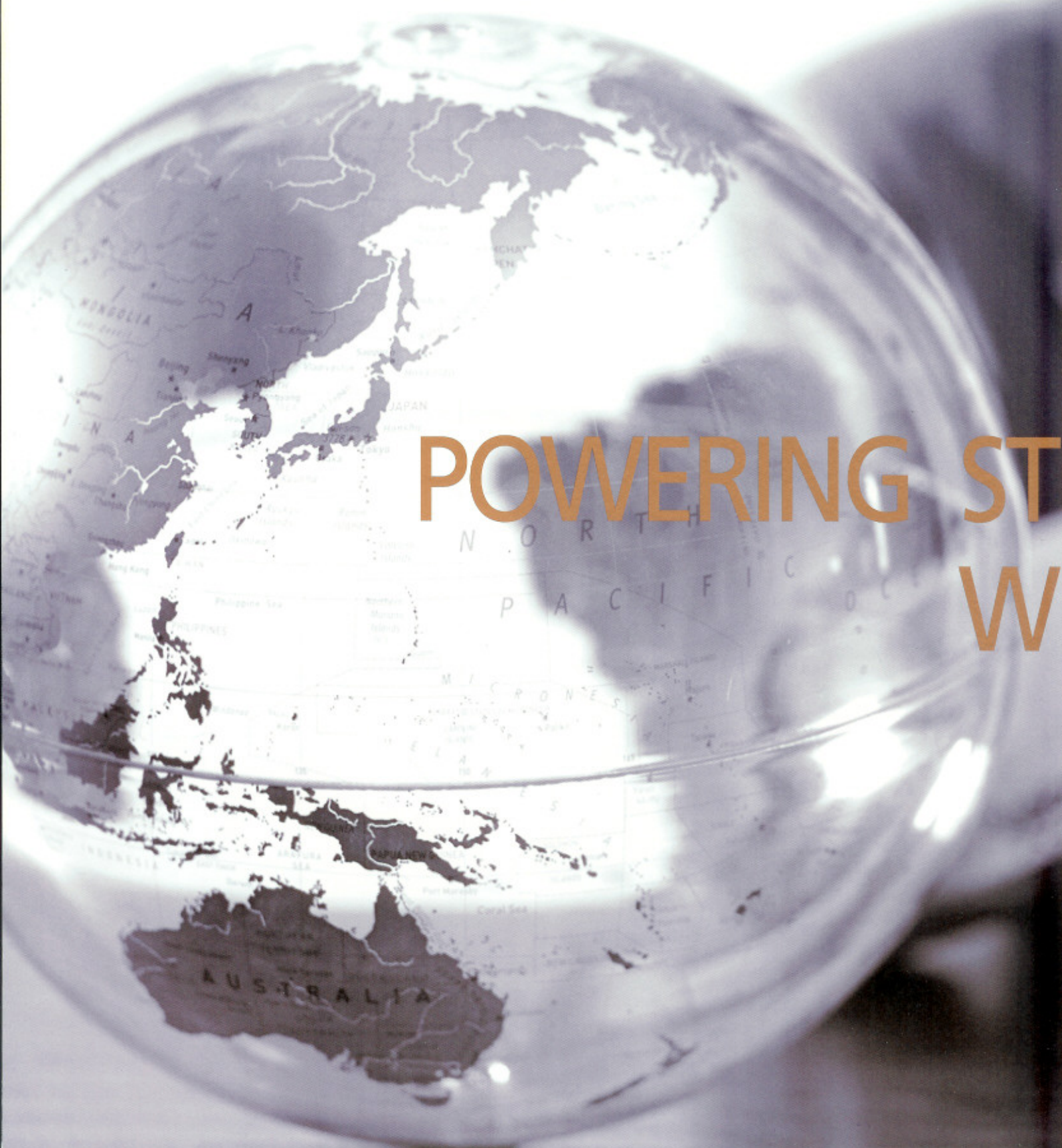


Seoul Engineering Co., Ltd.

