

# “Growing through Challenge”

Corporate Profile

Monozukuri and Structural Development



FURUKAWA

# Under the Motto of “Growing through Challenge” We Will Work towards Full-Fledged *Monozukuri* and Full-Scale Structural Development



President and Representative Director,  
Nobuyoshi Soma

Since the company's foundation in 1875, we have expanded with a variety of businesses in order to meet the demand of the times, originating in mine development. Our business fields have become more diverse, from metals and machinery to electronic materials and chemicals, and we are proud to have supported the affluence and safety of society in every aspect, based on our corporate philosophy, “Innovation, Creativity and Harmony.”

Now that we are in the 21st century however, social environments are significantly changing and global competition is becoming increasingly fierce. In such a situation, under the motto of “Growing through Challenge,” we will propel strategies to obtain an overwhelming share in the market and to survive competition.

As part of the strategy, we have spun off and incorporated businesses, and taken a step forward as the Furukawa Company Group, headed by the principal operating arm, Furukawa Co., Ltd.

Furthermore, our highest priority is focusing on full-fledged *monozukuri*\* activities and full-scale structural development efforts. Having manufactured first class products since the company was founded over 130 years ago, we believe that going back to our roots of “*monozukuri*” will directly lead to improved competitiveness and a maximized corporate value.

With improved Competitiveness and social contribution in mind, our group is determined to progress together with our stakeholders, including customers, shareholders, business partners, and employees.

#### \**Monozukuri*

*Monozukuri* is a Japanese word consisting of “*mono*” which means “products,” and “*zukuri*” which means “process of making or creation.” However, the word means more than simply making something; it has overtones of excellence, skill, spirit, zest, and pride in the ability to make things very well. *Monozukuri* is not mindless repetition; it requires creative minds and is often related to craftsmanship, which can be learned through lengthy apprenticeships rather than the structured course curricula taught at traditional schools.

#### \**Furukawa Group*

The history of the Furukawa Group dates back to when the Japanese Mine King, Ichibei Furukawa started the copper mine business. Since then, a number of Furukawa Group companies were born through the development and diversification of businesses, and are now active in various industries in Japan as well as overseas.

Currently, the Furukawa Group forms a voluntary organization called the Furukawa Group Executive Council consisting of 10 executive companies, namely Furukawa Co., Ltd., The Furukawa Electric Co., Ltd., ADEKA Corporation, The Yokohama Rubber Co., Ltd., Fuji Electric Holdings Co., Ltd., Fujitsu Limited, Nippon Light Metal Co., Ltd., ZEON Corporation, Asahi Mutual Life Insurance Co, Mizuho Corporate Bank, Ltd. and member companies, for cooperation between Group companies and enhanced mutual collaboration.

# Inheriting the Technologies and Spirit Cultivated through Copper Mine Operation

The present prosperity of the Furukawa Company Group wouldn't have been achieved without its founder, Ichibei Furukawa (1832-1903). The history of Furukawa dates back to 1875 when Ichibei began the Kusakura Copper Mine operation in Niigata. Two years later, he launched the Ashio Copper Mine operation in Tochigi, where he introduced revolutionary mining technologies one after another. This was the beginning of Furukawa's development.

Mining technology is not only about mining ores and extracting copper. It may be no exaggeration to say that it is the essence of technologies from all the industrial fields, from ore transportation, water supply and slurry transportation, water treatment, by-product treatment, to construction of power plants which supply power required for these activities. Ichibei adopted the leading-edge Western high-tech engineering technologies for the operation of the Ashio Copper Mine, which was so significant that it was written in the Industrial History of the Meiji Era (1868 to 1912).

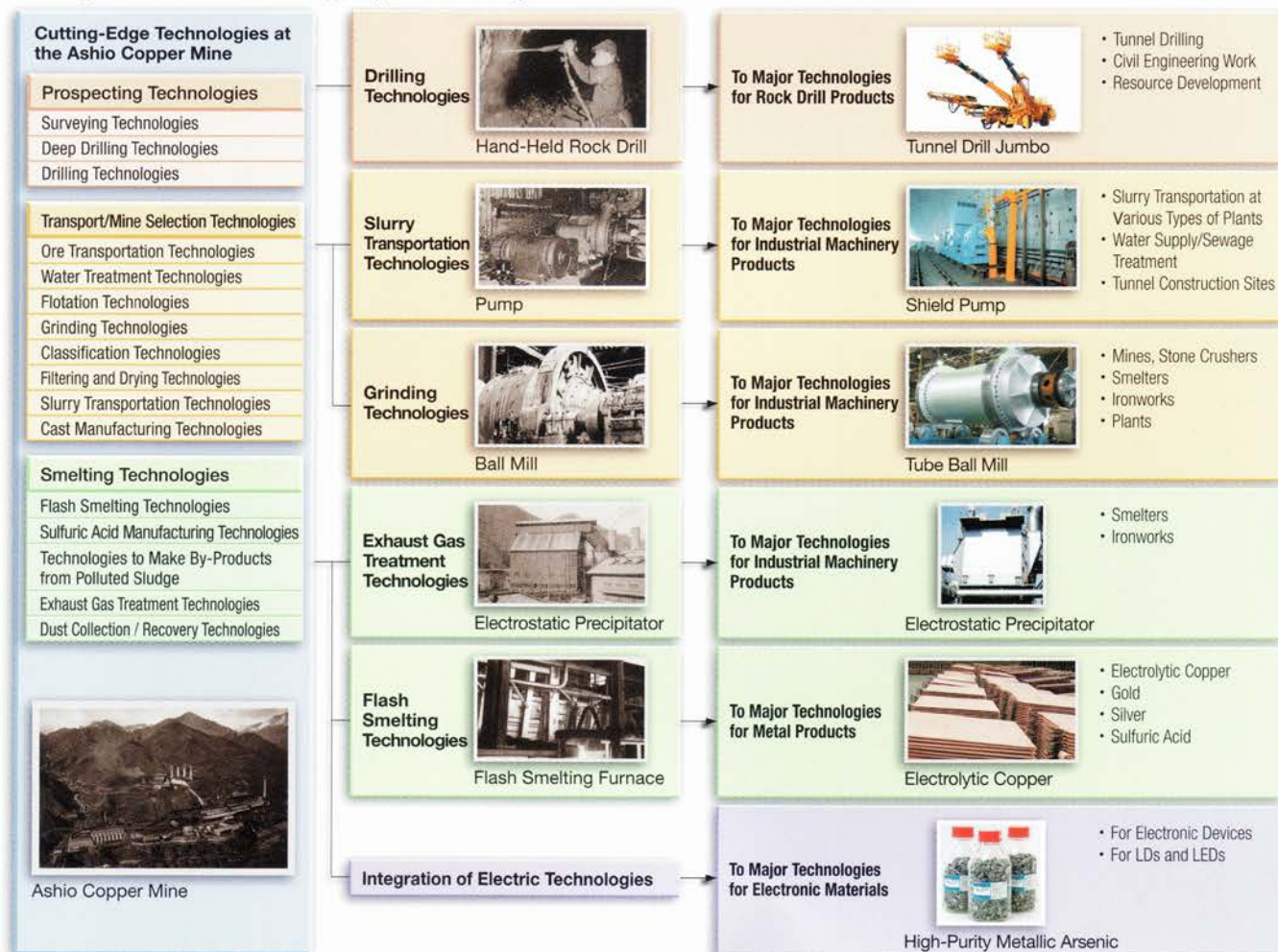
These technologies were utilized for the installation of tracks, cableways and conveyers for the transportation of ores, construction of Japan's first waterpower plant, electrification of underground and sur-

face mines, introduction of pneumatic and electric rock drills and Western smelting technology.

Some time later, Furukawa began imported machinery maintenance, component manufacturing, and machinery production. This is the root history of the Furukawa Company Group – a manufacturer of diversified products with large shares in the global market of rock drills for mines, pumps for slurry transportation, ore crushing machinery, water treatment technologies, exhaust gas treatment technologies, as well as the production of rare metals and concentrated sulfuric acid, which are by-products of copper, etc.

In 1905, Furukawa Mining Co., Ltd. was founded and private management was shifted to a corporate structure. On the platform of the Ashio Copper Mine development, Furukawa began breaking new ground in diversified industrial fields. Now, the **Furukawa Group\*** has grown to include the Furukawa Company Group and other Groups, and their companies are leaders of the Japanese industrial world from high-tech home electronics to communications and finance. Furukawa's business fields vary, however the technologies and spirit cultivated by Ichibei through the development of copper mines have undoubtedly been solidly inherited in each field to this day.

## History of Furukawa's Cutting-Edge Technologies



# Meeting Diverse Needs of Customers with the Spirit of “Facing the New by Learning from the Past”

For over 130 years since our foundation in 1875, we have always remained steadfast as a vanguard of a society changing at a bewildering pace.

In 1918, the predecessor of the current Furukawa Company Group, Furukawa Mining Co., Ltd. was established. The technologies and products cultivated at the Ashio Copper Mine were applied in a wide range of fields by Furukawa Mining Co., Ltd. In 1989, the company name was changed to Furukawa Co., Ltd. Grounded in its corporate philosophy – Innovation, Creativity, and Harmony – we have been working to improve a new corporate value in this time of change.

