

# **Q3 2019 Report**

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Anders Lindqvist

President and CEO

Torbjörn Wingårdh

CFO

Niklas Edling

Sr VP Strategy & Portfolio Management

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# MYCRONIC



Q3 2019 – Strong order intake

# **Mycronic in brief**



Full year 2018 numbers



patents

### **Business area Assembly Solutions**

#### Broad product offering for efficient electronics manufacturing, including aftermarket

Surface Mount Technology

Inspection

Dispensing

**Assembly Automation** 









- Jet printing & dispensing
- Pick-and-place assembly equipment
- Component storage systems
- Advanced software solutions

- Solder Paste Inspection (SPI)
- Automated Optical Inspection (AOI)
- Advanced software suite (Sigma)
- Broad range of dispensing and coating systems

- Camera module assembly equipment
- Ultra-high precision die bonding equipment



### **Business area Pattern Generators**

#### **Indispensable for the photomask industry**

Display Semiconductor Aftermarket products Multi-purpose SLX series Service contracts & Prexision mask writer & FPS series metrology series • FPS 6100/8100 Evo value adding products Prexision 8/Lite 8/80/800 Evo Display Prexision 10 Multi-purpose Prexision MMS Semiconductor



# Strong order intake

 $\begin{array}{c} \text{Order intake} \\ \text{growth} \\ \hline 52\% \end{array}$ 

Gross margin

52%

Net sales
900
MSEK

EBIT margin 22%

# Q3 2019 – Strong order intake development in both business areas

- Order intake increased 52% to 1,238 MSEK
  - Strong development in both business areas
- Net sales down 18% to 900 MSEK
  - Explained by fewer deliveries in Pattern Generators
    - One mask writer vs. two mask writers in Q3 2018
  - Positive development in Assembly Solutions
    - Net sales growth 10%, with 4% growth excluding positive currency effects
- EBIT 55% lower at 198 MSEK, with EBIT margin at 22%
  - Mainly explained by fewer deliveries in Pattern Generators
  - Assembly Solutions had acquisition related costs of 4 MSEK vs a positive effect of 27 MSEK in Q3 2018.
    - Underlying EBIT margin at 9% vs 10% in Q3 2018
    - Continuous improvement of underlying EBIT margin in 2019: Q1 at 4% and Q2 at 6%
- Order for a limited Prexision 10 mask writer

See Appendix on page 30 for market details





### **Product launch in the quarter**

Launch of Evo, a new control platform for mask writers

- A new electronics architecture together with new software
- Improves customers' data analytics capabilities
- Enables increased automation e.g. with robotics solutions, which increases photomask production yield





# Key events after the end of Q3 2019

#### Two orders and a product launch

- On October 10 an order was received for two Prexision Lite 8 Evo mask writers
  - Mycronic's first order for this product
  - Order value 20-25 MUSD
  - First system is planned for delivery in the first quarter of 2021
  - Second system is planned for delivery in the second quarter of 2021
- On October 18 an order was received for a Prexision 8 Evo mask writer
  - Order value 18-23 MUSD
  - Planned for delivery in the fourth quarter of 2020
- On October 23 SLX was launched, Mycronic's new mask writer for the semiconductor industry.



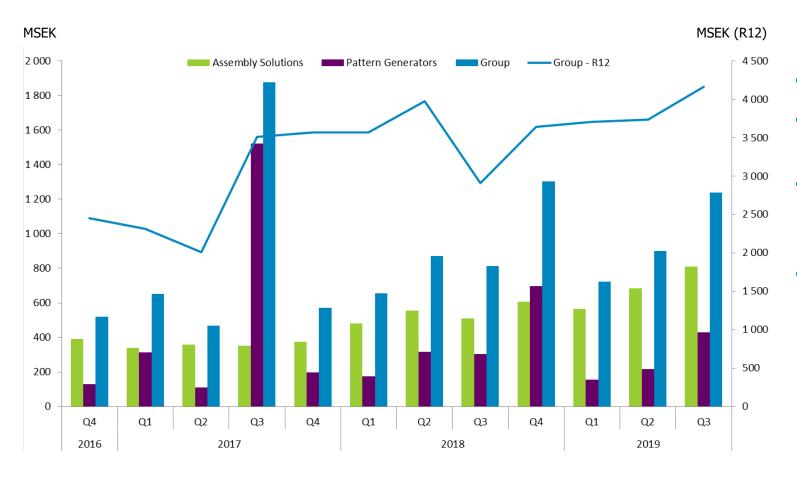


### Outlook 2019

The Board maintains its assessment that consolidated net sales for 2019 will be at a level of SEK 4 billion, excluding any acquisitions made in 2019



