconductor, chemicals and food manufacturing industries. Compared to the previous year, the positive revenue trend was very successfully continued with 35 % growth. Overall, va-Q-tec also benefited from its significant involvement in global vaccine distribution. However, the further broadening of its customer base and the sharp rise in the number of small thermal box rentals for “last mile” shipments also contributed to the revenue growth. Other revenues are generated through thermal consulting and government-subsidized research projects.

Compared with the previous year, the dynamic growth of 44 % in the three main divisions of Products, Systems and Services Medium continued. The high growth momentum already evident in the first half of 2021, led by 61 % revenue growth in the Products area, accelerated further in the second half of the year due especially to growth in the Systems and Services areas. The revenues of the Services division also include compensation payments from customers for thermal boxes unreturned within the rental network in an amount of kEUR 672 (previous year: kEUR 543). Please refer to the section on segment reporting for more information.

7.1.2 Work performed by the company and capitalized

The following table shows the trend in work performed by the company and capitalized in the 2021 and 2020 financial years. Due to the further expansion of the container and box rental business and the Covid-19-related higher demand for these services, the investment volume in this area was increased again in the form of a significant expansion of both rental fleets.

kEUR	2021	2020
Work performed by the company and capitalised arising from expansion of rental-container-fleet	6,960	3,827
Work performed by the company and capitalised arising from expansion of rental-boxes-fleet	2,688	1,101
Other work performed by the company and capitalised	1,680	1,451
Group, total	**11,328**	**6,379**

Of the total research and development costs of kEUR 3,653 incurred in 2021 (previous year: kEUR 2,694), a total of kEUR 358 (previous year: kEUR 359) meet IFRS capitalization criteria and are reported under other own work capitalized. The other research and development costs were recognized in the corresponding items of the consolidated income statement, mainly under personnel expenses. Other own work capitalized derives from the capitalization of internally generated software and own work in the construction and commissioning of new plant and machinery.

7.1.3 Other operating income

in kEUR	2021	2020
Income from release of special item for deferred container profits	1,651	2,397
Exchange rate gains	1,167	512
Income from subtenancy / leasing agreements	441	232
Income from release of special item for grants	413	487
Income from private use of company vehicles	171	160
Income from other accounting periods	99	263
Gains on fixed asset disposals	87	287
Other income	265	331
Group, total	**4,294**	**4,669**

Other operating income of kEUR 4,294 (previous year: kEUR 4,669) resulted primarily from scheduled and continuous reversals of the special item for sale-and-finance-leaseback transactions, exchange rate gains, income from the leasing of parts of buildings and land in Würzburg, government grants, and income from reimbursement for the private use of company cars, gains on the sale of assets, and income not relating to the period under report. Miscellaneous other operating income mainly includes income from feed-in tariffs for photovoltaic systems in the amount of kEUR 21 (previous year: kEUR 23) and income from insurance reimbursements in the amount of kEUR 15 (previous year: kEUR 0).

7.1.4 Cost of materials and services

kEUR	2021	2020
Cost of raw materials and supplies	31,430	19,645
Cost of purchased services	19,324	13,106
Group, total	**50,754**	**32,751**

Due to the significant increase in inventories of finished goods and work in progress and own work capitalized, the cost of materials, including expenses for purchased services, rose slightly faster than total income, from kEUR 32,751 to kEUR 50,754 (+55 %), leading to a two percentage point increase in the cost of materials ratio to 41 % (previous year: 39 %). Along with costs for raw materials and for purchased services, the cost of materials and services includes especially logistics services in the container rental business. The cost of purchased services includes expenses from short-term leasing agreements of kEUR 64 (previous year: kEUR 32).

7.1.5 Personnel expenses

The following table shows the trend in personnel expenses in the 2021 and 2020 financial years:

kEUR	2021	2020
Wages and salaries	27,682	21,984
Social security contributions	5,400	4,127
Group, total	**33,082**	**26,111**

Personnel expenses changed in absolute terms from kEUR 26,111 in the previous year to kEUR 33,082 in the 2021 reporting period; the 27% percentage increase was thereby significantly lower than the increase in total income, as a result of which the personnel expense ratio decreased by four percentage points to 27%. The absolute increase is mainly due to growth-related new hires at va-Q-tec AG in production, higher bonuses as well as management bonuses based on the year-on-year significantly improved earnings, and salary updates of personnel hires from 2020. Social security contributions contain mainly employer contributions to statutory social security. A defined contribution pension scheme exists as part of German statutory pension insurance for employees in Germany, to which the va-Q-tec Group is required to make payments at the contribution rate prevailing during the period under review of 9.3 % (previous 9.3 %) (employer component) of pension compensation. The contributions rendered amounted to kEUR 1,815 in the reporting year (previous year: kEUR 1,426). In addition, va-Q-tec AG renders contributions of kEUR 126 (previous year: kEUR 120) to direct insurance as part of its company pension scheme. A defined contribution pension plan also exists at the subsidiaries in the UK, Korea, Japan and Singapore. Contributions of kEUR 85 (previous year: kEUR 82) were expensed at the UK company, kEUR 46 (previous year: kEUR 32) at the US company, kEUR 17 (previous year: kEUR 18) at the Korean company, kEUR 30 (previous year: kEUR 24) at the Japanese company, and kEUR 32 (previous year: kEUR 26) at the Singapore company. Defined contribution commitments have also existed for the Management Board members since 2014, for which kEUR 16 (previous year: kEUR 18) was paid into an external, congruently reinsured, pension fund in the current financial year. As a consequence, kEUR 2,167 (previous year: kEUR 1,746) of expenses for defined contribution pension plans were recognized.

Wages and salaries for the 2021 financial year again do not include any costs from granting options to staff (previous year: kEUR 0). See section 5.3 for more information about share-based payment.

The average number of employees in the 2021 and 2020 financial years is presented below:

	2021	2020
Male employees	425	352
Female employees	166	137
Group, total	**591**	**489**

The number of employees, including Management Board members, managing directors, apprentices and trainees, amounted to 625 (previous year: 519).

7.1.6 Other operating expenses

kEUR	2021	2020
Freight	5,352	2,436
Legal, patents and consulting costs	4,526	3,053
Marketing and sales	1,902	1,182
Repair and maintenance	1,818	1,430
Rent, leasing and other facility costs	1,442	1,035
IT and other office costs	1,139	812
Other personnel expenses	1,008	514
Insurance and contributions	919	695
Exchange rate losses	422	1,333
Lab expenses	273	109
Supervisory Board compensation	221	161
Waste disposal	204	138
Other	770	973
Group, total	**19,996**	**13,871**

Other operating expenses increased by 44 % to kEUR 19,996 in the 2021 reporting period (previous year: kEUR 13,871). The main reasons for this were the enormous increase in freight costs due to both revenue growth and, above all, the sharp rise in air and sea freight prices as a consequence of the pandemic, consulting costs, including for efficiency and productivity improvements in production, and a renewed increase in marketing and sales activities compared with the previous year. As a result of the company's dynamic growth and the expanding rental business with boxes, other personnel expenses as well as insurance payments and contributions also show an increase. Foreign currency losses changed in the opposite direction, as the US dollar exchange rate recovered. The items for rent, leasing and incidental costs for buildings include expenses from leasing contracts with a term of less than 12 months in the amount of kEUR 254 (previous year: kEUR 93), as well as kEUR 5 (previous year: kEUR 2) for low-value assets. Other expenses include, among other items, expenses not relating to the period under review of kEUR 109 (previous year: kEUR 84) and expenses from asset disposals of kEUR 40 (previous year: kEUR 231).

7.1.7 Depreciation, amortization and impairment losses

Depreciation and amortization charges of kEUR 13,655 were expensed in the 2021 financial year (previous year: kEUR 12,299). The depreciation on rights of use under leases included in this item amounted to kEUR 4,936 in the financial year under review (previous year: kEUR 5,878). No impairment losses or reversals of impairment losses occurred in either of these financial years.

7.1.8 Result from fair value measurement of investments

va-Q-tec holds a 15.00 % interest in each of the unlisted companies Sumteq GmbH and ING 3D GmbH. Prices quoted on an active market do not exist for the interests in these two investments. Based on valuations in the context of capital measures under negotiation, accompanied by other measurements undertaken (Level 2 under IFRS 13), no material valuation effect is to be taken into account.

7.1.9 Net financial result

kEUR	2021	2020
Income from derivative financial instruments (without hedging relationship)	6	12
Financial income	**6**	**12**
Interest expense	–2,094	–1,058
Interest expense from finance lease	–158	–213
Financial expenses	**–2,252**	**–1,271**
Net financial result	**–2,246**	**–1,259**

The increase in interest expenses is mainly due to the interest incurred in the financial year under review on the bond issued in November 2020.

7.1.10 Income taxes

kEUR	2021	2020
Actual tax expense (tax income)	**146**	**25**
Current period	142	34
Prior periods	4	–9
Deferred tax expense (tax income)	**490**	**–102**
Group, total	**636**	**–77**

Deferred tax is calculated applying tax rates that are valid or expected to be valid based on current legislation in the individual countries as of the realization date.

The tax reconciliation account explains the connection between the expected tax expense and the actually reported tax expense, which derives from the IFRS consolidated result before income tax, applying a 30.3 % income tax rate (previous year: 30.3 %). In each case, the income tax rate applied corresponds to the average domestic tax rate of va-Q-tec AG comprised of corporation tax (plus the solidarity surcharge) and trade tax.

kEUR	2021	2020
Consolidated earnings before tax	**2,798**	**–1,511**
Expected income tax expense	30,3 %	30,3 %
Expected income tax expense (tax income)	**847**	**–457**
Tax-free income	–184	–214
Non-tax-deductible operating expenses	110	62
Non-capitalised deferred taxes on temporary differences and tax loss carryforwards	347	1,092
Not recognised deferred taxes for current income/loss (IAS 12.15b)	144	–59
Effects from tax rate changes	–179	–75
Utilisation of non-capitalised loss carryforwards	–45	–506
Reported tax expense	–4	9
Divergent foreign tax rates	–392	59
Other effects	–8	12
Reported tax expense (tax income)	**636**	**–77**

The amount of deferred tax recognized directly in equity is composed as follows:

	2021			2020		
kEUR	Before tax	Deferred tax	After tax	Before tax	Deferred tax	After tax
Equity transaction costs offset in additional paid-in capital	–442	134	–308	–	–	–
Proportional reimbursement of equitytransaction costs by previous shareholders	–	–	–	–	–	–
Effect on additional paid-in capital	–442	134	–308	–	–	–

The following overview shows to which balance sheet items the deferred tax assets and deferred tax liabilities are to be allocated:

kEUR	Deferred tax asstes 31/12/2021	Deferred tax liabilities 31/12/2021
ASSETS		
Intangible assets	–	782
Property, plant and equipment	2,613	1,288
Contract assets	–	11
Interests in subsidiaries, joint ventures and associates	–	–
Non-current financial assets	18	56
Inventories	328	34
Trade receivables	–	–
Other current financial assets	–	–
Other current non-financial assets	–	–
EQUITY AND LIABILITIES		
Non-current provisions	–	–
Non-current bank liabilities	–	5
Other non-current financial liabilities	189	–
Other non-current non-financial liabilities	289	129
Current provisions	105	7
Current bank liabilities	–	5
Trade payables	–	–
Other current financial liabilities	119	–
Other current non-financial liabilities	293	–
Loss carryforwards	403	–
Total before offsetting	**4,357**	**2,317**
Offsetting	–2,317	
As reported	**2,040**	

kEUR	Deferred tax asstes 31/12/2020	Deferred tax liabilities 31/12/2020
ASSETS		
Intangible assets	–	732
Property, plant and equipment	1,321	550
Contract assets	–	22
Interests in subsidiaries, joint ventures and associates	–	–
Non-current financial assets	–	44
Inventories	249	23
Trade receivables	–	–
Other current financial assets	–	–
Other current non-financial assets	–	–
EQUITY AND LIABILITIES		
Non-current provisions	–	–
Non-current bank liabilities	–	4
Other non-current financial liabilities	218	–
Other non-current non-financial liabilities	593	120
Current provisions	62	2
Current bank liabilities	–	2
Trade payables	–	–
Other current financial liabilities	135	–
Other current non-financial liabilities	509	–
Loss carryforwards	883	–
Total before offsetting	**3,970**	**1,499**
Offsetting	–1,499	
As reported	**2,471**	

Deferred tax assets are only recognized if such tax benefits can be realized. This entails taking into account all currently known positive and negative factors affecting future taxable results. Of the deferred tax assets, kEUR 1,426 (previous year: kEUR 883) are attributable to individual companies that have incurred tax losses in either the current reporting period or in the previous period. Due to the largely positive business trend, the Group generally assumes that its deferred tax assets can be utilized. Extensive investments in personnel, technology and capacities are being realized especially at the production company (va-Q-tec AG) and in the container service business (va-Q-tec Ltd. (UK)). These investments are prerequisites for growth. Sustained profitability is assumed in the medium term, thereby allowing the deferred tax assets to be utilized.

