

Maps

Success factors



Market growth



Development of technology



Benefit from exposure



Market leadership



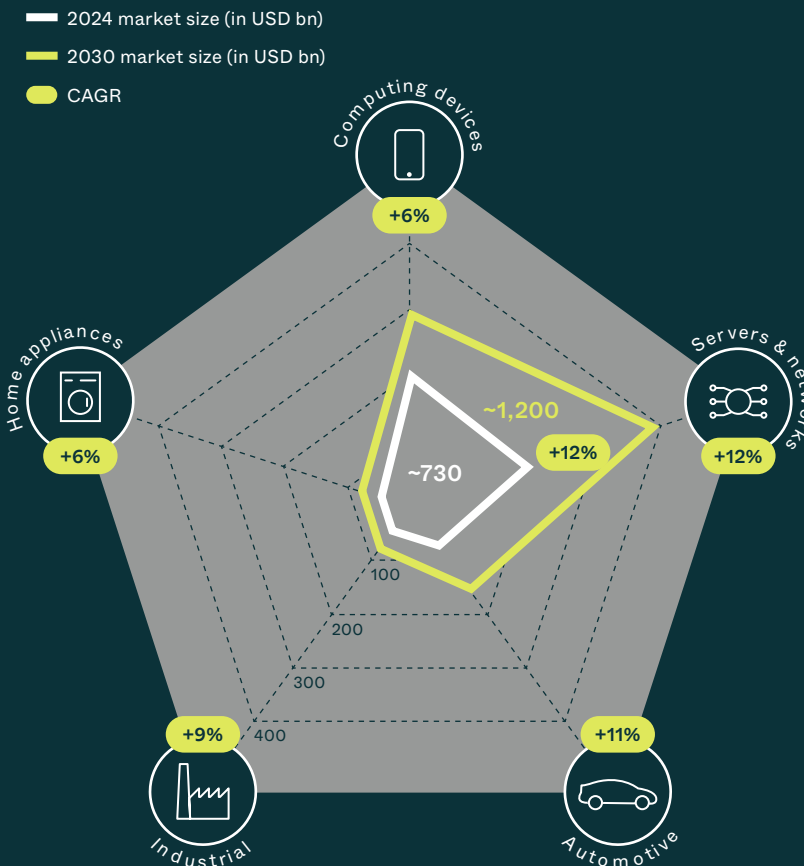
Market growth

Underlying drivers of growth

- Node size progression (Moore's law) and highly complex chip architectures (e.g., GAA) leading to increasing capital intensity for new fabs
- Number of process steps growing with every node size progression: longer wafer production cycles
- EUV lithography enabling leading-edge chip manufacture, high-precision deposition and etch steps becoming ever more important
- Additional production processes moving into vacuum (e.g. advanced packaging)
- Advanced materials and gases and wider temperature ranges requiring latest vacuum technologies

Compound annual growth rates (CAGRs) for key semiconductor growth drivers (global demand)

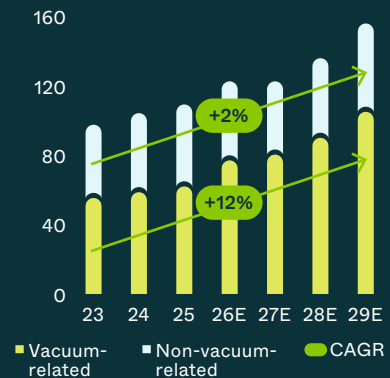
Chips are indispensable in today's world, driving strong, evolving market demand due to rapid technology advancements and rising sector needs.



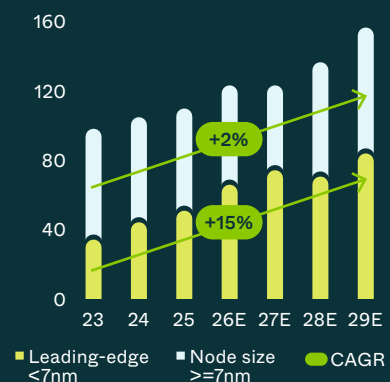
Presence in fastest-growing wafer fab equipment (WFE) segments

Vacuum- and leading-edge-related WFE expected to grow faster than overall WFE (as shown during CMD in May 2025)

Vacuum-related WFE in USD billion



Leading-edge WFE in USD billion



Key message

Global digitalization trends are fueling demand for semi-conductors. AI-related applications have increased the speed of expected growth, with over USD 1 trillion in sales now expected by 2027.

