ASML Holding NV

Ramping up supply

Demand continues to increase. The question is whether supply can keep up. Hiring data supports capacity increasing at ASML and has already started at key supplier Zeiss. We see upside to EUV (ASPs). We increase our PT to €1900, reiterate OW and are well ahead of consensus in '27/'28.

Demand continues to increase. Our US colleagues now see hyperscaler capex peaking later (see AI's S-Curve Is Steepening, 1 June 2026). Our work (e.g., GW to WFE II, 25 February 2026) as well as the work of our US colleagues around CPU demand (see here) point to a material increase in chip demand over the coming years, and thus increased capacity requirements. Our recent CFO roadshow (see On the road with the CFO, 21 May 2026) gives us confidence that orders have continued to be strong, and suggesting good visibility into 2027 and even 2028 is already materialising. Memory continues to accelerate capacity expansions (see DRAM supply model here). The key then is whether supply can ramp to meet coming material demand.

Hiring data suggests continued expansion. ASML has the infra in place to ship 90 EUV in 2027 if demand is there. To get to 90 would require hiring more engineers as well as ramping the supply chain. Hiring data shows an uptick in field technicians since the start of this year. Zeiss has been a bottleneck in the past, but hiring data shows net hiring rates picking up for field technicians in 2025 and for manufacturing engineers since the start of 2026. Comments from other supply chain partners also suggest the supply chain is starting to ramp materially. Another way to improve capacity is by reducing cycle time of assembly. We believe the partnership with Mistral can help ASML squeeze more tools out of its existing footprint.

EUV price increases? We continue to receive incoming on whether ASML could put through price increases. We think this is unlikely. ASML's technology roadmap should ensure a steady increase in ASPs as new generations are introduced though. We assume the latest generation sells for c€250m whilst the new model coming in 2027 could reach at least €290m. This ASP increase is based on increased throughput, but this could be conservative given the tool will see improved overlay as well. The gross margin on this tool could reach 60%. We see wafer supply growth as a good proxy for EUV revenues, which supports our EUV low NA growth of c60% and 20% in 2027/28, respectively.

Reiterate OW, PT up to €1900. We roll our multiple to 2028 as visibility is improving. We also raise estimates given increasing demand. We model EUV low NA units of 90/100 in 2027/28 and

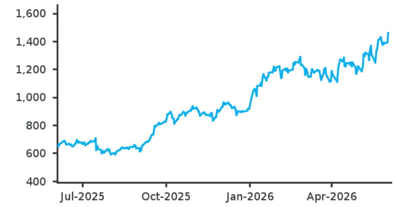
ASML.AS/ASML NA	OVERWEIGHT Unchanged
European Technology Hardware	NEUTRAL Unchanged
Price Target	EUR 1900.00 raised 21% from EUR 1575.00
Price (03-Jun-26)	EUR 1485.20
Potential Upside/Downside	+27.9%

Source: Bloomberg, Barclays Research

Market Cap (EUR mn)	576476
Shares Outstanding (mn)	388.15
Free Float (%)	97.85
52 Wk Avg Daily Volume (mn)	0.7
Dividend Yield (%)	0.51
Return on Equity TTM (%)	52.24
Current BVPS (EUR)	53.66

Source: Bloomberg

Price Performance	Exchange-AEX
52 Week range	EUR 1496.00-587.80



Source: IDC
Link to Barclays Live for interactive charting

European Technology Hardware

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thus don't necessarily need ASML to announce facility expansion yet. Any announcement would be a positive catalyst and suggest further upside to our estimates though. We do see at least one new customer for EUV on the horizon (see below). We are less worried about a DUV immersion air pocket than before (see Immersion illusion, 26 November 2025) given our recent roadshow suggested litho intensity is increasing. We sit 5-8% ahead of consensus revenues for 2027/2028. The main risks to our thesis are any export control updates (we increased China WFE expectations for 2027 here) or a compression in semi multiples due to AI ROI concerns. We see semicap more attractive than analog when looking out to 2028.

ASML.AS: Financial and Valuation Metrics EPS (EUR)

FY Dec	2024	2025	2026	2027	2028
EPS	19.24A	24.71A	32.28E	43.96E	51.80E
Previous EPS	19.24A	24.71A	32.16E	41.46E	45.73E
Consensus EPS	19.24A	24.71A	31.32E	41.36E	48.30E
P/E	77.2	60.1	46.0	33.8	28.7

Consensus numbers are from Bloomberg received on 03-Jun-2026; 12:50 GMT
Source: Barclays Research

European Technology Hardware **NEUTRAL**

ASML Holding NV (ASML.AS)

OVERWEIGHT

Income statement (€mn)	**2025A**	**2026E**	**2027E**	**2028E**	**CAGR**
Revenue	32,667	39,545	49,842	56,464	20.0%
EBITDA (adj)	12,328	15,577	20,897	24,546	25.8%
EBIT (adj)	11,302	14,530	19,700	23,127	27.0%
Pre-tax income (adj)	11,406	14,695	19,939	23,344	27.0%
Net income (adj)	9,609	12,413	16,766	19,592	26.8%
EPS (adj) (€)	24.71	32.28	43.96	51.80	28.0%
Diluted shares (k)	388,900	384,525	381,401	378,255	-0.9%
DPS (€)	7.50	8.40	9.29	10.22	10.9%

Margin and return data	**2025A**	**2026E**	**2027E**	**2028E**	**Average**
Gross margin (adj) (%)	52.8	52.6	53.7	56.0	53.8
EBITDA (adj) margin (%)	37.7	39.4	41.9	43.5	40.6
EBIT (adj) margin (%)	34.6	36.7	39.5	41.0	38.0
Pre-tax (adj) margin (%)	34.9	37.2	40.0	41.3	38.4
Net (adj) margin (%)	29.4	31.4	33.6	34.7	32.3
ROCE (%)	63.8	80.4	86.3	81.6	78.0
ROA (%)	18.8	22.1	25.9	26.2	23.2
ROE (%)	50.5	55.6	57.5	50.9	53.6

Cash flow and balance sheet (€mn)	**2025A**	**2026E**	**2027E**	**2028E**	**CAGR**
Change in working capital	1,027	-300	-2,801	-2,775	N/A
Cash flow from operations	12,659	13,308	15,407	18,506	13.5%
Capital expenditure	-1,574	-2,847	-2,991	-3,106	N/A
Equity free cash flow	10,772	9,768	12,416	15,400	12.7%
Change in cash	180	2,432	3,635	5,800	218.1%
Tangible fixed assets	7,894	9,473	11,326	13,073	18.3%
Intangible fixed assets	4,589	4,589	4,589	4,589	0.0%
Cash and equivalents	12,916	15,348	18,983	24,783	24.3%
Working capital	-9,812	-9,032	-6,231	-3,457	N/A
Inventories	11,429	13,377	16,475	19,129	18.7%
Accounts receivable	3,023	3,955	4,984	5,646	23.2%
Total assets	50,567	58,338	67,939	78,791	15.9%
Short and long-term debt	2,709	2,706	2,706	2,706	0.0%
Total liabilities	30,954	33,307	34,633	35,175	4.4%
Shareholders' equity	19,612	25,031	33,306	43,616	30.5%

Valuation and return metrics	**2025A**	**2026E**	**2027E**	**2028E**	**Average**
P/E (adj) (x)	60.1	46.0	33.8	28.7	42.1
EV/sales (x)	17.8	14.8	11.8	10.5	13.7
EV/EBITDA (adj) (x)	47.2	37.5	28.1	24.2	34.2
EV/EBIT (adj) (x)	51.4	40.2	29.8	25.6	36.8
P/FCF (x)	53.6	58.5	45.6	36.5	48.5
Equity FCF yield (%)	1.9	1.7	2.2	2.7	2.1
P/BV (x)	29.5	22.8	17.0	12.9	20.5
Dividend yield (%)	0.5	0.6	0.6	0.7	0.6

Selected operating metrics (€mn)	**2025A**	**2026E**	**2027E**	**2028E**	**Average**
Orders	28,034	36,278	43,425	46,104	38,460
Book/bill (x)	1.1	1.2	1.1	1.0	1.1
Backlog	38,800	45,237	49,494	50,877	46,102

Note: FY End Dec
Source: Company data, Bloomberg, Barclays Research

Price (03-Jun-2026)	**EUR 1,485.20**
Price Target	**EUR 1,900.00**

Why OVERWEIGHT?

ASML has a dominant position in a critical step for semiconductor manufacturing. ASML has a positive outlook but the shares are already reflecting improving end markets with little near-term upside. The biggest positive surprises would be Samsung or Intel restarting material spending, but we see this as unlikely before 2027 at the earliest.

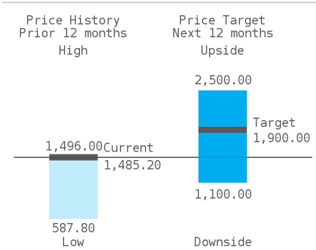
Upside case **EUR 2,500.00**

Our upside case assumes that more fabs are built/expanded and that ASML can hit the top end of its long-term guidance.

Downside case **EUR 1,100.00**

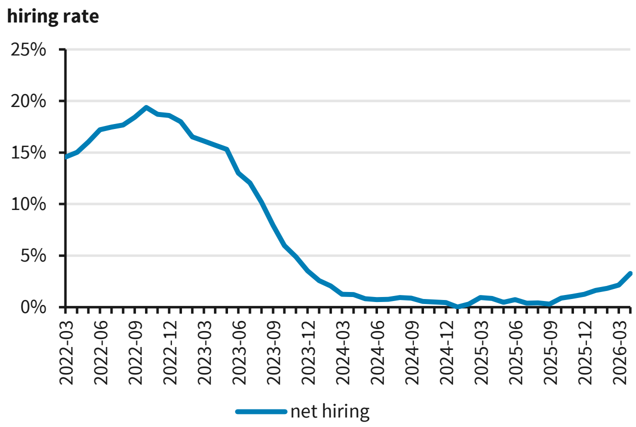
Our downside case assumes that ASML struggles to grow revenues sustainably for the next couple of years for a variety of reasons.

