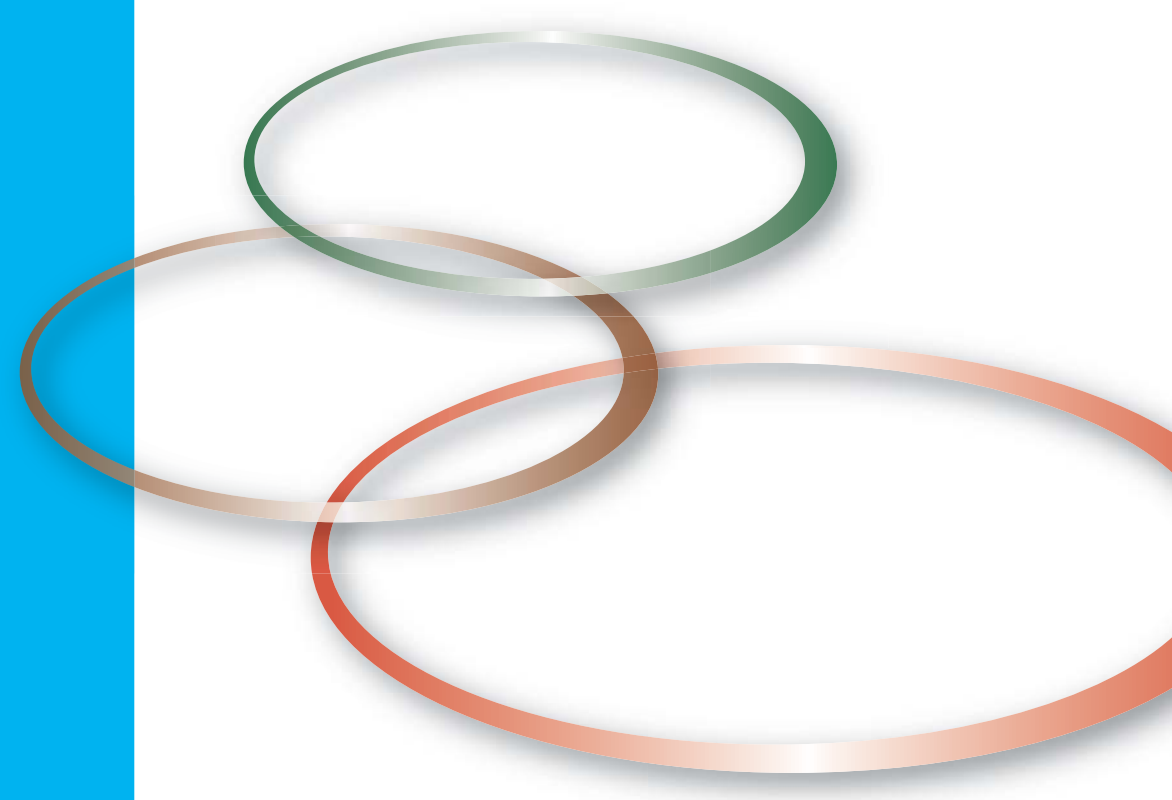


EKK Group Company Profile



Message from the President



Tetsuji Tsuru

Representative Director, President
Eagle Industry Co., Ltd.

Our company was originally formed as the mechanical seal division of NOK Corporation. The division became independent and incorporated under the name of Nippon Sealol Co., Ltd. in 1964, the year of the Tokyo Olympic Games, and the company name was changed to the current Eagle Industry Co., Ltd. (EKK) in 1978.

Ever since embarking on this long journey, for a half century EKK has grown as a sealing solution provider. We have established ourselves as a comprehensive parts manufacturer in pursuit of mobility on the land, seas and in the skies, as well as a mechanical seal manufacturer offering EagleBurgmann brand products in alliance with Burgmann Industries, a German mechanical seal maker.

EKK's products are used in a vast spectrum of mobility systems on the land, seas and in the skies. They include automobiles, motorcycles, construction machinery, and other so-called land-based "moving vehicles," tankers, container ships, bulk carriers and other ocean-going ships, as well as ferries, coastal ships, and fishing boats, rockets, jet and propeller aircraft, and helicopters.

EagleBurgmann products are also used in pumps, compressors, blowers, and agitators mounted in production facilities at oil refineries, and in the petrochemical, steel, pulp and paper, food, pharmaceutical, electric power, and many other industries.

No matter where they are used, one common objective of all our products is to prevent liquids, gases and other fluids from leaking from rotating machines during operation, and for this reason we can proudly say that together with our customers we have contributed to environmental protection and energy conservation. We have also developed an integrated production system that covers the entire process from the development of materials right through to production. This system is built around our superior seal, power transmission, valve and hydraulic technologies, as well as our special processing and welding techniques that support them. With it, we are meeting customer requirements, which are becoming increasingly demanding as rotating machines operate at higher speeds, temperature, and pressure.

We will continue to hone our technological prowess to meet the increasingly specialized and complex needs of our customers.

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Management Policy

EKK's basic management policy is that a corporation is the property of three stakeholders—namely, shareholders, employees, and the community. As such, EKK aims to become a company that justifies the pride of these three and other stakeholders, including customers, suppliers, and financial institutions. Based on this policy, EKK will continue its efforts to become a solid and profitable company based on a commitment to complying with laws and regulations and providing products that contribute to society.

1. Concentrate management resources on priority areas to become a parts manufacturer with rising strength and originality.
2. Reduce costs in all functions, ranging from frontline sales personnel to the shop floor, to further solidify the earnings structure.
3. Study ways to improve quality to produce and achieve worldwide sales of unique and socially useful products backed by our technologies.

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The EKK Group Supports Multiple Aspects of People's Lives

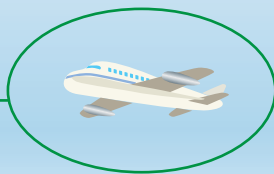
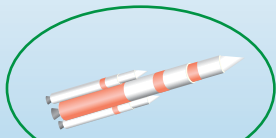
The technologies and products of the EKK Group are essential for automobiles, industrial machinery, ships, and even rockets and are used in a wide variety of industries around the world.



Aerospace

Eagle Industry Co., Ltd.

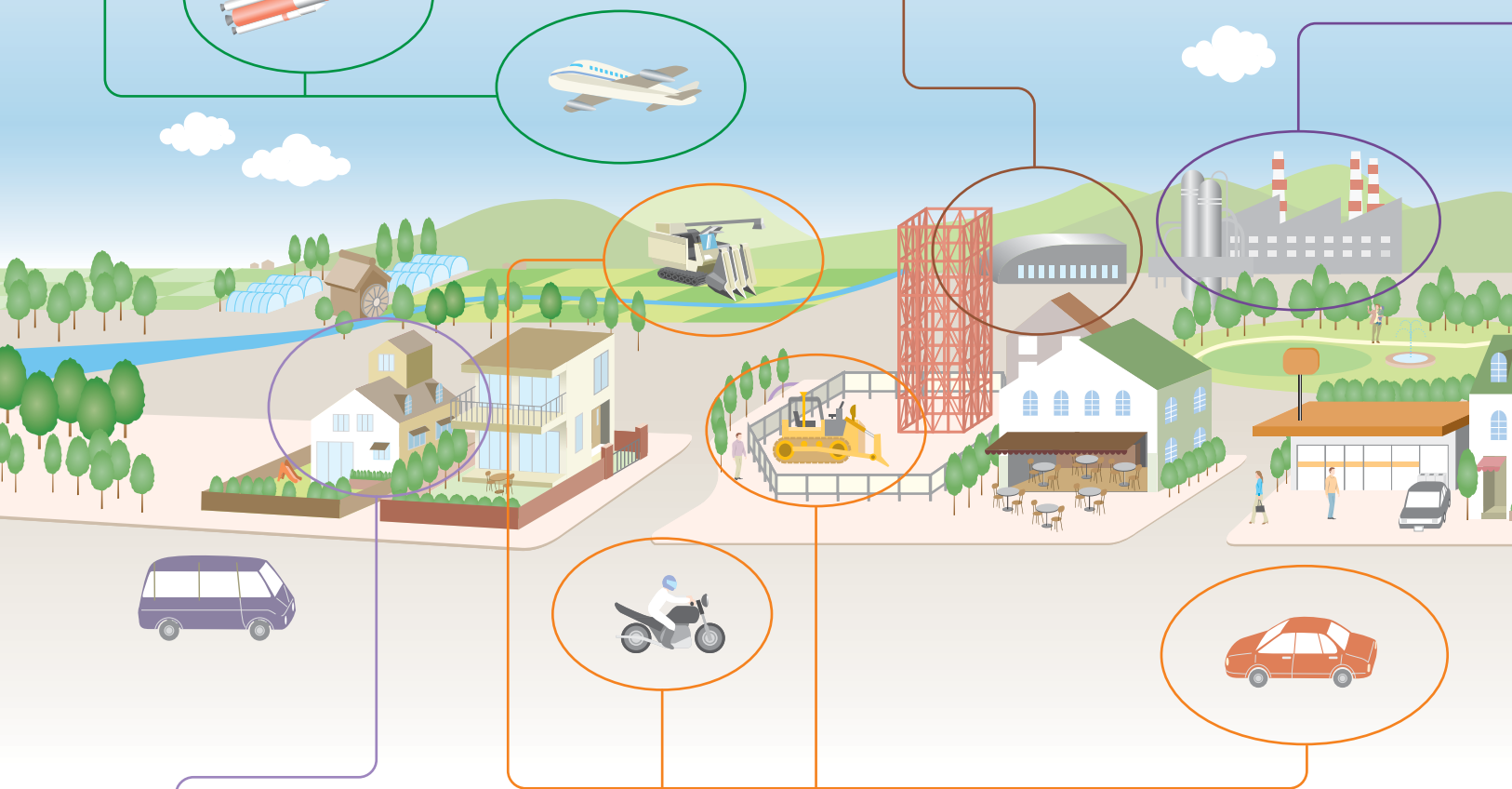
We produce various types of seals used in engine main shafts and gearboxes on aircrafts and in turbo pumps on rockets. The metal bellows accumulators used on "KIBO," the Japanese Experiment Module on the International Space Station (ISS) are also products of the EKK Group.



