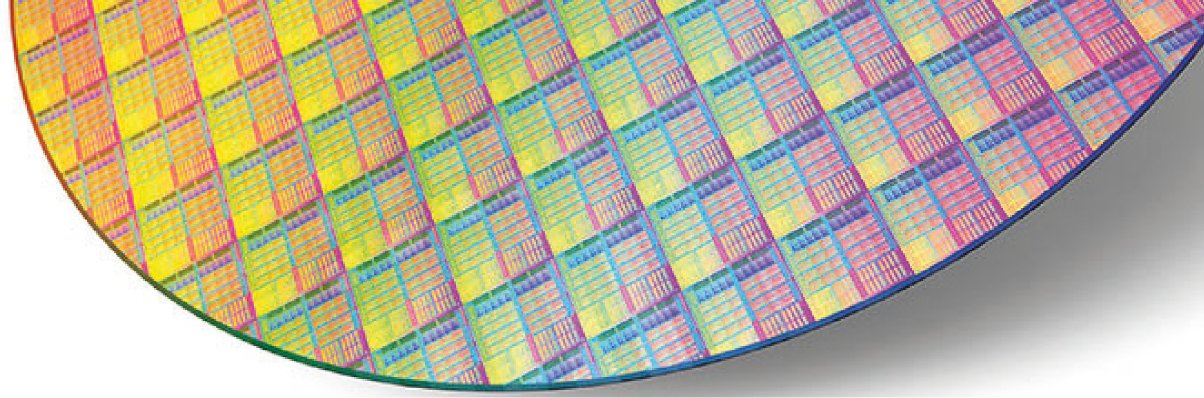
SHAPING THE FUTURE

SUSS MicroTec PRODUCT PORTFOLIO



SHAPING THE FUTURE

With more than 70 years of engineering experience SUSS MicroTec is a leading supplier of process equipment for microstructuring in the semiconductor industry and related markets. Our portfolio covers a comprehensive range of products and solutions for backend lithography, wafer bonding and photomask processing, complemented by micro-optical components.

SUSS MicroTec provides cost-effective solutions with unsurpassed quality and cutting-edge technology, enabling our customers to maximize yield at high throughput thus reducing cost of ownership.

In close cooperation with research institutes and industry partners SUSS MicroTec 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 MicroTec supports more than 8,000 installed systems worldwide.

LITHOGRAPHY SYSTEMS

+ Proximity Lithography
+ Projection Lithography
+ Coating / Developing
+ Imprint Lithography
+ Metrology

LASER PROCESSING SYSTEMS

+ Laser Ablation
+ Debonding
+ Via / RDL Creation
+ Seed Layer Removal

WAFER BONDING SYSTEMS

+ Permanent Wafer Bonding
+ Temporary Wafer Bonding
+ Debonding

PHOTOMASK EQUIPMENT

+ Cleaning Platforms
+ Bake / Develop Systems
+ EUVL Reticle Handling & Inspection

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 MicroTec offers equipment and process solutions for all packaging platforms.
This includes lithography equipment to pattern RDL, TSV structures and flipchip bumps like copper pillar. SUSS MicroTec'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, aerospace 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 MicroTec has been supplying equipment to the MEMS industry worldwide.

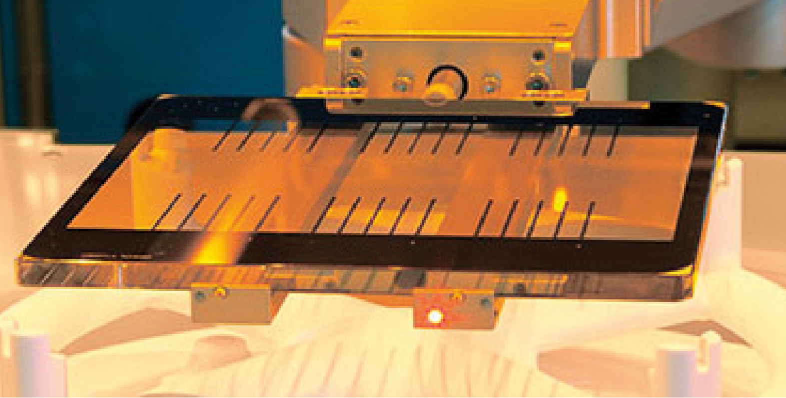
LED

LEDs (Light Emitting Diode) 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.