As of 31 December 2021, tax loss carryforwards for which no deferred taxes were capitalized increased to kEUR 15,898 (previous year: kEUR 12,920). These tax loss carryforwards are distributed among the subsidiaries in Uruguay and Singapore, the USA and the German parent company. In 2021, all tax loss carryforwards were utilized in the subsidiary in the UK due to the profit generated in the financial year under review. Despite a significant pre-tax profit generated by the subsidiary in the UK, income taxes of just kEUR 23 arose due to special tax write-downs on investments approved by the UK government as part of Brexit. Taking into account the reversal of deferred tax assets from loss carryforwards of kEUR 350, the special tax depreciation led to deferred tax liabilities of kEUR 815 (previous year: kEUR 0).

The tax loss carryforwards at all companies can be utilized on an unlimited basis.

7.1.11 Earnings per share

The calculation of basic (undiluted) earnings per share is based on the earnings attributable to the holders of ordinary shares and a weighted average of the number of ordinary shares in issue. Earnings per share were not diluted in the past financial year as there are currently no dilutive share options in va-Q-tec in circulation.

Earnings per share are as follows:

Earnings per share	2021	2020
Consolidated net result (kEUR)	2,162	–1,435
Weighted average number of shares	13,109,824	13,075,936
Earnings per share (in EUR)	0.16	–0.11

Weighted average number of shares

in shares	2021	2020
Shares issued as 1 January	13,075,936	13,075,936
Weighted average number of issued shares in November 2021	33,888	–
Retrospective effect of capital increase from company funds (share split)	–	–
Effect of purchase of treasury shares	–	–
Weighted average number of ordinary shares (undiluted/basic) / (diluted) as of 31 December	**13,109,824**	**13,075,936**

Please refer to the remarks about equity in section 4.2.2.1 for information about the composition of issued share capital.

7.2 STATEMENT OF FINANCIAL POSITION

7.2.1 Assets

7.2.1.1 Intangible assets

Non-current assets

	Aquisition and production cost					
in kEUR	opening balance 01/01/2021	exchange rate differences	Additions	Reclassifications	Disposals	Balance on 31/12/2021
1. Software and other purchased intangible asstes	2,007	–	1,553	–	50	3,510
2. Internally generated intangible assests	3,989	–	881	–	397	4,473
3. Internally generated intangible assests in production stage	49	–	268	–	–	317
Intangible assets, total	**6,045**	**–**	**2,702**	**–**	**447**	**8,300**

Non-current assets

	Depreciation, amortisation and impairment losses						Carrying amount	
in kEUR	Balance on 01/01/2021	exchange rate differences	Depreciation, amortisation and impairment losses in the financial year	Reclassifications	Disposals	Balance on 31/12/2021	Balance on 31/12/2021	Balance on 31/12/2020
1. Software and other purchased intangible asstes	1,174	–	315	–	50	1,439	2,071	833
2. Internally generated intangible assests	1,916	–	1,069	–	397	2,588	1,885	2,073
3. Internally generated intangible assests in production stage	–	–	–	–	–	–	317	49
Intangible assets, total	**3,090**	**–**	**1,384**	**–**	**447**	**4,027**	**4,273**	**2,955**

Non-current assets

in kEUR	Aquisition and production cost opening balance 01/01/2020	exchange rate differences	Additions	Reclassifi-cations	Disposals	Balance on 31/12/2020
1. Software and other purchased intangible asstes	1,593	–	414	–	–	2,007
2. Internally generated intangible assests	2,599	–	1,390	–	–	3,989
3. Internally generated intangible assests in production stage	–	–	49	–	–	49
Intangible assets, total	**4,192**	**–**	**1,853**	**–**	**–**	**6,045**

Non-current assets

	Depreciation, amortisation and impairment losses						Carrying amount	
in kEUR	Balance on 01/01/2020	ex-change rate differ-ences	Deprecia-tion, amortisa-tion and impairment losses in the financial year	Reclassi-fications	Dispo-sals	Balance on 31/12/2020	Balance on 31/12/2020	Balance on 31/12/2019
1. Software and other purchased intangible asstes	919	–	255	–	–	1,174	833	674
2. Internally generated intangible assests	1,040	–	876	–	–	1,916	2,073	1,559
3. Internally generated intangible assests in production stage	–	–	–	–	–	–	49	–
Intangible assets, total	**1,959**	**–**	**1,131**	**–**	**–**	**3,090**	**2,955**	**2,233**

The additions to the internally generated intangible assets item include the company's product and software development work, which it has capitalized.

No indicators of potential impairment were identified. Accordingly, no impairment losses or reversals of impairment losses pursuant to IAS 36 were applied in either the period under review, or in the previous year.

7.2.1.2 Property, plant and equipment

Non-current assets

in kEUR	Aquisition and production cost					
	opening balance 01/01/2021	exchange rate differences	Additions	Reclassifi-cations	Disposals	Balance on 31/12/2021
1. Land and buildings	40,093	170	6,840	546	134	47,515
2. Production equipment and machinery	24,043	2	2,894	171	12	27,098
3. Other plant, operating and office equipment	13,229	86	5,466	11	2,201	16,591
4. Container fleet	33,257	–	7,061	–	3,172	37,146
5. Plant under construction	3,606	–	3,856	–728	–	6,734
Property, plant and equipment, total	**114,228**	**258**	**26,117**	**–**	**5,519**	**135,084**

Non-current assets

in kEUR	Depreciation, amortisation and impairment losses						Carrying amount	
	Balance on 01/01/2021	ex-change rate differ-ences	Deprecia-tion, amortisa-tion and impairment losses in the financial year	Reclassi-fications	Dispo-sals	Balance on 31/12/2021	Balance on 31/12/2021	Balance on 31/12/2020
1. Land and buildings	4,165	55	1,789	–	60	5,949	41,566	35,928
2. Production equipment and machinery	11,389	–	1,988	3	12	13,368	13,730	12,654
3. Other plant, operating and office equipment	6,948	39	2,649	–3	1,318	8,315	8,276	6,281
4. Container fleet	22,090	–	5,845	–	3,132	24,803	12,343	11,167
5. Plant under construction	–	–	–	–	–	–	6,734	3,606
Property, plant and equipment, total	**44,592**	**94**	**12,271**	**–**	**4,522**	**52,435**	**82,649**	**69,636**

Non-current assets

in kEUR	Aquisition and production cost: opening balance 01/01/2020	exchange rate differences	Additions	Reclassifications	Disposals	Balance on 31/12/2020
1. Land and buildings	38,140	−96	1,638	634	223	40,093
2. Production equipment and machinery	21,036	–	952	2,062	7	24,043
3. Other plant, operating and office equipment	10,905	−65	2,923	232	766	13,229
4. Container fleet	29,609	1	4,034	–	387	33,257
5. Plant under construction	3,656	–	2,886	−2,928	8	3,606
Property, plant and equipment, total	**103,346**	**−160**	**12,433**	**–**	**1,391**	**114,228**

Non-current assets

in kEUR	Depreciation, amortisation and impairment losses: Balance on 01/01/2020	exchange rate differences	Depreciation, amortisation and impairment losses in the financial year	Reclassifications	Disposals	Balance on 31/12/2020	Carrying amount: Balance on 31/12/2020	Balance on 31/12/2019
1. Land and buildings	3,135	−38	1,201	6	139	4,165	35,928	35,005
2. Production equipment and machinery	9,639	–	1,756	1	7	11,389	12,654	11,397
3. Other plant, operating and office equipment	5,496	−24	2,041	−7	558	6,948	6,281	5,409
4. Container fleet	16,197	–	6,170	–	277	22,090	11,167	13,412
5. Plant under construction	–	–	–	–	–	–	3,606	3,656
Property, plant and equipment, total	**34,467**	**−62**	**11,168**	**–**	**981**	**44,592**	**69,636**	**68,879**

Additions to property, plant and equipment resulted primarily from investment in the further expansion of the container fleet and in the build-up of the thermal box fleet for the global rental business, as well as in the expansion of production capacity in Würzburg and in Kölleda. The composition of the rights of use included in property, plant and equipment and the change in the rights of use in the reporting period is presented in the following table:

Non-current assets – right-of-use

	Aquisition and production cost					
in kEUR	opening balance 01/01/2021	exchange rate differences	Additions	Reclassifi-cations	Disposals	Balance on 31/12/2021
1. Land and buildings	1,791	166	3,601	–	134	5,424
2. Production equipment and machinery	1,359	–	–	–	–	1,359
3. Other plant, operating and office equipment	1,952	14	690	–	542	2,114
4. Container fleet	24,594	–	–	–	3,006	21,588
Property, plant and equipment, total	**29,696**	**180**	**4,291**	**–**	**3,682**	**30,485**

Non-current assets – right-of-use

	Depreciation, amortisation and impairment losses						Carrying amount	
in kEUR	Balance on 01/01/2021	ex-change rate differ-ences	Deprecia-tion, amortisa-tion and impairment losses in the financial year	Reclassi-fications	Dispo-sals	Balance on 31/12/2021	Balance on 31/12/2021	Balance on 31/12/2020
1. Land and buildings	873	54	751	–	60	1,618	3,806	918
2. Production equipment and machinery	448	–	129	–	–	577	782	911
3. Other plant, operating and office equipment	810	10	605	–	415	1,010	1,104	1,142
4. Container fleet	19,178	–	3,451	–	3,006	19,623	1,965	5,416
Property, plant and equipment, total	**21,309**	**64**	**4,936**	**–**	**3,481**	**22,828**	**7,657**	**8,387**

Non-current assets – right-of-use

	Aquisition and production cost					
in kEUR	opening balance 01/01/2020	exchange rate differences	Additions	Reclassifi-cations	Disposals	Balance on 31/12/2020
1. Land and buildings	1,520	–96	590	–	223	1,791
2. Production equipment and machinery	1,356	–	3	–	–	1,359
3. Other plant, operating and office equipment	1,632	–2	490	–	168	1,952
4. Container fleet	24,662	–	–	–	68	24,594
Property, plant and equipment, total	**29,170**	**–98**	**1,083**	**–**	**459**	**29,696**

Non-current assets – right-of-use

	Depreciation, amortisation and impairment losses						Carrying amount	
in kEUR	Balance on 01/01/2020	ex-change rate differ-ences	Deprecia-tion, amortisa-tion and impairment losses in the financial year	Reclassi-fications	Dispo-sals	Balance on 31/12/2020	Balance on 31/12/2020	Balance on 31/12/2019
1. Land and buildings	508	–39	543	–	139	873	918	1,012
2. Production equipment and machinery	318	–	130		–	448	911	1,038
3. Other plant, operating and office equipment	461	–2	505	–	153	810	1,142	1,171
4. Container fleet	14,462	–	4,700	–	–15	19,178	5,416	10,200
Property, plant and equipment, total	**15,749**	**–41**	**5,878**		**277**	**21,309**	**8,387**	**13,421**

The rights of use include assets from finance leases with a net carrying amount of kEUR 1,965 (previous year: kEUR 5,416) attributable to the container fleet as of 31 December 2021. Technical plant and machinery includes assets from finance leases with a net carrying amount as of 31 December 2021 of kEUR 782 (previous year: kEUR 911).