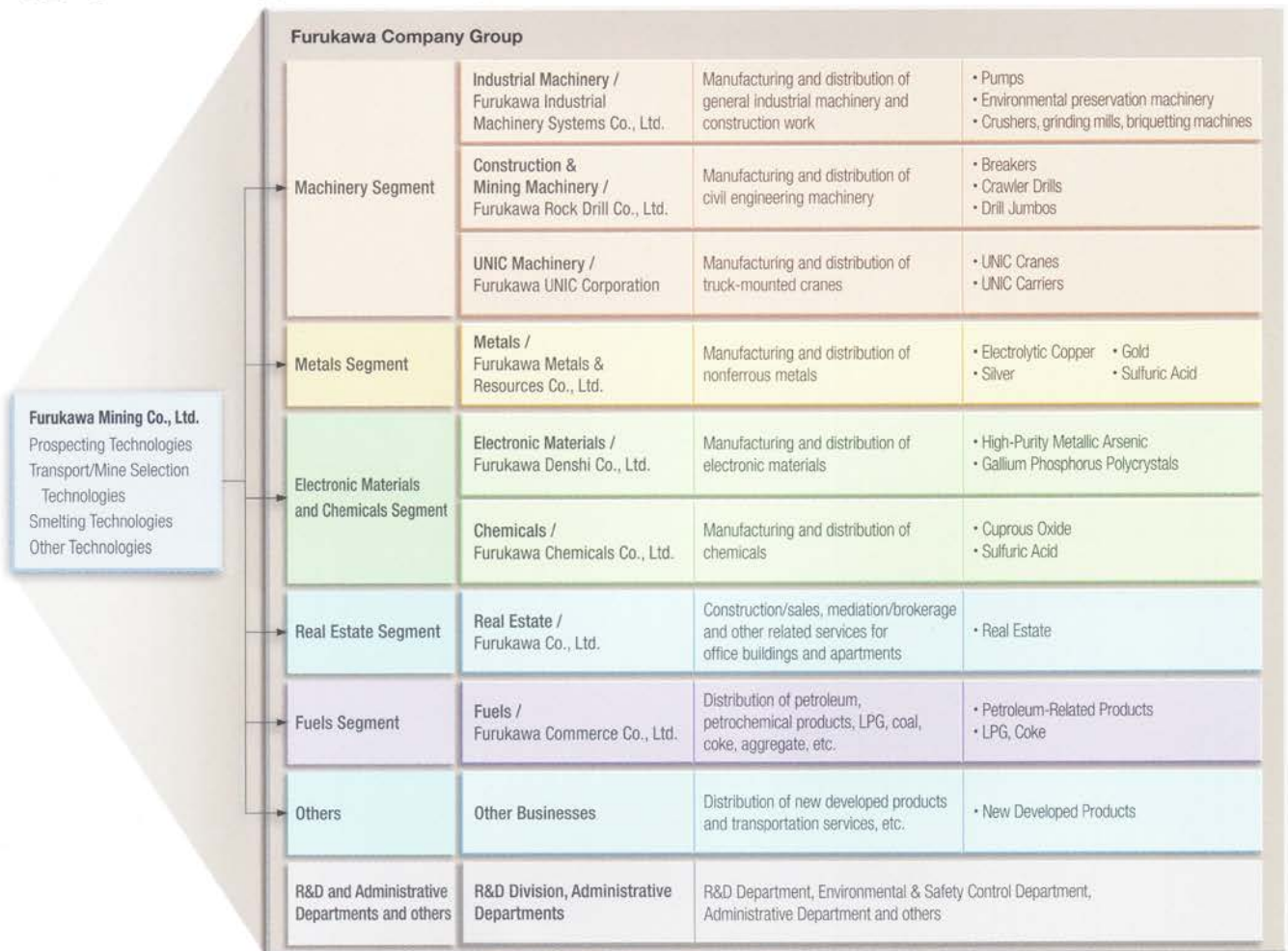
Even though the company name was changed, the root of the Furukawa Company Group lies in the operation of copper mines, and the technologies and products developed at mines are still supporting our competitiveness in different forms. Grounded in this history of the Group, we believe that since now we are in a time of change, taking pride and indentifying our grass root *monozukuri* is important, in the spirit of “Facing the New by Learning from the Past.”

In addition, we give the highest priority to contributing to society and to environments. In the late 1800s to the early 1900s when the idea of paying consideration to surrounding environments was not

common, we implemented the world’s best environmental measures at the Ashio Copper Mine. Ashio became an experimental site for environmental measures in Japan. Pollution prevention measures and by-product collection technologies developed at Ashio, as well as our spirit to serve society are invaluable assets, which have been passed down to today.

Now we are in the 21st century and we have separated and incorporated our businesses in order to meet increasingly diversifying needs. The new Furukawa Company Group aims to become the best company that we can possibly be, through self-transformation, and by going back to our roots.

## Applying Our Ashio Copper Mine Technologies to Diversified Industries



# The New Management Structure for a Time of Change

Furukawa Co., Ltd. has been working to restructure the organization through the selection and concentration of the businesses, to improve and enhance its financial culture in order to meet diversifying customer demands and to win global competition.

We have now come to adopt a new management structure. We have spun off businesses that belonged to the Machinery, Metals, and Electronic Materials and Chemicals Segments to shift to the new holding company structure headed by the principal operating arm, Furukawa Co., Ltd.

In the Machinery Segment, the industrial machinery business was taken over by Furukawa Industrial Machinery Systems Co., Ltd., the construction and mining machinery business by Furukawa Rock Drill Co., Ltd. and the UNIC machinery business by Furukawa UNIC Corporation. These are the core companies in the Group.

The Metals Segment started at the time of Furukawa's foundation, and was succeeded by Furukawa Metals & Resources Co., Ltd. In the growing Electronic Materials and Chemicals Segment, the electronic materials business was taken over by Furukawa Denshi Co., Ltd. and the chemicals business by Furukawa Chemicals Co., Ltd.

The principal operating arm of the Group, Furukawa Co., Ltd. is continuously conducting the business of the Real Estate Segment. The Fuels Segment was succeeded by Furukawa Commerce Co., Ltd.

Separating and incorporating our businesses enabled us to make decisions quickly, more accurately understand customer needs, and prepare to beat increasingly fierce global competition in this time of change.

In addition, after the incorporation, each company in the Group began promoting the business by being conscious of its individual responsibility for its profit and loss, resulting in raised awareness of cost reduction and energy conservation. This generated effects of synergy in each company, which is contributing to the enhancement of the management culture of the whole Group.

**Industrial Machinery /**  
Furukawa Industrial Machinery Systems Co., Ltd.



**Construction & Mining Machinery /**  
Furukawa Rock Drill Co., Ltd.



**UNIC Machinery /**  
Furukawa UNIC Corporation



**Metals /**  
Furukawa Metals & Resources Co., Ltd.



**Electronic Materials /**  
Furukawa Denshi Co., Ltd.



**Chemicals /**  
Furukawa Chemicals Co., Ltd.



**Real Estate /**  
Furukawa Co., Ltd.



**Fuels /**  
Furukawa Commerce Co., Ltd.



# Technologies that Evolved in Diversified Fields in Response to Demands of the Times

We have been applying technologies that we acquired from operating copper mines into diversified fields, in response to demands of the times. Such technologies and products are continuously evolving with the changing times.

It is no exaggeration to say that the current Furukawa Company Group's main support comes from the foresight of pioneers who introduced the latest equipment in the late 1800s, as well as the inquiring minds of the engineers who, not content with conventional technologies, worked on the development of new technologies and products.

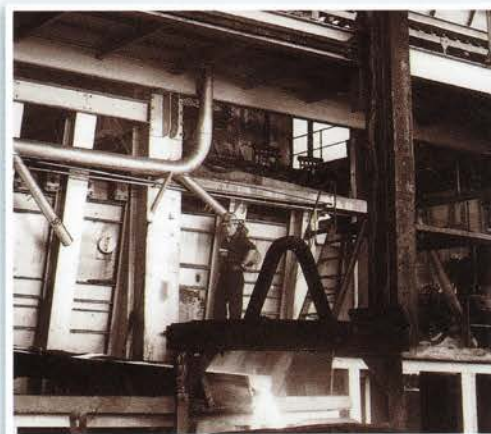
The machinery products that the companies in our Group are manufacturing and distributing, and the electronic materials that we are producing at our sophisticated facilities did not come about overnight. Tracing back the history of each product reveals stories about how our technologies were passed down through history, since our foundation over 130 years ago.

## ■ Low-Cost and Low-Pollution Technologies - Revolutionary Flash Smelting

Smelting technology is used to separate metallic copper from copper concentrates and is required for the operation of copper mines. "The blast furnace smelting method" which combusts coke in the furnace and smelts copper ores became common in the late 1800s and later.

We, on the other hand, developed a revolutionary smelting method by making unique modifications to the technology imported from Outokumpu in Finland. This technology called "Furukawa/Outokumpu flash smelting technology" smelts copper using thermal energy generated when sulfur and iron in copper concentrates react with oxygen and therefore enabled fuel-free smelting, which significantly reduced the cost of smelting.

In addition, it made it possible to sophisticatedly collect sulfur dioxide which causes environmental pollution, enabling efficient sulfuric acid manufacturing. The first plant which applied this technology started operation in 1962. This flash smelting is highly-acclaimed as one of the top-level smelting technologies in the world and has been adopted in a number of smelting facilities in Japan and abroad.



Furukawa/Outokumpu flash smelting furnace



Pumps used at sewage treatment plants and tunnel construction sites

## ■ Slurry Transportation Technologies Used in Mines Made Highly-Functional and Durable Pumps

At mines, including copper and coal mines, work performance and efficiency hugely depend on slurry transportation capacity. We began manufacturing internal-use pumps in the early 1900s in order to transfer slurry (water mixed with solids such as stones, mud and metals) from the dressing plant to the treatment plant outside the premises at the Ashio Copper Mine, and started selling them to the general market after the war.

The greatest feature of our pumps is that they are highly durable and can transport slurry smoothly even in severe water conditions, utilizing the know-how that we accumulated at copper mines. We are now developing and manufacturing pumps for various applications in order to meet diversified requests. Our pumps are used for slurry transportation at various types of plants and for sludge transportation at sewage treatment plants. In addition, they are used to transport soil at tunnel construction sites using shield tunnel machines, specifically, the Tokyo Bay Aqualine Tunnel/Bridge, underground tunnels on the Tsukuba Express and the tunnel under the Bosphorus Straits in Turkey. They have become essential tools at various slurry transportation infrastructures.



