



COMPANY PROFILE 2015



CORPORATE MOTTO

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

Our corporate brand “**ACCURETECH**” was created from the words “Accrete,” which means **Grow Together**, and “Technology.” The brand thus expresses in a single word our corporate philosophy: growing together with partners and customers by collaborating technology, knowledge and information from internal and external sources to create the world’s No. 1 products.



***What our symbol mark expresses**
A 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. That 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 on providing good customer support. Tokyo Seimitsu Group has adopted as a corporate motto "Win-Win Relationships" with stakeholders. This motto describes our philosophy to build cooperative relationships not only with customers, but also with suppliers, shareholders, and employees, and to realize continual progress.

In recent years we have witnessed huge and dramatic changes in the fundamental organization of manufacturing and technical design of products throughout the world as a consequence of globalization, the rise of eco-consciousness and the exponential adoption of IT products. Tokyo Seimitsu Group, while being a global Company Group nonetheless proudly retains a sense of craftsmanship and excellence in its product manufacture which is based on a more traditional sense of product development expressed in



the Japanese concept of “*Monozukuri*” which relates to “the art of making things”. In this sense, Tokyo Seimitsu Group strives for innovation in its product making for the benefit of its customers but with the spirit of an artisan who takes satisfaction from making each item the best it can be.

In the work place, Tokyo Seimitsu Group is guided by clear principles of Health and Safety, Quality, Environmental and Energy Conservation, and Consideration for all our Employees. In order to satisfy our customers, and to fully contribute to our society, we continue developing and supplying our Semiconductor Production Equipment and Metrology Products with care and excellence.

Your continuing support for our Group is greatly appreciated.



President and CEO

Our origin and future

We aim to successively intr ‘World No.1 Products’ that

As a manufacturer of precision measurement systems and semiconductor manufacturing equipment, Tokyo Seimitsu has been supplying the marketplace with machine control gages, surface texture measuring instruments, wafer probing machines and others systems based on our key capabilities in high-precision measurement and micro positioning technology.

Soon we will proudly deliver more leading products to the market place.

**Metrology
Company**

High Precision Measuring Instrument

High precision measuring instruments are used in measurement labs and facilities in various industries such as automobiles, machine tools, aircraft parts and so on. This equipment is highly valued by our customers. We continually strive to enhance product development by improving durability and reliability under all environmental conditions, making products more compact, and automating product functionality.

roduce into the market flow from our key capabilities.

**Semiconductor
Company**

Semiconductor Production Equipment

Tokyo Seimitsu holds the largest market share throughout the world in conventional fields of wafer manufacturing, test, and back end processing areas for semiconductor production equipment. In addition, we are active in the fields of CMP (Chemical Mechanical Planarizers) and polish grinders for building the optimum manufacturing system in the semiconductor production process.

Multipurpose Measuring Instruments

Coordinate Measuring Machines



PRISMO navigator

- Equipped with the Navigator function, dramatically improving high-speed scanning precision.
- High-speed and high-precision VAST GOLD Active Scanning Probe realizes both scanning and point-to-point measurements.
- Unique design effectively minimizes the disturbance of temperature.

Adapts the high precision for parts.
Active scanning technology with high throughput.
AI function for easy operation.

PRISOMO Navigator series featuring the Navigator function, which dramatically improves the high-speed scanning precision, in addition to the active scanning technology that realizes the high throughput.
XYZAX FUSION NEX series which contributes to the cost performance.
Provides 3D Coordinate Measuring Machines to meet your needs such as XYZAX SVA NEX and SVF NEX series with AI function of easy operability.



ACCURA II

- New Series adapt the high precision and high-speed measurement for large-size parts and, various ZEISS scanning probes can be attached.
- Maximum speed: 800 mm/s (optional)
- CAA (Computer Aided Accuracy) adjustment enables high accuracy.



NEW

CONTURA

- Combining the VAST XXT Small-sized Scanning Probe with RDS Rotating Probe Head, it enables the highly-efficient and high precision measurement of workpiece with complex shape
- With an economical design, the Contura G2 offers superior cost performance.

MICURA

- Achieved the smallest footprint and largest measurement range in the class.
- Applicable to various ultra high-precision measurement such as medical equipment and gears.



Probes

Probes can be selected according to workpiece, accuracy and efficiency.



VAST gold



VAST XTR gold



VAST XT gold



RDS VAST XXX



PH10T



Line Lazer Sensor

XYZAX FUSION NEX Series

- Integrates world's only Active Scanning Technology of Carl Zeiss and the hardware technology of Tokyo Seimitsu.
- Guarantees the measurement accuracy (MPEE = $1.6 + 3L/1000 \mu\text{m}$) as well as scanning accuracy (MPETHP=2.1 μm)
- Scanning accuracy guarantees even the nation's first stylus length's of 300 mm, commonly used in actual workpiece.
- Exchangeable with the rotatory probe PH10T.



NEW

XYZAX SVA NEX Series

- Redesigned SVA series
- High precision model, developed with the excellent control technology of Carl Zeiss and high rigidity design of Tokyo Seimitsu.

NEW

XYZAX mju NEX Series

- With Hybrid Guideway Technology, it realized stable measuring accuracy and energy saving.



NEW

XYZAX SVF NEX Series

- Redesigned RVF series
- Renewal entry modeled Manual 3D coordinate measuring machine



Multipurpose Measuring Instruments

Surface Texture and Contour Measuring Machines



Integration of the roughness measurement and the contour profile measurement

SURFCOM CREST is an integrated measuring machine of high precision surface texture and contour profile, which achieved to response to the conflicting requirements — high-speed, high-accuracy, low-vibration — with our original technology. This is the world's best measuring machine which achieved high-speed/low-vibration by a linear motor drive, and also achieved high-accuracy by a newly-developed high resolution detector. We have also achieved to evaluative analysis of surface roughness and contour at one time. It helps to save time for replacing detector and improve high-throughput by speeding up of measurement site (200 mm/s). Also, SURFCOM NEX series and current SURFCOM 1500DX3, and CONTOURECORD 1700DX3, which equipped with linear motor will be able to high magnification measuring with low vibration.

NEW

Integrated Measuring Machine of Surface Texture and Contour Profile SURFCOM CREST

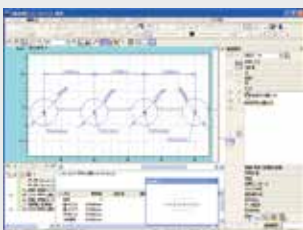
- High-precision and high-speed measurement achieved by employing the latest linear motor technology.
- Integrated measurement machine of surface texture and contour profile with the world's best high-precision and high-performance.
- High-stability double optical path type laser interferometer sensor (patent granted) with the high resolution of 0.31 nm and measuring range of 13 mm.
- Roughness and contours can be evaluated and analyzed efficiently in one measurement.

