

Annual Report 2023

Ahead of what's next



Notes to the reader

PDF/Printed version

This document is the PDF/printed version of ASM International N.V.'s 2023 Annual Report and has been prepared for ease of use. The 2023 Annual Report in European Single Electronic Reporting format (the ESEF reporting package) is the official version. The ESEF reporting package is available on the company's website. In case of any discrepancies between this PDF version and the ESEF reporting package, the latter prevails.

Unrounded figures

Amounts in the Annual Report may not add up due to rounding differences. The total amounts may therefore deviate from the sum of the parts. Percentage changes are based on the unrounded figures.

Non-IFRS financial performance measures

Certain parts of this Annual Report contain non-IFRS financial performance measures, which are not recognized measures of financial performance, financial position, or cash flows other than a financial measure defined or specified in the applicable financial reporting framework (IFRS). These are commonly referred to as non-IFRS performance measures.

Reference is made to section 8.1, for a reconciliation of IFRS and non-IFRS performance measures. Chapter 29 provides further clarification on management's intention to report non-IFRS performance measures, as well a list of definitions of the non-IFRS performance measures applied in the Annual Report.

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1. CEO message

Benjamin Loh

President and Chief Executive Officer

2023 was another successful year for ASM. Sales increased by 13% at constant currencies, despite softening market conditions. This marked our seventh consecutive year of double-digit growth. We remain on track towards our strategic targets and continue to invest in innovation and expansion. I want to thank our people: their hard work and dedication contributed to ASM's robust performance in 2023.



WFE market slightly lower, ASM outperformed in 2023

The semiconductor market contracted by around 10% in 2023, due to the weaker economic situation, higher interest rates, sluggish consumer spending, and inventory corrections in broader parts of the markets. Wafer fab equipment (WFE) spending showed a slight decrease in 2023, and the memory segment of the WFE market had a tough year, as expected. Leading-edge logic/foundry also markedly decreased. This was offset by strength in the mature node market segments: in power/analog/wafer, and particularly in China.

Leading-edge logic/foundry spending – a market in which ASM has strong positions – was still solid at the beginning of 2023, but demand weakened in the course of the year. This was due to continued weakness in end markets such as smartphones and PCs. In addition, new fab delays led to order push-outs in this segment. In total, our leading-edge logic/foundry sales meaningfully decreased in 2023. Importantly, customers continued developing the upcoming gate-all-around device technology, for which we received the first pilot line orders in the second half of 2023. In line with the tough market conditions in

2023, our memory sales dropped by around 40%. In memory, we benefited from healthy demand for AI-related DRAM memory. These high-performance DRAM devices require high-k ALD technology in which ASM has a leading position. The related volumes are, however, still limited, and could not offset the steep declines in the other parts of the memory market. In 3D-NAND, in 2022, we had the first contribution from gap-fill ALD wins, but in 2023, sales in this segment dropped markedly as customers cut down on capex. In total, memory dropped from 19% of equipment sales in 2022 to 11% in 2023.

The lower sales in leading-edge logic/foundry and memory was offset by increases in the power/analog/wafer segment, and in the more mature logic/foundry segment. In power/analog/wafer, our sales almost doubled in 2023, compared to a more modest level in 2022. Overall market demand increased strongly, driven by automotive and industrial, with some slowing towards the end of the year. Growth in the power/analog/wafer segment was also supported by the acquisition of LPE in 2022, which contributed more than €130 million in sales in 2023.

We also benefited from strong momentum with some of our new products. Our new SONORA vertical furnace platform, launched in 2022, made a strong contribution to our performance, including in the power/analog segment. In fact, apart from SiC epitaxy, vertical furnaces was the fastest growing product line in 2023. Intrepid ESA, our silicon Epi tool for 300mm power and wafer applications, again booked solid growth.

“GAA is a major inflection for our company; we received the first pilot line orders in 2023.”

Mature node demand in Chinese market

The growth in mature logic/foundry and power/analog/wafer was in large part driven by the Chinese market, with our equipment sales in China increasing significantly. In November 2022, we communicated that the US export control measures announced in October 2022 were estimated to have a negative impact of 15%-25% on our sales in China. The new regulations issued by the Dutch and Japanese governments in 2023, and updated US regulation, are not expected to have a material additional impact compared to what was previously communicated. In response to increasing complexity of export control regulations, we invested in our trade compliance team, and further enhanced our processes. Compliance with all rules and regulations remains our key priority.

Demand in China grew strongly in the year in the mature nodes: in power/analog/wafer, and in the parts of mature logic/foundry that were not impacted by the export control measures. While the mature node segments are structurally a smaller part of our revenue, we had a strong contribution due to the substantial size of the investments in these segments in China in 2023. We also benefited from our investments in recent years to expand our presence and customer base in China. Furthermore, our sales in China increased with the consolidation of LPE, which has a strong share in this market.

Continued healthy financial results¹

Our total sales increased by 9% as reported. At constant currencies, sales increased 13%, outperforming the WFE market. Gross margin increased to 48.3% supported by mix, including a significant increase in sales from China with above-average profitability. Free cash flow increased by 17% in 2023 (on an adjusted basis, excluding cash spent on acquisitions in 2022), even with a further increase in capex. ASM's financial position continues to be strong.

Acquisitions of LPE and Reno delivering on expectations

Our silicon carbide (SiC) epitaxy business – the acquisition of LPE in October 2022 – performed strongly in 2023, exceeding our initial expectations. The synergies in leveraging ASM's scale and capabilities have already been paying off. We can now, for example, offer (new) SiC customers enhanced support around the world. We increased development and manufacturing capacity, and we tripled our headcount to almost 200 in Italy. We also qualified the latest 200mm SiC Epi tools for manufacturing in our Singapore facility. We expanded the SiC Epi customer base in 2023 with a leading North American customer and a major European player. In the fourth quarter of 2023, two more customers selected our latest 200mm SiC Epi tool, with multiple tool orders expected in 2024. We believe our tools offer industry-leading performance and cost of ownership, particularly for 200mm SiC Epi processing. We expect to further expand our position as the SiC industry transitions from 150mm to 200mm wafer size in coming years. Despite the recent deceleration in the automotive market, long-term prospects remain strong for the SiC market, driven by a further increase in electric vehicle (EV) penetration. Supported by new customer wins, we expect strong revenue growth for this business in 2024.

The acquisition of Reno Sub-Systems in 2022, albeit smaller, is also delivering on expectations and contributing to the improved performance of our new generations of plasma tools. As far as our M&A strategy is concerned, we will continue to scan the market for other acquisition opportunities that could further strengthen our position in the deposition-equipment market and drive additional growth.

¹ Normalized figures are non-IFRS performance measures. See section 8.1 for a reconciliation of non-IFRS performance measures.

Industry getting ready for gate-all-around

Despite the softening market conditions in the leading-edge logic/foundry market in 2023, our customers remained strongly committed to their technology roadmap. In 2023, key customers completed the largest part of the development for the 2nm gate-all-around (GAA) technology node. In the second half of the year, we booked the first meaningful orders for GAA pilot line activities that are starting in the first part of 2024. GAA is a major inflection for our company. We expect our served available market – SAM – to increase by US\$400 million, based on 100K wafer capacity, and compared to the previous technology node. The more complex device architecture of GAA will increase ALD requirements, such as more dipole and work-function layers. Silicon epitaxy (Si Epi) is also an enabling technology for GAA, to build the nanosheets, which form the heart of the transistor. We believe we have successfully defended our leading market share in ALD, and also increased our market share in Si Epi. We expect the ramp of 2nm/GAA in high-volume manufacturing (HVM) to drive a meaningful increase in our logic/foundry sales in 2025. Logic/foundry spending on GAA nodes is expected to account for more than 40% of total WFE by 2027.

“ASM has never been in a stronger position than today.”

Investing in growth and innovation

We continued to invest in our R&D capacity and capability in 2023, increasing our R&D headcount by 11%. Net R&D grew by 32% as reported. The number of new R&D engagements and placement of evaluation tools further increased in 2023, including, for example, second-generation GAA 1.4nm applications. In view of the strong growth in our R&D activities in recent years, and expected further growth in coming years, we are running out of space and need to invest in expansion of our infrastructure. In May 2023, we held the groundbreaking ceremony for our new innovation and manufacturing center in Hwaseong (Dongtan), Korea, expanding our R&D in plasma ALD products, both for Korean and global customers. In December, we announced an investment of €300 million to build a new state-of-the-art research and development center in Scottsdale, Arizona. It will be twice as big as the current R&D facility, in Phoenix, Arizona, and will enhance our ALD and Epi product-development efforts.

In terms of manufacturing, we believe we have the capacity in place to deliver on our 2027 revenue targets. The completion of the second assembly floor of our facility in Singapore, and the additional manufacturing in our expanded facility in Korea, will increase our capacity by 3.7x compared to 2020. Supply-chain constraints, which were still significant in 2022, largely normalized in the course of 2023, except for specific areas such as in specialty materials.

People are at the heart of ASM's success

In 2023, we increased our headcount by 7% to more than 4,500 people, and voluntary staff turnover dropped from 10% to 7%. Our talented people are at the heart of ASM's success, and we continued to invest in developing, training, and engaging with our people.

Diversity and inclusion is an important target for our company. We continue to aim for an increase in our female employees to 20% of our workforce in 2025, up from 17% in 2023. I'm particularly pleased with the increasing number of events organized by our Women Initiatives Network (WIN).

Our core values of 'We Care, We Innovate, We Deliver' are central to all we do at ASM, and we further embedded these values throughout the organization during the year. We also took steps to promote accountability, collaboration and empowerment (ACE) as best-practice behaviors, and further strengthen our culture.

“In 2023, our net-zero targets were verified by SBTi, a first in the semiconductor industry.”

Sustainability highlights

In 2023, we took further steps to accelerate sustainability, one of the pillars of our strategy. A highlight this year was the verification of our Net Zero by 2035 targets by the SBTi, which is recognized as the leading body for validation of net-zero targets. One of the shorter-term goals in our path towards net-zero GHG emissions is to achieve 100% renewable electricity by 2024. We are well on track towards this goal, following an increase from 73% in 2022 to 88% in 2023. We are also committed to high sustainability

standards for the new facilities that we announced in Korea and Arizona (LEED Gold or higher).

After playing a principal role in forming and founding the Semiconductor Climate Consortium (SCC), in January, ASM was elected as the first Chair of the SCC. No one company can tackle climate change alone. We are all connected through our value chain, and dependent on one another to make collective progress. Initiatives like the SCC are critical to this progress. To this end, in 2023, we also co-sponsored Catalyze, a program focused on enabling renewable electricity within the semiconductor supply chain.

Our increased focus and underlying progress in sustainability has been reflected in improved ESG ratings, such as recent increase in ASM's scores with CDP.

“The growth in AI means more ALD and Epi steps for ASM tools.”

Longer-term prospects continue to be bright

Despite the slowdown in market conditions in 2023, the longer-term prospects are still strong for ASM. Third-party research firms forecast the semiconductor market to grow to more than \$1 trillion by the end of the decade. Digital transformation will continue to drive semiconductor usage, with semiconductors becoming essential in all aspects of life and society. This is reflected in several 'Chips Acts', as governments in different geographies and regions aim to build and strengthen their local semiconductor industries.

Artificial intelligence is expected to be one of the fastest growing end-market applications. In 2023, the impact on the semiconductor market started to become more significant, triggered by the huge interest in generative AI. Related chip volumes were still limited but expected to notably increase in coming years. This will lead to more investment in manufacturing capacity for advanced logic devices, such as GPUs and NPU, and high-performance DRAM. And that means more ALD and Epi steps for ASM tools.

Growth through Innovation strategy reconfirmed

In September 2023, at our second Investor Day, we reconfirmed our strategic priorities. We aim to grow our ALD business and maintain our >55% market share. We expect ALD to remain one of the fastest growing segments of the WFE market with a CAGR of 10% to 14% in 2022-2027. In Si Epi, we are still aiming for further market-share increases to at least 30% by 2025. This applies particularly to the leading-edge part of the Si Epi market, which is expected to grow with a CAGR of 10% to 15% in the five-year period to 2027. In Vertical Furnaces and PECVD, we continue our selective growth strategy, and with SiC Epi we have added a highly synergistic and high-growth business.

For 2025, we target revenue in a range of €3-3.6 billion, up from the range of €2.8-3.4 billion we targeted at Investor Day 2021. For 2027, we are targeting further growth in revenue to a range of €4-5 billion, implying a CAGR of 11% to 16% in the five-year period 2022-2027.

Outlook 2024

At the time of writing this message, the outlook for 2024 is still uncertain. While the broader semiconductor market is expected to recover in 2024, the softer WFE market conditions we saw in the second half of 2023 are expected to continue into the first part of 2024. For the first quarter of 2024, we expect revenue of €600-640 million, with a similar level in the second quarter. Looking at the expectations for WFE demand, memory and leading-edge logic/foundry demand is expected to gradually recover in the course of 2024. Demand in the Chinese market is expected to be still relatively high in the first part of the year, but likely to normalize in the rest of the year. For our SiC Epi business, we expect a continued strong performance in 2024.

We expect ASM to benefit from an expected rebound of the WFE market in 2025. Based on this, we remain confident ASM revenue will increase to the forecasted range for 2025 (€3.0-3.6 billion). The move of GAA 2nm technology into high-volume manufacturing in 2025 is expected to be a significant driver for ASM.

On a personal note

As most of you know, this will be my last Annual Report message as CEO of ASM. As we announced in February 2024, I decided to step down both as CEO and from the Management Board as per the AGM on May 13, 2024. The past four years have been among the most exciting and intense of my career, spanning more than 30 years in the semiconductor industry. It has been an honor to lead the ASM team, and I'm extremely proud of what we have achieved. Together, we have strengthened our company's market positions, expanded our customer engagements, and made important progress in driving sustainability. I'm particularly pleased with the steps we have taken to build a strong culture that allows our talented people to excel and to drive the continued success of our company. ASM has never been in a stronger position than it is today. I am extremely pleased to hand over my responsibilities to Hichem M'Saad, who, I am sure, will successfully guide ASM into the next growth phase. It has been a privilege to work with our customers, suppliers, investors, and other stakeholders. Thank you for your trust in ASM, and for your continued support.

March 1, 2024

Benjamin Loh

President and Chief Executive Officer

2. Highlights 2023



Financials

€2,634m

Revenue

+9% vs 2022

+13% at constant currencies

€654m

Operating result

Normalized operating result:
€699m

48.3%

Gross margin

Normalized gross margin: 49.3%

€447m

Free cash flow



People

4,542

Employees

+7% vs 2022

17%

Female employees

in line vs 2022

0.48

Total injury rate

vs 0.55 in 2022



Supply chain

88%

Key suppliers disclosing
to CDP

51% in 2022



Innovation

€410m

Gross R&D spending

Normalized gross R&D
spending: €396m

2,953

Patents in force

up 13% vs 2022



Planet

88%

Electricity from renewable
sources

vs 73% 2022

29%

Scope 1+2 GHG emissions
reduction vs 2022

Event highlights

January 2023

- Second assembly floor at Singapore facility completed

May 2023

- Groundbreaking of new innovation center in Korea

August 2023

- ASM's 2035 net zero targets verified by SBT

September 2023

- Investor Day 2023: 2025 revenue target increased and new guidance issued for 2027

December 2023

- ASM announces expansion of U.S. operations and new facility in Scottsdale, Arizona

Free cash flow is a non-IFRS performance measure. It is calculated as cash flows from operating activities after investing activities
Normalized figures are non-IFRS performance measures. Reference is made to section 8.1 for a reconciliation of non-IFRS performance measures

3. At a glance

We are a leading semiconductor equipment provider, with a focus on advanced deposition technologies



Our focus on deposition tools

84% Equipment revenue 16% Spares & Services



- A leading mid-50s percentage market share in ALD
- Growing position in silicon Epi
- Selective growth in vertical furnaces and PECVD
- Spares & Services increasingly driven by outcome-based services
- Solid position in the silicon carbide Epi market

Number of employees

Our headcount grew 7% yoy, with 66 nationalities and 17% women.



Facts & figures

A heritage of

55 years

of relentless research and innovation, and breakthrough technologies

Employees working in R&D

1,075

Gross R&D expenses

€410m

Target Net Zero by

2035

Number of countries present

16

We have suppliers in more than 20 countries

Our global footprint

- Corporate, sales and service offices
- Business unit and product-development facilities
- Manufacturing facilities
- Research facilities

- Belgium
- China
- Finland
- France
- Germany
- United Kingdom
- Ireland
- Israel
- Italy
- Japan
- Malaysia
- Netherlands
- Taiwan
- Singapore
- South Korea
- United States



16

Countries where we're active

20

Countries we supply to

4

Manufacturing facilities

3

Key markets: Asia, US and Europe

For a complete overview of all our locations, please visit our corporate website: www.asm.com.

Ahead of what's next

A fresh new brand identity



In 2023, for the first time ever, we gave ASM's brand identity a major refresh, and launched our new look – with its updated visual style, logo tagline, and more – in April.

For more than half a century, ASM has been an innovation leader in the semiconductor industry, and in the past few years, we have entered an exciting new chapter as a company and an industry. The time was ripe to evolve our brand to reflect who we are today and aspire to be tomorrow.

A new and future-facing look

The new brand identity is a bold, future-facing look for ASM that lets us tell our story consistently around the globe.

A few highlights include:

- Our updated logo, which is simpler, cleaner, and at home in the digital world.
- Bold new brand colors, with purple as the standout eye-catcher, a graduation of red as a nod to our rich history, and sand as a nod to silicon, a key element in the creation of semiconductors.

All these elements work seamlessly together to create an instantly familiar style – so that wherever you are in the world, you will always recognize ASM and what we stand for.

Our new brand in action

At ASM, we are a family of talented, passionate people who work daily to improve people's lives by advancing technologies that unlock new potential. We like to dream big and pursue inspiring ideas, always striving to be a force for good in the world.

Our new tagline, 'Ahead of what's next', which is also the theme of this year's Annual Report, captures the dynamic, ideas-driven way we look ahead for our customers, anticipate the needs of our industry, and make a meaningful difference in people's lives.

“Our fresh new look and approach reflect our current aspirations and ambitions, ensuring everyone sees and knows us as the modern high-tech company that we are, driven by its people for people.”



**Klara Zakis, Director of
Corporate Communications**

From our cleanrooms to our YouTube channel and brand-new website, our refreshed brand is touching all parts of the ASM world. Over the year, we made a splash with refreshed content, and through campaigns across our owned channels and at major events and conferences worldwide.

4. What we do

ASM supplies semiconductor wafer-processing equipment and process solutions, with customers including the companies that make the world's top semiconductor devices.

4.1 Overview

Our equipment is a key technology for the semiconductor integrated-circuit chips needed to make the electronics products that consumers and businesses use everywhere. ASM's leading position is in the logic/foundry segment, although sales in memory are rising. We also have important positions in the analog/power, sensors and wafers segments.

Our focus in the wafer fab equipment market is on the deposition of thin films. We design, make, sell, and service our deposition tools to supply our customers with the advanced technologies they use in their wafer fabrication plants, known as fabs. At their fabs globally, we also provide maintenance service, spare parts, and process support.

Our deposition tools are crucial for the industry to advance its technology roadmap. We are a major player in the atomic layer deposition (ALD) and silicon epitaxy (Si Epi) segments, and have a more niche role in vertical furnace and PECVD. Our newest product line is silicon carbide (SiC) epitaxy equipment, from the acquisition of LPE in 2022.

ALD

ASM is a leader in ALD. It is our largest product line, accounting for more than half our equipment revenue in 2023. ALD is the most advanced deposition method in the market, making it possible to create ultra-thin films of exceptional material quality, uniformity, and conformality. ALD is among the fastest-growing segments in the wafer fab equipment market, and ASM has the broadest portfolio of ALD products and applications.

Silicon epitaxy

Our second-largest product line is Silicon epi (Si Epi), the process of depositing highly controlled silicon-based crystalline films. It is a fast-growing segment for ASM.

The number of Si Epi steps is increasing as logic/foundry customers move to advanced technology nodes such as gate-all-around, and as mobile applications and electric vehicles need more powerful devices.

Silicon carbide epitaxy

Our newest product line is SiC epitaxy. This came about through ASM's acquisition in the fourth quarter of 2022 of LPE, the Italy-based maker of epitaxial reactors for SiC and silicon. In 2023, we completed the integration of the new SiC team and saw significant growth in demand in the SiC market. The SiC epitaxy equipment market is expanding fast due to the growing electrification of the automotive industry, with vehicle power electronics transitioning from silicon to SiC-based materials. SiC devices allow electric vehicles to have greater driving range and faster charging times. Our SiC tools use an epitaxy process to deposit the SiC materials, either on bare substrates or as part of the transistor device fabrication process.

PECVD and vertical furnaces

The relatively large size of the PECVD and vertical furnace segments makes these markets attractive to ASM. In recent years, we have seen solid increases in the total revenue of these two combined product lines.

Spares & Services

Technical service and spare parts are important product offerings for our business. For speedy availability, our global service teams are based close to our customers at regional and local service centers. Our Spares & Services revenue is growing, driven by the increasing installed base and successful adoption of outcome-based services.

4.2 Engaging our customers closely and early

ASM is committed to giving customers the best products and services, helping them achieve their device and process technology goals. We work with them closely and early in each development cycle to make sure our products meet their roadmap requirements, with service teams on hand at global fabs providing ongoing equipment and process support. We focus on value creation for our customers, continuously improving our products to support their technology roadmaps, increase productivity, lower operating costs per wafer, and enable next-generation chips.

A key goal of our customers is to build faster, cheaper, and increasingly more powerful semiconductors with reduced power consumption for each new technology node. We work with them closely to make this happen, forging mutually beneficial partnerships to help develop next-generation technologies. Through our intensive R&D programs and customer co-development, we continuously improve and extend the capability of our products and processes to meet these advanced technology roadmaps. Critical to our success is close and early collaboration with leading customers and suppliers, global research institutions, such as imec, and key universities. The result is value creation for our customers.

Continuously developing and maintaining strong relationships underpins mutual progress, and ASM engages with our customers throughout our organization. Our account teams are close to our customers' fabs for day-to-day interaction in sales, product and process support, spare parts, etc. Our product development and technical product-support groups, meanwhile, engage with customers on issues in manufacturing, product-improvement projects, joint development programs, and discussions about requirements for next-generation technology roadmaps. Periodic customer and ASM executive meetings serve to strengthen our business relationships and share commitments.

ASM is focusing on strengthening our quality organization and processes to support our product performance, customers' goals in fab operations, and efficiencies.

We serve society by helping our customers produce chips for the advanced electronics that deliver improvements and opportunities across many aspects of our lives. While doing so, we work at the edge of what is technologically possible, creating an attractive professional and learning environment for our employees, and generating long-term value for all our stakeholders.

We engage with – and are responsive and committed to addressing – the broad range of our customers' sustainability expectations, including detailed inquiries and periodic audits. To expand our contribution and impact, we collaborate with our customers on sustainability topics wherever possible.

Customer recognition

In 2023, several key customers recognized ASM for equipment performance and support:

- In December, at their Supply Chain Management Forum, TSMC presented ASM with an award for Excellent Production Support.
- A large customer in South Korea honored us with an Outstanding Partner award in November.
- In June, Intel presented ASM with its 'Distinguished Supplier Award' in the Intel EPIC Supplier Program. EPIC recognizes supplier partners that exemplify Intel's standard of excellence. The Distinguished Supplier Award recognizes companies where performance consistently exceeds expectations.
- A leading memory customer in Taiwan rewarded our service team with its 'Top Supplier Award in Safety' for annual safety performance – the fourth year in a row that ASM has received this award. This underlines how we value safety, and focus on improving it, both in our teams and in working with customers.
- We are honored to report that a total of 12 customers in China gave ASM supplier service awards in 2023.

4.3 Basics of semiconductor manufacturing

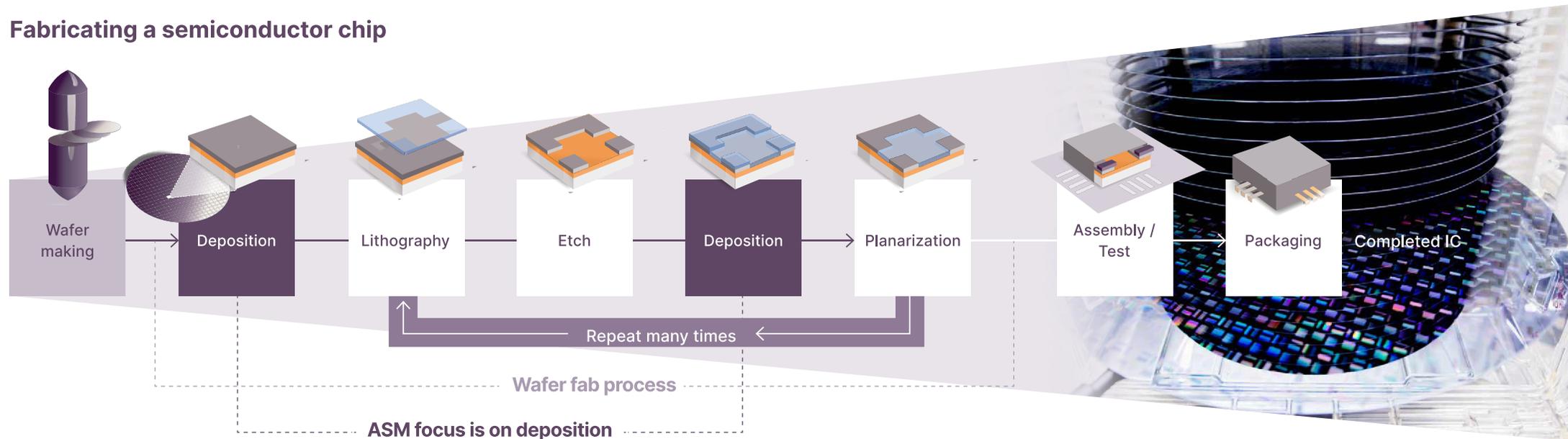
Making semiconductor chips at our customers' fabs is complex and costly. The fabs house a large set of wafer-processing equipment, which performs a series of process steps on round silicon wafers, typically 300mm in diameter. The equipment operates in cleanrooms, where the air is filtered to prevent small particles from causing contamination that could affect the circuitry on the chips. Semiconductor manufacturing involves a wide range of technical disciplines, including physics, electronics, chemistry, plasma generation, gas-flow dynamics, optics, and metrology. Hundreds or even up to more than a thousand chips are processed at the same time on each wafer, depending on the type of device.

There are many steps to fabricating a semiconductor chip, involving various types of wafer-processing equipment. These include:

- Deposition of thin-film layers on the starting wafer
- Photolithography to create patterns
- Etching to remove material
- Deposition of thin-film layers
- Planarization, cleaning and thermal treatments

ASM's systems are designed for deposition processes where thin films, or layers, of various materials are grown or deposited onto the wafer. Many different thin-film layers are deposited to complete the full sequence of process steps to make a chip. After testing the individual circuits to make sure they are performing correctly, the individual chips on the wafer are separated and packaged in a protective housing. Ultimately, they will become part of a set of semiconductor chips on circuit boards within an electronic product. For more information please visit ASM's website.

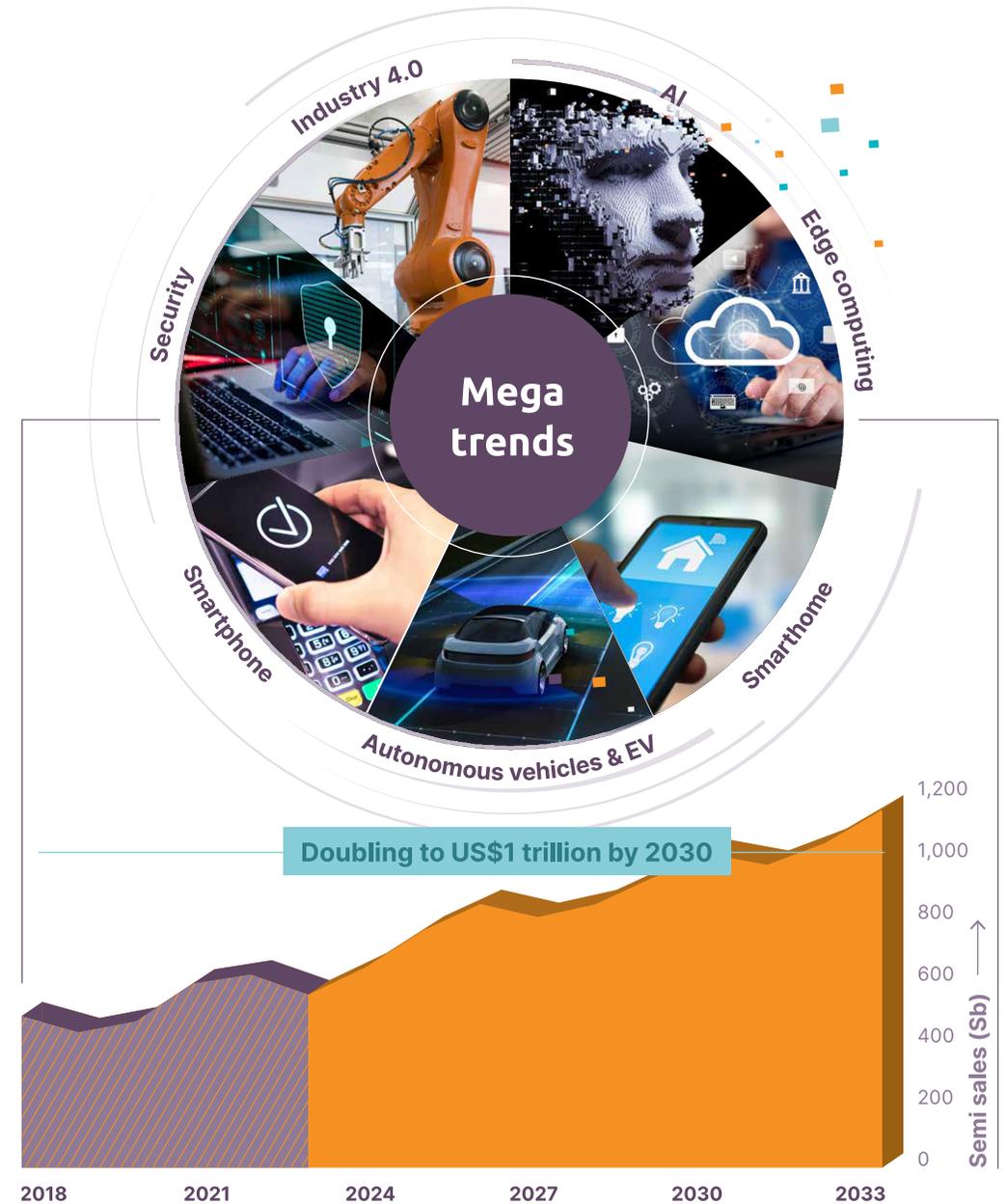
Fabricating a semiconductor chip



4.4 Our positioning in the market

Digital transformation trends are fueling significant growth in the roughly US\$550 billion semiconductor-device market. While the semiconductor market declined about 10% in 2023 (TechInsights Dec 2023), growth is expected to continue as long-term secular trends remain solid and, in the case of AI and electrification of vehicles, are even accelerating. As global economies become increasingly digitized, advanced semiconductors are key to creating this more connected world. New end-market products and applications are being developed, including edge and cloud computing, big-data analysis, artificial intelligence (AI), 5G smartphones, autonomous and electric vehicles, Internet of Things (IoT) for smart connected devices, and many more. Analysts are expecting the total semiconductor market to be worth >\$1 trillion in the early 2030s. The growth of AI will drive increased capacity requirements for the semiconductor industry, as AI-specific functions are expected in >30% of logic devices by 2027. ASM stands to be benefit as more single-wafer ALD and Epi steps are expected to be required.

Demand for wafer fab equipment (WFE) links to the growth in the semiconductor device market. Increasing complexity in the most advanced semiconductor devices for shrinking dimensions and new device architectures, meanwhile, intensifies that demand. As a result, we see that each new technology node needs further investment in process equipment. The WFE market was roughly flat at about \$98 billion in 2023 (December 2023), while Gartner estimated that WFE dropped by about 8% (January 2024). The weakness in WFE was primarily due to significantly reduced spending by memory manufacturers. Spending for leading-edge logic/foundry was soft in 2023, while investments for mature nodes were relatively strong. The slowing of the WFE market was also attributed to an extent to global economic weakness, rising interest rates, inflationary pressures, lingering supply-chain issues, trade conflicts, and other challenges. Because of the solid trends in the semiconductor market, the structural long-term growth outlook for WFE remains positive.



Source: TechInsights, December 2023

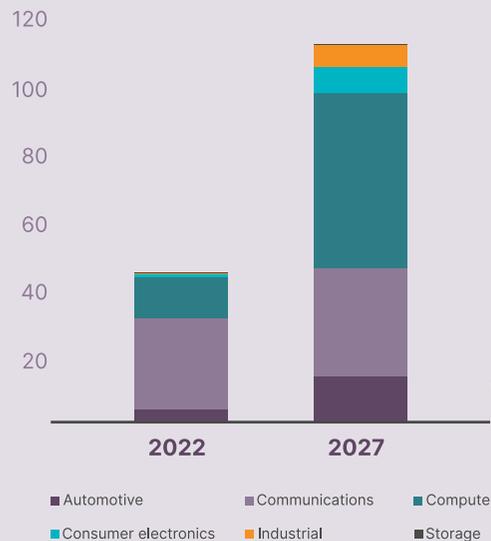
AI is a major growth driver for semiconductors

Artificial intelligence (AI) is expected to positively impact nearly every facet of the economy, with most estimates putting that impact in the many trillions of dollars.

From self-driving cars, smart consumer products, to generative AI, and large language model-based chat engines, each day a new capability near or exceeding well-trained human capability is coming to market, and we're in the early days of this transformation.

We've already seen that new AI products and services drive growth in data centers with high content servers, including AR-specific GPUs / accelerators, and more memory, including high bandwidth memory. We also see growth in AI-enhanced edge services, smartphones, home appliances, cars, etc, which will all include silicon content increases.

AI semiconductor sales outlook (US\$ billion)



Source: Gartner, 2023

These expanded markets and requirements are expected to continue to drive more advanced-node logic/foundry and memory capacity, and leading edge technologies such as gate-all-around transistors and high performance DRAM. And that means more single-wafer ALD and Epi process steps for ASM tools.



The major segments in WFE include lithography, etch & clean, deposition, and process diagnostics. Our focus is on deposition equipment, comprising about 25% of WFE, in which we address ALD, Epi, PECVD and vertical furnaces. We now also address SiC epitaxy tools, following the acquisition of LPE. Within deposition, ALD and Epi are among the fastest-growing market segments, driven especially by leading-edge technology advancements like gate-all-around (GAA) transistors in logic/foundry.

Single-wafer ALD market outlook

(US\$ billion)



Source: ASM Investor Day, September 2023

The single-wafer ALD market is expected to grow from ~US\$2.6 billion in 2022 to around US\$4.2-\$5.0 billion in 2027.

Si epitaxy market outlook

(US\$ billion)

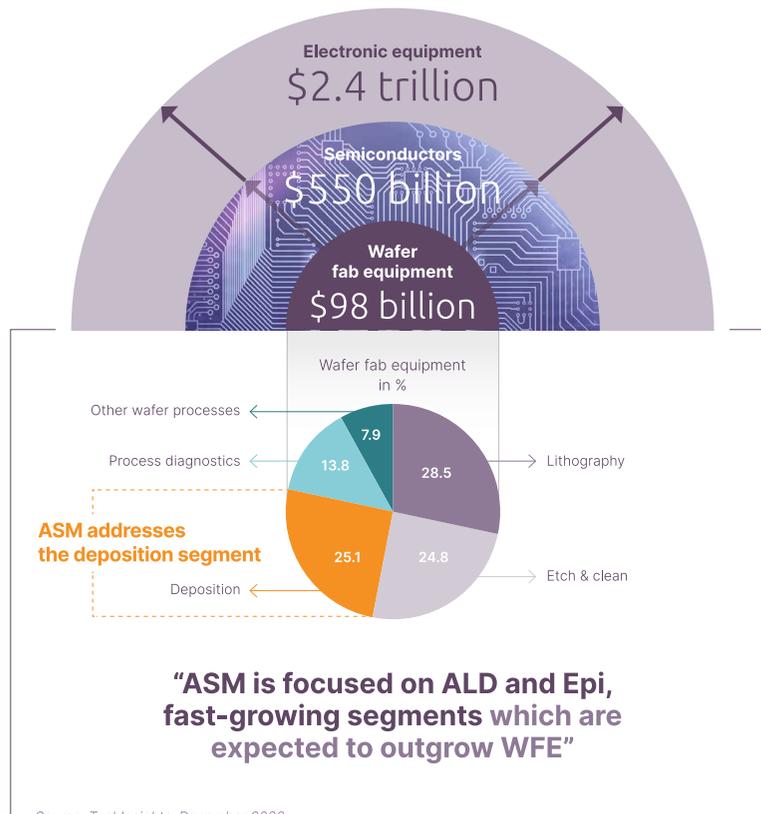


The Si Epi market is expected to grow from ~US\$2.0 billion in 2022 to about ~US\$2.3-US\$2.9 billion in 2027, as we shared at our Investor Day in September 2023. Based on these estimates, the ALD and Epi markets are expected to outgrow the total WFE market. The ALD market is expected to increase with a CAGR of 10%-14% in 2022-2027.

This growth is expected to be driven by the adoption of many applications and 'layers', such as far high-K gate and Vt tuning layers, metals, and selective ALD, in both the logic/foundry and memory markets. The total Si Epi market is expected to grow with a CAGR of 3%-8%. Expected growth in the coming years is relatively lower for the mature node part of the Si Epi market, which has been boosted by significant investments in the past couple of years, particularly in China. The leading-edge part of Si Epi is expected to be the

fastest-growing segment with a CAGR of 10%-15% in 2022-2027, driven by Si Epi requirements in GAA, and increasing adoption in future DRAM technology nodes.

Semiconductor value chain



ASM supplies equipment to the leading semiconductor manufacturers in the logic/foundry and memory (DRAM and NAND) segments of the WFE market. Other smaller but important market segments we supply equipment to include analog/power devices and wafer manufacturing. Analog/power semiconductors are used in a wide range of electronic systems for mobile products, vehicles, telecommunications, and other applications. Wafer manufacturing is for the processing of bare silicon wafers before they are delivered to semiconductor fabs. Some wafer manufacturers also provide epitaxy wafers (silicon or silicon carbide). As the market for leading-edge solutions continues to grow, we remain

focused on supporting our customers, leveraging ASM’s strong track record of innovation in materials, hardware, and process technologies. We enable their roadmaps, which are focused on accelerating technology, improving manufacturing efficiencies, optimizing costs, and sustainability.

4.5 Our product technologies

Our products include wafer-processing systems for ALD, epitaxy, PECVD, and vertical furnaces. We now also have SiC epitaxy tools, following the acquisition of LPE. We continuously drive innovation of our products and services to address our customers’ technology needs, and the industry’s focus on reducing costs and improving its environmental footprint.

Our development programs aim to increase throughput, make our equipment more reliable, improve yield in our customers’ manufacturing line, reduce energy and resource intensity, and cost of ownership. Our customers benefit from lower operating costs, as many of our products use the same parts and consumables, while a common control architecture improves ease of use.

Our single-wafer tools are designed for use on a common platform architecture. The XP platform is a high-productivity, common 300mm single-wafer platform that can be configured with up to four process modules. The XP platform enables high-volume multi-chamber parallel processing or the integration of sequential process steps on one platform. Our XP8 platform follows the basic architectural standards of the XP.

But it offers even higher productivity with up to 16 chambers integrated on a single-wafer platform with a relatively small footprint. The XP8 platform can be configured with four dual-chamber modules (DCM), enabling up to eight integrated chambers, or with four quad chamber modules (QCM) for up to 16 integrated chambers on the same platform.

ALD

ASM is the leader in the fast-growing single-wafer ALD market – with a market share of around mid-50s percentage (source: ASM estimates, Investor Day 2023). Using ALD technology, we can scale devices to smaller dimensions while reducing the power consumption of transistors. This helps the industry follow Moore’s Law, and create smaller,

more powerful semiconductors. ALD allows us to deposit thin films, atom by atom, on silicon wafers. This means we can deliver atomic-scale thickness control, high-quality deposition film properties, and large area uniformity.

Such precision allows us to use materials that could not previously be considered, and develop 3D structures vital to the future of electronics. 3D technology provides several benefits, including saving space while delivering chips with higher performance that consume less power.

Many new applications are emerging where ALD is the technology of choice. Indeed, in some cases it is the only solution able to meet the challenging technology requirements. For example, ALD high-k gates are now in production for high-performance DRAM devices. We are seeing customers wanting more ALD applications for each new technology node, driving high growth in the ALD equipment market.

New applications include high-k metal gates for gate-all-around (GAA) transistors, high aspect ratio gap-fill, underlayers for EUV lithography, metals, selective ALD, and others.

ASM has the broadest portfolio of ALD products with innovative ALD reactor designs. Our strength in chemistries and applications using new materials means our customers can meet advanced node technology challenges. We offer systems capable of thermal ALD and plasma ALD. In PEALD, plasma is used to provide the reaction energy for the process, enabling us to use lower temperatures for low-thermal budget applications.

This technology was originally introduced in DRAM and planar NAND flash manufacturing for spacer-defined double patterning (SDDP). In 2022, ASM acquired Reno Sub-Systems Inc., a supplier of high-performance RF matching networks and RF generators. RF power is used to generate gaseous plasma in various semiconductor manufacturing processes. Today's complex devices require precise control over the RF power delivered to the plasma reaction chamber, especially when depositing material on atomic scale, such as for PEALD. Reno's EVC (Electronically Variable Capacitor) technology provides sub-millisecond control over RF power delivery, improving throughput and quality of the deposited film. EVC technology, embedded in ASM's plasma-based deposition equipment, is an enabler for next generation devices.

Advantages of ALD

ALD is the only deposition technology capable of meeting the coverage and film-property requirements for complex 3D structures, such as the 3D-NAND example shown here. Compared to CVD methods, ALD has unmatched capability to conformally cover 3D structures with complex materials, with near-perfect chemical composition and electrical properties control.

The graphic of the **CVD A (1)** case shows that the deposited film (blue) does not fully cover the lower portions of the structure. With some process adjustments for the **CVD B (2)** case, coverage is achieved, but the film properties and chemical composition are poor (white areas) in the bottom area.

The **ALD (3)** graphic shows fully conformal coverage – and due to ASM's ALD technology methods, high quality and uniform film properties are achieved in all areas of the structure.



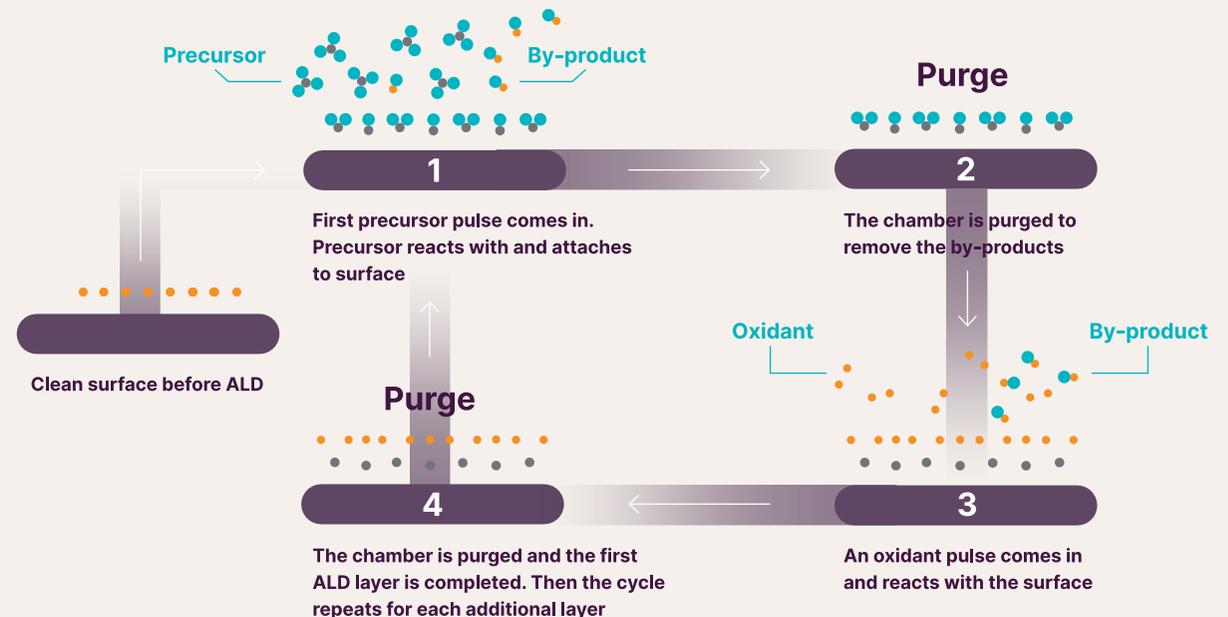
On our XP platform, we offer Pulsar and EmerALD single-chamber ALD process modules for high-k dielectric and metal gate films respectively. The Synergis ALD tool uses the XP8 platform with DCM modules, and leverages the core technologies from our Pulsar and EmerALD ALD products for high-productivity thermal ALD applications. Synergis is available for a range of films, including high-k metal oxides, metal nitrides, and metals.

Also on the XP8 common platform architecture, we offer PEALD processes for a wide range of applications. The Eagle XP8 uses DCM module configurations for high-productivity silicon oxides, metal oxides, and nitrides. Our XP8 QCM tool offers PEALD processing on quad chamber modules for very high productivity. A wide range of silicon oxide and silicon nitride process applications are available with the QCM tool. Our XP8 QCM tool excels in the 3D-NAND high aspect ratio dielectric gap-fill application. This is where silicon oxide films are deposited void-free in deep trenches that are up to 100 times deeper than their width. In 2022, we introduced TENZA ALD, an innovative process technology that provides great film quality, conformal coverage through the full trench, and the highest productivity in its class.

ALD cycle

ALD is a surface-controlled layer-by-layer process that deposits thin films one atomic layer at a time. Layers are formed during ALD reaction cycles by alternately pulsing precursors and oxidants, and purging by-products with inert gas in between each pulse.

The repetition of the ALD cycles results in a layer-by-layer growth of the deposited film. Because the ALD process is self-limiting, due to the principle of surface saturation, it results in films with a uniform thickness, even over varied surface topographies (conformality). The thickness of the film is precisely controlled by adjusting the number of ALD cycles.



Epitaxy (Epi)

Silicon epitaxy (Si Epi) is used for depositing precisely controlled crystalline silicon-based layers, a critical process technology for creating advanced transistors and memories. The Epi market is growing quickly, driven by increased complexity for advanced node applications such as gate-all-around transistors. ASM has the number two share in the Epi equipment market, and we saw solid growth in our 2023 Epi revenues. In addition to advanced transistors Epi applications, one of our strengths in Epi is in the growing analog/power segment.

Our most advanced Epi tool is the Intrepid ES for transistor applications, using our XP platform to configure up to four Intrepid reactors on the same tool. Temperature control is extremely important in Epi reactors. We have developed new methods of temperature control in our Intrepid ES Epi tool that enable improved film performance and repeatability in volume production. Intrepid's closed-loop reactor temperature control brings enhanced stability in production. Turino-CL is Intrepid's new multi-point pyrometer-based temperature-measurement system that further improves temperature control performance.

For enhanced Epi film performance, we offer the Previu process module, a pre-deposition wafer surface clean technology, integrated with Intrepid epitaxy process modules. The surface clean process is used prior to the epitaxy deposition to create a pristine silicon surface for defect-free epitaxy film deposition. This is critical for achieving the most advanced node transistor-performance requirements.

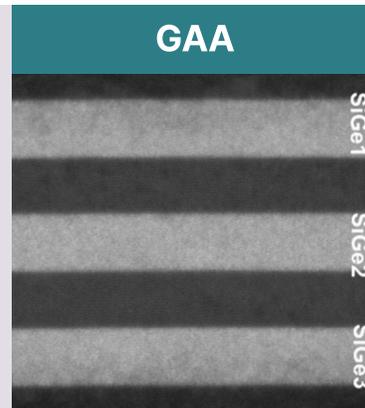
For silicon-based analog/power devices and wafer-manufacturing applications, we offer our Intrepid ESA tool for 300mm silicon-based epitaxy. The Intrepid reactor architecture allows for thick Epi deposition in a single pass, a significant productivity benefit for our power and wafer customers. For 200mm epitaxy applications, still relatively significant in the analog/power market, we offer the Epsilon 2000 tool.

Multi-layer Epi nanosheets for GAA

Epitaxy (Epi) is a special CVD process for depositing a new crystalline layer, such as silicon or silicon germanium, on top of an atomically clean crystalline surface. Epitaxy improves the electrical characteristics of the wafer surface in a highly controlled manner, making it suitable for complex microprocessors and memory devices.

For advanced gate-all-around (GAA) applications, Epi is required to create the transistor channel using a multi-layer stack of silicon (Si) and silicon germanium (SiGe) nanosheets. Precise control of material purity, layer thickness and smooth interface transition between the epitaxial layers are critical for device performance.

With our Intrepid ES epitaxy system, we have a number of innovations in our process chemistry and chamber design to enable the right performance and cost for advanced Epi applications.



Multi-layer stack of nanosheets

Silicon carbide (SiC) epitaxy

SiC is ASM's newest product line, following our acquisition of LPE. The SiC epitaxy equipment market is growing fast due to the electrification of the automotive industry. SiC devices provide greater battery life and a longer range for EVs. Because of its wide band gap, SiC is efficient at high voltages, offering higher power efficiency, increased power density resulting in reduced component weight and size, and faster battery-charging times. The Power SiC device market is expected to grow strongly at CAGR >30% from 2022-2028, and reach nearly US\$9 billion by 2028 (Yole Intelligence 2023).

With Italian-based LPE, ASM now has a solid position in the SiC epitaxy market, and we plan to further strengthen the SiC product offerings by drawing on our global engineering, quality, supply-chain, and customer-support capabilities. In 2023, we completed the integration of the new SiC team, expanded the organization, and achieved solid growth in SiC sales. Our SiC tools use an epitaxy process to deposit the SiC materials on either bare substrates or as part of the transistor device fabrication process. The ASM SiC tool portfolio includes the PE106A and PE108, single-wafer epitaxy tools for 150mm and 200mm respectively. For higher productivity, we also offer the PE208 dual chamber 200mm tool. The transition to 200mm SiC is a major technology inflection, which positions single wafer reactors like ASM's particularly well since thickness and material uniformity control is more challenging at 200mm.



SONORA batch vertical furnace 300mm

Launched in 2022, SONORA is our new 300mm batch vertical furnace. SONORA features a range of improvements compared to its predecessor, the A412, including up to 30% more productivity, with a reduced footprint, as well as increased reliability, and improved ease of use.

PECVD and vertical furnaces

ASM is also active in the vertical furnace and plasma-enhanced CVD (PECVD) market segments. While these are each large segments, we are focused on niche portions of the market.

Vertical furnaces use a batch configuration. This means a large number of wafers are processed at the same time for productivity and cost savings. We design our furnace tools with dual-batch reactors for even more productivity. A wide range of process applications are available on our furnace tools, including LPCVD, oxidation, diffusion, and cure.

Our furnace tools include the SONORA vertical furnace for 300mm logic/foundry and memory applications, as well as 300mm analog/power. SONORA sales increased significantly in 2023 to multiple customers globally, among them leaders in advanced logic, and power device manufacturing. We also offer the A400 DUO vertical furnace for 200mm and smaller wafers, targeting analog/power, RF, and MEMS applications. The A400 DUO has achieved significant wins in the China market.

In PECVD, our key position is on low-k for advanced logic interconnects. PECVD processes are offered on our high-productivity XP8 platform. Our Dragon XP8 PECVD tool addresses a broad range of dielectric films for various low-temperature deposition applications, such as interconnect layers, gap-fill, passivation layers, and etch stop layers.

More information about our product technology can be found on ASM's website.

Spares & Services

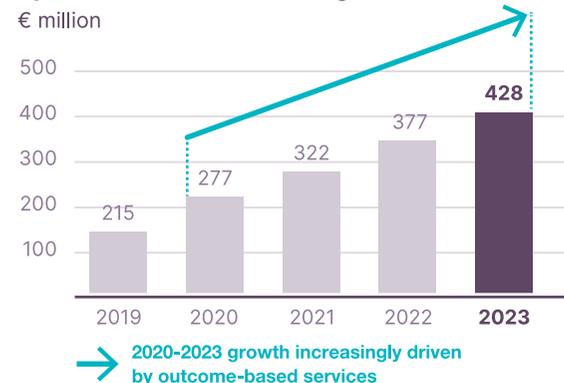
All of ASM's technologies mentioned above come in the form of sophisticated and complex systems that ship to our worldwide customers. These are installed at their fabs, along with other similar systems used in series to create microchips.

Of course, our service capabilities and performance are a key factor in our customer's equipment-selection process. When customers choose ASM systems, it is also based on how ASM's systems have performed on a very limited scale – within our demo labs or during a single system evaluation at the customer site. Once they choose ASM to ramp into production, the customer trusts that our system will meet their needs and enable their success. Failing a customer during a production ramp would cause them significant problems.

This is where ASM's Global Spares & Services group (GSS) comes in. We work to make sure our systems are installed properly in the customer fab, are started up to make sure they perform as they should, and continue to run in production 24/7 for 20+ years, across tens to hundreds of such tools in the customer fabs, no matter where they are in the world.

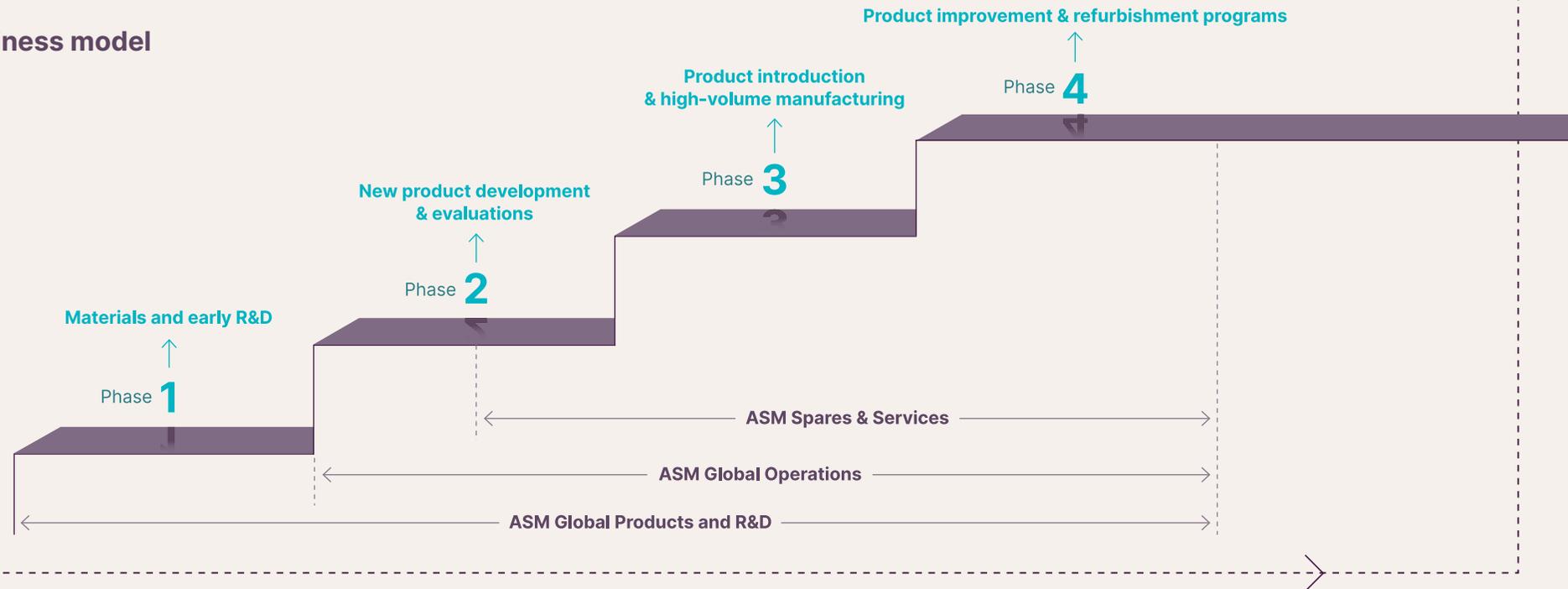
In the past few years, GSS has grown its support beyond making sure trained maintenance staff and spare parts are available, and systems are running. Today, GSS provides what we call outcome-based services. Its aim is to draw out ever-greater performance from our installed base of systems, through engineering-based improvements to the parts and procedures we use. This can deliver improvements such as fewer defects, longer parts and system life, better film uniformities, more process repeatability, and, ultimately, lower operating costs for our customers.

Spares & Services revenue growth



• Customer collaboration • Supplier collaboration • University and research institute collaboration

4.6 Our business model



Phase 1 ASM's business model emphasizes early phase R&D, collaborations, and wide-ranging customer engagement. At our R&D labs in Helsinki, Finland, we focus on early stage R&D for developing new materials and new precursor chemistries. A critical component is close and early collaboration with global research institutions, such as imec, key universities, suppliers and leading customers.

Phase 2 These engagements are particularly beneficial during the new product development phase, when each of our product lines designs and implements new systems and processes to meet upcoming customer roadmap requirements. When new products are ready, ASM often places evaluation tools at key customer sites to demonstrate critical performance factors and to optimize the equipment and process technology.

Phase 3 When evaluations and product enhancements are completed, and ASM has been selected as the production tool of record (PTOR) supplier, new products are ready to be shipped to customers for high-volume manufacturing (HVM). At this point our manufacturing site is ready for volume manufacturing of the new products. While our customer support teams are already engaged at the evaluation phase, the on-site service, spare parts management and process support activities ramp up substantially for HVM.

Phase 4 Over time in production, our products are involved in CIP, or continuous improvement program activity, a focused effort to further optimize the product performance based on the learnings and results in the customer fab environment. Furthermore, from a longer term and sustainability and circularity perspective, we look to extend the product's life cycle with a team that works on refurbishment and upgrade solutions for our installed base. We actively work with customers to implement improvements so existing products can continue operating even as technical requirements become more challenging.

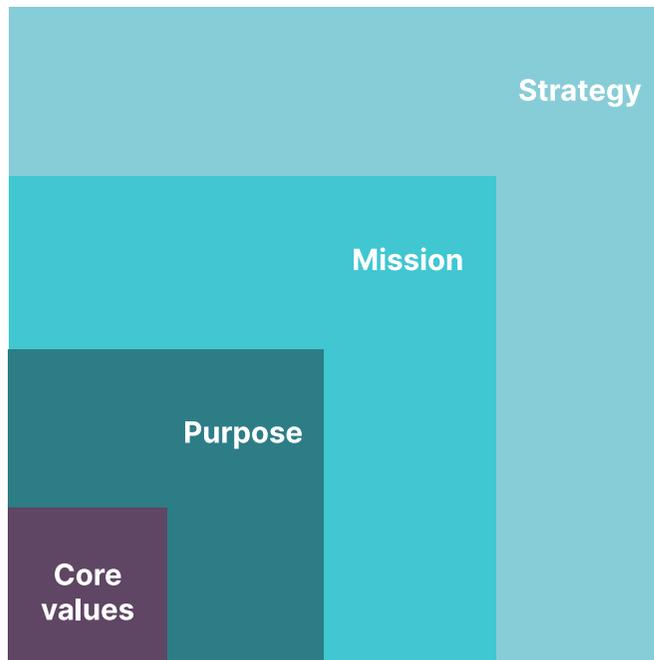
Strategy and value creation

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5. Strategy

We are an innovation leader in the semiconductor industry. This is the result of our focus on key issues and challenges within the industry, enabling us to make a difference to and create value for our customers, employees, investors, and other company stakeholders, while we continue to bring our breakthrough technologies into volume manufacturing.



Core values

Our values – We Care, We Innovate, We Deliver – are central to all we do at ASM. They guide every employee in their daily activities, and are a cornerstone of our culture.

Purpose

Our purpose is to improve people's lives by advancing technologies that unlock new potential.

ASM is a leader in innovation for the semiconductor industry. With our technology, we help move the industry roadmap forward, driving innovation in the electronics market and improving people's lives.

Mission

Our mission is to enable our customers' success by creating leading-edge semiconductor process products, services, and new materials.

Our deposition technology helps our customers address their

device and process-development challenges. By partnering with leading chipmakers to develop new materials, processes, and technologies that support their roadmaps, we drive innovation in semiconductor technology. This helps create new, improved semiconductor devices. With our deep understanding of the important requirements of the next generations of device roadmaps, we are able to develop value-added service solutions to the industry's critical issues.

Strategy

Our strategy is Growth through Innovation, with innovation at the core of what we do at ASM. With our global, networked R&D model, we can collaborate closely with our customers, industry partners, and universities early on.

Over the past 20 years, we have accumulated a vast amount of know-how in ALD materials and chemistries. Coupled with decades of experience in developing reactors and processes, ASM has a legacy of innovation of more than half a century.

5.1 Core values

Our core values are central to who we are at ASM, and what we stand for.



We Care

- Together we care for our people, society, and our planet.
- Together we act with integrity, compassion, and respect, at all times.
- Together we are inclusive, inspired by others, and always growing.



We Innovate

- Together we lead our industry and work towards a common goal.
- Together we think creatively, with truly open minds.
- Together we challenge the norms and embrace diversity of thoughts.



We Deliver

- Together we perform at our best and deliver on our promises.
- Together we ensure satisfaction and exceed expectations.
- Together we take ownership and are accountable for our actions.

Best practice behaviors

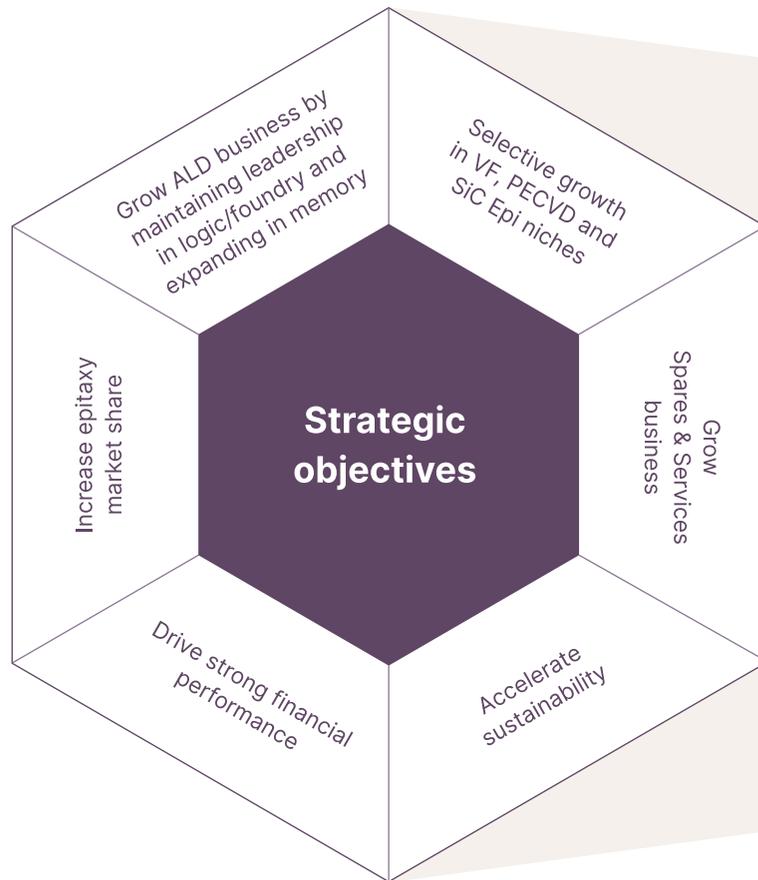


ACE

In addition to these core values, we added best practice behaviors on three specific elements – Accountability, Collaboration and Empowerment (ACE) – to shape our company culture.

5.2 External trends and challenges

- **The digitalization of society is accelerating** Technology is increasingly shaping how we live and work – and much of this technology is created with advanced semiconductors. As society becomes more automated and connected, we're relying on a broad range of electronic devices to control our homes, offices, vehicles, and communications. Our connected world is leading to a growing demand for massive amounts of data. This needs ever-greater computer-processing power and storage, capable of analyzing and acting on the data quickly and effectively. Also, the increased use of green energy and investments in green infrastructure require semiconductor technologies. The processing power of semiconductor chips must constantly increase to make this possible. ASM's process equipment is an enabling technology to making this happen.
- **Rising complexity of chip technologies** The continuation of Moore's Law, which states that the number of transistors on a chip doubles every two years, is becoming increasingly difficult. The equipment costs for these advanced nodes are rising, which will place greater pressure on equipment manufacturers to create innovative solutions. At the same time, increasing complexity and smaller chip technology means more ALD and Epi steps. Being at the forefront of technology development is critical to continuing success.
- **Attracting and retaining talented people** We need the right people to grow and strengthen our organization, but there is increasing competition for highly skilled talent everywhere we operate. Without this talent, we will not be able to realize our strategy.
- **Environmental footprint** The semiconductor industry provides critical and enabling technology that contributes to society and is vital to progress in the world's sustainability imperatives. However, the industry's environmental footprint is significant and gaining more attention. Our customers place a high priority on their environmental performance and operational economics associated with their fabs. It is key to their decisions when choosing manufacturing equipment. The industry's environmental footprint, and ASM's role in it, is also a priority of our other stakeholders. We continue strengthening our team and global innovation and collaboration network, to enhance the energy and resource efficiency of our products, and in turn, improve the environmental footprint of the industry.
- **Geopolitical risk and shift in global supply** In the past, the success of the semiconductor industry was strongly linked to the success of all parties along the value chain. Innovations by equipment suppliers supported state-of-the-art solutions developed by chip manufacturers. This led to new opportunities for customers to take advantage of these advanced chips. Geopolitical developments, such as trade restrictions, put this model at risk. Increasing awareness around the importance of a domestic semiconductor industry is leading to shifts in the industry's global footprint. We carefully review any impact such developments may have for us, while taking advantage of new opportunities they may offer.
- **Scarce resources** The increased global demand for semiconductors is fueling the need for more scarce resources. Our obligation to responsibly source resources will drive us to continue our innovations around the development of new chemistries, the design and manufacture of our equipment, and our value-added services that can increase circularity.



Strategy enablers

To be able to realize our strategy and strategic objectives, we identified five critical enablers. These key enablers support all strategic objectives.



Best people



Leading-edge innovation



Early customer engagement



Flawless operational excellence



Strong financial position

5.3 Key elements and enablers of our strategy

Our strategy is based on the following six strategic objectives:

Grow ALD business by maintaining leadership in logic/foundry and expanding in memory

Our ALD business is a key priority. We expect that ALD will continue to grow as a core technology as our customers transition to the next nodes. We also expect the ALD market to be the fastest-growing segment in the deposition market in coming years. We are focused on maintaining our leading position in the logic/foundry segment, and increasing our market share in memory. Supported by a strong increase in our R&D engagements in DRAM and 3D-NAND applications for the next nodes, we aim to meaningfully increase the contribution of our memory business over time. We estimate that the single-wafer

ALD market will grow to US\$4.2-5.0 billion in 2027. Our goal is to have a market share larger than 55% in 2027.

Increase Epi market share

Epitaxy silicon has become a second growth engine in our product portfolio. Our Intrepid product has enabled us to make successful inroads in the advanced CMOS part of the Epi market, while increasing our presence in the analog/power market. In R&D, we are working with multiple customers on new Epi applications for the next nodes, which should further grow our market share. We estimate the Epi silicon market will increase from US\$2 billion in 2022 to US\$2.3-US\$2.9 billion in 2027. We aim to have a market share of more than 30% by that time.

Selective growth in VF, PECVD and SiC epitaxy niches

In vertical furnaces (VF) and PECVD, we want to develop our niche positions through targeted growth opportunities. Vertical furnace applications for the analog/power market is an example of a niche position we have selectively been investing in.

With the acquisition of LPE in 2022, we have entered the silicon carbide (SiC) epitaxy market, which complements our silicon epitaxy offerings. Silicon carbide devices are an example of green tech. This market segment is experiencing strong growth, primarily driven by the rapidly expanding market for electric vehicles. The global auto industry is investing significantly in chips made from silicon carbide. SiC devices offer higher power efficiency at high voltages, resulting in reduced component weight and size, as well as faster battery charging times, leading to improved sustainability. The power SiC device market is expected to be one of the fastest growing segments of the broader semiconductor market, with a forecasted CAGR in excess of 30% in the period 2022-2028 (source: Yole, 2023).

Grow Spares & Services business

We are growing our Spares & Services business faster by focusing on our differentiated outcome-based services. The Spares & Services group is expanding our engineering and surface-technology expertise and facilities. This will deliver a much better installed-base performance for our customers with a measurable impact on their profitability. These outcome-based services deliver a clear, quantifiable result at a much lower cost than the value brought to them.

ASM Spares & Services is focused on:

- Working with customers to understand their issues and opportunities in our systems.
- Finding high-value / yield solutions.
- Using design and engineering, along with strong supplier support, to lower operational costs for our customers, while a higher share of the customer wallet is put toward ASM's outcome-based services.

Our focus on new outcome-based services has allowed us to grow our Spares & Services revenue at a higher rate than in the past, and at one that is higher than the growth rate of our installed base.

Accelerate sustainability

Our focus is to deliver long-term sustainable value creation for all our stakeholders.

We aspire to be a sustainability leader in our industry, toward which these examples are indicative:

- Our Net Zero by 2035 target (1.5°C, all scopes), which was verified by SBTi in August 2023.
- Our principal role in forming the Semiconductor Climate Consortium, joining as a founding member, and then in January 2023, being elected as Chair of the SCC's Governing Council.
- Key customers consistently recognizing and awarding ASM as an industry safety leader.
- Improvement in key ESG ratings that reflect our underlying progress.

In addition, we invest in making our products more sustainable and continue to invest in those segments that support the green transition. We will continue to address key sustainability and ESG topics and opportunities that are in line with our strategy and informed by our stakeholder priorities.

Drive strong financial performance

Healthy profitability will allow us to continue investing in growth. To this end, we have drawn up our profitability targets for the period 2024-2027. We strive to achieve gross margins between 46% and 50%, and an operating margin of 26% to 31%, generating strong free cash flow.

Our five strategic enablers

To be able to realize our strategy and strategic objectives, we identified five critical enablers. All our activities are focused around these elements:

Best people

Our people are at the heart of our company's success. We strive to create a safe, inclusive, inspiring, and motivating workplace where our employees are able to use their talents, excel, and develop their potential as we work together to deliver the cutting-edge technologies of tomorrow. As our workforce rapidly expands, we are focusing on strengthening ASM. This means developing our talent pool with more long-term career progression and training. It also means strengthening and unifying our ASM culture. Our core values – We Care, We Innovate, We Deliver – help us grow employee engagement, and shape an even more diverse and inclusive culture. This will support us in attracting, retaining, and developing the talent we need to support us as we grow.

Leading-edge innovation

The core part of our overall growth strategy is continuous innovation – this is to provide ASM with a leading technological competitive advantage. With R&D centers in seven countries, we have helped shape today's leading-edge semiconductor products by driving innovation through our collaborative R&D models. We have successfully delivered advanced new materials, products, and processes to our customers. Our R&D spending is focused on developing new materials and process solutions that enable additional applications. Continuous product improvements in performance, reliability, and cost of ownership is key. We are also focused on improving the energy and resource efficiency of our products. In addition, we are making capital investments in lab space and equipment to further expand our development capabilities in next-generation technologies. As well as our internal R&D efforts, we are growing and deepening our strategic cooperation with key customers, suppliers, chemical manufacturers, and research institutes.

Early customer engagements

We have strong customer relationships with the leading semiconductor manufacturers, working closely together in the early stages of their device roadmaps. As we have expanded and deepened our R&D engagements with chipmakers, we have developed our understanding of the key requirements of the next generation of device roadmaps. This is enabling us to develop value-added solutions to the industry's critical technology issues.

Flawless operational excellence

While technology leadership remains crucial, we see operational excellence as essential to strengthen our future position. We aim to provide our customers with dependable, leading-edge products and services at a consistent performance level, while providing the best total cost of ownership. We continuously focus on making our organization even more effective and efficient. Following our strong growth in recent years, we need to strengthen our organization and business processes in specific areas. For example, we are stepping up our capabilities in engineering, product lifecycle management (PLM), and quality. We aim to strengthen our new product introduction processes to provide our customers with additional on-site support, as the pace of technological change continues to accelerate.

Strong financial position

We strive to maintain a strong balance sheet that allows us to continue investing in R&D and in the growth of our company. To this end, our target is to maintain a minimum amount of cash on our balance sheet €600 million in the period until 2027 (as announced at our Investor Day in September 2023). At the end of 2023, we had €637 million in cash and cash equivalents. ASM generated a healthy free cash flow of €447 million excluding acquisitions.

6. Our sustainability approach

Our innovations and technology sit at the core of our mission to drive positive change for society and the environment. We aspire to become a sustainability leader, transcending the boundaries of our industry. This journey is fueled by our commitment to understanding and responding to our stakeholders' needs. By aligning our strategic vision with these priorities, we set ambitious goals, guided by the expertise of leading bodies and standards.

Our approach is not just about setting targets; it is about taking action. We pursue innovative solutions, fostering collaborations that broaden our impact beyond our immediate reach. Transparency is a critical guardrail as we openly share our triumphs and challenges, providing an honest picture of our progress.

This is not a standalone effort; it is a fundamental thread woven into the fabric of our ambition towards long-term value creation for our stakeholders. This ambition fuels us to advance five key United Nations Sustainable Development Goals (UN SDGs), which we consider closest to our core business:

- Ensuring clean and affordable energy (SDG 7)
- Promoting decent work and economic growth (SDG 8)
- Fostering industry, innovation, and infrastructure (SDG 9)
- Promoting responsible consumption and production (SDG 12)
- Taking action to combat climate change and its impacts (SDG 13)



By aligning our sustainability strategy with these SDGs, we are not only reinforcing our commitment to being a responsible corporate citizen, but also solidifying our position as a catalyst for technological advancement and positive change.

Our materiality assessment

Engaging with our stakeholders is a critical element of our sustainability approach. We maintain an open dialogue to understand our stakeholders' expectations and use their insights to inform our sustainability strategy. We also describe our approach to stakeholder dialogues and gathering of insights in our Stakeholder Engagement policy, which is available on ASM's [website](#).

As part of our ambition to understand stakeholder needs, ASM performed an update to our materiality analysis to help reevaluate our sustainability priorities. We applied a two-dimensional lens through which ESG matters are assessed on relevance. Through Impact Materiality, we considered ASM's impact on people and the environment, while Financial Materiality explored how ASM's business can potentially be affected by ESG issues financially.

For more details on ASM's approach to stakeholder engagement as well as an overview of our sustainability memberships, please refer to section 19 of this Annual Report. For more on the process we followed for our materiality assessment in 2023, see our 'Sustainability Supplement' on ASM's [website](#).

Results 2023

Following the aforementioned process, the material topics identified in 2023 are depicted in the table below. These topics represent ASM's ESG priorities in alphabetical order. The topics listed might change in the future, as we align our disclosures to the Corporate Sustainability Reporting Directive. For our results on these topics, see the respective sections of this Annual Report.

ESG priorities

(Anti-)Bribery and corruption	Dishonest persuasion to have someone act in one's favor by, e.g., gifts and abuse of power for private gain, which can be initiated by individuals or organizations (e.g. fraud, extortion, collusion, and money laundering).	Refer to section 13.4
Climate-change adaptation	The process of adjustment to actual and expected climate change and its impacts.	Refer to section 11.1
Climate-change mitigation	Measures to reduce ASM's contribution to climate change through reduction of GHG emissions	Refer to sections 11.1 and 12.4
Corporate culture	Corporate culture expresses goals through values and beliefs. It guides organizational activities through shared assumptions and group norms such as values or a code of conduct.	Refer to section 10.1
Diversity and gender equality	Representation and equal treatment of underrepresented groups in own workforce.	Refer to section 10.1
Energy availability	Access to energy for ASM's operations becomes limited or restricted due to energy scarcity.	Refer to section 11.1
Equal pay	Non-discriminatory wages for employees performing work of equal value.	Refer to section 10.1
Health & safety at ASM and ASM suppliers	The physical and mental well-being of employees or suppliers as well as their personal security at work.	Refer to sections 10.3 and 12.4
Involuntary labor at ASM suppliers	All work or service demanded from any person under the threat of penalty, and for which the person has not offered him- or herself voluntarily (at ASM suppliers).	Refer to sections 21.1 and 21.2
Living wage	A wage that provides for the satisfaction of the needs of the worker and his / her family in light of national economic and social conditions.	Refer to section 21.1
Training and skills development	Initiatives aimed at the maintenance and/or improvement of skills and knowledge of ASM employees.	Refer to section 10.2
Working hours at ASM and ASM suppliers	The amount of time spent by employees or suppliers performing labor in service of its employer.	Refer to sections 21.1 and 21.2

In addition, various other ESG topics are put into context in which our impacts are explained. Please refer to the Sustainability Statements section of this report, with additional details on ASM's ESG approach, covered through chapters 19-26.

Sustainability achievements in 2023

2023 sustainability highlights include:

- Having our Net Zero by 2035 targets verified by the Science Based Targets initiative (SBTi), as the first in the semiconductor industry.
- We grew our share of renewable electricity to 88%, on track to reach our target of 100% renewable electricity for our operations by 2024.
- ASM took on various external leadership positions, including elected chair of the Semiconductor Climate Consortium, serving as the president-elect of SESA and holding a board member position in the UN Global Compact Netherlands network.
- We became a founding member of Catalyze, an industry-wide initiative focused on accelerating the adoption of renewable electricity into the supply chain.
- To strengthen the governance around sustainability, we formalized the roles of the Supervisory Board and the Audit Committee with regard to sustainability impacts, risks, and opportunities, as well as our ESG disclosures.

In 2023, ASM continued to be recognized across multiple ESG ratings. These rating results are captured in the table below.

ESG ratings

ESG ratings and indices		2023 result
CDP Climate Change and Water Security		A- / A-
S&P Global CSA		67 and yearbook member
Sustainalytics		Risk rating 12.4 (low risk)
MSCI ESG		AA
ISS ESG Corporate Rating		C
FTSE Russell		4.0

7. Long-term value creation

We are committed to long-term sustainable value. We create value for all our stakeholders as we grow our business and develop leading-edge technologies, while accelerating our focus on sustainability.

7.1 How we create value for our stakeholders

Our purpose is to improve people's lives through advancing technologies that unlock new potential. We serve society by helping our customers produce chips for the advanced electronics that deliver improvements and opportunities across many aspects of our lives, as well as the planet. Our innovations and leading-edge technologies, such as our ALD products, enable our customers and our industry to develop faster and more power-efficient semiconductors.

Accelerating sustainability is one of the pillars of our strategy. ASM's sustainability focus areas are Innovation, People, Planet, Responsible supply chain, and Governance. In Planet, as an example, we have prioritized focus on climate response, water security, and circularity. After announcing our Net Zero by 2035 ambition in 2021, our net-zero targets were verified by SBTi in 2023. We aim to collaborate with stakeholders across our value chain with the ambition to bring faster and more meaningful change to the environmental challenges facing the world today. A key example is our leading role in co-founding the Semiconductor Climate Consortium (SCC).

Innovation is in our DNA. We work at the edge of what is technologically possible, creating an attractive professional and learning environment for our employees. As we aspire to be an employer of choice for existing and future talents, we are constantly focused on improving our employee experience. Our 2023 employee engagement pulse survey has a high response rate of 94%. On diversity and inclusion, we are focused on increasing the female participation rate, with a target of 20% female workforce by 2025, up from 17% in 2023. In safety, our vision is ZERO HARM!, where we foster a safety leadership culture regardless of role. This means we strive to prevent all incidents and injuries, regardless of severity or

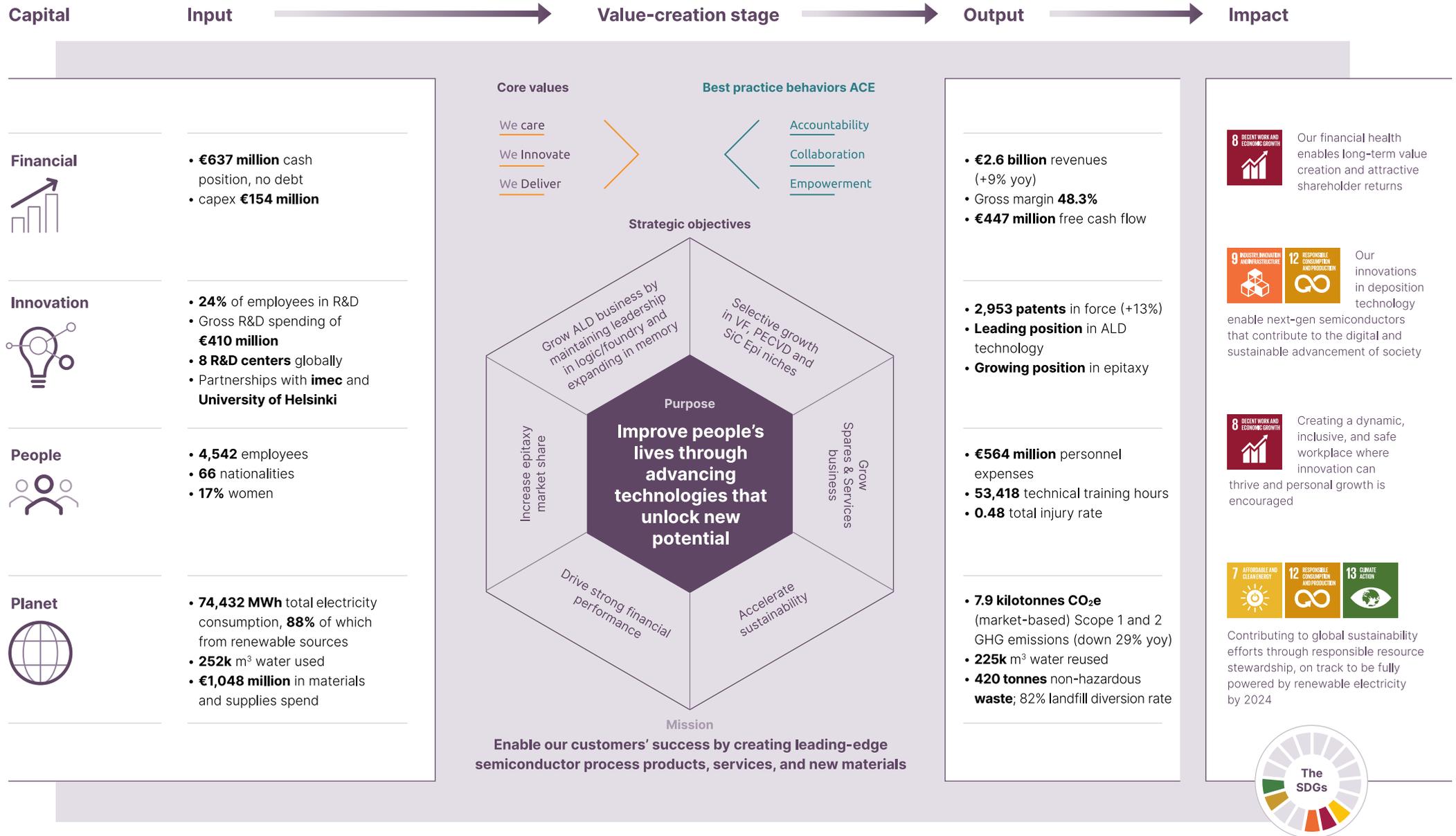
impact. We prioritize and focus on prevention, meaning we aim to remove all exposure to harm.

Our mission is to enable our customers' success. We focus on value creation for our customers, by continuously improving our products to support their technology roadmaps, to lower cost of ownership, and enable next-generation chips. Critical to our success is close and early collaboration with our customers, to make sure our products meet their requirements, with service teams for ongoing equipment and process support. To expand our contribution and impact, we collaborate with our customers on sustainability topics wherever possible. As an example, through innovation we aim to further improve the energy and resource efficiency of our products.

Our suppliers are key partners. As we grow our business, the opportunities for our suppliers increase. ASM continues to expand its global supply chain to support the need for technology, capacity, flexibility, and sustainability. Together with our suppliers, we can create positive impact for our stakeholders, the planet, and society overall – well beyond our individual scale. We strive to further build on a sustainable, responsible supply chain, with a focus on areas such as worker safety, environmental footprint, human rights, and supplier diversity.

