

ams

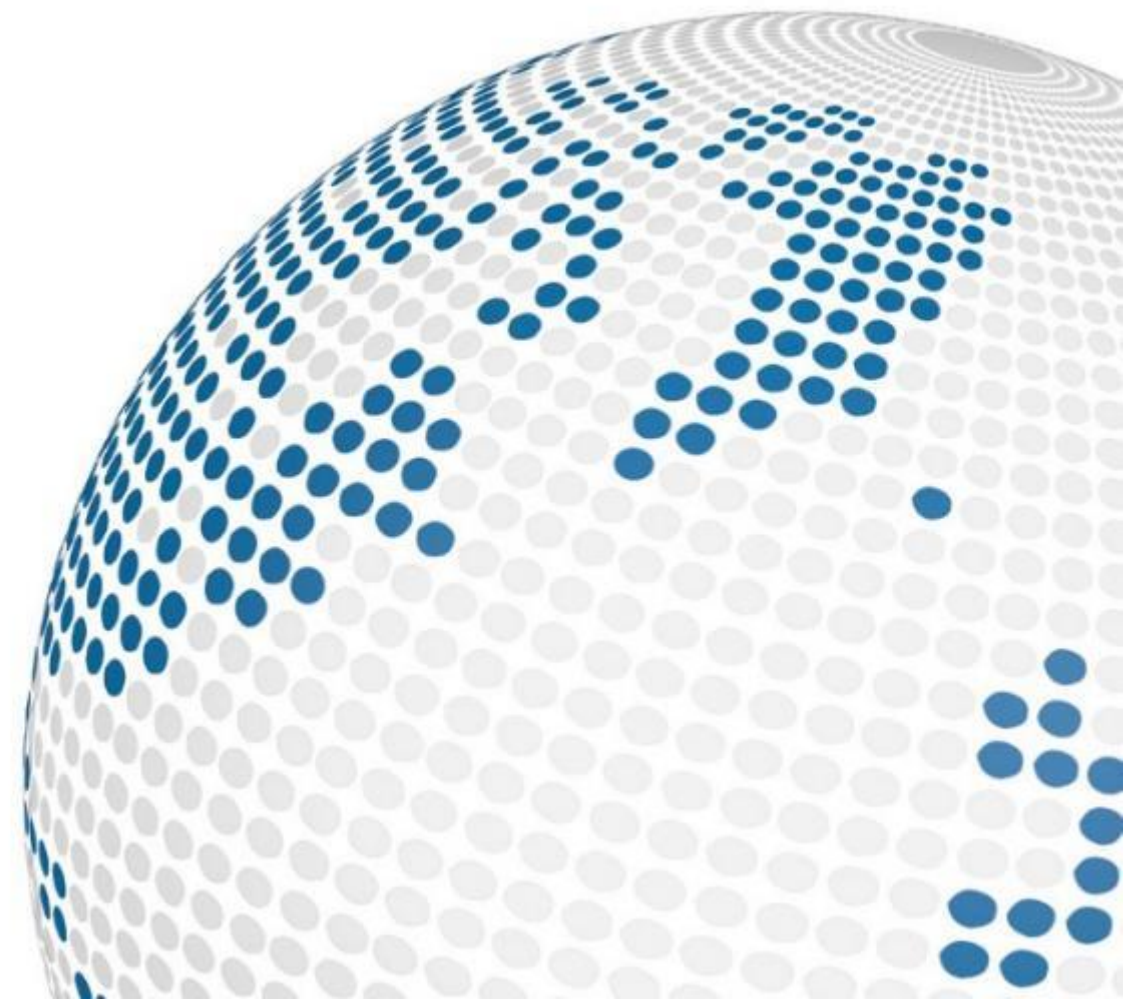
Third quarter results 2020

Alexander Everke, CEO

Ingo Bank, CFO

Moritz M. Gmeiner, Head of IR

November 2020



Vision for ams/OSRAM

Create the uncontested leader in optical solutions

Sensing



Illumination



Visualization



Build the leading portfolio in optical solutions

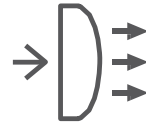
Strength across the full range of key solution components

Emitters



- LEDs
- μ LED
- VCSELs/EELs
- Lamps

Optical components + micro-modules



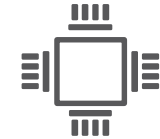
- Optical elements: Lenses, light guides, DOEs
- Micro-optical packaging
- Optical modules

Detectors



- Light sensors
- Bio-sensors
- Image sensors

Integrated circuits + algorithms



- Emitter driver ICs
- Sensor interfaces
- Sensor processors (incl. algorithms)

Key solution components

Micro-optical/optical solutions + lamps (modules)

Target applications

Sensing



Illumination



Visualization



Create the uncontested leader in optical solutions



Innovation + leadership

Pursue real innovation and market leadership in key optical components (emitters, optics, detectors, ICs, algorithms)

Micromodule + module solutions

Develop optical micromodule/module solutions for growth applications in sensing, illumination, visualization

Diversified business

Drive diversified business with balanced application mix and broad customer portfolio

Co-operation

Work with innovation leaders in each area, then roll out to broader customer base

In-house manufacturing

Focus in-house manufacturing on process steps driving product differentiation

M&A

Accelerate the implementation of our strategy through M&A

Leading financial performance

Deliver excellent financial performance in revenue growth and profitability

Strategic position to benefit from growth trends

Key technology trends driving the sensing market

Next generation displays	Autonomous driving	Digital automotive lighting	Next generation imaging	Bio-sensing	Industrial IoT	In-cabin sensing (ICS) / HMI
<ul style="list-style-type: none">▪ μLED displays with full sensor-display integration▪ Smart watches, mobile devices, smart home and building, in-car displays and HABA/Industrial	<ul style="list-style-type: none">▪ LIDAR solutions with VCSEL- and EEL-based offering▪ Leveraging front and rear lighting systems as LIDAR/sensor hubs	<ul style="list-style-type: none">▪ Miniaturized light projectors for exterior and interior lighting solutions	<ul style="list-style-type: none">▪ Ultra small wafer-level cameras for AR/VR glasses▪ Heads-up displays in Automotive	<ul style="list-style-type: none">▪ Bio-sensing using mid-IR tunable laser and detector▪ Optical read-out for Lateral Flow Test (LFT)▪ Take on the challenge of non-invasive glucose monitoring	<ul style="list-style-type: none">▪ Presence detection and personalization▪ Position detection▪ Smart functions	<ul style="list-style-type: none">▪ Driver monitoring including attention and health + comfort settings▪ Gesture detection and authentication