Data Processing System [Surface Texture and Contour]

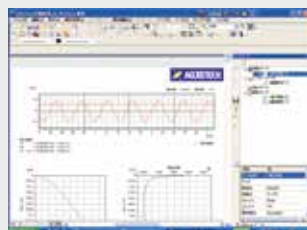
ACCTee



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



Pitch calculation Calculation result



Integrated Measuring Machine of Surface Texture and Contour Profile SURFCOM NEX 100

- Integrated measuring machine with the best precision in this industry.
- Roughness and contour are measured simultaneously with the newly developed dual sensor.
- Value improvement of existing machine by the retrofit (linear series).



NEW

**Surface Texture and Contour
Non contact Measuring Instruments
SURFCOM CREST Lp**

- This machine adopts an autofocusing.



NEW

**Contour Measuring Machine
SURFCOM NEX 030/040**

- Utilizes a linear motor driving unit.
- Equipped with high precision scale.



**Surface Texture Measuring Machine
SURFCOM 480B**

- Improved operability by the large, clear and color LCD.
- Operator-friendly functions of guidance and customization that are suitable for the factory use.



**Surface Texture Measuring Machine
SURFCOM FLEX-50A**

- Easy to carry by compact design.
- Easy to recognize by large color LCD.
- Changeable driving unit according to workpiece.



**Surface Texture Measuring Machine
HANDY SURF E-35B, -40A, -45A**

- Equipped with measuring parameter compliant with JIS 2001 and other national standards.
- Equipped with an interchangeable displacement type pickup.
- Employs the all-position type allowing measurement in any position.

Multipurpose Measuring Instruments

Optical Measuring Instruments



NEW

**Non-contacted/three-dimensional surface roughness
and contour measuring instrument
Opt-scope**

- Non-contact and quick measurement for surface texture of machined components and contour profile.



NEW

**Non-contact interference displacement sensor
Opt-measure**

- Length measuring system based on white interferometry.
- Highly accurate and sensitive measurement is possible.
- Able to withstand ambient temperature variations.

Multipurpose Measuring Instruments

Cylindrical Form Measuring Instruments

NEW

RONDCOM 65B

- Flagship model of table rotating type machine with the highest rotation accuracy in its class.
- Granite base and each axes.



Continuous flow from the measuring room to the production line

RONDCOM 65B boasts the world's highest rotational precision. Higher throughput has been achieved by the auto centering and tilting functions. Full automation is realized by the CNC detector.

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

RONDCOM NEX SD

- Achieved top-class running accuracy.
- Offset type detector holder adopted.



NEW

RONDCOM NEX Rs DX

- Achieved high-precision measurement of surface texture and contour profile.
- All-in-one design contributes to space-saving.



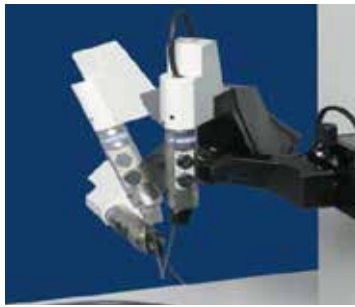
RONDCOM 43C

- 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 enabled the high and friendly operability through touch panel screen.





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 from beginners to experts of the CNC programming through Easy and Expert modes.



Document Screen



ROND COM 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).



ROND COM 73A

- World highest precision.
- Best for the measurement of the cylinder block and crankshaft .
- Equipped with the safety mechanism and CNC function.



Measurement example of cylinder block and crankshaft.

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)

As companies aim for improved measuring efficiency, cost reductions and improved quality, demands made of measurement systems on the shop floor have been intensifying. In response to these demands, Tokyo Seimitsu offers measuring instruments for the shop floor that possess superior environmental durability, supporting automation of measurements. With CNC 5-axis control, the Surfcom C5 Surface Texture Measuring Instrument makes automatic measurement of surface textures possible. The environmental durability of the CenterMax and GageMax Three-Dimensional Coordinate Measurement Machines has been dramatically improved, contributing to accurate production site measurements in even trying conditions.



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 possible measurement of a variety of workpieces.

DuraMax

- Carl Zeiss technology is condensed into the compact body.
- Simply plug in and go!
- Desktop style with minimum space requirements.
- Reliable roundness measurement with scanning technology.
- Carl Zeiss's energy saving features make this Coordinate measuring machine a world leader.



Specialized roundness measurement in internal cylinder bore
Portable Roundness Measuring Instrument



RONDCOM ZERO1

- Compact design with light weight for portability to line sites.
- Centering at measuring parts of cylinder bore is possible with one operation.
- Accommodates diameter range up to 35mm using replaceable styluses
- No requirement for dedicated air source.

High-accuracy CNC Three-dimensional Coordinate Measurement Machine CenterMax navigator

- Accuracy assurance throughout a wide temperature range from 15°C to 35°C
- Special stylus (Thermo-fit) that does not expand or contract due to changes in temperature has been developed.
- Equipped with the ZEISS VAST Active Scanning Probe.



GageMax

- Structural design that stresses environmental durability.
- Makes possible high precision measurements on the production line.
- Guarantees measurement accuracy in ambient temperatures of 15°C to 40°C.
- Equipped with the ZEISS VAST-XT gold Active Scanning Probe.

Measuring Instruments for Large Works

Measurement machine perfect for the large-size and high-precision parts such as for aircraft, energy, automobile, machine tool and printer.



Extra Large 3D Coordinate Measuring Machines MMZ-G Series (On-floor model)

- Products of this series make use of the floor as a measuring table to simplify measurement of heavy load and transferring large-scale work.
- Provide the highest level of measuring accuracy of large-scale 3D Coordinate Measuring Machines.

Large-size 3D Coordinate Measuring Machine MMZ-T Series (Measurement table type)

- Ideal precision and measurement range for the large-size gear.



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.



Automatic Measuring Instruments

In-Line Measuring Systems

Unequaled Reliability, Uptime and Quality

Tokyo Seimitsu took its first steps as an in-line measuring instruments manufacturer with the burgeoning Japanese automobile industry in the 1960s.

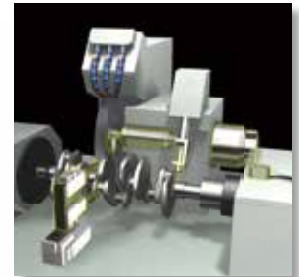
What have been the requirements for production lines?

They have been; to be fully operational 24 hours a day, 7 days a week and 365 days a year, and to consistently provide high-quality products without undue delays.

Tokyo Seimitsu has responded to these requirements as a supplier of real time control using in-process gages, feedback control with post-process gages and a feed-forward system that is the integrator of these two controls.

Tokyo Seimitsu has also been highly valued by customers because of our total support package, including fast delivery, profound application know-how and unequaled reliability. Another strong point of Tokyo Seimitsu is its powerful service system specially tailored to each site.