■ **From Hand-Held Rock Drills to Large Drilling Machines**

What is essential for the modernization of copper mines is improvement of drilling technologies. At the Ashio Copper Mine, when the company was first founded, workers dug by hand until imported rock drills were introduced in 1885. Then, a works was built in Ashio to repair imported machines and to manufacture replacement parts. In 1914, we successfully developed a domestic hand-held rock drill that could accommodate the physique of the Japanese operators. We started on the path to the leading rock drill manufacturer.

In more recent years, we developed a tunnel drill jumbo to drill holes in the mountains for setting blasting powder at the tunnel construction sites. Our tunnel drill jumbos have been used at many tunnel construction sites in Japan, such as the Hakkoda tunnel and Seikan tunnel on the JR (formerly JNR), the Kan-etsu tunnel on the Kan-etsu Express way, as well as the **Severomuysk Tunnel Construction\*** on the Second Trans-Siberian Railway - one of the most difficult tunnel construction projects. Furthermore, at infrastructure construction and open pit mining sites, our products to which our rock drill technologies are applied are utilized around the world, such as hydraulic crawler drills which make downward holes in rocks for blasting powder, and hydraulic breakers which crush rocks.



Various types of rock drills used at infrastructure construction and mine development sites



UNIC products evolving with the times

■ **Continuously Evolving “UNIC” Products Respond to the Needs of Times**

The UNIC cranes, synonymous with truck-mounted cranes, were invented in 1961 during the postwar reconstruction period. Having the transportation and cargo-handling functions on a single truck significantly added work efficiency. We have always developed UNIC products in order to meet the needs of times, such as improving lifting capability and adopting long booms to expand work areas, and saving energy with radio and remote controls.

The fuel-efficient and low-noise, U-can ECO series (medium to large truck-mounted cranes) was released in 2006. Thanks to the development of the “ECO pump system”, the series achieved the same performance level with approximately 50% less engine speed compared to our conventional products. It also won the Chairman Prize of ECCJ\* at the 18th Energy Conservation Grand Prize event organized by the Ministry of Economy, Trade and Industry, for the first time in the industry, for its significant Carbon dioxide emissions and cost reduction effect. The UNIC has continuously evolved and will continue to evolve in the future.

\* This prize was given to medium to large truck-mounted models.

■ **By-Products Generated through Smelting Process are Transformed into Valuable Resources**

When smelting copper concentrates, by-products, such as concentrated sulfuric acid and rare metals are generated. Such by-products used to be considered unnecessary, but as science advanced it was revealed that they were valuable resources with many uses. We saw a strong potential for arsenic - one of the by-products, and established Japan's only arsenious acid manufacturing technology in the early 1900s. At that time arsenic was used in glass and pesticides, etc., and then, started gathering attention as a material for semiconductors. We began developing high-purity metallic arsenic in 1961 and we have become capable of producing metallic arsenic with a purity of 99.999995% and have the largest share both in the Japanese and global markets. High-purity metallic arsenic is used to make gallium arsenide semiconductors, materials which are indispensable for high-frequency electronic devices in mobile phones, laser diodes for DVD pickup and light-emitting diodes used in traffic lights. Thus our high-purity metallic arsenic is contributing to the advancement of information society.



High-purity metallic arsenic (top left) and their finished products

# Vision and Strategies of the Furukawa Company Group

Now we are in the 21st century and economic circumstances and social environments surrounding companies are changing even more dramatically than ever. In such a situation, under the motto of "Growing through Challenge," the Furukawa Company Group has been promoting various strategies in order to achieve the vision of increasing our competitiveness and to acquire an overwhelming market share.

The core of the medium-to-long-term strategy is to place management importance on the Machinery, and Electronic Materials and Chemicals Segments. The Machinery Segment has been playing the central role in advancing the growth of the Group after the war and

the Electronic Materials and Chemicals Segment is expected to support it in the near future. We believe that by focusing on these two businesses, we will be able to rapidly accelerate our growth and be far ahead of our competitors.

In addition, as the basis of these strategies, we will focus on initiating full-fledged *monozukuri* activities and full-scale structural development efforts. The greatest strength of the Furukawa Company Group is that we have been manufacturing first-class products for over 130 years. We recognize that a pursuit of *monozukuri* maximizes the corporate value and now that we are in the time of change, we need to return to our roots.

## ■ Promote Overseas Business Expansion of

### Construction & Mining Machinery and UNIC Machinery Businesses

As for the Machinery Segment, its domestic demand has subsided, therefore we will work to expand its overseas business. The construction and mining machinery business in particular is expected to see a stronger overseas demand. In Japan, construction of infrastructures such as roads and railways has been completed but there are still many countries in the world which need greater infrastructure development and in such countries, demands for our specialties such as hydraulic breakers and hydraulic crawler drills are still high. In addition, due to high global demand for mineral resources, mine development is booming in countries with abundant natural resources, and it is expected that demands for our large machinery products such as large-diameter crawler drills and down-the-hole drill used at large open pit mining will significantly increase.

Regarding the situation described above, in the fields of infrastructure and resource development, we will further expand the markets that we have already entered, namely the stable European and U.S. market and the rapidly growing markets in the Middle and Near East and China, etc. as well as developing new markets in India, Russia, etc. As an immediate goal, we aim to expand the global share of hydraulic breakers and hydraulic crawler drills from the current 30% to 40%.

In regards to the UNIC machinery business, as its domestic market has already been saturated, we will place importance on the expansion of overseas business and enhance the sales by focusing on the five major districts in the world, namely North America, Europe, Russia and CIS countries, Asia and Oceania, and the Middle and Near East. We will raise recognition and expand market share of lightweight UNIC cranes that offer superior operability in overseas countries, where swing-boom cranes are the mainstream.

In the industrial machinery business, we will develop overseas markets starting in Asia, focusing on slurry pumps, grinding mills and briquetting machines by utilizing the Group's overseas development capabilities like overseas networks and personnel.



Overseas affiliate companies promoting our global business development

## ■ Our Machinery Products Used Around The World





■ Commercialize New Materials of Electronic Materials Business at an Early Stage

In the electronic materials business of the Electronic Materials and Chemicals Segment, we have been working on commercializing gallium nitride substrates.

Gallium nitride substrates are the next-generation semiconductor material expected to be used in blue-violet laser diodes in blu-ray discs, high-intensity white LEDs (light-emitting diodes) expected to be the next-generation lighting and power devices for electric cars, and their demand is predicted to rapidly increase in the near future. We will make efforts to launch the gallium nitride business at an early stage and take initiatives in this field.

Furthermore, we will continue to develop and commercialize LuAG (lutetium aluminum garnet) crystals expected to be applied to breast cancer screening equipment and thermoelectric materials to convert wasted heat into electricity and other products.

■ Next-Generation Electronic Materials with Big Potential



Full-fledged *monozukuri* activities at works

■ Achieve Full-Fledged *Monozukuri* and Full-Scale Structural Development

The Furukawa Company Group has over 130 years of *monozukuri* tradition. We have inherited this tradition and are working on further technological and product development using the keyword, “Full-Fledged *Monozukuri* and Full-Scale Structural Development,” in order to beat the competition with an overwhelming presence. Every employee of the Group shares in the same understanding – Our products must sell because of their superior quality, not due to fads or environmental changes. Based on this recognition we have a policy of developing core technologies by the Group companies. Although M&A is one option for expediting technological development, we believe that products must be self-developed as a rule.

In addition, we are proactively working to implement structural development to manage *monozukuri*. We will utilize the synergy effect generated among the Group companies and improve production efficiency by establishing an optimal, Group-wide production structure, producing and procuring components and related products within the Group, and effectively utilizing overseas subsidiaries and affiliate companies within the Group.

For the Development of Professionals

In order to ensure the Group’s strategies are implemented and to achieve our vision, we need professionals with extensive knowledge, capable of quickly making decisions and acting.

In order to develop such human resources, we regularly hold hierarchical, specialized or functional training to continuously provide our employees with opportunities to improve themselves through friendly competition.

In addition, we enrich our educational and personnel systems with self-development programs, the coaching system, the goal management system and the in-house recruitment system, to improve employees’ skills and motivate them.



Specialized/functional training to support *monozukuri*

# Industrial Machinery

## Furukawa Industrial Machinery Systems Co., Ltd.

Furukawa Industrial Machinery Systems Co., Ltd. manufactures and distributes industrial machinery products, such as slurry pumps, crushers, grinding mills, briquetting machines and screens, environmental preservation machinery products, such as electrostatic precipitators and sludge treatment equipment and steel structures, such as steel bridges.

The industrial machinery history dates back to the Mining Machinery Repair Division at the Ashio Copper Mine founded in the late 1800s. Since then, we have expanded the industrial machinery business by continuously developing and innovating technologies for various types of machinery used in mines.

Furukawa Industrial Machinery Systems Co., Ltd. was founded in 2004 and took over the industrial machinery business of Furukawa Co., Ltd. in 2005.

In 2006, a distinguished industrial machinery company with a history that spans over 100 years, Otsuka Iron Works, Ltd. became a subsidiary and it was merged with Furukawa Industrial Machinery Systems in 2008. This merge added abundant technologies for crushing, milling, classifying and briquetting and a group of superior products to enable us to meet diversified needs.

We will enhance the core technologies, as well as further developing competitive products and technologies in order to adapt to globalization. In addition, we are determined to become a company which can contribute to society by exerting greater efforts to provide better services.



