

FEBRUARY 2, 2023



Photomask Equipment – Business Update

Yuta Nagai, Vice President Photomask Equipment – Capital Markets Day 2023

Disclaimer

All presentations at our Capital Markets Day 2023 contain forward-looking statements relating to the business, financial performance and earnings of SUSS MicroTec SE and its subsidiaries and associates.

Forward-looking statements are based on current plans, estimates, projections and expectations and are therefore subject to risks and uncertainties, most of which are difficult to estimate and which in general are beyond the control of SUSS MicroTec SE. Consequently, actual developments as well as actual earnings and performance may differ materially from those which explicitly or implicitly assumed in the forward-looking statements.

SUSS MicroTec SE does not intend or accept any obligation to publish updates of these forward-looking statements.

01

Markets and set-up to enable profitable growth

02

New markets for our technology

03

Summary and outlook

01

Markets and set-up to enable profitable growth

02

New markets for our technology

03

Summary and outlook

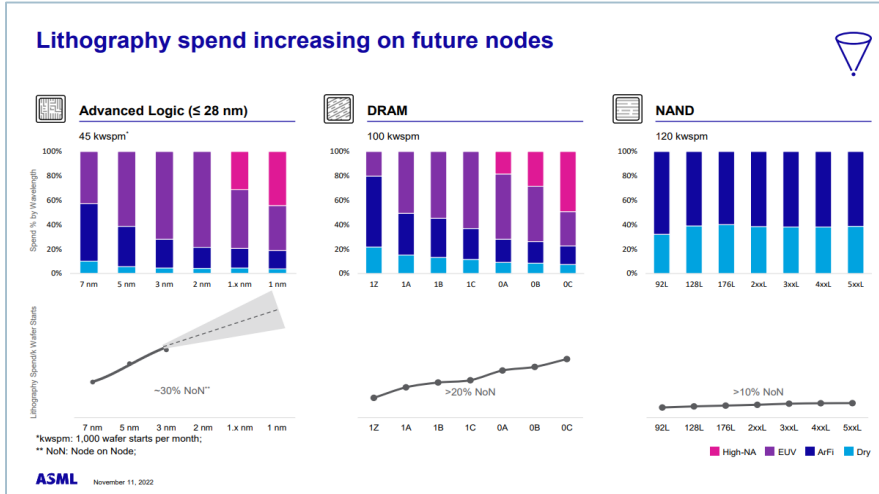
Photomask Equipment at a glance

Frontend	Advanced backend		Components	
Segments				
Photomask Equipment	Advanced Backend Solutions ¹		MicroOptics	
Products				
Photomask Cleaning MaskTrackPro	Imaging Mask Aligner MA200/300 Projection Scanner DSC300	Coating ACS300	Bonding XBC300 XB8	Microlens Arrays Microlens Arrays

Our business in numbers

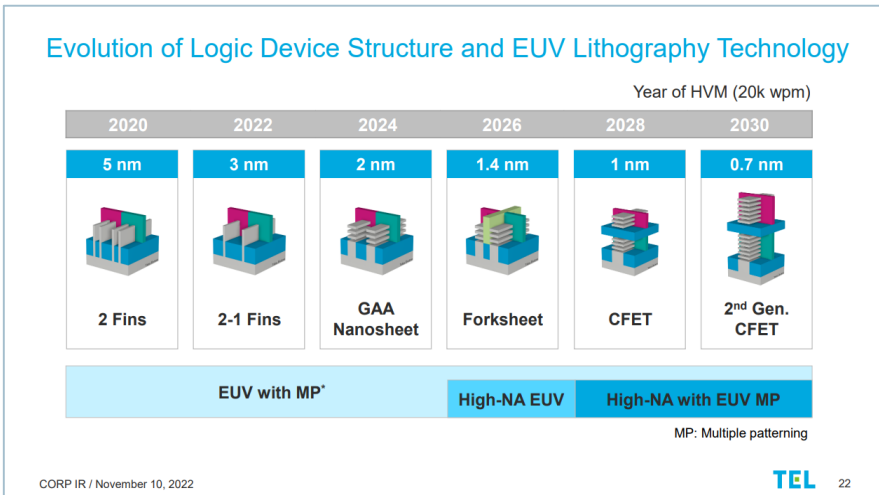
- 219**
 FTEs
 Our employees, mainly in production, R&D, marketing and sales
- ~49**
 in € million
 FY2022 revenue, represents 16% of the Group's sales
- ~131**
 in € million
 FY2022 order entry, represents 30% of the Group's order entry
- No.1**
 Clear market leader in both, Cleaning and Bake & Develop

Market follows Moore's Law with EUV-L



Capability demand will be mainly driven by Extreme Ultraviolet Lithography (EUV-L) toward device structures planned beyond 5 nm node.