Upside/Downside scenarios



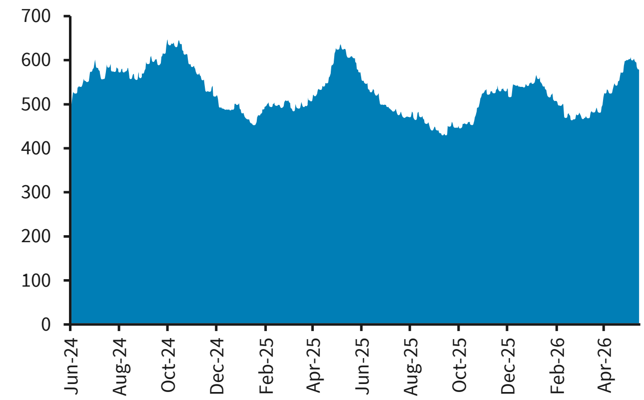
The Story in 6 Charts

FIGURE 1. ASML is hiring more field technicians...



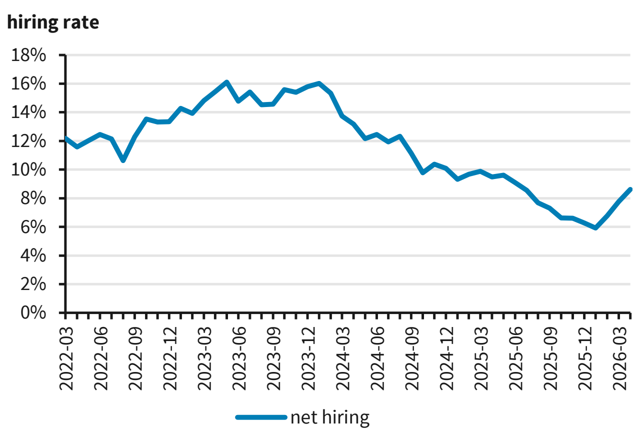
NB data for field technicians
Source: Revelio Labs, Barclays Research

FIGURE 2. ...with job vacancies increasing since the start of the year



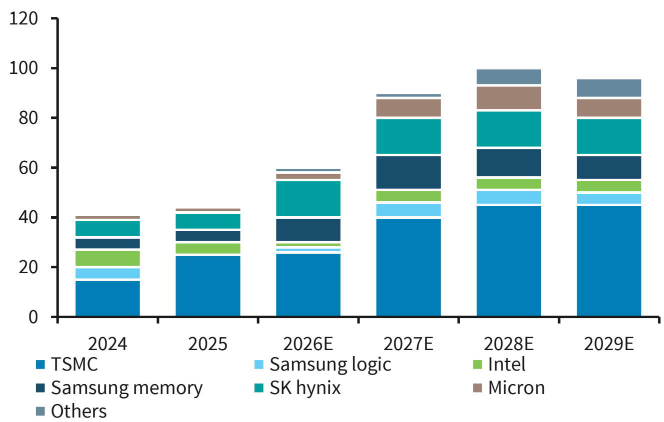
NB = total job vacancies advertised
Source: LinkUP, Barclays Research,

FIGURE 3. Key supplier Zeiss is hiring more manufacturing engineers



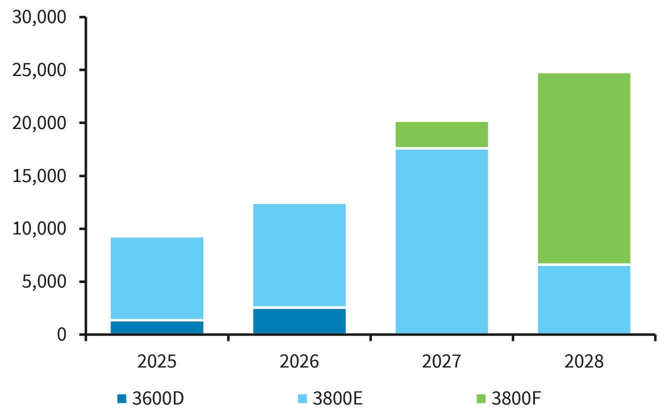
Source: Revelio Labs, Barclays Research

FIGURE 4. We increase EUV shipment estimates



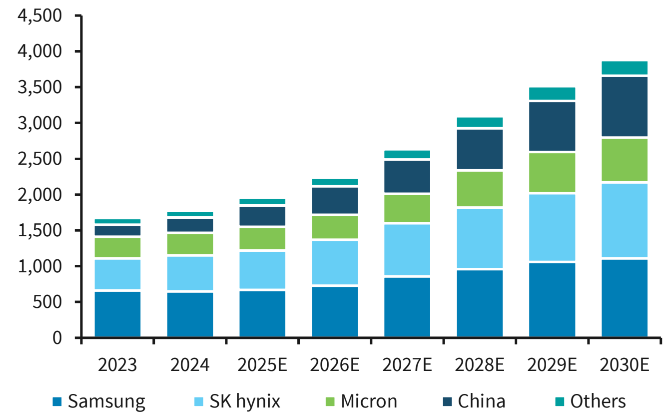
Source: Barclays Research estimates

FIGURE 5. ASML shipped EUV capacity is increasing materially



NB EUV wafer capacity shipped (tools x wph) by tool generation
Source: Barclays research estimates

FIGURE 6. DRAM capacity is set to increase materially in the coming years



NB see China #7: Memory scaling up, raising WFE
Source: Barclays Research estimates

Ramping up supply

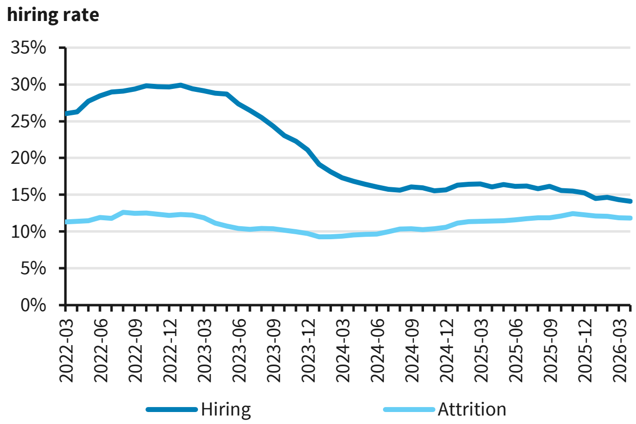
ASML has clearly communicated that it can supply EUV units of 80+ in 2027 and has capacity to increase this to 90. Long lead-time components such as infrastructure and shells are already in place. Hiring more engineers and other short lead-time factors are required to achieve 90. We also see ASML's partnership with Mistral as a way to improve cycle time and generate more tools out of its existing footprint, suggesting that more than 90 tools is possible in 2027 and onwards without necessarily needing new buildings. However, this would also require the supply chain to ramp to support and supply higher volumes. In partnership with our Data Science & Applied AI team we use hiring data to track ASML's ramp as well as to track hiring data at Zeiss SMT (not covered) - a key supplier for ASML.

ASML still hiring despite restructuring

We look at three roles at ASML: Field Technicians, Manufacturing Engineer and Systems Engineer. Revelio Labs obtains employment data by screening online professional profiles, job postings, government data and firmographic data. The dataset then curates and structures the underlying data through the use of proprietary AI/ML algorithms, and provides employee counts, inflows and outflows which can be analysed by position, skill, geography and seniority level over time. The dataset is presented monthly, starting from 2022.

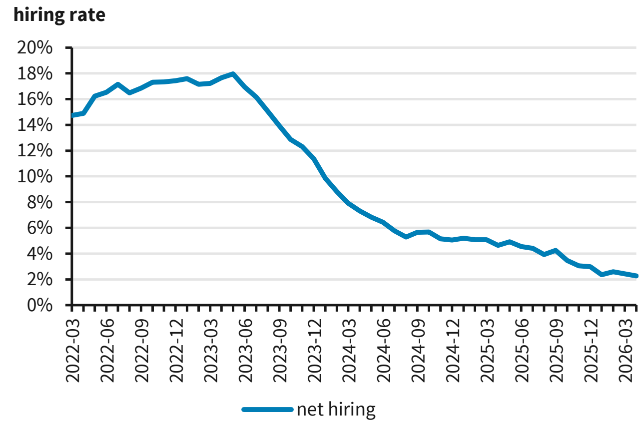
We are most interested in manufacturing engineers as we believe this provides the best read-across for whether ASML is hiring more people to assemble more machines. As the below two charts show, net hiring activity is still positive. The hiring rate has been relatively stable over the past two years after strong hiring in 2022-2023. We believe the hiring activity actually reflects a good proxy for ASML's outlook. ASML was bullish on the outlook in 2023 and needed to expand meaningfully. The slowdown in the hiring rate from 2024 reflects expansion achieved but also then impacted by a more sombre outlook from 2H24. Attrition did pick up during 2025 and early this year as the outlook turned more cautious but also given ASML's reorganisation announced earlier this year. We believe this is now starting to stabilise. Key from here will be if hiring reaccelerates in the coming months to prepare for a bigger ramp in 2027.