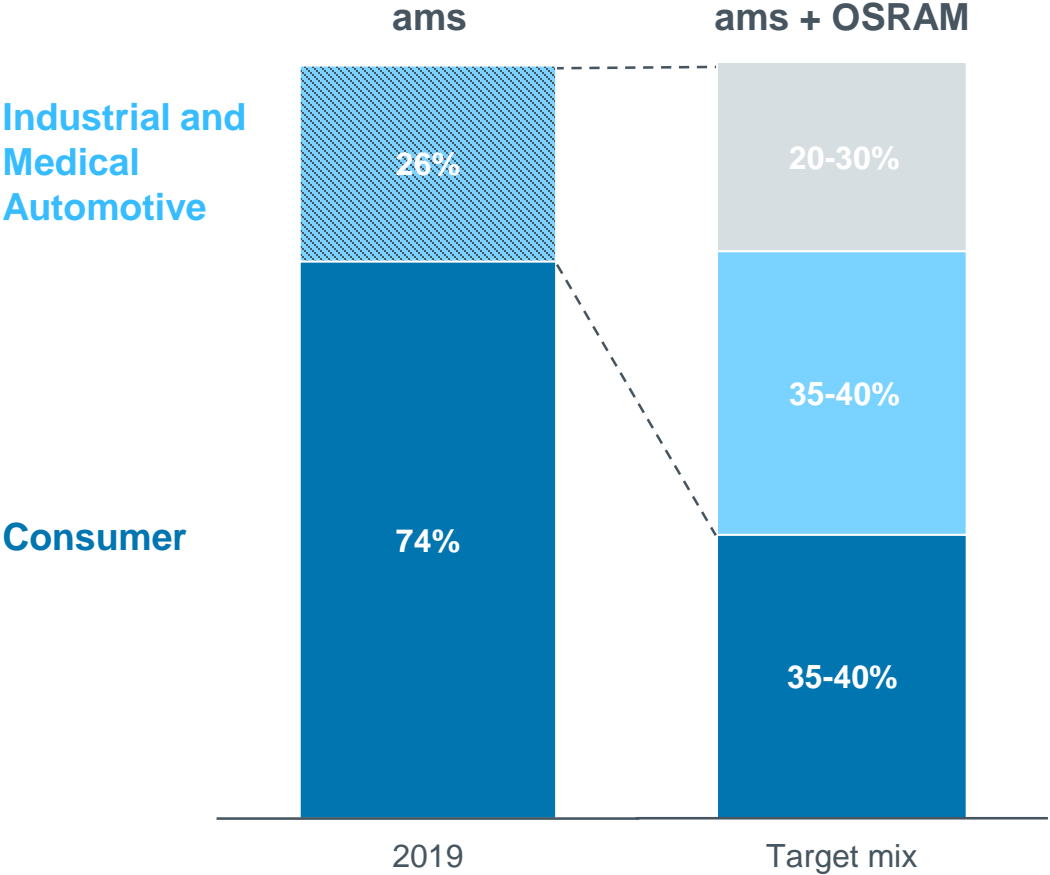


Diversified and balanced end market exposure



Well-diversified combined revenue mix

Revenue share %

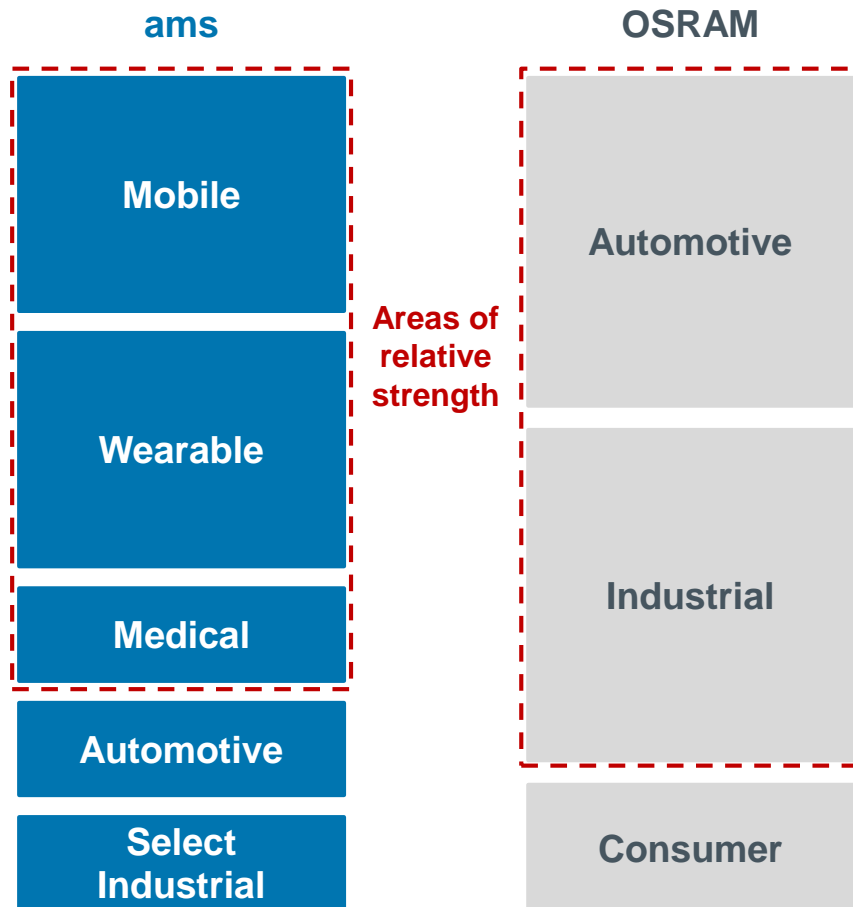


Balanced exposure and business profile

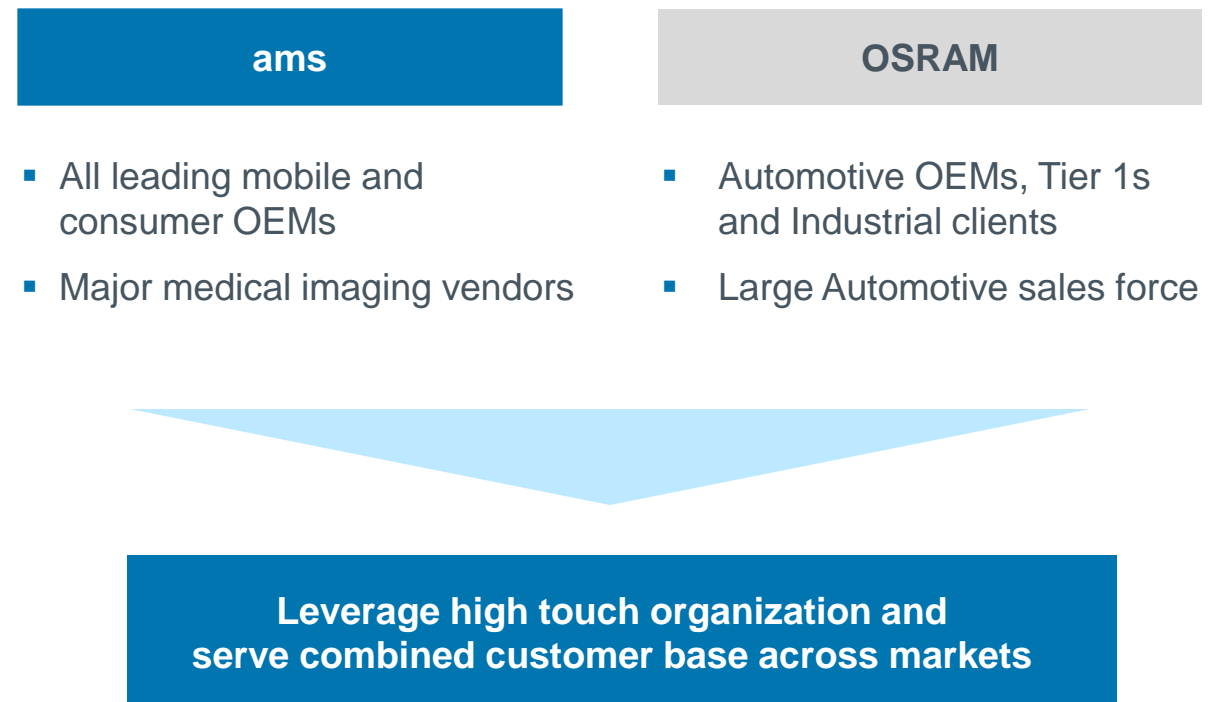
- Extensive and accelerated diversification of revenues
- Meaningful but balanced size in Automotive, focus on growth areas
- Reduced exposure to Consumer
- Driving technology-based differentiation in targeted segments

Strong relationships power combined go-to-market

Complementary go-to-market access



Extending customer reach across differentiated industries



Combined manufacturing/innovation footprint

Well-invested asset base following investment cycle: clear scale + potential for optimization



Invest and innovate in European front-end

- Consolidate front-end LED production
- Accelerate micro-LED manufacturing process development
- Meaningful expected job additions across manufacturing and engineering
- Significant capacity available for growth with limited additional capex







Optimize Asian manufacturing footprint

- Established three large scale new sites in recent years
- Assess consolidation of LED back-end production in Asia
- Explore streamlining of combined Asian manufacturing footprint
- Significant capacity available for growth with limited additional capex

● ams sites ● OSRAM sites

Tangible synergies leverage combination

Expected annual run-rate pre-tax synergies 3 years after closing¹

COGS synergies	<ul style="list-style-type: none">▪ Optimize LED front-end production▪ Assess consolidation of LED back-end production▪ Optimize ams' Asian manufacturing footprint		>EUR120m
OPEX synergies	<ul style="list-style-type: none">▪ Align corporate functions incl. marketing▪ Integrate IT functions and systems across ams and OSRAM▪ Optimize combined R&D programs		>EUR120m
Revenue synergies	<ul style="list-style-type: none">▪ Leverage complementary go-to-market strengths▪ Accelerate roadmaps in new optical solution areas		>EUR60m Longer term 

Note:

¹ Synergies based on assessment of summer 2019 with updates; run-rate synergies expected to be achieved by year 3 post closing; one-off expected integration costs of up to EUR400m

ams at a glance

(ams standalone)



Sensing is life: high performance sensor solutions for leading OEMs, focus on sensor-rich markets

Key figures

564

Revenues Q3
2020 USD m

15%

Revenue growth
QoQ

8,000

Customers

9,000

Employees

1,100

Engineers

>3,000

patents

Our markets

Consumer



Automotive, Industrial, Medical

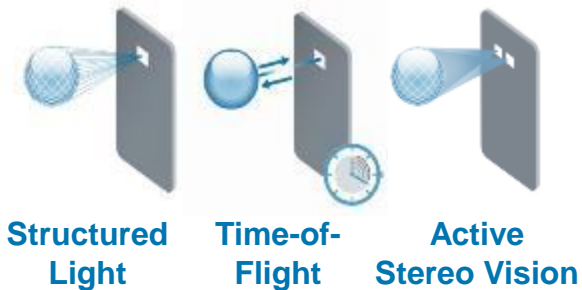


Sensing enables life

Sensors – an integral part of the digital transformation



3D sensing: leading across technologies



Leading player across 3D sensing architectures

- Industry-leading portfolio of technologies, products and IP
 - Broad coverage of all 3D architectures
 - Highly differentiated VCSEL/VCSEL array illumination
 - Outstanding portfolio in hardware, software, algorithm IP
 - High QE near-infrared global shutter image sensing
- Positioned for customer needs in all architectures:
Structured light (SL), time-of-flight (iToF and dToF), active stereo vision (ASV)

Strong position with leading expertise in SL/iToF/dToF/ASV

Industry-leading solution expertise

- Leader in system know-how for SL, iToF, dToF, ASV, front-facing/world-facing
- Strong in 3D illumination, VCSEL leader, system capability incl. NIR sensing + algorithms

Key 3D sensing player in Consumer, expanding Automotive LIDAR, early in Industrial

- High volume 3D for top consumer OEMs
- Leading position in illumination, expanding development to drive full solutions: behind-OLED 3D ASV development, 3D dToF development focus, ASV solution demos
- Automotive momentum: solid-state 3D + other LIDAR ongoing traction, in-cabin sensing
- Industrial early stage: household, growing interest in secure access

3D sensing: BOLED 3D, ASV, NIR sensing



BOLED 3D: driving 3D innovation

- Invisible front-facing 3D system
- Placing complete 3D system behind display for high security, high convenience, attractive design
- Full ASV system development progressing, driving highly efficient system architecture
- Potential to explore SL architecture in further step

**BOLED 3D
creates innovation
opportunity, ASV
with NIR sensing**



ASV leverages 3D expertise for system solution

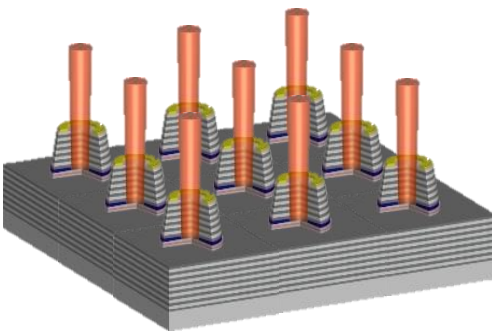
- Full 3D system capability based on leading 3D portfolio including NIR sensing
- ASV system solution: projector illumination (VCSEL, driver, optics, module), ams IP NIR sensor, software (depth mapping, biometrics)
- Target applications: Consumer 3D, Automotive 2D/3D in-cabin sensing (ICS), early Industrial



High performance near-infrared (NIR) sensing

- Ultra-sensitive ams NIR image sensing enables full solution approach
- Incorporates ams illumination expertise and core IP in global shutter technology, state-of-the-art quantum efficiency (QE) of up to 40%, partnership with SmartSens

3D sensing: dToF development, VCSELS



dToF 3D: leading expertise in innovative 3D architecture

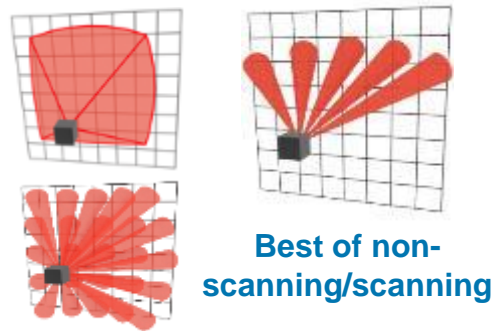
- dToF 3D: outstanding world-facing performance for longer distances and difficult light conditions, complex architecture
- dToF system development in 3D focus area
 - high performance long distance solution
 - full ams system includes VCSEL illumination, optics, high performance SPAD, related IC
- Expecting dToF to expand into major 3D market, driven by camera + AR
- OEM interest in world-facing dToF applications widening

**dToF development:
full ams solution,
3D innovation
focus**

Superior VCSEL technology as basis: high differentiation, driving 3D solutions

- Leading portfolio for illumination in all 3D architectures: iToF/dToF/SL/ASV
- Best-in-class high power VCSELS/high count VCSEL arrays:
Smallest pitch (high resolution, lower system cost), leading power efficiency (up to >60% (lab) vs. typical 45-50% quantum efficiency), best beam quality (very narrow beam divergence), true high power (from mW to W to 100+W)
- External supply chain supports high volumes, internal line automotive-qualified

3D sensing: Automotive 3D LIDAR, in-cabin



3D LIDAR: strong position in illumination technology

- Major solid-state LIDAR illumination win with Tier 1 supplier ZF + leading technology provider IBEO
- High performance true solid-state scanning: combining advantages of non-scanning/flash + mechanical/MEMS scanning
- Line-by-line addressable high power high count VCSEL array: system-level advantages across scanning architectures
- Close partnership with IBEO drives ongoing market traction, further large IBEO LIDAR illumination win in China announced in Q3
- VCSEL illumination systems for different LIDAR architectures (true solid-state, mechanical scan, flash), optional automotive eye-safety VCSEL driver

3D LIDAR ongoing momentum, market traction in in-cabin sensing

In-cabin optical sensing (ICS): sizeable emerging market, strong traction, first win/projects

- Identified applications: driver monitoring (drowsiness, distraction), driver interaction (gestures), occupant monitoring (airbag management, rear seat)
- Very good market traction given solution capability and automotive expertise
- Full 3D driver monitoring system demo for in-dashboard integration
- First 3D ToF illumination for Tier 1 supplier, ongoing development for additional projects

Optical sensing



A worldwide leader in light sensing solutions

- Leading in optical sensing: sensors, illumination solutions, high performance optical systems
- High quality optical sensing at top consumer OEMs
- Driving innovation in optical technologies
- Upcoming growth markets in Automotive + Industrial

Leadership in 3D and optical sensing for consumer and non-consumer markets



Broad portfolio: 3D sensing incl. VCSEL, display management/proximity, BOLED

- 3D sensing: leading portfolio + system expertise, all technologies, major consumer OEMs
- High performance VCSELs for 3D/optical sensing: strong in consumer, early automotive lead
- Innovative behind-OLED light/prox sensing: fast adoption, enabling BOLED 3D (development)
- Display management ALS/proximity, ultra-small proximity for wireless earbuds, camera AWB



Technology leadership for new markets: spectral sensing/bio-sensing

- Spectral sensing: innovation for bio/medical sample analysis, highly accurate optical read-out for lateral flow test (LFT), fast point-of-care diagnostics, production starting with first partner for Covid-19 antibody test