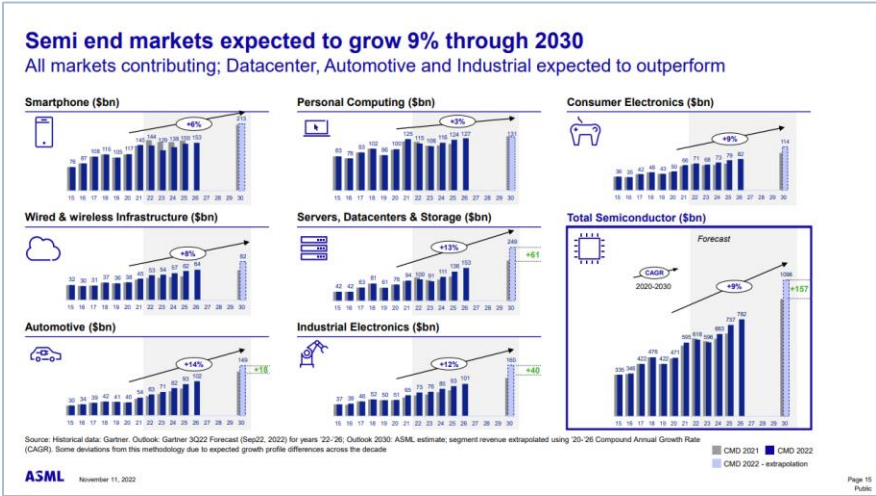
Conventional litho will continue to be used mainly for flash memory (NAND), while the use in logic and volatile memory (DRAM) are decreasing.



Well-filled investment pipeline in new frontend fabs across the world drives growth in Photomask Equipment as additional lithography capacities require photomasks.

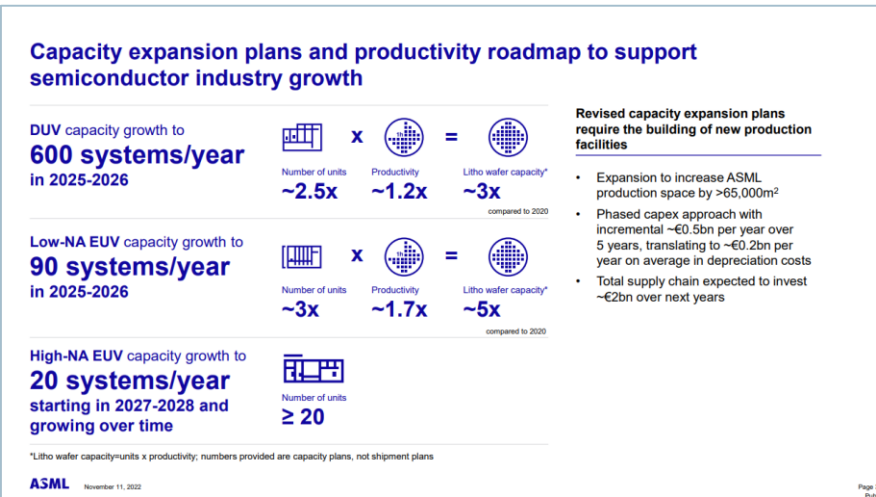
Source: ASML, Investor Day 2022 | TEL, Q2 FY2023 Financial Announcement presentation

Semi end market growth is 9% CAGR



The semi end market annual growth rate of around 9%, doubling the revenue from 2020 to 2030.

Faster node migration and stronger outlook on growing servers and emerging markets.