Semiconductor

EagleBurgmann Japan Co., Ltd.

Our offerings include magnetic fluid vacuum seals for manufacturing equipment for semiconductors and flat panel displays, rotary joints for chemical mechanical polishing (CMP) equipment and grinders used for wafer polishing and grinding, and metal bellows.



Housing Equipment

Eagle Industry Co., Ltd.

We deliver various types of valves that can be used safely and efficiently for residential use fuel cells, energy saving hot water supply systems, and hot water spray toilets for ordinary houses and condominiums. We also deliver our accumulators for pumps to decrease the start-up frequency, which contributes to energy conservation.



Automobile, Construction Machinery

Eagle Industry Co., Ltd.

We deliver a stable supply of a wide range of products, including seals for automotive air conditioners and water pumps, solenoid valves for automotive engines, accumulators for hybrid vehicles' break systems and suspensions and other devices, reed valves for motorcycles which play an important role in reducing emissions, and floating seals and accumulators for hydraulic systems used on the undercarriage of construction and agricultural machinery.

Our Reliable Technologies Meet the Needs of Customers and the Global Environment

Based on its renowned seal, specialized welding, power transmission, and valve technologies, the EKK Group delivers a wide spectrum of products that meet the needs of customers, including mechanical seals, special valves, various parts for the marine and aerospace industries, bellows and their application products, and diaphragm couplings.

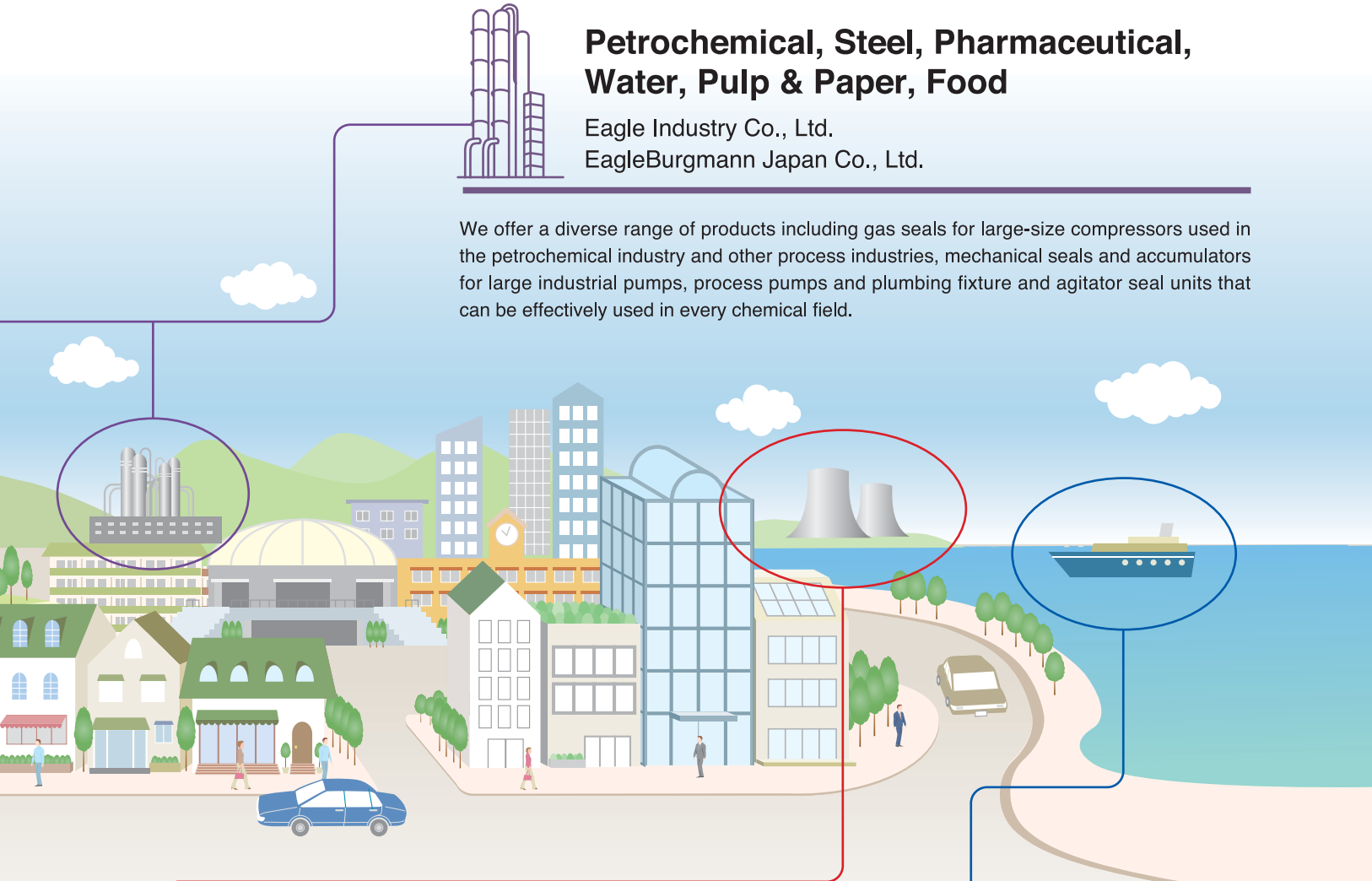
Because these products prevent oil, solvents, refrigerants, and other fluids from leaking from machinery, they are also important environmental devices, contributing to environmental and energy conservation. This is why our products have earned us a reputation and the trust of customers both in and outside Japan.



Petrochemical, Steel, Pharmaceutical, Water, Pulp & Paper, Food

Eagle Industry Co., Ltd.
EagleBurgmann Japan Co., Ltd.

We offer a diverse range of products including gas seals for large-size compressors used in the petrochemical industry and other process industries, mechanical seals and accumulators for large industrial pumps, process pumps and plumbing fixture and agitator seal units that can be effectively used in every chemical field.



Marine

Eagle Industry Co., Ltd.
KEMEL Company



Our products include stern tube seals which are attached to propeller shafts to prevent lubricants leaking out and seawater leaking in, as well as stern tube bearings.



Energy

Eagle Industry Co., Ltd.
EagleBurgmann Japan Co., Ltd.

We play an active role in reducing CO₂ emissions and combating global warming through nuclear power generation by delivering various products for nuclear power plants, such as seals for pumps, turbines, and generators, and main steam isolation valves for boiling water reactor (BWR) nuclear power plants.

Automobile, Construction Machinery

Eagle Industry Co., Ltd.

While focusing on our two key priorities of safety and environmental compatibility, we provide high-performance, high-quality seals and mechanical products for automotive, motorcycle and construction machinery modules with important functions.

As a leading supplier of these products, we have earned the complete trust of customers across the global market.