We create value for our shareholders as we focus on long-term sustainable growth. Leveraging our advanced technologies and our positions in fast-growing markets such as ALD, we aim to deliver revenue growth of on average 11%-16% annually in the 2022-2027 period, with healthy operating margins of 26%-31%. We aim to maintain a strong financial position. Our key capital allocation priority is to invest in the growth of our business. We are committed to our sustainable dividend policy and to return excess cash to our shareholders. With the publication of the Q4 2023 results on February 27, 2024, we announced a new €150 million share-buyback program.

7.2 Our value-creation model



Free cash flow is a non-IFRS performance measure. It is calculated as cash flows from operating activities after investing activities.

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8. Financial performance

ASM delivered a robust performance in 2023, despite softer market conditions. Our operating result improved by 3% as reported, supported by higher gross margin. We continued to step up our investments in R&D.

€2,634m	48.3%	€654m	€447m
Revenue	Gross margin	Operating result	Free cash flow

8.1 Performance review

Against the backdrop of softening demand, ASM's financial performance was robust in 2023. Revenue increased by 9% as reported (13% at constant currencies). Operating profit increased to €654 million from €632 million in 2022, supported by a higher gross profit despite continued investment in R&D.

Order intake and backlog

For the full year 2023, bookings dropped compared to the high level in 2022. Apart from softening demand, this decrease was also explained by early ordering by some customers in 2022, particularly in the first half of the year, due to the tight supply-chain conditions in that period. In the course of 2023, supply-chain conditions largely normalized, with the exception of some specialty materials and components.

(€ million)	Year ended December 31,		
	2022	2023	% Change
Backlog at the beginning of the year	811.3	1,669.2	106 %
Additions through business combinations	106.8	—	n/a
New orders	3,152.5	2,438.2	(23)%
Revenue	(2,410.9)	(2,634.3)	9 %
FX-effect	9.5	(39.6)	
Backlog at the end of the year	1,669.2	1,433.5	(14)%
Book-to-bill ratio (new orders divided by revenue)	1.3	0.9	

Following a solid order intake in the first quarter of 2023 at €647 million, second quarter bookings came in at €486 million, impacted by push-outs in advanced logic/foundry, reflecting softer end-market conditions. and some delays in new customer fab readiness. In the third and fourth quarter, order intake rebounded to €627 million and €678 million respectively, even though still lower compared to the same periods in 2022. Order intake in the third and fourth quarter of 2023 was supported by the first meaningful orders related to the start of the gate-all-around (GAA) pilot lines.

At the end of 2023, our backlog amounted to €1,433 million, down from €1,669 million at the end of 2022. The book-to-bill ratio, measured by orders divided by revenue, was 0.9 in 2023, down from 1.3 in 2022. Equipment bookings in 2023 were led by foundry, followed by logic, power/analog/wafer, and then memory.

Free cash flow is a non-IFRS performance measure. It is calculated as cash flows from operating activities after investing activities. Normalized figures are non-IFRS performance measures. Reference is made to the table at the end of this section for a reconciliation of non-IFRS performance measures.

Operating performance overview

(€ million)	2022	2023	Change
Revenue	2,410.9	2,634.3	9 %
Gross profit	1,142.9	1,271.7	11 %
Gross margin	47.4 %	48.3 %	
Normalized gross profit ¹	1,146.0	1,298.6	13 %
Normalized gross margin ¹	47.5 %	49.3 %	
Selling, general and administrative expenses	(276.6)	(308.7)	12 %
Normalized selling, general and administrative expenses ¹	(275.3)	(303.9)	10 %
Net research and development expenses	(233.9)	(309.3)	32 %
Normalized net research and development expenses ¹	(229.4)	(295.3)	29 %
Operating result	632.4	653.7	3 %
Operating margin	26.2 %	24.8 %	
Normalized operating result ¹	641.1	699.5	9 %
Normalized operating margin ¹	26.6 %	26.6 %	
Share in income of investments in associates	64.8	17.5	(47.3)
(Impairment) Reversal of impairment of investments in associates, net	(215.4)	215.4	430.8
Net earnings	389.1	752.1	363.0
Normalized net earnings ¹	627.2	583.2	(44.0)
Net earnings per share, diluted	€7.93	€15.18	€7.25
Normalized net earnings per share, diluted ¹	€12.77	€11.77	€(1.00)

¹ Normalized figures are non-IFRS performance measures. For a reconciliation of non-IFRS performance measures, see the table at the end of this section.

Revenue

(€ million)	Year ended December 31,		
	2022	2023	% Change
Equipment revenue	2,033.7	2,205.8	8 %
Spares & Services revenue	377.2	428.5	14 %
Total	2,410.9	2,634.3	9 %

Total revenue grew by 9% year-on-year and by 13% at constant currencies. Equipment revenue, which accounted for 84% of total revenue, grew by 8% in 2023 as reported, and by 12% at constant currencies.

In terms of customer segments, equipment revenue was led in 2023 by the foundry segment, followed by power/analog/wafer, logic, and then memory. Combined logic/foundry sales were up moderately, and continued to account for the larger part of equipment sales. In the first quarter of 2023, the advanced part of the logic/foundry market was still solid, but starting in the second quarter, conditions in this segment softened, impacted by continued sluggish end-markets, and order push-outs due to delays in a number of new customers' fabs. The weakness in the advanced segment was offset by a strong increase in mature logic/foundry sales, particularly in the Chinese market.

Memory sales dropped by around 40%, reflecting the sharp correction in this segment. As a percentage of total equipment sales, the memory segment was 11% in 2023, down from 19% in 2022.

Revenue in our combined power, analog and wafer segment almost doubled in 2023, for a large part driven by strong demand in the Chinese market. Sales were also positively impacted by the consolidation of LPE (silicon carbide Epi), with sales comfortably meeting our target of more than €130 million in 2023.

In 2023, ALD continued to be our largest product line, despite a modest decrease year-over-year, due to softer end-market conditions in advanced logic/foundry and memory. Silicon epitaxy, our second-largest product line, recorded double-digit growth

in 2023, with continued strong demand for our new Intrepid ESA tool for 300mm power and wafer applications. Next to SiC Epi, our fastest growing product line in 2023 was vertical furnaces, which benefited from strong demand for our new SONORA platform that was launched in 2022. Both our Si Epi and vertical furnace product lines benefited from strong demand in the power, analog and wafer segment, including in China.

Spares & Services revenue increased by 14% (17% in 2022), and by 19% at constant currencies. Growth continued to be driven by solid momentum in our outcome-based services.

Revenue from our 10 largest customers accounted for 77.8% and 64.9% of revenue in 2022 and 2023, respectively. The five largest customers accounted for around 48.7% of revenue in 2023 (2022: 67.5%). In 2022 and 2023, we had two customers who contributed more than 10% of total revenue.

The table below shows our revenue breakdown by geography:

(€ million)	Year ended December 31,			
	2022		2023	
United States	561.8	23.3 %	555.1	21.1 %
Europe	264.3	11.0 %	302.7	11.5 %
Asia	1,584.8	65.7 %	1,776.5	67.4 %
Total	2,410.9	100.0 %	2,634.3	100.0 %

Sales from the United States moderately decreased, while Europe and Asia increased.

Growth in Asia was mainly driven by significantly higher sales in China.

Gross margin

Total gross profit developed as follows:

(€ million)	Year ended December 31,				Increase (decrease) percentage points
	2022	2023	2022	2023	
Gross profit	1,142.9	1,271.7	47.4 %	48.3 %	0.9
Normalized gross profit	1,146.0	1,298.6	47.5 %	49.3 %	1.8

Gross margin increased from 47.4% to 48.3% in 2023. The higher gross margin was explained by mix effects, including an increased contribution from China sales, and, especially in Q1 2023, a favorable application mix within our ALD sales. Our mid-term target for normalized gross margin is a range of 46% to 50%.

Adjusted for PPA amortization, normalized gross margin increased from 47.5% in 2022 to 49.3% in 2023

Selling, general and administrative (SG&A) expenses

(€ million)	Year ended December 31,		
	2022	2023	% Change
Selling, general and administrative expenses	276.6	308.7	12 %
Normalized selling, general and administrative expenses	275.3	303.9	10 %

SG&A expenses increased 12% year-on-year. As a percentage of revenue, SG&A expenses were 11.7% of revenue.

The SG&A increase in 2023 moderated compared to the reported increase of 46% we still recorded in 2022. In 2021 and 2022, we stepped up investments in strengthening the organization, which were for a large part completed in 2023. At the same time we stepped up cost control further in 2023, also in consideration of the softer market conditions. In 2023, total ASM headcount grew by 7%, compared to an increase of 29% in 2022.

Adjusted for PPA amortization, SG&A expenses increased by 10%. As a percentage of revenue, normalized SG&A expenses in 2023 were 11.5%, in line with 2022 (11.4%). Our mid-term target for normalized SG&A expenses as a percentage of revenue is in the high-single digits.

Research and development (R&D) expenses

Net R&D expenses increased by 32% in 2023, driven by a higher headcount - up 11% in 2023 - as well as more R&D projects and engagements with customers for new products and applications in the future technology nodes. As a percentage of revenue, net R&D expenses were 11.7% of revenue.

(€ million)	Year ended December 31,		
	2022	2023	% Change
Gross research and development expenses	301.6	410.2	36 %
Normalized gross research and development expenses	297.2	396.2	33 %
Capitalization of development expenses	(102.6)	(147.2)	43 %
Amortization of capitalized development expenses	34.9	43.8	26 %
Impairment of capitalized development expenses	—	2.5	n/a
Net research and development expenses	233.9	309.3	32 %
Normalized net research and development expenses	229.4	295.3	29 %

Adjusted for PPA amortization, normalized net R&D expenses increased by 29%. As a percentage of revenue, normalized net R&D was 11.2%, up from 9.5% in 2022. Our mid-term target for net R&D as a percentage of revenue is in the high-single digits to low-double digits.

Operating result

(€ million)	Year ended December 31,				Increase (decrease) percentage points
	2022	2023	Operating margin		
	2022	2023	2022	2023	
Operating result	632.4	653.7	26.2 %	24.8 %	(1.4)
Normalized operating result	641.1	699.5	26.6 %	26.6 %	—

Operating result increased 3% year-on-year. The increase in the operating profit was supported by higher gross profit, and partially offset by higher SG&A and R&D expenses. Adjusted for PPA amortization, normalized operating result increased 9% year-over-year.

Operating margin decreased to 24.8% in 2023 from 26.2%. Adjusted for PPA amortization, normalized operating margin was 26.6%, about unchanged compared to the previous year. Our mid-term target for normalized operating margin is 26% to 31%.

Financing costs

Financing costs are mainly related to translation results and the change in fair value of the contingent consideration ("LPE earn-out") of €10 million in 2023 (2022: €3 million). The 2023 translation result included a translation loss of €21 million, compared to a translation gain of €25 million in 2022. The translation results are mainly related to movements in the US dollar in the respective periods. A substantial part of our cash position is denominated in US dollars.

Share in income of investments in associates

The share in income of investments in associates, which reflects our shareholding in ASMPT, decreased to €21 million from €78 million in 2022. This result excludes the amortization of intangible assets related to ASMPT and impairment. At the end of 2023, our stake in ASMPT amounted to 24.85% (2022: 24.95%). Cash dividends received from ASMPT during 2022 and 2023 were €49 million and €31 million, respectively. For further information on ASMPT, please visit www.asmpacific.com.

Impairment (reversal) of investments in associates

The impairment charge of €321 million on investments in associates, recognized in the third quarter of 2022, was completely reversed by the first quarter of 2023, as a result of an increase in the recoverable amount.

The remaining impairment reversal accounted for in the first quarter 2023 related to a non-cash adjustment of €215 million, reflecting an increase in the market valuation of our stake in ASMPT in that quarter.

Income tax

The income tax expense of €114 million (2022: €116 million), normalized for the realization of temporary differences relating to purchase price allocation, amounted to €127 million (2022: €118 million).

The effective tax rate excluding the impairment reversal on, and net income of our investment in ASMPT in 2023 was 18.1% (2022: 17.7%). For further information on tax, see Note 22 to the consolidated financial statements.

Net earnings

Net earnings increased to €752 million in 2023 from €389 million in 2022. Excluding the impairment reversal on, and net income of our investment in ASMPT, as well as PPA amortization, normalized net earnings amounted to €583 million (2022: €627 million).

Cash flow

The following table shows the condensed cash-flow statement:

(€ million)	2022	2023
Net earnings from operations	389.1	752.1
Operating cash flows before changes in working capital ¹	701.0	691.6
Net cash from operating activities	541.5	735.9
Net cash used in investing activities	(474.9)	(289.0)
Cash flows from operating activities after investing activities ¹	66.6	446.8
Net cash used in financing activities	(132.6)	(236.1)
Foreign currency translation effect on cash and cash equivalents	(6.2)	7.2
Net increase (decrease) in cash and cash equivalents	(72.2)	217.9

¹ Non-IFRS financial performance measure. Please see '29. Non-IFRS performance measures'.

We generated cash from operating activities of €736 million (2022: €541 million). We used €289 million cash in investing activities (2022: €475 million) and used €236 million in financing activities (2022: €133 million). Free cash flow amounted to €447 million (€381 million in 2022 excluding the acquisitions of Reno Sub-Systems and LPE).

Capex increased from €101 million in 2022 to €154 million in 2023, in line with our capex guidance for 2023 of €150-200 million. Highlights of our capital expenditures for 2023 were the start of our multi-year investment plan for the expansion of our manufacturing and innovation center in Dongtan, South Korea, set to be completed in 2025; and the purchase of a plot of land in Scottsdale, Arizona, for the construction of a new state-of-the-art R&D facility.

Working capital

Working capital decreased from €495 million to €425 million. This was mainly driven by a decrease in the accounts receivable position from €581 million to €488 million, as we managed good cash collection from customers, and reflecting the lower revenue level in the fourth quarter of 2023 compared to the same quarter of 2022.

Inventories decreased slightly from €538 million to €526 million. Work in progress (WIP) decreased on the back of the normalization in supply-chain conditions. At the same time, we still maintained higher buffer inventories of critical parts and materials to increase our flexibility.

The number of outstanding days of working capital, measured against quarterly revenue, decreased from 61 days as at December 31, 2022, to 60 days as at December 31, 2023.

The working capital developed as follows:

(€ million)	December 31, 2022	December 31, 2023
Inventories	538.4	525.7
Accounts receivable	580.8	487.7
Contract assets	64.0	59.4
Other current assets	48.2	68.8
Accounts payable	(243.5)	(177.7)
Provision for warranty	(34.2)	(22.7)
Contract liabilities	(295.2)	(300.2)
Accrued expenses and other payables	(163.7)	(216.2)
Working capital	494.8	424.8

Liquidity

(€ million)	December 31, 2022	December 31, 2023
Cash	419.3	637.3

We were debt-free as of December 31, 2023 (and 2022). Our principal sources of liquidity consisted of €637 million in cash and cash equivalents, and €150 million in undrawn bank lines. The company has a revolving credit facility (RCF) in place since the end of May 2022. The facility has a tenor of five years with an option to extend up to two years. The facility amount is €150 million and it has an accordion option to increase the facility by an amount of €100 million. The facility includes a financial covenant on the consolidated total net debt/total shareholders' equity ratio. This financial covenant is measured twice a year, on June 30 and December 31. We were compliant with this financial covenant on both measurement periods.

In 2023, ASM converted its revolving credit facility into a sustainability-linked RCF aligned with the Sustainability-Linked Loan Principles by the Loan Market Association. Under the terms of the facility, the interest rate is linked to the achievement of long-term sustainability goals targeting gender diversity, net zero, and value-chain packaging reuse, which are in line with ASM's sustainability strategic focus. Achievement of these targets

will impact the interest rate as the lenders will apply a discount on the existing margin or add a penalty to the existing margin, depending on the sustainability achievement against the target. The original terms and conditions of the RCF remain in place.

For the most part, our cash and cash equivalents are not guaranteed by any governmental agency. We place our cash and cash equivalents with high-quality financial institutions to limit our credit-risk exposure.

Our liquidity is affected by many factors. Some of these relate to our ongoing operations, such as the need to invest in R&D projects and expansion. Others are related to the semiconductor and semiconductor-equipment industries – for example, supply-chain constraints and the phase of the industry cycle – and the economies of the countries where we operate. Although our cash requirements fluctuate, based on the timing and extent of these factors, we believe that cash generated by operations – together with the liquidity provided by our existing cash resources and our financing arrangements – will be sufficient to fund working capital, capital expenditures, and other ongoing business requirements for at least the next 12 months.

For more on our funding, treasury policies, and long-term debt, see notes 11, 16, and 17 to the consolidated financial statements.

Financial risk factors

We are exposed to market risks (including foreign exchange-rate risk), credit risk, liquidity risk, and equity price risk. We may use forward exchange contracts to hedge foreign-exchange risk. We do not enter into financial instrument transactions for trading or speculative purposes. For more on financial risk factors, see note 17 to the consolidated financial statements.

Reconciliation between IFRS and non-IFRS performance measures

(€ million)	Year ended December 31, 2022			Year ended December 31, 2023		
	Reported	delta	Normalized	Reported	delta	Normalized
Revenue	2,410.9	—	2,410.9	2,634.3	—	2,634.3
Cost of sales ¹	(1,268.0)	3.1	(1,264.9)	(1,362.6)	27.0	(1,335.6)
Gross profit ¹	1,142.9	3.1	1,146.0	1,271.7	27.0	1,298.7
Other income	—	—	—	0.1	—	0.1
Operating expenses:						
Selling, general and administrative ¹	(276.6)	1.3	(275.3)	(308.7)	4.8	(303.9)
Research and development ¹	(233.9)	4.4	(229.5)	(309.3)	14.0	(295.3)
Total operating expenses	(510.5)	5.7	(504.8)	(618.0)	18.8	(599.2)
Result from operations	632.4	8.8	641.2	653.7	45.8	699.5
Finance income (expense) ²	(1.9)	2.6	0.7	1.2	9.7	10.9
Foreign currency exchange gain (loss)	25.0	—	25.0	(21.4)	—	(21.4)
Net finance income (costs) ²	23.2	2.6	25.8	(20.1)	9.7	(10.4)
Share in income of investments in associates ¹	64.8	13.6	78.4	17.5	3.7	21.2
(Impairment) Reversal of impairment of investments in associates, net ³	(215.4)	215.4	—	215.4	(215.4)	—
Result before income taxes ^{1,2,3}	505.0	240.4	745.4	866.5	(156.2)	710.3
Income taxes ⁴	(115.9)	(2.3)	(118.2)	(114.4)	(12.7)	(127.1)
Net earnings from operations ^{1,2,3,4}	389.1	238.1	627.2	752.1	(168.9)	583.2

¹ Normalized for the amortization of fair value adjustments from purchase price allocations.

² Normalized for the change in fair value of the contingent consideration ('LPE earn-out').

³ Normalized for the (impairment) reversal.

⁴ Normalized for the realization of temporary differences resulting from purchase price allocation.

8.2 Capital allocation policy

At our Investor Day 2023, we reiterated our capital allocation policy:

- ASM's first priority remains investing in the growth of our business, both organically – investing in capex and R&D – and also scanning the market for potential M&A opportunities. In 2023, we increased gross R&D spending by 36%, reflecting our strong pipeline of opportunities such as in next-generation GAA technologies. We spent €154 million on capex.
- Second, it is key for us to maintain a strong balance sheet. At the Investor Day in September 2023, we communicated our goal of maintaining a minimum cash position of €600 million.
- Third, we are committed to paying a sustainable dividend. With the publication of our Q4 2023 results on February 27, 2024, we announced a proposed dividend of €2.75 per share to be paid over 2023.
- Finally, our policy regarding excess cash is unchanged: we continue to return excess cash to our shareholders. With the publication of the Q4 2023 results on February 27, 2024, we announced a new €150 million share buyback program. In 2023 we executed a buyback program of €100 million, that was completed in September 2023.

8.3 CFO message

Paul Verhagen

Chief Financial Officer

Against the backdrop of softening market conditions, ASM delivered a robust financial performance in 2023. Revenue increased to a new record high. Our operating margin was steady with increased investments in R&D to address future growth opportunities. Free cash flow was at an all-time high.

Robust performance in a softening market ²

ASM's revenue increased by 9% as reported (13% at constant currencies) to a new record-high of €2.6 billion. Revenue growth slowed, compared to 39% increase as reported in 2022, but was still robust considering the weakening wafer fab equipment (WFE) market last year.

The total semiconductor market dropped by around 10% in 2023. This was also impacted by continued economic uncertainty, higher interest rates and sluggish consumer spending, next to geopolitical tensions. In terms of end markets, artificial intelligence was a bright spot – and an area where ASM is well positioned to benefit – but the related chip volumes are still relatively small. At the same time, the recovery in larger volume segments, such as smartphones, was slower than industry observers expected at the start of 2023.



Against this backdrop, WFE dropped slightly in 2023. The drop was most pronounced in memory but leading-edge logic/foundry spending also decreased meaningfully in 2023, which was offset by strong growth in the Chinese market. ASM outperformed the WFE market in 2023. At constant currencies, our equipment sales increased by 12%. Our ALD sales decreased moderately, impacted by weakness in the leading-edge part of the market, but continued to account for more than half of our equipment sales. In terms of existing product lines, vertical furnaces was the strongest growing product line – in part fueled by solid demand for our new SONORA tool – followed by Si Epi. Spares & Services had another strong year, with sales 19% higher at constant currencies, and continued momentum in our outcome-based services offering.

Strong demand in mature nodes

In terms of customers segments, our total logic/foundry sales increased slightly. The leading-edge part of logic/foundry sales decreased, impacted by end-market weakness and delays in a number of new fabs. This was offset, however, by growth

² Normalized figures are non-IFRS performance measures. For a reconciliation of non-IFRS performance measures, see the table at the end of section 8.1.

in mature logic/foundry, particularly in China. Importantly, despite softer spending trends, customers in leading-edge logic/foundry remained focused on developing the next-generation gate-all-around (GAA) technology, which is going to be an important inflection for ASM. We booked the first meaningful GAA orders for pilot line activity in the second half of 2023.

In memory, our sales dropped around 40% against a relatively stronger level in 2022. We benefited in 2023 from demand for our high-k ALD solutions for high-performance DRAM in AI applications, but this could not offset the sharp correction in overall memory. In total, the memory contribution dropped from 19% of our equipment sales in 2022 to 11% in 2023.

We booked strong growth in the combined power/analog/wafer segment in 2023. Compared to a relatively lower level in 2022, sales in this segment almost doubled, including the consolidation of our SiC Epi business (LPE), and also in large part fueled by growth in China.

“Amidst softening market conditions, ASM delivered a robust performance in 2023.”

Substantial growth in China

Our overall sales in the year were supported by substantial growth in China. The impact from the export restrictions that were issued by the US government in October 2022 – 15% – 25% negative impact on our China sales as we communicated in November 2022 – was more than offset by very strong demand for more mature nodes in the Chinese market. The new export regulations that were issued by the Dutch and Japanese governments in the course of 2023, and updated export controls by the US government in October 2023, did not have a material additional impact relative to what we communicated earlier.

We generated strong growth in the power, analog, and wafer markets in China, and also in the more mature logic/foundry segments. Furthermore, our growth in China was supported by the consolidation of LPE, which has a strong market share in China. In all, the contribution of China increased significantly versus 2022. For 2024, we expect some

normalization in spending in the Chinese market compared to the exceptional level in 2023. As a consequence, the contribution of our China sales is likely to drop in 2024, although we expect it to remain significantly higher than the level in 2022.

Strong growth in SiC Epi

Our new silicon carbide (SiC) Epi business was successfully integrated into our company. New customer wins exceeded the expectations we had when we closed the acquisition of LPE in October 2022. Sales comfortably met the target of more than €130 million in 2023, which was already up from an initial target of €100 million. We have been stepping up capacity and capabilities in this business, to prepare for continued growth in coming years. Fueled by EVs, the long-term prospects for the SiC market remain solid, even though market growth is expected to temporarily slow down in 2024. Supported by market-share gains, we continue to expect a further solid increase in our SiC Epi sales in 2024.

Gross margin increased due to mix

Gross margin increased from 47.4% to 48.3% in 2023, which was mainly mix related. Adjusted for PPA amortization, normalized gross margin increased from 47.5% to 49.3% in 2023. Gross margin fluctuated between a high of 49.4% in the first quarter, which was positively impacted by mix – mainly due to a higher contribution from China sales with above-average profitability, and also a higher-margin application mix within our ALD sales – and 47.2% in the fourth quarter. While the mix remained favorable in Q4 2023, including a continued strong contribution from China sales with above average profitability, the gross margin in Q4 2023 was impacted by approximately 1% due to a one-off restructuring cost in relation to further optimization of our global manufacturing footprint.

“Gross margin was positively impacted by mix, mainly due to the increased contribution from China.”

Despite inflation pressures on our cost of goods sold in 2023, we were able to limit this through commercial price negotiations and increased cost reduction value-engineering initiatives. We remain committed to gross margins of 46% to 50% in coming years, which we believe is a healthy and sustainable range. With a normalization in the contribution from China sales in 2024, we expect a decrease in gross margin compared to 2023.

Stepping up R&D

Net R&D expenses increased by 32% in 2023, reflecting a strong increase in R&D projects and a record-high number of customer engagements. In addition, we increased the R&D headcount by 11% in 2023, compared to a 5% increase in headcount in the rest of the organization. Adjusted for PPA amortization, normalized net R&D expenses increased by 29% in 2023.

R&D investment is our lifeline. For 2024, we project a further increase in R&D, in support of the rising number of engagements for new applications, such as for second-generation GAA, and new opportunities in memory. Normalized net R&D expenses will remain at a high single-digit to low double-digit percentage of sales in the period up until 2027, and in the first part of this period more towards the higher end of the range.

SG&A expenses increased by 12% as reported, compared to an increase of 46% in 2022. Adjusted for PPA amortization, normalized SG&A increased 10%. The trend in SG&A was broadly in line with the indication we provided at the start of the year. The increase in SG&A in 2022 continued to reflect our earlier decision to invest in strengthening the organization, and prepare for higher activity levels in future years. The moderation in 2023 is explained by the fact that most of these investments were completed by the end of 2022, and also due to continued cost focus amid softer market conditions.

"We continue to invest in innovation. R&D investment is our lifeline."

We expect a further moderate increase in SG&A in 2024. We continue to invest in selected areas such as sustainability and cybersecurity. Another important project is the upgrading of our SAP systems that we started in 2023. In the period up until 2027, normalized SG&A is targeted to be a high single-digit percentage of sales. In 2023, at 11.5% of sales, normalized SG&A is still above this target level, due to aforementioned investments we made in the past couple of years to strengthen the organization, and to the softer revenue development. In coming years, we expect relative normalized SG&A to decrease once revenue growth accelerates again.

Operating result amounted to €654 million, a healthy increase compared to €632 million in 2022. The increase in the operating profit was supported by higher gross profit, and partially offset by higher SG&A and R&D expenses. The operating margin as reported decreased from 26.2% to 24.8% in 2023. Adjusted for PPA, normalized operating margin was stable at 26.6% in 2023.

Strong improvement in free cash flow

We generated free cash flow of €447 million in 2023, a record high³ and up from €381 million (excluding €314 million in cash spent on acquisitions in 2022) despite higher capex. Next to continued solid profitability, free cash flow was driven by improved working capital. Lower working capital led to a cash inflow of €44 million in 2023 compared to a cash outflow of €159 million in 2022.

Working capital decreased as we managed good collections from our customers. The quality of accounts receivables remained healthy with a reduction in overdue balances. Inventories decreased slightly in 2023. This compares to the strong increase in 2022, when inventories went up due to supply-chain constraints, including tools waiting in our facilities for missing parts. With the normalization of the supply-chain conditions, work in progress (WIP) had already decreased in 2023, but we still kept higher buffer inventories to ensure flexibility in our operations.

ASM's financial position remained very solid, with cash of €637 million at the end of 2023, and no debt.

Investment in growth

Capex increased to €154 million in 2023 up from €101 million in 2022. The majority of capex was related to investment in our R&D facilities. Following the strong growth of our R&D activity in recent years, we have been running out of space and needed to expand our cleanroom capacity and lab equipment in our research and product-development facilities across the world. To support continued future growth, we need to further invest in R&D infrastructure. In February 2023, we announced our plan for an investment of around

³ Excluding free cash flow in 2017 which included proceeds from sales of ASMPT shares

US\$100 million, in the period up to 2025, to significantly increase our R&D and manufacturing facility in Korea. In December 2023, we announced a consolidation and major expansion of activities in the US. We will spend around €300 million over a period of up to five years to construct a new state-of-the-art site in Scottsdale. Including these expansion project, we expect total capex in a range of €100-180 million in the period 2024-2027.

In terms of manufacturing, we expect to have the capacity in place to deliver on our 2027 revenue targets, following the completion of the second manufacturing floor in our Singapore facility in early 2023, and the announced expansion in Korea.

Accelerating sustainability

In 2023, we also further increased our investments and efforts to accelerate sustainability. A highlight was the validation of our Net Zero by 2035 targets by SBTi, the first company in our industry to achieve this. We increased our percentage of electricity from renewable sources from 73% in 2022 to 88% in 2023, and we remain on track to achieve 100% by 2024. Collaboration within our industry is an important element of our efforts to address climate change, evidenced by ASM cofounding and currently chairing the Semiconductor Climate Consortium. We also stepped up our reporting on ESG in this year's Annual Report even further, illustrated by detailed reporting on the size and sources of our Scope 1, 2 and 3 GHG emissions, ahead of the publication of our Climate Transition Plan in the first quarter of 2024. We also made significant efforts to prepare for CSRD reporting as of the next financial year.

“Electricity from renewable sources increased to 88% in 2023. We are on track to achieve 100% by 2024.”

Investor Day 2023

In September 2023, we hosted our second Investor Day, where we reconfirmed our Growth through Innovation strategy. For 2025, we increased the revenue range to €3-3.6 billion, up from the range of €2.8-3.4 billion that we targeted at the 2021 Investor Day. For 2027, we are targeting further growth in revenue to a range of €4-5 billion, implying a CAGR of 11% to 16% in the five-year period until 2027. Key drivers will be our

continued leadership in the fast-growing ALD market, market-share gains in Si Epi, selective growth in vertical furnaces and PECVD, and further expansion of our SiC Epi business. We reiterated our target for normalized operating margin at 26%-31% for the year up until 2027, with an upward trend in the outer years.

Capital-allocation policy unchanged

Our capital-allocation policy remains unchanged. The key priority continues to be investment in growth, and that means investment in R&D, capex and, opportunistically, in M&A. In addition, it is important to maintain a strong balance sheet. Our policy to pay a sustainable dividend is unchanged. With the publication of the fourth quarter results on February 27, 2024, we announced a proposed dividend of €2.75 per share, up 10% compared to the dividend in the previous year. We remain committed to return excess cash to our shareholders. With the publication of the fourth-quarter results, we announced a new €150 million share buyback program. In 2023, we executed a €100 million share-buyback program.

ASM well placed for continued growth in the mid-term

At the time of publication of this Annual Report, it is too early to provide a forecast for the full-year 2024. Even though the semiconductor end markets are expected to show a gradual recovery, WFE spending in memory, advanced logic/foundry and power/analog are still soft in the first part of the year. We remain confident about ASM's prospects, however, based on the strengths of our customer engagements, talented people, and innovation. ASM is well placed to continue outperforming the WFE over time, given our continued strong position in high-growth market segments, and our share-of-wallet gains in the new technology nodes.

Paul Verhagen

March 1, 2024

Member of the Management Board and Chief Financial Officer

9. Innovation

Thanks to our decentralized R&D network, we are well suited to expand customer collaborations globally. In 2023, we increased gross R&D by 36%, as we continued to execute on our roadmaps and opportunities in the next-technology nodes. Our R&D employees represent 24% of our total headcount.

2,953

Patents in force

€410m

Gross R&D

1,075

R&D headcount

8

R&D centers

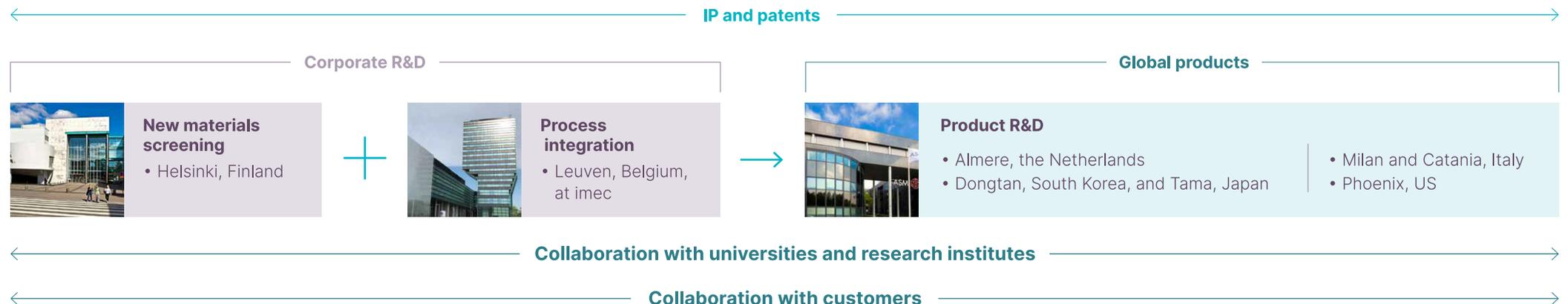
9.1 ASM R&D strategy and model

ASM has a globally distributed R&D and engineering organization. Our corporate R&D resources are primarily located in Helsinki, Finland, and Leuven, Belgium. Our product-development sites are located in the Netherlands (Almere), US (Phoenix), Japan (Tama), South Korea (Dongtan), and Italy (focused on silicon carbide epitaxy).

The corporate R&D group drives advanced process and materials development, as well as process integration learning for future-generation semiconductors that are four to eight years away from initial production at our customers' sites.

Our Helsinki team focuses on precursor chemistry development for new ALD materials, while our Leuven team concentrates on material application and device characterization through integration and testing.

Each product-development site specializes in specific products and technologies, contributing to our innovative capabilities. We have integrated IP managers across all locations to ensure proactive identification and protection of our innovative IP, which is crucial to our technical leadership.



9.2 Corporate research

In 2023, we continued with increased capital investments and grew R&D employees to more than 1,000, to accommodate the growing pipeline of new opportunities. The capital investments included demo, R&D, and metrology tools. We executed on our expansion plan for our Helsinki R&D facilities, to increase our capability in materials development. We installed new ALD tools in the additional cleanroom space that we added from April 2023.

Our global R&D network is well suited to initiate and coordinate collaborations globally, and manage them centrally. Accordingly, as an integral part of our roadmap-driven R&D efforts, we have expanded our external R&D engagements with new collaborators.

Our long-term strategic partnership with the Interuniversity Microelectronics Center (imec) in Leuven, Belgium, the world-leading R&D institute in our industry, continued in 2023. The partnership, which extends through 2025, was renewed for the fourth time in 2022 with significantly expanded scope compared to our previous agreement, roughly doubling R&D spend over the course of the contract. As well as existing areas of collaboration, the new agreement includes taking part in a heterogeneous integration program at imec. The scope includes many of our state-of-the-art 300mm products, as well as work involving disruptive inflections in our industry that may materialize beyond 2026. The imec collaboration gives us the opportunity to investigate, both jointly and independently, the integration of individual process steps and new materials in electrically active devices. We have partnered with imec since 1990, with significant on-site representation since 1994.

In February 2022, we signed a new five-year agreement with the University of Helsinki to form and fund the Atomic Layer Deposition Center of Excellence (ALD CoE). This is a significant expansion of the nearly two-decade collaboration with the university that first started in 2004. The ALD CoE will focus on research around ALD necessary for future semiconductor technologies. The ultimate aim is the design of new precursors, processes, and materials that will have great scientific and technical impact. We are co-located with the university, allowing for a close collaboration on creating new ALD chemistries and

developing new materials deposited by ALD. The intended timeline to bring most of these targeted innovations into production is towards the end of our horizon of 2028, and beyond.

ASM joined the Semiconductor Research Corporation (SRC) program on Nanomanufacturing Processes, starting in 2022. Through this membership, ASM gains access to and actively participates in forward-looking pre-competitive semiconductor research at leading universities around the world. Also, this membership creates direct access to graduate students as new hires who are highly qualified in ALD and other relevant areas of expertise.

Through our network, we collaborate with universities in several countries on a bilateral basis, including, among others, academic institutions in the Netherlands, Belgium, Finland, the United States, Canada, Japan, and South Korea.

We contribute to several process and equipment-development projects at the major Dutch technical universities through the Dutch NWO⁴ funding organization in the domain TTW⁵ (covering applied and engineering sciences). In Belgium, we take part in the industrial users group for several projects supported by the Flemish funding organization VLAIO⁶.

In 2023, we joined the European Industrial Alliance for Processors and Semiconductor Technologies. Its two main objectives are to reinforce the European electronics design ecosystem, and establish the necessary manufacturing capacity along a twin track towards 16nm to 10nm, and below 5nm to 2nm, and beyond. We are discussing partnerships in projects related to the Important Project of Common European Interest (IPCEI) on Microelectronics and Communications Technology.

⁴ De Nederlandse Organisatie voor Wetenschappelijk Onderzoek (“Dutch Organization for Scientific Research”)

⁵ Domein Toegepaste en Technische Wetenschappen (“Domain for Technical and Applied Sciences”)

⁶ Vlaams Agentschap Innoveren & Ondernemen (“Flemish Agency for Innovation and Entrepreneurship”)

We take part in select publicly funded programs to research and develop 'More than Moore' technologies. This is a strongly growing market of various types of analog chips not driven by the same Moore's Law technology-scaling inflections of mainstream logic and memory chips. We are also a member of the Association for European NanoElectronics Activities (AENEAS), and take part in roadmap activities.

We occasionally cooperate with other semiconductor capital equipment suppliers in complementary fields. Our aim is to learn more about how our own deposition processes perform, in cooperation with other processes, either in bilateral or consortia projects. We continuously engage in formal joint-development programs (JDPs) with customers for 300mm applications of our products. We also actively evaluate our most advanced technologies with selected customers. The scope of these JDPs span many nodes – from the current node in production to N+2 and beyond nodes in logic, foundry, DRAM and 3D-NAND technologies. For the logic/foundry technologies, there is a significant increase in our engagements related to GAA devices as they enter high-volume manufacturing (HVM).

Ahead of what's next

New Arizona facility a boost for product development and more sustainable R&D operations

In December 2023, we announced an investment of €300 million over a period of five years to build a new research and development center in Scottsdale, Arizona. It will be twice as big as the current R&D facility, in Phoenix, Arizona, and will enhance our product development efforts, ensuring innovations will continue to fill our pipeline. The facility will meet high sustainability standards. Building this new R&D center is how we stay ahead of what's next. CTO Hichem M'Saad says: "The new solutions we're working on won't be in people's phones until five or more years' time. And many of those solutions will be born at our new state-of-the-art facility in Scottsdale. It will accommodate next-generation research and development teams."

Hichem M'Saad: "Building this new R&D center is how we stay ahead of what's next."



Artist's impression of the new R&D facility in Arizona

Boosting ALD and epitaxy (Epi) innovation

ASM first established its North American headquarters in Arizona in 1976. Since then, Arizona has grown into a hotbed of the semiconducting industry, dubbed Silicon Desert. In recent years, some of the leading semiconductor manufacturers have invested in advanced wafer fabs in the greater Phoenix area. ASM's R&D activities in Arizona have been the driver behind the development of leading ALD and Epi applications, supporting customers globally. ASM has worked on Epi in Arizona since 1983, and began work on ALD in 1999. Innovations that have enabled breakthroughs in our industry include high-k metal gate ALD, strained silicon Epi, and metal ALD.



The Dutch Prime Minister, Mark Rutte, and Arizona Governor Katie Hobbs attended the festive-season announcement in Scottsdale of our North American expansion plans, highlighting the importance of ASM's R&D activities for the global semiconductor industry.

Sustainability

The new headquarters will cover 250,000 square feet (20,000 m²). It will house leading-edge lab equipment and state-of-the-art infrastructure, not just for research and development, but also for renewable energy, a water-recycling facility, and other sustainability features. Next to R&D and pilot manufacturing, some of ASM's global operations and corporate support functions will also be housed on site, including supply chain, manufacturing engineering, a Global Training Center, and the Global Software Team.

Protecting Arizona nature

The investment in the new center comes with support for local communities. For example, in conjunction with our landmark ceremony, we announced partnerships with the Arizona Sustainability Alliance, which supports urban forestry programs, and with The Nature Conservancy of Arizona (TNC). For more on these partnerships, see section 10.5 of this Annual Report.

9.3 Product development

Our global product-development sites are centers of excellence for a subset of products and technology. The Phoenix location focuses on products for thermal ALD and Epi; Almere, the Netherlands, for vertical furnaces; Dongtan, South Korea, for PEALD, and Tama, Japan, for PECVD and PEALD, in collaboration with Dongtan. Through the acquisition of LPE in the fourth quarter of 2022, we now also have R&D and product-development facilities focusing on silicon carbide epitaxy in Italy (Milan and Catania).

While our advanced R&D sites focus on future technology needs, our key product units work with customers on the products and technology currently in volume manufacturing or to be used in manufacturing in less than six years' time. The global platform engineering group addresses the need for common platforms and software for the various products in our product portfolio, and across different key-product units. This helps us drive the standardization of hardware and software throughout the organization.

We continuously drive innovation of our products and services to address the technology needs of our customers, and the industry's focus on reducing costs and improving its environmental footprint. Our development programs aim to increase throughput, equipment reliability, and yield in our customers' manufacturing line, as well as lower the energy and resource intensity, and cost of ownership. Our customers benefit through reduced operating costs, as many of our products use the same parts and consumables, while a common control architecture improves ease of use.

To support our strong increases in the ALD and Epi growth markets, we invested further in modernizing the equipment base in our Phoenix R&D facility. This includes investments in more of the advanced metrology tools we use in our labs. In 2023, we announced plans for a new cutting-edge R&D center in Phoenix that will greatly expand our R&D capabilities when completed. We expanded our R&D facility in Tama, Japan, and also started construction on the next phase of our manufacturing and innovation center in Dongtan, Korea, that will further expand our R&D footprint there.

Improving cost of ownership and technical performance

Innovation in products and platform technology is one of ASM's most important strengths, bringing continued improvements in technical performance and cost of ownership. In the following section, we highlight a few examples of the many innovations we introduced in our ALD and Epi products.

ALD

We have optimized our ALD products and introduced specific innovations for different applications. For example, for metal oxides, we have developed a new reactor with the flexibility to deposit five, six, or even seven elements. This is important because new materials are driving Moore's Law. This ability to mix and match different precursors allows us to develop new materials that are unknown to humanity right now. This has been an important factor in developing new ALD applications, such as for use in GAA.

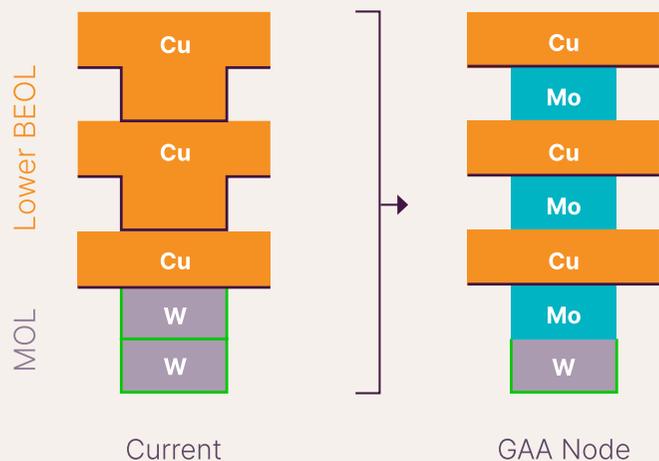
For all metal ALD applications, we have further developed and optimized a surface clean (SC) technology. This technology has been integrated on the same platform with the metal ALD reactors, so as not to break vacuum. SC reactors remove any impurities or moisture from the wafer surface prior to metal ALD deposition.

In memory devices, ALD has seen an increase in use for gap-fill applications. We are able to gap-fill high aspect ratio (>100:1) structures with our innovative TENZA ALD technology. Our ALD technology has been selected for use in several applications in 3D-NAND.

The majority of the ALD films are deposited on the XP8 platform in a dual-chamber module (DCM) or quad-chamber module (QCM) architecture, to improve productivity and reduce the cost of ownership.

We expanded our ALD product portfolio in 2023, with an additional range of new applications. However, we kept the key advantages of our core reactor design consistent, such as a small reactor volume. This allows for very fast cycling times and an ALD reactor design that provides excellent uniformity and homogeneity. We are able to purge the precursor very quickly. This is important for gap-fill applications where it is challenging to purge out the precursor from the deep structures.

Simplified schematic of interconnect hierarchy



MOL: Middle-end of line BEOL: Back-end of line

Source: Investor Day, 2023

ALD 'Moly' metal: a significant new technology inflection

Conventional CVD and PVD metals are running out of steam because of stringent structural and electrical requirements at advanced nodes. Structural requirements include conformality, uniformity, and thickness scaling. Electrical requirements refer primarily to low metal resistance. As interconnects scale, it is no longer possible, both physically and electrically, to have multi-layered processes for metallization that typically include a thick high-resistance barrier and bulk conductor (Tungsten).

Molybdenum, or 'Moly', presents an attractive alternative with bulk resistance close to tungsten and not requiring the aforementioned barrier layers. This results in a simpler solution physically, and with better electrical performance. Going into the next technology nodes, ALD Molybdenum is expected to replace CVD tungsten and also copper in some instances across logic and memory applications.

In the figure, from left, the simplified interconnect hierarchy shows the current process and the transitions happening in GAA. Molybdenum is replacing tungsten and copper gradually across MOL contacts and lower BEOL levels.

Epi

The reaction chamber design of our Epi tools includes several key innovations, important to providing optimal value to our customers as they transition to next-generation device structures. One important example of an innovation we introduced in 2023 is Turino-CL, which enables unmatched within-wafer and wafer-to-wafer uniformity. This is the industry's first closed-loop direct-wafer temperature measurement and control system. Turino-CL uses multiple pyrometers to directly measure and control the wafer, not only in the center and middle areas but also at the wafer's edge. This industry-first direct wafer measurement of the edge of the wafer can maintain the target temperature even near its edge, regardless of the changing emissivity effects of the chamber in that edge region.

Turino-CL is the only technique that can measure the actual wafer temperature. All previous techniques measure the susceptor temperature on which the wafer sits, and make a correlation to the wafer temperature. The ability to actually measure and control the wafer temperature makes for accurate matching. This allows thickness control one monolayer at a time, bringing important advantages such as in GAA nanosheet applications. Most new process applications are customer specific, and are typically outcomes from our collaborative joint-development programs.

Innovation in Spares & Services

The technology-development team in Spares & Services has grown significantly in the past few years. Innovations are multiplying worldwide, many more are being developed, and patents are being filed. The focus of these innovations is on the parts making up our systems. We are developing these based on the key issues customers encounter as they use our systems in different ways and over long periods. We focus on how we innovate to overcome these issues, and on making the system perform better on wafer (lower defects, better uniformity, etc.), and more consistently over longer periods of uninterrupted use at lower costs. Primary focuses are on evolving the internal chamber part surfaces to make them more robust for our evolving uses, enabling the refurbishment and reuse of parts rather than replacing them, and making parts last longer. This results in lower costs and more product outs for our customers.

For services support, we make sure lessons do not need to be learned twice. We do this through a 'Knowledge Net' that captures, stores, and retrieves the information that allows our support to be as efficient as possible and for us to resolve issues faster. As part of Knowledge Net, we are developing AI / machine learning-based data capture and learning so we may understand how to make our tools operate most effectively to levels that were previously unobtainable.

The result of these efforts are outcomes for our customers that deliver lower costs, higher device yields, and more output per system footprint in their fabs.

Our complete kit management (CKM) is one example of our new outcome-based service products developed in recent years – a service that aims to make the maintenance process faster, more efficient, and cost effective, through, among others, smart planning and proactive maintenance. Previously, system maintenance meant significant downtime – regularly, given the many different parts – which added to its operations costs. With CKM, we can combine the repair, replacement, and preventive maintenance of several different parts, resulting in a significant reduction in the time it takes for a system to be taken down for maintenance until it is back up and running. It also means more time between maintenance. It works in much the same way as pit stops do in F1 racing, where downtime is everything. Like pit stops that keep cars in the race through necessary maintenance stops, CKM aims to keep ASM's systems on site at our customers running with the highest possible uptime. CKM also puts significant focus on reducing the carbon footprint of our maintenance through repairing, refurbishing, and cleaning used parts for reuse, rather than replacing with new parts. Uptake of CKM is on the rise for these reasons. In 2023, we booked new multi-year contracts again.

At ASM, we recognize the benefits of a circular economy and the importance of eco-design for addressing systemic issues like climate change, biodiversity loss, and pollution. Our innovation in Spares & Services strives to contribute to this need, working toward ensuring the materials throughout our machines are used in an optimal way.

9.4 Intellectual property and patents

ASM's intellectual property (IP) includes our patents, trade secrets, trademarks, and copyrights.

We strategically develop our IP portfolio to:

- grow shareholder value;
- strengthen our competitive advantage in the marketplace; and
- help support our freedom to sell our products and services.

We fully understand that our IP is a critical asset we must protect. Failing to do this can have negative consequences, such as a loss of revenue and market position, disruptions to our supply chain, regulatory penalties, and a reduction of public trust. IP protection is also a key priority of our stakeholders – as indicated in our sustainability materiality analysis – and for this and other reasons, establishes this topic as a priority for ASM.

Patents and trade secrets

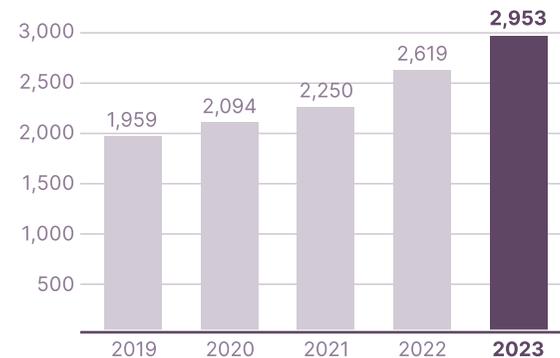
New deposition technologies and chemistries continue to drive growth in our global patent portfolio. Patents give us the right to protect and license our innovative processes, products, and services. They also make it possible for us to confidently share our innovations with the market. We have developed ASM's trade secrets over decades of focused R&D. They help us design and make industry-leading equipment and processes, and they strengthen our patent portfolio, licensing, and sales processes.

We generally file patents in the principal countries where semiconductor devices and related equipment are made and/or sold. Every year, we review our portfolio to make sure it is as effective as it can be, while limiting the increase in maintenance and prosecution costs linked to an expanding portfolio. As of December 31, 2023, we had 2,953 patents in force worldwide protecting our products and services.

Validation of our patent strength

We strategically develop our IP portfolio via strong interaction with the ASM technical community to ensure freedom to market in addition to a competitive advantage as a shareholder asset. Once again, LexisNexis® PatentSight® shows that ASM is listed among the top patent owners in the global semiconductor segment according to the Patent Asset Index™⁷. We also moved from 17th in 2020 to 3rd in 2023 behind only TSMC and Samsung in a recent report entitled "Who are the World's High-Performance Computing Semiconductor Innovators Powering the AI Revolution?"⁸ published by LexisNexis®. As of December 31, 2023, we had nearly 3,000 patents in force worldwide protecting our products.

Patents in force



Trademarks and copyrights

We have registered a number of trademarks covering our product portfolio in the principal countries where we do business (as of December 31, 2023):

- ASM, the ASM International logo, Advance, Aurora, Dragon, Eagle, EmerALD, Epsilon, Intrepid, LPE logo, Powering The Future logo, Previum, Pulsar, Silcore, SONORA, Synergis, XP, and XP8 are our registered trademarks.
- The ASM Qualified Licensed Supplier logo, AEGIS, A400, A412, ES, ESA, EVC, GenMatch, Level-to-Level, Preci, TENZA, and Velocity are our trademarks.
- 'Drive Innovation. Deliver Excellence.' is our service mark.

⁷ www.lexisnexisip.com/resources/patent-asset-index

⁸ www.lexisnexisip.com/resources/who-are-the-worlds-high-performance-computing-semiconductor-innovators-powering-the-ai-revolution-2

9.5 Innovation and sustainability

Research sustainability

Our research sustainability efforts, led by the Office of the CTO and guided by our road-mapping process, continue to prioritize technologies essential for future advancements. By employing strategic vertical collaboration with customers and suppliers, we enhance R&D efficiency, leading to reductions in material and wafer wastage.

In our ongoing commitment to environmental responsibility, we have streamlined our chemistry development processes. By conducting initial experiments on small-scale coupons in R&D settings, instead of full-scale wafers in manufacturing environments, we have taken steps to minimize the number of trials required. This approach has resulted in a notable decrease in energy, chemical usage, and silicon wafer consumption.

The sustainability review of chemistries, integrated into our initial pathfinding, is a growing consideration in our selection process. Recognizing the extensive downstream usage of these chemicals by our customers, we make conscious choices to minimize the environmental impact of our equipment.

We have substantially improved our R&D processes, through an enhanced tollgate system and refined pipeline controls. These improvements have led to the reduced waste of chemicals, materials, and test wafers, bolstering the efficiency and effectiveness of our research endeavors.

We continue to leverage advanced data-science techniques in our R&D planning and execution. This has proven instrumental in optimizing product development and knowledge transfer, significantly reducing energy and resource use. Our models enable us to identify and validate further improvement opportunities in a resource-efficient manner, crucial for working at the atomic scale.

In 2023, we continued our involvement with the imec Sustainable Semiconductor Technologies and Systems (SSTS) research program. The program, which we joined in 2022, remains a cornerstone of our research and development strategy. Our collaboration focuses on identifying joint research projects, which support our Net Zero by 2035 target, and amplify our impact beyond our scale. We maintain our ambition to collaborate closely with partners like imec to foster a positive global impact through joint sustainability initiatives. This also includes specialized universities that support activities on early screening of future materials.

Initiated in 2021, imec's Sustainable Semiconductor Technologies & Systems (SSTS) program is a collaborative effort that brings together a diverse array of stakeholders from the semiconductor value chain. This initiative is focused on driving technological advancements aimed at reducing the industry's environmental footprint.

It aims to integrate environmental considerations into these phases, paving the way for more sustainable manufacturing processes. By leveraging imec's insights in processing technology and infrastructure, the program provides crucial data on the environmental implications of various technological choices.

Enabling more power-efficient chips

The growth in energy used for data processing in data centers remains a significant global concern, with its rate of increase outpacing overall energy consumption growth. Due to breakthroughs in areas like AI, the continued acceleration of computing needs is expected. Similar concerns exist for the vast array of electronics in the world – they're smarter, and make our lives better, but they contribute to growth in overall energy demand.

Our biggest impact lies in the technologies we enable. Our collaborative efforts with customers continue to yield more energy-efficient semiconductor chips. By developing materials and processes that allow for higher energy efficiency of transistors, memory elements, and interconnects, we reduce power consumption per computing operation.

ASM's innovations in new materials and process technologies are crucial in this context. For instance, our advancements in Atomic Layer Deposition (ALD) gate dielectrics and

novel work function metals have achieved a thousand-fold reduction in gate leakage current. The precise conformality of ALD has also been instrumental in transitioning from planar to 3D FinFET structures, which are more power-efficient.

Looking ahead, the role of ALD and Epi processes are expected to become even more critical as we transition from FinFET to gate-all-around (GAA) nanosheet transistors, promising further reduction in power usage. Similarly, transitioning DRAM periphery to high-k dielectric and metal gate technologies has the potential to lower power consumption in both dynamic and static states, as previously seen in logic devices.

Silicon carbide (SiC) epitaxy is another important technology ASM is enabling, which is supporting the growing electrification of the automotive industry. Vehicle power electronics are transitioning from silicon to SiC-based materials, because SiC devices enable more efficient electric vehicles with longer battery life, greater driving range, and faster charging times. Our SiC tools use an epitaxy process to deposit the SiC materials, as part of the transistor device fabrication process. SiC is highly efficient at high voltages, offering higher power efficiency, increased power density resulting in reduced component weight and size, and faster battery-charging times.

Furthermore, ASM's ongoing research into innovative materials like phase-change and ferroelectric materials is expected to revolutionize energy-efficient memory devices and AI architectures, marking a significant stride towards more sustainable semiconductor technology.

Eco-design and product sustainability

Customer use of our products through their productive life represents the most significant portion of our greenhouse gas footprint (reported as Scope 3 category 11 emissions). As such, improving the energy and resource efficiency of our products is paramount. To this end, we have included the improvement in energy and resource efficiency in our plans for our Net Zero by 2035 target.

In 2023, ASM advanced its vision of developing eco-efficient tools and processes, central to our commitment to sustainability. We made progress in our path to maximizing energy savings through innovation in product development, aimed at reducing energy and precursor usage, emissions from process chemicals, and the resource expenditure per wafer.

Our sustainability focus, integral to our product development roadmap, is directed at both the product and sub-fab levels⁹. Our strategy focuses on enhancing the efficiency of our products, particularly in the following areas:

- a. Plasma source efficiency
- b. Chemical use efficiency
- c. Thermal technology efficiency

A recent example of improved plasma source efficiency relates to our application of ASM's patented electronic variable capacitor technology, which optimized the radio frequency power tuning through the cables in our machines, making transmission faster, more robust, and energy efficient. We have also realized various breakthroughs regarding optimizing our chemical processes, reducing consumption and abatement requirements through advanced flow, and pressure modulation techniques. In heating technologies, we have found ways to accelerate the heating process through reduced reactor volumes, while simultaneously scaling back leakage. As a result, our new SONORA platform, compared to the A412, has achieved a 15-40% reduction in thermal energy per wafer, demonstrating our ability to realize higher throughput and energy efficiency through focused innovation in the design phase.

In our ongoing effort to reduce our product footprint, collaboration with customers and our upstream value chain has been and continues to be crucial. This collaborative approach is accelerating the reduction of our emission footprint at the sub-fab level.

⁹The area in semi-conductor fabrication plants (fabs) that house support equipment and utilities, typically located below the main production floor level

Key to our product sustainability strategy are four focus areas to support our reduction roadmap:

1. In 2023, ASM completed scientifically supported evaluations of product performance in accordance with the SEMI-S23 guidelines, covering all product lines.
2. Continuous sustainability monitoring, through embedding of measuring components in our systems for R&D purposes.
3. Digitization of key sustainability measures to establish model-based platform to assess energy consumption.
4. Synchronization and cooperation development between sub-fab and products.

Going forward, ASM aims to track its performance through our ability to reduce kwh per wafer.

These concerted efforts are in line with our Net Zero by 2035 target and our goal to achieve greenhouse gas emission reductions per wafer. By persistently innovating in product design, process efficiency, and collaborative approaches, ASM intends to not just meet but also set new standards in product sustainability within our industry.

Product lifecycle management

Our approach to product stewardship and lifecycle management remains a cornerstone of our product development strategy. It involves a deep understanding of market dynamics, customer challenges, and stakeholder expectations for responsible product lifecycle management. By effectively incorporating these insights, we are not only addressing our customers' needs but also aligning with broader industry roadmaps and stakeholder requirements.

Our focus on assessing the environmental impact of our products throughout their lifecycle – from conception to end-of-life – uncovers new opportunities for eco-design. This approach aims to improve materials usage, increase energy efficiency, promote circularity, and bolster overall sustainability per wafer. The result is the development of products that are not only more efficient and effective in wafer manufacturing, but also designed to have extended useful lives and reduced environmental footprints. Our growing portfolio of outcome-based services is

a result of our focus on optimizing our systems in their most impactful phase, both in up-time and resource-efficiency, extending across the product lifetime.

Our product lifecycle process adheres to the established phase-gate development model, driven by:

- A. Expertise from our industry knowledge and subject-matter experts.
- B. Industry and customer requirements, including purchase specifications and business needs.
- C. Regulations, standards, and industry guidelines.

These elements are embedded in our market requirement specifications (MRS), which set the objectives for our development process. These specifications are periodically updated to reflect market changes, evolving regulations, and stakeholder needs. Our governance structure includes technical oversight and program-execution reviews at each phase of the product lifecycle.

9.6 Industry technology roadmap

At ASM, we believe that as long as there is growing demand for semiconductors, Moore's Law – or at least a generalized version of it – will continue. Scaling of the smallest dimension through lithography is no longer enough to increase density and decrease cost-per-function. Increasingly, scaling is complemented with a move to the vertical dimension '3D'. A first example of this was the transition from 2D-NAND to 3D-NAND non-volatile memory with, currently, more than 200 transistors aligned vertically along a single vertical channel.

A second example of 3D is the GAA transistor, poised to take over in coming years, following five or more generations of FinFET. This stacks up to four channels on top of each other, significantly multiplying the current a particular transistor can carry. Simultaneously, this improves the control over that current. Third, chips are now stacked vertically in a package to reduce the package size and shorten the connection lengths between the chips. For example, a high-bandwidth DRAM device integrates a logic chip, formerly 'the periphery' in a single chip, with multiple vertically stacked memory arrays in a single package. And fourth, the difficulties in scaling the cost and size of a DRAM is expected to lead to a transition to stack transistors vertically in a 3D-DRAM beyond 2026.

ALD

Due to its ability to create substantially uniform and high-quality layers of complex materials over 3D structures ('conformality') at relatively low temperature, the share of ALD (including PEALD) in the deposition market is expected to grow substantially with this trend towards 3D. On the one hand, existing technologies like LPCVD are being replaced by single-wafer ALD. On the other hand, new ALD processes will enable further changes in device architecture that will not be possible with other deposition technologies. New materials, such as better conductors and insulators, for example, will be needed to maintain adequate electrical performance. Materials need to be deposited in narrow, deep gaps, without any holes or seams. More and more of these critical process steps are expected to migrate towards ALD and PEALD.

Si Epi

The GAA transistors will rely on an epitaxial superlattice of as many as eight to 10 silicon and silicon-germanium layers. For 3D-DRAM, this superlattice is expected to be even taller – starting with around 64 layers. This is expected to scale quickly to even more layers. The new GAA transistors will also need new epitaxial contact layers, selectively grown bottom up with high doping. In addition, power electronics for, among others, EVs, will need thick epitaxial layers.

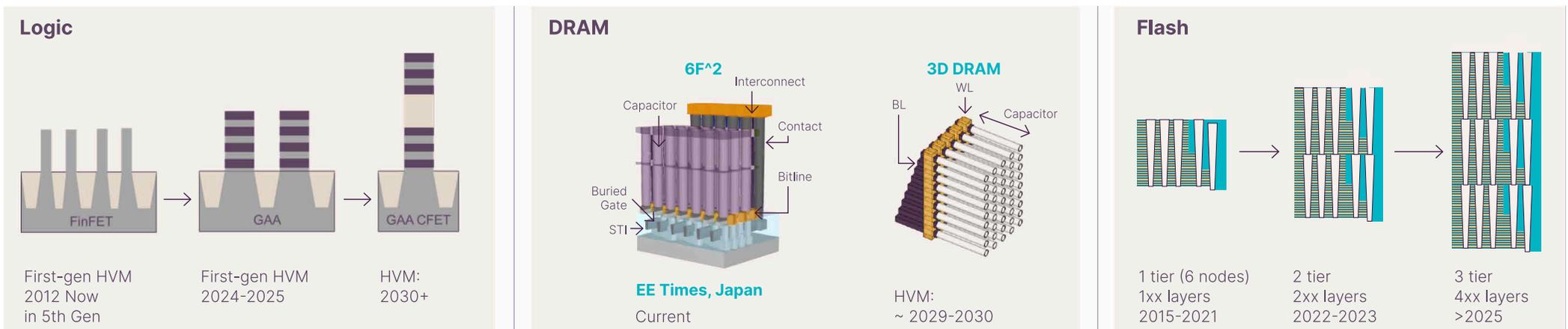
Overall, we believe ALD and Epi are the most important growth markets – at least in the next five years. Accordingly, we have focused most of our R&D spend on these technologies.

SiC Epi

Another area of growing semiconductor demand is for power devices, especially due to the increasing market for electric vehicles and other power applications. Within this growing market, the use of silicon carbide in power devices is expanding rapidly.

SiC devices provide greater battery life and a longer range for EVs. Because of its wide band gap, SiC is highly efficient at high voltages, offering higher power efficiency, increased power density resulting in reduced component weight and size, and faster battery-charging times. Our SiC tools use an epitaxy process to deposit the SiC materials on either bare substrates or as part of the transistor device fabrication process. Most of SiC epitaxy is currently done on 150mm wafers, but is expected to move to 200mm in coming years for reduce costs. The transition to 200mm SiC is a major technology inflection, which positions single-wafer reactors like ASM's particularly well since thickness and material uniformity control is more challenging at 200mm.

Industry technology roadmap for logic, DRAM and 3D-NAND



9.7 Interview with the CTO

Hichem M'Saad

Chief Technology Officer

Hichem M'Saad, Management Board member and Chief Technology Officer, discusses some of the technology inflections that will drive significant opportunities for ASM, such as the transition to gate-all-around, metal ALD, and selective ALD. He also shares his view on ASM's strength in innovation, the expansions in Korea and Arizona, as well as an update on the silicon carbide Epi business.



Can you update us on the outlook for opportunities in gate-all-around?

The move to gate-all-around (GAA) transistors will drive significantly more opportunities for ASM, in ALD and Si Epi. In ALD, the number of both work function layers as well as ALD dielectric dipole layers is increasing, driven by the need for devices with multiple gate operating voltages for optimizing power and performance. We also see an increase in the number of ALD patterning films, as a corresponding new ALD patterning layer comes with each new dipole layer.

'The move to gate-all-around transistors will drive significantly more opportunities for ASM.'

The move to GAA is also significant for Epi, as the GAA structure is actually made by the Epi superlattice. This transition offers ASM the opportunity to gain market share. Also, you see innovation in how you can make contact to the source and drain epi films: using epi silicon to lower the resistance. This translates to several opportunities for Epi in GAA.

Apart from the new GAA transistor architecture, what are other drivers of the growth we expect for the ALD market, including opportunities in memory applications?

In logic/foundry, there are two factors. In metals, it's the industry's adoption of ALD molybdenum to replace CVD tungsten and PVD copper interconnects. The move away from PVD copper is driven by the fact that with the via becoming smaller and smaller, its resistance becomes high, due to the high resistivity of the liner. If you can move to ALD molybdenum, which does not need a liner, you can significantly reduce the via resistance.

Also, ALD molybdenum is being considered in the back-side power-distribution network. In general, one can say that ALD molybdenum simplifies the process flow and lowers resistance. This change from CVD tungsten and PVD copper to ALD molybdenum is therefore clearly significant for the industry.

The second factor is the adoption of selective ALD in the GAA device. It is used in BEOL (back-end-of-line) mainly, to improve device performance and reliability, as well as simplify the process flow. For example, the adoption of metal-on-dielectric selective ALD in BEOL,

which enables a process where the metal liner is only deposited on the sidewall of the via and not on the bottom, leading to a lower via resistance. There has been talk about selective ALD for many years, and now it is happening, which is exciting.

Furthermore, in memory, in 3D-NAND, as structures are becoming taller and taller, new ALD processes for gap-fill and stair-case fill are driving further growth. In DRAM, increased adoption of high-end logic in peripheral and logic control chips used in high-bandwidth memory, drives growth in ALD high-k and ALD work function layers.

ASM is committed to maintaining single-wafer ALD market share of at least 55% during the next five years. How does ASM stay ahead of the competition?

The key is to keep innovating. For example, we started the ALD molybdenum innovation, and we have the first wins for that application. Innovation must continue, and it starts with developing new precursors, films, and plasma sources for applications like gap-fill and dielectric liners. We have added to our plasma-enhanced ALD (PEALD) capability, so-called inductively coupled plasma ALD that provides a higher radical density, enabling highly conformal deposition, even on complex structures.

'The key to staying ahead is to keep innovating.'

Another area of innovation is selective ALD processing. For this, we needed to develop a new platform that would allow us to integrate different processing steps, like cleaning and surface treatments, together with ALD. All these different processes need different reactors, all attached to one platform, so we added more reactor ports to our platform.

The combination of precursor and reactor innovation and more platform ports has led to our expanded XP8 platform, all aimed at keeping our market share above 55%.

A fundamental part of our innovation is patent filing, and we continue to have the strongest ALD patent portfolio. In addition, in the 2023 listing of global top-20 semiconductor companies by overall patent strength, ASM ranked third, only behind two leading semiconductor device companies.

Next to ALD, Si Epi is a strategic growth driver for ASM. What are the key opportunities?

We see silicon Epi as a growing market, both in logic/foundry and also in DRAM. DRAM has now started using Epi SiGe in the peripheral transistor channel, and more applications like storage node contacts and source/drain contacts may follow to enable continued scaling and performance enhancements. For logic/foundry, we foresee increasing intensity for Epi applications. Epi defines the transistor channel, which now has multiple layers in GAA devices, and the source/drain epi layers are also becoming more complicated.

In addition to the continued growth of leading-edge Epi driven by GAA and high-performance DRAM, we also see growing use of Epi in the market of wafer, power devices, and non-leading-edge foundry. In short, we see significant opportunities in the Epi market.

Can you update us on the status of the integration of LPE, and did the SiC Epi business growth in 2023 meet your expectations?

The growth in our SiC Epi business really exceeded our expectations. The technology offered by LPE is the right technology for the SiC power-device market. Feedback from our customers shows our reactor technology is best in class, with the lowest in-film defectivity. This drives lower leakage performance, as well as the lowest surface defectivity, resulting from the absence of film particles breaking off from the reactor walls.

The business integration is going well. Manufacturing capacity has increased in both Italy and Singapore, allowing us to meet demand. We have increased our engineering resources for SiC, invested in our process-development cleanroom in Catania, as well as investing in new metrology equipment. We have developed our new PE2O8 tool, a cluster two-reactor 200mm system for increased productivity, and have started shipments to customers.

ASM has R&D and development facilities all over the world. What is the rationale for the planned expansion of R&D infrastructure in Korea and Arizona? And how do you keep track of all these spread-out activities?

The expansion makes sense as it's taking place at the locations where we are expanding our ALD product and application portfolio for the growing ALD market. As ALD is the new CVD, its growth is continuing, and we are just taking the necessary steps in line with what we have been communicating.

In addition, having different R&D sites reflects our fundamental belief that our people are really what counts. Having the right people for the technology is the most important part of innovation and product development. To this end, we have strong development teams around the world. This aligns with the vision of our company's founder, Arthur del Prado, who believed in having top-quality teams in their specific technology field.

You shared at Investor Day that ASM's furnace installed base has grown since 2019. What has driven this growth?

Developing new furnace products, the 200mm A400 DUO and the 300mm SONORA, that are very reliable and innovative in both process technology and productivity, has spurred this installed base growth. We have been experts in furnace technology for many years, and have continued to improve the products and processes to succeed in the market.

Looking back on 2023, what are the highlights that stand out for you?

There are quite a few things I'm proud of. For example, with our core Epi technology we showed that we've achieved superior technology that can measure actual wafer temperature and control it to a precise level. This makes me proud of our team's innovation mindset.

'Having the right people is really the most important part of innovation and product development.'

I would also like to highlight our entry into the mainstream metal deposition market with our metal ALD technology, and the rapid market-share growth in SiC epitaxy. This reflects the soundness of the LPE acquisition, and ASM's ability as a complete organization, including supply chain and manufacturing, to react to this rapid growth.

March 1, 2024

Hichem M'Saad

Member of the Management Board and Chief Technology Officer

Ahead of what's next

Investing in the future: More innovation and expansion in Korea

In line with ASM's strategic and long-term commitment to innovation, we pledged in 2023 to invest \$100 million to expand our R&D and manufacturing center in Hwaseong (Dongtan), Korea. In coming years, we expect to reap the benefits of this multi-year boost to our research and product-development infrastructure – with more breakthrough innovations in plasma enhanced ALD (PEALD), and other areas. Through these innovations, we will support our customers in realizing their semiconductor roadmaps for years to come.

This investment in the state-of-the-art center followed the signing of a Memorandum of Understanding with the Korean Ministry of Trade, Industry and Energy in February 2023, with the groundbreaking ceremony taking place in May. We intend to complete the new facility by early 2025. We remain on track towards this target, with all the foundation works completed by the end of 2023.

Hwaseong has been and will be instrumental to our growth as a company, delivering advanced R&D and technology for Korean and global customers. Korea is also our global center for ASM's PEALD business. Technologies developed by our Korean R&D team have been at the heart of breakthrough innovations in the semiconductor industry: such as the



Benjamin Loh, CEO, and YK Kim, Chairman of ASM Korea, before the groundbreaking ceremony

ALD quad-chamber module (QCM) architecture, the TENZA™ ALD for ultra-high aspect ratio gap-fill, and high-quality PEALD oxides and nitrides for spacers, liners, and other patterning applications.

Investment in people

Expanding the facility will also create many jobs. By the end of 2023, we had more than 450 people working at Hwaseong, and the number is expected to rise as the facility expands. The investment will also benefit local supplier partnerships.



Artist's impression of the new facility in South Korea

“This is an investment in people and in the semiconductor ecosystem in Korea,” says YK Kim, Chairman of ASM Korea.

Positive impact on society and communities

We seek to be a responsible corporate citizen. In every country we operate in, we give back to society and contribute to local communities. With the Korea groundbreaking ceremony in May, we announced a donation of 100 million Korean Won to the Hwaseong City Talent Development Foundation. This charity fits with our ambition to encourage the education of young people in the STEM disciplines of science, technology, engineering, and mathematics.

At ASM, we always stay ahead of what's next, and expanding our facility in Hwaseong – more than doubling its R&D space – will play a crucial role in this mission as we work towards new innovations that will improve people's lives around the world.

10. People

We are a home for the best talents in the semiconductor industry.

We empower our people by helping them to develop, thrive and grow to the best version of themselves. 'Best people' is an integral enabler for our Growth through Innovation strategy. We believe our people drive our customers' success by creating leading-edge semiconductor process products, services, and new materials. This will improve people's lives through advancing technologies that unlock new potential.

4,542
Headcount

91%
Retention rate

66
Nationalities

17%
Female participation

10.1 Culture, engagement, diversity and inclusion

We Care, We Innovate, We Deliver are the core values at ASM, and are embedded throughout the organization. In 2023, we continued our journey to shape the company culture and build on the foundation of these core values.

Culture

At ASM we believe that our company culture is expressed in the way we live up to our core values, as well as our day-to-day behaviors in the workplace. Leveraging our annual Thought Leadership meeting, we identified high-performing teams and learned from their best practices across ASM. This centers around a workplace that fosters Accountability, Collaboration and Empowerment (ACE).

- *Accountability* is about accomplishing the things you say you will do, taking responsibility for your actions, and trusting that we can count on each other.
- *Collaboration* defines how we work with others across geographies and disciplines, sharing skills and knowledge to achieve our common goal.
- *Empowerment* lets you do what is best for the company, with the autonomy to take initiative and make decisions to resolve problems and improve our performance.

In 2023, we focused our ACE program on building awareness. Almost 700 people managers took part in workshops with their teams. This helped to increase understanding

of the different behaviors, and to think through situations where these behaviors can be applied. The response to these workshops has been resoundingly positive. Our ACE program is a valuable journey that will help us reap the benefits of having a powerful, compassionate, and resilient company culture.

Engagement

Employee engagement is one of the cornerstones of our success at ASM. We believe high engagement at ASM drives a positive workplace culture, higher employee satisfaction, better team collaboration, increased performance and productivity, and much more. In 2022, we held our bi-annual full engagement survey. In 2023, we held our follow-up Pulse survey to track progress from last year's results.

The Pulse survey had an impressive response rate of 94%. This high figure means that ASM's people are committed to sharing their opinion. With this response rate, we've received insights that truly represent our organization.

The results from the 2023 Pulse survey show that teams who actively followed up on the 2022 engagement survey, have achieved a positive impact with improved engagement ratings. Also, we saw some variety of responses and ratings across the company. This

requires follow-up, which is not a one-size-fits-all solution for the whole company. The follow-up is an ongoing process, which we continue to drive and monitor towards the next Engagement survey planned for 2024.

Diversity, equity and inclusion

At ASM, we believe diversity starts with our culture and core values: We care, We innovate, We deliver. Our award-winning employee value proposition – ‘Power of an Open Mind’ – reflects our ambition to grow employee engagement, develop our existing team members, and shape a diverse and inclusive culture. This makes us effective in engaging our employees, driving collaboration and empowerment, and adding value for our customers while differentiating ourselves from the competition.

The new ASM Diversity, Equity & Inclusion Policy (February 2024) describes ASM's commitment to our employees that everyone will be treated with respect and dignity. We do not tolerate discrimination based on race, color, ethnicity, national origin, social origin, sex, gender identity or expression, sexual orientation, religion, age, health status, pregnancy, neurodiversity, physical or mental disability, or political affiliation. We do not tolerate physical, verbal, sexual or psychological harassment, bullying, abuse, or threats of any kind.

How ‘ACE’ makes ASM better and stronger

At ASM, we’ve been promoting accountability, collaboration, and empowerment (ACE) as best practice behaviors to boost employee engagement and, ultimately, business performance. And these efforts have yielded good results. One of the best examples of ACE's contribution to the company are our operations in China, where our Field Service Team, led by Kevin Fang, is promoting ACE.

A high score on company culture and engagement reflects the team's success in implementing ACE. “Accountability, collaboration and empowerment start with good communication, clear expectations, and an appreciation of both people and processes within ASM,” explains Kevin.

ASM encourages team members to take responsibility for both their successes and failures. “**Accountability** means if you make a mistake, own it,” another team member, Service Manager Tony Cao, says of the ACE attitude. “Ask for help if you need it, and find a solution. That way, the whole team can learn a valuable lesson.”

In 2023, we saw an increased representation of nationalities. With locations in 16 different countries, we have grown from 59 nationalities in 2022 to 66 nationalities in 2023.

We strive for a continuous increase in female participation. To achieve this goal, we focus on three different groups: Supervisory and Management Board, Sub board and All employees.

Supervisory Board and Management Board

Following ASM's Diversity, Equity & Inclusion Policy, we strive for a composition of both the Supervisory Board and Management Board representing at least 1/3 of the seats held by either gender at the same time. ASM's Diversity, Equity & Inclusion Policy is published on our [website](#). The current composition of the Supervisory Board is six members, with 50% female participation. The current composition of the Management Board is three male members.

Sub board

The Sub board refers to all ASM's directors, senior directors, corporate directors, vice presidents, corporate vice presidents, senior vice presidents, and Executive Committee members. The diversity plan for the Sub board aims at a continuous increase in female participation, aiming to reach 20% female participation in the Sub board by 2025, and 25% by 2030.

Good **collaboration** requires an understanding of work processes, as well as the personalities, needs, and wishes of one's colleagues. “Setting a common goal is crucial; it binds the team together,” says Service Manager Steven Zhao. “A team manager is like a sports coach: you want everyone to know why their role matters.”

Empowerment, the ‘E’ in ACE, asks leaders to give employees the space to make their own decisions. “Allow team members sufficient autonomy, yet evaluate their performance and targets regularly, and always be there when they need you,” says Tony. “In a nutshell, don't tell people how to do their job. Tell them what their job is and trust in their talent to get it done.”

“Accountability, collaboration and empowerment start with good communication.”

Kevin Fang, Vice President Sales & Service China

ACE

- Accountability
- Collaboration
- Empowerment

Female participation for the Sub board stabilized at 17% in 2023. 22% of new hires for the Sub board were female. Next to this, from the group promoted within and into the Sub board during 2023, 13% were female.

In June 2023, Edyta Jakubek joined as Chief People Officer and was appointed as an Executive Committee member. She is broadly recognized for her strategic capabilities and disciplined execution. Edyta is a Polish national.

Overview of gender diversity percentage per level

Group	2022				2023			
	Hires (F)	Promotions (F)	Headcount (F)	Headcount (M)	Hires (F)	Promotions (F)	Headcount (F)	Headcount (M)
Executive Committee (excluding Management Board)				3	1		1	2
VP, CVP, Senior VP, Executive VP		3	3	27			3	32
Director, Senior Director, Corporate Director	9	10	37	165	6	11	43	198
Total directors and up (% F)		17%				17%		
Managers/Senior managers (JG 18-19)	24	30	95	411	29	24	122	451
Senior professionals (JG 16-17)	101	45	265	1221	69	43	319	1362
Professionals (JG 14-15)	122	20	286	1174	48	23	278	1182
Para-professionals (JG 11-13)	21	1	34	534	4		28	518
Total ASM (% F)		17%				17%		

F = female employees; M = male employees; JG = job grade

All employees

The group All employees refers to all employees below Management Board level, including Sub board. As consistently shared in our Annual Reports in the past two years, we aim to continuously increase female participation, to reach 20% female participation in the All employees group by 2025 and 25% by 2030.

For female participation in the All employees group, we stabilized at 17% in 2023. We progressed from 19% female hires in 2022 to 21% female hires in 2023. Next to this, 13% of the total female population was promoted internally, which is consistent with the overall promotion percentage across the company.

The table below shows the retention distribution for female colleagues compared to male colleagues for the Sub board and for All employees in 2022 and 2023.

Total attrition	2021			2022			2023		
	F	M	Total	F	M	Total	F	M	Total
Sub board	0.0%	8.8%	7.6%	7.5%	10.6%	10.1%	8.5%	6.4%	6.7%
All employees	11.5%	12.6%	12.5%	9.0%	12.6%	12.0%	9.2%	9.2%	9.2%

F = female employees; M = male employees

In 2023, we continued to activate the ASM Women Initiative Network (WIN) across different regions around the world. This is a growing group of 150+ female ASM colleagues, who are partnering to drive gender diversity in our workplace.

We also organized diversity and inclusion focus groups with employees from different generations, levels, roles and regions. This is part of a continuous effort to drive our D&I practices, and learn how our people experience diversity and inclusion in their day-to-day activities.

Gender pay

ASM continuously assesses gender compensation for our female and male employees. We look at the compensation gender pay ratio at management and non-management levels. The analysis compares the median compensation as a function of gender per job grade and per country, excluding the impact of job scope and country-specifics in compensation.

Compensation gender pay ratio

	2022 Median	2023 Median	2023 Average
Sub-board	100 %	98 %	96 %
Senior managers / managers (JG18-19)	94 %	97 %	96 %
Senior professionals (JG16-17)		98 %	98 %
Professionals (JG14-15)	99 %	98 %	98 %
Para-professionals (JG11-13)		93 %	94 %
All employees	98 %	98 %	98 %

Diversity actions 2023

Our 2023 diversity plan included concrete actions supporting our female recruitment inflow as well as strengthening gender diversity within our culture. Amongst others, we have been focusing on:

- Hosting a live virtual panel with the topic of 'Women in Semiconductor Engineering'. Five ASM women in STEM, all with varying job functions and seniority, answered questions about their experience working in the semiconductor industry, STEM careers for women in the industry, and other advice for those curious about entering the industry.
- Taking part in 'Semiconductor Women's Forum' (organized by SSIA) in Singapore in early 2023, sharing experiences around 'Empowerment for growth'.
- Partnering with 'Power to Fly' to push our diversity agenda out to a broader audience with 'Meet the Recruiter' videos.
- Developing and conducting 'Hiring manager Interview training' in Asia, the US and Europe to train managers on interview behavior to minimize unconscious bias in assessments.
- Launching a referral program to reach out to the female talent pool in conjunction with International Women's Day and International Women in Engineering Day respectively.

- Sponsorship of female talent by our company leaders. Every Executive committee member is actively mentoring female talents. They advocate providing opportunities for professional growth and expedite readiness for future roles in ASM.

During the year we have been planning for the next steps in achieving our diversity, equity and inclusion (DE&I) goals, including, but not limited to, the following actions: reskilling and upskilling in DE&I practices like unconscious bias and psychological safety, designing and piloting a leadership acceleration program for women, building out-of-the-box talent strategies that create more diversity within the organization, activating employee resource groups (ERGs) that will increase inclusion, and strengthening partnerships with university diversity associations.

Our ERGs are voluntary, employee-led groups that foster a sense of community and belonging by providing a safe place to connect, speak up, and network. We target to expand the number of ERGs from one to four by 2025.