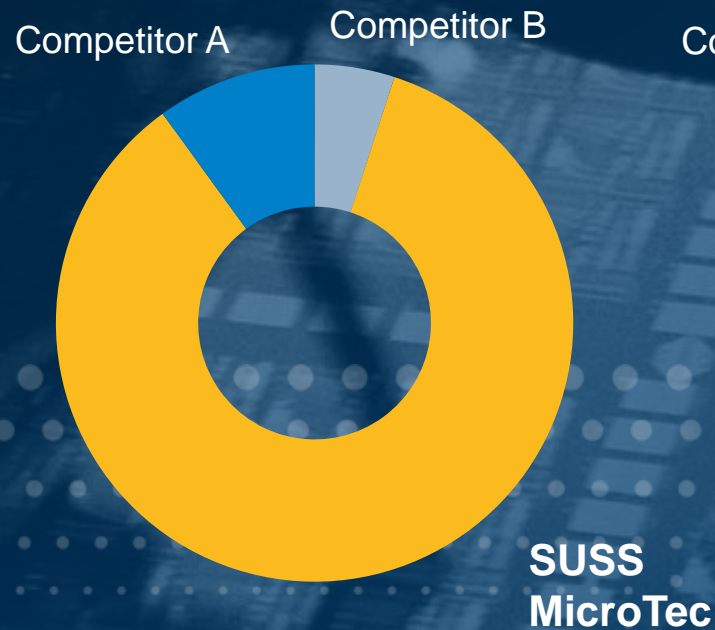
Mature market is mainly driven by smart grids and automotive.

Based on ASML's expansion plan, the average demand for high-end photomask cleaning will be 10-20 systems per year.

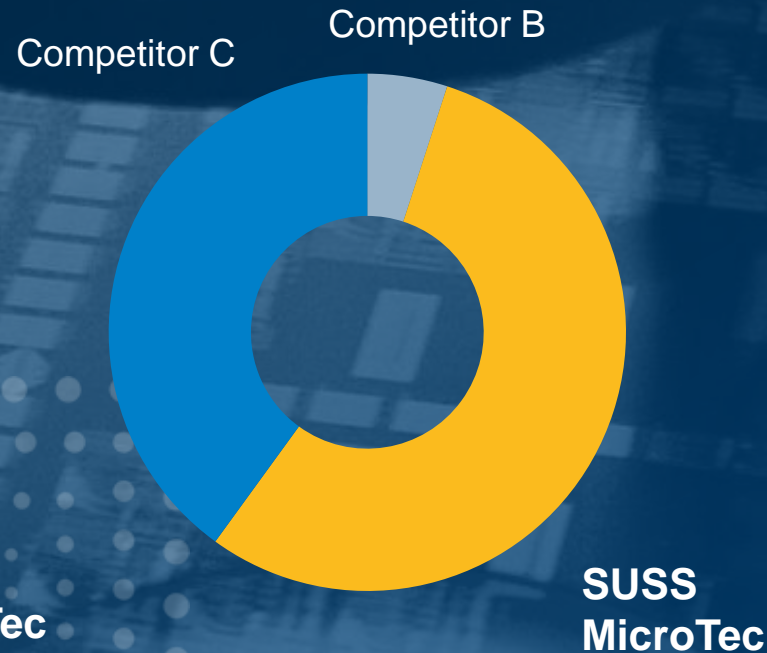
Source: ASML, Investor Day 2022

SUSS MicroTec is a market leader today

Cleaning system



Bake & Developer (BD) system



Achievements

2022

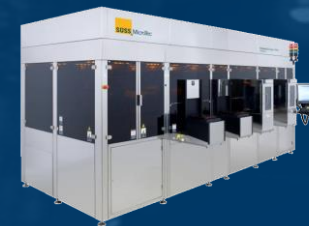
Order Entry

~ €131m

Revenue

~ €49m

- Our latest platform, **MaskTrack X**, is qualified and used for first EUV-L 5nm production at the largest foundry in the world (2020)
- Received **supplier award** from a leading maskshop, AMTC (2021)
- Highest order volume** in our history (2022)
- Growing number of installations in China** (2022)



