

# A sustainable strategy for competitive success

The Digital Revolution is fundamentally transforming the lives of people everywhere. It brings people together to share information and drive innovation. It spurs economic growth and allows more efficient use of resources. It opens new ways to organize learning and working. It is revolutionizing health care and allows us to address global challenges, like climate change, in ways that would have been unthinkable just a few years ago. Ultimately, it can help improve the quality of life for everyone.

And VAT plays a key role in this transformation. This new digital world is being built on ever-more and increasingly complex and powerful semiconductors. Manufacturing these advanced devices can only be done in the purest vacuum environment. VAT's leading-edge vacuum valve technology makes that happen.

## **Technology and innovation drive success**

The semiconductor is digitalization's technological powerhouse. By "printing" microscopic transistors, or integrated circuits (ICs) onto a silicon wafer, semiconductors can store and process vast amounts of information. The more ICs that can be printed onto a wafer or chip, the faster the chip performs. Today's semiconductors routinely contain ICs in node sizes of 10 nanometers, smaller than the average virus. Nodes of five nanometers are becoming more common and the industry is already talking about nodes of three nanometers and smaller, even down to the size of atoms. That means that a chip the size of a fingernail contains billions of transistors. In fact, a modern smartphone has about 100,000 times more processing power than the computers used to navigate the Apollo space missions to the moon.

Manufacturing at this scale presents a multitude of technological challenges, and there are typically hundreds of steps in their fabrication, such as deposition, etching, lithography and packaging. The entire process can take up to four months. One of the biggest difficulties is to eliminate contaminants from the process chamber during each step. Even the tiniest particle landing on a chip during fabrication can significantly reduce the chip's performance or cause it to fail. As the world becomes more dependent on semiconductors in almost every activity, manufacturing purity and precision become paramount.

VAT provides that kind of precision with specially designed and manufactured valves that ensure an extremely pure vacuum chamber in which semiconductors are made. VAT valves provide a tight seal between process chambers, isolating chambers from one another and the external environment, as well as controlling the volume and pressures of gases moving in and out of the chambers. They ensure that the vacuum remains as particle-free as possible as wafers are moved from one chamber to the next.

**VAT serves a long-term growth market**

The semiconductor industry is VAT's largest end market, accounting for close to 75% of net sales in 2022. The overall value of semiconductor sales is expected to reach USD 1-1.3 trillion by 2030, up from about USD 630 billion in 2022. This represents an annual growth rate (CAGR) of about 9% over the period 2020 to 2030, almost double the pace of growth during the previous 10 years.

VAT typically sells its valves to OEMs (original equipment manufacturers) who build the valves into a wide variety of tools used in chip fabrication, generally referred to as wafer fabrication equipment (WFE). OEMs then sell these to the ultimate end user, the chip fabricators. In addition, VAT sells a wide variety of service products, ranging from spare parts to customized retrofits that allow customers to adjust production to new demands without having to invest in new equipment.

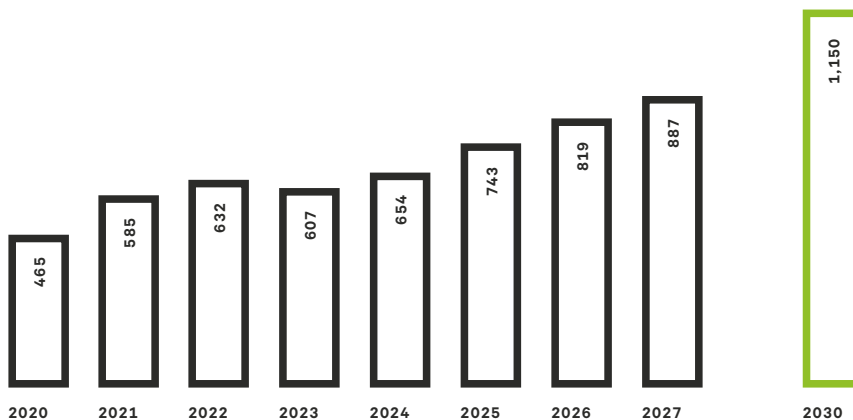
WFE is therefore a useful measure of demand through the business cycle. In 2022, global WFE spending grew by about 9% versus 2021, reaching a new record of around USD 95 billion\*. It was the third year in a row of unprecedented growth, and the long-term demand picture remains positive. WFE spending is expected to reach some USD 135 billion by 2027, with the largest growth in vacuum-based equipment.