Workforce	2019	2020	2021	2022	2023
Employees	2,337	2,583	3,312	4,258	4,542
Employees including temp	2,444	2,689	3,462	4,397	4,654
% temporary workers	4.4 %	3.9 %	4.3 %	3.3 %	2.4 %
Number of workers under Collective Bargaining	278	328	254	408	514
% workers under Collective Bargaining	10.8 %	11.7 %	7.7 %	9.6 %	11.3 %
Nationalities	29	40	47	59	66
Male	85 %	85 %	85 %	83 %	83 %
Female	15 %	15 %	15 %	17 %	17 %
Voluntary attrition rate	8.7 %	8.3 %	11.1 %	10.2 %	6.6 %

Ahead of what's next

#WIN4ASM - Empowering women at ASM

Our Women's Initiative Network (WIN) is about forming a mutually supportive and nurturing female community in ASM worldwide to create a workplace that enables all to succeed.

WIN held 16 events in 2023, with local chapters hosting community outreach programs, networking, career and personal development sessions, and panel discussions. In May 2023, Pauline Van der Meer Mohr, ASM's Chair of the Supervisory Board, and Yvonne Lee, VP of Global Manufacturing and regional lead for WIN Asia, visited our colleagues in Korea for a special WIN event. They shared their stories, experiences, and insights gleaned from their personal and professional journeys.



During the event, our colleagues in Korea explored the challenges of being a first-born daughter, also known as “K-장녀” (K-jangnyeo) in Korea. The discussion drew from the 2016 novel 'Kim Jiyong, Born 1982'. The book explores the heavy responsibilities of being a first-born daughter in Korean society, with many young women being expected to make sacrifices to support their families. It was a huge hit in Korea and beyond, giving an eloquent voice to South Korean women and their experiences while resonating with women worldwide. The book's theme drove discussion around the WIN participants' experiences and approaches that could empower them as they break boundaries at work and beyond.

Aim high, no limits

Epitomizing modern women, Yvonne juggles her roles as a professional, a wife, a daughter-in-law, a mother of two, and a jogging enthusiast. She acknowledged that managing such diverse roles is not always a breeze. Recognizing the challenges shared by many women, she outlined her vision for WIN Asia, focusing on strengthening the female talent pipeline by:

- creating impact for female employees at ASM;
- attracting young female talent by advocating STEM; and
- developing more female leaders within ASM.

With an engineering background, Yvonne often found herself to be the only woman working in a male-dominant semiconductor industry. Raised as the only daughter amid high expectations, her philosophy is simple yet profound: “Aim high, no limits.” Yvonne advises viewing oneself as a “professional” first, not merely as a “woman” in the workplace.

“It is crucial for successful women to ‘pay it forward’ by offering support to younger female colleagues through mentoring, advice, and guidance.”



Yvonne Lee,
VP Global Manufacturing

Excellence with room for mistakes

Born as the eldest daughter, Pauline was raised with high expectations. Echoing her father's mantra, she said, “You should be the best at what you do.” Navigating her career path from a lawyer to the first-ever female supervisory board chairperson of a listed Dutch company, she underscored the significance of resilience and responsibility in leadership. While advocating excellence, she noted that perfection is not the ultimate goal. “It's okay to fail. The key is to learn from failure and bounce back quickly,” she remarked.

10.2 People practices

Talent attraction and retention

Attracting and retaining talented people continues to be a priority, as we focus on growing and strengthening our organization to support ASM's Growth through Innovation strategy.

With 730 new hires globally in 2023, the headcount (including externals) has grown to 4,654 people. This is a 7% increase on the 2022 headcount, and a more moderate growth compared to the previous two years. A special call out for the headcount expansion in Italy: building on last year's acquisition of LPE, we continued to invest in our local team and tripled the headcount to almost 200 people by the end of 2023.

In a tight labor market globally, especially for technical talent, we've been able to strengthen, attract, and retain our R&D talent across Europe, the US, and Asia. The R&D workforce has grown from 22% to 24% of the total headcount.

These are some of our initiatives which were key to driving this growth of our workforce:

- We focused on employer branding and employee storytelling across social media (e.g. LinkedIn, Glassdoor, WeChat, Facebook, Instagram).
- We launched a new [career page](#), fully integrated with the ASM corporate website and branding. We have positioned the new page as the front-end of our Candidate Relationship Management, from where we build and drive our talent pools and candidate experience.
- We continued investing in early-talent programs. This includes local programs for interns and strong line management involvement. For example in Singapore, we had over 40 students graduating from their ASM internship in 2023.
- We fostered strong partnership with industry associations. For example, in Korea we partner with the Korea Semiconductor Industry Association (KSIA) to offer PhD positions to promote and nurture future talents of the semiconductor industry.
- We participated in industry exhibitions and events to promote career opportunities. We joined the annual SEMI events and also participated in Electronics day, which was organized by the Singapore Semiconductor Industry Association (SSIA).

Our voluntary attrition decreased to 6.6%. This is clearly a positive drop compared to the past two years where we saw voluntary attrition beyond 10%. We will continue to pay close attention to voluntary attrition, which requires local focus.

To ensure our position as an attractive home for existing and future talent, we continued to review our total rewards strategy. This includes benchmarking and reviewing total rewards practices globally. The findings will drive further action planning around rewards in 2024.

Talent and Leadership development

Long-term career progression is core to retaining our employees. While being in this company growth phase, we need to continually develop our people and managers.

As part of our onboarding improvement program, we launched an online learning program for technical onboarding. The program explains deposition technology at varying levels, depending on people's roles, as we find it important that every ASM employee has at least a basic understanding of our technologies and the industry.

To maintain our technological leadership and pace of innovation, we need to ensure the right knowledge is available to our people at the right time. To do this, we have our own technical development centers in-house in different regions.

Most of our training takes place on the job, given the nature of our collaborative innovative business. Overall, we are promoting the 70-20-10 approach for learning interventions, meaning that 70% is on-the-job learning, 20% is through coaching, and 10% is learning through training courses.

We continued to use the e-learning platform HMM (Harvard Manage Mentor), which offers learning courses for project management and transparent communications, for example. To stay up to date with latest developments in the semiconductor industry, we make scientific journals and industry publications available to our employees. This includes access to e.g., IEEE Xplore, Elsevier, AIP, and TechInsights.

To drive talent development and performance management, we have a robust framework in place. This includes annual alignment between the strategic business objectives, team goals and individual targets. Every year we run our performance cycle from objective setting to mid- and year-end reviews, including 360 feedback loops. In 2023, 100% of our employees went through performance cycles in which they were evaluated against agreed objectives. All results are key drivers for talent development, internal promotions, and total rewards for our people.

We have identified specific positions critical to our continued success. These form a central part in our succession planning, a process that maps our internal talent against these positions. It means ASM has continuity in key positions and helps us strengthen our internal talent pipeline.

While strengthening our talent and leadership pipeline for critical roles, we successfully ran our 'Leap' and 'Elevate' programs. These programs focus on a global group of high-potential employees, empowering and preparing them to be future leaders. It is built around action-learning projects – finding solutions to ASM-specific business challenges while shaping the development of our future leaders.

10.3 Safety leadership

Our safety leadership and values are closely aligned with our company values of We care, We innovate, We deliver. This is reflected in our Occupational Health & Safety Policy, and captured below:

Our vision is ZERO HARM! This means we believe all incidents and injuries are preventable, and health and well-being are fundamental rights. We care about the health and safety of people, and the safety of operations, within ASM and across our value chain – together striving for ZERO HARM! in all we do.

Safety culture

We nurture a culture of care for each other's health and safety. The way we engage with employees promotes opportunities to improve, and an environment where concerns are openly reported. We systematically and structurally assess and respond to mitigate health

and safety risks. ASM is committed to providing a safe work environment and healthy working conditions for our employees that promotes their occupational health and safety.

We seek to be a leader in health and safety. We strive towards our vision of ZERO HARM! within our own operations, and then actively inspire and engage in our value chain and industry to advance health and safety programs and results. We also actively engage in and contribute to industry standards and best management practices. We comply with applicable legal requirements and are guided by international standards including, but not limited to, the Responsible Business Alliance (RBA) Code of Conduct and its relevant and referenced standards. We set our annual KPI targets and objectives and drive innovation toward delivering on these ambitions.

We focus on identifying and eliminating hazards, and preventing and mitigating exposure to occupational health and safety risks. We do so in cooperation with employees, their representatives, management, and experts in the field of safety. For residual exposure risk, we work collaboratively to identify and implement improvements.

We strive to design, manufacture, deliver, and support intrinsically safe equipment for all who use and operate our equipment. We do this to maintain a high level of occupational health and safety, in our operations and across our value chain.

We maintain a structural, globally harmonized occupational health and safety management system to manage all occupational health and safety aspects, and strive to make this foundation a leading model and inspiration beyond ASM. We are informed by meaningful stakeholder engagement and considerable in-house occupational health and safety expertise, as well as the RBA Code of Conduct, World Health Organization, and other leading frameworks and bodies.

We strive to constantly learn – and act on our learnings with urgency, locally and globally, so we are meaningfully improving our systems, culture, and performance every single day toward delivering our vision of ZERO HARM!.

Safety leadership

Empowering safety leaders in all areas of the company, regardless of role, is a fundamental part of our approach to safety. Safety is both 'in the moment' and is influenced by the world around us every day. What we say and how we say it influences everyone we work with. We recognize this, and have added a 7th 'E' for 'Engage' to our 7Es of Safety Leadership program. We believe everyone should be responsible for safety.

A prestigious global ASM award – our Safety Leadership Award – recognizes safety leaders every quarter. Employees who demonstrate notable contributions in safety – scaled for their role, positive attributes, and leadership – can be nominated by peers. We honor these safety leaders at ASM.

Quarterly safety award winners



China Service Team

Exemplifies and engages in proactive safety leadership.



Product Support Manager

For educational safety leadership, consistently promoting a safe work environment.



Service Manager

Exemplifies safety leadership through consistent engagement of the customer and the regional team.



Manufacturing Technician

Exemplifies safety leadership to peers, using his experience to educate for safety.

Our vision is ZERO HARM!

By focusing on the 7Es of safety leadership



In 2023, we started or continued key focus areas of our safety systems, including:

- a. **Amazing Together! strategic plan** – In 2023, every single member of the global health and safety teams and global product-safety team collaborated to develop a joint multi-year strategic plan. Its aim is to significantly differentiate ASM through safety, achieve/sustain leading safety culture and performance results within ASM, and lead the improvement of safety culture and performance within the industry. The strategic plan focuses on the following key areas: executive leadership, safety and health culture, learning systems and data analytics, innovation, industry leadership, key risk areas (lab, manufacturing, service), performance-based training and engagement and communications.
- b. **SHIELD** – Environmental, Health & Safety (EHS) applications digital platform. The continued development of the SHIELD system in 2023 included a new module for industrial hygiene assessments, risk analysis, and project tracking, as well as a system to assess and track our management of change activities. These modules, along with the existing SHIELD Incident Reporting (SIR) system, Safety Management by Walking Around (SMBWA) inspections, and investigation and action planning systems, allow us to better understand and improve our safety performance, particularly with predictive capabilities. We have a roadmap to continue to grow SHIELD into a powerful safety management, learning, and continuous-improvement system.
- c. **OASIS system** – Launched in early 2022, we manage product-safety risk assessments, validations, and ongoing product-safety development with a proprietary and industry-leading product-safety risk-management system we call OASIS.

- d. **Safety leadership collaborations** – Since 2015, we have shared safety data and learnings in a transparent way to collaborate with key customers and partners with the objective of improving overall workplace safety. In 2023, we added an additional two key customers to these forums. This led to one of these customers selecting ASM as the first-ever supplier collaboration partner providing an opportunity to share our data in an all-supplier safety forum. We continue to collaborate with our customers and partners to identify and address trends and improvement opportunities.
- e. **Promoting workplace safety, one wallpaper at a time** – An idea that started in a business unit staff meeting to get everyone to refocus on safety led to a corporate-wide initiative with hundreds of participants. The 'Why I choose to work safely' personalized digital wallpaper serves as a visual cue every time employees unlock their phone or computer screens, a reminder of what they value most and why they choose to work safely.
- f. **Risk reduction** – Our R&D labs, manufacturing areas, and global service environments represent our highest health and safety risks. We structurally improve health and safety in each of these areas by defining and carrying out multi-dimensional plans every year. These plans focus on the unique aspects of each risk area, identifying and directly addressing key risks associated with health & safety exposures, developing the safety-leadership culture of the teams, and delivering physical and procedural improvements. These efforts have led to structurally fewer risks and incidents year-on-year.
- g. **Safety by design** – Each year, we review new regulations, advancements in standards, and the lessons we have learned. We update our training materials accordingly,

customizing them with specific product-line examples for respective design teams. ASM's product-safety training classes address the latest technology, learnings and changes to compliance regulation and standards.

- h. **Industry engagement and collaboration** – With a view to collaborating and engaging with industry leaders around health and safety issues, we maintain a board seat in SESHSA, a multi-industry association focusing on advancing health, safety, sustainability, and environmental knowledge and processes. In 2023, ASM Senior Director of Product Safety Technology served as the president-elect, and will serve as president in 2024. We continue to be a Cobalt sponsor of their activities. For the 45th annual SESHSA symposium in April 2023, ASM delivered five key topic presentations to our industry, our most ever. We actively engage with and contribute to SEMI (the global electronic-products industry association) working groups that drive standards and knowledge-sharing for the industry.

Safety management system

Our safety management system includes a robust set of safety policies and processes across all aspects of health and safety management, including but not limited to:

- **ASM Safety Program** – It starts with our value 'We Care' and is implemented through our [Health & Safety Policy](#). Our vision is ZERO HARM! This means we strive to prevent all incidents and injuries, regardless of their severity or impact. This vision is supported by the appropriate range of policies, programs, and governance. Our safety mantra, whether for prevention or response, is 'Learn once anywhere, address everywhere, in as close to real-time as possible'. ASMI is committed to conducting business, both in our own operations and throughout our supply chain, in a manner consistent with RBA principles to protect our employees, customers, business partners, communities, and the environment.
- **Stop Work** – Everyone has a right to 'Stop Work' when they come across a situation at any level that involves safety or health. Even if an employee feels unsafe without any event occurring, we encourage and support them to call a 'Stop Work', seek a safe setting, get help or advice on how to proceed safely, or escalate the situation to someone who can help them do so.
- **Proactivity** – Programs are implemented that focus on the early detection of hazards and risks, including a Safety Management by Walking Around (SMBWA) inspection and

Good Catch reporting. These are forms of hazard identification that engage our employees and managers in their work areas and strengthen our internal risk identification and inspection processes. Through this engagement, we use our eyes across our company every day to identify and eliminate risks and hazards.

- **Energy safety** – Policies and procedures for working safely around energies of all forms, and how to safely de-energize.
- **Chemical safety** – Protocols for the request, review, and approval to safely use chemicals and gases. This incorporates protocols for determining safe handling, storage, and exposure prevention through the hierarchy of controls. It is integrated with our environmental policies for the planning of proper treatment or disposal as applicable.
- **Industrial hygiene** – Understanding exposure controls for chemicals and other physical hazards is a key part of our focus on health and safety. Our industrial hygiene program aims to prevent occupational exposures that could cause harm or disease.
- **Risk and incident reporting, prevention, and response** – Our health and safety incident reporting (SIR) system is the foundation of driving risk and incident reporting, prevention, and response. This includes what to do when a risk is detected or an incident occurs, policies around immediately reporting when it is safe to do so, getting the right attention to properly contain the situation first, and then focusing on the structural improvements necessary to prevent a risk or incident from happening again.
- **Investigations** – ASM uses a structured procedural approach to investigating health and safety incidents and exposures. The SHIELD system integrates a robust tool and mechanisms for conducting an investigation, starting with forming the right team qualified to lead the investigation. Investigations are assigned according to a significant incident or exposure matrix, whereby highly significant incidents must go through a more detailed process.
- **Action plans** – Supporting the SHIELD system, including health & safety SIRs, is a robust action plan system. It incorporates actions from across our OHS data systems into a single platform for target setting and tracking, and visibility into completion of the actions to reduce risk across the organization. Governance and prioritization of actions is overseen by the Global EHS and Product Safety organizations.
- **Employee engagement** – Employees are empowered members of safety committees and working groups across our organization and sites. They can submit a 'Safety Good

Catch' into the SIR system. SIRs are reviewed daily by EHS and managers across the company and acted on where appropriate. It's a collective, collaborative effort by everyone to keep safety ingrained in everything we do.

- **Emergency response** – An emergency response and incident command program is implemented at our key production and R&D sites, with emergency plans implemented for customer service offices. The emergency response programs are supplemented with trained Emergency Response Teams (ERT) for safely managing events related to chemical release, medical, and fire. The ERT routinely conduct training and drills, from which lessons and actions are taken to continuously improve quality and timeliness of response.
- **Contractor safety** – A program for collaborating with contractors to keep them safe while performing their scope of work at ASM. This includes contractor company screening, individual contractor training and orientation to our sites and requirements, and administrative controls, such as safety plans and work permits. Through the screening and contractual process of establishing a scope of work, safety and health expectations are communicated, including understanding of ASM policies and procedures for safely working on our sites. This is then supplemented once on site by working closely with contractors, closely coordinating activities through pre-task planning and site incident-prevention programs. This aims to minimize the risk of our operations impacting on their tasks, and subsequently their safety, and vice versa.
- **Management of change** – When changes occur, this set of protocols serves as a guide through a risk assessment of the change. It is aimed at establishing if new or improved health, safety, or environmental protection measures and controls are necessary.
- **Training** – Safety is not just a part of 'safety training'. We embed it in equipment-specific training, so it is part of the equipment maintenance and manufacturing experience, and not something only covered by policy. This way, we are increasing the knowledge of safety risks in job tasks, associated with the equipment being used, to reduce potential for future incidents on the equipment. We also engage every new employee around the basics of safety during our new-hire orientation course. This is in addition to the safety training specific to working in high-hazard areas or conditions.
- **Management review** – There are quarterly reviews of Lab, Manufacturing, and Service strategic plans and progress. Health and safety is a standing topic for the Executive Committee meetings, with performance targets and objectives included. The target

review includes if we have been successful in reducing and preventing the recurrence of issues from prior incidents or exposures.

Key results

We measure our success in the total injury rate, not the number of serious injuries or number of days away from work. This includes all injuries requiring first aid or more. Our vision is ZERO HARM!, and we will only reach that vision when our injury rate reaches and is sustained at zero – regardless of severity. We use a robust peer-review system for assurance purposes in classifying our injury incidents. This strengthens our global EHS teamwork in reviewing the facts of all injury cases and strengthens our governance process in safety results.

Global injury and recordable rates

(Case rate per 100 employees)



As we strive for ZERO HARM!, each stage of our journey gets progressively more challenging. In 2023, our total injury rate was 0.48 cases per 100 employees versus a target of 0.37, and our recordable injury rate was 0.28 versus a target of 0.17. These represent similar results or slight decreases from the previous year, but are still below our target. We believe this underperformance is largely due to the challenges of the substantial and intense business growth in the past few years and enrolling many new employees into our safety culture and program. This informs where and how we must

improve. We have completed a multi-year strategic plan for safety, approved by the ExCo in the fourth quarter of 2023, that will address these challenges and risks. Key immediate action in the plan is strengthening our engagement and communication across our growing employee and site base, as well as stimulating our safety culture through a '7Es Engagement' plan across the organization.

We continue to challenge ourselves every day to eliminate or mitigate risks, both culturally and structurally, towards eliminating every incident and injury. As such, we plan to retain the same challenging target of 0.37 in 2024. There were no fatalities, either employee or contractor, within any ASM operations or sites in 2023.

Looking forward

Collaboration is key to collectively improving the safety of the industry. We seek and engage in initiatives that strengthen collaboration with our customers, as well as looking to build more collaboration between our own operations, across the different R&D labs, production floors, and service regions. We are also intent on strengthening collaboration between different industry groups, including SESH and SEMI.

We plan to further embed the safety culture and apply systems to support this. Our EHS and Product Safety teams strive to embody the mantra that we are 'Amazing Together' in our teamwork to achieve our ZERO HARM! vision.

10.4 Interview with the Chief People Officer

Edyta Jakubek

Chief People Officer

Edyta Jakubek became ASM's new Chief People Officer and member of the Executive Committee in June 2023. In her new role, she works to further empower ASM's workforce, promote diversity and inclusion, and make sure our people continue to be agile and focused on innovation. Learn more about Edyta and how she addresses ASM's HR challenges.

You have master's degrees in law and sociology. How did you get into human resources?

"When I graduated from the University of Gdansk, my native country of Poland was still in the process of opening up to the global economy after decades of communism. I was keen to seize the opportunities offered by the foreign companies investing in Poland. When the Dutch multinational Philips offered me a position in human resources, I was delighted and accepted it – and ended up staying with Philips for 20 years! What attracts me to HR is that it combines intellectual abilities with emotional intelligence. This mix of cognitive capabilities with strong social acumen has become critical for business. At ASM, it's the basis for promoting teamwork and building a collaborative corporate culture."

What is the biggest challenge in your new role?

"Our company is targeting to increase its revenues significantly to €4-5 billion by 2027. With our technologies and product portfolio, we're in a strong position to aim for significant growth. The question is how to make sure our people and organization are ready to respond effectively to this great opportunity. Growing our business means enabling it through bigger operations and developing next-generation solutions in global teams, which

requires long-distance communication. At the same time, it's crucial that we maintain our entrepreneurial and agile culture, along with our relatively 'flat' hierarchy. Our customers not only appreciate us for exactly this, but our people also like this way of working – it's one of the reasons they join us. They want to have tangible impact on business. At ASM, where lines to management and colleagues are short, they can take responsibility and make a difference. This enables innovation from the bottom.

"ASM is purpose-driven. People take responsibility and make an impact."

How will you ensure its people can support and accommodate ASM's growth?

"People are at the heart of our success. We need to stimulate them to continuously broaden their horizons beyond the technology and products we develop. We want them to look at how our products and technologies ultimately contribute to the daily lives of people and society. We're a purpose-driven organization, and our company culture supports this. Key company culture drivers are at the heart of our People Transformation Strategy.



This includes our values – We care, We innovate, We deliver – as well as our behaviors, accountability, collaboration, and empowerment, along with our leadership's behavior.”

How will you recruit the new people needed for ASM's growth given the 'war for talent' in the industry?

“Over the past two years, we've successfully hired more than 2,000 people. We will continue expanding our teams in critical domains, primarily in R&D. Various external studies, such as those by Deloitte, show that the semiconductor industry will have added one million additional jobs by 2030. I'm confident we'll continue to attract the talent we need, but this will require an out-of-the-box talent attraction and retention approach. We will recruit talents where they are, and not only where the job is.

“People are at the heart of our success.”

We already have more than 40 different nationalities working outside of their home countries, at seven development centers and operations, in 16 countries. This means we already have the infrastructure that facilitates international talent mobility. We will also be looking at capabilities from other industries, relevant to us. The hiring process will require significant transformation, too. We plan to use AI in our recruitment process in the future to make it more effective. We will continue to invest in our employer brand recognition, and we will continue to support initiatives promoting science, technology, engineering and mathematics (STEM) curricula at high schools and universities.”

How will you enhance diversity, equity and inclusion at ASM?

“Diversity, in terms of gender, background, lifestyle and religion, for example, can only contribute to a wider variety of views and approaches, which has the potential to boost creativity and innovation in our teams. I will build on ASM's existing Women Initiative Network (WIN) that brings women together from all the regions ASM operates in, with the aim of empowering them. It is a self-steering approach – fully owned by our female colleagues. They organize themselves, decide what topics are relevant for them, and what is critical to their growth. We plan to expand this approach to other diversity groups within ASM. At the same time, we'll put effort into involving all employees in our diversity projects, and by doing so work towards spotlighting and mitigating unconscious bias. One of our guiding principles is to make sure everyone's vision is heard. We would like each employee to say: 'At ASM I feel like myself, I can be myself.' I strongly believe in giving people an equal voice, and that all employees, regardless of their background, are equally valued.”

10.5 Community, industry, and society impact

In 2023, ASM's commitment to positively impacting communities, industries, and societies has taken strides forward, reinforcing our core value of 'We Care'. Beyond our business investments, like the announcement of new leading-edge facilities in Scottsdale, Arizona, and Hwaseong, Korea, we also deepened our role in societal contributions.

Arizona team giving back

Our Arizona team extended their community outreach activities, building on past initiatives such as the Salvation Army water drive, which raised more than US\$5,000 in 2023 in an unusually warm summer period. Additionally, ASM's collaboration with St. Mary's food bank, a pioneering facility in Arizona, provided more than 9,000 meals to families in need.



But our efforts have evolved beyond singular events, as ASM has forged multi-year partnerships with two key organizations. First, with the Arizona Sustainability Alliance, where we pledged US\$240,000 over three years, primarily supporting urban forestry and tree planting initiatives. This partnership involves a hands-on commitment from our employees, who will actively participate in planting over 250 trees in local neighborhoods and parks. These volunteer tree-planting days are testament to our dedication to environmental stewardship and community engagement.

Another significant partnership is with The Nature Conservancy in Arizona (TNC). Our collaboration focuses on contributing to an innovative water-management program aimed at restoring the Verde River. This initiative seeks to enhance the river's long-term resilience, addressing key environmental concerns while benefiting community and wildlife. Our team is excited to work closely with TNC on implementing sustainable solutions for water conservation and ecosystem preservation.

ASM's collaboration with these organizations represents much more than a commitment to environmental sustainability. It reflects our deep-rooted dedication to improving the quality of life and preserving the natural beauty of Arizona's communities. This comprehensive approach to community, industry, and society impact embodies ASM's ethos of care and responsibility, driving meaningful change beyond our immediate scope.

Singapore supports those in need

In Singapore, ASM colleagues spearheaded a community-driven initiative, where 35 ASM colleagues volunteered at a pop-up food booth. The event was a gesture of support to the local community, allowing individuals in need to select essential items. Through their efforts, the team positively impacted more than 500 people across 14 divisions in the district.

Technician Mohammad Khairon Bin Zainal, who volunteered at the event, shared his insight: "It's always fulfilling to give back to our community. Taking part with my family and being part of a team that spreads smiles is truly rewarding." This initiative served to strengthen community ties as well as reinforce ASM's dedication to making a positive impact through collective action and compassion.

Japan teams up with Habitat for Humanity



Our colleagues in Japan took part in a heartwarming community-service initiative, joining hands with Habitat for Humanity to support the Bott Memorial Home, a local orphanage in Tokyo. Founded in 1957, the orphanage is a haven for children aged 2 to 18, who cannot live with their families for various reasons.

The orphanage is located on a hilltop and has extensive grounds for the children to play. But maintaining these grounds, particularly during the autumn leaf fall, is a challenge. The leaves can obstruct water drainage, and the orphanage staff, primarily focused on childcare, often struggle with the upkeep.

This is where our ASM team stepped in. On a humid summer day, 12 colleagues traded their office environment for the orphanage's grounds, dedicating their morning to raking leaves, clearing gutters, and trimming overgrown vegetation, significantly improving the orphanage's outdoor space.

Jason Foster, ASM's Corporate Vice President, expressed his pride in the team's efforts: "It was inspiring to see the impact of commitment and compassion. This event not only served a noble cause, but also showcased how ASM's spirit of teamwork extends beyond professional boundaries. I am eager to take part in more such outreach events like these in the future."

Korea continues scholarships programs



ASM proudly continued to endorse the Korea Semiconductor Industry Association (KSIA)'s scholarship program, reaffirming our commitment to shaping the industry's future.

By supporting this initiative, we aim to foster the next generation of STEM and female talents, crucial for driving innovation and diversity in the semiconductor field.

In its second year, our Korean team sustained its partnership with KSIA, a prominent trade association with a vast network of more than 260 member companies spanning device, design, and equipment sectors. As part of this collaboration, ASM sponsored university scholarships for promising STEM students. This support is designed to nurture their academic and career development in the semiconductor industry.

These scholarships represent more than just financial support; they symbolize ASM's investment in the future. By encouraging and empowering these young talents, we are contributing to the evolution of technological innovation and fostering a diverse and inclusive workforce in the semiconductor industry. This program not only benefits the recipients but also strengthens the entire sector, ensuring a robust pipeline of skilled professionals ready to tackle future challenges.

Disaster relief for Turkey and Syria

ASM supported relief efforts for the catastrophic earthquakes that struck Turkey and Syria in February 2023, a disaster that claimed 59,000 lives and affected more than 20 million people. Upholding our 'We Care' value, we partnered with the UN Refugee Agency (UNHCR) to extend help to the victims. Demonstrating solidarity, our colleagues across ASM responded generously and ASM matched their donations. Together, ASM contributed €75,000.

UNHCR facilitated the delivery of 2.9 million core relief items, including thermal blankets and mattresses, to people displaced by the tragedy. Beyond physical aid, the UNHCR provided critical services such as mental health counselling, monetary assistance, and legal support. These efforts have been instrumental in aiding the recovery and rebuilding process for the countless lives upended by this disaster. ASM's involvement in these relief efforts is a testament to our commitment to global humanitarian causes.

11. Planet

At ASM, we are committed to stewardship over our planet and its resources. We are working to accelerate sustainability as one of our key strategic pillars, moving from ambition to action, and collaborating with key industry stakeholders to move our value chain forward. For us to achieve our ambition and our Net Zero by 2035 target, we recognize that sustainability requires engagement, collaboration, and mutual action, with everyone moving in the same direction to achieve a livable future.

At ASM, climate change is considered a material topic of strategic importance to the company based on the assessed risks and opportunities. We have included value-chain impacts in our risk assessments, first seeking to understand and better quantify those impacts, then moving to work with business partners to take collective action. Our aim is to accelerate action across the industry, to have an impact larger than our own footprint.

In 2023, we published several environmental policies in support of our distinct sustainability areas on our [website](#). These include our overall Environmental Policy Statement, rooting the overall environmental sustainability program in guiding principles of moving beyond compliance, reducing our footprint, increasing transparency, and growing engagement. We also published separate sustainability program policies for climate, water, circularity, and biodiversity. These policies help set the stage for our work towards current goals and developing new ones as the company evolves. Additional details on water, circularity, and biodiversity can be found in the sustainability statement section.

2035

Target year for net-zero emissions

88%

Electricity from renewable sources

7.9

Kilotonnes of scope 1+2 emissions

A-

CDP Climate Change and Water Security

ASM's environmental performance indicator boundary has been expanded to now include all ASM operations without exception, including LPE, which we acquired in October 2022. This is in line with our greenhouse gas net-zero target and consistent with our overall sustainability ambitions. Key metrics are thus restated to this updated boundary starting from 2021, our net zero baseline year. Metrics prior to 2021 will not be comparable to 2021 and after, as previously they only included ASM's largest development and manufacturing sites.

ASM has been certified to the ISO 14001 Environmental Management System (EMS) standard since 2003. The scope of a global EMS supports consistency in practice across our operations, and provides a foundation for continuous improvement. The EMS ensures the organization is appropriately evaluating and managing environmental aspects related to our business.

Our EMS provides a framework to be compliant with all applicable environmental laws and regulations with a goal of no Notices of Violation (NOVs), and we maintain an environmental legal register to assess regulatory applicability annually at a minimum.

In 2023, we did not sustain any environmental-related violations with significant (> US\$10,000) fines or penalties.

11.1 Climate action

Climate change is a critical issue facing the entire planet. It increases global risk of extreme weather events, habitat and biodiversity loss, human displacement, and increased risk of disease, among other impacts. It also poses business risks to ASM and its stakeholders, including our supply chain. We recognize these risks and consider climate change to be of high materiality to the organization. This is why we are taking action to do our part to mitigate them. At the forefront of our efforts is enhanced collaboration – this is a risk the whole planet faces together, so we must work together to face the challenges head on. We also intend to lead through action in our own operations, setting the example in reducing our footprint in our own company operations.

In 2023, ASM published its Climate and Net Zero Policy Statement, which is available on our [website](#), establishing our vision for ASM's climate and GHG-reduction goals and objectives, as well as addressing:

- Acknowledgement of climate-related risks
- Identification of risks & opportunities to inform strategic investments, business resiliency and sustainable operations
- Actions to mitigate those risks and impacts
- Reduction of emissions through efficiency, abatement, and chemical use reductions & substitutions
- Maximizing the sourcing of electricity from renewable sources
- Neutralizing any remaining emissions
- Collaborating across our value chain for collective global impact

Net-zero target

In 2021, ASM announced its ambition for net-zero greenhouse gas (GHG) emissions by 2035 and has been taking concrete steps towards building the appropriate support system around this goal. This includes boosting our organizational capabilities, strengthening supporting climate programs, kicking off industry collaboration efforts, and integrating necessary steps into our business strategy and plans. The target includes Scopes 1, 2, and

3 GHG emissions, prioritizing reduction of emissions as near to zero as possible and neutralizing all remaining emissions in line with SBTi criteria.

In August of 2023, we announced that we received SBTi verification of our near-term, long-term, and net-zero GHG targets by the Science Based Targets initiative (SBTi). Our validated targets include the following from a 2021 base year, in line with the Paris Accord 1.5°C pathway:

- Reduction of Scope 1+2 GHG emissions by 50.4% by 2032, and by 90% by 2035¹⁰.
- Reduction of Scope 3 GHG emissions by 58.2% per EUR of value added (gross profit) by 2032, and 97% by 2035¹¹.
- Net-zero emissions across all scopes by 2035, allowing for emissions neutralization of remaining emissions above the long-term targets to achieve net zero through high confidence carbon removal mechanisms.

ASM's net-zero targets as verified by SBTi

Scope	Near term 2032	Long term 2035	Net zero 2035
Scope 1+2 *	50.4% absolute reduction	90% absolute reduction	net zero (neutralization allowed up to 10% of baseline)
Scope 3 **	58.2% reduction per € value added (gross profit)	97% reduction per € value added (gross profit)	net zero (neutralization allowed up to 10% of baseline)

* Set by using cross-sector absolute reduction method

** Set by using economic intensity reduction method (considering growth projections)

ASM's net-zero target is the first to be approved by the SBTi in the semiconductor industry, and represents the most ambitious designation available throughout the SBTi process. ASM has near- and long-term company-wide emissions reduction targets in line with climate science with the SBTi. As a result of SBTi verification of our net-zero target, ASM is part of the Business Ambition for 1.5°C and United Nations Framework Convention on Climate Change (UNFCCC) Race to Zero campaign. To remain in good standing with the SBTi, ASM is required to communicate progress each year on emissions reductions, and show progress in line with the decarbonization pathway.

¹⁰ Set by using cross-sector absolute reduction method

¹¹ Set by using economic intensity reduction method (considering growth projections)

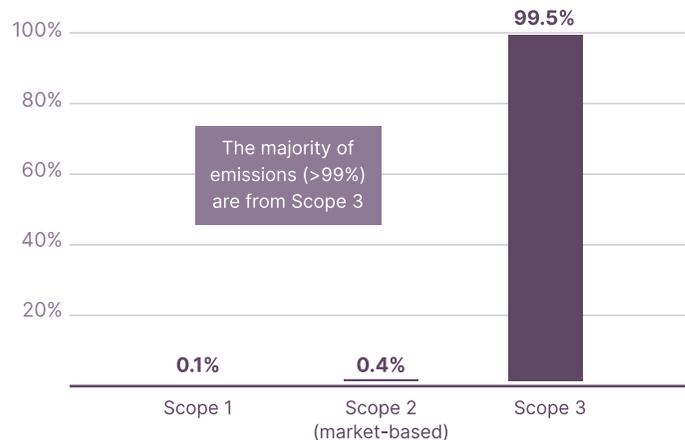
While our primary GHG emissions-reduction targets are set for near-term 2032 and long-term 2035, in accordance with approved pathways, ASM's interim target for the year 2030 is as follows:

- Reduction of Scope 1+2 GHG emissions by 41.2% by 2030 from 2021 base year.
- Reduction of Scope 3 GHG emissions by 47.6% per EUR of value added (gross profit) by 2030 from 2021 base year.

Intrinsic to its science-based targets, ASM aims to source 100% of our electricity needs from renewable sources across all global operations by 2024 to support its net-zero target.

ASM's 2023 GHG emissions

in %



Climate transition

With the verification of ASM's Net Zero by 2035 target, and recalculating of ASM's baseline-year emissions, inclusive of all company operations and recent acquisitions, we have inventoried our emission sources by type and location to classify our emissions and develop reduction roadmaps for each type. While some reduction interventions are nearer term and well defined, others are medium to long term, and may require research and development of alternatives, increased efficiency opportunities, and changeover of capital assets. Collaboration with our value-chain partners is a critical precondition to reach our Scope 3 target. It is for this reason that ASM has been a driving force behind the establishment of the Semiconductor Climate Consortium.

Our work to develop an ASM Climate Transition Plan (CTP) directly supports our net-zero ambition. A Climate Transition Plan is a document that details organizations' ambitions for net zero, intended actions, roadmaps, timelines, key reduction levers, and accountability mechanisms to track and report on progress to goals. The CTP intends to provide visibility, credibility, and accountability to ASM's climate ambitions, structuring our approach and driving timely action.

In 2023, we developed our first iteration of a CTP, which directly supports our net-zero ambition. ASM is excited to share this plan publicly in the first quarter of 2024.

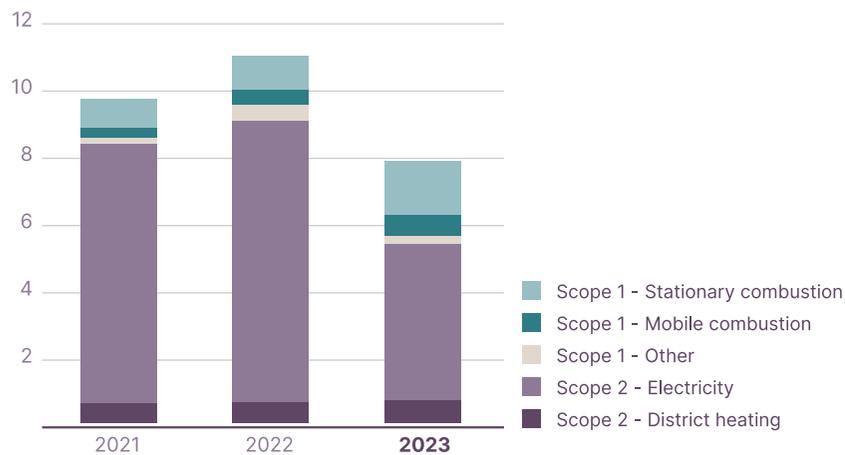
Embedding Net Zero by 2035 into our business strategy better enables us to take action across our core decarbonization pillars. Our 'We Care' value emphasizes our dedication to climate responsibility, which is incorporated into our long-term value-creation model. Furthermore, in line with our strategic objective to accelerate sustainability, we ensure that climate initiatives are integrated into our business strategy and financial planning. In addition, ASM has been evaluating future use of an internal carbon-pricing mechanism to help drive environmentally conscious decision-making within the organization and reduce our carbon footprint.

ASM's GHG emissions are summarized as follows:

- Scope 1: Chemical and by-product emissions such as NF_3 , N_2O , and CF_4 ; fuel use from onsite heating, abatement units, emergency generators, and vehicles; fugitive emissions of refrigerants.
- Scope 2: Purchased electricity; district heating in limited locations.
- Scope 3: 11 out of 15 GHG Protocol categories are applicable to ASM; the largest sub-categories are 3.11 Use of Sold Products and 3.1 Purchased Goods & Services, but also include transportation, distribution, commuting, and ASM's investment share of ASMPT.

Planned actions reduce emissions from existing or future potential sources (often called 'levers') are key to showing how we will achieve our intended decarbonization pathway. Through inventorying of all emissions sources, identifying concrete actions to reduce each type, and the resulting effect to reduce emissions, the organization can develop a roadmap and timeline that supports the Net Zero by 2035 target.

Scope 1 + 2 (market-based) emission sources
(in kilotonnes CO₂e)



ASM reports on 11 applicable scope 3 categories out of 15, following GHG Protocol and other best practice frameworks to ensure a complete and valid approach towards its net-zero ambitions. In the graph below, this breakdown is shown, supporting our activities to focus especially on categories 3.1 and 3.11.

Scope 3 emissions sources
(in kilotonnes CO₂e)

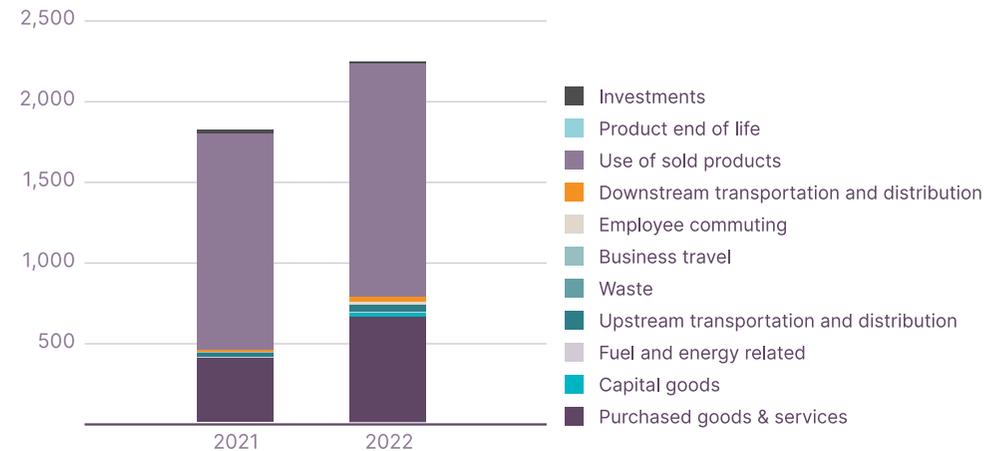


Chart based on 2022 data; Scope 3 data for 2023 will be available after the publication of this Annual Report.

Decarbonization levers

Decarbonization Levers	Description	Actions taken in 2023
<p>Decarbonizing supply chain</p> <p>29% of total 2022 GHG footprint*</p>	<p>Reducing the emissions associated with the goods and services used to develop our tools requires us to engage with our suppliers to implement decarbonization strategies in partnership with ASM. ASM is dependent on our suppliers' ability to decarbonize their operations for our Scope 3.1 target to be realized.</p> <p>Key actions planned:</p> <ol style="list-style-type: none"> Supplier data improvements Supplier engagement and innovation Increase renewable energy use within supply chain Develop and enact low-carbon procurement strategy 	<ol style="list-style-type: none"> Since 2021, we have required suppliers to disclose through CDP. In 2023, we reached an 88% response rate of our critical & strategic suppliers. Met with our top suppliers over the year to align with them on their sustainability journeys to date, information sharing, support, and roadmaps looking forward. Joined the Catalyze program as a founding sponsor, helping to enable renewable energy procurement across our supply chain through long-term contracting Power Purchase Agreements (PPAs).
<p>Decarbonizing operations</p> <p>0.5% of total 2022 GHG footprint*</p>	<p>This area is most directly within our control, so we are working to implement changes within our organization's operations. This includes efficiency measures, renewable energy procurement, and more.</p> <p>Key actions planned:</p> <ol style="list-style-type: none"> Implement energy efficiency and reduction measures across our owned/operated sites Electrify and switch to low-carbon/low-emissions fuels Procure renewable energy Reduce and/or replace non-electric or other GHG fuels within operations 	<ol style="list-style-type: none"> Conducted energy audits with third-party expert consultants to understand opportunities for reductions in our locations, which we intend to act on as soon as possible. Completed a full inventory of all emissions sources across ASM as part of expanding our emissions boundary to all company operations. Achieved 88% of our electricity from renewable sources for this year. Progress in reducing energy and material consumption, including expanding our crate reuse program with customers and suppliers, and efficiency improvements in chilled water systems in Singapore.
<p>Decarbonizing product use</p> <p>64% of total 2022 GHG footprint*</p>	<p>Customer use of our products through their productive life represents the most significant portion of our GHG footprint. As a vital area to reduce in pursuit of our targets, we must collaborate across the industry to decarbonize customer use of our products. ASM is dependent on our customers' ability to decarbonize their operations for our Scope 3.11 target to be realized.</p> <p>Key actions planned:</p> <ol style="list-style-type: none"> Correct product boundaries in GHG measurement Innovate products and increase product energy and resource efficiency Develop methodology to apply customer renewable energy sourcing to GHG calculations Encourage customer sourcing of renewable energy 	<ol style="list-style-type: none"> Confirmed current product-boundary assumptions with SBTi target verification. To help quantify our product energy use and corresponding GHG footprint, 15 SEMI S23 assessments were completed on an array of ASM products across our portfolio. Drive toward better value-chain disclosure and information sharing through SCC priority setting to enable more accurate accounting of customer RE sourcing. Similar to upstream supply chain-enablement, the Catalyze program will help enable downstream customer procurement of renewable electricity for long-term supply assurance and cost competitiveness. Progress in reducing energy and material consumption, including expanding our crate reuse program with customers and suppliers.

* Based on 2022 assessed footprint

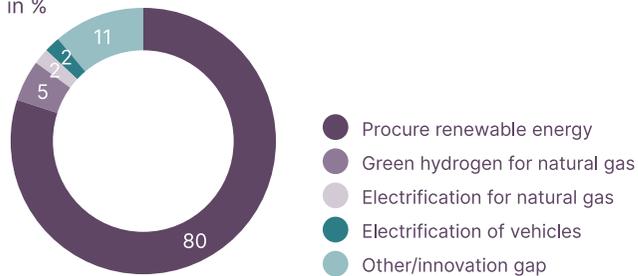
ASM is committed to scaling investment in greenhouse gas (GHG) emissions reduction in pursuit of its net-zero targets. We are aware of the neutralization milestones required, and plan to include them in our Climate Transition Plan at the appropriate time.

ASM has developed a high-level roadmap to identify key decarbonization levers, or emissions-reduction actions, that help guide the strategy in our remissions-reduction journey. These decarbonization levers highlight relative impacts of identified actions, with larger emission categories receiving more attention and resources to achieve.

The following graphs indicate actions identified so far in our journey to net zero, as well as any additional reductions required but not yet identified in achievement of the target.

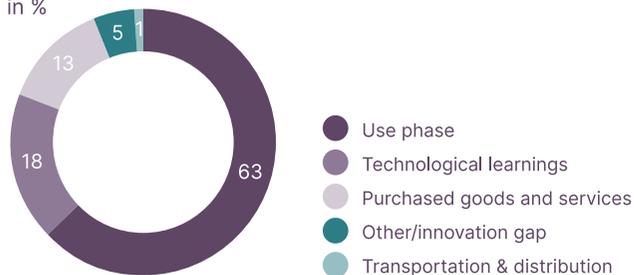
2035 net-zero target roadmap - Scope 1 & 2 Contribution of interventions to mapped GHG reduction

in %



2035 net-zero target roadmap - Scope 3 Contribution of interventions to mapped GHG reduction

in %



We look forward to sharing our progress in the coming years as we continue to implement this vital plan.

Electricity

Energy usage represents a majority portion of our Scope 1+2 GHG emissions footprint, making it a focus area to drive down emissions on our decarbonization pathway. ASM has developed three key priorities on electricity related to our Scope 1+2 footprints:

- a. Reduce our energy usage through energy-efficiency initiatives and projects to drive down our footprint.
- a. Electrification of fossil fuel-utilizing equipment at logical interception points (i.e. end-of-life replacements).
- b. 100% renewable-electricity coverage of our remaining footprint (by 2024).

Starting with energy efficiency, in 2023 ASM partnered with an expert third-party consultant to perform energy efficiency audits at our four largest electricity-using sites. The purpose of these audits was to help inform potential reduction opportunities and integrate those into our budget cycles. ASM is prioritizing and moving forward on those projects, showing a meaningful impact on multiple fronts, including energy, emissions, and cost. Reduction in our base-energy footprint represents the highest environmental benefit in our prioritization, and a logical first step in addressing our Scope 2-emissions footprint.

ASM has completed an inventory of all our fossil fuel-utilizing equipment installed across our global sites to first understand what equipment we have in place, and then determine logical interception opportunities for electrification. This includes applications for on-site heating, process gas abatement units, and our owned and leased vehicle fleet.

Transitioning all fossil-fuel equipment to electric or renewable fuels will progress over time as we turn over equipment. However, we are also accelerating the process by identifying opportunities to transition away from fossil fuels sooner. The resulting electricity footprint can then be covered by renewable energy.

ASM has made great strides towards our goal to source 100% of our electricity from renewable sources for all global operations by 2024. In 2021 and 2022, we procured around 73% of our electricity from renewable sources, considering our expanded boundary. In 2023, we expanded our purchases to additional geographies for larger coverage as we prepare for full renewable electricity next year, achieving 88% renewable electricity globally. This represents significant additional renewable coverage for ASM, positioning us to achieve our goal of 100% electricity from renewable sources in 2024.

Additionally, ASM has completed its first installation of a photovoltaic (PV) array in our real-estate portfolio at our manufacturing facility in Singapore. This installation highlights the overall company commitment and investments to green energy in our operations, and builds on our Singapore manufacturing facility's green building certification to reduce its overall environmental impact. In December 2023, ASM announced it is investing €300 million to build a new research and development center in Scottsdale, Arizona. This facility is planned to include PV while utilizing the latest technology for efficient energy use across heating, cooling, and lighting, to achieve LEED Gold or better. In addition, there are plans to maximize water reclaim, with on-site treatment & recycle system, with the target to have an 80% recycle water use rate.

In 2023, to boost our renewable energy ambition, ASM became a proud member of the RE100, a global corporate renewable-energy initiative whose mission is to bring together ambitious companies committed to 100% renewable electricity, and build renewable-energy capacity throughout the world. The RE100 was established in partnership with CDP, and works closely with industry, governments, and other organizations to advocate and drive change at an accelerating pace. ASM has partnered with RE100 to help advocate for renewable energy in key markets, increase the market signal for renewable energy to increase supply and reduce cost, and drive policy change where regulatory or other barriers exist.

ASM currently purchases high-quality market-based Energy Attribute Certificates (EACs), representing the highest standards of accountability, traceability, and assurance of renewable energy sourcing. Now as a member of the RE100, we are held to even higher standards for valid EAC procurement with considerations on quality labeling, vintage, and

geography. This allows ASM to make high-confidence claims on renewable electricity purchasing for our market-based Scope 2 emissions, in addition to disclosing the location-based emissions from local grids to show the net impact of these purchases. ASM targets the procurement of high-quality certificates that contribute toward additionality, or the build-out of renewables capacity in the markets where we operate.

In 2023, the purchases included the following types of EACs by region, all of which met the stringent RE100 standards for purchasing best practices (all 100% in-market):

- China: Wind and solar EKOenergy I-RECs
- Europe (Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands): EU grid and EKOenergy-labeled wind
- Japan: Wind and solar NFCs (Non-Fossil Certificates)
- South Korea: Wind, solar, hydro, and biomass green tariff
- Malaysia: Solar EKOenergy I-RECs
- Singapore: Solar TIGRs
- United States: Green-e wind Renewable Energy Certificates (RECs)

Currently, ASM is not subject to any energy regulations or policies, including any that would restrict our renewable-electricity purchases.

ASM has been monitoring the renewable market and regulations in South Korea, which has been progressing to allow for more rapid and widespread in-country adoption. We decided to act in 2023 in Korea as it became feasible to purchase high-confidence renewable certificates that are RE100 compliant. We also acted this year to cover electricity use for most of our countries where we only have a smaller field-service office. These steps help towards preparing for 100% renewable electricity by 2024, ensuring that no unforeseen barriers exist, and all necessary preparations are in place. The remaining electricity usage not yet covered by renewable certificates represents a portion of Korea and all our Taiwan office sites. We believe we are well positioned to achieve our 100% renewable goal next year.



Metrics to track our performance

Aligning to our new SBTi verified Net Zero GHG goal, we re-baselined our Scope 1, 2, and 3 emissions for our new boundary, which now includes all company operations and value chain without exception, and includes our acquisitions of LPE S.p.A. and Reno Subsystems in 2022. We continue to work with expert third-party consultants to ensure we are following best practices in carbon accounting, methodologies, and reporting, including adherence to GHG Protocol methodologies.

2023 was an important year for ASM's climate program as we accelerated our action. Expanding our boundary to all ASM operations allowed us additional visibility to the opportunities and challenges ahead. We used this expansion in scope to improve our dataset around underlying data, calculations, and assumption sets. Improving our visibility to the major drivers of ASM's overall GHG footprint, which we integrated into our strategy moving forward, will be key to decarbonization actions we will take in future years.

ASM GHG emissions

ASM's biggest impact to our Scope 1+2 emissions in 2023 was action taken in Korea to procure renewable energy. This not only improved our global renewable energy percentage, but significantly reduced our scope 1+2 GHG emissions, keeping ASM on

track to our required SBTi decarbonization pathway. Additionally, it prepared us for our 100% renewable electricity target year in 2024. ASM also conducted energy audits at its key sites, to identify energy efficiency and reduction opportunities.

Greenhouse gas (GHG) emissions	2021 (base year)	2022	2023
Scope 1 GHG emissions			
Gross Scope 1 GHG emissions (kilotonnes CO ₂ e)	1.3	2.0	2.5
Percentage of Scope 1 GHG emissions from regulated emission trading schemes (%)	—	—	—
Scope 2 GHG emissions			
Gross location-based Scope 2 GHG emissions (kilotonnes tons CO ₂ e)	24.4	27.1	32.3
Gross market-based Scope 2 GHG emissions (kilotonnes CO ₂ e)	8.4	9.1	5.4
Scope 3 GHG emissions			
Total Gross Scope 3 GHG emissions (kilotonnes CO ₂ e)	1,834.0	2,266.4	n/a
1 Purchased goods and services	402.2	663.0	n/a
2 Capital goods	4.3	23.6	n/a
3 Fuel and energy-related activities	4.9	4.7	n/a
4 Upstream transportation and distribution	20.4	42.9	n/a
5 Waste generated in operations	0.3	0.5	n/a
6 Business travel	7.8	14.7	n/a
7 Employee commuting	2.0	2.4	n/a
8 Upstream leased assets	n/a	n/a	n/a
9 Downstream transportation	14.3	36.4	n/a
10 Processing of sold products	n/a	n/a	n/a
11 Use of sold products	1,354.6	1,461.1	n/a
12 End-of-life treatment of sold products	1.3	1.0	n/a
13 Downstream leased assets	n/a	n/a	n/a
14 Franchises	n/a	n/a	n/a
15 Investments	21.9	16.1	n/a
Total GHG emissions			
Total GHG emissions (location-based) (kilotonnes CO ₂ e)	1,859.8	2,295.4	n/a
Total GHG emissions (market-based) (kilotonnes CO ₂ e)	1,843.8	2.3	n/a
GHG intensity			
Total GHG emissions (location-based) per net revenue (kilotonnes CO ₂ e/million EUR)	1.0	0.9	n/a
Total GHG emissions (market-based) per net revenue (kilotonnes CO ₂ e/million EUR)	1.0	0.9	n/a

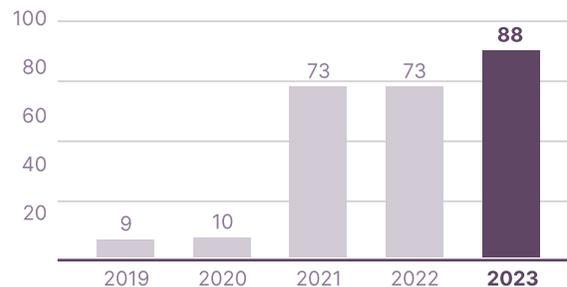
Note: Due to data availability, Scope 3 data for 2023 will be available after the publication of this Annual Report.

2023 energy mix

Energy consumption and mix	MWh
Fuel consumption from coal and coal products	—
Fuel consumption from crude oil and petroleum products	2,703
Fuel consumption from natural gas	6,904
Fuel consumption from other fossil sources	—
Total energy consumption from fossil sources	19,628
Total energy consumption from nuclear sources	2,420
Fuel consumption for renewable sources including biomass	—
2023 Total Energy Consumption	87,370
of which Consumption of purchased or acquired electricity, heat, steam, and cooling from renewable sources	68,652
of which Consumption of purchased or acquired electricity, heat, steam, and cooling from fossil-fuel sources	19,628
of which Consumption of self-generated non-fuel renewable energy	—
2023 Energy intensity per revenue (MWh/million EUR)	33

Electricity from renewable sources (in %)

Primary manufacturing and engineering sites



Collaboration

The climate crisis transcends the actions of any one company, industry, or country, and so we look to collaborate across our value chain for a collective global impact. We strive to embody high standards in the definition, scope, transparency, and realization of this target.

ASM is a founding member of and currently chairs the Semiconductor Climate Consortium (SCC). In 2023, SCC work kicked off in earnest with the initiation of several key working groups to address the various facets of climate action. Strong engagement since the start has signaled the desire throughout the industry to address issues. Key updates for 2023 working groups include:

- Baseline, Ambition-setting & Road-mapping (BAR):** The Boston Consulting Group (BCG), in collaboration with the SCC, released the report 'Transparency, Ambition, and Collaboration: Advancing the climate Agenda of the Semiconductor Value Chain'. The report provides the first inside-out view of the semiconductor ecosystem's greenhouse gas (GHG) emissions profile with the most comprehensive available data from the industry. The BAR/BCG report confirms that 80% of our emissions can be mitigated through low-carbon energy usage. This effort lays the path to building low-carbon energy capacity.
- Scope 1 emissions:** The Scope 1-emissions working group has established a way of working that includes bi-weekly Scope 1 talks from all members, and subgroups for process evaluation and pump & abatement. They also launched the first deep-dive study in November. These efforts aim to accelerate the adoption of process gas alternatives with lower global-warming potential and enhanced abatement to lower industry and its value chain carbon footprint.
- Scope 2 emissions:** Under the auspices of Scope 2-emissions working-group activities, SCC is collaborating with the Energy Collaborative (EC), a newly formed collaborative announced at COP28. With the BCG/BAR report confirming that 80% of our emissions can be mitigated through low carbon-energy usage, this effort lays the path to building low-carbon energy capacity. Other priorities for the group include decarbonizing current energy sources, sharing best practices in Scope 2 reductions, computations, accounting, and reporting.
- Scope 3 emissions:** This working group is focusing on developing guidance and best practices around Scope 3.1 and 3.11. On Category 3.1, the team is nearing completion of its contract with a third party for the development of guidance to support the semiconductor industry in characterizing and reporting Scope 3.1 GHG emissions. The first draft of the document is now complete. The team is simultaneously working on Category 3.11, breaking down into two teams, one for semiconductors and another for tools and materials. The sub-teams are currently focused on developing roadmaps to address Scope 3.11 challenges and opportunities.

Ahead of what's next

Collaborating to address climate change

ASM recognizes that there are some issues that take a team to address. Responding to climate change is one such issue that ASM recognized early on will take collaboration across the industry to do our part. No one company can go it alone. In 2022, ASM took a leap to stay ahead of what's next in playing a pivotal role in forming the Semiconductor Climate Consortium.

ASM is a founding member of, and currently chairs, the Semiconductor Climate Consortium (SCC). ASM was a primary contributor to its formation, ideating the concept of the consortium, forming, and chairing a SEMI working group to build the framework, and leading the transition from concept to kick-off of the full consortium in the fourth quarter of 2022. In January 2023, ASM was elected to a seat on the SCC's governing council, and subsequently elected to chair the governing council. The SCC grew out of SEMI's Sustainability Advisory Council (SAC), of which ASM is a charter member.

In July 2023, ASM and our VP of Sustainability, John Golightly, were recognized at SEMICON West at the Path to Net Zero CEO Summit for our critical role in the founding of the SCC). ASM continued to be heavily involved in SCC work at the conference as well,

meeting with key consortium and working group partners face to face, and furthering the SCC work that kicked off earlier in the year.

“Together through the Semiconductor Climate Consortium, we strive to achieve impact and scale well beyond our individual efforts in response to the climate change.”

As part of the conference focus on sustainability, attendees were encouraged to take a sustainability pledge with the intention of lowering their environmental impact from the event and in their daily lives. Each pledge translated into a tree being planted by climate platform Ecologi. This conference commitment was matched by ASM in an announcement during the Path to Net Zero CEO Summit, doubling the impact of all pledges.

To cap off our focus on climate, in July 2023, a few weeks after this event, ASM became the first company in the semiconductor sector to have its net-zero targets verified by SBTi verification.



ASM has also been involved with the Institute of Electrical and Electronics Engineers (IEEE) International Roadmap for Devices and Systems (IRDS) subchapter of the EHS/S roadmap on environmental sustainability of semiconductor facilities. This group aims to evaluate technology drivers, boundaries, and other considerations for sustainable industry growth and enabling future technology. The group is completing a risk and gap analysis for water, energy, and emissions to help identify potential roadblocks today or in the future, and help drive innovation to overcome those sustainability-related challenges. ASM currently chairs a focus team looking at Scope 3 indirect environmental impacts and risks from semiconductor facilities, and is involved in other focus teams to address impacts from tools and associated equipment. These teams will help guide decision-makers in future semiconductor technology decisions, with the goal of lowering environmental footprints across direct and indirect aspects.

Climate risk and opportunity management

ASM defined a formal annual process in 2022 to manage climate-related risks and opportunities, called the Climate Adaptation Risk and Opportunity Assessment (CAROA) process. The CAROA process consists of four main steps:

- a. Identification and monitoring: This step includes the review of ASM Climate R&O (risk and opportunity) long list¹² and determines if any R&O topics must be added to the short list for further assessment. Also, in this step the previously identified R&O short list¹³ is reassessed.
- b. Assessment: This step involves conducting a scenario analysis to assess size and scope of identified R&O short list and conducting a business-impact assessment to quantify their potential impact for ASM's business strategy and financial planning. The R&O short list is assessed on a short-, medium- and long-term horizon¹⁴.
- c. Risk prioritization: Risks and opportunities which have the potential for a substantive financial or strategic impact on ASM business are prioritized based on ASM materiality thresholds. The most material risks are integrated into corporate risk-management process.

- d. Action-planning and execution: This step includes planning and taking appropriate actions to mitigate/manage material risk and opportunities, and review business processes and controls to ensure that activities are performed and acknowledged.

In 2023, ASM used the following key concepts for the scenario analysis to expand on the work completed in 2022:

- a. Physical risks and opportunities: Risks and opportunities linked to the impact of acute risks (e.g. the increased severity of hurricanes/ droughts) and of chronic risks (e.g. longer-term shifts in climate patterns, such as a sustained increases in temperatures).
- b. Transition risks and opportunities: Risks and opportunities linked to the impact of a transition to a low-carbon economy (e.g. carbon pricing schemes, future policy requirements on the energy efficiency of buildings). ASM performed an analysis of transition risks and opportunities, defined by the TCFD (policy and legal, technology, market, and reputation), for this analysis.
- c. Scenarios: Two climate scenarios were considered in the 2023 analysis, one for physical risks aligned to 4°C or higher warming, reflecting a 'high-impact' scenario, and one for transition risks and opportunities aligned to below 2°C warming, reflecting the 'rapid transition' scenario:
 - i. 'High impact' scenario: shared socioeconomic pathways (SSP) 8.5 scenario.
 - ii. 'Rapid transition below 2°C aligned scenario': aligned with a 1.5°C pathway; (International Energy Agency Net Zero Emissions Scenario (NZE) and 1.72°C/2°C pathway (IEA, the Stated Policies Scenario (STEPS)).

¹² ASM Climate R&O long list: Aims to document the full suite of physical and transition risks and opportunities identified by stakeholders across ASM's operations and value chain, irrespective of potential materiality, structured into three parts: climate-risk identification and categorization; ASM's perceived vulnerability to and potential business impact of this risk/ opportunity; strength of the climate change signal (i.e. the magnitude of change in frequency and/ or intensity of a specific hazard/ climate impact driver in a 1.5°C (for transition risks and opportunities)/ 4°C scenario (for physical risks) compared to the baseline).

¹³ ASM Climate R&O short list: The list of climate risks and opportunities the business prioritized for further assessment using climate-scenario analysis.

¹⁴ ASM defines short-, medium- and long-term horizon for its climate change risk & opportunity assessment as follows: short-term: 1-5 years: medium-term: 5-15 years: long-term: 15-30 years

ASM worked with cross-functional stakeholders and a dedicated climate consultancy to develop the list of climate-related physical and transition risks that could impact the business. Based on their potential materiality, the following risks and opportunities were identified:

Transition risks & opportunities

Risk/Opportunity	Potential impacts (financial and strategic)
Risk - Increased stakeholder scrutiny	Increased scrutiny from institutional investors and stakeholders on GHG-reduction targets, climate transition plan, and ESG disclosures is currently high in the European region, and is expected to increase moderately in the medium term.
Opportunity - Renewable energy sourcing	Certain geographies are expected to grow moderately in the short term, and significantly in the medium to long term. Growth in certain renewable energy procurement opportunities are limited in the short term, and are expected to grow moderately in the medium to long term.
Opportunity - Low carbon products	Demand for low-carbon products remains low in the short-term. However, this opportunity is expected to increase over time in the medium and long term as Europe progresses toward a net-zero economy.

Physical risks & opportunities

Risk/Opportunity	Potential impacts (financial and strategic)
Windstorms/ tropical cyclones	Windstorms/tropical cyclones are a high/very high risk in all (South) east Asian countries, including Japan and Taiwan, and are increasing in severity. Windstorms/tropical cyclones in Korea are slightly lower risk; however, they still present as a 'high risk.'
Heat waves/ Extreme temperatures	Heatwaves are already a high risk in many countries. Future projections indicate that extreme temperature events are also projected to increase in frequency and intensity due to climate change.
Heavy precipitation/ Flooding	Heavy rainfall and flooding is a high risk in certain global regions in the short term. However, change in the medium to long term are not expected to be as large.
Water Scarcity/ Drought	Water availability/drought is high in certain regions and is projected to get scarcer by 2050 due to increased droughts and water withdrawals.

At this time, we believe the occurrence of prioritized physical or transition risks do not represent a material financial impact in the near- to mid-term horizon. For more on our impairment test sensitivity checks and considerations with regard to ASM's asset valuation under different climate-related scenarios, see 'Use of estimates and judgments' in section 17.6.

Governance

Climate-related objectives are integrated into the remuneration program of the members of Management Board via a short-term incentive (STI) plan. STI performance measures consist of financial (75% weighting) and non-financial (25% weighting) targets. Targets are set at the beginning of each financial year and aligned with the budget as approved by the Supervisory Board. The non-financial, strategic targets are aligned with ASM's most important strategic priorities in a performance year, and measures may include, among others: ESG measures (including climate change), operational measures, strategic measures, customer measures, and/or leadership measures.

For more, see the Remuneration report.

11.2 Water efficiency and quality

Water is essential for all forms of life, communities, and businesses. As such, ASM recognizes the basic human right to clean and accessible water, and to sanitation. Less than 1% of all water on earth is freshwater that is easily accessible and available for humans and all living beings, making it a precious resource needing protection and conservation.

In 2022, ASM published its [water policy](#). It sets out how we engage in water security, including how dependent our business is on water, our water-stewardship principles, how we will collaborate and engage on issues related to water security, align to recognized standards, and set targets to measure our progress. In 2023, ASM continued implementation of our water policy, prioritizing key facilities for water efficiency and reclaim improvements based on water intensity and water stress.

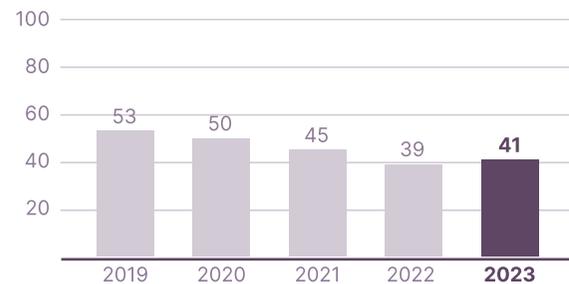
ASM complies with water-effluent quality within regulatory control parameters, adhering to strict regulatory discharge limits and permit conditions. This includes taking action to ensure that our discharges meet local quality requirements for adequate treatment and return to our ecosystems. In some regions, we pre-treat and discharge to a publicly owned treatment works (POTW) facility, following strict quality requirements to ensure no disruptions to downstream treatment or infrastructure, impairments to worker safety, or pass-through to receiving water bodies. In others, the municipality does not directly

receive industrial wastewater, so we collect wastewater for offsite transport, treatment, and management, to ensure it meets quality requirements prior to discharge. In all cases, we ensure there are no leaks or releases within our wastewater collection system boundaries, so we avoid impacts on the environment.

ASM has a water objective to maintain or reduce our normalized water withdrawal revenue intensity at or below our 2020 level of 91.4 m³/€ million revenue across all operations through reduction, reuse, or restoration methods. With our boundary expansion to all ASM operations for environmental metrics, our absolute water consumption increased in 2023 by 58 m³ x 1,000 (or 30%) relative to 2022, due to increases in water use at several of our major R&D sites. Our normalized water withdrawal per revenue missed our target by 5%, with a result of 96 m³/€ million in 2023. Despite this year's result, we remain steadfast in our focus on reduction actions required to ensure that we meet our target in the coming years. ASM is taking steps to grow its water-reclaim facilities, with an expected expansion in Phoenix, Arizona, in 2024. In addition, we are ensuring that future facilities currently being planned will meet leading water-efficiency and reuse standards.

Water from stressed regions (in %)

WRI – water stress – high and extremely-high rankings



Water stress



Key site	Country	Baseline water stress	2030 projected water stress	2050 projected water stress	% of ASM 2023 footprint
Almere	Netherlands				0.7%
Dongtan	South Korea				13.5%
Woodlands	Singapore				27.1%
Phoenix	United States				34.8%
Baranzate	Italy				1.1%
Catania	Italy				1.5%
Tama	Japan				3.6%
Helsinki	Finland				0.5%

Note: ASM's key sites include R&D and manufacturing, and exclude service and sales only locations

Our four primary research and development centers in South Korea, Japan, Phoenix (U.S.), and Catania, Italy, accounted for 53% of our water consumption in 2023, primarily for cooling and abatement purposes related to our process-equipment use. All are in medium-high to extremely high water-stressed regions, based on the latest WRI Aqueduct Water Stress baseline assessments.

ASM is focused on proactive water conservation, quality, and efficiency in all its operations. At our highest water-using site, Phoenix, we have had a wastewater treatment and reclaim system online since 2019, saving an estimated 225,200 m³ of water annually. We made significant progress toward a system expansion to increase its reliance, treatment capabilities, and reclaim capacity. These improvements, expected to be complete in 2024, should further reduce the site need for freshwater withdrawals. We have taken action to improve the water quality in the Phoenix cooling tower systems, which typically require treatment chemicals to control microbial growth and other parameters, resulting in lower discharges of these chemicals to municipality treatment centers.

In the second quarter of 2023, the team received two awards – 'Proof Not Promises' and 'Return on Environment' – from Veolia. Veolia is an industry-leading global water technology company that ASM employs to manage, monitor, and analyze our water

facilities in Phoenix. Veolia recognized ASM for achieving 6.8 million gallons of water saved per year, and for the implementation of action plans taken to reduce the need for water treatment chemicals which resulted in improved water discharge quality. We had an audit, which showed that the cooling-tower system was one of the most significant water users at the facility. The cooling tower supplies the site's air conditioning and equipment-cooling systems. The Phoenix team was able to optimize its cooling-tower system to reduce the amount of water it requires to run. This modification led to a reduction of more than 60% in the cooling tower's daily water consumption.

Our third-party energy-efficiency audits completed in the third quarter included aspects related to water, as well as electricity and fuels, identifying several potential opportunities that ASM is evaluating for completion. These are being prioritized as part of ASM's sustainability investment roadmap, together with climate and other investments across our portfolio.

Water resilience

In 2023, ASM took steps to assess and quantify water risk across our operations and value chain. In the previous climate-risk assessment, we identified water as a key risk related to climate for our operations and value chain located in water-constrained areas, which may be expected to worsen in a changing climate. Our 2023 update to the climate-risk analysis included additional geographies covering more of our own operations as well as some of our largest supply-chain regions. We will be working with supply-chain companies as part of our overall sustainability engagement where water is identified as a notable risk in these areas, and an important aspect for their continuing operations.

ASM's site presence in Phoenix was previously identified as a potential climate-related water risk, due to the water scarcity in the region, site water usage, and diminishing supply versus demand in the area. ASM previously acted on these risks by implementing an on-site water-reclaim system to reduce the site's need for freshwater withdrawals. This work continued in 2023, as ASM partnered with external design experts to improve and expand the capacity for this reclaim system, bolstering future water savings after construction is complete (aimed for 2024). This is in addition to previous water savings and efficiency measures that ASM completed, to reduce baseline water need to sufficiently run operations on site.

ASM performed its initial water-risk assessment in 2019, using the World Resources Institute (WRI) Aqueduct tool for baseline water risk. This assessment was updated in 2023, based on the latest scientific insights on current baseline water risk, and expected risk in the future. The assessment was similarly expanded to include all ASM operational and major supply-chain company geographies. This, paired with the CAROA assessment, gives ASM a fuller picture of potential water risks per region.

Water withdrawals

(Absolute and normalized per € million revenue)



11.3 Circularity

Building off our ASM crating reuse program, we are working to expand current waste reduction-circularity programs, as well as identify opportunities and reduce risks in resource consumption and waste generation. One of our biggest achievements so far involves directly engaging and coordinating with our customers, suppliers, and contract manufacturers to move from single-use disposable crating to durable, reusable crating. ASM has an operational waste goal of $\geq 90\%$ landfill diversion rate by 2025. In 2023, we achieved 82% diversion from landfill for the year (2022: 85%).

From the crating reuse program inception in 2017 through 2022, we substantially increased the volume of avoided waste to landfill. We continued this program with various additional products, suppliers, and customers, achieving 500 tonnes of waste avoided in 2023 from all reuse crating. This is, however, a 7% drop compared to 2022, caused by lower volume with specific suppliers who were very active in our packaging reuse program. Our downstream customer packaging reuse versus total potential achieved a 9% reuse rate across our products shipped to customers, which represents an increase in the proportion of ASM products shipped with reuse crates. Furthermore, we completed an EHS comparative Lifecycle Impact Analysis (LCIA) on single-use crating versus reuse crating to ensure we fully evaluated the trade-offs in logistical choices, and inform on the best decision from both an environmental and business standpoint.

Minimizing resource consumption

A circular economy starts with reducing the use of resources, the first step of the waste minimization hierarchy. Avoiding consumption is the most important step because it avoids environmental impact from the entire lifetime of a product, from 'cradle to grave' as a usable good. Impacts can include emissions, water, pollution, resource depletion, and ecological, among others. Lowering the need for raw materials reduces the stress on finite resources. Reducing our consumption has a compounding effect on our overall environmental footprint and contributes to our Net Zero by 2035 target.

ASM Taiwan team taking steps to a greener tomorrow

At the local level, many teams are taking initiative to accelerate sustainability. In August 2023, our office in Taiwan was honored with a Green Office certification by the Environmental Protection Administration of Executive Yuan. To earn this accolade, the office took several steps towards sustainability, including:

- Upcycled discarded clothes into attractive, handcrafted bags
- Unused employee items found new homes and meaningful purposes, including more than 2,000 clothing items, 100 shoes, and 400 books
- Partnering with the Taiwan Environmental Information Association, joined an ambitious initiative to register a million eco-friendly actions, spanning daily green habits to environmental volunteering in communities
- In collaboration with a leading logistics provider, rolled out the packaging reuse program in February 2023. As of July, 796 kg of carton boxes had been repurposed, leading to a carbon reduction of almost 987 kilograms
- Minimized single-use items, with colleagues generously donating personal mugs, vacuum bottles, chopsticks, and even stainless-steel straws. There is now a collection of eco-friendly items where disposable utensils are no longer provided.



ASM's approach to circularity:

- **Efficiency and resource-use reduction:** Avoiding overall consumption has the greatest effect on reducing an organization's environmental footprint as it avoids the impacts from the entire lifecycle of a product, including manufacturing and end-of-life wastage. Where waste generation cannot be avoided, the focus is on reuse, recycle, and the reduction of hazards through responsible management.
- **Minimize single-use materials:** Where possible, this means eliminating materials that are used once and then disposed of. It also means moving towards reusable packaging and crating in our upstream and downstream logistics. This will prevent waste generated from single-use packaging.
- **Product refurbishment:** Extending the life of tool parts through refurbishment and reuse. For additional information on how we do this, see the section 'Innovation in Spares & Services' in chapter 9.
- **Product lifecycle management:** Engineering and designing our products to maximize their useful life through repair, upgrades, and reuse. We make sure we assess potential trade-offs in circularity decisions to make well-informed choices. For additional information on our sustainable-parts lifecycle, and how we extend the life of our systems, see the section 'Product Lifecycle' in chapter 9.

Landfill diversion (in metric tons)

All product packaging reuse
– across ASM value chain



Landfill diversion rate (in %)

Primary manufacturing and
engineering sites



Single-use materials

Responsible waste management begins with reducing the amount generated as much as possible. At ASM, we focus on only using what is essential for business and people, and making the most of the materials we need. We initially focused on reducing those materials that are only used once and then disposed of. This creates a significant opportunity to reduce regular waste streams, and move to more durable items that are reused many times.

In early 2023, ASM issued a new policy to move away from single-use plastics in our company operations. We started the process of implementing measures to reduce our use of single-use and other forms of plastics, including:

- Eliminating single-use beverage and food containers at our sites.
- Encouraging the use of reusable containers and bags.
- Pursuing biodegradable alternatives to plastic packaging.
- Partnering with suppliers to reduce the use of plastics in the materials we purchase.
- Increasing recycling and composting efforts to address the waste from our facilities and operations.

These initiatives form the basis for our efforts to enhance awareness around waste reduction throughout the organization. Through targeted waste initiatives and programs we empower our teams with knowledge to minimize our environmental impact.

In 2023, action plans were implemented across our organization to reduce the consumption of single-use materials. In Singapore, at our main production facility, we formed a team for single-use plastic waste reduction, with the team completing 11 reduction actions, and with five additional projects in process at the time of this report. The actions spanned commodity packaging, canteen supplies, office supplies, and logistics consumption.

Across our global value chain, shipping and moving engineering resources, materials for production, final products, and spares represents a large portion of waste generated from ASM activities, and so a significant opportunity.

Our products are large when assembled and shipped, and due to the extreme performance and sensitivity of the equipment, they need carefully engineered packaging. The industry standard practice for packaging has historically been one of one-time-use wood crating. After uncrating at the delivery site, the packaging materials may be recycled with other wood products. In regions where wood recycling is a challenge, it is disposed of in a landfill. We recognize there is an opportunity to reduce the lifecycle waste associated with this process, not only at our sites but throughout our value chain.

In 2023, ASM continued the roll-out of its action plans to expand our reuse crating program after strong program growth in 2022. We have engineered reusable crates and established third parties globally that can disassemble the crates after delivery. This allows for compacted return for inspection and refurbishment, then ultimately back to our production facilities for reuse. Our new products are now supported with reusable crates, and we are looking to expand this program across other existing tool-sets. We apply the same principles of crate reuse with delivered product to the way parts and materials move between ASM and some of our suppliers and contract manufacturers.

We measure our packaging value-chain reuse by avoiding landfill disposal. In a one-time-use scheme, every shipment could potentially result in landfill disposal. Through reuse, we avoid this waste. With each shipment utilizing a reuse crate, this avoidance extends the useful life of the durable crate.

Through the ASM value-chain reuse of packaging materials, we avoided 500 tonnes of landfill disposal in 2023, down from 2022 on an absolute basis primarily due to changes in manufacturing volumes year to year. Our percentage coverage of downstream customer reuse crating increased from 7% to 9% in 2023, representing our reuse achievement compared to the total potential for this category. Waste avoidance values for 2023 are presented below by program area:

Circular program	Description	Tonnes of waste disposal
ASM to customer	Product and supporting equipment sales to customers	148
ASM to supplier	Parts and sub-assemblies shipped between ASM and suppliers as part of the production process	3
ASM to contract manufacturer	Assembled equipment and sub-assemblies	348
ASM to other vendors	Miscellaneous programs with indirect spend in engineering or other functions where commodities are transported	2

Year	% customer packaging reuse
2021	3%
2022	7%
2023	9%

Product refurbishment

ASM recognizes that our durable parts can often be used many times, with some degree of refurbishment for workable service. We have been working to expand our parts refurbishment as part of our Complete Kit Management (CKM) program. Through CKM, we are expanding our in-house capabilities to refurbish more parts in our products. At the same time, we have been working to identify potential parts in the ASM bill of materials across all products that may be eligible for inclusion in the refurbishment program. This represents a significant opportunity to extend the useful life of these durable parts for our customers, reducing the need to procure new parts, and limiting waste. For more, see section 4.5.

Year	Refurbishment avoided GHG emissions (tonnes CO ₂ e)
2019	24
2020	36
2021	775
2022	1,620
2023	1,650

Product lifecycle management

ASM considers each part of our product lifecycle in our engineering and design.

We identify issues and opportunities to meet our customers' needs with the least impact to other aspects such as the environment, human health, and safety. Each phase of our products is considered: From material sourcing, manufacturing, assembly, transportation and logistics, install, operation and maintenance, and end of life.

In 2023, we performed an environmental Lifecycle Impact Analysis (LCIA) around our downstream tool-crating program to determine the cost-benefits from single-use disposable crating versus reusable engineered crates. Analyzing all the inputs and outputs from both scenarios allowed us to determine which option was better across multiple environment, health & safety (EHS) and sustainability criteria, as well as determine breakeven points for multi-use crating.

LCIA is a useful tool for a comprehensive picture of sustainability decisions, allowing an optimal footprint choice which may not be apparent without such a deep-dive evaluation. The result of this assessment will help inform how to best grow our crating reuse program as we work to increase circularity and minimize our environmental footprint.

We also practice product lifecycle management for those products that ASM procures as part of business operations. We source products that have long, useful lifetimes, and that we are able to repair and refurbish. We take good care of equipment through preventative maintenance, try to find reuse applications for items after they reach the end of their original use case and, finally, we seek recycling opportunities to remake these materials into new useful products.

12. Responsible supply chain

ASM's global operations and supply chain combine to give the company the infrastructure to build world-class semiconductor tools. ASM is committed to growing a responsible supply chain that mirrors our values of 'We Care' and 'We Deliver'.

84%

Supplier RBA self-assessment with low/medium risk

>3x

Increase in global capacity (2023 vs. 2020)

1,390

Manufacturing employees

88%

Strategic suppliers submitted to CDP

12.1 Our outsourced manufacturing model

ASM uses a distributed business model where we outsource common modules and sub-assemblies to contract manufacturers in the region. Once we receive these from the contract manufacturers, we assemble and test the final product at ASM before shipping it to our customers.

We see these contract manufacturers, who are our key partners, as 'ASM's extended factories'. In addition to having cross-functional teams from ASM on-site at their premises to support their operations, we engage them in a bigger way, collaborating to realize ASM's vision of staying ahead of what's next.

12.2 Manufacturing operations

ASM has global manufacturing sites in Singapore, South Korea, Italy, and the Netherlands. We expanded our footprint into Italy in 2022 when we acquired LPE – a manufacturer of Epi reactors for silicon carbide (SiC). We have made huge strides in improving LPE's operation, with output in the first two quarters of 2023 exceeding manufacturing output for whole of 2022.

A Plan of Record (PoR) process guides our manufacturing strategy. This consists of detailed analyses of all critical parameters allowing us to deliver tools in the most efficient manner, maximizing our global footprint while aiming to be closer to our customers. The PoR processes govern decisions on new product pilots and future manufacturing sites.

Also, it validates the insourcing and outsourcing model to apply the most effective manufacturing strategy.

The supply-chain strategy will then support the PoR, aiming to be close to manufacturing. This strategy has proved to be critical, especially in dealing with the COVID-19 situation in recent years. The challenges our industry faces are unlike any we have seen before, and as our products evolve, the supply-chain processes are becoming more complex.

This requires fast and timely execution to support our suppliers and customers.

One encouraging sign is that relationships are developing beyond the transactional level of a supplier/customer to more of a partnership.

