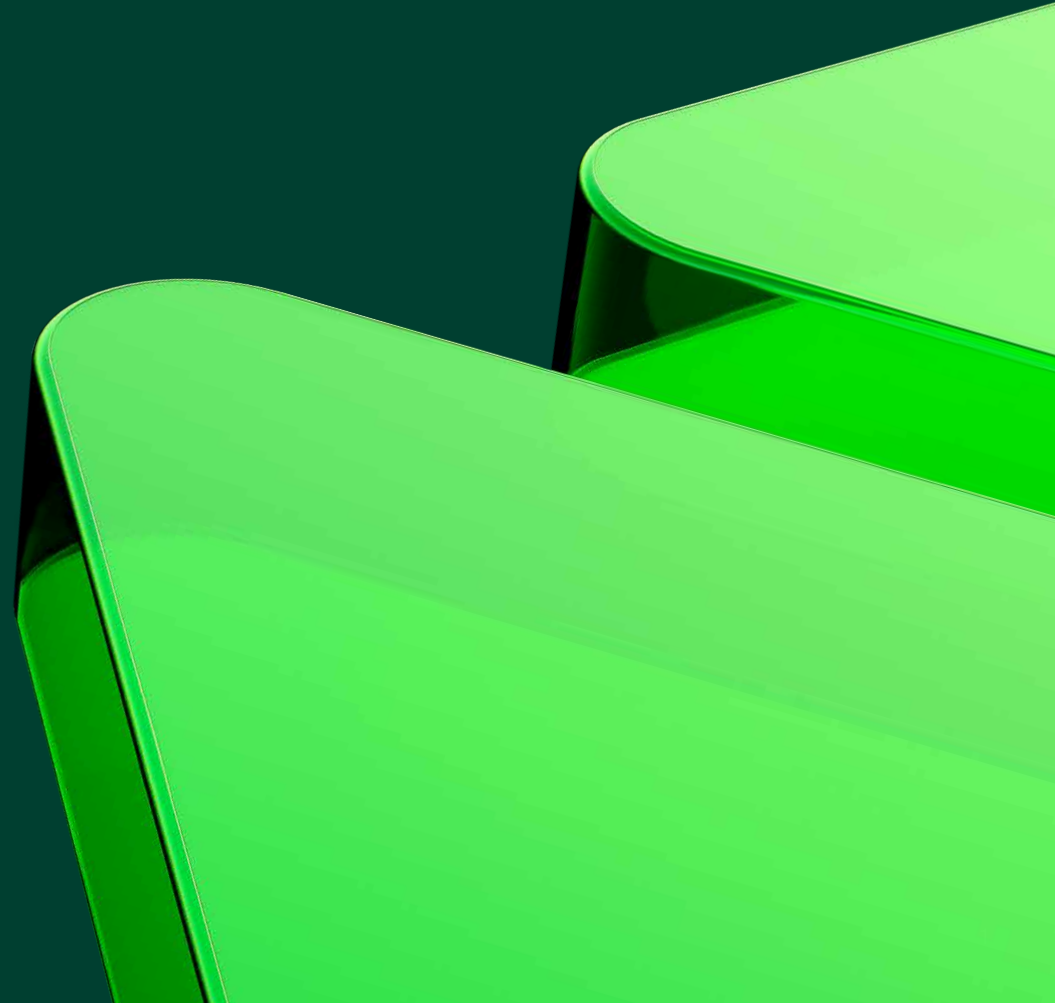


Company profile & product portfolio



A close-up photograph of a microchip on a printed circuit board (PCB). The chip is square and has a complex, glowing green pattern on its surface, resembling a honeycomb or a grid of interconnected lines. The background is a blurred view of the PCB's intricate circuitry, also illuminated with a green glow. The overall scene is set against a dark background, emphasizing the bright green light emanating from the chip.

Product portfolio

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Mask aligner & UV scanner	Page 16
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With more than 75 years of engineering experience SUSS is a leader in enabling advanced backend and photomask solutions in the semiconductor industry and related markets.

Our portfolio covers a comprehensive range of imaging, coating and bonding systems as well as photomask equipment. SUSS provides cost-effective solutions with unsurpassed quality and cutting-edge technology, enabling our customers to maximize yield at high throughput and thus reducing cost of ownership. In close cooperation with research institutes and industry partners SUSS contributes to the advancement of next-generation technologies such as 3D integration and imprint lithography as well as key processes for WLP, MEMS and LED manufacturing. With its global infrastructure for applications and service SUSS supports more than 8,000 installed systems worldwide.