Our experience and proven track record in the manufacturing of in-line measuring instruments are the backbone of Tokyo Seimitsu as a full-line manufacturer of in-line precision measuring instruments including present and future semiconductor manufacturing equipment.



measuring system for grinding machines

Grinding Wheel Auto Balancer



Rear/Front finishing grinding

Journal semi-finishing grinding

Outer diameter measurement



Outer diameter measurement

Front/Rear plane cutting/drilling

Outer diameter measurement

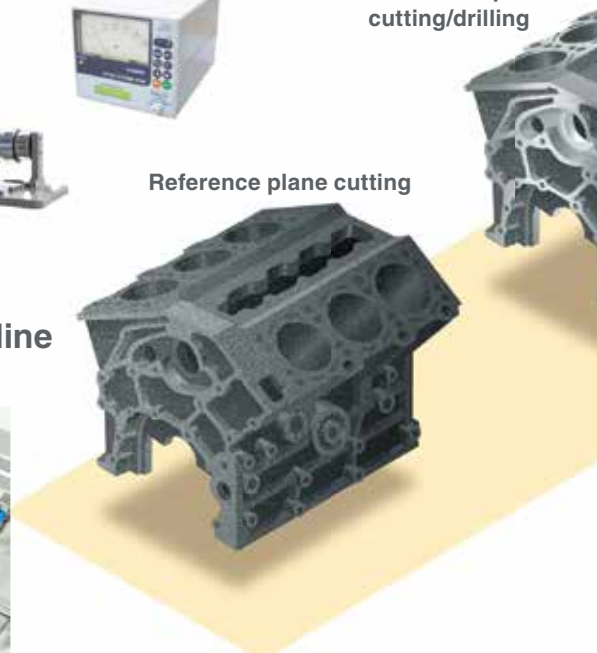


Reference plane cutting

Crankshaft process line



Cylinder block process line

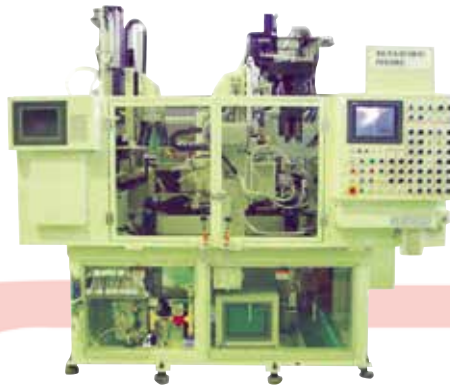


Quality verification inspection system

Crankshaft Journal and Pin Outer Diameter Measuring and Marking Machine
 Measures journal and pin diameters with dedicated triple heads and marks prescribed positions.

Finished product

Process monitoring system



Integrated auto-inspection machines

Finished product



Pin/Journal finishing grinding

Outer diameter multiple measurement + Roundness measurement



Boring for liner press fitting

Inner diameter measurement



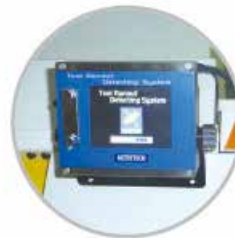
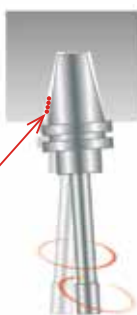
Cylinder Block Measuring and Marking Machine

Automated machine that measures bore diameters for crankshaft, as well as crankshaft bore coaxiality, and marks a prescribed position.



PULCOM BG
 (post-process measurement of inner diameter) lathe measuring system

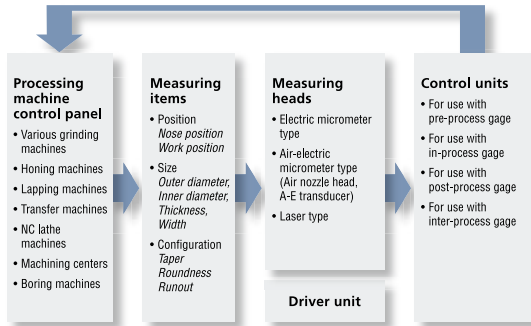
Chips



Measuring system for Machining center

Automatic Measuring Instruments

Machine Control Gages



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

The machine control gage PULCOM is a system which controls machine tools in real time using measured data taken before, during or after processing. One of the most striking characteristics of Tokyo Seimitsu's machine control gages is their high-precision which exceeds that of any other system. With this high-precision measuring system (accurate to 0.5 μm), which surpasses any precedent product, Tokyo Seimitsu powerfully supports processing engineering as it becomes increasingly more precise. The system is fully water resistant, so can be set up in various environments and is therefore applicable to a variety of lines, making in-line high-speed measurement and machine control high-precision. In addition to PULCOM, we supply various kinds of custom-made automatic measuring/marking/sorting devices, that have been highly evaluated all over the world.

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.



PULCOM V10A + V11

- Various functions, such as circularity measurement or SPC control.



PULCOM GE-20

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



PULCOM V2

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



MINICOM X

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

Process monitoring system



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 vibration.

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 responds to every need of in-line measurement by using various kinds of sensors based on various measurement principles. The lineup of sensors, which are used in many fields and have received high evaluation, meet every requirement, such as "ease-of-use" and "visibility" that are required for in-line measurement, "high-speed response" necessary for built-in control units and "high-precision" essential in the inspection room.

Also, Tokyo Seimitsu is actively engaged in the development of products, such as non-contact sensors, responding to needs in advance.

Air Micrometers



DELTAIR 22H

High Precision Digital Length Measurement Instruments

PHA Series



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 Thickness Measuring Systems

WT-425 Series



Laser Interferometer with Optical Fiber

DISTAX 300A

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



Small Rotary Indexer

Slim Type 3-axis Measuring Interferometer

Semiconductor Production Equipment

Wafer Probing Machines

No.1 supplier in the world offers the 300mm Wafer Probing Machine of **UF3000EX**

Phenomenal levels of throughput have been made possible with the synergistic effects of high-speed wafer handling enabled by a new algorithm, and the high-speed and low-noise XY Stage enabled by a newly developed purpose-built drive unit for probes. The Z axis ensures world-class load capacity and high precision, and offers excellent contact via an optimal structural design that employs topology which reliably eliminates changes in flatness due to positioning.



With advanced OTS latest positioning system technology and by colorizing wafer alignment imaging and equipping a light super magnification function, the UF3000EX has improved dramatically in terms of precision and operability.

High precision 300mm Wafer Probing Machine

UF3000EX-e

Assimilating up-to-date technologies such as originative OTS, QPU and TTG, this super high-spec system provides the testing system which meets your needs for the miniaturization of the next-generation devices and various testing environments.



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.

UF50

High-precision XYZ control system with minimum footprint and high throughput. This machine provides excellent operability by color liquid crystal touch panel and compliant with optical device and high luminance LED measurement.



UF60

High-precision XYZ control system with minimum footprint and high throughput. Multiple operation mode(manual, semi-auto, full-auto)



EM-30

Measures two stages at the same time with high accuracy and high throughput. Support a wide range of devices (power devices) and pin devices.



