

COMPANY PROFILE 2022



CORPORATE MOTTO

WIN-WIN RELATIONSHIPS CREATE THE WORLD'S No.1 PRODUCTS

Our corporate brand "ACCRETECH" was created from the words "Accrete," which means Grow Together, and "Technology." In a single word, the brand name represents our corporate philosophy: growing together with partners and customers by way of creating the world's best products by gathering the finest technology, intelligence, and information.



*What our symbol mark expresses :

The spinning golden orb represents a dynamic mixture of resources (people, goods, funds, and information) concentrated from all over the world. By condensing those powers, we will introduce powerful, state-of-art products into the market with clear targets. This is expressed by the jet streams shooting out at high speed from the center of the orb.



Message from the President

Since its foundation in 1949, Tokyo Seimitsu Group has consistently focused on developing products that contribute to improving our customers' productivity and providing good customer support.

Tokyo Seimitsu Group has a corporate motto; "Win-Win Relationships with stakeholders", which outlines our view of cultivating and developing the business relationships with customers, suppliers, shareholders, and employees.

In recent years, we've been going through rapid and drastic changes in our business environment in terms of globalization, eco-friendly products, IT advancement, etc.

Tokyo Seimitsu, as a global corporation, has already been accommodating the required changes as well as assisting our customers with their product innovations, called "Monozukuri", using our precision measuring and process technologies.



Tokyo Seimitsu Group values the following principles: health, safety, product quality, environment, energy conservation, and the unified power of our employees. In order to satisfy our customers and to fully contribute to our society, we continue to develop and supply our Semiconductor Manufacturing Equipment and Metrology Products with at most care and excellence.

Your continued support for our Group is greatly appreciated.



President and CEO Hitak Gashide

Tokyo Seimitsu continues to the global market respecting cultivated for decades:

Metrology

Company

Tokyo Seimitsu, as a manufacturer of precision measuring devices and semiconductor manufacturing equipment, has been supplying Machine Control Gages, Surface Texture Measuring Instruments, Wafer Probing Machines, and more to the global market by applying our key technologies such as high precision micro positioning and measuring technologies. We will continue to introduce superb products to global market going forward.

High Precision Measuring Instrument

Our High Precision Measuring Instruments have been supplied to various industries worldwide such as automobile, heavy duty equipment, aircraft, etc., and valued and utilized in their measuring labs and production lines. We continue our product developments to achieve durability, a smaller footprint, and fully-automatic operation and so forth.

introduce "World No.1 Products" to the core - technology we've



Semiconductor Production Equipment

Our Semiconductor Company holds the largest global market share, specifically in the conventional fields of wafer manufacturing, test, and back-end processing. In addition, we have also been active in the fields of CMP (Chemical Mechanical Planarizers) and Polish Grinders to fulfill our customers' needs to build the optimum production systems.

Multipurpose Measuring Instruments

Coordinate Measuring Machines

Comply with high precision parts. Al function for easy operation.

ACCRETECH developed the first 3D Coordinate Measuring Machine made in Japan. Today, we offer various 3D coordinate measuring machines suited for respective customers' needs.

XYZAX AXCEK series are global-standard machines with high precision, high speed, and high resistance to the surrounding temperature. XYZAX mju NEX series are compact in size, energy efficient, and stable in accuracy. XYZAX SVF NEX series are manually operated entry models.

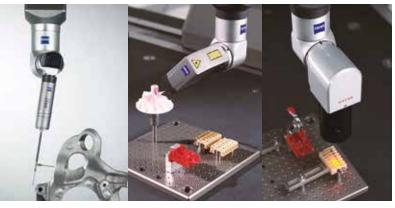


ACCRETECH ACCRETECH

XYZAX AXCEL PH

XYZAX AXCEL RDS / PH Series

- •Maximum permissible length measurement error (E0, MPE) (μ m): 1.8 + 3L/1000
- Amazing speed is achieved by review of the drive mechanism.
 A maximum drive speed of 700 mm/sec and maximum acceleration of 2300 mm/sec²
- •Enhanced resistance to environment.
 Temperature to guarantee accuracy: 15°C to 30°C
- •Scanning Measurement Model (RDS) equipped with the twoaxle rotating head RDS and the scanning probe VAST XXT.
- Fnables contactless measurement by using optional line laser probe and image probe. (RDS)
- Point-to-Point Measurement Model (PH) with wide-ranging specifications available depending on the installation environment or budget.



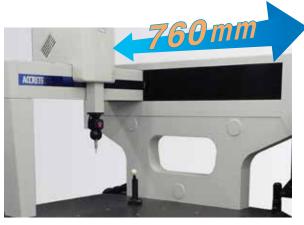
Attach various types of probe as needed (RDS)



XYZAX mju NEX Series

- High rigidity linear guideways on X-, Y (right)- and Z-axes and a reliable air bearing on Y (left)-axis employ hybrid guideway technology.

 Moreover, it achieves one-forth of air consumption compared to our
- •Reduction of power consumption contributes to cut running costs.
- Equipped with TP200B with a real-time temperature scale correction function, which is resistant to vibration and can use a long stylus.
- •Max.permissible length measurement error (E0, MPE) (μ m): 2.2 + L/250 (18°C to 22°C)
- •A new line-up of 5/8/4 size with Y-axis measuring range of 760 mm.



XYZAX SVF NEX Series

- •Redesigned RVF series.
- •Renewal entry modeled Manual 3D coodinate measuring machine.
- •Light weight design that does not cause fatigue even in long hours
- Measure, terminate, and intermediate point operations switches are freely selectable during operation.

 This allows continuous operation without removing your hand from

 "This allows continuous operation without removing your hand from the second se
- the Z-axis.





Multipurpose Measuring Instruments

Surface Texture and Contour Measuring Instruments



Integrated Measuring Machine of Surface Texture and Contour Profile

SURFCOM CREST

- •Adoption of the latest technology linear motor achieves the high-accuracy and high-speed measurement.
- •Roughness and contour integrated measuring instruments with the world's highest level accuracy and performance.
- •The introduction of highly stable optical path type laser interferometer provides the high resolution of 0.31 nm at measuring range of 13 mm.
- •One-time measurement enables the high-efficient evaluation and analysis for both roughness and contour.

Integration of Surface Texture and Contour Profile measurements

SURFCOM CREST is a surface texture and contour profile measuring device capable of fulfilling three conflicting requirements such as high speed, high accuracy, and low vibration due to the technology of our own invention. This is considered the world's finest measuring machine that has made high speed with low vibration possible using a linear motor drive as well as achieving remarkable accuracy due to the newly developed high resolution detector. As SURFCOM CREST can perform evaluation analysis on surface texture and contour at once, it eliminates the step of replacing the detectors. Moreover, its high-speed measuring capability (200 mm/s) can further contribute to improving the throughput. In the case of SURFCOM NEX series that are equipped with linear motors, high-magnification measurement with minimal vibration can be performed.



Surface Texture and Contour Measuring Instruments SURFCOM NEX series

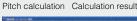
- •Newly developed wide-range hybrid detector!
- •Extremely high-speed driving enables shorter tact time.
- •The linear motor tracing driver minimizing vibration and achieving highly accurate measurement.

Data Processing System [Surface Texture and Contour]





- •All in One Document!
- •ACCTee is developed concept in measurement.
- •Document based measurement and analysis as well as excellent operability.
- Surface texture measurement Al functions automatically selects most suitable parameters and analysis conditions for standard and evaluation.
- Contour analysis Al function automatically extracts the geometric elements.









- Operator-Oriented Operation for the Workplace.New Surface Texture Measuring Instrument for Easy Operation.
- •No need of instructions with excellent GUI.
- •Supporting multi-language for worldwide use (20 languages).
- High resolution and wide-range pickup for easy leveling and zero point adjustment.