Seals

We started production of mechanical seals for water pumps in 1957, mechanical seals for automotive air-conditioner compressors in 1959, and lip seals for automotive air-conditioner compressors in 1985. We have received high acclaim for the quality and performance of these products, which we manufacture with an integrated production system that encompasses every stage from material development to production.

Mechanical Products

Since the 1970s we have built up vast know-how on core sealing technology through R&D and use it to develop and mass-produce mechatronics and actuator/valve products, both of which are ever-evolving functional auto parts.

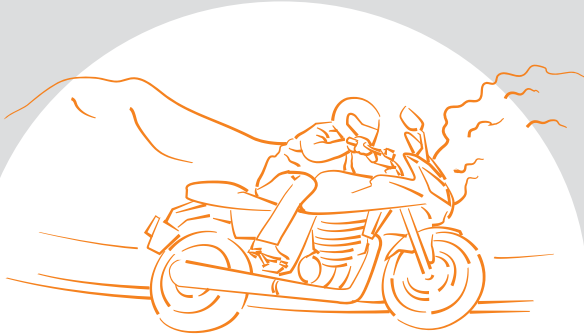
We will continue to deliver mechanical products with optimum design that keep abreast of the needs of new applications and the latest systems.

Global Presence

Our basic policy is to manufacture products at locations that best fulfill the needs of each customer and minimize production costs. We are also actively meeting the requirements of customers who are expanding operations overseas, and we have ensured a stable supply of our products throughout the world by establishing subsidiaries in Asia, Europe, and other regions.

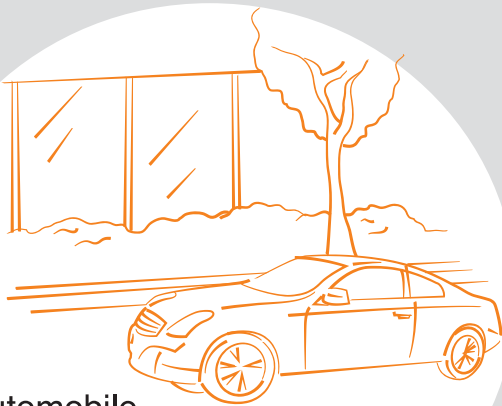


Lip seal



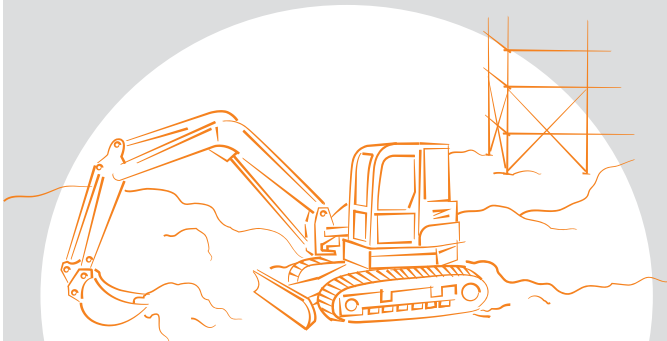
Motorcycle

Our products for motorcycles include mechanical seals for water pumps, components for the coolant system in water-cooled engines, as well as reed valves for emission control.



Automobile

Our products for automobiles include shaft seals for compressors and water pumps, and solenoid valves used to control air conditioners and transmissions and accumulators for brake systems and suspensions.



Construction Machinery

Our floating seals and accumulators for hydraulic systems are used widely to prevent earth and sand from entering the undercarriage system of construction machinery.

Our Products

Mechanical seals for water pumps



Compact stationary face seals. The sliding faces of these seals are made of our proprietary carbon and ceramics. They have superior resistance to heat and wear, and are mass-produced on fully automatic production lines.

Lip seals for automotive air-conditioner compressors



Compact axial seals. These seals, which are made of refrigerant resistant rubber and PTFE materials, are mass-produced on fully automatic production lines.

Mechatronics



Solenoid valves used on compressors, transmissions, and suspensions. Featuring high efficiency and low hysteresis achieved by the techniques we use to analyze the magnetic path and hydro-pneumatic power, these products incorporate resin parts and are thus lightweight and compact in size.

Actuators and valves



Pneumatic drive actuators with environmentally-compatible, highly-reliable rubber parts, mounted in various systems. We also deliver reed valves that incorporate diaphragms or solenoids to function as air cutoff valves for motorcycle emission control.

Floating seals for construction machinery



Shaft seals for construction machinery and vehicles. When installed, they are not in contact with the shaft. Despite their simple design consisting of only two parts, an O-ring and a seal ring, which prevent the entry of earth and sand, their performance is outstanding.

Accumulators



Accumulators used for automobiles' suspensions, hybrid vehicles' brake systems, and construction machinery's hydraulic systems and vibrational absorption. They contribute to the systems' energy saving and stabilized operations.

Energy

Eagle Industry Co., Ltd., EagleBurgmann Japan Co., Ltd.

Energy is essential for our lives and industry.

Electricity is generated from various sources.

These range from fossil fuels and nuclear power to natural and renewable resources including water, solar, wind, tidal, and geothermal.

The EKK Group offers a wide range of products and services for pumps, turbines, generators, and other equipment which are indispensable for power generation.

The EKK Group's Technologies are Essential for Power Generation

Pumps, turbines, and other equipment used at power plants that generate large amounts of electricity are required to maintain stable operation under extremely high temperatures and pressures. The EKK Group has delivered mechanical seals, special valves, and other products that meet these harsh requirements, providing technological expertise that for many years has been indispensable for power generation. Because of our track record, our products are widely trusted for their technologies and quality, and are used in all Japanese-built nuclear power plants.

Playing a Key Role in Power Generation and Safety

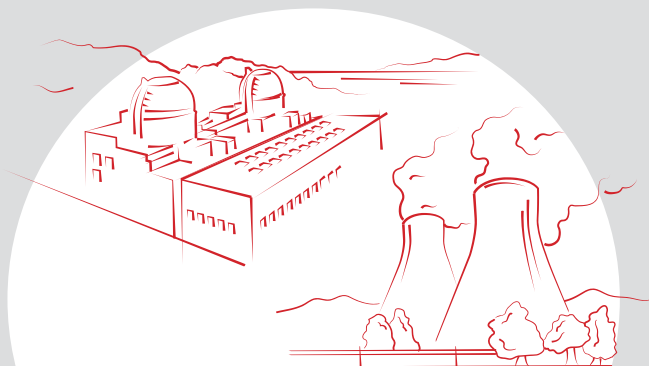
The EKK Group's products serve various functions in power plants. For instance, shaft seals for reactor coolant pumps (RCPs) in pressurized water reactor (PWR) nuclear power plants, diaphragm couplings that transmit turbine torque to generators, and large split design seals for hydraulic power turbines are now considered to be key parts for power generation. On the other hand, main steam isolation valves installed in boiling water reactor (BWR) nuclear power plants, which are designed to stop the flow of steam in an emergency when reactor operations need to be shut down, function as a key safety device.

Global Service Network for Power Plants

In addition to production sites built in various locations around the world, the EKK Group also has a global maintenance service network. In 2005, we formed an alliance with Burgmann Industries, a German mechanical seal maker, and started to provide global standardized quality services under the name of the EagleBurgmann Group. The EagleBurgmann Group has earned a high reputation for its quick delivery and reliable maintenance in Southeast Asia, China, and the Middle East where many energy plants are being constructed.

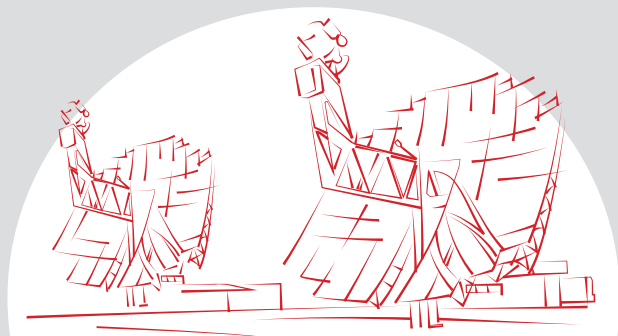


Diaphragm coupling



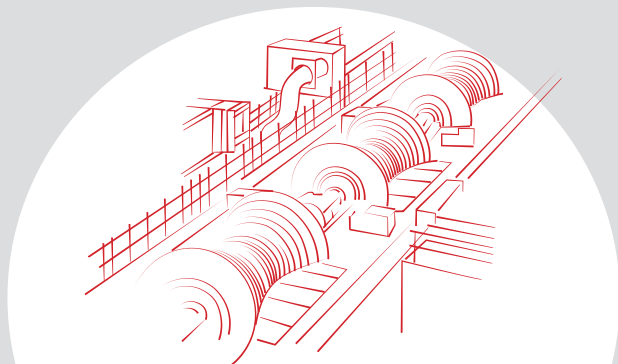
Nuclear Power Plants

The construction of nuclear power plants is planned at various locations around the world as an effective option for reducing CO₂ emissions.