VAT valves are used in other vacuum-based manufacturing applications, such as the production of solar photovoltaic cells and high-resolution LED (light-emitting diode) and OLED (organic light-emitting diode) displays used in smart phones and televisions. Other industries are also turning to high-vacuum manufacturing processes where extreme precision is required, such as industrial coatings, medical equipment and 3D printing. VAT valves are also used in scientific applications, such as particle accelerators and electron microscopes, and in nuclear fusion, such as the ITER magnetic fusion reactor being developed in southern France.

\* VLSITechInsights Inc., Nov. 2022

**Serving a fast-growing market**

Actual and projected value of semiconductor sales in USD billions



### **VAT best positioned to benefit from technology trends**

VAT benefits from these trends in several ways, largely due to its historically strong and growing market share in the semiconductor industry.

One growth driver for VAT is simply the ever-increasing demand for more devices needing more semiconductors: smart devices in industry, greater interconnectivity in consumer electronics, expanded cloud computing and data storage related to the growth in artificial intelligence (AI). Sales of semiconductors to the automotive segment, for example, are expected to more than double from 2022 to 2030, driven by applications such as autonomous driving and e-mobility\*. Wireless communication and the build-out of 5G networks is expected to be another major growth driver, especially as smartphones and wireless communications become more prevalent in emerging markets.

More importantly, technology advances in chip design, such as continued miniaturization of ICs to 3 nanometers and below—so-called leading-edge semiconductors—and the increasing number of layers used in chip architecture to boost performance, require more process steps under vacuum as well as purer vacuum chambers. Vacuum valve performance becomes even more critical to meet these new demands. This leading-edge market segment is expected to grow by more than 10% a year (CAGR) over the period 2022 to 2027\*, significantly faster than the overall semiconductor market.

VAT's long track record of growth also gives it by far the largest installed base of vacuum valves in the market, more than 1.5 million in 2022. This provides VAT with a significant long-term service opportunity, especially as chip manufacturers augment capital expenditures into new capacity with investments to prolong the lifetime and improve the performance of their existing vacuum valve assets.

### **How VAT adapts to industry cyclicality**

The semiconductor market remains cyclical, with demand varying in response to changes in GDP, inflation, consumer spending and other factors. However, those variations are becoming less over time. This is partly due to the integration of semiconductors into a broader range of products today—such as personal digital devices, vehicles, 5G telecommunications networks and cloud computing—compared with the traditional market driven by GDP-related demand for consumer products such as cell phones and personal computers.

In addition, the industry—both OEMs and chip fabricators—has consolidated into a smaller number of large players who have the financial strength to fund research and development and to achieve the economies of scale needed for long-term profitability. This has created a market in which barriers to entry are high and most players have more stringent requirements for returns on capital expenditures. This has resulted in a more stable and predictable environment for capital investment in wafer fabrication equipment.

VAT's operating model allows the company to successfully navigate industry cyclicality over the long term. Its global footprint and best-cost supply chain gives it the flexibility to scale production up or down quickly to match changing market conditions. Deep customer relationships based on a track record of successful collaboration also give the company an edge in staying ahead of the curve. As a result, VAT can continue to deliver against its strategic targets over the entire business cycle.

\* Gartner Q3 2022 forecast

## VAT's installed base of valves 2022 in million

# > 1.5

2020: 1.2

### Set up to get the most from its competitive advantages

VAT has organized its business to best meet the needs of its customers and to gain the greatest benefit from its significant competitive advantages.