Surface Texture Measuring Machine SURFCOM TOUCH 35/40/45/50

- •Easy-to-carry compact surface roughness measuring machines.
- •No need of instructions with excellent GUI
- •Supporting multi-language for worldwide use (20 languages).
- High resolution and wide-range pickup for easy leveling and zero point adjustment (TOUCH 50).
- Palm-sized tracing drivers selectable for workpieces and measurement areas (TOUCH 35/40/45).



Surface Texture Measuring Machine HANDY SURF+ 35/40/45

- •Portable surface texture measuring instrument reborn with sophisticated design.
- •Supporting multi-language for worldwide use (20 languages).
- •Superior operability and multiple analysis functions.
- •The instrument has the Z direction measuring range of 370 µm, which is the widest in class, and achieved a resolution as high as 0.0007 µm over the entire range.

Multipurpose Measuring Instruments

Optical Measuring Instruments



Non-contact / Three-dimensional Surface Roughness and Contour Measuring Instrument Opt-scope

- •High resolution 0.01 nm
- Electric XY stage moving range
 Opt-scope R : 25/50 mm, Opt-scope R 200 : 200 mm,
 Opt-scope Rex st 400 : 400 mm
- •Scanning speed increased by 6times with the Optional high-speed camera.



Non-contact displacement sensor Opt-measure

- •Non-contact displacement sensor using the white interference method
- High accuracy and a wide temperature range.
 A compact sensor head with an optical fiber optical system provides a distance of 10 m or more between the sensor head and control section
- •A maximum of 16 sensors can be connected to one control section.
- •Measuring Accuracy: ±3.6 μm (15°C to 30°C)

Laser Interferometer with Optical Fiber DISTAX 300A

 Easy setting with optical fiber Fully-automatic measurement of a linear and rotary axis of machine tool.





Slim Type 3-axis Measuring Interferometer



Multipurpose Measuring Instruments

Cylindrical Form Measuring Instruments



RONDCOM CREST

- •The rotation accuracy is 0.01 µm in both radial and axial directions. Ultra-high accuracy of the world's highest level.
- •The newly developed non-contact drive and guide section has realized extremely accurate positioning and long-term stable cy assurance.
- Equipped with newly developed measuring force control detector realizing automatic switching between roundness measurement and roughness measurement.
- •Ultra high accuracy diameter measurement of repeatability 0.3 μm.

Continuous flow from the measuring room to the production line

A broad selection satisfies diversified needs. RONDCOM CREST is the flagship model with the world's highest level of ultrahigh precision. RONDCOM NEX series come with multiple functions and straightforward maintenance. RONDCOM TOUCH has a unique design and smaller footprint.

RONDCOM 60A

- •Air bearing for Z-axis and R-axis.
- •Guarantees 0.02 µm rotation accuracy
- •Achieved auto-centering and tilting within 60 seconds.

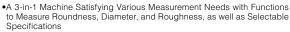






NEW

Roundness and Cylindrical profile measuring instruments RONDCOM NEX Series



- •Labor-saving option: AFD(Automatic Force adjustment Detector)
- Dramatically Improving Efficiency of Measurement of multiple workpieces and multiple locations Labor-saving option: XY-Axis Automatic Stage



RONDCOM 43C

- Perfect for mass production and repetitive measurements with the automated measurement function.
- Economical type equipped with a straightness guaranteed column that is capable of cylindrical analysis.

RONDCOM TOUCH

- •Manual roundness measuring instrument best for the entry-level machine.
- Unique design of Colum moving type.
 Installation area was reduced by 50% (conventional ratio)
- Employment of the Windows tablet enables the high and friendly operability through touch panel screen.



Example of using XY-Axis Auto-



Offset type CNC Detector holder

Data Processing System [ACCTee Roughness]

ACCTee



- •All in One Document!
- •ACCTee is developed to represent the new concept in measurement style.
- •Document based measurement and
- analysis offer preeminent operability.
 •Supports beginners to experts of the CNC programming through Easy and Expert modes.



Document Screen





RONDCOM 76A

- •Higher level of throughput with high speed drive.
- •Realization of unmanned operations from positioning of measuring points to the editing of measured data.
- •A top-rate machine equipped with field-proven air bearings and 7 axes CNC control functions.
- •The highest level of precision in the world.
- •Max loading weight of up to one ton (optional).





Measurement example of cylinder block and crankshaft.

utilizing CNC 5 axis control function.

Multipurpose Measuring Instruments

Measuring Instruments for Shop Floor

Tokyo Seimitsu offers the most advanced technology for production line measurements at the shop floor (production site)

When customers explore the possibility of further improving the measuring efficiency and reducing the production costs while still promoting the product quality, they seek to have the measuring process done at their production floors. Tokyo Seimitsu produces various measuring devices built to accommodate auto-measurements and adjust to any production environment. SURFCOM C5 (CNC Surface Texture Measuring Instrument) can automatically measure the surface texture of the products

CNC Surface Texture Measuring Instrument SURFCOM C5 •Pick-up, drive unit and column are controlled with a CNC 5-axis control function. •Makes automatic measurement of surface texture at the production site possible. Equipped with a horizontal trace measuring function making measurement of a variety of workpieces possible. SURFCOM CS

Measuring Instruments for Large Works

Measuring machines perfect for large-sized and high-precision parts used in aircrafts, energy products, automobiles, machineries, and printers.

Integrated measuring machine of high precision surface texture and contour profile **RONDCOM GRANDE DUO**

- •Newly developed high precision air bearing.
- •Corresponds to parts for wind power generator with great durability, and to the simultaneous inspection of the roundness and contour of the large-size air bearing.
- •Allows the flexible R-axis and the wide measurement range for radius.



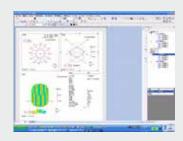


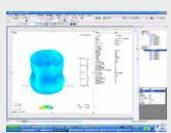
ALL in the Document!

ACCTee

New measurement style with new concept

- 1. Integrated operations from measurement through printing of analysis result
- 2. All the operations are available on the document
- 3. The guidance method instructed by the wizard





Automatic Measuring Instruments

In-Line Measuring Systems

Unequaled Reliability, Uptime and Quality

Tokyo Seimitsu became a supplier of in-line measuring instruments when Japanese automobile industries began to thrive in 1960s. From that point on, the automobile production lines have been required to operate 24 hours a day, 7 days a week, 365 days a year to produce high quality products on time. As a supplier, we have always been responding to customers' needs, for instance, by developing real time control using in-process gauge, feedback control using post-process gauge, and the integration of the two.

Furthermore, we have earned superb customer reputations as a result of our total support package including shorter turnaround, high liability, and best application capabilities; not to mention the excellent local support network that we have built to assist customers on a daily basis.

Our built-up experiences and accomplishments as a supplier of in-line measuring instruments became the strong backbone of the entire Tokyo Seimitsu group, including the semiconductor equipment sector.