Over 110 fabs are expected to come online over the next two or three years – not enough to fill demand

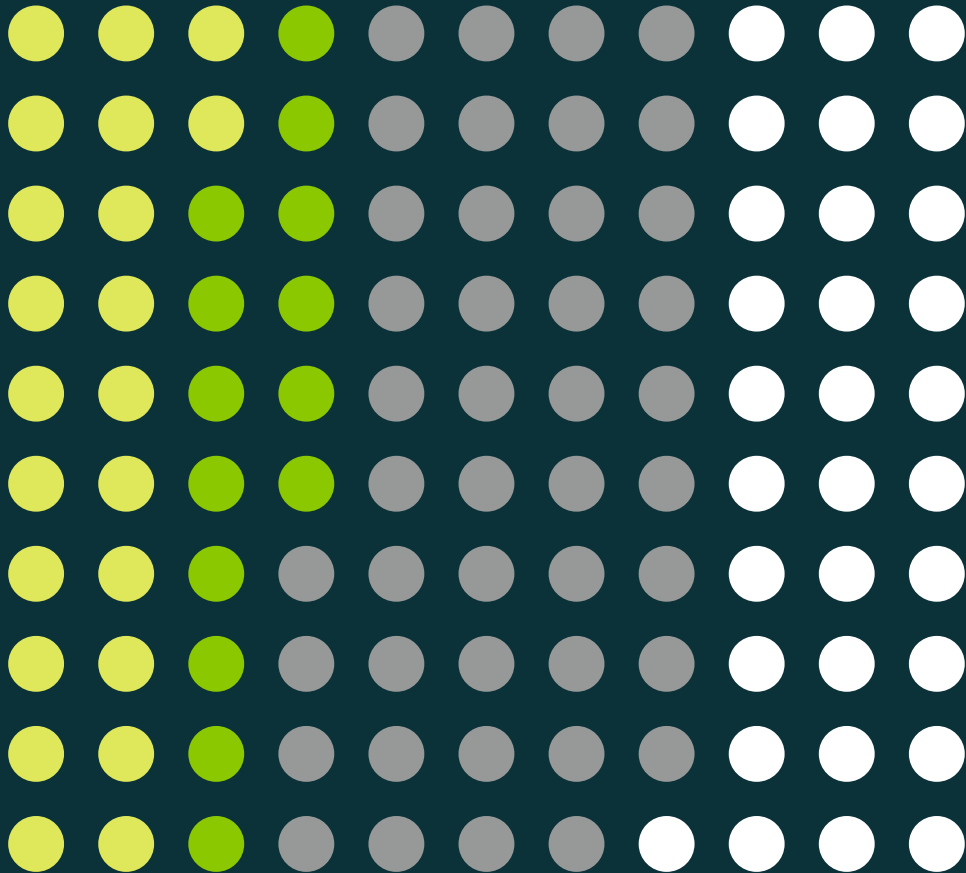
- 22 fabs in operation
- 14 fabs equipping
- 43 fabs under construction
- >30 fabs planned

Americas
18 fabs
80% leading-edge

EMEA
11 fabs
70% leading-edge

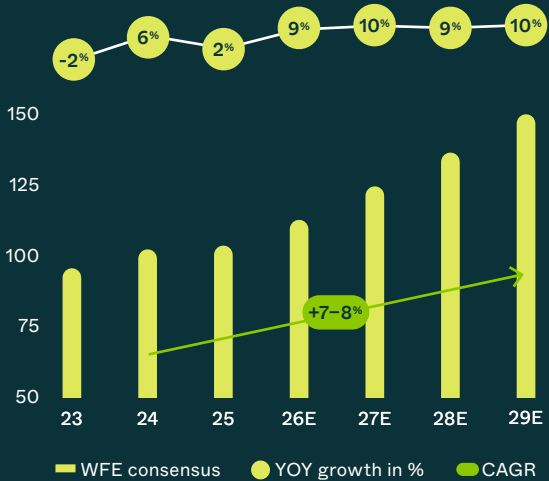
China
41 fabs

Asia (ex China):
33 fabs
80% leading-edge



WFE remains the best proxy for underlying VAT market growth

Investment in leading-edge-related capacity, mainly for AI applications, driving total WFE from record to record (in USD billion: as shown during CMD in May 2025).





