ams at a glance

Sensing is life.

Our business
• Focused on high-performance sensor solutions
• Sensor solutions, sensor ICs/interfaces, related algorithms and software
• Small, low-power, highest sensitivity, multi-sensor integration
• Best-in-class solutions for leading OEMs

Our end markets
• Consumer & Communications (C&C) – H1 2018 73% of revenues
• Automotive, Industrial, Medical (AIM) – H1 2018 27% of revenues

By the numbers
• More than 1,000 engineers
• 22 design centers, 3 manufacturing locations
• More than 35 years of design and manufacturing know-how
• Around 11,000 employees worldwide
• Over 8,000 customers
Sensing enables life

Sensors – an integral part of the digital transformation
Build the global leader in sensor solutions

True leadership in four sensor areas
- Optical
- Imaging
- Environmental
- Audio

Best-in-class performance per sensor area and in multi-sensor application solutions
- Miniaturization & integration
  - Multi-sensor modules
  - Monolithic integration
- Sensor algorithms and sensor fusion software
- Application software for differentiating end-user experiences

Diversified business with balanced application and customer portfolio
- Long-term target mix of 60/40 split C&C/AIM
- Build broader customer base in each application
- Establish strong distribution channel

Financial target model for long-term profitable growth
- Revenue growth target (CAGR) 2016-2019 of 60%
- EBIT margin target (adjusted) of 30% in 2020
ams strategic value chain

Sensor ICs
- Optical
- Imaging
- Environmental
- Audio

Sensor solutions
- Multi-sensor packages & modules
- Monolithic integrated sensors
- Ultra-low power processing
- Sensor algorithms
- Sensor fusion algorithms

Application solutions
- Application software to deliver end-user experiences

Hardware
Software and reference designs
3D sensing leadership: expertise meets growth

Leading solution expertise across 3D sensing technologies

- Unmatched portfolio of optical technologies, elements, IP:
  - Highly differentiated VCSEL/VCSEL arrays
  - Leading WLO capabilities, high quality DOE, optical path
  - System design + architecting
  - Algorithms + software layers
  - System volume manufacturing expertise
- Supporting all 3D sensing approaches based on multi-year experience:
  Structured light (SL), time-of-flight (ToF), stereo vision (SV)

Technology and thought leader driving solution architect approach

- Omnivision co-operation: faster time-to-market in SL solutions for diverse market needs
- Expanding software and algorithm portfolio via internal IP + partnerships
- Strongly positioned for new trend to reference solutions by major Android ecosystem players
- End-to-end system-level expertise powers market recognition and increasing engagements

Major position in extensive new sensing markets

- Key player in growing consumer market for high touch smartphone features,
  high volume platform support + first Android wins in multi-year adoption cycle
- Early success in large scale automotive market, access to long-term industrial opportunity
3D sensing: leading VCSELs, Bellus3D, ixellence

Superior VCSEL technology: strong differentiation creates market success

- Leadership position in high power VCSEL/high count VCSEL arrays for 3D
  - Smallest pitch: higher resolution, lower system cost
  - Leading power efficiency: up to 63% vs. typical 45-50% quantum efficiency
  - Best beam quality: very narrow beam divergence
  - True high power: from mW to W to 100+W

- Broad VCSEL solution portfolio supporting all 3D technologies/flood illumination
- Major automotive LIDAR illumination win for 2020s (leading OEM), growing automotive interest in solid-state LIDAR, laser systems, in-cabin 3D applications
- Internal VCSEL supply drives higher differentiation (6” line, 2,000 wspm, in volume 2019E), external supply chain supports early wins

Bellus3D investment + ixellence acquisition: solution architect focus in stereo vision + SL

- Bellus3D: equity investment in 3D software specialist, active stereo vision reference solutions for face-related smartphone uses, including ams pattern projector
- Cost-efficient face authentication + face-related 3D, promoted to Chinese OEMs via Face++
- ixellence acquisition: expert in DOE pattern design and 3D system solution architecting
- Adding experience and IP in SL and other 3D solution design
- Transactions drive 3D solution architect approach for stereo vision and SL
Optical sensing

Worldwide leader in light sensing solutions
- Clear #1 in optical sensing
- Leading in sensors, optical path, illumination
- High performance optical solutions at Top 15 smartphone OEMs
- Expanding markets in automotive + industrial