Crankshaft process line

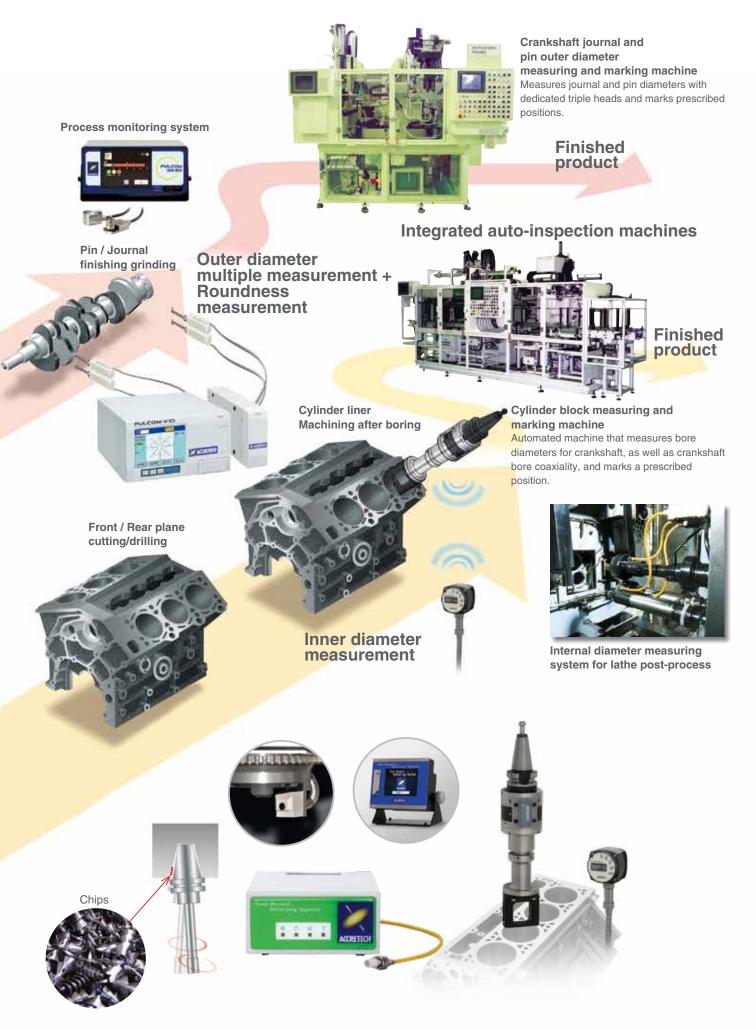


Measuring system for grinding machines

Cylinder block process line



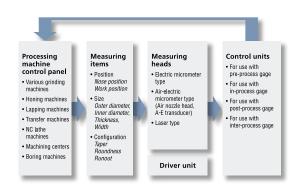
Quality verification inspection system



Measuring system for machining center

Automatic Measuring Instruments

Machine Control Gages



Powerful lineup: high-precision measurement and machine control in real time

Machine Control Gauge PULCOM utilizes the measured data collected either, before, during, or after the process to control the production machine in real time. PULCOM is mainly recognized for its high precision, which is considered second to none. PULCOM enables 0.1 µm precision measuring, which surpasses any previously introduced systems, and thus is capable of assisting our customers with their on-going pursuit for accurate machining capabilities.PULCOM is also waterproof and is suitable for any production environments so that it can be widely utilized for in-line high speed measurements and device controls.Along with PULCOM, we also customize various other auto-measuring, marking, and sorting devices that have been well accepted by global markets.

Measuring Heads

- •Improved stability (Outstanding measuring head in temperature fluctuation)
- Compact size and small space.





Machine Control Gages Control Units



PULCOM V9

- High Extensibility
- •Easy operation via touch-icon interface on the display.





PULCOMY

PULCOM V2

• PULCOM-V2 is the most suitable for in-process gaging for simplework.

PULCOM V10A + V11

 Various functions, such as circularity measurement or SPC control.



 Minicom-X is most suitable for small-scale checking both manually and semi-auto manually.

Process monitoring system



PULCOM GE-20

- •Small and Low-cost.
- •Can be easily placed anywhere.

Grinding Wheel Auto-balancer



PULCOM AB-10

- Reduce more than half of normal Grinding Wheel Exchange time.
- Special skill is not required to achieve ideal dynamic balance status safely and automatically.
- •Improved grinding process quality by preventing

Aluminum High-Speed Cutting Process Monitoring Device



ATC Run-out Detection System

•Detect tool for run-out to prevent manufacturing error.

Sensors, Analyzers and Display Units

High accuracy and proven reliability in a compact format

Tokyo Seimitsu developed a large selection of sensors according to the measurement principles in order to fit any purposes fund in the various production measuring scenes. These well-established sensors have earned high reviews over the years, as they are easy to use and observe during the line measurements, are capable of high-speed response suitable for machine built-in, and guarantee high accuracy crucial for liable inspection results. We are actively engaged in the development of various types of non-contact sensors and more to fulfill future demands.

High Precision Digital Length Air Micrometers Measurement Instruments PHA Series DELTAIR 22H PC connection type Inspection system **USB** connection • The data is captured by PC • USB-Bus powered system Multi-gage system Various lineup • LVDT-USB : Compact measuring head, electric micrometers • PHA-USB : High precision, wide range of measurement, optics scale gage Air micro USB: Converting the minute dimensional change detected by air nozzles to electric signal **Contact Type Wafer Inner-Diameter Measuring Head for ATC Thickness Measuring Systems** Wireless Bore Gauge WT-425 Series **BG-300** • Bore gauge for ATC using wireless communication

Wafer Probing Machines

Responding to the progress of device technologies and measurement needs of the next generation, Tokyo Seimitsu continues to lead the Semiconductor industry by offering solutions equipped with state-ofthe-art intelligent features.

As the top manufacturer of wafer manufacturing and device test systems, Tokyo Seimitsu has always driven proactive technological development. By integrating advanced expertise accumulated over many years of operation with the latest technologies, the Company offers another range of advanced products to customers.



AltaProv

Accretech Probing Machine for full wafer testing on a single touch down.

Developed with capability to simultaneously measure on 12 stages with dedicate XY stage and POGO tower.



UF3000EX-15

Probing machine for mass production with the same features as single probing machines, achieving minimum footprint.

Next-generation ultra-high-performance probing machine

AP3000/AP3000e is a next-generation ultra-high-performance probing machine designed to achieve high precision, high throughput (index move, wafer handling, and wafer alignment), low vibration and low noise. Anti-Virus/Anti-Malware software is installed as standard software on the machine.

The functions and operability of AP3000/AP3000e are inherited from previous models, and it maintains compatibility of recipe and map data. It is very user friendly with the safety and security in mind.



AP3000

The AP3000 is a high-end model that leverages advanced technologies to support the probing techniques that require diversified response for miniaturization and highly-dense integration of next-generation devices.



AP3000e

The AP3000e is a general-purpose model featuring further evolved core technology that we have preserved over the years. It meets various customer needs and test environments in a very costeffective way.



FP3000

The thin wafer mounted on the dicing frame, diced wafer, and CSP substrate are automatically transferred by frame and gone through the probing test.

Wafer Probing Machines

Prober variation satisfying various device demands – UF Series

The UF series probing machines were developed by combining the latest technologies of Tokyo Seimitsu.

Exhibiting high accuracy, high efficiency, and high functionality, it further offers the full automation, self-diagnostic function, use of GUI, high operation performance and stability.



UF2000

•High precision 200 mm Wafer Probing Machine.

Cutting edge machine with $\pm 1.5~\mu m$ precision, high rigidity and high throughput. This machine demonstrates its performance through utilization of a new processor and the quality of its new loader.



FP2000

•Machine ready for tape frame transportation.



UF200R

•Super high-rigid machine for memory.



