

**1945**  
The end of World War II.  
Economic activity restarted for reconstruction.

**1950**  
The Korean War started. Investments in facilities by steel companies increased.

**1952**  
National income per capita had almost returned to pre-war levels.

**1954**  
The Defense Agency was established. The Self-Defense Forces was founded.

**1955**  
The Japanese economy entered a high-growth period.

**1964**  
Tokyo Olympics

**1965**  
Izanagi economic boom

**1970**  
Osaka Expo  
NOx started to be controlled due to the issue of photochemical smog

**1971**  
Nixon shock

**1973**  
1973 oil crisis

**1975**  
Oil field excavation surged due to soaring oil prices.

**1978**  
NOx control of industrial furnaces started.  
1978 oil crisis

**1992**  
The United Nations Framework Convention on Climate Change was established at the Earth Summit (The United Nations Conference on Environment and Development).

## 1945-1954

Supported post-war reconstruction as a leader of the modernization of industrial furnaces

## 1955-1964

Consistently delivered modern equipment during the Japanese period of the high growth of economy

## 1965-1974

Underwent a new evolution through the high growth, following a severe recession and environmental problems

## 1975-1984

Accelerated the development of energy-saving technology to survive the oil crisis

## 1985-1994

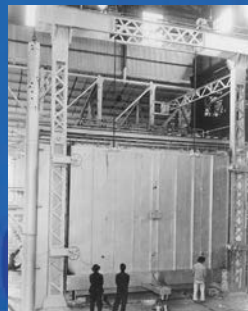
Business related to energy saving and the environment was expanded, and corporate reform was undertaken before and after the the Japanese economy bubble

**1947**

Received orders from Japanese National Railways (now JR) for about 30 units of furnaces, including forging furnaces, heat treatment furnaces, and drying furnaces



PLB oil burner



Large-scale bogie hearth furnace

**1952**

Received an order for a holding furnace from Yawata Steel Works (now Nippon Steel Corporation)

**1954**

Signed a technical collaboration agreement with Surface Combustion, Inc. (SC Inc.), U.S.A., and **introduced atmosphere gas heat treatment into Japan for the first time**



Entered into a technical cooperation with SC Inc., U.S.A.

**1955**

Delivered **a batch-type gas carburizing furnace (allcase furnace) and the first domestically produced gas generator** to Shin-Mitsubishi Jukogyo K.K.



Allcase furnace and atmosphere gas generator

**1959**

Received the first overseas construction order for holding furnace and pusher type reheat furnace from Usiminas Steel Works in Brazil



Usiminas Steel Works (Brazil)

**1961**

SC Inc. came under the umbrella of Midland-Ross Corporation (MR Co.). Secondary processing units, such as **coating lines for film, paper, and metal**, were added to the technical agreement, enabling Chugai Ro to branch out into the industrial machinery field.

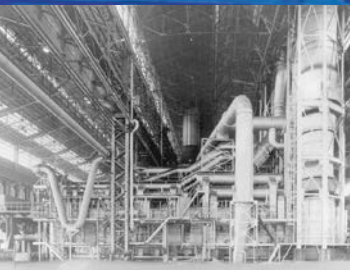


Tire cord heat treatment system

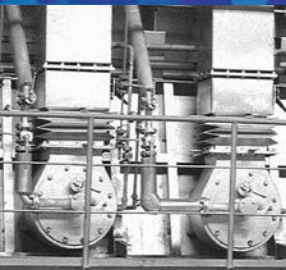
**1967**

Delivered **the first and second walking beam-type reheating furnaces** to Tokai Steel and Fuji Iron & Steel (now Nippon Steel) Provided technology to overseas industrial furnace manufacturers and contributed to the world's steel production development

Delivered large numbers of heat treatment furnaces for TV cathode ray tubes both domestically and overseas



Walking beam-type reheating furnace



Low-NOx burner that complied with environmental regulations



Launched advertisement to introduce energy-saving technology to overcome the oil crisis

**1973**

Introduced the technology of **multiple hearth-type sewage sludge incinerating system** from MSI Industries, U.S.A.

**1976**

Delivered the first clean room to Santen Pharmaceutical

**1975**

Received an order from Nishinomiya City for **the first multiple hearth-type sewage sludge incinerating system**

Orders for seamless steel pipe heat treatment furnaces increased.



Sewage sludge incinerating system

**1978**

Developed burn-off furnace that vaporize and burn cutting oil that adheres to energy-saving carburizing furnace and machine and that use exhaust heat as a heat source for burning

**H-PLB burner**, which uses preheated air, won Prize for Excellent Energy Conservation Product in 1978.



H-PLB burner

**1982**

Delivered an energy-saving CAL



Continuous Annealing line for Cold Rolled Steel Strip (CAL)

**1984**

Received an order from Toyo Kogyo Co., Ltd. (now Mazda Motor Corporation) for the first high-temperature hot press

**1983**

Delivered the first new material high-temperature sintering furnace to Toshiba Ceramics Co., Ltd.

Developed and then started selling the CRX gas generator

**1988**

Received an order for a process line for highly functional steel plates

**1985**

Received in rapid succession orders for **continuous annealing lines for cold rolled steel strip (CAL)** from companies in Japan, Korea, and Taiwan

**1989**

Received an order from the Tokyo Metropolitan Government of Japan for the **ash brick manufacturing system** to recycle sewage sludge ash



Sewage sludge ash press brick manufacturing system

**1991**

A burner for the co-generation system that was jointly developed with Osaka Gas Co., Ltd. received the Energy-Efficient Machinery Award by the Japan Machinery Federation

**1993**

Introduced the technology of **regenerative burner system** from Hotwork Ltd, UK



RCB regenerative burner

**1994**

Received an order from Acerinox, S.A. Spain for the world's first **combination-type stainless steel bright annealing line (BAL)**

President

Minoru Tamura

Masao Tanigawa (Representative Executive Director)

Masao Tanigawa

Muneyuki Komo

Hiromasa Maekawa

Tadashi Tanigawa

April 25, 1945  
Established Chugai Ro Co., Ltd.

