LAPMASTER WOLTERS

SEMICONDUCTOR WAFER PROCESSING

CUSTOMIZED SOLUTIONS FOR Si AND SiC

MULTI WIRE SLICING | SINGLE WAFER PROCESSING | DOUBLE-SIDE LAPPING AND POLISHING

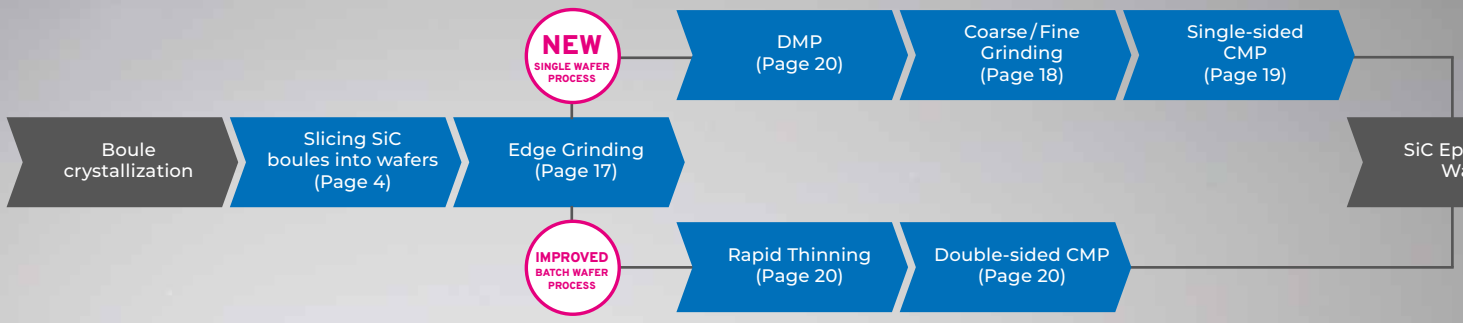
PASSION FOR PRECISION

LAPMASTER WOLTERS: PROCESS SOLUTIONS FOR THE SEMICONDUCTOR INDUSTRY

Si PROCESS CHAIN

Ingot crystallization → Slicing Si ingots into wafers (Page 5) → Lapping wafers (Page 9) → Polishing wafers (Page 9) → Si Epi-Ready Wafer

SiC PROCESS CHAIN



DEFINING THE LEADING EDGE

Lapmaster Wolters is a well-known, reliable partner for customers in the semiconductor wafer manufacturing sectors.

We provide customized solutions for high-precision surface processing technology of wafers and substrates. Specifically, we serve industries relying on silicon, silicon carbide, sapphire, gallium arsenide, and other materials to manufacture micro-electronic, micro-optical, and micromechanical devices.

Since 1953, our **multi wire saws** set the technological standard with new features and developments for the slicing of Si, SiC, and other hard and brittle materials into highest quality wafers with biggest material and cost savings.

With delivering the first lapping machine for silicon wafers in 1961, Lapmaster Wolters has gained decades of valuable experience in the semiconductor industry. Today, our **double-side lapping and polishing machines** for wafers up to 300 mm provide process results defining the leading-edge in terms of local and global geometries. In addition, the new range of **single wafer processing machines** completes the product portfolio for the seminconductor industry.

Machine tools by Lapmaster Wolters are constantly setting a new benchmark in precision, quality, efficiency, and cost of ownership and global geometry parameters – today and tomorrow.

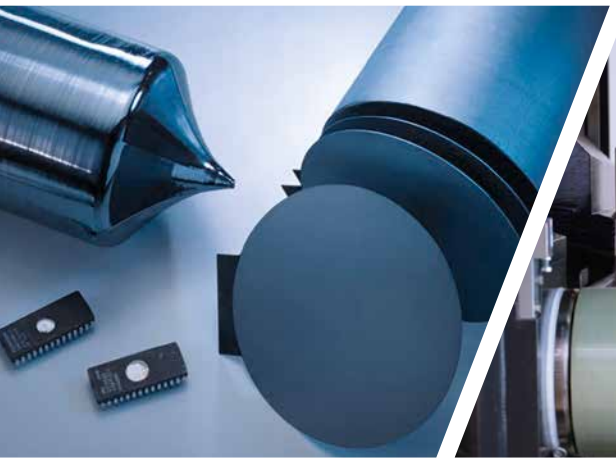
DW288S4

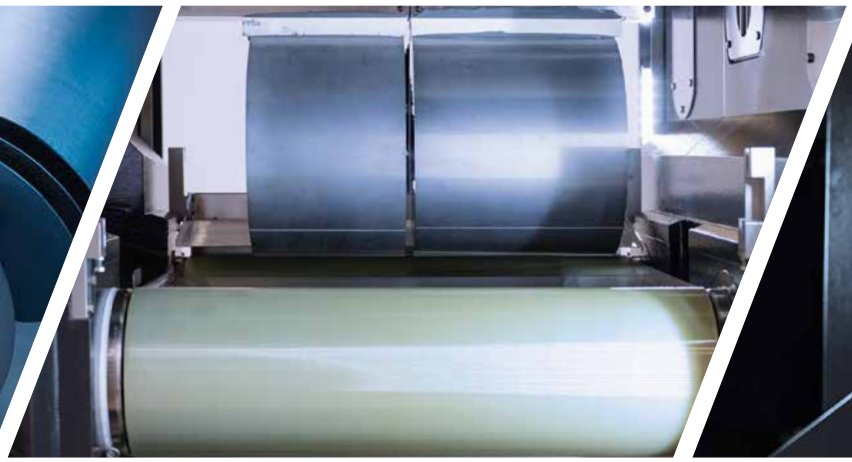
DEDICATED TO SEMICONDUCTOR SiC WAFER

The DW288S4, with its new features specifically designed for slicing SiC or other Semiconductor materials, offers the best solution for our customers. Its thin wire handling capability, combined with highly precise tensioning control, reduces slicing kerf loss while maintaining unbeatable low wire breakage rates. The proven and reliable wire winding system ensures fault-free winding of hundreds of kilometers of ultra-thin wire, resulting in longer load lengths and reduced downtime for wire spool changes. Excellent temperature stability of the machine and accurate process control capabilities enhance the quality of each wafer.

Our leading-edge slicing equipment provides versatile solutions and processes to lower the overall cost of ownership for wafer manufacturers. With higher process automation and the integration of MES and AI, overall manufacturing productivity can be significantly increased.

DW288S4 Multi Wire Saw
Best-in-class for SiC wafer up to 230 mm





DW292

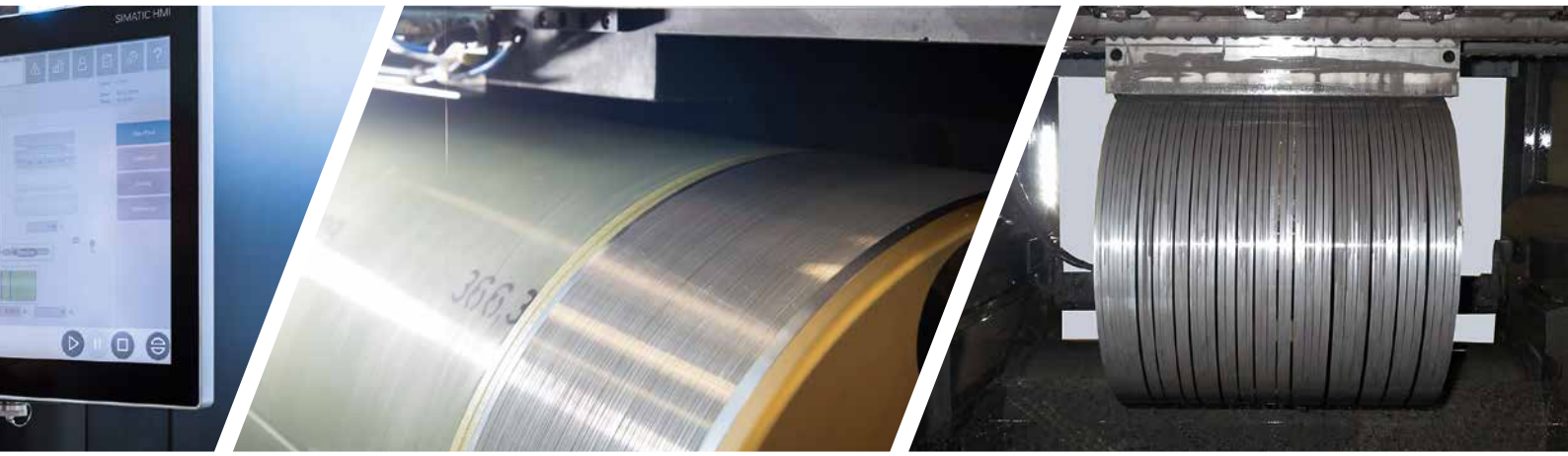
DEDICATED TO SEMICONDUCTOR Si WAFER

With our extensive expertise in wire saw manufacturing, we've integrated the unique technological advantages of all our developed machines into our latest product platform. The DW292 offers:

- **Sophisticated Workpiece Rocking:** Reduces wafer waviness, shortens lapping and polishing processes, and achieves lower nano-topology values.
- **Ultra-Thin Wire Handling:** Ensures efficiency and minimal material loss.
- **Excellent Temperature Control:** Guarantees optimal wafer geometry, enabled by an active thermal management system and a mineral casting machine frame.
- **Compatibility:** Works seamlessly with both slurry and diamond wire technology.
- **User-Friendly HMI:** Features a dialog-based production assistant for ease of use.

