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SeAH Besteel Corporate Brochure

**SeAH** Besteel

**Beyond the Best**  
SeAH Besteel Corporate Brochure

**A challenging spirit and passion for innovation.  
SeAH Besteel opens up a world of possibilities.**

SeAH Besteel's journey starts with a mission. Founded in 1955, SeAH Besteel was one of the first companies to pave the way for Korea's industrial development. Today, we are South Korea's leading and most respected special steel producer. To our customers and partners, we invite you to follow SeAH Besteel's next move in our journey as we continue to forge our name in Korea and around the world.



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**With a combination of forward thinking and innovation in materials, SeAH Besteel continues to safeguard the reputation of the steel industry.**



**CEO  
MESSAGE**

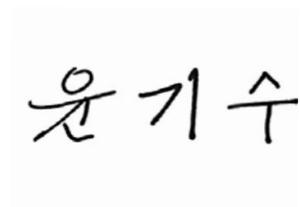
Since its foundation, SeAH Besteel has been at the forefront of special steel innovation. SeAH Besteel has built up its competitiveness with a yearly production capacity of more than 3.1 million tons of steel and 2.8 million tons of steel products.

On top of an integrated production system that spans steelmaking, forging, and manufacturing, SeAH Besteel is now pursuing heavy forging as a future growth engine. We are enhancing our technological competitiveness by investing in new facilities and securing quality competitiveness through a deep commitment to R&D.

SeAH Besteel will continue to create harmony between humanity, the environment, and industry through its leading edge technologies, sound management, and environmentally conscious production. Moreover, we take our duty and responsibility as a corporate citizen seriously and actively give back to the communities we serve.

By putting our customers first, SeAH Besteel aims to continue leading the special steel industry now and in the future.

Ki-soo Yun, CEO





Through differentiation and new growth sources, we are always preparing for the challenges of tomorrow.

Founded in 1955, SeAH Besteel has established itself as the number one special steel producer in Korea.

In 2014, SeAH Besteel is taking another bold step forward with its heavy forging business.

**Strengthening our leadership in the global special steel industry**  
Maintaining our leading position in the domestic market  
Seeking out new sources of demand in power and energy  
**Expanding production and export of high value products**

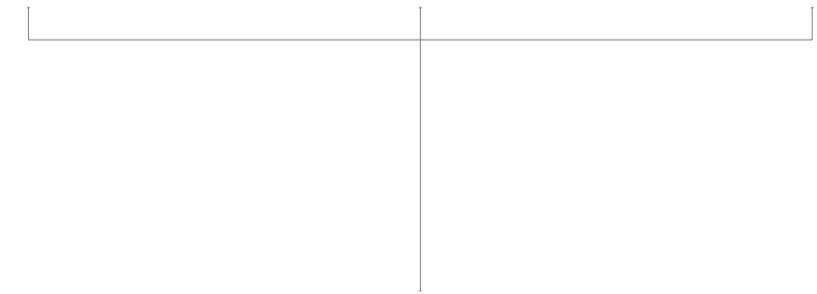
**Special Steel**

**Joining the global top tier**  
Expanding into nuclear & electric power and chemical plants  
Realizing high value-added products  
Securing technology to produce ultra-large ingot

**Heavy Forging**

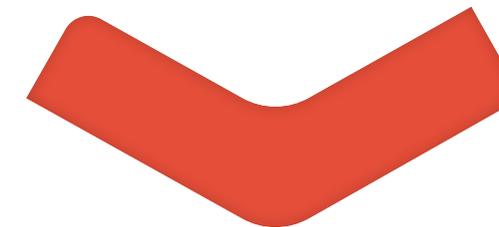
**Developing new materials including high alloy steel**  
**Ensuring eco-conscious technologies**  
Downstream

**New Business**



**CUSTOMER SATISFACTION**

**GREEN MANAGEMENT**



**Global Leader**

# SeAH Besteel's competitive edge has been built on a foundation of passion and diligence.

Founded as Daehan Heavy Machinery in 1955, SeAH Besteel has contributed to Korea's economic development for over half a century. With the completion of the Gunsan Plant and its automated production system in 1997, we took our production and quality to new heights. This growth has continued, demonstrated by the \$300 Million Export Tower Award we received in 2008. Today, SeAH Besteel is writing the next chapter in its long history.

**1955**  
-  
**1979**

**1955**  
Daehan Heavy Machinery Established

**1989**  
R&D Center Established

**1990**  
-  
**1999**

**1991**  
Shares listed on Korea Stock Exchange

**1993**  
Headquarters Relocated to Gunsan

**1997**  
Completion of Special Steel Complex Plant in Gunsan/  
Received Award for Industrial Peace

**1980**  
-  
**1989**

**1982**  
Launched Production of Special Steels (Seoul Plant)

**2000**  
-  
**2009**

**2003**  
Acquired by SeAH Group/  
Received the \$100 Million Export Tower Award

**2004**  
Renamed SeAH Besteel

**2005**  
Obtained ISO/TS16949 Certification

**2006**  
Obtained ISO 14001 Environmental Management System Certification

**2008**  
Received the \$300 Million Export Tower Award

**2010**

**2010**  
Completion of Heavy Forging Plant (Press capacity of 13,000 tons, electric furnace capacity of 150 tons)

**2013**  
Completed Construction of Changnyeong Plant (Established production capacity of 2.8 million tons)

**2015**  
Acquired POSCO Specialty Steel (renamed SeAH Changwon Integrated Special Steel)

# In leading the special steel market, SeAH Besteel has helped launch a range of other industries.

SeAH Besteel produces special steel that makes up the core components of the automotive, shipbuilding, industrial machinery, and construction industries. As we continue to be recognized for our quality and technology and approach a 50% market share in Korea, we invite you take a closer look at what we have to offer.