SEGMENTS

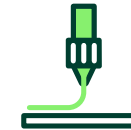
FRONT END

PHOTOMASK SOLUTIONS



ADVANCED BACKEND

ADVANCED BACKEND SOLUTIONS



PRODUCTS AND PROCESS STEPS

PHOTOMASK EQUIPMENT

- Photomask Cleaning
- Bake / Develop
- Metrology

IMAGING SYSTEMS

- Proximity Exposure (Mask Aligner)
- Imprinting
- Metrology
- UV Projection (Scanner)

COATING SYSTEMS

- Coating / Developing
- Inkjet Printing
- Metrology

BONDING SYSTEMS

- Bond Alignment
- Permanent Bonding
- Temporary Bonding
- Debonding
- Metrology

Growing Innovation

**SUSS is
everywhere
in life**





Advanced packaging

The consumer's constant push for higher functionality on smaller and thinner end devices – like smartphones, tablets or IoT – drives the need for next-generation packages with finer features and smaller form factor at increasing complexity of the package. Today a wide variety of advanced packaging technologies exist to meet the requirements of the semiconductor industry. The leading **advanced packages** include flipchip, WLCSP, FOWLP and 2.5 / 3D packaging. SUSS offers equipment and process solutions for all packaging platforms. This includes lithography equipment to pattern RDL, TSV structures, flipchip bumps like copper pillar, and more. SUSS's temporary bonding and debonding equipment enables processing of ultra-thin device wafers for leading edge 2.5 / 3D applications.

MEMS

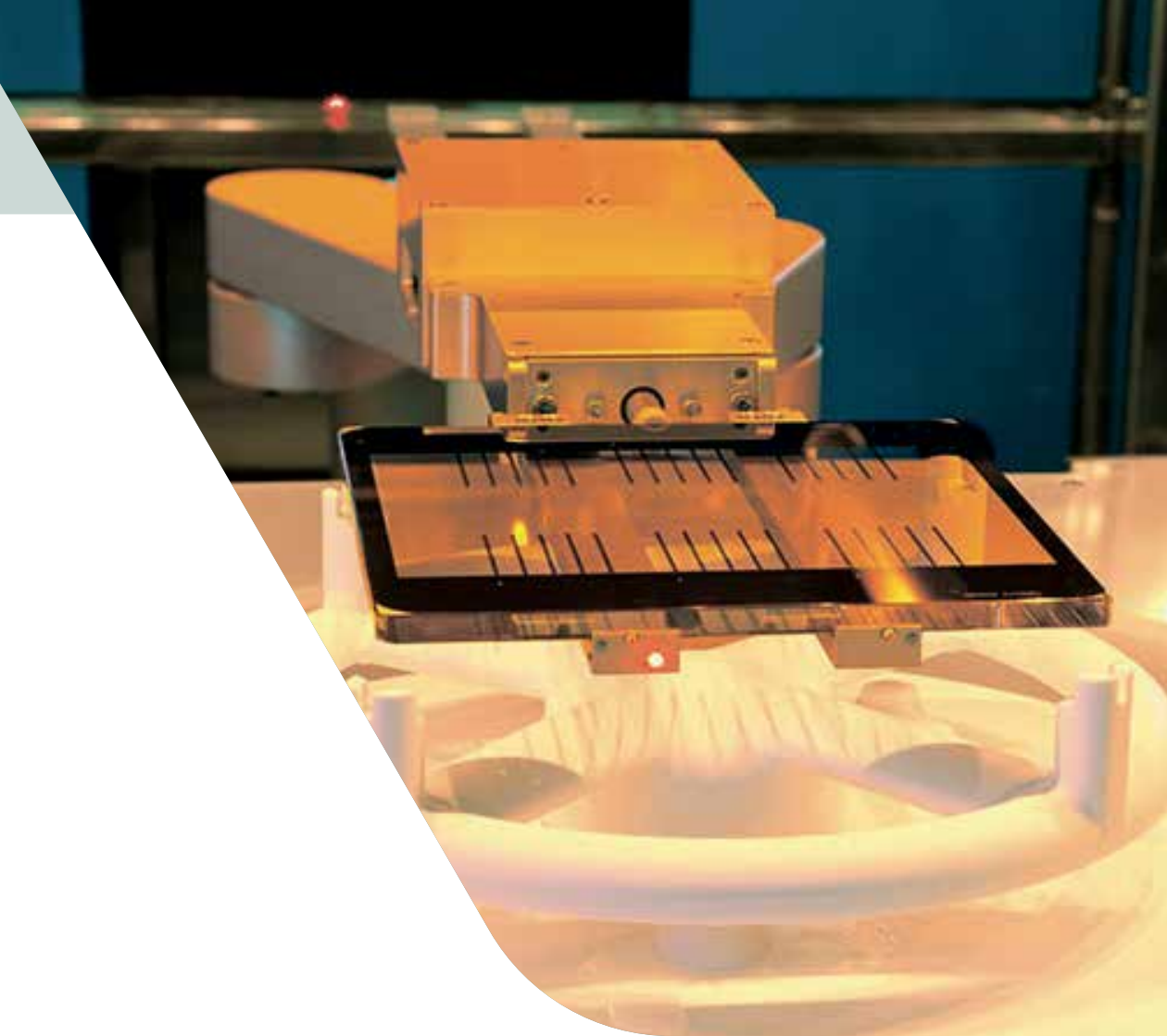
MEMS (Microelectromechanical Systems) are key components in many automotive, industrial, medical, aero-space and consumer applications. MEMS sensors are used in anything from automotive, smartphones to medical testing. The applications seem unlimited. MEMS are everywhere. Although based on commonly used silicon wafer processing, the manufacturing of MEMS devices requires highly specialized equipment to create mechanical structures that are a fraction of the width of a human hair. Highly flexible exposure and coating systems as well as wafer bonding equipment are essential in the processing of MEMS. From the start of volume manufacturing of MEMS products, SUSS has been supplying equipment to the MEMS industry worldwide.