Broad portfolio spans 3D sensing incl. VCSEL, display, other applications
- Industry-leading 3D sensing expertise: exceptional scope of HW, SW, design competency
- World-class VCSELs for 3D/optical sensing: expanding position in consumer + automotive
- True Color display management: superior viewing experience, smartphones to notebooks
- Color ALS, ultra-small proximity modules

Advanced new optical applications in spectral sensing
- Unmatched capabilities and development focus address emerging growth market
- Smartphone spectral sensing shipments expected in coming six months
- Color matching for online shopping (cosmetics, skin-tone), food sensing for quality analysis (fruit ripeness/quality)
- Color/spectral sensing for Industrial IoT, smart LED lighting
True leader in specific industrial applications + medical imaging

- High value global shutter CMOS imaging solutions for industrial markets: high speed machine vision, inspection
- Award-winning industrial high performance image sensor entering mass production
- NanEye miniature camera technology for medical (endoscopy) and industrial markets
- Global leadership position in medical imaging sensor solutions
- High performance, cost optimized systems for computed tomography (CT) and digital X-ray
- Clearer images at lower radiation dose in 3D-CT and digital X-ray

Driving innovation in new areas

- Curved sensors for improved image quality and optical system simplification
- Latest generation NanEye solution: highest level of opto-electrical performance for micro-camera modules, low cost, ultra-small footprint
- Excellently positioned for optical-imaging convergence, e.g. near IR (NIR), hyper-spectral imaging (HSI)
Audio sensing

ANC (active noise cancellation)
- Best-in-class high performance analog noise reduction
- Clear leader in wired/wireless accessory market
- Low power + small footprint
- Significantly higher audio quality
- Continuing market momentum in earphones and headphones
- Specialty interface for portable audio device charging

MEMS microphone interface ICs
- Market leader in growing high volume market
- Home assistant adoption (multi-microphone devices) adds significant demand
- Leading position and broad portfolio for low noise solutions and tight integration
- Strong customer partnership focused on attractive segments
- Microphone + pressure/temperature sensing integration with increased content value in development

Attractive growth in MEMS mic ICs, ANC accessory business expanding
Environmental (including gas) sensing

Technology leader in environmental / gas sensing
- Unique CMOS-based portfolio for low power, high volume, small form factor
  - MOX and infrared gas / presence detection
  - Relative humidity, pressure, temperature
- Broad range of emerging applications in mobile, home/building automation (HABA), Industrial IoT and other AIM markets

Unmatched position for multi-sensor modules + monolithic multi-sensor integration
- Integration roadmap for related sensor modalities driving low power + smallest size, e.g. audio + pressure/temperature
- Broad portfolio of relevant sensor technologies, algorithms and application software
- Highly differentiated new pressure sensor opens up new application markets
- Multi-sensor technology gas and particle sensor roadmap, targeting early stage, fast-growing HABA, industrial and infrastructure markets
## Winning portfolio from focused strategy

### Goal: True leadership in four sensing areas

<table>
<thead>
<tr>
<th>Optical sensors</th>
<th>Imaging sensors</th>
<th>Environmental s.</th>
<th>Audio sensors</th>
<th>Other lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 3D sensing incl. VCSEL&lt;br&gt;• Light analysis/prox.&lt;br&gt;• Spectral sensing</td>
<td>• High perf. imaging&lt;br&gt;• Micro cameras&lt;br&gt;• Medical imaging</td>
<td>• Gas/particle&lt;br&gt;• Temp./rel. humidity&lt;br&gt;• Pressure&lt;br&gt;• Multi-sensor</td>
<td>• MEMS microphone ICs&lt;br&gt;• ANC noise canceling</td>
<td>• Position sensors&lt;br&gt;• Flow metering</td>
</tr>
</tbody>
</table>

### Other sensors
- CMOSIS<br>- Heptagon
- CCMOSS<br>- NXP sensors
- Incus

### M&A accelerates strategy implementation
- Heptagon<br>- Princeton Optronics<br>- KeyLemon<br>- Bellus3D investment<br>- ixellence<br>- MAZeT
Hybrid scalable manufacturing model

In-house: Differentiating manufacturing
Outsourced/external: Standard process manufacturing

In-house front-end wafer manufacturing, Austria
- 200mm, 190+k wafers p.a., CMOS/specialty analog to 180nm
- High volume optical filter deposition