Semiconductor Production Equipment

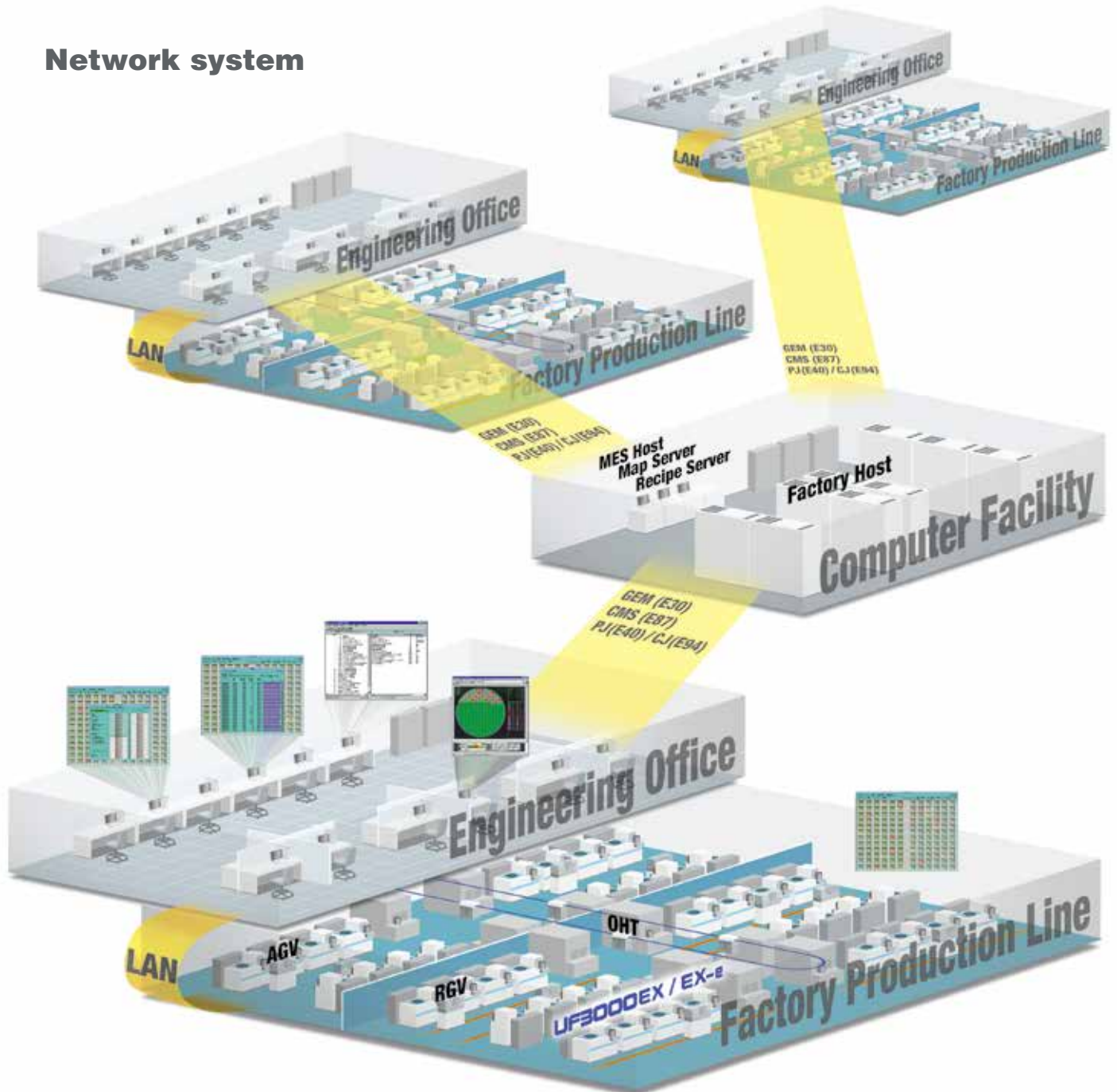
Wafer Probing Machines

The ACCRETECH Network supports our customers, in terms of prober process quality and data management, as well as test result analysis and automation.

System Integration

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

Network system



Prober variation satisfying various device demands – UF Series

The fully automatic Prober, equipped with state-of-the-art intelligent features, meets the demands of future device evolution.

Tokyo Seimitsu, a top manufacturer of wafer production and device testing equipment, has been aggressively developing new technology for over 30 years. By utilizing developed technologies and harnessing the vast know-how accumulated over this long period of time, Tokyo Seimitsu has created its new prober, UF series. 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.

It is the state of the art prober that leads the way far ahead of the development of the semiconductor device.



UF2000

- High precision 300mm Wafer Probing Machine

Cutting edge machine with $\pm 1.5 \mu\text{m}$ 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.

Semiconductor Production Equipment

Full-automatic Dicing Machine

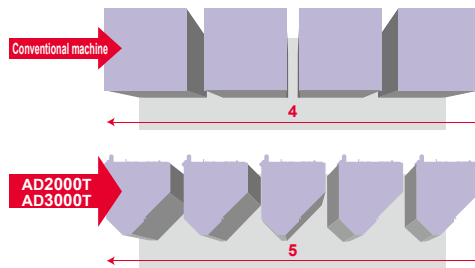
Cutting edge technology and support system improve the customer satisfaction

Tokyo Seimitsu Full Automatic Wafer Dicing Machine realizes the remarkable "CoO (Cost of Ownership)" by the world smallest footprint, high throughput, and high processing quality reinforced by the collaboration of the cutting edge technology.

We are also proud to offer the sophisticated overall balance of the machine enhanced by our unique development of the face-to-face twin-spindles and improvement of the maintainability. Furthermore, with the global user support system which led to the 10 BEST Award-winning, Tokyo Seimitsu strives to open up the new world of the full automatic wafer dicing machines.



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



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



Full-automatic Dicing Machine AD3000T/S

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



Full-automatic Dicing Machine AD2000T/S

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

Semi-automatic Dicing Machine



High process quality through user-friendly operations

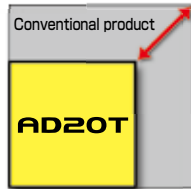
Analyzing quantitatively our dicing know-how accumulated for many years, the cutting settings are determined automatically, and the best setting is provided for each wafer to be processed so that the process quality is always kept high. Power and air consumption are greatly reduced on these highly cost-effective models.

The automatic alignment function reduces load on operators, making user-friendliness one of the most attractive features of the machines.



◆ Realized the world smallest footprint

Footprint Reduced by **40%**



SS30



SS20



SS10

AD20T/S

- The world's smallest semi-auto dicer made possible by our core technology. Footprint reduced 40% compared with our existing machines.
- Offers both the high power twin-spindle model and the single-spindle one.
- Improved cutting quality by high rigidity and low vibration.
- Easy-to-operate new GUI (Graphical User Interface) and 17 inch LCD touch panel screen.
- For 200mm wafers

SS Series

- High power spindle as standard feature.
- Improved operability with the 17-inch LCD touch panel screen.
- Auto alignment as standard feature.
- World smallest footprint for each machine.

Package Singulation Machine

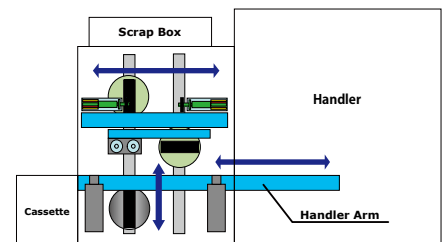
System for singulation: connects with all pick and place units of major vendors.