Solar Thermal Power Generation

This energy-efficient power generation method is currently attracting attention, particularly in areas where power transmission is difficult.



Turbines, Couplings, Generators

Steam generated by boilers or nuclear energy is used to drive powerful turbines at high speed, and the turbines in turn drive the generators connected to the turbines via couplings to produce electricity.

Our Products

Non-contact seals



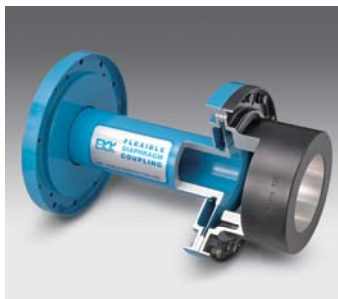
A type of seal in which there is no contact between the sealing faces. A minute clearance between the sealing face of the rotating ring and the face of the stationary ring is maintained by controlling the pressure applied to the faces. Our non-contact seals are adopted as shaft seals for all Japanese-built reactor coolant pumps (RCPs) in pressurized water reactor (PWR) nuclear power plants.

Water turbine seals



Split design seals that eliminate the need to dismantle the water turbine to replace a seal. Their ceramic sliding faces provide durability and a stable performance, while their large diameter helps reduce both the man-hours needed to replace a seal and the maintenance costs significantly.

Diaphragm couplings



Lubricant-free couplings with diaphragms. Their lightweight and deflection absorption capability allows them to be used on high-speed, large-capacity rotating equipment. They are employed in a wide range of applications from universal machines to high-speed machine tools, power turbines, and on the drive shafts of large ships.

Valves for power plants



Large valves used for power plants and plant facilities, such as main steam isolation valves and other testable check valves (TCVs), and free-flow reverse current valves (FFRCVs). Our main steam isolation valves are used in virtually all boiling water reactor (BWR) nuclear power plants in Japan, demonstrating excellent functionality and performance.

Maintenance



We provide maintenance services, installation, and other related works promptly and precisely, making the most of our expertise and know-how. These services have earned us a high reputation and credibility, contributing to the safe operations of both nuclear and traditional power plants.

Petrochemical, Steel, Pharmaceutical, Water, Pulp & Paper, Food

Eagle Industry Co., Ltd., EagleBurgmann Japan Co., Ltd.

Clothing, food, and housing, which form the foundation of our lives, use materials produced by the oil refining, petrochemical, steel, pharmaceutical, pulp & paper, and food industries.

The EKK Group's products are employed in these industries, playing an important role in rotating equipment such as pumps, blowers, compressors, and agitators.

Manufacturing Plants are Our Source of Clothing, Food, and Housing

The production of large quantities of products efficiently is the aim of manufacturing plants in every industry. These plants employ a diverse range of equipment, including agitators for mixing and agitating various raw materials, compressors for compressing gases, and pumps and blowers used to convey materials or products to the next process. Oil refinery plants producing gasoline and lubricants, steel plants producing steel for automobiles and buildings, pulp and paper plants, food plants, and many other plants operate every day to deliver a wide range of goods from raw materials to everyday items used by consumers.

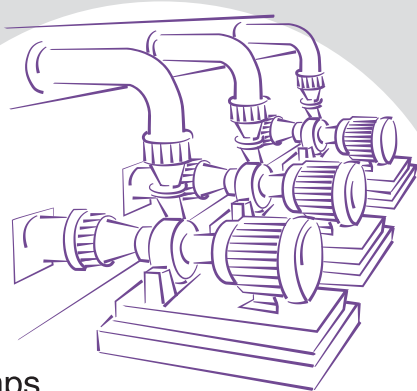
The Need for More Sophisticated Seals

Manufacturing plants use pumps, compressors, and other equipment under various conditions. For instance, in the chemical reaction or liquid distillation process, equipment is used to mix a chemical catalyst at high temperature and pressure. Although the conditions in which the equipment is used vary with the product being manufactured, equipment that is used in complex and harsh environments needs to operate across a wide range of conditions. Equipment also needs to meet requirements for energy conservation and be maintenance free. Under these circumstances, the demand for higher-performance and easier-to-handle seals, an important component that affects the performance of the equipment, is increasing.

ECO MECHA—a New Mechanical Seal Technology to Support the Plants of the Future

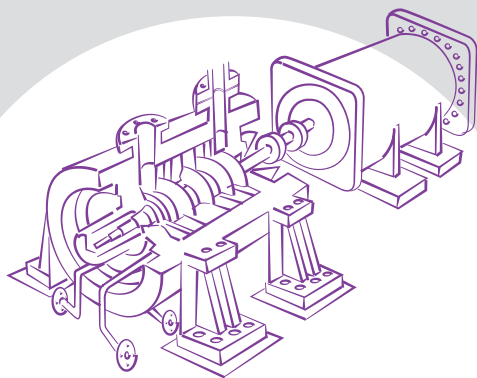
- ◆ High-performance stationary mechanical seals that can be used in harsh, high-load environments
- ◆ Energy-saving mechanical seals that consume less electricity than existing mechanical seals
- ◆ Non-cooler mechanical seals that do not need to be cooled
- ◆ Dry-lubricated or non-contact mechanical seals for gas applications

ECO MECHA technology is expected to make a great contribution to environmental protection and energy conservation, providing the potential for infinite applications in future plants.



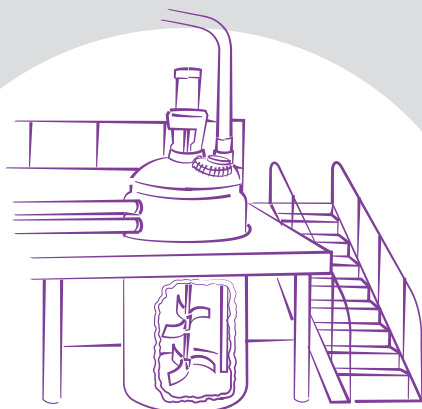
Pumps

Many process and chemical pumps are used in manufacturing plants under diverse conditions where cold/hot water or oil, LPG, resin, chemical liquids, and other materials are being handled.



Compressors

Compressors are designed to compress gases. There are two main types: high-speed turbo compressors and reciprocating compressors. They form one of the most important items of equipment used in manufacturing plants.



Agitators

Agitators are used to agitate liquids in reactors and promote chemical reactions. They are equipped with blades which are designed for each liquid. High resistance to corrosion and pressure is essential.

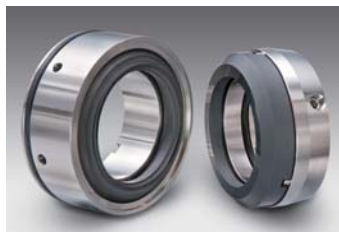
Our Products

Global cartridge seal—MA290



A thin stationary cartridge seal that can be mounted outside a stuffing box. The MA290 is a high-performance seal with a wide range of applications.

High-performance stationary mounted seal—EK777



An API 682-compliant, compact unitized stationary mounted seal. The EK777 has a built-in cooling system, making it suitable for use with LPG and hot water.

Metal bellows seal—MBS100



A balanced seal with Inconel® welded bellows. The MBS100 has excellent axial flexibility, and is suitable for use with viscous or crystallizing fluids.

Inconel® is a registered trademark of Special Metals Corporation.

Dry seals for agitators



Non-metallic dry contact seals designed to directly seal gas in the upper part of a reactor. They contribute greatly to simplification of the sealing area.

Dry gas seals



Non-contact seals in which the clearance between the seal faces is optimally controlled. They are suitable for high-speed, high-pressure compressors and blowers.

Accumulators



Accumulators that assist energy generation by pressure accumulation and absorb pulsation and impact for pumps, piping etc. They contribute to plants' stable operations through down-sizing of pumps, energy saving, and prevention of damages on equipment.

Semiconductor

EagleBurgmann Japan Co., Ltd.

The EKK Group offers high-performance seals for manufacturing equipment for ever-evolving semiconductor chips, LCD panels, and solar cell panels. Our technologies are indispensable in the production of semiconductors and other leading-edge precision products.