In-house optical production and packaging + future VCSEL manufacturing, Singapore
- Technology leader in high-end optical systems
- WLO and optical filter production, optical packaging
- Further expansion investments in 2018 to support expected volume needs
- In-house VCSEL line investment:
  Highly differentiated products, on track for mass production availability 2019

External manufacturing partnerships for scalability and flexibility
- High volume wafer production (TSMC, UMC), standard and semi-custom packaging
- Outsourced VCSEL supply chain:
  Partnerships for volume manufacturing, recent announcement with HLJ Technology

In-house test, Philippines/Austria
Global network

- Headquarters
- Design centers
- Manufacturing/Test
- Sales/customer support locations

- **22 design centers**
  Austria, Belgium, China, Germany (4), Italy (2), India, Japan, Netherlands, Portugal, Spain, Switzerland (3), UK (2), USA (3)

- **Manufacturing locations**
  Austria, Singapore

- **Test center**
  Philippines
## Key figures

**USDm**

<table>
<thead>
<tr>
<th></th>
<th>H1 2018</th>
<th>H1 2017</th>
<th>Q2 2018</th>
<th>Q2 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total revenues</strong></td>
<td>685.5</td>
<td>388.7</td>
<td>252.8</td>
<td>213.3</td>
</tr>
<tr>
<td></td>
<td>+76.3%</td>
<td>+18.5%</td>
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<tr>
<td><strong>Gross margin</strong></td>
<td></td>
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<td></td>
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<tr>
<td>(adjusted) 1)</td>
<td>28%</td>
<td>44%</td>
<td>15%</td>
<td>41%</td>
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<tr>
<td>(IFRS reported)</td>
<td>24%</td>
<td>37%</td>
<td>9%</td>
<td>35%</td>
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<tr>
<td><strong>Result from operations</strong></td>
<td></td>
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<td></td>
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<tr>
<td>(adjusted) 1)</td>
<td>25.3</td>
<td>6.4</td>
<td>-48.6</td>
<td>1.6</td>
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<tr>
<td>(IFRS reported)</td>
<td>-31.7</td>
<td>-41.5</td>
<td>-76.1</td>
<td>-25.3</td>
</tr>
<tr>
<td><strong>Net result</strong></td>
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<tr>
<td>(adjusted) 3)</td>
<td>-8.0</td>
<td>-40.0</td>
<td>-103.5</td>
<td>-20.9</td>
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<tr>
<td></td>
<td>+80.0%</td>
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<td>-394.7%</td>
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<td><strong>EPS (basic/diluted)</strong> 2)</td>
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<tr>
<td>(adjusted) 3)</td>
<td>CHF</td>
<td>USD</td>
<td>USD</td>
<td>USD</td>
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<tr>
<td></td>
<td>-0.10 / -0.10</td>
<td>-0.47 / -0.45</td>
<td>-1.24 / -1.19</td>
<td>-0.23 / -0.22</td>
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<tr>
<td></td>
<td>-0.10 / -0.10</td>
<td>-0.51 / -0.49</td>
<td>-1.24 / -1.20</td>
<td>-0.25 / -0.25</td>
</tr>
</tbody>
</table>

1) Excl. acquisition-related and share-based compensation costs
2) Earnings per share in CHF were converted using the average currency exchange rate for the respective periods
3) Net result and earnings per share excluding valuation effect of the option element of the issued USD convertible bond
Financial results

**Total revenues**

- **H1 2017**: 388.7 USDm
- **H1 2018**: 685.5 USDm (+76.3%)
- **Q2 2017**: 213.8 USDm
- **Q2 2018**: 252.8 USDm (+18.5%)

**Total revenues by market H1 2018**

- Automotive, Industrial, Medical: 27%
- Consumer & Communications: 73%

**Total revenues by region**

- **Asia/Pacific**: 61% (H1 2017), 67% (H1 2018)
- **Americas**: 4% (H1 2017), 10% (H1 2018)
- **Europe (EMEA)**: 35% (H1 2017), 23% (H1 2018)

**Total backlog**

- Consignment stock agreements approx. USD 16-21m
  - **Mar 31 2018**: 330.7 USDm
  - **Jun 30 2018**: 549.9 USDm

**Total revenues by market**

- **H1 2017**: 35%
- **H1 2018**: 67%
- **Q2 2017**: 10%
- **Q2 2018**: 61%
Financial results
USDm, % of revenues

Gross profit (IFRS), gross margin (adj.)