MaskTrack X
Cleaner



Supplier award
from AMTC

SUSS MicroTec calculation based on installation base 2010-2022

We have an existing set-up for next innovation in place

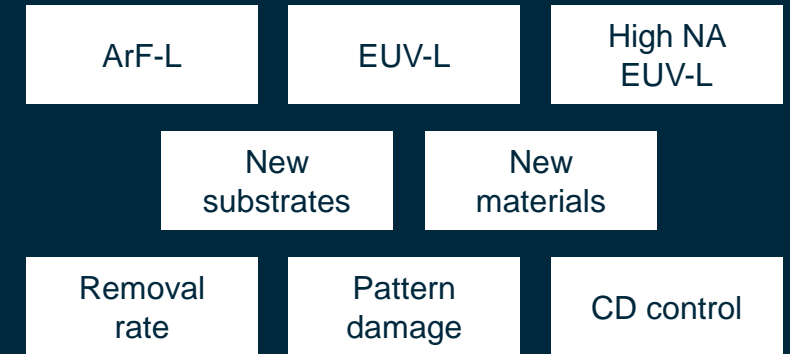
Technology scouting

- 1 Roadmap alignment
- 2 Customer-specific requirements
- 3 Continuous improvement
- 4 Consortia and conferences
- 5 Partnership with industrial leaders

Our expertise

- 1 **Tool control**
 - Machine learning
 - Media knowledge
 - Surface preparation
- 2 **Cleaning systems**
 - Acid-less organic removal
 - Physical force removal
 - EUV frontside protection
- 3 **Bake & Developer systems**
 - Process optimization
 - Dynamic curtain control
 - 25 zone hotplate

Field qualification (selection)



ArF-L is ArF Immersion Lithography

Maintaining and expanding business by R&D

Technology roadmap and technology orientation is completed along a leading customer's roadmap.

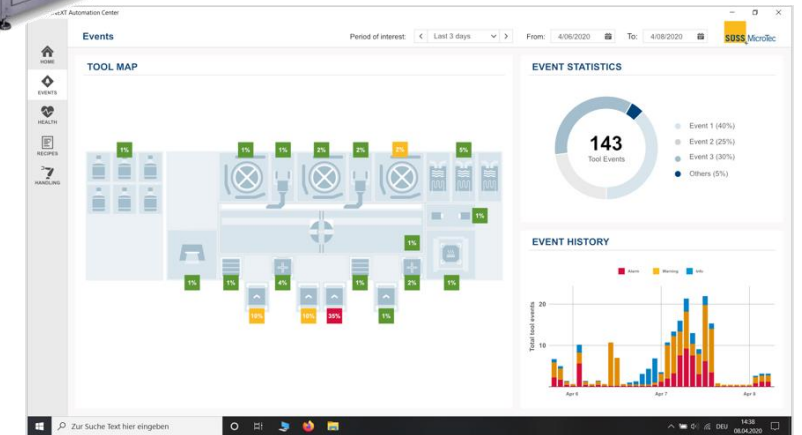
New technologies enabling to go **EUV-3nm and below** is under final field test.

Successful launch of **MaskTrack Smart Bake and Developer** in 2022.

Development of new platform, **MaskTrack Smart Cleaner**, has started for official launch in 2024.

Enhanced AI capability is under development with technology partner.

MaskTrack Smart Bake and Developer



Within-Tool-Analysis

Economic growth along with the market



1

Leading competitive position drives the growth with the market dynamics in frontend lithography