PROCESS STEPS	TECHNOLOGIES
PHOTOMASK EQUIPMENT	
Bake	+ 25-Zone Controlled Post Exposure Bake + CD Profile Bake + Mirror Bake
Develop / Etch	+ Low Impact ASonic Develop Process + Fan Spray Develop Process + Fan Spray and Puddle Etch Process
Clean	+ 172 nm UV Surface Preparation + Insitu UV + Advanced MegaSonics + Nano Binary + Soft RTP + High Temperature Decontamination + EUV Dual Pod Handling and Cleaning
LITHOGRAPHY / PATTERNING	
Spin Coating	+ Thin and Thick Resists and Adhesive Systems + Planarization + BCB + Polyimide
Spray Coating	+ High Topographies up to 600 µm and more + Via Holes + KOH Etched Cavities + V-Grooves and Trenches + Lenses
Baking / Cooling	+ Contact + Proximity + Edge Handling
Alignment	+ Top-side Alignment + Bottom-side Alignment + Infrared Alignment + Optical Pattern Recognition + Non-contact Pre-Alignment
Proximity Lithography	+ Diffraction Reducing Optics + Large Gap Exposure + UV250 – UV400 Exposure Systems + Customized Illumination
Projection Lithography	+ Scan + Step & Repeat + Step & Scan + Large Area Projection
Laser Ablation	+ Excimer Laser
Laser Drilling	+ Excimer Laser
Laser Seed Layer Removal	+ Excimer Laser

PROCESS STEPS	TECHNOLOGIES
LITHOGRAPHY / PATTERNING	
Imprint Lithography	+ UV-Nanoimprint Lithography (UV-NIL) + Substrate Conformal Imprint Lithography (SCIL) + SUSS MicroTec Imprint Lithography Equipment (SMILE)
Alignment Verification	+ Front-to-back Side Metrology + Overlay Measurement + Infrared Alignment Verification
Lift-off	+ Puddle Nozzle + Fan Spray + High Pressure Nozzle + Recirculation + Aqueous and Solvent Processes
Developing	+ Positive and Negative Tone Resists + Front and Backside Rinse + Fan Spray + Binary Spray + Puddle Nozzle
Cleaning	+ Aqueous Cleaning + Solvent Cleaning + Megasonic Cleaning + Dual Wafer Ultrasonic Cleaning
Metal Oxide Removal	+ Formic Acid Vapour Cleaning Prior to Bonding
Wafer Handling	+ Thin-wafer Handling + Warped-wafer Handling + Fragile-wafer Handling + Edge Handling
WAFER BONDER	
Wafer Handling	+ Thin-wafer Handling + Warped-wafer Handling + Fragile-wafer Handling + Edge Handling
Plasma Activation	+ Plasma Activation for Fusion Bonding + Full Surface Activation + Selective Activation
Bond Alignment	+ Top-side Alignment + Bottom-side Alignment + Infrared Alignment
Permanent Bonding	+ Hybrid and Fusion Bonding + Metal Diffusion Bonding + Eutectic and SLID Bonding + Glass Frit Bonding + Anodic Bonding + UV Bonding + Adhesive Bonding
Temporary Bonding / Debonding	+ Supporting Various Temporary Bond Materials and Processes + Chemical, Mechanical and Laser Release



PHOTOMASK EQUIPMENT

HMx Square

Manual system
3 µm - 250 nm hp

+ Strip / Clean
+ Develop
+ Etch Photomask Processing

MaskTrack *Pro*

Automated system
193i 2x / 1x,
EUVL and NIL

+ Photomask Cleaning
+ Template Cleaning
+ Develop
+ Bake
+ EUV Photomask and Dual Pod Management