Optical sensing: BOLED sensing, spectral AWB



Behind-OLED (BOLED) light and proximity sensing

- Invisible high quality optical sensing behind OLED displays
- Complex industry-leading sensor solution: very low light levels passing through OLED (approx. 4%), proximity lighting emitted through display
- Established in major OEM Android platforms, enabling industry trend for maximum screen-to-body ratio/bezel-less designs
- Multi-generation portfolio driving performance/sensitivity, technology basis for BOLED 3D development

**BOLED adoption
in major OEM
platforms; camera
enhancing AWB**



High accuracy auto white balancing (AWB) for smartphone cameras

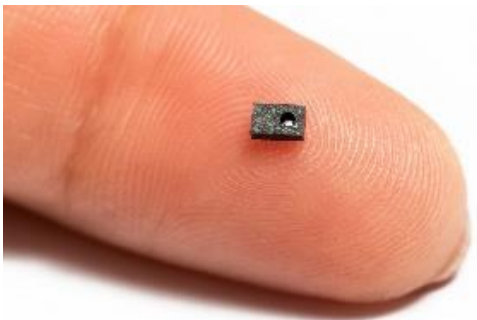
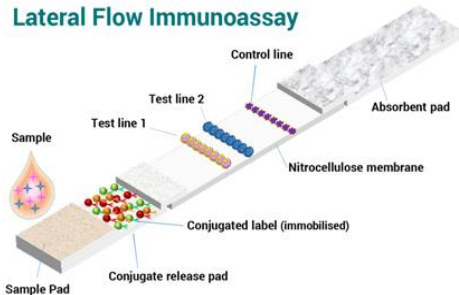
- Integrated spectral sensing solution for highly accurate AWB: 11-channel spectrum analysis of light environment and light source mix
- Correct white-point balancing helps realize best picture quality and vivid natural colors, even in high color contrast scenes
- Attractive camera enhancement, first adoption and additional traction



Optical sensing: medical LFT spectral read-out



Lateral Flow Immunoassay



Spectral sensing high accuracy read-out for medical LFT tests

- Innovative application for spectral sensing in medical lateral flow testing (LFT; established medical test method for bacteria, viruses and other medical samples)
- Unmatched technology for optical LFT read-out and analysis with very high accuracy
- Fast diagnostics at point-of-care, avoids expensive lab equipment and shipping samples
- First partnership with European test provider Senova
 - LFT for Covid-19 antibody testing
 - integrated test kit with spectral sensor + Bluetooth, to identify prior infection
 - production starting in Q4 2020
- Continued strong market interest, advanced discussions with North American partner
- LFT kit for Covid-19 antigen testing in later stage development, to identify current infection

Innovation for fast point-of-care diagnostics; Covid-19 antibody test production start in Q4

Image sensing



Leading in advanced image sensing for Industrial + Medical

- **Industrial** – Leading vendor in global shutter technology for advanced industrial applications
- High value global shutter CMOS imaging for high speed machine vision, inspection, factory automation
- **Medical** – Global leader in medical imaging sensor solutions
- High performance cost-optimized systems for computed tomography (CT) and digital X-ray: clearer images at lower radiation doses for improved diagnostics
- CT systems support Covid-19 clinical diagnostics
- NanEye micro cameras: versatile solutions ($\leq 1\text{mm}^2$), leading for next gen medical endoscopy

**Leading in
global shutter +
Medical Imaging;
Covid-19 diagnos-
tics support**

High performance high QE NIR image sensing: driving 3D system offering, promising power savings in mobile 3D systems

- Ultra-sensitive NIR sensors, state-of-the art quantum efficiency (QE) of up to 40%
- ams global shutter IP + application expertise for faster time-to-market, SmartSens partnership
- Integrating NIR sensors into 3D offering enables full ams systems
- 3D ASV full system solution demos: Automotive (driver recognition), Industrial (access)
- Enabling ASV BOLED 3D development

Audio sensing



ANC (active noise cancellation)

- Best-in-class high performance noise reduction (>40dB)
- Leading vendor, broad portfolio for wired/wireless accessories
 - significantly better audio experience
 - very low power, very small form factor
- Innovation in high quality digital ANC for loose-fitting true wireless earbuds: not requiring plug-in-type earpieces, more comfortable wear, attractive for consumers
- Augmented hearing: selective noise cancelling by-pass, e.g. for speech, customer design traction

Focus on ANC solutions, strong position in accessory market

ams hybrid volume manufacturing model



Internal: Differentiated manufacturing
Outsourced/external: Standard process manufacturing

Internal front-end wafer manufacturing, Austria

- 8" CMOS/specialty analog to 180nm, 190+k wafers p.a.
- Optical filter production

**Flexible robust
manufacturing
serving customers
in Covid-19 situation**



Internal optical manufacturing/backend + VCSEL manufacturing, Singapore

- Leading in high-performance optical system technologies
- Advanced optical assembly/backend, optical component production
- Highly efficient manufacturing operations with volume/capacity/product flexibility
- Internal VCSEL capacity: 6" 2,000 wspm line, front-end ramp

External manufacturing partnerships for scalability and flexibility

- High volume wafer suppliers (TSMC, UMC), standard and semi-custom packaging
- Outsourced VCSEL supply chain: capacity partners, serving different VCSEL needs

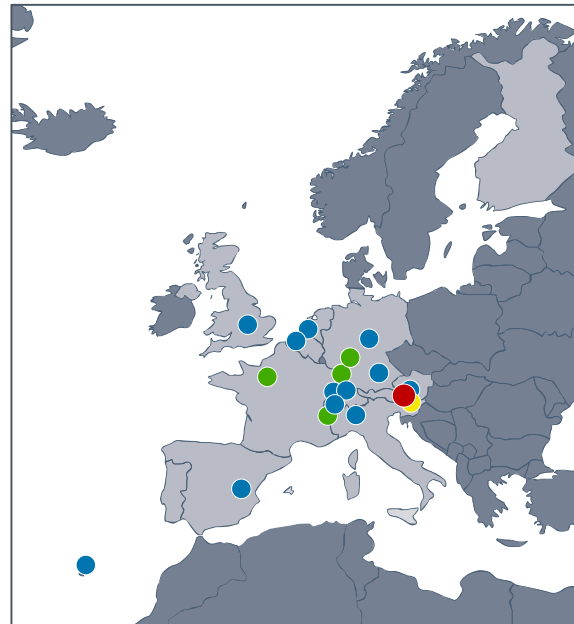
In-house test, Philippines/Singapore/Austria



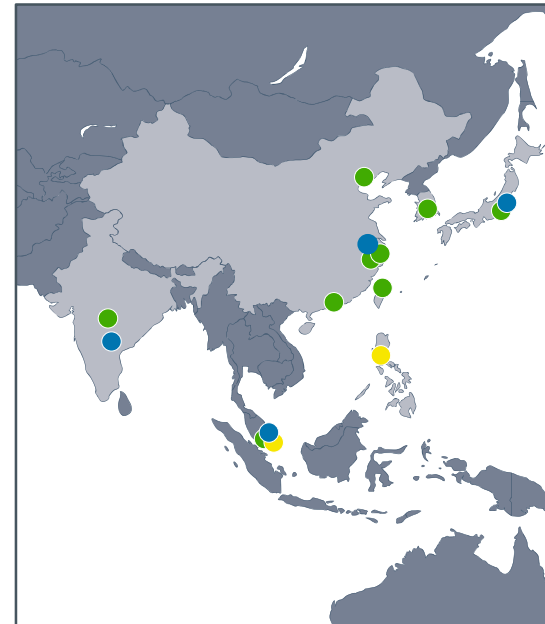
ams global network



Americas



Europe



Asia

- Headquarters
- Design/Application center
- Manufacturing/Test
- Sales/customer support locations

- **19 Design and application centers**
Austria, Belgium, China, Germany (2), Italy, India, Japan, Netherlands, Portugal, Singapore, Spain, Switzerland (3), UK, USA (3)
- **Manufacturing locations**
Austria, Singapore
- **Test centers**
Philippines, Singapore, Austria

Outlook for Q4 2020

(ams standalone)

Revenues

USD 650-690 million

+15-22% QoQ

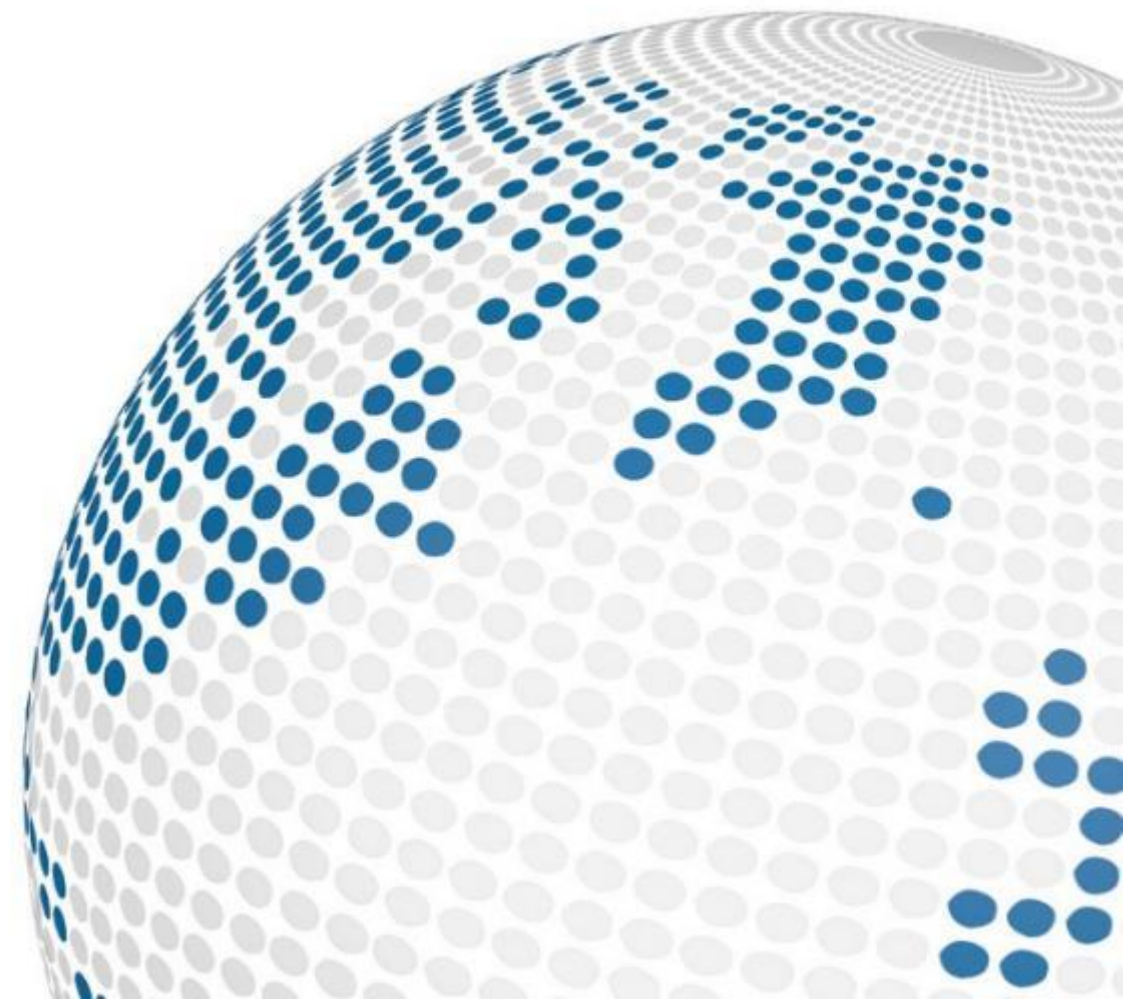
Profitability

24-27%

Adjusted EBIT margin

ams standalone

Q3 2020 financial results



Highlights – ams

Q3 2020

- ams Q3 2020 revenues and adjusted EBIT margin near/towards top end of guidance range, driven by resilient demand in ams' consumer business
- Domination and Profit and Loss Transfer Agreement (DPLTA) concluded and approved in OSRAM EGM on 3 November
- Group financials now fully consolidating OSRAM starting from Q3 2020; OSRAM shown as separate reporting segment