COPPER PRODUCTS

For Steel Plants Worldwide



POWERING ST W

S.E. Copper Products



CAST PRODUCTS (FOUNDRY)

- I Tuyere Nozzle
Standard Single/Double Chamber Type
Spiral Single/Double Chamber Type
Electrical Conductivity 80% IACS min.
- II Tuyere Cooler
Electrical Conductivity 50% IACS min.
- III Cooling Plate
Electrical Conductivity 55% IACS min.
- IV Lance Nozzle
Electrical Conductivity 90% IACS min.
- V Copper Panel
Electrical Conductivity 50% IACS min.
- VI Copper Pipe Panel
- VII Electrode Holder
Electrical Conductivity 60% IACS min.
- VIII Screw Nut
Copper Alloy Casting (HBSC4/C86300)

CONTINUOUS CAST & ROLLED PRODUCTS

- IX Copper Jacket
Continuous Cast Jacket Cooler (80% IACS min.)
Hot-rolled Jacket Cooler (100% IACS min.)
- X Copper Stave Cooler
Hot-rolled Copper Stave Cooler (100% IACS min.)

EEL PLANTS ORLDWIDE

It is our sincere promise to keep developing the best copper cast products with longer life combined with even better reliability in the future.

HISTORY

- Nov. 1968 Established.
- Oct. 1987 Awarded as "Best Company in Technology Renovation" from the Korean Institute of Metals & Materials.
- Dec. 1992 Awarded as "Best Company in Technology Renovation" from Industry Advancement Administration of Korea.
- May. 1994 Awarded as "Best Company in Cooperation with Employees" from the mayor of Incheon city.
- Oct. 1996 ISO 9002 certified.
- Dec. 1996 Awarded as "Best Company in Cooperation with Employees" from the Minister of Labor.
- May. 1997 Designated as "Best Supplier" of Posco.
- Dec. 1999 ISO 9001 certified.
- Nov. 2001 Awarded "5 Million Dollars Annual Export Tower" from the President of Korea.
- May. 2003 Constructed 2nd manufacturing plant for Industrial Machinery.
- Sep. 2003 Constructed 3rd manufacturing plant for specialized production of Copper Stave Coolers.
- Jun. 2005 Reconstructed 2nd manufacturing plant as an expansion for Industrial Machinery.
- Dec. 2005 Awarded "10 Million Dollars Annual Export Tower" from the President of Korea.
- Oct. 2006 Constructed new manufacturing plant as a combined expansion of the 1st(foundry) & 3rd plant.



GREETINGS

We are very pleased to inform you that our company has been strictly practicing ISO 9001 standards since 1996.

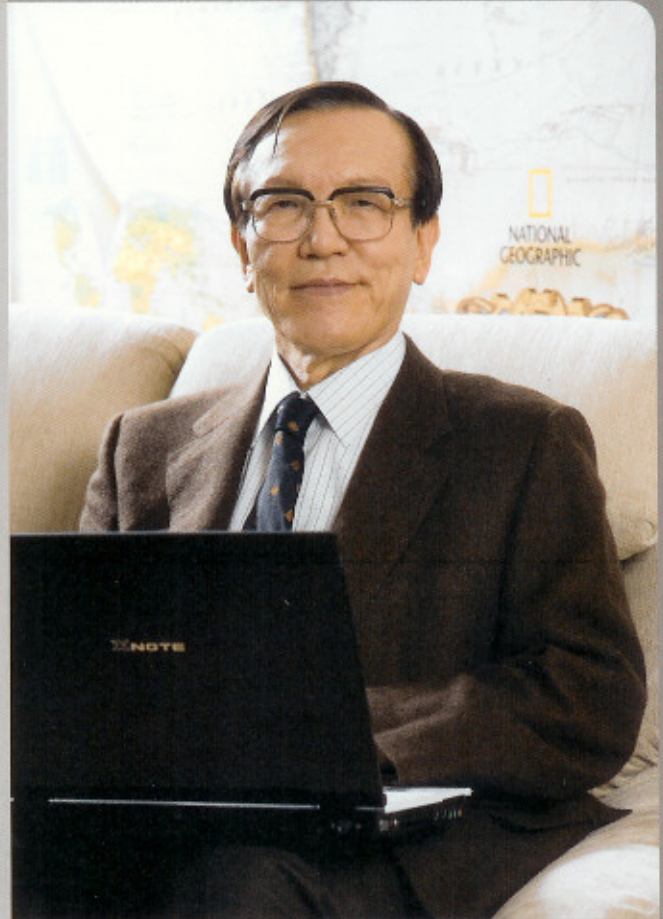
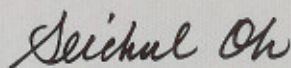
We would like to stress that our ISO practice is very unique in that we attach 'traveler sheets' to all of our products - a system for quality management essential in aircraft parts manufacturing line - from casting shop to final inspection line. All workers in line thus participate in quality control, recording details such as measurements into the 'traveler sheet.' With this very strenuous practice, we ensure that all of our products are made strictly according to our standards manual. These documents are kept for 3 years to enable tracing of failures if any.