FIGURE 7. **ASML: Manufacturing engineer hiring and attrition (%)**



Source: Revelio Labs, Barclays Research

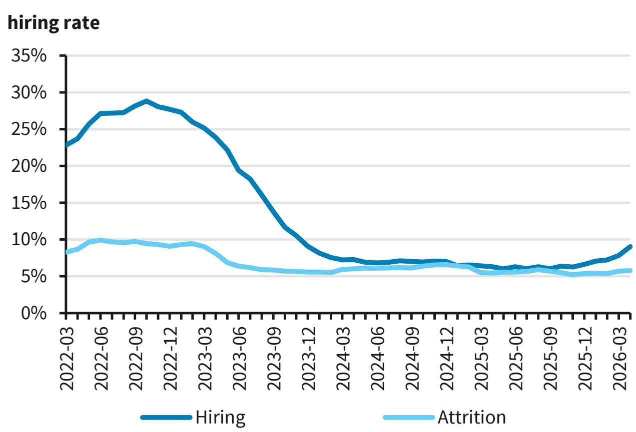
FIGURE 8. **ASML: Net hiring rate of manufacturing engineers (%)**



Source: Revelio Labs, Barclays Research

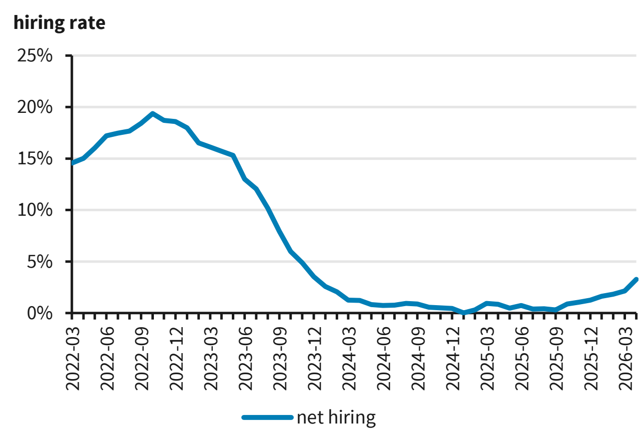
Field technicians are also a key indicator for where ASML sees the installed base heading. Whilst optimisations (e.g., using AI) could temper some hiring requirements for manufacturing engineers in our view, the globally expanding manufacturing footprint means more field technicians will be needed for the increasing number of sites globally. Here we see that hiring has already started to reaccelerate since 4Q25, with attrition rates flat. We see two drivers supporting this trend on top of an expanding footprint: 1) expectations for a larger installed base, and 2) more installed base management activity as customers try to run machines aggressively to maximise productivity/output.

FIGURE 9. **ASML: Field technician hiring and attrition (%)**



Source: Revelio Labs, Barclays Research

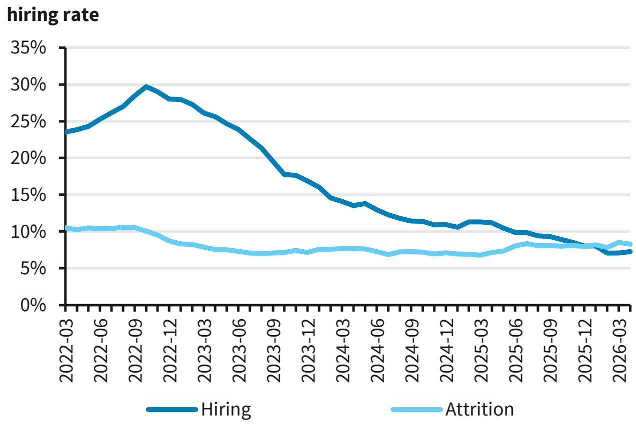
FIGURE 10. **ASML: Net hiring rate of field technicians (%)**



Source: Revelio Labs, Barclays Research

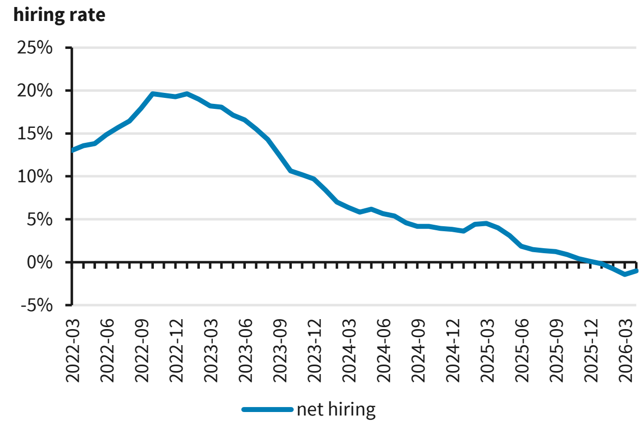
Finally, we look at system engineers. We believe this role is primarily focused on the designing and validating of subsystems or tools. As we can see, the hiring rate has dropped materially and fallen below the attrition rate, which has been relatively stable. Thus net hiring is currently negative.

FIGURE 11. ASML: Systems engineer hiring and attrition (%)



Source: Revelio Labs, Barclays Research

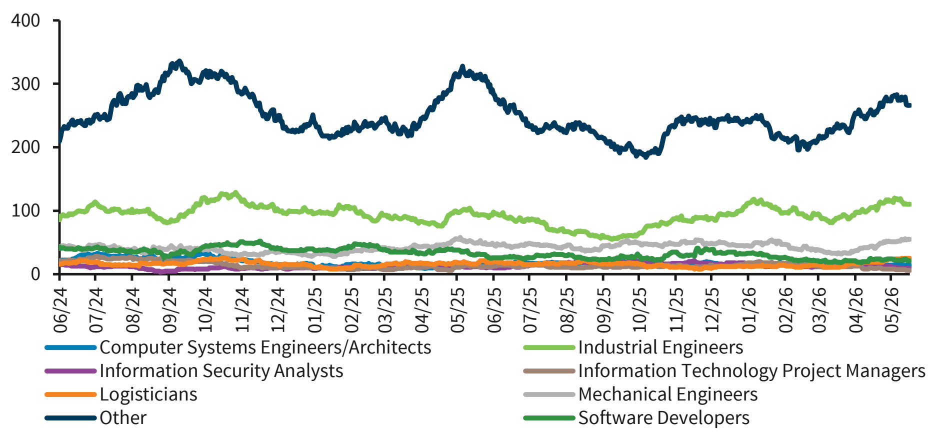
FIGURE 12. ASML: Net hiring rate of systems engineers (%)



Source: Revelio Labs, Barclays Research

Below we show that ASML continues to advertise for new roles. The key takeaway is that adverts for industrial engineers and mechanical engineers have increased to be 30% of total vacancy advertisements as ASML executes on its strategy to streamline the business, focusing on engineering whilst ensuring it has the people in place to meet customer demand.

FIGURE 13. ASML hiring, by role



Source: LinkUP, Barclays Research

Zeiss continues to expand

Carl Zeiss SMT is privately held and is not under coverage by Barclays Research. Information about this company is being provided for information purposes only and is not an investment recommendation by Barclays Research.

ASML's ability to expand is dependent not only on its own initiatives but also on the ability of its supply chain to ramp capacity/supply as well. One of the key suppliers for ASML is Zeiss Semiconductor (Zeiss SMT). As we did for ASML, we look at hiring data for Zeiss, which we use as a proxy for capacity expansion given the company is private and there is limited data available to track.

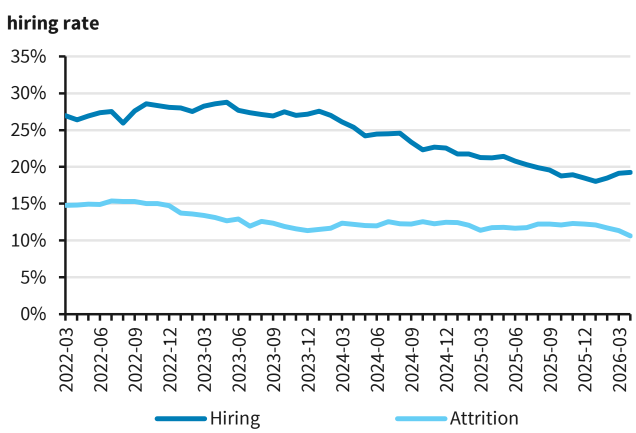
Carl Zeiss SMT is ASML's partner for the optical systems in its lithography equipment. Each ASML EUV scanner requires an extremely sophisticated lens and mirror assembly that is supplied exclusively by Zeiss. Historically, Zeiss's capacity limits have directly capped ASML's ability to ship more EUV tools. ASML recognized this early on, taking a €1B minority stake (24.9%) in Zeiss

SMT a decade ago to fund EUV optics development and capacity expansion. Despite that, as demand for advanced lithography surged, Zeiss's output struggled to keep pace.

ASML and Zeiss have worked closely to alleviate the bottleneck. Zeiss's recent ramp-up efforts and ASML's supply-chain investments have addressed earlier optics constraints. ASML CEO Christophe Fouquet has noted that optics supply challenges from Carl Zeiss "have been addressed" through years of expansion. Hiring data supports this. In its last annual report, Zeiss SMT indicated it has been investing in PPE, with the most noteworthy investments for the semiconductor manufacturing technology segment to expand EUV production capacity suggesting more expansion ahead.

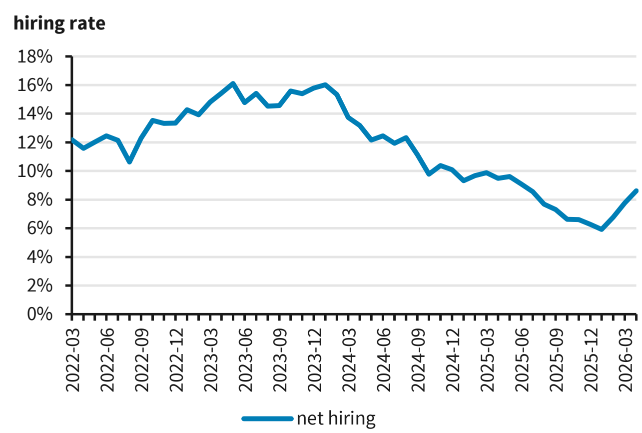
Zeiss SMT's expansion is visible in hiring data, and hiring rates remain positive. Manufacturing Engineers has seen its net hiring rate remain strong despite a period of material expansion in 2022-2023. The attrition rate is also declining. Since the start of 2026, hiring has accelerated, meaning net hiring as a percentage of manufacturing engineers has been increasing back towards 10% after troughing at 6% at the start of 2026.