Development of technology

Future chip generations need to address two major criteria: higher performance coupled with drastically reduced power consumption. The race for AI leadership will be determined by energy-efficient performance (EEP), which will improve over 10,000x over the next 15 years.

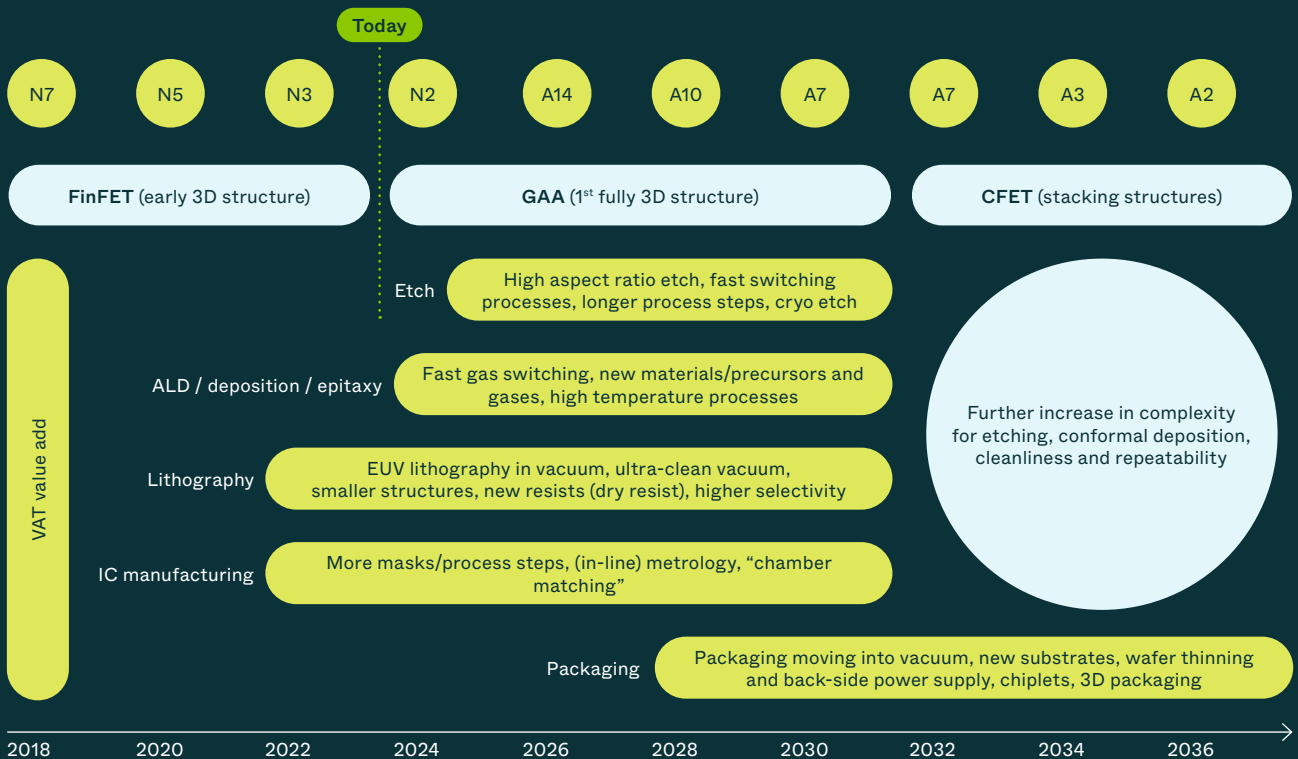
Innovation for tomorrow's industry challenges

In close collaboration with its customers, VAT develops the leading vacuum solutions that enable them to succeed on their journey to the latest semiconductor manufacturing technologies.