H1 2017 | H1 2018 | Q2 2017 | Q2 2018
---|---|---|---
Gross profit | 143.6 | 165.3 | 73.9 | 24.0
Gross margin | 43.5% | 28.1% | 41.3% | 14.9%

R&D

H1 2017 | H1 2018 | Q2 2017 | Q2 2018
---|---|---|---
R&D expenditure | 117.9 | 118.8 | 63.2 | 60.0
R&D margin | 30.3% | 17.3% | 29.6% | 23.7%

SG&A

H1 2017 | H1 2018 | Q2 2017 | Q2 2018
---|---|---|---
SG&A expenditure | 75.7 | 83.7 | 40.5 | 41.9
SG&A margin | 19.5% | 12.2% | 19.0% | 16.6%

EBIT (IFRS), EBIT margin (adj.)

H1 2017 | H1 2018 | Q2 2017 | Q2 2018
---|---|---|---
EBIT (IFRS) | -41.5 | -31.7 | -25.3 | -76.1
EBIT margin | 1.6% | 3.7% | 0.7% | -19.2%

1) Excluding acquisition-related and share based compensation costs
Financial results

USDm, % of revenues

Net result, EPS (basic/diluted) (adjusted) ¹

Operating cash flow

Net debt, cash + short term investments

Capital expenditures

¹) Net result and earnings per share excluding valuation effect of the option element of the issued USD convertible bond
## Profit and loss statement

**USDm**

<table>
<thead>
<tr>
<th></th>
<th>H1 2018</th>
<th>H1 2017</th>
<th>Q2 2018</th>
<th>Q2 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total revenues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Products</td>
<td>685.5</td>
<td>388.7</td>
<td>252.8</td>
<td>213.3</td>
</tr>
<tr>
<td>• Foundry</td>
<td>661.4</td>
<td>357.1</td>
<td>240.0</td>
<td>196.4</td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Gross margin (adjusted 1))</td>
<td>165.3</td>
<td>143.6</td>
<td>24.0</td>
<td>74.0</td>
</tr>
<tr>
<td>• Gross margin (IFRS reported)</td>
<td>28.1%</td>
<td>43.5%</td>
<td>14.9%</td>
<td>41.3%</td>
</tr>
<tr>
<td><strong>Research and development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Selling, general and administrative</td>
<td>-118.8</td>
<td>-117.9</td>
<td>-60.0</td>
<td>-63.2</td>
</tr>
<tr>
<td>Other operating income/expenses</td>
<td>-83.7</td>
<td>-75.7</td>
<td>-41.9</td>
<td>-40.5</td>
</tr>
<tr>
<td><strong>Result from operations (EBIT)</strong></td>
<td>-31.7</td>
<td>-41.5</td>
<td>-76.1</td>
<td>-25.3</td>
</tr>
<tr>
<td>• EBIT margin (adjusted 1))</td>
<td>3.7%</td>
<td>1.6%</td>
<td>-19.2%</td>
<td>0.7%</td>
</tr>
<tr>
<td>• EBIT margin (IFRS reported)</td>
<td>-4.6%</td>
<td>-10.7%</td>
<td>-30.1%</td>
<td>-11.9%</td>
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<tr>
<td><strong>Net financing result</strong></td>
<td>74.6</td>
<td>4.2</td>
<td>43.9</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Result before tax</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Income tax result</strong></td>
<td></td>
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<tr>
<td><strong>Net result (adjusted 2))</strong></td>
<td>-8.0</td>
<td>-40.0</td>
<td>-103.5</td>
<td>-20.9</td>
</tr>
<tr>
<td><strong>Net result (IFRS reported)</strong></td>
<td>39.1</td>
<td>-40.0</td>
<td>-34.6</td>
<td>-20.9</td>
</tr>
</tbody>
</table>

1) Excl. acquisition-related and share-based compensation costs

2) Net result excluding valuation effect of the option element of the issued convertible bond
## Balance Sheet