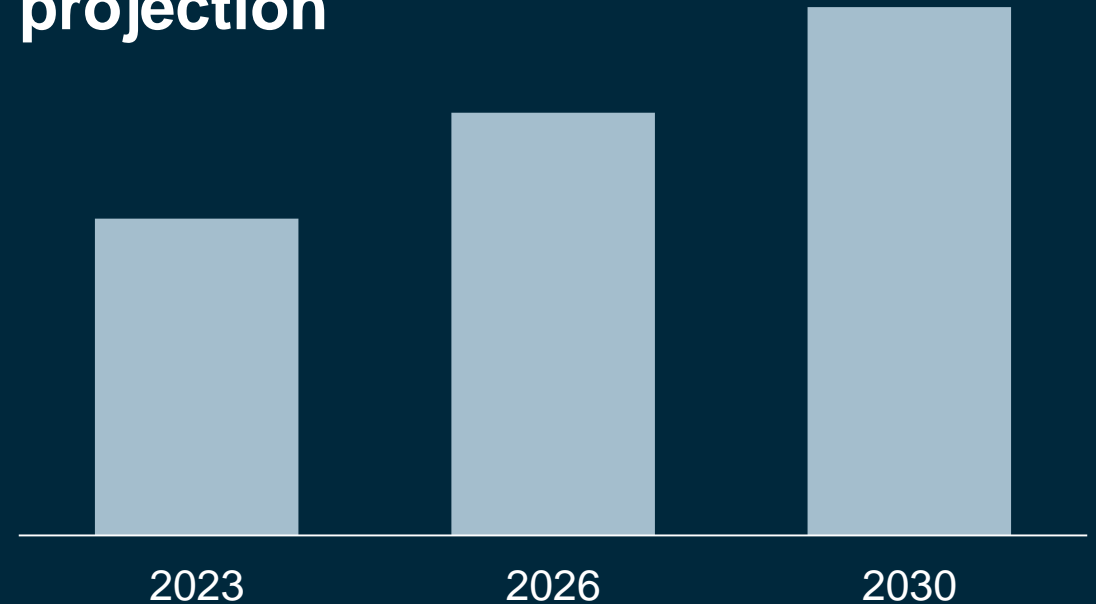
2

The release of a new value-added product, **MaskTrack Smart**, will allow us to keep our dominant market position

More than €700 million cumulated revenue

SÜSS MicroTec Photomask Equipment target 2023-2030

Revenue projection



01

Markets and set-up to enable profitable growth

02

New markets for our technology

03

Summary and Outlook

Leverage existing assets to pursue wafer cleaning market



Green in photomask cleaning

Existing high-end cleaning knowledge and the process know-how to remove fine particles without the use of acid and solvent chemicals.



Expertise in manufacturing wafer systems

Existing experience and procedure to design and manufacture backend wafer systems, driven by new group R&D.

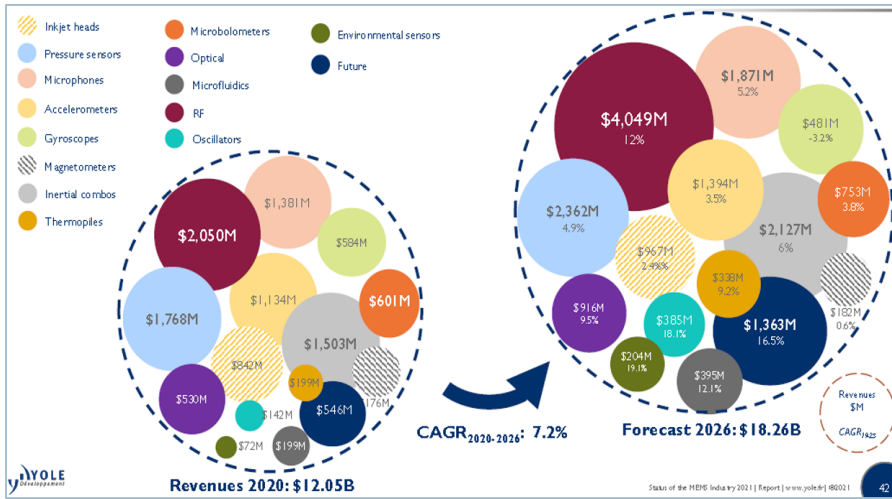


Market presence and global infrastructure

Existing market relationships and service infrastructure in Advanced Backend Solutions business unit, such as MEMS and Advanced Packaging.