ASx Series

Automated system
down to 65 nm

+ Bake (< 14 nm)
+ Stripping / Cleaning
+ Developing
+ Etching

COATING / DEVELOPING SYSTEMS

LabSpin6 / 8

Manual system
up to 200 mm

+ Spin Coating
+ Puddle Developing

RCD8

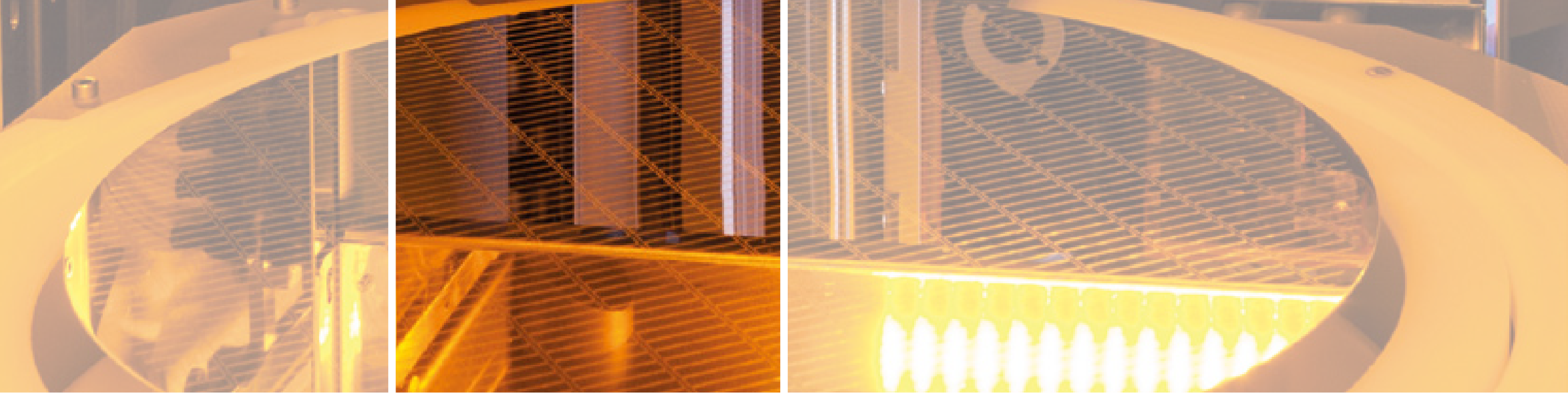
Manual system
up to 200 mm

+ Spin Coating
+ Puddle Developing

HP8 / CP8 / VP8

Manual system
up to 200 mm

+ Baking / Cooling
+ Vapor Priming



COATING / DEVELOPING SYSTEMS

AS8 / 12
Manual system
up to 300 mm

+ Spray Coating

ACS200 Gen3
Automated system
up to 200 mm

+ Priming
+ Spin Coating
+ Spray Coating
+ Baking
+ Aqueous / Solvent Developing

AD12
Manual system
up to 300 mm

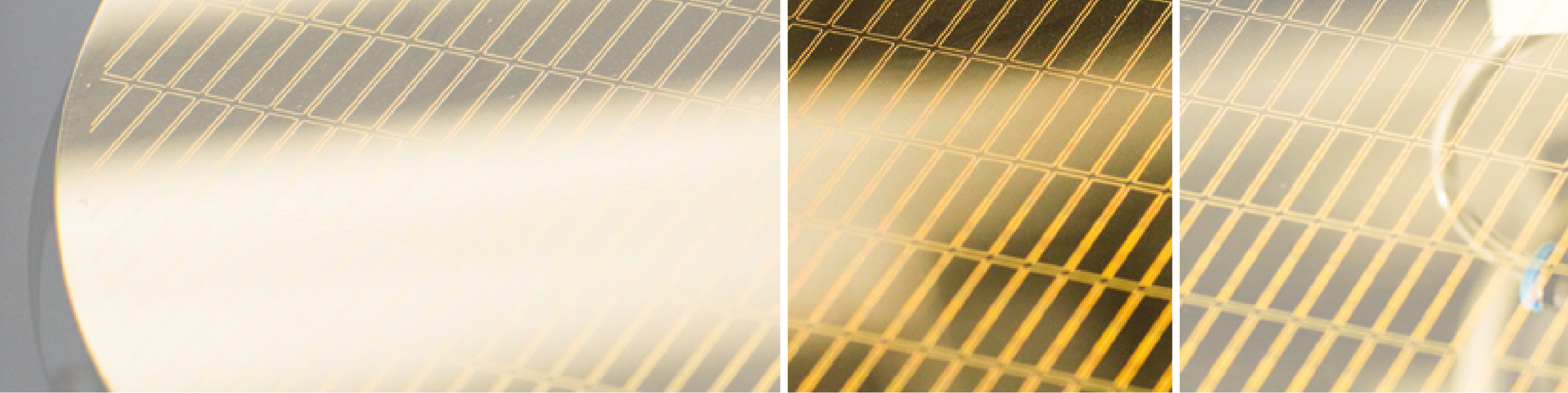
Aqueous Processes
+ Puddle / Spray Developing
+ Wafer Cleaning

