Valves

VAT's Valves segment designs and delivers the industry's broadest range of high-precision vacuum valves. In 2023, the segment comprised two business units: Semiconductors, serving the semiconductor industry and high-end flat-panel displays; and Advanced Industrials, for customers in a variety of industries, scientific research and solar photovoltaic markets. The Valves segment operates manufacturing facilities in Switzerland, Malaysia and Romania, with sales, product development and engineering support in all major markets.

In 2023 demand in the semiconductor markets was muted overall after three consecutive years of unprecedented growth. Although the industry's long-term demand drivers, such as the Internet of Things, cloud computing, wireless communications and artificial intelligence, are still firmly in place, short-term market demand for semiconductors slowed down – mainly in the consumer sector – affecting capital investments into additional manufacturing capacity. In addition, inflationary trends and geopolitical uncertainties added to lower overall investment activity in additional semiconductor manufacturing equipment and capacity.

The business impact for VAT's semiconductor business was mainly driven by the fact that customers ordered fewer products and services as they reduced their own existing inventory in anticipation of the lower volumes. This is a normal development in VAT's business as the company is considered an early cycle participant. VAT benefits early from an expected growth in the wafer fab equipment (WFE) spend, as customers must build inventory ahead of their volumes going up. Equally VAT is exposed early on to a downturn as customers adjust their inventories, as they anticipate future lower demand. As a result, VAT's semiconductor business declined more in 2023 than the overall WFE development showed. This underperformance was further impacted by the fact that the WFE is measured in US dollars, while VAT reports its performance in what was a strengthening Swiss franc during the period.

The segment's other business unit, Advanced Industrials, had a mixed performance. As this business is more project-driven, orders and sales development depend largely on the timing of project awards. While the overall use of vacuum-based manufacturing continued to expand steadily into various industries, such as precision coatings and electron beam equipment used in medical applications, 3D printing and scientific research, VAT also witnessed an increase in power generation-related activities, such as fusion projects as well as renewed demand for uranium enrichment technologies. Demand in the solar photovoltaic sector was steady on the back of increasing demand for renewable energy and more efficient solar cell technologies.

New all-time high in specification wins in Semiconductors

The Semiconductor business unit is VAT's largest and accounts for approximately 60% of the Group's total sales. As a result of the slowdown in the semiconductor equipment business orders and sales decreased by 49% and 33% respectively, amounting to orders of CHF 389 million and sales of CHF 518 million. This development was driven by the combination of postponements of certain WFE investments, de-stocking of inventories at our customers' end and the negative impact from the Swiss franc's strength against all of VAT's trading currencies. The negative business development was most apparent during the first half of 2023, with a gradual stabilization and recovery in the second half which strengthened towards the end of the year, indicating that the low point of the correction has been passed.

Despite these challenges, the business unit took further strategic steps to position itself for future growth by continuing its investment in innovation and production capacity. As a result, and marking a significant milestone for the business, a record number of key specification wins in leading-edge tools was achieved. Partially through the securing of these new contracts this business unit is expected to show the fastest growth in the segment in the coming years.

The Semiconductors business unit recorded important wins with adjacent products in areas where VAT is already present. Notably, these were in deposition and etching, but also wins with new adjacent products were recorded in applications where we expect substantial growth in the next upturn, such as Atomic Layer Deposition (ALD). In addition to these success-

Key figures Valves

In CHF million	2023	2022	Change
Order intake	554.4	970.9	–42.9%
– Semiconductors	387.7	765.4	–49.4%
– Advanced Industrials	166.7	205.4	–18.8%
Net sales	712.4	932.7	–23.6%
– Semiconductors	518.0	770.5	–32.8%
– Advanced Industrials	194.4	162.2	19.9%
Inter-segment sales	70.30	89.20	–21.2%
Segment net sales	782.7	1021.9	–23.4%
Segment EBITDA	239.3	354.5	–32.5%
Segment EBITDA margin	30.6%	34.7%	
Segment net operating assets	798.6	840.4	–5.0%
of which net trade working capital	202.8	260.9	–22.3%