9M 2020

- ams revenues grew 5% year-on-year to USD 1.6bn
- Strong ams operating profitability (adj. EBIT) at USD 331m or 21% of revenues, up 350 bps year-on-year

Q4 2020

- Further robust sequential growth in Q4 2020 for ams business, continued positive momentum in consumer business
- Expected Q4 ams revenues USD 650m-690m, adj. ams EBIT margin of 24-27%

Overview key financials – ams

USDm

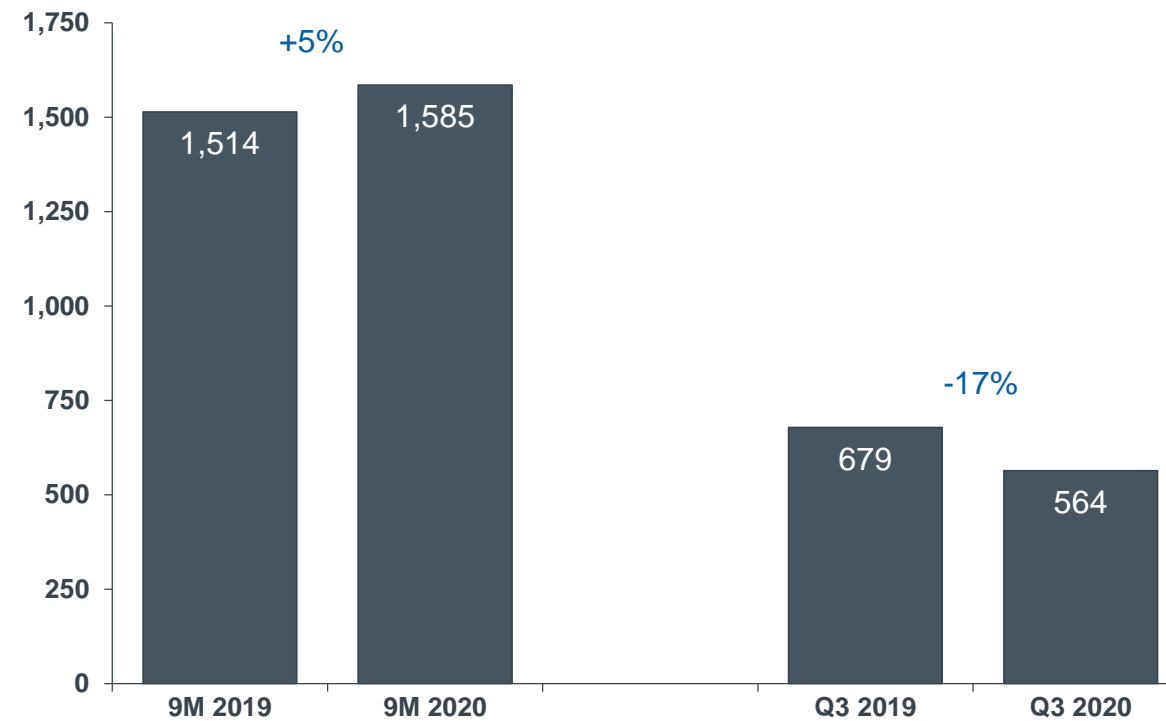
		9M 2020	9M 2019	Q3 2020	Q3 2019
Total revenues		1,585 +5%	1,514	564 -17%	679
Gross margin	(adjusted) ¹⁾	40%	39%	41%	44%
	(IFRS reported)	38%	37%	38%	42%
Result from operations (EBIT)	(adjusted) ¹⁾	331	264	128	187
	(IFRS reported)	166	172	61	154
EBIT margin	(adjusted) ¹⁾	21%	17%	23%	28%
	(IFRS reported)	10%	11%	11%	23%
Net result	(adjusted) ¹⁾	155	274	67	199
	(IFRS reported)	-10	183	0	166

¹⁾ Excl. acquisition-related, one-time restructuring and share-based compensation costs

Revenues – ams

USDm

Total revenues

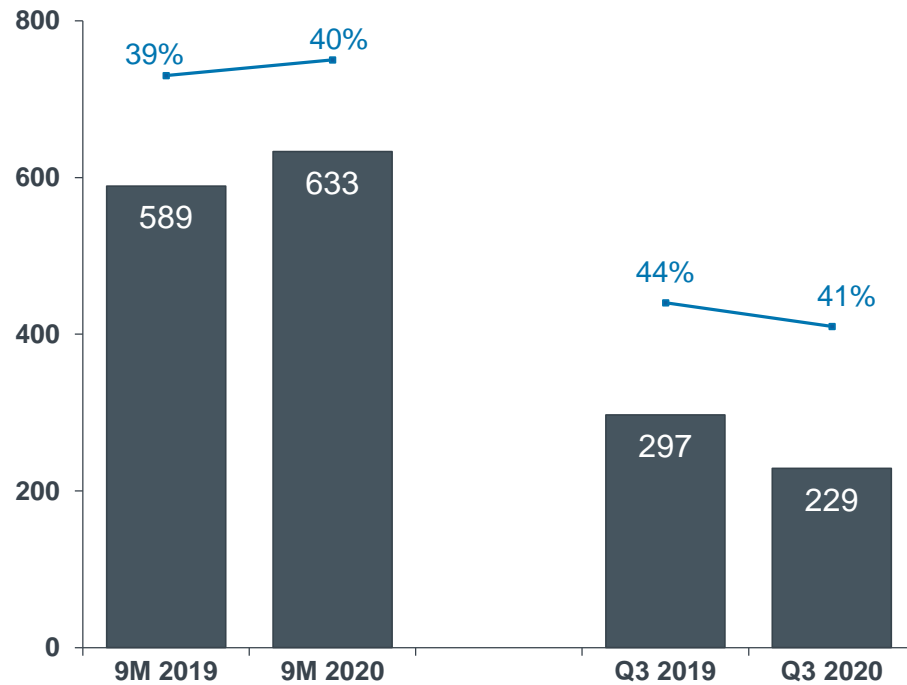


Gross profit, operating profit (EBIT) – ams

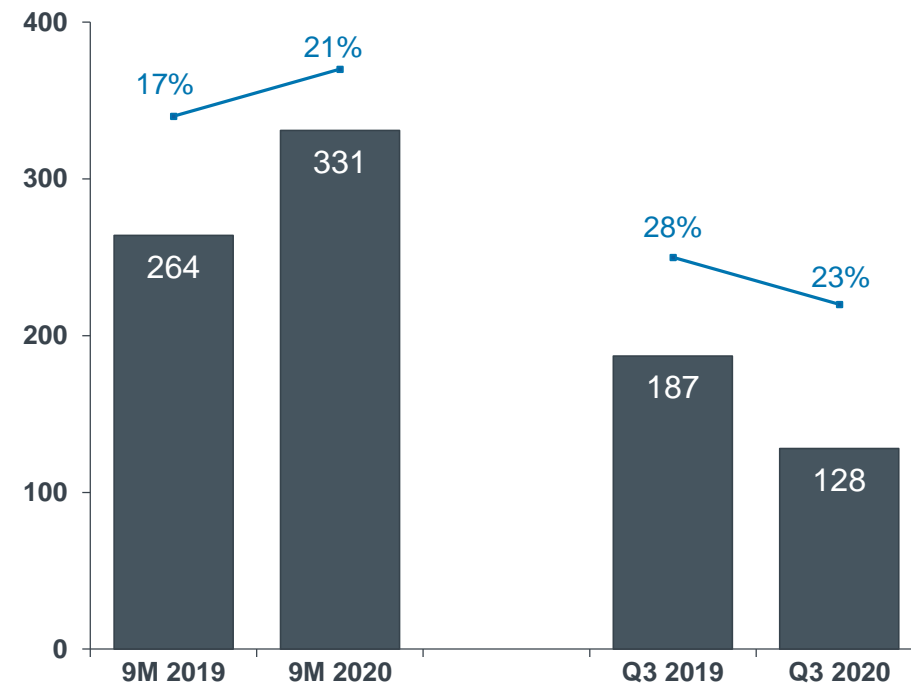
USDm, % of revenues



Gross profit, gross margin (adj.)¹⁾



EBIT, EBIT margin (adj.)¹⁾

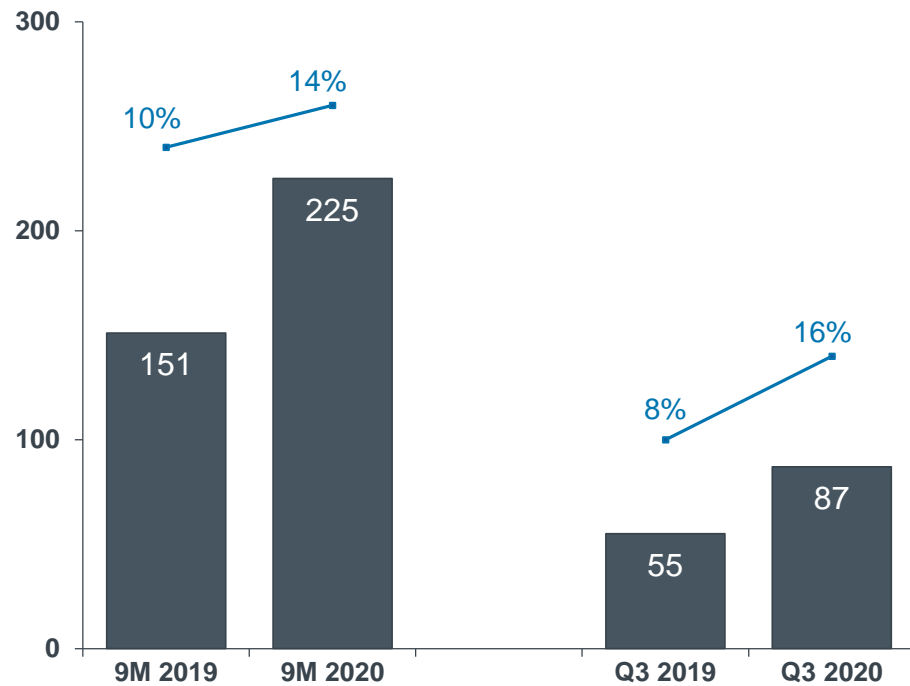


1) Excl. acquisition-related, one-time restructuring and share-based compensation costs