Furthermore we proudly announce that we perform chemical analysis and radiographic inspection on all of our products, as specified in our inspection standards. With fully equipped x-ray, r-ray facilities and qualified NDT engineers on the line, these tests play the most important role in ensuring our copper casting quality.

Such are some of the reasons our products have become very special in this field.

It is our sincere promise to keep developing the best copper cast products with longer life combined with even better reliability in the future.

President Sei-Chul Oh



CEO, Mr. Sei-Chul Oh



S.E. COPPER PRODUCTS

As a world leading pure copper caster specializing in products for blast furnaces and L.D. converters, we supply our products to more than 50 foreign integrated steel mills with the largest share in this global industry. Our specialties also embrace Reel Drum Assemblies(separate manufacturing plant) for rolling mills, completing our availability of supporting the full line of steel production from iron making, to steel making, and to rolling mills. All practices are made strictly in accordance with ISO 9001 since 1996.



● Plant center work yard

● Plant top view : 3 workshops & 5 stories office building



● Front view

CAST PRODUCTS

A large industrial ladle is shown pouring molten metal into a mold. The metal is bright yellow and orange, creating a large, glowing plume of sparks and light. The ladle is suspended by a crane, and the background shows industrial machinery and structures.

Entirely modernized since October 2006 - the full production line was newly built, we now boast the best copper foundry facilities in the whole world. Our capacity with efficiency and quality targets all steel plants around the globe as our potential customer.



For Blast Furnace

We constantly supply our tuyeres & tuyere coolers to the top renown steel plants in all continents.

Tuyere Cooler

- Electrical Conductivity 50% IACS min.



Tuyere Nozzle

- Standard Single/Double Chamber Type
- Spiral Single/Double Chamber Type
- Electrical Conductivity 80% IACS min.





For Blast Furnace

We have participated in several major blast furnace relines overseas since 1995, supplying our cooling plates in quantities frequently exceeding a thousand pieces for each project.

Cooling Plate

- Electrical Conductivity 55% IACS min.