As of the balance sheet date, assets under construction increased to kEUR 6,734 (previous year: kEUR 3,606) as a consequence of the high investment volume in 2021 and many investment programs that were well advanced but not yet completed as of the reporting date.

The following items of property, plant and equipment serve to collateralize financial liabilities:

- All buildings and land in Kölleda serve as collateral for long-term bank loans (land charge of kEUR 6,672).
- The AN33 property in Würzburg serves as collateral for two long-term bank loans with a land charge of kEUR 14,300.
- The "Heuchelhof" buildings and land in Würzburg serves as collateral for two long-term bank loans with a land charge of kEUR 4,280.
- The photovoltaic plant and a production plant at the Kölleda site with a carrying amount of kEUR 782 (previous year: kEUR 911) serve as collateral for the financing from the bank and from the leasing company, respectively. Of the company's other technical plant and machinery, a pro-portion with a carrying amount of kEUR 9,414 (previous year: kEUR 9,235) serves as collateral for long-term bank loans.
- From the "Other equipment" category, assets amounting to kEUR 1,126 (previous year: kEUR 1,101) serve as collateral for the company's long-term bank loans.
- The block-type thermal power station at the Würzburg site with a carrying amount of kEUR 527 (previous year: kEUR 587) was pledged as security for the bank's long-term financing.
- The entire container fleet deriving from sale-and-finance-leaseback and hire purchase transactions serve the leasing companies as collateral for the financing they grant.

No indicators of potential impairment were identified. Accordingly, no impairment losses or reversals of impairment losses pursuant to IAS 36 were applied in either the period under review, or in the previous year.

7.2.1.3 Investment property

Non-current assets

	Aquisition and production cost					
in kEUR	opening balance 01/01/2021	exchange rate differences	Additions	Reclassifi-cations	Disposals	Balance on 31/12/2021
Investment Property	1,614	–	–	–	594	1,020

Non-current assets

	Depreciation, amortisation and impairment losses						Carrying amount	
in kEUR	Balance on 01/01/2021	ex-change rate differ-ences	Deprecia-tion, amortisa-tion and impairment losses in the financial year	Reclassi-fications	Dispo-sals	Balance on 31/12/2021	Balance on 31/12/2021	Balance on 31/12/2020
Investment Property	–	–	–	–	–	–	1,020	1,614

Notes

Non-current assets

	Aquisition and production cost					
in kEUR	opening balance 01/01/2020	exchange rate differences	Additions	Reclassifi-cations	Disposals	Balance on 31/12/2020
Investment Property	1,614	–	–	–	–	1,614

Non-current assets

	Depreciation, amortisation and impairment losses						Carrying amount	
in kEUR	Balance on 01/01/2020	ex-change rate differ-ences	Deprecia-tion, amortisa-tion and impairment losses in the financial year	Reclassi-fications	Dispo-sals	Balance on 31/12/2020	Balance on 31/12/2020	Balance on 31/12/2019
Investment Property	–	–	–	–	–	–	1,614	1,614

In February 2017, a plot of land including warehouse adjacent to the plot of land that was already acquired in 2016 was purchased in Würzburg to construct an integrated production and administration site there. Due to a market opportunity arising short-term, a further large plot of land along with existing production and administrative buildings was acquired in April 2017 in Alfred-Nobel-Strasse 33 in Würzburg, in order to use it to aggregate the Würzburg locations into a management, technology and logistics headquarters. The merger of the Würzburg locations was completed in 2018.

By contrast with the original planning, the undeveloped land plots acquired in 2016 are held for value appreciation purposes as of 31 December, as it is not yet certain what to what future utilization the land plots are to be allocated. However, in November 2021, the sale of part of the land was notarized. Due to the still missing prerequisites for the transfer of ownership, the sale did not take place economically until February 2022. As of the 31 December 2021 reporting date, this portion of the land is consequently reported under current assets as “Non-current assets held for sale” (see section 4.2.1.10). The remaining land continues to be reported in the item “investment property” at the remaining carrying amount of kEUR 1,020 as of the reporting date. Due to the price achieved for the partial properties sold and contractual agreements with the City of Würzburg regarding buy-back and resale options, the fair value of the remaining properties corresponds to a value of kEUR 1,179. The fair value of investment property is measured in accordance with hierarchy level 2 within the meaning of IFRS 13 due to the prompt nature of the transaction.

No indicators of potential impairment were identified. Accordingly, no impairment losses pursuant to IAS 36 were applied in the period under review.

7.2.1.4 Non-current and current financial assets

Other financial assets

kEUR	Non-current	Current	Balance on 31/12/2021
Investments	3,300	–	3,300
Suppliers with debit balances	–	65	65
Deposits	296	81	377
Derivates	1,150	0	1,150
Receivables from factoring agreements	0	1,606	1,606
Miscellaneous	266	628	854
Group, total	**4,972**	**2,380**	**7,352**

Other financial assets

kEUR	Non-current	Current	Balance on 31/12/2020
Investments	3,300	–	3,300
Suppliers with debit balances	–	85	85
Deposits	177	20	197
Miscellaneous	26	346	372
Group, total	**3,503**	**927**	**4,430**

As of 31 December 2021, other financial assets include the investments in SUMTEQ GmbH recognized at fair value in the amount of kEUR 3,000 (previous year: kEUR 3,000) and ING3D GmbH in the amount of kEUR 300 (previous year: kEUR 300).

Other financial assets include the positive fair values from cross-currency swaps to hedge currency risks in connection with the Swiss franc bond amounting to kEUR 1,150 (previous year: negative fair values of kEUR 137), security retentions and bank accounts pledged under factoring agreements (see also 4.2.1.7) in the amount of kEUR 1,606 (previous year: kEUR 476) and a rental deposit account for the rental of parts of buildings and land in the amount of kEUR 200 (previous year: kEUR 0).

The other financial assets are neither overdue nor impaired.

7.2.1.5 Other non-current and current non-financial assets

Other non-financial assets

kEUR	Non-current	Current	Balance on 31/12/2021
Advance payments on intangible assets	979	–	979
Advance payments on inventories	–	8	8
VAT receivables	–	4,551	4,551
Advance payments and accrued income	224	502	726
Miscellaneous	95	107	202
Group, total	**1,298**	**5,168**	**6,466**

Other non-financial assets

kEUR	Non-current	Current	Balance on 31/12/2020
Advance payments on intangible assets	808	–	808
Advance payments on inventories	–	82	82
VAT receivables	–	928	928
Grant receivables	–	3	3
Advance payments and accrued income	157	395	552
Miscellaneous	91	141	232
Group, total	**1,056**	**1,549**	**2,605**

Other non-financial assets mainly include VAT receivables from tax authorities, which are exceptionally high as of the reporting date due to the very strong business activities in the fourth quarter of 2021 and high claims on the part of the UK subsidiary against German tax authorities, which since Brexit take significantly longer to be reimbursed. In addition, this item mainly relates to advance payments on intangible assets, prepaid expenses and energy tax refund claims.

7.2.1.6 Inventories

Inventories rose by a total of kEUR 6,854 (previous year: kEUR 939) due to va-Q-tec's greater level of business activities and the pandemic-related increase in reserve stocks.

kEUR	31/12/2021	31/12/2020
Raw materials and supplies	6,476	4,408
Work in progress	206	358
Finished products and goods	11,787	6,849
Group, total	**18,469**	**11,615**

Inventories as of 31 December 2021 include kEUR 483 of impairment losses (previous year: kEUR 681). All of the changes in valuation allowances were recognized in profit or loss under changes in inventories. No reversals of valuation allowances were applied in either the reporting year or the previous year. Part of the inventories serves as collateral for the credit lines under the multi-bank agreement. The carrying amount of inventories recognized at net realizable value stands at kEUR 1,745 as of 31 December 2021 (previous year: kEUR previous 1,069).

7.2.1.7 Trade receivables

Trade receivables increased by kEUR 5,900, from kEUR 6,532 to kEUR 12,432, due to the significant revenue growth.

Where a risk of default relates to a customer, specific valuation allowances are applied. The respective business unit head assesses the risk level on the basis of an analysis of specific cases.

In addition, trade receivables are written down applying the simplified model of expected credit losses for receivables in accordance with IFRS 9.

Changes in valuation allowances to trade receiveables

kEUR	2021	2020
Balance at 1 January	162	171
Consumption	30	–
Release	13	92
Addition	27	83
Balance at 31 December	**146**	**162**

A total of kEUR 43 (previous year: kEUR 86) of the impairment losses presented are impairment losses on receivables that are attributable to individual circumstances. Lifetime expected credit losses of trade receivables amounted to kEUR 103 as of the balance sheet date (previous year: kEUR 76).

va-Q-tec also sold trade receivables with a carrying amount of kEUR 6,996 (previous year: kEUR 2,893) to third parties on the basis of factoring agreements as part of the factoring program of the German parent company and the UK subsidiary as of 31 December 2021, for which no significant opportunities and risks remain for the Group. These receivables were therefore derecognized in accordance with IFRS 9.3.2.6 (a). Temporary security deposits and pledged bank accounts are reported uniformly as other current financial assets as of 31 December 2021 in the amount of kEUR 1,606 (previous year: kEUR 476). Due to the short-term nature of the trade receivables sold, their fair value approximates to their carrying amount.

For further information about the trade receivables, please refer to the remarks concerning financial instruments (section 4.4) and risk management (section 4.6).

7.2.1.8 Contract assets

In the financial year under review, the company recognized contract assets as follows in addition to trade receivables for contract costs (contract fulfillment costs):

Contract assets

in kEUR	31/12/2021	31/12/2020
Contract assets	38	73

Depreciation relating to contract assets amounted to kEUR 62 in the 2021 reporting period (previous year: kEUR 126). No indications existed of impairment to the capitalized assets on the balance sheet date. Due to the small number of individual circumstances, no value adjustment had to be made due to significant expected credit losses.

7.2.1.9 Cash and cash equivalents

The cash and cash equivalents comprise cash balances as well as cash accounts and short-term deposits at banks that had a remaining term of up to three months on addition.

Cash and cash equivalents

kEUR	31/12/2021	31/12/2020
Group, total	9,810	17,134

7.2.1.10 Non-current assets held for sale

In November 2021, the sale of part of the previously “investment property” (land) was notarized at a total price of kEUR 759. Due to the still missing prerequisites for the transfer of ownership, the sale did not take place economically until February 2022. As of the reporting date of 31 December 2021, this portion of the land, which is included in the va-Q-tec AG segment, is consequently reported under current assets as “Non-current assets held for sale”.

7.2.2 Equity and liabilities

7.2.2.1 Equity

The consolidated statement of changes in equity provides a separate presentation of the changes in equity and comprehensive income. The components of comprehensive income are presented on an aggregated basis in the statement of comprehensive income.