### **Strong growth in order intake**

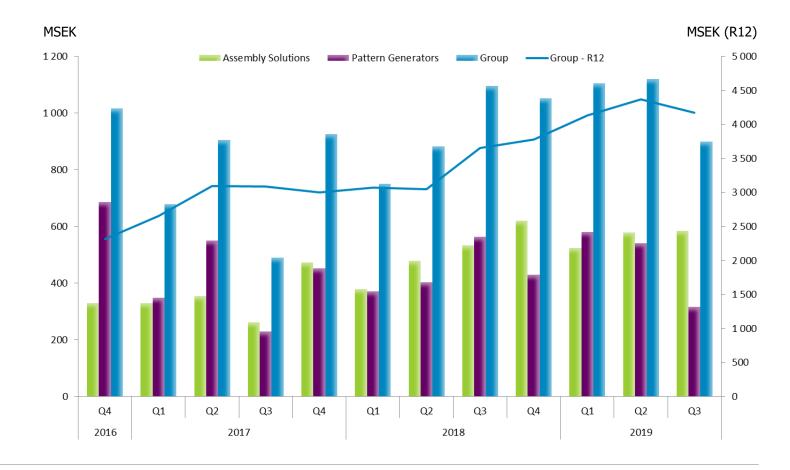


- Order intake growth of 52%
- Assembly Solutions increased
   59% to 809 MSEK
- Pattern Generators received an order for a limited Prexision 10 mask writer
- Backlog at 1,639 (1,651) MSEK
  - Assembly Solutions at record 879 (520) MSEK
  - Pattern Generators at 760 (1,131) MSEK



### **Net sales lower due to Pattern Generators**

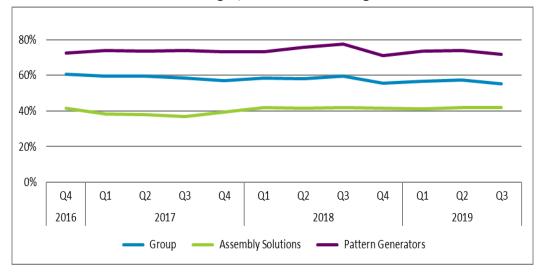
- Net sales 18% lower at 900 (1,096) MSEK
  - Assembly Solutions increased 10% to 584 (533) MSEK
  - Pattern Generators 44% lower at 317 (563) MSEK
- One mask writer delivered compared to two mask writers in Q3 2018
- Positive currency effects on net sales of 2% (11%)





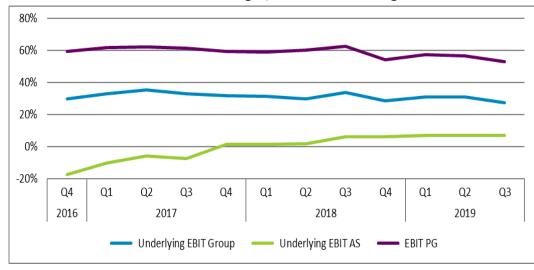
# Stable 12 months rolling margins

Gross margin, 12 months rolling



- Gross margin at 51.7% (60.3%)
  - Assembly Solutions stable at 40.9% (40.6%)
  - Pattern Generators at 71.7% (79.1%), due to different product mix