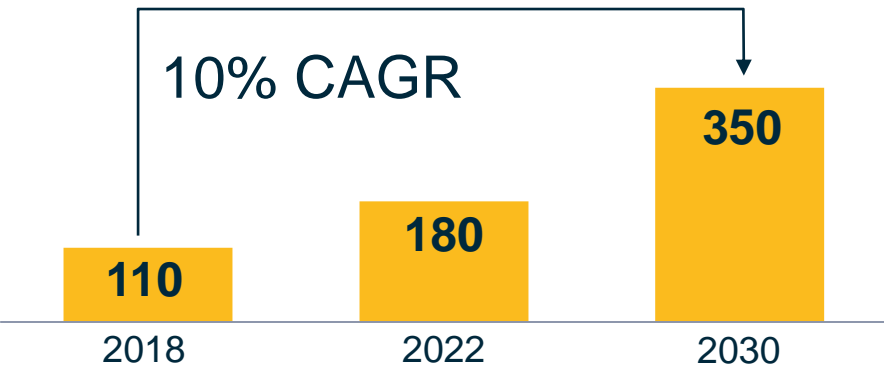


MEMS cleaning is our first target market



MEMS cleaning

total addressable market (TAM) in \$ million



Source: Yole, Status of the MEMS Industry 2021 | SUSS MicroTec calculation based on market information



Economic motivation

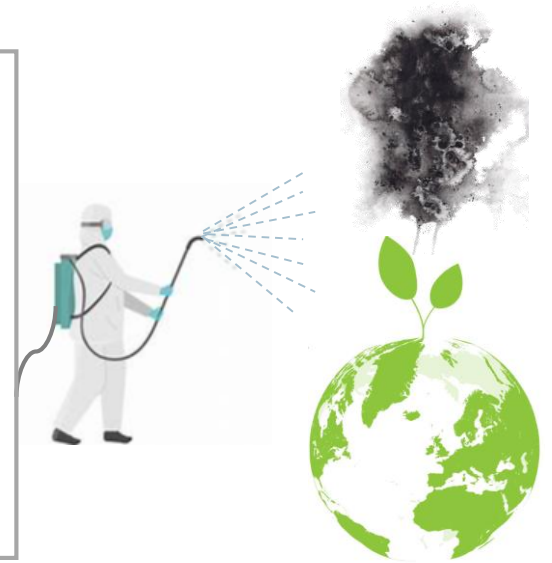
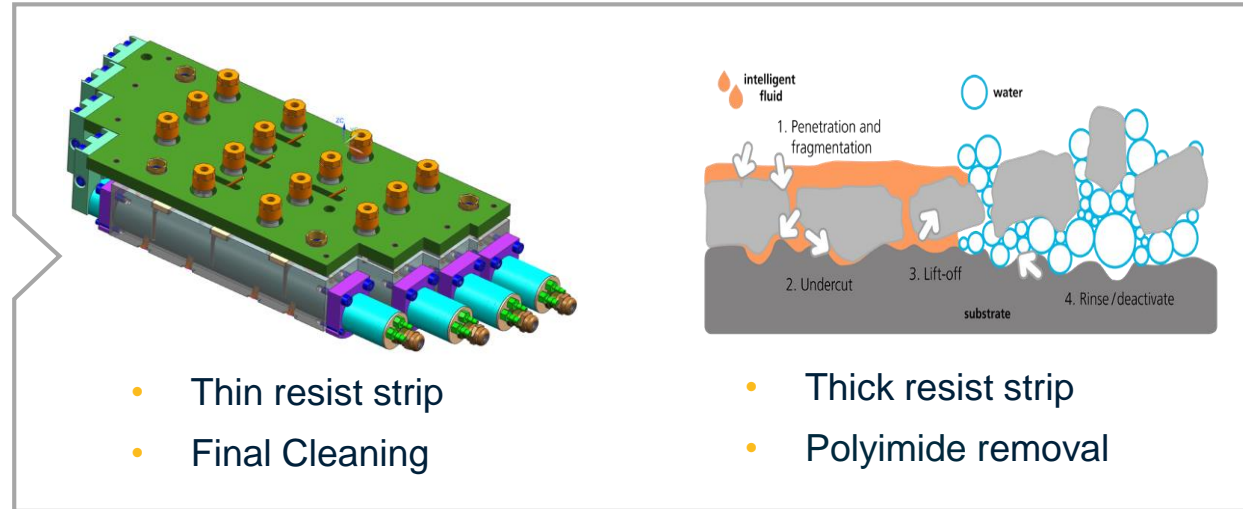
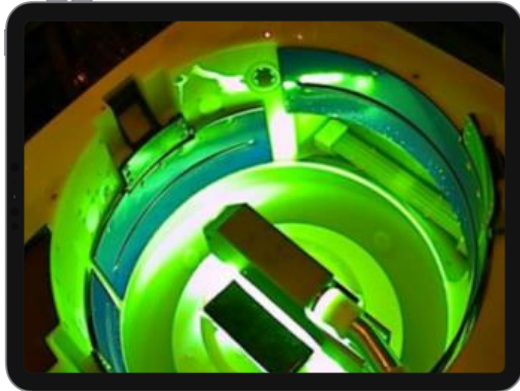
- Total addressable market (TAM) for MEMS cleaning equipment in 2022 is US\$ 180M
- Predicted to grow at an annual rate of 10% to **US\$ 350M** in 2030