Issued share capital

The share capital of the parent entity va-Q-tec AG is reported as the issued share capital in the consolidated financial statements. The share capital of va-Q-tec AG was increased by kEUR 325, or by 325,498 shares, in the 2021 reporting period, and amounts to kEUR 13,415 after the capital increase, divided into 13,415,000 no par registered bearer shares. The share capital is fully paid in. The shares are listed in the Prime Standard stock market segment of the Frankfurt Stock Exchange. All of the shares carry the same rights and obligations. Each share grants one vote at the general meeting of shareholders. Exceptions to this are shares that the company itself holds (treasury shares), from which no rights accrue to va-Q-tec AG, such as the right to vote at the general meeting of shareholders. As of the balance sheet date, va-Q-tec AG held 13,566 treasury shares. For this reason, the company's issued capital amounts to 13,401,434 shares as of the balance sheet date.

in kEUR	Number of shares	Nominal value
Ordinary shares	13,415,000	13,415
Balance on 31/12/2020	**13,415,000**	**13,415**
Ordinary shares	13,089,502	13,090
Balance on 31/12/2019	**13,089,502**	**13,090**

Nominal value

By resolution of the Annual General Meeting of 14 August 2020, the Management Board was authorized, with the approval of the Supervisory Board, to increase the company's share capital by up to a total of EUR 6,544,751 up to and including 13 August 2025 (Authorized Capital 2020/1), whereby shareholders' subscription rights may be excluded. With the approval of the Supervisory Board, the Management Board made partial use of this right in November 2021 and increased the share capital by a total of 325,498 new no par value registered shares (ordinary shares), or kEUR 325. Following the capital increase, the Supervisory Board amended the bylaws of va-Q-tec AG accordingly. Accordingly, the Management Board is authorized, with the approval of the Supervisory Board, to increase the company's share capital by up to a total of 6,219,253 new no par registered shares (ordinary shares) against cash and/or non-cash capital contributions by up to a total of EUR 6,219,253 up to and including 13 August 2025 (Authorized Capital 2020/1), whereby shareholders' subscription rights may be excluded.

Contingent capital

Pursuant to Section 6.5 of the company's bylaws, the share capital is conditionally increased by EUR 6,500,000 through issuing up to 6,500,000 new ordinary registered shares (Contingent Capital 2020/1). Contingent Capital 2020/1 increase serves exclusively to grant shares for the exercise of conversion and warrant rights, or upon fulfillment of conversion obligations, to the holders or creditors of convertible bonds, bonds with warrants and/or participating bonds (or combinations of such instruments) (collectively "bonds") issued on the basis of the authorization resolution of the Annual General Meeting of 14 August 2020 under agenda item 7 letter b).

Treasury shares
No changes occurred to treasury shares in 2021 and the number remains at 13,566 shares.

Additional paid-in capital
Additional paid-in capital mainly comprises shareholders' cash and non-cash capital contributions. Additional paid-in capital amounted to kEUR 54,020 as of the balance sheet date (previous year: kEUR 46,158).

Consolidated total other comprehensive income
Consolidated total other comprehensive income includes the reserve arising from the foreign currency translation of the foreign subsidiaries' financial statements.

Furthermore, the effective portions of hedging relationships and the corresponding deferred taxes are recognized in other comprehensive income in the context of cash flow hedge accounting.

Retained earnings
Retained earnings mainly comprise cumulative profits carried forward, differential amounts arising from the first-time application of IFRS, and the share of periodic consolidated earnings that is attributable to the owners of va-Q-tec AG.

7.2.2.2 Non-current and current provisions

Provisions

in kEUR	Warranties	Archiving	Litigation costs	Other	Total
Balance on 01/01/2021	20	17	182	67	286
Addition	13	–	133	193	339
Utilisation	16	–	6	10	32
Release	–	–	156	–	156
Balance on 31/12/2021	**17**	**17**	**153**	**249**	**436**
Non-current	**17**	**17**	**–**	**155**	**189**
Current	**–**	**–**	**153**	**94**	**247**

Provisions

in kEUR	Warranties	Archiving	Litigation costs	Other	Total
Balance on 01/01/2020	20	17	72	94	203
Addition	2	–	136	32	170
Utilisation	2	–	–	16	18
Release	–	–	26	43	69
Balance on 31/12/2020	**20**	**17**	**182**	**67**	**286**
Non-current	**20**	**17**	**–**	**59**	**96**
Current	**–**	**–**	**182**	**8**	**190**

Provisions for litigation costs include the expected costs from both current and pending litigation. The other provisions are mainly provisions for pending losses arising from sales of products to customers where such sales have failed to cover their costs, and provisions for open services by suppliers. The company refrained from discounting non-current provisions for reasons of materiality.

7.2.2.3 Non-current and current liabilities from bonds issued

In November 2020, va-Q-tec issued a bond with a nominal volume of CHF 25 million. The bond carries a coupon of 3.75 % p.a. and has a term of five years. The company recognized the bond at its fair value less directly attributable transaction costs on the trade date. Subsequent measurement is at amortized cost applying the effective interest method. The bond is translated at the closing rate.

va-Q-tec has hedged the currency risks with derivative hedging transactions (cross-currency swaps/CCS) for the portion of CHF 24 million over the term of the bond. The CCS thereby eliminate the EUR-CHF currency risk arising from the interest and redemption payments for the entire term of the bond for the secured portion. The company applies hedge accounting in accordance with IFRS 9 for these hedging transactions. The main parameters of the currency swaps are as follows:

in kEUR	Nominal amount kCHF	Nominal amount kEUR	Start of term	Maturity date	Coupon CHF	Coupon EUR	Hedging rate CHF/EUR
Basic transaction	24,000	22,218	30/11/2020	30/11/2025	3.75 %		
CCS 1	12,000	11,059	01/12/2020	30/11/2025		4.06 %	1,08505
CCS 2	12,000	11,074	01/12/2020	30/11/2025		4.07 %	1,08360

The agreed CCSs are based directly on the underlying transaction. The term, interest payment dates and nominal volume match.

The bond serves further investments in the container and box fleets, the scheduled refinancing of existing financial liabilities and general financing purposes.

7.2.2.4 Non-current and current bank borrowings

The bank borrowings consist of long-term investment loans to finance land, buildings and plants, and short-term current account overdrafts to finance current assets.

Non-current investment loans are secured through land charges and the collateral assignment of machinery and fixtures. Most of the long-term loans have terms of between 15 and 20 years with fixed interest rates. The risk arising from variable-interest loans was partly hedged through interest-rate swaps. Hedge accounting according to IFRS 9 is not applied in this context.

The existing multi-bank agreement of va-Q-tec AG with the principal banks was last extended in November 2020 under comparable conditions and is currently limited until 31 December 2023. This financing facility amounts to kEUR 11,000 and covers current account lines of the parent company. For further information, please refer to the explanations on credit risks in the section concerning risk management (section 4.6).

The inventories of va-Q-tec AG serve as collateral for the credit lines. The company has also committed itself to maintaining a minimum equity ratio of 30 % as well as minimum EBITDA metrics.

7.2.2.5 Other non-current and current financial liabilities

Financial liabilities

kEUR	Non-current	Current	Balance on 31/12/2021
Lease liabilities	4,341	2,698	7,039
Derivative financial instruments	1	–	1
Deferred liabilities for outstanding invoices	–	5,323	5,323
Accrued liability for financial auditors	–	137	137
Debtors with credit balance	–	472	472
Miscellaneous	353	258	611
Group, total	**4,695**	**8,888**	**13,583**

Financial liabilities

kEUR	Non-current	Current	Balance on 31/12/2020
Lease liabilities	3,410	2,635	6,045
Derivative financial instruments	144	–	144
Deferred liabilities for outstanding invoices	–	3,403	3,403
Accrued liability for financial auditors	–	87	87
Debtors with credit balance	–	173	173
Miscellaneous	303	136	439
Group, total	**3,857**	**6,434**	**10,291**

The leasing liabilities arise mainly from leases to finance the UK subsidiary's container fleet assets, which until the end of 2018 were financed chiefly through sale-and-finance-leaseback transactions, as well as production plants at the locations in Kölleda and Würzburg. Also included are liabilities from leasing agreements for office and warehouse space and for company and service vehicles. The leased assets are reported as rights of use assets under non-current assets.

Derivative financial instruments include the negative fair values of interest rate swaps used to hedge variable-rate non-current bank borrowings in the amount of kEUR 1 (previous year: kEUR 7).

7.2.2.6 Other non-current and current non-financial liabilities

Non-financial liabilities

kEUR	Non-current	Current	Balance on 31/12/2021
Special items for grants	4,388	463	4,851
Special items for deferred container profits	213	949	1,162
Employee bonuses	–	1,319	1,319
Liabilities for unutilised vacation	–	294	294
Prepayments received for orders	–	543	543
Liabilities from other taxes	–	445	445
VAT liabilities	–	789	789
Miscellaneous other non-financial liabilities	27	635	662
Other personnel liabilities	*–*	*222*	*222*
Liabilities for social insurances	*–*	*139*	*139*
Miscellaneous	*27*	*274*	*301*
Group, total	**4,628**	**5,437**	**10,065**

kEUR	Non-current	Current	Balance on 31/12/2020
Special items for grants	4,185	385	4,570
Special items for deferred container profits	1,162	1,651	2,813
Employee bonuses	–	1,049	1,049
Liabilities for unutilised vacation	–	297	297
Prepayments received for orders	–	335	335
Liabilities from other taxes	–	265	265
VAT liabilities	–	65	65
Miscellaneous other non-financial liabilities	78	548	626
Other personnel liabilities	*–*	*250*	*250*
Liabilities for social insurances	*–*	*128*	*128*
Miscellaneous	*78*	*170*	*248*
Group, total	**5,425**	**4,595**	**10,020**

Government grants

Between 2017 and 2021, the company received investment grants from the government of Lower Franconia for investments in the new location in Würzburg. The investment grants served the construction investments, machinery and facilities as well as the overall investment for the building in Würzburg. In addition, the company received investment grants from Thüringische Aufbaubank between 2008 and 2021 for the various construction phases, machinery and equipment at the Kölleda site. These grants do not need to be repaid as long as the conditions are complied with, as expected.

Special item for grants

in kEUR	2021	2020
Balance at 1 January	4,570	4,094
Addition	694	961
Release	413	485
Balance at 31 December	**4,851**	**4,570**
- of which non-current	4,388	4,185
- of which current	463	385

Deferred income from sale-and-finance-leaseback transactions

Until 31 December 2018, containers used in the container fleet were sold by means of sale-and-finance-leaseback transactions. Profit margins in excess of manufacturing costs arising from the sale of containers were recognized as deferred income under liabilities (special item for deferred container profits). Until the end of 2023, this deferred income will be released to other operating income over the containers' respective five-year useful life. With the application of the new standard on accounting for leases IFRS 16, since 1 January 2019 no further profits have arise that are deferred as special items on the liabilities side.

7.2.2.7 Liabilities from contracts with customers

In the financial year under review, the company accounted for obligations arising from contracts with customers as follows:

Liabilities from contracts with customers

in kEUR	31/12/2021	31/12/2020
Liabilities from contracts with customers	189	40

Contract liabilities include in particular obligations from advance payments received and provisions for customer bonuses.

7.2.2.8 Trade receivables

Trade payables are recognized at amortized cost. Their balance sheet values essentially correspond to their market values. They are due within one year.

7.3 CONSOLIDATED STATEMENT OF CASH FLOWS

The cash flow statement shows how the cash position has changed at va-Q-tec over the course of the reporting year due to cash inflows and outflows. Pursuant to IAS 7 (Statement of Cash Flows), a distinction is drawn between cash flows from operating, investing and financing activities. The change in liquid assets due to changes in exchange rates is presented separately.

The cash and cash equivalents in the cash flow statement comprise all cash positions reported on the statement of financial position, as well as cash accounts and short-term deposits at banks that have a remaining term of up to three months on addition, are subject to only minor value fluctuations, and their availability is not restricted.