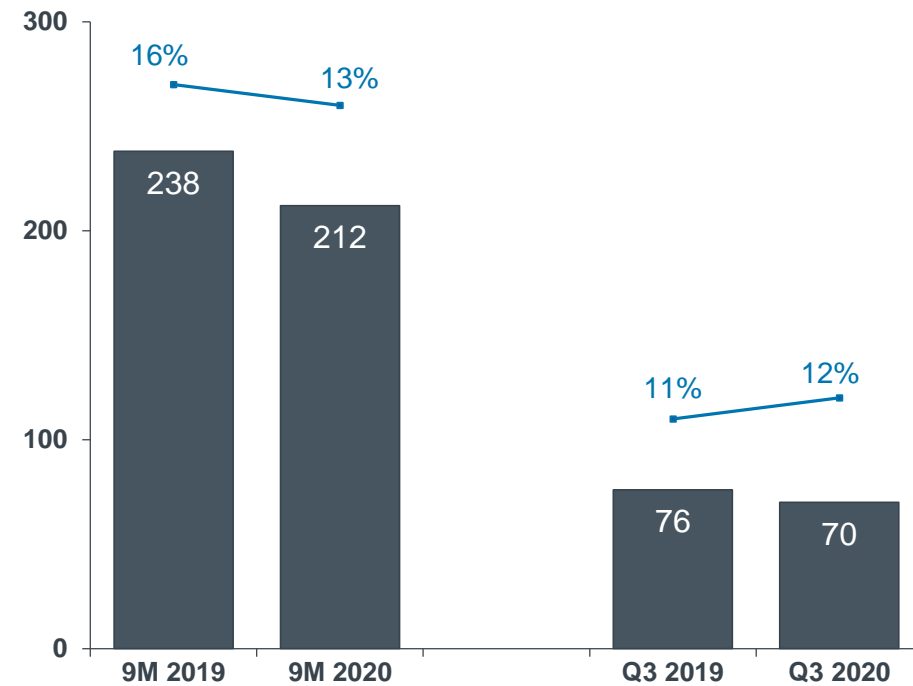
Operating expenses – ams

USDm, % of revenues

SG&A



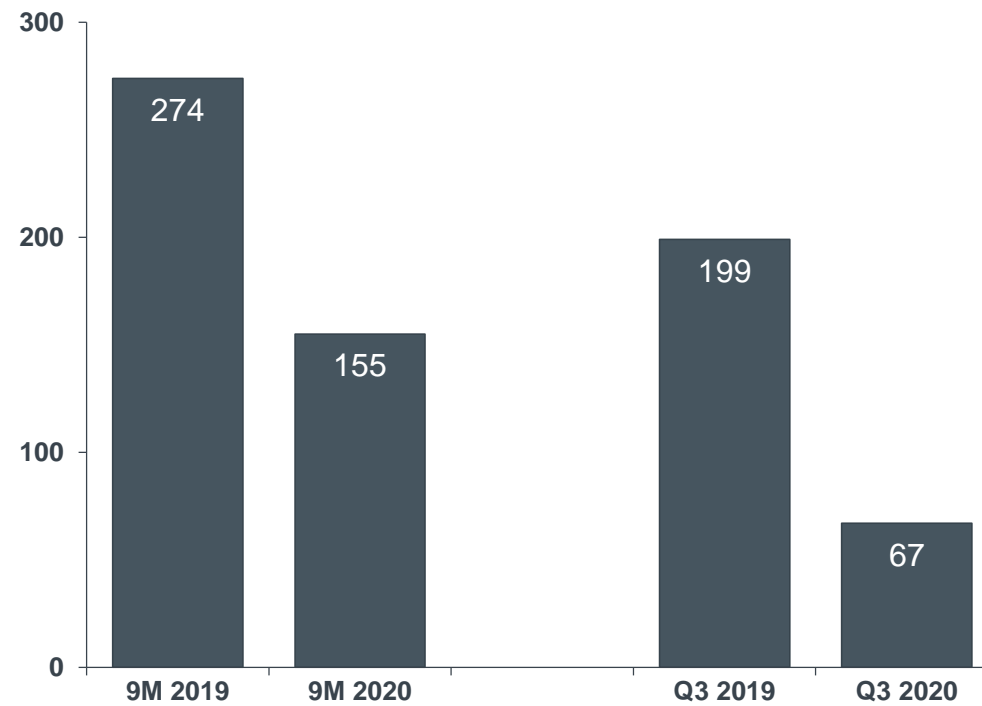
R&D



Net result – ams

USDm

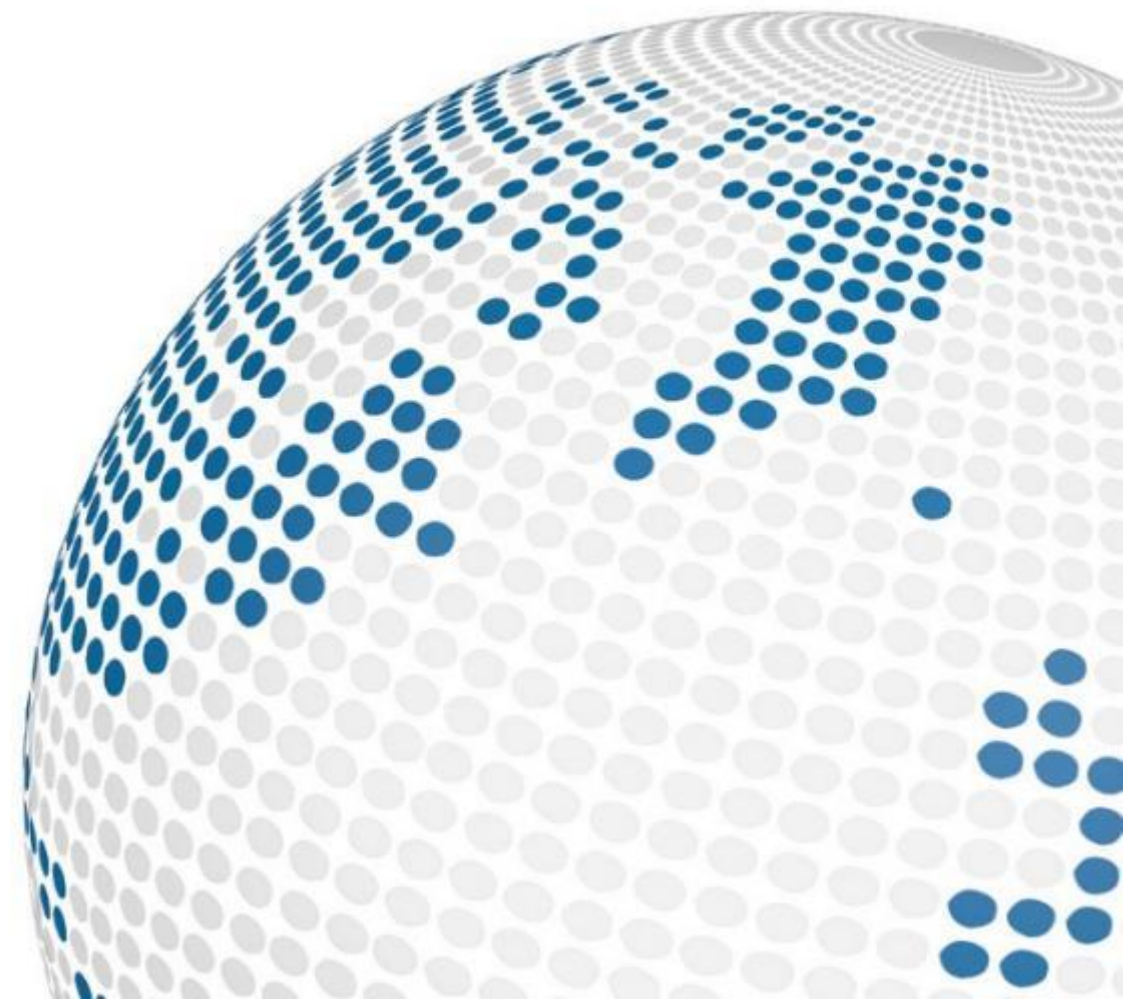
Net result (adj.)¹⁾



1) Excl. acquisition-related, one-time restructuring and share-based compensation costs

OSRAM standalone

Q3 2020 financial results



Overview key financials – OSRAM

USDm

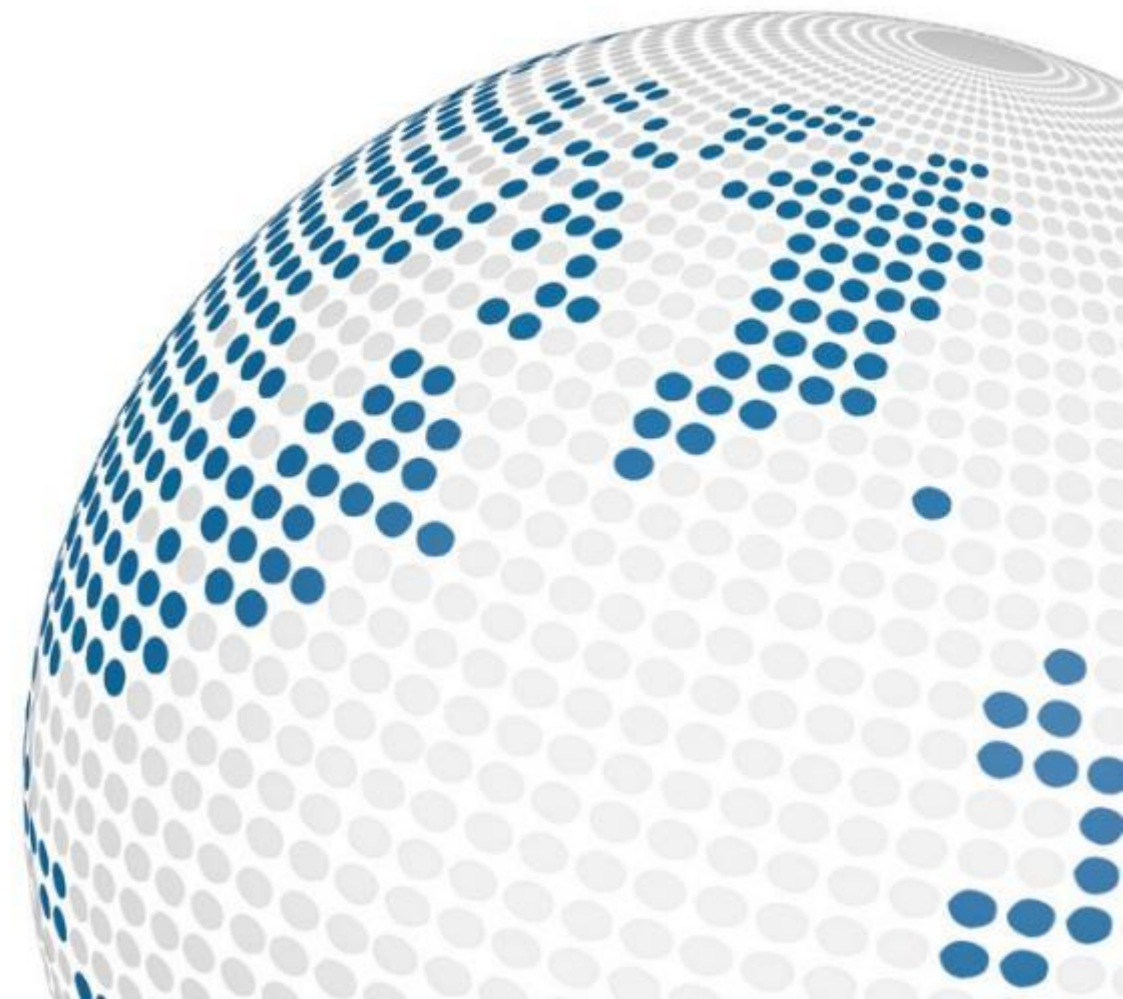


		Calendar Q3 2020
Total revenues		865
Gross margin	(adjusted) ¹⁾	18%
	(IFRS reported)	10%
SG&A		-165
	(% of revenues)	19%
R&D		-106
	(% of revenues)	12%
Result from operations (EBIT)	(adjusted) ¹⁾	-68
	(IFRS reported)	-155
EBIT margin	(adjusted) ¹⁾	-8%
	(IFRS reported)	-18%
Net result	(adjusted) ¹⁾	-57
	(IFRS reported)	-143

¹⁾ Excl. acquisition-related, one-time restructuring and share-based compensation costs

ams Group

Q3 2020 financial results



Overview key financials – ams group

USDm

			9M 2020	9M 2019	Q3 2020	Q3 2019
Total revenues			2,450 +62%	1,514	1,428 +111%	679
Gross margin	(adjusted) ¹⁾		32%	39%	27%	44%
	(IFRS reported)		28%	37%	21%	42%
Result from operations (EBIT)	(adjusted) ¹⁾		263	264	60	187
	(IFRS reported)		11	172	-94	154
EBIT margin	(adjusted) ¹⁾		11%	17%	4%	28%
	(IFRS reported)		0%	11%	-7%	23%
Net result	(adjusted) ¹⁾		98	274	11	199
	(IFRS reported)		-154	183	-143	166
EPS (basic/diluted)	(adjusted) ¹⁾	CHF ²⁾	0.52 / 0.49	3.27 / 3.19	0.09 / 0.06	2.30 / 2.24
		USD	0.57 / 0.54	3.42 / 3.35	0.10 / 0.06	2.46 / 2.40
EPS (basic/diluted)	(IFRS reported)	CHF ²⁾	-0.51 / -0.51	2.18 / 2.13	-0.36 / -0.38	1.91 / 1.87
		USD	-0.56 / -0.56	2.28 / 2.24	-0.39 / -0.42	2.05 / 2.00