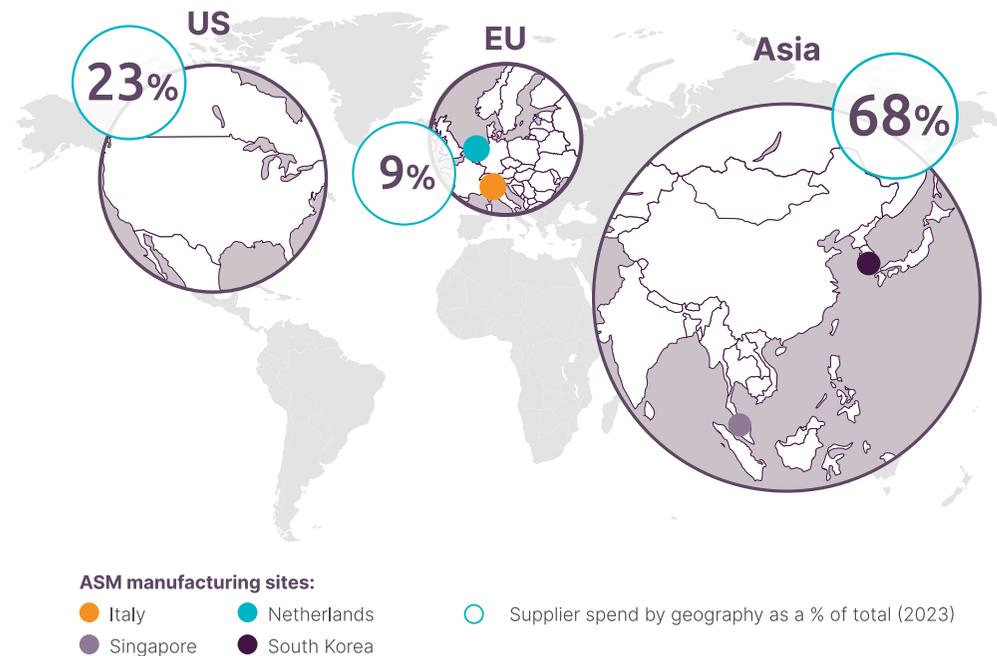
In addition to ASM's new facility in Singapore, our global manufacturing footprint and capacity have increased steadily through hiring and training. Also, through initiatives such as innovative line design, the expansion of modular test bays, and by enhancing facilities. Globally, ASM continued to expand in 2023, and this remains the focus for 2024:

- SiC is benefiting from strongly growing adoption of SiC power electronics in EVs. We will continue to focus on the ramping of SiC products in 2024.
- In Korea, we are on track to expand our footprint by early 2025, to support several of our new applications as they progress into the high-volume manufacturing phase.
- In Singapore, the second manufacturing floor in our new Woodlands Height facility moved into production in the first quarter of 2023. This allowed us to increase the capacity of our Singapore facility by >100%, and provided us with the flexibility to deliver on our growth plans.

We continue to invest in our people in learning and deploying LEAN methodology. We have ingrained a Kaizen mindset in our daily execution to improve safety and efficiency, and increase factory utilization.

Our manufacturing facilities comply with the RBA Code of Conduct, and have self-assessed as 'low risk' using the RBA SAQ tool.

Our manufacturing footprint and global sourcing



Improving product quality

As well as expanding infrastructure and capacity, improving overall product quality remains a top priority. We relentlessly enhance the quality standards for high-volume products by identifying critical processes in the manufacturing flow and by controlling the key variables. Closed-loop processes, set up with field service engineering teams, affirm the effectiveness of manufacturing's quality improvement to support start-up quality for our customers as ONE ASM TEAM.

Suppliers and various ASM functions engage in cross-functional teams on cost, manufacturability, and reliability as early as the design phase. Being able to anticipate potential issues and eliminate them has led to a reduction in the non-conformance of new products.

ASM's commitment to quality is underscored by our ISO 9001:2015 certification, covering the design, sale, manufacturing, installation, and customer support of front-end semiconductor processing equipment. This certification, last renewed on August 1, 2022, is set for its next recertification audit in April 2025. ASM did not have any product quality recalls or related material financial impacts in the period 2019-2023.

In 2023, ASM had many success stories in our manufacturing worldwide. These include:

- Developing New Product Introduction (NPI) quality master plan to anticipate and reduce non-conformance in new products.
- Enhancing training and recertification of manufacturing personnel on critical processes control.
- Collaborating with key suppliers to share expertise in non-conformance reduction.

With these experiences, we have outlined new initiatives for 2024 to further lead our team on our continuous improvement journey, including our new acquisitions at LPE and Reno. Our Singapore manufacturing team has successfully demonstrated the new product commercialization capability. We also qualified the latest 200mm SiC Epi tools for manufacturing in our Singapore facility.

We aim to create high-value engineering and manufacturing roles to support innovation in our employees as we deliver quality products.

Our facility in Singapore – Front-End Manufacturing Singapore Pte Ltd (FEMS) – is ASM's main manufacturing facility, responsible for the largest part of our global manufacturing output. Our employee base here has grown to about 1,150 to date. FEMS is also the operations hub for global leadership roles based in Singapore, not only in Global Operations, but also in various disciplines, such as People, and Spares & Services. Since opening the second manufacturing floor in January 2023, we have increased our global capacity more than threefold compared to 2020. The addition of a second floor with production and cleanroom floor space means additional capacity to build and create output. With the expansion, we will continue to aim for generating zero liquid and chemical wastes from our new Woodlands manufacturing site.

Ahead of what's next

Supporting our customers with timely capacity expansions

Our global manufacturing capacity more than tripled compared to 2020, following the opening in early 2023 of the second manufacturing floor of our Singapore facility. And with the expansion of our Korean facility, our manufacturing footprint is set to increase almost fourfold in 2025. These capacity expansions, coupled with a sharp focus on manufacturing innovation, will enable us to meet our 2025 and 2027 revenue targets.

Indexed manufacturing capacity (2020 = 100)



“ASM’s strategy is to invest in capacity ahead of needs and to ensure sufficient flexibility to support the ramp-up of our customers’ tech roadmaps for the years ahead.”



Kent Rossman, Senior VP Global Operations



Singapore expansion first manufacturing floor (L4) facilitated strong revenue increases in 2021 and beyond



LPE acquisition brought local manufacturing capacity in Milan



Singapore second floor (L3) expansion provided capacity for targeted growth in 2023 through 2027



Korea expansion will provide further capacity local to products and enhanced business continuity plan (BCP)

12.3 Global supply chain

ASM continues to adapt and grow its global supply chain to support the ever-changing need to compete in the semiconductor equipment industry. The lingering effects of COVID-19 and other supply-chain challenges continued into the first half of 2023, but were eclipsed by significant geopolitical and government restriction challenges. Fortunately for ASM, our global presence and breadth of suppliers across the globe has enabled us to continue to support our customer needs. Adapting to these changing rules has also become critical to ensuring continuity of supply.

The further integration of LPE products into ASM's supply chain was also a significant effort in 2023. These efforts helped enable the significant growth of LPE tools, and ASM both on-boarded many suppliers and leveraged its current supply-chain footprint.

The speed at getting new tools and designs to market has become a differentiator in the market. In previous years, it could take several years to get a tool from design stage into a customer fab. Today, the expectation is changing dramatically. In many cases, first or second tools (alpha or beta) are going directly to customer fabs, and in extremely short time. This changing dynamic also drives a major mindset for suppliers to be able to support the early tools that will lead to long-term success.

ASM has had great success growing its after-market Spares & Services business. In some cases, this requires new suppliers close to customers to help support the required refurbishment, cleaning, kitting and repair support. ASM has also expanded the capabilities of its current suppliers to enable this growing market.

Supply-chain factors that impacted the industry



COVID-19



Texas iced-out



Rolling blackouts



Historic floods



Suez Canal



Lockdowns



War



Nord Stream 2



Trade war



Chip shortage



Demand inaccuracy



Butterfly effect

Changing global landscape and risks to supply chain

Geopolitical unrest in various parts of the world, governmental (export control) regulations, increasing cyber risk, and global shortages of certain raw materials have increased the strain and challenge on supply chains, especially in semiconductors. ASM continues to adapt to these changing requirements. We are in the process of learning more about our supply-chain landscape in relation to the sourcing of raw materials. This includes documenting where metals and other base materials are mined and processed. As we learn more about how geography and other risks come into our supply chain, we are working with suppliers on developing alternate sources, to mitigate any potential impacts to free movement and trade of these materials between regions and countries. Besides the risks driven by governmental and trade risks, we are also assessing the risks based on human rights and other ESG risk factors.

ASM's global supply-chain footprint has helped us, for the most part, avoid any major risk or interruptions to our continuity of supply so far. But an increasing threat where ASM has seen an impact in the past few years is in the area of cybersecurity. For example, several suppliers have been impacted by cyber attacks and were unable, for a period of time, to ship to ASM. We are now further auditing and deep diving into the IT security space, and are also supporting suppliers from ASM's IT team. We believe this will continue to be a risk area that we must continue to closely monitor and address.

Getting new products to market faster has become a competitive advantage in the semiconductor equipment space. The faster we can get new designs and tools into our labs and to customers, the faster we can learn from, develop, and ramp them to high-volume manufacturing (HVM). Product-development times (design to customer shipment) were much longer cycles in the past, but those are no longer competitive.

We have seen several products in 2023 go from design stage to customer delivery in under nine months. These are major impacts to ASM's overall ability to penetrate markets and win customer confidence. ASM has been successful in reducing the overall lead-times for new products by partnering with suppliers early in designs, and even leveraging suppliers for design support in that supplier's area of expertise.

ASM will continue to partner with suppliers for early-design engagement and leverage the supply-chain infrastructure and knowledge to ramp products faster than our competitors. Key partnerships, long-term engagements, solid agreements and a continual focus on how to innovate together will be our focus moving forward.

Spares & after-market support

As ASM's after-market has grown to support customers directly, so does the need to tailor a supply chain to meet those needs. In some cases, this means having supplier facilities close to the customer or ASM's field teams to support quick-turn needs, especially for cleaning, repairs, and refurbishment.

Supplier Day 2023

ASM again held its Supplier Day in 2023. For the first time, it was held in South Korea, near its facilities in Dong-tan.



At the event, ASM leaders Brian Birmingham (Senior VP Global Sales), Kent Rossman (Senior VP Global Operations), Steven Corvi (VP Global Supply Chain), Allen D'Ambra (VP Global Spares & Service), and John Golightly (VP Sustainability and Global EHS) talked

about our company's market outlook, sustainability goals, developments in spares and aftermarket activities, our global operations, and much more.

ASM also recognized three of our valued suppliers' contributions with the Supplier Performance Award for outstanding performance and partnerships. The suppliers receiving awards were:

- Alex Sistemi – for outstanding realignment with ASM's operations
- Ferrotec – for innovative operations and support across multiple commodities and locations
- M&R Manufacturing – for exceptional partnership through flexible and nimble support

Steven Corvi, VP Global Supply Chain, said at the event that it is important for ASM to sustain a long-term relationship with our suppliers. By reinforcing the value of collaboration, we are well-positioned to embrace the next wave of growth and boost resilience in our supply chain.

12.4 Global operations and sustainability

ASM understands that the impact of our business extends beyond our direct operations to suppliers who provide critical materials and services to ensure our sustained success. We consider this impact a driver of our responsibility to create positive outcomes for all our stakeholders, the planet, and society overall – well beyond our individual scale.

ASM sets clear expectations for suppliers tied to the treatment of workers in their operations, minimization of their environmental footprint, the responsible sourcing of high-risk minerals in their upstream supply chain, and expectations related to passing these standards down to their own suppliers. ASM expects suppliers to abide by our Supplier Code of Conduct, which is based on the Responsible Business Alliance (RBA) Code of Conduct, and addresses many key labor and human-rights principles, including but not limited to:

- Free and equal in dignity & rights
- Freedom from discrimination and equal pay for equal work
- Freedom from slavery and freely chosen employment
- Right to privacy
- Freedom of assembly/association

- Right to rest and leisure
- Right to safe & healthy working conditions, including clean water and sanitation
- A clean, healthy & sustainable environment
- Abolition of child labor
- Access to remedy & examination of grievances

Sustainability PRISM Supply Chain award recipients

Launched in 2021, the PRISM award recognizes contributions or achievements in sustainability and is available to anyone in ASM's ecosystem, including employees, suppliers, or other partners. At our Supplier Day in November 2023, we were excited to recognize the following suppliers for their contributions to sustainability in ASM's value chain.



The ASM Supplier Code of Conduct and RBA Code of Conduct and our associated business processes for managing supply-chain risk are aligned to the UN Guiding Principles on Business and Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the OECD Guidelines for Multinational Enterprises. ASM has been an active member of the UN Global Compact since 2022, further reflecting our commitment to these global standards for business conduct.

ASM is also a full member of both the RBA and the Responsible Minerals Initiative (RMI). The RBA and RMI engage regularly with governmental agencies, civil society, and non-governmental organizations (NGO) that bring common worker concerns to inform the development of the standards and assessment programs. As a member of the RBA and RMI, ASM benefits from our participation in these discussions with, and resources provided by, the organizations sharing these worker perspectives. ASM drives our suppliers to abide by these standards even as they evolve to include the inputs from these worker-focused organizations.

We also continue to develop strategies associated with gaining insights from supply-chain workers beyond the RBA/RMI efforts. At present, SpeakUp! is our whistleblower channel, which is accessible to suppliers as well as ASM employees. In addition, all stakeholders can provide feedback to ASM and other RBA members through the [RBA website](#). In the future, we plan to carry out increased on-site code of conduct assessments that will include interviews with suppliers' workers and deliver deeper insights. We are also evaluating other direct to worker feedback-program options.

Our goal is to engage with and improve the treatment of critical and strategic suppliers' workers. We prefer to improve outcomes for workers by partnering with the supplier to create these improvements, rather than removing the supplier from the supply chain. To that end, we continue to look for opportunities to build our suppliers' capabilities to ensure positive outcomes for the planet, their workers, and workers in their own supply chains. In cases where these critical suppliers are unwilling or unable to embrace these principles and/or the assessment processes outlined in our Supplier Code of Conduct, ASM will leverage its business relationship to facilitate change. Where appropriate, we will engage with relevant industry partners to drive risk assessments and resolve issues of non-

compliance. ASM has a progressive escalation process when dealing with non-compliant suppliers. In certain circumstances, this can ultimately lead to ASM withdrawing business from a problematic supplier. To date, no such action has been required.

Risk assessment and prioritization

ASM monitors supplier-worker risks at the factory level by using assessment tools such as self-assessments, surveys, downstream reporting/third-party analysis, and audits offered by the RBA, RMI, and the Responsible Factory Initiative (RFI). High-risk issues identified through these processes drive engagement with our suppliers to address these concerns, and ensure the well-being of the impacted workers or mitigate harmful environmental practices. ASM prioritizes the use of these assessments based on how critical the supplier is to our business, as well as other risk factors. Among the risks identified through our assessment processes are those risks tied to labor. ASM suppliers operate in areas, particularly in Southeast Asia, where labor risks can be inherently high due to weaker governmental oversight or frequent use of vulnerable worker groups. ASM's contract manufacturers, among other suppliers, are exposed to these risks as they operate in these areas. However, based on the data we have from our suppliers, and the measures we believe they have put in place to address worker well-being in their facilities, we've assessed the residual labor risks to be lower.

In addition to the RBA/RMI/RFI data provided through supplier self-assessment and audit processes, ASM evaluates other factors across a range of labor and environmental risks. Some examples of risk factors we incorporate into our annual supplier-risk and maturity assessment include geographic risks (e.g. corruption, water scarcity or flooding, historical audit results), labor risks (e.g. frequent use of foreign or migrant workers, child labor), commodity risks (e.g. use of high-risk minerals such as 3TG, US Department of Labor materials with high-risk for forced or child labor), and supplier maturity factors (e.g. historical audit results, supplier public commitments, environmental and/or labor goals, third-party ratings, etc.). For more on vulnerable worker groups and the impact our industry can have on upstream workers, see section 21.4 of this report.

ASM's materiality process, incorporating stakeholder feedback, as well as the results of our supplier risk & maturity assessment, feed our supply chain sustainability-program priorities. Our priorities also reflect efforts that support ASM's broader corporate sustainability

objectives, and other efforts projected to further enable ASM's supply-chain resiliency and sustainability.

For 2023, we prioritized five areas in our supply-chain sustainability program:

- a. RBA Code of Conduct, human rights, and worker safety
- b. Environmental footprint
- c. Responsible minerals sourcing (see section 21.4 of this report)
- d. Supplier capability building (see section 21.3 of this report)
- e. Supplier diversity (see section 21.3 of this report)

Our supply chain sustainability-program priorities were set by leadership from both ASM's global supply chain and sustainability groups. These parties constitute the Supply Chain Sustainability Management Forum, which monitors execution of these programs throughout the year. This group is also accountable to and stays in alignment with ASM's Sustainability Leadership Council to ensure they are in sync with ASM's corporate-wide objectives.

While not yet on our roadmap, ASM continues to monitor issues that are gaining priority through industry dialogues, evolving regulatory expectations, and other stakeholder engagements. While the five priority areas mentioned are unlikely to change, the breadth of topics, both in terms of risk assessment and supplier engagement required, are likely to broaden in scope. Some examples of areas we are monitoring for future supply-chain efforts, include water risks, high-risk mineral/material use risks (beyond 3TG), single-use plastics, deforestation, biodiversity, and supplier use of high-risk chemicals in their own operations.

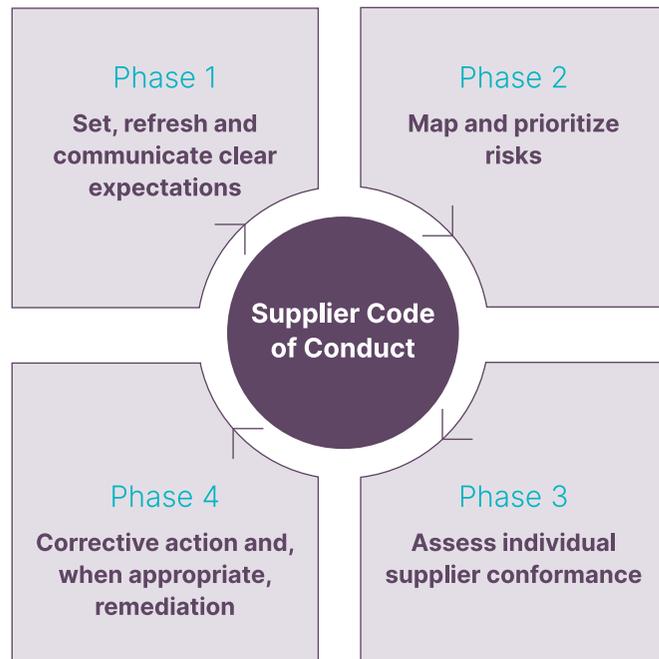
ASM continued to improve the integration of sustainability criteria into our procurement processes as well. Many of the key requirements tied to the program are part of our supplier performance-management scorecard, and account, in aggregate, for 10% of the scorecard points. We've also updated the assessment questions captured in the supplier selection process to align with key elements of risk and sustainability characterization of new suppliers. We continue to look for other ways to integrate sustainability in our supplier development, contracting, and other related decision processes in 2024.

Supply-chain code of conduct

ASM has applied the RBA Code of Conduct (RBA CoC) to its supply chain since 2014. In particular, we focus on our critical and strategic suppliers that collectively represent the majority of our direct materials spend. In 2023, ASM published a comprehensive Supplier Code of Conduct to further our supplier expectations. This new Supplier Code brings together our commitment to the RBA Code of Conduct with relevant supplier-related policies and expectations that go beyond the RBA code. All suppliers, including direct and indirect materials and services, are now expected to abide by this new supplier code.

ASM requires suppliers to regularly reaffirm their commitment to the RBA Code. As a mechanism for evaluating supplier alignment with our expectations, ASM also expects our critical and strategic suppliers to provide a self-assessment questionnaire response (RBA SAQ) for their operations every two years. ASM reviews SAQ results and will engage with any supplier with high-risk SAQ results to understand the issues, define, and drive a remediation plan. If necessary, ASM will conduct supplier audits. In cases where suppliers have completed RBA audits and identified high-risk issues, ASM engages the supplier and requires their closure of these issues in a manner consistent with the RBA standards and the OECD Guidelines for Multinational Enterprises. Our process for managing code commitment, supplier self-assessment, auditing, and corrective action aligns with industry standards. The RBA code requires appropriate management systems and risk-mitigation actions to ensure the well-being of workers at our suppliers, and in their respective supply chains. In cases where ASM identifies specific issues tied to Forced or Bonded Labor (FLBL), our internal Forced Labor policy outlines specific steps we will take to engage with our suppliers to immediately address concerns. This covers remediation actions we may be willing to take in cases where our suppliers are unwilling to address the workers who have been directly impacted.

Key supplier compliance process



Our 2023 results

As of the end of 2023, 99% of our critical and strategic suppliers have committed to the RBA code, this year or the past two years. In terms of assessment, 87% of our critical and strategic suppliers receiving performance scorecards completed the RBA SAQ, up from 85% by the end of 2022, covering around 78% of ASM's direct material spending. The RBA applies strict criteria in scoring SAQs for supplier risk-level. Suppliers that complete the RBA SAQ and self-assess as high-risk, need to complete a corrective action plan and may be audited. In 2023, out of the 60 critical and strategic suppliers who completed an SAQ in this year or the past two years, only three suppliers had initial SAQ results that were graded as high-risk. All three had risks that were tied primarily to limited management systems and engagement programs with their own suppliers. One of these suppliers has done significant work to close these gaps and is no longer high-risk. ASM will continue to work with the other two suppliers to identify gaps and to take corrective actions.

	2022	2023
Total # of ASM suppliers	>1,000	>1,000
# of critical and strategic (C/S) suppliers	75	80
% of spending covered by C/S suppliers	80 %	82 %
% of C/S suppliers committing to RBA Code of Conduct conformance in this year or the past two years (non-financial KPI)	100%	99 %
% of C/S suppliers with completed RBA SAQs in this year or the past two years	77%	76 %
% of C/S suppliers with performance scorecards who completed RBA	85%	87 %
% of C/S suppliers with performance scorecards with RBA SAQ graded low or medium risk (non-financial KPI)	84%	84 %
# of C/S suppliers with completed RBA VAP audits	n/a	1
# of high-risk * findings identified through RBA VAP audits	n/a	2
# of high-risk * findings closed via closure audit	n/a	0**

* High-risk findings are those defined by the RBA as 'Priority' findings in an RBA Validated Assessment Program (VAP) Audit and usually relate to the well-being of workers.

** Supplier has taken corrective action steps to close findings and has scheduled a closure audit to take place in Q1 of 2024.

We continue to focus on increasing our supplier engagement and capability building to improve supplier understanding and conformance to the code of conduct. We also intend to periodically audit a risk-based sample of our supply chain to further enhance due diligence. Risk identification is based on the factors previously outlined in our supplier risk & maturity assessment. This year also represented the first time suppliers began to actively share their RBA audit results with us independently. While not initiated by ASM, this increased transparency is helping us pull together necessary data to understand areas of opportunity to improve supplier conformance and reduce our supply-chain risk. This data will also help inform our risk-based approach to enhanced due diligence going forward.

Worker safety

ASM's value chain produces components and materials that are ultimately used in the production of semiconductors. Due to the nature of the semiconductor manufacturing process, their construction and design may necessitate use of certain chemicals, materials, or processes that can be, without proper controls, risky to the safety of their workers. ASM's safety and supply-chain leadership are committed to helping suppliers to further develop their health & safety programs, and in cases of new supplier selection, ensuring those suppliers have appropriate measures in place before bringing them into ASM's value chain. In addition, where safer chemicals or materials can be used and that impact our supply chain, we look to incorporate those opportunities into our product development.

This is part of our bigger intention, where we extend our intensive commitment to safety into our supply chain. We strive to hold our suppliers to the same high standards we hold ourselves. Supplier representatives that come to work at ASM sites are trained on ASM safety expectations and requirements. We are actively looking for additional ways to extend our ZERO HARM! safety vision to our supplier partners.

The RBA and its members have a track record of improving the safety of working environments and well-being of workers throughout the industry's value chain. ASM continues to improve its due-diligence activities with suppliers to make sure that these benefits are accrued by workers at our suppliers, both those on and off-site, and to identify additional opportunities to improve their treatment and overall safety. E.g. In addition to asking suppliers to respond to the RBA SAQ – which asks about health & safety topics – this year, we also surveyed them about their facility injury rates. Some 86% of suppliers responded to the survey. We are now evaluating the results and determining appropriate next steps in how we engage with them on this topic.

Environmental footprint

A significant portion of our Scope 3 GHG emissions results from our supply chain. To better understand this carbon footprint and identify ways to help enable suppliers to track and reduce their GHG emissions, ASM has ramped up its engagement and educational efforts. Starting in 2022, ASM joined the CDP supply-chain program at the Lead level, and

began to require our critical and strategic suppliers to complete the CDP Climate Change disclosure every year. In 2023, 88% completed this questionnaire, up from 51% in 2022. While we are proud of this progress, in reviewing the 2023 CDP climate questionnaires that suppliers have shared, we see that 40% of our critical and strategic suppliers are unable to share both their Scope 1 & Scope 2 emissions. We are beginning to engage suppliers where we have these critical data gaps, and hope to continue to drive improvement in reporting quality in 2024.

ASM suppliers disclosing to CDP

(in%)



One outcome of our engagement with suppliers and improved data visibility among the suppliers disclosing through CDP has been increasing awareness of the need to improve knowledge of and accessibility to renewable electricity for our suppliers, regardless of size and location. To this end, ASM is co-sponsoring the Catalyze Program with Schneider Electric, Intel, Applied Materials, and Google. This enabling program is focused on renewable electricity for the semiconductor supply chain. Achieving challenging environmental objectives like ASM's Net Zero by 2035 target requires full value-chain engagement and collaboration. For this reason, in addition to supporting engagement in the Catalyze program, we are actively encouraging suppliers to take part in other industry initiatives like the Semiconductor Climate Consortium.

Our 2024 supply-chain sustainability and resiliency priorities include:**Environmental:**

- a. Increasing supplier use of renewable electricity and progress toward net zero.
- b. Improving the percentage of suppliers reporting Scope 1 and 2 emissions data through their CDP climate disclosure.
- c. Aiming for all timber used in packaging to be certified as responsibly sourced.
- d. Increasing value-chain packaging reuse.

Social:

- a. Safety – Sharing our vision for ZERO HARM! and improving visibility to the safety programs and performance of our critical and strategic suppliers.
- b. Increasing due diligence in the assurance of human rights, including in upstream minerals sourcing.
- c. Collaboration to further positive community impact and increasing rightsholder engagement.

For more on ASM's approach to vulnerable workers in the supply chain, supplier-development programs, and responsible sourcing of minerals and its supplier development program, see sections 21.2 to 21.4 of this Annual Report.

Governance

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13. Corporate governance

Good corporate governance is about applying sound business practices. At ASM, we do business in an ethical and transparent manner. We achieve this by setting up transparent processes and following internal policies and procedures that enable us to operate in the best interests of all our stakeholders, and which comply with applicable Dutch corporate governance requirements.

13.1 High standards of corporate governance

ASM aspires to high standards of corporate governance and ethics practices. Sound corporate governance is a key component of our culture, behavior, and management, and this is consistent with our core values: We Care, We Innovate, We Deliver. Our corporate governance is supported by a strong focus on integrity, transparency, and clear, and timely communication. This aims to support our business and meet the needs of our stakeholders.

We continue to review and update our policies and procedures in order to comply with the applicable Dutch corporate governance requirements – including the Dutch Corporate Governance Code (the Code)¹⁵, and other relevant laws and regulations – a dynamic and evolving landscape with frequent updates and new legislation, including in the field of corporate social responsibility. ASM continues to monitor applicable laws, regulations and rules, and will be revising and enhancing its constitutional documents and policies with a view to ensure compliance with these.

Corporate governance framework

The corporate governance framework describes how we embed ASM's strategy, mission, vision, and objectives across our organization. Our Code of Business Conduct (COBC) sets clear standards in different areas of business life. Its purpose is to provide a clear, strong, and consistent culture of ethics that applies to all at ASM.

ASM's policies and regulatory framework guide how we work. Key components are our financial, ESG, IT, product safety, environment, health and safety (EHS), compliance, and business continuity frameworks. These are supported by transparency and accountability through our business review cycles, our internal control framework, and our performance management cycle.

Our risk management approach enables us to identify and manage the strategic, operational, financial, sustainability (including climate), and compliance risks to which ASM is exposed. It also helps us develop even more effective and efficient operations. It promotes reliable financial and non-financial reporting and compliance with laws and regulations, increasing transparency and accountability.

Corporate governance-related documents are available on our [website](#), including:

- Supervisory Board Profile
- Supervisory Board Rules
- Management Board Rules
- Executive Committee Rules
- Audit Committee Charter
- Nomination, Selection and Remuneration Committee Charter
- Remuneration Policy of the Management Board
- Remuneration Policy of the Supervisory Board
- Code of Business Conduct
- SpeakUp procedure (whistleblower policy)

¹⁵ Available on www.mccg.nl

- Policy Communications and bilateral contacts with shareholders
- Stakeholder dialogue policy
- Diversity, Equity & Inclusion Policy
- Policy on prevention of fraud
- Rules concerning insider trading

Corporate governance framework



* Management Board, Executive Committee, and Supervisory Board and its committees

Company structure

ASM International N.V. is a limited liability company established under Dutch law and is listed on Euronext Amsterdam. It is a holding company and the parent company of the ASM group of companies. The company's management and supervision structure is organized in a two-tier system, comprising a Management Board, composed of executive directors, and an independent Supervisory Board, composed of non-executive directors. The company also has an Executive Committee.

We conduct our business through wholly owned subsidiaries, the most significant being ASM Front-End Manufacturing Singapore Pte Ltd in Singapore, ASM Europe B.V. in the Netherlands, LPE S.p.A. in Italy, ASM America Inc. in the United States, ASM Japan KK in Japan, and ASM Korea Ltd. in South Korea. The location of our facilities allows us to interact closely with customers in the world's major geographical market segments: Europe, the United States, and Asia.

Management Board and Executive Committee

Management Board

The Management Board is responsible for the day-to-day management of the company. It manages and is responsible for defining and executing the strategy, including sustainable long-term value creation, the risk-management framework, culture, management of the operational, organizational and financial objectives, and the sustainability/ESG aspects relevant to ASM. When executing its tasks, it takes into account the interests of ASM's stakeholders. The Management Board has its own Rules of the Management Board as published on the [website](#). ASM's Management Board has divided the roles in line with the Articles of Association and approval from the Supervisory Board. The Management Board meets regularly to discuss, evaluate, and review the performance of the company. The Management Board held various meetings throughout 2023.

Appointment of Management Board members

The General Meeting appoints a Management Board member based on a binding nomination drawn up by the Supervisory Board. The decision to nominate a member to the Management Board follows from the recommendation by the Nomination, Selection and Remuneration (NSR) Committee. The General Meeting may set aside a binding nomination by a resolution taken with an absolute majority of the votes cast, representing at least one third of the share capital. If such a binding nomination is set aside, a new binding nomination will be drawn up by the Supervisory Board and submitted to a newly called General Meeting. If such binding nomination is also set aside, the General Meeting is free to appoint a Management Board member, but only with an absolute majority of the votes cast representing at least one third of our issued share capital.

Members of the Management Board are appointed for a maximum term of four years, expiring at the close of the Annual General Meeting held at the end of the term for which the member of the Management Board is appointed. Members of the Management Board may be reappointed.

All members of the Management Board have entered into a management services agreement (MSA) for the term of their assignment. The MSA also contains specific provisions with respect to severance payments in the event of termination in line with the Code. Reference is made to the Remuneration report (chapter 15 of this Annual Report).

Suspension or dismissal of Management Board members

The Supervisory Board may suspend a Management Board member at any time. In addition, a Management Board member may, in accordance with a proposal by the Supervisory Board, be dismissed by the General Meeting through a majority vote representing at least one third of the issued capital. A resolution to suspend or dismiss a member of the Management Board, other than in accordance with a proposal of the Supervisory Board, requires the affirmative vote of a majority of the votes cast at a meeting. These votes must represent at least one third of the issued capital.

Executive Committee

Appointment of other Executive Committee members

The Executive Committee comprises of the Management Board members, as well as other senior executives. These senior executives are appointed by the Management Board following consultation with the Supervisory Board and further to the Executive Committee Charter and ASM's Diversity, Equity & Inclusion Policy. The same applies with respect to the Executive Committee's size and composition. The Management Board determines the Executive Committee's remuneration, including long-term and short-term incentives, on an annual basis, subject to consultation with the Supervisory Board.

Suspension or dismissal of Executive Committee members

The Management Board may suspend or dismiss a member of the Executive Committee subject to consultation with the Supervisory Board.

Tasks and responsibilities of the Executive Committee

The Executive Committee's responsibilities are divided based on business and functional areas, each of which will be reviewed regularly. The current business and functional areas are: sales, global operations and supply chain, and people. The Executive Committee has its own Rules of the Executive Committee as published on the [website](#).

The Executive Committee shall assist the Management Board in managing the company, in particular with the day-to-day management, including driving the strategic agenda, and in respect of compliance, leadership, culture and sustainability/ESG.

The Management Board may delegate one or more specific tasks and duties to one or more Executive Committee members. The Executive Committee shall be guided by the interests of the company and its stakeholders in executing its tasks, taking the interests of all stakeholders into account. The Executive Committee members are accountable and report to the Management Board.

The Executive Committee is chaired by the CEO and meets on a regular basis. In 2023, the Executive Committee met 12 times, sometimes in sessions taking multiple days. Meetings took place in person as well as via video call, taking into account sustainability, cost, and pragmatism. All of the then current Executive Committee members attended the meetings. Meetings of the Executive Committee may be combined with Management Board meetings if so decided. The Management Board shall regularly, but at least once a year, review and assess the effectiveness of the Executive Committee's governance structure.

In 2023, the Executive Committee discussed ASM's culture, also in conjunction with its core values: We care, We innovate, We deliver. Our award-winning employee value proposition – 'Power of an Open Mind' – reflects our ambition to grow employee engagement, develop our existing team members, and shape a diverse and inclusive culture. ASM's senior leaders help shape and embed our company culture and are key as role models and ambassadors. ASM focuses on developing a workplace that fosters Accountability, Collaboration and Empowerment (ACE), which the Management Board believes contributes to sustainable long-term value creation. For more information see Chapter 10. Sustainability was also a recurring topic, including the effect ASM's products,

services and activities have had on people and the environment, stakeholder management and sustainability objectives. For more, see chapter 11.

Responsibility and accountability of the Management Board

Regardless of the activities of the Executive Committee and its role, the Management Board remains collectively responsible and accountable for the management of ASM. Its members are collectively and individually accountable to the Supervisory Board and the General Meeting for executing its responsibilities. The Management Board is responsible for providing the Supervisory Board with all the information it needs to fulfil its obligations and exercise its powers, and the General Meeting with all information it needs to exercise its powers in a timely fashion.

The Management Board is also responsible for the quality and completeness of financial and other (non-financial) reports that are publicly disclosed by or on behalf of the company, including all reports and documents the company is required to file. In addition to the duties of the Management Board stipulated by law and regulations and our Articles of Association, the Management Board has the following responsibilities:

- Achieving the aims, strategy, policy, and results of ASM.
- Managing the risks associated with the activities of ASM.
- Ensuring proper financing of ASM.
- Establishing and maintaining disclosure controls and procedures that make sure all major financial information is known to the Management Board so that the external financial reporting is achieved in a timely, complete, and accurate manner.
- Determining relevant aspects and achieving aims relating to ESG and sustainability and reporting on in accordance with applicable law and regulation.

Supervisory Board

The Supervisory Board supervises and advises the Management Board and Executive Committee in the execution of their tasks and responsibilities. The members of the Supervisory Board are guided by the interests of the company and its affiliates, through which the interests of the stakeholders are taken into account.

Independence of the Supervisory Board

Under Dutch law, the Supervisory Board is a separate body independent of the Management Board, which constitutes a so-called two-tier structure. This is also reflected in the requirement that a member of the Supervisory Board cannot be a member of the Management Board nor be an employee of ASM.

The members of the Supervisory Board assess their independence on an annual basis as set out in the Code and confirm this in writing. All members of the Supervisory Board are to be regarded as independent on 31 December, 2023.

Tasks and responsibilities of the Supervisory Board

The Supervisory Board supervises and advises the Management Board in executing its responsibilities, in particular regarding:

- The achievement of the company's objectives
- The corporate strategy and the risks inherent in the business activities
- The structure and operation of the internal risk management and control systems
- The financial reporting process
- The compliance with legislation and regulations
- The relation of the company to its shareholders
- The relevant aspects of ESG and sustainability-related matters

Apart from supervising and advising, the Supervisory Board must also approve important decisions by the Management Board. Such approvals include – but are not limited to – those with respect to: defining objectives of the company's strategy, issuance and repurchasing of ASM shares, important acquisitions and mergers, and dividend payments. The Management Board, and where needed and so decided, the Executive Committee, provide all the information needed to be able to make these decisions. This allows the Supervisory Board to carry out its duties properly.

In addition to its supervision and advising role, the Supervisory Board establishes the Management Board members' individual remuneration, within the boundaries of the Remuneration Policy approved by the General Meeting and the recommendations by the Nomination, Selection and Remuneration ('NSR') Committee.

Appointment and dismissal of Supervisory Board members

The members of the Supervisory Board are appointed by the General Meeting following a binding nomination drawn up by the Supervisory Board. The General Meeting may overrule the binding nature of a binding nomination at a General Meeting by an absolute majority of the votes cast, representing at least one third of the issued share capital. In that event, the Supervisory Board may draw up a new binding nomination to be submitted to a subsequent General Meeting. Should such a second nomination also be deprived of its binding character, then the General Meeting shall be free to appoint a member, provided that such a resolution shall require an absolute majority of the votes cast representing at least one third of the company's issued capital. In the event the second binding nomination is overruled without the required proportion of the capital represented – but an absolute majority of the votes cast was in favor of overruling the binding nomination – then a new General Meeting shall be convened, at which the resolution may be passed by an absolute majority of the votes cast.

The appointment of a Supervisory Board member is for a period of maximum four years and will last until the General Meeting at the end of the term. For reappointment, the candidate's performance during the previous period shall be taken into account. A Supervisory Board member who is available for reappointment must be interviewed by the Chair of the Supervisory Board and the Chair of the NSR Committee. The Chair of the NSR Committee must be interviewed by the Chair of the Supervisory Board. Following a first term, a member may be reappointed for a subsequent term of four years. Subsequently, a member who has served eight years on the Supervisory Board may be appointed for another two-year period, followed by another period of two years. However, the Supervisory Board must provide the reasons for such reappointment after eight years. For the rotation schedule of the Supervisory Board members, see section 13.8.

A member of the Supervisory Board may at any time be suspended or dismissed by the General Meeting. A resolution to suspend or dismiss a Supervisory Board member, other than in accordance with a proposal of the Supervisory Board, shall require an absolute majority of the votes cast representing at least one third of ASM's issued capital. If, however, the required proportion of the capital is not represented, but an absolute majority of the votes cast is in favor of a resolution to suspend or dismiss a Supervisory Board

member, a new meeting shall be convened at which the resolution may be passed by an absolute majority of the votes cast, regardless of the proportion of the capital present at the meeting

All members of the Supervisory Board follow an induction program after their first appointment, in which financial, legal, financial reporting, and specific features, including technological, are taken into consideration.

Supervisory Board composition

In accordance with Dutch law and the Code, the Supervisory Board has drawn up a profile for its own composition. This Supervisory Board Profile is available on our [website](#). For the selection of future members of the Supervisory Board, the Supervisory Board actively seeks candidates that support the realization of diversity as per the criteria mentioned therein, as well as in ASM's Diversity, Equity & Inclusion Policy available on our [website](#). Any appointment or reappointment to the Supervisory Board shall be based on the candidate's match with the Supervisory Board Profile. In case of a vacancy in the Management Board, the Supervisory Board prepares a profile based on the required educational and professional background. In the search, it will actively seek candidates that support the realization of diversity on the criteria set out in the Diversity, Equity & Inclusion Policy.

The Rules of the Supervisory Board are available on our [website](#). The Supervisory Board determines the number of members required. However, the Dutch Civil Code stipulates that the minimum number of members is three. The members should operate independently of each other. They must be experienced in the management of an international, publicly-listed company, and have sufficient time available to fulfill the role. Moreover, The Supervisory Board members appoint a Chair from amongst themselves. The Supervisory Board currently consists of six members and all members meet the required profile.

Supervisory committees

To more efficiently fulfill its role, and in compliance with the Code, the Supervisory Board currently has two committees: the Audit Committee and the NSR Committee. The Supervisory Board may expand the number of committees as it deems appropriate in the discharge of its duties. The committees assist the Supervisory Board in performing its duties.

Committees structure and member information

	Audit Committee	Nomination, Selection and Remuneration Committee	Supervisory Board
Pauline F.M. van der Meer Mohr		M	C
Stefanie Kahle-Galonske €	C		M
Marc J.C. de Jong	M		M
Didier R. Lamouche		C	M
Adalio T. Sanchez	M	M	M
Monica de Virgiliis	M		M

C Chairperson **M** Member **€** Financial expert

Audit Committee

The Audit Committee assists the Supervisory Board in its responsibility to oversee, among others, ASM's financing, financial statements, financial reporting process, non-financial and sustainability reporting, and system of internal business controls and risk management. The Audit Committee also advises the Supervisory Board on the nomination of the external auditor of the company.

The Audit Committee consists of:

- Stefanie Kahle-Galonske (Chair)
- Marc de Jong
- Adalio Sanchez
- Monica de Virgiliis

The Audit Committee supervises the activities of the Management Board and fulfills its supervision responsibilities with respect to:

- Integrity and quality of ASM's financial statements
- Release of financial information
- Accounting and financial-reporting processes and the audits of the financial statements
- Release of sustainability reporting
- Effectiveness and operation of the internal risk management and control systems, including supervision of the enforcement of the relevant legislation and regulations and supervising the operation of codes of conduct, the internal audit function regarding the financial reporting and where applicable the sustainability reporting, including its electronic reporting process
- Policy on tax planning
- Applications of information and communication technology, including cybersecurity
- Financing of the company
- How ESG commitments impact the ASM's financial statements
- Compliance with recommendations and observations of internal and external auditors
- Relations with the internal and external auditor and any other party involved in auditing the sustainability reporting, including, in particular, its qualifications, performance, independence, remuneration, and any non-audit services performed for the company

The Audit Committee meets periodically to:

- Consider the adequacy of the internal control procedures
- Review the operating results with management and the external auditors
- Review the scope and results of the audit with the external auditors
- Review the scope and results of internal audits with internal audit
- Review performance evaluations relating to the auditor's independence
- Review performance and services of the external auditor
- Review adequateness of the financing structure and tax structure of the company

The Chief Executive Officer, Chief Financial Officer, Senior Director Internal Audit, Vice President Group Control, and representatives of the external auditor are invited to, and also attend, the Audit Committee meetings.

Ms. Kahle-Galonske, Chair of the Audit Committee and member of the Supervisory Board, is the financial expert, taking into consideration her extensive financial background and experience. The Charter of the Audit Committee is available on the ASM [website](#).

Nomination, selection and remuneration (NSR) Committee

The NSR Committee advises the Supervisory Board on matters relating to the selection and nomination of the members of the Management Board and Supervisory Board. Also, the Management Board consults the NSR Committee on the appointment and dismissal of members of the Executive Committee and remuneration of the Executive Committee. Moreover, the NSR Committee is entrusted by the Supervisory Board to prepare and review onboarding of new Management Board and Supervisory Board members, training of the Supervisory Board, culture and diversity and inclusion matters within ASM. The NSR Committee further designs, monitors and evaluates the Remuneration Policy for the Management Board and the Remuneration Policy for the Supervisory Board. Moreover, the NSR Committee is entrusted with the preparation of the self-evaluation of the Supervisory Board and its committees and the performance evaluation of the Management Board members.

The NSR Committee consists of:

- Didier Lamouche (Chair)
- Pauline van der Meer Mohr
- Adalio Sanchez

The NSR Committee makes sure that a competitive remuneration structure is provided by benchmarking with other multinational companies of comparable size and complexity operating in comparable geographical and industrial markets. The NSR Committee evaluates the achievement of performance criteria specified per Management Board member. After the evaluation, it recommends the level of remuneration to the Supervisory Board.

On an annual basis, the NSR Committee reports to the Supervisory Board on the application of the Remuneration Policy in the previous year, and recommends the Remuneration Policy and remuneration report for the following years.

The Chief Executive Officer (CEO) and the Senior Vice President Global People are invited to, and also attend, the NSR Committee meetings, except that the NSR occasionally also meets with only NSR members. It is noted that the CEO in principle does not take part in meetings relating to his own remuneration.

The Charter of the NSR Committee is available on our [website](#).

Diversity, equity, and inclusion

The Supervisory Board attaches value to diversity amongst its members and the members of the Management Board, as further set out in ASM's Diversity, Equity & Inclusion Policy. As set out above, in the case of open positions on the Supervisory Board or Management Board, the Supervisory Board prepares a profile based on the required educational and professional background. In the search, it will actively seek candidates that support the realization of diversity against the criteria set out in the Diversity, Equity & Inclusion Policy.

Pursuant to the Dutch Civil Code:

- For Dutch companies listed on Euronext Amsterdam, a quota of at least one-third for both women and men on their supervisory boards apply. If a new appointment does not contribute to the gender balance, such appointment will in principle be declared invalid (null and void) if the company has not yet met the one-third quota.
- All large companies that meet the criteria set out in the Dutch Civil Code will need to set appropriate and ambitious gender-balance targets for the management board, supervisory board and other senior management. What the latter category consists of, is up to the company to determine. Moreover, these large companies will need to have an action plan to achieve such targets. In addition, they will need to report annually to the Dutch Social Economic Council on the total number of men and women on the supervisory board, management board, and other senior management, the annual targets, and the aforementioned action plan.

Under the Code, companies are required to implement a broader diversity and inclusion policy. The policy should, in any case, set specific, appropriate, and ambitious targets in order to achieve a good balance in gender diversity and other company-relevant diversity and inclusion aspects with regard to the composition of the Management board, the

Supervisory Board, the Executive Committee and a category of employees in management positions ('senior management') to be determined by the Management Board.

ASM has defined the "senior management" as referred to above as any person holding the position of 'Director' and up.

In February 2024, ASM published its updated Diversity, Equity & Inclusion Policy, including the aforementioned targets. For more, see section 10.1.

2023 gender-diversity numbers

The Supervisory Board has discussed with the Management Board diversity, and then in particular gender diversity. For additional information on the targets adopted for the male and female composition of the Supervisory Board, Management Board, Executive Committee, and senior management for 2023, as well as the actual numbers and the percentages and the plans to meet these targets, see section 10.1.

Based on the compositions of our Supervisory Board and Management Board, we have reached our target of 33% of the seats being held by either gender at the same time in the Supervisory Board, currently the gender percentage is at 50% for both female and male. We acknowledge that our Management Board currently stands at 100% male participation. We have achieved diversity of background, with members of the Management Board having varied cultural and ethnic backgrounds, knowledge, skill sets, education, work background, and national origins, to name a few. In case of open positions in the Management Board, the Supervisory Board prepares a profile based on the required educational and professional background and in the search will actively seek for candidates that support the realization of diversity on the earlier mentioned criteria, including gender.

The Executive Committee consists of one female member, who was newly recruited in 2023, and five male members, who already had the most senior positions within ASM. When the Executive Committee was established in February, 2022, it was actually a formalization of the status quo, not a selection of new senior executives. This also means that there was no specific target for the Executive Committee at the time.

General meeting

ASM's shareholders exercise their rights through Annual and Extraordinary General Meetings. ASM is required to convene an Annual General Meeting in the Netherlands each year, no later than six months after the end of the company's financial year, ending for ASM on December 31 of each year. This allows the shareholders to discuss the financial statements, management report, and any topics related to applicable laws and regulations. The Supervisory Board or Management Board may convene additional Extraordinary General Meetings at any time. The convocation date is legally set at 42 days prior to the date of the General Meeting. The record date is legally set at 28 days prior to the date of a General Meeting. Those who are registered as shareholders at the record date are entitled to attend the meeting and exercise voting rights. Shareholders may be represented by written proxy.

The voting results are generally published on the ASM website within one week following the relevant Annual or Extraordinary General Meeting. The draft minutes of the meeting are published on the same site within three months following the meeting. In the event that no comments are received, the minutes are signed by the Chair of the Supervisory Board and the secretary of the meeting and made final.

Powers

The powers of the General Meeting are defined by Dutch law, the Code, and our Articles of Association. The main powers of the General Meeting are to:

- Appoint, suspend, and dismiss members of the Management Board and Supervisory Board.
- Approve the financial statements; declare dividends; adopt the Remuneration Policy of the Management Board and Supervisory Board.
- Discharge the Management Board and Supervisory Board from responsibility for the performance of their respective duties for the previous financial year.
- Appoint the external auditors.
- Approve amendments to the Articles of Association after a proposal of the Management Board and the Supervisory Board (a copy of the proposed amendment will be available for inspection by every shareholder at the office of ASM free of charge).
- Authorize the Management Board to issue shares and grant subscriptions for shares.
- Authorize the Management Board to withdraw preemptive rights of shareholders upon issuance of shares.
- Authorize the Management Board to repurchase or cancel outstanding shares.

Voting rights

At the General Meeting, each ordinary share with a nominal value of €0.04 entitles the holder to cast one vote, each financing preferred share with a nominal value of €40 entitles the holder to cast 1,000 votes, and each preferred share with a nominal value of €40 entitles the holder to cast 1,000 votes. Pursuant to Dutch law, no votes may be cast at a General Meeting in respect of treasury shares, i.e. shares which are held by the company.

There were no preferred or financing preferred shares issued on December 31, 2023.

Financing preferred shares are designed to allow ASM to finance equity with an instrument paying a preferred dividend, linked to Euribor loans and government.

2023 Annual General Meeting

ASM held its Annual General Meeting on May 15, 2023. It was organized as a physical meeting, so shareholders could attend in person. Shareholders were also given the opportunity to vote through different means: (i) by providing a power of attorney with voting instructions prior to the meeting and (ii) electronically during the meeting while present in person. The attendance rate was 78.27% of the total issued share capital of ASM as at the registration date. The voting results and the minutes of the Annual General Meeting – and other Annual and Extraordinary General Meetings – are published on our [website](#).

During the Annual General Meeting of 2023, it was resolved to authorize the Management Board to issue shares or to grant rights to acquire up to 10% of the outstanding shares in ASM as well as to restrict or exclude the pre-emption rights. This is, however, subject to approval by the Supervisory Board, and the authorization applies for 18 months.

ASM shares

ASM's common stock trades on the Euronext Amsterdam Stock Exchange (symbol: ASM). ASM common shares, which are held in the United States as New York Registry Shares, trade on the OTC market.

The company's authorized capital amounts to 82,500,000 common shares of €0.04 par value, 88,500 preferred shares of €40 par value, and 6,000 financing preferred shares of €40 par value. As at December 31, 2023, there were 49,428,548 common shares issued and fully paid.

Preferred and financing preferred shares

Preferred and financing preferred shares may be issued in registered form only and are subject to transfer restrictions. Essentially, a preferred or financing preferred shareholder must obtain the approval of the ASM Supervisory Board to transfer shares. If the approval is denied, the Supervisory Board will provide a list of acceptable prospective buyers who are willing to purchase the shares at a cash price agreed by the Supervisory Board and the seller within two months of the approval being denied. If the transfer is approved, the shareholder must complete the transfer within three months, after which time the approval expires.

Preferred shares are entitled to a cumulative preferred dividend based on the amount paid up on such shares. Financing preferred shares are entitled to a cumulative dividend based on the par value and share premium paid on such shares.

Stichting continuïteit agreement

ASM is party to an agreement with Stichting Continuïteit ASM International (Stichting), pursuant to which the Stichting is granted an option to acquire up to a number of our preferred shares corresponding with a total par value equal to 50% of the par value of our common shares issued and outstanding at the date of the exercise of the option. The Stichting is a non-membership foundation organized under Dutch law. The objective of the Stichting is to serve the interests of ASM. For that objective, the Stichting may, among other things, acquire, own, and vote on preferred shares.

The members of the board of the Stichting are:

- Dick Bouma (Chair), retired Chair of the Board of Pels Rijcken & Droogleeveer Fortuijn
- Rob Ruijter, former Chair of the Supervisory Board of Delta Lloyd
- Rinze Veenenga Kingma, President of Archeus Consulting B.V.

The purpose of the above-mentioned option is to protect the independence, continuity, and identity of ASM against influences that are contrary to the interests of ASM, its enterprise, and the enterprises of all its subsidiaries and stakeholders.

Conflicts of interest

As provided for in the Rules of the Supervisory Board, a Supervisory Board member facing a conflict of interest, potential or otherwise, shall inform the Chair of the Supervisory Board immediately. The course of action shall be discussed in consultation with the other members of the Supervisory Board. The member facing the possible conflict of interest shall not be part of these discussions.

Each Management Board member shall immediately report any potential conflict of interest to the Chair of the Supervisory Board and to the other Management Board members. In such cases, a Management Board member shall provide the Chair of the Supervisory

Board and the other Management Board members with all information relevant to the conflict, and follow the procedures as set out in the Rules of the Management Board.

The provisions of the Rules of the Management Board regarding conflict of interest of Management Board members shall apply mutatis mutandis to members of the Executive Committee, provided however that a member of the Executive Committee not being a Management Board member, shall report any potential conflict of interest to the CEO. In addition, an Executive Committee member shall not participate in the deliberation and/or any decision-making, if his/her participation and/or decision-making would be contrary to applicable legislation, regulations and/or internal policies.

Publication in English

The Annual Report, the financial statements, and other regulated information as defined in the Dutch Act on Financial Supervision ('Wet op het financieel toezicht') will only be published in English on our website.

External relations

At ASM we believe that an open dialogue with our external stakeholders is important. We provide accurate and timely information through, among other things, press releases, our annual reports, quarterly earnings calls and webcasts, and meetings. At these meetings we discuss the company strategy and performance, and request input for our materiality assessment. These meetings often include investors. Reference is made to the policy regarding communications with shareholders, which can be found on our website. Moreover, ASM has adopted a Stakeholder dialogue policy, which can be found on our website, which covers interactions with internal and external stakeholder groups, specifically on the sustainability aspects of ASM's strategy. It provides a non-exhaustive overview of touchpoints between ASM and its stakeholders and covers its approach to engagement.

Risk management and control framework

The Management Board ensures that the company has an adequately functioning internal risk management and control framework. A comprehensive risk management and control framework, based on the 'three lines of defense model', has been established. This

provides the Audit Committee and the Management Board with a clear overview of the effectiveness of internal controls and risk management. For more, see section 13.2. The Management Board periodically discusses the internal risk-management and control systems with the Supervisory Board and the Audit Committee.

Remuneration

During the Annual General Meeting, which took place on May 15, 2023, a new Remuneration Policy was adopted for the Management Board. In 2022, the Annual General Meeting adopted a new Remuneration Policy for the Supervisory Board.

For information regarding the remuneration of the Management Board, please see the Remuneration Policy of the Management Board posted on our [website](#), the Remuneration report, included in chapter 15 of this report, and Note 25 to the consolidated financial statements.

For information regarding the remuneration of the Supervisory Board, please see the Remuneration Policy of the Supervisory Board posted on our website, the Remuneration report, included in chapter 15 of this report, and Note 25 to the consolidated financial statements.

13.2 Risk management

To stay ahead of what's next, the focus of our risk-management approach is to proactively identify risks, changes in our risk landscape, and opportunities for growth enabling risk mitigation in line with our risk appetite. We prioritize our risks by performing a top-down risk assessment, and ensure effective risk mitigation through our bottom-up (process level) controls. Our risk committee meets monthly to stay on top of key developments impacting our risk landscape.

In 2023 we focused on our two main risk clusters:

1. Maintaining quality and operational execution while dealing with the challenges of attracting, retaining, and developing people.
2. Staying ahead of competition in a demanding and evolving technological environment.

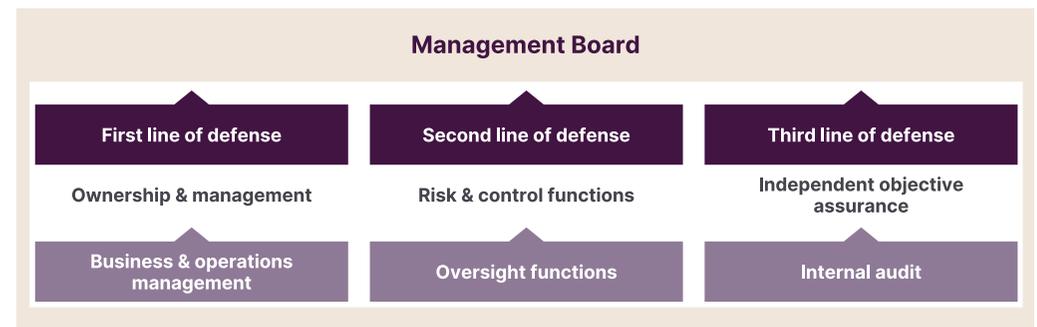
Risk-management approach

ASM's approach to managing risk is based on the reference model of the Committee of Sponsoring Organizations (COSO). It is a key part of our Corporate Governance Framework, which describes how we embed our strategy, mission, and objectives across our organization.

Our risk-management approach sets out to identify and manage the current and emerging strategic, operational, financial, ESG, and compliance risks ASM is exposed to. It helps us make our operations more effective and efficient, promotes reliable financial and non-financial reporting, and compliance with laws and regulations.

Every year, we assess the risks that could prevent us from achieving our strategic objectives. We do this at a consolidated level (top-down approach) with our risk committee and senior management team, and on a process level (bottom-up approach). In 2023, we focused on enhancing our key risk-management indicators. These provide insight into the status and development of our risk management and control framework, and its effectiveness in mitigating our risks in line with our risk appetite.

Business management provides the Executive Committee with an annual assurance letter on the reliability of their financial reporting, the effectiveness of their internal controls, risk management, and compliance with internal policies, as well as laws and regulations.



Risk management



Our risk management and internal control activities are organized through the three lines of defense model. The Executive Committee – consisting of the Management Board and three senior executive leaders who are considered essential in driving and executing the strategy – is entrusted with risk management and compliance in line with the risk appetite, and is supported by a:

- First line of defense: Business and operations management owns and manages risk, which includes identifying, assessing, controlling, and mitigating risks.
- Second line of defense: Oversight functions support business and operations management and help make sure the risk and control procedures have effective metrics and are operating as intended.
- Third line of defense: Internal Audit provides independent objective assurance on the effectiveness of governance, risk management, and internal controls, including how business and operations management, and the oversight functions, manage and control risk. Internal Audit brings a systematic, disciplined approach to evaluating and improving the effectiveness of risk management, control, and governance processes.

Risk culture

In line with our core values (We Care, We Innovate, We Deliver), ASM strives for a culture of openness and transparency. In this culture, we proactively disclose identified risks, report unexpected events as soon as they occur, and discuss and follow up on improvement opportunities. The Risk Committee plays a key role in our risk culture. It meets monthly, is chaired by the Corporate Vice President of Strategy (reports into the CEO), and has members from various business units and key departments. Through the monthly committee meetings, periodic control self-assessments, and key metrics on the development of our top-down risks, as well as the key controls embedded in our business processes, we are continually increasing risk awareness to make it an integral part of our company culture and our primary processes. Our Code of Business Conduct (COBC) applies to all ASM employees and temporary staff, and describes how we work in an open, transparent, honest, and socially responsible way. We assess the effectiveness of and adherence with the code by actively investigating any alleged misconduct reported through the Whistleblower program, SpeakUp!, and other means, taking appropriate action, including disciplinary action, where necessary.

Risk appetite

Any business activity inevitably involves risks and leads to taking risks. We deal with each risk in a way that aligns with the risk appetite established by the Executive Committee. Risk appetite is the level of risk we deem acceptable to achieve our objectives. ASM's risk appetite is primarily determined based on the defined and agreed strategic plan. Our COBC and other detailed policies and procedures help guide our risk appetite. Our risk appetite is the total residual impact of the risks ASM is willing to accept in pursuing its strategic objectives, and ranges from open to adverse. The Executive Committee sets the risk appetite per risk area. The mitigation in line with our risk appetite is evaluated on an ongoing basis in the risk committee as events occur throughout the year.

The nature of the risk is a key determinant of our risk appetite. We avoid risks with an adverse risk appetite, for which we always choose the lowest risk option – this applies to compliance-related risks. Our strategic and operations-processes risks have the highest upside, so we are willing to accept risks while managing the impact of these risks.

Risk appetite

	Open	Flexible	Cautious	Minimalist	Averse
Strategic risks		█			
Operations - processes		█			
Operations - products			█		
Operations - partners			█		
Financial risks				█	
Compliance risks					█

Control effectiveness statement

The Management Board is ultimately responsible for ASM's internal risk management and control framework. This system is designed to manage the main risks that may prevent ASM from achieving its objectives. The internal risk management and control framework, and the evaluation of the effectiveness of our internal controls and areas for improvement, are regularly discussed with the Audit Committee and KPMG Accountants, our external auditor. The Audit Committee reports on these matters to the Supervisory Board.

The Management Board has conducted an assessment of the design and operating effectiveness of the internal risk management and control framework. Based on this assessment and the current state of affairs, to the best of its knowledge and belief, the Management Board confirms that:

- The internal risk management and control framework provides reasonable assurance that the financial reporting does not contain any material inaccuracies.
- The management report provides sufficient insights into any failings in the effectiveness of the internal risk management and control systems.
- The management report states those material risks and uncertainties that are relevant to the expectation of ASM's continuity for at least 12 months after the date of this annual report. Based on the current state of affairs, it is justified that the financial reporting is prepared on going concern basis.

For the declaration of the Management Board required pursuant to Section 5:25c of the Dutch Act on Financial Supervision on the principal risks ASM faces, see chapter 34.

All internal control systems, no matter how well designed and implemented, have inherent limitations. Even systems determined to be effective may not prevent or detect misstatements or fraud, and can only provide reasonable assurance with respect to disclosure and financial statement presentation and reporting. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate due to changed conditions, and that the degree of compliance with the policies or procedures may deteriorate.

In view of all of the above, the Management Board believes it complies with the requirements of best practice provisions 1.2 and 1.4 of the Dutch Corporate Governance Code.

Risk categories and factors

In an ever-changing world, risks, opportunities, and uncertainties are part of our operations. To stay ahead of what's next, we continuously monitor the risk landscape to enable risk informed decision-making and risk mitigation in line with our risk appetite. The ASM risk universe, which is detailed on the following pages, is a top-down overview of the risks that may have a material adverse impact on our ability to achieve our strategic objectives, and forms the basis of our risk assessment.

Our risk-management process is set up to facilitate a company-wide understanding of the nature of these risks, the impact they may have on our business, and the way they develop over time. These risks are not the only ones we face and actively mitigate. Some risks may not yet be known to us, and certain risks we do not currently believe to be material could become material in the future. On the next page, we have listed the most important risks and risk clusters, along with our response. This list is not exhaustive.



Strategy

The realization of our growth strategy may be impacted by our ability to stay ahead of the competition in a demanding and evolving technological environment.

We operate in an unique environment that requires continuous innovation and customer focus to enable us to outperform the wafer fab equipment market and realize our strategic objectives.

To stay ahead of what's next, in 2023 we focused on the following:

- Our Growth through Innovation strategy is anchored in continuous investment in innovation, allowing us to stay at the forefront of emerging technologies and anticipate future advancements in the semiconductor industry. We are committed to investing in research and development, as well as strengthening our long-term strategic partnerships with leading organizations like imec and the University of Helsinki. Artificial intelligence holds immense potential, and we are expanding our capabilities in this area. In 2023, we announced plans to consolidate our Arizona operations into a new cutting-edge facility, providing a solid foundation for future R&D expansion, and supporting a resilient semiconductor supply chain.
- In 2022, we acquired Reno (technology acquisition) and LPE (deposition equipment acquisition), our first M&A activities in 18 years. In 2023, we focused on successfully integrating these companies into ASM.
- For Field teams in 2023, we focused on reducing execution risk largely by improving expertise and bandwidth at the customer interfaces with the biggest challenges. We invested in new product introduction expertise at customer sites with our most advanced tools. We made use of a relative lull at memory manufacturing sites to focus resources on memory R&D wins in preparation for the coming upturn. Finally, we improved our global footprint to prepare for impending customer ramps, especially in the US and Europe, and in the segments of the China market most accessible to us.
- The tense geopolitical environment and export restrictions may continue to have a certain impact on our sales and deployment of international knowledge workers. Export restrictions are increasing, impacting our ability to sell and service systems in certain jurisdictions and for certain customers. In addition, new restrictions could be implemented and could impact the movement of certain of our employees from certain

nationalities across countries and accessing certain technology. To mitigate this emerging risk, we monitor geopolitical developments as well as laws and regulations on a continuous basis. We comply with laws and regulations, and apply for export licenses as required. The US government announced the most recent export regulations on October 17, 2023. Following internal reviews, we concluded that these new US-issued export control measures, as also announced on October 24, 2023, are not expected to have any material additional impact, relative to what we previously communicated. Previously, on November 28, 2023, we announced that the earlier export controls issued by the US government on October 7, 2023, were expected to negatively impact on our Chinese sales by 15-25%. Also, following the October 17, 2023, export controls, we obtained extensive clarification to assess the impact of these regulations on our internal procedures, as well as our financial reporting, implementing key process updates as needed.

Emerging climate risk: Disruptive impacts on ASM, its customers, and its supply chain

In 2023, the acceleration of disruptive weather events underscored the escalating risk of climate change, posing potential challenges for ASM, our customers, and supply chain. Climate scientists increasingly indicate that global warming is occurring at a pace faster than previously anticipated, heightening the global urgency to address its impact. This rapid change in climate patterns represents a substantial long-term risk, characterized by a novel and unpredictable nature. Climate-change effects could severely impact our value chain and markets, proving to be a major disruptor not just for our operations but for the global economy at large.

Our ability to swiftly and effectively respond to both the physical and transition risks associated with climate change is crucial. Following our initial climate-change risk assessment in 2021, we have continuously been updating our strategies to try to address these challenges. Our ESG materiality assessment has identified both climate-change adaptation and climate-change mitigation as important topics for ASM.

As we move forward and continue our stakeholder engagement, we anticipate the identification of additional risks in this domain. This ongoing process is vital for adapting to

the dynamic and increasingly critical landscape of climate-related risks. For more on which specific climate-change implications are most critical to our organization, and how we are addressing these challenges, see section 11.1.

Operations

We may face challenges in maintaining quality and operational execution while dealing with a competitive labor market.

In 2023, we took important steps to further mitigate our key operational risks:

- Emerging risk: Across the semiconductor industry, there is global talent shortage to meet the growing demand in the different markets. ASM is anticipating this challenge to ensure the availability of sufficient and qualified talent. Attracting, retaining and developing our diverse workforce remains a strategic priority. In a continuously competitive labor market, we focus on strengthening our culture and employee-engagement. For additional information, see chapter 10.
- To increase our flexibility to deliver on projected revenue targets, we recently completed the expansion of our Singapore manufacturing site. Also, we initiated the expansion of our manufacturing site in Korea, and have sharpened our focus on manufacturing innovation.
- In 2023, we launched our TRANS4M! project, which will not only focus on a smooth upgrade of our SAP system but also enable us to enhance our company-wide processes, and enable business transformation in support of seamless operational execution.
- In addition to supporting the growing installed base, our service teams continued to focus on adopting outcome-based services, providing clear benefits to our customers such as improved on-wafer performance, increased productivity, cost-reduction roadmaps, and increased sustainability.

Suppliers that do not deliver on time or on specification may impact our manufacturing process.

ASM relies on its suppliers to deliver the materials and parts we need in the shortest possible time at the required quality to enable us to deliver our solutions to customers. In 2023, we saw that while supplier delivery is improving, it is yet to recover to pre-COVID levels.

To further mitigate this risk, we continue to engage and support our suppliers to improve supply lead times and quality, and make capacity investments to support the projected market recovery.

Cyber attacks may impact our operations and could lead to a loss of intellectual property

In an increasingly digital world, and given that we operate in a high cyber-target industry, ASM is constantly vulnerable to cybersecurity attacks. If successful, these could impact our operations and/or lead to the loss of intellectual property, leading to loss of revenue and market position, disruptions, and regulatory penalties. Protecting ourselves against such attacks is one of our highest business priorities. The Global CIO is responsible for ASM's overall cybersecurity, and the Corporate Director, Global IP and Licensing, is responsible for intellectual property and physical security. These leaders collaborate closely to ensure a harmonized approach to protecting ASM's core assets throughout our global locations.

To protect our data and systems, ASM deploys an in-depth defense, using solutions/controls, such as advanced detection mechanisms, anti-malware, anti-phishing protection, and identity threat-prevention. In addition, we have implemented around-the-clock monitoring to detect and respond to any potential vulnerability or weakness that may arise from a cyber threat.

Our employees are at our core and we focus on their continuous education through cybersecurity training programs and exercises (e.g. anti-phishing) to maintain threat alertness in the ASM community.

We are also focused on how we respond to threats, with a continuous process to review and improve on our response through playbook due diligence and cyber drills.

13.3 Shareholders

We strive for the highest standards of open communication and the regular sharing of information to all parties, as outlined in our policy regarding communications and bilateral contacts with shareholders and in our stakeholder dialogue policy, found on our website. As part of this commitment, we keep an ongoing dialogue with our shareholders and the investor community through several channels, such as press releases, the AGM, (virtual) conferences, and roadshows.

Throughout 2023, ASM management and investor relations continued to engage with investors around the world, through both virtual and in-person meetings.

During our year-round dialogue with investors, key topics of discussion are:

- Industry developments, such as the outlook for WFE spending, and the topic of export controls.
- Technology trends, such the increasing requirements of ALD and Epi in transition to gate-all-around.
- Business model and financial performance, including the development in gross margin.
- Capital-allocation priorities.
- Progress on the execution of our strategy and sustainability agenda, such as the verification of our net-zero targets by SBTi that we announced in August 2023.

In 2023, we continued to hold several dedicated ESG meetings with investors. In a number of these meetings, we also discussed the input that investors shared with us for the update of our materiality analysis.

Throughout the year, we saw a further increase in sell-side research coverage. As of year-end 2023, ASM stock was covered by 26 analysts – both from brokers and independent research firms – eight of whom either launched or reinitiated coverage in 2023.

A highlight during the year was our Investor Day on September 26, where ASM senior leadership presented an update on our business, and explained in more detail how our Growth through Innovation strategy creates value for all our stakeholders. We updated our 2025 revenue targets and introduced new 2027 financial targets:

- Revenue target of €3.0–€3.6 billion by 2025 and €4.0–€5.0 billion by 2027.
- Gross margin of 46%–50% and operating margin of 26%–31% for 2023–2025 also targeted for 2026–2027, with upward trend in operating margin expected in outer years.
- Annual capex of €100–€180 million (in 2024–2027).
- Single-wafer ALD market expected to increase from US\$2.6 billion in 2022 to US\$3.1–3.7 billion by 2025 with further expected growth to US\$4.2–5.0 billion by 2027, with a continued leading targeted market share of >55%.
- Si Epi market 2025 forecast increased to US\$1.9–2.3 billion, compared to market size of US\$2.0 billion in 2022, with further growth to US\$2.3–2.9 billion in 2027. We continue to target an increase in market share to >30% by 2025.
- SBTi's verification of ASM's Net Zero by 2035 emissions target.

Share listing and performance

ASM's shares are listed on Euronext Amsterdam under the symbol ASM. Since March 2020, our shares have been included in the AEX index. This consists of the 25 largest companies listed on Euronext Amsterdam measured by free-float adjusted market capitalization. Since February 2021, our shares have also been included in the MSCI Global indexes. ASM is also part of the STOXX Europe 600, which includes the 600 largest listed companies.

ASM's market capitalization at year-end 2023 was €23.1 billion, based on the closing share price of €469.95 on Euronext Amsterdam on December 29, 2023 (€235.65 on December 30, 2022), and 49.2 million total outstanding shares at year-end. The market capitalization at year-end 2022 was €11.6 billion.

The highest closing share price during the year was €491.60 on December 15, 2023, and the lowest was €235.65 on January 2, 2023.

The average daily trading volume of ASM shares on Euronext Amsterdam in 2023 was 183,797. This compares to an average daily volume of 265,174 in 2022.

Our New York Registry Shares (NYRS) have been trading on the over-the-counter (OTC) market in the United States under the symbol ASMIY since 2015. Trading in our shares in

the OTC market decreased from an average daily volume of 11,396 in 2022 to 6,255 in 2023.

The graph below shows the performance of ASM's shares on Euronext. The total share return in this graph is the performance of the share, including dividends paid and capital returned over the period.

Share price performance and total shareholder return

in %



Closing share price Euronext Amsterdam	2021	2022	2023
Year-end	388.70	235.65	469.95
High	434.60	390.80	491.60
Low	186.40	198.74	235.65
Market capitalization year-end (€ million)	18,878.8	11,623.7	23,122.5
Average daily volume (number of shares)	310,625	265,174	183,912
Turnover (€ million)	23,844	19,744	18,403

Issued and outstanding shares

On December 31, 2023, the total number of issued common shares was 49,428,548 compared to 49,348,548 at year-end 2022. This increase was the result of 80,000 new shares issued for share-based performance programs.

On December 31, 2023, we had 49,201,746 outstanding common shares, excluding 226,802 treasury shares. This compared to 49,326,319 outstanding common shares and

22,229 treasury shares at year-end 2022. The change in the number of treasury shares in 2023 was the result of 264,503 shares repurchased as part of the share buyback program completed on September 19, 2023, and 139,930 shares used for share-based performance programs and for the exercise of stock options.

On December 31, 2023, 46,629,656 of the outstanding common shares were registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 2,572,090 were registered in the form of NYRS with our transfer agent in the United States, Citibank, NA, New York. While still representing a smaller part of our total shares, the number of NYRS continued to increase substantially in 2023 from 1,574,100 in 2022.

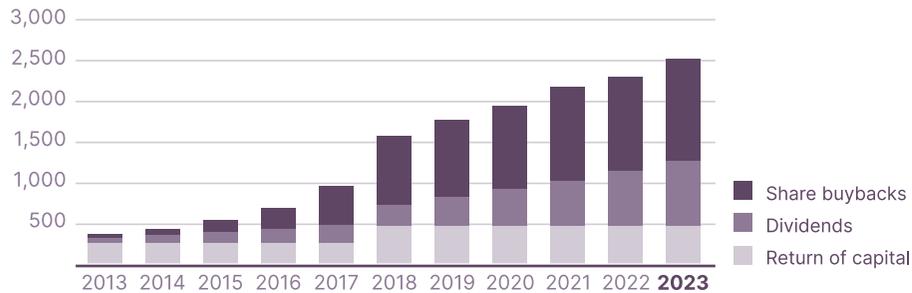
	2022	2023
As per January 1:		
Issued shares	49,297,394	49,348,548
Treasury shares	728,717	22,229
Outstanding shares	48,568,677	49,326,319
Changes during the year:		
Issue of common shares related to the acquisition of business combinations	51,154	—
Treasury shares transferred related to the acquisition of business combinations	580,000	—
Share buybacks	—	264,503
Treasury shares used for share-based performance programs	126,488	121,681
Treasury shares used for exercise stock options	—	18,249
Issue of common shares used for share-based performance programs	—	80,000
As per December 31:		
Issued shares	49,348,548	49,428,548
Treasury shares	22,229	226,802
Outstanding shares	49,326,319	49,201,746
of which registered in the Netherlands	47,752,219	46,629,656

Shareholder returns

Over time, ASM has returned significant amounts of cash in different forms to our shareholders. In 2023, we returned €223 million to our shareholders, of which around €123 million returned in the form of dividend and about €100 million through share buybacks. Since 2018, we have returned approximately €1.5 billion in cash to our shareholders.

Cumulative cash returned to market

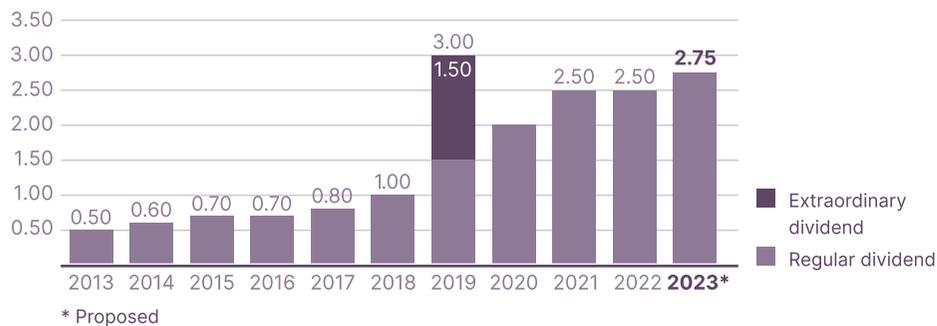
€ million



Dividends

ASM aims to pay a sustainable annual dividend. ASM has been paying dividends since 2010. ASM announced on February 27, 2023, that it would propose to the upcoming AGM a regular dividend of €2.75 per common share over 2023 (2022: €2.50 per common share).

Dividend per share in € paid over



Share buyback

On April 27, 2023, we started a new share buyback program of up to €100 million.

This program was completed on September 19, 2023. In total, under this program, we repurchased 264,503 shares at an average price of €378.07.

The following table shows details of our three most recent share buyback programs. For more on our historical share-buyback programs, see our [website](#).

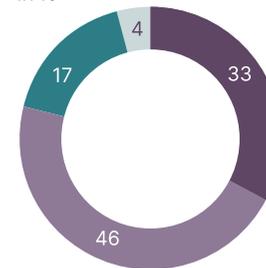
Start date	End date	Value of the program	Number of shares repurchased	Average repurchase price
April 27, 2023	September 19, 2023	€ 100,000,000	264,503	€ 378.07
July 28, 2021	December 17, 2021	€ 100,000,000	292,116	€ 342.33
June 2, 2020	March 2, 2021	€ 100,000,000	646,180	€ 154.76

Shareholder base and major shareholders

ASM shares are held by an international and diversified shareholder base. At the end of 2023, about 83% of our shares was held by institutional investors, and the remainder by broker, retail and other investors. Geographically, 46% was held by institutional investors in the US, 33% in Europe, and 17% in the UK.

Institutional investors by geography

in %

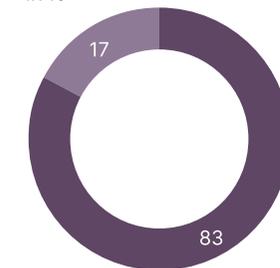


- Europe ex. UK
- North America
- United Kingdom
- Rest of the world

December 2023

Investors by profile*

in %



* Excluding treasury shares

- Institutional investors
- Broker, retail investors, and other

According to Dutch law, shareholders should notify the AFM when their shareholding equals or exceeds 3% and certain higher thresholds including 5%, 10%, and 15% of the issued capital, and when it subsequently falls below those thresholds. As of December 31, 2023, five investors – BlackRock, Tokyo Electron, WCM, Capital, and Norges Bank – had a shareholding of more than 3%.

	Number of shares	Percent ¹	Number of voting rights	Percent ¹
ASM International N.V. ²	226,802	0.5 %	—	— %
BlackRock, Inc ³	4,222,310	8.5 %	4,904,810	9.9 %
Tokyo Electron Ltd. ⁴	2,699,000	5.5 %	2,699,000	5.5 %
WCM Investment Management, LLC ⁵	2,595,144	5.3 %	2,595,144	5.3 %
Capital Research and Management Company ⁶	—	— %	2,520,571	5.1 %
Norges Bank ⁷	2,397,015	4.8 %	2,397,015	4.8 %

¹ Calculated on the basis of 49,428,548 issued common shares as of December 31, 2023.

² On December 31, 2023, ASM held 226,802 common shares in treasury.

Based on the notifications filed with the AFM: ³ October 19, 2023; ⁴ July 1, 2013; ⁵ March 29, 2022; ⁶ September 20, 2023 ; ⁷ October 12, 2023

Key figures per share

(€, except number of shares)	2021	2022	2023
Net earnings per share, diluted	10.11	7.93	15.18
Normalized net earnings per share, diluted ¹	10.36	12.77	11.77
Dividend per share paid over	2.50	2.50	2.75
Shareholders' equity per share	46.16	55.74	65.58
Issued shares year-end (thousand)	49,297	49,348	49,429
Outstanding shares year-end (thousand)	48,569	49,326	49,202
Average outstanding shares basic (thousand)	48,645	48,820	49,286
Average outstanding shares diluted (thousand)	48,909	49,096	49,555

¹ Excluding amortization other intangible assets from purchase price allocation and impairment of ASMPT

Ahead of what's next

Investor Day 2023: our Growth through Innovation strategy continues to drive long-term value creation

At Investor Day 2023, we reaffirmed our Growth through Innovation strategy, which positions ASM for attractive opportunities in coming years, and helps us consistently stay 'ahead of what's next'. We shared an update on our tech roadmap and expected market expansion, long-term financial targets, and sustainability strategy.

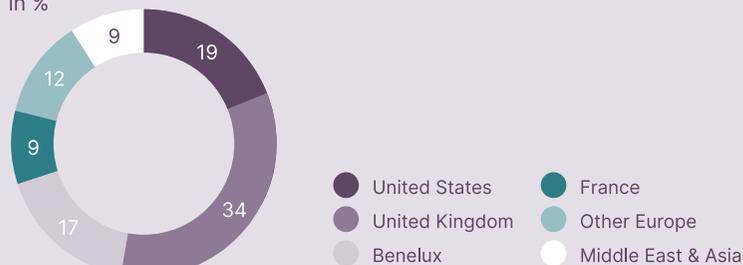


A successful event with 600+ in-person and virtual participants

More than 100 institutional investors and analysts joined us in person in London on September 26, while some 500 participants from all over the world attended virtually – live and through the replay facility.

Participants by geography*

in %



* Including in-person and webcast participants

The program was a comprehensive mix of updates about our strategy, financials, and technology, and a live Q&A session

- CEO Benjamin Loh kicked off the official program with an update on long-term trends in the industry, as well as showing how ASM remains well placed to continue to outperform the wafer fab equipment (WFE) market, thanks to our Growth through Innovation strategy.
- Next up, Corporate VP Global Marketing Han Westendorp shared the outlook for the WFE market and future opportunities for ASM's continued growth. CTO Hichem M'Saad then presented our tech roadmap and innovation in key products, as well as our efforts to make our products more and more sustainable.
- Kent Rossman, Senior VP Global Operations, then discussed how we continue to deliver on our customers' growth needs by building a resilient supply chain and expanding our manufacturing capacity.
- Finally, CFO Paul Verhagen wrapped up the event by talking about our financial targets to 2025 and 2027, as well as our sustainability initiatives.
- We concluded the session with a Q&A.



13.4 Business ethics

ASM's Code of Business Conduct (COBC) management system includes 18 underlying policies, including fair competition, gifts, entertainment and hospitality, corruption and improper advantages, and anti-fraud. The ASM COBC reflects the RBA Code of conduct standards framework. Reference is made to the policy regarding communications with shareholders as can be found on our website.

The ASM COBC comes with training for all employees in multiple languages. The training is set to effectively influence desired conduct rather than merely reinforce rules. At the same time, it further defines the consequences of such violations through our disciplinary policy. All training is supported by multiple resources. This includes a dedicated web page on ASM's intranet, reference material, and tools for specific areas, such as gifts and entertainment, the Whistleblower program, and SpeakUp! procedure, an anonymous way to voice concerns or violations of the COBC.

The COBC applies to our Supervisory Board, Management Board, Executive Committee, all employees, consultants, contractors, temporary employees, and critical and strategic suppliers.

Speaking up

The SpeakUp! program remains a vital platform for ASM employees as well as other stakeholders to report ethics issues and concerns confidentially and in their preferred language. In 2023, this program was further enhanced by an updated governance structure of our Ethics Committee, which now includes additional regional representation. This change ensures more effective follow-up to raised concerns, increased awareness of our Code of Business Conduct (COBC), and support in investigations as needed.

Reports of potential violations of our COBC can be made through the SpeakUp! process, directly to management, the People team, or the Global Compliance Officer. This year, we also improved our intranet pages, making it easier for our teams to access relevant policies and identify the members of the Ethics Committee.

In 2023, there were 14 concerns reported, an increase from 2022. This rise in reported cases signals a growing awareness and trust in the Ethics Committee among our employees. Of these reported cases, six were confirmed as violations of our COBC, with three cases still under investigation. Actions taken in response to confirmed violations included targeted training and, in some cases, dismissal. Our commitment to ethical conduct is underscored by our non-retaliation policy, which protects anyone utilizing this process in good faith from retaliation.

Category	Complaints raised
Accounting, auditing & financial reporting	1
Business integrity	3
Human resources (HR), diversity & workplace respect	9
Environment, health & safety (EHS)	0
Misuse or misappropriation of assets	1

Privacy

We have established our privacy policy and practices, which is in line with GDPR, and have formalized privacy-protection agreements with third parties where applicable. In our effort to protect the confidentiality of our employees' data, we conduct regular audits and act on any filed reports. The same applies to the privacy of our customers and suppliers.