LED

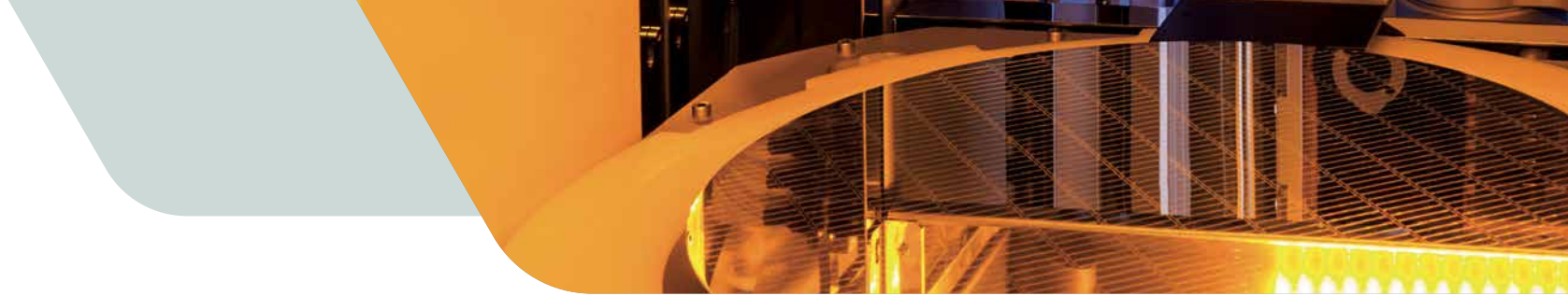
LEDs (Light Emitting Diodes) are based on compound semiconductors (III-V) and widely used in optoelectronic devices, consumer electronics such as tablets and mobile phones, automotive and general lighting applications. The manufacturing of LED devices requires dedicated equipment at lowest cost of ownership for this price-sensitive market. SUSS MicroTec provides exposure, coating, developing and wafer bonding equipment that handles fragile and highly warped wafers, deals with rough surfaces and provides best throughput for high-volume manufacturing. Imprint technologies are offered to manufacture specific layers for further light extraction efficiency.