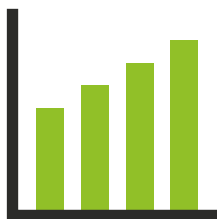
The company has two segments. The Valves segment is focused on VAT's core vacuum valves technology and in 2022 consisted of three business units aligned with its biggest markets: Semiconductors, Display & Solar, and Advanced Industrials. As of Jan. 1, 2023, the Display & Solar business unit was dissolved, with

the display business integrated into the Semiconductor business and the Solar business moved to the Advanced Industrial business unit. The moves are aimed at taking advantage of synergies and scale economies related to technology, business drivers and customer needs.

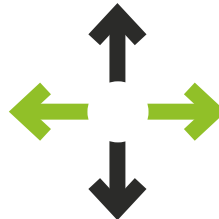
The second segment, Global Service, supplies a growing range of service products and solutions to help customers improve their competitiveness through increased productivity and uptime.

## Four strategic priorities

### Gain market share in all our core businesses and markets



### Expand Share of Wallet with adjacencies



VAT is headquartered in Haag, Switzerland. This is the company's primary production facility and the site of most of its research and development activities, including a new CHF 40-million Innovation Center that is expected to be inaugurated in the second half of 2024. VAT also operates the industry's only particle measurement lab in San José, CA, in the US. VAT expanded its manufacturing and engineering footprint to Penang, Malaysia in 2012 to support its growing customer base in Asia. In 2022, the plant accounted for sales of over CHF 270 million, 60% higher than in 2021. A further CHF 70-million expansion of capacity is under way in Malaysia and the company expects production capacity across its entire product range of more than CHF 1 billion at the facility when completed in 2024.

This global footprint has significantly enhanced VAT's already formidable ability to collaborate closely with customers and develop precisely the solutions they need, to deliver them faster, and provide quicker service. It has also increased operational flexibility, allowing VAT to quickly shift production and supply as markets circumstances change, as well as to optimize productivity and cost over the business cycle. A diversified talent pool has the additional advantages of fostering innovation, broadening the base of expertise and experience, and providing people with opportunities to develop both personally and professionally, making VAT a more attractive employer.

**Fostering innovation**

VAT's position as technology leader in high-end vacuum valves is due in large part to its strong track record of R&D investment, typically about 5–6% of sales every year. The company's team of close to 300 scientists and research engineers have created a portfolio of some 500 patents, a considerable competitive advantage.

The company assesses the return on this investment partly through the number of specification wins, agreements with customers on new product designs to address specific customer requirements for up-coming generations of new equipment. Spec wins translate into revenues as the customer rolls out new tools and equipment over the subsequent three to seven years, giving the company a clearer view of future sales and market position. VAT achieved close to 100 spec wins in 2022, another strong year, especially in leading-edge technologies.

Close collaboration with customers provides an additional advantage. The considerable costs of qualifying a product with a customer—such as developing the specifications, providing quality assurance and testing, and securing the long-term supply chain—gives a world-leading supplier such as VAT an edge with customers investing in long-term product development.

**VAT2B:  
Build strong capabilities and further improve operational excellence**

**Execute VAT's ESG strategy that creates value for all stakeholders**

Based on this combination of technology leadership, deep customer relationships, global production and service footprint and highly-qualified and engaged people, VAT has been able to steadily outgrow the overall market on a regular basis.

### **Profitable growth to 2027**

In December 2022, VAT updated the profitable growth strategy it first presented to investors and other stakeholders in 2020, and revised its financial targets based on the development of the business and markets over the last two years.

The first element in the strategy remains the same: to gain market share in its core valves business. The company aims to grow its share in the high-end semiconductor market from approximately 75% today to 85% by 2027 by building on its leading-edge valve technology used to fabricate the most advanced chips, the fastest-growing market segment. VAT also intends to increase its market share in service by tapping more opportunities from its fast-growing installed base of valves, coupled with a tighter focus on its biggest customers. Finally, the company will continue to build its offering for Advanced Industrials customers in all regions as the demand for vacuum valves expands into more and more industrial sectors.

The second pillar is to increase customer value by providing complementary technologies in areas that are closely adjacent to the core valves business. These include motion components, such as lifters used to move materials along the wafer pathway, advanced valve modules comprising multiple valves with other components, and new pressure measurement and control technologies. Adjacencies are expected to generate more than CHF 300 million in sales by 2027.