13.5 Management Board and Executive Committee

Composition of the Management Board

Name	Position	Nationality	Year of birth	Initial appointment	Term expires
Benjamin Loh	CEO	Singaporean	1963	2020	2024
Paul Verhagen	CFO	Dutch	1966	2021	2025
Hichem M'Saad	CTO	US and Tunisian	1965	2022	2026

The Management Board's composition is as follows:



Benjamin Loh
CEO

Mr Loh was appointed as Chair of the Management Board and President and Chief Executive Officer on May 18, 2020, for a period of four years. On February 12, 2024, ASM announced that Mr Loh will retire and step down as per the AGM on May 13, 2024.

Mr Loh worked for Oerlikon Corporation from the late 1990s until 2005. He became senior vice president in 2002 and was responsible for Asia until 2005. He then joined Veeco Instruments Inc., an American thin-film process semiconductor equipment manufacturer, as senior vice president and general manager for Asia, before becoming executive vice president responsible for global field operations. In 2007, he moved to FEI company as senior executive, holding various positions responsible for sales and service, global business operations, and finally as chief operating officer. In 2015, Mr Loh joined VAT Vacuum Valves, based in Switzerland, as executive vice president and member of the Group Management Board, where he was responsible for and led worldwide sales and marketing until late 2017. Mr Loh is a non-executive director of ASMPT, and in the past also held positions as non-executive director in several companies (Schneeberger, Schweiter Technologies AG, and Liteq BV). He was also an advisory board member of Semi China. Mr Loh has a wealth of experience working in the electronics and

semiconductor industry, and vast experience as a leader. Mr Loh has a bachelor's degree in electronic engineering from the Tohoku University in Japan.

Mr Loh is a member to the SEMI International Board and a non-executive director of ASMPT Ltd ('ASMPT'). He is of Singaporean nationality, but has spent the last 30 years living mostly outside of Singapore – in Japan, Hong Kong, China, the UK, the Netherlands and the US.



Paul Verhagen
CFO

Mr Verhagen was appointed as member of the Management Board with effect from June 1, 2021 by the Annual General Meeting of May 17, 2021. Following this appointment, he was appointed as CFO from June 1, 2021 by the Supervisory Board.

Mr Verhagen has a proven track record and background in Dutch listed companies and the electronics industry. He made a career within Royal Philips – starting in the early 90s and until 2013, he fulfilled numerous executive positions in the Netherlands, the US, Hong Kong, and China. His last two assignments – from 2007 until 2013 – were as executive vice president and CFO of Philips Consumer Lifestyle, and executive vice president and CFO of Philips Lighting. In 2014, he became the CFO and member of the Management Board of the Dutch stock listed company Fugro N.V.

Mr Verhagen is a non-executive director of ASMPT, a member of the supervisory board (*raad van toezicht*) of Delft University of Technology and a member of the supervisory board of football club PSV. He is a Dutch national, holds a Master of Business Administration degree, and has a post-graduate degree as Chartered Controller.



Hichem M'saad
Chief Technology Officer

Mr M'Saad was appointed as a member of the Management Board and Chief Technology Officer as of May 16, 2022. As CTO, Mr M'Saad oversees ASM's technical product portfolio, platform group, and future technologies and innovation. On February 12, 2024, ASM announced that the Supervisory Board has decided to appoint Hichem M'Saad as ASM's new CEO and Chairman of the Management Board as per the AGM on May 13, 2024.

Mr M'Saad joined ASM in 2015 as the senior vice president and general manager of the Thermal Products business unit. From 2019, he held the role of executive vice president and general manager of Global Products, including responsibility for developing ASM's ALD, Epi, VF, and PECVD products. In addition, he has been instrumental in several of ASM's successful new innovative products, including the Intrepid ES, Synergis, Previm, and A400 DUO.

Before joining ASM, he had a 15-year tenure with Applied Materials. He started his career as a process development engineer working on various dielectric CVD applications. He rose to the level of corporate VP and general manager of the Dielectric Systems and Modules (DSM) and the Chemical Mechanical Polishing (CMP) divisions. He also served as CEO of a start-up in the solar photovoltaic industry for six years.

Mr M'Saad received a bachelor's degree in metallurgical engineering from the Colorado School of Mines, a master's degree in materials science & engineering from Cornell University, and a PhD in electronic materials science from the Massachusetts Institute of Technology. He has written 57 technical articles and holds nearly 200 granted patents. He is a US and Tunisian national.

Composition of the Executive Committee

The committee consists of the following members:

Name	Position	Nationality	Year of birth
Benjamin Loh	CEO	Singaporean	1963
Hichem M'Saad	CTO	US and Tunisian	1965
Paul Verhagen	CFO	Dutch	1966
Brian Birmingham	Senior Vice President Global Sales	US	1968
Kent Rossman	Senior Vice President Global Operations	US	1969
Edyta Jakubek	Senior Vice President Global People	Polish	1974

Mr Ralph Otte retired in June 2023 as Chief People Officer. In June 2023, the Management Board filled this vacancy by hiring Edyta Jakubek as Chief People Officer and Senior Vice President People in the Executive Committee.



Brian Birmingham
Senior Vice President Global Sales

Mr Birmingham serves as Senior Vice President Global Sales. He joined ASM in May 2021.

Brian has more than 26 years of experience in the semiconductor equipment industry. He has a strong track record working with customers' R&D teams to capture new applications and grow business across the American, Asian and European customer base. Prior to joining ASM, Brian spent 20 years with Lam Research & Novellus Systems (acquired by Lam in June 2012). His most recent assignment with Lam was as corporate VP and general manager responsible for the relationship with a major memory manufacturer in China. Previously, he held positions as VP global field development, and VP/GM of major semiconductor manufacturers in both memory and logic/foundry. Brian worked in both Japan and Taiwan as vice president business development.

He has a master's degree in systems engineering from the University of Southern California, and a bachelor's degree in general engineering/management studies from the United States Military Academy at West Point. He is a US national.



Kent Rossman

Senior Vice President Global Operations

Mr Rossman joined ASM in 2019, and served as the Corporate Vice President Global Spares & Services. He was appointed as an Executive Committee member of ASM International on February 1, 2022. As of February 1, 2023, he was promoted to Senior Vice President Global Operations.

Kent has more than 28 years of experience in the semiconductor equipment industry. Before joining ASM, he had a 26-year tenure with Applied Materials. He started his career as a process development engineer, working on various dielectric CVD film applications, and served in various capacities – from sales, to product management, to leading technology-development teams. Within Applied, Kent rose to the level of vice president in charge of business management for chemical mechanical polishing and packaging, plating, and cleans product families, business development for new markets and alliances, and head of sourcing for the Global Spares & Services group.

Kent has a bachelor's degree in chemical engineering from the University of Minnesota and holds 22 granted patents. He relocated from Silicon Valley, northern California, to Singapore in 2022. He is a US national.



Edyta Jakubek

Senior Vice President and Chief People Officer

Ms Jakubek serves as Senior Vice President and Chief People Officer. She joined ASM in 2023.

Edyta has more than 25 years of HR Leadership experience at various multinational listed companies. She is broadly recognized for her strategic capabilities and disciplined execution. Edyta has initiated and led with impact many HR and business-related transformation projects. She began her career at Royal Philips, where she held various senior HR positions, and finally, as global head of the Lamps and Electronics business. In 2017, she joined AkzoNobel and took the role of Global Head of HR of the Paints & Coatings Division. For the last 4.5 years, she worked for Heineken as HR Senior Vice President for region Europe.

Ms Jakubek holds a master's degree in law and sociology from the University of Gdansk. She also completed the Executive HR Program at Michigan University. Edyta is a Polish national.

13.6 Supervisory Board

The Supervisory Board consists of six members and its composition is as follows:

Composition

Name	Position	Nationality	Year of birth	Initial appointment	Term expires
Pauline F.M. van der Meer Mohr	Chair	Dutch	1960	2021	2025
Stefanie Kahle-Galonske	Member	German and Swiss	1969	2017	2025
Marc J.C. de Jong	Member	Dutch	1961	2018	2026
Didier R. Lamouche	Member	French	1959	2020	2024
Adalio T. Sanchez	Member	United States	1959	2021	2025
Monica de Virgiliis*	Member	Italian and French	1967	2020	2024

* Ms de Virgiliis has decided not to seek a second term as Supervisory Board member given her current and future commitments, as published in ASM's press release of February 16, 2023, available on www.asm.com.

On December 18, 2023, ASM published a press release in which it announced the nomination of Ms Tania Micki (1971), a Swiss and French national, for appointment to its Supervisory Board. Moreover, on February 27, 2024, ASM published a press release announcing the nomination of Mr Martin van den Brink (1957), a Dutch national, for appointment to its Supervisory Board. Both appointments will be submitted to the Annual General Meeting in May 2024.



Pauline F.M. van der Meer Mohr
Chair of the Supervisory Board

Ms Van der Meer Mohr was elected as a member to the Supervisory Board on September 29, 2021, for a period of four years and was appointed as Chair of the Supervisory Board as of May 16, 2022.

Ms Van der Meer Mohr is a seasoned non-executive director, and brings more than 35 years experience in leadership positions in multinational businesses and academia. She started her career as a lawyer in private practice, prior to joining the Royal Shell group

in 1989. In 2004, she joined TNT NV as group HR director. From 2006, she served as senior executive vice president and head of group HR for ABN AMRO Bank N.V. Ms van der Meer Mohr was appointed president of the executive board of Erasmus University Rotterdam in 2010. Until her retirement from her executive career in 2016, she was also a member of the Banking Code Monitoring Commission, and has served on several advisory and supervisory boards.

Ms Van der Meer Mohr currently serves as member of the supervisory boards of the Euronext-listed NN (deputy chair) and Ahold Delhaize. She is also currently a member of the Advisory Board of the Netherlands Environmental Planning Bureau PBL, the Capital Markets Committee of the Authority for Financial Markets (AFM) and the Advisory Board of the Roosevelt Foundation. Until December 31, 2022, she chaired the Supervisory Board of EY Netherlands LLP and chaired the Dutch Monitoring Committee Corporate Governance. Her past Board mandates include non-executive director of London-listed HSBC Holdings Plc, non-executive director of the Nasdaq-listed Viatrix Inc., member of the Supervisory Board of Dutch-based ASML Holding N.V. and deputy Chair of the Supervisory Board of DSM N.V.

Ms Van der Meer Mohr holds a master's degree in law from Erasmus University Rotterdam, as well as a master's degree in advanced dispute resolution from the University of Amsterdam. She is a Dutch national.



Stefanie Kahle-Galonske
Member of the Supervisory Board

Ms Kahle-Galonske was elected as a member of the Supervisory Board in May 2017 and reappointed for a period of four years on May 17, 2021.

Ms Kahle-Galonske has more than 25 years of experience in various senior executive finance roles in the technology industry. In these roles, she managed transformations, reorganizations and M&A, as well as start-ups and scale-ups. Since April 2016, Ms Kahle-Galonske is Group CFO of Egon Zehnder International AG in Zurich, Switzerland.

From March 2013 until March 2016, she was CFO of Markem-Imaje at Dover Corporation based in Geneva, Switzerland. Between January 2007 and February 2012, she held various senior executive positions at NXP Semiconductors in France and the Netherlands. She started her career at Philips Electronics.

Ms Kahle-Galonske currently serves as a non-executive member of the Supervisory Board at Smart Photonics B.V., the photonics semiconductor foundry based in Eindhoven, the Netherlands. In the past, Ms Kahle-Galonske served as non-executive board member of Micronas Semiconductors AG in Switzerland, and Nu-Tune Singapore.

Ms Kahle-Galonske graduated in economics from the Ruhr-University of Bochum, Germany, and has been a Certified Public Accountant (CPA) since 2002. Ms Kahle-Galonske is a German and Swiss national.



Marc J.C. de Jong
Member of the Supervisory Board

Mr De Jong was elected as a member of the Supervisory Board on May 28, 2018, for a period of four years and reappointed for a period of four years on May 16, 2022.

Mr De Jong was CEO of LM Wind Power A/S until April 2018. Prior to that, until 2009, he was a member of the Executive Management Team of NXP Semiconductors. After that, until 2013, he was responsible for professional lighting solutions at Philips Lighting. At the same time, he was a member of the Group Management Committee of Philips.

Mr De Jong is currently a member of the Supervisory Boards of Fugro N.V. (where he is also a member of the Audit Committee and Chair of its Technology Committee), a Dutch-listed company, Nissens A/S, based in Denmark, and FiberSail SA based in Portugal. He is also Chair of the Supervisory Board of and of the Nomination Committee, as well as member of the People & remuneration committee, of BDR Thermea Group B.V. He is also Chair of the Advisory Board of Sioux B.V., venture partner of Forward.One, member of the

advisory boards of SevenGen Investment Partners, Sentech B.V., Cryosol-World B.V. and strategy advisor to the board of BB Group – KUMA.

Mr De Jong holds a master's degree in physics and mathematics from the VU University of Amsterdam, the Netherlands, and a Master of Business Administration (MBA, executive program) from Erasmus University Rotterdam, the Netherlands, and Rochester, in the United States. Mr De Jong is a Dutch national.



Didier R. Lamouche
Member of the Supervisory Board

Mr Lamouche was elected as a member of the Supervisory Board on May 18, 2020, for a period of four years.

Until the end of 2018, Mr Lamouche was the President and CEO of IDEMIA (formerly Oberthur Technologies), the world leader in cyber security and digital identity technologies. He previously served as COO of ST Microelectronics (NYSE, Euronext, Milan) from 2010 to 2013 and President and CEO of ST-Ericsson until 2013. Prior to that, he was Chairman of the Board and CEO of the Euronext-listed Bull Group from 2005 to 2010. Before that, Mr Lamouche held several senior executive positions in the semiconductor industry, among which Vice President for IBM global S/C operations.

Mr Lamouche has held non-executive positions on the public boards of ACI Worldwide, Atari, Soitec and STMicroelectronics. He is currently non-executive director and Chair of the Board at Quadient, (Euronext), a non-executive director of the Board of Adecco since 2011 (SIX). Moreover, he is founder of DL T Consulting (French non-listed company), chairman of the Advisory Board of Utimaco (German non-listed company), director of Imagination Technologies Group Ltd. (UK non-listed company) and Associate Director of Granla (Belgian non-listed company).

Mr Lamouche graduated in 1981 from the Ecole Centrale de Lyon as an engineer, and has a PhD in semiconductor technology. Mr Lamouche is a French national, and Chevalier of Legion of Honor.



Adalio T. Sanchez

Member of the Supervisory Board

Mr Sanchez was elected as a member of the Supervisory Board on September 29, 2021, for a period of four years.

Mr Sanchez has more than 35 years' experience in the tech industry. He is a successful senior executive with strong operational acumen and a track record in growing complex global businesses. He was with the IBM Corporation from 1982 to 2014, where he held various senior executive officer and global general management roles. Most recently, he led two IBM divisions – the x86 systems unit and retail store solutions point-of-sale systems unit. Previous roles include vice president of corporate strategy, and head of IBM's microelectronics semiconductor division. He also led IBM's UNIX systems division. Following the divestment of the IBM x86 division to Lenovo Group Limited, Mr Sanchez moved to Lenovo and, from 2014 to 2015, served as senior vice president of Lenovo's Enterprise Systems Group.

Mr Sanchez currently serves as a non-executive member of the board of directors of the following Nasdaq- listed US-based companies: Avnet, Inc. a global semiconductor sales and distribution company; Snap One Holdings Corp., a smart home technology-solutions and distribution company; and ACI Worldwide, Inc., an electronic payments software company, where he is Chair. He is also a member of the board of Trustees of US-based MITRE Corporation, a non-profit organization for public good, and a member of the board of directors of Florida International University Foundation.

Mr Sanchez has a bachelor's degree in electrical engineering from the University of Miami, and a Master of Business Administration degree from the Florida International University. He is a member of the United States National Academy of Engineering and a US national.



Monica de Virgiliis

Member of the Supervisory Board

Ms de Virgiliis was elected as a member of the Supervisory Board on May 18, 2020, for a period of four years. Ms de Virgiliis will not seek to be re-elected for a second term as Supervisory Board member owing to her other commitments, as announced by ASM on February 16, 2023.

Ms de Virgiliis has more than 25 years' experience in the tech industry. She is a successful senior executive with proven transformation and growth track records. She was with STMicroelectronics from 2001 to 2015, and then with Infineon Technologies from 2015 to 2017, where she held various senior executive officer and global general-management roles. From 2017 to 2019, Ms de Virgiliis fulfilled the role of chief strategy officer at CEA, the French Atomic & Alternative Energy Commission.

She is an experienced non-executive director in the energy and technology spaces. Since April 2022, she has been serving as Chair of Snam, one of the leading European players in the energy infrastructure and services industry. Since February 2023, she has been serving as non-executive director at Air Liquide SA. and since April 2023 at George Fischer AG.

Deeply passionate about the energy transition and industry transformation in alignment with the Paris agreement, Ms de Virgiliis is the co-founder and the Chair of Chapter Zero France a non-profit association of directors – under the auspices of the World Economic Forum – as part of the global Climate Governance Initiative.

Ms de Virgiliis has a master's degree in electronic engineering summa cum laude from the University of Turin (Politecnico di Torino). She is an Italian and French national.

14. Supervisory Board report

Pauline van der Meer Mohr

Chair of the Supervisory Board

Message of the Chair

Dear stakeholder,

In 2023, ASM continued to thrive. We outperformed the market, led the industry in innovation and sustainability, grew the impact of our people and company culture, and strengthened our vision for the future. This was a remarkable achievement, as we were operating in an environment marked by a softened market, growing geopolitical unrest, and tougher export control restrictions. Even so, ASM managed to realize 9% growth based on sound financial and operational performance. In addition, our company consolidated its foundation for sustainable long-term results by taking important steps in contributing to its Net Zero by 2035 targets and investing in expansion for future growth.

Over the past few years, ASM saw tremendous growth in all aspects of the business, which was reflected in our increasing revenues and talent base. To build on this momentum, the Supervisory Board's focus in 2023 was on enhancing the organization and its culture to strengthen our outlook for continued growth in the medium to longer term. To achieve this, ASM has already made great strides, e.g. by improving the company's

business processes and governance, investing in future-focused technologies, embedding ESG and sustainability strategies across our operations, monitoring and improving the supply chain, and evolving our culture to maximally support our diverse talent. After all, the brilliant minds that drive ASM's development are key to our company's future success.

Investing to stay ahead of what's next

Throughout 2023, the Supervisory Board and Management Board regularly discussed ASM's future opportunities in terms of its customers, supply chain, market development, and talent growth and retention. In all these areas, the Supervisory Board was closely involved in the decision-making as ASM seized key opportunities to make itself fit for the future.

For example, ASM announced two major expansions in 2023: one in South Korea and one in Arizona in the United States. The location in Scottsdale, Arizona, will be ASM's new North American headquarters, building on our legacy of almost 50 years in the 'Silicon Desert'. It will be double the size of our current premises, with a clear focus on R&D, global



operations, staff well-being, and community outreach. In Hwaseong, South Korea, ASM will construct a new state-of-the-art innovation and manufacturing center. At these new cutting-edge facilities, ASM will be properly equipped to develop the technologies and products of the future – tools that will play a vital part in producing the chips that people around the world need for their everyday products and services.

In addition to developing our own facilities, ASM is also expanding into novel markets through key acquisitions – such as, in 2022, Reno Sub-Systems (a supplier of RF matching sub-systems for semiconductor manufacturing equipment) and LPE (a manufacturer of epitaxy reactors for silicon carbide and silicon). Throughout 2023, both companies were successfully embedded into ASM, from a business perspective and across other key indicators like people and culture, deep collaboration, knowledge and innovation, and branding. The Supervisory Board has continued to monitor the performance and integration of these additions to the ASM capabilities portfolio. Moreover, the Supervisory Board and Management Board continued to discuss the product markets that ASM is active in and the technologies it uses.

Geopolitical developments

The world is full of turmoil, with the wars between Russia and Ukraine and Israel and Hamas leading to uncertainty. For ASM, with a subsidiary in Israel, the safety and well-being of our employees there, as everywhere, is paramount. Moreover, the ever-stricter export control restrictions and tensions between different parts of the world have created new challenges for the semiconductor industry as a whole. For ASM specifically, these challenges include complications for our ability to export our products.

Supply chain

In a softened market, monitoring and improving the supply chain has become even more important. In the past, the focus could often be on increasing inventory to meet the great demand of ASM's products; in today's more volatile market however, there is an increased need for robust supply-chain resilience and a proper balance between an improvement of working capital and inventory. As some components remain scarce and have substantial

lead times, this has been a regular discussion topic within the Supervisory Board and with the Executive Committee. For more, see section 12.3.

ESG / sustainability

ASM aspires to be an industry leader in ESG (environmental, social and governance) performance and sustainability. Within the Audit Committee and Supervisory Board, we have often discussed the changes in the regulatory landscape around ESG and sustainability. This includes increased reporting rules and regulations, ESG and sustainability developments within the company, and ASM's updated materiality assessment (for more, see chapter 6).

ASM has devoted substantial resources on embedding these ambitions throughout our worldwide operations, and are proud and grateful that our hard work is now being recognized. For example, in the summer of 2023, ASM's Net Zero by 2035 targets were independently validated by SBTi, the Science Based Targets initiative, for Scopes 1, 2, and 3. For more, see section 11.1.

Sustainability is embedded in ASM's sustainable long-term value-creation strategy, from the facility expansions mentioned earlier to technical improvements that increase the efficiency of ASM's tools. This focus on product-based sustainability innovation is driven by the fact that the majority of ASM's greenhouse gas (GHG) emissions falls under Scope 3: Use of sold products. The Supervisory Board closely monitors the company's investments in R&D and applauds these innovations as ASM's ability to reduce its Scope 3 footprint will be highly dependent on its customers and upstream value chain.

Best people and culture

ASM's people, culture, and diversity – as well as the company's ability to let current and future talents flourish – remained a key priority for the company and for the Supervisory Board in 2023. A relevant factor in this respect is the updated Dutch Corporate Governance Code, which came into force in 2023 and which underlines the importance of having a supportive culture where everyone feels safe and valued.

Building on its rapid growth in recent years, ASM further grew its headcount in 2023 – but also increased its focus on developing and retaining its existing talent. This requires a broad, holistic approach, which is why the Supervisory Board monitored and focused on a variety of topics, including the Pulse Survey (see section 10.1), succession planning, and how to support talent. We also approved ASM's revised gender diversity targets for the coming years, with increased targets for female senior positions and for female employees as part of the entire personnel base.

On a personal note, all Supervisory Board members had opportunities in 2023 to meet with a range of ASM employees in different markets and disciplines. We appreciate their openness and honesty, which helped us gain valuable insights and understand the importance of their contributions and of the company's evolving culture. It also made us especially proud to see that ASM's culture received two important human resources recognitions by HR Asia in November 2023, with the company winning the year's Best Companies to Work for in Asia Award and Most Caring Company Award.

Composition

Unfortunately, Monica de Virgiliis will not seek to be reelected for a second term as Supervisory Board member, owing to her other commitments. We will be sad to see her go next year and thank her for her many contributions. At the same time, we are pleased we have nominated Tania Micki and Martin van den Brink for appointment as member of the Supervisory Board to the Annual General Meeting in May 2024.

CEO succession

In February we announced that Benjamin Loh will retire as per the AGM on May 13, 2024. On behalf of the Supervisory Board I would like to extend our gratitude and appreciation for what ASM has achieved under his leadership: the market capitalization tripled, revenue more than doubled, he has led the strengthening of ASM's strategy, culture and organization, and ASM took important steps in accelerating sustainability. The Supervisory Board is pleased to appoint Hichem M'Saad, whom we got to know well as Chief Technology Officer over the past two years, as his successor. Hichem has demonstrated strong leadership skills, he has been instrumental in expanding engagements with key customers, and he has been a driving force behind many of ASM's successful products and innovations.

Conclusion

Also on behalf of the Supervisory Board, I would like to conclude by emphasizing my appreciation of the Management Board, Executive Committee, and the rest of the global team at ASM. It was again a successful year. With the ongoing investments in people, culture, and innovation, we are confident that ASM is poised to stay ahead of what's next.

March 1, 2024

Pauline van der Meer Mohr
Chair of the Supervisory Board

Supervisory Board report

Supervision of the Management Board (and Executive Committee), its policy decisions and actions are entrusted to the Supervisory Board. In accordance with Dutch law, the Supervisory Board is a separate body, independent of the Management Board.



ASM's Supervisory Board in Scottsdale, Arizona

In 2023, the Supervisory Board performed its duties in accordance with applicable legislation and the Articles of Association of ASM International N.V. and supervised, advised, and constructively challenged the Management Board and Executive Committee on an ongoing basis with respect to – among others – the management tasks, prioritization of activities, direction of the business, financial and non-financial results, ESG and sustainability matters.

This report is prepared to provide further information on how the Supervisory Board performed its tasks throughout the year, and to present the Annual Report 2023.

Meetings of the Supervisory Board

In 2023, the Supervisory Board met on eight occasions, with meetings ranging from shorter, virtual, to multi-session programs spread over several days. The Supervisory

Board members attended almost every meeting. This reflects the level of commitment and engagement from members, who spent significant time, attention, and effort in overseeing ASM's interests. See the overview below for an outline of attendance. Attendance is defined as the number of meetings attended out of the number of meetings eligible to be attended. Where a member participated for the main part but not the entire meeting, this has counted as present.

	Supervisory Board (with management)	Supervisory Board (Board-only)	Audit Committee	NSR Committee
Pauline van der Meer Mohr	8/8	8/8	N/A *	4/4
Adalio Sanchez	8/8	8/8	4/4	4/4
Stefanie Kahle-Galonske	8/8	8/8	4/4	N/A
Didier Lamouche	7/8	8/8	N/A *	4/4
Monica de Virgiliis	8/8	7/8	4/4	N/A
Marc de Jong	8/8	8/8	4/4	N/A

* While Ms van der Meer Mohr and Mr Lamouche are not members of the Audit Committee, they did attend parts of meetings where topics of particular relevance were discussed, such as ESG matters.

Members of the Management Board generally joined the regular Supervisory Board meetings. Prior to and on occasion following the regular Supervisory Board meetings, the Supervisory Board had meetings among themselves. The Supervisory Board-only meetings allow members to discuss and reflect on specific items of interest and importance without the involvement of the Management Board, such as succession of the Supervisory Board. Outside of the collective and organized meetings, there was regular interaction between the Chairs of the committees and the Chair of the Supervisory Board to ensure the proper distribution of information, as well as between the Chair of the Supervisory Board and the CEO, and the Chair of the Audit Committee and the CFO.

Members of the Executive Committee also attended some regular Supervisory Board meetings, where agenda items concerned the Executive Committee. The same applies to meetings of the Audit Committee (attended by the CFO, CEO and most often also the CTO), and the Nomination, Selection and Remuneration Committee (for the main part attended by Mr Loh and Mr Otte, and after his retirement, Ms Jakubek, his successor). During the July meeting and the strategy meeting in December, the entire Executive Committee joined the Supervisory Board meeting. The Executive Committee's participation

enables the Supervisory Board to have direct contact with these members, and allows for better supervision by the Supervisory Board. The relationship between the Supervisory Board and the Executive Committee has been codified in the Rules of the Supervisory Board.

In December 2023, the Supervisory Board travelled to Arizona, where it was able to meet senior staff members, as well as senior and younger talents. Besides interacting with employees, the Supervisory Board got the opportunity to attend the landmark event to celebrate the construction of the new ASM US headquarters in Arizona.

During the meetings, the Supervisory Board had discussions with the Management Board on a wide range of topics, and on occasion with members of the Executive Committee. These related to, among others, and not listed in order of importance:

- a. Changes in corporate governance, including an overhaul of various corporate governance documents of the company and adopting new ones. These include the Rules of the Supervisory Board, the Rules of the Management Board, the Audit Committee Charter, the Nomination, Selection and Remuneration Charter, and the Stakeholder dialogue policy.
- b. Succession planning of the Supervisory Board and its committees.
- c. Succession planning of the Management Board and the Executive Committee, including succession of the CEO.
- d. The rebranding of ASM.
- e. The execution of ASM's sustainable long-term value-creation strategy, including investments.
- f. The annual budget (including deviations therefrom), the quarterly financial results review and performance by the company, and the preparation of the quarterly earnings press releases.
- g. The performance of the company and its underlying businesses from a business and operational perspective.
- h. Oversight of the risk management and internal controls and the business processes at large.

- i. The increasing focus on ESG matters. With respect to sustainability, the materiality assessment was discussed, as well as measurements and initiatives to reduce ASM's Scope 1, Scope 2 and Scope 3 emissions.
- j. Company culture, where the Supervisory Board supported and challenged the Executive Committee's efforts to enhance it.
- k. The 'People' strategy, succession planning of senior management, talent reviews and retention, results of the engagement survey, diversity and inclusion.
- l. Geopolitical environment and the impact of the US export-control regulations,
- m. The execution and organization of the global operations and supply chain, supply-chain constraints and an improvement strategy of the supply chain.
- n. Cybersecurity and the cyber resilience of the organization was discussed and, given the importance of this topic, this was made the responsibility of the full Supervisory Board rather than the Audit Committee.
- o. A number of specific procedural and financial matters were discussed, including but not limited to the organization of the Annual General Meeting, dividend distribution and a share buyback program.
- p. The regular updates around developments, opportunities, and risks related to key customers and market trends.
- q. Regular reviews and monitoring of (potential) acquisitions, divestments and partnerships, as well as monitoring the integration and success of the acquisitions in 2022 of Reno Sub-Systems and LPE.
- a. The remuneration of the Management Board; the evaluation of the Management Board based on the achievement of specific targets approved by the Supervisory Board and the proposal to the Annual General Meeting of a new Remuneration Policy of the Management Board.
- b. Product and market developments, management and financial structure, and financial and non-financial performance.

Strategy

In the July Supervisory Board meeting, the Management Board and rest of the Executive Committee gave the Supervisory Board an extensive update of the performance of ASM, the strategy in terms of footprint, market trends and supply chain, ahead of the December meeting. Every year, the last Supervisory Board meeting of the year is tasked with discussing with the Management Board and rest of the Executive Committee ASM's strategy, sustainable long-term value creation, and the planned implementation and risks attached with realizing it. This meeting lasted a full day. In this year's strategy meeting, discussions included inter alia:

- The semiconductor and semiconductor equipment market and outlook
- The development of ASM's market share in the different segments it serves
- The development of the competitive environment
- The new technology and market trends for the coming years
- The progress with ASM's strategic priorities
- Investments
- ASM's long-term revenue and profit or loss forecasts
- The strategy for people
- Strategic initiatives to improve the company's sustainable long-term value-creation strategy

The execution of the sustainable long-term strategy of Growth through Innovation means that apart from the profitability and growth goals, the Supervisory Board also monitors results vis-à-vis the sustainability targets. The continued focus on and importance of sustainability resulted in regular discussions with the Management Board and other senior executives around this topic as part of the ESG topics.

For Scope 1 and 2 emissions, these are being addressed by ASM's target to reach 100% use of electricity from renewable sources by 2024, and further GHG emissions-reduction efforts within our company boundary. Addressing Scope 3 emissions is considerably more challenging, and requires collaboration in the value chain. This has been discussed on several occasions with the Management Board and specialists. An important way this is currently addressed is by designing products to be more energy efficient, and we strive to accelerate industry value-chain progress through, inter alia, the Semiconductor Climate

Consortium, of which ASM is a founding member, and which targets to provide methods and standards for addressing Scope 3 collaboratively across the semiconductor industry value chain. The SBTi verified ASM's measurements and targets for all scopes in the summer of 2023.

With respect to the execution of the strategy, both boards also discussed M&A possibilities and other investment opportunities regularly throughout the year, as well as the integration of Reno Sub-Systems. and LPE. in ASM. The Supervisory Board reviewed and challenged the opportunities from a technology, financial, strategic, economic, commercial, and competitive point of view.

Corporate governance

Also in view of the Code, ASM's strategic objectives and increased focus on ESG, most of ASM's corporate governance documents were updated. Moreover, both Boards, as well as the board of the Stichting Continuïteit, attended training on a potential crisis scenario as part of its annual education.

Risk management

One of the Supervisory Board's responsibilities is to oversee risk management. It gave attention to the risk landscape, any developments, and the risk appetite. The Supervisory Board also discussed developments in the Netherlands in respect of an in-control statement.

For more on those risks and uncertainties currently most relevant to our company, see section 13.2. For 2023, particular areas of attention the Supervisory Board focused on in its meetings are highlighted.

The first is employee retention, also in view of the 'war on talent'. Talent development, succession planning and culture was a regular agenda item. ASM aspires to become and remain the employer of choice, so the Supervisory Board discussed succession and talent-retention activities, improvements in diversity and inclusion, how the engagement survey results were followed up on, and the leadership program.

The second is cyber and IP security and resilience and automated business controls to improve these. ASM is upgrading its internal IT system, which was discussed with the Supervisory Board. The Supervisory Board recommended measures to reinforce security within ASM, highlighting its importance due to the sensitive sector ASM operates in.

The geopolitical tension between the US and China is also highlighted. In an effort to reduce the technology access of Chinese chip manufacturers and prevent them from being able to develop and manufacture their own high-end chips, the US has issued numerous regulations in recent years, and introduced further ones in October 2023. The Netherlands and Japan also issued new regulations in June 2023. The impact of these regulations is regularly discussed with the Management Board, including the extent to which ASM is impacted by these regulations, as well as the sector as a whole.

Lastly, the Supervisory Board also discussed supply-chain risks. In recent years, ASM has faced supply-chain constraints. For some parts and components, these have remained a challenge. For others this is no longer relevant and it is important to reduce inventory and improve working capital. The improvement strategy was discussed and monitored.

Diversity, equity, and inclusion

The Supervisory Board recognizes the value of diversity among the members of the Supervisory Board and the Management Board, but also the importance of diversity and inclusion in the organization. We are pleased that Ms Jakubek, the first female member, was appointed to the Executive Committee in 2023. The Supervisory Board and Management Board discussed the company's performance in terms of diversity and inclusion after a deep dive by management. This has led to the replacement of the existing Diversity policy for the Supervisory Board and Management Board by a Diversity, Equity & Inclusion Policy for the whole of ASM. This includes increased gender-diversity targets for senior management, other diversity targets, and inclusion measures.

For more, see sections 10.1 and 13.1.

Expertise

The Supervisory Board's profile describes the range of expertise that should be represented within the Supervisory Board. For an overview of the skills and expertise of the individual members, see the chart below.

Supervisory Board skills and expertise matrix

	Pauline van der Meer Mohr	Adalio Sanchez	Stefanie Kahle-Galonske	Didier Lamouche	Monica de Virgiliis	Marc de Jong
General						
General business and strategic policy	●	●	●	●	●	●
International (executive) experience	●	●	●	●	●	●
Finance, financial reporting, and accountability		●	●	●		●
Sustainability	●				●	●
Climate change	●				●	●
HR and remuneration	●	●		●	●	
Cyber and IT		●	●	●	●	●
Legal affairs	●					
Risk management	●	●	●		●	●
Industry specific						
Micro-electronics market and system	●	●	●	●	●	●
Semiconductor technology and products		●		●	●	●
International semiconductor markets	●	●	●	●	●	●

Supervisory Board Committees

Audit Committee

The Audit Committee's role is described in its Charter, available on the company's [website](#). The Audit Committee consists of four members: Stefanie Kahle-Galonske (Chair), Marc de Jong, Monica de Virgiliis, and Adalio Sanchez. The Audit Committee assists the Supervisory Board in fulfilling its supervisory responsibilities to oversee ASM's financing, financial statements, financial-reporting process, non-financial reporting, system of internal business controls, internal audit, and risk management.

The Audit Committee met four times in person in 2023, and always before the publication of the quarterly, half-year, and annual financial results. In addition to the Audit Committee members, the CEO, CFO, the Group Controller, head of Internal Audit, and the external Auditors are invited to the meeting. The Audit Committee also met separately with the external auditors in 2023. Moreover, the two other members of the Supervisory Board occasionally also attended Audit Committee meetings or parts thereof in case a topic of specific relevance was discussed.

The following lists the main topics discussed by the Audit Committee in 2023:

- a. The company's financial reporting, including the application of accounting principles
- b. The company's financial position and financing programs, and tax structure
- c. The company's internal risk-management systems and market developments regarding disclosure thereof
- d. The effectiveness of internal controls, including in terms of IT
- e. The internal audits performed and its findings
- f. The Annual Report and financial statements, and the budget and quarterly progress reports prepared by the Management Board
- g. The licensing and IP strategy
- h. The company's investment in an upgrade of the IT system to, inter alia, harmonize business processes
- i. Revision of the internal audit charter and revision of the Audit Committee charter
- j. The rotation of the external auditor
- k. Developments in the legal and regulatory landscape, including in terms of ESG and sustainability (such as the CSRD) and risk
- l. The company's non-financial and sustainability reporting

In addition, the following matters were discussed:

Each quarter, the CFO provides the Audit Committee with a detailed look into ASM's key financial performance. ASM's operational and financial short-term and long-term performance were extensively addressed in each quarter's discussion. In 2023, topics of particular interests included customer demand, developments in supply-chain constraints, obsolete inventory, working capital, and investments for the future. Accounting matters and the ASMPT investment were discussed in depth. The interim and annual reports were reviewed and discussed prior the publication.

In the first half of 2023, the Audit Committee was regularly updated on cybersecurity and digitization, but with the overhaul of the corporate governance documents and because of its great importance, this became a full Supervisory Board matter in July. Furthermore, the committee was regularly updated on non-financial reporting matters relating to ESG and the EU taxonomy. This includes ASM's investments to become ready for the non-financial reporting required under the Corporate Sustainability Reporting Directive (CSRD).

In addition, the Audit Committee reviewed the capital allocation model. This included a discussion on the amount of the dividend payment per share and the feasibility of share buyback programs. In addition, ASM's tax policy was discussed, as well as regulatory tax developments, such as the global minimum top-up tax as a part of the OECD's Pillar 2.

The Audit Committee reviewed ASM's enterprise risk-management framework, focusing on top key risks identified by management and the external auditors. The effectiveness and results of the internal control assessments were reviewed each quarter. Additionally, observations made by the internal auditor and the external auditor on the design and effectiveness of internal controls were discussed with the Audit Committee, and the committee discussed and monitored follow-up actions.

The Audit Committee reviewed on a quarterly basis an update of the progress of the internal audit plan approved by the Supervisory Board, audit scope, detailed outcomes of each audit, and remediation status of the follow-up action plans. The internal audit plan was continuously reviewed. Where appropriate, amendments were made to give priority to

certain matters. Also, the Audit Committee monitored capacity of the internal audit department and approved a new internal audit charter.

The Audit Committee reviewed and approved the 2023 external audit plan, key audit matters, audit scope (including additional assignments or projects with the external auditor), audit teams, materiality levels, and fees. The Audit Committee also reviewed and approved any non-audit services provided by the external auditor, in accordance with ASM's policies on audit and non-audit services provided by the external auditor. Each quarter, the Audit Committee received a quarterly update from the external auditor on the progress of the external audit activities. Moreover, the Audit Committee discussed non-financial reporting and the external auditor's role therein with the external auditor.

The Audit Committee evaluated the performance, qualifications, and independence of the external auditor in 2023. Based on the results of the evaluation, the Audit Committee reached an independent decision to recommend that the Supervisory Board submit to the 2023 Annual General Meeting a proposal to appoint KPMG as the external auditor for the reporting year 2023 and the reporting year 2024. Given the mandatory rotation, 2024 is the last year KPMG could be appointed as auditor. The Audit Committee and management worked on the selection of a new auditor, which it will propose to the Annual General Meeting in 2024 for the reporting year 2025.

The committee reviewed the ethics report, which contains the meetings of the Ethics Committee in 2023, all incidents reported, results of the compliance training, update on the gifts and entertainment policy, areas of continuous improvement, and the 2023 responsible business-conduct dashboard. As with cybersecurity and resilience, further to the revised Rules of the Supervisory Board, this topic will be a matter for the full Supervisory Board going forward.

In addition, during the year, the Audit Committee reviewed fraud risk assessments and litigation claims.

Nomination, Selection and Remuneration (NSR) Committee

The role of the NSR Committee is described in its Charter, available on the company's [website](#). In general, the NSR Committee advises the Supervisory Board on matters relating to the selection and nomination for the appointment or reappointment of new or existing individual Management Board and Supervisory Board members. It includes the respective remuneration policies and Remuneration report, and the remuneration levels of the individual members of the Management Board and Supervisory Board.

The NSR Committee is chaired by Didier Lamouche. The other members are Pauline van der Meer Mohr and Adalio Sanchez. In addition to the NSR Committee members, the NSR Committee invites the CEO, and the Senior Vice President Global People to attend (parts of) its meetings.

In 2023, the NSR Committee met six times in person (additional conference calls were held on an ad hoc basis), with all NSR Committee members attending each of these meetings.

Topics discussed by the NSR in 2023 are based on the NSR's regular calendar (recurring topics) or are related to specific matters:

- Management Board remuneration outcome over previous performance year and planned actions for the new performance year 2024
- Long-term incentive dilution
- New Remuneration Policy Management Board (in preparation of the Annual General Meeting, May 2023)
- Remuneration report 2022, final editing
- Management Board evaluation and performance reviews
- Management Board short-term incentive targets 2023 and outlook
- With the assistance of an external expert, evaluation of the Supervisory Board, Management Board and Executive Committee, as well as the relationship between the three bodies
- Remuneration levels Executive Committee
- Monitoring of progress of results compared to short-term incentive targets
- Training program Supervisory Board
- Management Board shareholding requirements status overview

- Pulse Survey results 2023
- Succession planning and talent reviews, including composition of the Management Board and Executive Committee
- Succession planning Supervisory Board with the assistance of an external, renowned, search firm
- Benchmark Management Board remuneration
- New policy LTI
- Assistance in selecting new Senior Vice President Global People, member of the Executive Committee
- CEO succession
- Remuneration report 2023 (in preparation of the Annual Report 2023)

After a benchmark with peers, the decision was taken to adopt a new Remuneration Policy for the Management Board, and to propose this policy to the Annual General Meeting on May 15, 2023. Key differences proposed to the Annual General Meeting, which were approved and adopted after voting included:

- A new remuneration policy
- A revised peer group
- Updated incentive levels under the Short-Term Incentive ('STI') Plan, differentiated between the CEO and other Management Board members
- The introduction of a pre-defined list of performance criteria for the Short-Term incentive plan
- The introduction of a relative Total Shareholder Return ('TSR') modifier to the Long-Term Incentive ('LTI') Plan
- Updated incentive levels under the LTI Plan

Performance evaluation

Every year the Supervisory Board reviews and discusses the functioning of the Supervisory Board, its committees, and its individual members through an internal assessment, as conducted by the members of the Supervisory Board. The composition, competencies and functioning of the Supervisory Board, as also described in the Supervisory Board Profile (see above under Supervisory Board and its committees), are part of the assessment. Once the answers to the self-assessment forms are received by

the Chair of the NSR Committee, he will review these, and facilitate a meeting with the entire Supervisory Board. Outcomes – and particularly deviating answers – are discussed at this meeting. In addition, the functioning of the Supervisory Board and its committees, the Management Board and the Executive Committee, as well as the relationships between the bodies were evaluated with the assistance of an external expert.

The conclusion of the assessment was that the Supervisory Board, the Management Board, the Executive Committee and their individual members function properly and effectively, and that the cooperation between the Supervisory Board and Management Board and Executive Board is functioning well. The outcome of this evaluation was discussed within the Supervisory Board, including board dynamics and lessons learned, which included:

- The need for additional Supervisory Board meetings without an agenda so members can spend more time together to discuss current affairs.
- The offer of an accredited ESG course to Supervisory Board and Executive Committee members.
- A scenario workshop for the Supervisory Board, Management Board and board members of the Stichting to enhance internal cooperation and discuss roles of the various corporate bodies in a crisis situation.

The Supervisory Board also annually assesses the composition and performance of the Management Board and their individual members. This is done in two ways:

- Through a self-assessment form. Based on the answers, the Chair of the NSR Committee will facilitate a meeting with the entire Supervisory Board around the evaluation of the Management Board.
- During the preparation of the performance appraisals of the Management Board when the NSR Committee assesses the Management Board members. Moreover, the performance of the Management Board is also assessed when determining the if and to what extent the Management Board achieved its annual targets.

Corporate governance

The Supervisory Board is responsible for overseeing the company's compliance with corporate governance standards and best practices. The Supervisory Board is of the

opinion that the company complies with the Dutch Corporate Governance Code, subject to the deviations set out in Chapter 30.

Shareholders

The Annual General Meeting was held on May 15, 2023. This year, the meeting was organized as a physical meeting only, as the temporary Dutch act enabling hybrid meetings expired. Shareholders were invited to attend in person, and were also offered the option of following the meeting virtually via a live webcast (view and hear only). Voting was possible by proxy before the meeting, as well as during the meeting. Shareholders were also given the option to pose questions prior to and during the Annual General Meeting.

During the meeting, the new Remuneration Policy of the Management Board was approved. The regular dividend proposal of €2.50 per share was also approved.

In February 2022, ASM announced the authorization of a new share buyback program of up to €100 million. The program started on April 27, 2023, and was completed on September 19, 2023. In total, we repurchased 264,503 shares at an average price of €378.07, under the 2023 program.

Induction, education, and training

ASM has a comprehensive induction program for newly appointed members of the Supervisory Board, designed to present a good view of the company. This includes the group's strategy, technical developments, commercial status and outlook, financial position and outlook, and relevant legal aspects and risks. The program includes meetings with other Supervisory Board members, Management Board members, Executive Committee members, KPU, and other leaders in the company. In 2023, no new Supervisory Board member was appointed.

In 2023, as is the case every year, the Supervisory Board discussed their education and training needs. The result was that a crisis situation simulation was prepared and given by outside experts to the Supervisor Board, Management Board, and the board of Stichting Continuïteit ASM International. In addition, an accredited ESG training program was offered

to every Supervisory Board member. Moreover, the Supervisory Board performed a site visit in December 2023 to Arizona in the US, as mentioned above.

Independence

The Supervisory Board has determined that its current members are all independent, as defined by the Dutch Corporate Governance Code. Neither the Chair nor any other member of the Supervisory Board is a former member of ASM's Management Board or has another relationship with ASM which can be judged 'not independent' of ASM.

Furthermore, the Supervisory Board reviews and discusses all of its members' other executive and non-executive positions on an annual basis. It approves any intended outside positions, to safeguard – among others – the level of engagement, conflicts of interest, compliance with laws, and the Corporate Governance Code.

Financial statements

We present the ASM 2023 Annual Report in accordance with IFRS, as prepared by the Management Board and reviewed by the Supervisory Board. ASM's independent and external auditors, KPMG Accountants N.V., have audited these financial statements and issued an unqualified opinion. Their report appears in section 27. All of the members of the Supervisory Board have signed the financial statements in respect of the financial year 2023.

Supervisory Board

Pauline van der Meer Mohr - Chair

Marc de Jong

Stefanie Kahle-Galonske

Didier Lamouche

Adalio Sanchez

Monica de Virgiliis

Almere, the Netherlands

March 1, 2024

15. Remuneration report

Didier Lamouche

Chair of the Nomination, Selection and Remuneration (NSR) Committee

Message of the Chair

Dear shareholders,

On behalf of the NSR Committee, I am pleased to present the 2023 Remuneration report, which provides a summary of the remuneration policies for the Management Board and the Supervisory Board, as well as an explanation how these policies were applied in 2023.

New Management Board Remuneration Policy in 2023

In 2023, ASM achieved impressive progress on all fronts once again: market position, penetration of our new technologies, growth and long-term value creation. In this context, the ability to attract and retain top talent continues to be paramount. This even applies in the context of slowing industry momentum in 2023, as the best talent – including R&D and management skills, which are the shapers of our future – remains scarce. This is why in early 2023, the NSR felt it necessary to benchmark and extensively review ASM's Remuneration Policy. This analysis was conducted with the support of an external, independent and acknowledged executive-remuneration consulting firm. The focus was to match ASM's changing scale, global profile, and US market-dependency in terms of innovation and talent pool, to guarantee the competitiveness of our Management Board compensation, and consequently maintain ASM's ability to attract and retain the best skills and individuals.

The review was comprehensive in the sense that it encompassed views of the Management Board itself, but also considered internal equity and, more broadly, our European and Dutch societal roots, in addition to the global nature of our business. After extensive exchanges with some of our shareholders and proxy agencies during the first quarter of 2023, this review led to a new Remuneration Policy. It was subsequently adopted by the Supervisory Board and adopted at our May 15, 2023, Annual General

Meeting (95.29%). We thank all our shareholders for their support in this matter. The final changes are outlined in the Remuneration Policy changes section below.

Engagement

The benchmark analysis, together with ASM's sustained performance over the past few years, led us to substantially upgrade the remuneration levels of our CEO and CFO, driven by the principle to foster pay-for-performance. In turn, the 'at-risk' proportion of the remuneration increased from 73% to 76% for the CEO and 67% to 74% for the CFO. The remuneration of the CTO was judged to be globally competitive at the time and the variable pay component remained at 84%.

The new policy should be fit for future purpose. In particular, we introduced the notion of 'regional approach' as far as LTI is concerned, recognizing the need to take into account US practices whenever necessary, while retaining European benchmarks in general. The frame that was adopted also allows some flexibility in our policy, enabling us to respond swiftly to potential market movements and gradually adjust – as requested by some of our shareholders – remuneration levels as a response to evolving market practices.

Our engagement interactions confirmed that, generally speaking, shareholders supported the proposed Remuneration Policy changes and the underlying rationale. This was certainly the case for the newly introduced relative Total Shareholder Return (TSR) measure, which was explicitly requested by many shareholders. More specifically, the proposed TSR peer group was supported by shareholders because it took into consideration industry and market capitalization, and also the relative TSR modifier was well received. Also, the adjusted Management Board remuneration peer group was

supported (since it does represent ASM's structurally increased revenue, size and number of employees).

Transparency

We were also happy with the positive feedback regarding the regular interaction that we institutionalized regarding the Remuneration Policy and practices. During these engagement sessions, while expressing a high level of support for our actions and remuneration report, some shareholders also expressed the need for increased transparency with regard to the disclosure of targets, especially with regard to non-financial STI performance indicators. As mentioned below (for more, see under Remuneration report), we took further action to move towards enhanced transparency (e.g. details with regard to target and stretch levels for non-financial targets), while keeping in mind at all times the fundamental interests of the company regarding confidentiality and competitive sensitivity.

Remuneration report 2023

The Remuneration report for the financial year 2022 was submitted to the 2023 Annual General Meeting for an advisory vote, with 94.99% of the votes casting in favor.

Steps have already been taken over the past couple of years to increase the disclosure level of targets and their linkage to pay, as long as they are not related to business-sensitive (commercial and/or strategic) information. The STI and LTI performance indicators for 2023 were disclosed (description and weight) in the Remuneration Policy and/or the Clarifying Note as far as possible. The achievement per target is explained in this 2023 Remuneration report (with the exclusion of some strategically or competitively sensitive financial targets).

It is also to be noted that in the spirit of enhancing transparency on remuneration elements, further steps had already been made in the 2022 Remuneration report to disclose specific details on the STI non-financial targets and the achievement level of each target. Moving forward, more transparency will be provided ex-ante where feasible, as well as ex-post in the annual Remuneration report. More specifically the STI non-financial measures and targets given to the Management Board for 2024 will be disclosed as part of the forthcoming 2024 Annual General Meeting process.

Outlook

The NSR Committee and Supervisory Board will obviously continue to monitor trends in the labor market and business environment. Our main focus continues to be to provide fair and competitive remuneration, with the right balance between fixed and variable pay, and focus on appropriate pay for high business performance – all in the interest of the company and our shareholders, as well as our broader stakeholders.

We also plan to continue our efforts to engage with our stakeholders on an ongoing basis to make sure that we capture any insights, potential concerns, and valuable market practices that might require us to reconsider some elements in our policy and practices. Over the past few years, ASM has become a very strong company, well-installed in the mid-pack of the AEX-index. As such, the Supervisory Board needs to maintain its focus on ensuring competitiveness of our governance policies, to attract and retain the best skills and competencies to ensure continued success. In particular, our focus on market-aligned remuneration for both Management Board but also the Supervisory Board will continue to be a point of attention. In that regard, recent benchmarking of our Supervisory Board fees showed a clear gap with market practice. Therefore, a proposal will be submitted to the Annual General Meeting 2024 to adjust the fees in line with the benchmarking outcome.

As already mentioned in the message of the Chair of the Supervisory Board, 2024 will be a year of CEO succession. From a remuneration point of view we would like to mention that terms and conditions applicable to respectively the new CEO and the exiting CEO are in line with the Management Board Remuneration Policy. More details will be disclosed as part of the forthcoming Annual General Meeting process.

I'd like to thank my colleagues in the NSR Committee for the intensive and fruitful discussions in the past year, and their support in making sure our remuneration practices remain in line with our stakeholders' expectations, and instrumental to the company's continued success.

Didier Lamouche
Chair of the NSR Committee

15.1 Management Board Remuneration Policy changes

The current Remuneration Policy was adopted by the General Meeting on May 15, 2023, and took effect from 1 January, 2023.

It is intended that the Remuneration Policy for the Management Board will be applicable for four years onwards. Future potential material changes to the Remuneration Policy for the Management Board will be presented beforehand to the General Meeting for adoption.

The main changes in the newly approved policy compared to the previous Remuneration Policy include the following:

1. Adjustments to the Management Board remuneration peer group to reduce the portion of US companies (from 43% to 33%) and to realign on average ASM's position with the key factors of this peer group (such as revenue, number of employees, and footprint) based on the new characteristics of ASM.
2. Updated incentive levels under the Short-term Incentive Plan, differentiated between the CEO and other Management Board members aiming to align with the market median benchmark as measured against the refreshed peer group.
3. The introduction of a predefined basket of performance criteria to select from for the Short-term Incentive Plan, balancing flexibility for the Supervisory Board and transparency for stakeholders. For 2023, this has been disclosed in the Clarifying Note that is posted on the Company [website](#).
4. The introduction of a relative Total Shareholder Return (rTSR) modifier to the Long-term Incentive Plan, to increase alignment between the interests of the shareholders and the members of the Management Board.
5. Updated incentive levels under the Long-term Incentive Plan, following a differentiated approach to grant levels linked to the geographical location of the Management Board members (reflecting market differences between Europe and rest of the world, and the United States).

The overview below provides more details on the above-mentioned five main changes:

Item	Previous Remuneration Policy (2022)	Newly approved Remuneration Policy (2023 - onwards)	Comment								
<p>1 Adjustments to the Management Board remuneration peer group</p>	<p>The remuneration peer group under the previous Remuneration Policy consisted of 21 companies, of which many US companies.</p>	<p>Under the new Remuneration Policy, the remuneration peer group consists of 17 companies (of which 11 are retained from the prior peer group). The portion of US companies has been reduced from 9 out of 21 in total, to 6 out of 17 in total.</p>	<p>This modification of the remuneration peer group relates to a reduction of the portion of US companies and a re-alignment of ASM with the actual competitive landscape, and the median of the group in terms of size.</p>								
<p>2 Updated incentive levels under the Short-term Incentive ('STI') Plan, differentiated between the CEO and other Management Board members</p>	<p>Under the previous Remuneration Policy, the CEO was eligible for an annual, performance-based, short-term cash incentive ('bonus') of up to 100% of the base salary in case of on target performance, and up to a maximum of 150% of base salary in case of outperformance.</p> <p>Other members of the Management Board were eligible for a bonus of up to 80% of base salary for the CTO, and 75% of base salary for the CFO in case of target performance, and up to a maximum of 125% in case of outperformance for the CTO and CFO respectively.</p> <p>If the performance on the financial performance criteria or the non-financial performance criteria did not meet the threshold level (set at 70% of the target level), the related part of the bonus would be zero.</p> <p>In case the financial performance of ASM in any year does not warrant a bonus payout, the Supervisory Board will decide by discretion to decrease the bonus payout. The bonus performance criteria were for 75% related to financial indicators, and for 25% to non-financial indicators, for both CEO and other members of the Management Board.</p>	<p>In the new Remuneration Policy, three levels of performance are defined: the 'target' level, representing the expected nominal level of performance generally set in accordance with the yearly budget as approved by the Supervisory Board; the 'threshold' level, below which the performance is deemed insufficient and hence triggers a 'zero' payout for these criteria; and the 'stretch' level, representing an exceptional level of performance awarding a maximum level of payout.</p> <p>The STI target incentive levels are differentiated between the CEO and the other Management Board members. The CEO will be eligible for an annual, performance-based, short-term cash incentive ('bonus') of up to 125% of base salary, in case of performance achievement at 'target', and up to a maximum of 187.5% of base salary (or 150% of the target) in case of outperformance 'at or above stretch' level.</p> <p>Other members of the Management Board will be eligible for a bonus up to 80% of base salary in case of performance 'at target', and up to a maximum of 120% of base salary in case of outperformance.</p> <p>If the performance on one or more of the financial performance criteria or of the non-financial performance criteria does not meet the threshold level, the related part of the bonus will be zero.</p>	<p>The incentive levels under the STI plan are updated to align with the market median, based upon a Total Target Cash Compensation (TTC) approach.</p>								
<p>3 The introduction of a pre-defined list of performance criteria for the Short-term incentive plan</p>	<p>In the previous Remuneration Policy, the financial performance criteria are predetermined, prior to the start of the relevant performance year. They are based on the approved budget, and should be influenceable and assessable. They should sustain ASM's long-term strategy of ASM. The financial indicators (75%) were:</p> <table border="1"> <thead> <tr> <th>Performance criteria</th> <th>weight</th> </tr> </thead> <tbody> <tr> <td>Sales</td> <td>1/3rd</td> </tr> <tr> <td>EBIT</td> <td>1/3rd</td> </tr> <tr> <td>Free Cash Flow</td> <td>1/3rd</td> </tr> </tbody> </table> <p>The Supervisory Board would determine the non-financial indicators (25%) prior to the start of the relevant financial year. The Supervisory Board would set challenging, but realistic target levels that directly impact and contribute to ASM's long-term strategy. The performance indicators used and their relative weighting would be disclosed in the Remuneration Report.</p> <p>In general, performance indicators were defined for the term of the policy. Material changes would be explained and proposed to the General Meeting for approval.</p>	Performance criteria	weight	Sales	1/3rd	EBIT	1/3rd	Free Cash Flow	1/3rd	<p>Under the new Remuneration Policy the bonus performance criteria are selected from a pre-defined list and targets for those measures are set by the Supervisory Board on an annual basis. The measures include a balance of financial measures and non-financial measures, aligned to the strategic objectives of the company, for both CEO and other members of the Management Board. Performance measures and weighting may differ year on year reflecting the priorities of the business, but in any given year, the weight of financial measures are in principle representing 75% of the nominal total.</p> <p>The financial performance criteria are predetermined at the beginning of the relevant performance year, based on the approved budget, and should be influenceable and assessable. They sustain the long-term strategy of ASM. The financial measures may include amongst other measures: revenue measures, margin measures, return measures and/or cash flow measures.</p> <p>The Supervisory Board determines the non-financial indicators (in principle around 25% weighting) at the beginning of the relevant financial year in accordance with the long-term plan of the Company and based on the strategic focus. The Supervisory Board sets challenging, but realistic target levels that directly impact and contribute to the long-term strategy of ASM. The performance indicators used, and their relative weighting will be disclosed in the Remuneration Report. Non-financial measures may include amongst others: ESG measures, operational measures, strategic measures, customer measures and/or leadership measures.</p>	<p>It is proposed to introduce a pre-defined list of measures for the Short-term Incentive Plan to balance flexibility for the Supervisory Board and transparency for shareholders.</p>
Performance criteria	weight										
Sales	1/3rd										
EBIT	1/3rd										
Free Cash Flow	1/3rd										

Item	Previous Remuneration Policy (2022)	Newly approved Remuneration Policy (2023 - onwards)	Comment
<p>4 The introduction of a relative Total Shareholder Return ('TSR') modifier to the Long-term Incentive ('LTI') Plan</p>	<p>Under the previous Remuneration Policy, the number of performance shares granted for on-target performance would be determined by the Supervisory Board preceding the respective date of grant, and relate to a Sales Growth compared to market and Average EBIT percentage measured over a three-year performance period and compared to a pre-defined reference plan.</p>	<p>In the new Remuneration Policy, the performance indicators will also be chosen by the Supervisory Board and are revenue-related, respectively profit-related, as measured over a three-year performance period, and compared to a pre-defined reference plan. Both indicators or financial performance measures will be equally weighted (50% each). In addition, a relative TSR indicator will be introduced and applied as a multiplier or modifier to the results.</p> <p>TSR modifier effect and incentive zone Based on the relative TSR performance, payout will be adjusted -35% to +35%. The TSR modifier adds 35% if ranking is in the top quartile of the TSR peer group and subtracts 35% if it is in the bottom quartile of the TSR peer group with straight line interpolation from 25th percentile to 75th percentile, only rewarding if TSR performance is above the median of the peer group.</p> <p>TSR peer group The relative TSR is calculated based on ASM's share-price development plus dividends paid over a three-year performance period, compared to the companies in the identified TSR peer group. The TSR peer group is comprised of companies that are comparable to ASM on a number of criteria, such as: industry, geographic focus, size, share-price correlation and volatility, and historical TSR performance. Currently, the TSR peer group consists of 21 companies that have been selected by the Supervisory Board, based on these criteria. The composition of the group may be adjusted over time. In case of delisting of a peer group company, the Supervisory Board will carefully consider an appropriate replacement company. The TSR peer group will be disclosed in the annual remuneration report.</p>	<p>A relative TSR modifier to the LTI plan has been introduced to increase alignment between the interests of the shareholders and the members of the Management Board.</p>
<p>5 Updated incentive levels under the Long-term Incentive ('LTI') Plan</p>	<p>In the previous Remuneration Policy, the target level of the LTI was set at 165% of base salary for the CEO, and at 450% of base salary for the current CTO - to be competitive in the US market - and at 125% of base salary for the CFO.</p> <p>The maximum number of shares that would be granted in case of outperformance of the predetermined performance indicators was 150% of the number for on-target performance. The number of shares vesting would be zero in case none of the targets were met.</p>	<p>In the new Remuneration Policy, the target level of the LTI is differentiated for Management Board members, based on geographical location of the respective individuals, whereby distinction is made between Management Board members in Europe (and rest of the world) and the US. The exact definition of 'geographical location of Management Board member' can be found in the 'Clarifying note' as posted on ASM's website.</p> <p>For Management Board members in Europe (and rest of the world), the target level can be up to 200% of base salary and for Management Board members in the US this can be up to 450% of base salary. This is a way to differentiate based upon the external geographical or local competitive environment and the market practice in the respective regions.</p> <p>The maximum achievement level of the financial performance measures will be capped at 150% of the target, whereas the maximum total LTI level, including the relative TSR modifier, is capped at 200% of target for both regions. The number of shares granted will be zero in case both targets score below threshold level.</p>	<p>This modification follows from a differentiated geographical approach to grant levels (reflecting market differences between Europe (and rest of the world), and the US.</p>

15.2 Management Board Remuneration Policy

Introduction

ASM's Management Board Remuneration Policy was adopted by the AGM on May 15, 2023. The 2023 integral version of ASM's Remuneration Policy can be found on our website.

The purpose of the Remuneration Policy for the members of the Management Board of ASM is to provide compensation that:

- motivates and rewards executives with a balanced and competitive remuneration, in line with their role and responsibilities;
- allows ASM to attract, reward, and retain highly qualified executives with the required background, skills, and experience to implement ASM's strategy in a highly competitive global industry;
- ensures that short-term operational results and long-term sustainable value creation are balanced; and
- is transparent, fair and reasonable, and aligns with the interests of ASM, shareholders, and other stakeholders in the medium- and long-term to deliver sustainable performance in line with ASM's strategy, purpose, and values. The focus on long-term value creation is also reflected in the mix between short-term variable and long-term variable pay target value and the link to the two key longer-term financial objectives as long-term incentive performance measures.

Overview of policy components

The Management Board Remuneration Policy is summarized in below table.

Summary of 2023 Remuneration Policy Management Board

Fixed remuneration (base salary)

Policy

Market positioning for the Total Target Cash Compensation (TTC) (base salary + STI) level is geared towards the median market levels based upon the Remuneration peer group.

Remuneration peer group

Does consist of 17 companies being selected according to industry (complexity), size, competition and geographical presence. The peer group represents a mix of European (2/3rd) and US companies (1/3rd).

Short-term incentive (cash bonus) (STI)

Policy

Target and maximum

Up to 125% of annual base salary for the CEO, with a maximum up to 187,5% of annual base salary (or 150% of target).

Up to 80% of annual base salary for the other Members of the Management Board, with a maximum of up to 120% of annual base salary (or 150% of target)

For 2023 following on-target payout levels apply: 125% of annual base salary for the CEO and 80% for the other Members of the Management Board.

Long-term incentive (share-based incentive) (LTI)

Policy

Target and maximum

Up to 200% of annual base salary for Management Board members in Europe (and rest of the world other than US), with an overall maximum up to 200% of target

Up to 450% of annual base salary for Management Board members in the US, with an overall maximum of 200% of target. A differentiated, regional approach applies based upon geographical location of the respective Management Board member (Europe and rest of the world or the US).

For 2023 following on-target grant levels apply : 180% of annual base salary for the CEO and 150% for the CFO (Europe-based) and 450% for the CTO (US-based).

Other elements

Policy

Management Board members are entitled to pension and fringe benefits or perquisites such as a company car (or allowance), representation and expense allowance, medical, disability and other insurances in line with local market practice. Additional benefits and allowances may be applicable in case of relocation or international assignment.

Share ownership guidelines

Policy

Management Board members are required to hold ASM shares in value of at least twice the annual base salary.

15.3 Remuneration of the Management Board in 2023

The 2023 Remuneration report refers to ASM's Remuneration Policy (see above).

The remuneration of the Management Board for the financial year 2023 reflects the implementation of and complies with the 2023 Remuneration Policy for the Management Board as summarized above and further explained below.

Remuneration philosophy and structure

ASM's remuneration philosophy for the Management Board is to incentivize and reward performance, while ensuring retention, motivation, competitiveness and fairness. A key factor is also alignment with shareholder interests. This is why our remuneration structure is articulated around three key pay-mix elements, plus benefits:

- Base salary (fixed gross annual salary)
- Short-term cash incentive (performance based)
- Long-term share incentive (performance based)

Our remuneration structure and competitiveness is regularly reviewed using a list of benchmark companies. All pay-mix elements are reviewed in this benchmarking analysis.

Base salary (fixed)

Each member of the Management Board receives a fixed base salary with a monthly payout. The base salary of the members of the Management Board is set based on the outcome of the benchmark analysis. The Supervisory Board reviews base salary on an annual basis and can, at its discretion, apply an annual increase to the base salary, based on market movement as well as adjustments made by the peer group.

Short-term incentives (cash bonus)

Each year, a short-term incentive can be earned based on achieving specific challenging targets. These targets are based for 75% on company financial targets and 25% on non-financial targets (of which, for 2023, two out of three related to ESG). The on-target bonus percentage for the CEO is 125% of the annual base salary, with a maximum payout of 187.5% of the annual base salary in case of overachievement. The on-target bonus percentage for the CFO and, respectively, the CTO is 80% of the annual base salary, with

a maximum payout of 120% of the annual base salary. The targets for the short-term incentive are based on the financial budget approved by the Supervisory Board before the start of the fiscal year.

Long-term incentives (performance shares)

Members of the Management Board are eligible to receive performance shares under the ASM International N.V. 2023 long-term incentive plan for members of the Management Board and ASM's Remuneration Policy to focus on the long-term interest of the company. Performance shares vest after three years, subject to meeting predetermined financial indicators and continued services. To show a longer-term commitment to ASM and align with shareholder interests, members of the Management Board are required to hold the vested performance shares for an additional two years ('holding period') after the vesting date. However, they are allowed to sell a part of the unconditional shares after three years for tax purposes. Performance shares will next be granted in April 2024.

The Supervisory Board will determine the number of performance shares granted for on-target performance. When doing so, the board will consider two predetermined financial indicators (each with respectively 50% weight): revenue growth compared to market (WFE) and average EBIT percentage measured over a three-year performance period. A third performance measure was introduced in 2023 for the new LTI grant, namely a relative TSR indicator. ASM applies a face-value approach to define the number of shares to be granted, which is calculated as follows: target level (calculated based on annual base salary) divided by the average share price of ASM on the Euronext Amsterdam stock exchange on the award date and the following four consecutive days. The award date is immediately following the date of the announcement of the first quarter financial results in April for the year the award takes place.

The target level of the long-term incentive is set at 180% of the annual base salary for the CEO and 150% respectively 450% for the CFO and CTO. The maximum number of shares granted in case of outperformance of the predetermined performance indicators is 150% of the number at on-target performance. In addition, the relative TSR modifier will kick in (as of vesting of the 2023 grant in 2026). The number of shares granted will be zero if achievement is below threshold level for both targets.

Outstanding performance shares

The following table shows the outstanding performance shares granted to members of the Management Board up until and including 2023, and held by members of the Management Board as at December 31, 2023:

	Grant date	Status	Number of shares at grant date	Performance adjustment	Vested in 2023	Outstanding December 31, 2023	Fair value at grant date	Vesting date	End of holding period
G.L. Loh ¹	Jul 29, 2020	Conditional	8,087	—	(8,087)	—	€123.31	Jul 29, 2023	Jul 29, 2025
G.L. Loh ¹	Apr 21, 2021	Conditional	4,184	—	—	4,184	€245.40	Apr 21, 2024	Apr 21, 2026
G.L. Loh ¹	Apr 21, 2022	Conditional	3,631	—	—	3,631	€313.72	Apr 21, 2025	Apr 21, 2027
G.L. Loh ¹	Apr 26, 2023	Conditional	4,052	—	—	4,052	€311.47	Apr 27, 2026	Apr 27, 2028
P.A.H. Verhagen ²	Jul 28, 2021	Conditional	2,159	—	—	2,159	€291.97	Jul 28, 2024	Jul 28, 2026
P.A.H. Verhagen ²	Apr 21, 2022	Conditional	2,204	—	—	2,204	€313.72	Apr 21, 2025	Apr 21, 2027
P.A.H. Verhagen ²	Apr 26, 2023	Conditional	2,583	—	—	2,583	€311.47	Apr 27, 2026	Apr 27, 2028
H. M'Saad ³	Apr 26, 2023	Conditional	8,099	—	—	8,099	€311.47	Apr 27, 2026	Apr 27, 2028
Total			34,999	—	(8,087)	26,912			

¹ CEO since May 18, 2020.

² CFO since June 1, 2021.

³ CTO since May 16, 2022.

⁴ As part of the approved contractual terms and conditions 997 restricted share units have been granted to the CFO at hire on July 28, 2021 with a grant value of € 300.000, of which 332 did vest on July 28, 2022 and 332 on July 28, 2023.

The shares will become unconditional after three years, depending on whether predetermined targets are achieved or not.

Pension arrangement

The members of the Management Board are given the opportunity to participate in a defined contribution plan for their salary up to €128,810. For the salary above €128,810, the members of the Management Board are compensated with an amount equal to the employer pension contribution. The members of the Management Board have the option to participate in a net pension plan offered by the company or to have the compensation paid out in cash.

Total remuneration of Management Board

The following table provides an overview of the 2023 remuneration elements in € thousands for the CEO, the CFO, respectively the CTO, as recognized by the company.

Name of director, position	1				2				3		4		5	
	Fixed remuneration (K€)				Variable remuneration (K€)				Pension expense (K€)	Total remuneration (K€)	Proportion of fixed and variable remuneration			
	Base salary		Fringe benefits		Short-term cash incentive (STI)		Share-based payment expenses (LTI) ²							
	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
G.L. Loh	666	722	60	61	883	1,263	1,020	1,459	109	120	2,738	3,625	44 %	33 %
P.A.H. Verhagen	534	558	44	46	575	618	550	849	87	90	1,790	2,161	59 %	47 %
H. M'Saad ¹	366	570	122	106	395	631	—	572	18	32	901	1,911	128 %	59 %
Total	1,566	1,850	226	213	1,853	2,512	1,570	2,880	214	242	5,429	7,697		

¹ New CTO since May 16, 2022. The amounts shown reflect his remuneration during his MB membership.

² The remuneration reported as part of the LTI (share awards) is based on costs incurred under accounting values EU-IFRS. The costs of share awards are charged to the consolidated statement of profit or loss over the three-year vesting period based on the number of awards expected to vest. For the first year we account at target, subsequently we apply the estimated number of share awards, and in the final performance year of the awards we update this estimate to the best estimated number of awards which are anticipated to vest.

Explanation of the above-mentioned five components:

1. Fixed remuneration

1.1. Base salary. This is the fixed annual gross base salary. A salary increase of 10% for the CEO and 5% for the CFO and CTO has been implemented as of April 1, 2023, in line with market movement in the Netherlands.

1.2. Fringe benefits. This represents the value of benefits and perquisites awarded, such as a company car, a representation and expense allowance, the premium for health and disability insurance, and social-security contributions.

2. Variable remuneration

2.1. Short-term Incentive (STI). Each year, a short-term incentive can be earned based on achieving specific challenging targets. The short-term incentive recognizes three levels: threshold, on-target, and stretch.

The target level is generally aligned with the budget as reviewed and approved by the Supervisory Board. Achievement at target level results in a payout of 100% of the STI value. The stretch level is set to promote extra-performance. If the performance does not meet the threshold level, the related part of the bonus will be zero.

If the actual realization is between threshold and on-target or between on-target and stretch, the payout will be based on the relative deviation against these levels. The targets are 75% based on company financial targets (equally divided between revenue, EBIT, and free cash flow) and 25% based on non-financial targets (of which 2 out of 3 related to ESG in 2023).

For 2023, the CEO, CFO respectively the CTO realized overall an over-achievement on STI (137% rounded – see table below). This is the outcome of strong financial performance on the one hand and a slightly above target overall achievement on non-financial performance measures on the other hand. However the overall achievement on non-financial performance measures has been adjusted downwards by the Supervisory Board at their discretion, taking into consideration that some qualitative aspects of the strategic roadmap have not been achieved. Therefore the overall STI performance achievement amounts to 137%, as such reflecting another year of overall outstanding results.

STI target-setting and realization

Targets are set at the beginning of each financial year and aligned with the budget as approved by the Supervisory Board. The non-financial, strategic targets are aligned with ASM's most important strategic priorities in a performance year. For each performance indicator, a target performance level is defined that represents the expected performance

in a performance year (target). The threshold level defines the minimum level of performance, below which payout is 0%. The maximum or stretch level of performance is 150% of target level.

STI performance measures

STI realization 2023 performance year: (achievement rate)

Financials (Total weight: 75%)

Targets set by budget as approved by the Supervisory Board

Sales (Weight: 25%)	Revenue achievement at constant currencies (actual revenue recalculated at budget currency).	150%
EBIT (Weight: 25%)	EBIT excluding one-off non-budgeted items (e.g. M&A and related PPA amortization).	146%
Free cash flow (Weight: 25%)	Net cash flow from operating activities after investment activities excluding non-budgeted M&A and excluding ASMPT dividends.	150%

Non-financials (Total weight: 25%)

ESG/Planet (Weight: 1/3)	Continuation science-based targets reduction pathway to accelerate decarbonization throughout the value chain. Target: <ul style="list-style-type: none"> • Scope 1 & 2: Annual Pathway: 4% reduction • Scope 3/3.1 & 3.11: 3.1 - 2% reduction / 3.11 - 2.5% reduction Stretch: <ul style="list-style-type: none"> • Scope 1 & 2: 5% reduction • Scope 3/3.1 & 3.11: 3.1 - 3% reduction / 3.11 - 4% reduction 	125%
Trans4rm! (Weight: 1/3)	3-year program transforming and enhancing ASM's global business processes through the implementation of SAP S/4HANA. Target: <ul style="list-style-type: none"> • Blueprint sign-off / Business process descriptions completed Stretch : <ul style="list-style-type: none"> • WRICEF (Workflow, Report, Interface, Conversion, Enhancement, Form) requirements list completed and prioritization in progress 	90%
ESG/People (Weight: 1/3)	Continuation of ASM's People Roadmap, reflecting ASM's commitment to leadership development, D&I, culture and engagement. Target: <ul style="list-style-type: none"> • Leadership: ExCo-1 successors identified • D&I: 2023 roadmap defined & gender diversity target met • Culture and engagement: ASM behaviors 'ACE' awareness built + Engagement pulse survey: Meaningful improvement on Inclusion index score & ACE index score. High participation rate: 94%. Stretch: <ul style="list-style-type: none"> • Leadership: ExCo-1 Succession (met), including external talent mapping (not met) • D&I: Gender diversity target plus met (19%), gender diversity for new hires met (21%) • Culture and engagement: Engagement pulse survey: Inclusion index score 4.10 (met) & ACE index score 4.05 (actual 3.9) 	100%

2.2. Share-based payment or long-term incentives (LTI). This is a multi-year variable payment of which the value is the value of a performance share award that has become unconditional after a performance period of three years. The unconditional award is the result of targets on revenue growth compared to market and average EBIT.

As of the end of 2023, the three-year performance period of the performance shares granted to the CEO on April 21, 2021, and to the CFO on July 28, 2021 has been completed. Over the three-year performance period ASM's revenue growth outperformed the WFE market indicator, and the EBIT % overachieved the roadmap predetermined at the beginning of the period, hence leading to a vesting percentage of the performance shares on April 21, 2024 respectively July 28, 2024 of 135% (rounded).

For 2023, based on the Remuneration Policy, the Supervisory Board awarded the following on-target value to:

- Mr Loh, CEO: €1,329,792 (4,052 shares)
- Mr Verhagen, CFO: €847,667 (2,583 shares)
- Mr M'Saad, CTO: €2,657,979 (8,099 shares)

3. Pension

As of 2015, members of the Management Board no longer participate in the industry-wide pension fund. They have opted to participate in a defined contribution plan for their full-time salary up to €128,810. ASM reimburses an amount equal to the employer pension contribution for their full-time salary above €128,810. The CEO, CFO and CTO can opt either to participate in a net pension plan offered by the company or to have the cost for participating paid out directly. The pension contributions vary from 7.2% to 28.4% of the pensionable salary, depending on age. The members of the Management Board contribute 4.6% of their pensionable salary, and ASM pays the remaining part. There are no arrangements regarding early retirement. The CTO – being based in the US – continued his participation in the 401(k) retirement savings plan.

4. Total remuneration

Value equals sum of 1, 2, and 3 as described above.

5. Proportion of fixed and variable remuneration

5.1. The relative proportion of fixed remuneration: By dividing the sum of fixed components (column 1 and the fixed part of pension expense presented in column 3) by the amount of total remuneration (column 4), multiplied by 100.

5.2. The relative proportion of variable remuneration: By dividing the sum of the variable components (columns 2 and the variable part of the pension expense in column 3, if any) by the amount of total remuneration (column 4), multiplied by 100.

Management services agreements

The CEO, CFO and CTO have a management services agreement with ASM or one of its related subsidiaries, in accordance with Dutch law, for four years:

- Mr Loh started on May 18, 2020, and was appointed for a four-year term based on a management services agreement.
- Mr Verhagen started on June 1, 2021, and was appointed for a four-year term based on a management services agreement.
- Mr M'Saad started on May 16, 2022, as MB member, and was appointed for a four-year term based on a management services agreement.

As mentioned in the management services agreements of the members of the Management Board, in the case of termination of the contract on behalf of the company, the members of the Management Board are eligible for a severance payment of a maximum one-year annual gross base salary.

Claw back and ultimum remedium

In exceptional circumstances, the Supervisory Board will have the discretionary authority to recover any paid bonus and awarded shares if evidence shows payments and awards have been awarded based on incorrect financial or other data (claw back).

If a variable component conditionally awarded in a previous financial year would, in the opinion of the Supervisory Board, produce an unfair result due to extraordinary circumstances during the period in which the predetermined indicators have been or should have been achieved, the Supervisory Board has the authority to adjust the value of bonus and shares downwards or upwards (ultimum remedium).

The NSR Committee concluded for 2023 that no circumstances have been identified that result in any adjustments (other than the minor adjustment as mentioned above under STI non-financial performance measures) or claw back of variable remuneration.

Comparative information on the change of remuneration and company performance

The figures presented are indexed compared to the previous financial year.

Annual change	2019/2018	2020/2019	2021/2020	2022/2021	2023/2022	Information regarding 2023
Management Board remuneration						
G.L. Loh, CEO (as of May 18, 2020)	— %	— %	210 %	120 %	132 %	
P.A.H. Verhagen, CFO (as of June 1, 2021)	— %	— %	— %	159 %	121 %	
H. M'Saad, CTO (as of May 16, 2022)	— %	— %	— %	— %	212 %	
P.A.M. van Bommel, CFO (until May 17, 2021)	123 %	101 %	66 %	— %	— %	Former CFO retired May 17, 2021
C.D. del Prado, CEO (until May 18, 2020)	124 %	64 %	— %	— %	— %	Former CEO retired May 18, 2020
Company performance						
Revenue	157 %	103 %	130 %	139 %	109 %	
EBIT	171 %	142 %	150 %	128 %	103 %	
Free cash flow	418 %	48 %	222 %	25 %	667 %	
Qualitative/non-financial strategic objectives/targets	128 %	88 %	98 %	98 %	80 %	
Average remuneration of employees (K€)						
	2019	2020	2021	2022	2023	
Average remuneration of employees	85	88	87	99	111	
CEO pay ratio	31	27	29	27	31	

The ratio of the CEO's remuneration and the average remuneration of all other employees (the pay ratio) is calculated by dividing the CEO's remuneration by the average remuneration of all employees. The CEO's remuneration is the total annualized base salary and bonus of the CEO as well as share-based payment (extrapolated to a full year LTI value based upon three consecutive yearly grants with each a 36-month vesting period). The average remuneration of all employees is calculated by dividing the total personnel costs (wages, salaries, bonuses and share-based payments), minus the CEO's remuneration, by the total number of employees (minus CEO). The pay ratio is in line with

the anticipated internal development of pay levels and at the lower end compared to the AEX listed companies.

The 2023 ASM Remuneration report considers the draft guidelines to specify the standardized presentation of the Remuneration report as stated in Directive 2007/36EC of the European Parliament, and amended by Directive (EU) 2017/828, Article 9b (6).

This report is the Remuneration report required in accordance with article 2:135b of the Dutch Civil Code and the Dutch Corporate Governance Code.

15.4 Remuneration of the Supervisory Board

The 2023 Remuneration report refers to the Remuneration Policy of ASM, which can be found [here](#).

Summary of Remuneration of the Supervisory Board

This table provides an overview and description of the elements of the 2022 Remuneration Policy for the Supervisory Board.

Fixed remuneration		
Description	Value	
Fixed remuneration in cash consisting of a retainer fee for the Chairperson and Members, and additional fees related to the responsibilities in the respective Committees.	Chair of the Supervisory Board	€97,500
	Member of the Supervisory Board	€66,000
	Chair of the Audit Committee	€15,000
	Member of the Audit Committee	€10,000
	Chair of the Nomination, Selection and Remuneration Committee	€11,000
	Member of the Nomination, Selection and Remuneration Committee	€7,400

Travel expenses		
Description	Value	
Actual and reasonable travel expenses are reimbursed together with a travel allowance following physical attendance of meetings	Continental travels	€2,500 (with a maximum of €10,000 per year)
	Intercontinental travels	€5,000 (with a maximum of €20,000 per year)

Other expenses		
Description	Value	
Reimbursement of actual expenses	Actual expenses	

Loans and guarantees		
Description	Value	
No personal loans, guarantees or advance payments are provided.	Not applicable	

Shares and share ownership		
Description	Value	
No shares or rights on shares are granted as part of the remuneration.	Not applicable	

Other arrangements		
Description	Value	
No severance, change-in-control or claw-back arrangements are in place.	Not applicable	

The following tables presents information on the sole remuneration from the company (including its subsidiaries) for services in all capacities to all current and former members of the Supervisory Board:

	Year ended December 31,				
	Annual fee	Committee fee	Allowances ²	Total remuneration	
	2023	2023	2023	2023	2022
Supervisory Board:					
P.F.M. van der Meer Mohr ¹	97.5	7.4	12.5	117.4	103.2
S. Kahle-Galonske	66.0	15.0	15.0	96.0	101.0
M.J.C. de Jong	66.0	10.0	5.0	81.0	86.0
D.R. Lamouche	66.0	11.0	15.0	92.0	97.0
M. de Virgiliis	66.0	10.0	12.5	88.5	96.0
A.T. Sanchez	66.0	17.4	22.5	105.9	105.9
Total	427.5	70.8	82.5	580.8	589.1

¹ Appointed as Chair of the Supervisory Board as of May 16, 2022

² Consist of allowances for (inter)continental meetings.