## Market share by production item [Based on 2015 / Unit : %]



## Steelmaking capability [Based on 2015 / Unit : ton]



## Product manufacturing capability [Based on 2015 / Unit : ton]



## Revenue share of special steel by industrial sector [Based on 2015 / Unit : %]



## Financial information [Based on 2015 / Unit : KRW 100 mil]





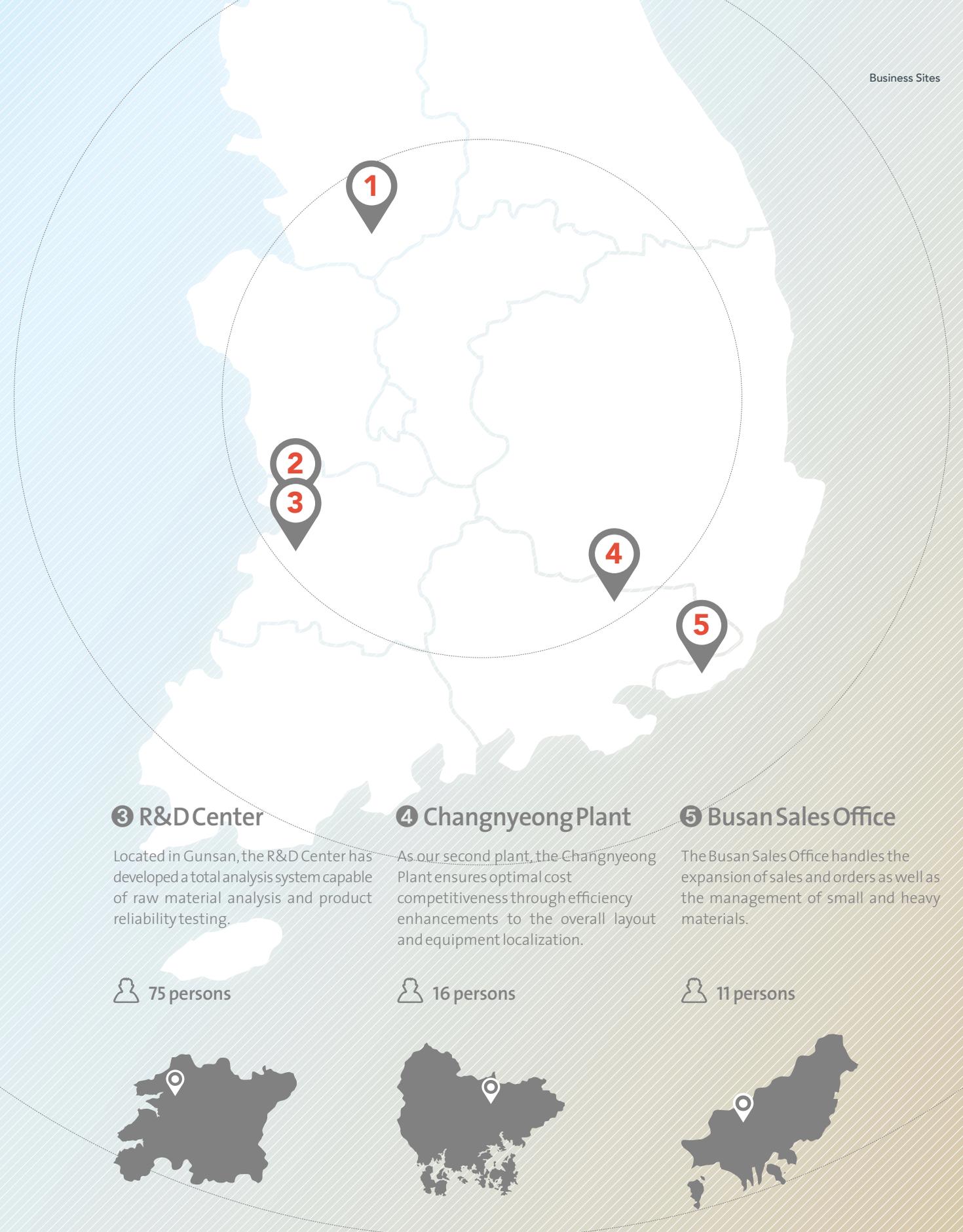
The best way to move forward is to take things one step at a time with the resolve that you're headed in the right direction. Today, SeAH Besteel is taking a bold step forward to become a global leader in special steel.

**We will embark on this journey  
with the confidence of our technological  
competitiveness and experience.**



# SeAH Besteel forges the steel that safeguards the world. We aim to become a global special steel company reaching beyond Korea.

SeAH Besteel products can be found everywhere you go. In everyday life, you can find the technologies of SeAH Besteel at work in automobiles, subways, high speed trains, ships, and airplanes. SeAH Besteel is writing a new history in Korean industry by practicing management that is honest, environmentally friendly, customer-satisfaction oriented, and technology-oriented.



## ① Seoul Headquarters

SeAH Besteel headquarters are located in SeAH Tower in the Hapjeong district of Seoul where the management and operational decisions of the company are handled.

 84 persons



## ② Gunsan Plant

With the world's best production capacity of special steel in a single plant, we developed an integrated assembly line combining steelmaking, forging, heat treatment, and processing.

 1,334 persons



## ③ R&D Center

Located in Gunsan, the R&D Center has developed a total analysis system capable of raw material analysis and product reliability testing.

 75 persons



## ④ Changnyeong Plant

As our second plant, the Changnyeong Plant ensures optimal cost competitiveness through efficiency enhancements to the overall layout and equipment localization.

 16 persons



## ⑤ Busan Sales Office

The Busan Sales Office handles the expansion of sales and orders as well as the management of small and heavy materials.