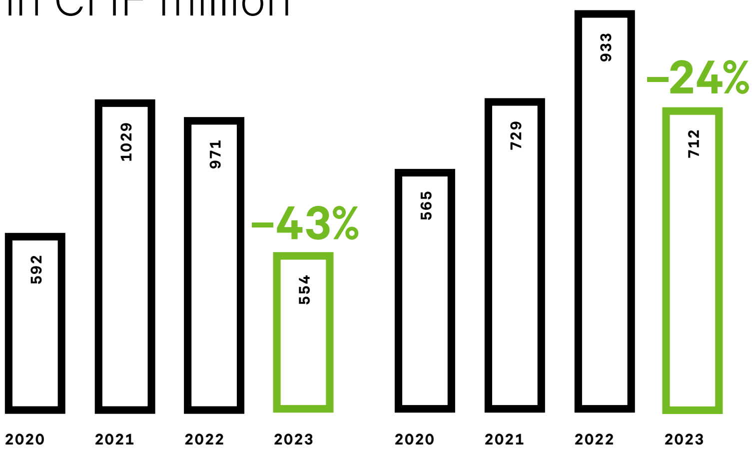
es in the semiconductor area, strategic wins in Displays were achieved in the field of evaporation (OLED IT) applications. Additionally, the business unit Semiconductors experienced fast growth in the Chinese markets.

To strengthen the business unit's readiness for the next upturn, VAT continued optimizing its supply chain for high-volume products while secondary source qualification and the strategic relocation of operations to the Malaysia facility were also undertaken. These initiatives not only position the business for increased efficiency and flexibility, but also positively impact its environmental footprint and cycle time.

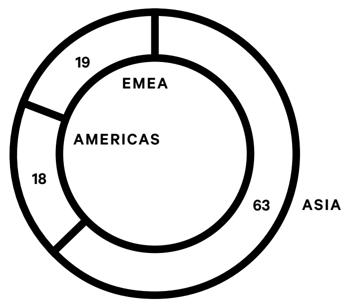
Advanced Industrials continues to grow 2023
The Advanced Industrials business unit serves a wide variety of customers with vacuum-based technologies in areas such as scientific instruments, crystal pulling for silicon production, thin-film coatings, and scientific research. In 2023, the business unit achieved all-time high net sales of CHF 194 million, a 20% increase over the previous year. This sales development was the result of larger project orders recorded in 2022 and the expansion of strategic markets. Order intake was negatively impactetd by lower activities in scientific instruments and some overstocking at solar customers in 2022. As a result, order intake in 2023 declined by 19% to CHF 167 million. Larger orders received towards the end of the year, however, indicate that the strategic positioning and execution is intact.

Demand was highest in Asia, with record 2023 sales fuelled by strong demand on research and working off the solar order backlog. In Europe, the business nearly matched their record order intake of the previous year through converting strategic research projects and satisfying high demand in the nuclear sector. The US market saw flat sales and negative order intake, particularly in the scientific instrument sector, which softened due to the semiconductor turndown, leading to a decrease in demand for metrology and inspection equipment.

Order intake & net sales
in CHF million



Net sales
by region %



Performance review 2023

Total orders in the Valves segment in 2023 amounted to CHF 554 million, down 43% from the previous year. Net sales reached CHF 712 million, a decrease of 24% compared with CHF 933 million in 2022. Geographically, the share of total segment sales was stable in Asia, mainly the result of strong China sales offsetting weakness in other countries in this area. Sales in the US – as a percentage of the segment's sales – decreased, while Europe increased, due to the strong sales growth in the Advanced Industrials business.

The segment reported EBITDA of CHF 239 million, down 33% from the year before, and a segment EBITDA margin of 30.6% versus 34.7% in 2022. The lower profitability was due to volume effects and adverse foreign exchange movements as the Swiss franc strengthened substantially against all major trading currencies. This more than offset the ongoing operational improvements, including increasing the share of component and raw material supplies from best-cost countries.

Market outlook 2024

The 2024 market outlook for the Valves segment presents a mildly positive picture. Capital spending in semiconductor manufacturing is expected to ramp-up during the year, with a faster paced increase in the later part of the year. This is due to the requirement for investments in areas such as High Bandwidth Memory (HBM) or leading-edge memory to support the expected proliferation of applications using artificial intelligence (AI), and the launch of Gate All Around (GAA) technology. The Display business is expected to further benefit from the OLED IT capacity expansions in Korea and China. In the business unit Advanced Industrials, the research sector is expected to soften due to the timing of certain high energy research projects. In scientific instruments the positive mid- and long-term trend is expected to continue as the sector is working off its backlog. The solar market is expected to be flat in 2024 after the strong growth in 2023. Overall, the Advanced industrials sector outlook remains attractive in 2024, driven by the energy transition and investments in nuclear applications, particularly with the expansion in fission (uranium enrichment) driven by the geopolitical developments in Europe.