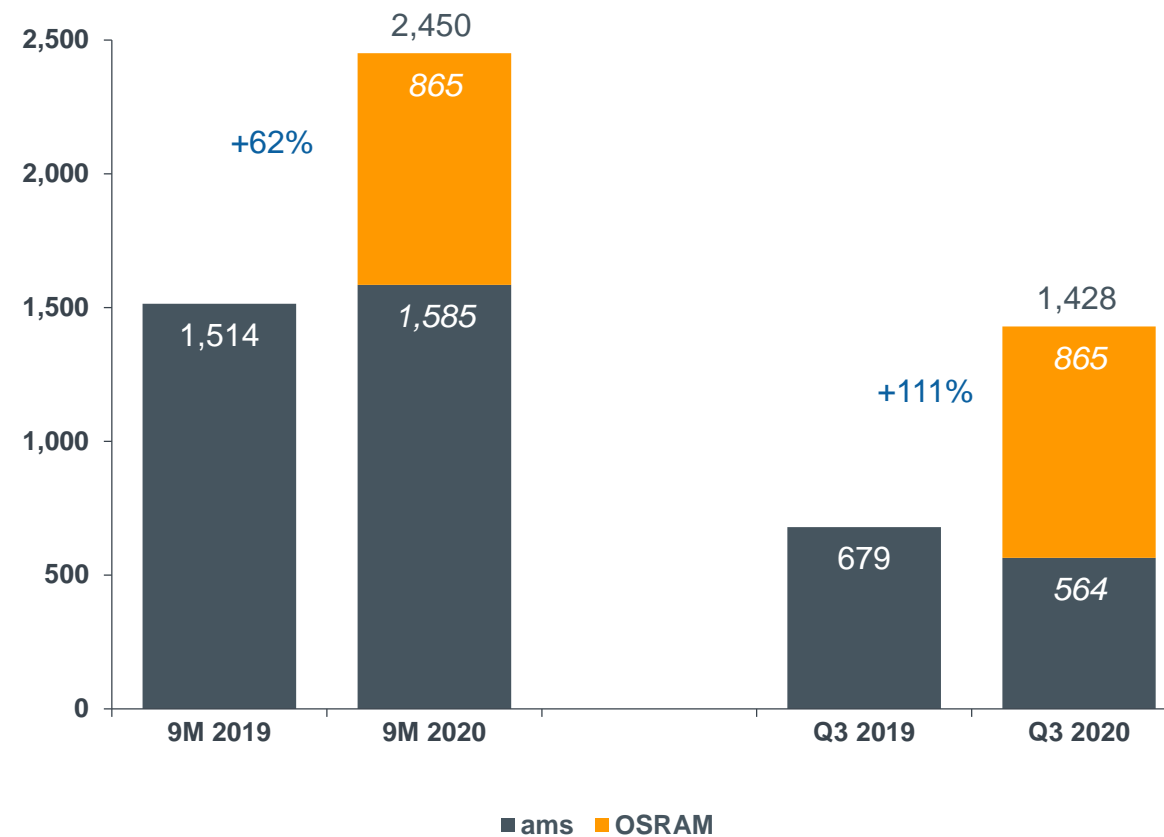
¹⁾ Excl. acquisition-related, one-time restructuring and share-based compensation costs

²⁾ Earnings per share in CHF were converted using the average currency exchange rate for the respective periods