The DW292 is optimized for silicon and SiC wafering up to 300 mm, using either slurry or diamond wire.

DW292 Multi Wire Saw
Optimized for high quality 300 mm semiconductor wafer production



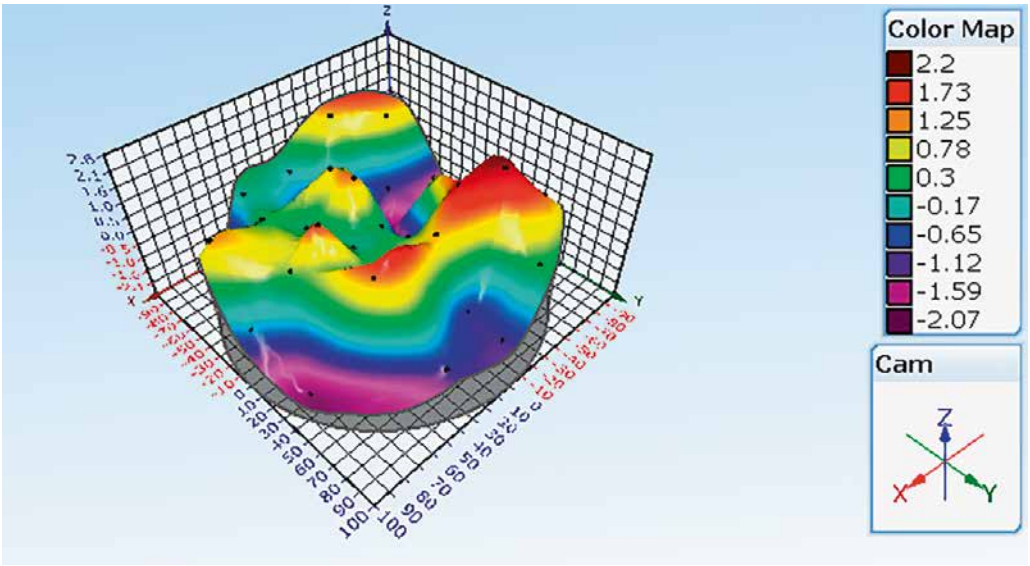
ROCKING UNIT WITH ADAPTIVE FEED

PROVEN TECHNOLOGY IMPLEMENTED IN LATEST DEVELOPMENT

The DW288S4 and DW292 feature best-in-class workpiece rocking for maximum precision. The additional movement of the workpiece optimizes the wafer surface and enables lower nano-topology.

HIGHLIGHTS

- Improved rocking unit concept and proven in mass production
- Rocking angle up to 12°
- For slurry and diamond wire technology
- Minimizing wire contact length
- Optimizing steadiness of force on wire
- Smoother surface quality



High resolution warp measurement on 200 mm Si wafer

FACTORY OVERHAULED PARTS

BEARING OVERHAUL, WIRE GUIDE GROOVING AND COATING

YOUR BENEFITS

- Improved consistency of slicing quality
- Increased yield
- Reduced production downtime
- Comprehensive approval testing ensures safe and trouble-free operation of the overhauled parts

SCOPE OF WORK

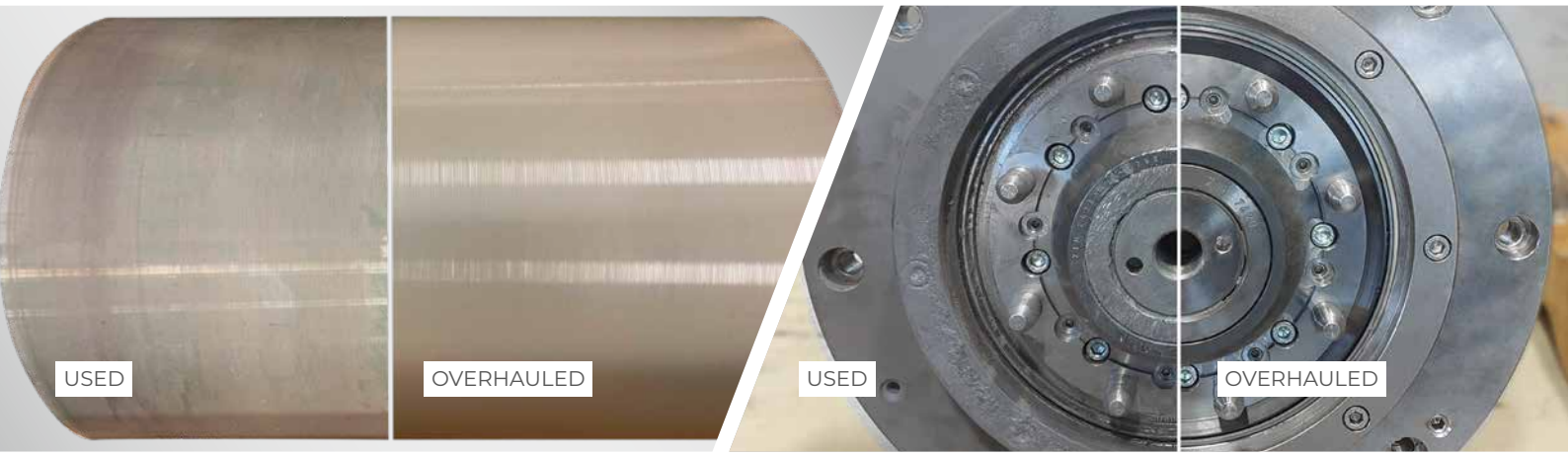
- Quality inspection
- Surface condition inspection
- Cleaning
- Replacement of wear parts
- Re-coating/re-grooving (wire guide roller)
- Overhauling and testing (bearing)

OVERHAULING OF WIRE GUIDE ROLLS (WGR)

- Essential to ensure good performance as a core part of a wire saw
- Direct influence on slicing quality
- Over time of use, WGR are wearing out, reducing performance and wafer quality
- New coating, new grooves and replacement of worn mechanical components, ensure smooth rotation of the WGR and wire web
- Any type of WGR and grooving possible, flexible in customer specific requirements

OVERHAULING OF BEARINGS

- Essential to ensure a constant production quality
- Direct influence on slicing quality
- Over time of use, parts are wearing out, reducing the stability of the bearing and wafer quality
- Overhauled bearings ensure smooth rotation of the WGR and wire web
- Bearing overhaul service can be provided for almost all wire saw and bearing types in our portfolio



SUSTAINABILITY AND LATEST TECHNOLOGY

INNER DIAMETER SAWS COVER A WIDE RANGE OF WORKPIECE SIZES

Balancing economical and technologically advanced production with today's requirement for sustainability can be challenging. The factory overhauled Inner Diameter or Outer Diameter saws represent a part of the solution and the step in the right direction in terms of sustainable business models. This involves disassembling machines that are 30 years old or more down to their basic components, bringing all mechanical and electrical parts up to today's standards, implement a user friendly high automatic HMI and combine all to a high precision state of the art equipment.

TS207

TS23

The models TS23, TS207 as well as the TS121 show high flexibility, allowing a wide range of workpiece sizes and various dimensions to be sliced. Despite the given flexibility, the highest degree of accuracy and stability is still ensured. Accordingly, these products are used for semiconductor materials and in various other industries.

PRIME WAFER DOUBLE-SIDE POLISHING

MEETING THE HIGHEST DEMANDS TODAY AND TOMORROW

Lapmaster Wolters develops and manufactures reliable wafer polishing machines for semiconductor customers that require precision results. We offer tailored solutions for high-precision surface processing technology of wafers and substrates, e. g. in the silicon prime wafers and SiC markets.

Our lapping, mechanical and chemical polishing machines for substrates of all diameters provide process results defining the leading edge in terms of local and global geometries.
Lapmaster Wolters is key supplier of silicon wafer polishing machines worldwide.

AC 1500 P3 ADVANCED

SUPPORTING ALL FUTURE WAFER REQUIREMENTS

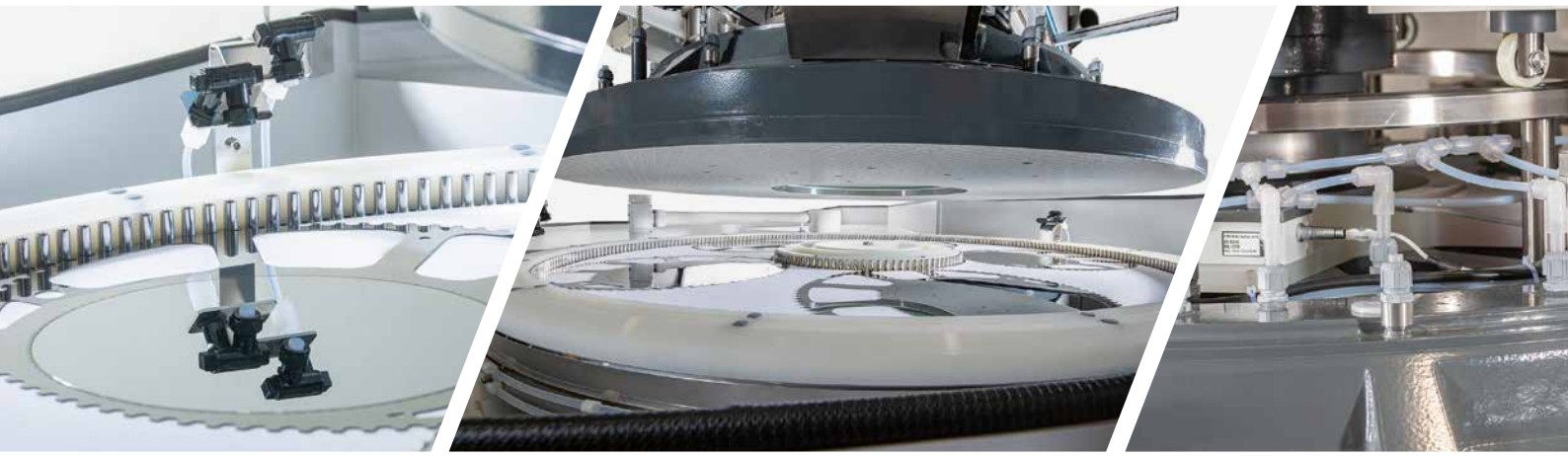
With the PETER WOLTERS AC 1500 P3 Advanced and its mature technology, Lapmaster Wolters is offering solutions for double-side polishing of wafers with a diameter up to 300 mm for smaller batches.