IMEC technology roadmap shows future technology advancements

Anticipating inflection points in semiconductor progression

Record R&D spend **75** CHF million
2025



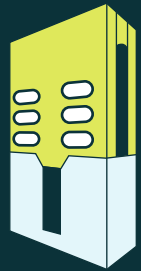
Key message

Technology roadmap continues and is entering an era of rapid expansion with increasing complexity, requiring more vacuum and cutting-edge processes.

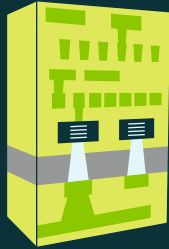
Semiconductor device architecture inflections for energy-efficient performance

The art of wafer processing: over 2,000 steps per wafer; 5+ materials within a 10nm nanosheet spacing, each 1nm thick; 50 billion transistors per die, 400 dies per wafer

AI leading-edge logic

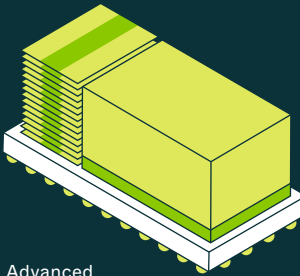


GAA transistor



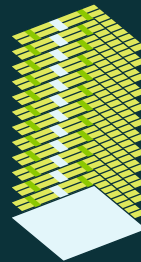
Backside power

AI system integration

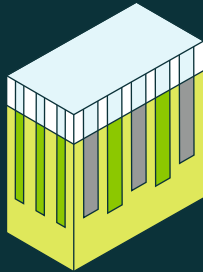


Advanced packaging

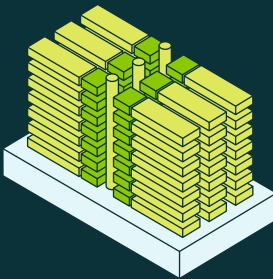
AI DRAM: HBM + leading-edge



High-bandwidth memory

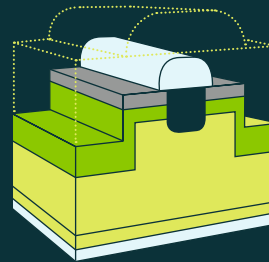


Vertical transistor



3D DRAM

ICAPS (power)

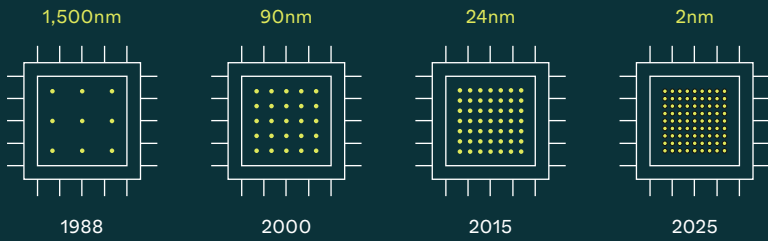


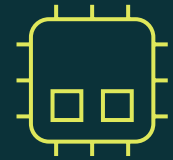
SiC and GaN

How to address the increasing complexity:

- Solving the industry challenges requires collaboration: faster innovation and commercialization
- Traditional wafer processing will move to integrated processes with multiple technologies in one system
- Tool-tool matching and chamber-chamber matching are key to achieving uniformity and yield
- Best and repeatable systems are more important than best single components

Since entering the semiconductor market in 1988, VAT has helped customers on their node reduction journey.





Benefit from exposure

Over many decades, VAT has established unmatched customer intimacy through innovation, proactive production capacity planning, and a service network with eight service centers close to our customers. Today, VAT is not only a supplier, but a strategic partner to its customers.

Building on its strong expertise in vacuum valves, VAT is able to expand its offering outside the core with selected adjacencies such as advanced modules, motion components and, most recently, precision gas delivery systems ALD valves.



Adjacencies expected to contribute up to ...

20%

... of sales by 2029

VAT's position in the semiconductor supply chain

VAT is a key piece in the semiconductor industry puzzle.