Now, with two independent stages, cutting and positioning can proceed in parallel. The result a maximum dicing speed up to twice that previously possible! New connected handlers, shorten coordination time bringing increased operation efficiency and substantial savings in processing time.



PS 280



Connection with the Handler

Twin Stage Super-speed Package Singulation System
PS 280

Semiconductor Production Equipment

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 the today's requirement or "high quality & low cost".



< NICKEL BOND BLADES >

Nickel based blade manufactured by electroforming. We have developed an exceptional high quality and repeatable manufacturing process that maintains quality, rigidity and resistance to wear.



< METAL BOND BLADES >

Metal powder based 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 long life.



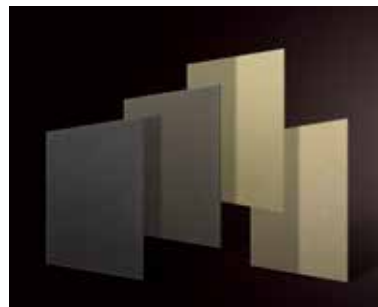
< RESIN BOND BLADES >

Resin powder based blade developed for higher speeds and longer life while maintaining high cutting quality.



< ULTRA HARD METAL SAWS >

Ultra hard metal blades that do not create burrs on the edge of metal sub-straight during cutting. This can be the total solution for cutting current and future products.



< 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.

MAHO-DICING MACHINE



**Laser Dicing Machine
ML300PLUS WH**

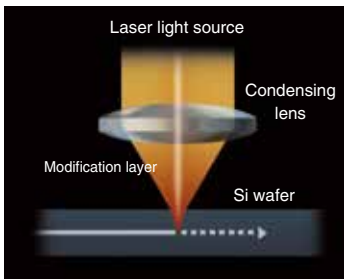


The Japan Machinery Federation President's Award for superior energy-saving products in 2006

The world's first dicing machine to cut silicon wafers utilizing a non-contact method without creating any damage to the wafer surface

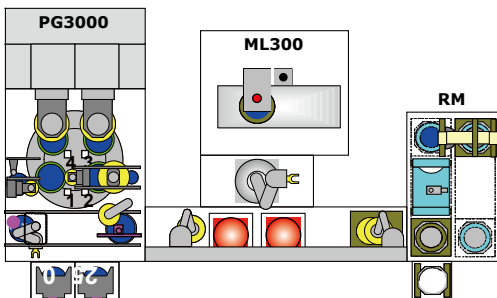
This is the first laser dicer that focuses the laser to the inside section of the Si wafer. This selectively forms a modifying layer by irradiating the laser to the inside section of the Si wafer which causes the modifying layer to grow vertically creating die separation with no chipping. (Stealth Dicing)

- Dices even thin, fragile, and easy-to-crack monocrystalline silicon wafers without causing physical stress.
- Throughput is improved more than two times due to reduced scanning for 1 line.
- Complete dry process that requires no wash-up.



**Laser Dicing Machine
ML200PLUS**

Connection with the Polish Grinder



Mosaic cutting

The ON/OFF control of the laser power allows the variety of the laser processing

Processing sample: Mirror wafer
Machine: ML200 Plus
Wafer size: 200mm
Wafer thickness: 300um
Chip size: Octagon shape -10mm



Semiconductor Production Equipment

Polish Grinders

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

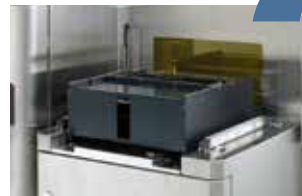


For 300 mm wafers



Loading port

The polish grinder features two loading ports for continuous loading, with independent recipe settings in each loading port and wafer.

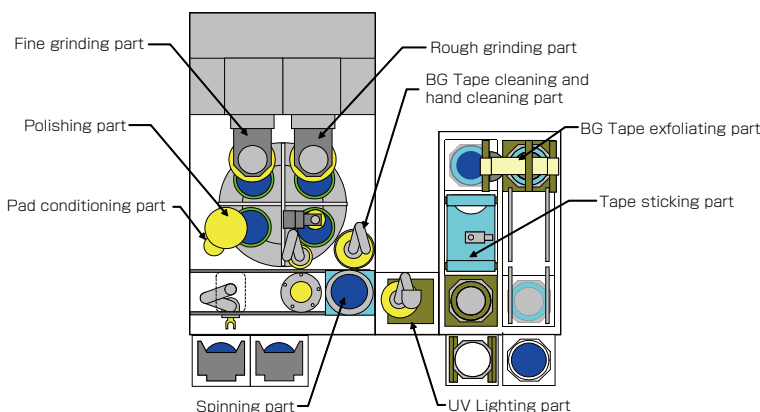


Unloading port

Similarly, a dual unloading port system is provided that enables continuous delivery to the dicing frame. It supports automatic transfer via automatic guided vehicle, overhead hoist transport, and person-guided vehicle. (AGV, OHT and PGV).

Optional RM module

The RM200/3000 offers a single-unit solution supplementing PG200/3000 processing with additional functionality to remove protective tape from thinner wafers and apply wafers to dicing frames.



Advantages

- Integrated operation : Handles rough and fine grinding, polishing, and wafer cleaning on both sides in a single unit
- Stable wafer transfer : Ground wafers are transported throughout all processes with minimum handling
- Space-saving design : Boasting the world’s smallest footprint
- Ecofriendliness : Surface damage can be eliminated without chemicals
- Safety measures : All manufacturing processes are completed in a wet state, preventing the release of fine particles
- 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

High Rigid Grinder

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

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



High Rigid Grinder
HRG300

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

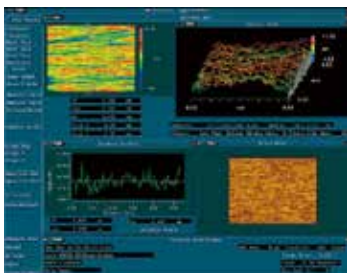
Features

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

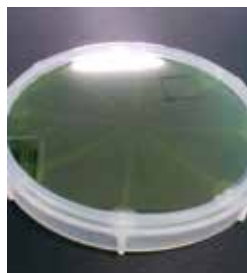


Auto loader unit (optional)

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



Ra: 0.247nm PV: 1.829nm



Grinding wheel: HW8000V finish

Target material

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

Target work

Size: ϕ 2 ~ ϕ 12 inch
Max. thickness: 20mm
(including the thickness of the support substrate)

Semiconductor Production Equipment

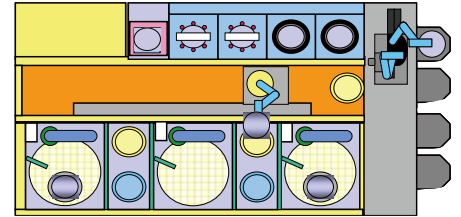
Chemical Mechanical Planarizers

ChAMP Chemical highly accurate Mechanical Planarizer

Our advanced CMP system satisfies various process requirements

Combining the technological expertise built up by Tokyo Seimitsu in precision measuring equipment and semiconductor manufacturing equipment, we now offer the ChAMP Series, the CMP systems with the process performance required variously and are able to keep up with the most advanced volume-production fabs.