	Year ended December 31,				
	Annual fee	Committee fee	Allowances ²	Total remuneration	
	2023	2023	2023	2023	2022
Former Supervisory Board:					
M.C.J. van Pernis ¹	—	—	—	—	41.3
Total	—	—	—	—	41.3

¹ Period to May 16, 2022.

² Consist of allowances for (inter)continental meetings.

Annual change	2019/2018	2020/2019	2021/2020	2022/2021	2023/2022
Supervisory Board remuneration					
P.F.M. van der Meer Mohr	— %	— %	— %	806 %	114 %
J.C. Lobbezoo	106 %	100 %	38 %	— %	— %
M.C.J. van Pernis	104 %	100 %	119 %	60 %	— %
U.H.R. Schumacher	105 %	38 %	— %	— %	— %
S. Kahle-Galonske	107 %	100 %	100 %	168 %	95 %
M.J.C. de Jong	169 %	100 %	106 %	141 %	94 %
D.R. Lamouche	— %	— %	166 %	168 %	95 %
M. de Virgiliis	— %	— %	161 %	167 %	92 %
A.T. Sanchez	— %	— %	— %	827 %	100 %

Any recommended changes to the remuneration of members of the Supervisory Board will be submitted to the Annual General Meeting for approval.

The remuneration of members of the Supervisory Board was most recently revised during the 2022 Annual General Meeting.

Derogations from Remuneration Policy

The Supervisory Board has not derogated or deviated from the Remuneration Policy.

ASM does not provide any loans, advanced payments, deposits, or related guarantees to the Supervisory Board members (nor to the CEO, CFO or CTO).

16. External auditor

In accordance with Dutch law, ASM's external auditor is appointed by the Annual General Meeting of Shareholders and is nominated for appointment by the Supervisory Board upon advice from the Audit Committee and the Management Board. Our current external auditor, KPMG Accountants N.V. ('KPMG'), was reappointed as external auditor by the 2023 AGM for the reporting year 2023.

The external auditor is present at our AGM to respond to questions, if any, from the shareholders about the auditor's report on the financial statements.

The Audit Committee has determined that the provision of services by KPMG and its member firms is compatible with maintaining KPMG's independence. All audit and permitted audit-related services provided by KPMG and its member firms during 2023 were pre-approved by the Audit Committee.

Audit committee policies and procedures

The Audit Committee has adopted the following policies and procedures for pre-approval of all audit and permitted non-audit services provided by our external auditor.

Audit services

Management submits to the Audit Committee for pre-approval the scope and estimated fees for specific services directly related to performing the independent audit of our statutory and consolidated financial statements for the current year.

Audit-related services

The Audit Committee may preapprove expenditures up to a specified amount for services included in identified service categories that are related extensions of audit services and are logically performed by the auditors. Additional services exceeding the specified pre-approved limits require specific Audit Committee approval.

Tax services

The Audit Committee may preapprove expenditures up to a specified amount per engagement and in total for identified services related to tax matters. Additional services exceeding the specified preapproved limits, or involving service types not included in the preapproved list, require specific Audit Committee approval.

Other services

In the case of specified services for which utilizing our external auditor creates efficiencies, minimizes disruption or preserves confidentiality, or for which management has determined that our external auditor possesses unique or superior qualifications to provide such services, the Audit Committee may preapprove expenditures up to a specified amount per engagement and in total. Additional services exceeding the specified preapproved limits, or involving service types not included in the preapproved list, require specific Audit Committee approval.

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17. Consolidated financial statements

17.1 Consolidated statement of profit or loss

(€ thousand, except per share data)	Notes	Year ended December 31,	
		2022	2023
Revenue	21	2,410,927	2,634,331
Cost of sales	23	(1,268,046)	(1,362,635)
Gross profit		1,142,881	1,271,696
Other income	3	40	69
Operating expenses:			
Selling, general and administrative	23	(276,620)	(308,727)
Research and development	23	(233,866)	(309,297)
Total operating expenses		(510,486)	(618,024)
Result from operations		632,435	653,741
Finance income	17	2,246	14,826
Finance expense	17	(4,098)	(13,600)
Foreign currency exchange gain (loss)	17	25,011	(21,375)
Net finance income (costs)		23,159	(20,149)
Share in income of investments in associates	7	64,771	17,540
(Impairment) Reversal of impairment of investments in associates, net	7	(215,389)	215,389
Result before income taxes		504,976	866,521
Income taxes	22	(115,863)	(114,448)
Net earnings from operations, attributable to common shareholders		389,113	752,073
Per share data	24		
Basic net earnings per share (€):			
From operations		7.97	15.26
Diluted net earnings per share (€):			
From operations		7.93	15.18
Weighted average number of shares (thousand):			
Basic		48,820	49,286
Diluted		49,097	49,555

The notes on the following pages are an integral part of these consolidated financial statements.

17.2 Consolidated statement of comprehensive income

(€ thousand)	Notes	Year ended December 31,	
		2022	2023
Net earnings from operations, attributable to common shareholders		389,113	752,073
Other comprehensive income, net of income tax			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurement of defined benefit obligation	13	615	479
Share in other comprehensive income (loss) of investments in associates	7	2,950	(618)
		3,565	(139)
Items that may be subsequently reclassified to profit or loss:			
Foreign currency translation effect ¹		61,845	(90,908)
Other comprehensive income for the year, net of income tax		65,410	(91,047)
Total comprehensive income, attributable to common shareholders	12	454,523	661,026

¹ The year-on-year change is explained by a weakened € compared to most currencies in 2022, while the € has strengthened against all major currencies (HKD, USD, SGD, KRW, JPY) in 2023.

The notes on the following pages are an integral part of these consolidated financial statements.

17.3 Consolidated statement of financial position

(€ thousand)	Notes	December 31,	
		2022 ¹	2023
Assets			
Right-of-use assets	2	31,663	35,395
Property, plant and equipment	3	312,053	384,949
Evaluation tools at customers	4	68,676	79,597
Goodwill	5	320,818	320,167
Other intangible assets	6	646,104	705,624
Investments in associates	7	686,341	861,937
Other investments		5,814	11,307
Deferred tax assets	22	181	179
Other non-current assets		7,071	15,778
Employee benefits	13	2,556	2,919
Total non-current assets		2,081,277	2,417,852
Inventories	8	538,425	525,690
Accounts receivable	9	580,823	487,727
Contract assets	21	63,982	59,392
Income taxes receivable	22	18,778	29,957
Other current assets	10	48,189	68,845
Cash and cash equivalents	11	419,315	637,264
Total current assets		1,669,512	1,808,875
Total assets		3,750,789	4,226,727
Equity and liabilities			
Equity	12	2,749,319	3,226,811
Lease liabilities		18,604	22,684
Contingent consideration payable	1	78,649	88,304
Deferred tax liabilities	22	123,803	150,147
Total non-current liabilities		221,056	261,135
Accounts payable		243,499	177,686
Provision for warranty	14	34,219	22,716
Income taxes payable	22	43,785	21,925
Contract liabilities	21	295,180	300,241
Accrued expenses and other payables	15	163,731	216,213
Total current liabilities		780,414	738,781
Total liabilities		1,001,470	999,916
Total equity and liabilities		3,750,789	4,226,727

¹ Comparatives of goodwill and other current assets have been revised for the effects of measurement adjustments to the acquisition of LPE in 2022, reference is made to note 1.

The notes on the following pages are an integral part of these consolidated financial statements.

17.4 Consolidated statement of changes in equity

(€ thousand except for share data)	Notes	Number of common shares outstanding	Common shares	Capital in excess of par value	Treasury shares at cost	Retained earnings	Other reserves ¹	Total equity
Balance as of January 1, 2022		48,568,677	1,972	25,281	(155,397)	2,240,426	129,472	2,241,754
Net earnings		—	—	—	—	389,113	—	389,113
Other comprehensive income	12	—	—	—	—	—	65,410	65,410
Total comprehensive income		—	—	—	—	389,113	65,410	454,523
Dividend paid to common shareholders		—	—	—	—	(121,650)	—	(121,650)
Compensation expense share-based payments	13	—	—	29,877	—	—	—	29,877
Issue of common shares related to business combinations	13	51,154	2	11,730	—	—	—	11,732
Treasury shares transferred related to business combinations	13	580,000	—	8,046	124,977	—	—	133,023
Exercise stock options out of treasury shares	13	—	—	—	—	—	—	—
Vesting restricted shares out of treasury shares	13	126,488	—	(26,974)	26,974	—	—	—
Purchase of common shares	12	—	—	—	—	—	—	—
Cancellation of common shares out of treasury shares	12	—	—	—	—	—	—	—
Other movements of investments in associates:								
Dilution	7	—	—	—	—	60	—	60
Balance as of December 31, 2022		49,326,319	1,974	47,960	(3,446)	2,507,949	194,882	2,749,319
Net earnings		—	—	—	—	752,073	—	752,073
Other comprehensive income	12	—	—	—	—	—	(91,047)	(91,047)
Total comprehensive income		—	—	—	—	752,073	(91,047)	661,026
Dividend paid to common shareholders		—	—	—	—	(123,383)	—	(123,383)
Compensation expense share-based payments	13	—	—	37,308	—	—	—	37,308
Exercise stock options out of treasury shares	13	18,249	—	(1,965)	2,828	—	—	863
Vesting restricted shares out of treasury shares	13	41,681	—	(11,980)	11,980	—	—	—
Purchase of common shares	12	(264,503)	—	—	(100,928)	—	—	(100,928)
Issue of common shares used for share-based performance programs	12	80,000	3	—	(3)	—	—	—
Other movements in investments in associates:								
Dilution	7	—	—	—	—	2,606	—	2,606
Balance as of December 31, 2023		49,201,746	1,977	71,323	(89,569)	3,139,245	103,835	3,226,811

¹ Other reserves consist of the currency translation reserve, remeasurement on net defined benefit and the reserve for proportionate share in other comprehensive income of investments in associates. See Note 12.

The notes on the following pages are an integral part of these consolidated financial statements.

17.5 Consolidated statement of cash flows

(€ thousand)	Notes	Year ended December 31,	
		2022	2023
Cash flows from operating activities			
Net earnings from operations		389,113	752,073
Adjustments to reconcile net earnings to net cash from operating activities			
Depreciation, amortization and impairments	2,3,4,6	122,434	180,896
Net loss (gain) on sale of property, plant and equipment	3	(40)	185
Share-based compensation	13	29,877	37,308
Net finance (income) costs		3,886	(9,466)
Share in income of investments in associates	7	(64,771)	(17,539)
Impairment (reversal of impairment) of investments in associates, net	7	215,389	(215,389)
Income tax	22	115,863	114,448
Changes in evaluation tools at customers	4	(20,516)	(32,218)
Changes in employee benefits pension plans		198	98
Income tax paid		(90,481)	(118,766)
Operating cash flows before changes in working capital¹		700,952	691,630
Decrease (increase) in working capital: ¹			
Accounts receivable		(125,068)	67,660
Other current assets		(14,081)	(21,817)
Inventories		(276,914)	(3,537)
Provision for warranty		5,097	(10,220)
Contract assets and liabilities		131,178	21,485
Accounts payable, accrued expenses and other payables		120,324	(9,314)
Net cash from operating activities		541,488	735,887

(€ thousand)	Notes	Year ended December 31,	
		2022	2023
Cash flows from investing activities			
Capital expenditures property, plant and equipment	3	(101,184)	(154,103)
Proceeds from sale of property, plant and equipment	3	940	3,558
Capitalized development expenditures	6	(102,627)	(147,220)
Capital expenditures intangible assets	6	(4,662)	(16,389)
Dividend received from associates	7	48,919	30,753
Acquisition of subsidiaries, net of cash acquired	1	(314,295)	—
Other investments		(1,971)	(5,641)
Net cash used in investing activities		(474,880)	(289,042)
Cash flows from operating activities after investing activities¹		66,608	446,845
Cash flows from financing activities			
Payment of lease liabilities	2	(10,289)	(12,602)
Credit facility renewal fee paid		(660)	—
Purchase of treasury shares	12	—	(100,928)
Proceeds from issuance of treasury shares	13	—	863
Dividends to common shareholders		(121,650)	(123,383)
Net cash used in financing activities		(132,599)	(236,050)
Foreign currency translation effect on cash and cash equivalents		(6,201)	7,154
Net increase (decrease) in cash and cash equivalents		(72,192)	217,949
Cash and cash equivalents at beginning of year	11	491,507	419,315
Cash and cash equivalents at end of year	11	419,315	637,264

¹ Non-IFRS financial performance measure. Please see '29. Non-IFRS performance measures'.

The notes on the following pages are an integral part of these consolidated financial statements.

17.6 Notes to the consolidated financial statements

General information

ASM International N.V. (ASM, or the company) is a Dutch public liability company domiciled in the Netherlands with its principal operations in Europe, the United States of America, and Asia. The company dedicates its resources to the research, development, manufacturing, marketing and servicing of equipment and materials used to produce mainly semiconductor devices. The company is registered at Versterkerstraat 8, 1322 AP Almere, the Netherlands.

The company's shares are listed for trading on the Euronext Amsterdam Stock Exchange (symbol ASM).

The accompanying consolidated financial statements include the financial statements of ASM International N.V. and its consolidated subsidiaries (together also referred to as ASM, or the company). ASM's subsidiaries are listed in Note 28 and investments in associates are listed in Note 7.

Basis for accounting

The consolidated financial statements for the year ended December 31, 2023 have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union and also comply with the financial reporting requirements included in Section 362(9) of Part 9, Book 2 of the Dutch Civil Code.

The consolidated financial statements have been prepared by the Management Board of the company and authorized for issue on March 1, 2024, and will be submitted for adoption to the Annual General Meeting of Shareholders (AGM) on May 13, 2024.

The consolidated financial statements will be filed with the AFM and at the Trade Register of the Chamber of Commerce in Almere, the Netherlands after ASM publishes on our website and in addition within eight days of adoption by the 2024 AGM.

Functional and presentation currency

The consolidated financial statements are presented in Euros (€), which is the company's functional currency. All amounts have been rounded to the nearest thousand, unless otherwise indicated.

Basis of preparation

The consolidated financial statements have been prepared under the historical cost convention, unless otherwise indicated. The company applies the going concern basis in preparing its consolidated financial statements.

Historical cost is generally based on the fair value of the consideration given in exchange for goods and services.

A number of the company's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique.

The company has an established approach with respect to the measurement of fair values. If third-party information, such as broker quotes or pricing services, is used to measure fair values, the company assesses and documents the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of IFRS, including the level in the fair-value hierarchy, in which such valuations should be classified.

Fair values are categorized into different levels in a fair-value hierarchy based on the inputs used in the valuation techniques as follows:

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).

Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair-value hierarchy, then the fair-value measurement is categorized in its entirety in the same level of the fair-value hierarchy as the lowest level input that is significant to the entire measurement.

Further information about the assumptions made in measuring fair values is included in the following notes:

- Note 1 - Acquisition of subsidiaries;
- Note 7 - Investments in Associates;
- Note 13 - Employee benefits; and
- Note 17 - Financial instruments and financial risk management.

Use of estimates and judgments

In preparing these consolidated financial statements, management has made judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to estimates are recognized prospectively.

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the year ended December 31, 2023 is included in the following notes:

- Note 1 - Acquisition of subsidiaries;
- Notes 3, 4, 5, 6 and 7 - Valuation of non-financial assets; and
- Note 8 - Valuation of allowance for obsolescence inventories.

Consideration has been given to the potential financial impacts of climate change related risks on the carrying value of the company's non-current assets (e.g., goodwill, other intangibles, PP&E) through a qualitative review of the company's climate change risk assessment. In addition, the company included sensitivity tests into the impairment test to address the potential increase in expenses due to climate change.

This review did not identify any material financial reporting impacts.

Summary of material accounting policies

Accounting policies

The company has consistently applied the following accounting policies to all periods presented in these consolidated financial statements, except for changes in material accounting policies and reclassification adjustment listed below.

Changes in material accounting policies

Application of new and revised International Financial Reporting Standards (IFRS).

New and amended IFRS Standards that are effective for the current year

The accounting policies applied in the financial statements are the same as those applied in the last annual financial statements, except for the IFRS standards and interpretations effective on January 1, 2023. These include IFRS 17 and amendments to IAS 8, IAS 1 and IAS 12.

The amendment to IAS 1 and IAS 12 are further explained below. The other changes/ amendments have been assessed for their potential impact and do not have a material effect on ASM's (consolidated) financial statements.

The company has not early adopted any other standard, interpretation or amendment that has been issued but is not yet effective.

IAS 12: Global minimum top-up tax

The company operates in amongst others the Netherlands, which has enacted new legislation to implement the global minimum top-up tax. ASM expects to be subject to the top-up tax in relation to its operations in the US, Korea, Singapore and Finland. Although these countries have a statutory tax rate above 15%, the subsidiaries in the US, Singapore and Korea receive tax credits or tax incentives that reduce their effective tax rate below 15%. Since the newly enacted tax legislation in the Netherlands is only effective from 1 January 2024, there is no current tax impact for the year ended 31 December 2023.

ASM has applied a temporary relief from deferred tax accounting for the impacts of the top-up tax and accounts for it as a current tax when it is incurred (see Note 22).

IAS 1: Material accounting policy information

The company adopted *Disclosed of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statements 2)* from January 1, 2023. Although the amendments did not result in any changes to the accounting policies themselves, they impacted the accounting policy information disclosed in the financial statements.

The amendments require the disclosure of 'material', rather than 'significant', accounting policies. The amendments also provide guidance on the application of materiality to disclosure of accounting policies, assisting entities to provide useful, entity-specific accounting policy information that users need to understand other information in the financial statements.

Management reviewed the accounting policies and made updates to the information in '*Summary of material accounting policies*' (2022: Summary of significant accounting policies) in certain instances in line with the amendments.

Reclassification contract assets and contract liabilities

The company separately presented contract assets and contract liabilities in the statement of financial position considering the increasing importance. Furthermore, the company has standardized terminology in accordance with IFRS 15. Comparative amounts reclassified in line with IAS 1.41 requirements, as follows:

(€ thousand)	Balance December 31, 2022		
	As previously reported	Reclassification	After Reclassification
Other current assets ^{1,2}	114,524	(63,982)	50,542
Contract assets	—	63,982	63,982
Accrued expenses and other payables ³	458,911	(295,180)	163,731
Contract liabilities	—	295,180	295,180

¹ Note 10 of the 2022 annual report 'Amounts to be invoiced'.

² The reported balance is before measurement adjustment as disclosed in note 1 of the annual report.

³ Note 15 of the 2022 annual report 'Deferred revenue €197,617' and 'Advanced payments from customers €97,563'.

Business combinations

The company accounts for business combinations using the acquisition method when the acquired set of activities and assets meets the definition of a business and control is transferred to the company. In determining whether a particular set of activities and assets is a business, the company assesses whether the set of assets and activities acquired includes, at a minimum, an input and substantive process and whether the acquired set has the ability to produce outputs.

The company accounts for business combinations using the acquisition method when control is transferred to the company. The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Goodwill is capitalized as the excess of the costs of an acquired subsidiary, net of the amounts assigned to identifiable assets acquired and liabilities incurred or assumed. Acquisition-related costs are expensed when incurred in the period they arise or the service is received.

Any contingent consideration payable is measured at fair value at the acquisition date. The contingent consideration is remeasured at fair value at each reporting date and subsequent changes in the fair value of the contingent consideration are recognised in profit or loss.

Consolidation

The consolidated financial statements include the accounts of ASM and all of its subsidiaries where ASM holds a controlling interest. Non-controlling interest is disclosed separately, where appropriate, in the consolidated financial statements.

Control is achieved when ASM has the power over an investee; exposure, or rights, to variable returns from its involvement with the investee; and the ability to use its power over the investee to affect the amount of the investor's returns.

ASM reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above. As from the date these criteria are met, financial data of the relevant subsidiary are included in the consolidation and deconsolidated from the date on which ASM's control ceases.

Loss of control

Upon loss of control, ASM derecognizes the assets and liabilities of the subsidiary. Any surplus or deficit arising on the loss of control is recognized in profit or loss. If ASM retains any interest in this subsidiary, then such interest is measured at fair value at the date on which control is lost. Subsequently, it is accounted for as an equity-accounted investee or as an available-for-sale financial asset, depending on the level of influence retained.

Subsidiaries

Subsidiaries are entities controlled by the company. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

Foreign currency translation

The individual financial statements of each group entity are presented in their local functional currency. For the purpose of the consolidated financial statements, the results and financial position of each entity is expressed in euros, which is ASM's functional currency and the presentation currency for the consolidated financial statements.

Foreign currency transactions

In preparing the financial statements of the individual entities, transactions in foreign currencies are recorded at the exchange rates on the date of the transactions. At each balance sheet date, monetary items denominated in foreign currencies are translated at the rates prevailing on the balance sheet date. Non-monetary items carried at fair value that are denominated in foreign currencies are translated at the rates prevailing on the date when the fair value was determined.

Exchange rate differences arising on the settlement of monetary items, and on the translation of monetary items, are recognized in the consolidated statement of profit or loss in the period in which they arise. Exchange rate differences arising on the translation of non-monetary items carried at fair value are recognized in the consolidated statement of profit or loss for the period except for differences arising on the translation of non-monetary items in respect of which gains and losses are recognized directly in equity.

Foreign operations

For the purpose of presenting consolidated financial statements, assets and liabilities of foreign operations are translated into euros at the exchange rates at the reporting date. The income and expenses of foreign operations are translated into euros at the exchange rates at the dates of the transactions.

Foreign currency differences are recognized in OCI and accumulated in the translation reserve.

When a foreign operation is disposed of in its entirety or partially such that control or significant influence is lost, the cumulative amount in the translation reserve related to that

foreign operation is reclassified to profit or loss as part of the gain or loss on disposal. If the company disposes of part of its interest in a subsidiary but retains control, then the relevant proportion of the cumulative amount is reattributed to non-controlling interest. When the company disposes of only part of an associate while retaining significant influence, the relevant proportion of the cumulative amount is reclassified to profit or loss.

Segment reporting

ASM has one reportable segment, consistent with the internal reporting provided to the Chief Executive Officer (CEO), who is the Chief Operating Decision Maker (CODM).

The company manufactures and sells equipment used in wafer processing, encompassing the fabrication steps in which silicon wafers are layered with semiconductor devices. The operation is a product-driven organizational unit comprised of manufacturing, service, and sales operations in Asia, Europe and the United States. The performance of the individual product lines is reviewed by the CODM based on its revenues, gross margin and EBIT. The company operates under a uniform global operating strategy. The CODM alone makes operating decisions regarding strategic investments and resource allocation based on aggregated information of the overall company's operation. Therefore, the company's operation do not represent separate operating nor reportable segments.

Property, plant and equipment

Items of property, plant and equipment are measured at cost, less accumulated depreciation and any accumulated impairment losses.

If significant parts of an item of property, plant and equipment have different useful lives, then they are accounted for as separate items (major components) of property, plant and equipment.

Depreciation is calculated to write off the cost of items of property, plant and equipment less their estimated residual values using the straight-line method over their estimated useful lives, and is generally recognized in profit or loss. The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

The estimated useful lives of property, plant and equipment for current and comparative periods are as follows:

Land	Infinite
Building and leasehold improvements	1-25 years
Machinery equipment	2-10 years
Furniture and fixtures and other equipment	2-10 years

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain on disposal of an item of property, plant and equipment is recognized in profit or loss and included in 'other income'. Any loss is recognized as part of impairment expenses.

Intangible assets

Goodwill

The company accounts for business combinations using the acquisition method when control is transferred to the company. The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment.

Goodwill represents the excess of the costs of an acquisition over the fair value of the amounts assigned to assets acquired and liabilities incurred or assumed of the acquired subsidiary at the date of acquisition. Goodwill on acquisition of subsidiaries is allocated to cash generating units (CGUs) for the purpose of impairment testing. The allocation is made to those CGUs that are expected to benefit from the business combination in which the goodwill arose. Goodwill is tested for impairment annually and whenever events or changes in circumstances indicate that the carrying amount of the goodwill may not be recoverable. If the recoverable amount of the CGU is less than the carrying amount of the unit, the impairment loss is recognized. An impairment loss recognized for goodwill is not reversed in a subsequent period. Goodwill is stated at cost less accumulated impairment losses.

The company's goodwill arising on the acquisitions of subsidiaries is described in Note 5 'Goodwill'.

The company's goodwill arising on the acquisition of an associate is described in Note 7 'Investments in Associates'.

Other intangible assets

Other intangible assets include capitalized development expenses, software, purchased technology, and remaining other intangible assets. Other intangible assets that are acquired by the company with finite useful lives are measured at cost less accumulated amortization and any accumulated impairment losses.

In determining the capitalization of development expenses, the company makes estimates and assumptions based on expected future economic benefits generated by products that are the result of these development expenses. Other important estimates and assumptions are the required internal rate of return, the distinction between research, development and high-volume manufacturing, and the estimated useful life.

Development expenses are capitalized when all of the following criteria are demonstrated by the entity:

- the technical feasibility of completing the intangible asset so that it will be available for use or sale;
- its intention to complete the intangible asset and use or sell it;
- its ability to use or sell the intangible asset;
- how the intangible asset will generate probable future economic benefits;
- the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
- its ability to reliably measure the expenditure attributable to the intangible asset during its development.

The company capitalizes development expenses that meet the above-mentioned criteria in its consolidated financial statements. Subsequent to initial recognition, internally-generated intangible assets are reported at cost less accumulated amortization and accumulated impairment losses, on the same basis as intangible assets that are acquired separately.

Amortization of capitalized development expenses is calculated using the straight-line method over the estimated useful lives of the developed product. Amortization starts when the developed product is ready for its intended use. In the development cycle, this is when the product is transferred from the validation (beta) phase to high-volume manufacturing.

Amortization method, useful life, and residual value are reviewed at each reporting date with the effect of any changes in estimate accounted for on a prospective basis.

The estimated useful lives of other intangible assets for current and comparative periods are as follows:

Development cost	5 years
Software	3 years
Purchased technology	5-15 years
Other intangibles	1-17 years

Investments in associates

Investments in associates are investments in entities in which ASM can exert significant influence but which ASM does not control, generally having between 20% and 50% of the voting rights. These entities are accounted for using the equity method and are initially recognized at cost. Dividend income from the company's associated companies is recognized when the right to receive payment is established. Their carrying value includes goodwill identified upon acquisition, net of any accumulated impairment.

When ASM's share of losses in an associate equals or exceeds its interest in the associate, including any other receivables for which settlement is neither planned nor likely to occur in the foreseeable future, ASM does not recognize further losses, unless ASM has obligations to or made payments on behalf of the associate.

At each reporting date, the company determines if there is any objective evidence that the associate is impaired. An impairment, being the difference between the recoverable

amount of the associate and its carrying value, is recognized in the consolidated statement of profit or loss.

ASM does not separately test associates' underlying assets for impairment. However, ASM recognizes its share of any impairment charge recorded by an investee and considers the effect, if any, of the impairment on the basis difference in the assets giving rise to the investee's impairment charge. A loss in value of an investment which is significant or prolonged will be recognized. Significant is defined as at least 20% on reporting date. Prolonged is defined as measured below cost for more than nine months.

Equity method investments are tested for prolonged decline in value. If the fair value of an investment is less than its carrying value, the company determines whether the decline in value is temporary or prolonged. A prolonged decline in value is measured as of a balance sheet date. If after a prior recognized impairment the fair value is more than its carrying value, this impairment is reversed to the extent that the recoverable amount of the net investment subsequently increases. The determination of whether an investment is impaired is made at the individual security level in each reporting period.

Evaluation tools at customers

Evaluation tools at customers are systems generally delivered to customers under evaluation and include substantial customization by our engineers and R&D staff in the field. Evaluation tools are recorded at cost and depreciated using the straight-line method over their estimated useful life of five years, or their shorter economic life. The depreciation expenses are in general reported as research and development expenses, unless the evaluation tool primarily serves commercial activities it is reported as cost of sales.

On final written technical acceptance and purchase order from the customer, the purchase consideration is recognized as revenue at a point in time and the carrying value of the evaluation system is recognized as cost of sales. In the circumstance that the system is returned, at the end of the evaluation period, a detailed impairment review takes place, and future sales opportunities and additional costs are identified. It is only when the fair

value is below the carrying value of the evaluation tool that an additional depreciation is recognized. The remaining carrying value is recognized as finished goods in inventories.

Inventories

Inventories are stated at the lower of cost or net realizable value. The cost of inventories is based on the first-in, first-out principle. Costs include net prices paid for materials purchased, charges for freight and custom duties, production labor costs and factory overhead. Allowances are made for slow-moving, obsolete or unsellable inventory.

Allowances for obsolescence of inventory are determined based on the expected demand as well as the expected market value of the inventory. The company regularly evaluate the value of our inventory of components and raw materials, work in progress, and finished goods, based on a combination of factors including the following: forecasted sales, historical usage, product end of lifecycle, estimated current and future market values, service inventory requirements, and new product introductions, as well as other factors. Purchasing requirements and alternative uses for the inventory are explored within these processes to mitigate inventory exposure. The company record write-downs for inventory based on the above factors and take into account worldwide quantities and demand into our analysis.

Financial instruments

The company classifies non-derivative financial assets into loans and receivables.

The company classifies non-derivative financial liabilities into other financial liabilities.

Non-derivative financial assets and financial liabilities – Recognition and derecognition

The company initially recognizes receivables on the date when they are originated. Receivables comprise account (trade) and other receivables and cash and cash equivalents. Receivables are measured at amortized cost using the effective interest method, less any impairment. Financial assets and financial liabilities are initially recognized on the trade date when the entity becomes a party to the contractual provisions of the instrument.

The company derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred, or it neither transfers nor retains substantially all of the risks and rewards of ownership and does not retain control over the transferred asset. Any interest in such derecognized financial asset that is created or retained by the company is recognized as a separate asset or liability.

The company derecognizes a financial liability when its contractual obligations are discharged or cancelled, or expired.

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the company currently has a legally enforceable right to offset the amounts and intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

Non-derivative financial assets – Measurement

Loans and receivables are initially measured at fair value plus any directly attributable transaction costs. Subsequent to initial recognition, they are measured at amortized cost using the effective interest method.

Accounts receivable

A significant percentage of accounts receivable is derived from revenue to a limited number of large multinational semiconductor device manufacturers located throughout the world. In order to monitor potential credit losses, the company performs ongoing credit evaluations of our customers' financial condition. An allowance for doubtful accounts is maintained for potential credit losses based upon management's assessment of the expected collectability of all accounts receivable. The allowance for doubtful accounts is reviewed periodically to assess the adequacy of the allowance. In making this assessment, management takes into consideration any circumstances of which the company are aware regarding a customer's inability to meet its financial obligations, aging of the accounts receivable, expected lifetime losses; and our judgments as to potential prevailing

economic conditions in the industry and their potential impact on the company's customers.

The expected credit loss allowance is based on historical experience, credit evaluations, specific customer-collection history, and any customer-specific issues ASM has identified. Changes in circumstances, such as an unexpected adverse material change in a major customer's ability to meet its financial obligation to ASM or its payment trends, may require us to further adjust our estimates of the recoverability of amounts due to ASM. This could have an adverse material effect on ASM's financial condition and results of operations.

Cash and cash equivalents

Cash and cash equivalents consist of bank deposits and investment in money market funds that invest in marketable debt obligations and securities of governments, corporates and financial institutions and other short-term highly liquid investments with original maturity of three months or less. Bank overdrafts are included in notes payable to banks in current liabilities.

Non-derivative financial liabilities – Measurement

Other non-derivative financial liabilities are initially measured at fair value less any directly attributable transaction costs. Subsequent to initial recognition, these liabilities are measured at amortized cost using the effective interest method.

Share capital

Preference share capital

Preference share capital is classified as equity if it is non-redeemable, or redeemable only at the company's option, and any dividends are discretionary. Discretionary dividends thereon are recognized as distributions within equity upon approval by the company's shareholders.

Preference share capital is classified as a financial liability if it is redeemable on a specific date or at the option of the shareholders, or if dividend payments are not discretionary. Non-discretionary dividends thereon are recognized as interest expense in profit or loss as accrued.

Repurchase and reissue of common shares (treasury shares)

When shares recognized as equity are repurchased, the amount of the consideration paid, which includes directly attributable costs, is recognized as a deduction from equity. Repurchased shares are classified as treasury shares and are presented in the treasury share reserve. When treasury shares are sold or reissued subsequently, the amount received is recognized as an increase in equity and the resulting surplus or deficit on the transaction is accounted for at average cost and presented within capital in excess of par value.

Issuance of shares by an equity-accounted investee

The associate ASMPT yearly issues common shares pursuant to their employee share incentive scheme. The effect of these issuances is a dilution of the company's ownership in ASMPT. The company recognizes the impact of these issuances directly into equity.

Comprehensive income

Comprehensive income consists of net earnings (loss) and other comprehensive income. Other comprehensive income includes gains and losses that are not included in net earnings, but are recorded directly in equity.

Impairment

Non-derivative financial assets

Financial assets, other than those at fair value through profit or loss, are assessed using an 'expected credit loss' (ECL) model. In accordance with the model the company allocate a probability of loss to each financial asset, based on data that is determined to be predictive of the risk of loss and applying experienced credit judgment.

ASM measures loss allowances at an amount equal to lifetime ECLs, except for the following, which are measured at 12-month ECLs:

- debt securities that are determined to have low credit risk at the reporting date; and
- other debt securities and bank balances for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, ASM considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on ASM's historical experience and informed credit assessment, that includes forward-looking information. Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument.

12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over which ASM is exposed to credit risk.

Measurement of ECLs

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that ASM expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

Equity-accounted investees

An impairment loss in respect of an equity-accounted investee is measured by comparing the recoverable amount of the investment with its carrying amount. An impairment loss is recognized in profit or loss, and is reversed if there has been a favorable change in the estimates used to determine the recoverable amount.

Non-financial assets

At each reporting date, the company reviews the carrying amounts of its non-financial assets (other than inventories and deferred tax assets) to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Goodwill and assets not yet available for its intended use is tested annually for impairment.

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows from continuing use that are largely independent of the cash inflows of other assets or CGUs. Goodwill arising from a business combination is allocated to CGUs or groups of CGUs that are expected to benefit from the synergies of the combination.

The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. Value in use is based on the estimated future cash flows, discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset or CGU.

An impairment loss is recognized if the carrying amount of an asset or CGU exceeds its recoverable amount.

Impairment losses are recognized in profit or loss. They are allocated first to reduce the carrying amount of any goodwill allocated to the CGU, and then to reduce the carrying amounts of the other assets in the CGU on a pro rata basis.

An impairment loss in respect of goodwill is not reversed. For other assets, an impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortization, if no impairment loss had been recognized.

Commitments and contingencies

The company has various contractual obligations such as purchase commitments and commitments for capital expenditure. These obligations are generally not recognized as liabilities on the company's statement of financial position but are disclosed in the notes to the consolidated financial statements.

Cash flow statement

The cash flow statement has been prepared using the indirect method.

Revenue recognition

Revenue is measured based on the consideration specified in a contract with a customer and excludes amounts collected on behalf of third parties. The company recognizes revenue when it transfers control over a product or service to a customer. Depending on the contract, the company obtain normally a right to payment for our equipment upon shipment and on completion of installation. Right to payment for our spares and services occurs upon shipment or completion of the service unless described otherwise.

Revenue streams

The company generates revenue primarily from the sales of equipment and sales of spares & services. The products & services described below by nature, can be part of both revenue streams. The revenue streams are disclosed in Note 21 Revenue.

Nature of goods and services

The following table contains a description of principal activities from which the group generates its revenue.

The company applied the practical expedient of IFRS 15.121 and therefore have not disclosed information on the remaining performance obligations of a contract (in aggregate) as the performance obligation is part of a contract that has an original expected duration of one year or less. Generally, the remaining performance obligations of a contract concern the tools to be shipped, unsatisfied promises as part of a bundled agreement or volume purchase agreement and installation and qualification services.

Products and services	Nature, timing of satisfaction of performance obligation and significant payment terms
Equipment	Revenue from equipment is recognized at a point in time when the performance obligation is satisfied, when control transfers. This is usually upon shipment depending on incoterms. The amount of revenue recognized is based on the amount of the transaction price that is allocated to the performance obligation. The total consideration of the contract is allocated between all distinct performance obligations in the contract based on their stand-alone selling prices. The stand-alone selling prices are mostly determined based on other stand-alone sales that are directly observable or based on the expected cost plus a margin approach. Any customer discounts and credits, within volume purchase agreements or bundled agreements, are considered as a reduction of the transaction price, unless this is/can be considered as consideration for a distinct good or service.
Installation	The customer simultaneously consumes and receives the benefits provided by the performance of the installation. As such, transfer of control takes place over the period of installation from delivery through customer acceptance, measured on a straight-line basis, as our performance is satisfied evenly over this period of time.
Spares	Revenue from spares is recognized at a point in time when the performance obligation is satisfied, when the control transfers. This is usually upon shipment depending on incoterms. The amount of revenue recognized is based on the amount of the transaction price that is allocated to the performance obligation. Any customer discounts and credits, within a volume purchase agreements, are considered as a reduction of the transaction price, unless this is/can be considered as consideration for a distinct good or service.
Revenue on royalties and licenses for technology included in equipment and/or spares	The fixed price royalty is a right to use the licenses and revenue is recognized at a point in time that the license is transferred to the customer. For the sales-based royalty, the performance obligation is satisfied when the license is transferred to the customer. Given this is earlier than when the sales occur, revenue should be recognized when the sales occur.
Outcome based ("support") services	The customer simultaneously consumes and receives the benefits provided by the performance of the support. For the majority of support services transfer of control takes place over the period of support.

Cost of sales

Cost of sales mainly comprises direct costs such as labor, materials, cost of warranty, depreciation, shipping and handling costs, and related overhead costs.

Research and development expenses

Research and development expenses are expenditures relating to a company's efforts to develop, design, and enhance its products, services, technologies, or processes.

Research and development expenses comprise of direct costs allocated to research and development projects and mainly consists of labor. Research and development expenses also includes depreciation expenses of evaluation tools at customers supporting the companies research and development activities, allocated cost center costs like lab costs, and costs relating to prototype and experimental products.

Selling, administrative and general expenses

Selling, general and administrative expenses comprise all direct and indirect selling costs, operational overhead costs, and administrative expenses unrelated to cost of sales or research and development expenses.

Warranty

The company provide maintenance on our systems during the warranty period, on average one year after installation & qualification (or 15 months upon shipment, whatsoever comes first). Costs of warranty include the cost of labor and material necessary to repair a product during the warranty period. The company accrue for the estimated cost of the warranty on products shipped in a provision for warranty, upon recognition of the sale of the product. The costs are estimated based on historical expenses incurred and on estimated future expenses related to current revenue, and are updated periodically. Actual warranty costs are charged against the provision for warranty. The actual warranty costs may differ from estimated warranty costs, and adjusted our provision for warranty accordingly. Future warranty costs may exceed our estimates, which could result in an increase of our cost of sales.

Income tax

Income tax expense comprises current and deferred tax. It is recognized in the statement of profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

Current tax

The current corporate income tax charge recognized in the consolidated statement of profit or loss is calculated in accordance with the prevailing tax regulations and rates, taking into account non-taxable income and non-deductible expenses. The current income tax expense reflects the amount for the current reporting period that the company expects to recover from or pay to the tax authorities. Current income tax related to items recognized directly in equity is recorded in equity and not in the consolidated statement of profit or loss. ASM's management periodically evaluates positions taken in the tax returns regarding situations in which applicable tax regulations are subject to interpretation, and establishes provisions when deemed appropriate. The amount of current tax payable or receivable is the best estimate of the tax amount expected to be paid or received that reflects uncertainty related to income tax, if any. Measurement of the tax payable or receivable for uncertain tax positions is based on management's best estimate of the amount of tax benefit that will be lost. Current tax also includes any tax arising from dividends and royalties. Current tax assets and liabilities are offset only if certain criteria are met (IAS 12).

Deferred tax

Deferred income tax positions are recognized for temporary differences between the tax basis of assets and liabilities and their carrying values in ASM's consolidated statement of financial position.

Deferred tax assets are recognized for deductible temporary differences, the carry forward of unused tax credits, and any unused tax losses. Deferred tax assets are recognized only to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilized. Both the recognized and unrecognized deferred tax assets are reassessed at each reporting date. Deferred tax assets are recorded for deductible temporary differences associated with investments in

subsidiaries and are recorded only to the extent that it is probable that the temporary differences will reverse in the foreseeable future, and taxable profit will be available against which the temporary differences can be utilized.

Deferred tax liabilities are recognized for taxable temporary differences except when they affect neither the profit or loss reported in the consolidated statement of profit or loss nor the taxable profit or loss. Also, no deferred tax liabilities are recorded for taxable temporary differences associated with investments in subsidiaries when the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred tax positions are stated at nominal value and are measured at the corporate income tax rates the company expects to be applicable in the year when the asset is realized or liability is settled based on enacted or substantially enacted tax laws and reflects uncertainty related to income tax, if any.

Deferred income tax assets and liabilities are netted if there is a legally enforceable right to set off current tax assets against current tax liabilities, deferred income tax assets and deferred income tax liabilities related to income taxes levied by the same taxation authority on the same taxable entity, and there is an intention to settle on a net basis.

Retirement benefit costs

The company has retirement plans covering substantially all employees. The principal plans are defined contribution plans, except for the plans of the company's operations in the Netherlands and Japan. The company's employees in the Netherlands participate in a multi-employer defined benefit plan. Payments to defined contribution plans and the multi-employer plan are recognized as an expense in the consolidated statement of profit or loss as they fall due. The company accounts for the multi-employer plan as if it were a defined contribution plan, since the manager of the plan is not able to provide the company with the required company-specific information to enable the company to account for the plan as a defined benefit plan.

The company's employees in Japan participate in defined benefit plans. Pension costs in respect to this defined benefit plan are determined using the projected unit credit method. These costs primarily represent the increase in the actuarial present value of the obligation for pension benefits based on employee service during the year and the interest on this obligation in respect to employee service in previous years, net of the expected return on plan assets.

For the defined benefit plan, the company recognizes in its consolidated statement of financial position an asset or a liability for the plan's over funded status or underfunded status respectively. When the calculation results in a potential asset for the company, the recognised asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. To calculate the present value of economic benefits, consideration is given to any applicable minimum funding requirements. Actuarial gains and losses are recognized when incurred.

Obligations for contributions to defined contribution plans are expensed as the related service is provided. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in future payments is available.

Share-based payments

The costs relating to employee shares (compensation expense) are recognized based upon the grant date fair value of the shares. The estimated fair value at grant date of shares is based on the share price of the ASM share at grant date minus the discounted value of expected dividends during the vesting period.

The grant date fair value of the shares is expensed on a straight-line basis over the vesting period, based on the company's estimate of shares that will eventually vest. The impact of the true-up of the estimates is recognized in the consolidated statement of profit or loss in the period in which the revision is determined. The total estimated share-based compensation expense, determined under the fair value-based method is amortized proportionally over the option vesting periods.

Note 1. Acquisition of subsidiaries

Prior period measurement adjustment

On October 3rd 2022, the company acquired 100% of the issued share capital of LPE S.p.A. ('LPE') Provisional details of this business combination were disclosed in note 1 of our Annual Report for the year ended 31 December 2022.

On 15 May 2023, management, and the former shareholders of LPE S.p.A. concluded the final price for the acquisition of LPE. The updates to the consideration transferred have met the criteria for adjustments within the measurement period under IFRS 3 and resulted in a revised balance of goodwill and other receivables as of 31 December 2022. All other adjustments were considered immaterial.

The measurement adjustment as accounted for in the comparative numbers is as follows:

(€ thousand)	Balance December 31, 2022		
	As previously reported	Adjustments	As revised
Goodwill	318,465	2,353	320,818
Remaining non-current assets	1,760,459	—	1,760,459
Total non-current assets	2,078,924	2,353	2,081,277
Other current assets ¹	50,542	(2,353)	48,189
Remaining other current assets	1,621,323	—	1,621,323
Total current assets	1,671,865	(2,353)	1,669,512
Total assets	3,750,789	—	3,750,789

¹ After reclassification adjustment as disclosed in the 'summary of material accounting policies'.

Contingent consideration

In the event that certain predetermined sales targets (including specific targets for certain markets) are achieved by LPE over the period 2023-2024, an additional consideration of up to €100 million ("LPE earn out") may be payable in cash in Q2 2025.

The combined projected revenues over the performance period exceed the upper threshold of the predetermined sales targets. The fair value of the contingent consideration of €76 million represents the discounted value of the expected related €100 million cash payment. At 31 December, 2023, the contingent consideration had increased to €88 million (2022: €79 million).

Estimated amortization and earn-out expenses

The estimated PPA amortization and earn-out expenses relating to the 2022 acquisitions of Reno and LPE are as follows:

(€ million)	2024	2025	2026	2027	Years thereafter
Research and development	(14.0)	(14.0)	(14.0)	(14.0)	(135.7)
Selling, general and administrative	(4.9)	(4.9)	(4.7)	(4.0)	(47.2)
Total impact on operating results	(18.9)	(18.9)	(18.7)	(18.0)	(182.9)
Finance expense	(8.7)	(3.0)	—	—	—
Income taxes (realization of temporary differences)	5.2	5.2	5.1	4.9	50.1
Total impact on net earnings	(22.4)	(16.7)	(13.6)	(13.1)	(132.8)

Amortization of purchased technology is allocated to research and development expenses. Amortization related to the trade name and customer relationship is recognized under selling, general and administrative expenses.

Finance expenses include the change in fair value of the contingent consideration ("LPE earn-out").

Note 2. Right-of-use assets

The company leases many assets, including land, buildings, houses, motor vehicles, machinery and equipment. Leases typically run up to a period of five years, some with an option to renew the lease after the end of the non-cancellable period. Lease payments are renegotiated on a periodic basis; timing is dependent on the region and type of lease.

The company has not entered into any sublease arrangements.

The company has applied the exception not to recognize right-of-use assets and lease liabilities for short-term leases (lease term of 12 months or less) and leases of low-value assets (up to the amount of €5,000 new asset value, such as water purifiers and air cleaners).

Right-of-use assets

(€ thousand)	Land and buildings	Motor vehicles	Other machinery and equipment	Total
Balance January 1, 2022	24,452	1,769	717	26,938
Additions through business combinations	3,426	—	—	3,426
Additions	4,512	664	44	5,220
Modifications and reassessments	4,614	117	466	5,197
Depreciation for the year	(8,273)	(1,102)	(505)	(9,880)
Foreign currency translation effect	745	(31)	48	762
Balance December 31, 2022	29,476	1,417	770	31,663
Additions	9,824	1,096	1,320	12,240
Modifications and reassessments	5,383	(71)	483	5,795
Depreciation for the year	(10,905)	(1,104)	(613)	(12,622)
Impairment charges	(940)	—	—	(940)
Foreign currency translation effect	(690)	(33)	(18)	(741)
Balance December 31, 2023	32,148	1,305	1,942	35,395

Amounts recognized in profit or loss

(€ thousand)	2022	2023
Leases under IFRS 16		
Interest on lease liabilities	603	705
Depreciation expenses	9,880	12,622
Impairment charges	—	(940)
Expenses relating to short-term leases	251	500
Expenses relating to low-value leases	—	—
Total	10,734	12,887

Amounts recognized in statement of cash flows

(€ thousand)	2022	2023
Total cash outflow for leases	10,289	12,602

Extension options

The extension options held are exercisable only by the company and not by the lessors. The company assesses at lease commencement date whether it is reasonably certain to exercise the extension options. The company reassesses whether it is reasonably certain to exercise the options at year-end for material lease components, if there is a significant event or significant changes in circumstances within its control.

Note 3. Property, plant and equipment

The changes in the amount of property, plant and equipment are as follows:

	Land, buildings and leasehold improvements	Machinery and equipment	Furniture and fixtures and other equipment	Assets under construction	Total
At cost					
Balance January 1, 2022	136,833	293,310	35,937	39,570	505,650
Additions through business combinations	275	38	717	—	1,030
Additions	—	2,456	107	98,621	101,184
Disposals	(8)	(7,616)	(3,177)	—	(10,801)
Transfer from assets under construction	30,844	54,549	10,754	(96,147)	—
Foreign currency translation effect	3,506	7,241	17	1,052	11,816
Balance December 31, 2022	171,450	349,978	44,355	43,096	608,879
Additions	440	4,237	460	148,966	154,103
Disposals	(10,569)	(8,323)	(2,208)	—	(21,100)
Transfer from assets under construction	36,305	84,933	20,741	(141,979)	—
Foreign currency translation effect	(7,320)	(17,155)	(2,176)	(123)	(26,774)
Balance December 31, 2023	190,306	413,670	61,172	49,960	715,108
Accumulated depreciation and impairment					
Balance January 1, 2022	35,835	191,048	21,750	—	248,633
Depreciation for the year	7,267	38,893	5,930	—	52,090
Impairment charges	—	—	—	—	—
Disposals	(8)	(7,034)	(2,858)	—	(9,900)
Foreign currency translation effect	1,328	4,800	(125)	—	6,003
Balance December 31, 2022	44,422	227,707	24,697	—	296,826
Depreciation for the year	9,433	45,002	8,225	—	62,660
Impairment charges	—	—	—	1,223	1,223
Disposals	(10,081)	(5,906)	(1,543)	—	(17,530)
Foreign currency translation effect	(1,374)	(10,404)	(1,242)	—	(13,020)
Balance December 31, 2023	42,400	256,399	30,137	1,223	330,159
Carrying amounts					
December 31, 2022	127,028	122,271	19,658	43,096	312,053
December 31, 2023	147,906	157,271	31,035	48,737	384,949
Useful lives in years	1-25	2-10	2-10		

Note 4. Evaluation tools at customers

The changes in the amount of evaluation tools are as follows:

	December 31,	
	2022	2023
At cost		
Balance at beginning of year	98,352	101,073
Evaluation tools shipped	41,538	50,639
Evaluation tools sold and returns	(41,049)	(39,047)
Foreign currency translation effect	2,232	(5,254)
Balance at end of year	101,073	107,411
Accumulated depreciation		
Balance at beginning of year	34,635	32,397
Depreciation for the year	17,719	17,529
Evaluation tools sold and returns	(20,027)	(20,626)
Foreign currency translation effect	70	(1,486)
Balance at end of year	32,397	27,814
Carrying amount at beginning of year	63,717	68,676
Carrying amount at end of year	68,676	79,597

Useful lives in years: 5

Evaluation tools enable ASM to win new business and expand ASM's technological footprint by penetration at new customers and with new applications.

Note 5. Goodwill

The carrying amount of the goodwill is related to acquisitions in the following cash-generating units:

	ALD	PEALD	SiC Epi ¹	Total
Balance January 1, 2022	2,611	8,659	—	11,270
Acquisitions through business combinations	—	17,838	290,819	308,657
Foreign currency translation effect	—	891	—	891
Balance December 31, 2022	2,611	27,388	290,819	320,818
Foreign currency translation effect	—	(651)	—	(651)
Balance December 31, 2023	2,611	26,737	290,819	320,167

¹ Comparatives of goodwill and other current assets have been revised for the effects of measurement adjustments to the acquisition of LPE in 2022, reference is made to note 1.

We perform an annual impairment test at the same moment of each year (performed in the fourth quarter, with the figures as of 30 September) or if events or changes in circumstances indicate that the carrying amount of the assets at risk (goodwill, other non-current assets, purchased technology, capitalized development, working capital) exceeds its recoverable amount. For our impairment test and the determination of the recoverable amount, a discounted future cash flow approach is used which makes use of our estimates of future revenues, driven by assumed market growth and estimated costs as well as appropriate discount rates.

The material assumptions used for the discounted future cash flows of the cash-generating units (CGUs) are:

- an average discount rate of 9.5% (2022: 10.7%) representing the pre-tax weighted average cost of capital.;
- external market segment data (e.g., TechInsights, Gartner), historical data and strategic plans to estimate cash flow growth per product line; and
- cash flow calculations are limited to four years of cash flow; after these four years, perpetuity growth rates are set based on the market maturity of the products. For all products, the perpetuity growth rates used are 1% or less.

These estimates are consistent with the plans and estimated costs we use to manage the underlying business. We expect the demand for these technologies to continue beyond a period of four years and therefore we have included perpetuity growth rates in our assumptions. Based on this analysis, management concluded that as per December 31, 2023 the recoverable amount of the CGUs exceeded the carrying value.

Sensitivity analysis showed that no reasonable possible change in the estimated cash flows or the discount rate used in calculating the fair value would result in the carrying amount of the assets at risk (including goodwill) materially exceed the fair value. Sensitivity analysis also includes additional sensitivity checks to address the potential increase in costs due to climate change.

Note 6. Other intangible assets

Other intangible assets include capitalized development expenditure, software developed or purchased (including licenses) for internal use, and purchased

technology from third parties. The changes in the amount of other intangible assets are as follows:

	Development costs	Software	Purchased technology	Other intangibles	Total
At cost					
Balance January 1, 2022	436,525	35,980	8,789	—	481,294
Acquisitions through business combinations	—	—	211,817	89,400	301,217
Additions	102,627	4,532	130	—	107,289
Reclassification	—	(74)	—	—	(74)
Disposals	—	(322)	—	—	(322)
Foreign currency translation effect	6,013	512	126	—	6,651
Balance December 31, 2022	545,165	40,628	220,862	89,400	896,055
Additions	147,220	15,602	—	787	163,609
Reclassification	—	—	(613)	613	—
Disposals	—	(152)	—	—	(152)
Foreign currency translation effect	(28,435)	(357)	(687)	7	(29,472)
Balance December 31, 2023	663,950	55,721	219,562	90,807	1,030,040
Accumulated amortization and impairment losses					
Balance January 1, 2022	168,849	28,833	8,779	—	206,461
Amortization for the year	34,869	1,820	4,483	1,568	42,740
Impairments	6	—	—	—	6
Disposals	—	(322)	—	—	(322)
Foreign currency translation effect	1,011	121	(66)	—	1,066
Balance December 31, 2022	204,735	30,452	13,196	1,568	249,951
Amortization for the year	43,802	3,057	14,021	22,567	83,447
Impairments	2,475	—	—	—	2,475
Reclassification	—	—	(92)	92	—
Disposals	—	—	—	—	—
Foreign currency translation effect	(11,293)	(211)	44	3	(11,457)
Balance December 31, 2023	239,719	33,298	27,169	24,230	324,416
Carrying amounts					
December 31, 2022	340,430	10,176	207,666	87,832	646,104
December 31, 2023	424,231	22,423	192,393	66,577	705,624

The carrying amount of other intangibles consists of customer relationships €63.0 million (2022: €66.9 million), order backlog nil (2022: €17.4 million), trade name €2.3 million (2022: €3.1 million) and other €1.3 million (2022: €0.4 million).

We perform an annual impairment test in the fourth quarter of each year or if events or changes in circumstances indicate that the carrying amount of development costs exceeds its recoverable amount. A discounted future cash flow approach is used which makes use of our estimates of future revenues, driven by assumed market growth and estimated costs as well as appropriate discount rates. For the impairment test, reference is made to Note 5.

Impairment charges on capitalized development costs are included in operating expenses under research and development. Impairment of capitalized development expenses primarily related to development of new hardware for which customer demand has shifted out in time, new process technologies that were not successful, and purchased

Estimated amortization expenses relating to other intangible assets are as follows:

	Development costs	Software	Purchased technology	Other intangibles	Total
2024	67,589	8,492	14,039	5,042	95,162
2025	92,074	7,421	14,039	5,035	118,569
2026	85,829	6,472	14,039	4,825	111,165
2027	77,317	23	14,039	4,107	95,486
2028	63,739	15	14,039	4,077	81,870
Years thereafter	37,683	—	122,198	43,491	203,372
Amortization estimated	424,231	22,423	192,393	66,577	705,624

technology which became obsolete. The impairment charges for 2023 related to customer-specific projects.

Capitalized development costs are amortized over their estimated useful lives of five years. Amortization starts when the developed asset is ready for its intended use. For the company, this occurs when the application is transferred to high-volume manufacturing.

The company estimated a useful life of purchased technology of 15 years, other intangibles assets are amortized over their estimated useful lives of respectively one year (order backlog), four years (trade name) and 17 years (customer relationships).

The amortization of development costs and purchased technology is included in R&D; the amortization of the order backlog in cost of sales upon realization of respective sales; the amortization of customer relationships is included in SG&A.

Note 7. Investments in associates

The location included below is the principal place of business of the specified associates.

The principal place of business and country for ASMPT deviates from the place of incorporation (Cayman Islands).

Levitech BV is valued at nil (2022: nil).

The changes in the investment in associates are as follows:

Name	Location	% Ownership December 31,	
		2022	2023
Associates			
Levitech BV	Almere, the Netherlands	26.64 %	26.64 %
SiC systems AB	Lunds Kommun, Sweden	50.00 %	50.00 %
ASMPT Ltd	Singapore	24.95 %	24.85 %

	Other	ASMPT					Total	
	Net equity share	Net equity share	Other (in) tangible assets	Goodwill	Total ASMPT (before impairment)	Impairment, net	Total ASMPT (after impairment)	
Balance January 1, 2022	—	435,458	19,569	393,785	848,812	—	848,812	848,812
Additions through business combinations	500	—	—	—	—	—	—	500
Impairments of investments in associates, net	—	—	—	—	—	(215,389)	(215,389)	(215,389)
Share in net earnings of investments in associates	—	78,413	—	—	78,413	—	78,413	78,413
Other comprehensive income of investments in associates	—	2,950	—	—	2,950	—	2,950	2,950
Amortization recognized intangible assets	—	—	(13,642)	—	(13,642)	—	(13,642)	(13,642)
Dividends	—	(48,919)	—	—	(48,919)	—	(48,919)	(48,919)
Dilution ASMPT share to 24.95%	—	60	—	—	60	—	60	60
Foreign currency translation effect	—	7,763	1,306	24,487	33,556	—	33,556	33,556
Balance December 31, 2022	500	475,725	7,233	418,272	901,230	(215,389)	685,841	686,341
Reversal of impairments of investments in associates, net	—	—	—	—	—	215,389	215,389	215,389
Share in net earnings of investments in associates	—	21,206	—	—	21,206	—	21,206	21,206
Other comprehensive income of investments in associates	—	(618)	—	—	(618)	—	(618)	(618)
Amortization recognized intangible assets	—	—	(3,666)	—	(3,666)	—	(3,666)	(3,666)
Dividends	—	(30,753)	—	—	(30,753)	—	(30,753)	(30,753)
Dilution ASMPT share to 24.85%	—	2,607	—	—	2,607	—	2,607	2,607
Foreign currency translation effect	—	(13,158)	(141)	(15,270)	(28,569)	—	(28,569)	(28,569)
Balance December 31, 2023	500	455,009	3,426	403,002	861,437	—	861,437	861,937

On March 15, 2013, the company divested a controlling stake in its subsidiary ASMPT Ltd (ASMPT). After the initial accounting of the sale transaction and related gains, future income from ASMPT was adjusted for the fair value adjustments arising from the basis differences as if a business combination had occurred under IFRS 3R, Business Combinations, i.e. a purchase price allocation (PPA).

The purchase of the associate has been recognized at fair value, being the value of the ASMPT shares on the day of closing of the purchase transaction. The composition of this fair value was determined through a PPA. The PPA resulted in the recognition of intangible assets for customer relationship, technology, trade name, product names, and goodwill. For inventories and property, plant & equipment, a fair value adjustment was recognized.

The ASMPT investment is accounted for under the equity method on a go-forward basis. Equity method investments are tested for prolonged impairment. An investment is considered impaired if the fair value of the investment is less than its carrying value.

If the fair value of an investment is less than its carrying value at the balance sheet date, the company determines whether the impairment is temporary or prolonged. Management concluded that there is objective evidence for impairment, both prolonged and significant. Following our accounting policy, ASM calculated the recoverable amount based on the fair value less cost of disposal.

The impairment charge of €321 million on investments in associates, recognized in Q3 2022, was partly recovered (€106 million) in Q4 2022.

In Q1 2023 the net impairment charge of €215 was completely reversed as a result of an increase in the recoverable amount. The impairment reversal accounted for in the first quarter 2023 related to a non-cash adjustment of €215 million, reflecting an increase in the market valuation of our stake in ASMPT in that quarter.

The amount per share recognized as per December 31, 2023, under equity accounting amounts to HK\$72.18, whereas the level 1 fair value per share (being the market price of a share on the Hong Kong Stock Exchange) was HK\$74.50 as per December 31, 2023.

In December 2023, 2,001,100 common shares of ASMPT were issued, for cash at par value of HK\$0.10 per share, pursuant to the Employee Share Incentive Scheme of ASMPT. Despite the completion of the share buyback program executed by ASMPT, ASM's ownership in ASMPT have diluted to 24.85% as of December 31, 2023 due to the shares issued under the plan in 2023.

Per December 31, 2023, the book value of our equity method investment in ASMPT was €861.4 million. The historical cost basis of our 24.85% share of net assets on the books of ASMPT under IFRS was €455.0 million as of December 31, 2023, resulting in a basis difference of €406.4 million. €3.4 million of this basis difference has been allocated to intangible assets. The remaining amount was allocated to equity method goodwill. Each individual, identifiable asset will periodically be reviewed for any indicators of potential impairment. We amortize the basis differences allocated to the assets on a straight-line basis, and include the impact within the results of our equity method investments. Amortization and depreciation are adjusted for related deferred tax impacts. Included in net income attributable to ASM for 2023 was an after-tax expense of €3.7 million, representing the depreciation and amortization of the basis differences.

Summarized 100% earnings information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate average 2023: 1 HK\$: €0.11812 for December 31, 2022: 1 HK\$: €0.12118).

(HK\$ million)	2022	2023
Revenues	19,363	14,697
Income before income tax	3,413	1,036
Net earnings from continuing operations	2,618	712
Other comprehensive income	(574)	116
Total comprehensive income	2,044	828

Summarized 100% statement of financial position information for ASMPT equity method investment excluding basis adjustments (foreign currency exchange rate per December 31, 2023, was 1 HK\$: €0.11586 for December 31, 2022: 1 HK\$: €0.12025).

(HK\$ million)	December 31,	
	2022	2023
Current assets	16,515	15,241
Non-current assets	8,261	8,722
Current liabilities	5,246	6,013
Non-current liabilities	3,672	2,146
Total equity	15,858	15,804

Shareholder's equity of ASMPT per December 31, 2023, translated into euros at a rate of 0.11586 was €1,831 million (our 24.85% share: €455 million).

The ASMPT Board is responsible for ongoing monitoring of the performance of ASMPT. The actual results of ASMPT are discussed with the ASMPT Audit Committee, which includes the representative of ASM. The ASM representative reports to the ASM Management Board and the Audit Committee of ASM on a quarterly basis.

The companies interests in Levitech and SIC systems AB are, individually and in aggregate, immaterial to the consolidated financial statements.

Our share of income taxes incurred directly by the associates is reported in income of investments in associates and as such is not included in income taxes in our consolidated financial statements.

Note 8. Inventories

Inventories consist of the following:

	December 31,	
	2022	2023
Components and raw materials	356,353	409,478
Work in progress	113,631	91,633
Finished goods	84,827	65,363
Total inventories, gross	554,811	566,474
Allowance for obsolescence	(16,386)	(40,784)
Total inventories, net	538,425	525,690

The changes in the allowance for obsolescence are as follows:

	December 31,	
	2022	2023
Balance at beginning of year	(13,604)	(16,386)
Additions	(8,173)	(36,536)
Reversals	4,028	10,042
Utilization of the provision	2,302	1,552
Foreign currency translation effect	(939)	544
Balance at end of year	(16,386)	(40,784)

On December 31, 2023, our allowance for inventory obsolescence amounted to €40.8 million, which is 7.8% of total inventory. The major part of the allowance is related to components and raw materials. The additions for 2022 and 2023 mainly relate to inventory items which ceased to be used due to technological developments and design changes resulting in obsolescence of certain parts. Allowance for obsolescence increased due to prior years measures to increase stock levels to minimize the impact of supply chain constraints, in conjunction with softening market conditions.

The cost of inventories recognized as costs and included in cost of sales amounted to €1,023.0 million (2022: €1,014.2 million).

Note 9. Accounts receivable

A significant percentage of our accounts receivable is derived from sales to a limited number of large multinational semiconductor device manufacturers located throughout the world. In order to monitor potential expected credit losses, we perform ongoing credit evaluations of our customers' financial condition.

The carrying amount of accounts receivable is as follows:

	December 31,	
	2022	2023
Current	466,502	427,111
Overdue <30 days	58,370	30,328
Overdue 31-60 days	21,941	5,710
Overdue 61-120 days	19,789	9,752
Overdue >120 days	14,221	14,826
Total	580,823	487,727

An allowance for doubtful accounts receivable is maintained for potential expected credit losses based upon management's assessment of the expected collectability of all accounts receivable. The allowance for doubtful accounts is reviewed periodically to assess the adequacy of the allowance. In making this assessment, management takes into consideration any circumstances of which we are aware regarding a customer's inability to meet its financial obligations, and our judgments as to potential prevailing economic conditions in the industry and their potential impact on the company's customers.

The changes in the allowance for doubtful accounts receivable are as follows:

	December 31,	
	2022	2023
Balance at beginning of year	(444)	(642)
Charged to selling, general and administrative expenses	(198)	(845)
Utilization of the provision	—	37
Foreign currency translation effect	—	(4)
Balance at end of year	(642)	(1,454)

Accounts receivable are impaired and provided for on an individual basis. As of December 31, 2023, accounts receivable of €60.6 million were past due but not impaired. These balances are still considered to be recoverable because they relate to customers for whom there is neither recent history of default nor expectation that this will incur. For further information on credit risk see Note 17.

Note 10. Other current assets

Other current assets consist of the following:

	December 31,	
	2022 ¹	2023
Prepayments	17,977	39,010
VAT receivable	20,648	23,154
Others	9,564	6,681
Total	48,189	68,845

¹ Comparatives of goodwill and other current assets have been revised for the effects of measurement adjustments to the acquisition of LPE in 2022, reference is made to note 1.

Note 11. Cash and cash equivalents

Cash and cash equivalents at December 31, 2023 include bank deposits and investments in money market funds that invest in marketable debt obligations and securities of governments, corporates and financial institutions. The amount invested in deposits and money market funds at the end of 2023 was €191 million (2022: €11 million) and interest-bearing bank accounts of €446 million (2022: €408 million). Our cash and cash equivalents are predominantly denominated in US dollars, and partly in euros, Singapore dollars, Korean won, and Japanese yen.

Bank guarantees exist for an amount of €1.8 million at December 31, 2023 (€1.8 million as per December 31, 2022). These guarantees mainly relate to lease and tax payments.

Cash and cash equivalents have insignificant interest-rate risk and remaining maturities of maximum three months or can be converted into cash without no more than 30 days' notice. Except for an amount of €0.5 million (2022: €0.3 million), there are no restrictions on usage of cash and cash equivalents. The carrying amount of these financial assets approximates their fair value. The company has not recognized a provision for expected credit loss for cash and cash equivalents due to the insignificance of the amount.

Note 12. Equity

Our Management Board has the power to issue common shares and (financing) preferred shares insofar as the Management Board has been authorized to do so by the Annual General Meeting of Shareholders (AGM). The Management Board requires the approval of the Supervisory Board for such an issue. The authorization by the AGM can only be granted for a certain period. In the case that the AGM has not authorized the Management Board to issue shares, the AGM shall have the power to issue shares.

Capital management

The Board's policy is to maintain a strong capital base in order to retain investor, creditor and market confidence and to sustain future development of the business. Management strives to maintain a cash position of at least €600 million to reflect a balance between investing in growth of the business, its policy to pay a sustainable dividend and returning excess cash to shareholders. With the publication of the Q4 2023 results on February 27, 2024, we announced a new €150 million share buyback program. The Company's objective is to achieve a sound return on shareholders' equity. The Company is monitoring its capital ratio of net debt to total Shareholders' equity which should not exceed 1.5. There were no changes to the Board's approach to capital management during the year.

Common shares, preferred and financing preferred shares

Following the amendment of the articles of association on August 3, 2018, the authorized capital of the company amounts to 82,500,000 common shares of €0.04 par value, 88,500 preferred shares of €40 par value and 6,000 financing preferred shares of €40 par value. As per December 31, 2023, 49,428,548 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 226,802 common shares are held by us in treasury. All shares have one vote per €0.04 par value. Treasury shares held by the company cannot be voted on. Of our 49,201,746 outstanding common shares at December 31, 2023, 46,629,656 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 2,572,090 are registered with our transfer agent in the United States, Citibank, NA, New York.

Financing preferred shares are designed to allow ASM to finance equity with an instrument paying a preferred dividend, linked to Euribor loans and government loans, without the dilutive effects of issuing additional common shares.

Preferred and financing preferred shares are issued in registered form only and are subject to transfer restrictions. Essentially, a preferred or financing preferred shareholder must obtain the approval of the company's Supervisory Board to transfer shares. If approval is denied, the Supervisory Board will provide a list of acceptable prospective buyers who are willing to purchase the shares at a cash price to be fixed by consent of the Supervisory Board and seller within two months after the approval is denied. If the transfer is approved, the shareholder must complete the transfer within three months, at which time the approval expires.

Preferred shares are entitled to a cumulative preferred dividend based on the amount paid up on such shares. Financing preferred shares are entitled to a cumulative dividend based on the par value and share premium paid on such shares.

As per December 31, 2023, no preferred shares and no financing preferred shares are issued.

Purchases of common shares by the issuer and affiliated purchasers

On May 15, 2023, the AGM authorized the company, for an 18-month period, to be calculated from the date of the AGM, to repurchase its own shares up to 10% of the issued capital, at a price at least equal to the shares' nominal value and at most a price equal to 110% of the shares' average closing price according to the listing on the Euronext Amsterdam stock exchange during the five trading days preceding the purchase date.

On February 22, 2022, ASM announced a share buyback program to purchase up to an amount of €100 million of its own shares within the 2022/2023 time frame. This program started on April 27, 2023, and was completed on September 19, 2023.

Period	Total number of shares purchased	Average price paid per share (€)	Cumulative number of shares purchased
April, 2023	8,548	€324.79	8,548
May, 2023	60,288	€341.17	68,836
June, 2023	69,817	€383.07	138,653
July, 2023	23,575	€376.75	162,228
August, 2023	5,727	€421.79	167,955
September, 2023	96,548	€399.93	264,503
Total	264,503	€378.07	

The share buyback programs were executed by intermediaries through on-exchange purchases or through off-exchange trades. ASM updated the markets on the progress of the share buyback programs on a weekly basis.

The following table shows the change in number of treasury shares and outstanding shares:

Number of shares	Treasury shares	Outstanding shares
Balance at beginning of year	22,229	49,326,319
Purchase common shares	264,503	(264,503)
Exercise stock options out of treasury shares	(18,249)	18,249
Vesting restricted shares out of treasury shares	(121,681)	121,681
Issue of common shares	80,000	—
Balance at end of year	226,802	49,201,746

ASM intends to use part of the shares for commitments under the employee share-based compensation schemes and the performance shares and option program for the Management Board.

Treasury shares

On December 31, 2023, we had 49,201,746 outstanding common shares excluding 226,802 treasury shares. This compared to 49,326,319 outstanding common shares and 22,229 treasury shares at December 31, 2022. The change in the number of treasury shares in 2023 was the result of 264,503 repurchased shares, issue of 80,000 common shares and 139,930 treasury shares that were used as part of share-based payments and exercised options.

	2022	2023
As per January 1:		
Issued shares	49,297,394	49,348,548
Treasury shares	728,717	22,229
Outstanding shares	48,568,677	49,326,319
Changes during the year:		
Issue of common shares related to the acquisition of business combinations	51,154	—
Treasury shares transferred related to the acquisition of business combinations	580,000	—
Share buybacks	—	264,503
Treasury shares used for share-based performance programs	126,488	121,681
Treasury shares used for exercise stock options	—	18,249
Issue of common shares used for share-based performance programs	—	80,000
As per December 31:		
Issued shares	49,348,548	49,428,548
Treasury shares	22,229	226,802
Outstanding shares	49,326,319	49,201,746

Retained earnings

Distributions to common shareholders are limited to the extent the total amount of shareholders' equity exceeds the amounts of nominal paid-in share capital (exclusive any share premium) and any reserves to be formed pursuant to law or the company's Articles of Association. The amounts are derived from the company financial statements of ASM.

ASM aims to pay a sustainable annual dividend. The Supervisory Board, upon proposal of the Management Board, will annually assess the amount of dividend that will be proposed to the AGM. The decision that a dividend be proposed to the AGM will be subject to the availability of distributable profits as well as retained earnings and may be affected by our potential future funding requirements. Accordingly, dividend payments may fluctuate and could decline or be omitted in any year.

Over 2022, we paid in total a dividend of €2.50 per common share as regular dividend, and was paid after the 2023 AGM in May 2023. We will propose to the forthcoming 2024 AGM to declare a regular dividend of €2.75 per share over 2023.

Results on dilution of investments in associates are accounted for directly in equity. For 2023 and 2022, these dilution results were €2,606 and €60, respectively.

Other reserves

The changes in the amounts of other reserves are as follows:

	Proportionate share in other comprehensive income of investments in associates	Remeasurement on net defined benefit	Foreign currency translation reserve	Total other reserves
Balance January 1, 2022	(671)	442	129,701	129,472
Proportionate share in other comprehensive income of investments in associates	2,950	—	—	2,950
Remeasurement on net defined benefit	—	615	—	615
Foreign currency translation effect on foreign operations	—	—	61,845	61,845
Balance December 31, 2022	2,279	1,057	191,546	194,882
Proportionate share in other comprehensive income of investments in associates	(618)	—	—	(618)
Remeasurement on net defined benefit	—	479	—	479
Foreign currency translation effect on foreign operations	—	—	(90,908)	(90,908)
Balance December 31, 2023	1,661	1,536	100,638	103,835

Note 13. Employee benefits

Pension plans

The company has retirement plans covering substantially all employees. The principal plans are defined contribution plans, except for the plans of the company's operations in the Netherlands and Japan.

Multi-employer plan

There are 225 eligible employees in the Netherlands. These employees participate in a multi-employer union plan (pension fund Metalektro PME) determined in accordance with the collective bargaining agreements effective for the industry in which we operate. This multi-employer union plan, accounted for as a defined contribution plan, covers approximately 1,527 companies and approximately 174,400 contributing members. Our contribution to the multi-employer union plan was less than 5% of the total contribution to the plan. The plan monitors its risks on a global basis, not by participating company or employee, and is subject to regulation by Dutch governmental authorities. By law (the Dutch Pension Act), a multi-employer union plan must be monitored against specific criteria, including the coverage ratio of the plan's assets to its obligations. As of July 1, 2023, new pension legislation has been enacted, however the new legislation will become effective in upcoming reporting period, no impact identified on the 2023 financial statements. The current effective legislation results in, amongst others, an increase of legally required coverage levels. The coverage percentage is calculated by dividing the funds capital by the total sum of pension liabilities and is based on actual market interest rates. The coverage ratio as per December 31, 2023, of 109.4% (December 31, 2022: 110.4%) is calculated giving consideration to the pension legislation. We have no obligation to pay off any deficits the pension fund may incur, nor do we have any claim to any potential surpluses.

Every company participating in the PME contributes a premium calculated as a percentage of its total pensionable salaries, with each company subject to the same contribution rate. The premium can fluctuate yearly based on the coverage ratio of the multi-employer union plan. For 2023, the contribution percentage was 27.98%. The pension rights of each employee are based upon the employee's average salary during employment.

Our net periodic pension cost for this multi-employer union plan for any period is the amount of the required employer contribution for that period minus the employee contribution.

Defined benefit plan

The company's employees in Japan participate in a defined benefit plan. The company makes contributions to defined benefit plans in Japan that provide pension benefits for employees upon retirement. These are average-pay plans, based on the employees' years of service and compensation near retirement.

The most recent actuarial valuations of plan assets and the present value of the defined benefit obligation were carried out on December 31, 2023. The present value of the defined benefit obligation and the related current service cost and past service cost were measured using the projected unit credit method. Significant actuarial assumptions for the determination of the defined obligation are discount rate, future general salary increases, and future pension increases.

The net liability (asset) of the plan developed as follows:

	December 31,	
	2022	2023
Defined benefit obligations	10,227	8,615
Fair value of plan assets	12,783	11,534
Net liability (asset) for defined benefit plans	(2,556)	(2,919)

The company does not provide for any significant post-retirement benefits other than pensions.

Management board and employee and long-term incentive plan

The company has adopted various share plans (e.g. a restricted share plan, and a performance share plan) and has entered into share agreements with the Management Board and various employees. Under the stock option plans, the Management Board and employees may purchase per the vesting date a specific number of shares of the company's common stock at a certain price. Options are priced at market value in euros on the date of grant. Under the restricted share plan, employees receive per the vesting date a specific number of shares of the company's common stock. Under the performance share plan, the Management Board receives per the vesting date, and provided the performance criteria have been met, a specific number of shares of the company's common stock.

Authority to issue shares

By resolution of the Annual General Meeting of Shareholders (AGM) of May 15, 2023, the formal authority to issue shares was allocated to the Management Board subject to the approval of the Supervisory Board. This authority is valid for 18 months and needs to be refreshed by the 2024 AGM to allow the continued application of the long-term incentive (LTI) plans beyond November 15, 2024. The company hasn't granted new options since its last grant date per April 2017.

The ASM 2014 long-term incentive plan for employees (ELTI) is principally administered by the Management Board and the ASM 2014 long-term incentive plan for members of the Management Board (MLTI) is principally administered by the Supervisory Board. This complies with applicable corporate governance standards. However, the Supervisory Board has no power to represent the company. For external purposes, the Management Board remains the competent body under both LTI plans. The LTI plans envisage that the Supervisory Board, or in the case of the ELTI the Management Board with the approval of the Supervisory Board, will determine the number of options and shares to be granted to the Management Board members and to employees.

2014 long-term incentive plan

In 2014, a new long-term incentive plan was adopted. In the new plan to limit potential dilution, the amount of outstanding (vested and non-vested) options and shares granted

to the Management Board and to other employees will not exceed 5% of the issued ordinary share capital of ASM. The new long-term incentive plan 2014 consists of two sub-plans: the ELTI and the MLTI.

Options and performance shares are issued to Management Board members and restricted shares are issued to employees once per annum on the date following the publication of the first-quarter results of the relevant year. Possible grant to newly hired employees can be issued once a quarter, on the date following the publication of the financial results of the relevant quarter. The number of options and shares outstanding under the long-term incentive plans or under any other plan or arrangement in aggregate may never exceed 5% of ASM's share capital.

Performance and restricted shares outstanding

The following table is a summary of changes in performance shares and restricted shares outstanding under the 2014 long-term incentive plan.

	Number of performance shares	Number of restricted shares	Status	Fair value at grant date (weighted average)
Balance January 1, 2022	14,430	234,412		
Shares granted, employees	—	167,836	Unconditional	€260.77
Shares granted, Management Board	9,726	—	Conditional	€261.25
Shares granted, Management Board	—	—	Unconditional	€49.78
Shares vested	—	(126,488)		
Shares forfeited	(1,087)	(36,050)		
Balance December 31, 2022	23,069	239,710		
Shares granted, employees	—	120,200	Unconditional	€317.51
Shares granted, Management Board	18,017	—	Conditional	€313.46
Shares granted, Management Board	—	—	Unconditional	€0.00
Shares vested	(8,087)	(113,594)		
Shares forfeited	—	(9,879)		
Balance December 31, 2023	32,999	236,437		

In 2023, treasury shares were sold for the vesting of 121,681 restricted shares.

Options outstanding

The following table is a summary of changes in options outstanding under the 2014 long-term incentive plan.

	Number of options	Exercise price in €	Fair value at grant date
Balance January 1, 2015	—		
Options granted, April 24, 2015	42,659	44.24	€17.33
Balance December 31, 2015	42,659		
Options granted, April 22, 2016	62,555	37.09	€12.64
Balance December 31, 2016	105,214		
Options granted, April 21, 2017	24,963	51.55	€14.57
Balance December 31, 2017	130,177		
Adjustment following capital repayment	11,593	—	—
Balance December 31, 2018	141,770		
Options exercised, 2021	(123,521)	—	—
Balance December 31, 2021	18,249		
Options exercised, 2022	—	—	—
Balance December 31, 2022	18,249		
Options exercised, 2023	(18,249)	—	—
Balance December 31, 2023	—		

In 2023, no options were granted and there are no outstanding options (2022: €4,300 aggregate intrinsic value under the 2014 long-term incentive plan).

Share-based payments expenses

The grant date fair value of the restricted shares and the performance shares is expensed on a straight-line basis over the vesting period, based on the company's estimate of restricted shares, and performance shares that will eventually vest. The impact of the true-up of the estimates is recognized in the consolidated statement of profit or loss in the period in which the revision is determined. We recorded compensation expenses of €37,308 for 2023 (2022: €29,877).

Note 14. Provision for warranty

The changes in the amount of provision for warranty are as follows:

	December 31,	
	2022	2023
Balance January 1	27,181	34,219
Acquisitions through business combinations	1,300	—
Additions	33,738	36,360
Utilization	(14,797)	(29,238)
Releases of expired warranty	(13,843)	(17,352)
Foreign currency translation effect	640	(1,273)
Balance December 31	34,219	22,716

Provision is made for estimated warranty claims in respect of products sold which are still under warranty at the end of the reporting period. Costs of warranty include the cost of labor and materials to repair a product during the warranty period. The main term of the warranty period is one year. The company accrues for the estimated cost of the warranty on its products shipped in the provision for warranty, upon recognition of the sale of the product. The costs are estimated based on actual historical expenses incurred and on estimated future expenses related to current revenue, and are updated periodically. Actual warranty costs are charged against the provision for warranty. The assumptions made in relation to the current period are consistent with those in the prior year. Factors that could impact the estimated claim information include the success of the group's productivity and quality initiatives, as well as parts and labor costs. The main part of the claims is expected to be settled in the next financial year.

Note 15. Accrued expenses and other payables

Accrued expenses and other payables consist of the following:

	December 31,	
	2022	2023
Personnel-related items	100,717	132,813
Current lease liabilities	9,520	10,874
Supplier-related items	21,866	39,996
R&D projects	5,570	—
Other	26,058	32,530
Total accrued expenses and other payables	163,731	216,213

Personnel-related items comprise accrued management bonuses, accrued vacation days, accrued wage tax, social securities, and pension premiums. Other includes accruals for VAT, other taxes, and invoices to be received for services.

Note 16. Credit facility

As per December 31, 2023, ASM was debt-free. ASM may borrow under separate short-term lines of credit with banks under an unsecured €150 million standby credit facility with a consortium of banks.

The amount outstanding as at December 31, 2023 was nil, so the undrawn portion totaled €150 million. The undrawn portion represents the company's standby revolving credit facility of €150 million with a consortium of banks. The 2022 new facility has a tenor of five years with an option to extend up to two years. The facility amount is €150 million with an accordion option to increase the facility by an amount of €100 million.

The credit facility of €150 million includes one financial covenant:

- Consolidated total net debt/total shareholders' equity ratio.

This financial covenant is measured twice each year: on June 30 and December 31.

The net debt/total shareholders' equity ratio should not exceed 1.5. For the year ended December 31, 2023, the company has no net debt, cash and cash equivalents amount to €637 million, and total equity equals the amount of consolidated tangible net worth.

The company is in compliance with these financial covenants as of December 31, 2023.

The RCF agreement stipulates that in the event of a change of control of ASM, the amounts outstanding under the arrangement may become immediately due.

Note 17. Financial instruments and financial risk management

Financial instruments

Financial instruments include:

	December 31,	
	2022	2023
Financial assets:		
Cash and cash equivalents	419,315	637,264
Accounts receivable	580,823	487,727
Financial liabilities:		
Lease liabilities	18,604	22,684
Contingent consideration payable	78,649	88,304
Accounts payable	243,499	177,686

The carrying amounts of cash and cash equivalents, accounts receivable and accounts payable equal their fair values because of the short-term nature of these instruments.

Gains or losses related to financial instruments are as follows:

	2022	2023
Interest income	2,246	14,826
Interest expense	(1,523)	(3,945)
Change in fair value of contingent consideration	(2,575)	(9,655)
Result from foreign currency exchange	25,011	(21,375)
Addition to allowance for doubtful accounts receivable	(198)	(845)

Financial risk factors

ASM is exposed to a number of risk factors: market risks, credit risk, liquidity risk, and equity price risk. The company may use forward exchange contracts to hedge its foreign exchange risk. The company does not enter into financial instrument transactions for trading or speculative purposes.