Revenues – ams group

USDm

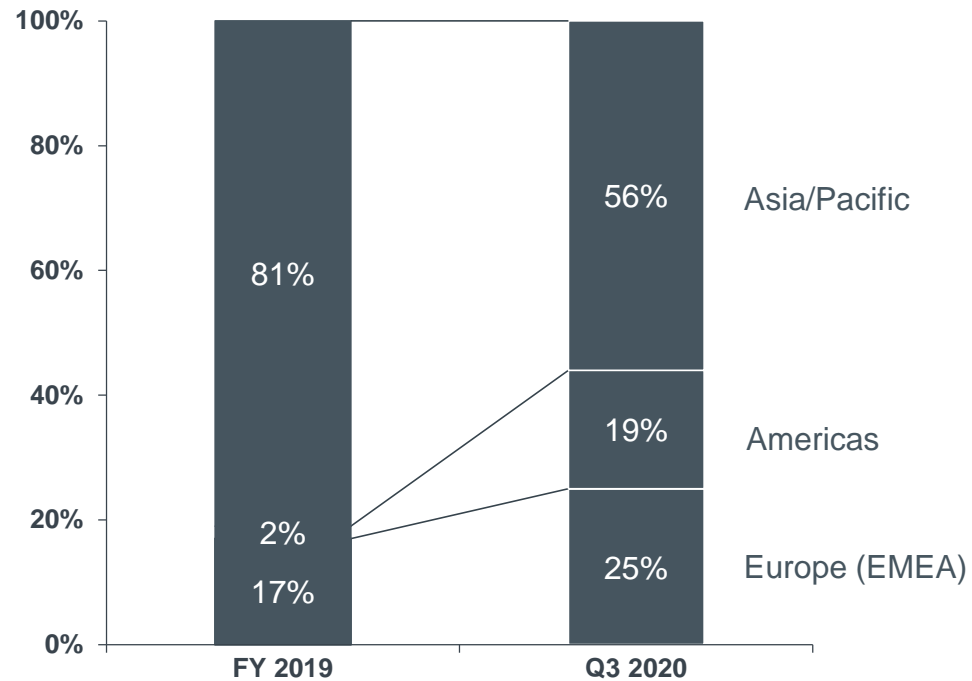
Total revenues



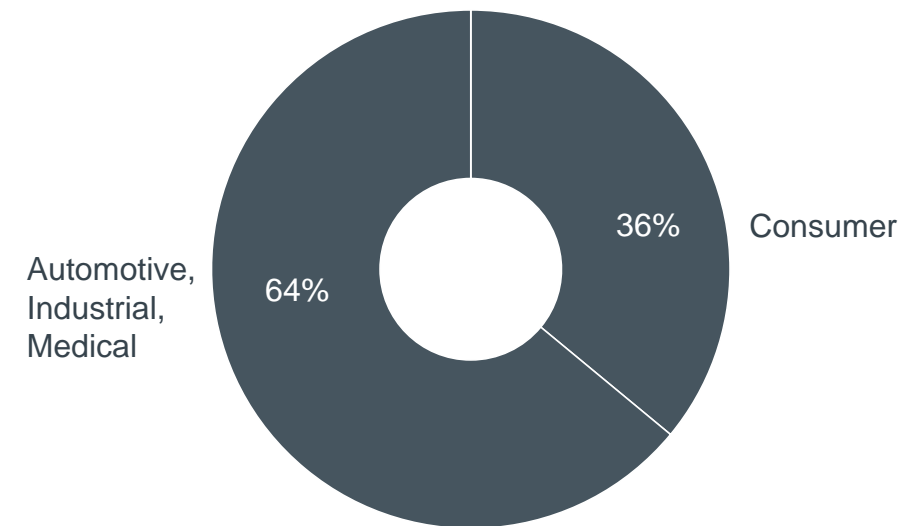
Revenue distribution – ams group

% of revenues

Total revenues by region



Total group revenues by market Q3 2020

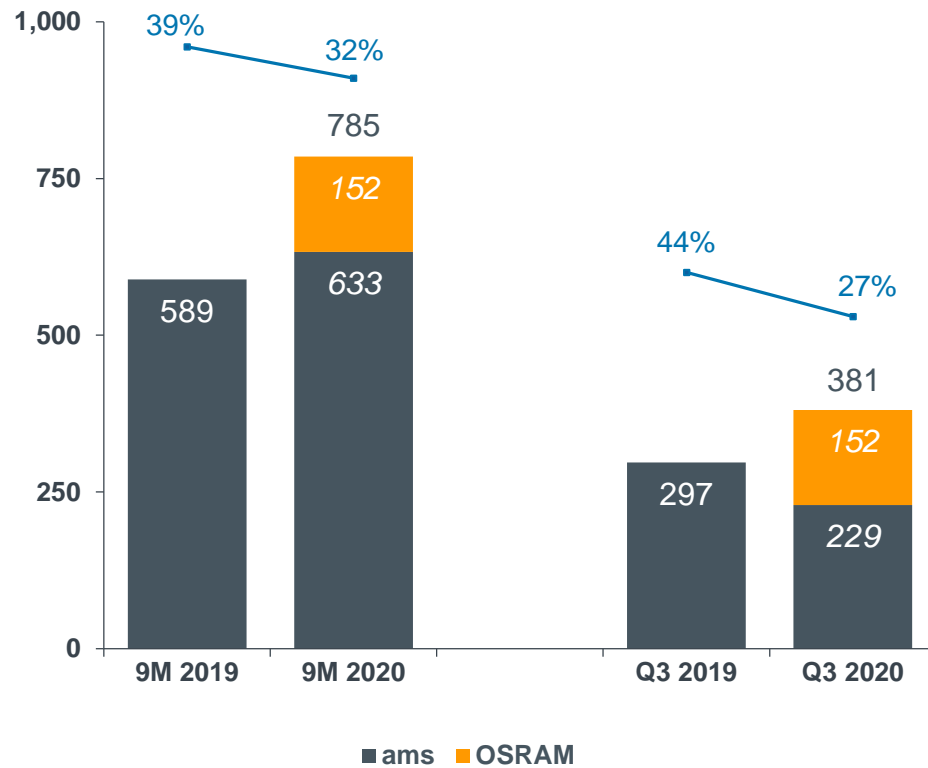


Gross profit, operating profit (EBIT) – ams group

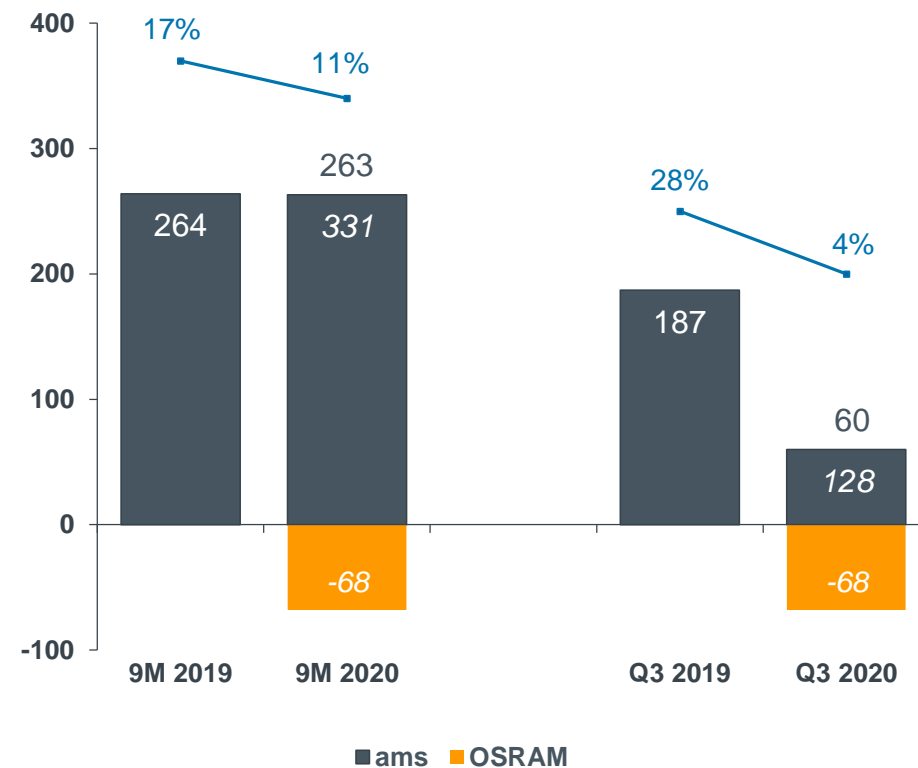
USDm, % of revenues



Gross profit, gross margin (adj.)¹⁾



EBIT, EBIT margin (adj.)¹⁾

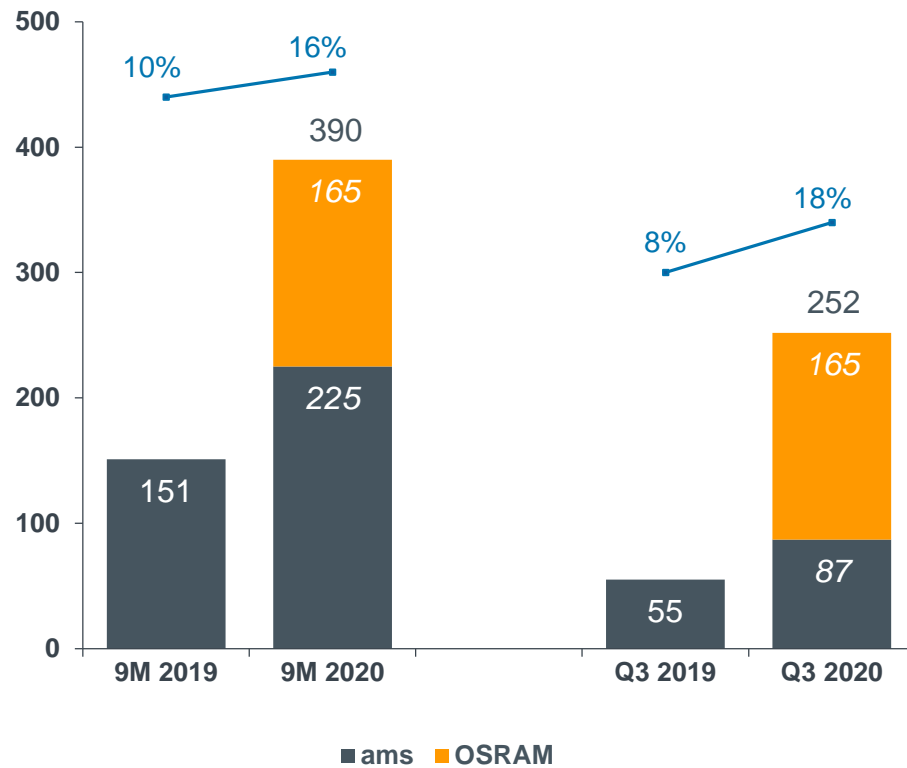


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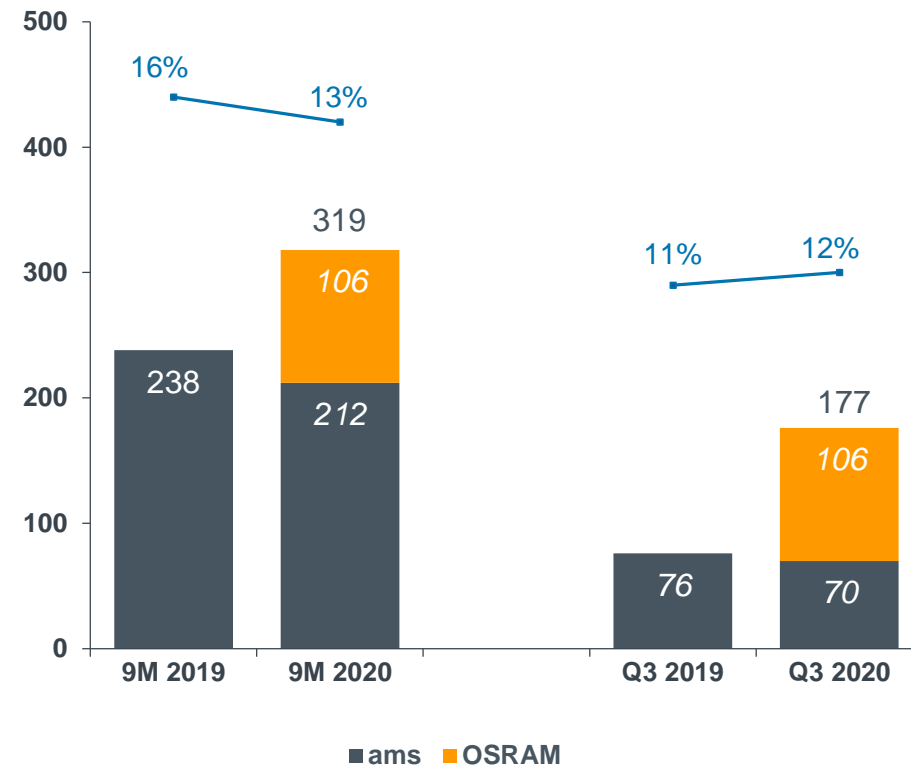
Operating expenses – ams group

USDm, % of revenues

SG&A



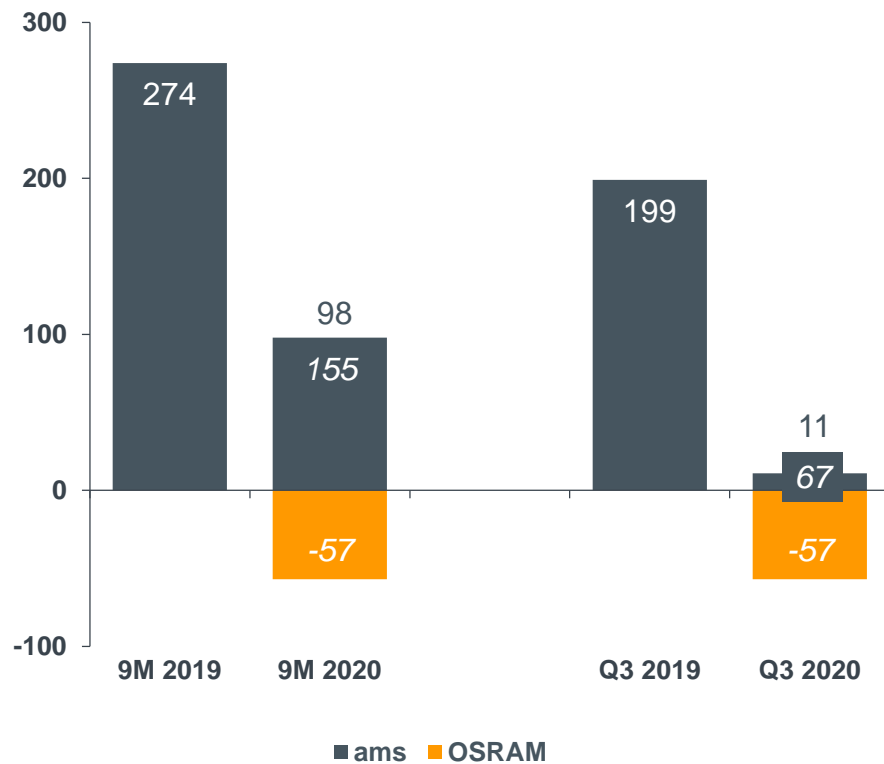
R&D



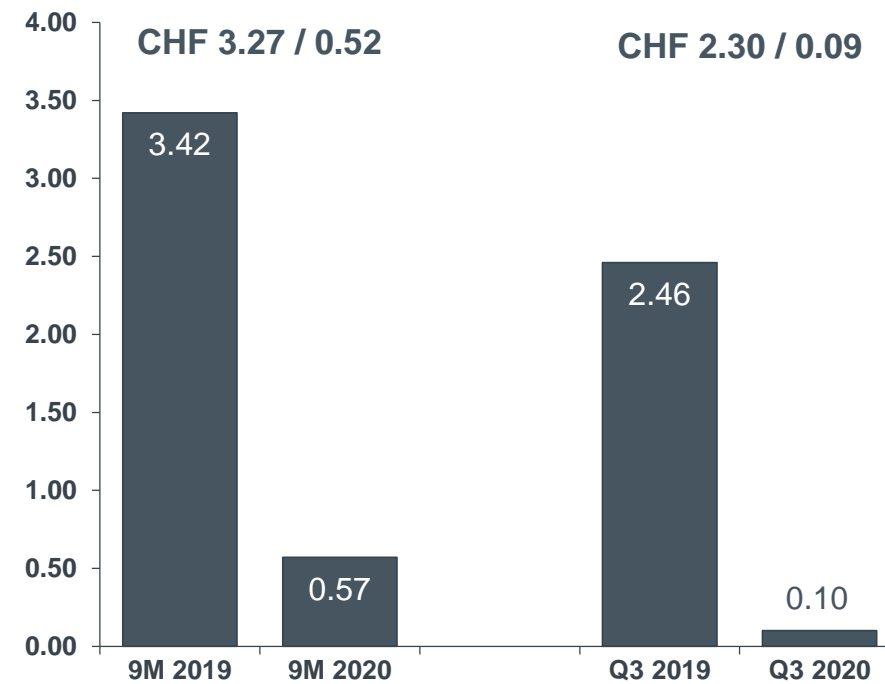
Net result and EPS – ams group

USDm, USD per share

Net result (adj.)¹⁾



EPS basic (adj.)¹⁾²⁾



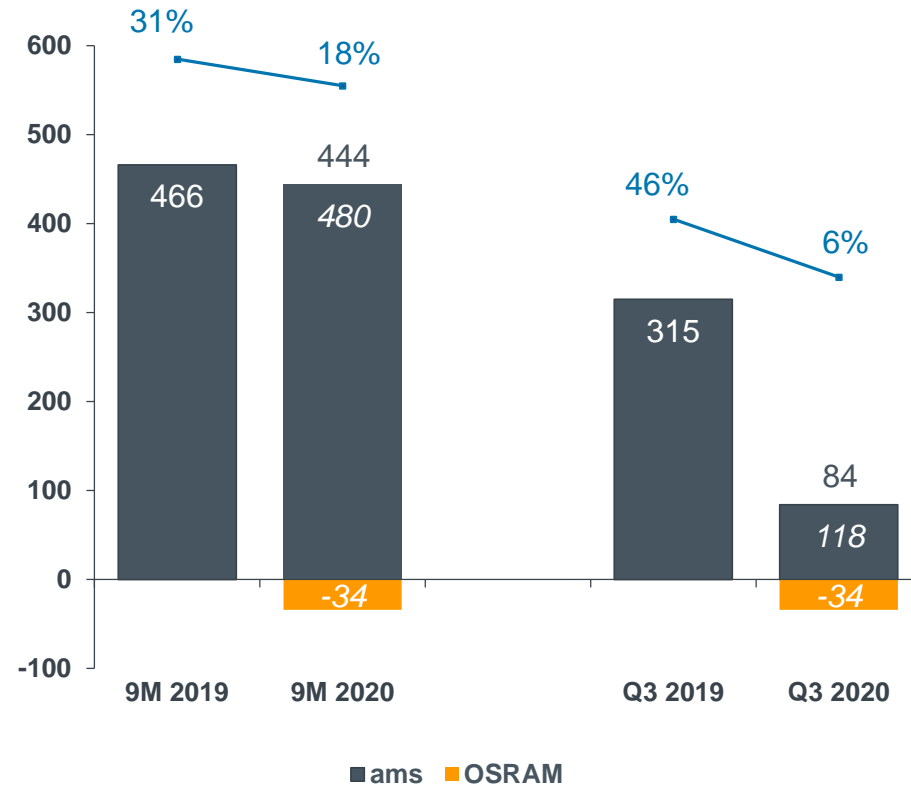
1) Excl. acquisition-related, one-time restructuring and share-based compensation costs; EPS diluted (adjusted) 9M 2020: USD 0.54/CHF 0.49, Q3 2020: USD 0.06/CHF 0.06