ACS300 Gen3
Automated system
up to 300 mm

+ Priming
+ Spin Coating
+ Baking
+ Aqueous / Solvent Developing

SD12
Manual system
up to 300 mm

Solvent Processes
+ Puddle / Spray Developing
+ Lift-off
+ Wafer Cleaning



MASK ALIGNER
(PROXIMITY EXPOSURE)

MJB4
Manual system
up to 100 mm

+ Mask Alignment
+ Exposure
+ Nanoimprinting

MA / BA Gen4 *Pro* Series
Semi-automated system
up to 150 mm / 200 mm

+ Mask and Bond Alignment
+ Exposure
+ UV Bonding
+ Fusion Bonding
+ Micro- and Nanoimprinting
+ Selective Plasma Activation

Also available as BA8 Gen4 Pro configuration

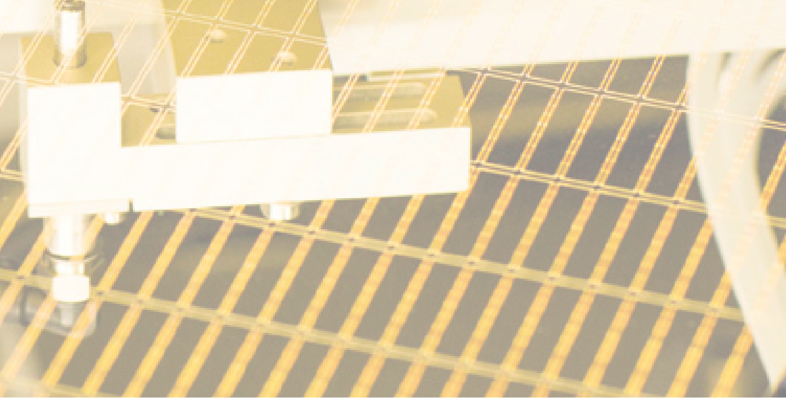
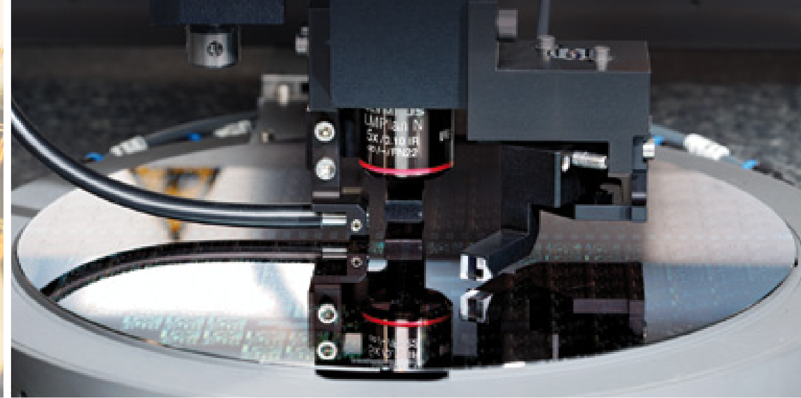
MA / BA Gen4 Series
Semi-automated system
up to 150 mm / 200 mm

+ Mask and Bond Alignment
+ Exposure
+ Fusion Bonding
+ Micro- and Nanoimprinting

Also available as BA Gen4 configuration

MA 12
Semi-automated system
up to 300 mm

+ Mask Alignment
+ Exposure

MASK ALIGNER
(PROXIMITY EXPOSURE)