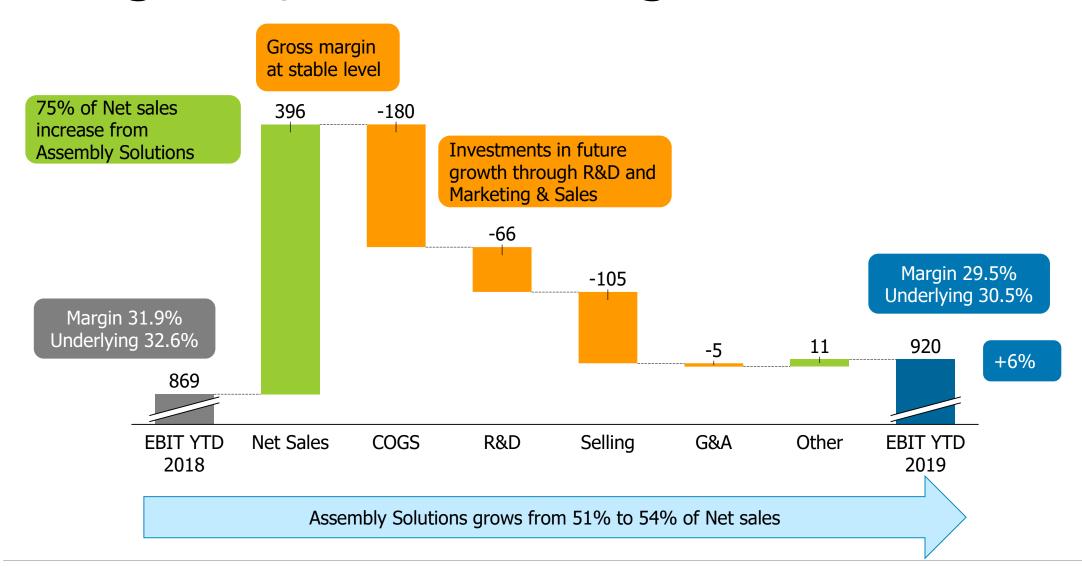
EBIT margin, 12 months rolling



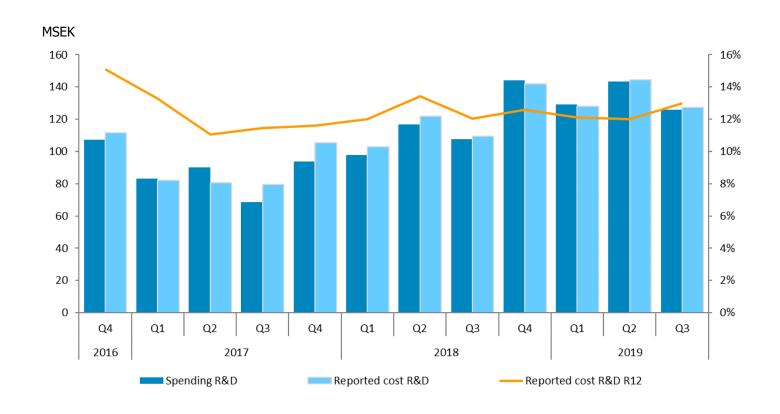
- EBIT margin at 21.9% (39.7%)
  - Assembly Solutions at 7.9% (14.8%), mainly explained by acquisition related costs of 4 MSEK vs a positive effect of 27 MSEK in Q3 2018
  - Underlying EBIT margin at 9% (10%)
  - Pattern Generators at 48.2% (63.5%), due to lower sales volumes and increased R&D spending



# EBIT growth, lower EBIT margin



### **R&D** – Investments in growth



- R&D spending increased 18 MSEK from Q3 2018
  - Planned increase mainly driven by Pattern Generators
- Product development investments in line with growth strategy
- Rolling R&D cost-to-sales ratio at 13%



# Summary by business area, Q3 2019

	Q3 2019	Q3 2018
Assembly Solutions	809	508
Pattern Generators	430	304
Order intake, MSEK	1,238	813
Assembly Solutions	879	520
Pattern Generators	760	1,131
Order backlog, MSEK	1,639	1,651
Assembly Solutions	584	533
Pattern Generators	317	563
Net sales, MSEK	900	1,096
Assembly Solutions	41%	41%
Pattern Generators	72%	79%
Gross margin, %	52%	60%
Assembly Solutions	8%	15%
Underlying EBIT margin AS	9%	10%
Pattern Generators	48%	63%
EBIT margin, %	22%	40%
Underlying EBIT margin Group	22%	37%

- Strong order intake growth of 52%
- Record order backlog in Assembly Solutions

• 10% net sales increase in Assembly Solutions

- Lower gross margin due to different product mix
- Positive acquisition-related costs of 27 MSEK in Q3 2018
- EBIT margin affected by lower Pattern Generators sales volumes