FIGURE 14. Zeiss: Manufacturing engineer hiring and attrition (%)



Source: Revelio Labs

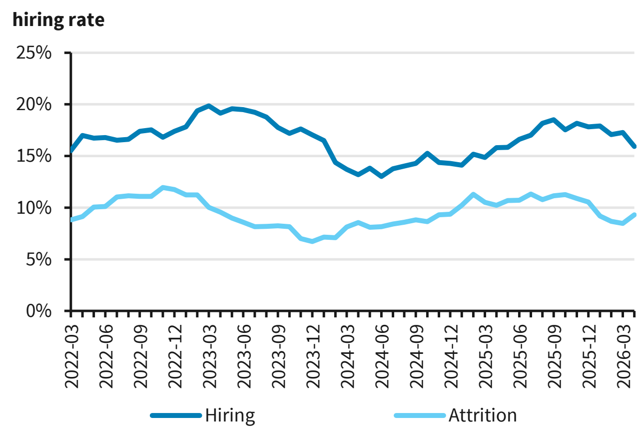
FIGURE 15. Zeiss: Net hiring rate of Manufacturing engineer (%)



Source: Revelio Labs

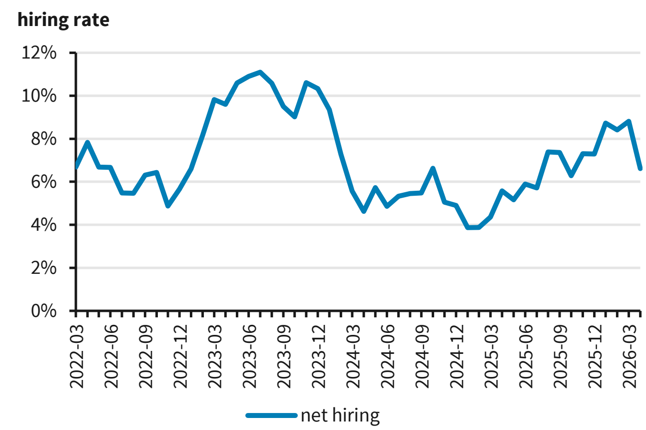
Field technicians who install and service tools at customer sites have seen hiring and attrition largely follow the cycle. However, the net hiring rate has remained positive as the installed base continues to grow.

FIGURE 16. Zeiss: Field technician hiring and attrition (%)



Source: Revelio Labs

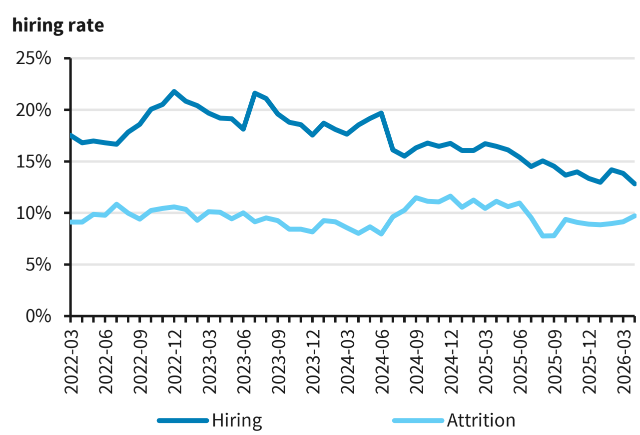
FIGURE 17. Zeiss: Net hiring rate of Field technician (%)



Source: Revelio Labs

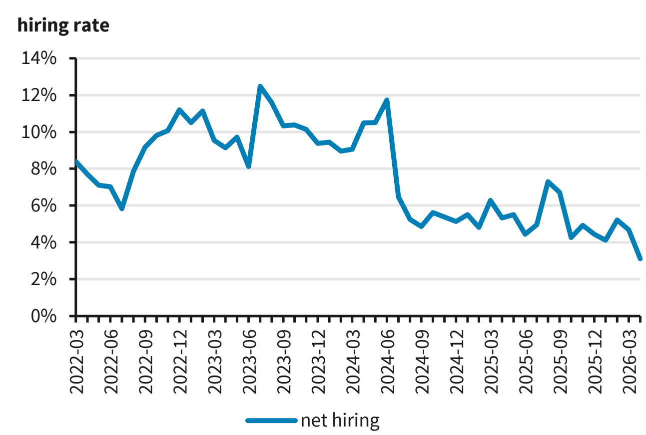
Systems Engineers has seen net hiring reduce to a more moderate level of below 10% in 2025 and 2026. A number of reasons could explain this, including high NA seeing further maturation and efficiencies, among other factors. Importantly, net hiring remains positive though, which we justify given ASML's stated plans that it intends to make improvements on optics, which will help improve both Low NA and High NA EUV tools in the coming years, given ASML's technology roadmap.

FIGURE 18. Zeiss: Systems engineer hiring and attrition (%)



Source: Revelio Labs

FIGURE 19. Zeiss: Net hiring rate of Systems engineer (%)



Source: Revelio Labs

Other suppliers expanding too

ASML has thousands of suppliers. Some of its listed suppliers have made positive comments recently:

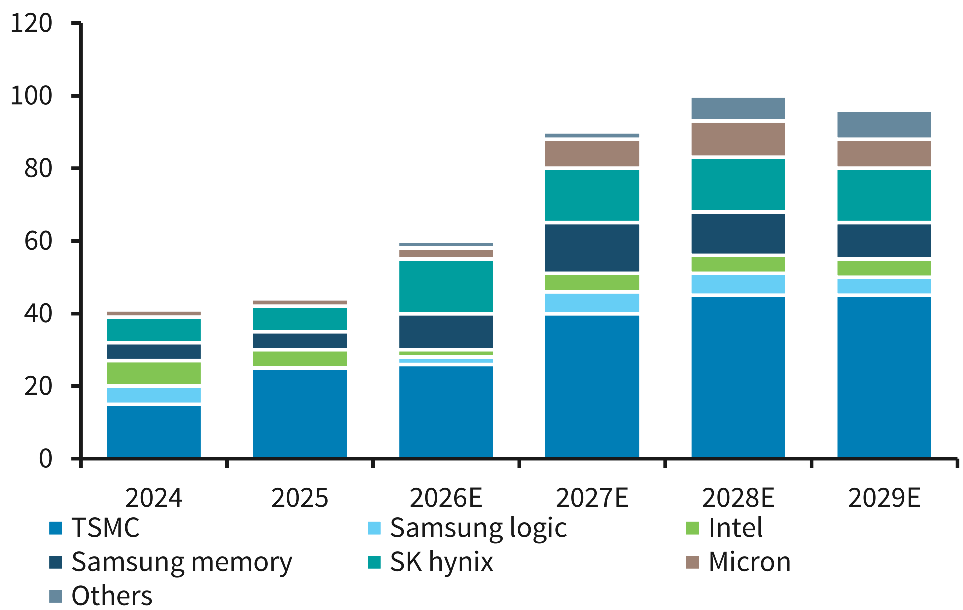
- Jenoptik is expanding its high precision cleanroom production capacity, which it expects will come online in 2027. The company reported receiving strong orders from lithography in 1Q26.

- Aalberts mentioned strong orders from semis back at its February results. Management talked of a promising 2026 and stated that growth was 'definitely' coming, and that they were quite excited about 2027. Aalberts indicated that they have invested in capacity already for future EUV growth.

Increasing EUV estimates

We are increasing our EUV estimates as we believe demand continues to increase and ASML is gaining improved visibility over customer plans. Below we show our estimates by customer. We expect TSMC to remain the biggest customer of EUV low NA given its capacity plans but also given its later adoption of high NA. We expect memory adoption to accelerate materially in 2027 as Samsung continues to expand, SK hynix cleanroom constraints reduce and Micron adds cleanroom space as well as fully embraces the adoption of EUV. We see limited requirements from Intel nearer term but do expect them to increase litho investment from 2027. We see Terafab as a potential opportunity from 2028 given Terafab reportedly filed to spend $55bn on a new facility in Texas, which we interpret as a sizeable fab even if construction costs could be a meaningful share of the spend. Nanya could also be a potential EUV customer down the line as well.

FIGURE 20. **EUV shipment by customer (#)**



Source: Barclays Research estimates

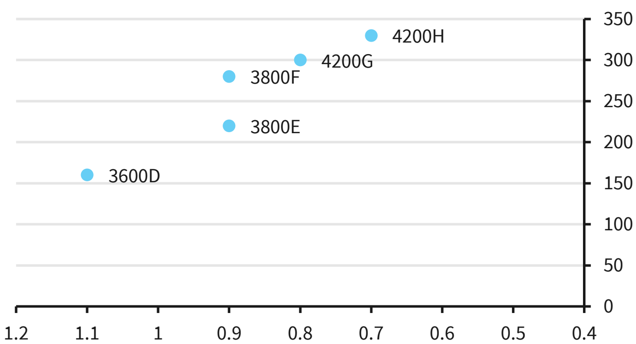
How to think about ASPs

ASML's ability to take price has become a key debate given the expectation of increasing demand and potentially limited supply, but also due to ASML's monopolistic position. Whilst we think standalone price increases are unlikely given the way the semicap industry works, we see a clear roadmap for improving tools in the coming years which would drive blended ASP growth as each new tool should command a higher ASP. We currently assume ASPs grow in line with throughput. This could be conservative however as tools in 2028 could improve overlay, which would give ASML another lever to increase price. Improved overlay would improve yields and thus allow customers to yield more chips per hour - thus increasing the value they get from the tool. If ASML could accelerate the overlay improvement on its low NA tool then this ASP increase could possibly come sooner. Given both that the high NA tool can already achieve overlay of <0.8nm and the commonality of the platforms, we think this could be an opportunity.