The cash inflows and outflows from investing and financing activities are presented in accordance with the direct method. The cash inflows and outflows from investing activities comprise additions to intangible assets as well as disposals of, or additions to, property, plant and equipment. Financing activities include cash inflows from real estate and plant financing, cash outflows from the repayment of bank borrowings, as well as ingoing and outgoing payments for finance leases. As in the previous year, cash inflows from sale-and-finance-leaseback transactions as well as investment allowances and grants received are shown within separate items within cash flows from financing activities.

By contrast, cash inflows and cash outflows from operating activities are derived indirectly, starting from the consolidated net profit. To this end, the consolidated net profit is adjusted to reflect non-cash expenses and income, primarily depreciation, amortization, impairment losses, deferred tax, the release of special items, the measurement of financial instruments, and changes in provisions. These adjustments are supplemented by changes in other assets and liabilities, as well as working capital.

Investing and financing processes that have not resulted in a change in cash and cash equivalents are not reflected in the cash flow statement.

Reconciliation statement of financial liabilities from financing acitivities (IAS 7)

	Carrying amount 31/12/2020	**cash transactions**	**non-cash transactions**			**Carrying amount 31/12/2021**
in kEUR			**currency translation**	**change in valuation**	**other**	
Bonds	22,064	–	1,055	–	243	23,362
Bank borrowings	29,089	8,035	–	–	68	37,192
Leases	6,045	–2,946	115	–	3,825	7,039
Financial liabilities	**57,198**	**5,089**	**1,170**	**–**	**4,136**	**67,593**

Reconciliation statement of financial liabilities from financing acitivities (IAS 7)

	Carrying amount 31/12/2019	cash transactions	non-cash transactions			Carrying amount 31/12/2020
in kEUR			currency translation	change in valuation	other	
Bonds	–	21,961	84	–	19	22,064
Bank borrowings	34,244	−5,085	–	–	–70	29,089
Leases	8,137	−3,026	−48	–	982	6,045
Financial liabilities	**42,381**	**13,850**	**36**	**–**	**931**	**57,198**

7.4 FINANCIAL INSTRUMENTS

The following table presents financial instruments with their carrying amounts and fair values, analysed by IFRS 9 measurement categories. All of the fair values are allocated to one of the measurement levels of the fair value hierarchy. Where no corresponding allocation has occurred, it is assumed that the carrying amount corresponds to fair value. This relates mainly to trade receivables, cash and cash equivalents, miscellaneous current financial assets, trade payables and miscellaneous current financial liabilities, all of which have short remaining terms.

Section 1.2 “Basis of preparation of the financial statements” provides a definition of the fair value hierarchy levels. All allocations to levels are reviewed at the end of the reporting period. No reclassifications between levels occurred in either the reporting year or the previous year.

The following table shows the carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy.

Values by measurement categories 2021

in kEUR	Measurement category as per IFRS 9	Carrying amount		Fair value	of which: fair value		
		Aquisition cost 31/12/2021	Fair value 31/12/2021	31/12/2021	Level 1	Level 2	Level 3
Financial Assets							
Investments	FVtPL		3,300	3,300		3,300	
Trade accounts receivables	AC	5,715		5,715			
Trade accounts receivables	FVtPL		6,717	6,717		6,717	
Other financial assets	AC						
of which: derivative financial instruments with hedging relationship	FVtOCI		1,150	1,150		1,150	
of which: miscellaneous other financial liabilities	AC	2,902		2,902			
Cash and cash equivalents	AC	9,810		9,810			
Total		**18,427**	**11,167**	**29,594**			
Financial liabilities							
Bonds	AC	23,362		24,731	24,731		
Bank borrowings	AC	37,192		37,870		37,870	
Trade payables	AC	8,628		8,628			
Other financial liabilities							
of which: derivative financial instruments without hedging relationship	FVtPL		1	1		1	
of which: miscellaneous other financial liabilities	AC	6,732		6,725		6,725	
Total		**75,914**	**1**	**77,954**			

Of which aggregated by measurement category as per IFRS 9

in kEUR		Carrying amount	Fair value
Amortised Cost (asset)	AC	18,427	18,427
At fair value through OCI (asset)	FVtOCI	1,150	1,150
At fair value through P&L (asset)	FVtPL	10,017	10,017
Amortised Cost (liability)	AC	75,914	77,953
At fair value through P&L (liability)	FVtPL	1	1

Values by measurement categories 2020

	Measurement category as per IFRS 9	Carrying amount		Fair value	of which: fair value		
in kEUR		Aquisition cost 31/12/2020	Fair value 31/12/2020	31/12/2020	Level 1	Level 2	Level 3
Financial Assets							
Investments	FVtPL		3,300	3,300		3,300	
Trade accounts receivables	AC	1,873		1,873			
Trade accounts receivables	FVtPL		4,659	4,659		4,659	
Other financial assets	AC	1,130		1,125			
Cash and cash equivalents	AC	17,134		17,134			
Total		**20,137**	**7,959**	**28,091**			
Financial liabilities							
Bonds	AC	22,064		23,552	23,552		
Bank borrowings	AC	29,089		29,760		29,760	
Trade payables	AC	5,978		5,978			
Other financial liabilities							
of which: derivative financial instruments with hedging relationship	FVtOCI		137	137		137	
of which: derivative financial instruments without hedging relationship	FVtPL		7	7		7	
of which: miscellaneous other financial liabilities	AC	4,142		4,133		4,133	
Total		**61,273**	**144**	**63,567**			

Of which aggregated by measurement category as per IFRS 9

in kEUR		Carrying amount	Fair value
Amortised Cost (asset)	AC	20,137	20,132
At fair value through P&L (asset)	FVtPL	7,959	7,959
Amortised Cost (liability)	AC	61,273	63,423
At fair value through OCI (liability)	FVtOCI	137	137
At fair value through P&L (liability)	FVtPL	7	7

The fair value of the bond issued by va-Q-tec AG is determined on the basis of the quoted, unadjusted price on an active market and is therefore assigned to measurement Level 1.

The fair value of Level 2 interest-bearing bank borrowings as well as finance lease liabilities is derived as the present value of the expected future cash flows. They are discounted at market interest rates on the balance sheet date. In the case of variable interest liabilities, the carrying amounts generally correspond to fair values. The fair value measurement of the investments in SUMTEQ GmbH and ING3D GmbH as of 31 December 2021 was based on close-dated transactions and on capital measures of these companies that are under negotiation, and thereby on observable market prices (measurement level 2).

The fair value of Level 2 interest-rate swaps is calculated by discounting expected future cash flows on the basis of market interest rates valid on the respective reporting date for the contracts' remaining terms. The fair value of the cross-currency swaps assigned to measurement Level 2 is determined on the basis of the current reference rates of the European Central Bank applicable on the balance sheet date. This is realized by taking into account forward premiums and discounts for the respective remaining term of the contracts compared to the contracting foreign exchange rate.

7.5 NET RESULT FROM FINANCIAL INSTRUMENTS

The net result relating to financial instruments as presented in the consolidated income statement is composed as follows:

2021 net results from

Measurement category as IFRS 9 / IFRS 16	Interest income	Interest expense	Impairment losses	Reversals of impairment losses	Currency translation
Amortised Cost (asset)	–	–	–	–	819
At fair value through P&L (assets)	–	–	–	–	–
Amortised Cost (liability)	–	–1,966	–	–	–40
At fair value through P&L (liability)	–	–		6	–42
IFRS 16	–	–263	–	–	–
Other	–	–23	–	–	9
Total	**–**	**–2,252**	**–**	**6**	**746**

2020 net results from

Measurement category as IFRS 9 / IFRS 16	Interest income	Interest expense	Impairment losses	Reversals of impairment losses	Currency translation
Amortised Cost (asset)	–	–	–	–	–771
At fair value through P&L (assets)	–	–	–	647	–
Amortised Cost (liability)	–	–888	–	–	–16
At fair value through P&L (liability)	–	–	–	12	–
IFRS 16	–	–383	–	–	0
Other	–	0	–	–	–34
Total	**–**	**–1.271**	**–**	**659**	**–821**

7.6 RISK MANAGEMENT

As a company active internationally, va-Q-tec is exposed to various risks during the course of its ordinary business activities, including credit, liquidity, and market risks. Market risks particularly result from changes to exchange rates and interest rates. Financial risk management measures are designed to manage and limit these market risks within the scope of operating and financial activities. Depending on the risk assessment, derivative hedging instruments are deployed, although generally only cash flow risks are hedged. Derivative financial instruments are used for operational hedging purposes, and are consequently not held for trading. To reduce default risk, hedging transactions are entered into only with financial institutions with excellent credit ratings. In individual cases, hedge accounting in accordance with IFRS 9 is applied in order to avoid fluctuations in earnings from changes in the market value of derivative financial instruments.

The basic principles of the financial policy are regularly controlled by the Management Board and monitored by the Supervisory Board.

Credit risks

Credit risk is the risk that business partners will not be able to meet their contractual obligations, and that the va-Q-tec Group will incur a financial loss as a consequence. In the course of its operating activities, the Group is exposed to default risk, especially in the case of trade receivables, as well as risks as part of its financing activities, including its derivative financial instruments.

The credit risk from trade receivables is managed at the company level (i.e. locally), and monitored constantly. Identifiable default risks applying to financial assets are reflected through impairment losses.

In accordance with IFRS 9, valuation allowances for expected credit losses (“expected loss model”) are recognized for all financial assets measured at amortized cost and for debt instruments measured at fair value through equity.

In principle, IFRS 9 provides for a three-stage procedure for this purpose. Risk provisions are formed either on the basis of the expected 12-month credit losses (stage 1) or on the basis of the expected credit losses over the term if the credit risk has increased significantly since initial recognition (stage 2) or if an impaired credit quality is determined (stage 3). For the majority of financial assets, including trade receivables that do not contain a significant financing component, the simplified procedure is applied. In this context, expected credit losses are always determined over the entire term of the financial instruments.

The application of the simplified procedure results in the following default risk classifications for the financial assets:

Credit risk exposure of financial assets 2021

in kEUR	Trade receivables	Contract assets	Other financial assets	Cash and cash equivalents
credit risk rating grade 1				
credit risk rating grade 2	12,535	38	1,671	–
credit risk rating grade 3	43	–	–	–
Total	**12,578**	**38**	**4,051**	**9,810**

Credit risk exposure of financial assets 2020

in kEUR	Trade receivables	Contract assets	Other financial assets	Cash and cash equivalents
credit risk rating grade 1				
credit risk rating grade 2	6,617	73	203	–
credit risk rating grade 3	77	–	–	–
Total	**6,694**	**73**	**1,130**	**17,134**

Individual value adjustments are made in the event of corresponding individual circumstances and risk indications. Both historical data, such as historical default rates, and forward-looking information, such as individual and macroeconomic conditions, are included in determining the amount of valuation allowances. Default rates are determined on the basis of an allowance matrix with reference to historical defaults and an analysis of further factors.

The default of a counterparty results in the value adjustment of all open positions with the counterparty. In this context, the default is determined on the basis of an individual assessment, for example in the event of conspicuous changes in payment behaviour or insolvency filing. A financial instrument is derecognized when a reasonable evaluation cannot assume that a financial asset will be recoverable in whole or in part, for example after insolvency proceedings have ended or subject to other local conditions.

For the unimpaired trade receivables, value adjustments were made in accordance with IFRS 9 in the amount of the expected credit losses of kEUR 103 (previous year: kEUR 76). The recoverability of receivables that are not overdue is regarded as very high. This assessment is due, above all, to the long-standing business relationships with most buyers, and our customers' credit ratings. The other financial assets are neither overdue nor impaired.

Liquidity risks
Liquidity risk i.e. the risk that va-Q-tec is unable to meet its financial obligations, is limited through the creation of the requisite financial flexibility, and through an effective cash management system. To manage its future liquidity position, va-Q-tec employs corresponding liquidity planning instruments. No liquidity bottlenecks were identifiable as of the reporting date. Unutilized overdraft lines existed were available to a sufficient extent.