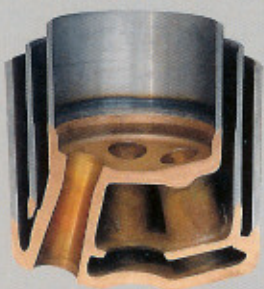


For Steel Making

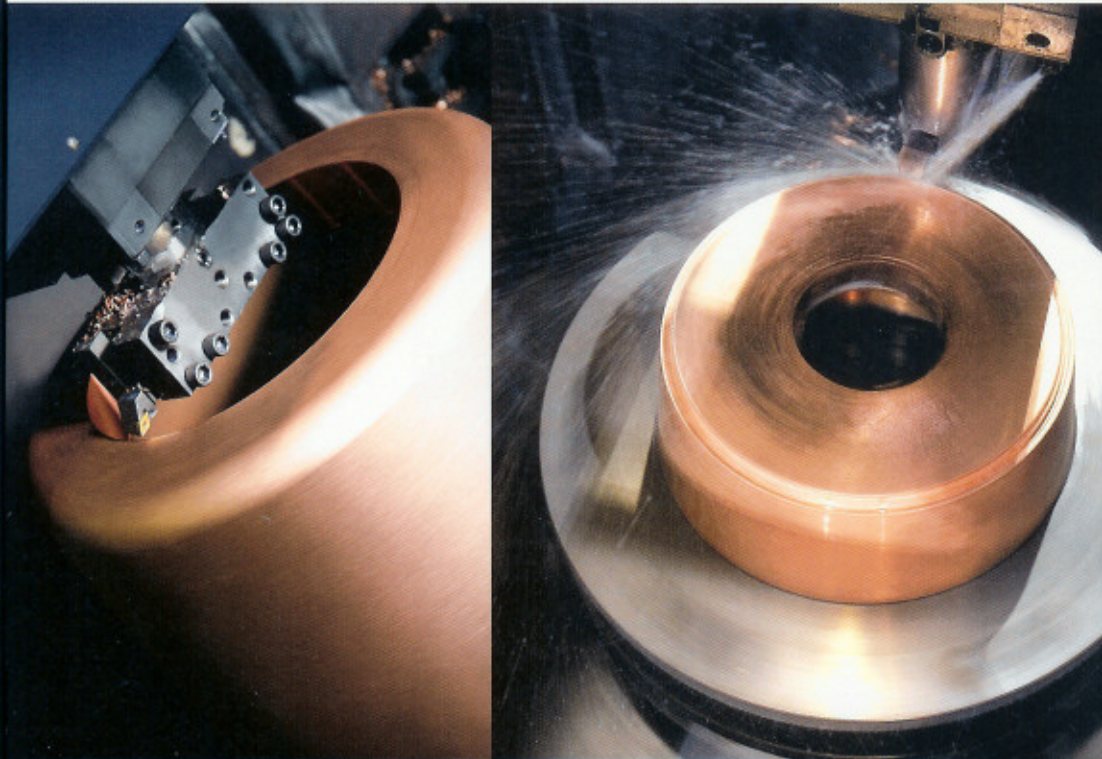
We are one of the most competitive suppliers in lance nozzles for L.D. converters. Best material quality and workmanship with reasonable price is offered.

Lance Nozzle

- Electrical Conductivity 90% IACS min.

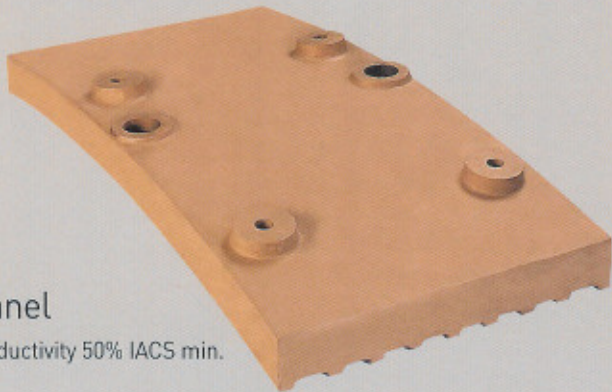






Other Copper Products

We produce various other types of copper cooling elements, generally used in furnace equipments including EAF(Electric Arc Furnace), such as copper panels, copper pipe panels and electrode holders.