Photomask Equipment

Process steps	Technologies
Bake	<ul style="list-style-type: none">• 25-Zone Controlled Post Exposure Bake• CD Profile Bake• Automated Optimization Routine to Define the Hotplate Program
Develop/Etch	<ul style="list-style-type: none">• Low Impact ASONIC® Develop Process• Fan Spray Develop Process• Positive and Negative Tone Resists• Fan Spray Etch Process
Clean	<ul style="list-style-type: none">• 172nm UV Surface Preparation• In situ UV Process• Advanced High Frequency Megasonics• Nano Binary Droplet Spray• Ambient Plasma for Surface Preparation and Restoration• High Temperature Surface Treatment• EUVL Compliant Automation• EUV Sidewall Cleaning• TranSonic
Metrology	<ul style="list-style-type: none">• Pre Clean Defect Inspection• Post Clean Defect Inspection



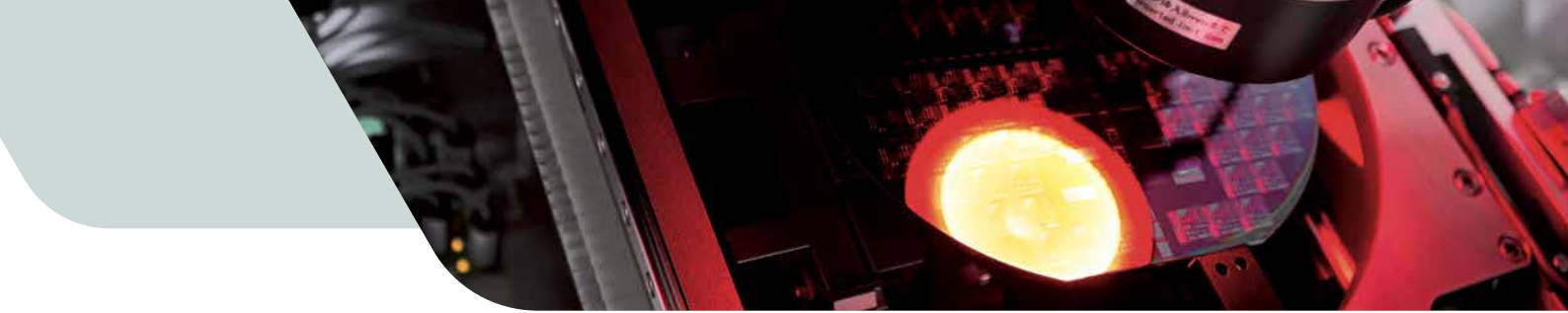
Wafer Coating



Process steps	Technologies
Wafer Handling	<ul style="list-style-type: none"> • Thin Wafer Handling • Warped Wafer Handling • Edge Handling • Taiko Wafer Handling
Spin Coating	<ul style="list-style-type: none"> • GYRSET® and/or Open Bowl • Thin and Thick Resists and Adhesive Systems • Planarization • EBR • BCB • Polyimide/PBO
Spray Coating	<ul style="list-style-type: none"> • High Topographies up to 600µm and more • Via Holes • KOH Etched Cavities • V-Grooves and Trenches • Lenses
Inkjet Printing	<ul style="list-style-type: none"> • Digital and Additive Patterning • Masking Resists • Solder Mask Coating • Conductive Interconnects • Isolation and Passivation Coatings • Stress Buffers • Adhesives • Trench Filling

Process steps	Technologies
Baking/Cooling	<ul style="list-style-type: none"> • Proximity
Developing	<ul style="list-style-type: none"> • Positive and Negative Tone Resists • Front and Backside Rinse • Fan Spray • Binary Spray & Puddle • Puddle • Megasonic
Metrology	<ul style="list-style-type: none"> • Automated Tool Qualification • EBR/Edge Coat Measurement • Post Coat Film Thickness Measurement • Post Develop Defect Inspection

Lithography & Patterning



Process steps	Technologies
Wafer Handling	<ul style="list-style-type: none"> • Thin Wafer Handling • Warped Wafer Handling • Fragile Wafer Handling • Edge Handling
Alignment	<ul style="list-style-type: none"> • Top-side Alignment • Bottom-side Alignment • Infrared Alignment • Optical Pattern Recognition • Non-contact Pre-Alignment
Proximity Exposure	<ul style="list-style-type: none"> • UV LED Exposure • Diffraction Reducing Optics • Large Gap Exposure • High Resolution Exposure • UV250-UV400 Exposure Systems • High Uniformity Exposure • Customized Illumination