Oyama Works (Tochigi Prefecture)



Tochigi Works (Tochigi Prefecture)

### Main Products



Slurry Pumps



Crushers



Grinding Mills



Briquetting Machines



Electrostatic Precipitators



Sludge Treatment Equipment



Steel Bridges



Screens

## ■ Pumps

We have a history of over 100 years of manufacturing pumps since developing a company-use pump for slurry transportation at mines in the early 1900s. In particular, our slurry pumps which transport liquid with solids and sludge pumps for sewage treatment are highly appreciated for their high durability and functionality. We also offer various types of pumps for different applications.

We have delivered our products to customers in a wide range of fields, from public organizations to private companies, used for slurry transportation at various types of plants, and at water filtration and sewage treatment plants, tunnel construction sites, etc. In addition, they have been used at underground tunnel construction sites under the Bosphorus Straits in Turkey, the Tokyo Bay Aqualine Tunnel/Bridge, the Metropolitan Expressway Central Loop Line, and the Tsukuba Express Line.



Shield Pump

## ■ Crushers, Grinding Mills, Briquetting Machines

We manufacture and distribute crushers and grinding mills used in the iron, chemical, non-ferrous metal and other industries, and briquetting machines used to form fuels and medicines into briquettes.

Recently, our industrial machinery products have also been utilized in environment-related fields. For example, they are used for drying and grinding coals, manufacturing a new type of fuel made with coal dust and wood chips, grinding incineration residues at waste incineration plants in cities, as well as melted slag. They are also making significant contributions in the fields of alternative energy development and environmental preservation.



NE Mill Vertical Fine Grinding Machine

Winner of the Chairman's Award at  
the Prize for Promoting Machine Industry

### Dream Mill Pneumatic Fine Grinding Machine

The Dream Mill series pneumatically produces micropowdered food and medicines. They control generation of heat when grinding objects and thus they can turn the objects into ultrafine powder with minimum changes to their properties caused by heat. For this capability, the Dream Mill series received the Chairman's Award at the Prize for Promoting Machine Industry hosted by the Japan Society for the Promotion of Machine Industry in 2007.



## Affiliate Companies

### Furukawa Castec Co., Ltd.

Established in 2003. Specializing in the manufacturing and distribution of heat-resistant and abrasion-resistant castings. The company has casting experience and technologies cultivated for over 100 years since the era of the Manufacturing Section at the Ashio Copper Mine.



Castings made with composite materials

### Gunma Kankyo Recycle Center Co., Ltd.

Established in 2001. Specializing in the incineration of industrial waste (primarily infectious waste).



Gunma Kankyo Recycle Center

# Construction and Mining Machinery

## Furukawa Rock Drill Co., Ltd.

Furukawa Rock Drill Co., Ltd. manufactures and distributes construction and mining machinery essential for drilling and crushing for infrastructure construction and mine development sites, etc.

Our wide range of products include tunnel drill jumbos which have been used for drilling a number of road and rail tunnels in the mountains, hydraulic breakers used for rock and concrete structure demolition, and crawler drills used to drill rock in civil engineering projects and open pit mining. As a manufacturer specializing in construction and mining machinery, we have made significant contributions towards infrastructure construction and development projects in Japan and overseas.

When it comes to rock drills, our Group has a long history. It began when we started maintaining imported rock drills used at the Ashio Copper Mine and developed an original rock drill that could accom-

modate the physique of Japanese operators. Since then, we have been proactively developing technologies and have led the industry as a top rock drill manufacturer.

In 1961, our dedicated sales company, Furukawa Rock Drill Sales Co., Ltd. was founded. In 2005, the company merged the rock drill manufacturing Takasaki and Yoshii Works of Furukawa Co., Ltd. This amalgamation of the two works became known as the Furukawa Rock Drill Co., Ltd.



Takasaki Works (Gunma Prefecture)



Yoshii Works (Gunma Prefecture)

### Main Products



Hydraulic Breakers



Crushers



Tunnel Drill Jumbos



Hydraulic Crawler Drills



Down-the-Hole Drills



Drill Jumbos Used in Mines

### ■ Tunnel Drill Jumbos

A tunnel drill jumbo is a machine used to drill holes in rocks for setting blasting powder at tunnel construction sites. They have been used at a number of road and rail tunnel construction sites in the mountains in Japan and abroad. They were used for construction of many Shinkansen tunnels such as the Hakkoda tunnel on the Tohoku Shinkansen line, the longest land tunnel in Japan. Currently we have almost a 70% share in the Shinkansen tunnel construction market. In addition, our tunnel drill jumbos have been used for the construction of the Kan-etsu tunnel on the Kan-etsu Express way, the Sasago tunnel on the Yamanashi Linear Express Line, and tunnel on the Second Trans-Siberian Railway.



Tunnel Drill Jumbo

### ■ Hydraulic Breakers

A hydraulic breaker is an attachment fitted to excavators for demolishing rocks, concrete structures and so forth. In order to meet a variety of needs, we supply a wide range of high-quality, highly reliable hydraulic breakers from small to super large for rock demolition all over the world. We have the largest share (30%) in the global market and contribute to infrastructure development such as civil engineering work and construction sites worldwide.



Hydraulic Breakers

### ■ Hydraulic Crawler Drills

The hydraulic crawler drill is a self-propelled machine for making downward holes in rocks. Our hydraulic crawler drills are used at lime mines, quarries, for civil engineering work and construction sites in Japan and abroad, and hold the largest share (30%) in the global market. They can drill the most appropriate holes relative to ever-changing rock conditions. Their highly evaluated, accurate and speedy drilling technology produces holes with few bends, and the demand for the drills is increasing in infrastructure construction and mine development.



Hydraulic Crawler Drill

## Affiliate Companies

### Ashio Rock Drill Co., Ltd.

Established in 1989. Specializing in the manufacturing of pneumatic rock drills, small hydraulic breakers and other products. Its rock drill works started operation in the Ashio Copper Mine days, and Japan's first rock drill was developed at this works.

### Tsubame Industrial Community Limited

Established in 1959. Specializing in the manufacturing and distribution of truck rollers used for construction machinery.

### FRD Iwaki Co., Ltd.

Established in 1972. Specializing in the manufacturing of pneumatic crawler drills and other products.

### Furukawa Rock Drill USA

Established in 1990. Headquarters in Ohio, U.S.A., specializing in the distribution of rock drills and other products.

### Furukawa Rock Drill Europe B.V.

Established in 1998. Headquarters in Utrecht City in Holland, specializing in the distribution of rock drills and other products.

### Furukawa Rock Drill Korea Co., Ltd.

Established in 2003. Headquarters in Hwaseong-si, Gyeonggi-do, Korea, specializing in the distribution of rock drills and other products.

### Furukawa Rock Drill (Shanghai) Co., Ltd.

Established in 2006. Headquarters in Shanghai, China, specializing in the distribution of rock drills and other products.



Furukawa Rock Drill Europe B.V.



Furukawa Rock Drill USA

# UNIC Machinery

## Furukawa UNIC Corporation

Furukawa UNIC Corporation manufactures and distributes truck-mounted cranes called "UNIC cranes." The UNIC crane has revolutionized the efficiency of the cargo-handling process; from hoisting, loading, transporting to set construction, mounted on trucks or on ships. Our products hold the largest share (47%) of the domestic market and the nickname "UNIC" is so well-known that it is a synonym for truck-mounted cranes in Japan.

The predecessor of Furukawa UNIC Corporation, Kyoei Kaihatsu Co., Ltd. developed Japan's first truck-mounted crane in 1961. The nickname "UNIC" was given then, representing their hopes that it would become a "universal crane" for all the people in the world and an image of the legendary, strong "unicorn" which resembles the shape of a UNIC.

In 1987, the company became part of the Furukawa Company

Group and in 1989, its name was changed to Furukawa UNIC Corporation. In 2005, the Sakura Works, formerly a UNIC production works of Furukawa Co., Ltd. was merged to become the present day Furukawa UNIC Corporation.

Since we began producing UNIC cranes, we have continuously made improvements while incorporating the basic functions and forms. In the future, we will proactively expand business overseas and further develop new functions of the UNIC crane, while improving efficiency and operational safety, as well as continuing our contributions towards resolving environmental issues.



Sakura Works (Chiba Prefecture)

### Main Products

※"UNIC" is a registered trademark of Furukawa Co., Ltd.



UNIC Cranes



UNIC Carriers



Mini Crawler Cranes



UNICPAL



UNIC Ocean Cranes

## ■ UNIC Cranes



UNIC Crane "U-Can ECO"

The UNIC Crane series, synonymous for truck-mounted cranes, offers a wide range of models from small truck-mounted to large truck-mounted cranes. Various boom length and crane capacities are also available, according to customer needs.

Furthermore, in addition to the basic functions of hoisting, loading and transporting, we are releasing new models with advanced features, such as environmentally friendly, energy-saving models, radio-controlled models for higher operability, and models with safety devices.

## ■ Mini Crawler Cranes



Mini Crawler Crane

The "compact" mini crawler crane can "crawl" into a construction site, on rough ground or inside an indoor worksite where trucks cannot enter. The series offers a diverse range of models from the smallest model (Maximum Lifting Capacity 995kg) that can be laid down on the back of a small, standard cab, 2 ton truck, to one with a choice of safety features, such as turn-over prevention or overloading alarm devices.

## ■ Radio Controls



Radio Controls

A radio control enables the user to remotely operate the crane. Using this control, one person can perform multiple operations from crane operation, to slinging and assisting with slung cargo, improving work efficiency. A line up of a wide variety of products are available from a switch model that affords more accurate operations, a joystick model which enables intuitive operations, and a model with a moment limiter function.