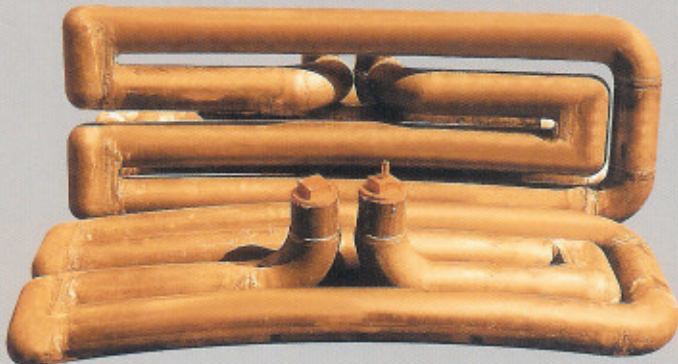


Copper Panel

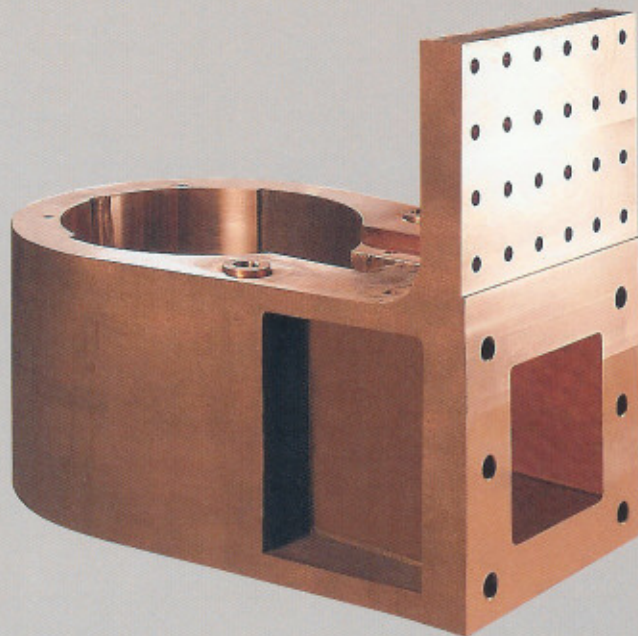
- Electrical Conductivity 50% IACS min.

Electrode Holder

- Electrical Conductivity 60% IACS min.



Copper Pipe Panel



CONTINUOUS CAST & ROLLED PRODUCTS

A large industrial machine, likely a continuous casting and rolling mill, is shown in a factory setting. The machine consists of several vertical rollers that are processing a large, continuous sheet of copper. The copper sheet is being fed from the left and is being rolled into a series of vertical strips. The machine is made of dark metal with many holes and bolts. In the background, there are yellow overhead cranes and a sign that says "BANDOO". The overall scene is a busy industrial environment.

Apart from our foundry, our top quality copper-based fabrication skills extend to continuous-cast & hot-rolled copper products. Using the finest continuous-cast and/or hot-rolled copper slabs, we operate a dedicated line to produce copper jackets (coolers) for smelting & refinery furnaces, and copper stove coolers for the blast furnace.

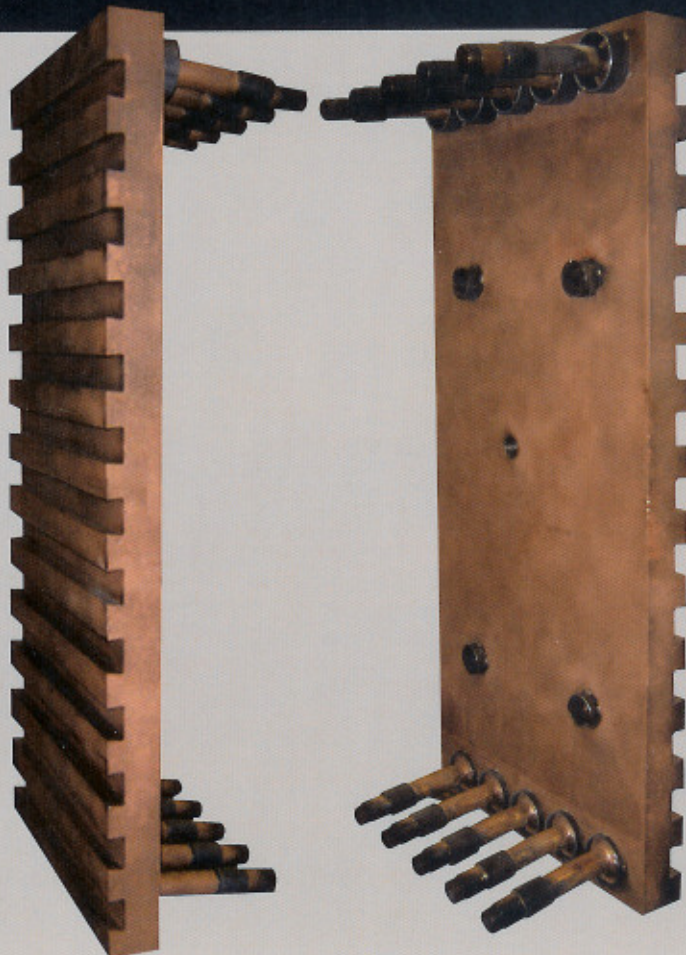


For Blast Furnace

With the finest quality hot rolled pure copper slabs boasting electrical conductivity exceeding 100% I.A.C.S., we are capable of furnishing the best and most reliable copper stave coolers for blast furnace relines. Approximately 100 to 300 copper stave coolers have been supplied for each blast furnace reline project.