Specific liquidity risks for the Group arise from the relatively high proportion of individual major customers with which no long-term contracts exist, and such customers' theoretical default risks or risks of departure, as well as from potential repayment obligations to banks given non-compliance with covenants, and in relation to development agencies, given non-compliance with subsidy terms. The management steers these potential liquidity risks through targeted commercial, financial and organizational measures.

The following lists show the contractually agreed, undiscounted interest and principal payments for the non-derivative and derivative financial liabilities as per IFRS 7. If the maturity date is not fixed, the liability is related to the earliest due date. Interest payments with variable interest yield are taken into account according to the terms applicable as of the reporting date. We mainly assume that the cash outflows will not occur earlier than shown.

The following table includes the repayment amount (including assumed future interest payments to be rendered) at the respective stated maturity date:

2021 | Repayment amounts on respective due date

			Other financial liabilities				
in kEUR	**Bonds**	**Bank borrowings**	**Lease liabilities**	**Derivative financial instruments**	**Miscellaneous other financial liabilities**	**Trade payables**	**Total**
2022	866	8,658	2,880	–	6,542	8,628	27,574
2023	866	9,910	1,728	–	–	–	12,504
2024	866	4,454	823	–	–	–	6,143
2025	23,968	2,545	696	–	–	–	27,209
2026	–	1,684	540	–	–	–	2,224
2026 and after	–	13,356	669	–	–	–	14,025
Total 31/12/2020	**26,566**	**40,607**	**7,336**	**–**	**6,542**	**8,628**	**89,679**

2020 | Repayment amounts on respective due date

in kEUR	Bonds	Bank borrowings	Other financial liabilities				Total
			Lease liabilities	Derivative financial instruments	Miscellaneous other financial liabilities	Trade payables	
2021	865	6,411	2,755	4	4,107	5,973	20,115
2022	865	5,847	2,198	–	–	–	8,910
2023	865	1,857	1,001	–	–	–	3,723
2024	865	2,404	243	–	–	–	3,512
2025	23,924	1,310	46	–	–	–	25,280
2026 and after	–	14,663	–	–	–	–	14,663
Total 31/12/2020	**27,384**	**32,492**	**6,243**	**4**	**4,107**	**5,973**	**76,203**

Collateral in the form of land charges on land and buildings at the Kölleda site and at the headquarters in Würzburg, collateral assignments of machinery and installation items, as well as collateral for finance leases in the form of production plants exist for va-Q-tec loans and bank overdrafts utilized as of the reporting date. Above and beyond this, the UK subsidiary's containers, which are leased as part of the container fleet, are assigned as collateral for finance leases. The current account lines used under the multi-bank agreement are collateralized by inventories as of the balance sheet date. Furthermore, va-Q-tec AG has committed itself to maintaining a minimum equity ratio as well as minimum EBITDA metrics. As part of the bond issued in 2020, va-Q-tec AG has also committed to maintaining a minimum equity ratio.

Currency risks

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. va-Q-tec is exposed to this risk primarily from its business activities (when revenues and/or expenses are denominated in a currency other than the functional currency of the respective Group company). Where financially feasible, va-Q-tec hedges its significant exchange rate risks by employing forward currency transactions. The hedging of value fluctuations of future cash flows from expected transactions involves planned costs denominated in foreign currency. Differences caused by exchange rates when financial statements are translated into the Group currency are not taken into consideration.

For the disclosure of market risks, IFRS 7 requires sensitivity analyses that show how changes to relevant risk variables (e.g. exchange rates, interest rates) might affect earnings and equity. To measure periodic effects, a potential change in the risk variables is applied to the financial instruments position on the reporting date. This approach assumes that this year-end position is a representative for the financial year concerned.

The following sensitivity analysis is based on USD, GBP, CHF, SGD and KRW as the significant foreign currencies for the va-Q-tec Group. The analysis is based on the status as of 31 December 2021 of the positions of receivables, liquid assets and liabilities denominated in USD, GBP, CHF, SGD and KRW. Effects on consolidated results and equity were calculated that are derived from the simulated USD-Exchange rate USD, GBP, CHF, SGD and KRW exchange rates as of the reporting date.

The following currency scenarios arise:

2021 | Change in equity effectivities

in kEUR	USD	GBP	CHF	KRW	SGD	Summe
+ 100 basis points	542	0	–9	65	89	687
– 100 basis points	–662	0	11	–80	–109	–840

2020 | Change in equity effectivities

in kEUR	USD	GBP	CHF	KRW	SGD	Summe
+ 100 basis points	255	25	40	28	46	394
– 100 basis points	–311	–31	–49	–35	–57	–483

Based on the valuation as of 31 December 2021, a sensitivity analysis was performed to determine the change in equity in the event of a parallel shift in the foreign currency valuation of the Swiss franc by 100 basis points for each of the secured portion of the bond and the related hedges. An appreciation of the CHF against the EUR by 100 basis points as of the balance sheet date would reduce other comprehensive income by kEUR 3,691 without taking hedging transactions into account. A depreciation of the CHF against the EUR would increase other comprehensive income in equity by kEUR 1,018 without affecting profit or loss.

Interest rate risks

Interest rate risk is the risk that the fair value or future cash flow of a financial instrument will fluctuate due to changes in market interest rates. The risk of fluctuations in market interest rates to which the Group is exposed results primarily from variable rate loans and overdrafts. To a minor extent, the Group manages its interest rate risk in relation to financial liabilities through employing interest rate derivatives in the form of interest rate swaps for long-term loans, whereby no hedge accounting is applied.

Interest rate risks according to IFRS 7 are calculated by means of a sensitivity analysis. The following sensitivity analysis includes both the effects on the net interest result due to variable interest financial instruments existing on the respective reporting date, and the value changes of the interest-rate swaps that have been concluded. The effects of variable market interest rates on consolidated results in equity were calculated.

If the market interest-rate level as of the reporting date had been 100 basis points higher, the consolidated profit/loss would have been kEUR 47 lower (previous year: kEUR 6 lower), and consolidated equity would have been kEUR 47 lower (previous year: kEUR 6 lower). If the market interest-rate level as of the reporting date had been 100 basis points lower, the consolidated profit/loss would have been kEUR 45 higher (previous year: kEUR 1 higher), and consolidated equity would have been kEUR 45 higher (previous year: kEUR 1 higher).

Capital management

The primary objective of capital management at va-Q-tec is the continuous and long-term enhancement and growth of the company's value, and the securing of its liquidity. A high credit rating and a good equity ratio represent important building blocks to this end. The Group manages its capital structure and implements adjustments while taking changes in economic conditions into account.

va-Q-tec regularly monitors its capital on the basis of various key figures. The equity ratio represents an important key indicator in this context. The Management Board has defined a range for the equity ratio of between 35 and 40 % as the medium-term target. The equity ratio fell temporarily well below the target ratio in the 2021 financial year due to the very strong growth and the associated very significant expansion of total assets. As a result of the capital increase in November 2021, equity was again significantly increased in relation to total assets and amounted to 36 % as of the balance sheet date (previous year: 35 %). As a consequence, it again met the target set by the Management Board at the end of 2021. According to current plans, it is assumed that the company's equity ratio will remain within the aforementioned 35 to 40 % range.

With the bond issue and the extended multi-bank agreement in 2020 as well as with the capital increase in November 2021, va-Q-tec AG has created a solid liquidity base for business planning in the coming years.

As of 31 December 2021, financial liabilities of the parent company va-Q-tec AG in the amount of kEUR 174 (previous year: kEUR 598) were subject to financial covenants relating to the separate and consolidated financial statements of va-Q-tec AG. The covenant regulations for the non-current loans require a minimum equity ratio of 30 % in each case, in addition to land charges and other collateral. This covenant was complied with. Under the terms of the multi-bank agreement, va-Q-tec has made its inventories available to the syndicate banks as collateral for the credit lines, and has undertaken to maintain a minimum equity ratio of 30 % as well as minimum EBITDA metrics. Financial liabilities of va-Q-tec Ltd. (UK) from finance leases and loans of kEUR 5,396 as of 31 December 2021 (previous year: kEUR 6,055) are subject to a covenant based on the separate financial statements of va-Q-tec Ltd. (UK). This covenant requires equity as recognized on the balance sheet of at least kEUR 2,500 as of the balance sheet date. This covenant was met as of the balance sheet date, as in the previous year. In addition, the company has undertaken not to fall below a liquidity level of kEUR 5,000 for the term of the bond. As of the balance sheet date, the liquidity available at short notice, taking the unutilized current account line into account, amounts to kEUR 15,258 (previous year: kEUR 27,992), thereby fulfilling the commitment that has been entered into.

8 OTHER DISCLOSURES

8.1 SEGMENT INFORMATION

For the purpose of segment reporting, the activities of the va-Q-tec Group are separated by operating segments based on the regulations of IFRS 8 (Operating Segments). The structure is based on internal management and reporting on the basis of legal entities. The va-Q-tec Group operates in the three reporting segments of "va-Q-tec AG", "va-Q-tec Ltd. (UK)" and "Other".

The activities of the German and UK reporting segments are unchanged compared with the previous year. A fulfillment centre (conditioning and cleaning of rental boxes) is operated in Switzerland. In addition to purchasing and sales services, the Korean subsidiary also generates independent third-party sales for the Group. In addition to sales services, the subsidiaries in the USA, Uruguay, Singapore and Japan generate independent third-party sales. The newly founded subsidiaries in Brazil and India have not yet contributed any significant business activities during the past financial year.

The reporting and reporting management of the individual segments at va-Q-tec is directly according to IFRS. Insofar they are material, the supply and service relationships between the reporting segments are presented on a consolidated basis.

Starting from the total sum of the reporting segments, intragroup transactions are eliminated in the "Consolidation" column, particularly taking into account effects from the sale-and-finance-leaseback transactions.

Segment reporting FY 2021

	va-Q-tec AG	va-Q-tec Ltd. (UK)	Other	Operating divisions, total	Consoli-dation	Group
kEUR	**IFRS**	**IFRS**	**IFRS**		–	
External revenue	48,457	36,079	19,527	104,063	–	104,063
Internal revenue	26,812	1,518	1,446	29,776	−29,776	–
Total sales revenue	**75,269**	**37,597**	**20,973**	**133,839**	**−29,776**	**104,063**
At a point in time	70,598	–	16,105	86,703	−26,730	59,973
Over time	4,671	37,597	4,868	47,136	−3,046	44,090
Total income	87,399	38,289	21,061	146,749	−24,218	122,531
Cost of materials and services	−38,171	−14,951	−13,399	−66,521	15,767	−50,754
Personnel expenses	−27,545	−3,798	−2,800	−34,143	1,061	−33,082
Other operating expenses	−14,978	−4,213	−3,666	−22,857	2,861	−19,996
EBITDA	**6,705**	**15,327**	**1,196**	**23,228**	**−4,529**	**18,699**
Depreciation, amortisation and impairment losses	−6,338	−8,788	−920	−16,046	2,391	−13,655
EBIT	**367**	**6,539**	**276**	**7,182**	**−2,138**	**5,044**
Financial income	392	–	–	392	−386	6
Financial expenses	−1,990	−559	−89	−2,638	386	−2,252
EBT	**−1,231**	**5,980**	**187**	**4,936**	**−2,138**	**2,798**
FY 2021 investments	17,364	14,226	3,372	34,962	−5,972	28,990
Assets 31/12/2021	133,584	38,741	16,280	188,605	−43,440	145,165
Non-current assets 31/12/2021	68,700	23,967	4,037	96,704	−9,782	86,922
Liabilities 31/12/2021	73,751	26,613	17,370	117,734	−24,216	93,518
FY 2021 employees [1]	528	58	39	625	–	625

[1] The number of employees includes Management Board members, Managing Directors, trainees and interns (2021: 34; previous year: 30)
[2] Non-current assets relate exclusively to property, plant and equipment and intangible assets.