### Energy Conservation Grand Prize Winner

#### Truck-mounted crane "U-can ECO"

The development of the "ECO pump system" which achieves the same performance level with approximately 50% less engine speed improved fuel efficiency by 40% (compared to our conventional products). In 2007 U-Can ECO became the first truck-mounted crane that won the Chairman Prize of ECCJ\* at the 18th Energy Conservation Grand Prize event organized by the Ministry of Economy, Trade and Industry, for its highly environmentally conscious performance.

\* This prize was given to medium to large truck-mounted models.



### Affiliate Companies

#### Furukawa UNIC (Thailand) Co., Ltd.

Established in 1997. Headquarters in Rayong, Thailand, specializing in the manufacturing of truck-mounted cranes and other products.

#### UNIC Sales (Thailand) Co., Ltd.

Established in 2006. Headquarters in Samut Prakan, Thailand, specializing in the distribution of UNIC products.

#### Taian Furukawa Machinery Co., Ltd.

Established in 2003. Headquarters in Taian City, Shandong, China, specializing in the manufacturing and distribution of truck-mounted cranes and other products.



Furukawa UNIC (Thailand) Co., Ltd.



Taian Furukawa Machinery Co., Ltd.

# Metals

## Furukawa Metals & Resources Co., Ltd.

Furukawa Metals & Resources Co., Ltd. inherited the metals business of the Furukawa Company Group, and manufactures and distributes electrolytic copper, gold, silver and sulfuric acid.

The metals business of the Furukawa Company Group originated at the time of its foundation dating back to when we started operations at the Kusakura Copper Mine in Niigata Prefecture in 1875 and the Ashio Copper Mine in Tochigi Prefecture in 1877. Among various cutting-edge technologies developed at the Ashio Copper Mine, the Furukawa/Outokumpu flash smelting is highly-acclaimed as one of the top-level technologies in the world. This low-cost, low-pollution technology was developed into a commercially-based plant in 1962 and has been adopted in a number of smelters in Japan and abroad.

In 2004, the Production Division of the metals business of Furukawa Co., Ltd. was spun off, and Furukawa Metals & Resources Co., Ltd.

was founded. In 2005, the Sales Division of the metals business of Furukawa Co., Ltd. was merged and the company started handling both sales and manufacturing.

The Ashio Copper Mine was closed in 1973, but supported by technologies cultivated at Ashio over many years, we are proactively involved in mining business overseas. Also, we purchase raw materials such as copper concentrates and copper scraps and outsource the smelting process to Onahama Smelting and Refining Co., Ltd. and Hibi Kyodo Smelting Co., Ltd. and others that we invest in. We therefore have the optimal production system for copper, sulfuric acid and other materials.



Onahama Smelting and Refining Co., Ltd. (Fukushima Prefecture)

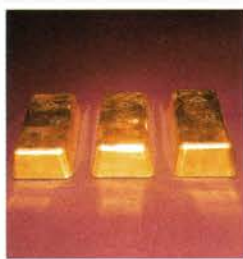


Hibi Kyodo Smelting Co., Ltd. (Okayama Prefecture)

### Main Products



Electrolytic Copper



Gold



Silver

### Batu Hijau Mine



Batu Hijau Mine (Indonesia)

In order to ensure a stable and long term supply of copper concentrates as a raw material, we have interest in Huckleberry Mine in Canada and Batu Hijau Mine in Indonesia through Furukawa Co., Ltd. We are proactively engaged in overseas mining business.

### Affiliate Companies

#### Ashio Smelting Co., Ltd.

Established in 1987. Specializing in the management of closed mines and real estates.

#### Oita Mining Co., Ltd.

Established in 1954. Specializing in the digging and sales of limestone.

#### Ashio Construction Co., Ltd.

Established in 1972. Specializing in the civil engineering and construction business.



# Electronic Materials

## Furukawa Denshi Co., Ltd.

Furukawa Denshi Co., Ltd. manufactures and distributes electronic materials indispensable for the development of information society. They are high-purity metallic arsenic for gallium arsenide semiconductors, Crystalline products including gallium phosphide polycrystals, cores and coils for line filters, aluminum nitride ceramics and lenses for IR optical components.

The electronic materials business of the Furukawa Company Group began when we started research on high-purity metallic arsenic in 1961. Today, we have established a solid position as one of the world's leading manufacturers of high-purity metallic arsenic. We supply most of the domestic demand as well as exporting them in high volume.

In 2005, the electronic materials business of Furukawa Co., Ltd. was spun off and Furukawa Denshi Co., Ltd. was established.

People don't usually see our products as they are, but they are all

essential to modern society. We are determined to further contribute to society by developing new materials which will secure people and will be useful in everyday life.



Iwaki Works (Fukushima Prefecture)

### High Purity Metallic Arsenic

One of the materials indispensable for the development of information technology is gallium arsenide semiconductors used in mobile phones, LDs and LEDs, and high-purity metallic arsenic is used to make gallium arsenide semiconductors. We succeeded in mass-producing metallic arsenic with the highest purity in the world - 99.999995% (7N5). Currently, we are the only high-purity metallic arsenic manufacturer in Japan and have the largest share in the global market.



### Main Products



High-Purity Metallic Arsenic



Gallium Phosphide Polycrystals



Aluminium Nitride Ceramics



Cores and Coils for Line Filters



Lenses for IR Optical Components

### Affiliate Companies

#### Wellness Co., Ltd.

Established in 1989. Specializing in the manufacturing and distribution of medical equipment.

#### Iwaki Semiconductors Co., Ltd.

Established in 1982. Specializing in the manufacturing and distribution of gallium phosphide, gallium arsenide single crystals and substrates.

# Chemicals

## Furukawa Chemicals Co., Ltd.

Furukawa Chemicals Co., Ltd. manufactures and distributes a diversity of products such as inorganic industrial chemicals and functional materials.

Furukawa Company Group's chemical business history dates back to when we began producing sulfuric acid in 1935. Sulfuric acid is always in great demand as a basic material essential in various industries such as chemical, electronic members, steel and food-processing. We have continuously expanded by taking over the smelting business of Toa Chemical Smelting Co., Ltd. in 1944 and re-starting it as Osaka Cementation and Refining.

In 2005, the chemicals business of Furukawa Co., Ltd. was spun off and Furukawa Chemicals Co., Ltd. was established. Currently the company does not only manufacture sulfuric acid, but also manufactures a wide variety of chemicals including cuprous oxide used in ship-bottom paints, polymeric ferric sulfate solution used to clean sewerage tunnels

as an inorganic coagulant for water treatment, as well as aluminum sulfate used to clean water supply tunnels. Furthermore, we manufacture and distribute functional materials such as basic copper carbonate, ferrous sulfate for food additives and others.

We support people's lives from behind the scenes by providing the high-quality chemicals mentioned above, as well as focusing on new businesses to reduce environmental burdens.



Osaka Plant (Osaka Prefecture)

### ■ Cuprous Oxide

Cuprous oxide is red powdered pigment used as antifoulant for ship-bottom paints to prevent barnacle build-up. Our cuprous oxide products have a 50% share of the domestic market. Recently, we developed cuprous oxide suitable for organotin-free ship-bottom paints to prevent marine pollution. This new cuprous oxide is gaining support from many customers as an environmentally-friendly product.



### Main Products



Cuprous Oxide Used as Antifoulant for Ship-Bottom Paints



Cupric Oxide Used for Ferrite Materials



Titanium Dioxide Used for White Pigments



Sulfuric Acid

## Real Estate

### Furukawa Co., Ltd.

The real estate business of the Furukawa Company Group is operated by the principal operating arm, Furukawa Co., Ltd. In 1957, we launched into the real estate business by setting up Furukawa Real Estate Co., Ltd., which merged with Furukawa Co., Ltd. in 2003.

Currently, the services provided by Furukawa Co., Ltd. include lease of company-owned buildings in Tokyo, Osaka and Fukuoka as well as a real estate agency. The company is also working to provide comfortable business environments by transitioning its office buildings into intelligent buildings (the main source of profits) with more improved facilities.



Furukawa Osaka Building (Osaka Prefecture)

#### Affiliate Company

##### Dojima Jitsugyo Co., Ltd.

Established in 1963. Specializing in the management of buildings and other businesses.

## Fuels and Others

### Furukawa Commerce Co., Ltd. and Others

Our fuels business dates back to the late 1800s when we started coal production in the Chikuho District in Kyushu. The energy revolution in the 1960s made the focus of the business shift to the sale of petroleum and its related products. In 2008, the fuels business was spun off and its operation was inherited by Furukawa Commerce Co., Ltd. (Formerly Furukawa Oil Trading Co., Ltd. established in 1960) and thus, the fuels business in the Group was integrated. Currently, the company distributes gasoline, kerosene, light oil, heavy oil and lubricating oil, organic solvents, Liquid Petroleum Gas, cokes, as well as aggregates.

Additionally, Furukawa Commerce Co., Ltd. distributes various machine products and "Well Up" products to relax stiff bodies as well as serving as an insurance agency and dismantler.

Furukawa Transportation Co., Ltd. is a Kansai-based company and provides services such as transportation by truck and domestic transportation by sea. As a professional in industrial logistics with a wide range of vehicles from standard-sized cars to special-purpose vehicles, the company has earned trust from customers such as companies within the Group.



Nikko Gas Station (Tochigi Prefecture)



#### Affiliate Companies

##### Furukawa Transportation Co., Ltd.

Established in 1963. Specializing in the transportation of general cargoes mainly of companies within the Group.

##### Iwaki Kosan Co., Ltd.

Established in 1984. Specializing in the management of real estate.

# Towards the Realization of Sustainable Society and Development of the Company

## Research and Development Division

One of Furukawa Company Group's medium-to-long term strategies is focusing on "full-fledged *monozukuri* activities and full-scale structural development efforts", therefore we position our research and development activities as a top priority to support the foundation of that strategy.