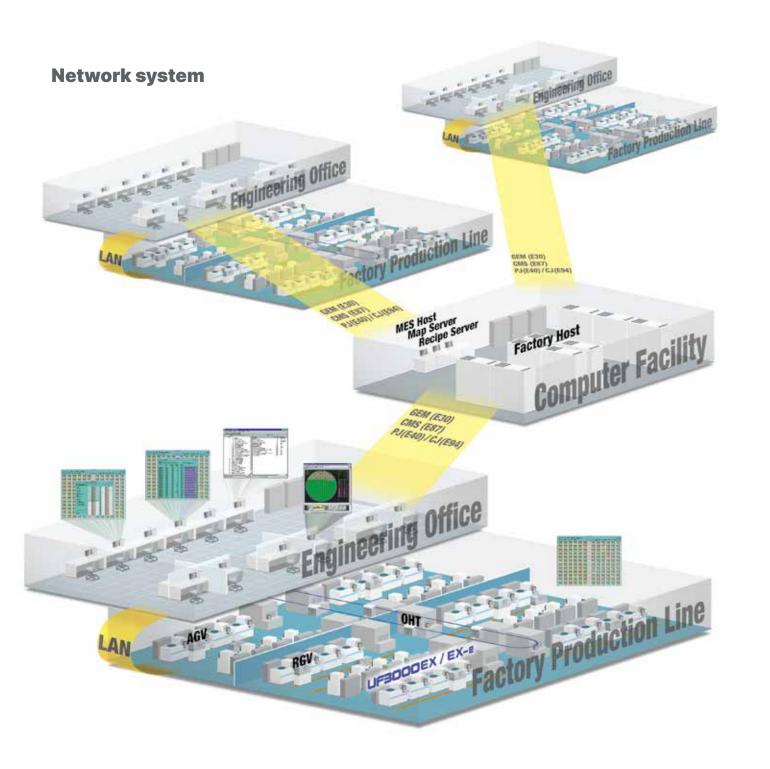
UF190R

•High-speed machine for bipolar.

ACCRETECH network useful for test process quality and data management, test result analysis and automation at customer sites.

System Integration

The ACRRETECH Probers take initiative in the factory automation process by employing the SEMI standards of GEM (E30), CMS (E87), PJ (E40), or CJ (E94), combined with our original networks Vega-Net, Light-Veganet, and Vega-Planet. The UF series are equipped with the nextgeneration remote terminal function which provide the e-Maintenance/e-Diagnostic.



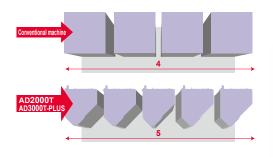
Full-automatic Dicing Machines

Cutting edge technology and support system improve the customer satisfaction

Tokyo Seimitsu's Full-Automatic Dicing Machines can deliver the best CoO (Cost of Ownership) by featuring the world smallest footprint, high throughput, and remarkable processing quality due to our cutting edge technologies. We present well balanced and complete machines combining our exclusive face-to-face twin spindles and superior maintenance ability designed for diagonally positioned axis. We will strive to open the new phase of Full-Automatic Dicing Machines proudly maintaining our global customer support structure which earned us the 10-BEST awards multiple times.



Downsizing was achieved in both AD2000T and AD3000T-PLUS in comparison with the conventional equipment.





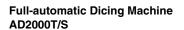
TWIN Dicing concept with the face-to-face twin-spindles



Full-automatic Dicing Machine AD3000T-PLUS

- •Full automatic dicer compliant with 300 mm work that is equipped with the face-to-face twin-spindles / single spindle.
- •High power spindle as a standard feature.





- •Full automatic dicer compliant with 200 mm work that is equipped with the face-to-face twin-spindles / single spindle.
- •High power spindle as a standard feature.



Semi-automatic Dicing Machines

High process quality through user-friendly operations



Tokyo Seimitsu applies our refined dicing know-how, cultivated over the years, to understand the overall cutting conditions, to determine the best cutting settings for individual customer wafers, and to keep the high quality in wafer processing. Our dicers are considered cost-effective; designed to significantly save power and air consumptions, and are user friendly due to the auto-alignment function designed to reduce manual operations.







A-CS-300

- •The world's smallest semi-auto dicer made possible by our core technology. Footprint reduced 40% compared to our existing machines.
- •Offers both the high power twin-spindle model and the single-spindle model.
- •Improved cutting quality by high rigidity and low vibration.
- •Easy-to-operate new GUI (Graphical User Interface) and 17 inch LCD touch panel screen.
- **SS Series**
- •High power spindle as standard feature.
- •Improved operability with the 17-inch LCD touch panel
- Auto alignment as standard feature.
- •World smallest footprint for each machine.

Automated wafer cleaning machine

•Wafer cleaning machine capable of cleaning and drying 300mm wafers

Semiconductor Production Equipment

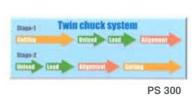
Package Singulation Machine

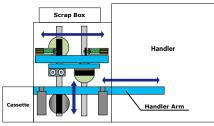
Can be connected with any pick-and-place units produced by major suppliers in the world



With the newly developed two independent stages, PS 300 can operate cutting and positioning processes simultaneously and thus increase the dicing speed by up to two times compared to its alternatives.

As the working speed between the PS 300 and the connected handler has been improved, the entire process can be completed significantly faster.





Connection with the Handler

Twin Stage Super-speed Package Singulation System **PS 300**

Precision ACCRETECH Blade

Our blades for precision cutting are derived from our unique development technology as well as our diverse application technology. We offer products that can cut a variety of materials, cover diverse cutting applications and satisfy today's requirement of "high quality & low cost".



< NICKEL BOND BLADES >

Nickel blades manufactured by electroforming with globally acknowledged performance that supports outstanding stability. The Company continues to pursue the possibilities in cutting electronic materials by making use of the rigidity and wear-resistance of nickel blades.



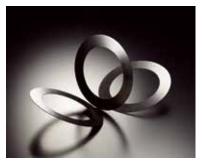
< METAL BOND BLADES >

Metal bond blades uniquely manufactured to your specific dicing demands. GM series for glass and YM series for ceramics. Customized to your application.



< HUB TYPE BLADES >

Nickel plated hub blades designed and manufactured with high tolerances under strict quality controls. This ensures repeatable high cutting quality and durability.



< RESIN BOND BLADES >

Resin bond blade developed to achieve high speed cutting and durability, while maintaining high sharpness. Choose different series of blades according to the usage; PG series for semiconductor packages and GC series for glass and ceramics.



< ULTRA HARD METAL SAWS >

Ultra-hard metal saw that does not allow burring on the edge through the cutting of the variety of resin and metal substrate. It can be the total solution for cutting that can respond to the new demands.



< DRESSING PLATE >

Dressing plates that work to maintain the quality and cutting ability of all types of blades. Dressing under optimized conditions maximizes the blade performance.

Full-automatic Laser Dicing Machines

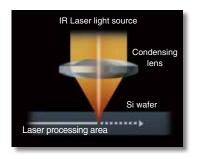


Able to perform non-contact dicing without damaging the silicon wafer surface

Ø300mm laser dicing machine equipped with a visible light microscope. Various loader specifications are available to meet various needs of customers.

[Features]

- Supports completely dry process. Optimum choice for processing devices whose processing load should be minimized and that should be kept away from water.
- Adoption of a high output laser significantly reduced the number of scans required for processing, dramatically increasing the throughput.
- Narrow kerf width increases the yield (number of chips obtained), contributing to cost reduction.



This laser dicing machine removes Low-k film, Cu wiring, TEG, etc. on the street with low damage using UV laser beam.

[Features]

- Ø300mm Compatible fully automatic laser dicing machine Automatically supports a series of processes from water-soluble protective film distribution to laser dicing and cleaning.
- Laser Grooving Process compatible AL3000 supports applications for removing TEG on Low-k grooves or
- Achieves both high quality processing and high throughput with a unique laser engine mechanism



Laser Dicing Machine AL3000

High Rigid Grinders

Realized the damage-free processing in a short amount of time.

Our high rigid grinder is the device to grind hard-to-cut materials such as sapphire and SiC substrates.

HRG300 allows the processing of individual wafers with larger diameters (300 mm) and of the batch grinding of wafers with smaller diameters that are attached to the support substrates.