As a result of its unique machine concept all requirements of the customer regarding precision, quality, handling, and cost of ownership can be satisfied combined with a first-class customer support for the highest machine availability and productivity.

AC 1500 P3
Prime wafer double-side polishing system

HIGHLIGHTS AC 1500 P3 ADVANCED

- Unique and patented UPAC (Upper Platen Adaptive Control) system
- 2 Gap sensors
- Closed loop control
- Monitoring of the cooling lubricant flow rate
- High-pressure conditioner
- Slurry recycling station
- Slurry pressure distribution
- Integrated process data recording (DataCare®)
- Industry 4.0
- Touch screen



AC 2000 P5

BENCHMARK IN PRECISION, QUALITY, AND EFFICIENCY

The PETER WOLTERS AC 2000 P5 is specially designed for double-side polishing of wafers with a diameter of up to 300 mm. Due to its unique machine concept, AC 2000 P5 is capable of processing all contemporary and future wafer requirements.

Furthermore, we offer a fully automated handling system and will connect it to every existing working environment. As a result, we are constantly setting a new benchmark in precision, quality, efficiency, handling, and cost of ownership.

AC 2000 P5
Prime wafer double-side polishing system

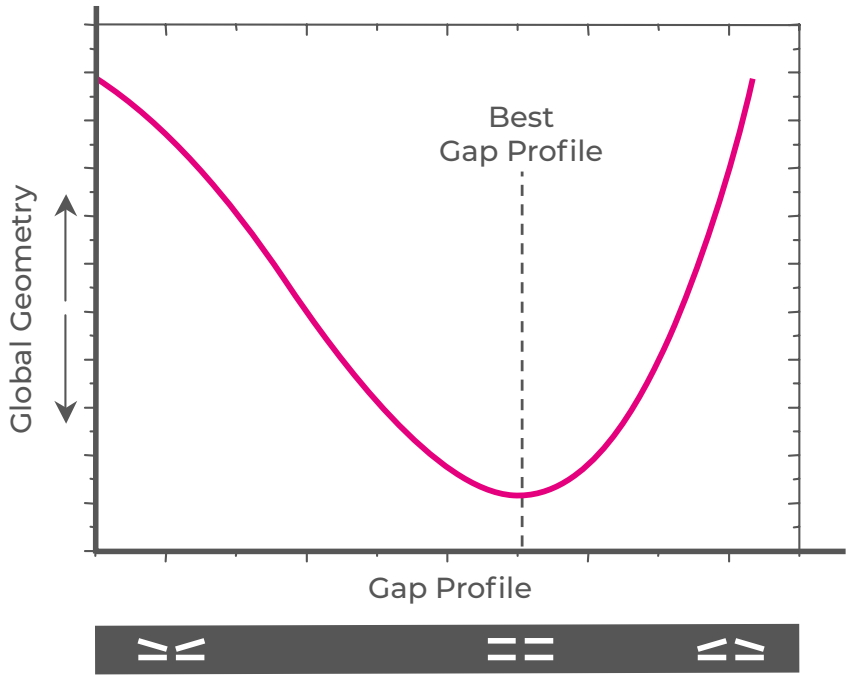
HIGHLIGHTS AC 2000 P5

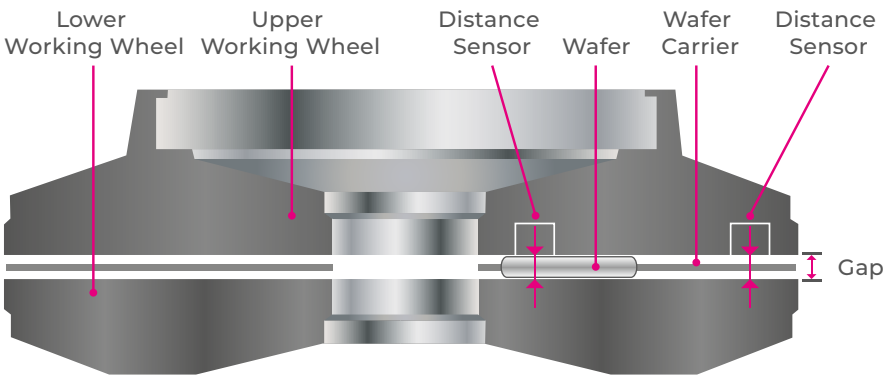
(In addition to the highlights of the AC 1500 P3 Advanced)

- Unique LPAC (Lower Platen Adaptive Control) system (patent pending)
- 3 Gap Sensors
- Integrated high precision interferometric device for in-situ measurement of the wafer thickness

THE IMPORTANCE OF THE GAP

Polishing results and wafer flatness are strongly influenced by the gap profile between the upper and lower working wheel of a DSP tool.
The unique and patented UPAC (Upper Platen Adaptive Control) System and the LPAC (Lower Platen Adaptive Control) System (patent pending) from Lapmaster Wolters allow for accurate adjustment of the gap profile offering a much greater flexibility during process optimization.
Closed loop control keeps the selected gap profile stable throughout the polishing process and compensates for any wheel deflection caused by thermal expansion or force induced stress.

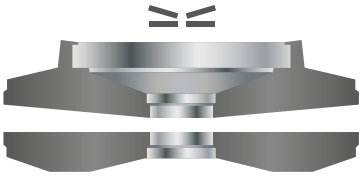




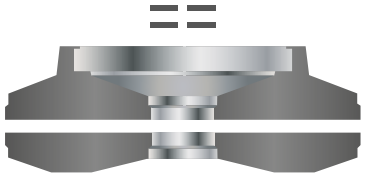
UPPER PLATEN ADAPTIVE CONTROL (UPAC) SYSTEM

The hydro-pneumatic system allows a fast and precise adjustment of the inter platen gap within few seconds with any step height to any point of the operating range. An integrated gap measurement system enables a closed loop control of the gap with micrometer accuracy. In operation for more than a decade, the system has shown its reliability and benefit to continuously increasing requirements of the semiconductor industry.

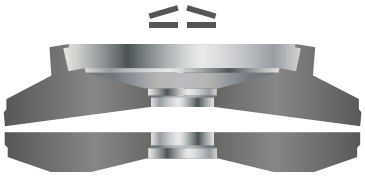
- UPAC allows to adjust the upper plate global shape
- Global shape change (1st order)
- The global gap shape can be changed from convex to concave by adjusting the UPAC pressure
- UPAC allows a direct influence on the wafer geometry



Negative Gap

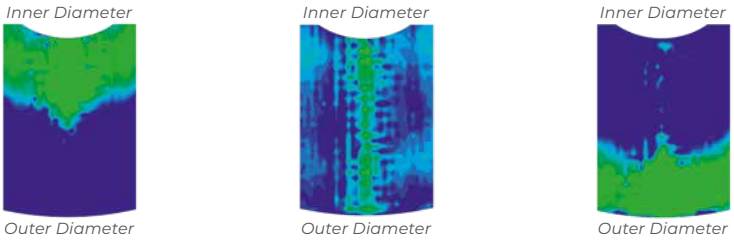


Zero Gap

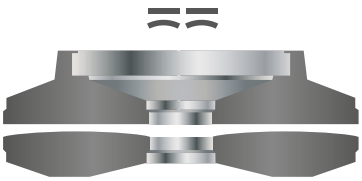


Positive Gap

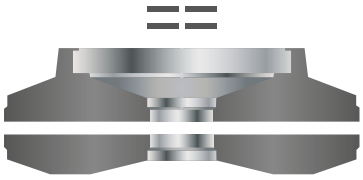
UPAC SYSTEM – AC 2000 P5 – PRESSURE DISTRIBUTION