Global Service

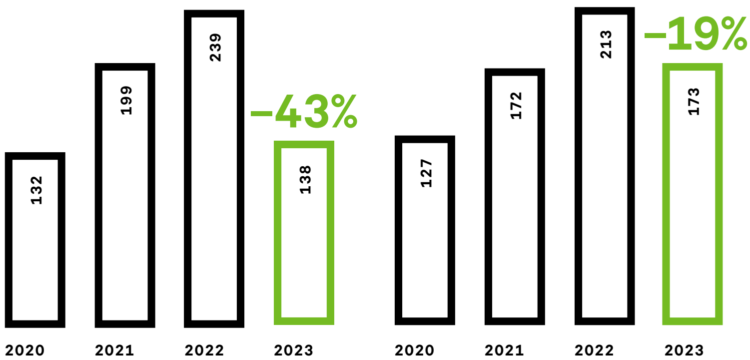
With the onset of the overall slowdown in the Semiconductor market, the Global Service segment saw significantly reduced order intake and sales in 2023, over the prior year. Utilization rates at both foundry and integrated device manufacturing (IDM) fab locations dropped significantly from the record levels seen in 2022, when industry-average utilization was close to 100%. These utilization rates in 2023 marked historic lows, in some sectors dipping below 70% for the first time in over two decades, before starting a timid recovery towards the end of the year. The steepest decline was seen in the memory sectors producing DRAM and NAND Flash devices. This decline in utilization rates, coupled with very high inventory levels built up at the end of 2022 – partly the result of the COVID-induced supply chain challenges in 2021 and 2022 – resulted in the significant drop for the service business in 2023 globally. The fall in the global market demand for services was consistent with VAT's Global Service sales being driven by three primary factors: VAT valve installed base, fab utilization, and fab inventory levels. In this case the larger than expected drop in utilization, coupled with the high customer inventory levels at the start of 2023, prevented service sales from keeping pace with the expanded valve installed base.

Despite these temporary market challenges, in 2023 the Global Service business unit continued to focus on new products for the after-market with the launch of several new valves designed specifically to be field replacement products of both VAT valves and competitor valves. A remote plasma source valve and a high stroke pendulum valve were brought to market and are being qualified at key customers. In addition, new repair offerings in Display and Solar applications were introduced and are expected to grow significantly in the next few years.

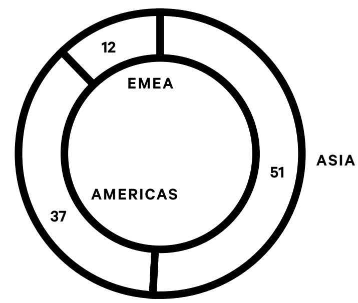
Key figures Global Service

In CHF million	2023	2022	Change
Order intake	137.5	239.0	–42.5%
Net sales	172.9	212.7	–18.7%
Inter-segment sales	–	–	–
Segment net sales	172.9	212.7	–18.7%
Segment EBITDA	69.1	96.6	–28.5%
Segment EBITDA margin	39.9%	45.4%	
Segment net operating assets	132.2	131.8	0.3%
of which net trade working capital	40.7	36.4	11.8%

Order intake & net sales
in CHF million



Net sales
by region %



Performance review 2023
Orders in the Global Service segment decreased 43% year-on-year to CHF 138 million. Net sales were down 19% to CHF 173 million, as backlog execution buffered against the order decline. The sales decline was witnessed across all four major business areas of the Global Service business unit: Gates, Spares and repair, Retrofit and Service, ranging from 3% to 24% lower. EBITDA reduced by 29% versus 2022, to CHF 69 million. The EBITDA margin in 2023 was 40% compared to 45% a year earlier, mainly the result of lower VAT factory loading and the strength of the Swiss franc.

Market outlook 2024
Orders in the fourth quarter of 2023 began to pick up for the Global Service Business segment, reflecting the slightly improving fab utilization situation in the semiconductor industry. This development is expected to continue throughout 2024 with order intake expected to accelerate significantly in the second half of the year. In addition, VAT has used the slower market dynamics of 2023 to strengthen ties with a number of its key customers. Increasing business activity is expected with OEMs, IDMs, and foundries throughout the year, utilizing new business models to render additional support and value to these customers across VAT's large service network.