MA100 / 150e Gen2
Automated system
up to 150 mm

+ Mask Alignment
+ Exposure

MA200 Gen3
Automated system
up to 200 mm

+ Mask Alignment
+ Exposure

MA300 Gen2
Automated system
up to 300 mm

+ Mask Alignment
+ Exposure

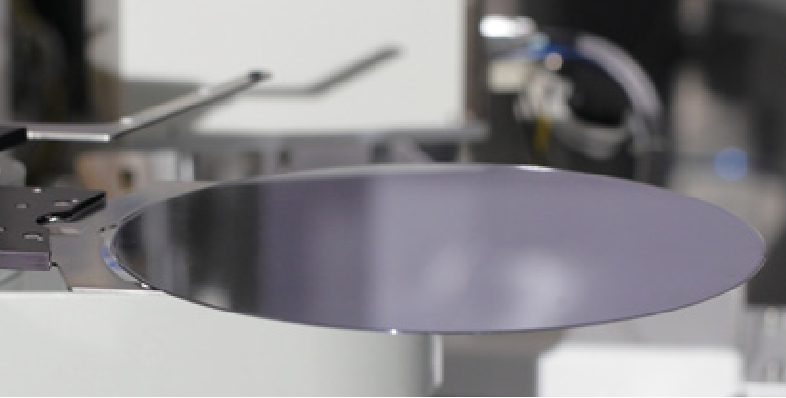
METROLOGY SYSTEMS

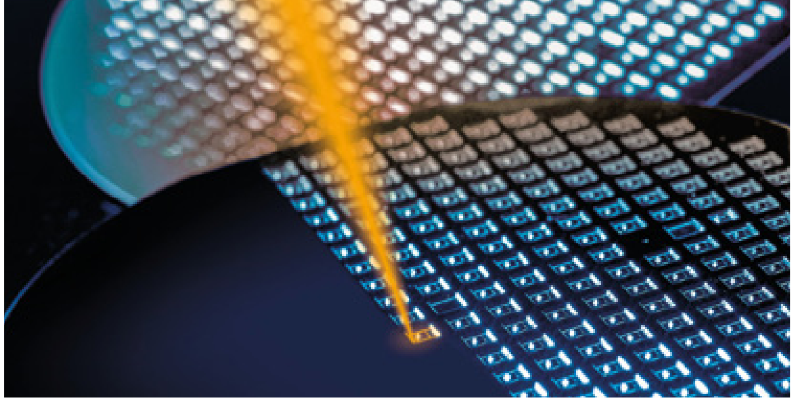
DSM8 Gen2
Semi-automated system
up to 200 mm

+ 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





PROJECTION LITHOGRAPHY SYSTEMS

DSC300 Gen3

Automated system
up to 300 mm

+ Alignment
+ Full-Field Scanning Projection

DSC500

Automated system
up to 450 x 500 mm

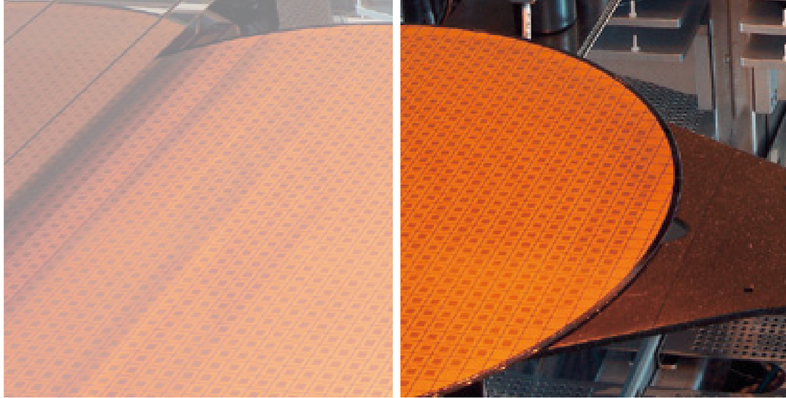
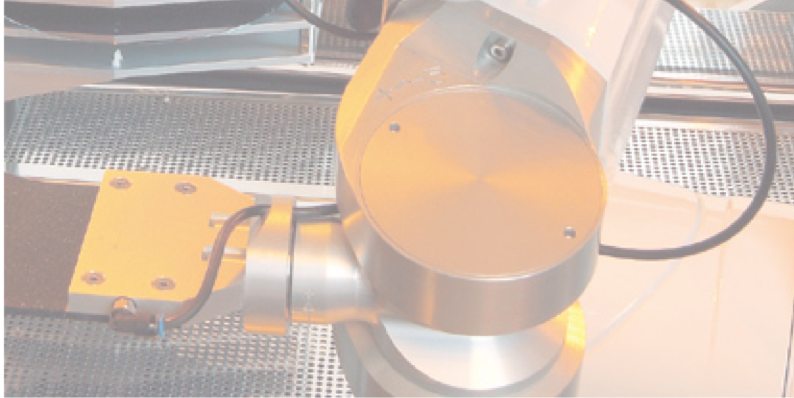
+ Alignment
+ Full-Field Scanning Projection

LASER PROCESSING SYSTEMS

ELP300 Gen2

Automated system
up to 300 mm
(Excimer Laser)