LOWER PLATEN ADAPTIVE CONTROL (LPAC) SYSTEM



Concave Gap



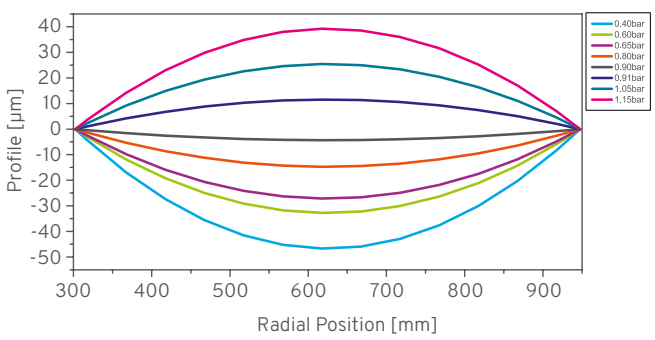
Neutral Gap

Convex Gap

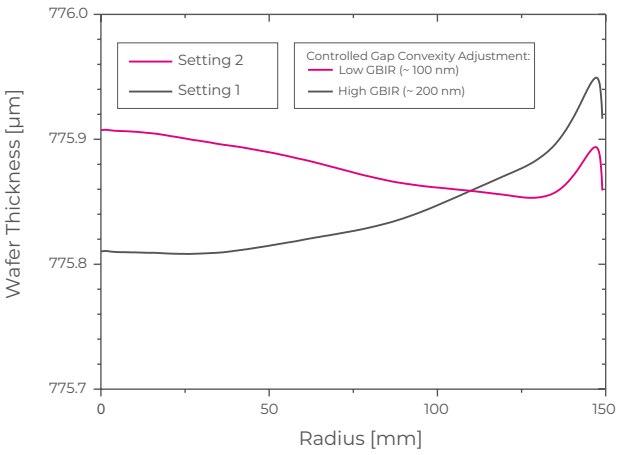
The high accurate and precise hydraulic LPAC system gives full control over the polishing gap. Unaffected by the shape of the polishing pad, the AC 2000 P5 always obtains the ideal polishing gap condition for ultra-low flatness requirements. The high precision gap measurement system enables an accurate closed loop control over the entire polishing process.

- LPAC allows to adjust the lower plate radial profile
- Local shape change (2nd order)
- The ring width profile can be adjusted from convex to concave by adjusting the LPAC Pressure
- LPAC allows a direct influence on the wafer geometry

LPAC SYSTEM – AC 2000 P5 – RADIAL MEASUREMENT



LPAC IMPACT



The typical edge profile adjustment by varying the wafer thickness usually results in a trade off with the wafer profile. Utilization of the LPAC closed loop control is able to break this dependency. This empowers the AC 2000 P5 to an independent optimization of the global profile and the edge profile. LPAC allows more flexibility to develop next generation flatness wafers.

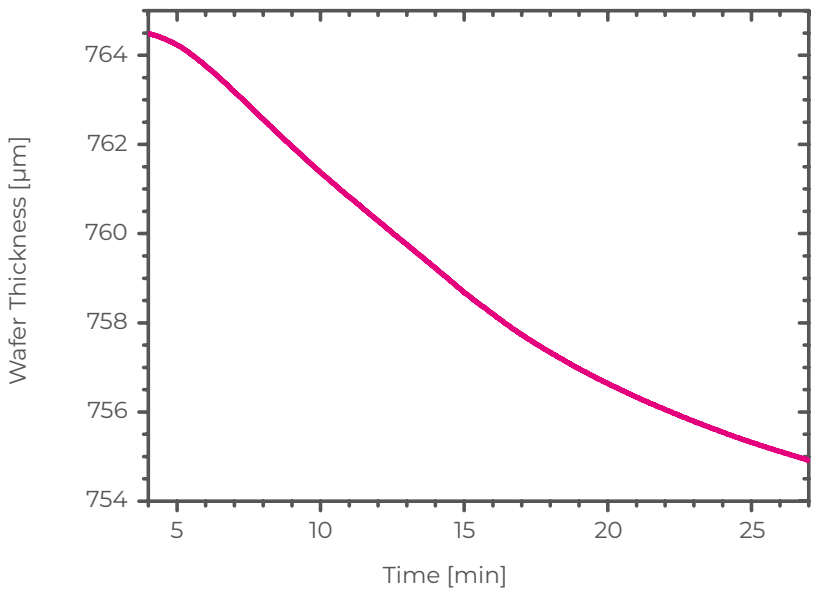
Objective: Optimize the GBIR

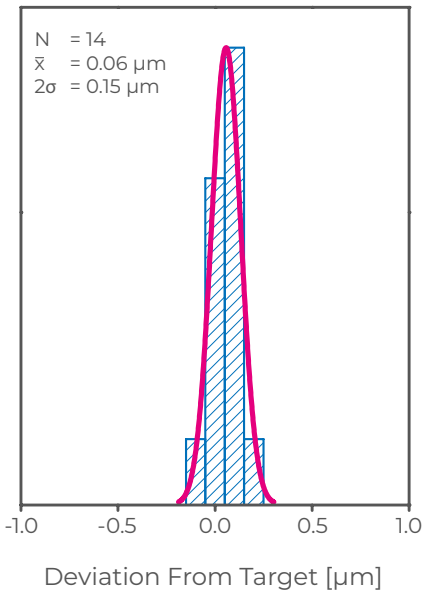
- Depending of the wafer shape (concave or convex) adjust the LPAC
- Use GAP value defined before
- Use wafer target thickness defined before

LASER INTERFEROMETER – END POINT DETECTION

- Integrated high precision interferometric device for in-situ measurement of the wafer thickness
- Measurement accuracy ± 0.1 µm for p-wafers proven in field
- p+ and p++ also measurable with identical accuracy
- Stable and repeatable switch-off characteristic when the target thickness of the wafer is reached
- Installed in the upper working wheel

WAFER THICKNESS DATA DURING A DSP PROCESS – HERE: P-WAFERS

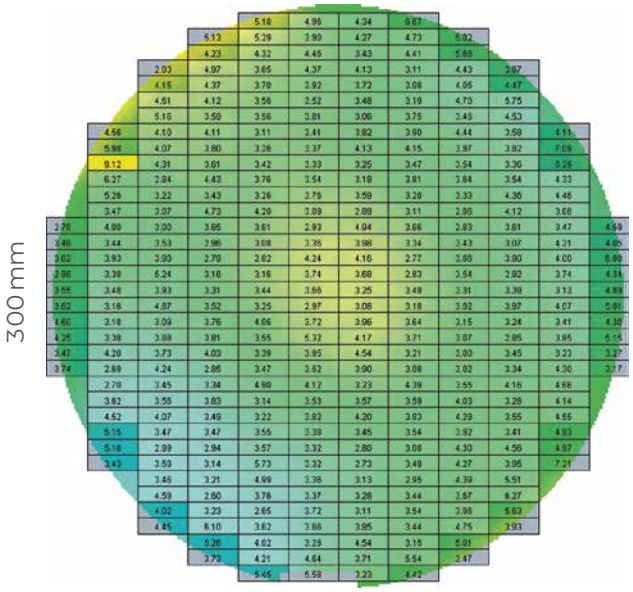




OUTSTANDING MEASURING RESULTS

SFQR Map – 300 mm Si-Wafer

Measurement with WaferSight 1
2 mm edge exclusion

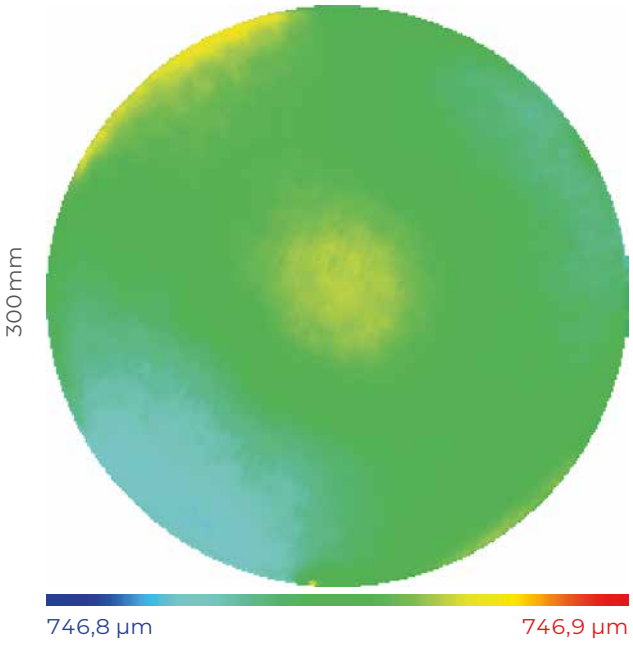


SFQR Values

- Max: 9.12 nm
- Average: 3.88 nm

Thickness Map – 300 mm Si-Wafer

Measurement with WaferSight 1
2 mm edge exclusion



GBIR

- 57.63 nm

SiC SINGLE WAFER PROCESSING

PRECISION: PERFECT EVERY TIME

In the world of wafer production, precision is everything. A wafer's thickness, smoothness, and surface quality directly impact its performance in high-tech applications. With single wafer processing, each wafer is treated individually, allowing for meticulous control over every aspect of the process. Advanced tools, like our 7AF-HMG grinder and 6EZ polisher, ensure that each wafer meets the same high standards, with precise monitoring and adjustments at every step. This individualized attention minimizes variability, ensuring a consistent thickness, surface finish, and material removal for every wafer. The result? Fewer defects, higher yields, and less need for rework. For manufacturers producing high-value wafers, this level of consistency can make all the difference in meeting production goals and maintaining quality.

Streamlined Labor and Operations

One of the standout advantages of single wafer processing is how it simplifies production. In traditional manufacturing, multiple tools and steps are needed for batch processing. Wafers often go through several stages of loading, cleaning, sorting, and polishing, with careful attention required at each point. While this system works well for many applications, it does demand a higher level of manual labor and coordination.