(Supported wafer sizes : 300mm, 200mm, 150mm, 100mm)



Standard Model

ChAMP-232

For 200mm or 150mm or 100mm wafers

ChAMP-332

For 300mm wafers

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

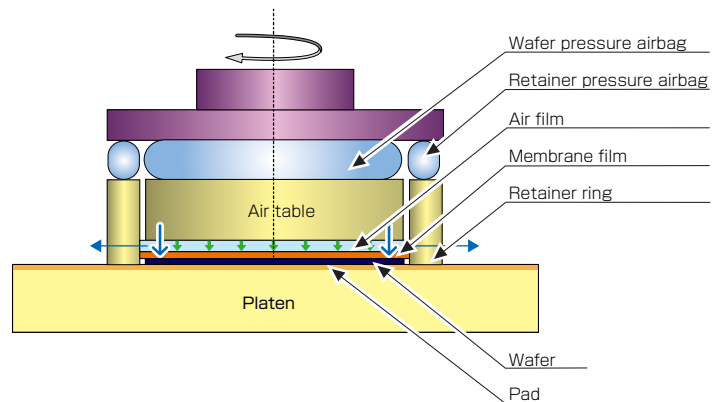


Air-float head enables low-pressure and high planarity process “Sylphide”

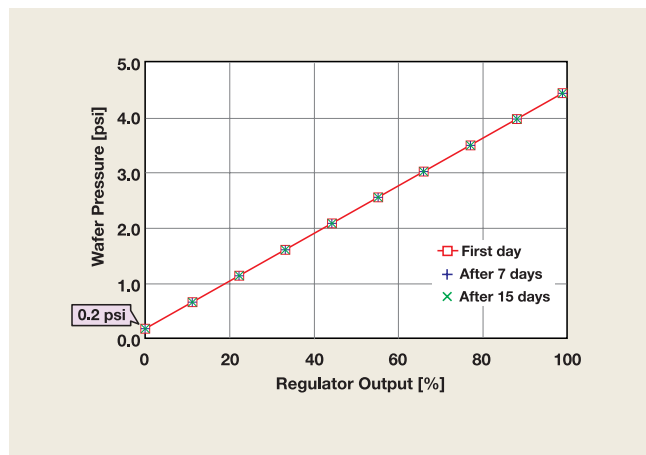
- Extremely uniform pressure distribution by air film above wafer.
- Stable pressure control at low pressures made possible with airbags independent from air films.
- Independent retainer pressure airbags enable better edge profile control.
- Unique design of retainer/membrane assembly reduces machine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

The head performance is not only providing process performance but also productivity improvements in forms of shorter polishing time and longer consumable lives, and expansion of effective area of wafers by using hard pads.

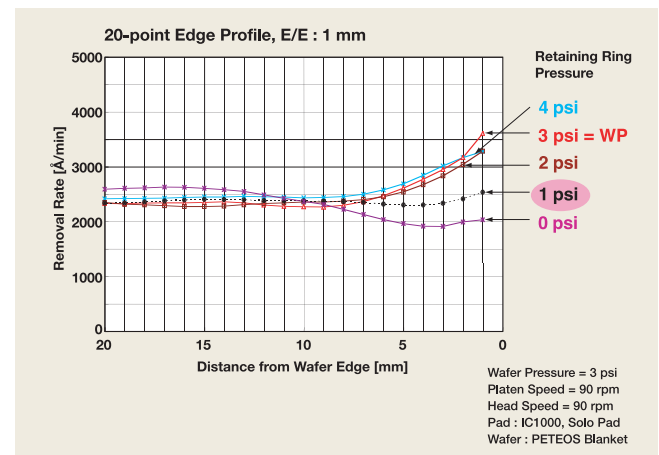
Sylphide



Wafer pressure controllability & repeatability

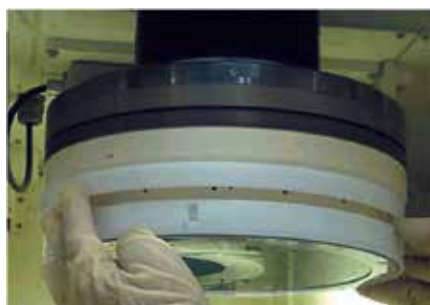


Edge exclusion of 1 mm !

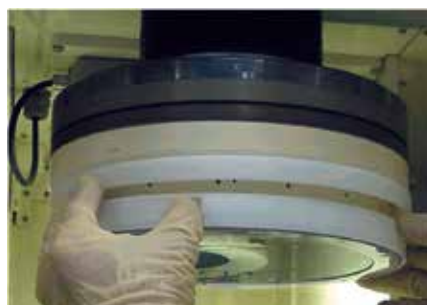


Easy maintenance of heads : Replacement of polishing head is unnecessary and the maintenance is finished in one minute.

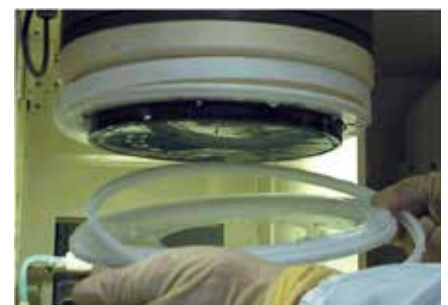
Our unique head design allows you to renew membranes and rings very quickly and safely.



Slide the snap ring cover up with both hands.



Spread the snap ring with your thumb. And the retaining ring drops off.



The retaining ring is now removed.

Semiconductor Production Equipment

Wafer Manufacturing Systems

As the leading manufacturer in silicon wafer manufacturing equipment, our accumulated technical knowledge has enabled systemization of wafer manufacturing processes

Coming together with the miniaturization of semiconductor devices there have been increasing demand for improved precision in machining technology for silicon wafers. At Tokyo Seimitsu, we provide equipments for wafer production lines designed to improve quality and productivity of processes such as sliced wafer demounting and cleaning as well as chamfering, offering optimal systems for automation and process management, as well as providing support. Our main products, the Wafer Edge Grinding Machine and Sliced Wafer Carbon Demounting and Cleaning Machine for 300 mm wafers, are highly appreciated by our customers and keep the top market share worldwide.

Wafer Edge Grinding Machine W-GM Series

- Newly-developed grinding unit enhances the rotative precision of the spindle, and improves the surface roughness.
- Non-contact measuring method achieves stable alignment.
- Performs non-contact measuring of the pre-processed wafer thickness at multiple points, the diameter and notch depth.
- Modular concept to make the optimum process line possibilities.
- Options such as low damage grinding to reduce machining damage are available.



W-GM-6200

- Wafer Size ϕ 450mm.
- Improve the Space Efficiency by the Compact Design.
- Highly Accurate Grinding by the Synchronized X, Y, θ Support Control.
- Easy Operation by Touch Panel.