Magnetic Fluid Seals that Withstand Temperatures up to 220 Degrees C

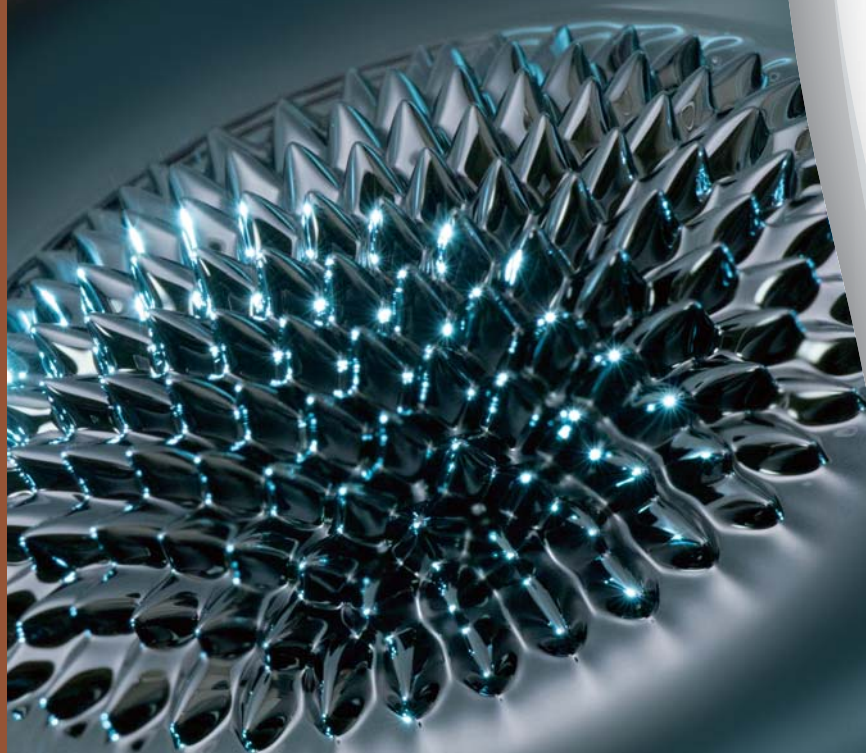
We have developed a magnetic fluid with unprecedentedly high heat resistance—the world's highest—which can be used even in extreme high vacuum conditions. Our magnetic fluid seals use this magnetic fluid as the vacuum sealing material for rotary shafts, contributing to improving manufacturing processes and reducing costs.

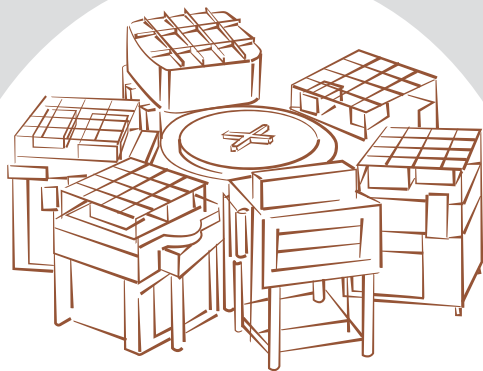
From Manufacturing Equipment for Semiconductor Chips, LCD Panels, and Solar Cell Panels to Conveying Robots and High-resolution Electron Microscopes

Our high-performance magnetic fluid seals are used for rotary shaft seals, reciprocating drives, and the moving parts of manufacturing and inspection equipment that require vacuum or low-dust environments, as well as for equipment into which liquids are fed while rotating. These seals are indispensable in maintaining the functionality of manufacturing equipment.

Serving as a Global Partner

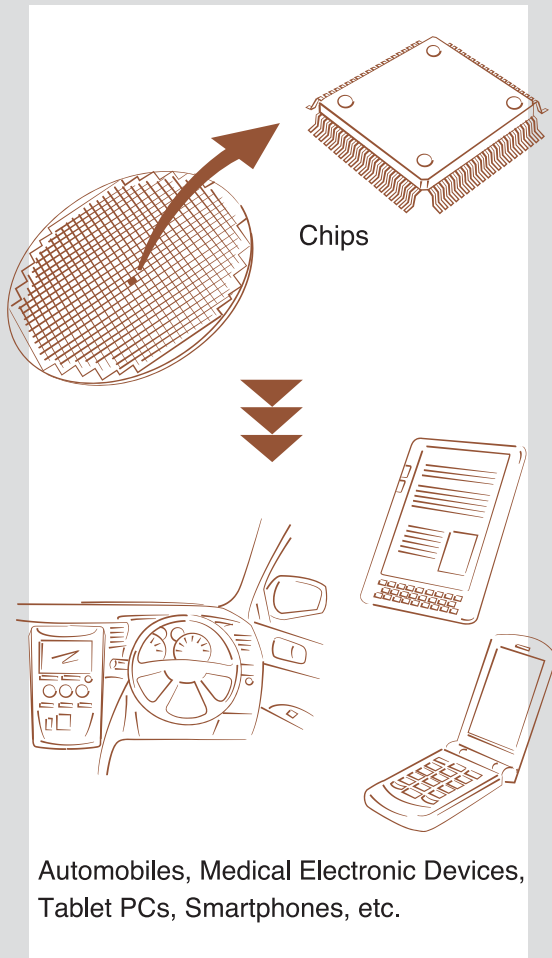
We will continue to develop our technologies and establish a global network to provide a stable supply of our products so that we can support customers around the world in improving their production processes and manufacturing equipment.





Semiconductor Manufacturing Equipment

Our seals are used in film formation equipment and other equipment on semiconductor chips production lines. The chips that this equipment produces are incorporated into automobiles, medical electronic devices, tablet PCs, smartphones, and many other devices.



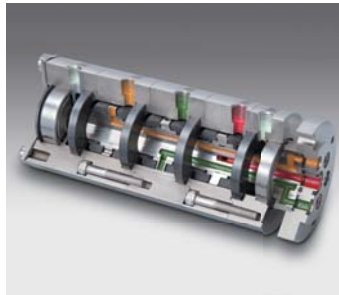
Our Products

Magnetic fluid seals



Highly reliable vacuum seals using EKK's proprietary magnetic fluid with the world's highest heat resistance can be used even in extreme high vacuum conditions.

Rotary joint for semiconductor applications



High-performance seal developed using our mechanical seal technology, which is used on the rotary part of film formation and polishing equipment.

Welded metal bellows



Vacuum seals used on the reciprocating drive and other parts of semiconductor/LCD panel manufacturing equipment, featuring superior resistance to corrosion and heat and uniform deflection property.

Kalrez®



Innovative synthetic rubber developed by DuPont that integrates the elasticity and sealing capabilities of elastomer with the chemical resistance and heat stability of Teflon®.

Kalrez® is a registered trademark of DuPont.
Teflon® is a registered trademark of DuPont.

SUPERIOR



Synthetic rubber developed by NOK Corporation. Although it is a type of fluoro rubber, SUPERIOR has excellent resistance to plasma and small outgas generation.

Aerospace

Eagle Industry Co., Ltd.

EKK provides highly reliable products for rockets, aircraft, the International Space Station, and satellites that can be used in high-temperatures/pressures/speeds and ultra high vacuum, at cryogenic temperatures, and under harsh and extraordinary conditions.

Due to their features which contribute to environmental protection and energy conservation, applications for our aerospace products are expanding to other fields than aerospace.

Seals Used in Extreme Conditions

Rocket seals need to prevent even the slightest leakage of high-pressure and cryogenic-temperature liquid oxygen/hydrogen and high-temperature turbine-driving gas in extreme conditions so that these materials do not come in contact with each other and cause an explosion. Main shaft seals for jet engines also need to endure harsh environments while simultaneously sealing high-pressure compressed air, high-temperature combustion gas, and lubricants.

As a pioneer in aerospace seals, EKK is working to expand applications for the technologies it has developed to other fields.

Aerospace Products and Their Major Fields of Application

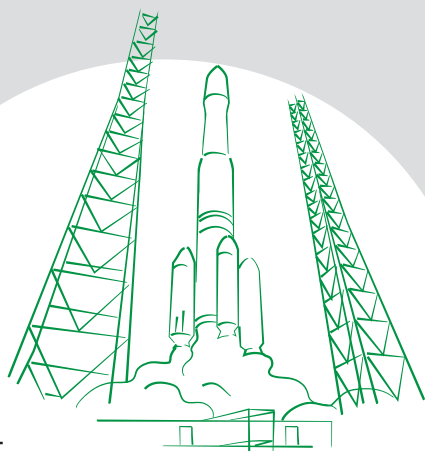
- Space applications
 - ◆ Rocket turbo pump seals
 - ◆ Static seals for rocket fuel tanks and engine piping
 - ◆ Bellows accumulators for the International Space Station (ISS)
- Aircraft engines
 - ◆ Main shaft seals
 - ◆ Gearbox seals
 - ◆ Brush seals
 - ◆ Static seals
- Power generation
 - ◆ Brush seals
 - ◆ Static seals

Our Rocket Seals Have Received International Recognition

In 2009, EKK was selected by Pratt & Whitney Rocketdyne, a U.S. rocket engine maker, as the manufacturer responsible for the development of a turbo pump seal for the J-2X engine which is to be mounted in Ares 1, the replacement for the Space Shuttle.