Single wafer processing consolidates and automates much of this work. For manufacturers, the reduced labor hours and simplified workflows mean more efficiency, fewer opportunities for errors, and a smoother operation overall. With fewer tools to maintain when compared to batch processing, the total cost of manufacturing can be improved with a single wafer process.

Scalability for Larger Wafers

As Silicon Carbide substrate manufacturing shifts toward larger wafer sizes – moving from 150 mm to 200 mm diameters – the ability to adapt becomes crucial. Larger wafers hold more chips, making them highly valuable, but they also present unique challenges in production.

Single wafer processing excels here because it isn't dependent on processing multiple wafers at once. Whether the wafer is small or large, the process remains consistent, with one wafer handled at a time. While processing times may change from small to large wafers, the grind or polish process itself remains relatively consistent, ensuring a balance between quality and throughput regardless of wafer size.

Additionally, single wafer processing minimizes the risks associated with high-value wafers like SiC. When processing one wafer at a time, any issue – such as a cracked wafer – can be isolated without impacting others.

NanoEdge

FULLY-AUTOMATED WAFER EDGE GRINDER

Edge grinding is a necessary part of all wafer fabrication. The edges of the wafers need to be beveled or chamfered to avoid chipping in downstream processing and to allow particles in slurries to travel underneath the wafers during polishing. This process typically happens directly after wafer slicing, before any double-sided lapping or polishing steps, or after surface grinding in the case of laser-sliced wafers.
The NanoEdge is a fully automated dry-in/dry-out edge grinding tool. The base configuration of the tool includes 3 grind modules for 50 % greater throughput than any other tool on the market. The handling has been minimized to protect the wafer surfaces, with wafers simply feeding from send cassettes to receive cassettes rather than going back to the original send cassettes. The addition of a roll-form dresser to re-groove the grind wheel allows a metal bond wheel to be fully used without being removed from the system which reduces maintenance and maximizes uptime.

NanoEdge
Wafer edge grinding machine

HIGHLIGHTS NanoEdge

- Three grind modules for 50 % higher throughput than competing edge grinders
- On-board dressers can sharpen wheels without removing from the machine (less downtime)
- Versatility to handle virtually any wafer material (SiC, GaN, AlN, Silicon, etc.)
- Fully automated for cassette-to-cassette dry-in/dry-out operation (3 load cassettes and 3 unload cassettes)
- Superior throughput for high productivity
- Flexibility to grind 100/150/200 mm wafers
- Grinds wafer O.D. and any standard size flat or notch

7AF-HMG

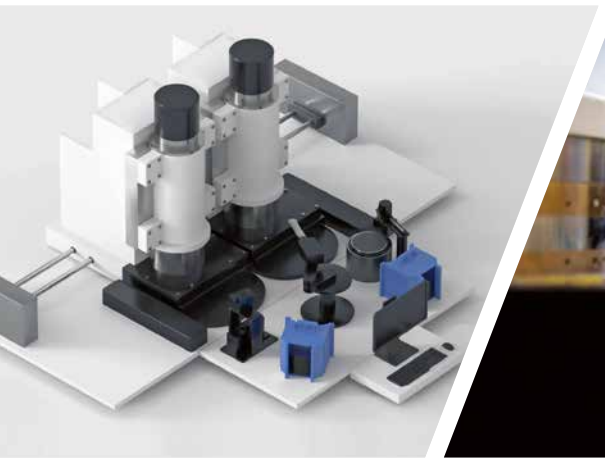
DESIGNED FOR ADVANCED GRINDING OF HARD MATERIALS

Our 7AF-HMG grinding solution extends wheel life by nine times, increases uptime by 10 %, boosts wafer output by 15 percent, and reduces the cost of ownership by seven times. With a return on investment of less than one year, the choice for SiC grinding is clear: choose the 7AF-HMG.

7AF-HMG
Internal flat lapping machine

HIGHLIGHTS 7AF-HMG

- Real-time grind performance monitoring
- A self-dressing grind process
- Grind spindles can be fitted with coarse or fine wheels
- Supports dual fine grind, dual coarse grind, and standard coarse/fine grind processing
- Wafer flipping available for double-side grinding applications
- In-situ, real-time thickness control
- Achieves < 1 µm TTV for most applications
- Astounding performance on wire sawn SiC wafers
- Designed to reduce consumables and operations costs
- Accommodates incoming wafers with varied thicknesses without presorting
- A wide process window, reduces setup time and increases process repeatability



6EZ

FULLY-AUTOMATED, SINGLE WAFER, DRY-IN-DRY-OUT SiC POLISHING

SiC is a hard material to process. We understand the challenges of working with SiC and we have applied our knowledge of SiC grinding, prime wafer polishing and CMP technology to develop a unique solution that truly makes polishing SiC easy. The 6EZ can polish and clean both faces of 50 SiC substrates sequentially, without any operator intervention. Combining the 6EZ with our fully-automated 7AF-HMG grinder, the entire process flow from wire slicing or laser splitting to EPI is synchronized to provide optimum performance and high yields at an affordable cost per wafer – delivering a production-ready solution for 150 mm and 200 mm SiC substrate manufacturing.

6EZ
150 mm and 200 mm SiC wafer polishing

HIGHLIGHTS 6EZ

- Fully-automated, cassette-to- cassette handling
- Single wafer processing for excellent wafer-to-wafer control
- Single-side and two-sided polish
- Three tables with dedicated carriers, pad conditioners, and pad cleaners
- Acid-resistant components
- OCR (optional)
- State-of-the-art control architecture and Windows-based operating system
- Two standard slurry delivery lines, optional third slurry line available
- Factory host communication(optional)
- SEMI S2, S8, and CE certified
- 50-wafer processing without operator intervention
- Integrated post-polish clean

SiC WAFER PROCESSING

NEXT GENERATION SOLUTIONS FOR NEXT GENERATION MATERIALS

The machining of Si and SiC surfaces differs significantly from each other in some respects and presents companies with new challenges. SiC is much harder than Si and is almost as hard as diamond. This creates limits for exclusively mechanical processing. For this reason, additional chemical-mechanical processes are used for machining. The AC-line machines from PETER WOLTERS are optimized regarding these highly complex processes. In addition, the machines are based on proven principles from different industries, such as silicon industry. Our optimized solution for SiC machining is the result of proven semiconductor processes and technology combined with material related developments.

Recycling channel

PETER WOLTERS CMP machines are equipped with a recycling channel under the lower polishing wheel. It enables a recirculation of the polishing medium during the processes.

Integrated cleaning brushes and rinsing

The temperature sensor measures the temperature at the inner and outer diameter during the process and visualizes it on the HMI

Temperature sensor

Polishing results and wafer flatness are strongly influenced by the gap profile between the upper and lower wheel of the polishing tool. Thermal expansion or force induced stress during the process can lead to wheel deflection and thus deviation from the ideal gap setting.
Feedback on such a deviation is provided by two sensors that enable in situ temperature measurement of the polishing pad – temperature profiles serve as a fingerprint of the process and allow for its optimization.

Carrier guide

Due to the very thin workpiece thickness and therefore very thin carriers, the machines have an additional carrier guiding system to stabilize the workpiece carrier during the process.

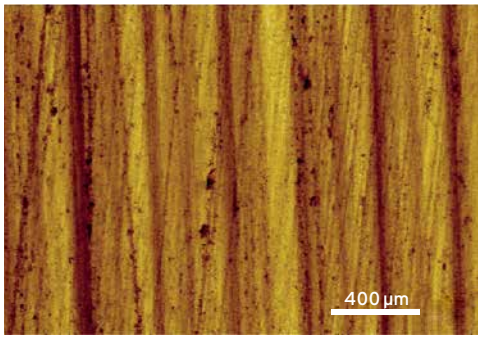
A carrier guide ensures safe processes even with thin workpieces

PROCESS CHAIN FOR EXCELLENT RESULTS

1

Wire slicing

With slurry wire slicing technology, straight or structured steel wire is stretched over two wire guide rollers to form a wire web. The added abrasive diamond slurry slices the crystal into wafers with minimal kerf loss. The workpiece moves towards the wire web, which commutes forth and back accordingly. The thickness of the wafer is determined by the grooving pitch of the wire guide rolls and the saw kerf.

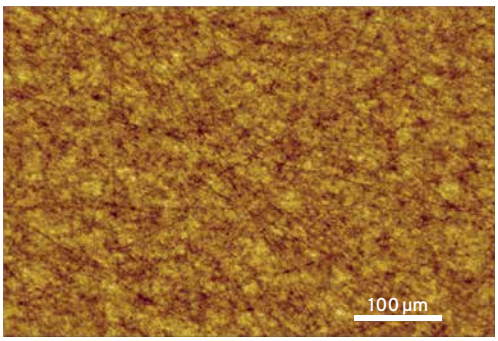


Surface roughness after wire slicing

2

Diamond Mechanical Polishing (DMP)

Diamond Mechanical Polishing (DMP) describes a double-side mechanical polishing process using a diamond suspension. The aim is to largely eliminate unevenness and scratches from the previous process (Rapid Thinning) and to provide a perfect geometry in terms of flatness, parallelism, and roughness (TTV, bow, warp) for the subsequent CMP process.