Consumers

- Seek latest technology and gadgets
- Limited budgets



Electronics manufacturers

- Innovation is crucial
- Must deal with constraints such as budgets, battery life
- **Companies:** Apple, Hitachi, Samsung, Sony, Toshiba



IDM/chipmakers

- Provide the latest gadgets with computing power or memory capacity
- Manufacturing specialists
- **Companies:** Intel, Kioxia, Micron, SK hynix, TSMC



OEMs/toolmakers

- Provide IDMs with tools and machines to make chips
- Integration and materials specialists
- **Companies:** Applied materials, ASML, Lam, TEL



Critical subsystems

- Provide individual components for tools
- Innovation crucial in specific technologies
- **Companies:** VAT, Comet, Inficon

Key message

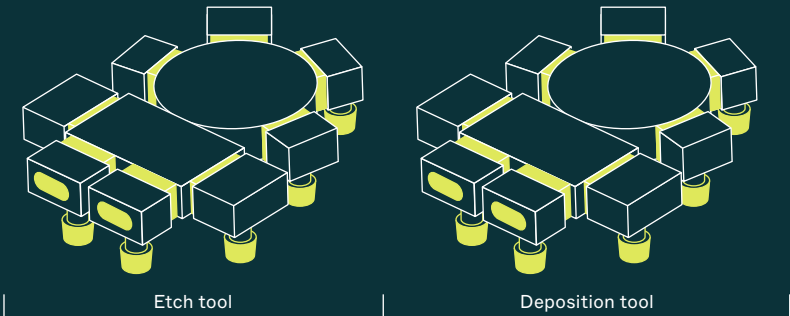
VAT solutions enable technology breakthroughs, drive yield improvements, and reduce complexity.

Manufacturing complex chip designs requires advanced production tools

More leading-edge process steps demand advanced tool designs with more vacuum chambers, resulting in higher VAT share of wallet through high-purity valves, advanced modules, and motion components.

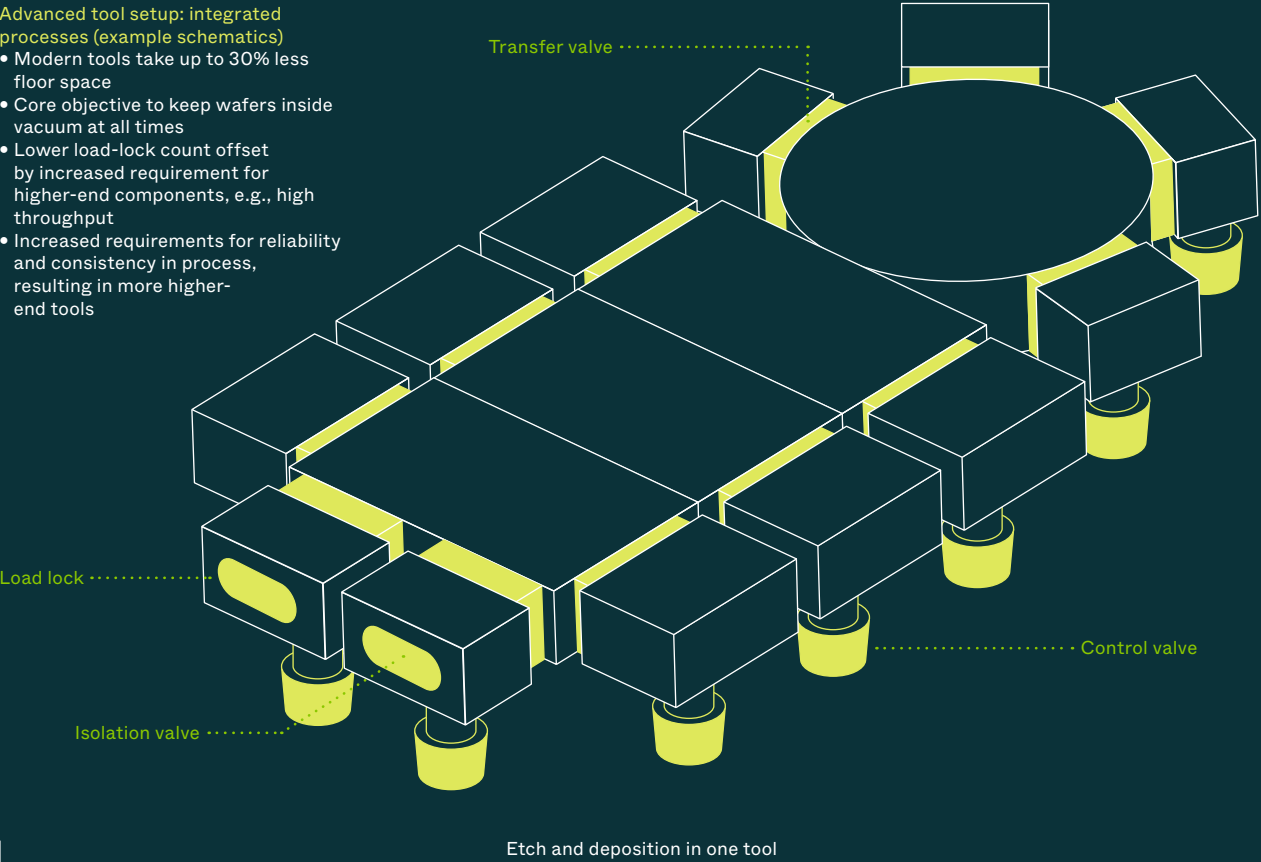
Traditional tool setup: co-located tools (example schematics)