We also show that shipped capacity from ASML is set to increase materially over the coming years. As ASML ships more tools with higher throughput, the capacity they are helping the industry bring online is increasing significantly. We estimate shipped wafer capacity could grow

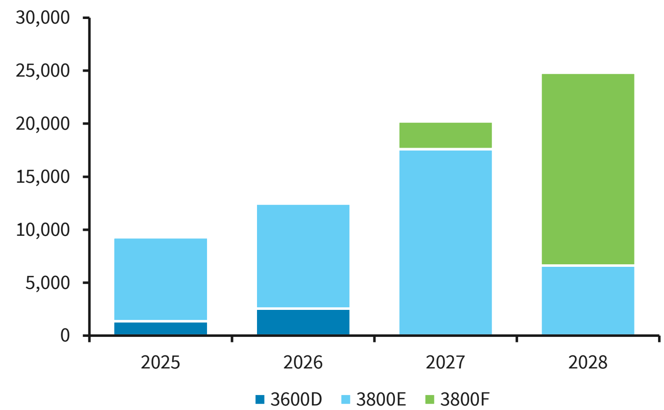
60% in 2027 and a further c25% in 2028. This aligns with the EUV low NA revenue growth we model.

FIGURE 21. EUV low NA roadmap



X-axis = overlay in nm, y axis = throughput in wph
Source: Company data

FIGURE 22. Shipped EUV wafer supply (wph)



Source: Company data, Barclays Research estimates

Barclays fab tracker

As discussed in From GW to WFE, 9 October 2025, we have seen an accelerated pace of construction of leading-edge logic fabs from TSMC. TSMC has stated that it currently has nine fabs under construction, the highest amount ever. With increasing CPU requirements, we now expect this pace to sustain, having previously expected it to slow.

Intel has been building shells for advanced logic fabs, including two phases in Arizona, two phases in Ohio and an additional fab in Israel, although the majority of its capacity additions have been postponed. It is set to ramp 18A at its development facility in Oregon and a new fab in Arizona (press release, 29 April 2025), but its fabs in Ohio are not expected to begin operations until at least 2030, and its Israel expansion has been postponed. Given Intel's planned introduction of its 14A node in 2027, it is likely that capacity for the ramp will come from its footprint in Oregon and Arizona, at least initially, in our view. We believe that Intel is set to start reinvesting in Intel 3 at its Ireland facility, of which it recently acquired full ownership, based on our recent channel checks. Samsung's upcoming fab in Taylor, Texas will start ramping in 2026 due to its win with Tesla, according to Samsung, and will now produce 2nm instead of the 4nm previously planned. Terafab now appears to be a real endeavour so we include it in our fab tracker for the first time.

As the table below shows, there is a significant number of leading logic fabs to be built in the coming years.

FIGURE 23. Leading-edge logic fab tracker

Company	Fab	Phase	Location	Process	Construction start	Production start
TSMC	Fab 20	P1	Hsinchu, TW	2nm	4Q22	2025
TSMC	Fab 20	P2	Hsinchu, TW	2nm/A14	3Q23	[illegible]
TSMC	Fab 20	P3	Hsinchu, TW	A14	2025	[illegible]
TSMC	Fab 20	P4	Hsinchu, TW	A14	2025?	[illegible]
TSMC	Fab 20	P5?	Hsinchu, TW?	A14?	?	[illegible]

Company	Fab	Phase	Location	Process	Construction start	Production start
TSMC	Fab 20	P6?	Hsinchu, TW?	A14?	?	?
TSMC	Fab 20	P7?	Hsinchu, TW?	A14?	?	?
TSMC	Fab 20	P8?	Hsinchu, TW?	A14?	?	?
TSMC	Fab 21	P1	Arizona, US	5nm	2021	4Q24
TSMC	Fab 21	P2	Arizona, US	2 & 3nm	4Q22	2H27
TSMC	Fab 21	P3	Arizona, US	2nm/A16	2Q25	2029
TSMC	Fab 21	P4	Arizona, US	2nm/A16	2026	2030?
TSMC	Fab 21	P5	Arizona, US	A14?	2027?	2031?
TSMC	Fab 21	P6	Arizona, US	A10/A7	2027?	2032?
TSMC	Fab 21	P7	Arizona, US	?	?	?
TSMC	Fab 21	P8	Arizona, US	?	?	?
TSMC	Fab 18	P6	Tainan, TW	3nm	3Q20	2024?
TSMC	Fab 18	P7	Tainan, TW	3nm	?	2024?
TSMC	Fab 18	P8	Tainan, TW	3nm	2Q21	2025?
TSMC	Fab 18	P9	Tainan, TW	3nm	2Q25	2027?
TSMC	Fab 18	P10	Tainan, TW	2nm	2026?	2028?
TSMC	Fab 18	P11	Tainan, TW	2nm	?	?
TSMC	Fab 18	P12	Tainan, TW	2nm	?	?
TSMC	Fab 22	P1	Kaohsiung, TW	2nm	2022	2025
TSMC	Fab 22	P2	Kaohsiung, TW	2nm	1Q24	4Q26
TSMC	Fab 22	P3	Kaohsiung, TW	2nm	4Q24	1H27?
TSMC	Fab 22	P4	Kaohsiung, TW	2nm/A16	3Q25	4Q27
TSMC	Fab 22	P5	Kaohsiung, TW	2nm/A16	2025?	4Q27
TSMC	Fab 22	P6	Kaohsiung, TW	A14	?	?
TSMC	Fab 23	P2	Kumamoto, JP	3nm	2H25	2028?
TSMC	Fab 23	P3	Kumamoto, JP	?	?	?
TSMC	Fab 25	P1	Taichung, TW	A14/1nm	4Q25	2H28
TSMC	Fab 25	P2	Taichung, TW	A14/1nm	2026?	2029?
TSMC	Fab 25	P3	Taichung, TW	A14/1nm	2027?	2030?
TSMC	Fab 25	P4	Taichung, TW	1nm/0.7A	2028?	2031?
TSMC	Fab 25	P5	Taichung, TW	1nm/0.7A	2029?	2032?
TSMC	Fab 25	P6	Taichung, TW	1nm/0.7A	2030?	2033?
Intel	Fab 52	-	Arizona, US	2nm	2021	3Q25
Intel	Fab 62	-	Arizona, US	2nm	2021	?

Company	Fab	Phase	Location	Process	Construction start	Production start
Intel	Fab 27	P1	Ohio, US	2nm and below	2022	2030/2031+
Intel	Fab 27	P2	Ohio, US	2nm and below	2022	2032+
Intel	Fab 28	-	Kiryat Gat, Israel	2nm and below	2022	Postponed
Samsung	Fab S5	P3 ph3	Pyeongtaek, SK	Mix	1Q22	2025?
Samsung	Fab S5	P4 ph3	Pyeongtaek, SK	Mix	1H24	2026?
Samsung	Fab S5	P5	Pyeongtaek, SK	Mix	3Q24	2028?
Samsung	Fab S5	P6	Pyeongtaek, SK	?	?	?
Samsung	Fab S6	P1	Taylor, US	2/4nm	1Q22	2H26/1H27
Samsung	Fab S6	P2	Taylor, US	2nm	2025?	2027 or later?
Samsung	?	?	Yongin, SK	?	2H26?	2028/29?
Rapidus	-	-	Hokkaido, JP - pilot	2nm	2023	2025
Rapidus	-	-	Hokkaido, JP - HVM	2nm	2023	2027
Terafab	-	-	Austin, US	1.4nm?	?	2028?

N.B. Rapidus is a private company not covered by Barclays; timelines have been detailed in the following press release (1 April 2025)
Source: Barclays Research estimates, company data

Samsung is continuing to build out its Pyeongtaek cluster, with the majority of capacity additions related to DRAM rather than foundry. Samsung is reportedly adding DRAM lines to the first phase of P4, and its third and fourth phases reportedly could also focus on DRAM (DigiTimes, 15 November 2024). This coincides with Samsung's ramp of 1C, with reports that 1C lines are being added to P4 last year, with plans for further expansion on top of existing lines on older nodes being converted at other fabs (TrendForce, 22 May 2025). Samsung is reportedly accelerating its ramp of P4, with a total capacity of c250kwspm (DigiTimes, 25 September 2025). Construction has also reportedly resumed at its delayed P5 fab (Business Korea, 8 September 2025) and we believe Samsung is likely trying to accelerate expansion.

SK Hynix has been ramping its M15X fab in Cheongju, according to the company, which is targeting DRAM for HBM and started volume production in 4Q25. The company has also started constructing its first of four fabs as part of its cluster in Yongin, which is set to start volume production in 2027. Each fab will consist of six phases. The first phase of the first fab will come online in 2027, with equipment move-in from early 2027. We estimate each phase could be >300k wspm - 3x the size of a typical DRAM fab.

Micron is constructing a new EUV DRAM fab (1 gamma) in Idaho, which is set to produce meaningful volumes in its 2027FY (September year-end), according to the company. It plans to build four fabs in Clay, New York, spending up to $100bn over 20 years. Construction capex for the first fab started last year, with completion expected in its 2028FY or later. It is also adding EUV DRAM capacity in Hiroshima, Japan, with construction reportedly starting early in 2026 and first equipment being installed by the end of 2027 (TrendForce, 26 July 2024). To accelerate capacity expansion, Micron completed the acquisition of PSMC's Tongluo P5 site in Taiwan. The new site is a 300mm cleanroom space with approximately 300k square feet of space. Micron plans to build a second fab comparable in size at the same site.