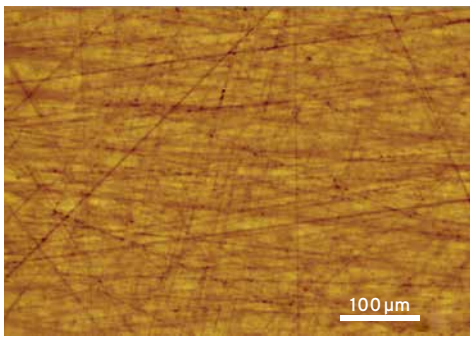


Surface roughness after DMP

or

Rapid Thinning

Rapid Thinning combines classic lapping with effects from the grinding process. The combination of diamond suspension and the specially designed pads results in a removal rate 3× higher than that of the DMP process. Coupled with the optimized suspension consumption due to aligned pad-suspension combination, the result is a significant CoO advantage.

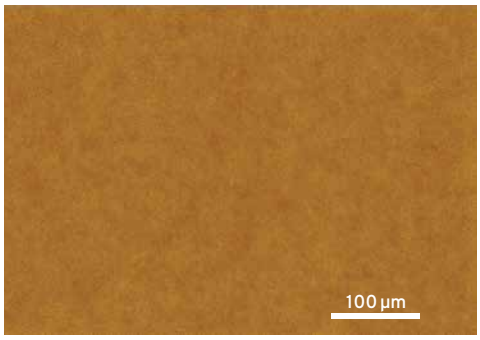


Surface roughness after Rapid Thinning

3

Chemical Mechanical Polishing (CMP)

Chemical Mechanical Polishing (CMP) combines chemical reaction with mechanical loose-abrasive treatment for a smooth, uniform surface without traces of processing from previous manufacturing steps. A strong oxidizing agent in combination with the abrasive ensures that a suitable removal rate is obtained despite SiC's extreme hardness.



Surface roughness after CMP

✓

The results of this process chain are wafers with excellent flatness, parallelism, surface quality, and surface roughness.

AC 1200 DMP/AC 1200 CMP

ESTABLISHED FOR 150 MM MACHINING

With both the PETER WOLTERS AC 1200 DMP and the AC 1200 CMP Lapmaster Wolters is offering solutions for 100 mm, 150 mm, and 200 mm SiC polishing for small batches. A combination of many years of experience in various industries and SiC-specific optimization has resulted in the AC 1200 DMP and AC 1200 CMP machine, being the optimal solutions for processing SiC wafers with smaller diameters. These machines are optimized for serial production of 150 mm SiC wafers in different process steps.

AC 1200 DMP/AC 1200 CMP
SiC polishing up to 200 mm wafer for small batches

HIGHLIGHTS AC 1200 DMP/AC 1200 CMP

- Temperature sensors with telemetry system
- Carrier guiding system
- Slurry recycling station (CMP only)
- Optimized drainage system with recycling channel (CMP only)
- CMP-optimized design (CMP only)
- Suction monitoring for safe operation
- Integrated process data recording (DataCare®)

AC 1500 DMP/AC 1500 CMP

PROVEN TECHNOLOGY MEETS FOCUSED DEVELOPMENTS

The PETER WOLTERS AC 1500 DMP and AC 1500 CMP are specially designed for SiC polishing of wafers with a diameter of up to 300 mm. This machine is the result of many years of practice in the semiconductor industry and our knowledge gained from SiC processing. Especially for bigger wafer sizes like 200 mm this machine can satisfy all customer requirements regarding precision, quality, and cost of ownership. The functionalities of the AC 1500 enable more flexible handling and processing in mass production.

AC 1500 DMP/AC 1500 CMP
SiC polishing up to 300 mm wafer

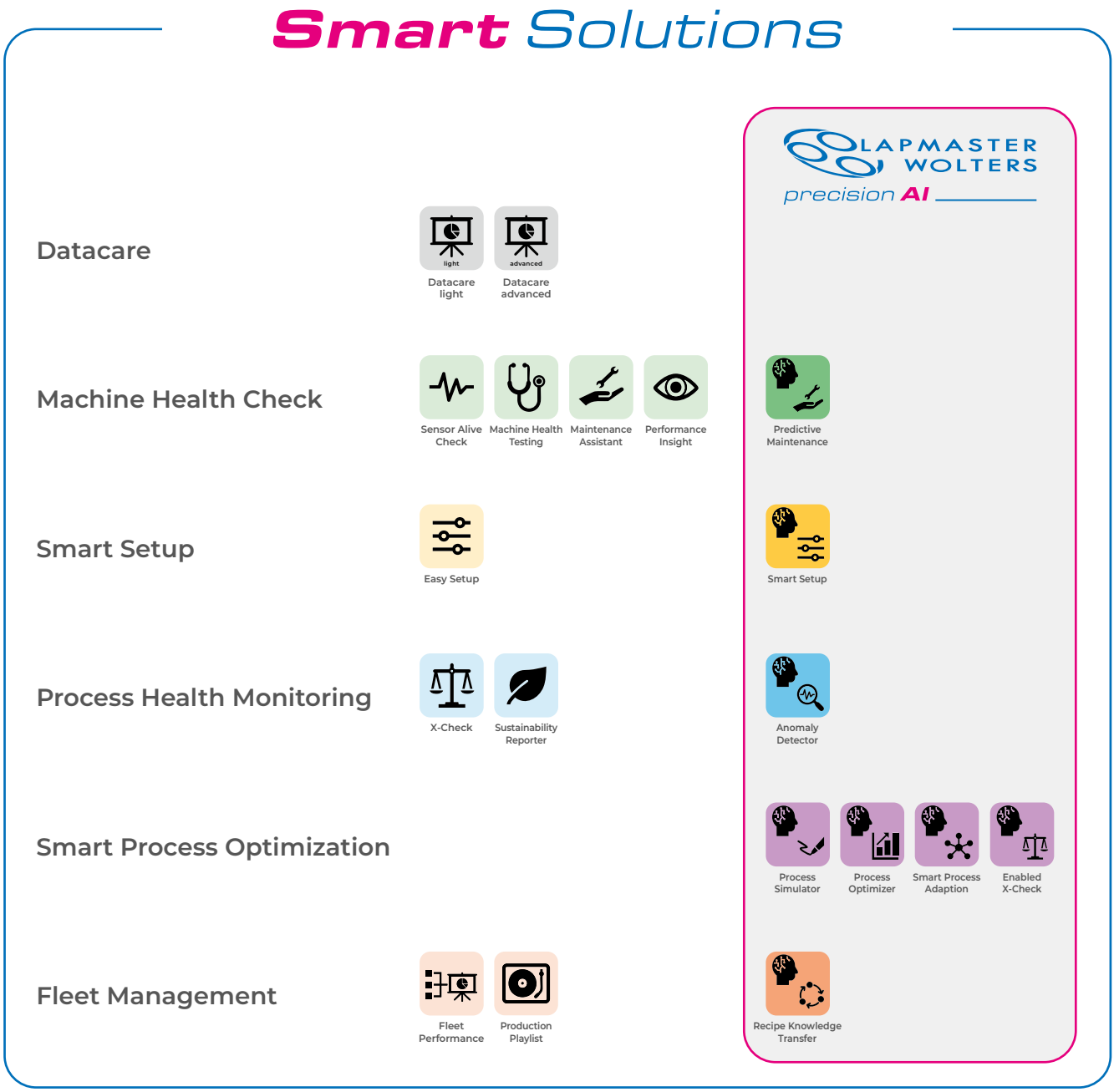
HIGHLIGHTS AC 1500 DMP/AC 1500 CMP
(In addition to the highlights of the AC 1200 DMP/AC 1200 CMP)

- Unique and patented UPAC (Upper Platen Adaptive Control) System
- 2 gap sensors
- Closed loop control
- Monitoring of the cooling lubricant flow rate
- Pressurized slurry distribution (CMP only)
- Touch screen

REVOLUTIONIZING WAFER PROCESSING ...

UNLEASH THE POWER OF LAPMASTER WOLTERS PRECISION AI

In today's fast-paced world, where instant access to key information is vital, AI is becoming an essential part of our daily lives. From generating meeting summaries to optimizing workflows, AI is transforming how we operate. So why not leverage its power for wafering processes? We're thrilled to introduce Smart Solutions, our cutting-edge suite featuring conventional and AI apps designed to enhance and simplify the way you interact with Lapmaster Wolters machines. Smart Solutions serve as single source of truth, ensuring clear communication and information transfer between human experts and machines by providing a unified platform for all your needs. With our IoT 4.0 capable machine technology, Smart Solutions deliver unmatched interconnectivity, setting new benchmarks in machine handling.