HRG300

Features

- High-rigidity
- Processing efficiency
- Low processing cost
- Equipped with the batch processing-compliant IPG
- Continuous dressing mechanism (optional)

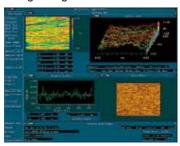


HRG200X

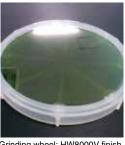
Features

- Fully Automatic High Rigid Twin Axis Grinder
- Less-damage Grinding with Shorter Process Time
- Low processing cost
- High Accuracy
- Mirror Finish Surface Grinding

Processing example of SiC. Mirror finish becomes available only with grinding.



Ra: 0.247 nm PV: 1.829 nm



Grinding wheel: HW8000V finish

Target material

Hard-to-cut materials such as sapphire, SiC, GaN, ALN, and LT.

Target work

Size: ϕ 2 \sim ϕ 12 inch Max. thickness: 20 mm

(including the thickness of the support substrate)

Pursuing the limit of grinding machines.

ACCRETECH High Rigid Grinders enable mirror finishing with no use of chemicals and contribute to achieving high precision, high throughput and low cost in the wafer thinning process.



HRG3000RMX

Features

- Fully Automatic High Rigid Twin Axis Grinder
- Less-damage Grinding with Shorter Process Time
- Low processing cost
- High Accuracy
- Mirror Finish Surface Grinding

Semiconductor Production Equipment

Polish Grinders

Inspired by Tokyo Seimitsu's own innovative engineering, this polish grinder offers an integrated solution for thinner wafers and damage removal required for system-in-package products, and 3D mounting technology while eliminating wafer damage during transport.



Features

- Integrated operation: Handles rough and fine grinding, polishing, and wafer cleaning on both sides in a single unit
- Safety measures: All manufacturing processes are completed in a wet state, preventing the release of fine particles
- Stable wafer transfer: Ground wafers are transported throughout all processes with minimum handling
- The equipment offers integrated data control and communication systems: the RM module combines a transport mechanism for minimal transfer of thin wafers with an inline connection system; measurement is performed by a post-process gage.
- Quality management: Data management and Communication using Post process gauge

Processing example of Si. Mirror finish becomes available only with the grinding.



HRG3000RMX

Target material

Target work
Size: ϕ 8 $\sim \phi$ 12 inch
Minimum finish thickness: 10 μ

Chemical Mechanical Planarizers

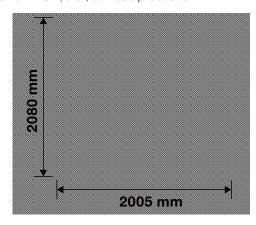
Integrating the technologies of precision measuring machines and semiconductor manufacturing systems developed thus far, Tokyo Seimitsu offers the ChaMP series Chemical Mechanical Planarizers that meet diverse process requirements. (Applicable wafer sizes: 300mm, 200mm, 150mm, 100mm)

Compact High-Performance CMP

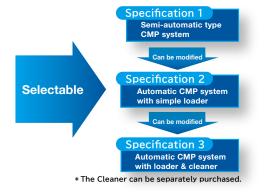
ChaMP-211

Feature

- Low price, small foot print
- High-performance CMP: Developed technology through the mass production line of the semiconductor device.
- Flexible customization meeting user's needs
 - --->Expendable from R&D, trial, to mass production.







Standard Model

ChaMP-232 For 200 mm or 150 mm or 100 mm wafers

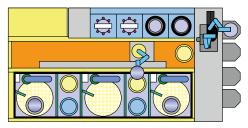
ChaMP-332

For 300 mm wafers

Feature

- Supports all types of application with a 3 platen, 2 head configuration
- All machines supporting 300mm/200 mm/150 mm/100 mm wafers are equipped with similarly conceived polishing heads and EPD system.





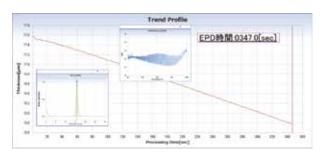
Air-float head enables low-pressure and high planarity process "Sylphide"

- Extremely uniform pressure distribution by air film above wafer.
- Stable pressure control at low pressures made possible with airbags independent from air films.
- Independent retainer pressure airbags enable better edge profile control.
- Unique design of retainer/membrane assembly reduces machine downtime. (Refer to below.)
- Zone control function is optionally possible.

CMP's outstanding head work not only improves the process performance but also increases the productivity as well as reduces costs. More precisely, adapting the well refined hard pats can shorten the polishing time and thus reduce the cost of consumables.

Optical End-Point Detection System

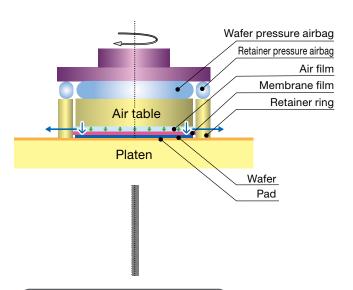
- Uses white light source and accurately detects residual film changes with reflection data of wide wavelength range and original algorithm.
- Provides a wide range of applications.
- Equipped with intuitive GUI that allows the user to see film thickness changes.



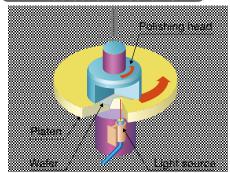
Cleaning machine

- Enables cleaning of 300 mm / 200 mm / 150 mm / 100 mm wafers and flexibly handles square or other special substrates.
- Achieves cleaning suitable for state-of-the-art processes.
- Enables simultaneous cleaning of front and back surfaces.

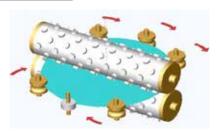
Sylphide

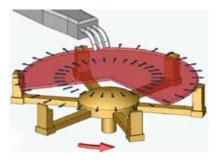


EPD detection mechanism



Scrub cleaning





Wafer Manufacturing Systems

As the leading supplier of silicon wafer manufacturing equipment, our acclaimed engineering has succeeded in systemizing the wafer manufacturing process.

As the semiconductor devices get smaller in size, demand for precision machining technology for silicon wafers increases. Tokyo Seimitsu provides a line of wafer manufacturing systems respectively designed for individual processes such as sliced wafer demounting and cleaning, wafer edge grinding, and more to ultimately improve product quality and productivity. We offer consultations to select the optimal systems for automation and process management as well as providing technical and maintenance support going forward. Wafer Edge Grinding for 300mm wafers and Demounting and Cleaning Systems for sliced carbon wafers are a few of our prime products that maintain high customer reviews and dominate the global market share.

Wafer Edge Grinding Machine W-GM Series

- Newly-developed grinding unit enhances the rotative precision of the spindle, and improves the edge roughness.
- Non-contact measuring system achieves stable alignment.
- Multiple-point of thickness of pre-processed wafers , diameter and notch depth of post-processed wafer are measured by non-contact system.
- Options such as low damage grinding to reduce machining damage are available.



W-GM-6200

- •Improve the Space Efficiency by the Compact Design.
- •Highly Accurate Grinding by the Synchronized X. Υ. θ Support Control.
- •Easy Operation by Touch Panel.

W-GM-5200E

- •Machine specification ready for 300 mm (φ 12") wafers.
- Makes possible high precision and high quality 300 mm wafer processing.
- Newly-developed built-in inspection system (option) enables realtime monitoring inside the machine of wafers quality control after grinding.





W-GM-4200E

- •Machine specification ready for 50 mm (ϕ 2") 200 mm (ϕ 8") wafers.
- •Newly-developed grinding unit enhances the rotative precision of the spindle, and improves the surface roughness.
- •Performs non-contact measuring of pre-processed wafer thickness, diameter and notch depth of post-processed wafer.

W-GM-4200S

•Workpieces in various shapes (rectangular and polygoral shapes) can be processed.