 11 persons



# Through efficient facilities and operations, SeAH Besteel is aiming for 0% quality defects.

**Gunsan Plant** | Since its groundbreaking in 1987 and completion in 1997, we have invested more than KRW 1 trillion in our Gunsan Plant. With a complete automation system and an ideal layout that houses all the processes in the same building, our Gunsan Plant has been recognized as a “world-class and state-of-the-art special steel plant.” Even after the completion of the Gunsan Plant, SeAH Besteel has continued to invest in the future, including the construction of a heavy forging plant which began in 2010.



**Gunsan Plant**

522, Oehang-ro, Gunsan-si, Jeollabuk-do, Korea

**Major products**

Special steel, heavy forging products, and die forging products

**Site Dimensions**

994,057 m<sup>2</sup>

**Features**

Integrated production line for steelmaking, rolling, and correction  
Korea's largest press of 13,000 tons  
Heavy and high-quality ingot production system

**Capacity**

Unit: 10,000 tons

Crude steel 310

Products 225

**Changnyeong Plant** | Established in 2013, our Changnyeong Plant has a production capacity of 550,000 tons. With processing facilities for billet inspection and a grinding shop, small bar mill, and small bar inspection and conditioning shop, the plant is diversifying its sales outlets including expanding its sales share of special steel for the automotive industry, industrial machinery, heavy equipment for construction and shipbuilding, among others. Through such efforts, SeAH Besteel is gradually expanding the importance of alloy steel for automotive and industrial uses.



**Changnyeong Plant**

100, Daehapsaneopdanji-ro, Daehap-myeon, Changnyeong-gun, Gyeongsangnam-do, Korea

**Major products**

Special steel

**Site Dimensions**

198,347m<sup>2</sup>

**Features**

Reinforcing our market dominance through the cost competitiveness of small bars, improving our supply base in the manufacturing-heavy southeast region of Korea and in overseas markets

**Capacity**

Unit: 10,000 tons

Products 55

# Technological innovation that turns dreams into reality. This is the power of SeAH Besteel.

SeAH Besteel drove the development of new high value-added materials by expanding its investment in R&D. The R&D Center has been a strong foundation for SeAH Besteel in its efforts to secure global competitiveness by having a state-of-the-art system to comprehensively support all areas.



## Technology Research Center

A state-of-the-art special steel research center outfitted with a total analysis system, the Technology Research Center is leading technological development in the global special steel industry.

- 1987.01 Established Technology Research Center (Seoul)
- 1991.11 Published the first volume of Technology Information Magazine
- 1992.11 Relocated to Gunsan plant
- 2000.11 Established a reliability testing center
- 2006.10 Constructed a comprehensive research building (R&D Center)

## The country's only Special Steel R&D Center

### Research support

The Research Support Team supports testing, analysis, assessment technologies, and R&D. The team specializes in the following activities: advanced analysis methods for special steel and heavy forged steel, operation of a research lab for the analysis of raw materials, operation and correction of research equipment, research planning, R&D budget management, development records, technological data, patent management, and leading technology workforce development

- Test analysis and research support
- Developing high-class talent, expanding infrastructure

### Product research

The Product Research Center focuses on new product development, demand expansion, alloy design, and micro-quality improvement. It conducts research on the development of materials for automotive parts and relevant technologies and on the development of structural special steel, H-steel, and other relevant technologies.

- Development of new special steel products and research on related technologies
- Research on advanced technologies for high-grade steel

### Process research

The Process Research Center focuses on the advanced development of new processes, mass production processes, and quality improvement. It is working on the development of mid to long-term special steel production base technology, research on process technology development/improvement, and research on the analysis and improvement of major quality issues through non-destructive inspection.

- Quality improvement research for the special steel manufacturing process
- Process improvement research for clean steel/high alloy steel

The high-quality special steel of SeAH Besteel is used in core automobile parts including engines, transmissions, and chassis. Moreover, SeAH Besteel produces diverse products for the construction, industrial machinery, and energy industries

# SPECIAL STEEL



# HEAVY FORGING

SeAH Besteel manufactures products for power and chemical plants, vessels, and industrial machinery by operating a 150-ton electric furnace and Korea's largest 13,000-ton press.



# AUTO PARTS

By producing the core automotive parts used in major car brands from Korea and abroad, SeAH Besteel is expanding its share in the automotive sector.



Manufacturing  
Process

Special Steel

We are taking the next step from number one in Korea to becoming a global **special steel company.**

With the introduction of the latest RH refining facilities and large bloom caster and the establishment of the billet correction plant and complementary post-processing facilities, SeAH Besteel is building a clean and high-quality special steel production system.



