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## SMIC COMPANY PROFILE

Senju Metal Industry Co., Ltd.



 $\sim$  Management Philosophy  $\sim$ 

Perform our mission to be a socially valued institution by providing the highest standard products year after year

- Ability -

Acquire the skills required of a professional-

- Integrity -Possess correct human morals and principles

## - Challenge Spirit -

Embrace and overcome challenges

Since founding as Senju Lead Works Co., Ltd. in April 1938, Senju Metal Industry Co., Ltd. has made incalculable contributions to the industry by manufacturing products that are vital to the electronics and machinery industries. Moving forward, our management philosophy of "Perform our mission to be a socially valued institution by providing the highest standard products year after year" will serve as the basis for our focus on developing innovative products which create new value. We shall strive to exist as a corporation which contributes to the world through outstanding technology.

# Delivering outstanding products through innovative technology for next-generation

Since founding as Senju Lead Works Co., Ltd. in April 1938, Senju Metal Industry Co., Ltd. has made countless contributions to the industry by manufacturing products that are vital to the electronics and machinery industries. We focus on management which promptly responds to changing times through an unwavering passion to achieving ultimate quality. Through the patronage of our customers, SMIC has steadily expanded our business. Today, we have grown into a corporation which provides comprehensive soldering technology to the global market. This growth was made possible by the concerted effort of the entire SMIC Group, from our core businesses of soldering materials, FA equipment and bearings, sprinklers, industrial analysis services and overseas subsidiaries. Based on our fundamental principle of "delivering outstanding products through innovative technology," we are expanding globally through superior quality and innovative technology which meets the social needs.In recent years, new social needs including environmental conservation, resource prioritization, climate change and improved safety have arisen in a wide range of fields such as semiconductors, electronic components, electrical/ electronics equipment, industrial equipment, construction machinery and the automotive industry. SMIC is strongly aware of such conditions and is developing new innovations which will create total solutions. Staying true to our founding spirit of "embracing the challenge of advanced technology," SMIC is strengthening deployment for R&D and commercialization in new areas which are linked to next-generation advanced fields.SMIC is also reinforcing risk management to prepare for the major earthquake which is predicted to occur in the near future. Furthermore, we are implementing continual CSR activities in order to fulfill the duties of transparency and governance in our business processes. SMIC is committed to enhancing close partnerships with our customers to build an even stronger relationship of mutual trust.

> President Ryoíchí Suzukí

SMIC'S Innovation

## Innovation of SMIC, a leading company in soldering

Since its establishment in 1938, SMIC has been bringing new value to the electronics, automotive, and other industrial fields globally through groundbreaking innovations in joint system technology based on soldering materials, factory automation, and bearings. We have also expanded new application materials to its core products, such as anodes for plating and corrosion-resistant alloy wires, which have extended the service life of water pipes.

## 1955 Started first production of

flux-cored solder in Japan

Flux-cored solder is a product that contains resin (flux) in the center of the wire solder. As a general-purpose product, it is widely used in a variety of applications, from household to industry. SMIC was the first in Japan to commercialize this flux-cored solder under the name "sparkle solder." Sparkle solder was developed for use in the wiring of radios and televisions, and contributed greatly to the development of Japan's electronics industry. In 1956, SMIC received the first JIS (Japanese Industrial Standards) approval for solder.



The photo on the left shows an early flux cored solder. Production of sparkle solder was started for TV and radio connecting wires.

# 1990 ||

#### Developed a nitrogen atmosphere reflow oven that enables continuous production

As the trend toward no-clean assembly accelerated due to CFC regulations, nitrogen reflow was looked at to ensure

the wettability of the no-clean paste. Initially, the nitrogenfilled reflow ovens were sealed at the furnace's entrance and exit, but this caused throughput issues. As a solution, we developed the industry's first nitrogen oven, which can maintain a low oxygen concentration even while the entrance and exit are open, enabling continuous production. It was released as the SX series, and its core technology has been carried over to the current SNR-GT II series.



Began the manufacturing of lead-free plain bearings

Lead was widely utilized in plain bearings at the time due to its superior sliding properties, although there were environmental concerns. Eight years before the RoHS Directive was implemented in 2003, we developed and began selling "Clean Metal CB90," a lead-free product that performed equally well or better than that of lead-containing products. It was first used in motorcycle front forks because it allows for smooth suspension movement, and it has since been used in many applications, including automobile shock absorbers. Today, we offer a wide range of sintering technologies and products, making subtle adjustments according to the area of use.

Clean Meta CB90



## 1996

#### Developed the world's first "lead-free solder"

Solder has a history of approximately 5000 years, and the main component is Sn-Pb solder, which is composed of tin and lead. However, in the 1990s, groundwater contamination by lead had become an environmental issue, and there was a growing demand for the complete elimination of lead. SMIC is the world's first company that developed and obtained a patent for highly reliable Sn-Ag-Cu based lead-free solder. The flagship product, "M705," is used in variety of products and has become the global standard material, promoting the transition to leadfree products. This has made a substantial contribution to environmental conservation worldwide. We continue to develop lead-free solders for various applications, as well as take on new challenges and evolution.

# **EC** SOLDER

2011

Joined the RBA as the only company in the solder industry and declared products to be "conflict mineral-free"

We started our initiatives to eliminate the use of conflict minerals in 2009. We conduct audits of refineries and confirm that no conflict minerals are used. In 2011, we declared that we would not use any conflict minerals.