**1962**  
Listed on the Osaka Securities Exchange 2nd Section  
**Introduced the five-day working week (the first in Japan)**

**1970**  
Listed on the Tokyo Stock Exchange 1st Section

**1974**  
Placed an advertisement in the Nikkei newspaper titled **"Save Oil"**

**1975**  
Construction of Sakai Factory (now Sakai Works) was completed.



At that time Sakai Factory (now Sakai Works)

**1987**  
Established TAIWAN CHUGAI RO CO., LTD. **(the first overseas branch)**



1995

The Great  
Hanshin-Awaji  
Earthquake

1997

The Kyoto Protocol was adopted at The Third Conference of the Parties (COP3) to The United Nations Framework Convention on Climate Change.  
\* Japan was obliged to reduce greenhouse gas emissions by 6% compared to 1990 levels by 2012.

2007

Apple launched the iPhone.

2008

The Global Financial Crisis

2011

The Great East Japan Earthquake occurred, and the yen significantly strengthened (92 to 75 yen/\$).

2015

The Paris Agreement was adopted at COP21.  
\*Japan declared its target was a 26% reduction in greenhouse gas emissions by 2030.

2020

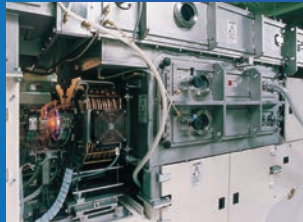
**The Japanese government made the "Declaration of Carbon Neutrality by 2050."**  
The Green Growth Strategy was formulated to achieve carbon neutrality by 2050.  
\*Japan declared its target was a 46% reduction in greenhouse gas emissions by 2030.

## 1995-2004

Aggressively conducted development and created new products one after another

1996

Received orders for **a precision coater system for plasma display panels (PDP), MgO deposition system frit sealing exhausting equipment and continuous sealing furnace**



SUPLaDUO, MgO deposition system for mass production of PDPs

2000

Delivered **the first regenerative dioxin destruction system** in Nomura Town, Ehime Prefecture, Japan



Regenerative dioxin destruction system

2004

Received orders from Japan International Corporation Agency (JICA) for energy-saving promotion equipments for China and Iran

2006

Received orders for **biomass gasification and co-generation system** from Aso City, Kumamoto Prefecture, and Iwakuni City, Yamaguchi Prefecture, Japan.



Biomass gasification and co-generation system

2010

Received an order for **a mass production system for CIS solar batteries** jointly developed with Showa Shell Sekiyu K.K. and Solar Frontier K.K. (now Idemitsu Kosan Co., Ltd.)

2011

Received a large number of orders for precision coaters for touch panels from companies in Taiwan and China



Precision coater system "FLOLIA® 3000"

2005

The biomass gasification and co-generation technology won **the Global 100 Eco-Tech Awards** of the Nihon Keizai Shimbun, Inc. and the Japan Association for the 2005 World Exposition.

2014

Received an order for **the vacuum carburizing system HIFALCON®** from Fuji Heavy Industries Ltd. (now SUBARU Corporation)



Vacuum carburizing system for mass production "HIFALCON®"

2016

Received multiple orders one after another from companies in Japan and overseas for precision coater systems for flexible organic EL displays

2018

Developed the world's first **general-purpose hydrogen burner** for industrial use in collaboration with Toyota Motor Corporation



H<sub>2</sub>-HSGB type hydrogen burner

2020

Developed **combustion technology powered solely by ammonia** (joint research with Osaka University)

Stronger support was gained for **solid-state battery electrolyte manufacturing equipment** for mass production.



Burner powered solely by ammonia

2022

Received an order from Toyota Motor Corporation for **the first radiant tube-type hydrogen burner**

2023

Received an order from Denso Corporation for a hydrogen combustion-type afterburner furnace  
Jointly developed a gun-type hydrogen burner with Olympia Kogyo Co., Ltd.  
Concluded a contract for **"Green Innovation Fund Projects / Decarbonization of Thermal Processes in Manufacturing"** from NEDO

2021

Launched "the Decarbonization Project" to accelerate the development of decarbonization technology, including ammonia and hydrogen burners

Concluded a contract for **"the Research, Development, and Demonstration of Technologies for Ammonia Co-Firing Thermal Power Generation program"** from NEDO

Launched the IoT package "CRism®" for heat treatment equipment

Was selected as a "Zero-Emission Challenge" company by the Japanese Ministry of Economy, Trade and Industry

President

Tadashi Tanigawa

Yoshihiko Sato

Yuji Nishimoto

Akira Ozaki

1997

Established CHUGAI RO (SHANGHAI) CO., LTD.

2005

Construction of the Sakai Works Engineering Center was completed.  
CHUGAI RO THERMAL ENGINEERING (SHANGHAI) CO., LTD. was established.



Sakai Works Engineering Center

2012

CHUGAI RO (THAILAND) CO., LTD., PT. CHUGAI RO INDONESIA, and CHUGAI RO (SHANGHAI) CO., LTD. were established.

2016

CHUGAI RO DE MEXICO, S.A. DE C.V. was established.

*Chugai Ro*