Market requirement

- MEMS cover large and ever-growing applications space, requiring highly customized equipment
- **Numerous polymers** used in production require unique strip and cleaning technologies
- **Conventional chemistry (NMP)** used as main strip media increasingly restricted by government regulations
- Industry search for alternative solutions is in full swing
- Penetrate later into Advanced Packaging and Power Device in wafer cleaning

New green solutions to replace hazardous chemicals in MEMS cleaning



Photomask cleaning solutions

- Insite-UV technology for fast strip of organic materials without using Acid or solvent chemical
- IP protected

New CrustBuster technology

- Single wafer processing
- Wafer coverage up to 300 mm
- IP protected

New TurblenStrip technology

- Batch processing
- Magic green media
- IP protected, owned by partner

New SUSS GREEN solutions

- Favorite Cost-of-Ownership
- Eliminate conventional Acid and solvent chemicals

Our solutions enable our customers to save annual running cost and increase efficiency



1

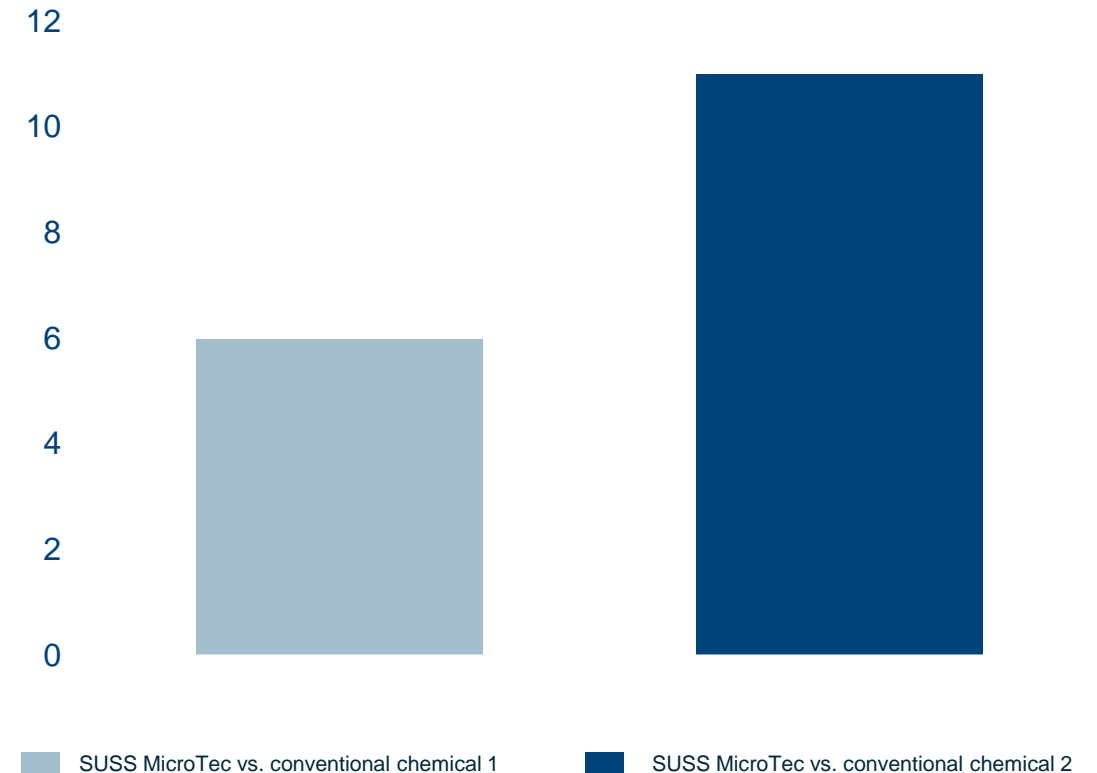
Total saving to remove 10 um resist shows a clear **Cost-of-Ownership benefit** on SUSS MicroTec **Green Solutions**.