Material : Hot-rolled OHFC copper slabs



Copper Stave

- Hot-rolled
- Electrical Conductivity 100% IACS min.
- Dimensions : approx. 1m wide & 2-2.5m long with varying thicknesses



Gun-drilling

Copper stave manufacturing...



Groove machining



Fully machined copper Stave



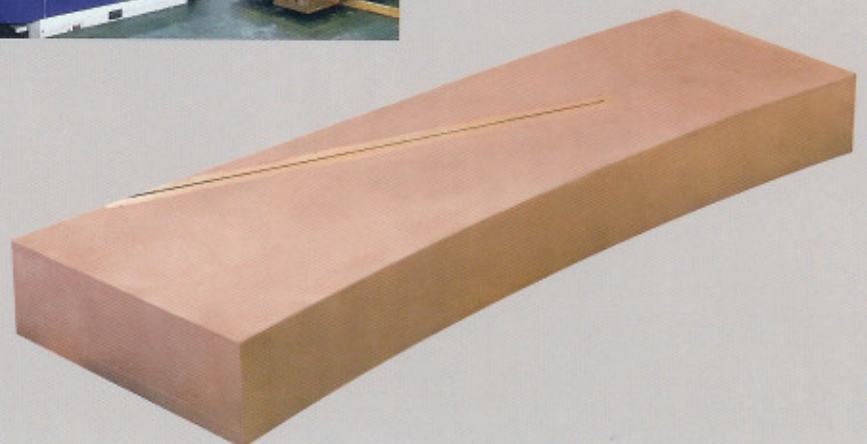
For Smelting & Refinery Furnace

Similarly, with the finest quality continuous-cast or hot-rolled pure copper slabs, we produce top quality copper jacket coolers in hundreds for every smelting and/or refinery furnace reline project.



Copper Jacket

- Continuous Cast Jacket Cooler (80% IACS min.)
- Hot-rolled Jacket Cooler (100% IACS min.)



Copper Jacket :

Copper jacket cooler length can be as long as 6m.
In this picture, a 5.5m long copper jacket cooler is being machined.



RESEARCH & DEVELOPMENT

The manufacturing process is elementally reinforced by the R&D team.
The intensity of our technical activity is an outcome of our philosophy to appreciate technological needs with highest value among all, and process them.



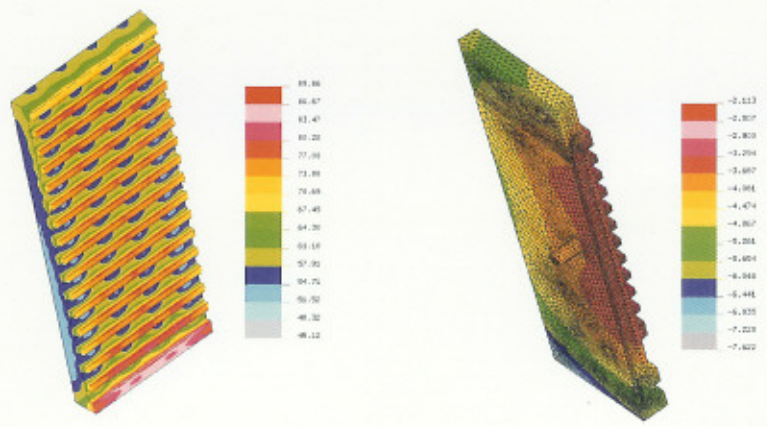


Research & Development team in our company has been one of the most important driving force of the company's success, ever since the development of the pure copper castings began in early 1970's. Research in quality manufacturing process has always been considered most essential, and it still continues today

Our R&D team is entitled to :

- continuously seek improvement in casting quality,
- engineer and develop new design & process for better performance and manufacturing efficiency,
- customize product design for each different customer in order to generate best results under given operating conditions.

Such activities with strong will for best effort have been the fundamental source of the company's global competitiveness. Today, it defines the way we serve our customers.