Demounting and Cleaning System (C-RW-200 / 300)

•Automatic demounting of wafers from the slicing base, cleaning and storing on the cassette.

Grinding Service

Our wafer edge grinding machine is used for various materials such as silicon, sapphire, compound materials and glass. We provide our grinding technology that we accumulated. Also, we can measure your wafers with our measuring equipments to evaluate the wafers.

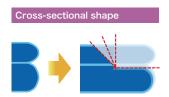
Process Example *Edge Roughness (Ra = 20 nm) *Measured by Our Standard



Si Wafer 2" (50 mm) \sim 18" (450 mm)



Terrace Grinding Counter Measure against Knife Edge/Asymmetric Profile Grinding



Edge Trimming Bonded Wafer with Special Profile



Sapphire Wafer



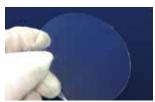
Sapphire Wafer Notch Grinding



Compound Materials such as SiC & GaN



Ingot Rounding Maximum Thickness: 30 mm



Glass Wafer Edge Grinding



Square / Rectangle Glass Substrate

How We See CSR

Tokyo Seimitsu Group integrates the best technology, knowledge, and information acquired from all over the globe to create the world's No.1 products and is committed to work together with all the stakeholders such as customers, suppliers and others to shape a sustainable society.

Motto

WIN-WIN RELATIONSHIPS CREATE THE WORLD'S NO.1 PRODUCTS!



ACCRETECH





Precision Measuring Instruments

Suppliers

Partners we work with to create new value







Materials

Small components

Corporate Philosophy

We create the world's No. 1 products and grow together to a higher level by integrating excellent technology, wisdom and information available in the world.



Support Manufacturing and Society with Measuring Technology Achieve a Sustainable Society



Airplanes

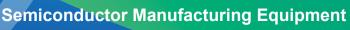
Smartphones













Tokyo Seimitsu Group has contributed to our society and environments through developing the high-precision measuring instruments to enhance convenience in our daily lives and the semiconductor manufacturing equipment to help create energy-efficient electronic products. In other words, our technologies in metrology and semiconductor assist our customers in manufacturing their end products that serve the entire society.

In order for us to keep providing our customers and society with various values through our products, we must stay focused on grasping their future needs in a long run as well as working closely with our suppliers who are eager to comply with our corporate philosophy.

We are determined to maintain our win-win relationships with the stakeholders to develop new technologies, which consecutively improve the quality of our everyday lives, preserve the surrounding environments, and thus change the society for their benefit.

Throughout our business practices, we ensure to respect human rights, evaluate and correct the negative impact on the global environment if any, and are pledged to stay responsible as a member of society.

As part of our efforts, we make sure that the CSR report reflects Tokyo Seimitsu as it is, as we value two-way communications with all the stakeholders.

Outline of Company

Name

TOKYO SEIMITSU CO., LTD.

Establishment

March 28, 1949

Capital

Paid-in capital: 10,818 million yen (as of June 21, 2021)

Stocks

Listed on the first section of the Tokyo Stock Exchange

Employees

Non consolidated: 1,004 Consolidated: 2,364 (as of June 30, 2021)

Directors and Auditors

Hitoshi YOSHIDA President and CEO

Ryuichi KIMURA Executive Vice President and COO Koichi KAWAMURA Representative Director and CFO

Akihiro ENDO Director
Takahiro HOKIDA Director
Shuichi TSUKADA Director
Wolfgang BONATZ Director

Shozo SAITO External Director
Kiyoshi TAKAMASU External Director

Shinji AKIMOTO Director(Serving as Audit and Supervisory Committee Members)
Yoshiro HAYASHI External Director(Serving as Audit and Supervisory Committee Members)
Yuriko SAGARA External Director(Serving as Audit and Supervisory Committee Members)
Masaki SUNAGA External Director(Serving as Audit and Supervisory Committee Members)

(as of June 21, 2021)

Affiliates

Tosei Engineering Corp. Tosei Systems Co., Ltd. Accretech Create Corp. Tosei Box Corp.

Accretech Finance Co., Ltd.

Accretech Powertro System Co., Ltd.

Accretech America Inc.
Accretech (Europe) GmbH
Accretech Korea Co., Ltd.
Accretech (China) Co., Ltd.
Accretech Taiwan Co., Ltd.
Accretech (Malaysia) Sdn. Bhd.
Accretech (Thailand) Co., Ltd.

Accretech Adamas (Thailand) Co., Ltd. Tosei Engineering (Pinghu) Co., Ltd.

TOSEI (Thailand) Co., Ltd. Accretech SBS Inc.

Accretech (Singapore) Pte. Ltd. Accretech Vietnam Co., Ltd. PT Accretech Indonesia Accretech-Tosei do Brasil Ltda.

TOSEI Korea Co., Ltd.
TOSEI Taiwan Co., Ltd.
PT TOSEI Indonesia.
TOSEI Philippines Corp.
TOSEI Engineering Pvt. Ltd.
Tosei Canada Measuring Inc.
TOSEI Mexico, S.A. de C.V.
Accretech SBS UK Ltd.
Accretech-Tosei Hungary Kft.
Accretech (Pinghu) Co., Ltd.

In-house Company System and Executive Officer System

Semiconductor Company

Ryuichi KIMURA

Akihiro ENDO

Takahiro HOKIDA

Akio MITSUHASHI

Nobukazu AOSHIMA

Managing Executive Officer

Keng Hooi TEE **Executive Officer** Romi PRADHAN **Executive Officer** Hiroyuki SAKAI **Executive Officer** Masaki KANAZAWA **Executive Officer** Yuichi KUBO **Executive Officer** Masavuki AZUMA **Executive Officer** Toshihiko ETO **Executive Officer** Masato MINEO **Executive Officer** Ryoichi IDE **Executive Officer**

Metrology Company

Shuichi TSUKADA Head of Metrology Company
Tsutomu KANZAKI Managing Executive Officer
Shuichi YAKO Executive Officer
Hao CHEN Executive Officer

Yoshikazu MATSUSHIMA Executive Officer Taichi FUJITA Executive Officer

Administration Company

Koichi KAWAMURA Head of Administration Company Kenichi TAMURA Managing Executive Officer Asashi KATO Managing Executive Officer

Shinichi USUDA Executive Officer Kimito KOIZUMI Executive Officer Akihiko UENO Executive Officer