FIGURE 24. **Planned new DRAM fabs**

Company	Fab	Phase	Location	Process	Construction start	Production start
Samsung	Fab S5	P4 ph2	Pyeongtaek, SK	HBM4 DRAM	3Q23	2H26/1H27
Samsung	Fab S5	P4 ph3	Pyeongtaek, SK	Mix	1H24	2026?
Samsung	Fab S5	P4 ph4	Pyeongtaek, SK	DRAM 1C	1H24?	4Q26/1Q27
Samsung	Fab S5	P5	Pyeongtaek, SK	Mix	3Q24	2028?
Samsung	Fab S5	P6	Pyeongtaek, SK	?	?	?
Samsung	?	?	Yongin, SK	?	2H26?	2028/29?
Micron	-	-	Boise, US	DRAM - EUV	4Q23	2H27
Micron	-	-	Hiroshima, JP	DRAM - EUV	2Q26	2028
Micron	-	P5	Tongluo, TW	DRAM	3Q26	2H27
Micron	-	-	Clay, US	DRAM - EUV	1Q26	2029?
Micron	-	-	Clay, US	DRAM - EUV	2030	2034
Micron	-	-	Clay, US	DRAM - EUV	2035	2037
Micron	-	-	Clay, US	DRAM - EUV	2039	2042
SK hynix	M15X	-	Cheongju, SK	DRAM - EUV?	2022	4Q25
SK hynix	-	-	Yongin, SK	DRAM - EUV	1Q25	3Q27
SK hynix	-	-	Yongin, SK	DRAM - EUV	?	2028?
SK hynix	-	-	Yongin, SK	DRAM - EUV	?	2028?
SK hynix	-	-	Yongin, SK	DRAM - EUV	?	2029?

Source: Barclays Research estimates, company data

The below is an extract from our report GW to WFE II (25 February 2026).

Translating compute power to wafers to WFE spend

In From GW to WFE (9 October 2025), we used rough assumptions on the GPUs needed per GW (0.4-0.5m) and DRAM content per server to calculate the implied wafer demand and WFE needed per GW. Assuming GPU and HBM and DRAM content in-line with NVIDIA's Blackwell Ultra/Rubin specs (dual die GPUs, with 288GB of HBM memory and c3TB of DRAM memory per server), we estimated to supply 1GW/month of data centre additions would require $14bn of advanced logic WFE, and $27bn of DRAM WFE.

Looking ahead

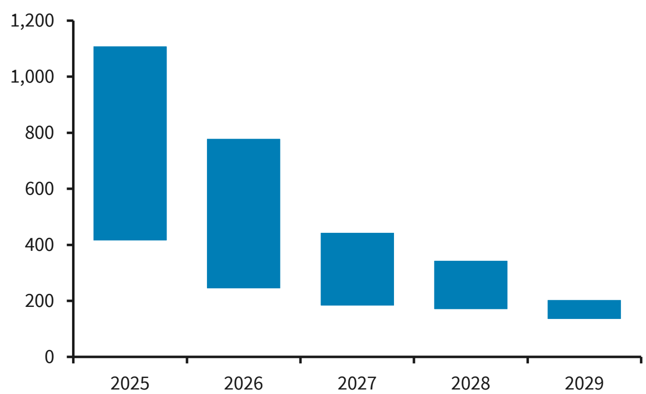
We update our work to cover a wider range of current and future rack architectures, leveraging our detailed work on the power requirements of future rack architectures (see What does a GW mean for power semis?, 5 November 2025). For instance, if Rubin Ultra racks require 600kW of power and contain 144 GPUs (4 chips, so twice as big as Rubin/Blackwell), then 'only' c200k GPUs would be required per GW of hardware capacity after accounting for power usage effectiveness (PUE, see Powering AI: Meta's energy disclosure signals no slowing down, 17 September 2025).

We also include content per GW for other rack architectures, such as from the major hyperscaler ASIC programmes. We estimate rack power, and silicon, HBM and non-HBM DRAM content per rack for each programme. We find that on average other rack architectures consume more logic wafers per GW, but fewer DRAM wafers per GW compared to NVIDIA, though it fluctuates by rack generation and by provider. For example Nvidia's logic wafer consumption per GW is the highest when Rubin Ultra is introduced. Although a smaller contributor, we now also include the leading-edge content from networking and data processing chips (e.g. NVIDIA Bluefield, see SK hynix: More to go, 14 January 2026).

How is content per GW evolving?

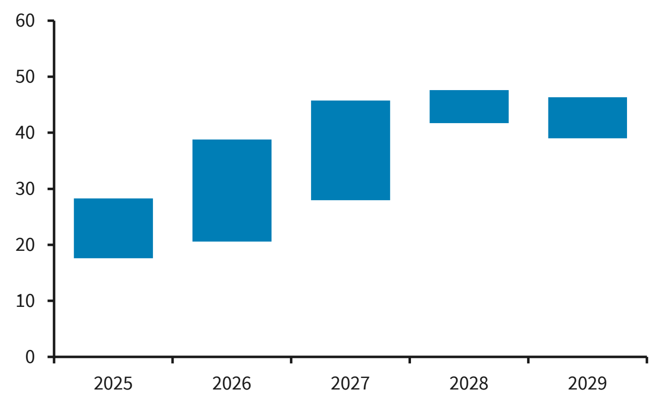
We see GPU/ASIC counts per GW declining over time. Firstly GPU/ASICs are getting bigger, for instance NVIDIA's Hopper GPU had a single die (reticle-limit, which means the largest a chip can be using current manufacturing processes), Blackwell is twice the size with two dies (reticle-limit), and Rubin Ultra is set to be four times the size with four dies (reticle-limit). Secondly, more power is being drawn from other areas within a rack, for example as HBM and DRAM content increases, or networking becomes more important. This trend is seen consistently across GPUs and custom ASICs.

FIGURE 25. GPUs/ASICs per GW (k)



Source: Barclays Research estimates

FIGURE 26. WFE per GW/month AI additions ($bn)

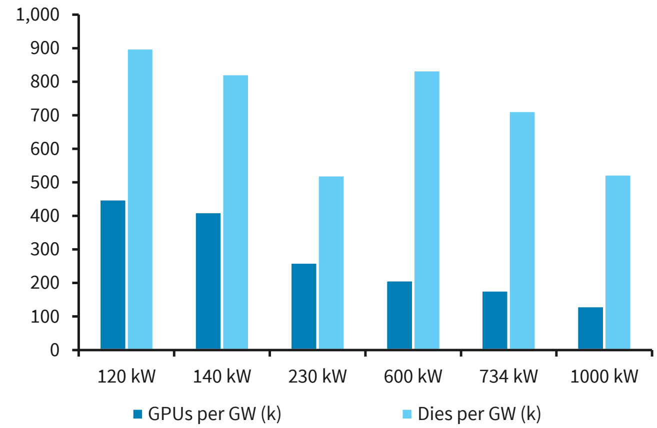


Source: Barclays Research estimates

Some generations see bigger step-downs than others. For example, in the transition from Blackwell Ultra to Rubin, rack power is expected to increase c60%, but the number of chips per rack and size of chips stay the same, hence we see a step-down in both GPUs and dies per GW. This is less pronounced at the Rubin Ultra transition however, where rack power increases are expected to be c160%. The reason for such an increase is due to the number of dies (chips) in a GPU doubling and the number of GPUs in a rack doubling. We see similar transitions at other rack providers.

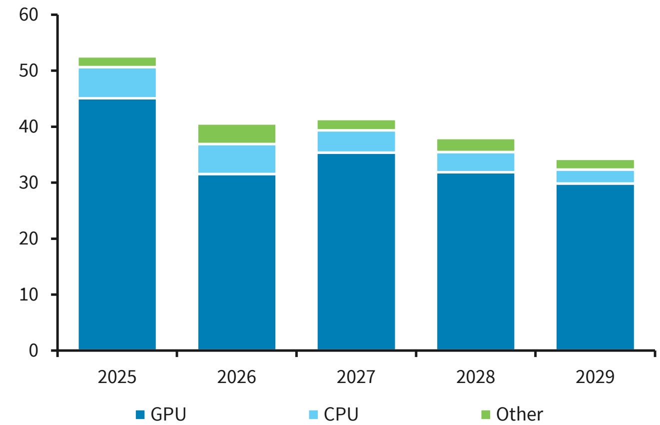
This cumulates to a broadly flat trend in advanced logic wafer starts needed per GW, as shown in Figure 28, although we expect these wafer starts to continue to migrate to more advanced nodes, mainly for power efficiency benefits, and this assumes no major change in architecture (e.g. stacking, see later).