The J-2X engine is also considered to be one of the most promising candidate engines for the heavy-lift rocket currently being designed in the U.S.

As this selection shows, our technologies, which have been built up over many years, have earned a high international reputation, expanding into markets far beyond domestic boundaries.

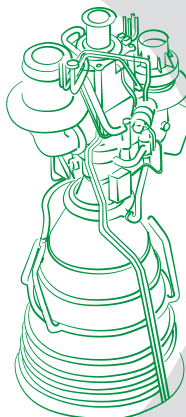


Rocket

Japan's H-II A and B rockets use cryogenic-temperature liquid oxygen and hydrogen as propellants. Our static seals are used on the tanks for these propellants, and on the engine piping and high-pressure turbo pumps.

Rocket Engine

EKK's seals are employed on the turbo pumps of the first and second stage engines of the H-II A and B rockets. The turbo pumps rotate at tens of thousands of rpm to pressurize cryogenic-temperature propellants up to 200–300 bar, and our seals are designed to seal the propellants under these extreme conditions.



Aircraft Engine

EKK supplies rotary shaft seals for the main shafts and accessory gearboxes of aircraft jet engines. The technology developed for aircraft engine seals is now also employed on seals for industrial gas turbines, and proves effective in enhancing the efficiency of gas turbines.

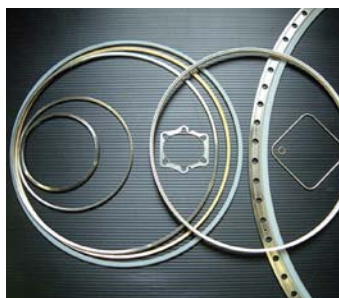
Our Products

Rocket engine seals



Our turbo pump seals are used on the first and second stage engines of the H-II A and B rockets. They work as a seal system under extreme conditions to prevent fluid from leaking from the rotating shafts and coming into contact with each other.

Static seals



Due to their low compression load, ACTISEAL-C/-E/-N seals help achieve a weight reduction, increase the installation density, and downsize the equipment. They contribute to enhancing the performance of fuel tanks, engine piping, and high-pressure turbo pumps for rockets.

Segmented seals



Non-lubricated seals designed to seal gases with a compact design even when the diameter is large. Leakage can be minimized effectively even under high-speed and high-temperature conditions.

Aircraft engine seals



Ever since 1966, when we developed our first gearbox seals for jet engines, we have been providing rotary shaft seals for the main shafts and accessory gearboxes of aircraft engines.

Brush seals



High-performance air seals used as an alternative to labyrinth seals, which are effective in improving engine output and reducing fuel consumption. This technology is also utilized on seals for industrial gas turbines and contributes to protecting the global environment by reducing energy consumption and the emission of nitrogen oxides (NOx) by gas turbines.

Marine

Eagle Industry Co., Ltd. KEMEL Company

Powerful ships carrying passengers and goods on the sea, rivers, and lakes of this beautiful Earth are attracting attention not just as a means of transport but also for their role in reducing environmental impact on bodies of water.

Stern tube seals for ships are technically very complex components, and are required to be highly reliable.

Utilizing its expertise and knowhow built up over many years, the EKK Group contributes to the comfort and safety of navigation and to environmental conservation.

Offering a Comprehensive Range of Marine Seals and Services

Ever since 1966, when Eagle Industry started producing stern tube seals for the propeller shafts of ships, the company has expanded its marine business to include R&D and production of stern tube seals and bearings, and after-sales service. In 2012, we absorbed KEMEL Co., Ltd. and established KEMEL Company as an internal company to be the hub for our entire marine business. We now have the world's largest market share in stern tube seals for medium to large ships.

Responsibility as the World's Foremost Marine Seal Maker

The safety of navigation and environmental conservation are the two greatest issues that stern tube seal manufacturers must address. Our air seals use air supplied from an air source on the ship to form an air chamber within each seal to completely separate the lubricant from seawater. Because of this mechanism, our air seals are employed on many ships as pollution-free seals.

Global Service Network

A global marketing and service network is essential in ensuring the safety of ships sailing around the world. The EKK Group has inventories in Japan, the U.S., Singapore, and the U.K. to support our customers anywhere in the world. This extensive network is another area where we earn our reputation as the world's foremost marine seal brand.

Seal ring



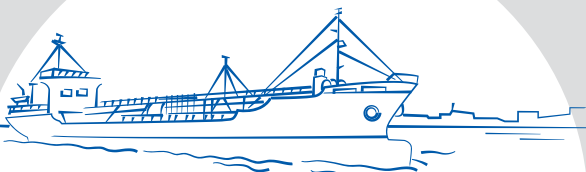
Ocean-going Ship, Passenger Liner

Our seals are used on many of the world's largest oil tankers and luxurious passenger liners. We thus support people's lives behind the scenes by assisting marine mass transportation.



Drillships

Drillships are ships equipped with drilling apparatus to explore and drill in offshore oil fields, or conduct geological surveys. Our seals are also used for these technically complex ships that need to maintain their position during drilling operations.



Coastal Ships, Fishing Boats

Our seals are adopted on next-generation coastal ships with two propellers installed in tandem on a double structure shaft which rotate in opposing directions (contra-rotating propellers) to increase the propulsion efficiency and reduce the environmental impact, as well as for fishing boats operating in inshore waters.

Our Products

Oil lubricated stern tube seals (CX, DX, AX, EVA)



Stern tube seals with lip seals designed to prevent the leakage of lubricant and the ingress of seawater. They are approved by classification societies of each country. Their comprehensive lineup includes the standard CX type, the DX type with an additional standby seal, the pollution-free AX type, and the EVA type equipped with face seals.

Oil lubricated stern tube shaft bearings/ intermediate shaft bearings (KMS, KMF)



Environment-friendly bearings made of lead-free materials. The stern tube shaft bearings can be used on super-large ships. The intermediate shaft bearings come in two types according to the customer's requirements: the self-lubricated type and the forced lubricated type.

Water lubricated stern tube seals (EVK)



Environment-friendly seawater lubrication seals. Maintenance is very easy thanks to the face-type design. Because of their simple construction, the EVK series seals have been adopted for many small ships and coastal ships.

Water lubricated rubber bearings (EVR)



Bearings with a lightweight, durable plastic outer shell. They absorb shaft vibrations effectively and thereby minimize shaft sleeve wear, making long-term continuous use possible.

Propeller polishing for energy conservation and repair service



We offer a highly skilled propeller polishing service to enhance propulsion efficiency and reduce fuel consumption on our customers' ships. We also repair damaged propeller blades for any type of ship, from small fishing boats to large tankers.

Sensing & Imaging

Eagle Industry Co., Ltd. NEOPT Company, Valcom Co., Ltd.

In the constantly evolving optical and imaging fields, the EKK Group proactively incorporates the world's state-of-the-art technologies into its products, represented by sensing and imaging devices, industrial camera modules, and inkjet print heads.

Cooperating with Foreign Manufactures and Adopting the World's Most Advanced Technologies

Established in 1989 as a member of the NOK Group, NEOPT Corporation joined EKK in October 2013 and is continuing its lines of business as an internal company "NEOPT Company." We deal in a variety of optoelectronic products used widely in the household electrical appliance, semiconductor, medical, aerospace and biotechnology fields. In response to the increasing needs in the 21st century for eco-friendly, highly energy efficient and automated products throughout all the fields, we have been working to form business partnerships with leading manufacturers abroad. We provide a broad lineup of products, including sensing and imaging devices using ultraviolet, visible, infrared and X-rays; light-emitting elements used for such products as flash lamps and UV-LED lighting; and print heads for inkjet printers capable of industrial on-demand printing. We also provide our own brand of industrial cameras developed in-house. Through this wide variety of products, we will continue to make important contributions to society and industry.

Our Products

Sensing and imaging products



A range of functional optoelectronic products are provided, including thermopiles for non-contact temperature measurement, industrial and light sources for medical usage, and panels for X-ray detection.