The Research and Development Division of the Furukawa Company Group consists of six organizations, namely Nitride Semiconductors Department, Materials Research Laboratory, Techno-Research Laboratory, Semiconductor Growth System Department, R&D Planning Department and Intellectual Property Department.

These six organizations are conducting research and development activities in various fields from machinery/equipment to advanced materials including scintillators, semiconductors and thermoelectric, closely cooperating with their related companies within the Group. Through their activities, they contribute positively to society as well as supporting the future of the Furukawa Company Group.

### ■ Nitride Semiconductors Department

This department was set up for research and development of gallium nitride (GaN) and related nitride semiconductor materials in April 2008. We are working on the development of gallium nitride (GaN) substrates toward mass-production. These substrates are expected to be used in a wide range of applications such as blue-violet laser diodes and white light-emitting diodes. Through this activity, we will contribute to the realization of higher-quality nitride semiconductor devices. In addition, we are developing epitaxial growth of thin films for electronic devices using nitride semiconductors.

### ■ Materials Research Laboratory

We conduct research and development activities mainly in the field of electronic materials, as well as oxide single crystals, thermoelectric materials and boundary region technologies, such as terahertz waves, LuAG (lutetium aluminum garnet) crystals (a type of scintillator crystals) which we developed jointly with the Tohoku University are expected to be applied to next-generation nuclear medical imaging devices, such as MRI-PET scans, and PEM for breast cancer screening. Also, through development of thermoelectric materials that convert heat into electricity, we will make contributions to resolving environmental and energy issues.



Materials Research Laboratory (Tsukuba City, Ibaraki)

Research and Development Division	
Nitride Semiconductors Department	<ul style="list-style-type: none"> <li>Development and manufacturing of gallium nitride (GaN) and related nitride semiconductor substrates/crystals</li> </ul>
Materials Research Laboratory	<ul style="list-style-type: none"> <li>Development and basic/application research of electronic materials and their related technologies</li> <li>Research and development of processing/application technologies of electronic/optical materials</li> <li>Commissioned environmental-related analysis such as raw materials, atmosphere and water quality</li> </ul>
Techno-Research Laboratory	<ul style="list-style-type: none"> <li>Research and development of machinery vibration/noise control, etc.</li> <li>Development of communications technology (ZPS)</li> <li>Research and development of next-generation machinery products/control technologies, simulation and element technologies</li> </ul>
Semiconductor Growth System Department	<ul style="list-style-type: none"> <li>Development of growth systems for the fabrication of electronic and/or photonic devices (semiconductor devices, liquid crystal panels, solar cells, etc.)</li> </ul>
R&D Planning Department	<ul style="list-style-type: none"> <li>Planning of policies and strategies of overall research and development activities</li> <li>Planning of development of new raw materials and high-value added products based on marketing</li> </ul>
Intellectual Property Department	<ul style="list-style-type: none"> <li>Management of intellectual properties</li> </ul>

### ■ Techno-Research Laboratory

Based on machinery, simulation, control and communications technologies, we are making advancements through research and development of next-generation machinery products and production technologies. We are working to develop noise reduction technologies for breakers and crawler drills and technologies to improve the performance of fluid equipment using fluid flow and heat transfer simulation, as well as position detection technology (ZPS) using ultrasound.

### ■ Semiconductor Growth System Department

We develop growth and process equipment/systems for electronic material-related devices, such as cutting-edge compound semiconductor devices, solar cells, liquid crystal display modules and other thin film devices. Through the cooperation with our customers, we aim to play important role to society by developing highly productive and functional manufacturing equipment.

### ■ R&D Planning Department

We coordinate overall research and development activities. We are also proposing development of next-generation products and new raw materials that meet current demands while paying attention to social and market trends, for instance, plans for new product development based on marketing results. We also nurture the results of Group research and development activities, so they will be made into products and marketed in a timely manner.

### ■ Intellectual Property Department

We are responsible for managing intellectual properties produced through research and development activities of the Group. We make contributions to the development of Furukawa's technologies, as well as sharing with society the technologies that we own.

## Human Resource Development

“What Supports Limitless Development of a Company is People.” Under this policy, our Group has prepared various types of human resource development systems in order to develop professionals.

In the future, we will enhance these systems to create an environment where the employees can exercise their abilities to a great extent, and we aim to optimize the Group’s business structure, as well as maximizing our corporate value.

Development of Professionals	
Hierarchical Training	● A wealth of hierarchical programs are available
Specialized/Functional Training	● Training programs based on employees’ specialized fields and functions are provided internally and externally
Self-Development Programs	● Educational and training programs are provided internally ● Employees are encouraged towards elective self-development and capability development activities
Personnel System	● Human resources are developed based on a competence/qualification level system
Coaching System	● A senior employee trains a new employee one-on-one, acting as their coach for a period of one year

### ■ Hierarchical Training

We have prepared a number of hierarchical programs, such as those for new employees, young employees, mid-career employees, staff members who are newly-assigned to a management position and managers. By participating in these programs, they can learn basic knowledge required for each position and acquire the capability to respond to social/environmental changes.

For example, in “Training for Young Employees in the Main Career Track” for employees who are in the third year with the company, participants look back on themselves after joining the company and check the current status of themselves and their workplace. Based on the results, they re-confirm their attitudes towards work and how they communicate with others, and further their education and dignity as a member of society and the company.

### ■ Specialized/Functional Training

We provide training for each specialized field and employee function internally and externally to enable them to gain a broad knowledge and technical skills of each field.

We also encourage our employees to participate in expertise lectures which are held outside the company, and to acquire official qualifications. In addition, we backup the dispatch of employees to external educational/research organizations and academic societies to develop personnel who are well-versed in advanced technologies and social/environmental trends.

### ■ Self-Development Programs

In addition to internally-held educational programs and training, we encourage elective self-development and capability development activities of our employees. We introduce various types of correspondence courses, as well as introducing educational materials and books.

In regards to correspondence courses, employees can choose from a wide range of courses, not only in direct relation to their work, but also qualification, language study and personal computer-related courses, some courses in which the company pays a part of the fee.

### ■ Personnel System

At the Furukawa Company Group, work performance, eagerness, and capabilities of our employees are evaluated based on the competence/qualification level system. The evaluation results are used for employees’ education and training, capability development and appropriate allocation. In addition, we maintain a fair and adequate attitude in terms of salary, bonus and retirement bonus, as well as competence/qualification level upgrading.

Today, in a time of major changes, we believe that creating an environment where motivated employees can exercise their abilities for the long term with peace of mind is important for the development of our company.

### Coaching System

This is Furukawa’s original new employee education system which has been utilized for many years. A senior employee coaches a new employee one-on-one for a period of one year. Coaches do not only teach work but also etiquette and knowledge of the industry. They also support new employees by answering their various questions and solving problems.

New employees are required to submit reports 4 times a year. Their managers, heads of business offices and other management-level personnel, as well as their coaches read all reports and make comments. This system greatly assists in the growth of new employees and helps them develop human networks for the future.



Mid-Career Employee Training

# Corporate Social Responsibility (CSR)

We believe that fulfilling our Corporate Social Responsibility (CSR) by helping to build a sustainable society and company is the most important task for us. Since its establishment over 130 years ago, the Furukawa Company Group has continuously evolved through the provision of better products and services and we are proud to have always operated our businesses while keeping in mind our contributions to and responsibilities for society.

Regarding environmental protection in particular, we have implemented the best measures by utilizing the latest technolo-

gies to meet the needs of the times. In the past, we implemented smoke pollution and water treatment measures in Ashio, and during the economic boom, we utilized imported pollution prevention technologies such as wastewater treatment equipment and electrostatic precipitators as well as manufacturing and distributing pollution prevention equipment. In this way, we have always fulfilled our mission as a corporate citizen.

## ■ Corporate Governance

Our corporate governance system employs an executive officer system to separate the supervisory and operating functions of management for quicker decision-making and defined responsibilities. The Board of Directors responsible for supervising the management of the Furukawa Company Group includes eight internal and one external directors. Board meetings are held as required, in addition to monthly board meetings. The fifteen executive officers (six of whom also serve as directors) execute their duties to accelerate the operation.

The Management Council is an organization that discusses and makes decisions on matters discussed and approved by a resolution of the Board of Directors and important matters approved by the Representative Director. The Management Committee meets monthly to report and discuss the operations of the Group and provides direction.

Furukawa Company Group adopts an auditor system with a Board of Auditors consisting of five auditors, three of which are from external sources. Pursuant to the audit policy determined by the Board of Auditors the auditors attend meetings of the Board of Directors, the Management Council and the Management Committee and other important meetings. Furthermore, they receive business reports from directors and other managers, investigate branches and subsidiaries, as well as auditing duty performances by directors.

Also, an organization in charge of internal auditing, the Audit Office is set up to conduct audits on the operations of the Furukawa Company Group.

Note: The numbers of directors, officers and auditors are as of December, 2008.

## ■ Compliance

We have set up the Risk Management and Compliance Committee with an aim to comprehensively discuss important matters regarding risk management and compliance. With the Chairman and Representative Director serving as the Committee Chairman, the Committee steadily promotes compliance.

The Committee discusses basic policy development, structure improvement and education in regard to risk management and compliance, potential risk investigation, risk management and compliance-related laws, regulations and case studies, PR strategies, and internal investigation and preventative measures development based on the compliance regulations, as well as operation of the internal reporting system.

In regards to compliance, we believe that it is a corporation's duty not only to comply with laws and regulations but also to act in a sincere and responsible manner in social and ethical aspects. The Furukawa Company Group has established the Corporate Conduct Charter and the Employees' Code of Behavior so that all employees are thoroughly aware of how they can contribute to society globally and in every field.