FIGURE 27. GPUs per GW/month by rack architecture (units)



Die = reticle limit die
Source: Barclays Research estimates

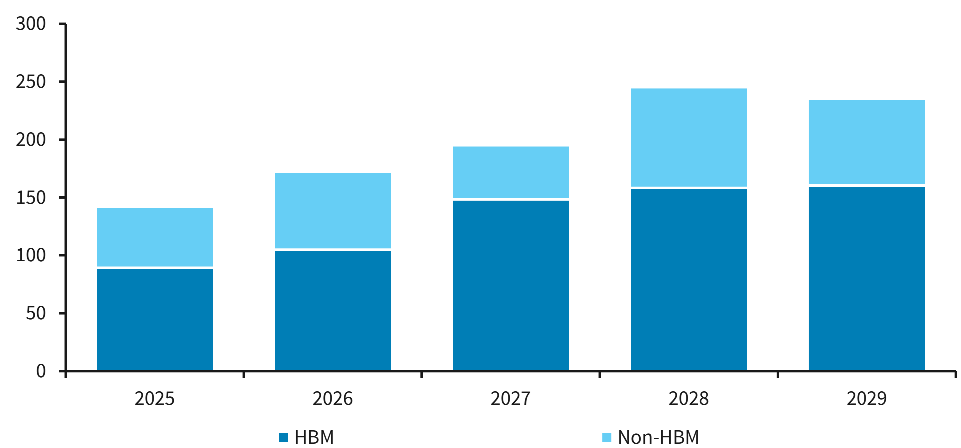
FIGURE 28. Average advanced logic wafers needed per GW/month (k, wafer starts per month)



Average across all rack architectures over time
Source: Barclays Research estimates

However, DRAM (memory) content is increasing faster than rack power in most new generations of data centre racks, driven by both HBM and non-HBM DRAM. As outlined in From GW to WFE (9 October 2025), NVIDIA is increasing DRAM content per rack by 12x from Blackwell to Rubin Ultra vs power per rack increasing 5x. Within this, HBM per rack increases from c13TB to c150TB, and conventional DRAM from c17TB to c215TB. We also see similar trends in other rack architectures, with DRAM content growth outstripping power per rack increases as the importance of memory increases. This culminates in an increasing trend in DRAM wafer starts needed per GW, as shown in Figure 17.

FIGURE 29. Average DRAM wafers needed per GW/month (k, wafer starts per month)



Average across all rack architectures over time
Source: Barclays Research estimates

Translating to WFE

We estimate this translates to between c$20-40bn of WFE to support a rate of 1GW/month of data centre capacity additions in 2026. Within the mix, we estimate c$10-20bn in advanced logic WFE spend and $10-20bn in DRAM WFE in 2026.

Looking at future rack architectures, we see this increasing to c$40-50bn in 2028. Advanced logic WFE per GW stays stable as node transitions offset declines in wafers per GW. DRAM increases materially, peaking at $28-36bn WFE per GW in 2028, as DRAM content increases per GW paired with node transitions.

As in From GW to WFE (9 October 2025), we convert our wafer estimates to WFE spend, calculating implied spend for lithography tools using our EUV model, and grossing this up to total WFE.

FIGURE 30. **What data centre capacity additions could imply for GPUs/wafer demand/WFE per 1GW**

	2025	2026	2027	2028	2029
GPUs/ASICs per GW (k)					
Low	411	240	179	166	131
High	1,113	783	448	347	208
Average	*748*	*492*	*278*	*233*	*157*
Logic wafer starts per month (k)					
Low	35	28	28	28	19
High	72	65	52	52	43
Average	*53*	*41*	*41*	*38*	*31*
DRAM wafer starts per month (k)					
Low	91	111	99	186	179
High	217	220	298	325	327
Average	*142*	*172*	*195*	*245*	*235*
Logic WFE ($bn)					
Low	6.7	10.2	10.9	10.2	6.8
High	20.8	21.6	17.4	17.0	14.7
Average	*12.3*	*14.5*	*14.4*	*13.3*	*11.1*
DRAM WFE ($bn)					
Low	7.5	10.4	11.4	27.7	26.4
High	15.2	17.1	28.4	35.7	39.5
Average	*10.7*	*14.0*	*20.4*	*31.6*	*30.3*
Total WFE ($bn)					
Low	17.6	20.6	28.0	41.7	39.0
High	28.3	38.8	45.8	47.6	46.3
Average	*23.0*	*28.5*	*34.8*	*45.0*	*41.4*

Source: Barclays Research estimates

Drivers of further upside

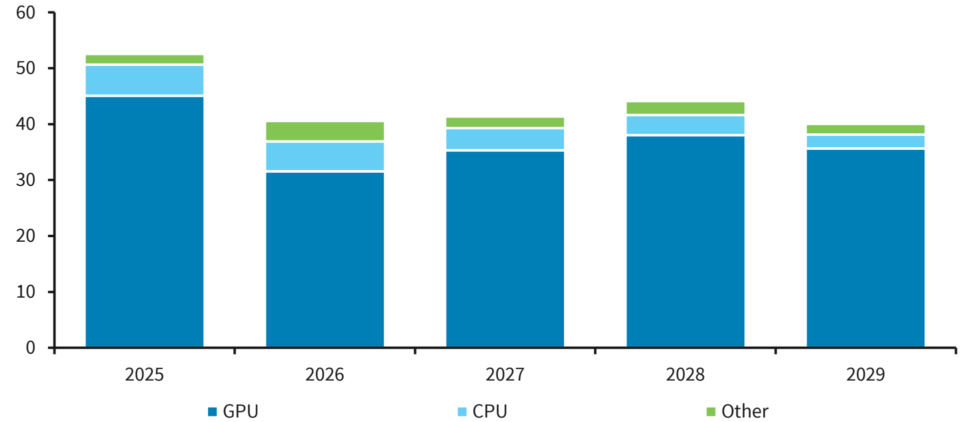
The disaggregation of inference compute could drive upside to our forecasts for advanced logic. As we explored in What if semis... (26 January 2026), the memory-intensive decode stage of inference could lead to a scenario where inference chips become more SRAM heavy through 3D stacking (SRAM is a type of memory that uses logic manufacturing process). This would likely lead to increased demand for leading-edge wafers by increasing the amount of leading-edge silicon area needed per chip. For now, we would assume it doesn't impact DRAM demand as the purpose of SRAM stacking would be to accelerate inference.

AMD has already introduced SRAM stacking in a variety of its products through its 3D V-Cache line of CPUs, where extra L3 cache chips are hybrid bonded on top of its chips. If we assume a scenario where the GPU market becomes more tiered and that 20% of GPUs per GW embrace stacked SRAM architectures, then this could increase advanced logic wafer starts by c17%

assuming SRAM is stacked across the whole logic die. This is purely a guess on our part at this stage but we show it for illustrative purposes given we have seen schematics from leading foundries suggesting such architectures could be on the way.

Incorporating this scenario into our forecasts, we could see WFE for advanced logic increase to c$13-16bn per GW/month of additions, taking total WFE spend per GW to c$43-48bn in 2028.

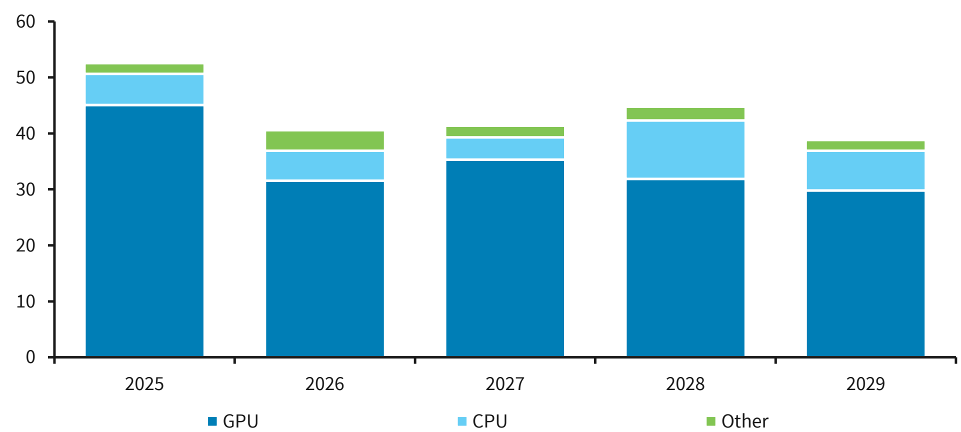
FIGURE 31. Average advanced logic wafers needed per GW/month, assuming 20% of GPUs/ASICs use SRAM stacking from 2028 (k, wafer starts per month)



Source: Barclays Research estimates

The adoption of agentic AI could increase CPU attach rates in AI servers as well, as CPUs play a larger role in agent orchestration, potentially leading to upside to our estimates. We note this is somewhat reflected in NVIDIA's roadmap, with Rubin Ultra racks featuring a 1:1 GPU to CPU ratio in its racks (2 GPUs, 2 CPUs per compute tray), but attach rates in hyperscaler and other GPU architectures are currently lower, with most using 1 CPU for every 4 GPUs/ASICs. If attach rates were to increase to 2:1, then our average leading-edge wafers starts per GW would increase by c5-10%, and logic WFE also by c5-10%, reaching c$42-48bn by 2028.