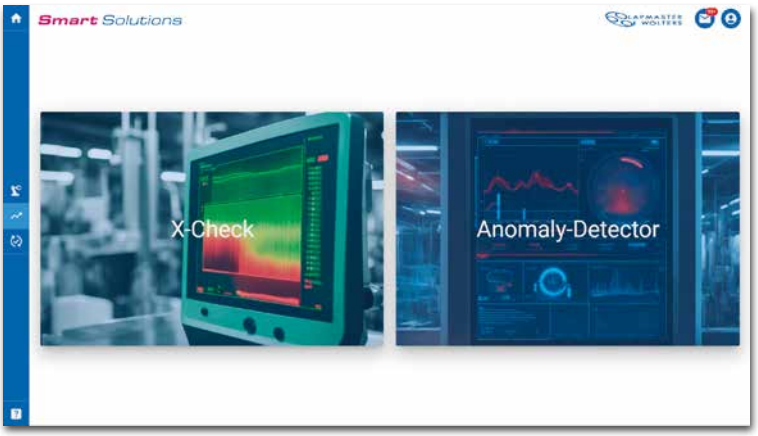


... WITH SMART SOLUTIONS

SMART APPS FOR SMART WAFER PROCESSING

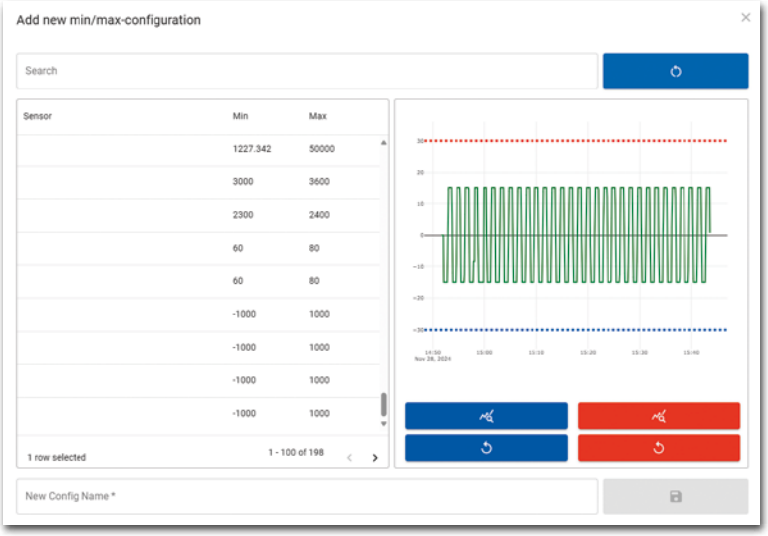
Smart Solutions are a game changer for the semiconductor industry. Our platform features apps ranging from intuitive process monitoring all the way up to process simulation and AI machine/process parameter adaption.

The Smart Solutions suite features a unified dashboard with a clean, modern layout, making navigation effortless and ensuring a cohesive user experience through a consistent interface across all apps. Prioritizing accessibility, the suite is available via HMI, mobile and desktop, allowing you to access Smart Solutions wherever you go.



Through a visualization-driven approach, Smart Solutions provide a clear and intuitive view of the machine's performance and health. By drawing data from various built-in machine sensors, Smart Solutions use color-coding to indicate the actual machine and process status, allowing for quick and intuitive interpretation, even for inexperienced personnel.

Smart Solutions by Lapmaster Wolters are highly customizable, allowing users to tailor the system to their specific needs. Smart Solutions are designed with KPI-driven solutions in mind, empowering businesses to set, track and achieve their desired performance requirements with precision. This integration ensures that every aspect of the system is aligned with your strategic goals, providing actionable insights and driving continuous improvement.



X-CHECK

ADVANCED MACHINE AND PROCESS HEALTH MONITORING

Experience an intuitive and visually appealing way to monitor your machine and process health with X-Check. X-Check offers real-time and historical data analysis through machine sensors, making it easy to spot any irregularities with its color-coded scheme. Effortlessly parameterize specific sensors for your unique processes to ensure efficient production while maintaining machine health. By comparing past machine parameters to actual quality outcomes, X-Check helps you unlock your machine's sweet spot for maximum performance.

X-Check

ACCESSIBILITY

- Accessible through both machine HMI and mobile/ desktop web interface
- Real-time tracking and post-process analysis of slicing/ polishing sensor data

STABILITY

- Customized thresholds for precise stability control in each process and load step
- Early warning settings for instant adjustments in case of irregularities

FEATURES

- Historical data analysis
- Live services including notifications via pop-up or E-Mail

HANDLING

- Intuitive and engaging visualization of machine sensor data
- Unlock next-level machine management with our notification service

ANOMALY DETECTOR

NEXT-LEVEL WAFERING WITH AI-DRIVEN PERFORMANCE TUNING

Elevate your machine's performance with Anomaly Detector. This AI-powered application both continuously optimizes manufacturing quality and prevents critical machine incidents, such as wire breaks. By analyzing sensor data, the app identifies irregular patterns and provides process engineers with the insights needed to make precise adjustments to the machine process. This ensures optimal parameters for higher quality outcomes (e.g. GBIR, SFQR or ESFQR) and faster processing times, while staying ahead of potential issues and maintaining seamless operations without unplanned downtimes.

Anomaly Detector

QUALITY

- Enhance wafer quality through detailed process analysis
- Boost wafering quality progressively with ongoing optimization

STABILITY

- Stabilize machine processes by detecting suboptimal sensor data
- Ensure timely machine setting adjustments with our notification service

CoO

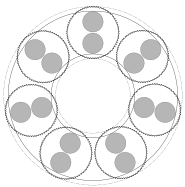
- Save up to 500,000 € monthly per fab through crash prevention
- Untrained operators can easily spot malfunctions

HANDLING

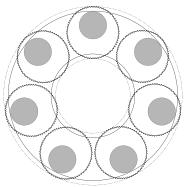
- Detect anomalies and manage machines effortlessly with our comprehensive UI
- Unlock next-level machine management with our notification service

HIGH PERFORMANCE CARRIERS

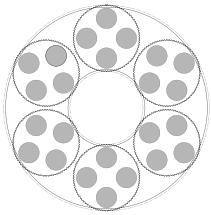
MADE FOR SI AND SIC WAFER POLISHING



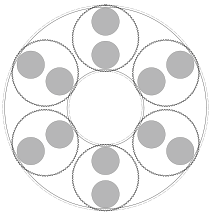
AC 1200 –
150 mm Wafer
14 wafer/load



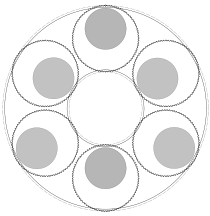
AC 1200 –
200 mm Wafer
7 wafer/load



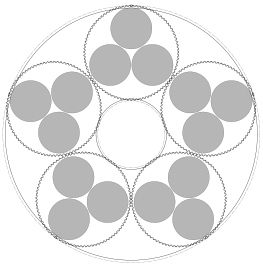
AC 1500 –
150 mm Wafer
24 wafer/load



AC 1500 –
200 mm Wafer
12 wafer/load



AC 1500 –
300 mm Wafer
6 wafer/load

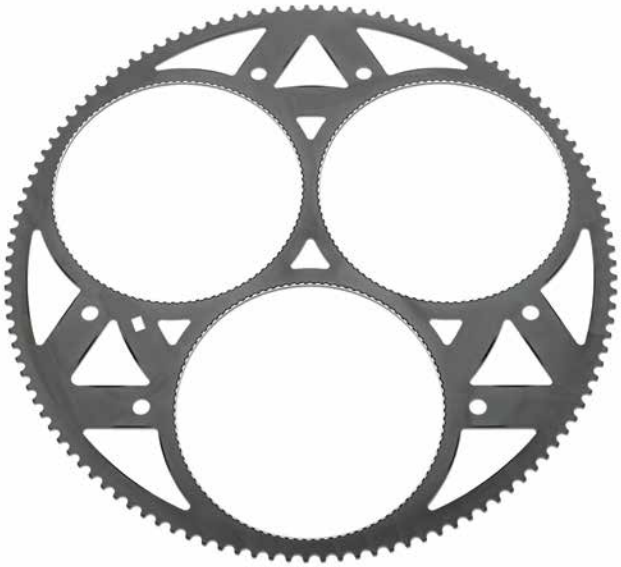


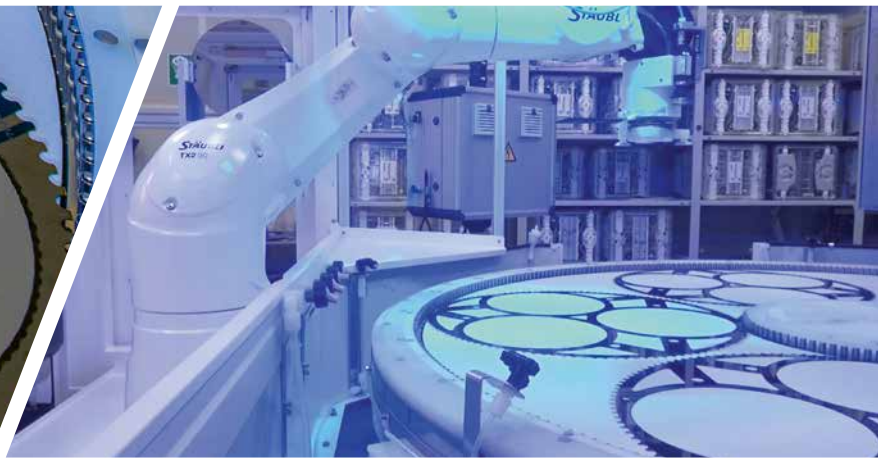
AC 2000 –
300 mm Wafer
15 wafer/load

Backed by many years of expertise in wafer processing technology, Lapmaster Wolters specializes in producing high performance carriers for 300 mm prime Si-Wafer polishing.
Carriers manufactured by Lapmaster Wolters are perfectly adapted for the use on the PETER WOLTERS AC 1500 and AC 2000 DSP tools and feature exclusive designs and materials to ensure optimal usage with well-established process consumables (pads, slurries, etc.). These and options like:

- "ready to use" option for reduced preparation time for new carriers
- refurbishment services for extended lifetime for used carriers

ensure optimized cost of ownership and unmatched process results.