Automotive parts



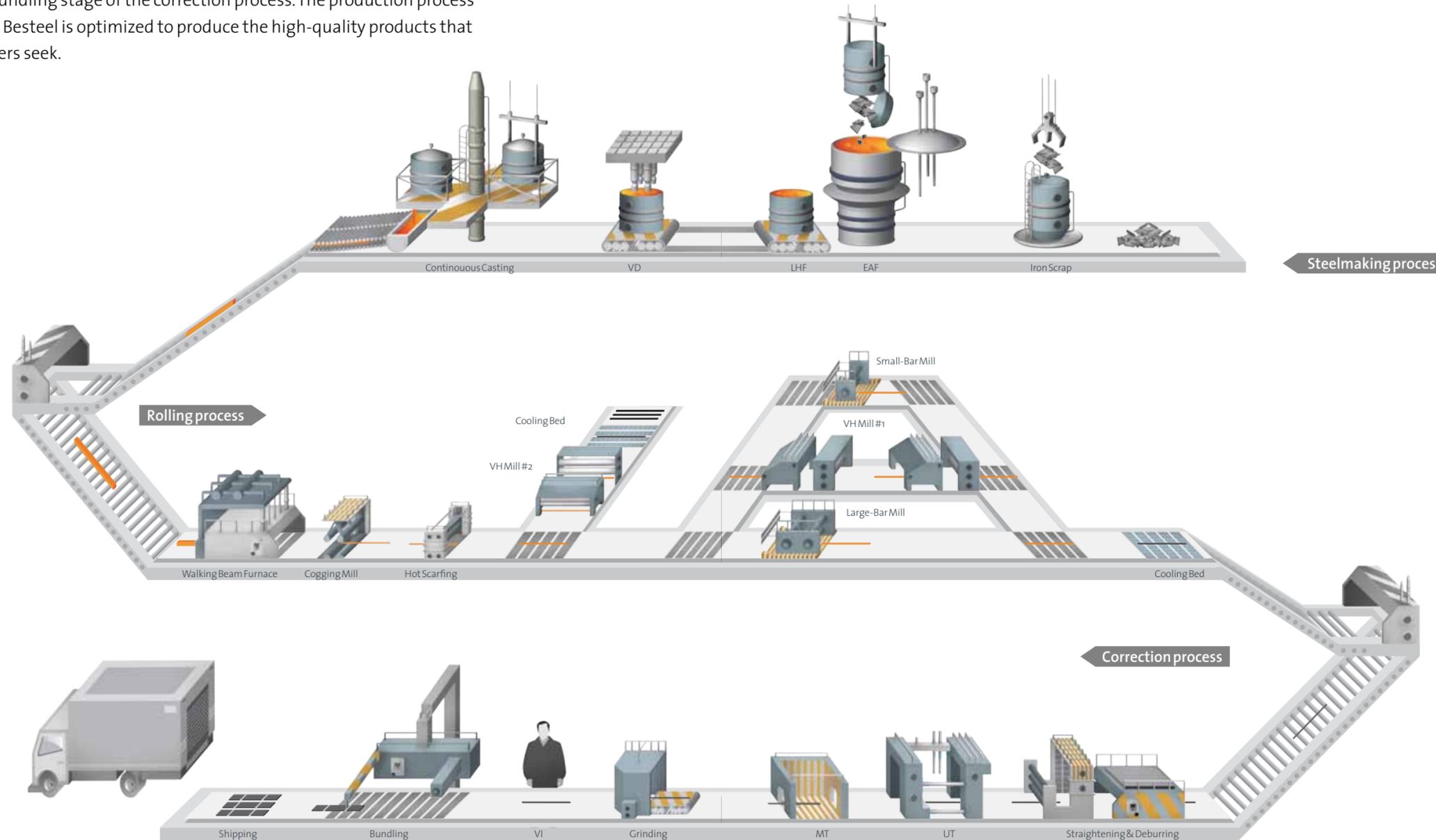
Construction / Industrial machinery



Energy

## Special steel process chart

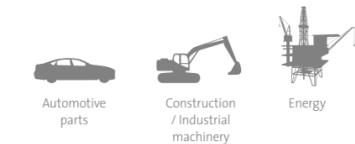
SeAH Besteel ships products after the full production process starting from steel scrap, which is the first stage of steelmaking, to the bundling stage of the correction process. The production process of SeAH Besteel is optimized to produce the high-quality products that customers seek.



Special Steel

**We are taking the next step from number one in Korea to becoming a global special steel company.**

With the introduction of the latest RH refining facilities and large bloom caster and the establishment of the billet correction plant and complementary post-processing facilities, SeAH Besteel is building a clean and high-quality special steel production system.





100t Electric Arc Furnace

Combining the best facilities with the latest technologies, our products are guaranteed to be of the best quality. The clean special steel manufactured with the UHP and EBT electric furnace and the latest RH vacuum degassing facility realizes a high rolling ratio with 390mm x 510mm jumbo bloom. Moreover, the level of product perfection is enhanced by conducting ultrasonic testing (UT) and magnetic particle testing (MT) on all products.