Industrial products



The product lineup includes industrial cameras for use in inspection equipment as well as various inkjet print heads for industrial use and UV curing equipment.

Pressure gauges and load meter products



We supply various products, including not only control pressure sensors used in equipment or load-cells used in load and weight measurement (such as press fitting), but also measuring pressure sensors used in tanks at a food factory.

Valcom Co., Ltd., established in February 1984, is a member of the EKK Group. As "specialist manufacturer of digital pressure gauge and load meter", we have provided our products for a wide range of markets, including automobile, industry machinery, semiconductor and others. Also, we have recently developed "safer and more reliable" sensors for new fields such as food and medical, which contributes to the development of the industry.

Housing Equipment

Eagle Industry Co., Ltd.

The EKK Group offers high-performance housing equipment products that are custom-designed according to various customers' needs.

They are indispensable for your comfortable living environment.

For Your Comfortable Surroundings - Unique Products Incorporating NOK Group Technology

EKK acquired divisions relating to housing equipment products from NOK Corporation in October 2012.

We provide fluid control equipment and valves for water, gases, specialty fluids and other substances used in various systems including domestic stationary fuel cells, natural refrigerant heat pump water heaters, alkali ion water purifiers, 24 hours bath systems, spray toilets, air conditioning systems in your kitchens, bathrooms and living rooms of houses and condominiums. We are working to improve our products to make your living environment more comfortable, and are promoting our product development utilizing the NOK Group's high-performance materials and technologies centering on high reliability and safety through the integration and organization of such unique technologies.

Although our products are small, they have various functions and unique structures, contributing to your comfortable living environment.

Our Products

Valves for domestic stationary fuel cells



Our valves utilizing special fluorine rubber and low elution materials are indispensable for domestic stationary fuel cells to achieve low voltage consumption.

Valves for spray toilets



Our valves for spray toilets achieve various flow path switching and flow amount control thanks to their compact and integrated units with various functional valves and unique disc structures.

Valves for EcoCute



We provide "Relief valves" with stable relief capabilities, and high-flow "Pressure reducing valves" utilizing high-durability rubber and lightweight resin.

Valve for domestic stationary fuel cells

Research & Development

The EKK Group's products play an important role in various industries including the automobile, industrial machinery, marine, and aerospace industries around the world. These products are developed based on the Group's superior seal, fluid control, metal processing, specialized welding, and material technologies.

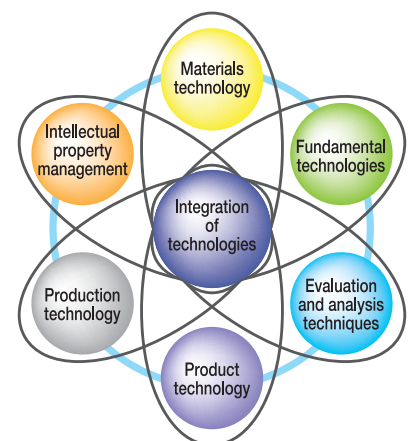


Our Cutting-edge Technologies are at the Forefront of Our Era

The EKK Group's seal, specialized welding, metal processing and other technologies have contributed to improving the capabilities of automotive air-conditioning compressors and high-performance pumps, as well as play a discreet yet important role in the drilling pumps used to construct the Tokyo Bay Aqualine Tunnel, the H-II A and B rocket engines, the pressure equalization devices on deep submergence vehicles, and other large national projects. We are striving to develop our unique technologies through R&D to meet the anticipated needs of the future.

Integrating the Group's Strengths to Achieve Even More Complex Technological Development

Technological innovation, particularly in terms of environmental compatibility, is needed in many industries including the rapidly-growing new energy and water-related industries, as well as the automotive industry in its pursuit of new technologies for electric and fuel cell vehicles. The EKK Group sees this trend as a huge opportunity, and is involved in even more creative R&D based on its integrated strengths so that it can offer products and services that will greatly benefit each industry.



CSR & Environmental Activities

We aspire to be a “better company” while working toward building a “better society.”

Based on our basic management policy, “a corporation is the property of three stakeholders—namely, shareholders, employees, and the community” and our notion that rests on that policy, “the environment, quality, and employee safety are the three sanctuaries that corporations must preserve,” we are committed to corporate social responsibility (CSR). Our objective is to continue to be a “good company” that all our stakeholders can be proud of and that is valued by local communities, and work toward building a “better society.”

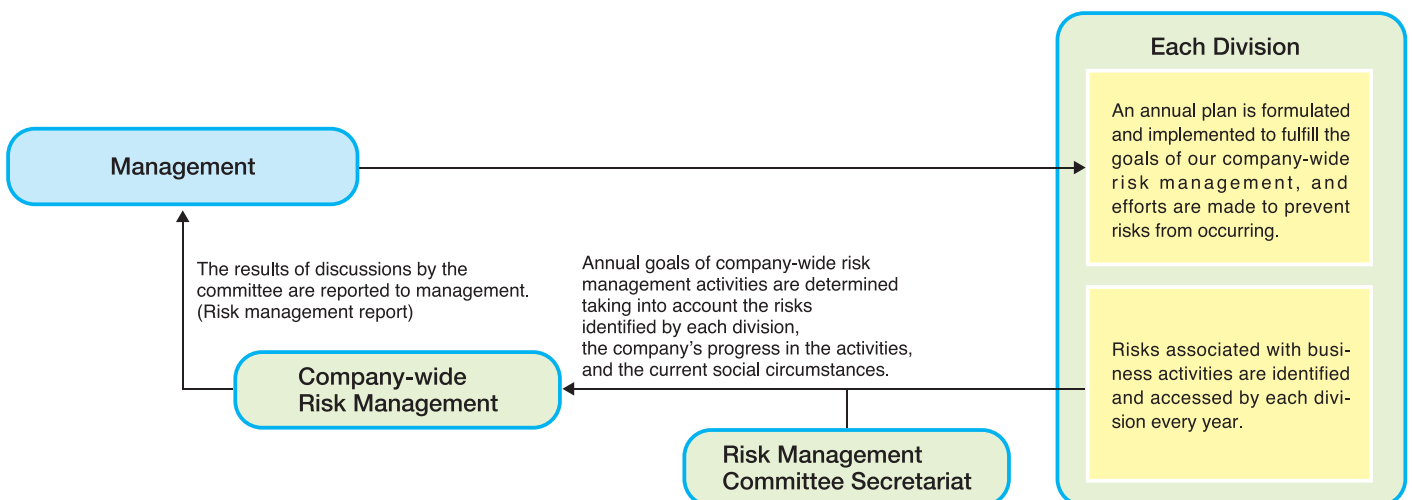


Risk Management System





Risk Management Policy and the Risk Management Rules are in place for the EKK Group in order to identify risks associated with our business activities to prevent any accidents from occurring, as well as to prescribe how to deal with a crisis if it should occur.

Based on the Risk Management Policy, all the divi-

sions, business units, and affiliates of the EKK Group are expected to ensure that the Management Philosophy and all the relevant laws and regulations are strictly observed, and to promote risk management, which leads to the enrichment of the Management Philosophy.