Brief History

1949	•Establishment of Tokyo Seimitsu Kogu Co., Ltd.	1998	•ISO 14001 awarded to the Hachioji and Tsuchiura Plants
1951	Manufacture and sale of measuring machines using mechanical gages	1999	•Establishment of ACCRETECH Finance Co., Ltd.
1952	•Development of Japan's first flow type air micrometer	2001	Corporate brand "ACCRETECH" introduced Establishment of Tosei Box Corp.
1957	Development of Japan's first LVDT type electric micrometer Establishment of Daiichi Seiki Co., Ltd.	2002	•Received the "10 Best Award" in two categories : awarded for the 7 consecutive years in the Test & Material Handling Equipmentcategory, and the
1958	•Development of germanium pellet auto-sorter		awarded in the Assemby Equipment category for the first time •Establishment of Accretech (China) Co.,Ltd.
1962	Company name changed to Tokyo Seimitsu Co.,Ltd. Listed on the second section of the Tokyo Stock Exchange Development of surface texture measuring		Entered into a partnership with Hamamatsu Photonics K.K. for developing semiconductor manufacturing equipment and jointly developed a new laser dicing system, "MAHOHDICING
	instrument		MACHINE"
1963	•Development of Japan's first wafer slicing machine	2005	•Renewed partnership agreement with Carl Zeiss for another 5 years
1964	Development of wafer probing machine	2007	•Establishment of Accretech Korea Co.,Ltd.
1967 1969	 Development of roundness measuring instrument Establishment of Tosei Engineering Service Co.,Ltd. Development of Japan's first coordinate measuring machine 		MAHOHDICING MACHINE was granted the Chairman' Award of The Japan Machinery Federation at its 27th JMF Award for Energy- Conserving Machinery. Obtained a business license at Tsuchiura Plant
1970	•Development of the wafer dicing machine		under the traceability system of the Measurement Law for the calibration of the "length measurement laser" and "3D Coordinate Measuring Machine"
1985	 Establishment of Tosei Systems Co., Ltd. as a software development group 	2008	Received the "10 BEST Awards" in two categories
1986	•Listed on the first section of the Tokyo Stock Exchange		:awarded for 13 consecutive years in the Test & Material Handing Equipment category, and for 7 consecutive years in the Assembly Equipment category
1987	•Establishment of Research Laboratory		•Technical cooperation with Mitaka Kohki Co., Ltd in non-contact metrology
1989	 Establishment of Tokyo Seimitsu Europe GmbH (Germany) and Tokyo Seimitsu America, Inc.(USA) 	2009	•Establishment of Accretech America Inc.
1992	•Establishment of ACCRETECH Service Center in Korea	2010	•Relocation the head office to Hachioji City
1994	•ISO 9001 awarded to the Hachioji and Tsuchiura	2011	 Completed the No. 5 Plant at Hachioji Semiconductor company
	Plants Obtained a business license under the traceability system of the Measurement Law for the calibration of the "length measurement laser"	2012	Acceptance of Dicing Blade Business from Mitsubishi Material Corporation and started Blade Business
	Establishment of the Beijing Representative Office Establishment of Tokyo Seimitsu (Malaysia) Sdn. Bhd. in Malaysia		 Established "ACCRETECH Application Center" accommodating to device process diversification
1995	Obtained a business license under the traceability system of the Measurement Law for the calibration	2015	 Changed company name of Tokyo seimitsu (Thailand) Co., Ltd. to Accretech (Thailand) Co., Ltd.
	of the "Block gage" •Establishment of ACCRETECH America, Inc. and ACCRETECH Manufacturing Company in USA •Entered into a partnership with Carl Zeiss in the	2016	 Completed the No. 6 Plant at Hachioji Semiconductor company.
1004	field of high precision measuring instruments worldwide	2017	 Joint Development with Panasonic Factory Solutions Co., Ltd. to promote Laser Grooving Device used in Plasma Dicing method.
1996	 Received the "10 BEST Award" for "Customer satisfaction with a semiconductor equipment supplier" survey by VLSI Research Inc. Establishment of the TSK Technical Center in Hsinchu, Taiwan 	2019	 Establishment of Accretech Powertro System Co., Ltd. Establishment of Accretech SBS Inc. Establishment of Accretech SBS UK Ltd.
1997	Establishment of Tokyo Seimitsu (Singapore) Pte.Ltd.		

Head Office/Plant/Domestic Offices



Head Office

2968-2, Ishikawa-machi, Hachioji-shi,

Tokyo 192-8515, Japan Tel: +81(0)42-642-1701 Fax: +81(0)42-642-1798



Hachioji Plant

2968-2, Ishikawa-machi, Hachioji-shi, Tokyo 192-0032, Japan

Tel: +81(0)42-642-0381 Fax: +81(0)42-642-0386

Overseas Offices

International Marketing Dept.

(Semiconductor Company)

2968-2, Ishikawa-machi, Hachioji-shi,

Tokyo 192-0032, Japan Tel: +81(0)42-642-0381 Fax: +81(0)42-631-5234

(Metrology Company)

4. Higashi-Nakanuki-machi, Tsuchiura-shi,

Ibaraki 300-0006, Japan Tel: +81(0)29-831-1240 Fax: +81(0)29-831-1461

Asia



Accretech (China) Co., Ltd.

China

Accretech (China) Co., Ltd.

(Head Office / Shanghai) Room 2101C, No.1077, ZuChongZhi

Road,

Zhang Jiang Hi-Tech Park, Pudong New

Area.

Shanghai, China, 201203 Tel: +86(0)21-3887-0801

Fax: +86(0)21-3887-0805

(Shanghai Office)

Room212, No.118 Fu Te Bei Road, WaiGaoQiao F.T.Z Shanghai, China,

200131

Tel: +86(0)21-5064-0201

Accretech (Pinghu) Co., Ltd.

Building 2#, No 1389, Xinqun Road, Pinghu Economic Development Zone, Pinghu City, Zhejiang, PRC. China,

314200

Tel: +86(0)573-8520-8060 Fax: +86(0)573-8520-8065

(Changchun Office)

Room 812, Building 1, Kaixuanshiji Plaza, No. 278 Kaixuan Road, Kuancheng District, Changchun, Jilin, China, 130052

Tel: +86(0)431-8896-1051 Fax: +86(0)431-8896-0661

(Dalian Office)

Room 715, Building 3#, Yifeng Modern City, Jin Ma Road, Development Zone, DaLian City, Liaoning Province, China,

Tel: +86(0)411-8756-5414 Fax: +86(0)411-8756-5414

(Beijing Office)

Room 1001, No.40, Unit 2, Tian Tong Zhong Yuan, Li Shui Qiao Bei Road, Changping District, Beijing, China, 102218

Tel: +86(0)10-8447-7010 Fax: +86(0)10-8447-7010

(Tianjin Office)

Room 606, Brilliant Crystal Tower, 53-1 Weidi Road, Hexi District, Tianjin,

China, 300201

Tel: +86(0)22-8822-7220 Fax: +86(0)22-2833-2125

(Jinan Office)

Room 1404, NO.1, Hengda City, No.58, Gongyebei Road, Licheng District, Jinan,

Shandong, China, 250100 Tel: +86(0)531-6668-8196 Fax: +86(0)531-6668-8190



Tsuchiura Plant

4, Higashi-Nakanuki-machi, Tsuchiura-shi, Ibaraki 300-0006, Japan

Tel: +81(0)29-831-1234 Fax: +81(0)29-831-4453



Tosei Engineering Corp. **Head Office / Plant**

4-6, Higashi-Nakanuki-machi, Tsuchiura-shi, Ibaraki 300-0006,Japan

Tel: +81(0)29-830-1888 Fax: +81(0)29-832-4053



Tosei Engineering Corp. **Nagoya Plant**

96, Shin-Ikeura, Uchikoshi-cho, Miyoshi-shi, Aichi 470-0213 Japan

Tel: +81(0)561-32-3601 Fax: +81(0)561-34-2744

(Xi'an Office)

Room 22601, Unit 2, Block B, NO.2, Heng Tian Guo Ji City, NO.2, Daqing Road, Lianhu District, Xi'an, Shaanxi Province, China, 710082

Tel: +86(0)29-8886-3499 Fax: +86(0)29-8886-3499

(Nanjing Office)

Room 2103, Building 1, Tongxi International Plaza, No. 1222, Shuanglong Avenue Jiangning Area, Nanjing, Jiangsu Province, China, 211100

Tel: +86(0)25-8498-6492 Fax: +86(0)25-8498-6493

(Hefei Office)

Room 516, Building B, Wanhao Plaza, No.112 Sui Xi Road, Luyang District, Hefei, Anhui Province, China, 230001

Tel: +86(0)551-6362-1060 Fax: +86(0)551-6362-1060

(Wuxi Office)

Room 7-407, No.12, Changjiang Road, Wuxi, Jiangsu Province, China, 214028

Tel: +86-400-812-0294

(Suzhou Office)

Room 1001, Building 2, Area 3, Haiyue Garden, No.166 Liu Li Street, Suzhou Industrial Park, Jiangsu Province, China, 215025