Continuous Billet Casting

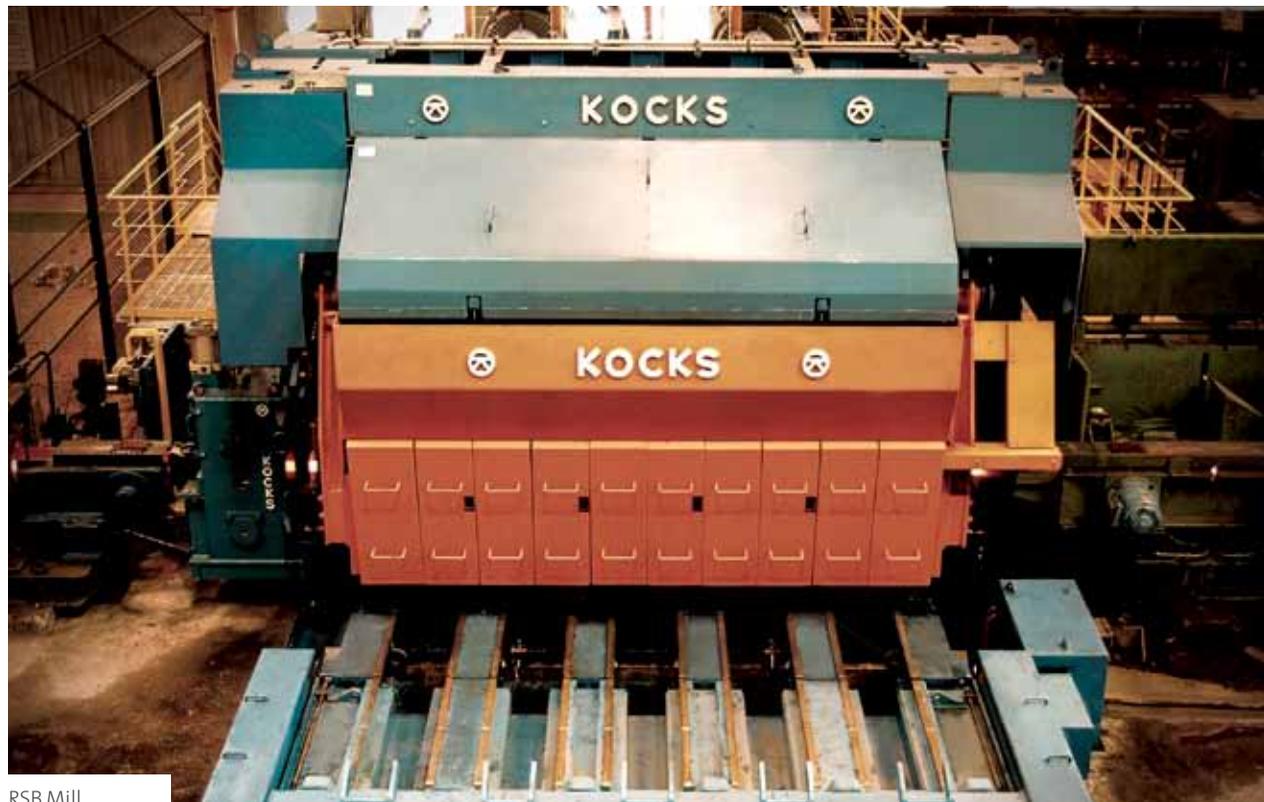


RH Degassing

By having invested more than KRW 800 billion since 2004, we have upgraded our production process efficiency and facility rationalization. Now, we are continuing the diversification of demand and steel type development given our stable market position.



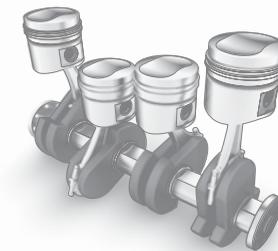
Cogging Mill



RSB Mill

# Everywhere you turn, you can find the technology of SeAH Besteel.

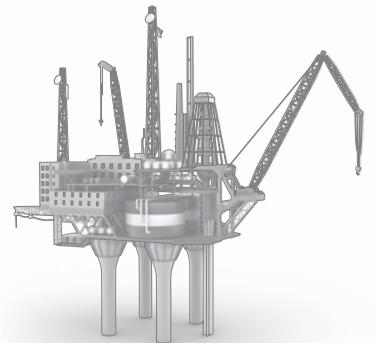
Automotive parts



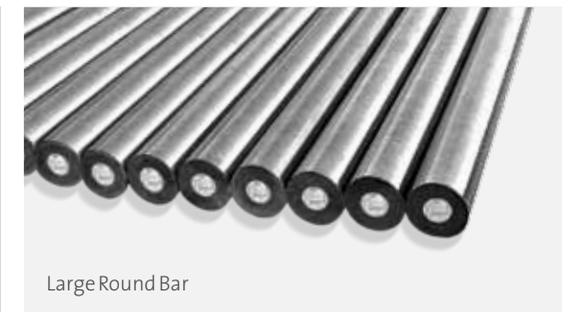
Construction / Industrial machinery



Energy



Forged Bar



Large Round Bar



Large Square Bar



Peeled, Drawn Bar

Manufacturing Process

Heavy Forging

With the **heavy forging business** as our new growth engine, SeAH Besteel is making headway towards becoming a top-tier, global company.

SeAH Besteel has established a manufacturing system with an annual production capacity of 250,000 tons by operating its 150-ton electric furnace and Korea's largest 13,000-ton press.