WORLD CLASS CONSUMABLES

THE TEAM TO SUCCESS

Beside the industry leading equipment, the material to be processed and the perfect recipe, the consumables being used have a major impact on the quality of semiconductor wafers. Decades of close relationships with best-in-class and international operating manufacturers facilitate your path to success. Lapmaster Wolters supports you with our R&D testing environment and our experience to improve your overall production yield.

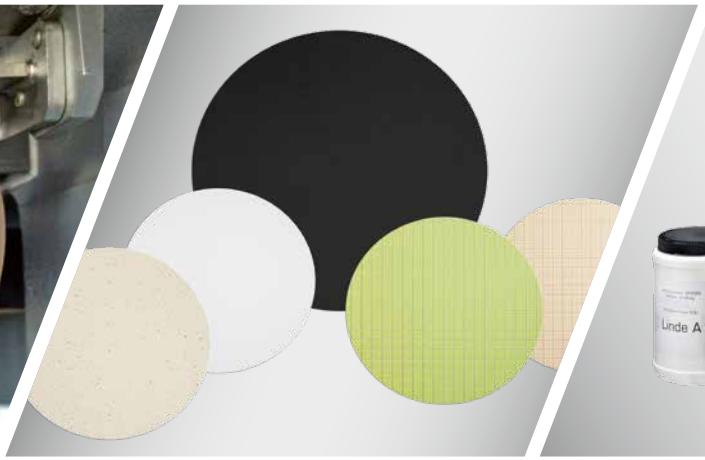
Contact us – we support you with:

CONSUMABLES FOR WIRE SAWS

- Deflection pulleys
- Diamond wire
- Structured and straight steel wire
- Cutting fluid additive
- SiC slurry
- Diamond slurry
- Beams
- Glue

CONSUMABLES FOR DOUBLE-SIDE MACHINING

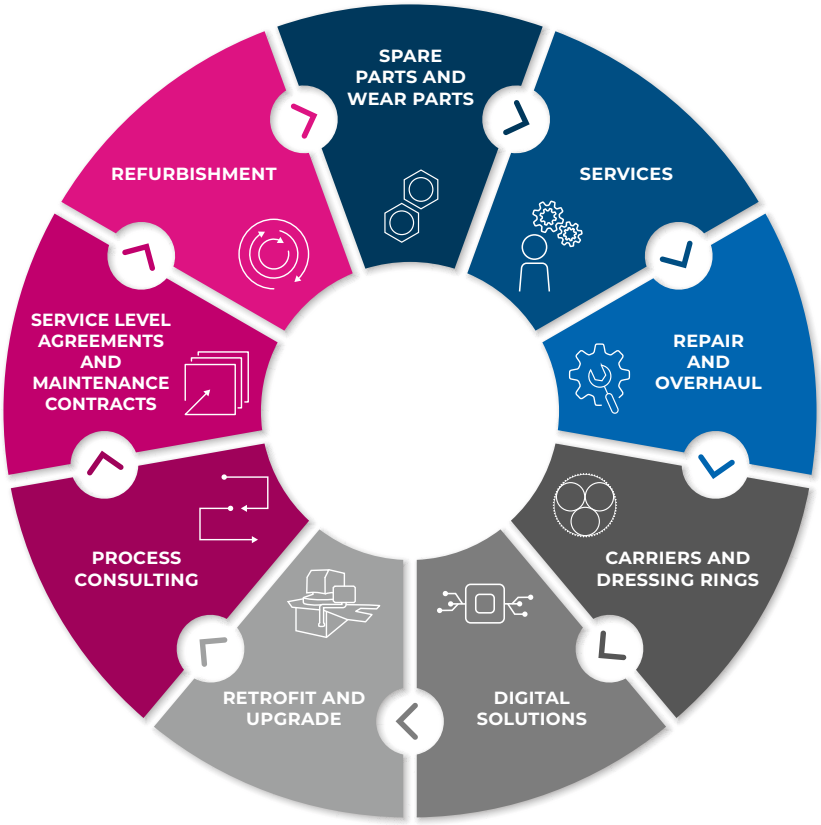
- Carriers
- Dressing Rings
- Abrasive Powders
- Lapping Vehicles
- Pre-Mixed Abrasive Slurries
- Lapping Compounds
- Polishing Pads



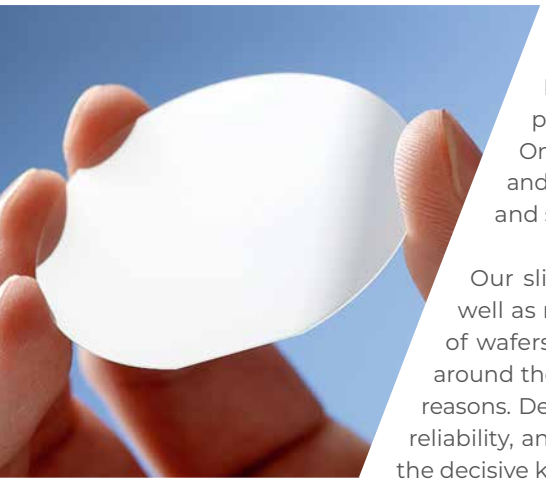
OUR RANGE OF SERVICES

A CUSTOMIZED SOLUTION FOR EVERY PROBLEM

We care – two words that are easy to say. But sophisticated solutions that require a high level of technological expertise and an in-depth understanding of the customer – that's precisely our thing. Regardless of whether you want a complete or partial service package, we have our excellently trained crew of technicians. On-site, on the phone and via our digital platforms – worldwide.



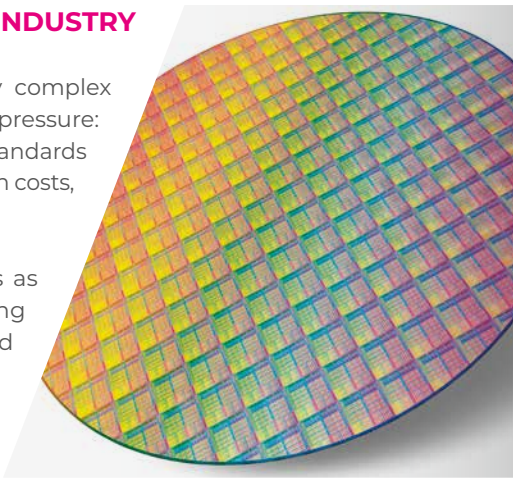
For in-depth information on our comprehensive range of services please scan the QR-code.



AT HOME IN THE SEMICONDUCTOR INDUSTRY

Ever-shorter development cycles, increasingly complex production processes, and massive competitive pressure: Only those companies that achieve high quality standards and precision, maximum productivity, low production costs, and short processing times are successful.

Our slicing saws, single wafer processing machines as well as machines for double-side lapping and polishing of wafers with a diameter up to 300 mm can be found around the world in the semiconductor industry for good reasons. Designed for maximum precision, a high level of reliability, and cost-reducing efficiency, our machines are the decisive key to your competitive advantage.



WE GET YOUR PROCESSES UP TO SPEED

FROM CONSULTATION TO A TURNKEY SYSTEM SOLUTION

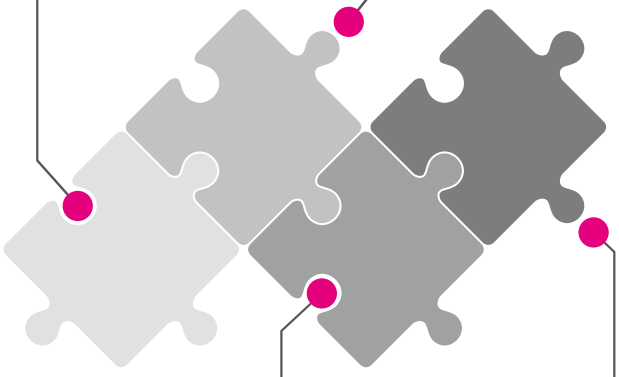
COMPREHENSIVE SOLUTIONS FROM ONE PROVIDER

Our customers in high-tech industries have one thing above all else: complex requirements and specific needs. We provide the right solution, no matter for which task or industry, which material or market.

From the first idea to the production support, as your competent partner we provide you with comprehensive system solutions that adapt to your specific production requirements. As standardized as possible, as customized as necessary, and everything from a single source.

MACHINE
The machine portfolio ranges from small compact machines to large fully automated machines. Several options are available to meet individual needs for the respective application.

PROCESS
In addition to the machines, we offer comprehensive and in-depth process development. Our application specialists work continuously to optimize the respective technologies and processes. Customer-specific test setups make it possible to demonstrate the performance capability of our machines.



ANCILLARY UNITS
Ancillary units are an important factor for a successful process. For example, we deliver optimal filtration and cooling systems for the customer process. The complete solution from a single source.

SERVICE

Our global service not only offers spare parts, repairs and maintenance contracts for your systems. The offer reaches well beyond training, machine upgrades and complete overhauls of entire systems.

LAPMASTER WOLTERS – THINKING GLOBALLY, ACTING LOCALLY

Are you interested in one of our products, need a consultation or would like to have a quote? To contact one of our sales and services offices directly, please visit our locations overview online:

12-2025

PASSION FOR PRECISION