Segment reporting FY 2020

	va-Q-tec AG	va-Q-tec Ltd. (UK)	Other	Operating divisions, total	Consolidation	Group
kEUR	IFRS	IFRS	IFRS			
External revenue	34,847	28,776	8,483	72,106	–	72,106
Internal revenue	14,516	1,262	1,285	17,063	–17,063	–
Total sales revenue	**49,363**	**30,038**	**9,768**	**89,169**	**–17,063**	**72,106**
At a point in time	46,719	–	7,228	53,947	–14,497	39,450
Over time	2,644	30,038	2,540	35,222	–2,566	32,656
Total income	56,698	30,918	9,831	97,447	–13,315	84,132
Cost of materials and services	–22,879	–12,386	–6,067	–41,332	8,581	–32,751
Personnel expenses	–21,797	–3,100	–2,125	–27,022	911	–26,111
Other operating expenses	–10,304	–4,084	–1,928	–16,316	2,445	–13,871
EBITDA	**1,718**	**11,348**	**–289**	**12,777**	**–1,378**	**11,399**
Depreciation, amortisation and impairment losses	–4,889	–8,131	–618	–13,638	1,339	–12,299
EBIT	**–3,171**	**3,217**	**–907**	**–861**	**–39**	**–900**
Result from fair value valuation of investments	–	–	–	–	647	647
Financial income	271	–	–	271	–259	12
Financial expenses	–916	–562	–52	–1,530	259	–1,271
EBT	**–3,816**	**2,655**	**–959**	**–2,120**	**608**	**–1,512**
FY 2020 investments	8,849	8,282	963	18,094	–3,812	14,282
Assets 31/12/2020	115,812	27,936	6,776	150,524	–31,456	119,068
Non-current assets 31/12/2020	58,684	18,660	1,529	78,873	–6,282	72,591
Liabilities 31/12/2020	62,989	20,598	7,984	91,571	–13,758	77,813
FY 2020 employees [1]	440	49	30	519	–	519

[1] The number of employees includes Management Board members, Managing Directors, trainees and interns (2020: 30)

[2] Non-current assets relate exclusively to property, plant and equipment and intangible assets.

As in the previous year, in the 2021 financial year va-Q-tec AG did not have any customers accounting for more than 10 % of total consolidated revenue.

The revenues are distributed geographically as follows:

Revenues – regions

kEUR	2021	2020
Germany	23,768	20,923
Rest of European Union	24,892	20,699
Other	55,403	30,484
Group, total	**104,063**	**72,106**

The allocation of revenues with external customers to a geographic region is based on the customer's location. The geographic allocation of non-current assets is based on the domicile of the asset's owner, and is shown in the segment reporting according to legal entities presented above.

The allocation of revenues to Products, Systems and Services is as follows: revenues of kEUR 22,032 (previous year: kEUR 18,303) were generated with Products (vacuum insulation panels and individually sold heating storage components) in the financial year under review. The Group generated kEUR 36,379 of revenues with Systems (thermal packaging and related components) in the reporting year (previous year: kEUR 19,520). Revenues of kEUR 44,090 were generated from Services in the financial year under review (previous year: kEUR 32,657). Other revenues amounted to kEUR 1,562 in the financial year (previous year: kEUR 1,626).

8.2 CONTINGENCIES AND OTHER FINANCIAL OBLIGATIONS

Other financial obligations exist that mainly arise from purchase commitments and marketing costs.

The due dates of the other financial obligations are as follows:

Other financial obligations (contingent liabilities)

kEUR	31/12/2021	31/12/2020
Group, total	**13,506**	**10,246**
due within one year	12,208	7,627
due between one and five years	1,298	2,619
due after five years	–	–

Moreover, a bill guarantee line in an amount of kEUR 24 (previous year: kEUR 24) exists with Commerzbank AG, under which va-Q-tec AG is liable for lending to third parties.

va-Q-tec is regularly involved in patent disputes both as plaintiff and defendant. Since the last financial year, a patent dispute has been pending in Germany concerning the alleged infringement of a patent by va-Q-tec AG. In February 2022, the action was granted at first instance. va-Q-tec AG immediately filed an appeal against the first-instance ruling. Previously, va-Q-tec AG had already filed a nullity suit against the patent in question, which expires at the beginning of 2023.

Given both the already pending appeal against the court's first-instance decision and the nullity action against the patent, va-Q-tec AG is of the opinion that the allegedly patent-infringing technology does not infringe any valid patent claims. For this reason, va-Q-tec AG has not formed a provision in its financial statements in relation to this matter and ascribed no value level to the risk, but will review and, if necessary, adjust its assessment at regular intervals and depending on further developments in the legal proceedings.

The stock option program for va-Q-tec staff introduced in December 2017, which includes the rendering of part of the price paid for demonstrably purchased va-Q-tec shares, led to outgoing payments of kEUR 16 in 2021 (previous year: kEUR 2). The program was extended until 31 December 2022, which also leads to a minor scope of contingent liabilities in 2022. The "va-Q-share" share purchase program of va-Q-tec AG forms part of the additional benefits for company employees aimed at the company's sustained a positive development and growth with individual contractual target agreements. The va-Q-share Plus program creates a long-term incentive for participants to commit themselves to the company's performance and success. For this purpose, program participants are granted a monetary subsidy for them to independently purchase the company's shares in the market. The program has no material effects or payment obligations.

8.3 SHARE-BASED PAYMENT

va-Q-tec currently has no arrangements for equity-settled share-based payment transactions with employees.

8.4 RELATED PARTIES

IAS 24 requires the disclosure of the existence of related companies, and transactions with, and outstanding balances in relation to, related companies, if they are not already included as consolidated companies in the consolidated financial statements, as well as related individuals. va-Q-tec AG is the Group's ultimate parent entity.

As a matter of principle, key management personnel and their close relatives are regarded as related individuals at the va-Q-tec Group. Key management personnel comprised the members of the Management and Supervisory Boards of va-Q-tec AG, as well as the managing directors of the foreign subsidiaries in Korea and the UK.

Related companies within the va-Q-tec Group are regarded as those companies or groups of shareholders over which va-Q-tec AG, the Management and Supervisory Board members and their close family relatives, can at least exercise significant influence, or which, for their part, can exert significant influence over va-Q-tec.

Key management personnel of the va-Q-tec Group

Managment Board	
Dr. Joachim Kuhn	since 1 April 2001
Stefan Döhmen	since 1 July 2017

Supervisory Board	
Dr. Gerald Hommel Chair	since 27 June 2014
Dr. Barbara Ooms-Gnauck Deputy Chair	since 27 June 2014
Winfried Klar	since 20 March 2013
Uwe Krämer	since 1 October 2015
Dr. Eberhard Kroth	since 20 March 2013
Dr. Burkhard Wichert	since 21 May 2021

Managing Director of the subsidiaries in the UK, Korea and Japan	
Insook Yoo – va-Q-tec Ltd. (Korea)	since 7 July 2011
Insook Yoo – va-Q-tec G.K. (Japan)	since 5 April 2017
Sven Larsen – va-Q-tec Ltd. (UK)	since 1 January 2017
Roland Rappl – va-Q-tec Ltd. (UK)	from 1 March 2018 to 31 December 2021

Shareholders with significant influence over va-Q-tec AG

Share pool of the families of Dr. Joachim Kuhn and Dr. Roland Caps	Interest in the share capital: 25.0 %

Total compensation of key management members of the va-Q-tec Group

kEUR	**2021**	**2020**
short-term benefits	1,616	1,574
Post-employment benefits	25	25
Total renumeration of key management personnel of the va-Q-tec Group	**1,641**	**1,599**

Management Board compensation

kEUR	**2021**	**2020**
short-term benefits	652	720
Post-employment benefits	17	16
Total renumeration of the management board	**669**	**736**

Compensation totalling kEUR 669 was paid to the Management Board in 2021 (previous year: kEUR 736). This compensation consisted of basic compensation of kEUR 523 (previous year: kEUR 470), performance-based one-year compensation of kEUR 130 (previous year: kEUR 41), multi-year variable compensation of kEUR 0 (previous year: kEUR 209) and contributions to the company's pension scheme. Defined contribution pension commitments have existed for the Management Board members since 2014. To this end, kEUR 17 (previous year: kEUR 16) was paid into an external reinsured pension fund in the year under review. For further information concerning Management Board compensation, please refer to the Compensation Report in the Corporate Governance section on the Investor Relations website.

As in the previous year, no advances or loans were extended to Management Board members in the year under review.

In July 2021, the Management Board member and va-Q-tec AG were informed that no further claims would be asserted by Thüringer Aufbaubank under the personal guarantee of kEUR 200 thousand issued by the Management Board member to the bank in 2011, without consideration rendered by va-Q-tec AG, following an unobjectionable audit of the subsidized project and expiration of the earmarking and monitoring periods.

Compensation of kEUR 220 was granted to the Supervisory Board members for the 2021 financial year (previous year: kEUR 161). In both the previous year and in the year under review, compensation included only a short-term component, and consists of compensation for normal Supervisory Board activity and expenses. In addition, consultancy services in an amount of kEUR 35 (previous year: kEUR 44) were compensated, commissioned and rendered especially as part of the Power20+ program and in connection with the financing of va-Q-tec AG.

As of 31 December 2021, this Supervisory Board compensation generates kEUR 156 of payment obligations for the company (as of 31 December 2020: kEUR 108).

As in the previous year, no advances or loans were extended to Supervisory Board members in the year under review.

Interests held by the Management and Supervisory boards

As of the end of the 2021 financial year, the members of the Management Board, founders and members of the Supervisory Board held the following direct interests in the share capital of va-Q-tec AG:

Shareholder	Number of shares 2021	Number of shares 2020
CEO and founding families	3,355,433	3,496,044
CFO and Supervisory Board	58,281	58,281

Other transactions with related parties

Only an extremely small number of transactions were conducted with related parties in the 2021 financial year. Revenue generated with SUMTEQ GmbH amounted to kEUR 1. Goods to the value of kEUR 2 were purchased from ING3D.

8.5 EVENTS AFTER THE REPORTING DATE

No reportable events of material significance to the Group's financial position and performance occurred after 31 December 2021. However, the consequences of Russia's war against Ukraine, which began on 24 February 2022, are still difficult to assess. The direct consequences for va-Q-tec AG tend to be classified as minor, as there no significant customer or supplier relationships exist with either Russia or Ukraine. Indirectly, however, the uncertainty caused by the war in Europe, the sanction measures against Russia and Russia's countermeasures, the open questions regarding the supply of Germany with gas and other energy, and the supply chain risks due to interruptions in product and material deliveries from the two countries affected by the war, as well as further indirect consequences, may have at least a temporary negative impact on va-Q-tec's financial position and performance.

8.6 AUDITOR'S FEES

The fee for the services of the auditor Rödl & Partner GmbH Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft, Nuremberg, of kEUR 189 (previous year: kEUR 218) comprises the following amounts:

kEUR	2021	2020
Financial statements audit (thereof aperiodic: kEUR 7, previous year: kEUR 29)	134	148
Other certification services	32	39
Tax advisory services (thereof aperiodic: kEUR 0, previous year: kEUR 2)	23	19
Other services	0	12
Group, total	**189**	**218**

Other certification services include the audit of the compensation report (pursuant to Section 162 AktG, and otherwise certification services provided to grantors or project-financing banks with regard to compliance with earmarking requirements. The tax consulting services include the annual tax declaration for the 2020 financial year as well as the support of a tax audit and sales tax issues.