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and short term invest.</td>
<td>246.3</td>
<td>461.0</td>
<td>Interest-bearing debt</td>
<td>215.3</td>
<td>689.0</td>
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<tr>
<td>Trade receivables</td>
<td>293.8</td>
<td>334.6</td>
<td>Trade liabilities</td>
<td>191.8</td>
<td>362.4</td>
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<tr>
<td>Inventories</td>
<td>336.6</td>
<td>298.3</td>
<td>Tax liabilities</td>
<td>32.0</td>
<td>33.0</td>
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<tr>
<td>Other current assets</td>
<td>57.5</td>
<td>90.6</td>
<td>Provisions</td>
<td>30.4</td>
<td>52.2</td>
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<tr>
<td><strong>Total current assets</strong></td>
<td><strong>934.2</strong></td>
<td><strong>1,184.6</strong></td>
<td>Other liabilities</td>
<td><strong>547.1</strong></td>
<td><strong>1,779.2</strong></td>
</tr>
<tr>
<td>Fixed assets</td>
<td>1,344.5</td>
<td>1,171.3</td>
<td>Interest-bearing debt</td>
<td>1,593.6</td>
<td>789.4</td>
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<tr>
<td>Intangible assets</td>
<td>1,438.8</td>
<td>1,389.0</td>
<td>Employee benefits</td>
<td>49.6</td>
<td>47.3</td>
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<tr>
<td>Investments in associates</td>
<td>3.8</td>
<td>2.3</td>
<td>Deferred tax liabilities</td>
<td>77.7</td>
<td>78.8</td>
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<td>Deferred tax asset</td>
<td>30.6</td>
<td>30.6</td>
<td>Other liabilities</td>
<td>122.3</td>
<td>163.8</td>
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<td>Other non-current assets</td>
<td>21.4</td>
<td>54.3</td>
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<td>Long-term financial assets</td>
<td>80.4</td>
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<td><strong>Total non-current assets</strong></td>
<td><strong>2,919.5</strong></td>
<td><strong>2,647.4</strong></td>
<td><strong>Total non-current liabilities</strong></td>
<td><strong>1,843.3</strong></td>
<td><strong>1,079.2</strong></td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>3,853.7</strong></td>
<td><strong>3,832.0</strong></td>
<td><strong>Shareholders’ equity</strong></td>
<td><strong>1,463.3</strong></td>
<td><strong>973.6</strong></td>
</tr>
<tr>
<td><strong>Total liabilities and equity</strong></td>
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<td></td>
<td><strong>Total liabil. and equity</strong></td>
<td><strong>3,853.7</strong></td>
<td><strong>3,832.0</strong></td>
</tr>
</tbody>
</table>
## Cash flow statement

**USDm**

<table>
<thead>
<tr>
<th>(IFRS)</th>
<th>H1 2018</th>
<th>H1 2017</th>
<th>Q2 2018</th>
<th>Q2 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Result before tax</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Depreciation</td>
<td>42.9</td>
<td>-37.3</td>
<td>-32.2</td>
<td>-18.0</td>
</tr>
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<td></td>
<td>116.6</td>
<td>75.7</td>
<td>60.1</td>
<td>41.1</td>
</tr>
<tr>
<td><strong>Cash flow from operations</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>-18.4</td>
<td>-8.2</td>
<td>-72.3</td>
<td>-38.9</td>
</tr>
<tr>
<td><strong>Capital expenditures</strong></td>
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<tr>
<td></td>
<td>-328.8</td>
<td>-272.3</td>
<td>-162.5</td>
<td>-161.8</td>
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<tr>
<td><strong>Cash flow from investing activities</strong></td>
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<tr>
<td></td>
<td>-359.3</td>
<td>-167.1</td>
<td>-164.2</td>
<td>-155.1</td>
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<tr>
<td><strong>Proceeds from borrowings</strong></td>
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<tr>
<td>Proceeds from issue of convertible bond</td>
<td>59.1</td>
<td>421.1</td>
<td>59.1</td>
<td>302.5</td>
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<td></td>
<td>718.8</td>
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<td><strong>Repayment of debt</strong></td>
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<td></td>
<td>-355.7</td>
<td>-45.3</td>
<td>-0.6</td>
<td>-42.5</td>
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<tr>
<td><strong>Dividends paid</strong></td>
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<td>-32.4</td>
<td>-29.4</td>
<td>-32.4</td>
<td>-29.4</td>
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<td><strong>Changes resulting from capital increase</strong></td>
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<td><strong>Cash flow from financing activities</strong></td>
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<td></td>
<td>250.0</td>
<td>319.9</td>
<td>5.7</td>
<td>196.9</td>
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<td><strong>Change in cash and cash equivalents</strong> (incl. effects of changes in foreign exchange rates)</td>
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