Tel: +86(0)512-6265-6436 Fax: +86(0)512-6265-6435

(Ningbo Office)

Room 902, No.151, Cangsong Road, Haishu District, Zhejiang Province, China, 315000

Tel: +86(0)574-8772-7550 Fax: +86(0)574-8772-7660

(Chengdu Office)

2-1-1405 Qingjiangyaju, No.122 East Qingjiang Road Qingyang District, Chengdu, China, 610072

Tel: +86(0)28-8738-2279 Fax: +86(0)28-8738-2279

(Wuhan Office)

Room 603, Building 8, Phase 2, Hailunchuntian Residential Quater, No. 17 Fangcao Road 1st, Hanyang District, Wuhan, Hubei Province, China, 430056

Tel: +86(0)27-8665-9291 Fax: +86(0)27-8665-9291

(Chongqing Office)

Room 1804, Building 42, Area 3, Hengda City, No.9 Banan Avenue, Banan District, Chongqing, China, 400054 Tel: +86(0)23-6295-5061

Fax: +86(0)23-6295-5060

(Guangzhou Office)

Room 2803, Building 4, Asian Games City Blossom, No.1 Yayun South Road, Shiqi Town, Panyu District, Guangzhou, Guangdong Province, China, 511447 Tel: +86(0)20-3887-0975

Fax: +86(0)20-3887-0627

(Shenzhen Office)

Room 118, Building B, Huafeng Intellgence valley-Fuhai tech industrial park, Yongfu road, Fuhai sub-district, Baoan district, Shenzhen Guangdong, China. 518103

Tel: +86(0)755-2515-9842 Fax: +86(0)755-2515-7737



Accretech Korea Co., Ltd.

Korea Accretech Korea Co., Ltd.

(Head Office / Hwaseong)

205, IMS Bldg., 31-8, Dongtan-daero 24-gil, Hwaseong-si,

Gyeonggi-do, 18463, Korea Tel: +82(0)31-786-4000 Fax: +82(0)31-786-4090

(Ulsan Office)

(1F 841-8, Myeongchon-dong) 30, Myeongchon 7-gil, Buk-gu, Ulsan, 44254, Korea

Tel: +82(0)52-268-2136 Fax: +82(0)52-268-2137



Vietnam

Accretech Vietnam Co., Ltd.

(Semiconductor Branch / Hanoi)

Room 816, 8th Floor, CEO Tower, Pham Hung Street, Me Tri Ward,

Nam Tu Liem District, Ha Noi, Vietnam

(Business Location / Ho Chi Minh City)

distrist, Ho Chi Minh City, Vietnam

1st floor, 63 Nguyen Thi Nhung street, Van

Phuc 1, Hiep Binh Phuoc Ward, Thu Duc

Tel: +84(24)3941-3309 Fax: +84(24)3941-3310

Tel: +84(24)3996-3568

TEL: +84(28)3512-6760

FAX: +84(24)3941-3310

(Head Office / Hanoi) Lot 06, 1F, Riverside Garden Bldg, at No.349

Vu Tong Phan street, Khuong Dinh ward, Thanh Xuan district, Ha Noi, Vietnam

Asia



Accretech (Malaysia) Sdn. Bhd.

Accretech Taiwan Co., Ltd.

No. 55, Fenggong Rd., Neighborhood 5, Fengshan Vil., Hukou Township, Hsinchu County 303035, Taiwan

Tel: +886(0)3-553-1300 Fax: +886(0)3-553-1319

Singapore

Accretech (Singapore) Pte. Ltd.

140 Paya Lebar Road,

#06-07 AZ@Paya Lebar, Singapore 409015

Tel: +65-6341-6052 Fax: +65-6341-6054

Thailand

Accretech (Thailand) Co., Ltd.

(HQ & Metrology)

2/3 Moo 14, Bangna Tower A, 16th Fl., Bangna-Trad Road. K.M. 6.5, Bangkaew, Bangplee, Samutprakarn 10540 Thailand

Tel: +66(2)751-9573, 9574 Fax: +66(2)751-9575

(Semiconductor Office)

SJ Infinite I Business Complex, 349 9th Floor (#901) Vibhavadi Rangsit Road Chompol, Chatuchak, Bangkok 10900 Thailand Te1: +66(2)024 8735-6 Fax: +66(2)024 8737

Accretech Adamas (Thailand) Co., Ltd.

56/27 Moo 20, Tambol Klongnueng, Amphur Klongluang Pathumthani Province 12120 Thailand

Tel: +66(2)119-5489 Fax: +66(2)119-5488

Malaysia

Accretech (Malaysia) Sdn. Bhd.

(Head Office)

No. 15, Jalan PJS 8/17, Dataran Mentari, Bandar Sunway, 46150 Petaling Jaya, Selangor, Malaysia Te1: +60(3)7717-3088

(Penang Office)

THE C.E.O, 31-07-3A, Lebuh Nipah 5, 11950 Bayan Lepas, Pulau Pinang, Malaysia Tel: +60(4)6119-622

(Johor Bahru Office)

No.7-G, Jalan Molek 3/20, Taman Molek, Johor Bahru, 81100 Malaysia Tel: +60(7)361-4388

(The Representative Office / Ho Chi Minh City)

2nd floor, 63 Nguyen Thi Nhung street, Van Phuc 1, Hiep Binh Phuoc Ward, Thu Duc distrist, Ho Chi Minh City, Vietnam TEL: +84(28)3512-6760

FAX: +84(24)3941-3310

Indonesia

PT Accretech Indonesia

Jl. Kenari Timur Blok G-1A No.23 Delta Silicon 5 Lippo Cikarang, Cicau, Chkarang Pusat, Kab. Bekasi Jawa Barat 17530, Indonesia

Tel: +62(0)21-2961-2374 Tel: +62(0)21-2961-2375



North America



Accretech America Inc.

USA

Accretech America Inc.

(Head Office)

2280 Campbell Creek Blvd., Suite 300, Richardson, TX 75082, U.S.A. Tel: +1-214-459-1688 Fax: +1-214-459-1696

(Fremont Office)

47265 Fremont Blvd, Fremont, CA 94538-6502, U.S.A. Tel: +1-510-344-5411

Fax: +1-510-344-5410

(Boise Office)

10101 West Overland Road, Suite 120 Boise, Idaho 83709, U.S.A

Tel: +1-208-429-6500 Fax: +1-208-429-6555

South America

Brazil

Accretech-Tosei do Brasil Ltda.

Av. Presidente Vargas, 2.921 - Sala 314, Condomínio Sky Towers Office, Vila Homero, Indaiatuba-SP 13338-705 Brasil Te1: +55(0)19-3318-1527

Fax: +55(0)19-3318-1527

Europe

Germany Accretech (Europe) GmbH

(Head Office)

Landsberger Str. 396, D-81241 Munich, Germany Tel: +49(0)89-546788-0 Fax: +49(0)89-546788-10

(Dresden Office)

Hugo-Junkers-Ring 9, D-01109 Dresden, Germany Tel: +49(0)351-89024-11 Fax: +49(0)351-89024-12



Accretech (Europe) GmbH

France Accretech (Europe) GmbH (French Office)

14, Chemin des Clos F-38240 Meylan, France Tel: +33(0)4-76-04-40-80

Fax: +33(0)4-76-04-07-30

Italy

Accretech (Europe) GmbH (Italian Office)

Via Giotto 7,

20032 Cormano (MI), Italy Tel: +39-02-2316-3291 Fax: +39-02-2316-3099

Hungary

Accretech-Tosei Hungary Kft. Liget utca 1, Ground Floor, 2040

Budaörs, Hungary Tel: +36(0)23-232-224 Fax: +36(0)23-232-224





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