### **Cash flow YTD**

MSEK Cash flow from operations	<b>2019 YTD</b> 781	<b>2018 YTD</b> 732
Change in working capital	-455	-661
Cash flow from operations after changes in working capital	326	70
Investments in development	-13	-3
Other investments, net	-56	-416
Cash flow before financing activities	257	-349
Financing	-280	-258
Cash flow	-23	-607
Cash at end of period	826	216

 Working capital change affected by decrease of non-interest bearing short term liabilities and increase in inventories and trade receivables related to Mycronic's growth

• Includes 294 MSEK in dividend to shareholders



# **The new SLX Series**

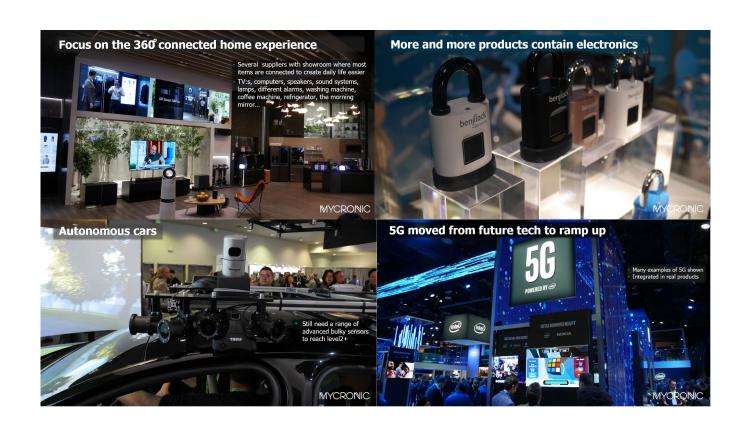
The laser mask writer for tomorrow's semicon market



# The electronification of everything...

#### More devices will need processing power to keep up with the pace of change

- Computers & smartphones
- Cameras, video cameras
- Drones, scooters, skateboards
- Digital assistants & smart home
- Medical devices for in-home and hospitals
- Cars & commercial vehicles
- Industrial manufacturing machines
- IoT & sensors in previously unconnected devices

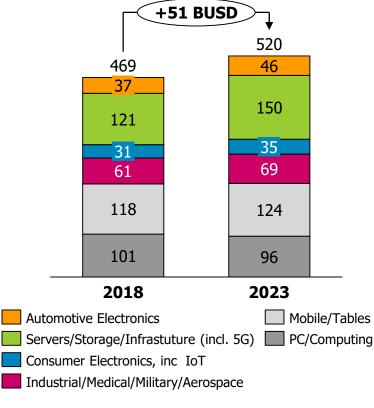




### ...drives growth shift in the semicon market

#### 90% of all growth will come from outside non-traditional areas

#### **Semicon market BUSD**



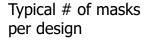
- Growth is shifting from PC/computing
   & mobile to other segments
- Fast growing segments 2018-2023:
  - Industrial/Medical/Aero
  - Consumer Electronics including IoT
  - Server/Storage/Comm infrastructure including 5G
  - Automotive Electronics
  - These four segments represent
     90% of the total expected growth
- Despite slow growth for traditional segments it is a huge market and leading players will continue to drive technology

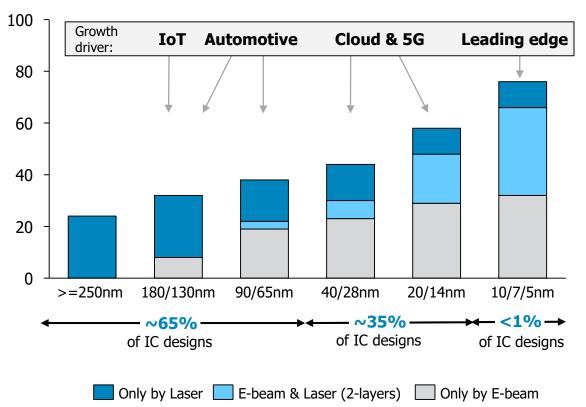
Source: Prismark Oct, 2019



### Laser writer demand on the rise

#### Additional demand driven by both market trends and technology trends





- Laser writers are the preferred choice over E-beam, due to cost advantage, as long as they have the capability
- Trend shifts in semiconductor market drives growth in lower end nodes with a higher degree of laser mask writers capability
- Leading edge will still continue to grow as dominant semicon players keep investing in technology and high end capacity; many of the masks in the high end nodes also use laser, especially for second layer writes

