

Business Profile

The ICT Business develops and manufactures MEMS and semiconductor manufacturing equipment. Sumitomo Precision Products is a leading company in silicon etching equipment, which is indispensable for MEMS production. In 1995, the company became the first provider in the world of silicon etching equipment. By applying plasma technology, the company develops and sells a wide variety of characteristic equipment. Recently, it has contributed to the manufacture of gallium nitride high-speed ICs and filters for mobile devices in anticipation of IoT and big data utilization in the 5G era and onward. Furthermore, it leverages the MEMS manufacturing equipment to develop

high-precision sensors and other MEMS devices/Sensors. Sumitomo Precision Products also provides ozone generators that are used in the water treatment and semiconductor manufacturing fields. The company has been expanding the range of application of ozone generators to water/drainage treatment processes such as decoloration, deodorization and decomposing persistent organic substances, manufacturing processes of chemicals, semiconductors and FPDs, and bleaching processes for pulp and fiber. It will continue to engage in product development with an eye toward advancing into promising areas that can benefit from the potential of ozone, such as healthcare.

Business Strategy

For MEMS/semiconductor manufacturing equipment, we have core technologies, such as plasma processing technology, thermal processing technology, and automated systems technology, and provide process solutions and a variety of manufacturing systems for MEMSs and compound semiconductors apart from those for mainstream silicon semiconductor products. For the future, we will continue R&D with the aim of enabling and improving compound semiconductor microfabrication and characteristics suitably for the post-5G era and continue to offer value by deploying the results to diverse applications demanded by the market and our customers. In the field of MEMS devices manufacturing (foundry business), we will lead our competitors in proprietary materials and technology development and provide an integrated MEMS manufacturing service. This way we will be continuously an indispensable supplier for fabless manufacturers who strive to

secure a larger share in the digital device market. In the sensor business, we will expand the scope of business by developing systems with high-precision MEMS technology at the center. Production of the successfully miniaturized Northfinder, capable of finding cardinal directions with high accuracy, will commence by the end of fiscal 2021. Moreover, inertial sensor products will be placed in the market of mobility guidance, control and navigation deployed for surface, sub-surface, air, sea and sub-sea applications. For the ozone generators business, we will achieve increases in revenue and profit by expanding sales of ozone generators for ALD(atomic layer deposition) systems in the booming semiconductor market in East Asia. Additionally, we will also deploy products for sterilization and pasteurization applications, utilizing our high-concentration ozone generation technology.

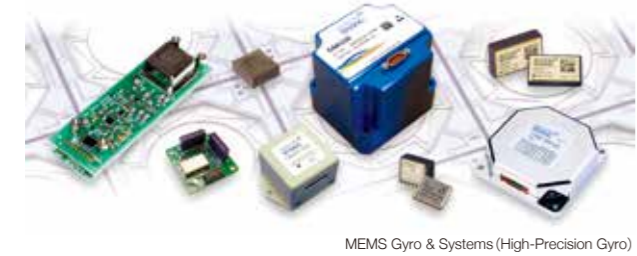
Major product lines and strengths of Sumitomo Precision Products

MEMS/Semiconductor Manufacturing Equipment



Satisfactory product line-up of MEMS and semiconductor manufacturing equipment enabling users to conduct a wide range of processes from development and trial production to volume production. As for precise silicon etching equipment used for three-dimensional forming of electronic devices such as MEMS, we supply 90% of products demanded globally using our original technologies, together with SPTS Technologies, our partner company(We conducts this business mainly in the Japanese market). Technologies developed for MEMS are leveraged to provide high-grade CVD (chemical vapor disposition) equipment and plasma etching equipment for manufacturing LED and compound semiconductor devices. Acquired an US-based Thermal Products business for semiconductor industry worldwide in June 2015. In addition to conventional semiconductor and power device applications, we are developing and globally rolling out new processes for MEMS in cooperation with the U.S. team.

MEMS Devices



Sumitomo Precision Products developed MEMS gyro technology, and started mass-production of MEMS gyro sensors at joint venture company, Silicon Sensing Systems in 1999 and has more than 20 years of experience in this technology. After success in automotive stabilization controller, Silicon Sensing Systems has become a highly respected supplier of the world's highest precision gyros to a worldwide market. MEMS gyro and systems from Sumitomo Precision Products finds extensive use in a broad range of applications such as the attitude control and safety systems in various mobility and equipment including down-hole mining, autonomous vehicle, train, GPS antennas, and satellites. The foundry business carries out contract manufacturing and development of client's advanced MEMS devices, leveraging its track record in MEMS gyro production.