## Corporate Governance Structure



### Committees

Risk Management and Compliance Committee
Environmental Management Committee
Product Safety Committee
Development Committee

■ Environmental Conservation Activities/Safe and Comfortable Workplace Development

For more than 130 years since it started, the Furukawa Company Group has made efforts towards environmental conservation by always implementing the latest technologies and the best measures available at that time.

Today, we have prepared a system which enables all employees to work on environmental conservation activities in every area of our business. In 2002, considering the conservation of the global environment as one of the important issues in the operation of the company, we established the Basic Environmental Management Principle which stipulates that all employees shall contribute to the development of a sustainable society. The Principle supports our environmental conservation initiatives along with the Environmental Conservation Activity Policies which set out specific activities to implement the Principle. In 2007, we established the Environmental/Safety Audit Principle and Policies in order to verify that activities conducted by each company and branch, etc., appropriately reflect the Environmental Conservation Activity Policies and other regulations. We are also working to enhance our environmental conservation activities through annual Environmental and Safety Audits conducted by each department.

Furthermore, we consider the creation and maintenance of safe and comfortable workplaces as an important issue in the operation of the company. Therefore, we established the Basic Occupational Health and Safety Principle and Occupational Health and Safety Policies as voluntary-management standards in order to enable employees to work in the best work environment and to continuously improve the management level.

We are determined to run the company in an environmentally-friendly way under the corporate philosophy of Harmony between Environmental Conservation and Production Activities.

■ Communication with Society

The basic stance of the Furukawa Company Group is to disclose our business performance results, financial details, future visions, business strategies and social activities promptly, accurately and in an easy-to-understand way so that every stakeholder can correctly understand our business activities.

Additionally, for greater management transparency, we hold explanatory meetings as needed and willingly disclose information through PR materials and websites.



Beach clean-up (Usuiso beach in Iwaki City, Fukushima Prefecture)



Natural treasure of the village, "Buckeye", on the company premises (Aichi Prefecture).



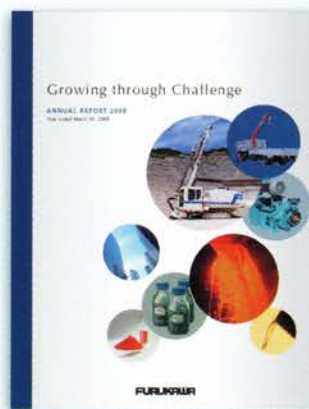
Setting up greenery nets to prevent animals from eating plants (Nikko City in Tochigi Prefecture)



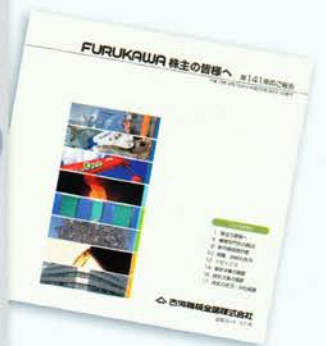
Environmental/Safety Audit



Meetings with persons in charge of Environmental Conservation-related activities



Annual Report



"To All Shareholders"  
(Report for shareholders)

# Technologies and Products Utilized in Every Corner of Our Lives

## Furukawa Company Group serving our everyday life

“What kind of company is the Furukawa Company Group?” — Many of you might have heard of our name but you may not know exactly what we do. However, when you have a look around you, you will realize that more products and technologies of the Furukawa Company Group than you imagined are being utilized in everyday life serving to provide a more convenient, affluent life, and to make a safer society.