Thirdly, it's vital that VAT has the operational capabilities to meet the coming challenges of a dynamic, demanding and high-growth market. To this end, the company has launched the VAT2B program, whose overall ambition is to achieve flawless execution against the company's strategic priorities. This means, for example, making sure the company can adjust capacity by up to 30% year-on-year, either higher or lower, over the cycle while remaining on course to achieve its financial targets. VAT intends to build its own digital capabilities to not only improve internal business processes but also to make it easier for customers to interact seamlessly with the company. And VAT is committed to providing its

people with a rewarding work environment that fosters engagement and personal growth.

Finally, and as an addition to the original strategic plan from 2020, VAT aims to strengthen its environment, social and governance (ESG) capabilities. VAT issued its first-ever Sustainability Review in 2022, re-committing to building a sustainability culture and presenting a first set of metrics, such as CO<sub>2</sub> emissions, recycling, employee engagement and ESG governance on the Board of Directors. For 2023, VAT expects to show improvements in target setting, participation in sustainability ratings and employee diversity, among other measures.

### **Updated mid-term targets**

In December 2020, VAT published a set of financial targets for the period 2020 to 2025. In March 2022, VAT updated these targets to reflect the actual development of its markets as well as new forecasts for market growth and adjustments to the strategy to tap new growth opportunities and improving operational performance.

At its Capital Markets Day in December 2022, VAT published an updated set of targets covering the period 2022 to 2027. It takes into account recent changes in the company's short-term market outlook, such as a potential decline in WFE investments in 2023 compared with the record of approximately USD 95 billion spent in 2022. This forecast adjustment is primarily the result of growing inflation uncertainties, recession risks, increasing geopolitical tensions and volatile energy costs over the past 12 months. However, WFE is expected to return to significant growth in 2024 and beyond.

On this basis, and including new estimates of revenues to be generated from service and adjacent technologies, VAT adjusted several of its targets. Net sales are now forecast to grow at a low double-digit pace in the period 2022 to 2027, compared with the high single-digit rate forecast previously. This would lead to 2027 net sales of between CHF 1.8 billion and CHF 2.2 billion, versus the sales target expected in March 2022 of CHF 1.5 billion by 2025.

The EBITDA margin is forecast to remain in the 32-37% range over the cycle, while Return on Invested Capital (ROIC) is now expected to be above 45% compared with above 40% for the prior target period.

The table below summarizes the new targets and compares them with the previously reported targets:

Financial targets	Dec. 2020	Mar. 2022	Dec. 2022
Net sales growth	High single-digits 2020–25	–	Low double-digits 2022–27
EBITDA margin corridor over the cycle	30–35%	32–37%	32–37%
Return on Invested Capital (ROIC)	>40%	–	>45%
Capital expenditure as % of sales	4–5%	–	4–5%
R&D investment as % of sales	5–6%	–	5–6%
Free cash flow conversion as % of EBITDA	60–65%	–	60–65%
Dividend payout as % of free cash flow to equity	Up to 100%	–	Up to 100%

### Staying ahead of the curve

VAT is the market and technology leader in an attractive market with a positive long-term growth outlook. The company has reached its No. 1 position by building competitive advantages over many years: deep relationships with customers, a dedication to innovation, a flexible and cost-efficient global footprint, and an engaged and highly-skilled workforce. These allow VAT to generate consistent long-term growth, profitability and cash flow across the business cycle.

At the same time, markets keep changing and VAT is determined to stay ahead of the curve. New technologies are constantly emerging. The global economy is subject to unforeseen developments. Competitors work hard to outperform and gain market share.

VAT believes it is in a strong position to meet these challenges. The company's consistently strong performance since it was listed on the SIX Swiss Exchange in 2016, through both upswings and downswings in the business environment, demonstrates its resilience and adaptability and the success of its strategy and business model. VAT is committed to creating even more value for all stakeholders in the years ahead and to playing an important role in the creation of a more prosperous and interconnected world.