Sensor Products



Manufactures and sells high-precision gyro sensors for aerospace use at Silicon Sensing Systems, leveraging MEMS technology which we have developed since the 1990s ahead of global competitors. In order to meet clients' demands, MEMS & Sensor Systems Department develops sensor application products that incorporate Silicon Sensing Systems' gyro sensor and our system. This has addressed the market's needs, such as reducing size, cost and power consumption, which contributed to market expansion and greater convenience for users. Attitude measurement unit DMU30-AAU has been adopted in the trajectory status monitoring system of the N700S series Shinkansen, contributing to timely maintenance work and the maintenance/improvement of ride comfort.

Ozone generators



Provides a sophisticated water treatment system that can decompose toxic, persistent substances that may cause cancer. High-density clean ozone contributes to cutting-edge semiconductor manufacturing processes, which are becoming smaller and lower in consumption.

Social value of major products

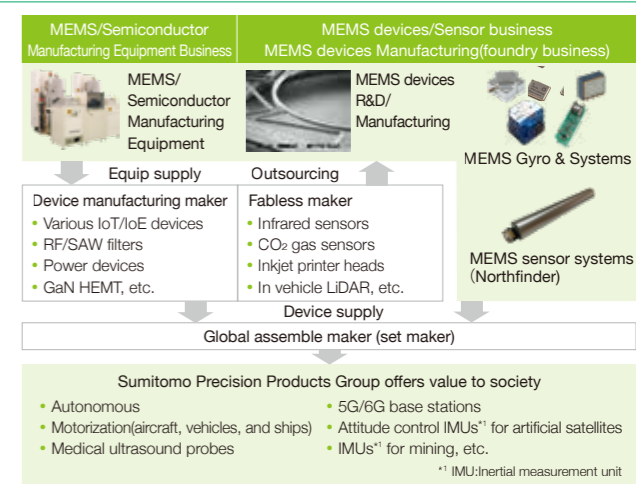
MEMS and semiconductor manufacturing equipment are used in everyday electronic devices such as automotive sensors for air-bags, nozzle heads of inkjet printers, and high-frequency devices and camera modules of smartphones and other mobile devices. Our high-precision MEMS devices/sensors find extensive use in a broad range of applications, such as down-hole mining, safety systems in trains, GPS antennas, and attitude control of satellites. They support the safety and improve the convenience of

daily life. Ozone is an environmentally friendly oxidizing substance since it eventually decomposes into oxygen. Its oxidizing capability is used in a wide range of applications, including purification of tap water/sewage, swimming pool water, aquarium water, and commercial water/drainage treatment. It ensures safe and comfortable lives of people and animals by reducing the burden on and/or restoring the environment.

Initiatives toward a sustainable society

Furthering differentiation of technologies to help build a sustainable society

Sumitomo Precision Products constantly hones its differentiated technologies to provide its precision technology for various applications demanded by the market and its customers. For example, compact high-precision MEMS sensors designed for attitude control, shape and distance measurement, and so on are supplied for autonomous driving vehicles. In the medical care field, MEMS ultrasonic vibration sensors made existing large ultrasonic inspection equipment to be portable, contributing to enhanced home diagnosis and treatment. Moreover, the company provides products (manufacturing systems/devices) densely incorporating its precision technology for an extensive range of applications, such as electrified transportation systems, 5G/6G base stations, and artificial satellite attitude control. For the future, Sumitomo Precision Products will improve its differentiation of technologies according to its business strategy to establish post-5G/digital society and realize the carbon-free society.



Development of MEMS-based Northfinder™ with the smallest diameter*2 and the highest precision*2

Precious metals and rare-earth metals are critical for the widespread use of electric vehicles toward realizing the carbon-free society. Sumitomo Precision Products has developed a new model of Northfinder™ that enables low-energy consumption mining of such metals. This product is scheduled for launching by the end of fiscal 2021. It can find the geographical north pole of earth axis with high accuracy using a three-axis gyro and an acceleration sensor to measure the earth rotation under any attitude without any adversely affected by the surrounding magnetic field. Moreover, Northfinder™ is small, lightweight, and low-powered, incorporating the results of the company's years of research on MEMS. This product is also suitable for the maintenance of electrical wire piping and water pipes, as well as the attitude control of train. We believe it will help build a safe and comfortable living environment.