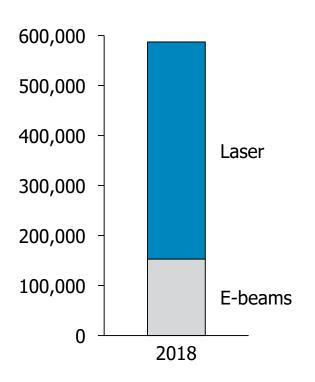
Sources: Mask maker survey 2018 and 2019 (<a href="https://www.ebeam.org">https://www.ebeam.org</a>), Renew, Retire, Replace by Franklin Kalk, Toppan, Photomasks (<a href="https://www.ebeam.org">https://www.ebeam.org</a>), Mycronic estimates



### Laser writer demand on the rise

#### Existing writers are reaching end of life > Upcoming replacement cycle

#### Semiconductor masks produced



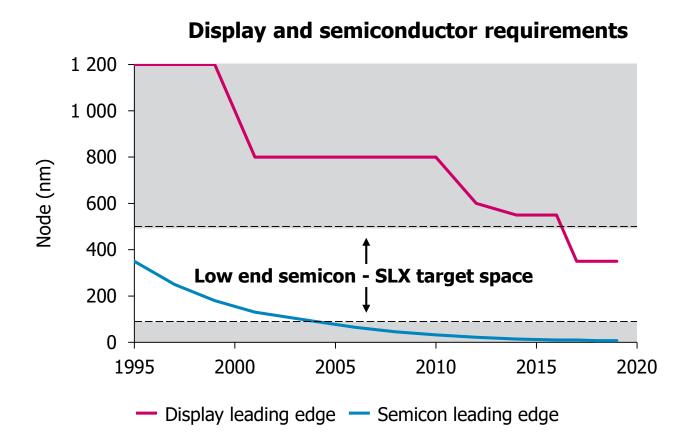
- Around 600 000 photomasks enable the semicon industry today
- 70-75% of these masks are written by laser
- For many years all investments have been done in leading edge e-beams, leaving an aging installed base of lasers writers
- Many laser writers were installed 15-25 years ago and begin to show their age; they are unreliable, inflexible & slow, with high running costs
- The installed base of ~200 laser writers, or low-end E-beam writers with similar performance, needs to be replaced over time (not necessarily one-to-one) to secure the long term mask supply to the semicon industry

Sources: Mask maker survey 2018 (<a href="https://www.ebeam.org">https://www.ebeam.org</a>), Mycronic estimates



### In excellent position to capture the market

#### Leveraging existing display technology and customer relationships

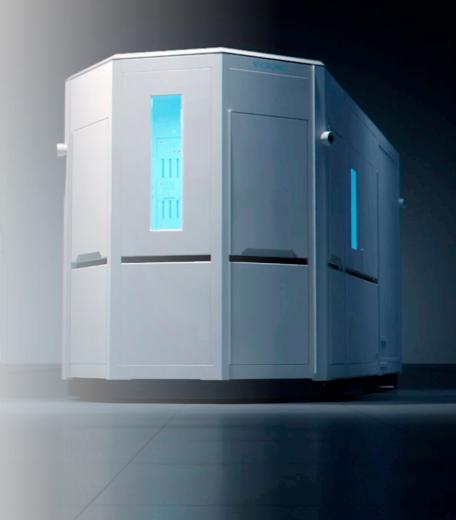


Parameter	Semicon	Display
End device		•••
Typical # of masks needed	20-80	10-15
Image quality requirements		No mura
Photomask size	~0.02m <sup>2</sup>	~1.8m²
Mask writer technology	<ul><li>E-beam for the smallest features</li><li>Laser as long as resolution is OK</li></ul>	<ul> <li>Laser only, no need for E- beam resolution</li> </ul>



# The SLX opportunity

- With the growth, and aging installed base of mask writers, in the mature semicon nodes, customers are now looking for more modern, faster, highly reliable & robust laser based mask writers with low cost of ownership
- Indications are that there is a total market need for 5-8 new writers per year in the coming years
- The estimated market size is 30-50 MUSD per year
- Mycronic is in a perfect position, despite competition in this segment, to capture a majority of the upcoming opportunity with the SLX-series