Process steps	Technologies
Projection Exposure	<ul style="list-style-type: none"> • Full-field Continuous Scanning • Stitching-free Exposure • Magnification Correction • Beam Steering • Recipe Selectable NA • Recipe Selectable Wavelength
Imprint Lithography	<ul style="list-style-type: none"> • SUSS MicroTec Imprint Lithography Equipment (SMILE)
Metrology	<ul style="list-style-type: none"> • Front-to-backside Target Alignment • Overlay Measurement • Surface-to-subsurface Target Alignment (IR)

Wafer Bonder



Process steps	Technologies
Wafer Handling	<ul style="list-style-type: none"> • Thin Wafer Handling • Warped Wafer Handling • Fragile Wafer Handling • Edge Handling • Aligned Wafer Handling
Bond Alignment	<ul style="list-style-type: none"> • Top-side Alignment • Bottom-side Alignment • Inter-substrate Alignment • Infrared Alignment
Permanent Bonding	<ul style="list-style-type: none"> • Hybrid Bonding <ul style="list-style-type: none"> + Sequential D2W + Collective D2W + W2W • Fusion Bonding • Metal Diffusion Bonding • Eutectic and SLID Bonding • Glass Frit Bonding • Anodic Bonding • Adhesive Bonding

Process steps	Technologies
Plasma Activation	<ul style="list-style-type: none"> • Plasma Activation for Fusion Bonding • Full Surface Activation
Cleaning	<ul style="list-style-type: none"> • Aqueous Cleaning • Solvent Cleaning • Megasonic Cleaning
Temporary Bonding/ Debonding	<ul style="list-style-type: none"> • Supporting Various Temporary Bond Materials and Processes • Mechanical and Laser Release
Metrology	<ul style="list-style-type: none"> • Multipoint Overlay Verification • Bond Void Defect Inspection • Surface Defect Inspection • Surface Topography & Coplanarity • Post Coat Adhesive Thickness & TTV • Post Bond Adhesive Thickness & TTV

Photomask Equipment



HMx Square

Manual system

3 μ m – 250 nm hp

- Stripping / Cleaning
- Developing
- Etch Photomask Processing



ASx Series

Automated system

down to 65 nm

- Baking (< 14 nm)
- Stripping / Cleaning
- Developing
- Etching



MaskTrack smart BD

Automated system 193i and EUVL

- EUVL & 193i Photomask Bake & Develop Processing
- Continuous AI-Based Analysis and Prediction
- EUVL Photomask Automation
- Low Contact Substrate Handling

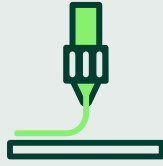


MaskTrack Pro/X

Automated system 193i 2x/1x, EUVL

- EUV und 193i Photomask Cleaning
- EUV Photomask Automation
- Photomask Baking & Developing

Coating / developing systems



LabSpin® 6 / 8

Manual system

up to 200 mm

- Spin Coating
- Aqueous Puddle Developing



HP8 / CP8 / VP8

Manual system

up to 200 mm

- Baking / Cooling
- Vapor Priming



RCD8

Manual system

up to 200 mm

- Spin Coating
- Puddle Developing
- Aqueous Spray Developing
- Aqueous Binary Spray Developing



AS8

Manual system

up to 300 mm

- Spray Coating



MCS8

Manual system

up to 200 mm

- Priming
- Spin Coating
- Spray Coating
- Baking / Cooling
- Aqueous / Solvent Developing
- Inkjet Printing



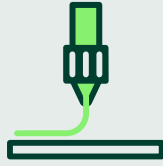
ECD8

Manual system

up to 200 mm

- Spin Coating
- Puddle Developing

Coating / developing systems



ACS200 Gen3
Automated system

up to 200 mm

- Priming
- Spin Coating
- Spray Coating
- Baking/Cooling
- Aqueous / Solvent Developing
- Integrated Metrology Module



ACS200 Gen3 TE
Automated system

up to 200 mm

- Priming
- Spin Coating
- Spray Coating
- Baking/Cooling
- Aqueous / Solvent Developing
- Integrated Metrology Module
- Inkjet Printing

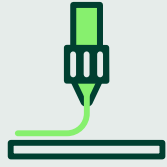


ACS300 Gen2
Automated system

up to 300 mm

- Priming
- Spin Coating
- Spray Coating
- Baking/Cooling
- Aqueous / Solvent Developing
- Integrated Metrology Module