Market risk

Market risk includes changes in market prices, foreign exchange rates and interest rates, which will affect the group's income or the value of its holdings of financial instruments. The objective of market-risk management is to manage and control market risk exposures within acceptable parameters, while optimizing the return.

Foreign exchange risk

ASM and its subsidiaries conduct business in a number of foreign countries, with certain transactions denominated in currencies other than the functional currency of the company (euro) or one of its subsidiaries conducting the business. The purpose of the company's foreign currency management is to manage the effect of exchange-rate fluctuations on income, expenses, cash flows, and assets and liabilities denominated in selected foreign currencies, in particular denominated in US dollars.

We may use forward exchange contracts to hedge our foreign exchange risk of anticipated sales or purchase transactions in the normal course of business which occur within the next twelve months, for which we have a firm commitment from a customer or to a supplier. The terms of these contracts are consistent with the timing of the transactions

being hedged. There is no hedge accounting applied on the hedges therefore change in fair value (gain or loss) on the hedges will be recognized in profit or loss.

Changes in the fair value of derivatives that do not qualify for hedge treatment, as well as the ineffective portion of any hedges, are recognized in earnings. We record all derivatives, including forward exchange contracts, on the statement of financial position at fair value in accrued expenses and payables. Should contracts extend beyond one year, these are classified as long-term.

Furthermore, we may manage the currency exposure of certain receivables and payables using derivative instruments, such as forward exchange contracts (fair value hedges) and currency swaps, and non-derivative instruments, such as debt borrowings in foreign currencies. The gains or losses on these instruments provide an offset to the gains or losses recorded on receivables and payables denominated in foreign currencies. The derivative instruments are recorded at fair value and changes in fair value are recorded in earnings under foreign currency exchange gains (losses) in the consolidated statement of profit or loss. Receivables and payables denominated in foreign currencies are recorded at the exchange rate at the balance sheet date, and gains and losses as a result of changes in exchange rates are recorded in earnings under foreign currency exchange gains (losses) in the consolidated statement of profit or loss.

We do not use forward exchange contracts for trading or speculative purposes. Financial assets and financial liabilities are recognized on the company's consolidated statement of financial position when the company becomes a party to the contractual provisions of the instrument.

To the extent that exchange rate fluctuations impact the value of the company's investments in its foreign subsidiaries, they are not hedged. The cumulative effect of these fluctuations is separately reported in consolidated equity. Reference is made to Note 12.

Per December 31, 2023, there were no forward exchange contracts outstanding (none as per December 31, 2022).

The foreign currency exchange results in 2023 related only to translation loss of €21.4 million, compared to translation gain of €25.0 million in 2022. A substantial part of ASM's cash position is denominated in US dollar, which is the key driver of the exchange gain in 2022 and loss in 2023.

(thousand)	December 31,							
	2022				2023			
	USD	JPY	KRW	SGD	USD	JPY	KRW	SGD
Accounts receivable	490,051	5,836,919	14,503,184	458	430,219	1,896,633	9,828,588	510
Cash and cash equivalents	308,977	2,209,145	16,405,166	32,370	557,922	2,538,412	20,238,173	30,384
Accounts payable	(117,040)	(3,429,196)	(31,297,765)	(78,164)	(77,837)	(3,041,465)	(28,425,737)	(36,840)
Total	681,988	4,616,868	(389,415)	(45,336)	910,304	1,393,580	1,641,024	(5,946)

The following table analyzes the company's sensitivity to a hypothetical 10% strengthening and 10% weakening of the US dollar, Singapore dollar, Korean won and Japanese yen against the euro as of December 31, 2022, and December 31, 2023. This analysis includes foreign currency-denominated monetary items and adjusts their translation at year-end for a 10% increase and 10% decrease against the euro.

(€ thousand)	Impact on financial instruments	
	2022	2023
10% increase of US dollar versus euro	63,940	82,381
10% decrease of US dollar versus euro	(63,940)	(82,381)
10% increase of Singapore dollar versus euro	(3,170)	(408)
10% decrease of Singapore dollar versus euro	3,170	408
10% increase of Korean won versus euro	(29)	115
10% decrease of Korean won versus euro	29	(115)
10% increase of Japanese yen versus euro	3,283	892
10% decrease of Japanese yen versus euro	(3,283)	(892)

A hypothetical 10% strengthening or 10% weakening of any other currency against the euro as of December 31, 2022, and December 31, 2023, could have a material impact on net earnings for certain currencies.

The following table analyzes the company's exposure to currency risk in our major currencies.

Interest risk

We are exposed to interest rate risk through our cash deposits. The company does not enter into financial instrument transactions for trading or speculative purposes, or to manage interest-rate exposure. As per December 31, 2023, the company had no debt and was not exposed to interest rate risk on borrowings.

Credit risk

Financial instruments that potentially subject the company to concentrations of credit risk consist primarily of cash and cash equivalents, accounts receivable, and derivative instruments. These instruments contain a risk of counterparties failing to discharge their obligations. We monitor credit risk and manage credit risk exposure by type of financial instrument by assessing the creditworthiness of counterparties. We do not anticipate non-performance by counterparties, given their high creditworthiness.

Our customers are semiconductor device manufacturers located throughout the world. We perform ongoing credit evaluations of our customers' financial condition. We take additional measures to mitigate credit risk when considered appropriate by means of down payments or letters of credit. We generally do not require collateral or other security to support financial instruments with credit risk.

Concentrations of credit risk (whether on- or off-balance sheet) that arise from financial instruments exist for groups of customers or counterparties when they have similar economic characteristics that would cause their ability to meet contractual obligations to be similarly affected by changes in economic or other conditions.

We derive a significant percentage of our revenue from a small number of large customers. The 10 largest customers accounted for approximately 64.9% of revenue in 2023 (2022: 77.8%). The five largest customers accounted for approximately 48.7% of revenue in 2023 (2022: 67.5%). In 2023, we had two customers (2022: two customers) who contributed more than 10% of total revenue. Revenue to these large customers may also fluctuate significantly from time to time, depending on the timing and level of purchases by these customers. Significant orders from such customers may expose the company to a concentration of credit risk, and difficulties in collecting amounts due, which could harm the company's financial results. However, given the creditworthiness of our customers and historical experience, we have not accounted for an expected credit loss over the outstanding balances in general, for further details we refer to Note 9.

We invest our cash and cash equivalents in short-term deposits, money-market funds, and derivative instruments with high-rated financial institutions. We only enter into transactions with a limited number of major financial institutions that have high credit ratings, and we closely monitor the creditworthiness of our counterparties. Concentration risk is mitigated by not limiting the exposure to a single counterparty.

The maximum credit exposure is equal to the carrying values of cash and cash equivalents and accounts receivable.

Liquidity risk

Our policy is to maintain a strong capital base so as to maintain investor-, creditor-, and market confidence, and to sustain future development of the business.

Our liquidity needs are affected by many factors, some of which are based on the normal ongoing operations of the business, and others that relate to the uncertainties of the global economy and the semiconductor industry. Although our cash requirements fluctuate

based on the timing and extent of these factors, we believe that cash generated from operations, together with our principal sources of liquidity, are sufficient to satisfy our current requirements, including our expected capital expenditures in 2023.

We intend to return cash to our shareholders on a regular basis in the form of dividend payments and, subject to our actual and anticipated liquidity requirements and other relevant factors, share buybacks.

The following table summarizes the company's contractual and other obligations as at December 31, 2023.

	Total	Less than 1 year	1-5 years	More than 5 years
Accounts payable	177,686	177,686	—	—
Income tax payable	21,925	21,925	—	—
Accrued expenses and other payables	216,213	216,213	—	—
Contract liabilities	300,241	300,241	—	—
Non-current lease liabilities	22,684	—	19,839	2,845
Contingent consideration payable	88,304	—	88,304	—
Pension liabilities	6,401	582	2,196	3,623
Purchase obligations:				
Purchase commitments to suppliers	665,657	579,941	85,716	—
Capital expenditure and other commitments	49,287	31,669	17,618	—
Total contractual obligations	1,548,398	1,328,257	213,673	6,468

Total short-term lines of credit amounted to €150 million at December 31, 2023.

The amount outstanding at December 31, 2023 was nil and the undrawn portion totaled €150 million. The standby revolving credit facility of €150 million with a consortium of banks will be available through May 31, 2027.

For the majority of purchase commitments, the company has flexible delivery schedules depending on the market conditions, which allows the company, to a certain extent, to delay delivery beyond originally planned delivery schedules.

Note 18. Commitments and contingencies

Per December 31, 2023, the company entered into purchase commitments with suppliers in the amount of €579,941 (2022: €843,661) for purchases within the next 12 months and €85,716 (2022: €149,473) after 12 months. Commitments for capital expenditures and other commitments per December 31, 2023 were €31,669 (2022: €23,588) within the next 12 months and €17,618 (2022: €162) after 12 months. The decrease in commitments to suppliers is mainly explained by a largely normalized supply chain and softening market conditions.

Note 19. Litigation

ASM is, and may become, a party to various legal proceedings incidental to its business. As is the case with other companies in similar industries, the company faces exposure from actual or potential claims and legal proceedings. Although the ultimate result of legal proceedings cannot be predicted and may have material effects, and in many events cannot be reasonably estimated, it is the opinion of the company's management that the outcome of any claim which is currently pending, either individually or on a combined basis, will not have a material effect on the financial position of the company, its cash flows and result of operations.

Note 20. Segment disclosure

Operating segments are reported in a manner consistent with the internal reporting provided to the Chief Executive Officer (CEO), who is the Chief Operating Decision Maker (CODM).

The accounting policies used to measure the net earnings and total assets in each segment are consistent with those used in the consolidated financial statements. The measurement methods used to determine reported segment earnings are consistently applied for all periods presented. There were no asymmetrical allocations to segments.

Geographical information is summarized as follows:

(€ thousand)	Year ended December 31,			
	2022		2023	
	Revenue	Non-current assets ¹	Revenue	Non-current assets ¹
United States	561,848	383,846	555,079	505,677
Europe	264,324	653,152	302,746	639,628
Asia	1,584,755	346,451	1,776,506	395,756
Total	2,410,927	1,383,449	2,634,331	1,541,061

¹ Other than financial instruments, deferred tax assets and post-employment benefit assets

We refer to Note 17. Financial instruments and financial risk management for information on the extent of reliance on major customers.

Note 21. Revenue

Geographical information is summarized as follows:

(€ thousand)	Year ended December 31,	
	2022	2023
	Revenue	Revenue
United States	561,848	555,079
Europe	264,324	302,746
Asia	1,584,755	1,776,506
Total	2,410,927	2,634,331

For geographical reporting, the revenue is attributed to the geographical location in which the customer's facilities are located.

Revenue stream

The company generates revenue primarily from the sales of equipment and spares and services. The products and services are described by nature in the summary of significant accounting policies, and are recognized within these revenue streams as follows:

- Equipment revenue: This revenue stream captures the sale of equipment and installation services. Revenues from royalties and licenses are included to the extent that these licenses relate to equipment.
- Spares & Services revenue: The revenues included under this line relate to the sale of spares and support services. Revenues from royalties and licenses are included to the extent that these licenses relate to spares.

(€ thousand)	Year ended December 31,	
	2022	2023
Equipment revenue	2,033,669	2,205,846
Spares & Services revenue	377,258	428,485
Total	2,410,927	2,634,331

Total revenue increased by 9%, driven by increases in our VF and SiC business.

Contract balances

	2022	2023
Contract assets (current)	63,982	59,392
Contract Liabilities	295,180	300,241

The current contract assets primarily relate to the company's right to consideration for work completed and revenue recognized but not billed at the reporting date. The contract asset is transferred to accounts receivables when the rights become unconditional.

This usually occurs when the company issues an invoice to the customer.

Contract liabilities relates to the advance consideration received from customers for which revenue is not yet recognized because the performance obligation has not been satisfied yet. This part of the revenue is deferred at the transaction price allocated to the performance obligations until shipment (depending Inco-term). An amount of €178 million included in the contract liabilities at December 31, 2022, has been recognized in 2023.

Note 22. Income taxes

Amounts recognized in profit or loss

The components of the result before income taxes consist of:

	Year ended December 31,	
	2022	2023
The Netherlands	157,738	469,727
Other countries	347,238	396,794
Result before income taxes	504,976	866,521

The income tax expense consists of:

	Year ended December 31,	
	2022	2023
Current:		
The Netherlands	(78,738)	(65,948)
Other countries	(36,430)	(19,600)
	(115,168)	(85,548)
Deferred:		
The Netherlands	(1,875)	(11,305)
Other countries	1,180	(17,595)
Income tax expense	(115,863)	(114,448)

Reconciliation of effective tax rate

The provisions for income taxes as shown in the consolidated statements of profit or loss differ from the amounts computed by applying the Dutch statutory income tax rate to earnings before taxes. A reconciliation of the provisions for income taxes and the amounts that would be computed using the Dutch statutory income tax rate is set forth as follows:

	Year ended December 31,			
	2022		2023	
Result before income taxes from continuing operations	504,976	100.0%	866,521	100.0%
Income tax provision based on Dutch statutory income tax rate	(130,284)	25.8 %	(223,562)	25.8 %
Non-deductible expenses	(1,639)	0.3 %	(12,584)	1.5 %
Foreign taxes at a rate other than the Dutch statutory rate	18,182	(3.6) %	17,752	(2.0) %
Tax incentives ¹ and non-taxable income ²	54,942	(10.9) %	33,532	(3.9) %
Adjustments in respect of prior years' current taxes	(49)	— %	15,531	(1.8) %
Non-deductible income, impairment (charge) reversal on investments in associates ²	(55,570)	11.0 %	58,054	(6.7) %
Other ³	(1,445)	0.3 %	(3,172)	0.4 %
Tax income (expense)	(115,863)	22.9 %	(114,449)	13.2 %

¹ Tax incentives relate to the Netherlands (Innovation Box), Singapore (Pioneer and DEI Certificates) and South Korea (FIZ).

² Non-taxable income consists of revenues deriving from the share in income of investments in associates which are exempted under the Dutch participation exemption. The participation exemption also applies to the impairment (charge) reversal on investments in associates.

³ Other mainly consists of tax credits, withholding taxes, changes in (enacted) tax laws, changes in deferred taxes and revaluation of certain assets.

The consolidated group effective tax rate for 2023 is lower compared to previous year due to an incidental non-deductible impairment reversal on ASMPT. The effective tax rate, excluding the impairment on, and net income of our investment in ASMPT, for 2023 is 18.1% (2022: 17.7%).

The Dutch statutory tax rate is 25.8%. Taxation for other jurisdictions is calculated at the rates prevailing in the relevant jurisdictions. During 2023, there was no significant change in the statutory tax rates of the relevant jurisdictions. The company's deferred tax assets and liabilities have been determined in accordance with these statutory income tax rates.

Movement in deferred tax balances

	Net balance at January 1, 2022	Changes through business combinations	Consolidated statement of profit and loss	Equity	Exchange differences	Net balance at December 31, 2022	Deferred tax assets at December 31, 2022	Deferred tax liabilities at December 31, 2022
Right-of-use assets & lease liabilities	212	—	40	—	10	262	—	262
Property plant and equipment	(2,828)	—	662	—	(37)	(2,203)	—	(2,203)
Other intangible assets	(60,785)	(82,429)	(3,213)	—	(1,236)	(147,663)	—	(147,663)
Evaluation tools	3,949	—	(1,719)	—	(296)	1,934	—	1,934
Employee benefits	(680)	—	(152)	(277)	48	(1,061)	—	(1,061)
Inventories	1,278	451	1,800	—	40	3,569	140	3,429
Provision for warranty	5,651	191	994	—	105	6,941	—	6,941
Accrued expenses	6,297	(257)	4,088	—	182	10,310	41	10,269
Tax losses carried forward	—	6,816	(2,049)	—	(115)	4,652	—	4,652
R&D tax credits	1,227	(567)	(1,146)	—	123	(363)	—	(363)
Total deferred tax	(45,679)	(75,795)	(695)	(277)	(1,176)	(123,622)	181	(123,803)

	Net balance at January 1, 2023	Changes through business combinations	Consolidated statement of profit and loss	Equity	Exchange differences	Net balance at December 31, 2023	Deferred tax assets at December 31, 2023	Deferred tax liabilities at December 31, 2023
Right-of-use assets & lease liabilities	262	—	68	—	(11)	319	—	319
Property plant and equipment	(2,203)	—	(1,079)	—	47	(3,235)	(787)	(2,448)
Other intangible assets	(147,663)	—	(35,004)	—	2,965	(179,702)	—	(179,702)
Evaluation tools	1,934	—	44	—	(66)	1,912	—	1,912
Employee benefits	(1,061)	—	5,750	(234)	(97)	4,358	—	4,358
Inventories	3,569	—	2,449	—	(58)	5,960	773	5,187
Provision for warranty	6,941	—	(2,321)	—	(198)	4,422	—	4,422
Accrued expenses	10,310	—	150	—	(428)	10,032	193	9,839
Tax losses carried forward	4,652	—	(782)	—	(143)	3,727	—	3,727
R&D tax credits	(363)	—	2,663	—	(61)	2,239	—	2,239
Total deferred tax	(123,622)	—	(28,062)	(234)	1,950	(149,968)	179	(150,147)

Deferred tax assets and/or liabilities for temporary differences are mainly recognized in the Netherlands, United States, Japan, South Korea and Singapore.

Income tax receivable and income tax payable

During 2023, the company paid income taxes of €118.8 million (2022: €90.5 million) for tax assessments relating to 2023.

Unrecognized deferred tax assets

The credits concern R&D credits generated in the US, in the state of Arizona. However, ASM does not recognize these credits stemming from prior years due to the fact that utilization of prior-year credits is only possible if and when the credits generated in the current year are fully utilized. Given the level of R&D activity in the US, the company does not expect it could fully utilize the credits generated in the current year and, hence, does not expect to benefit from the available credits generated in prior years.

	2023	
	Gross amount	Tax effect
Credits	30,381,971	30,381,971
Unrecognized deferred tax assets	30,381,971	30,381,971

Summary of open tax years

A summary of open tax years by major jurisdiction is as follows:

Jurisdiction	
Japan	2022-2023
The Netherlands	2023
Singapore	2019-2023
United States of America	2019-2023
South Korea	2022-2023

The calculation of the company's tax liabilities involves dealing with uncertainties in the application of complex tax laws. The company's estimate for the potential outcome of any unrecognized tax benefits is highly judgmental. Settlement of unrecognized tax benefits in a manner inconsistent with the company's expectations could have a material impact on the company's financial position, net earnings and cash flows. The company is subject to tax audits in its major tax jurisdictions, and local tax authorities may challenge the positions taken by the company.

Global minimum top-up tax

The company operates in amongst others the Netherlands, which has enacted new legislation to implement the global minimum top-up tax. ASM expects to be subject to the top-up tax in relation to its operations in the US, Korea, Singapore and Finland. Although these countries have a statutory tax rate above 15%, the subsidiaries in the US, Singapore and Korea receive tax credits and/or tax incentives that reduce their effective tax rate below 15%. The company's impact assessment of the Global Minimum Tax implementation in the Netherlands, based on recent financial results, indicate a possible increase in income taxes of about €15 to €20 million. Since the newly enacted tax legislation in the Netherlands is only effective from 1 January 2024, there is no current tax impact for the year ended 31 December 2023.

ASM has applied a temporary relief from deferred tax accounting for the impacts of the top-up tax and accounts for it as a current tax when it is incurred.

Note 23. Expenses by nature

Expenses by nature were as follows:

	Year ended December 31,	
	2022	2023
Materials and supplies	1,014,196	1,048,119
Personnel expenses	471,464	563,589
Depreciation and amortization	122,434	176,258
Impairments	6	4,638
Other personnel-related expenses	103,754	103,076
Professional fees	44,718	44,825
Other ¹	21,960	40,154
Total cost of sales, selling, general and administrative and research and development expenses	1,778,532	1,980,659

¹ Other relates to facility expenses, IT expenses and other expenses minus capitalized expenses. In 2023 an amount of € 9.4 million concerns PPA realization relating to fair value adjustments on inventory and deferred revenues (2022 €2.8 million)

Research and development consists of the following:

	Year ended December 31,	
	2022	2023
Gross research and development expenses	301,618	410,240
Capitalization of development expenses	(102,627)	(147,220)
Amortization of capitalized development expenses	34,869	43,802
Total research and development expenses	233,860	306,822
Impairment of capitalized development expenses	6	2,475
Net research and development expenses	233,866	309,297

The impairment expenses in 2022 and 2023 are related to customer-specific projects.

Personnel expenses for employees were as follows:

	December 31,	
	2022	2023
Wages and salaries	396,164	471,263
Social security	26,961	33,172
Pension expenses	18,528	22,059
Share-based payment expenses	29,811	37,095
Total	471,464	563,589

Personnel expenses are included in cost of sales and in operating expenses in the consolidated statement of profit or loss.

The number of employees, exclusive of temporary workers, by geographical area at year-end was as follows:

Geographical location	December 31,	
	2022	2023
Europe:		
- the Netherlands	211	226
- EMEA	364	455
United States	1,034	1,159
Japan	350	353
South Korea	462	473
Singapore	1,091	1,152
Asia, other	746	724
Total	4,258	4,542

The number of employees, exclusive of temporary workers, by function at year-end was as follows:

Per function	December 31,	
	2022	2023
Research and development	965	1,075
Manufacturing	1,197	1,390
Marketing and sales	445	397
Customer service	1,271	1,226
Corporate and support functions	380	454
Total	4,258	4,542

Note 24. Earnings per share

Basic net earnings per common share is calculated by dividing net income attributable to common shareholders by the weighted average number of common shares outstanding for that period. The dilutive effect is calculated using the treasury stock method.

The calculation of diluted net income per share assumes the exercise of options issued under our stock option plans (and the issuance of shares under our share plans) for periods in which exercises (or issuances) would have a dilutive effect.

The calculation of basic and diluted net income per share attributable to common shareholders is based on the following data:

	December 31,	
	2022	2023
Net earnings used for purposes of calculating net income per common share		
Net earnings from operations	389,113	752,073
Basic weighted average number of shares outstanding during the year	48,820	49,286
Effect of dilutive potential common shares from stock options and restricted shares	278	269
Dilutive weighted average number of shares outstanding	49,097	49,555
Basic net earnings per share:		
from operations	7.97	15.26
Diluted net earnings per share:		
from operations	7.93	15.18

Note 25. Board remuneration

During 2023, the company considered the members of the Management Board, the Executive Committee, and the Supervisory Board to be the key management personnel. Total remuneration for key management personnel in 2023 amounts to €15,424 (2022: €11,431). ASM does not provide any loans, deposits or related guarantees to the members of the Management Board, the Executive Committee or the Supervisory Board.

Management Board and the Executive Committee

The table that sets out information concerning all remuneration from the company (including its subsidiaries) for services in all capacities to all current and former members of the Management Board and the Executive Committee of the company.

	December 31,	
	2022 ¹	2023
Short-term employee benefits	7,094	7,448
Post-employment benefits	297	310
Other long-term benefits	—	—
Termination benefits	—	1,159
Share-based payment	3,410	5,926
Total remuneration	10,801	14,843

¹ Effective per February 1, 2022, the Executive Committee was installed. And therefore remuneration is only included as from this effective date.

The remuneration reported as part of the LTI (share-based payments) is based on costs incurred under accounting values EU-IFRS. The costs of performance share awards are charged to the consolidated statement of profit or loss over the three-year vesting period based on the number of awards expected to vest. The first year is accounted for at target, subsequently the company applied the estimated number of share awards, and in the final performance year of the awards this estimate is updated to the best estimated number of awards which are anticipated to vest. Costs of restricted share awards represent the vesting expenses related to the financial year.

As a result of the termination of the employment of one of the companies Executive Committee members, the executive receives a termination benefit which has been expensed within the year (2022: nil).

Supervisory Board

The total remuneration (base compensation, no bonuses or pensions were paid) from the company (including its subsidiaries) for services in all capacities to all current and former members of the Supervisory Board of the company in 2023 amounts to €581 (2022: €630). No stock options or performance shares have been granted to members of the Supervisory Board.

Note 26. Share ownership and related party transactions

The ownership or controlling interest of outstanding common shares of ASM by members of the Management Board and Supervisory Board or members of their immediate family are as follows:

	December 31, 2022		December 31, 2023	
	Shares owned	Percentage of common shares outstanding	Shares owned	Percentage of common shares outstanding
G.L. Loh (member of the Management Board)	0	0.00 %	5,279	0.01 %
P.A.H. Verhagen (member of the Management Board)	0	0.00 %	584	0.00 %
H. Msaad (member of the Management Board) ¹	16,816	0.03 %	26,752	0.05 %
P.F.M. van der Meer Mohr (member of the Supervisory Board)	200	0.00 %	200	0.00 %
D. Lamouche (member of the Supervisory Board)	390	0.00 %	390	0.00 %
M.J.C. de Jong (member of the Supervisory Board)	4,050	0.01 %	2,550	0.01 %

¹ Shares owned as of 31 December 2022 amended (previously no value reported).

The company has a related party relationship with its subsidiaries, equity-accounted investees, and members of the Supervisory Board and the Management Board. Related party transactions, if any, are conducted on an arm's-length basis with terms comparable to transactions with third parties.

During our most recent fiscal year, there has been no, and at present there is no, outstanding indebtedness to the company owed by or owing to any director or officer of the company. Furthermore, the company has not granted any personal loans, guarantees, or the like to key management personnel.

For further information in relation to key management personnel, comprising of our management board, executive committee and supervisory board, see Note 25 Board Remuneration.

Note 27. Principle Auditor's fees and services

KPMG Accountants N.V. has served as our external auditor for the years 2023 and 2022. The table sets out the aggregate fees for professional audit services and other services rendered by the external auditors and its member firms and/or affiliates in 2023 and 2022. The fees mentioned in the table for the audit of the financial statements 2023 (2022) relate to the total fees for the audit of the financial statements 2023 (2022), irrespective of whether the activities were performed during the financial year 2023 (2022). Other audit-related fees are related to assurance services on non-financial information. The following fees were charged by KPMG Accountants N.V. to the company, its subsidiaries and other consolidated companies, as referred to in Section 2:382a(1) and (2) of the Dutch Civil Code.

	2022			2023		
	KPMG Accountants NV	KPMG network	KPMG Total	KPMG Accountants NV	KPMG network	KPMG Total
Audit fees	1,035	278	1,313	1,005	312	1,317
Audit-related fees	75	—	75	110	—	110
Tax fees	—	—	—	—	—	—
Other fees	—	—	—	—	—	—
Total	1,110	278	1,388	1,115	312	1,427

Audit committee preapproval policies

The Audit Committee has determined that the provision of services by KPMG described in the preceding paragraphs is compatible with maintaining KPMG's independence. All audit and permitted non-audit services provided by KPMG during 2023 were preapproved by the Audit Committee.

The Audit Committee has adopted the following policies and procedures for preapproval of all audit and permitted non-audit services provided by our external auditor:

Audit services

Management submits to the Audit Committee for preapproval the scope and estimated fees for specific services directly related to performing the independent audit of our consolidated financial statements for the current year.

Audit-related services

The Audit Committee may preapprove expenditures up to a specified amount for services included in identified service categories that are related extensions of audit services and are logically performed by the auditors (e.g., assurance engagement related to non-financial performance indicators on ESG). Additional services exceeding the specified pre-approved limits require specific Audit Committee approval.

Tax services

The Audit Committee may pre-approve expenditures up to a specified amount per engagement and in total for identified services related to tax matters. Additional services exceeding the specified pre-approved limits, or involving service types not included in the pre-approved list, require specific Audit Committee approval.

Other services

Any permitted other services that the external auditor provides are subject to preapproval by the Audit Committee. The Audit Committee monitors compliance with the Dutch and EU regulation on non-audit services provided by an external auditor, which outlines strict separation of audit and advisory services for Dutch public interest entities.

Note 28. Subsidiaries

Unless otherwise indicated, these are, directly or indirectly, wholly-owned subsidiaries.

The location included below is the principal place of business of the specified subsidiaries.

There is no difference between the principal place of business and country of incorporation.

Name	Location	% Ownership December 31,	
		2022	2023
Subsidiaries (consolidated)			
ASM Europe B.V. ¹	Almere, the Netherlands	100%	100%
ASM IP Holding B.V. ¹	Almere, the Netherlands	100%	100%
ASM Pacific Holding B.V. ^{1,2}	Almere, the Netherlands	100%	100%
ASM Netherlands Holding B.V. ¹	Almere, the Netherlands	100%	100%
ASM United Kingdom Sales B.V. ¹	Almere, the Netherlands	100%	100%
ASM Germany Sales B.V. ¹	Almere, the Netherlands	100%	100%
ASM Czech s.r.o.	Nové Město, Czech Republic	n/a	100%
LPE S.p.A. ³	Baranzate, Italy	100%	100%
Pilegrowth Tech S.r.l.	Cernobbio, Italy	100%	100%
LPE Shanghai Int. Trading Co.	Shanghai, China	100%	100%
ASM France S.A.R.L.	Crolles, France	100%	100%
ASM Italia S.r.l.	Milano, Italy	100%	100%
ASM Belgium N.V.	Leuven, Belgium	100%	100%
ASM Services and Support Ireland Ltd.	Dublin, Ireland	100%	100%
ASM Services and Support Israel Ltd.	Kiryat Gat, Israel	100%	100%
ASM Microchemistry Oy	Helsinki, Finland	100%	100%
ASM America Inc.	Phoenix, Arizona, United States of America	100%	100%
ASM NuTool Inc.	Phoenix, Arizona, United States of America	100%	100%
ASM Japan KK	Tokyo, Japan	100%	100%
ASM Wafer Process Equipment Singapore Pte Ltd	Singapore	100%	100%
ASM Front-End Manufacturing Singapore Pte Ltd	Singapore	100%	100%
ASM Services & Support Malaysia SDN. BHD.	Kulim, Malaysia	100%	100%
ASM Korea Ltd.	Dongtan, South Korea	100%	100%
ASM Front-End Sales & Services Taiwan Co Ltd.	Hsin-Chu, Taiwan	100%	100%
ASM Semiconductor Equipment India Private Limited	Bangalore, India	100%	100%
ASM China Ltd	Shanghai, People's Republic of China	100%	100%

¹ For these subsidiaries, ASM International N.V. has filed statements at the Dutch Chamber of Commerce assuming joint and several liability in accordance with Article 403, Part 9 of Book 2 of the Dutch Civil Code.

² ASM Pacific Holding BV holds 24.85% of the shares in ASMPT Ltd.

³ LPE S.p.A. holds 4.32%, 2.3%, 10.8% and 50% of the shares in Anvil semiconductors Ltd., Kubo's, Kiselkarbid AB and SiC systems AB respectively.

Note 29. Subsequent events

Subsequent events were evaluated up to March 1, 2024, which is the issuance date of this Annual Report 2023.

ASM announced on February 12, 2024, that CEO Benjamin Loh will retire and step down as per the AGM on May 13, 2024. He will be succeeded by Hichem M'Saad, currently member of the Management Board and CTO.

Except for this event, there are no other subsequent events to report.

Signing

Almere, the Netherlands

March 1, 2024

Supervisory Board

Pauline van der Meer Mohr, Chair

Stefanie Kahle-Galonske

Didier Lamouche

Marc de Jong

Adalio Sanchez

Monica de Virgiliis

Management Board

Benjamin Loh

Paul Verhagen

Hichem M'Saad

18. ASM International N.V. Financial statements

18.1 Company balance sheet

(before proposed appropriation of net earnings for the year)

(€ thousand)	Notes	December 31,	
		2022 ¹	2023
Non-current assets			
Right-of-use assets		299	299
Goodwill	2	302,089	302,089
Investments in subsidiaries and associates	3	3,161,858	3,144,789
Loans to subsidiaries	3	1,759	1,469
Other non-current assets		6,561	6,428
Total non-current assets		3,472,566	3,455,074
Current assets			
Loans to subsidiaries	3	500	—
Amounts due from subsidiaries	6	375,220	111,846
Income tax receivable		17,291	5,780
Other current assets		3,797	1,334
Cash and cash equivalents	4	18,708	193,671
Total current assets		415,516	312,631
Total assets		3,888,082	3,767,705

(€ thousand)	Notes	December 31,	
		2022 ¹	2023
Equity			
Common shares		1,974	1,977
Capital in excess of par value		47,960	71,323
Treasury shares		(3,446)	(89,569)
Legal reserves			
Translation reserve		191,317	100,408
Other legal reserves		1,197,963	1,240,027
Accumulated net earnings		924,438	1,150,571
Net earnings current year		389,113	752,073
Total equity	5	2,749,319	3,226,810
Non-current liabilities			
Lease liabilities		171	171
Contingent consideration payable		78,649	88,304
Total non-current liabilities		78,820	88,475
Current liabilities			
Accounts payable		875	549
Amounts due to subsidiaries	6	1,032,472	444,424
Income tax payable		18,540	—
Accrued expenses and other payables		8,056	7,447
Total current liabilities		1,059,943	452,420
Total liabilities		1,138,763	540,895
Total equity and liabilities		3,888,082	3,767,705

¹ Comparatives of goodwill and other current assets have been revised for the effects of measurement adjustments to the acquisition of LPE in 2022, reference is made to note 1 of the consolidated financial statements.

The notes on the following pages are an integral part of these company financial statements.

18.2 Company statement of profit or loss

(€ thousand)	Notes	Year ended December 31,	
		2022	2023
Operating expenses:			
Selling, general and administrative		(43,670)	(35,634)
Research and development		(766)	(1,795)
Total operating expenses	7	(44,436)	(37,429)
Result from operations		(44,436)	(37,429)
Finance income		5,089	14,706
Finance expense		(3,370)	(17,437)
Foreign currency exchange gain (loss)		(18,036)	(27,124)
Result before income taxes		(60,753)	(67,284)
Income taxes		13,839	11,040
Net earnings from holding activities		(46,914)	(56,244)
Net earnings from subsidiaries and associates		436,027	808,317
Total net earnings		389,113	752,073

The notes on the following pages are an integral part of these company financial statements.

18.3 Notes to the Company financial statements

Note 1. Summary of material accounting policies

ASM International N.V. (ASM or the company) is a Dutch public liability company. Statutory seat: Versterkerstraat 8, 1322 AP Almere, the Netherlands.

The description of our activities and our structure, as included in the notes to the consolidated financial statements, also apply to the company financial statements.

The accompanying company financial statements are stated in thousands of euros unless otherwise indicated.

Accounting policies applied

The financial statements of the company included in this section are prepared in accordance with Part 9 of Book 2 of the Dutch Civil Code. For setting the principles for the recognition and measurement of assets and liabilities and determination of results for the company financial statements, the company makes use of the option provided in section 2:362(8) of the Dutch Civil Code. This means that the principles for the recognition and measurement of assets and liabilities and determination of the result (hereinafter referred to as principles for recognition and measurement) of the company financial statements of the company are the same as those applied for the consolidated EU-IFRS financial statements. These principles also include the classification and presentation of financial instruments, being equity instruments or financial liabilities. In case no other principles are mentioned, refer to the accounting principles as described in the consolidated financial statements. For an appropriate interpretation of these statutory financial statements, the company financial statements should be read in conjunction with the consolidated financial statements.

Information on the use of financial instruments and on related risks for the group is provided in the notes to the consolidated financial statements of the group.

Corporate income tax

The company is the head of the Dutch fiscal unity. The company recognizes the portion of corporate income tax that it would owe as an independent taxpayer, taking into account the allocation of the advantages of the fiscal unity.

Settlement within the fiscal unity between the company and its subsidiaries takes place through current account positions.

Participating interests in group companies

Group companies are all entities in which the company has directly or indirectly control. The company controls an entity when it is exposed, or has rights, to variable returns from its involvement with the group company and has the ability to affect those returns through its power over the group company. Group companies are recognized from the date on which control is obtained by the company and derecognized from the date that control by the company over the group company ceases. Participating interests in group companies are accounted for in the company financial statements according to the net equity value, with the principles for the recognition and measurement of assets and liabilities and determination of results as set out in the notes to the consolidated financial statements.

Participating interests with a negative net equity value are valued at nil. This measurement also covers any receivables provided to the participating interests that are, in substance, an extension of the net investment. In particular, this relates to loans for which settlement is neither planned nor likely to occur in the foreseeable future. A share in the profits of the participating interest in subsequent years will only be recognized if and to the extent that the cumulative unrecognized share of loss has been absorbed. If the company fully or partially guarantees the debts of the relevant participating interest, or if has the constructive obligation to enable the participating interest to pay its debts (for its share therein), then a provision is recognized accordingly to the amount of the estimated payments by the company on behalf of the participating interest.

Share of result of participating interests

The share in the result of participating interests consists of the share of the company in the result of these participating interests. Results on transactions involving the transfer of assets and liabilities between the company and its participating interests and mutually between participating interests themselves, are eliminated to the extent that they can be considered as not realized.

Note 2. Goodwill

The carrying amount of the goodwill is related to acquisitions in the following cash-generating units:

	ALD	PEALD	SiC epi ¹	Total
Balance January 1, 2022	2,611	8,659	—	11,270
Acquisitions through business combinations	—	—	290,819	290,819
Balance December 31, 2022	2,611	8,659	290,819	302,089
Balance December 31, 2023	2,611	8,659	290,819	302,089

¹ Comparatives of goodwill and other current assets have been revised for the effects of measurement adjustments to the acquisition of LPE in 2022, reference is made to note 1 of the consolidated financial statements.

Reference is made to Note 5 of the consolidated financial statements for further disclosure on the accounting and valuation of goodwill.

Note 3. Investments and loans to subsidiaries

	Investments in subsidiaries	Loans to subsidiaries	Total
Balance January 1, 2022	2,433,956	42,698	2,476,654
Net result of subsidiaries and associates	436,027	—	436,027
Acquisition of investments in subsidiaries	256,668	—	256,668
Other comprehensive income investments	3,565	—	3,565
Dividend received	(68,414)	—	(68,414)
Repayment of loans	—	(2,370)	(2,370)
Settlement through capital contribution	41,731	(41,731)	—
Dilution	60	—	60
Foreign currency translation effect	58,265	3,662	61,927
Balance December 31, 2022	3,161,858	2,259	3,164,117
Net result of subsidiaries and associates	808,317	—	808,317
Capital contribution	9,123	—	9,123
Other comprehensive income investments	(138)	—	(138)
Dividend received	(746,125)	—	(746,125)
Repayment of loans	—	(790)	(790)
Dilution	2,607	—	2,607
Foreign currency translation effect	(90,854)	—	(90,854)
Balance December 31, 2023	3,144,788	1,469	3,146,257

	December 31,	
	2022	2023
Loans due from subsidiaries – non-current portion	1,759	1,469
Loans due from subsidiaries – current portion	500	—
Total	2,259	1,469

Note 4. Cash and cash equivalents

The amounts of cash and cash equivalents are mainly related to the cash pool and in-house bank operated by the company. At December 31, 2023, the cash pool and in-house bank arrangement resulted in a liability which is recorded in amounts due to subsidiaries.

The amount presented as cash and cash equivalents at December 31, 2023 include bank deposits and investments in money market funds that invest in marketable debt obligations and securities of governments, corporate and financial institutions. The amount invested in deposits and money market funds at the end of 2023 was €191.3 million and interest-bearing bank accounts of €2.4 million. Our cash and cash equivalents are predominantly denominated in US dollars and partly in euros.

Bank guarantees exist for an amount of €1.3 million at December 31, 2023.

These guarantees mainly relate to lease and tax payments.

Cash and cash equivalents have insignificant interest-rate risk and remaining maturities of maximum three months or can be converted into cash without no more than 30 days' notice. The carrying amount of these financial assets approximates their fair value.

The company has not recognized a provision for expected credit loss for cash and cash equivalents due to the insignificance of the amount.

Note 5. Equity

The changes in equity are as follows:

(€ thousand)	Common shares	Capital in excess of par value	Treasury shares	Accumulated net earnings	Net earnings current year	Legal reserves		Total equity
						Translation reserve	Other legal reserves	
Balance as of January 1, 2022	1,972	25,281	(155,397)	693,745	494,709	129,472	1,051,972	2,241,754
Appropriation of net earnings:	—	—	—	494,709	(494,709)	—	—	—
Components of comprehensive income								
Net earnings	—	—	—	—	389,113	—	—	389,113
Other comprehensive income	—	—	—	—	—	61,845	3,565	65,410
Total comprehensive income (loss)	—	—	—	—	389,113	61,845	3,565	454,523
Dividend paid to common shareholders	—	—	—	(121,650)	—	—	—	(121,650)
Issue of common shares related to business combinations	2	11,730	—	—	—	—	—	11,732
Treasury shares transferred related to business combinations	—	8,046	124,977	—	—	—	—	133,023
Compensation expense share-based payments	—	29,877	—	—	—	—	—	29,877
Exercise stock options out of treasury shares	—	—	—	—	—	—	—	—
Vesting restricted shares out of treasury shares	—	(26,974)	26,974	—	—	—	—	—
Change in retained earnings subsidiaries	—	—	—	(57,520)	—	—	57,520	—
Fair value accounting investments	—	—	—	(12,152)	—	—	12,152	—
Capitalized development expenses subsidiaries	—	—	—	(72,754)	—	—	72,754	—
Other movements in investments in associates:								
Dilution	—	—	—	60	—	—	—	60
Balance as of December 31, 2022	1,974	47,960	(3,446)	924,438	389,113	191,317	1,197,963	2,749,319
Appropriation of net earnings	—	—	—	389,113	(389,113)	—	—	—
Components of comprehensive income:								
Net earnings	—	—	—	—	752,073	—	—	752,073
Other comprehensive income	—	—	—	—	—	(90,909)	(139)	(91,048)
Total comprehensive income (loss)	—	—	—	—	752,073	(90,909)	(139)	661,025
Dividend paid to common shareholders	—	—	—	(123,383)	—	—	—	(123,383)
Compensation expense share-based payments	—	37,308	—	—	—	—	—	37,308
Exercise stock options out of treasury shares	—	(1,965)	2,828	—	—	—	—	863
Vesting restricted shares out of treasury shares	—	(11,980)	11,980	—	—	—	—	—
Purchase of common shares	—	—	(100,928)	—	—	—	—	(100,928)
Issuance of common shares out of treasury shares	3	—	(3)	—	—	—	—	—
Change in retained earnings subsidiaries	—	—	—	22,521	—	—	(22,521)	—
Fair value accounting investments	—	—	—	19,077	—	—	(19,077)	—
Capitalized development expenses subsidiaries	—	—	—	(83,801)	—	—	83,801	—
Other movements in investments in associates:								
Dilution	—	—	—	2,606	—	—	—	2,606
Balance as of December 31, 2023	1,977	71,323	(89,569)	1,150,571	752,073	100,408	1,240,027	3,226,810

Common shares, preferred and financing preferred shares

Following the amendment of the articles of association on August 3, 2018, the authorized capital of the company amounts to 82,500,000 common shares of €0.04 par value, 88,500 preferred shares of €40 par value, and 6,000 financing preferred shares of €40 par value.

As per December 31, 2023, 49,428,548 common shares with a nominal value of €0.04 each were issued and fully paid up, of which 226,802 common shares are held by us in treasury. All shares have one vote per €0.04 par value. Treasury shares held by the company cannot be voted on. Of our 49,201,746 outstanding common shares at December 31, 2023, 46,629,656 are registered with our transfer agent in the Netherlands, ABN AMRO Bank N.V., and 2,572,090 are registered with our transfer agent in the United States, Citibank, NA, New York.

As at December 31, 2023, no preferred shares and no financing preferred shares are issued.

Treasury shares

With respect to treasury shares, reference is made to Note 12 to the consolidated financial statements.

Other legal reserves

The other legal reserve for participating interests regarding retained earnings and OCI, which amounts to €815,796 (2022: €857,533), pertains to participating interests that are accounted for according to the equity accounting method. The reserve represents the difference between the participating interest retained earnings and direct changes in equity, as determined on the basis of the company's accounting policies, and the share thereof that the company may distribute. As to the latter share, this takes into account any profits that may not be distributed by participating interests that are Dutch limited companies based on the distribution tests to be performed by the management of those companies. The legal reserve is determined on an individual basis.

In accordance with applicable legal provisions, a legal reserve for the carrying amount of €424,231 (2022: €340,430) has been recognized for capitalized development costs.

Changes in other legal reserves in 2022 and 2023 were as follows:

	Reserve for participating interests, regarding retained earnings and OCI	Reserve for participating interests, regarding capitalized development expenses	Total other legal reserves
Balance as of January 1, 2022	784,296	267,676	1,051,972
Other comprehensive income	3,565	—	3,565
Retained earnings subsidiaries and investments	57,520	—	57,520
Fair value accounting investments	12,152	—	12,152
Development expenditures	—	72,754	72,754
Balance as of December 31, 2022	857,533	340,430	1,197,963
Other comprehensive income	(139)	—	(139)
Retained earnings subsidiaries and investments	(22,521)	—	(22,521)
Fair value accounting investments	(19,077)	—	(19,077)
Development expenditures	—	83,801	83,801
Balance as of December 31, 2023	815,796	424,231	1,240,027

For more detailed information, reference is made to Note 12 to the consolidated financial statements.

Employee stock plan, and employee restricted shares plan

The company has adopted various restricted share plans, and has entered into related agreements with various employees. For detailed information, reference is made to Note 13 to the consolidated financial statements.

Appropriation of result

Appropriation of net earnings of 2022

The financial statements for the reporting year 2022 have been adopted by the General Meeting on May 15th, 2023. The General Meeting has adopted the appropriation of net earnings for the reporting year 2022 as proposed by the Board of Management.

Proposal for net earnings appropriation 2023

It is proposed that net earnings for the year 2023 are carried to the accumulated net earnings.

Note 6. Amounts due from / to subsidiaries

The amounts due from, and to subsidiaries, are mainly related to the cash pool and in-house bank operated by the company. The amounts due to subsidiaries decreased as a result of intercompany dividend distributions to the ultimate parent (ASM International N.V.).

Note 7. Expenses by nature

Expenses by nature were as follows:

	Year ended December 31,	
	2022	2023
Personnel expenses	15,787	16,960
Depreciation and amortization	259	179
Other personnel-related expenses	4,366	3,544
Professional fees	17,464	9,971
Other	6,560	6,775
Total operating expenses	44,436	37,429

Note 8. Personnel expenses

The average number of employees of ASM during 2023 was 35 (2022: 37). All employees have corporate and support functions and were based in the Netherlands.

	Year ended December 31,	
	2022	2023
Salaries	10,981	12,265
Social security charges	443	371
Pension expenses	972	1,068
Share-based payment expenses	3,391	3,256
Total	15,787	16,960

Further information concerning the number of employees can be found in Note 23 to the consolidated financial statements.

For information on the parent company's defined benefit pension plan, the remuneration of the Management Board and the Supervisory Board, and the parent company's share-based compensation plans, see Notes 13 and 25 to the consolidated financial statements.

Note 9. Commitments and contingencies

With respect to certain Dutch subsidiaries, ASM has assumed joint and several liability in accordance with Article 403, Part 9 of Book 2 of the Dutch Civil Code. These Dutch subsidiaries are disclosed in Note 28 of the consolidated financial statements.

ASM forms a fiscal unity (tax group for corporate income tax purposes) together with its Dutch subsidiaries for purposes of Dutch tax laws and is as such jointly and severally liable for the tax debts of the unity. The tax unity consists of ASM International N.V. and the following subsidiaries:

- ASM Europe BV;
- ASM IP Holding BV;
- ASM Pacific Holding BV;
- ASM Netherlands Holding BV;
- ASM United Kingdom Sales BV; and
- ASM Germany Sales BV.

Consistent with the IAS 12 amendment regarding global minimum top-up tax as issued by the IASB and adopted by the EU, ASM does not recognize and disclose deferred taxes arising from tax laws regarding global minimum top-up tax. Furthermore, ASM will recognize and disclose the impact (if any) from the global minimum income tax on current tax effective from 2024. Refer to section 'Global minimum tax' in income taxes as part of note 22 of the consolidated financial statements for further clarification on the potential impact as of 2024.

For VAT purposes in the Netherlands, ASM forms a fiscal unity together with ASM Europe BV and ASM IP Holding BV.

Note 10. Share ownership of the Management Board and Supervisory Board

With respect to share ownership of the Management Board and Supervisory Board, reference is made to Note 26 to the consolidated financial statements.

Note 11. Auditor's fees and services

For information regarding auditor's fees and services we refer to Note 27 to the consolidated financial statements.

Note 12. Subsequent events

Subsequent events were evaluated up to March 1, 2024, which is the issuance date of this Annual Report 2023.

ASM announced on February 12, 2024, that CEO Benjamin Loh will retire and step down as per the AGM on May 13, 2024. He will be succeeded by Hichem M'Saad, currently member of the Management Board and CTO.

Except for this event, there are no other subsequent events to report.

Signing

Almere, the Netherlands

March 1, 2024

Supervisory Board

Pauline van der Meer Mohr, Chair

Stefanie Kahle-Galonske

Didier Lamouche

Marc de Jong

Adalio Sanchez

Monica de Virgiliis

Management Board

Benjamin Loh

Paul Verhagen

Hichem M'Saad

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19. Our approach to sustainability reporting

This section of our report offers a focused analysis of ASM's dedicated efforts in addressing various Environmental, Social, and Governance (ESG) topics. The ESG topics covered in the Management Report part primarily cover our broader business strategies and operational performance. In contrast, this section of the report delves deeper into the specifics of our sustainability initiatives, providing detailed insights into our practices, progress, and plans for various ESG matters.

We adhere to globally recognized standards for sustainability reporting, providing a comprehensive and transparent account of our progress and challenges. The ESG metrics included in this Annual Report encompass ASM's consolidated performance and include where relevant financial information derives from the consolidated financial statements, which are based on IFRS. Recognizing the importance of reliability and credibility, 2023 signifies the third year that we voluntarily subjected our sustainability KPI disclosures to an external audit.

KPMG Accountants N.V. reviewed a specific set of non-financial indicators in this Annual Report (refer to chapter 25 for the detailed scope, procedures, and conclusion). A review is aimed at obtaining a limited level of assurance, in accordance with Dutch law, including Dutch Standard 3000A 'assurance engagements other than audits or reviews of historical financial information'. This process not only upholds our integrity but also fortifies the trust our stakeholders place in us.

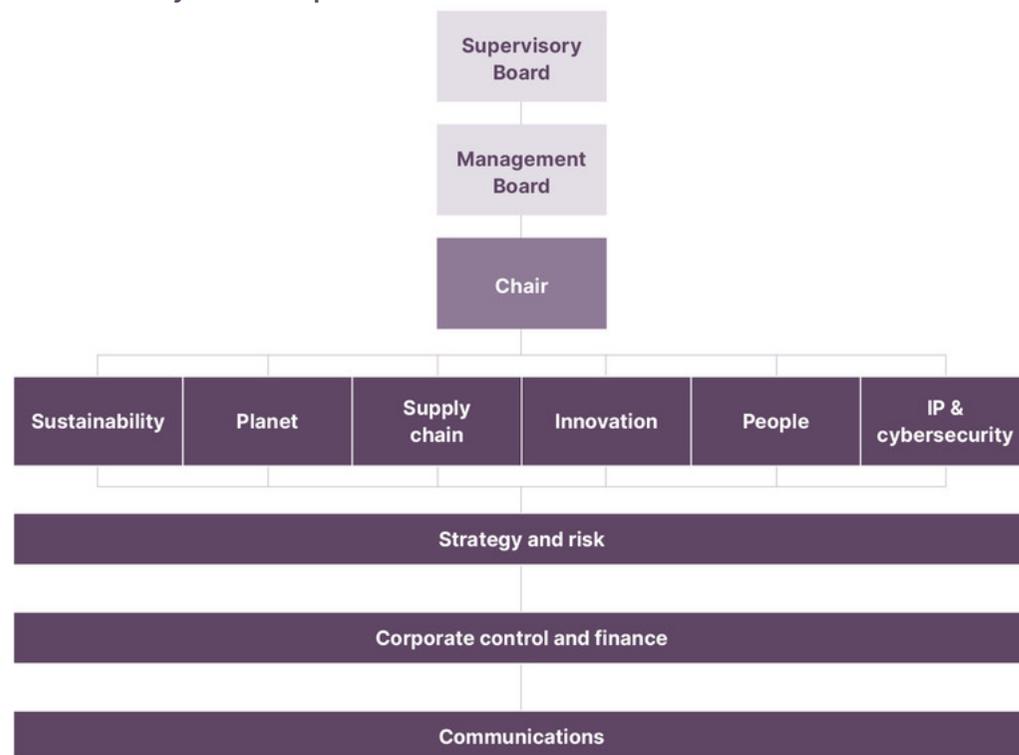
Further details on our approach to sustainability reporting, as well as details on the scope and definitions of the reported ESG topics can be found in the Sustainability Supplement to the Annual Report, available on our [website](#).

Sustainability governance

At ASM, our sustainability governance framework is designed to integrate our ESG practices into every facet of our operations. This framework is underpinned by a dedicated committee – the sustainability leadership council – which includes leaders from various departments and functional areas, ensuring a multi-dimensional approach to sustainability risks and opportunities. The Council, chaired by the Vice President of Sustainability and EHS, has met monthly since its re-launch in 2023. It operates under direct oversight of the Management Board. This structure ensures that sustainability considerations are embedded at the highest level of decision-making, reflecting our commitment to environmental stewardship and social responsibility. ASM's Management Board has end-responsibility in terms of managing risks and opportunities relating to sustainability and ESG matters.

In our effort to further strengthen governance around sustainability, the roles of the Supervisory Board and its Audit Committee were also further formalized in 2023. The Supervisory Board plays a critical role in reviewing and monitoring our sustainability strategies and initiatives. This includes periodic reviews of sustainability-related risks and opportunities, ensuring these factors are correctly considered in our long-term planning. The Audit Committee, a subset of the Supervisory Board, has an expanded responsibility that encompasses the review of sustainability metrics. This rigorous scrutiny ensures that our sustainability reporting is not only accurate but also reflects our true impact on the environment and society. Their involvement signifies our dedication to a governance structure that amplifies our evolving approach to sustainability.

Sustainability leadership council:



For more details on governance at ASM, see chapter 13.

Stakeholder engagement

Engaging with our stakeholders is a critical aspect of our overall sustainability approach. We continue to align our policies and actions with leading bodies, standards, and emerging legislation and expectations, striving to remain at the forefront of sustainability requirements and expectations. To continue to accelerate sustainability, ASM looks to establish strategic relations with organizations whose ESG ambitions align with ours.

ASM is a member of SEMI (www.semi.org), an industry association that brings together all levels of the value chain for semiconductor capital equipment and device makers. ASM has been a member of SEMI's Sustainability Advisory since inception and in 2023 chaired a working group with focus on industry climate action. This council and its working groups

focus on ways to collectively address climate impact and issues facing the semiconductor industry. In addition, ASM was instrumental in founding a consortium supported by SEMI – the Semiconductor Climate Consortium (SCC), which seeks to develop a shared and credible industry climate strategy, focused on reducing the industry's carbon footprint. ASM currently chairs this consortium.

In 2023, ASM became a board member of the UN Global Compact Network Netherlands. The Board is the main governance body of the local network and has oversight of the organization with respect to vision, mission, strategy, and financial management. It also provides strategic leadership to the local network on emerging issues around the implementation of the Ten Principles and the Global Goals.

The Responsible Business Alliance (RBA) is the world's largest industry coalition dedicated to corporate social responsibility in global supply chains. Our membership commitment and active engagement in the RBA and its related initiatives are core to our sustainability approach and efforts. ASM adopted the RBA Code of Conduct (CoC) in 2013, extended the RBA CoC to our Supply Chain in 2014, joined the RBA officially in 2020, and was promoted to Full Member in 2022. In 2023, we took part in several RBA working groups, including on standard-setting around the living wage.

ASM joined the Semiconductor Industry Association (SIA) in 2022. The SIA advances policies that help the industry grow, and unites semiconductor companies around common challenges. The SIA promotes environmental sustainability in design, manufacturing, and the use of semiconductor products, as well as the health and safety in industry operations. ASM's position is consistent with the SIA position on greenhouse gas and climate change.

ASM became a member of RE100 this year, as it closely aligns with our environmental goals. RE100, a global initiative led by The Climate Group in partnership with CDP, unites businesses committed to 100% renewable electricity. By joining RE100, ASM aligns with other companies in targeting the transition towards a zero-carbon future, which is central to the Paris Agreement's objective of limiting global warming. This collaboration underlines our dedication to invest in renewable energy sources, reducing our carbon footprint and supporting global efforts against climate change.

Outside of these associations, there are various recurring touchpoints between ASM and its most important stakeholder groups on its relevant ESG focus areas. The table below provides a non-exhaustive list of touchpoints that occurred in 2023, in the context of stakeholder engagement and insights-gathering via regular business operations.

Stakeholder group	Touchpoints	Applicable focus areas
Customers	Periodic meetings; key account management; development sessions; joint (innovation) projects	Innovation; Planet; People; Responsible Supply Chain
Employees	All-employee meetings; works council, employee resource groups, engagement surveys; employee development dialogues	Innovation; People; Planet
Investors	Annual General Meetings; roadshows; investor days; conference calls; broker conferences	Innovation; People; Planet; Responsible Supply Chain; Governance
Suppliers	Commodity manager engagement; Annual Supplier Day; Quarterly Business Reviews	Innovation; People; Planet; Responsible Supply Chain; Governance
NGOs	Engagement letters and sessions; bilateral dialogues	People; Planet; Responsible Supply Chain
Industry consortia	R&D partnerships; Responsible Business Alliance; SEMI; SIA; SETHA, RE100	Innovation; People; Planet; Responsible Supply Chain; Governance
Communities	Employee volunteering; company donations; contributions to local communities	People; Planet

20. Environmental statements

In this section, we detail ASM's approach to environmental stewardship in relation to various topics not yet covered in chapter 11 of this report. As an innovation-driven company, we are striving to integrate sustainable practices into all parts of our operations. For more on our approach to climate action, water stewardship, and circular economy, see chapter 11.

ASM's overall sustainability program is broad, encompassing many interrelated but distinct topics. Certain topics such as climate have reached critical levels of importance within our company and are being prioritized accordingly. We also recognize that other sustainability topics are still important and often interconnected. We are therefore also making investments across the topics of water, waste, biodiversity, and air emissions. By taking a more holistic approach, we ensure our overall sustainability strategy does not simply move environmental problems from one type to another and all programs are more effectively addressed as an interlinked topic.

20.1 Chemical waste management

ASM is focused on managing chemical and waste responsibly. As an R&D and engineering company, we are constantly evaluating new processes at our engineering sites. We have robust controls to make sure all chemicals and gases are handled properly from 'cradle to grave' or 'cradle to cradle'.

The controls include:

- a. Chemical approval process – A strict chemical request and approval process that engages experts from across the organization for all new chemicals, gases, and change of use requests. Experts involved in the process at all sites include EHS, product safety, facilities, and the requesting process R&D team. The process evaluates the request for legal compliance, health and safety, and environmental management – including proper effluent and abatement, and, if required, waste disposal.
- b. Physical controls – Once in use, we use leading technology and controls to monitor for leak detection, exposure controls, emission controls for gas abatement and wastewater treatment, and robust storage rooms and secondary containment to prevent release to the environment should there be a leak.
- c. Emissions and hazardous-waste management – This involves chemical or other hazardous content materials that must be properly managed. Our controls help minimize the risk of unabated emissions to air or water-treatment systems. When chemicals are not managed as part of process exhaust or by-products, they are properly collected and stored for potentially hazardous waste disposal. All chemical waste is properly characterized and managed, according to local regulations and capabilities. The regions in which waste is generated at ASM are covered by the Basel Convention definition of waste, and properly managed – in some cases as hazardous waste, and our goal is to have zero hazardous waste to landfill. ASM first focuses on minimizing hazardous waste. For example, our Phoenix, Arizona, site has been a very small quantity generator (VSQG) for several years. This is the lowest classification of hazardous waste-generation status in the United States.
- d. Industry associations – We are engaged in industry associations to stay informed of the latest developments and knowledge related to chemicals and gases in our industry, including SEMI, SIA, SESA, IEEE, and regional associations. This helps us stay informed, improve our operational safety, and collaborate with customers to support transitioning processes safely from R&D to their production processes.

Year	Solid chemical waste (mtons)	Hazardous waste (mtons)	Liquid chemical waste (m ³)
2021	0.2	6.6	623
2022	1.1	19.1	719.5
2023	1.3	7.4	985.3

20.2 Fluorinated process GHG emissions and Volatile Organic Compounds

Fluorinated chemicals are used extensively across the semiconductor industry for etching and cleaning in the manufacturing process. These chemicals have unique properties that allow for efficient plasma etching of wafer surfaces and cleaning of tool-chamber residues from wafer processing. They are also used as tracer gases to test and validate gas lines prior to shipping out ASM products. These compounds are stable when released into the atmosphere, and absorb radiation, resulting in high global-warming potentials. As such, they represent a significant portion of the industry's GHG footprint.

Early industry action has allowed for abatement of a significant portion of the total potential emissions from these used chemistries, both from the utilized species and by-product species resulting from their use. Investment in abatement by ASM has similarly resulted in a large reduction of the potential impact from utilizing these necessary process gases. In fact, recent years have shown installed abatement at ASM sites removing approximately 90% of process-gas GHG emissions that otherwise would have been emitted to the atmosphere. Emissions are provided below from our 2021 baseline year for ASM direct F-GHG emissions (in tonnes CO₂ equivalents):

Year	NF3	CF4	SF6
2021	25.8	48.6	10.0
2022	27.0	52.7	3.2
2023	43.5	62.3	50.6

Values are reported in metric tonnes CO₂ equivalents.

20.3 Volatile Organic Compounds

Volatile Organic Compounds (VOCs) are another class of chemicals used extensively across the semiconductor industry, primarily in solvents and cleaning applications. They are able to remove contaminants in high-purity semiconductor environments. Their effectiveness in use applications are due to their chemical properties, which also include high vapor pressures. This means that the chemicals will quickly volatilize (vaporize) into the gaseous phase, which can cause micro-contamination and safety concerns if not properly vented.

These chemicals represent a very small footprint by ASM, mostly resulting from cleaning alcohol applications at ASM sites. Emissions values are provided assuming 100% volatilization of purchased solvents to the atmosphere, a conservative estimate.

Year	Emissions (tonnes)
2021	2.01
2022	1.05
2023	1.99

20.4 Biodiversity

In 2023, we started developing our biodiversity roadmap, and started taking action to add biodiversity requirements into how we manage our own physical footprint. ASM published its first biodiversity policy in 2022, with the intention of integrating biodiversity considerations into relevant ASM business programs.

Connecting with our green buildings program, we have aligned requirements that are included in leading green building certifications such as Leadership in Energy and Environmental Design (LEED). These building frameworks place high importance on pollution prevention, performing site assessments, protecting and restoring habitat, open spaces, rainwater management, heat island reduction, and light pollution reduction, which is reflected in the points allocation towards these topics. Pursuing green building certifications for site expansions and new site construction helps ensure biodiversity is considered in the design of our future facilities.

We performed our first-ever biodiversity assessment of our new greenfield site in Scottsdale, Arizona, where we plan to build our new North American headquarters. For this new facility, we intend to pursue a LEED Gold or better green building certification with particular focus on reducing our overall environmental footprint, including our impact on biodiversity. We are aiming for a building and landscape design that not only avoids impact to local biodiversity, but also enhances it. We are working with our expert third-party consultant to develop a site biodiversity action plan, which is a roadmap to integrate and enhance site biodiversity through the design, construction, and operational phases.

Our new facility in Dongtan also seeks a high green building certification in its build-out designs. This facility is an expansion adjacent to our existing Dongtan facility in a developed high-tech industrial park, somewhat limiting potential biodiversity impacts but also other opportunities. Nevertheless, efforts are being made in site design to reduce impacts to biodiversity, including heat island effect-reduction, protecting and restoring habitats, and providing open spaces.

At our Singapore manufacturing operations, our recently completed building design highlights several features related to biodiversity. As a Green Mark certified Gold+ building, we met stringent requirements related to sustainable urbanism, including sustainable landscaping and waterscaping, use of sustainable products, and tropical façade performance related to heat island reduction. These aspects support local biodiversity efforts to keep Singapore a clean and green 'city in a garden'.

Looking forward, we aim to continue similar efforts to make a positive impact on our own footprint by addressing the physical presence of our sites. This starts with rethinking what a high-technology facility and site looks like, prioritizing biodiversity in design choices, and seeking high building standards in the communities where we operate. In addition, we will seek to assess our supply-chain impact on biodiversity and determine roadmaps to reduce footprints from sourced goods and services.

21. Social statements

We are committed to conducting our business in compliance with applicable laws and regulations in all the countries we operate in. We promote and uphold ethical behavior, fostering a culture where speaking up is encouraged and appreciated. For more on our approach to diversity, equity inclusion, see section 10.1 of this report.

21.1 Our Global Employment Standards

Our Global Employment Standards (GES), last updated in 2023, summarize our policy and standards on human rights throughout our global operations. The GES reflect the principles laid out by the United Nations Guiding Principles (UNGPs) on Business and Human Rights, the International Labor Organization's (ILO) Declaration on Fundamental Principles and Rights at Work, the International Bill of Human Rights, and the Responsible Business Alliance (RBA) Code of Conduct. It covers the following:

- Prohibit the use of forced or involuntary labor, including fees of any type to secure employment;
- Create a work environment free of discrimination or harassment based on race, color, religion, gender, gender identity or expression, sexual orientation, national origin, disability, age or veteran status;
- Prohibit the employment of child labor; ASM policy specifically does not allow anyone under the age of 18 to be employed at the company;
- Respect the legal rights of employees to join or to refrain from joining worker organizations, including labor organizations or trade unions;
- Prohibit corporal punishment, threats of violence, or other forms of physical or verbal coercion or harassment; and
- Comply with all applicable wage and hour laws, regulations, and collective labor agreements, including those relating to minimum wages, overtime hours, piece rates, non-exempt or exemption classification, and other elements of compensation, and provide legally mandated benefits.

In 2023, we also renewed our [SpeakUp policy](#) in line with the European whistleblower directive. This provides more transparency in how to deal with findings and investigations, and provides clear accessibility to whistleblower channels, externally and internally.

Our approach to human-rights due diligence in our operations

ASM's approach to human-rights due diligence is multifaceted and includes validated assessments, both for the company as a whole and individually for each of our manufacturing and R&D sites. As a full member of the Responsible Business Alliance (RBA), we closely scrutinize our labor practices and management systems. This annual evaluation is designed to effectively minimize human-rights risks within our operations. In 2023, these assessments were again conducted across all our sites. The results were encouraging, as all our sites showed to be at low risk. In addition, there were no indications of human-rights violations at any of our locations.

Furthermore, our due diligence process is designed to be responsive and thorough. In instances where risks are identified from these assessments, we conduct in-depth audits to address and rectify concerns promptly. In addition, we will communicate them in our public disclosures.

This approach to human-rights due diligence reflects ASM's focus on ethical practices and our responsibility towards our employees and the communities we operate in. We remain dedicated to continuously improving our practices and ensuring a safe, respectful, and rights-compliant working environment for all.

ASM's five-step approach to human-rights due diligence



The full text of our policies is published on our [website](#).

Living wage

Our wage commitments align with our 'We Care' value and 'employer of choice' ambitions. We are committed to paying at least a living wage to our employees globally. We care about the living conditions of our workforce. To this end, we actively engage with outside organizations to benchmark best practices in line with the Anker methodology – a robust approach to measuring living wages and incomes. We also make use of the WageIndicator Foundation definition and data, which is dedicated to labor-market transparency.

Working hours and employee well-being

In line with RBA guidelines, our general practice is a workweek of no more than 60 hours, including overtime, with at least one day off per seven days. We actively monitor the working hours and working days of all our employees monthly, to make sure overtime is within limits and time-off is ensured.

Our global absenteeism rate continues to be low at 1%. This includes all types of short- and long-term illnesses and medical leave.

Following the pandemic, we recognize that patterns of work have changed, and we want to continue to have a positive impact on the well-being, productivity and work-life balance of our people. Fundamentally, we are convinced that employees themselves can best manage their own work. At the same time, managers are responsible for efficiently organizing

the way the team and the company are working. This means that employees and managers have joint responsibility for the choices to be made under our flexible work policy.

21.2 Workers in the supply chain

Based on data provided by our suppliers through RBA Assessments and third-party data on labor and human rights risks, we believe we have workers in our supply chain that could be considered more vulnerable to human-rights abuses. As we continue to deepen our understanding of at-risk workers in our supply chain, we also continue to develop targeted strategies to reduce risks to these worker groups.

Vulnerable worker groups	Identified in ASM's direct supply chains	Not identified in ASM's direct supply chains
Upstream	X (Minerals sourcing)	
Distribution providers		X
Franchisees		X
Retailers		X
Logistics	X	
Self-employed		X
Joint venture or special purpose vehicle		X
Home workers		X
Contract or temporary	X	
Union	X	
Young	X	
Female	X	
Foreign or migrant	X	

From a geographic risk perspective, ASM's suppliers are located all over the world. Evaluating supplier RBA SAQ responses as well as third-party assessments of human-rights risks of these operating locations, we have identified a few countries in our Tier 1 supply chain that are believed to be at higher risk for forced, child, or compulsory labor.

These countries include:

- China
- Malaysia
- The Philippines
- Vietnam

In addition, we source both directly (Tier 1) and indirectly (Tier 2+) several commodities known to be at risk for child, forced or compulsory labor. We acknowledge the challenges in determining the risks within the specific commodities we buy and are therefore taking steps to expand the assessment of ASM's value chain. As part of our human rights and business continuity risk-mapping activities, we aim to gain a deeper understanding of the breadth of our exposure and seek to address, using tools offered through the RBA, RMI and others as appropriate, to identify and mitigate those risks. Based on data provided by third-party data sources like the RBA, the RMI and the US Department of Labor, the following high-risk commodities have been identified that will require additional investigation:

- Minerals (beyond 3TG): cobalt, copper, mica, silver, and zinc; and
- Materials/goods: ceramics, electronics, glass, iron, rubber, rubber gloves, sand, silicon, sapphires, textiles, thread/yarn, and timber.

Industry-demand fluctuation and worker impact at suppliers

As a key player in the semiconductor value chain, ASM, and by proxy, its direct material and service suppliers, are subject to the cyclical nature of the demand profiles of our end customers. This is particularly challenging to those suppliers who rely heavily on the use of manual labor and who have a high business reliance on the semiconductor industry where such cyclical demand can exist. Such variability in demand may, for those suppliers, create incentives for driving excessive working hours, loss of necessary days of rest, and increased use of foreign or migrant workers or contract/temporary workers. In cases of downturns, this shift in demand can lead to a risk of reductions in working hours (and associated wages) and supplier resourcing adjustments like furloughs and layoffs. ASM works to increase demand visibility from customers, and to improve its near- and long-term demand planning processes, which in turn also help address some of these cyclical effects. ASM is also working to increase its secondary sourcing options to help with

production upsides and to manage other supply chain continuity risks. In line with our supplier code of conduct, we also encourage our suppliers to consider appropriate labor needs – that align with working hours and expectations around days of rest – in determining its future production or service capacity and to design its manufacturing processes accordingly.

21.3 Supplier and supply-chain team capability building

Our 2023 supplier development program included the use of an innovative program called the Responsible Factory Initiative. This program, which is linked to the RBA, is focused on the development of a supplier's code of conduct conformance through a multi-phased approach. This starts with an education-oriented gap assessment, deep training for key facility personnel, and coaching through the development and execution of corrective action plans. ASM had four suppliers take part in the program this year. The full results of this program are still to be determined as suppliers continue to roll out their corrective action plans, but we expect this will be a valuable and sustainable approach to improving supplier conformance to the RBA code. ASM is also invested in the future success of this industry program by participating in the RFI's Advisory Council.

ASM Supplier Sustainability Summit



In November 2023, ASM hosted its first Supplier Sustainability Summit at ASM's location in Suwon, South Korea. We showcased the key priorities of our ESG strategy and our efforts toward a sustainable supply chain, aiming to accelerate and expand our positive impact hand in hand with our suppliers. The event was attended by our most critical suppliers in Korea, with 30 companies represented and nearly 60 attendees.

ASM also ramped up its supplier communications and training efforts. From the second quarter of 2023 onwards, we implemented a quarterly supplier newsletter to educate on

important issues and resources to help suppliers develop their sustainability and human-rights programs. We also hosted several training sessions for suppliers this year, with 300 supplier representatives attending these sessions. They included:

- a. Three webinar sessions (in two languages) on the CDP climate change questionnaire process, and how to report Scope 1 and 2 emissions;
- b. Facilitated a webinar in partnership with the Semiconductor Climate Consortium, Business for Social Responsibility & the We Mean Business Coalition aimed at helping small and medium-sized enterprises (SMEs) to start on their carbon-emissions journey;
- c. Series of six webinars focusing on the upcoming changes to the RBA Code, our updated Responsible Minerals policy, and a review of the mandatory human-rights due diligence regulations; and
- d. Hosted our first-ever Supplier Sustainability Summit with suppliers in Korea.

Internally, 88% of our suppliers and commodity managers were trained on the RBA Code of Conduct and human rights in the supply chain. We also provided training sessions for this group to better understand the impact of carbon emissions and climate change, as well as the value of renewable-energy procurement in addressing Scope 2 emissions.

Launched in 2021, the PRISM award recognizes contributions or achievements in sustainability and is available to anyone in ASM's ecosystem, including employees, suppliers, or other partners. At our Supplier Day in November 2023, we were excited to recognize the following suppliers for their contributions to sustainability in ASM's value chain.

Living wage at suppliers

In addition to our commitment to a living wage for our own employees, ASM engages the RBA to bring visibility and action to the importance of providing a living wage in our value chain. Our advocacy efforts culminated in the RBA forming a Living Wage Task Force in 2021 (in which ASM is an actively engaged member) to study the impacts and recommend best practices for implementation. A third-party analysis of the RBA Code versus related standards this year identified the living wage as a key gap. The RBA Living Wage Task Force is currently working to bridge the gap by publishing a practical guide for the

industry, and is evaluating amendments to the RBA Code to include this important human-rights priority.

Supply-chain diversity

While we continue to look for ways to increase the diversity of our own supply chain, we have also actively looked for other ways to encourage the growth of opportunities in the broader supply chain. ASM has maintained its engagement in SEMI's Manufacturing Ownership Diversity working group as we look for ways to expand our reach with diverse-owned businesses around the world. Members of this organization approach this work from a collaborative perspective to create efficiencies, align on approaches, and create avenues for these businesses to engage with interested partners.

We are continuously looking for more ways to engage and collaborate with our suppliers, so that together we can increase our positive impact. In 2024 and beyond, we plan to take a further targeted approach to supplier engagement and our shared opportunities, based on topic applicability, risk, and considering supplier scale and capabilities.

21.4 Responsible minerals sourcing

In 2023, ASM published an updated Responsible Minerals Sourcing Policy, reflecting a full alignment with regulatory and industry practices related to responsible sourcing of tin, tantalum, tungsten, and gold (3TG) minerals. ASM's responsible mineral sourcing requirements reflect our commitment to the OECD Due Diligence Guidance and to addressing the use of high-risk 3TG smelters & refineries.

ASM requires our suppliers to use smelters and refineries that have been certified as conformant to standards that seek to prevent potential funding of human-rights abuses in mining locations. Requiring the use of compliant smelters and refineries allows us to continue to support local mining communities while working to manage associated risks.

Each year, ASM surveys its suppliers to identify and map the sources of 3TG minerals that are used by our critical and strategic suppliers. For the latest survey cycle, completed in May of 2023, 99% of surveyed suppliers responded with a CMRT or confirmed no 3TG in their products.



A review of the most recent supplier CMRT submissions shows that our aggregated high-risk smelter/refinery exposure accounts for 7% of all reported 3TG smelters/refiners in our upstream supply chain. While the 2022 result seems relatively low from a risk coverage perspective, it represents an increase from the 2021 survey. Going forward, we aim to continue to engage with our value chain to minimize this sourcing risk. Smelter and refinery risk is determined based on a combination of geographic risk (CAHRA sourcing), audit status (conformance), and other identified sourcing risks (such as credible third-party sources).

Results from our CMRT Survey Process:

	2022 Survey	2023 Survey
Total # of surveyed suppliers	81	84
% of direct spending covered by surveyed suppliers	82%	87%
% of surveyed suppliers who responded	100%	99%
% who declared no 3TG	41%	45%
# of suppliers with high-risk smelters or refineries reported	27	27
# of high-risk smelters or refineries reported	18	24
% of smelters or refineries reported assessed as high-risk	5%	7%
Top 5 countries of origin for 3TG minerals (as identified by smelters or refineries)	Not Available	China, Brazil, Japan, Canada, Chile

ASM's third-party supplier partner in the minerals reporting process reaches out to those suppliers who report high-risk smelters and, if confirmed, asks to remove smelters as appropriate. Our third-party partner also reaches out directly to upstream smelters and refiners who have been reported to be in our supply chain but that are not certified conformant per the RMI (RMAP 'conformant' or 'active'). On behalf of ASM and many other customers, the third-party partner requests that they work to get certified. ASM also does a targeted follow-up to drive home the importance of supplier action. We request suppliers with reported high-risk smelters or refineries determined to be part of ASM's supply chain to provide us with a specific action plan for removal. In addition, for those suppliers who sourced 3TG from smelters or refineries that had not gone through the conformance process, we request that they also engage their upstream suppliers to drive compliance to further mitigate risk.

ASM has instituted a periodic process to monitor upstream risks tied to minerals sourcing, inclusive of human-rights, environmental and geopolitical risks. In 2024, based on the result of this risk assessment and in alignment with industry practices, ASM aims to add cobalt and mica to the scope of its Responsible Minerals program. Additional minerals are under consideration for future years.

22. Governance statements

ASM's approach to responsible governance is rooted in upholding high standards of ethical conduct, transparency, and responsibility. This section encompasses our approach to tax, not only ensuring tax compliance, but adopting transparent and ethical financial operations. Simultaneously, we place a strong emphasis on robust cybersecurity strategies to protect our data, intellectual property, and digital infrastructure from emerging threats.

22.1 Tax principles

We see tax as an integrated part of doing business and believe that tax should follow business. This resonates with our core value 'We Care', and contributes to the societies in which we operate. The respective taxes are determined and paid in the countries where the respective value is created, in accordance with all relevant rules and regulations. See Note 22 of this Annual Report for the total income tax expense in the Netherlands and abroad. Tax is one of the many factors we take into account when doing business, including locally available tax incentives and exemptions. We seek to establish and maintain an open and constructive relationship with the tax authorities in the countries where we operate. We do not use artificial tax structures aimed at tax avoidance. We aim to follow both the letter as well as the spirit of the law.

We support the 'at-arm's-length' principle to determine transfer prices. This conforms with domestic and international rules and standards, such as the OECD guidelines for multinational enterprises. Our disclosures are made in line with the relevant local and/or international regulations and guidance, based on all the relevant facts and circumstances.

Tax strategy

ASM has a tax control framework in place, including the use of certain tax technology that ensures correct data for tax purposes. As part of this, we continuously monitor our tax positions and tax developments, and review key tax positions quarterly in accordance with the respective processes. As part of our tax strategy, the tax department recommends a balanced approach in the interests of all stakeholders, while adhering to ASM's tax policy and complying with all relevant tax laws and regulations. ASM's tax department is responsible for tax management. It is supervised by the Management Board via the CFO, who discusses the tax strategy with the Supervisory Board's Audit Committee. In line with our tax principles, we do not use artificial tax structures solely aimed at tax avoidance, nor do we use tax havens or non-cooperative jurisdictions to avoid transparency on our tax position. ASM proactively engages with tax authorities seeking to develop an open and transparent working relationship with early engagement in advance of transactions and filing tax returns. For specific transactions and/or a specific approach, for example with respect to the application of the 'at-arm's-length' principle in transfer pricing matters, we may seek certainty upfront by requesting a tax ruling from the respective tax authority. We believe such certainty is valuable for our stakeholders, including the respective tax authority.

22.2 Cybersecurity

Protecting ASM's physical and digital assets are crucial components to preserving our business, fostering innovation, and upholding our position as a global leader in the semiconductor space. To achieve this, ASM Cybersecurity Management has introduced the Cybersecurity Assurance Framework, which aligns with industry best practices such as ISO 27001 and NIST. This framework provides a robust foundation for our cybersecurity initiatives and ensures a level of assurance and maturity in our cybersecurity posture.

One of our key targets is data loss prevention. We have implemented capabilities such as Information Rights Management (IRM), which bolsters our capacity to proactively prevent potential data loss, thereby safeguarding our invaluable assets.

Recognizing that the cornerstone of a robust cyber posture is physical security, ASM IP & Licensing and Global IT have collaborated on conducting periodic site audits. These audits not only drive strict adherence to security requirements but also align with our overarching business resiliency and risk-management activities, further strengthening our commitment to comprehensive security measures.

We have expanded our capabilities in detection and response of advanced threats due to the ever-evolving cyber-threat landscape. Our around-the-clock enhanced threat intelligence now covers internal and external threats and third-party continuous monitoring of our key suppliers' cyber posture. This comprehensive expansion aims to achieve early detection and swift response to potential attacks.

We have a strong emphasis on readiness in response to threats in our continued focus on cyber drills. These exercises simulate real-world scenarios and help us keep our response teams and playbooks current. They also help us maintain our vigilance towards evolving cyber threats.

23. EU taxonomy

EU taxonomy explanation

The EU Taxonomy Regulation (EU 2020/852) aims to provide a common language and methodology for sustainability reporting through a classification system that helps companies and investors identify 'environmentally sustainable' economic activities. The EU Taxonomy Regulation requires companies falling under the Non-Financial Reporting Directive (2014/95/EU) and 'Besluit bekendmaking niet-financiële informatie', to report on the EU taxonomy, in accordance with the Disclosure Delegated Act (EU 2021/2178). In the financial year 2022, companies needed – for the first time – to report on the key performance indicators (KPIs) for the proportion of their eligible activities considered to be 'green', or in EU taxonomy terminology 'aligned' with the first two environmental objectives described in Annex I and Annex II of the Climate Delegated Act (EU 2021/2139):

- Climate change mitigation (CCM); and
- Climate change adaptation (CCA)

For the 2023 financial year, in addition to the existing requirement to report on the EU taxonomy alignment for CCM and CCA, companies are now also required to disclose KPIs indicating the eligibility of their activities with the economic activities specified in Annexes I-IV of the Environmental Delegated Act (EU 2023/2486):

- Sustainable use and protection of water and marine resources (WTR);
- Transition to a circular economy (CE);
- Pollution prevention and control (PPC); and
- Protection and restoration of biodiversity and ecosystems (BIO).

The relevant KPIs for eligibility and alignment are reported as the proportion of turnover, capital expenditure (capex) and operating expenses (opex) in line with the EU Taxonomy delegated acts. ASM is reporting eligibility under circular economy categories, and did not perform an alignment assessment for CCM due to the relatively low related amounts. Compared to last year, the activities of LPE S.p.A are now part of the consolidated figures. ASM does not have any nuclear energy and fossil gas-related activities and the Complementary Climate Delegated Act of the EU Taxonomy is therefore not relevant. ASM's technology and innovation allows its customers and, in turn, their customers down the value chain to introduce electronic devices with superior performance and lower energy consumption. ASM's innovative R&D activities, aimed at continuously improving technologies to help deliver further energy reductions, are key in this. As such, ASM has a role as an enabler in reducing the carbon footprint of its customers and end customers.

Turnover

The EU Taxonomy requires alignment with the financial reporting standards. For ASM, this means that the turnover under the EU Taxonomy is equal to 'Revenue' included in the Consolidated statement of profit or loss in the IFRS financial statements.

Although this is the third year for reporting, ASM underlines that the taxonomy is still new and evolving. Furthermore, one specific category within the EU Taxonomy (manufacturing of low-carbon technologies (3.6)) close to the activities of ASM, is subject to interpretation. As in previous years, ASM applied a strict interpretation, which requires that products are directly aimed at substantial GHG-emission reductions in other sectors of the economy, not being customers down the value chain. Therefore, none of the turnover was considered eligible for this specific economic activity.

This year, ASM extended the scope of the EU Taxonomy assessment to the activities described in the Environmental Delegated Act that came into force in June 2023. As a result, ASM identified the activities that are described under the CE objective. The cornerstone of ASM's circular approach is the modular design of products, enabling a system to upgrade to a higher performance level without replacing the entire product. Extending the lifetime of ASM products is also possible by refurbishing systems after their use.