# The SLX value proposition

Lowest cost per mask

"Superior writing speed and low running cost"

Reliable and stable operation

"Field proven technology and strong service organization" A long term committed supplier

"Modern platform with future development possibilities"

**Best overall** investment

"Attractive entry price and many options to enable a cost efficient production"

Born to run

(first shipment expected year end 2020/21)





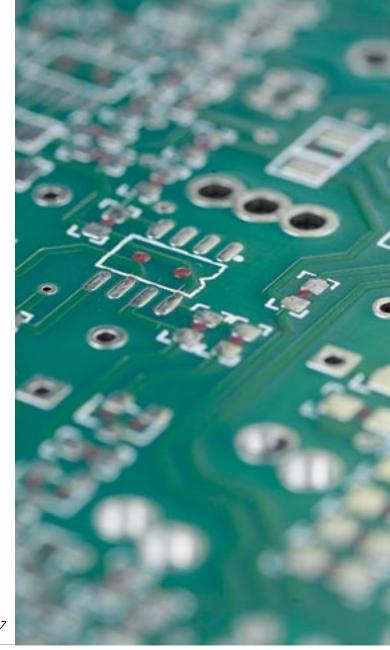
### **APPENDIX**

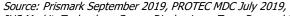
Q3 2019 Market update

### **Outcome 2018**

#### **Market summary and updates**

- Global electronics at +5.9% (from +5.5%) to 2,132 BnUSD
- Semiconductors +13.7% and reached 469 BnUSD
- SMT assembly equipment +17% to 3,070 MUSD
- Dispensing equipment +1.3% to 780 MUSD
- Camera modules +27% and 165 million units
- Die bonding equipment +1.6% to 934 MUSD
- Display market actuals at -9% to 113 BnUSD
- Display photomasks +12% to 814 MUSD





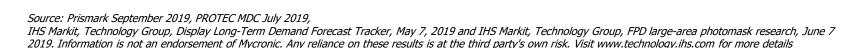
IHS Markit, Technology Group, Display Long-Term Demand Forecast Tracker, May 7, 2019 and IHS Markit, Technology Group, FPD large-area photomask research, June 7 2019. Information is not an endorsement of Mycronic. Any reliance on these results is at the third party's own risk. Visit www.technology.ihs.com for more details



### Forecasts 2019

#### **Market summary and updates**

- Global electronics industry growth forecast -0.1% (from +0.1%) and 2,130 BnUSD
  - Long term forecast 2018 to 2023 indicates a CAGR of +3.3%
- Semiconductor industry growth forecast -13.6% (from -10.4%) and 405 BnUSD
  - Forecast 2019 to 2023 indicates a CAGR of +6.4% (from +6.0%)
- Camera modules forecast +15% to 190 million units
  - +14% CAGR 2018 to 2023 to 315 million units
- Displays -7% to 105 BnUSD
- Display photomasks +9% to 886 MUSD
- SMT market: not available
- Dispensing: not available