QUALITY ASSURANCE

We ensure that our products are made to the best possible quality, controlled under strictly practiced ISO 9001 system, radiographic inspection, and the 'Traveler's Sheet' system.



[1] ISO 9001

We have been certified for the ISO 9001 system since 1999, and all practices are made in strict accordance with the ISO standards.



Radiographic Inspection



Radiographic film interpretation

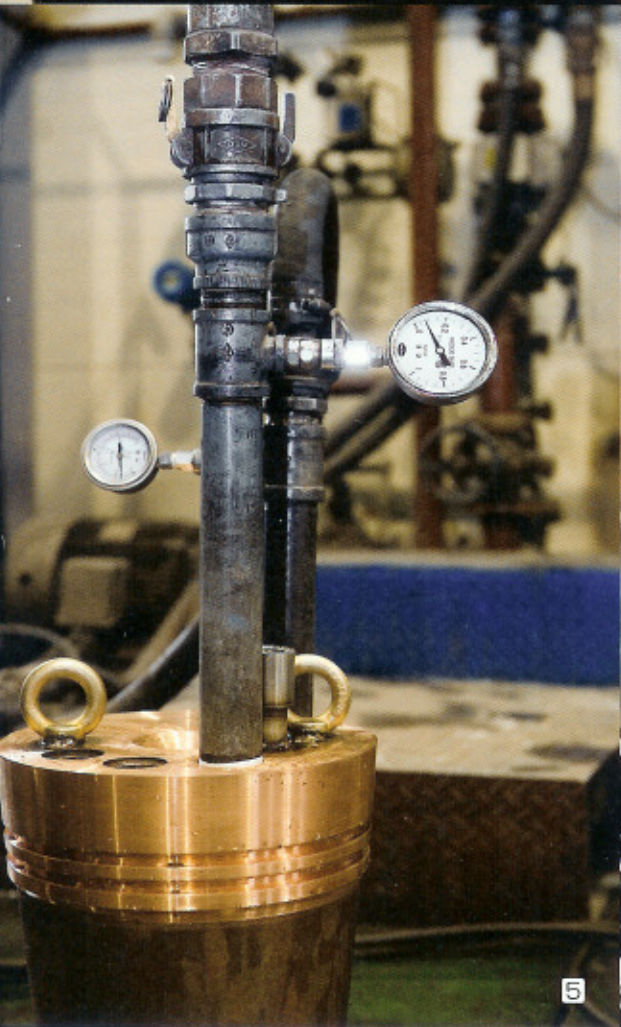
The 'Traveler's Sheet' Quality Control System

[2] Radiographic Inspection

With fully equipped x-ray and gamma-ray facilities in line, we put through 100% of copper castings for quality control which is one of the most essential quality control procedures in copper castings.

[3] The 'Traveler's Sheet' Quality Control System

Adopted from aerospace parts manufacturing line, the Traveler's Sheet' quality control system uniquely defines the superior quality of our copper products. In addition to the Q.A. members involved in the procedure, all workers systematically share responsibility in controlling quality, covering every piece produced at every step of the entire manufacturing process.



5



1



4



2

[4] Other Inspection Procedures

- 1 Chemical Analysis (Emission Spark Spectrometer)
- 2 Hydrogen & Oxygen Analysis
- 3 Three Dimensional Inspection
- 4 Internal Inspection (Endoscope)
- 5 Pressure Drop Test

WORLDWIDE SUPPLY REFERE



We supply our copper products to over 50 different steel plants in 30 different countries worldwide.

WORLDWIDE SUPPLY REFERENCES

EUROPE

- Austria
- Belgium
- Czech Republic
- England(UK)
- Finland
- France
- Germany
- Holland
- Hungary
- Italy
- Poland
- Russia
- Slovakia
- Spain
- Sweden

ASIA

- India
- Japan
- Kazakhstan
- South Korea
- Taiwan

SOUTH AMERICA

- Brazil
- Chile

NORTH AMERICA

- Canada
- U.S.A
- Mexico

MIDDLE EAST

- Turkey

AFRICA

- Algeria
- South Africa

OCEANIA

- Australia



NCES





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