FIGURE 32. Average advanced logic wafers needed per GW/month, assuming 1:1 ratio of GPUs/ASICs to CPUs from 2028 (k, wafer starts per month)



Source: Barclays Research estimates

Changes to estimates and forecasts

FIGURE 33. ASML forecast changes summary

	New			Old			% Change		
EUR M, Dec FY	2026E	2027E	2028E	2026E	2027E	2028E	2026E	2027E	2028E
Net bookings value	36,278	43,425	46,104	33,778	37,924	38,005	7%	15%	21%
Total revenue	39,545	49,842	56,464	39,385	47,342	50,230	0%	5%	12%
Adjusted gross profit	20,818	26,778	31,596	20,728	25,686	27,859	0%	4%	13%
Adjusted gross margin	52.6%	53.7%	56.0%	52.6%	54.3%	55.5%	0.0pp	-0.5pp	0.5pp
Operating income	14,530	19,700	23,127	14,426	18,443	20,073	1%	7%	15%
Operating margin	36.7%	39.5%	41.0%	36.6%	39.0%	40.0%	0.1pp	0.6pp	1.0pp
Adjusted operating income	14,530	19,700	23,127	14,426	18,443	20,073	1%	7%	15%
Adjusted operating margin	36.7%	39.5%	41.0%	36.6%	39.0%	40.0%	0.1pp	0.6pp	1.0pp
EBITDA	15,577	20,897	24,546	15,355	19,653	21,531	1%	6%	14%
- margin	39.4%	41.9%	43.5%	39.0%	41.5%	42.9%	0.4pp	0.4pp	0.6pp
EBITDA - adjusted	15,577	20,897	24,546	15,355	19,653	21,531	1%	6%	14%
- margin	39.4%	41.9%	43.5%	39.0%	41.5%	42.9%	0.4pp	0.4pp	0.6pp
Net income - reported	12,413	16,766	19,592	12,349	15,679	17,011	1%	7%	15%
Net income - adj	12,413	16,766	19,592	12,349	15,679	17,011	1%	7%	15%
Operating FCF	10,461	12,416	15,400	8,978	11,864	15,031	17%	5%	2%
Cash at end of period	15,348	18,983	24,783	12,664	15,252	20,714	21%	24%	20%
DPS	8.4	9.3	10.2	8.4	9.3	10.2	0.0%	0.0%	0.0%
EPS diluted - reported	32.3	44.0	51.8	32.2	41.5	45.7	0.4%	6.0%	13.3%
EPS diluted - adj	32.3	44.0	51.8	32.2	41.5	45.7	0.4%	6.0%	13.3%

Source: Barclays Research estimates, company data

FIGURE 34. Summary of ASML drivers

EUR M, Dec FY	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E
Shipment units											
Dry Systems	159	186	224	271	245	148	226	205	215	215	215
ArF immersion	68	81	81	125	129	131	119	130	130	130	120
EUV	31	42	40	53	42	44	60	90	100	96	90
EUV High NA	0	0	0	0	2	4	5	5	5	8	15
Shipment revenue											
Dry Systems	1,576	1,877	2,481	3,243	3,147	1,791	3,045	2,718	2,932	2,985	3,039
ArF immersion	3,913	5,001	5,232	9,057	9,689	10,222	9,704	10,660	10,873	11,091	10,442
Total DUV	5,489	6,878	7,714	12,300	12,836	12,013	12,749	13,378	13,806	14,076	13,481
EUV	4,494	6,267	7,079	9,090	7,823	10,467	14,294	22,900	27,800	27,840	26,100
EUV High NA	0	0	0	0	500	1,185	1,875	1,875	2,000	3,200	6,300
Total EUV	4,494	6,267	7,079	9,090	8,323	11,652	16,169	24,775	29,800	31,040	32,400
Net bookings value	11,292	26,240	30,674	20,040	18,899	28,034	36,278	43,425	46,104	36,885	32,785
Backlog value	10,326	22,913	40,400	38,501	35,632	38,800	45,237	49,494	50,877	41,418	26,972

Source: Barclays Research estimates, company data

FIGURE 35. ASML P&L

EUR M, Dec FY	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E
Net system sales	10,317	13,653	15,430	21,939	21,769	24,474	29,841	39,168	44,722	46,343	47,231
Net service & field option sales (IBM)	3,662	4,958	5,743	5,620	6,494	8,193	9,704	10,675	11,742	11,742	12,329
Total net sales	13,978	18,611	21,173	27,559	28,263	32,667	39,545	49,842	56,464	58,086	59,561
- growth y/y	18%	33%	14%	30%	3%	16%	21%	26%	13%	3%	3%
Total cost of sales	-7,181	-8,802	-10,473	-13,422	-13,771	-15,409	-18,728	-23,065	-24,868	-25,446	-25,961
Gross profit	6,797	9,809	10,700	14,136	14,492	17,258	20,818	26,778	31,596	32,640	33,600

- Gross margin	48.6%	52.7%	50.5%	51.3%	51.3%	52.8%	52.6%	53.7%	56.0%	56.2%	56.4%
Research & development expense, net	-2,201	-2,547	-3,254	-3,981	-4,304	-4,699	-4,943	-5,433	-6,493	-6,970	-7,326
- % of revenue	-15.7%	-13.7%	-15.4%	-14.4%	-15.2%	-14.4%	-12.5%	-10.9%	-11.5%	-12.0%	-12.3%
Selling, general & administrative costs	-545	-726	-946	-1,113	-1,166	-1,258	-1,345	-1,645	-1,976	-2,033	-2,085
- % of revenue	-3.9%	-3.9%	-4.5%	-4.0%	-4.1%	-3.9%	-3.4%	-3.3%	-3.5%	-3.5%	-3.5%
Other income	0	214	0	0	0	0	0	0	0	0	0
Operating income - reported	4,051	6,750	6,501	9,042	9,023	11,302	14,530	19,700	23,127	23,636	24,190
- % of revenue	29.0%	36.3%	30.7%	32.8%	31.9%	34.6%	36.7%	39.5%	41.0%	40.7%	40.6%
Operating income - recurring	4,051	6,750	6,501	9,042	9,023	11,302	14,530	19,700	23,127	23,636	24,190
- % of revenue	29.0%	36.3%	30.7%	32.8%	31.9%	34.6%	36.7%	39.5%	41.0%	40.7%	40.6%
Interest income / (expense), net	-35	-45	-45	41	20	105	165	239	217	304	395
Income (loss) before income tax	4,017	6,706	6,456	9,084	9,042	11,406	14,695	19,939	23,344	23,940	24,585
Provision for income tax	-552	-1,021	-970	-1,436	-1,681	-2,013	-2,498	-3,390	-3,968	-4,070	-4,179
- effective tax rate	-13.7%	-15.2%	-15.0%	-15.8%	-18.6%	-17.7%	-17.0%	-17.0%	-17.0%	-17.0%	-17.0%
Net income (loss) - reported	3,554	5,883	5,624	7,839	7,572	9,609	12,413	16,766	19,592	20,087	20,622
Net income (loss) - recurring	3,554	5,883	5,624	7,839	7,572	9,609	12,413	16,766	19,592	20,087	20,622
EPS - basic	8.49	14.38	14.14	19.91	19.25	24.73	32.31	43.99	51.84	53.70	55.76
EPS - reported, diluted	8.47	14.36	14.13	19.89	19.24	24.71	32.28	43.96	51.80	53.66	55.71
EPS - recurring, diluted	8.48	14.37	14.13	19.89	19.24	24.71	32.28	43.96	51.80	53.66	55.71
Dividend per share	2.40	5.50	5.80	6.10	6.40	7.50	8.40	9.29	10.22	11.24	5.58

Source: Barclays Research estimates, company data

FIGURE 36. ASML cash flow

EUR M, Dec FY	2020	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E
Net income (loss)	3,554	5,883	5,624	7,839	7,572	9,609	12,413	16,766	19,592	20,087	20,622
Depreciation & amortisation	491	471	584	740	919	1,026	1,047	1,197	1,419	1,629	1,824
Impairment charges	3	0	39	38	36	50	1	0	0	0	0
Loss (gain) on disposal of PP&E	3	-230	0	0	0	0	0	0	0	0	0
Share-based payments	54	118	69	135	173	202	223	245	269	296	326
Allowance for obsolete inventory	192	181	279	485	555	469	80	0	0	0	0
Deferred income taxes / other	-200	-470	-549	-129	-140	275	-155	0	0	0	0
Changes in working capital:											
Accounts receivable	477	-1,718	-2,296	990	-143	1,455	-932	-1,030	-662	-162	-148
Inventories	-760	-610	-2,021	-1,651	-2,041	-538	-1,948	-3,098	-2,654	-445	-396
Other assets	-1,094	1,526	1,072	-1,294	461	-4,103	480	0	0	0	0
Accrued liabilities	1,909	5,695	5,686	-1,709	3,777	4,213	2,100	1,327	542	811	738
Cash flow from operations	4,628	10,846	8,487	5,443	11,166	12,659	13,308	15,407	18,506	22,216	22,966
Purchases of property, plant & equipment	-962	-901	-1,282	-2,156	-2,067	-1,574	-2,847	-2,991	-3,106	-3,195	-3,276
Purchase of intangible assets	-39	-40	-38	-41	-16	-58	-45	-45	-50	-50	-50
Acquired financial assets	-116	539	530	102	0	-401	0	0	0	0	0
Repayment on loans	-12	0	-240	-562	-526	-444	-64	0	0	0	0
Acquisition of subsidiaries (net of cash)	-223	329	0	-34	0	0	0	0	0	0	0
Net cash from investing	-1,352	-72	-1,029	-2,689	-2,609	-3,778	-2,958	-3,036	-3,156	-3,245	-3,326
Purchase of treasury shares	-1,208	-8,560	-4,640	-1,000	-500	-5,950	-4,313	-5,500	-6,000	-9,000	-9,500
Net proceeds shares & stock options	38	49	82	99	124	142	142	142	142	142	142
Dividends paid	-1,066	-1,368	-2,560	-2,348	-2,453	-2,550	-3,058	-3,379	-3,693	-4,029	-4,386
Issuance and/or (repayment) of debt	1,483	-12	-21	245	-3	-313	-693	0	0	0	0
Net cash from financing	-753	-9,892	-7,138	-3,004	-2,832	-8,671	-7,921	-8,736	-9,551	-12,887	-13,744
FX gains / (losses) on cash	-5	20	-3	-14	6	-30	3	0	0	0	0
Net increase / (decrease) in cash	2,517	902	316	-264	5,731	180	2,432	3,635	5,800	6,085	5,896
Cash & equivalents at beginning of period	3,532	6,049	6,952	7,268	7,005	12,736	12,916	15,348	18,983	24,783	30,867
Cash & equivalents at end of period	6,049	6,952	7,268	7,005	12,736	12,916	15,348	18,983	24,783	30,867	36,764

Source: Barclays Research estimates, company data