W-GM-5200

- Machine specification ready for 300mm(ϕ 12") - 200mm(ϕ 8") wafers.
- Makes possible high precision and high quality 300 mm wafer processing.
- Newly-developed built-in inspection system (option) enables real-time monitoring inside the machine of wafers quality control after grinding.



W-GM-4200

- Machine specification ready for 50mm(ϕ 2")-200mm(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.



Sliced Wafer Carbon Demounting and Cleaning Machine C-RW-200/300

- Automatic demounting of wafers from the slicing base, cleaning and storing into the cassette.

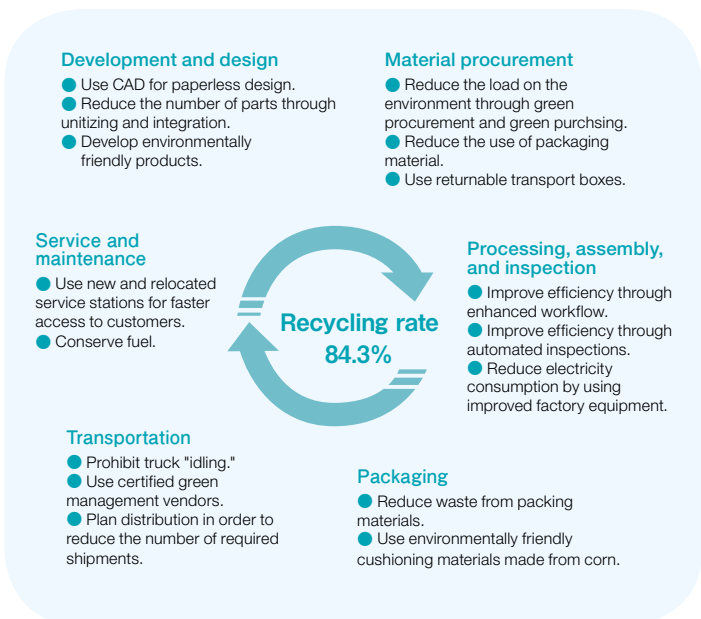
Environmental Philosophy

Within the Tokyo Seimitsu Group, all new products that are developed must meet or exceed a certain level of environmental standards based on our commitment "To Produce Environment-oriented Machines", and we are advancing our production with the ultimate aim of having all products, including semiconductor products, measurement products, and components, be environmentally friendly. Specifically, we are working to reduce the consumption of electricity and the amount of water and fuels used, based on the Tokyo Seimitsu Engineering Standard (TES). In addition, we are prohibiting or reducing the use of chemicals that have large impacts on the environment.

Environmental Management

INPUT

Energy	Electricity	20,483 MWh
	Gas (LPG)	5,181 m ³
	Fuels (Heavy and light oils, kerosene, gasoline)	81,821 ℓ
Water	City water supply	17,147 m ³
	Groundwater	90,597 m ³



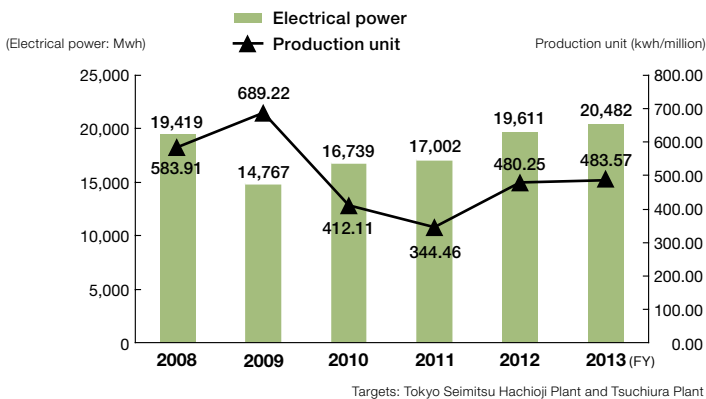
OUTPUT

Greenhouse gases	Total CO ₂ emissions	9,623 t	
	Electrical power	9,422 t	
	Light oils	4 t	
	Gas(LPG)	8 t	
	Kerosene	0 t	
Water	Plant waste water	61,069 m ³	
	Waste materials	Waste materials	590 t
		Final disposal amount	92 t

Target: Tokyo Seimitsu Hachioji Plant and Tsuchiura Plant, Tosei Engineering Tsuchiura Office
 Calculated with the CO₂ emission coefficient 0.46 of the electric power.

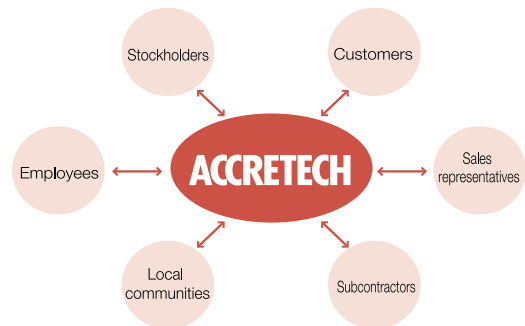
Eco-factory

Result of electrical power consumption in terms of environment



Social Responsibilities

Win-win relationship with stakeholders





● A proud case study - Environmentally Friendly Product
[MAHOHDICING MACHINE]

Tokyo Seimitsu is mindful of environmental issues in manufacturing activities. We developed the world's first laser dicing machine that uses laser technology to "slice" silicon wafers by irradiating the inside section of the Si wafer. This allows die separation with no chipping. This machine is able to separate dies on extremely thin wafers, that is, under 100µm thickness, due to its remarkable design.



	Blade dicing machine AWD-200T/300T	Laser dicing machine ML 200/300		Percent reduction
			Power consumption considering to throughput	
Power consumption (200V)	3.2kWh	1.92kWh	0.48kWh	85%
Consumption of highly purified wafer	12L	—		100%
Amount of electrical power (Reference)	0.028kW/min	—		—
Total power consumption (per 1 hour)	4.87kWh	1.92kWh	0.48kWh	90%

Unlike conventional dicing machines, the new laser dicing machine uses no purified water and has very low power consumption (1.92kWh). In addition, it is capable of high-speed dicing 4 times faster than a blade dicing machine. This results in savings of up to 85% in power consumption over multiple wafer processings and could account for up to 90% reduction in power consumption when taking into consideration savings from water purification as well. Moreover, it contributes to reduced cost and energy use from associated waste water disposal.

The MAHOHDICING MACHINE, Automatic wafer and laser dicing machine, received the Japan Machinery Federation President's Award for superior energy-saving products in 2006.

The Japan Machinery Federation award system acknowledges superior energy-saving products. A conventional diamond grinder, consumes a lot of water for cooling and cleaning in the dicing process which segments a wafer into individual semiconductor chips. However, the MAHOH DICING MACHINE uses laser technology in a completely different process to achieve wafer dicing of silicon chips.

The processing requires no contact with a conventional spindle and no water before or after processing. Moreover, it requires extremely reduced power consumption to segment a large volume of chips from wafers.

The award highlighted this product's high contribution to energy saving and efficiency of water usage.

In future, we will strive to develop more environmentally friendly products.

Outline of Company

Name

TOKYO SEIMITSU CO., LTD.