Shield Pump



Cuprous Oxide



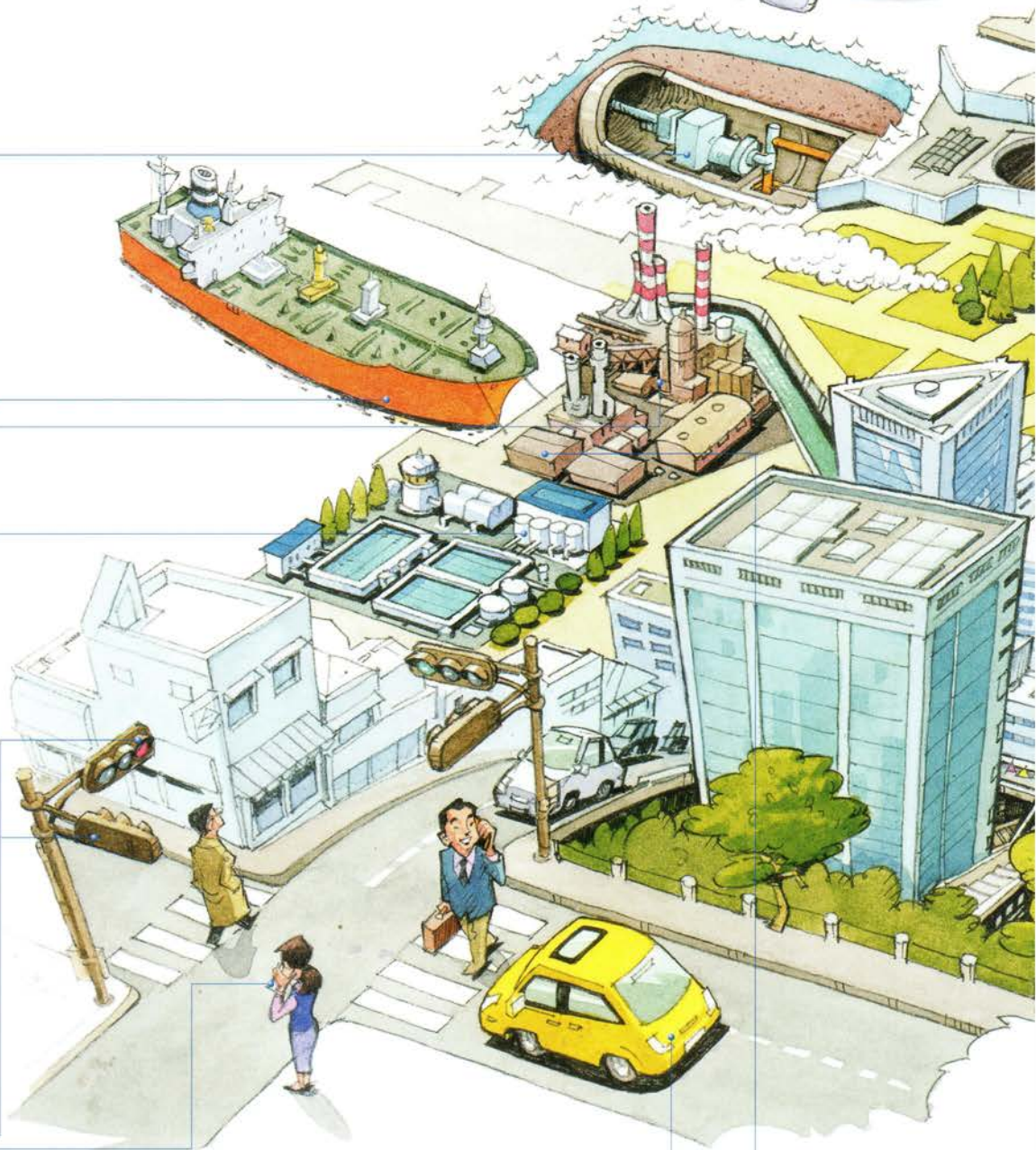
Slurry Pump



Sludge Pump



High-Purity Metallic Arsenic

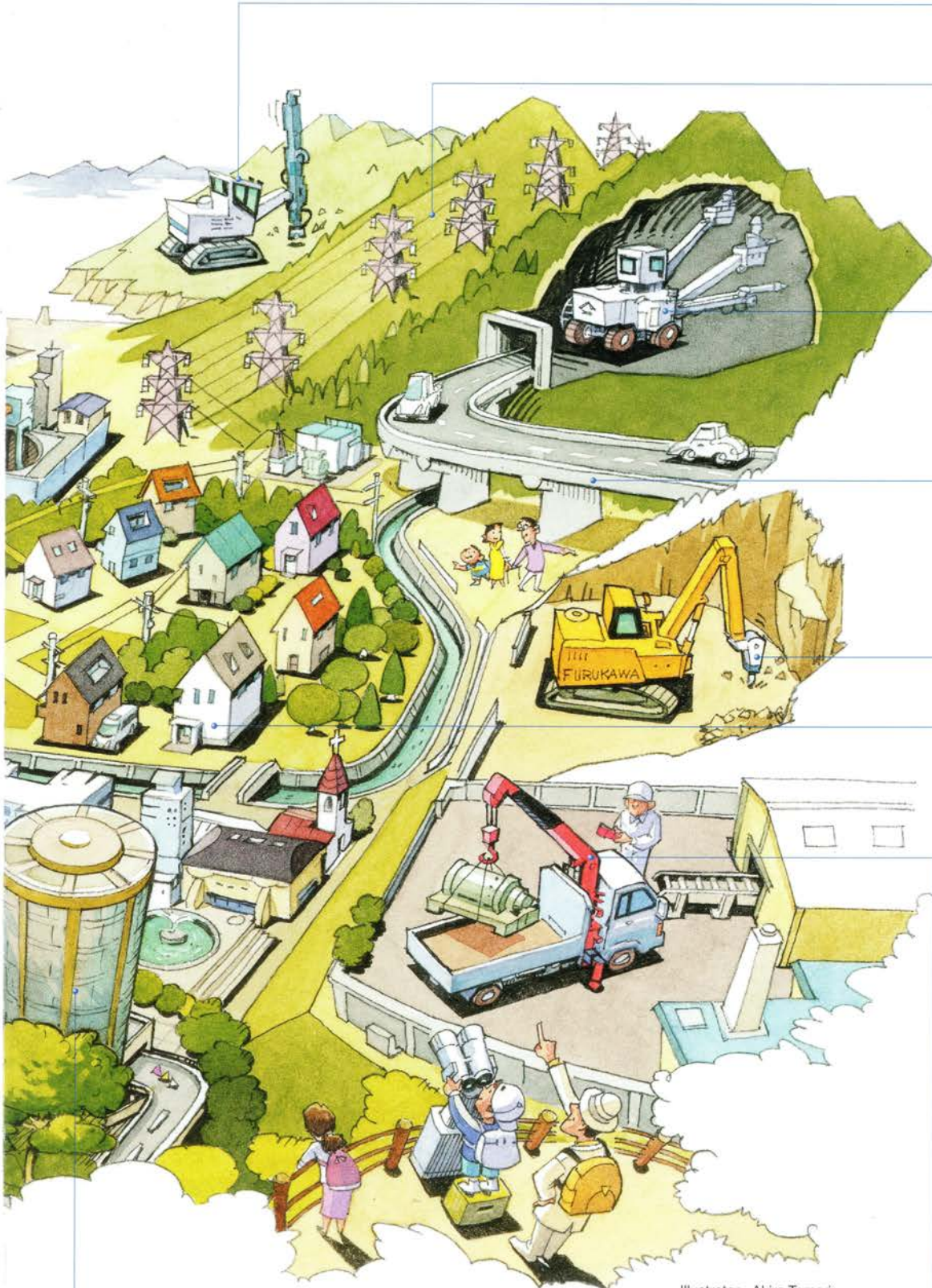


Fuel



Crusher





Illustrator Akira Tomari



Hydraulic Crawler Drill



Electrolytic Copper



Tunnel Drill Jumbo



Steel Bridge



Hydraulic Breaker



High-Purity Metallic Arsenic



Truck-Mounted Crane



Real Estate

# Corporate History

- 1875 • Began the operation of the Kusakura Copper Mine in Niigata (Company foundation)

- 1877 • Began the operation of the Ashio Copper Mine in Tochigi



The Ashio Copper Mine is where the Furukawa Company Group began. At that time in Japan, industries had not yet fully developed so operation of copper mines was essential.

- 1884 • The Ashio Copper Mine produced the largest amount of copper in Japan  
Comparison of amount of copper produced in copper mines around 1884

	tons					
(Year)	Ashio	Kusakura	Besshi	Yoshioka	Arakawa	Ogoya
1883	654	1,016	1,025	74	244	168
1884	2,308	1,084	1,036	131	243	228
1885	4,132	1,031	1,507	367	235	256

Source: Meiji Industrial History – Mining

- 1885 • Began using rock drills to excavate mine cavity



For the operation of copper mines, the latest technologies were imported from Europe and the U.S.A.. The rock drill was one of such technologies and the Ashio Copper Mine was one of the first places to start using them in Japan.

- 1887 • Set up the Manufacturing Section at the Ashio Copper Mine and began machinery repair and manufacturing

- 1894 • Began the operation of the Shimo-Yamada Coal Mine in Fukuoka and entered into the coal business

- 1900 • Set up a machinery works at the Ashio Copper Mine and entered into the machinery business

- 1905 • Furukawa & Co. was founded. Shifted from private management to a corporate structure

- 1906 • Completed Hosoo Electric Power Generating Station in Nikko in Tochigi

- 1911 • Changed the organization to Furukawa General Partnership

- 1914 • Manufactured the first rock drill in Japan



The first domestic rock drill was developed at Ashio. Because imported rock drills were too large and difficult to handle, development of a small rock drill that could accommodate the physique of Japanese operators had been expected.

- 1918 • Spun off the mining business from Furukawa General Partnership and established Furukawa Mining Co., Ltd.

- 1920 • Established The Furukawa Electric Co., Ltd. through investment in kind to Nikko Electric Copper Refinery

- 1941 • Furukawa General Partnership was merged with Furukawa Mining Co., Ltd. to form the basis of the current management

- 1942 • Went semi-public

- Spun off the machinery business from Ashio Mining to establish Ashio Manufacturing

- 1944 • Bought Osaka Smelter of Toa Chemical Smelting Co., Ltd. and established it as Osaka Cementation and Refining. Entered into the chemical business

- Built the Oyama Works of the Machinery Division of the Ashio Copper Mine in Tochigi



At the Oyama Works, pumps and mining machinery for copper mines were manufactured, not only for internal use but also to sell externally.

- 1950 • Built the Takasaki Works of the Rock Drill Division in Gunma



At the Takasaki Works, rock drills were mass-produced and we established the position of a leading rock drill manufacturer.

- 1951 • Began manufacturing of Titanium Dioxide and cuprous oxide at the Osaka Cementation and Refining

- 1954 • Imported flash smelting technology from Outokumpu in Finland

- 1956 • Completed flash smelting plant at Ashio Smelting and Refining

- 1960 • Began sales of petroleum

- 1961 • Began manufacturing of concentrated sulfuric acid at Osaka Cementation and Refining

- 1962 • Completed the Furukawa/Outokumpu flash smelting plant at Ashio Smelting and Refining



The Furukawa/Outokumpu flash smelting plant was made by innovating upon technology from a Finnish company, Outokumpu. Its major feature is that fuel is not needed, which resulted in a significant smelting cost reduction.

- Completed development and began sales of bowling facilities



A huge bowling boom took place in Japan at that time. We manufactured bowling facilities and provided healthy entertainment.

- Began manufacturing of crawler shovels at the Oyama Works

- Completed research and development of high-purity (99.999%) metallic arsenic and commenced with the sale of it



Arsenic is one of the by-products generated during the smelting stage of copper concentrates. It started getting attention as a semiconductor material around this time.

- 1970 • Withdrew from the coal business

- 1971 • Built the Yoshii Works of the Bowling Division in Gunma
- Began manufacturing of wheel loaders at the Oyama Works



A large volume of our wheel loaders were exported as well and helped spread our name around the world.

- 1972 • Built the Iwaki Works of the Electronic Materials Division in Fukushima and Hino Research Laboratory in Hino City in Tokyo
- Changed the English company name to Furukawa Co., Ltd.
- 1973 • Discontinued the Mining Division of the Ashio Plant (closed the Ashio Copper Mine)
- Built the Mibu Works of the Construction Machinery Division in Tochigi
- 1986 • Began development and manufacturing of multistory parking systems
- Expanded the high-purity metallic arsenic manufacturing facility at the Iwaki Works
- 1987 • Entered into the business of aluminum foil chemicals for electrolytic capacitors
- Bought UNIC Corporation (manufacturer for truck-mounted cranes)



"UNIC" has become a synonym for truck-mounted cranes in Japan. UNIC Corporation (then Kyoei Kaihatsu Co., Ltd.) entered the Group and the name was changed to Furukawa UNIC Corporation two years later.

- Took over the Manufacturing Division of UNIC Corporation and established it as the Sakura Works
- 1989 • The Japanese name changed from Furukawa Kogyo Kabushiki Kaisha to Furukawa Kikai Kinzoku Kabushiki Kaisha
- 1990 • Bought an American breaker manufacturer
- 1997 • Established a copper smelting company, Port Kembla Copper Pty. Ltd. in Australia
- Established a manufacturer of UNIC products/components, Furukawa UNIC (Thailand) Co., Ltd. in Thailand



This is an affiliate company for the UNIC business established in Rayong, Thailand, which manufactures truck-mounted cranes and other products.

- 1998 • Established a sales company of rock drill products, Furukawa Rock Drill Europe B.V. in Holland



This is an affiliate company for the construction and mining machinery business established in Utrecht, Holland, which distributes rock drills and other products.

- Newly established the Materials Research Laboratory for Metals and Electronic Chemicals-related researches

- 1999 • Moved the Materials Research Laboratory to Tsukuba City in Ibaraki



This laboratory conducts research and development related to electronic materials and chemical technologies, and semiconductor substrate processing technologies.

- 2000 • Newly established the Product Research Laboratory as an organization for new product development and the Techno-Research Laboratory for Machinery-related researches
- 2002 • Integrated the Research & Planning Laboratory and the Product Research Laboratory to re-organize it as the R&D Planning Department
- Newly established the Semiconductor Growth System Department as a research organization for Compound Semiconductors
- 2003 • Established a sales company of rock drill products, Furukawa Rock Drill Korea Co., Ltd. in Korea
- Merged Furukawa Real Estate Co., Ltd. and established the Real Estate Division
- Established Taian Furukawa Machinery Co., Ltd. - a joint company for the manufacturing and distribution of UNIC cranes in China



This is an affiliate company for the UNIC business established in Taian, Shandong, China, which manufactures and distributes truck-mounted cranes and other products.

- Spun off and assigned the casting business to Furukawa Castec Co., Ltd.
- 2005 • Spun off the Machinery business, Metals business and Electronic Materials and Chemicals business and shifted to a group management structure as the Furukawa Company Group to enhance the management
- 2006 • Established a rock drills sales company, Furukawa Rock Drill (Shanghai) Co., Ltd. in China



This is an affiliate company which deals with the construction and mining machinery business established in Shanghai, China and distributes rock drills and other products.

- Assigned the general machinery business to Otsuka Iron Works, Ltd. from Furukawa Industrial Machinery Systems Co., Ltd. and changed the company name to Furukawa Otsuka Co., Ltd.
- 2007 • Furukawa Rock Drill Co., Ltd. formed a business alliance with Mitsubishi Materials Corporation for the construction machinery and tool business for mining and civil engineering
- Formed a capital and business alliance for the GaN semiconductor epi wafer business with POWDEC K.K.
- 2008 • Furukawa Industrial Machinery Systems Co., Ltd. merged with Furukawa Otsuka Co., Ltd.
- Newly setup the Nitride Semiconductors Department as a gallium nitride and related nitride semiconductor-related research organization
- Spun off the Fuels business and assigned it to Furukawa Commerce Co., Ltd.

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