Power generation /  
Chemical  
engineering



Industrial  
machines /  
Plants



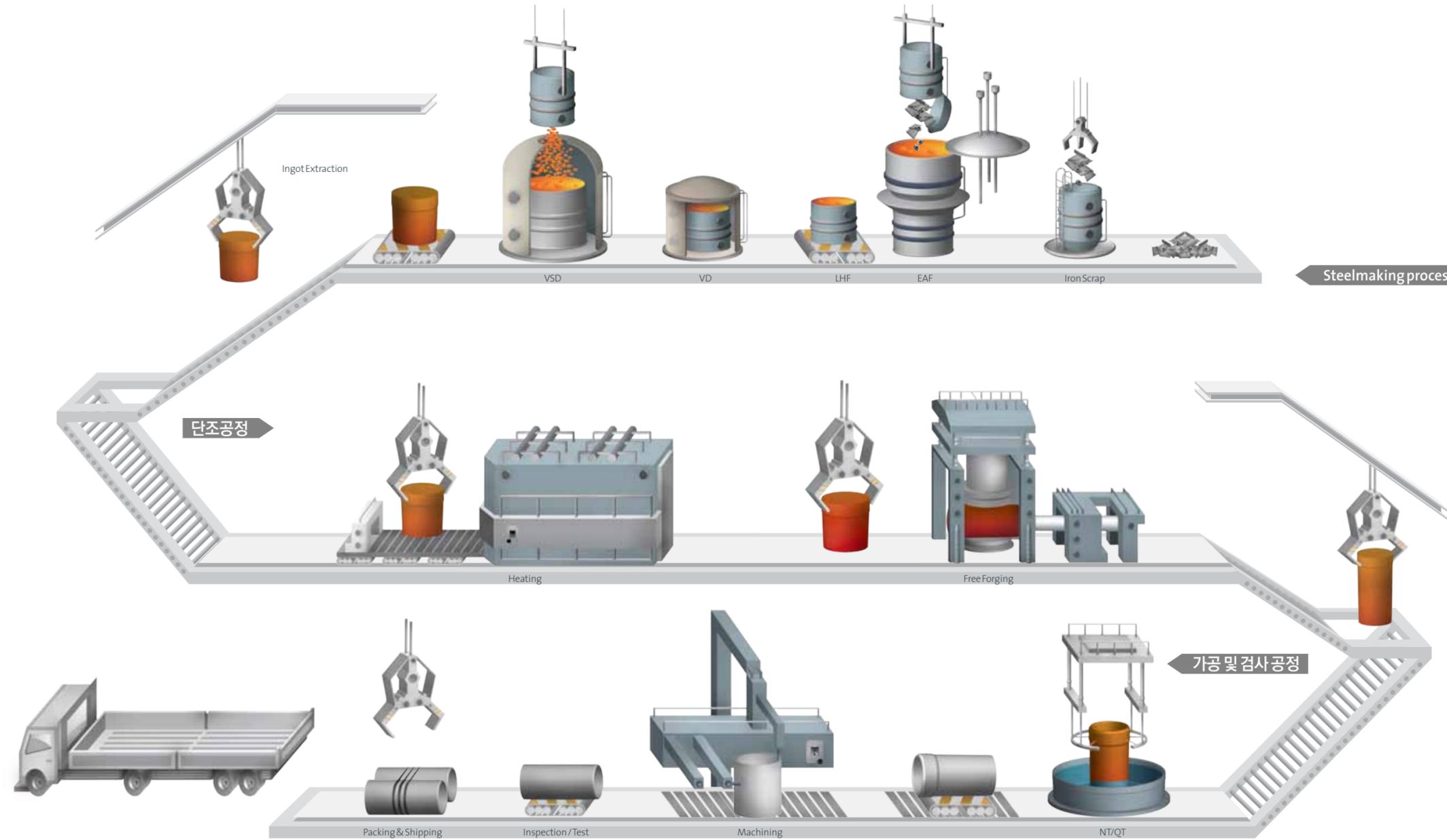
Shipbuilding



Mold steel

## Heavy forging process chart

We deliver high-quality products in the shortest time based on our one-stop system encompassing the entire process from steelmaking to forging, heat treatment, and processing.



Heavy Forging

With the **heavy forging business** as our new growth engine, SeAH Besteel is making headway towards becoming a top-tier, global company.

SeAH Besteel has established a manufacturing system with an annual production capacity of 250,000 tons by operating its 150-ton electric furnace and Korea's largest 13,000-ton press.





13,000t Press



150t Electric Arc Furnace



Vacuum Degassing



Ladle Heating Furnace

Based on our accumulated expertise in the special steel sector, in 2010 SeAH Besteel began its heavy forging business for nuclear, power, and chemical/refinery plants and heavy industrial machinery. We have a 150-ton electric furnace and a 13,000-ton press, the largest in Korea, which is capable of producing clean steel through 150-ton LF, VD, and VSD. Moreover, it is capable of producing diverse sizes of large ingot in line with the quality characteristics of forging products.

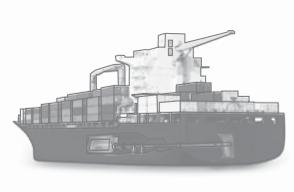
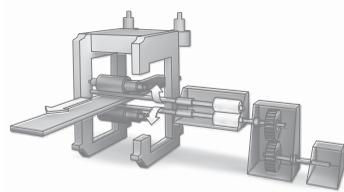
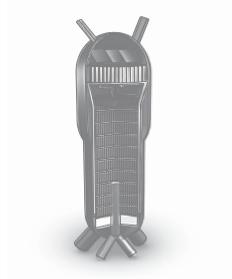
# Material innovation and quality excellence. These are the foundations of industrial development.

Power generation /  
Chemical engineering

Industrial machines / Plants

Shipbuilding

Mold steel



Power generation /  
Chemical engineering

Production of parts for power (nuclear, hydro, and thermoelectric) and chemical plants



Channel Head



Closure Head



Hydro Shaft



Rotor Shaft



Shell



Skirt Ring



Transition Shell

Industrial machines /  
Plants

Production of forging products used in a range of industries



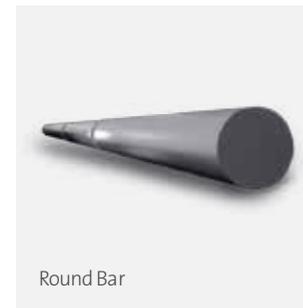
Roll



Industrial Shaft



Tyre Ring



Round Bar



Square Bar, Plate

Shipbuilding

Production of forging products used for power transmission systems of large vessels



Crank Throw



Intermediate Shaft



Main Journal



Propeller Shaft



Rudder Stock



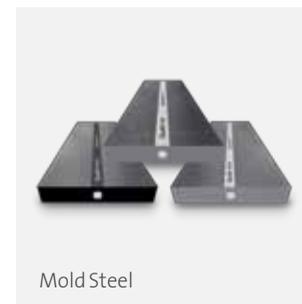
Shaft Flange



Thrust Shaft

Mold steel

Production of molding material for the injection of internal/external plastic for cars and home appliances including TVs, refrigerators, and others



Mold Steel

# With quality-oriented management focused on perfection, SeAH Besteel is enhancing customer value.

SeAH Besteel is creating a quality advantage by establishing a rational, quality-oriented management system. For customer satisfaction, SeAH Besteel has established quality and service processes for a “zero defect rate.” We will maintain an optimal quality-oriented management system to guarantee customer safety and benefits, and ensure a corporate culture of coexistence.