8.7 STATEMENT OF CONFORMITY TO THE GERMAN CORPORATE GOVERNANCE CODE

The Management and Supervisory boards of va-Q-tec AG issued the declaration of conformity with the German Corporate Governance Code pursuant to Section 161 AktG. The declaration is permanently available on the website *www.va-q-tec.com* in the Investor Relations section under:

https://ir.va-q-tec.com/websites/vaqtec/English/530/corporate-governance-declaration.html

Würzburg, 23 March 2022

va-Q-tec AG

The Management Board

Dr. Joachim Kuhn Vorsitzender des Vorstands	Stefan Döhmen Finanzvorstand

RESPONSIBILITY STATEMENT

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated nancial statements give a true and fair view of the assets, liabilities, nancial position and prot or loss of the Group, and the Group management report includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.

Würzburg, 23 March 2022

Dr. Joachim Kuhn
Management Board
Chairman, CEO

Stefan Döhmen
Management Board
Chairman, CFO

INDEPENDENT AUDITOR'S REPORT

To va-Q-tec AG, Würzburg

REPORT ON THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS AND COMBINED MANAGEMENT RPEORT

Audit opinions

We have audited the consolidated financial statements of va-Q-tec AG and its subsidiaries (the Group), which comprise the consolidated statement of financial position as of 31 December 2021, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the financial year from 1 January to 31 December 2021, as well as the notes to the consolidated financial statements, including a summary of significant accounting policies. We have also audited the combined management report of the va-Q-tec Group and of va-Q-tec AG, Würzburg, (hereinafter referred to in brief as the "combined management report") for the financial year from 1 January to 31 December 2021. In accordance with German legal requirements, we have not audited the content of the section "Corporate governance statement" in the combined management report.

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

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Section 315e (1) of the German Commercial Code (HGB) and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as of 31 December 2021, and of its financial performance for the financial year from 1 January to 31 December 2021, and
- the accompanying combined management report as a whole conveys a true and fair view of the Group's position. In all material aspects, the combined management report is consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks entailed in future development. Our audit opinion on the combined management report does not cover the contents of the aforementioned parts of the combined management report not included within the scope of our audit.

Pursuant to Section 322 (3) Clause 1 HGB, we declare that our audit has not led to any reservations concerning the legal compliance of the consolidated financial statements and the combined management report.

Basis for the audit opinions

We conducted our audit of the consolidated financial statements and of the combined management report in accordance with Section 317 HGB and the EU Audit Regulation (No. 537/2014, referred to hereinafter as the "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits as promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the combined management report" section of our auditor's report. We are independent of the Group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements and on the combined management report.

Key audit matters in the audit of the consolidated financial statements

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements for the financial year from 1 January to 31 December 2021. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our audit opinion thereon we do not provide a separate audit opinion on these matters.

In our view, the matter presented below was the most significant as part of our audit.

Periodic revenue recognition from contracts with customers

- Reasons for designation as a particularly important audit subject

In the financial year under review, the va-Q-tec Group realized revenues of kEUR 104,063 (previous year: kEUR 72,106). This corresponds to a 44 % increase at Group level, to which the Systems segment (sale of thermal transportation containers) made a disproportionately high contribution with an 86 % increase to kEUR 36,379 (previous year: kEUR 19,520). The revenues of the va-Q-tec Group are heterogeneous and comprise the sale of thermal transport containers (systems), vacuum insulation panels and thermal energy storage components (products) as well as the short-term rental from a large number of network stations distributed worldwide of transport containers preset to order-specific temperatures (services). This is complemented by consulting and other services, which also form part of the sales and rental business. Given the volume growth as well as the heterogeneity and complexity of the business transactions, appropriately designed processes and controls that are implemented within them are necessary for the recognition of revenue on an accrual basis, and require special consideration in the audit.

In our view, the recognition of revenue on an accrual basis was of particular importance in the context of our audit.

- Our approach in the audit

We have analyzed the processes implemented for the sales and rental business throughout the Group. In doing so, we identified Group-wide control mechanisms for the accrual-based recognition of revenue in the sales process, assessed their appropriateness on a risk-oriented basis, and performed functional tests. Furthermore, we conducted analytical audit procedures and examined a selection of sales revenue transactions both during the year and shortly before and after the balance sheet date in order to determine whether they had been properly recognized. In order to evidence the existence of trade receivables and thereby the recognition of sales revenues, we obtained balance confirmations for a selection of customers, or assessed corresponding incoming payments or further documents. The determination of our selection was risk-oriented and based on qualitative and quantitative characteristics. Furthermore, we verified compliance with the reporting requirements of IFRS 15 in the notes to the consolidated financial statements.

- Reference to related information

For details, please refer to the section “Summary of significant accounting policies” in the notes to the consolidated financial statements. Information on sales revenues and receivables is provided in the sections “Revenues” and “Trade receivables” in the notes to the consolidated financial statements.

Other information

The Management and Supervisory boards are responsible for the other information. The other information comprises:

- the statement on corporate governance in accordance with Section 289f HGB in conjunction with Section 315d HGB, to which reference is made in the "Corporate governance statement" section in the combined management report,
- the Supervisory Board's report,
- the confirmation pursuant to Section 297 (2) Clause 4 HGB regarding the consolidated financial statements and the confirmation pursuant to Section 315 (1) Clause 5 HGB regarding the combined management report,
- the remaining parts of the annual report, with the exception of the audited consolidated financial statements and combined management report, which has been audited in relation to its contents, and our 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 statement pursuant to Section 161 of the German Stock Corporation Act (AktG) on the German Corporate Governance Code (DCGK), to which reference is made in the combined management report as part of the corporate governance statement. In all other respects, the legal representatives are responsible for the other information.

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

In connection with our audit of the consolidated financial statements, our responsibility is to read the aforementioned other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with disclosures in the combined management report whose content has been audited, or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that a material misstatement of this other information exists, we are required to report such a fact. We have nothing to report in this context.

Management and Supervisory boards' responsibility for the consolidated financial statements and the combined management report

The Management Board members are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB and for ensuring that the consolidated financial statements, in compliance with such requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the Management Board members are responsible for such internal controls as they have deemed necessary in order 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, the Management Board members are responsible for assessing the Group's ability to continue as a going concern. They also bear the responsibility for disclosing, as applicable, matters related to the Company as a going concern. In addition, they are responsible for preparing the accounts on a going concern basis unless an intention exists to liquidate the Group, or to cease operations, or no realistic alternative exists.

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

Auditor's responsibility for the audit of the consolidated financial statements and the combined management report

Our objectives are to obtain reasonable assurance concerning 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 an appropriate view of the Group's position and is consistent in all material respects with the consolidated financial statements and the knowledge obtained in the audit, complies with German legal requirements, and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the consolidated financial statements and on the combined management report.

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

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

- Identify and assess the risks of material misstatement in the consolidated financial statements and the combined management report, whether due to fraud or error, we design and perform audit procedures responsive to those risks, and we obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements, and of arrangements and measures (systems) relevant to the audit of the combined management report, in order to design audit procedures that are appropriate in the circumstances, albeit not for the purpose of expressing an audit opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies applied by the Management Board members and the reasonableness of estimates made by the Management Board members as well as related disclosures.

- Conclude on the appropriateness of the Management Board members' application of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists relating to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the combined management report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in such a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Section 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group in order to be able to express audit opinions on the consolidated financial statements and on the combined management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the combined management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the Management Board members in the combined management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions applied by the Management Board members as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. A substantial unavoidable risk exists that future events will differ materially from the prospective information.

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

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them concerning all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and therefore comprise the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

OTHER LEGAL AND REGULATORY REQUIREMENTS

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

Audit opinion

In accordance with Section 317 (3a) HGB, we have performed a reasonable assurance engagement in order 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 provided "vaQtec_KA_ESEF_2021.zip" (SHA256-Hashwert: cf6d9b2cfa817a6f3e0abaad6cc41b590dc66a14050 6fd2cedf2e605b6c49e29) and prepared for disclosure purposes comply in all material respects with the electronic reporting format ("ESEF format") requirements of Section 328 (1) HGB. 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 consequently neither to the information contained in these reproductions nor to 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 aforementioned file provided, and prepared for the purpose of disclosure, comply in all material respects with the requirements of Section 328 (1) HGB regarding the electronic reporting format. Other than this opinion and our opinions on the accompanying consolidated financial statements and on the accompanying combined management report for the financial year from 1 January 2021 to 31 December 2021, included in the "Report on the audit of the consolidated financial statements and combined management report" above, we do not express any opinion on the information included in these reproductions or on any other information included in the aforementioned file.

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 aforementioned file provided in accordance with Section 317 (3a) HGB, taking into account the Auditing Standard of the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW): Audit of electronic reproductions of financial statements and management reports prepared for disclosure purposes in accordance with Section 317 (3a) HGB (IDW 410 [10.2021]). Our corresponding responsibility is further described in the section "Auditor's responsibility for the audit of the ESEF documents". Our auditing practice meets the requirements of the quality assurance system of the IDW quality assurance standard: Requirements for quality assurance in auditing practice (IDW QS 1) were applied.

Management and Supervisory boards' responsibility for the ESEF documents

The Company's legal representatives 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) Clause 4 No. 1 HGB, and for the tagging of the consolidated financial statements in accordance with Section 328 (1) Clause 4 No. 2 HGB.

Furthermore, the Company's legal representatives are responsible for such internal controls as they deem necessary in order to enable the preparation of 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 preparation of 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 concerning whether the ESEF documents are free from material non-compliance, whether due to fraud or error, with the requirements of Section 328 (1) HGB. We exercise professional judgement and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material violations of the requirements of Section 328 (1) HGB, whether due to fraud or error, we design and perform audit procedures responsive to those risks, and we obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinion.
- Obtain an understanding of internal controls relevant to the audit of the ESEF documents in order to design audit procedures that are appropriate in the circumstances, albeit not for the purpose of expressing an opinion on the effectiveness of those controls.
- Assess the technical validity of the ESEF documentation, i.e. whether the file provided containing the ESEF documentation complies with the requirements of Delegated Regulation (EU) 2019/815, as amended at the reporting date, relating to the technical specification for that file.
- Assess whether the ESEF documentation provides a consistent XHTML representation of the audited consolidated financial statements and the audited combined management report.
- Assess whether the tagging of the ESEF documents with inline XBRL technology (iXBRL) in accordance with Articles 4 and 6 of Delegated Regulation (EU) 2019/815, as applicable on the reporting date, provides an adequate and complete machine-readable XBRL copy of the XHTML rendering.

Further information pursuant to Article 10 of the EU Audit Regulation

We were elected as Group auditor by the Annual General Meeting on 21 May 2021. We were engaged by the Supervisory Board on 15 December 2021. We have served as auditors of the consolidated financial statements of va-Q-tec AG, Würzburg, Germany, without interruption since the 2014 financial year, during six of which financial years the Company continuously met the definition of a public interest entity as defined in Section 316a Sentence 1 of the German Commercial Code (HGB).

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form 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 as well as the audited ESEF documents. The consolidated financial statements and the combined management report converted to the ESEF format – including the versions to be published in the German Federal Gazette (Bundesanzeiger) – are merely electronic reproductions of the audited consolidated financial statements and of the audited combined management report, and do not replace them. In particular, the ESEF note and our audit opinion contained therein can only be used in conjunction with the audited ESEF documentation provided in electronic form.

GERMAN PUBLIC AUDITOR RESPONSIBLE FOR THE ENGAGEMENT

The German Public Auditor responsible for the engagement is Thomas Rattler.

Nuremberg, 28 March 2022

Rödl & Partner GmbH
Wirtschaftsprüfungsgesellschaft
Steuerberatungsgesellschaft

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German Public Auditor	German Public Auditor

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FINANCIAL CALENDAR

10/05/2022	Publication quarterly financial report (call-date Q1)
02/06/2022	Annual General Meeting
11/08/2022	Publication half-yearly financial report
10/11/2022	Publication quarterly financial report (call-date Q3)

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