ASM's revenue can be broken down into sales of systems, spare parts, and services. Within those categories, ASM identified the revenue streams that are associated with the following activities described in the EU Taxonomy:

- 1.2 Manufacture of electrical and electronic equipment, associated with ASM's core activity of manufacturing semiconductor wafer-processing equipment;
- 5.1 Repair, refurbishment, and remanufacturing, associated with ASM's activity of parts refurbishment and extending product lifecycle through upgrades or refurbishment; and
- 5.2 Sale of spare parts, associated with sale of spare parts for systems manufactured by ASM.

No other material investments in relevant economic activities were identified. As such, ASM reports that 91% of its turnover is eligible under the CE objective. Since the Environmental Delegated Act outlining the circular economy activities is only applicable as of the reporting period 2023, no comparative figures are available.

Capital expenditure (capex)

The total capex under the EU Taxonomy consists of the following IFRS financial statement line items:

- Investments in property, plant, and equipment
- Investments in intangible asset
- Additions to right-of-use asset.

The other elements of the capex denominator in the Disclosure Delegated Act are not applicable to ASM.

Through the assessment of ASM's capex in 2023, it was concluded that a large part of ASM's capex relates to machinery and equipment that is essential to the ASM's revenue-generating activities. Since ASM's revenue can be directly associated with the activity 1.2 Manufacture of electrical and electronic equipment, as outlined in Annex II (CE) of Environmental Delegated Act, asset classes linked to machinery and equipment now qualify for inclusion under this category for the first time. The eligible amount includes the capitalized R&D costs, machines under customer evaluation before a purchase, and machines under constructions.

Investments in buildings meet the definition of the economic activity 7.7 Acquisition and ownership of buildings, as specified in the Climate Delegated Act, Annex I (CCM). For the financial year 2023, ASM considered those investments to be immaterial compared to the total amount of CapEx, and therefore did not further assess these investments for alignment. In light of the recently announced plans for expansions in North America and Korea to accommodate growing demand for R&D in the semiconductor industry, ASM aims to perform an alignment assessment for related capex in the future.

No other material investments in relevant economic activities were identified. As such, ASM reports that 39% of capex is eligible under the CCM and CE objectives.

Operational expenditure (opex)

The opex denominator includes the following categories of operational expenditure for ASM:

- Building maintenance expense; and
- R&D expenses

The R&D expenses are directly linked to ASM's turnover-generating activity. Consistent with the approach for capex, these related expenditures were consequently classified as eligible under the target activity 1.2 CE objective.

No other material expenditures in relevant economic activities were identified. As such, ASM reports that 95% of opex meets the eligibility criteria under the CE objective.

The EU Taxonomy KPI disclosure templates for turnover, capex and opex are provided at the end of this chapter.

Looking forward

ASM has been performing an assessment of its current initiatives related to the EU Taxonomy environmental objectives to assess whether they support alignment with Substantial Contribution criteria and Do No Significant Harm (DNSH) criteria, as well as the Minimum Safeguards. With regards to the CE objective, based on preliminary assessment, we do not anticipate that the related capex, opex, and turnover will meet the strict SC and DNSH criteria.

Additional initiatives performed currently at ASM in this area are the Net Zero initiative, the Climate Adaptation Risk and Opportunity Assessment (CAROA) process, the water security project, refurbishment initiatives, the human-rights policies and due diligence activities. In 2024, these and other initiatives will also be assessed against the EU Taxonomy. Any gaps will be assessed and acted upon to take further control over becoming aligned under the EU Taxonomy, with a particular focus on the potential alignment of green buildings.

Turnover

Financial year N	2023			Substantial Contribution Criteria						DNSH criteria						Minimum Safeguards	Proportion of Taxonomy-aligned (A.1) or eligible (A.2) Turnover, year N-1 (18)	Category enabling activity (19)	Category transitional activity (20)
	Code (2)	Turnover (3)	Proportion of Turnover, year N (4)	Climate Change Mitigation (5)	Climate Change Adaptation (6)	Water (7)	Pollution (8)	Circular Economy (9)	Biodiversity (10)	Climate Change Mitigation (11)	Climate Change Adaptation (12)	Water (13)	Pollution (14)	Circular Economy (15)	Biodiversity (16)				
Economic Activities (1)	mEUR	%		Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
n/a																			
Turnover of environmentally sustainable activities (Taxonomy-aligned) (A.1)	—	0.0 %															0.0 %		
of which Enabling	—	0.0 %															0.0 %	E	
of which Transitional	—	0.0 %															0.0 %		T
A.2 Taxonomy-eligible but not environmentally sustainable (not Taxonomy-aligned activities)																			
				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
Manufacturing of electrical equipment	CE 1.2	2,084	79.1 %	N/EL	N/EL	N/EL	N/EL	EL	N/EL								n/a		
Repair, refurbishment and remanufacturing	CE 5.1	28	1.1 %	N/EL	N/EL	N/EL	N/EL	EL	N/EL								n/a		
Sale of spare parts	CE 5.2	285	10.8 %	N/EL	N/EL	N/EL	N/EL	EL	N/EL								n/a		
Turnover of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		2,397	91.0 %	0.0 %	0.0 %	0.0 %	0.0 %	91.0 %	0.0 %								0.0 %		
A. Turnover of Taxonomy-eligible activities (A.1+A.2)		2,397	91.0 %	0.0 %	0.0 %	0.0 %	0.0 %	91.0 %	0.0 %								0.0 %		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Turnover of Taxonomy-non-eligible activities		237	9.0 %																
Total		2,634	100.0 %																

Capex

Financial year N	2023			Substantial Contribution Criteria						DNSH criteria						Minimum Safeguards	Proportion of Taxonomy-aligned (A.1) or eligible (A.2) CapEx, year N-1 (18)	Category enabling activity (19)	Category transitional activity (20)
	Code (2)	Capex (3)	Proportion of CapEx, year N (4)	Climate Change Mitigation (5)	Climate Change Adaptation (6)	Water (7)	Pollution (8)	Circular Economy (9)	Biodiversity (10)	Climate Change Mitigation (11)	Climate Change Adaptation (12)	Water (13)	Pollution (14)	Circular Economy (15)	Biodiversity (16)				
Economic Activities (1)		mEUR	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
n/a																			
Capex of environmentally sustainable activities (Taxonomy-aligned)		—	0.0 %														0.0 %		
of which Enabling		—	0.0 %														0.0 %	E	
of which Transitional		—	0.0 %														0.0 %		T
A.2 Taxonomy-eligible but not environmentally sustainable (not Taxonomy-aligned activities)																			
				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
Acquisition and ownership of buildings	CCM 7.7	1	0.4 %	EL	N/EL	N/EL	N/EL	N/EL	N/EL								1.2 %		
Manufacturing of electrical equipment	CE 1.2	82	38.3 %	N/EL	N/EL	N/EL	N/EL	EL	N/EL								n/a		
Capex of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		83	38.6 %	0.4 %	0.0 %	0.0 %	0.0 %	38.3 %	0.0 %								1.2 %		
A. Capex of Taxonomy-eligible activities (A.1+A.2)		83	38.6 %	0.4 %	0.0 %	0.0 %	0.0 %	38.3 %	0.0 %								1.2 %		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Capex of Taxonomy-non-eligible activities		132	61.4 %																
Total		215	100.0 %																

Opex

Financial year N	2023		Substantial Contribution Criteria							DNSH criteria						Minimum Safeguards	Proportion of Taxonomy-aligned (A.1) or eligible (A.2) OpEx, year N-1 (18)	Category enabling activity (19)	Category transitional activity (20)	
	Code (2)	OpEx (3)	Proportion of OpEx, year N (4)	Climate Change Mitigation (5)	Climate Change Adaptation (6)	Water (7)	Pollution (8)	Circular Economy (9)	Biodiversity (10)	Climate Change Mitigation (11)	Climate Change Adaptation (12)	Water (13)	Pollution (14)	Circular Economy (15)	Biodiversity (16)					
Economic Activities (1)	mEUR	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T	
A. TAXONOMY-ELIGIBLE ACTIVITIES																				
A.1. Environmentally sustainable activities (Taxonomy-aligned)																				
OpEx of environmentally sustainable activities (Taxonomy-aligned)	—	0.0 %																0.0 %		
of which Enabling	—	0.0 %																0.0 %	E	
of which Transitional	—	0.0 %																0.0 %		T
A.2 Taxonomy-eligible but not environmentally sustainable (not Taxonomy-aligned activities)																				
			EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL											
Acquisition and ownership of buildings	CCM 7.7	—	0.0 %	EL	N/EL	N/EL	N/EL	N/EL	N/EL									0.6 %		
Manufacturing of electrical equipment	CE 1.2	45	95 %	N/EL	N/EL	N/EL	N/EL	EL	N/EL									n/a		
OpEx of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)		45	95 %	0.0 %	0.0 %	0.0 %	0.0 %	95.1 %	0.0 %									0.6 %		
A. OpEx of Taxonomy eligible activities (A.1+A.2)		45	95 %	0.0 %	0.0 %	0.0 %	0.0 %	95.1 %	0.0 %									0.6 %		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																				
OpEx of Taxonomy-non-eligible activities	2	5 %																		
Total	47	100.0 %																		

24. Five-year non-financial table

Categories	Indicators	Units or Definition	2019	2020	2021	2022	2023	Reference	
Employees	Employees	Number	2,337	2,583	3,312	4,258	4,542	People	
	Employees including temp	Number	2,444	2,689	3,462	4,397	4,654		
	New hires	Number	407	515	1,146	1,453	730		
Diversity & inclusion	Employees	Male (% globally)	85 %	85 %	85 %	83 %	83 %	People	
		Female (% globally)	15 %	15 %	15 %	17 %	17 %	People	
	Supervisory Board	% Female/% Male	20 / 80%	33 / 67%	43 / 57%	50 / 50%	50 / 50%	Supervisory Board	
	Management Board	% Female/% Male	0 / 100%	0 / 100%	0 / 100%	0 / 100%	0 / 100%	Management Board	
	Gender pay ratio	Female-Male (total)	100 %	99 %	95 %	98 %	98 %		
	CEO pay ratio		31	27	29	27	31	Remuneration report	
	Nationalities	Number	29	40	47	59	66	People	
	Workforce split	Asia		58 %	58 %	63 %	62 %	59 %	
		US		27 %	28 %	25 %	24 %	26 %	
		Europe		15 %	14 %	12 %	14 %	15 %	
	Foreign nationals workforce split	Asia		60 %	59 %	66 %	66 %	62 %	(SASB)
		US		30 %	29 %	23 %	21 %	24 %	(SASB)
		Europe		10 %	12 %	11 %	13 %	14 %	(SASB)
Other segmentation	Employees in R&D	Percent	26 %	24 %	20 %	22 %	24 %		
	Employees covered by collective bargaining	Number	278	328	254	408	514	Note 13 of consolidated statements	
	Percent of worker under collective bargaining	Percent	10.8 %	11.7 %	7.7 %	9.6 %	11.3 %		
	Voluntary attrition rate	Percent	8.7 %	8.3 %	11.1 %	10.2 %	6.6 %	People	
	Total attrition rate	Percent	10.7 %	10.8 %	12.5 %	12.0 %	9.2 %		
	% performance management completion	Percent	98.0 %	99.0 %	100.0 %	100.0 %	100.0 %		
Health and safety	Injury rate	per 100 employees	0.42	0.58	0.50	0.55	0.48	People	
	Recordable injury rate	per 100 employees	0.17	0.23	0.26	0.30	0.28	People	
	Number of recordable injuries	Number	4	6	8	12	13		
	Asia		2	3	2	5	4		



Categories	Indicators	Units or Definition	2019	2020	2021	2022	2023	Reference	
	Europe		1	—	2	2	3		
	US		1	3	4	5	6		
	Lost time injury rate (LTIR)	per 100 employees	0.13	0.16	0.17	0.17	0.11		
	Fatality rate	per 100 employees	0	0	0	0	0		
	Efforts to assess, monitor, reduce exposures	Qualitative	*See Health & safety, People section					(SASB)	
Training	Ethics training (bi-annual)	All employees	100.0 %	100.0 %	97.2 %	96.9 %	97.0 %		
	Ethics training	New hire employees	100.0 %	99.2 %	97.6 %	99.0 %	94.0 %		
	Technical training hours of ASM employees	Hours annually	48,075	28,624	46,727	87,134	53,418		
Environmental ²	Electrical consumption	MWh	43,401	44,915	56,286	62,366	74,432	(SASB)	
	Grid electricity	Percent from grid	100 %	100 %	100 %	100 %	100 %	(SASB)	
	Renewable EACs purchased	MWh (or EAC units)	n.a.	36,600 %	41,563	45,787	65,321		
	Renewable electricity	Percent from renewable sources	9 %	10 %	74 %	73 %	88 %	(SASB)	
	Scope 1 and 2 (market-based) GHG emissions ¹	Kilotonnes CO2e	24.0	25.0	9.8	11.1	7.9		
	Gross global Scope 1 GHG emissions	Kilotonnes CO2e	0.9	1.0	1.3	2.0	2.5	(SASB)	
	Gross global Scope 2 (location-based) GHG emissions	Kilotonnes CO2e	23.1	24.0	24.4	27.1	32.3		
	Gross global Scope 2 (market-based) GHG emissions ¹	Kilotonnes CO2e	23.1	24.0	8.4	9.1	5.4		
	Scope 1 and 2 (market-based) GHG per revenue (emission intensity) ¹	Tonnes CO2e/million €	18.7	18.8	5.5	4.5	3.0	Planet	
	Scope 1 and 2 (market-based) GHG per R&D spend (emission intensity) ¹	Tonnes CO2e/million €	160.0	145.0	46.7	36.2	19.2	Planet	
	Water withdrawn absolute	Cubic meters	122,505	121,434	197,802	193,789	252,104	Planet (SASB)	
	Water withdrawn from water-stressed regions	Percent from high or extremely high water-stressed regions	53 %	50 %	45 %	39 %	41 %	(SASB)	
	Water intake per revenue (water intensity)	Cubic meters/million €	95	91	111	78	96	Planet	
	Water intake per R&D spend (water intensity)	Cubic meters/million €	813	707	947	634	615	Planet	
	Significant chemicals spills or releases to the environment	Number	0	0	0	0	0	Planet	
	Non-hazardous solid waste recycle	Tonnes	664	714	1,429	1,981	1,557	Planet	
	Non-hazardous solid waste landfill	Tonnes	166	156	362	441	420	Planet	
	Non-hazardous reuse - ASM diversion	Tonnes	114	122	215	453	352	Planet	



Categories	Indicators	Units or Definition	2019	2020	2021	2022	2023	Reference
	Landfill diversion rate (ASM operations)	% solid waste recycle or reuse	82 %	84 %	82 %	85 %	82 %	Planet (SASB)
	Landfill diversion (in scope packaging reuse across ASM value chain)	Tonnes (through all reuse sectors)	139	163	260	542	500	Planet
Ethics compliance	Reported confidential concerns via SpeakUp!	Number	5	5	4	7	6	Business ethics
	Reported concerns from other channels	Number	2	4	4	1	8	Business ethics
	Confirmed cases of non-conformity to our Code of Business Conduct	Number	3	2	1	1	6	Business ethics
RBA Risk assessment	RBA self-assessment rating	RBA rating (corporate + all applicable facilities)	Low	Low	Low	Low	Low	
Supply chain	Total direct supplier spend by region	Asia percent	71 %	71 %	72 %	72 %	68 %	Global operations
		North America percent	22 %	22 %	20 %	20 %	23 %	
		Europe percent	7 %	7 %	8 %	8 %	9 %	
Supply chain (critical, strategic suppliers)	RBA Code of Conduct acknowledgement	Percentage	100 %	100 %	99 %	100 %	99 %	Global operations
	RBA self-assessment questionnaire (SAQ) with low/medium risk	Percentage	40 %	77 %	84 %	84 %	84 %	Global operations
Material sourcing	Description of the management of risks associated with the use of critical materials	Qualitative	See conflict minerals discussion in the supply chain section					(SASB)
	Critical/strategic suppliers conflict minerals CMRT received	Percentage	100 %	100 %	100 %	100 %	99 %	
Intellectual property	Patents in force	Number	1,959	2,094	2,250	2,619	2,953	Innovation and products
	Intellectual property protection & competitive behavior	Monetary losses as a result of legal proceedings associated with anti-competitive behavior regulations	0	0	0	0	0	(SASB)

¹ For 2019-2020, ASM did not procure market-based renewable electricity. For those years the data included in the table represent location-based sourcing.

² We have revised prior year reported numbers for all environmental indicators from 2021 onwards, aligning to ASM's SBTi validated boundary, inclusive of service office sites and acquisitions

25. Independent auditor's report on the non-financial information

To: The General Meeting of Shareholders and the Supervisory Board of ASM International N.V.

Our conclusion

Based on the procedures performed, nothing has come to our attention that causes us to believe that the non-financial indicators have not been prepared, in all material respects, in accordance with the reporting criteria as described in the 'Reporting criteria' section of our report.

What we have reviewed

We have reviewed the 2023 performance of the non-financial indicators in the Annual Report 2023 (hereafter: Annual Report) of ASM International N.V. (hereafter: the Company). A review is aimed at obtaining a limited level of assurance.

The non-financial indicators in scope consist of the following:

- Diversity & Inclusion: Gender Diversity, Gender pay ratio, CEO pay ratio, Supervisory Board Gender Diversity, Management Board Gender Diversity, Gender diversity (sub-board);
- Other segmentation: Voluntary attrition rate, Total attrition rate;
- Health & Safety: Injury rate, Recordable injury rate, Number of recordable injuries, Lost time injury rate (LTIR) and Fatality rate;
- Ethics compliance: Reported Confidential Concerns via SpeakUp!, Reported Concerns from other channels and COBC Confirmed cases of non-conformity;
- Training: Ethics training, Ethics training (bi-annual);
- Environmental: Total electricity consumption, Grid electricity (SASB), Renewable EACs purchased, % Renewable Electricity Used, Scope 1 and 2 (market- based) GHG emissions, Gross global Scope 1 GHG emissions, Gross global Scope 2 (location based) GHG emissions, Gross global Scope 2 (market-based) GHG emissions, Scope 1 and 2 (market based) GHG emissions per revenue, Scope 1 and 2 (market based) GHG emission per R&D spend, Scope 3 emissions (2022), Water Withdrawn Absolute, Water

withdrawn from water- stressed regions, Water intake per revenue (water intensity), Water intake per R&D spend (water intensity), Significant Chemical Spills or released to the environment, Non-Hazardous solid waste recycle, Non-Hazardous solid waste landfill, Non-Hazardous reuse - ASM Diversion, and Landfill Diversion Rate (ASM Operations), Landfill diversion (all product packaging reuse) and % value chain packaging re-use;

- Supply Chain: RBA Code of Conduct (SAQ) and RBA Code of Conduct Acknowledgement; and
- Material Sourcing: Critical/Strategic Suppliers Conflict Minerals CMRT received.

Certain environmental indicators for the period 2021 and 2022 have been restated due to an increase in the number of locations in scope and/or methodology changes of the Company. These indicators are marked as such in the Annual Report. As such, the restated 2022 and 2021 environmental indicators are also in scope of our review procedures, with the exception of scope 3 emissions for 2021.

The non-financial indicators are disclosed in section 11.1 'Climate action', section 11.3 'Circularity', and chapter 24 'Sustainability statements'.

Information not in scope of our review

No review has been performed on the comparative information for the period 2021 regarding Scope 3 emissions. Furthermore, no review will be performed on the comparative information for the period 2022 and 2021 regarding "% customer packaging reuse". Consequently, the corresponding non-financial indicators and related disclosures are not assured. Our conclusion is not modified in respect to this matter.

Basis for our conclusion

We conducted our review in accordance with Dutch law, including Dutch Standard 3000A 'Assurance-opdrachten anders dan opdrachten tot controle of beoordeling van historische

financiële informatie (attest-opdrachten) (assurance engagements other than audits or reviews of historical financial information (attestation engagements)), which is a specified Dutch Standard that is based on the International Standard on Assurance Engagements (ISAE) 3000 'Assurance engagements other than audits or reviews of historical financial information'. This engagement is aimed to obtain limited assurance. Our responsibilities in this regard are further described in the 'Auditor's responsibilities' section of our report.

We are independent of ASM International N.V. in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence). Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We believe the assurance evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Reporting Criteria

The non-financial indicators need to be read and understood together with the reporting criteria. The Company is solely responsible for selecting and applying these reporting criteria, taking into account applicable law and regulations related to reporting.

The reporting criteria used for the preparation of the non-financial indicators are the internal reporting criteria of the Company as disclosed in the following chapters of the Annual Report:

- Chapter 10 People
- Chapter 11 Planet
- Chapter 12 Responsible supply chain
- Chapter 13 Corporate governance
- Chapter 26 Glossary and definitions

Materiality

Based on our professional judgment we determined materiality levels for each non-financial indicator. When evaluating our materiality levels, we have taken into account quantitative and qualitative considerations as well as the relevance of information for both stakeholders and the Company.

We agreed with the Supervisory Board that misstatements which are identified during the review and which in our view must be reported on quantitative or qualitative grounds, would be reported to them.

Scope of the group review

ASM International N.V. is the parent company of a group of entities. The non-financial indicators incorporate the consolidated information of the full group.

Our group review procedures consisted of both review procedures at corporate (consolidated) level and at site level. Our selection of sites in scope of our review procedures is primarily based on the site's individual contribution to the consolidated information.

By performing our review procedures at site level, together with additional review procedures at corporate level, we have been able to obtain sufficient and appropriate assurance evidence about the group's non-financial indicators to provide a conclusion about the non-financial indicators.

Limitations to the scope of our review

The non-financial information includes prospective information such as ambitions, strategy, plans, expectations and estimates. Inherently the actual future results are uncertain. We do not provide any assurance on the assumptions and achievability of prospective information in the non-financial information.

References to external sources or websites in the non-financial information are not part of the non-financial information itself as reviewed by us. Therefore, we do not provide assurance on this information.

Description of responsibilities regarding the non-financial indicators

Responsibilities of the Management Board and Supervisory Board regarding the non-financial indicators

The Management Board is responsible for the preparation of the non-financial indicators in accordance with the applicable criteria as described in the 'Reporting criteria' section of our report. Furthermore, the Management Board is responsible for such internal control as it determines is necessary to enable the preparation of the non-financial indicators that is free from material misstatement, whether due to fraud or error.

The Supervisory Board is, among other things, responsible for overseeing the Company's reporting process.

Auditor's responsibilities regarding the non-financial indicators

Our responsibility is to plan and perform our review in a manner that allows us to obtain sufficient and appropriate assurance evidence for our conclusion.

Procedures performed in this context consist primarily of making inquiries with employees of the entity and determine the plausibility of the information included on the non-financial indicators. Therefore, these procedures differ in nature and timing, and extent, compared to a reasonable assurance engagement.

The level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

We apply the 'Nadere Voorschriften Kwaliteitssystemen' (NVKS, Regulations for Quality management systems) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have exercised professional judgment and have maintained professional scepticism throughout the review, in accordance with the Dutch Standard 3000A, ethical requirements and independence requirements.

Our review included among others:

- Performing an analysis of the external environment and obtaining an understanding of relevant societal themes and issues, and the characteristics of the Company;
- Evaluating the appropriateness of the reporting criteria used, their consistent application and related disclosures on the non-financial indicators. This includes the evaluation of the results of stakeholder dialogue and the reasonableness of estimates made by the Management Board;
- Obtaining an understanding of the reporting processes for the non-financial indicators, including obtaining a general understanding of internal control relevant to our review;
- Identifying areas of the non-financial indicators with a higher risk of misleading or unbalanced information or material misstatements, whether due to fraud or error. Designing and performing assurance procedures aimed at determining the plausibility of the non-financial indicators responsive to this risk analysis. These procedures included, among others:
 - Interviewing management and relevant staff at corporate level responsible for the strategy, policy and results;
 - Interviewing relevant staff responsible for providing the information for, carrying out internal control procedures over and consolidating the data on the non-financial indicators;
 - Reviewing, on a limited test basis, relevant internal and external documentation;
 - Performing an analytical review of the data and trends
- Evaluating the consistency of the non-financial indicators with the information in the Annual Report which is not included in the scope of our review;
- Evaluating the presentation, structure and content of the non-financial indicators.

We have communicated with the Management Board and the Supervisory Board regarding, among other matters, the planned scope and timing of the review and significant findings that we identify during our review.

Amstelveen, March 1, 2024
KPMG Accountants N.V.

F.A.M. Croiset van Uchelen RA

26. ESG and Sustainability definitions

Indicators	Definitions	Section covered
CDP	CDP is a not-for-profit charity running the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.	Planet
Climate Adaptation	Changes in company processes, practices, and structures to mitigate priority risks moderate potential damages or to benefit from opportunities associated with climate change.	Planet
Climate Change	Climate change is a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates. These changes have a broad range of observed effects upon the earth.	Planet
CMRT	The Conflict Free Sourcing Initiative (CFSI) Conflict Minerals Reporting Template (CMRT) is an industry widely adopted standard template used by companies to collect conflict minerals due diligence data.	Responsible supply chain
Conflict Minerals	Tin, Tantalum, Tungsten and gold (3TGs) containing mineral ores that originate in the Democratic Republic of the Congo or the 10 adjoining areas and are sold illicitly to fund armed conflict in the region.	Responsible supply chain
Cradle-to-cradle	A full lifecycle assessment & re-engineering of a product produced, closing the loop for material sourcing such that 'waste' products from one process becomes the feedstock for another. Minimizes ESG impacts.	Planet
Cradle-to-grave	Typical linear process of material sourcing and waste generation in modern manufacturing. Results in high environmental, social, and other impacts for materials sourced and products produced.	Planet
Critical and Strategic Suppliers	Suppliers that are determined to be critical or strategic to our business either because the business spends, or critical components or critical materials, or strategic technical partnership.	Responsible supply chain
Data Normalization (as a function of R&D Spend)	Total power or water purchases divided by total number of millions of dollars in R&D spend during that calendar year.	Planet
DRC	The Democratic Republic of Congo.	Global operations
EAC	Energy Attribute Credit represents a unit of energy produced from renewable sources, and contributes to supporting and growing the renewable energy markets in the geographic regions it is purchased.	Planet
EHS: Environmental, Health & Safety	Environmental, Health, and Safety is a general term used to refer to laws, rules, regulations, professions, programs, and workplace efforts to protect the health and safety of employees and the public as well as the environment from hazards associated with the workplace.	Sustainability
EMS	Environmental Management System is the processes and systems used to ensure environmental goals and aspects are understood, tracked, communicated, and supported by the organization.	Planet
EKOenergy	A global, nonprofit ecolabel for renewable energy, gas and heat which certifies renewable energy projects to their sustainability criteria.	Planet
Employees based on nationalities	The number of nationalities of employees on the last reporting day of the period.	People
Employees covered by collective bargaining agreements	The percentage of employees that are covered by collective bargaining agreements per local labor requirement divided by the total number of employees at reporting year-end.	People
Employees in R&D	The number of employees on the last day of the reporting period whose work is directly related to the research and development of the product during a reporting year.	People
Environmental, Social and Governance (ESG)	The three primary factors for measuring the sustainability and societal impact of a company and/or business.	Sustainability
Ethics concerns reported from anonymous global reporting program SpeakUp!	The number of any ethics concerns reported by employees through our anonymous employee reporting channel SpeakUp!; that may be related to a potential violation of the Code of Business Conduct (COBC) and Business Principles or Policies in the reporting year.	People

Indicators	Definitions	Section covered
Ethics concerns reported through other channels	The number of any ethics concerns reported by employees through other means including directly to management or the Compliance Officer, that may be related to a potential violation of the COBC Business Principles or Policies in the reporting year.	People
EU GoOs	An energy certificate defined in article 15 of the European Directive 2009/28/EU that evidences the origin of electricity from renewable sources.	Planet
FLBL: Forced Labor/Bonded Labor	Forced labor refers to situations in which persons are coerced to work through the use of violence or intimidation, or by more subtle means such as accumulated debt, retention of identity papers or threats of denunciation to immigration authorities. Bonded labor, also known as debt bondage and peonage, happens when people give themselves into slavery as security against a loan or when they inherit a debt from a relative. The cyclical process begins with a debt, whether acquired or inherited, that cannot be paid immediately.	Responsible supply chain
Foreign national	A foreign national is any person who is not a national of a specific country.	People
Greenhouse Gas (GHG) emissions	Greenhouse gas emissions from human activity, which strengthens the greenhouse effect causing climate change. See Scope 1, Scope 2, Scope 3 Emissions below for more information.	Planet
GRI	The Global Reporting Initiative is an international independent standards organization that helps businesses, governments and other organizations understand and communicate their impacts on issues such as climate change, human rights and corruption (www.globalreporting.org). The GRI standard was used to guide our Materiality Assessment and non-financial data summary.	Sustainability
ILO: International Labor Organization	The International Labor Organization (ILO) is a United Nations agency responsible for dealing with employment-related issues across the world, including employment standards and problems of exploitation.	Sustainability, People
Information Rights Management (IRM)	A subset of digital rights management (DRM) which includes processes and technologies that protect sensitive information from unauthorized access.	IP and cybersecurity
Injury Rate	The Injury Rate is a measure of all first aid or greater (more serious) injuries per every 100 employees in reporting period.	People
ISO 14001	The ISO 14001 Environmental Management System (EMS) standard is an internationally recognized environmental management standard.	Sustainability
J-Credits	A Japanese government program that certifies the amount of greenhouse gas emissions (such as CO2) reduced or removed through implementation of energy-saving devices or sustainable forestry.	Planet
Landfill diversion rate	The percentage of solid waste diverted from landfill via recycling and reuse efforts as generated at ASM key Manufacturing, Engineering and R&D sites in the reporting period	Planet
Living Wage	A living wage is defined as the minimum income necessary for a worker to meet the basic needs of an average sized family, including food, housing, and other essential needs such as clothing.	People
MSCI ESG	The use by ASM of MSCI logos, trademarks, service marks or index names herein, do not constitute a sponsorship, endorsement, recommendation, or promotion of ASM by MSCI. MSCI services and data are the property of MSCI or its information providers, and are provided as-is and without warranty. MSCI names and logos are trademarks or service marks of MSCI.	Sustainability
Net Zero	The goal of reducing environmental impacts to the point where no net adds or removes are occurring. Can relate to emissions, water withdraws, habitat, or other environmental aspects.	Planet
Number (#) of employees completing bi-annual Ethics training	All employees completing the online compliance training courses bi-annually during our compliance month within the reporting year. We track # of employees and % of the total that completed the training. It is applicable to all employees.	People
OECD	Organization for Economic Cooperation and Development is an international organization helping governments tackle the economic, social and governance challenges of a globalized economy. It publishes guidance and frameworks such as OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.	Responsible supply chain
PFA	A broad family of Per and polyfluoroalkyl substances such as Teflon used in engineering applications requiring high thermal stability and non-stick properties.	Innovation

Indicators	Definitions	Section covered
Product Life Cycle (PLC)	The entire lifecycle of a product from its initial introduction to eventual withdrawal from the market.	Innovation and sustainability
Product Lifecycle Management (PLM)	Product lifecycle management (PLM) refers to the handling of a good as it moves through the typical stages of its product life: development and introduction, growth, maturity/stability, and decline. This handling involves both the manufacturing of the good and the marketing of it.	Innovation and sustainability
RBA Code of Conduct	The RBA Code of Conduct is a set of social, environmental and ethical industry standards for governing how companies conduct business. www.responsiblebusiness.org/code-of-conduct/	Responsible supply chain
RBA SAQ Supplier Risk Ranking	The percent of critical/strategic RBA Scorecard suppliers who completed the required Supplier RBA Self-Assessment Questionnaire (SAQ) and resulted with low or medium risks.	Responsible supply chain
RBA Self Assessment Questionnaire (RBA SAQ)	Self-Assessment Questionnaire is one of the RBA's standardized risk assessment tools that is useful for assessing a company's commitment to ethical business conduct and compliance with the RBA Code of Conduct.	Responsible supply chain
RBA Self-assessment Questionnaire (SAQ) risk rating/result	We adopted the RBA standard tool for risk assessment Self-Assessment Questionnaire (SAQ) to assess our own and supply chain risk. This rate applies to our own operation SAQ results with our major sites.	Responsible supply chain
REACH	An EU Regulation of chemical substances intended to protect human health, improve the environment and reduce chemical-related risks.	Innovation and sustainability
Recordable injury rate	The Recordable Injury Rate measures the number of cases that require a response greater than first aid (or serious injuries) per 100 employees in the reporting period.	People
Renewable Electricity	Electricity derived from sources that are not depleted upon use, such as wind or solar power.	Planet
Responsible Business Alliance (RBA)	RBA: Responsible Business Alliance – World's largest industry coalition seeking to create a industry-wide standards on social, environmental and ethical issues in the industry supply chain. Rebranded from the Electronics Industry Citizenship Coalition (EICC) in October 2017. ASM is a member of the RBA. (responsiblebusiness.org)	Responsible supply chain
RMI: Responsible Minerals Initiative	Responsible Minerals Initiative provides companies with tools and resources to make sourcing decisions that improve regulatory compliance and support responsible sourcing of minerals from conflict-affected and high-risk areas.	Responsible supply chain
RoHS	A regulation which originated in the European Union which restricts the use of hazardous materials found in electrical and electronic products.	Innovation and sustainability
SASB	The Sustainability Accounting Standards Board (SASB) is an independent nonprofit organization that sets standards to guide the disclosure of financially material sustainability information by companies to their investors. www.sasb.org/about/	Five-year non-financial table
SBTi	The Science Based Target Initiative aims to align industry, government, and organizational goals with the latest science with the goal of maintaining planet warming to no more than 1.5C.	Planet
SESHA	The premier international organization promoting the effective communication of safety, health and environmental information to the high technology and associated industries.	Planet, Safety leadership
Scope 1, Scope 2, Scope 3 Emissions	Terms used to define the source of green house gas (GHG) emissions of a corporation. Scope 1 are emissions that the company produces from its operations through use of chemicals, boilers and vehicles. Scope 2 are GHG emissions associated the purchase of electricity or energy. Scope 3 emissions are all other GHG emissions associated with the company's value chain and use of its products that occur outside the Scope 1 and 2 boundary.	Planet
SEMI	Global industry association representing the semiconductor manufacturing and design supply chain connecting over 2,400 member companies and 1.3 million professionals worldwide.	People, Planet, Responsible supply chain
SEMI MOD	Semiconductor Manufacturing Ownership Diversity (SEMI MOD) is a special interest group dedicated to increasing the number of diverse owned and led suppliers serving the semiconductor industry.	Responsible supply chain
Speak Up!	Globally available anonymous reporting channel to report ethics concerns or whistleblower concerns.	People



Indicators	Definitions	Section covered
Staff (Employee)	Staff (employee) is a person with a fixed contract, excluding temporary labor. Definition may be varied by country per local and country labor law. The number of employees at the last day of the reporting period.	People
Supplier Code of Conduct Commitment %	The percent of critical and strategic suppliers that have acknowledged their commitment to RBA code or whose code of conduct is assessed to be acceptable as it covers the similar principles of the RBA Code of Conduct.	Responsible supply chain
Supply chain spend by region	Total amount of Euro spent with our global suppliers for the materials, components, and services that are used to produce our products and services for our customers and for non-product related products services that enable our operations globally in the reporting period.	Responsible supply chain
Supply Chain spends per region (in Euro and %)	Total Euro amount we spent and equivalent to the % of total spends with suppliers by each region.	Responsible supply chain
TCFD	The Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD) is a market-driven initiative, set up to develop a set of recommendations for voluntary and consistent climate-related financial risk disclosures in mainstream filings. (www.fsb-tcf.org)	Sustainability, Planet
TIGR	Tradeable Instrument for Global Renewables (TIGR) is a global standard for the documenting and tracking renewable energy certificates (RECS) as tradable instruments/assets.	Planet
Total Attrition rate	The percentage of employees in a workforce that leave voluntarily or involuntarily during a reporting period.	Five-year non-financial table
UN SDG	United Nations Sustainable Development Goals provides an global agenda and plan of action for people, planet and prosperity. It also seeks to strengthen universal peace and freedom. https://sdgs.un.org/goals	Sustainability
Voluntary Attrition rate	The percentage of employees in a workforce that leave voluntarily during a reporting period.	People
Water consumption	The total amount of water consumption in cubic meters for a reporting period.	Sustainability
VSQG	Under US waste regulations, a Very Small Quantity Generator is defined as those that generate 100 kilograms or less per month of hazardous waste or one kilogram or less per month of acutely hazardous waste.	Planet
WWF	The World Wildlife Foundation works to help local communities conserve the natural resources they depend upon; transform markets and policies toward sustainability; and protect and restore species and their habitats.	Planet
ZERO HARM!	Refers to ASM striving to prevent harm to people, reduce our impact on the environment, and make positive contributions to society.	People, Planet

Other information

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27. Independent auditor's report

To: The General Meeting of Shareholders and the Supervisory Board of ASM International N.V.

Report on the audit of the financial statements 2023 included in the annual report

Our opinion

In our opinion:

- the accompanying consolidated financial statements give a true and fair view of the financial position of ASM International N.V. as at December 31, 2023 and of its result and its cash flows for the year then ended, in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code.
- the accompanying company financial statements give a true and fair view of the financial position of ASM International N.V. as at December 31, 2023 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the financial statements 2023 of ASM International N.V. (the Company) based in Almere. The financial statements include the consolidated financial statements and the company financial statements.

The consolidated financial statements comprise:

1. the consolidated statement of financial position as at December 31, 2023;
2. the following consolidated statements for 2023: the statement of profit or loss, the statement of comprehensive income, changes in equity and cash flows; and
3. the notes comprising material accounting policy information and other explanatory information.

The company financial statements comprise:

1. the company balance sheet as at December 31, 2023;
2. the company statement of profit or loss for 2023; and
3. the notes comprising a summary of the accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the 'Our responsibilities for the audit of the financial statements' section of our report.

We are independent of ASM International N.V. in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We designed our audit procedures in the context of our audit of the financial statements as a whole and in forming our opinion thereon. The information in respect of going concern, fraud and non-compliance with laws and regulations, climate-related risks and the key audit matters was addressed in this context, and we do not provide a separate opinion or conclusion on these matters.

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Information in support of our opinion

Summary

Materiality

- Materiality of EUR 33 million
- 4.87% of normalized result before income taxes

Group audit

- Audit coverage of 91% of total assets
- Audit coverage of 85% of revenue

Risk of material misstatements related to Fraud, NOCLAR, Going concern and Climate-related risks

- Fraud risks: presumed risk of management override of controls and revenue recognition identified and further described in the section 'Audit response to the risk of fraud and non-compliance with laws and regulations'.
- Non-compliance with laws and regulations (NOCLAR) related risks: no reportable risk of material misstatement related to NOCLAR risks identified.
- Going concern risks: no going concern risks identified
- Climate-related risks: we have considered the impact of climate-related risks on the financial statements and described our approach and observations in the section 'Audit response to climate-related risks'.

Key audit matters

- Revenue recognition (risk of fraud)
- Accounting for capitalized development costs (risk of error)

Materiality

Based on our professional judgment we determined the materiality for the financial statements as a whole at EUR 33 million (2022: EUR 35 million). The materiality is determined with reference to the result before income taxes, normalized for impairment reversal of investment in associates and one-off items from the acquisition of LPE and Reno in 2022, resulting in a percentage of 4.87%. We consider this normalized result before income taxes as the most appropriate benchmark because the Company is a profit-oriented company and the key users of the financial statements are primarily focused on result before income taxes. We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the Supervisory Board that misstatements identified during our audit in excess of EUR 1.65 million would be reported to them, as well as smaller misstatements that in our view must be reported on qualitative grounds.

Scope of the group audit

ASM International N.V. is at the head of a group of components. The financial information of this group is included in the financial statements of ASM International N.V.

Our group audit mainly focused on significant components where account balances are of significant size, have significant risks of material misstatement to the Group associated with them or are considered significant for other reasons.

We have:

- selected components for which an audit of the complete reporting package is performed and components for which an audit of specific items is performed. Furthermore, we have determined the nature and extent of the audit procedures that we perform at the group level and at the Company's Shared Service Center ("SSC");
- performed procedures that cover the significant operations in Singapore, the United States of America, Japan, Korea, Italy and the Netherlands, all mainly through our audit procedures at the SSC, supplemented with local audits by KPMG member firms of specific items. In addition, we have made use of the work of the non-KPMG member firm auditor of ASMPT Ltd. ("ASMPT") as part of our procedures that cover the (results from) investments in associates. The remaining balances are covered by additional procedures at group level; and
- sent detailed instructions to the component auditor of ASMPT, including the significant areas that should be covered (which included the relevant risks of material misstatement detailed below) and set out the information required to be reported to the group auditor. In addition, we have performed a file review of the component auditor and held various telephone calls to discuss the group audit, significant risks, audit approach and instructions, as well as the audit findings and observations reported to us as the group auditor.

For the residual population not in scope we performed analytical procedures in order to corroborate that our scoping remained appropriate throughout the audit.

By performing the procedures mentioned above at group components, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the financial statements.

The audit coverage as stated in the section summary can be further specified as follows:



Audit response to the risk of fraud and non-compliance with laws and regulations

In the risk management and business ethics chapter of the annual report, the Management Board describes its procedures in respect of the risk of fraud and non-compliance with laws and regulations.

As part of our audit, we have gained insights into the Company and its business environment and the Company's risk management in relation to fraud and non-compliance with laws and regulations. Our procedures included, among other things, assessing the Company's code of business conduct, whistle-blower program, incidents register and its procedures to investigate indications of possible fraud and non-compliance. Furthermore, we performed relevant inquiries with management, those charged with governance and

other relevant functions, such as Internal Audit and Legal Counsel and included correspondence with relevant supervisory authorities and regulators in our evaluation. We have also incorporated elements of unpredictability in our audit, such as: modifying the nature and extent of our risk assessment procedures related to compliance with trade sanctions and export controls laws and regulations; and modifying the nature of inventory count procedures, and involved forensic specialists in our audit procedures.

As a result from our risk assessment, we identified the following laws and regulations as those most likely to have a material effect on the financial statements in case of non-compliance:

- Trade sanctions and export controls laws and regulations (reflecting the company's exposure to international trading restrictions); and
- Anti-bribery and corruption laws and regulations (reflecting the company's significant and geographically diverse operations).

Based on the above and on the auditing standards, we identified the following fraud risks that are relevant to our audit, and responded as follows:

• **Management override of controls (a presumed risk)**

Risk:

- Management is in a unique position to manipulate accounting records and prepare fraudulent financial statements by overriding controls that otherwise appear to be operating effectively.

Responses:

- We evaluated the design and the implementation of internal controls that mitigate fraud risks, such as processes related to journal entries.
- We performed a data analysis of high-risk journal entries and evaluated journal entries related to debiting revenue with an unexpected associated credit, and evaluated key estimates and judgments for bias by the Company's management. Where we identified instances of unexpected journal entries or other risks through our data analytics, we performed additional audit procedures to address each identified risk, including testing of transactions back to source information.

- **Revenue recognition (a presumed risk)**

Risk:

- We identified a cut-off fraud risk in relation to completeness of equipment sales as a result of recognition in the incorrect period. This risk inherently includes the fraud risk that management deliberately understates revenue, as management may feel pressure to achieve planned results for the next year.

Responses:

- We refer to the key audit matter “Revenue Recognition”.

Other than the above matter, our evaluation of procedures performed related to fraud did not result in an additional key audit matter.

We communicated our risk assessment, audit responses and results to management and the Supervisory Board.

Our audit procedures did not reveal indications and/or reasonable suspicion of fraud and non-compliance that are considered material for our audit.

Audit response to going concern – no significant going concern risks identified

The management board has performed its going concern assessment and has not identified any going concern risks. To assess the management board’s assessment, we have performed, inter alia, the following procedures:

- we considered whether the management board’s assessment of the going concern risks includes all relevant information of which we are aware as a result of our audit; and
- we analyzed the company’s financial position as at year-end and compared it to the previous financial year in terms of indicators that could identify going concern risks.

The outcome of our risk assessment procedures did not give reason to perform additional audit procedures on management’s going concern assessment.

Audit response to climate-related risks

The Company has set out its ambitions relating to climate change in the chapter “Planet” of the annual report. The Company’s key ambition is to achieve carbon neutrality with net zero emissions in its operations and its value chain (scope 1, 2 and 3) by 2035.

Management, supported by its external advisor, has assessed against the background of the company’s business and operations in detail, how climate-related risks and opportunities and the company’s own ambitions could have a significant impact on its business or could impose the need to adapt its strategy and operations. Management has considered the impact of both transition and physical risks on the financial statements in accordance with the applicable financial reporting framework, more specifically the valuation of non-current assets, as described in section 11.1 “Climate action” of the Management report. Management did not identify any material financial impact on the Company’s financial performance in the near to mid-term horizon.

Management prepared the financial statements, including considering whether the implications from climate-related risks and commitments have been appropriately accounted for and disclosed. As part of our audit we performed a risk assessment of the impact of climate-related risks and the commitments made by the Company in respect of climate change on the financial statements and our audit approach. In doing this we performed the following:

- To understand management’s assessment against the background of the company’s business and operations of the potential impact of climate-related risks and opportunities on the Company’s annual report and financial statements and the company’s preparedness for this we:
 - performed inquiries with relevant functions in the Company including the Board of Management, the Corporate VP of Sustainability, the Company’s legal counsel and the Audit Committee of the Supervisory Board;
 - inspected relevant supporting documentation, such as management’s climate risk analysis including the climate-scenario analysis and the corresponding financial impact assessment, and evaluating the roll-forward from last year including assessing the items that were updated during the year.

- We evaluated climate related fraud risk factors, including the KPI's related to climate in Management's remuneration. We have assessed whether this results in a risk of material misstatement of the financial statements due to fraud.
- We have made use of KPMG climate risk experts to:
 - 1) obtain an understanding of managements' processes and procedures with regards to climate related risks;
 - 2) inspect the Company's climate risk scenario analysis (including climate change strategy), including assessing follow-up actions taken compared to prior year and;
 - 3) obtain insights into potential business implications of the identified climate risks and opportunities on the Company. These insights provided us with a better understanding how climate-related risks and opportunities may affect the Company and the preparation of the financial statements.

Based on the procedures performed we concluded climate-related risks have no material impact on the current financial statements under the requirements of EU-IFRS and no material impact on our key audit matters.

Furthermore we have read the other information presented in the annual report with respect to climate-related risks and considered whether such information contains material inconsistencies with the financial statements or our knowledge obtained through the audit, in particular as described above and our knowledge obtained otherwise.

Our key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements. We have communicated the key audit matters to the Supervisory Board. The key audit matters are not a comprehensive reflection of all matters discussed. Compared to last year the key audit matter with respect to the "Accounting for the acquisition of LPE S.p.A. (purchase price allocation)" is not included, as this specifically related to the transaction that occurred in the financial year 2022.

Revenue recognition (risk of fraud)

Description

As disclosed in the notes to the consolidated financial statements, equipment sales are measured taking into account multiple element arrangements as contracts with customers typically include separately identifiable performance obligations that are recognized based on their relative selling price. Typically, this includes a single sales transaction that combines the delivery of goods and rendering of (installation) services. Furthermore, equipment sales is recognized when the customer obtains control of the products and services, often coinciding with shipment or delivery of goods.

We identified a cut-off risk that equipment sales could be misstated as a result of recognition in the incorrect period. This risk inherently includes the fraud risk that management deliberately understates revenue, as management may feel pressure to achieve planned results for the next year. We consider revenue recognition a key audit matter, due to the thereto related risk of management override of controls, as well as the fraud risk concerning the completeness of equipment sales in the cut-off period of the financial year.

Our response

Our audit procedures to address this key audit matter included, among others:

- evaluating the design and implementation of the company's internal control in the sales process that would identify a misstatement as a result of revenue recognition in the incorrect accounting period;
- assessing the appropriateness of the company's accounting policies relating to revenue recognition and assessing compliance with IFRS 15;
- assessing the completeness of sales by selecting samples during the cut-off period, with specific focus on the equipment sales recorded from January 1, 2024 through January 14, 2024, to agree the timing of revenue recognition to underlying supporting documents such as shipping documents;
- inquiring with management and those who have responsibilities for initiating, preparing or authorizing journal entries at period end whether there was inappropriate or unusual activity relating to the processing of journal entries and other adjustments during the

period, identifying high-risk journal entries (such as journal entries debiting revenue with an unexpected associated credit) from the population of journal entries from the ERP system with the involvement of our IT auditors and verifying the appropriateness of the identified high risk journal entries through verification with supporting documentation;

- and
- assessing the adequacy of the revenue disclosures included in note 21 of the financial statements.

Our observation

The results of our procedures related to the revenue recognition of equipment sales are satisfactory. We consider the disclosure in note 21 of the financial statements as adequate.

Accounting for capitalized development costs (risk of error)

Description

Capitalized development costs are deemed to be significant to our audit, given the significance of the capitalized balance of EUR 424 million including additions of EUR 147 million in 2023, as well as the specific criteria that have to be met for capitalization. This involves management judgment on capitalized development costs not in use including the additions for the year, with respect to technical feasibility, intention and ability to complete the intangible asset, the ability to use or sell the asset, the generation of future economic benefits and the ability to measure the costs reliably.

Our response

Our audit procedures to address this key audit matter included, among others:

- assessing the appropriateness of the Company's accounting policies relating to internal and external cost capitalization and assess compliance with IFRS;
- evaluating the design and implementation of the Company's internal control in the R&D process that would identify a misstatement as an incorrect capitalization of development expense;
- challenging the key assumptions used, or judgments made, in capitalizing development costs, such as technical feasibility, intention and ability to complete the intangible asset, the ability to use or sell the asset and generation of future economic benefits, the

- accuracy of costs included and the useful economic life attributed to the asset based on development plans, pre-orders and customer communications; and
- assessing the adequacy of the other intangible assets disclosures included in note 6 of the financial statements.

Our observation

The results of our procedures related to the accounting for capitalized development costs are satisfactory. We consider the disclosure in note 6 of the financial statements as adequate.

Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information.

Based on the following procedures performed, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements; and
- contains the information as required by Part 9 of Book 2 of the Dutch Civil Code for the management report and other information.

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing these procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is less than the scope of those performed in our audit of the financial statements.

The Management Board of the Company is responsible for the preparation of the other information, including the information as required by Part 9 of Book 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements and ESEF Engagement

We were engaged by the Annual General Meeting of Shareholders as auditor of ASM International N.V. on May 21, 2014 as of the audit for the year 2015 and have operated as statutory auditor ever since that financial year.

No prohibited non-audit services

We have not provided prohibited non-audit services as referred to in Article 5(1) of the EU Regulation on specific requirements regarding statutory audits of public-interest entities.

European Single Electronic Format (ESEF)

ASM International N.V. has prepared its annual report in ESEF. The requirements for this are set out in the Delegated Regulation (EU) 2019/815 with regard to regulatory technical standards on the specification of a single electronic reporting format (hereinafter: the RTS on ESEF).

In our opinion the annual report prepared in XHTML format, including the (partly) marked-up consolidated financial statements as included in the reporting package by ASM International N.V., complies in all material respects with the RTS on ESEF.

The Management Board of the Company is responsible for preparing the annual report including the financial statements in accordance with the RTS on ESEF, whereby the Management Board combines the various components into one single reporting package.

Our responsibility is to obtain reasonable assurance for our opinion whether the annual report in this reporting package complies with the RTS on ESEF. We performed our examination in accordance with Dutch law, including Dutch Standard 3950N 'Assurance-opdrachten inzake het voldoen aan de criteria voor het opstellen van

een digitaal verantwoordingsdocument' (assurance engagements relating to compliance with criteria for digital reporting). Our examination included among others:

- Obtaining an understanding of the entity's financial reporting process, including the preparation of the reporting package;
- Identifying and assessing the risks that the annual report does not comply in all material respects with the RTS on ESEF and designing and performing further assurance procedures responsive to those risks to provide a basis for our opinion, including:
 - Obtaining the reporting package and performing validations to determine whether the reporting package containing the Inline XBRL instance document and the XBRL extension taxonomy files have been prepared in accordance with the technical specifications as included in the RTS on ESEF;
 - Examining the information related to the consolidated financial statements in the reporting package to determine whether all required mark-ups have been applied and whether these are in accordance with the RTS on ESEF.

Description of responsibilities regarding the financial statements Responsibilities of the Management Board and the Supervisory Board of the Company for the financial statements

The Management Board is responsible for the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code. Furthermore, the Management Board is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error. In that respect the Management Board, under supervision of the Supervisory Board, is responsible for the prevention and detection of fraud and non-compliance with laws and regulations, including determining measures to resolve the consequences of it and to prevent recurrence.

As part of the preparation of the financial statements, the Management Board is responsible for assessing the Company's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the Management Board should prepare the financial statements using the going concern basis of accounting unless the Management Board either intends to liquidate the Company or to cease operations, or has no realistic

alternative but to do so. The Management Board should disclose events and circumstances that may cast significant doubt on the company's ability to continue as a going concern in the financial statements.

The Supervisory Board is responsible for overseeing the Company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

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 financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

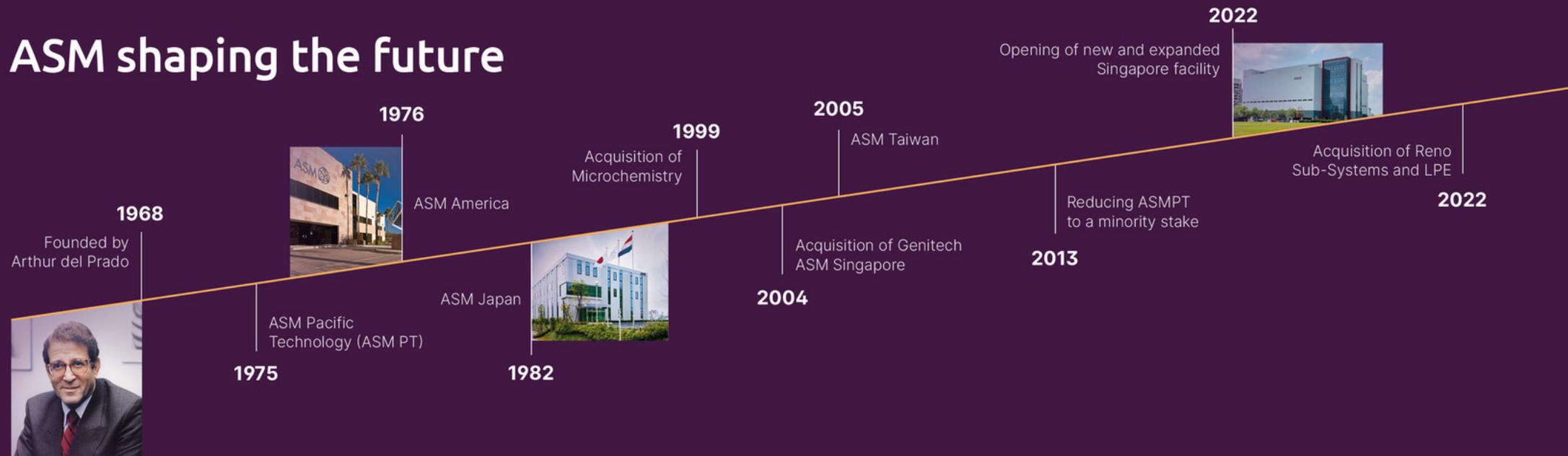
A further description of our responsibilities for the audit of the financial statements is located at the website of de 'Koninklijke Nederlandse Beroepsorganisatie van Accountants' (NBA, Royal Netherlands Institute of Chartered Accountants) at http://www.nba.nl/ENG_oob_01. This description forms part of our auditor's report.

Amstelveen, March 1, 2024
KPMG Accountants N.V.

F.A.M. Croiset van Uchelen RA

28. History

ASM shaping the future



ASM began in the Netherlands in 1968, at the very start of the semiconductor industry. Founder Arthur del Prado (1931-2016) was our CEO until 2008, before being succeeded by his son, Chuck del Prado, who was CEO until 2020. In May 2020, Benjamin Loh, our current CEO, took over. ASM initially entered the furnace deposition market, and started producing these systems in the Netherlands in the early 1970s. As a pioneer of technology advancement and globalization, the company also began launching new companies around the world.

In the mid 1970s, ASMPT was founded in Hong Kong, becoming a market leader in back-end semiconductor assembly and packaging equipment. ASM divested its majority share in ASMPT in 2013, but maintains a minority share today. ASM America was also founded in the 1970s, laying the foundation of our current epitaxy technology. In the early 1980s, ASM Japan was started, the basis for today's plasma CVD products. This was followed by ASM's participation in a joint venture with Philips in the mid-1980s to develop lithography technology, known today as ASML. ASM sold its share in ASML in 1988.

Since the early 1990s, ASM has focused its efforts on deposition. This includes investing in the novel technique of ALD (atomic layer deposition), leading to acquisitions of ASM Microchemistry in 1999, and ASM Genitech Korea in 2004. In 2007, our Pulsar ALD tool became the first system used in the high-volume manufacturing of devices using a new hafnium-based high-k gate dielectric material. Since that breakthrough, ASM has continued to strengthen its footprint with leading-edge customers. We have brought novel deposition processes to the market to realize 3D device architectures that can only be enabled by ALD. Over the past five years, we have also been growing our position in the Epi market. In 2022, with the acquisition of LPE, we entered the fast-growing silicon carbide epitaxy equipment market.

The combination of ASM's continuous focus on innovation with its global entrepreneurship has led to ASM's unique structure, with centers of excellence close to customers around the world, and centralized manufacturing in Singapore.

29. Non-IFRS Financial performance measures

Certain parts of this Annual Report contain non-IFRS financial performance measures, which are not recognized measures of financial performance or liquidity under IFRS. These are commonly referred to as non-IFRS financial measures.

ASM uses items such as working capital and free cash flow as internal measures of financial performance. ASM's definition of these measures may not be comparable with similarly titled financial performance measures and disclosures by other entities.

These measures may not be indicative of the company's historical operating results nor are such measures meant to be predictive of the company's future results.

The presentation of the non-IFRS measures and non-financial operating data in this report should not be construed as an implication that ASM's future results will be unaffected by exceptional or non-recurring items.

ASM presents non-IFRS financial measures in this Annual Report because it monitors these performance measures at a consolidated level, and it believes that these measures are relevant to an understanding of the group's underlying financial performance, adjusted for the impact of purchase price accounting, earn-out expenses and impairment (reversal) on its investments in associates.

Non-IFRS financial performance measures

Financial performance measures	Definitions
Normalized cost of sales	Cost of sales adjusted ("normalized") for the amortization expenses of fair value adjustments from purchase price allocation
Normalized gross profit	Gross profit adjusted ("normalized") for the amortization expenses of fair value adjustments from purchase price allocation
Normalized gross research & development expenses	Gross research & development expenses adjusted ("normalized") for the amortization expenses of fair value adjustments from purchase price allocation
Normalized selling, general and administrative expenses	Selling, general and administrative expenses adjusted ("normalized") for the amortization expenses of fair value adjustments from purchase price allocation
Normalized operating result	Operating result adjusted ("normalized") for the amortization expenses of fair value adjustments from purchase price allocation
Normalized finance income (expenses)	Finance income (expenses) adjusted ("normalized") for the change in fair value of the contingent consideration ("LPE earn-out")
Normalized share in income of investments in associates	Share in income of investments in associates adjusted ("normalized") for the amortization expenses of fair value adjustments from purchase price allocation
Normalized income taxes	Income taxes adjusted ("normalized") for the realization of temporary differences resulting from purchase price allocation
Normalized net earnings	Net earnings adjusted ("normalized") for the amortization of fair value adjustments from purchase price allocations (net of tax), change in fair value of the contingent consideration ("LPE earn-out") and (impairment) reversal of ASMPT.
Cash flows from operating activities after investing activities	Cash flows from operating activities after investing is also referred to as free cash flow.
Operating cash flows before changes in working capital	Cash flows from operating activities excluding the impact of movements in working capital during the period.
Working capital	The sum of accounts receivable, contract assets, other current assets, inventories, provision for warranty, accounts payable, contract liabilities, accrued expenses and other payables.

30. Five-year financial tables

Consolidated statement of profit or loss

(€ thousand, except per share data)	2019	2020	2021	2022	2023
Revenue	1,283,860	1,328,122	1,729,911	2,410,927	2,634,331
Cost of sales	(645,396)	(704,553)	(901,780)	(1,268,046)	(1,362,635)
Gross profit	638,464	623,569	828,131	1,142,881	1,271,696
Other income	14	(621)	4,071	40	69
Operating expenses:					
Selling, general and administrative	(148,943)	(156,802)	(189,547)	(276,620)	(308,727)
Research and development	(110,846)	(139,002)	(151,197)	(233,866)	(309,297)
Total operating expenses	(259,789)	(295,804)	(340,744)	(510,486)	(618,024)
Result from operations	378,689	327,144	491,458	632,435	653,741
Finance income	1,639	141	23	2,246	14,826
Finance expense	(1,766)	(2,304)	(2,012)	(4,098)	(13,600)
Foreign currency exchange gain (loss)	(146)	(22,862)	33,473	25,011	(21,375)
Net finance income (costs)	(273)	(25,025)	31,484	23,159	(20,149)
Share in income of investments in associates	4,247	31,950	74,382	64,771	17,540
(Impairment) Reversal of impairment of investments in associates, net	—	—	—	(215,389)	215,389
Result before income taxes	382,663	334,069	597,324	504,976	866,521
Income taxes	(53,650)	(48,673)	(102,615)	(115,863)	(114,448)
Net earnings from operations, attributable to common shareholders	329,013	285,396	494,709	389,113	752,073
Per share data					
Basic net earnings per share (€):					
From operations	6.66	5.84	10.17	7.97	15.26
Diluted net earnings per share (€):					
From operations	6.58	5.78	10.11	7.93	15.18
Weighted average number of shares (thousand):					
Basic	49,418	48,907	48,645	48,820	49,286
Diluted	49,999	49,359	48,909	49,097	49,555

Consolidated statement of financial position

(€ thousand)	2019	2020	2021	2022	2023
Assets					
Right-of-use assets	27,547	23,387	26,938	31,663	35,395
Property, plant and equipment	164,863	213,967	257,017	312,053	384,949
Evaluation tools at customers	47,247	69,474	63,717	68,676	79,597
Goodwill	11,270	11,270	11,270	320,818	320,167
Other intangible assets	189,224	209,924	274,833	646,104	705,624
Investments in associates	778,268	742,714	848,812	686,341	861,937
Other investments	—	—	—	5,814	11,307
Deferred tax assets	3,064	196	69	181	179
Other non-current assets	7,780	6,590	6,792	7,071	15,778
Employee benefits	579	1,431	1,982	2,556	2,919
Total non-current assets	1,229,842	1,278,953	1,491,430	2,081,277	2,417,852
Inventories	173,189	162,199	211,841	538,425	525,690
Accounts receivable	199,535	280,061	446,724	580,823	487,727
Contract assets ¹	37,884	38,277	26,302	63,982	59,392
Income taxes receivable	1,220	553	18,614	18,778	29,957
Other current assets ¹	35,595	34,668	24,670	48,189	68,845
Cash and cash equivalents	497,874	435,228	491,507	419,315	637,264
Total current assets	945,297	950,986	1,219,658	1,669,512	1,808,875
Total assets	2,175,139	2,229,939	2,711,088	3,750,789	4,226,727
Equity and liabilities					
Equity	1,818,651	1,854,724	2,241,754	2,749,319	3,226,811
Lease liabilities	15,774	13,045	15,886	18,604	22,684
Contingent consideration payable	—	—	—	78,649	88,304
Deferred tax liabilities	20,136	21,892	45,748	123,803	150,147
Total non-current liabilities	35,910	34,937	61,634	221,056	261,135
Accounts payable	119,712	124,507	175,436	243,499	177,686
Provision for warranty	16,424	18,987	27,181	34,219	22,716
Income taxes payable	34,599	67,857	14,519	43,785	21,925
Contract liabilities ¹	79,747	51,136	81,374	295,180	300,241
Accrued expenses and other payables ¹	70,096	77,791	109,190	163,731	216,213
Total current liabilities	320,578	340,278	407,700	780,414	738,781
Total liabilities	356,488	375,215	469,334	1,001,470	999,916
Total equity and liabilities	2,175,139	2,229,939	2,711,088	3,750,789	4,226,727

¹ Contract assets and liabilities are retrospectively separated from 'other current assets' and 'accrued expenses and other payables'.

Consolidated statement of cash flows

(€ thousand)	Year ended December 31,				
	2019	2020	2021	2022	2023
Cash flows from operating activities					
Net earnings from operations	329,013	285,396	494,709	389,113	752,073
Adjustments to reconcile net earnings to net cash from operating activities					
Depreciation, amortization and impairments	78,321	89,029	95,580	122,434	180,896
Net loss (gain) on sale of property, plant and equipment	—	—	(4,071)	(40)	185
Share-based compensation	10,538	12,792	17,242	29,877	37,308
Net finance (income) costs	718	11,974	(23,510)	3,886	(9,466)
Share in income of investments in associates	(4,247)	(31,950)	(74,382)	(64,771)	(17,539)
Impairment (reversal of impairment) of investments in associates, net	—	—	—	215,389	(215,389)
Income tax	53,650	48,673	102,615	115,863	114,448
Changes in evaluation tools at customers	(13,670)	(39,710)	(7,980)	(20,516)	(32,218)
Changes in employee benefits pension plans	(445)	(407)	(339)	198	98
Income tax paid	(6,186)	(8,055)	(151,623)	(90,481)	(118,766)
Operating cash flows before changes in working capital ¹	447,692	367,742	448,241	700,952	691,630
Decrease (increase) in working capital: ¹					
Accounts receivable	(23,937)	(93,000)	(154,030)	(125,068)	67,660
Other current assets	(14,702)	(724)	2,670	(14,081)	(21,817)
Inventories	3,058	498	(39,148)	(276,914)	(3,537)
Provision for warranty	8,385	3,814	7,140	5,097	(10,220)
Contract assets and liabilities	12,231	(28,036)	39,473	131,178	21,485
Accounts payable, accrued expenses and other payables	56,144	14,059	76,294	120,324	(9,314)
Net cash from operating activities	488,871	264,353	380,640	541,488	735,887
Cash flows from investing activities					
Capital expenditures property, plant and equipment	(48,707)	(95,441)	(72,199)	(101,184)	(154,103)
Proceeds from sale of property, plant and equipment	28	2,348	6,159	940	3,558
Capitalized development expenditures	(60,202)	(64,126)	(81,973)	(102,627)	(147,220)
Capital expenditures intangible assets	(2,320)	(3,230)	(2,680)	(4,662)	(16,389)
Dividend received from associates	31,960	16,142	36,297	48,919	30,753
Acquisition of subsidiaries, net of cash acquired	—	—	—	(314,295)	—
Other investments	—	—	—	(1,971)	(5,641)

	Year ended December 31,				
(€ thousand)	2019	2020	2021	2022	2023
Net cash used in investing activities	(79,241)	(144,307)	(114,396)	(474,880)	(289,042)
Cash flows from operating activities after investing activities¹	409,630	120,046	266,244	66,608	446,845
Cash flows from financing activities					
Payment of lease liabilities	(12,048)	(7,819)	(7,854)	(10,289)	(12,602)
Credit facility renewal fee paid	—	—	—	(660)	—
Purchase of treasury shares	(99,929)	(66,715)	(140,142)	—	(100,928)
Proceeds from issuance of treasury shares	6,767	2,774	4,630	—	863
Dividends to common shareholders	(100,442)	(98,688)	(96,893)	(121,650)	(123,383)
Net cash used in financing activities	(205,652)	(170,448)	(240,259)	(132,599)	(236,050)
Foreign currency translation effect on cash and cash equivalents	7,989	(12,244)	30,294	(6,201)	7,154
Net increase (decrease) in cash and cash equivalents	211,967	(62,646)	56,279	(72,192)	217,949
Cash and cash equivalents at beginning of year	285,907	497,874	435,228	491,507	419,315
Cash and cash equivalents at end of year	497,874	435,228	491,507	419,315	637,264

¹ Non-IFRS performance measure. Please refer to chapter 29 'Non-IFRS performance measures'.

31. Product description

Our products include wafer-processing deposition systems for ALD, epitaxy, silicon carbide, PECVD, and vertical furnace systems, and services and spare parts for these systems.

Product applications and descriptions

Atomic layer deposition (ALD)

ASM offers ALD tools in two technology segments: thermal ALD and plasma enhanced ALD (PEALD).

Pulsar XP ALD system

Pulsar XP is a 300mm thermal ALD tool designed for depositing extremely thin high-k dielectric materials required for advanced transistor gates and other applications. Pulsar is the benchmark ALD high-k gate dielectric tool for the industry. Up to four Pulsar process modules can be configured on a Pulsar XP system.

EmerALD XP ALD system

EmerALD XP is a 300mm thermal ALD tool designed for depositing metal gate layers for advanced high-k metal gate transistors and other applications. Up to four EmerALD process modules can be configured on an EmerALD XP system.

Synergis ALD system

Synergis is a high-productivity 300mm tool for thermal ALD applications. The system can be configured with up to four dual chamber modules (DCM), enabling eight chambers in high-volume production within a very compact footprint. The system is capable of depositing a broad range of thermal ALD films including metal oxides, metal nitrides, dielectrics, and pure metals.

Deposition application	ASM product platform	ASM products	Process application
ALD	XP	<ul style="list-style-type: none"> Pulsar XP ALD system EmerALD XP ALD system 	<ul style="list-style-type: none"> High-k gate dielectric Metal gate layers
	XP8	<ul style="list-style-type: none"> Synergis ALD system 	<ul style="list-style-type: none"> Metal oxides Metal nitrides Metals
PEALD	XP8	<ul style="list-style-type: none"> Eagle XP8 PEALD system XP8 QCM PEALD system 	<ul style="list-style-type: none"> Patterning layers Gate spacers and liners Gap-fill
PECVD	XP8	<ul style="list-style-type: none"> Dragon XP8 PECVD system 	<ul style="list-style-type: none"> Low-k and TEOS oxide Silicon nitride
Diffusion Oxidation LPCVD ALD	Vertical furnace	<ul style="list-style-type: none"> SONORA batch vertical furnace system A400 DUO batch vertical furnace system 	<ul style="list-style-type: none"> Diffusion, oxidation Polysilicon Silicon oxide/nitride Aluminum oxide
Epitaxy	XP	<ul style="list-style-type: none"> Intrepid ES epitaxy system Intrepid ESA epitaxy system 	<ul style="list-style-type: none"> Silicon channel Source/drain layers CMOS wafers Analog/power
	Epsilon	<ul style="list-style-type: none"> Epsilon 2000 single-wafer epitaxy system 	
Silicon carbide epitaxy		<ul style="list-style-type: none"> PE106A single-wafer epitaxy system PE108 single-wafer epitaxy system PE208 dual chamber single-wafer epitaxy system 	<ul style="list-style-type: none"> Silicon carbide

Eagle XP8 PEALD system

Eagle XP8 is a high-productivity 300mm tool for PEALD applications. The system can be configured with up to four dual chamber modules (DCM), enabling eight chambers in high-volume production within a very compact footprint. The system is capable of a broad range of dielectric PEALD processes, including low-temperature spacers for multiple patterning applications and low-temperature silicon nitride.

XP8 QCM PEALD system

XP8 QCM is a 300mm tool for high-productivity PEALD applications. XP8 QCM allows for the integration of up to four modules, each containing four process reactors, enabling 16 chambers in high-volume production within a compact footprint. The system is capable of a broad range of dielectric PEALD processes, including silicon oxide gap-fill.

Epitaxy

We offer two families of epitaxy tools: Intrepid and Epsilon.

Intrepid epitaxy system

Intrepid ES is a 300mm epitaxy tool using our XP platform, and is designed for depositing critical transistor source/drain and channel layers. Processes include silicon (Si), silicon-germanium (SiGe), and other silicon-based compounds. Up to four Intrepid process modules can be configured on an Intrepid ES system. Intrepid ESA for 300mm is based on the Intrepid ES system, operating in atmospheric mode for analog and power applications, as well as silicon epitaxy for wafer manufacturing.

The Previu process module, which can be integrated with epitaxy modules on the Intrepid platform, is available for 300mm Epi applications that require pre-deposition surface cleaning, which improves the performance of deposited films. Previu surface cleaning enables quality epitaxial depositions for advanced node channel and source/drain engineering applications.

Epsilon epitaxy system

The Epsilon series is a single-wafer, single-chamber tool that deposits silicon-based materials for many applications, ranging from high-temperature silicon for wafer manufacturing, to low temperature silicon for analog and power applications.

Silicon carbide

Our silicon carbide (SiC) products are designed for 150mm and 200mm substrates and use an epitaxy process to deposit the SiC materials on either bare substrates or as part of the transistor device fabrication process. The ASM SiC tool portfolio includes the PE106A and PE108, single-wafer epitaxy tools for 150mm and 200mm respectively. For higher productivity, we also offer the PE208 dual chamber 200mm tool.

Plasma-enhanced chemical vapor deposition (PECVD)

We offer single-wafer plasma-enhanced CVD (PECVD) systems for various low-temperature deposition applications.

Dragon XP8 PECVD system

DragonXP8 is a high-productivity 300mm tool for PECVD applications. The system can be configured with up to four dual chamber modules (DCM), enabling eight chambers in high-volume production within a very compact footprint. Processes include a broad range of dielectric PECVD films for applications such as interconnect low-k dielectric layers, gap-fill, passivation layers, etch stop, and hardmask layers.

Vertical furnaces

ASM offers vertical furnaces in a batch configuration where a large number of wafers are processed at the same time for productivity and cost savings. Our furnace tools are designed with dual-batch reactors for even more productivity. Our furnace tools are capable of running low pressure CVD (LPCVD), as well as diffusion and oxidation applications. Various thermal ALD films can be deposited using batch furnaces for high productivity.

SONORA Vertical furnace system

SONORA is a 300mm batch vertical furnace capable of both atmospheric and low pressure thermal wafer processing. Atmospheric thermal applications include diffusion and activation of dopants, annealing to affect material properties by heating to a specific temperature, and oxidation to form silicon oxide. LPCVD applications include polysilicon, silicon nitride, and silicon oxide.

A400 DUO Vertical furnace system

A400 DUO is a batch vertical furnace for 200mm and smaller wafers, and focuses on applications in the markets for power, analog, RF, and MEMS devices. The new A400 DUO is compatible with the original A400, so existing process recipes can be easily transferred, accelerating system acceptance for production. Atmospheric thermal applications include diffusion and activation of dopants, annealing to affect material properties by heating to a specific temperature, and oxidation to form silicon oxide. LPCVD applications include polysilicon, silicon nitride, and silicon oxide.

Services and spare parts

Services and spare parts are important product offerings for our business. We provide service support to our customers with technical service personnel that are trained to maintain our systems at customers' fabrication plants around the world. Our service teams are located at regional and local service centers to assure prompt availability. We sell spare parts for our equipment from parts stocks located at local distribution centers.

32. Locations worldwide

Europe

The Netherlands

ASM International NV (Headquarters)

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33. Articles of association

The additional information below includes a brief summary of several significant provisions of our Articles of Association.

Information on the provisions in the articles of association relating to the appropriation of profit

The Articles of Association of ASM International N.V. (the company) provide the following with regard to distribution of profit and can be summarized as follows:

- From the profits, distributions shall in the first place, if possible, be made on the preferred shares equal to the Euribor rate for six-months loans, increased by one and a half, on the paid-up amount which had to be paid on the preferred shares, weighted to the number of days to which this was applicable. If profits are insufficient, the dividend will be paid from the reserves with priority over any dividends. If the reserves are insufficient, the dividend deficit has to be made up in future years;
- Second, a dividend, if possible, is distributed on financing preferred shares. The dividend is a percentage of the par value, plus share premium paid, on the financing preferred shares. The percentage is determined by the Management Board, subject to approval of the Supervisory Board. The percentage is related to the average effective yield on government loans with a weighted average remaining term of no more than 10 years, if necessary increased or decreased by no more than 3%, subject to the then prevailing market conditions. If profits are insufficient, the dividend shall be paid from the reserves. If the reserves are insufficient, the dividend deficit has to be made up in future years;
- With the approval of the Supervisory Board, the Management Board will determine which part of the profit remaining after adoption of the provisions of the previous paragraphs will be reserved. The profit after reserving will be at the disposal of the Annual General Meeting of Shareholders;
- The company may only make distributions to the shareholders and other persons entitled to profit insofar as its equity exceeds the amount of the paid-up and called amounts of the share capital increased with the reserves that must be kept by virtue of law; and
- Article 33, paragraph 3 of the Articles of Association provides that dividend claims expire after the lapse of five years.

For the full text, please see our [website](#).

Special statutory control rights

Article 27 of the Articles of Association provides that each common share gives the right to cast one vote, each preferred financing share to cast 1,000 votes, and each preferred share to cast 1,000 votes.

Article 29 of the Articles of Association provides that meetings of holders of preferred shares or of financing preferred shares shall be convened as often and insofar as a decision of the meeting of holders of preferred shares or financing shares desires this, and furthermore as often as the Management Board and or the Supervisory Board shall decide to hold such a meeting. At the meeting, resolutions will be passed with an absolute majority of the votes. In the event that there is a tie of votes, no resolution will take effect.

As per December 31, 2023, there were no outstanding preferred shares or financing preferred shares issued.

The following resolutions and actions can only be taken on a proposal by the Management Board and the Supervisory Board:

- any amendment to the Articles of the company; and
- the dissolution of the company.

Treasury shares

Pursuant to Dutch law, no votes may be cast at a General Meeting in respect of treasury shares, i.e. shares which are held by the company. As set out in note 12, as of December 31, 2023, a total number of 226,802 treasury shares was outstanding. For the complete text, please see our website.

34. Declarations

Corporate governance statement

The Dutch Corporate Governance Code was last updated on December 20, 2022. As of book year 2023, Dutch-listed companies are required to report on compliance with this code.

The full text of the Dutch Corporate Governance Code can be found on the website of the [Monitoring Commission Corporate Governance Code](#).

ASM complies with the Dutch Corporate Governance Code, save for the deviations set out herein. ASM applies the relevant principles and best practices of the Dutch Corporate Governance Code applicable to the company, the Management Board, the Executive Committee and to the Supervisory Board, in the manner set out in the Corporate Governance section, as long as it does not entail disclosure of commercially sensitive information and other than as set out below:

- The Supervisory Board has delegated the contacts with the internal auditor to the Audit Committee. The Audit Committee is the body with the most financial experience, best equipped to properly discuss with the internal auditor, in which 4 out of 6 Supervisory Board members are represented. However, the internal auditor may always contact the Chair of the Supervisory Board directly in case there are any matters to escalate which is also laid down in the Audit Committee Charter. The internal audit plan, the remuneration of the internal auditor and an appointment or dismissal of the internal auditor require approval from the Supervisory Board. Moreover, the Audit Committee shares full minutes of all its meetings with the Supervisory Board, so that the Supervisory Board remains informed of all items discussed. This means that ASM deviates from best practice provisions 1.3 (as the Supervisory Board does not oversee the internal auditor directly, but through the Audit Committee). Moreover, pursuant to best practice provision 1.3.5, the internal auditor should report hierarchically to a member of the Management Board, preferably to the CEO. The internal auditor does report to a member of the Management Board, but to the CFO as ASM believes the CFO is best equipped with this task.

- For the same reasons as included in the previous bullet, the Audit Committee, rather than the Supervisory Board, has maintained the contact with the external auditor, and KPMG Accountants N.V. has attended several Audit Committee meetings. This means that ASM deviates from best-practice provisions 1.6.2 (it is the Audit Committee instead of the Supervisory Board that gives the external auditor a general idea of the content of the reports relating to its functioning).
- Pursuant to best-practice provision 2.1.5, the Supervisory Board should draw up a diversity and inclusion policy, which is also for the Executive Committee. Moreover, after prior approval of the Supervisory Board, the Management Board should draw up a diversity and inclusion policy for the whole organization, which should include diversity targets. As set out in section 13.1, ASM adopted a Diversity, Equity & Inclusion Policy in February 2024, rather than in 2023, which means ASM has not managed the finalizing of this in reporting year 2023. The reason was that ASM took a different approach by first conducting a gap analysis of diversity and inclusion within ASM to establish a proper policy with sound measures and targets.
- Pursuant to best-practice provision 2.3.6, the Chair of the Supervisory Board should ensure that the Supervisory Board elects a vice-chair. The Supervisory Board has discussed whether or not to appoint a vice-chair, but has come to the conclusion that it was not needed given the relatively limited size of the Supervisory Board. In case the Chair of the Supervisory Board is not available, the Supervisory Board will at that time elect a vice-chair. Informally, the Chair of the NSR Committee acts as vice-chair.

Corporate governance-related documents are available on our website. These include, among others, the Supervisory Board Profile, Supervisory Board Rules, Management Board Rules, Executive Committee Rules, the Audit Committee Charter, the Nomination, Selection and Remuneration Committee Charter, the COBC, the Stakeholder dialogue policy, the anti-fraud policy, the rules concerning Insider Trading, the Remuneration Policy of the Management Board, the Remuneration Policy of the Supervisory Board, the Diversity, Equity & Inclusion Policy, the SpeakUp! procedure and policy regarding communications and bilateral contacts with shareholders.

Responsibility statement

The members of the Management Board state that, to the best of their knowledge, the statutory financial statements prepared in accordance with IFRS-EU and Title 9 of part 2 of the Dutch Civil Code as included in this Annual Report 2023 provide a true and fair review of the assets, liabilities, financial position, and results of the company and its subsidiaries included in the consolidated statements, and that the management report provides a true and fair review of the position and the business of the company and its subsidiaries, and the Annual Report 2023 provides a fair review of the state of affairs at the balance sheet date, the development / performance during the financial year of the business (and group as a whole) and the principal risks that ASM faces.

For more on the risks ASM faces, the internal risk management and control framework and the declarations provided in relation thereto pursuant to the Dutch Corporate Governance Code, see section 13.2 Risk management.

Article 10 EU takeover directive decree

The Management Board states that the information required under Article 10 of the EU Takeover Directive Decree is disclosed herein to the extent that it is applicable to ASM:

- This includes a change of control clause, which could lead to prepayment of any outstanding amount. See Note 16 'Credit facility';
- ASM is party to commercial agreements, including lease agreements, which occasionally include change of control clauses;
- ASM is party to an agreement with the Stichting Continuïteit ASM International pursuant to which the Stichting is granted an option to acquire up to a pre-determined number of our preferred shares in the event of a potential public takeover. See section 13.1 Stichting Continuïteit Agreement; and
- In case of a change of control, Management Board members may be entitled to a severance amount in, as set out in the Remuneration report of the Management Board.

35. Safe harbor statement

In addition to historical information, some of the information posted or referenced herein or on the website contains statements relating to our future business and/or results, including, among others, statements regarding future revenue, sales, income, expenditures, sufficiency of cash generated from operations, maintenance of interest in ASMPT Ltd, business strategy, product development, product acceptance, market penetration, market demand, return on investment in new products, facility completion dates and product shipment dates, corporate transactions, restructurings, liquidity and financing matters, outlooks, and any other non-historical information. These statements include or may be interpreted to include certain projections and business trends, which are or could be considered 'forward-looking'. We caution readers that no forward-looking statement is a guarantee of future performance and that actual results could differ materially from those contained in the forward-looking statements.

You can identify forward-looking statements by the use of words like 'may', 'could', 'should', 'project', 'believe', 'anticipate', 'expect', 'plan', 'estimate', 'forecast', 'potential', 'intend', 'continue', 'aim', 'strive' and variations of these words or comparable words.

Forward-looking statements do not guarantee future performance and involve risks and uncertainties. You should be aware that our actual results may differ materially from those contained in the forward-looking statements as a result of certain risks and uncertainties. These risks and uncertainties include, but are not limited to, economic conditions and trends in the semiconductor industry and the duration of industry downturns, currency fluctuations, the timing of significant orders, market acceptance of new products, competitive factors, litigation involving intellectual property, shareholder(s) or other issues, commercial and economic disruption due to natural disasters, terrorist activity, armed conflict or geopolitical tensions or political instability, changes in import/export regulations, epidemics, pandemics and other risks indicated in our most recently filed Annual Report and other filings from time to time. The risks described are not the only ones. Some risks are not yet known and some that we do not currently believe to be material could later become material. Each of these risks could materially affect our business, revenues, income, assets, liquidity, and capital resources. All statements are made as of the date of posting unless otherwise noted, and we assume no obligation to update or revise any forward-looking statements to reflect future developments or circumstances.

Ahead of what's next

Feedback and questions

Please feel free to contact us if you have any feedback on or questions about our Annual Report:
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