## System certifications



Quality Management System  
ISO/TS 16949



Quality Management System  
ISO 9001



Environment Management system  
ISO 14001



Health and Safety Management System  
OHSAS 18001



Health and Safety Management System  
KOSHA 18001

## Certificates



**KR**  
Ingot & Bloom & Billet  
Rolled Bars  
Chain Bars  
Forgings  
Crank throw



**NK**  
Forgings  
Rolled Bars & Chain Bars



**Lloyd's**  
Ingot & Bloom  
Rolled Bars & Chain Bars  
Forgings



**GL**  
Ingot & Bloom  
Rolled Bars & Chain Bars  
Forgings



**RINA**  
Ingot (Carbon steel)  
Rolled Bars & Chain Bars  
Forgings



**ABS**  
Ingot & Bloom & Billet  
Mooring Chain Bars (R35/R4)  
Mooring Chain Bars (R45/R5)  
Chain Bars  
Hull Structural Steel



**BV**  
Ingot & Bloom & Billet  
Chain Bars  
Chain Q2 Q3  
Chain QR3 QR3S QR4  
Mooring Chain Bars (QR4S/QR5)  
Rolled Bars  
Forgings



**RS**  
Chain\_Grade3



**CCS**  
Forgings



**DNV**  
Ingot & Bloom  
Rolled Bars & Chain Bars  
Forgings

## Product certifications



**KS**  
KSD 3752 (Gunsan)  
KSD 3867 (Gunsan)  
KSD 3752 (Changnyeong)  
KSD 3867 (Changnyeong)



**JIS**  
JIS G 4051  
JIS G 4053  
JIS G 3101



**PED**  
Forgings,  
Forged Bars and  
Rolled Bar



**ASME**  
Material Organization



**KEPIC**  
As a Material Organization  
Manufacturing and  
Supplying of Forging



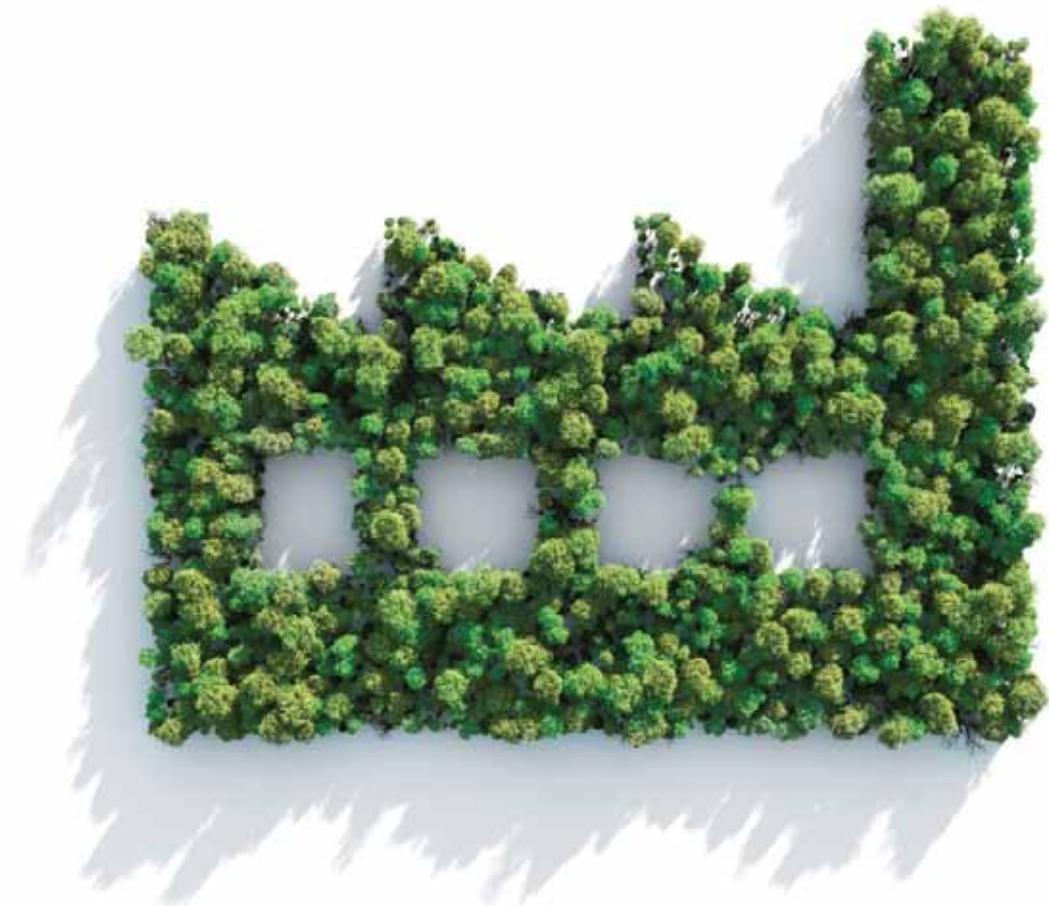
Based on its corporate culture that firmly believes in fundamentals and principles, SeAH Besteel dreams of making the world into a better place.



With gratitude and modesty,  
we preserve timeless values and pass  
them on to others.

SeAH Besteel is establishing a clean manufacturing system.

We are continuously improving the environment to bring greater harmony between humanity, industry, and nature.



# Today's green management ensures a green tomorrow.

- Atmosphere protection**
- Large-volume closed mixing-type electric furnace dust collector (pulse jet type)
  - Installation of automated stack measuring instrument (CleanSYS)
  - Facilities to control dust scattering at scrap sites
  - Management of sprinkler trucks

- Water quality protection**
- Neutralization treatment, removal of heavy metals, water discharge after total nitrogen removal
  - Recycling of industrial water

- Waste management**
- Designated landfill and recycling of steelmaking dust
  - Sludge landfill

- External activities**
- One-company, One-stream purification Campaign
  - Environment purification activities in Gunsan area twice a month

SeAH Besteel is making efforts to minimize potential damage to or loss of the environment, lives, and property in the process of product development, production, and waste management.

We acquired the ISO14001 environment management system certification and are managing air pollutants to be at or below 30% of emission standards. To preserve water quality, SeAH Besteel is improving the efficiency of wastewater treatment by establishing the HBC (Hanging Bio-Contractor) system. Moreover, we are making efforts to purify local streams by managing water pollutants at or below 20% of emission standards.