Inkjet Printer

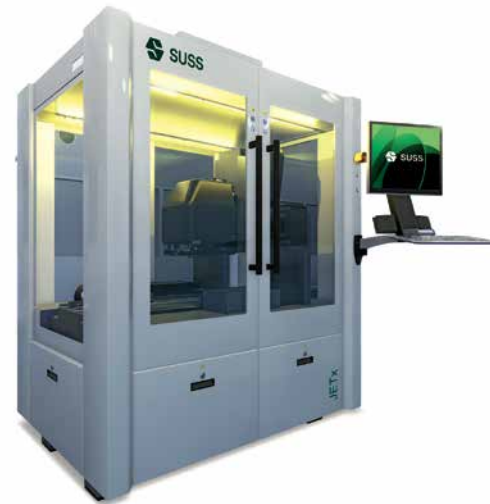


LP50

Manual system

up to 227 mm x 327 mm

- Digital and Additive Patterning
- Functional Material Printing
- Mask Printing



JETx

Automated system

up to 610 mm x 915 mm

- Digital and Additive Patterning
- Functional Material Printing
- Mask Printing

Also available as a specific configuration for Solder Mask Coating

Metrology Systems



DSM8 Gen2

Semi-automated system

up to 200 mm

- Double-sided Overlay Measurement Equipment
- Front-to-back Alignment Metrology



DSM200 Gen2

Automated system

up to 200 mm

- Double-sided Overlay Measurement Equipment
- Front-to-back Alignment Metrology

Mask Aligner



MJB4

Manual system

up to 100 mm

- Mask Alignment
- Exposure
- Nanoimprinting



MA8 Gen5

Semi-automated system

up to 150 mm / 200 mm

- Micro- and Nanoimprinting
- Mask and Bond Alignment
- UV Bonding
- Fusion Bonding



MA/BA Gen4 Series

Semi-automated system

up to 150 mm / 200 mm

- Mask and Bond Alignment
 - Exposure
 - Fusion Bonding
 - Micro- and Nanoimprinting
- Also available as BA Gen4 configuration



MA12 Gen3

Semi-automated system

up to 300 mm

- Mask Alignment
- Exposure
- Micro- and Nanoimprinting

Proximity Exposure

Mask Aligner



MA100/150e Gen2

Automated system

up to 150 mm

- Mask Alignment
- Exposure



MA200 Gen3

Automated system

up to 200 mm

- Mask Alignment
- Exposure



MA300 Gen3

Automated system

up to 300 mm

- Mask Alignment
- Exposure

Projection Exposure

UV Scanner



DSC300 Gen3

Automated system

up to 300 mm

- Alignment
- Full-Field Scanning Projection

Wafer Bonding Systems



XB8

Semi-automated system

up to 200 mm

- High-Force Wafer Bonding



SB8 Gen2

Semi-automated system

up to 200 mm

- Wafer Bonding



DB12T

Semi-automated system

up to 300 mm

- Mechanical Debonding

Wafer Bonding Systems



XBS200

Automated system

up to 200 mm

- High-Force Wafer Bonding
- Bond Alignment
- Fusion Bond Option
- Laser Pre-Bond Option
- Integrated Metrology Module



XBS300

Automated system (Temporary Bonding Platform)

up to 300 mm

- Adhesive and Release Layer Coating
- Plasma Release Layer Deposition
- Temporary Wafer Bonding
- Thickness and TTV Measurement

Wafer Bonding Systems



XBS300 W2W

Automated system (Hybrid Bonding Platform)

up to 300 mm

- W2W Bond Alignment
- Collective D2W Bonding
- Surface Activation
- Wafer Clean
- Metrology Module



XBC300 Gen2

Automated system (Wafer or Wafer on Tape Frame)

up to 300 mm

- Excimer Laser-Assisted Debonding
- Mechanical Debonding
- Cleaning
- Integrated Metrology Module



XBC300 Gen2 D2W/W2W

Automated system (Hybrid Bonding Platform)

up to 300 mm

- W2W Bond Alignment
- Surface Activation
- Wafer Clean
- Metrology Module
- Integrated Die-Bonder for D2W

Our locations

North America

- USA

Europe

- Germany
- United Kingdom
- France
- Netherlands

Asia

- Japan
- Korea
- China
- Singapore
- Taiwan



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