2

Other than the conventional technology, our technology is complete within the SUSS MicroTec tool and does not require additional costs or processes for pre-or post-treatment.

Best-in-class Cost-of-Ownership

[relative savings in € million per year and tool]



Wafer clean is the largest growth factor



1

SUSS will target MEMS application first and **transfer its know-how in cleaning** to the advanced package and the power device of micron scale wafer applications.

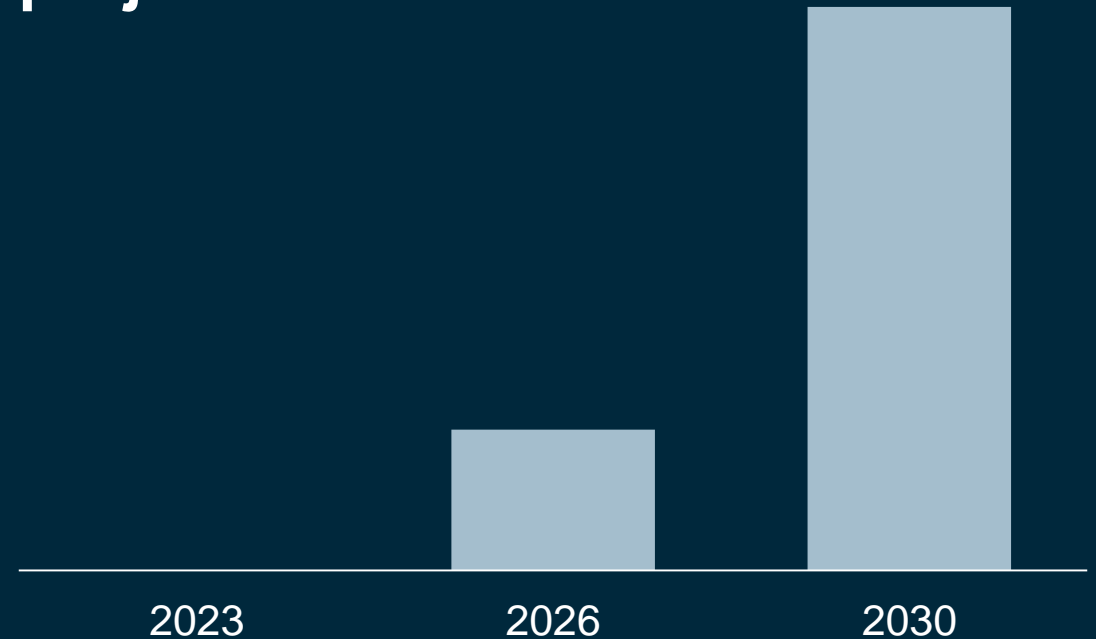
2

We will bring a revolutionary **Green Solution** to the industry, aggressively capture market share, and become a major growth factor.

more than €500 million cumulated revenue

SUSS MicroTec wafer cleaning target 2023-2030

Revenue projection



01

Markets and set-up to enable profitable growth

02

New markets for our technology

03

Summary and outlook

Summary



Significant revenue growth

Photomask Equipment including wafer cleaning in 2023-2030



Stable growth prospects



Photomask equipment demand increases with ASML



- The semi-end market CAGR of around 9% and a doubling of semiconductor revenue (2020-2030)
- Advanced wafers will follow the Moore's law with EUV-L and require further innovation
- Photomask equipment demand increases in proportion to lithography demand



Photomask is enabler for wafer manufacturing



Leverage SUSS experience for Advanced Backend Market



- ASML plans to increase capacity and capability on EUV-L systems
- SUSS MicroTec aims to maintain the dominant market share for photomask manufacturing and maintenance
- Targeting Green solution with outstanding CoO model in primary MEMS industry
- Extend later for other backend application