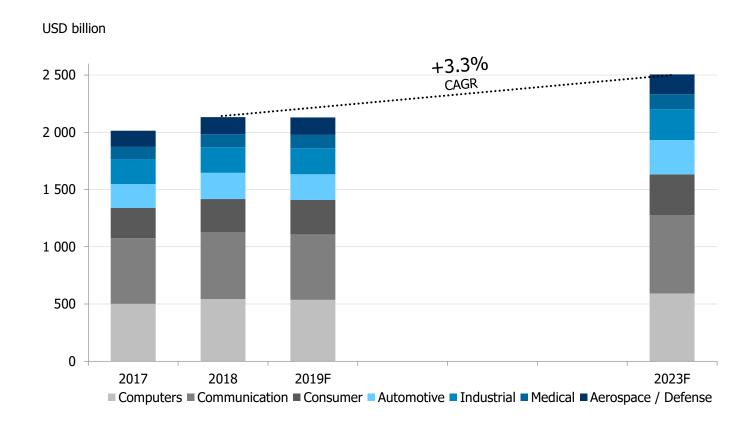






### **Electronics industry systems**

#### **Solid long term growth**



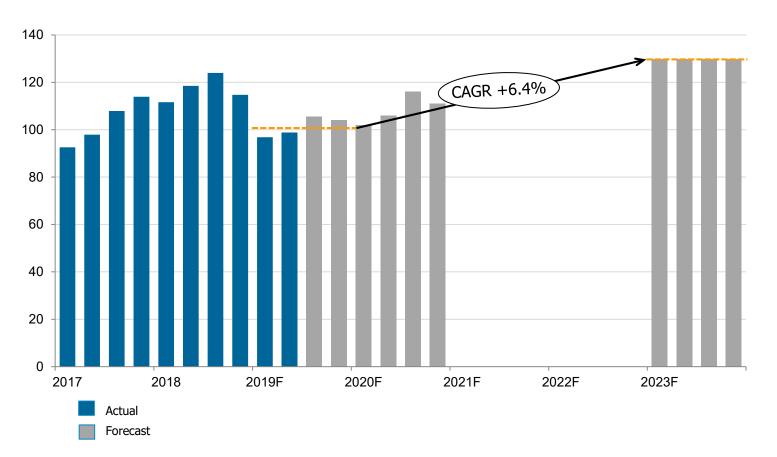
- +5.9% in 2018 to 2,132 BnUSD
- Expected decline of -0.1% in 2019 to 2,130 BnUSD with strongest development in segments
  - Consumer +4%
  - Aerospace +3%
  - Medical +3%
  - Industrial +1%
- +3.3% CAGR expected for 2018-2023

Source: Prismark, September 2019

### **Semiconductors**

#### **Quarterly development**

Bn USD



- +13.7% in 2018 to 469 BnUSD
- -13.6% decline expected in 2019 to 405 BnUSD
- 2019 to 2023 CAGR forecast at +6.4% growth

Source: Prismark, September 2019

### **Assembly Solutions**

#### Market update

#### SMT equipment\*

- 2018 saw a positive development for assembly equipment with a growth of 17% compared to full year 2017.
- 2019 H1 negative development of -12% compared to 2018 H1, mainly driven by markets in Europe, China and Japan.

#### Dispensing\*

- 2018 market estimated at 780 MUSD
- Mycronic within the top 4 largest suppliers of dispensing equipment addressing the major part of the total market

#### Assembly automation

- Camera modules for ADAS is growing fast
  - Grew 27% in 2018 to 165 million units
  - +14% CAGR 2018-2023 to reach 315 million units
  - Ongoing transition in China to actively aligned camera modules driven by more advanced automotive applications

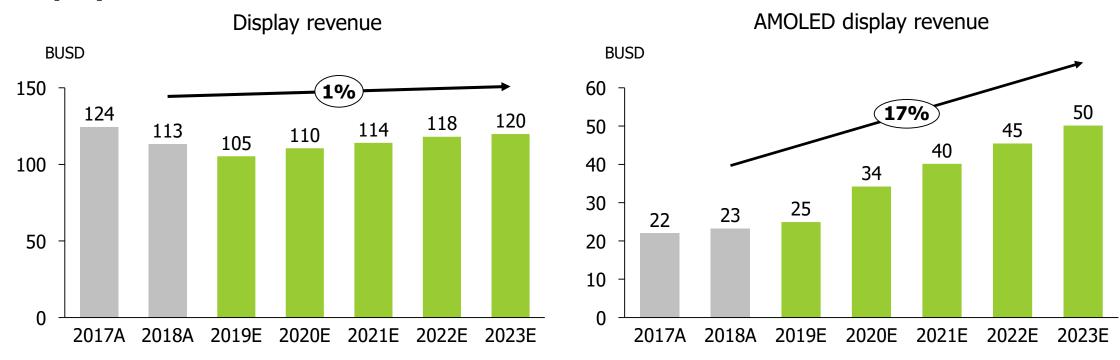
Source: PROTEC MDC July 2019, Prismark April and June 2019, Mycronic