- Historically, tools were designed to do one production step
 - Complexity of production processes increases
 - 28nm chips require around 750 process steps
 - 2nm chips will require >2,200 process steps



Advanced tool setup: integrated processes (example schematics)

- Modern tools take up to 30% less floor space
- Core objective to keep wafers inside vacuum at all times
- Lower load-lock count offset by increased requirement for higher-end components, e.g., high throughput
- Increased requirements for reliability and consistency in process, resulting in more higher-end tools



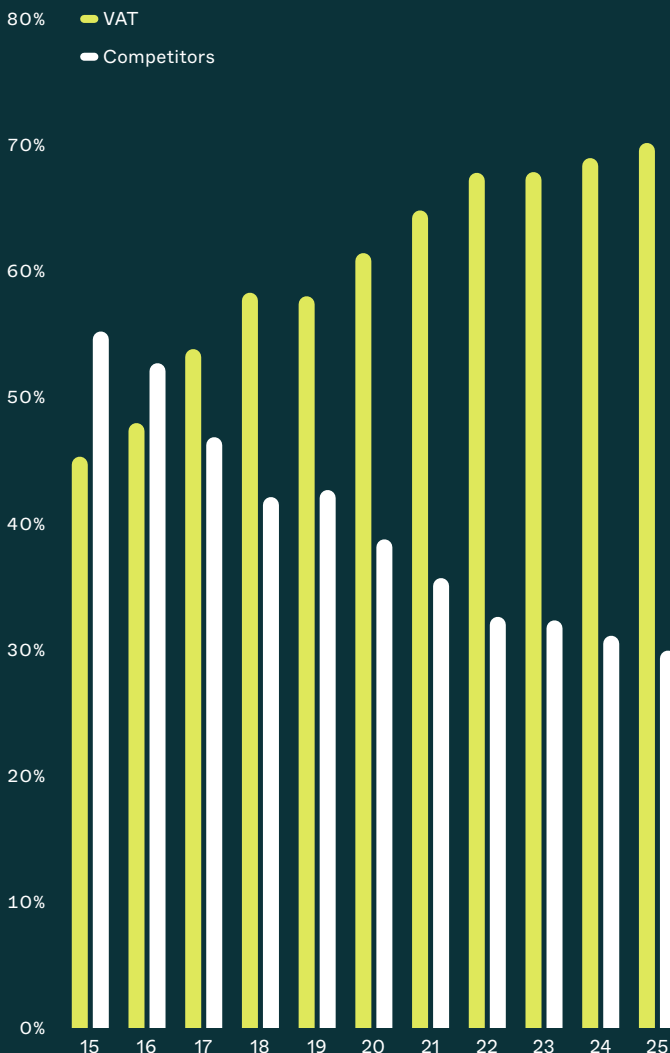


Market leadership

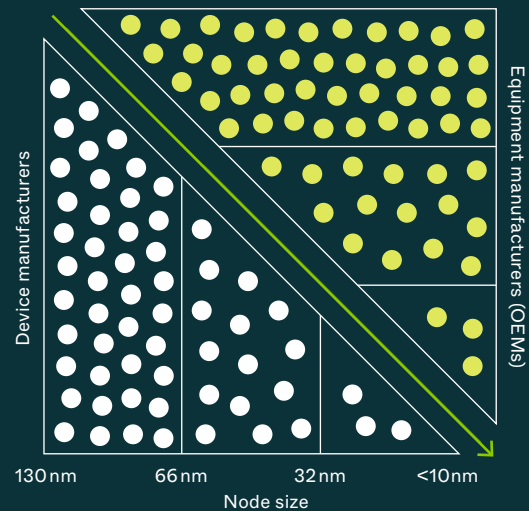
Over the last 10 years, VAT has substantially increased its market position. This is the result of unmatched customer intimacy, an unrelenting focus on innovation, and customer value propositions that are second to none.