+ Alignment
+ Ablation
+ Laser-Assisted Debonding
+ Laser Seed Layer Removal

WAFER BONDING SYSTEMS

XB8
Semi-automated system
up to 200 mm

+ High-Force Wafer Bonding

SB6 / 8 Gen2
Semi-automated system
up to 200 mm

+ Wafer Bonding

DB12T
Semi-automated system
up to 300 mm

+ Mechanical Debonding

LD12
Semi-automated system
up to 300 mm

+ Excimer Laser-Assisted Debonding

XBS200
Automated system
up to 200 mm

+ High-Force Wafer Bonding
+ Bond Alignment

XBS300
Automated system
up to 300 mm

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

XBC300 Gen2
Automated system
up to 300 mm
(wafer or wafer on tape frame)

+ Excimer Laser-Assisted Debonding
+ Mechanical Debonding
+ Cleaning

NORTH AMERICA

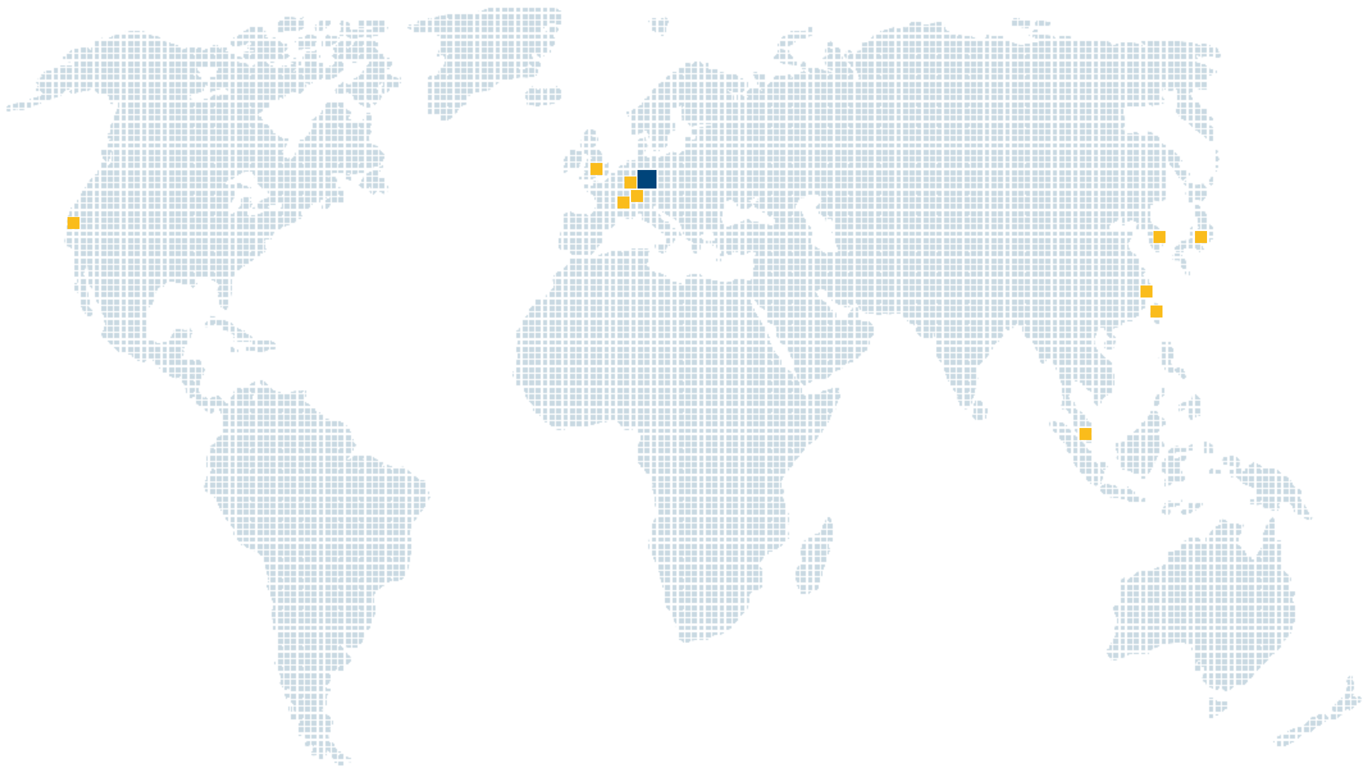
- USA

EUROPE

- Germany
- France
- Switzerland
- United Kingdom

ASIA

- Japan
- China
- Singapore
- Korea
- Taiwan



■ Headquarters ■ Sites

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