Dust



COD



SS





SeAH Besteel is leading the way  
To create thriving and sustainable communities.

To make the world into a better place,  
SeAH Besteel aims to make  
tomorrow better than today.



Hope-sharing  
delivery of  
coal  
briquettes



SeAH  
Love House



Preparing  
kimchi in  
the winter



## To ensure a harmonious coexistence, we at SeAH Besteel are doing our part.

The strongest driver of SeAH Besteel's social responsibility activities is the voluntary participation of its employees. SeAH Besteel operates a free food service and engages in social responsibility activities through diverse programs including charcoal briquette delivery and blood donation. With a pledge to care for our neighbors, the social responsibility activities of SeAH Besteel continue year-round.

## SeAH Group Core Value



HONEST



PASSIONATE



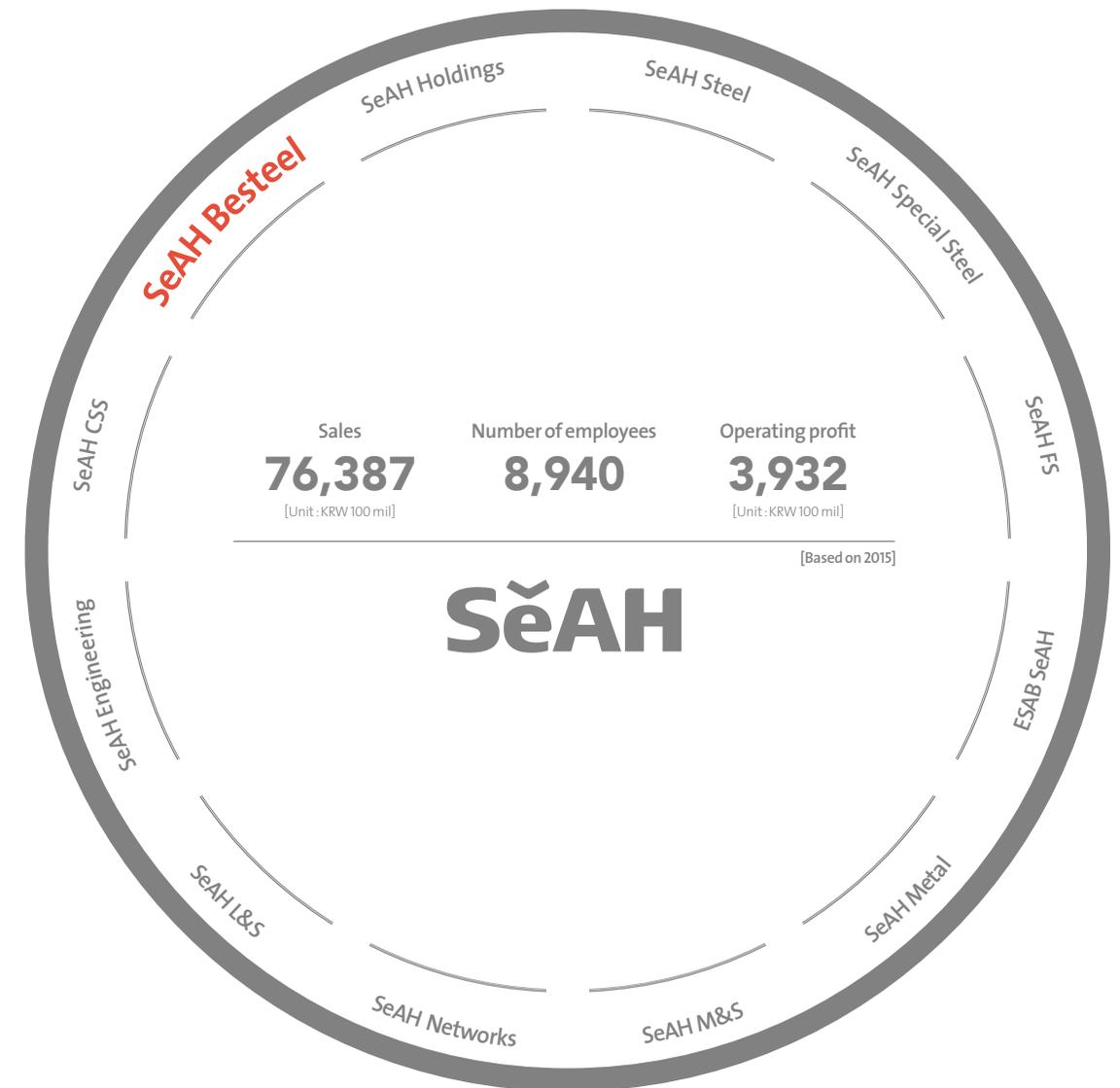
PROFESSIONAL

# Making the world into a better place. SeAH is there with you.

The SeAH Group has been a pioneer in the steelmaking industry for the last 50 years. Today, it has secured its place as Korea's leading steel specialist providing steel pipes as well as special steel, automotive parts, welding materials, industrial machinery, logistics, and IT services.

SeAH contributes to making life more prosperous for all, and is now preparing for its next 100 years.

SeAH is now aiming to emerge as a globally competitive firm, based on our history of realizing the values of honesty, gratitude, and modesty. Through a strong sense of responsibility, SeAH will continue to make history as one of Korea's leading businesses.



## **To become Korea's leader in special steel, SeAH Besteel overcame many challenges.**

While we have faced obstacles and risks along our journey, we have been able to overcome challenges with our belief in and passion for our mission. Now, once again, SeAH Besteel is standing before another great challenge. We will take another bold step forward to meeting our two goals of “heavy forging” and “going global.” We thank you for your unwavering support, and invite you to come with us as we embark on a new adventure together.