Undisputed market leader

Market share in semiconductors and related



Node size shrinkage over the last 25 years has also resulted in a massive IDM and OEM consolidation – benefiting VAT.



The consolidated chip manufacturer (IDM) and equipment maker (OEMs) market has in many areas moved into a single-source situation, and the industry is now at a “balance and alliance” stage.

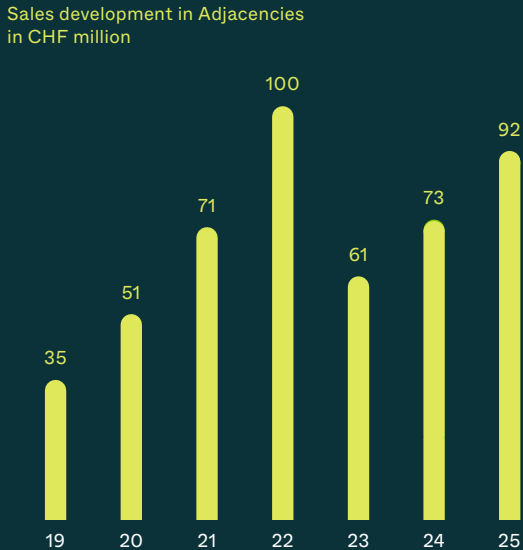
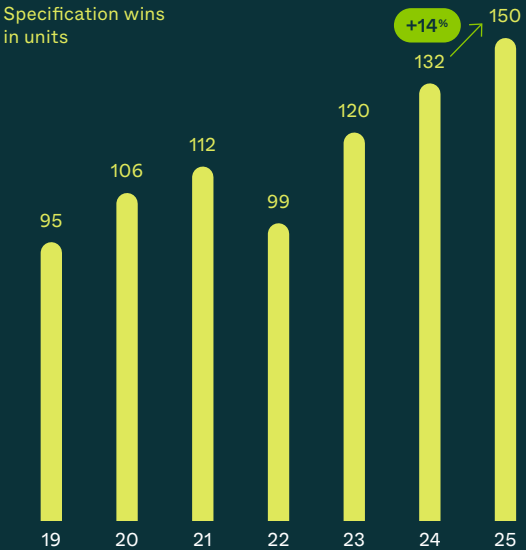
As a pure-play supplier of high-end vacuum solutions, VAT has the scale and strength to leverage its leadership position further.

Key message

With over 70% market share, VAT is the undisputed market and technology leader and an integral part of the semi vacuum supply chain.

Undisputed technology leader

New production technologies require more process steps.



3 state-of-the-art production facilities in Switzerland, Malaysia, and Romania

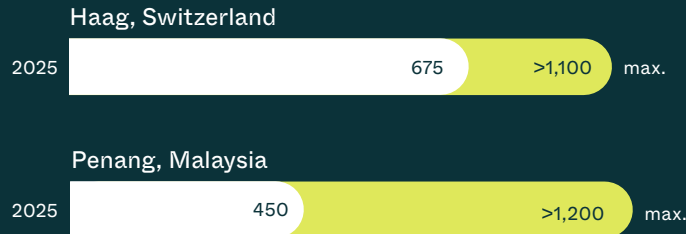
Having enough production capacity to satisfy growing customer demand even during sharp ramp phases is a key success and differentiation factor. VAT proactively invests in such capacity and could increase factory output by up to 30% within one quarter.