Establishment

March 28, 1949

Capital

Paid-in capital : 10,254 million yen (as of December 31, 2014)

Stocks

Listed on the first section of the Tokyo Stock Exchange

Employees

Non consolidated : 643

Consolidated : 1,431

(as of December 31, 2014)

Directors and Auditors

Kunimasa OTA	Chairman
Hitoshi YOSHIDA	President and CEO
Ryuichi KIMURA	Executive Vice President and COO
Koichi KAWAMURA	Director
Akihiro ENDO	Director
Masahiro TOMOEDA	Director
Kazuo FUJIMORI	Director
Shigeru UMENAKA	Director
Wolfgang BONATZ	Director
Hirokazu MATSUMOTO	External Director
Hideo SAWADA	Auditor
Yoshiharu KIKUCHI	External Auditor
Yoshihiro YOSHIMURA	External Auditor
Naomi INOUE	External Auditor

(as of April 1, 2015)

Affiliates

Tosei Engineering Corp.
Tosei Systems Co., Ltd.
Accretech Create Corp.
Accretech Finance Co., Ltd.
Tosei Box Corp.
Accretech America Inc.
Accretech (Europe) GmbH
Accretech (China) Co., Ltd.
Accretech Korea Co., Ltd.
Accretech (Malaysia) Sdn. Bhd.
Accretech (Singapore) Pte. Ltd.
Accretech Taiwan Co., Ltd.
Tokyo Seimitsu (Thailand) Co., Ltd.
Accretech Vietnam Co., Ltd.
PT Accretech Indonesia
Accretech do Brasil Ltda.
Tosei Engineering (Pinghu) Co., Ltd.
Tosei (Thailand) Co., Ltd.
Tosei Korea Co., Ltd.
Tosei America, Inc.
Tosei Engineering Pvt. Ltd.
PT Tosei Indonesia.
Tosei Taiwan Co., Ltd.
Tosei Mexico, S.A. de C.V.
Tosei Engineering Malaysia. Sdn. Bhd.
Tosei Brazil Engenharia E Representacao Comercial Ltda.
Tosei Philippines Corp.

In-house Company System and Executive Officer System

Semiconductor Company

Ryuichi KIMURA	Director
Akihiro ENDO	Senior Executive Officer
Takahiro HOKIDA	Managing Executive Officer
Akio MITSUHASHI	Executive Officer
Taichi FUJITA	Executive Officer
Keng Hooi TEE	Executive Officer
Romi PRADHAN	Executive Officer

Administration Company

Koichi KAWAMURA	Director
Shinji AKIMOTO	Executive Officer
Shinichi USUDA	Executive Officer
Kimito KOIZUMI	Executive Officer

Metrology Company

Hitoshi YOSHIDA	Director
Masahiro TOMOEDA	Senior Executive Officer
Tsutomu KANZAKI	Managing Executive Officer
Shuichi YAKO	Executive Officer
Akihiko IIDA	Executive Officer
Hao CHEN	Executive Officer
Shuichi TSUKADA	Executive Officer
Masato MINEO	Executive Officer

Brief History

- 1949 • Establishment of Tokyo Seimitsu Kogu Co., Ltd.
- 1951 • Manufacture and sale of measuring machines using mechanical gages
- 1952 • Development of Japan's first flow type air micrometer
- 1957 • Development of Japan's first LVDT type electric micrometer
• Establishment of Daiichi Seiki Co., Ltd.
- 1958 • Development of germanium pellet auto-sorter
- 1962 • Company name changed to Tokyo Seimitsu Co.,Ltd.
• Listed on the second section of the Tokyo Stock Exchange
• Development of surface texture measuring instrument
- 1963 • Development of Japan's first wafer slicing machine
- 1964 • Development of wafer probing machine
- 1967 • Development of roundness measuring instrument
- 1969 • Establishment of Tosei Engineering Service Co.,Ltd.
• Development of Japan's first coordinate measuring machine
- 1970 • Development of the wafer dicing machine
- 1985 • Establishment of Tosei Systems Co., Ltd. as a software development group
- 1986 • Listed on the first section of the Tokyo Stock Exchange
- 1987 • Establishment of Research Laboratory
- 1989 • Establishment of Tokyo Seimitsu Europe GmbH (Germany) and Tokyo Seimitsu America, Inc.(USA)
- 1992 • Establishment of ACCRETECH Service Center in Korea
- 1994 • ISO 9001 awarded to the Hachioji and Tsuchiura Plants
• Obtained a business license under the traceability system of the Measurement Law for the calibration of the "length measurement laser"
• Establishment of the Beijing Representative Office
• Establishment of Tokyo Seimitsu (Malaysia) Sdn. Bhd. in Malaysia
- 1995 • Obtained a business license under the traceability system of the Measurement Law for the calibration of the "Block gage"
• Establishment of ACCRETECH America, Inc. and ACCRETECH Manufacturing Company in USA
• Entered into a partnership with Carl Zeiss in the field of high precision measuring instruments worldwide
- 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
- 1997 • Establishment of Tokyo Seimitsu (Singapore) Pte.Ltd.
- 1998 • ISO 14001 awarded to the Hachioji and Tsuchiura Plants
- 1999 • Establishment of ACCRETECH Finance Co., Ltd.
- 2001 • Corporate brand "ACCRETECH" introduced
• Establishment of Tosei Box Corp.
- 2002 • Received the "10 Best Award" in two categories : awarded for the 7 consecutive years in the Test & Material Handling Equipmentcategory, and the awarded in the Assembly Equipment category for the first time
• Establishment of Accretech (China) Co.,Ltd. , an affiliated company in China
• Entered into a partnership with Hamamatsu Photonics K.K. for developing semiconductor manufacturing equipment and jointly developed a new laser dicing system, "MAHOHDICING MACHINE"
- 2005 • Renewed partnership agreement with Carl Zeiss for another 5 years
- 2007 • Establishment of Accretech Korea Co.,Ltd.
• 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 under the traceability system of the Measurement Law for the calibration of the "length measurement laser" and "3D Coordinate Measuring Machine"
- 2008 • Received the "10 BEST Awards" in two categories :awarded for 13 consecutive years in the Test & Material Handling Equipment category, and for 7 consecutive years in the Assembly Equipment category
• Technical cooperation with Mitaka Kohki Co., Ltd in non-contact metrology
- 2009 • Establishment of Tokyo Seimitsu USA Branch
- 2010 • Relocation the head office to Hachioji City

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

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

Asia



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China

Accretech (China) Co., Ltd.

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Nagoya Plant**

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Accretech Korea Co., Ltd.

**Korea
Accretech Korea Co., Ltd.**

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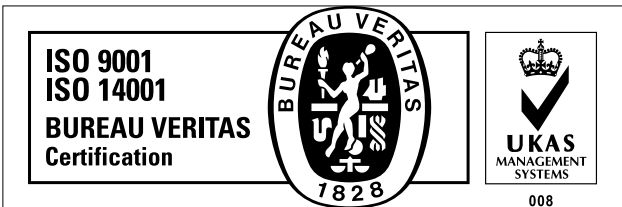
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