<sup>\*</sup> No external forecast provided for 2019 and onwards

### **Pattern Generators**

#### **Display market**



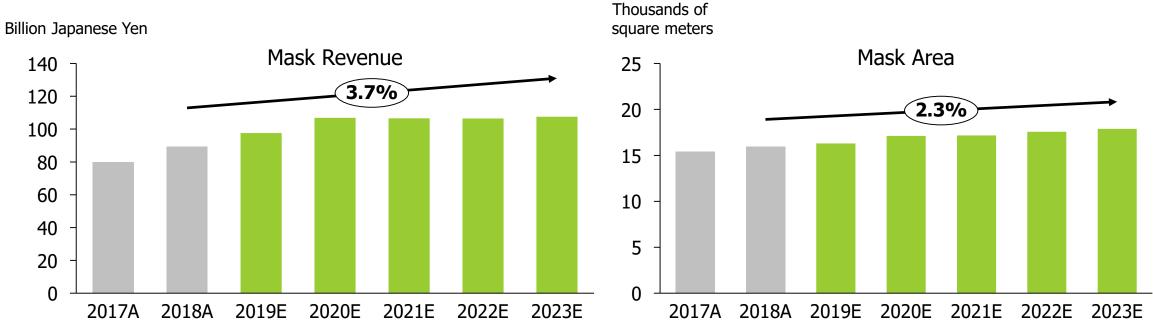
- Display market showed negative growth of 9% in 2018 and forecasted to show negative growth also 2019 of 7%
  - Still relaxed supply/demand on the market which keep prices down on both LCD and AMOLED
- Strong growth in AMOLED the coming years, shift from LCD to AMOLED accelerating
  - Technology shift ongoing from LCD to AMOLED for mobile displays but now also in TV segment
  - AMOLED ratio goes from 20% of total display revenue 2018 to 42% of total display revenue 2023

Source: IHS Markit, Technology Group, Display Long-Term Demand Forecast Tracker, October 3, 2019. Information is not an endorsement of Mycronic. Any reliance on these results is at the third party's own risk. Visit www.technology.ihs.com for more details



### **Pattern Generators**

#### **Positive photomask market**



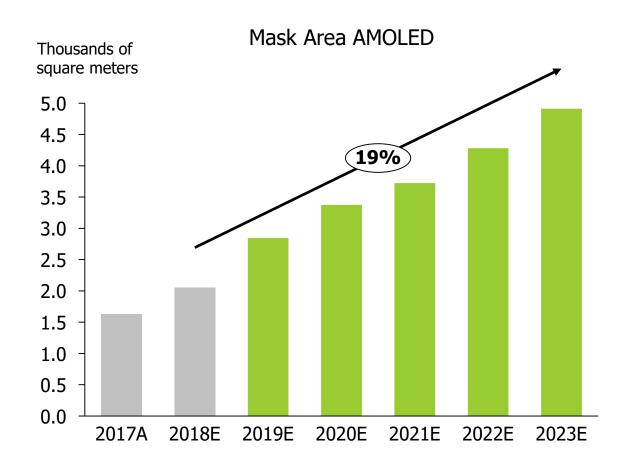
- Display mask market forecast positive
  - +9% revenue growth 2019, increased share of complex AMOLED masks and increased share of G10 masks drives strong revenue growth
  - 2020-2023 the market is forecast to stabilize on a high level, positive effects from area growth and transition to more advanced AMOLED masks are offset by expected lower prices om G10 masks
- Long term area growth forecast remains positive
  - Strongest growth seen in segment of complex and high value masks due to AMOLED transition and transition to displays with higher quality

Source: IHS Markit, Technology Group, FPD large-area photomask research, June 7 2019. Information is not an endorsement of Mycronic. Any reliance on these results is at the third party's own risk. Visit www.technology.ihs.com for more details



### **Pattern Generators**

#### **Strong growth of photomasks for AMOLED displays**



- Technology shift from LCD to AMOLED for mobile displays drives demand for AMOLED photomasks
  - Share of AMOLED photomasks will grow from 13% 2018 to 27% 2023 in relation to the total photomask area
- Photomasks for AMOLED are typically more complex than for LCD
  - More complex circuit design in each pixel
  - Requires a higher image quality and tighter specs
- Expected to drive need for P80/P800 capacity on the market

Source: IHS Markit, Technology Group, FPD large-area photomask research, June 7 2019. Information is not an endorsement of Mycronic. Any reliance on these results is at the third party's own risk. Visit www.technology.ihs.com for more details



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