2.3

Available factory output in Switzerland and Malaysia at full capacity utilization (in CHF billion)

Installed manufacturing capacity

in CHF million



We are where our business is

- VAT production and engineering centers

Haag, CH
Penang, MY
Arad, RO

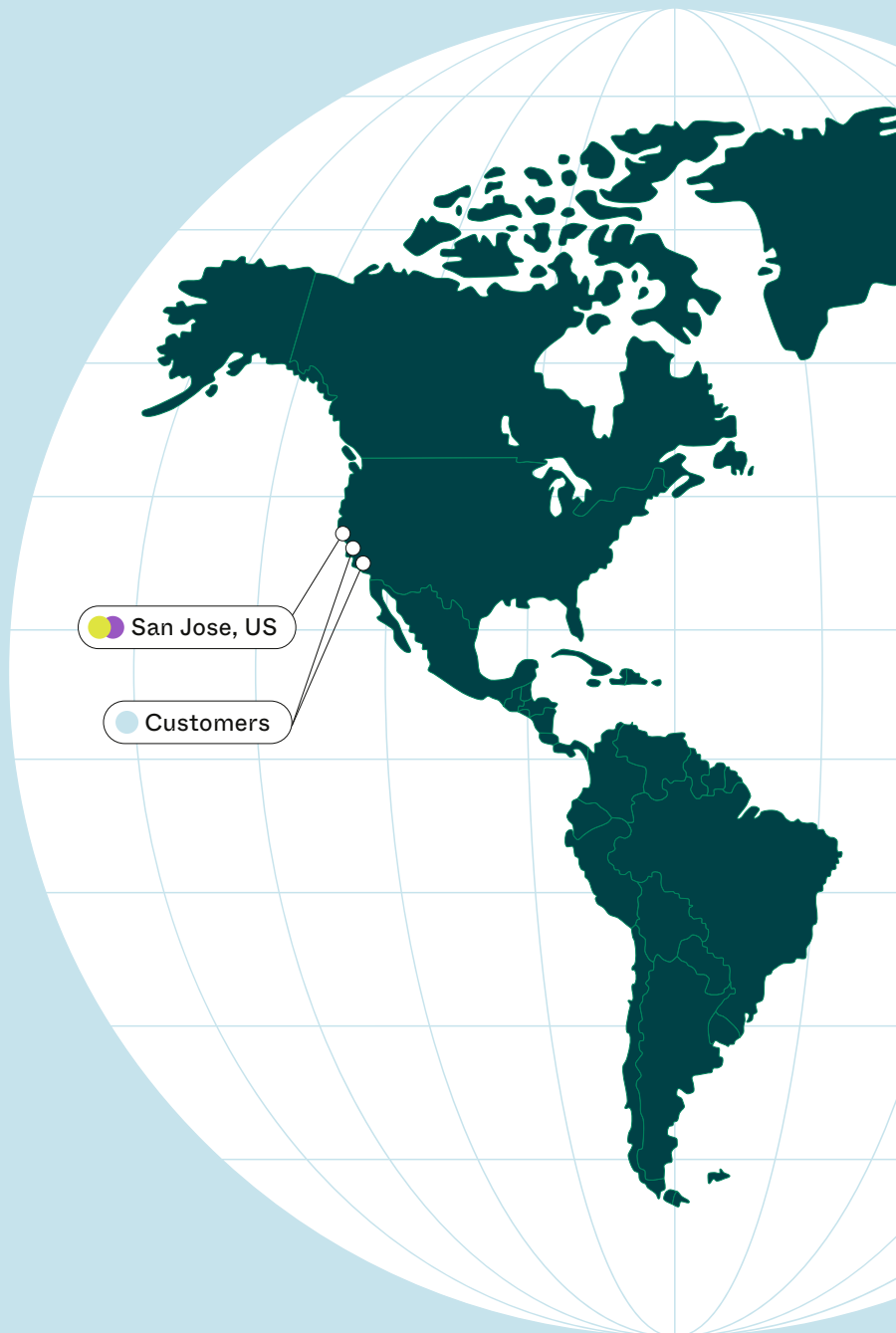
- VAT innovation hubs

Haag, CH
Penang, MY
San Jose, US
Mendrisio, CH
Zurich, CH

- VAT service centers

Haag, CH
Penang, MY
San Jose, US
Hwaseong, KR
Shanghai, CN
Singapore, SG
Tokyo, JP
Zhubei City, TW

- VAT global customers



Growth thanks
to our intimate
relationship with
customers, a
proven technology
advantage,
flexibility, and
the right skills