% RBA (Responsible Business Alliance)% RMI (Responsible Minerals Initiative)

# Acquired IATF 16949 certification

We first obtained ISO 9001 certification in 1994, then renewed the registration with ISO/TS 16949, and in 2018 obtained certification for IATF 16949, an international quality management system standard for the automotive industry. This is a vital certification in the automotive industry supply chain.

2018

## 2020

#### Developed Environmental Vision 2050

We have formed an environmental vision aimed at creating a low-carbon, recycling-oriented society that is in harmony with nature, and we are continuously working to achieve this vision. Our goal is to contribute to the development of a sustainable society by pursuing zero-emissions business practices.

2023

Announced the lowtemperature soldering technology "MILATERA"

MILATERA is a general term for assembly technology that enables low-temperature assembly by using solder with a melting point that is roughly 80°C lower than that of traditional lead-free solder, thereby contributing to reducing CO<sub>2</sub> emissions.

The name is derived from "MILA (from "future" in Japanese) + TERA ("to illuminate" in Japanese and "Earth" in Latin)," and has the meaning of "illuminating the future of the Earth."



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# Efforts to achieve a Zero-Emission society through Our Environmental Vision 2050

It is important for us that we address global environmental issues (such as global warming, acid rain, soil pollution, and water contamination) as critical issues deeply connected to the very existence of humanity, and a common mission for all of us. We will realize a zero-emission society and contribute toward building a sustainable society through our business activities.

#### Environmental Vision 2050

#### THE THREE GOALS IN SOCIETY

#### **1** Attain A LOW CARBON SOCIETY

Taking on the challenge of building a zero-greenhouse gas society

Promoting energy saving in our corporate activities

#### 2 Attain A CYCLICAL SOCIETY

Conserving global resources through recycling

#### 3 Attain a society that lives in HARMONY WITH NATURE

Conserving biodiversity and endeavoring to realize a society with zero-use of harmful chemicals that pose a risk to the environment

## Second Environmental Plan

(FY2020 – FY2030)

# Efforts towards a carbon neutral business

Reduce CO<sub>2</sub> emissions from level measured in FY2013 (17,328 t-CO<sub>2</sub>) by 25% by FY2030

#### **Promote product recycling**

Develop products using 100% 3R\* materials

# Cut use of harmful chemical substances to zero

Zero usage of chemical substances that impact the human body or the environment

#### **Conserve biodiversity**

Conserve biodiversity through environmental conservation activities

\*3R = Reduce, Reuse, Recycle

# To a future led by ∆t80°C

Soldering requirements have evolved over time, and SMIC's low-temperature soldering solution "MILATERA" is the answer.

SMIC's low-temperature solder "MILATERA," which has a melting point about 80°C lower than traditional solder, aims for a future where manufacturing is both human and environmentally friendly.

Reducing temperature can reduce more.

That's why the reduction by SMIC's "MILATERA" will lead to a positive future.

We are committed to delivering next-generation assembly technologies that will lead to a brighter future for businesses and society.





## SMIC is a global company that contributes to society through connecting technologies

With soldering materials, factory automation equipment, sintering technologies and products as our mainstay businesses, SMIC merges the core technologies of electronics, chemicals, mechanics, and metallurgy to create synergy by further enriching these technologies. We are involved in the development of diverse high-tech solutions in every field such as the electrical and electronic devices, semiconductors, and automobiles.



**Soldering Materials** 

SMIC's soldering materials come in a variety of forms, including bars, wires, pastes and balls, and we offer products that best suit our customers' needs and applications. In addition, we develop flux, which is essential for soldering. We also develop our own factory automation equipment to satisfy our customer needs through "total solutions." For product details, see the product catalog.

MILATERA Low Temperature Soldering for Earth

**EC** SOLDER \*SMIC offers all forms of lead-free solder "ECOSOLDER"

\*MILATERA and ECOSOLDER are trademarks or registered trademarks of SMIC.

SMIC's sintering technologies and products integrate various components to create novel functions.

Sintering technologies and products are used in hydraulic equipment for construction and agricultural machinery, as well as in automobile shock absorbers, which has earned us a high reputation and trust.

**Electr** onics

Co re Metallurgy Chemicals techn ology

Mech anics

Factory Automation Equipment

Sintering Technologies and Products





Click here to download the catalog

SMIC's factory automation equipment is developed by engineers who are experts in soldering technology.

We develop products that fulfill a variety of soldering needs, including those for minute parts inside mobile devices, electronic control devices used in high-temperature environments such as automotive parts,

and low-temperature assembly that contributes to carbon neutrality.

For product details, see the product catalog.



Click here to download the catalog



8 sites in America,

including 3 manufacturing sites

#### **○**Asia

Senju (Malaysia) Sdn. Bhd. Senju Trading (M) Sdn. Bhd. Senju (Thailand) Co., Ltd. Senju Solder (Phils.) Inc. Tianjin Senju Electronics Co., Ltd. Beijing Senju Fire Fighting Equipment Co., Ltd. Shanghai Senju Business Management Consulting Co., Ltd. Senju Metal (Shanghai) Co., Ltd. Senju Metal (Huizhou) Co., Ltd. Senju Metal (Hong Kong) Limited Senju Electronic Materials (Hong Kong) Co., Limited Senju Electronic (Taiwan) Co., Ltd. Senju Metal Industry Co., Ltd. Senju Metal Industry Co., Ltd. Senju Metal Korea Co., Ltd.

Location Information (As of December 2023)