2) Reflecting new share count for 2020 figures after capital increase in Q2 2020

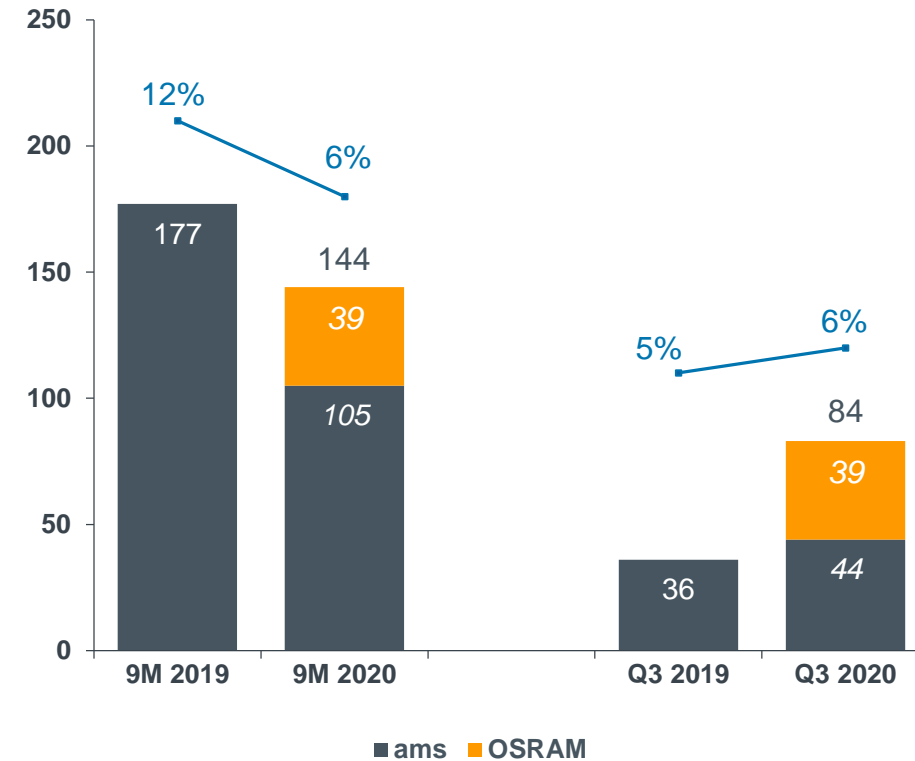
Operating cash flow, CAPEX – ams group

USDm, % of revenues

Operating cash flow

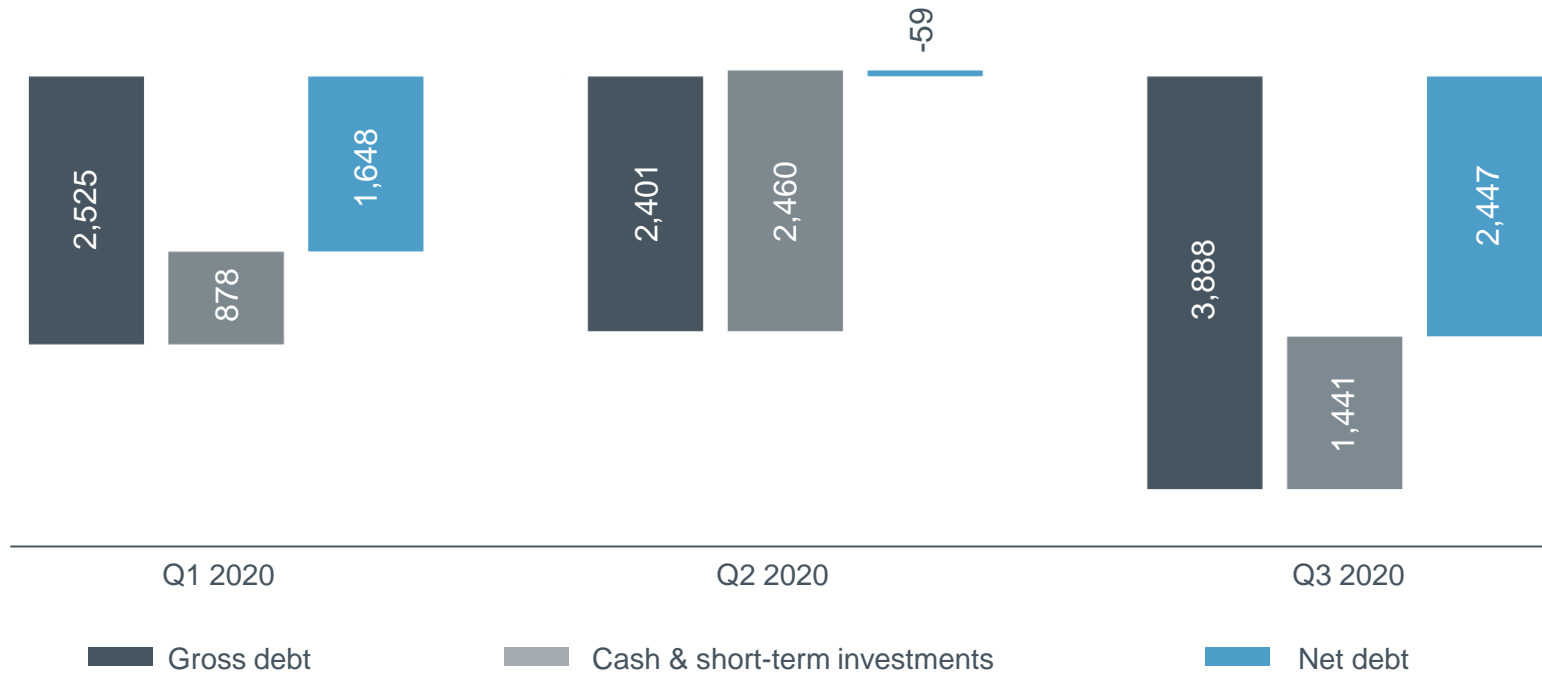


Capital expenditures



Cash and debt overview

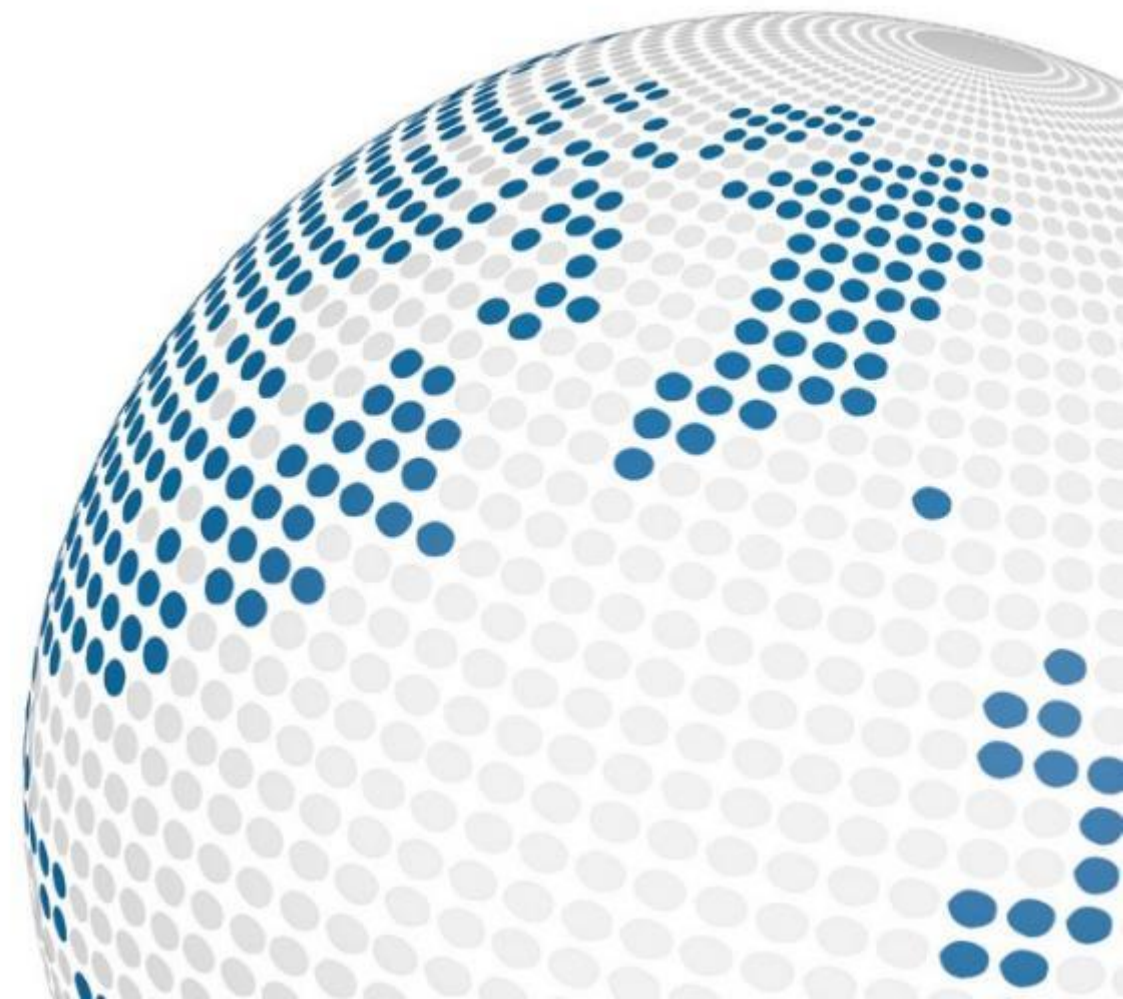
USDm



- Placement of approx. USD 1,450m high-yield bond in early Q3
- Placement of EUR 760m convertible bond at end of October, settlement early November
- Early Q4 new EUR 750m bridge facility, repayment of EUR 450m + cancellation of previous bridge facilities
- OSRAM transaction closed in Q3 with settlement of tendered shares, further market purchases
- External OSRAM debt completely refinanced
- Transactions complement term profile of existing debt and maximize financial flexibility for ams while paving the way towards full integration of OSRAM

ams

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Profit and loss statement

USDm



	9M 2020	9M 2019	Q3 2020	Q3 2019
Revenues	2,450	1,541	1,428	679
Gross profit	683	554	304	285
• Gross margin (adjusted ¹⁾)	32%	39%	27%	44%
• Gross margin (IFRS reported)	28%	37%	21%	42%
Research and development	-319	-238	-177	-76
Selling, general and administrative	-390	-151	-252	-55
Other operating income/expenses	40	7	33	1
Result from operations (EBIT)	11	172	-94	154
• EBIT margin (adjusted ¹⁾)	11%	17%	4%	28%
• EBIT margin (IFRS reported)	0%	11%	-7%	23%
Net financing costs	-189	15	-77	12
Result before tax	-177	187	-171	167
Income tax result	21	-4	25	0
Net result (adjusted¹⁾)	98	264	11	199
Net result (IFRS reported)	-154	183	-143	166

¹⁾ Excl. acquisition-related, one-time restructuring and share-based compensation costs

Balance sheet

USDm

Assets (IFRS)	Sep 30, 2020	Dec 31, 2019	Liabilities and equity	Sep 30, 2020	Dec 31, 2019
Cash and short term invest.	1,427	586	Interest-bearing debt	1,157	915
Financial investments	14	0	Trade liabilities	626	159
Trade receivables	708	236	Tax liabilities	16	23
Inventories	1,042	246	Provisions	454	132
Other current assets	270	152	Other liabilities	680	182
Assets held for sale	37	101			
Total current assets	3,498	1,321	Total current liabilities	2,932	1,410
Fixed assets	2,405	1,323	Interest-bearing debt	2,732	1,522
Intangible assets	4,477	1,320	Employee benefits	244	57
Right of use assets	352	144	Deferred tax liabilities	281	73
Investments in associates	101	13	Other liabilities	443	149
Deferred tax asset	577	10			
Other non-current assets	98	2			
Long-term financial assets	42	1,037			
Total non-current assets	8,053	3,869	Total non-current liabilities	3,699	1,802
			Shareholders' equity ams	3,049	1,978
			Equity minority interest	1,153	0
Total assets	11,550	5,190	Total liabil. and equity	11,550	5,190

Cash flow statement

USDm

(IFRS)	9M 2020	9M 2019	Q3 2020	Q3 2019
Result before tax	-175	187	-168	167
Depreciation	451	242	275	83
Cash flow from operations	446	466	84	315
Capital expenditures	-144	-177	-84	-36
Acquisition of subsidiaries, net of cash acquired	-1,071	-9	-1,071	0
Cash flow from investing activities	-1,676	-358	-1,455	-211
Proceeds from borrowings	211	371	102	356
Repayment of debt	-1,237	-137	-1,075	-24
Proceeds from issuance of senior notes	1,453	0	1,453	0
Changes resulting from capital increase	1,930	0	0	0
Cash flow from financing activities	2,131	81	397	313
Change in cash and cash equivalents (incl. effects of changes in foreign exchange rates)	852	204	-1,023	435
Cash and cash equivalents at end of period	1,427	936	1,427	936