Corporate Development

	1960	1970	1980
	<p>1964 Nippon Sealol Co., Ltd. (current Eagle Industry Co., Ltd.) established.</p> <p>1965 The Saitama Factory began operation.</p>  <p>Nippon Sealol Co., Ltd. established</p>  <p>Saitama Factory</p>	<p>1971 The Okayama Factory began operation.</p> <p>1978 The company name changed to Eagle Industry Co., Ltd. Invested in Taiwan-based New Stone Co., Ltd. (current EagleBurgmann Taiwan Co., Ltd.). A license for construction business (machine and equipment installation) from the Governor of Tokyo (currently, from the Minister of Land, Infrastructure, Transport and Tourism) obtained.</p> <p>1979 Eagle Industry Taiwan Corporation (joint venture with New Stone Co.,Ltd.) established.</p>	<p>1982 Company's shares listed on the Second Section of the Tokyo Stock Exchange.</p> <p>1987 P.T. Eagle Industry Indonesia established to manufacture mechanical seals and other products. NOK Eagle Korea Co., Ltd. (current NEK Co., Ltd.) established to manufacture and sell mechanical seals.</p> <p>1988 Eagle Industry Australia Pty. Ltd. (current EagleBurgmann Australasia Pty. Ltd.) established to provide maintenance services for mechanical seals and other products.</p>
Automobile, Construction Machinery	<p>1957 Type EH790 mechanical seals developed for automotive water pumps.</p> <p>1959 Type EA920 mechanical seals developed for automotive air conditioners.</p> <p>1960 Type ES mechanical seals (slurry seals for construction machinery) developed.</p>	<p>1973 Reed valves for the intake system of two-cycle engines developed and delivered.</p> <p>1975 Reed valves for emission control developed and delivered.</p>	<p>1982 Unitized seals for automotive water pumps developed and delivered. WG valve actuators for turbochargers developed and delivered.</p> <p>1984 Mold sintered carbon for unitized seals for automotive water pump seals developed.</p> <p>1985 Lip seals for automotive air conditioners developed and delivered. Ukan Precision Co., Ltd. (current Okayama Eagle Co., Ltd.) established to manufacture mechanical seals and other products.</p> <p>1986 Engine valve timing solenoid valves developed and delivered.</p> <p>1988 AT solenoid valves developed and delivered.</p>
Petrochemical, Steel, Pharmaceutical, Energy Water, Pulp & Paper, Food	<p>1957 Type EA100 mechanical seals for home appliances developed.</p> <p>1961 Ceramic coating technology established.</p> <p>1963 Tungsten carbide seal face materials developed.</p> <p>1968 Tungsten carbide coating technology developed.</p> <p>1969 License agreement signed encompassing valves for power plants with U.S.-based Atwood & Morrill Co., Inc. (current Weir Valves & Controls USA, Inc.).</p>	<p>1971 First Japanese-made main steam isolation valve (MSIV) delivered. License and technical assistance agreement on diaphragm coupling signed with U.S.-based Bendix Inc. (current Goodrich Corp.).</p> <p>1973 Welded bellows type sodium valves and main coolant circulation pump seals for the Joyo FBR plant delivered.</p> <p>1975 Non-contacting seals for primary coolant pumps of PWR nuclear power plants developed and delivered to the Fugen advanced thermal test reactor.</p> <p>1976 L, H, Y series of mechanical seals developed for the chemical process industry.</p> <p>1979 Seal face material, EAGLE SiC (silicon carbide) developed.</p>	<p>1984 Production of formed and electrodeposited bellows started.</p> <p>1988 Eagle Service Co., Ltd. for valve maintenance established.</p> <p>1989 Eagle Machine Works Co., Ltd. established to manufacture mechanical seals and other products.</p>  <p>EagleBurgmann Japan Co., Ltd.</p>
Semiconductor			
Aerospace			<p>1986 The Japanese H-I rocket launched successfully with 16 EKK seals installed in the rocket engine.</p>  <p>©NASDA H-I rocket</p>
Marine	<p>1968 Oil-lubricated type stern tube seals developed.</p>	<p>1971 Water-lubricated type stern tube seals and bearing developed.</p>	<p>1983 Stern tube seals with inboard collection mechanism developed and delivered.</p> <p>1988 Stern tube seals for contra rotating propellers (CRP) developed.</p>

1990

2000

2010

- 1991 Invested in Germany-based Simrax GmbH. Company's shares listed on the First Section of the Tokyo Stock Exchange.
- 1995 Invested in New Zealand-based Asmus Inc. and changed the name to Eagle Asmus Ltd. (current EagleBurgmann Australasia Pty. Ltd.).



EKK listed on the Second Section of the Tokyo Stock Exchange

- 2000 Commenced online sales of Kalrez® O-rings for the first time in the industry.
- 2002 Eagle Industry (Wuxi) Co., Ltd. established in China to manufacture and sell mechanical seals, reed valves, and other products. Commenced online sales of the Global Cartridge Seal for the first time in the industry.
- 2005 Business alliance agreement signed with Germany-based Burgmann Industries GmbH & Co. KG for mechanical seals and other products for general industrial machinery.

- 2010 Eagle Holding Europe B.V. established to strengthen business activities in Europe.
- 2012 Commenced manufacture and delivery of accumulators and valves businesses for housing equipment transferred from NOK Corporation.
- 2013 NEOPT Corporation acquired and as a result NEOPT Company established as an internal company to manufacture and sell optoelectronic products.

- 1990 Shimane Eagle Co., Ltd. established to manufacture mechanical seals and other products. Control valves for automotive air conditioners developed and delivered.
- 1995 V-type lip seals for automotive air conditioners developed and delivered.
- 1997 Bellows seals for GDI engines developed.
- 1998 Pressure dampers for GDI engines developed. Eagle-Witzenmann S.A.S (current Eagle Industry France S.A.S.) established in France to manufacture and sell control valves and other products. Electronic control valves for automotive air conditioners developed and delivered.
- 1999 Compact seal for automotive water pumps developed and delivered. Mass-production of reed valves for EGR started.

- 2000 ECOCS metal C-seal developed.
- 2003 Solenoid valves for semi-active suspensions developed and delivered.
- 2005 Various types of solenoid valves for automobiles developed and delivered.
- 2009 Hiroshima Eagle Co., Ltd. established to manufacture mechanical seals and other products. EKK Eagle Products India Pvt. Ltd. established to manufacture and sell mechanical seals and other products.



Hiroshima Eagle Co., Ltd.

- 2011 Eagle Industry Sales (Shanghai) Co., Ltd. established in China to sell products for automobiles and construction machinery. EKK Eagle Sales America Inc. established in U.S. to sell products for automobiles.
- 2012 EKK Eagle Industry Mexico S.A. de C.V. established to manufacture and sell solenoid valves for automotive transmissions.

- 1991 Standard bellows seal "Bellows Ace" for the process industry developed and delivered.
- 1992 Bi-directional high-speed dry gas seals developed.
- 1993 SiC seals for water turbines developed. Eagle Techno East Japan Co., Ltd. established to sell and provide maintenance services for mechanical seals and other products.
- 1994 Compact cartridge seals for the process industry developed and delivered.
- 1996 Eagle Precision Co., Ltd. established to manufacture welded metal bellows and other products.
- 1998 Gate valves for semiconductor production equipment developed. Eagle Machine Works Co., Ltd. and Eagle Precision Co., Ltd. merged into Niigata Eagle Co., Ltd. (current EagleBurgmann Japan Co., Ltd.).

- 2002 Released the Global Cartridge Seal, a cartridge-type mechanical seal that can be mounted on pumps that meet the global standard, and magnetic fluid seals for the semiconductor and liquid crystal industries.
- 2005 Commenced sales in Japan of products from Germany-based Burgmann Industries GmbH & Co. KG.
- 2007 EagleBurgmann Japan Co., Ltd. absorbed EagleBurgmann Techno Co., Ltd.
- 2009 Eagle Seals and System India Ltd. merged with Burgmann India Pvt. Ltd. and reorganized into EagleBurgmann India Pvt. Ltd.



EagleBurgmann India Pvt. Ltd.

- 2010 EKK Eagle Semicon Components Inc. established to promote products for semiconductor manufacturing equipment in U.S.
- 2011 EagleBurgmann Mascot India Pvt. Ltd. established to manufacture and sell supply systems.

- 1994 Engine seals for the Japanese large-sized H-II rocket developed and delivered.
- 1998 Eagle Engineering Aerospace Co., Ltd. established to manufacture metal gaskets, seals, and other products for the aerospace industry.

- 2005 Aerospace Division established to take over the aerospace business of Eagle Engineering Aerospace Co., Ltd.
- 2009 Development agreement on mechanical seals for the U.S. next-generation J-2X rocket engine signed with U.S. based Pratt & Whitney.

- 2013 Officially selected by Rolls-Royce plc as a manufacturer of a newly developed seal for RR Trent 1000-TEN Engine for Boeing 787.

- 1993 Shaft seals for marine water jet pumps developed.

- 2000 Eagle Marine Company established as an internal company to reinforce the marine business.
- 2003 Shares acquired in Lignum-Vitae Co., Ltd. and reorganized it into a wholly-owned subsidiary.
- 2004 Sixty five percent of the shares of Kobelco Marine Engineering Co., Ltd. acquired and its name changed to Kobelco Eagle Marine Engineering Co., Ltd.
- 2007 Shin Ninomiya Metal Co., Ltd. (current Eagle Highcast Co., Ltd.) established.

- 2010 Kobelco Eagle Marine Engineering Co., Ltd. reorganized into a wholly-owned subsidiary and its name changed to KEMEL Co., Ltd.
- 2012 KEMEL Co., Ltd. absorbed and as a result KEMEL Company established as an internal company to strengthen the marine business.
- 2013 Lignum-Vitae Co., Ltd. absorbed to integrate and reinforce the marine business.

The EKK Group's Global Network

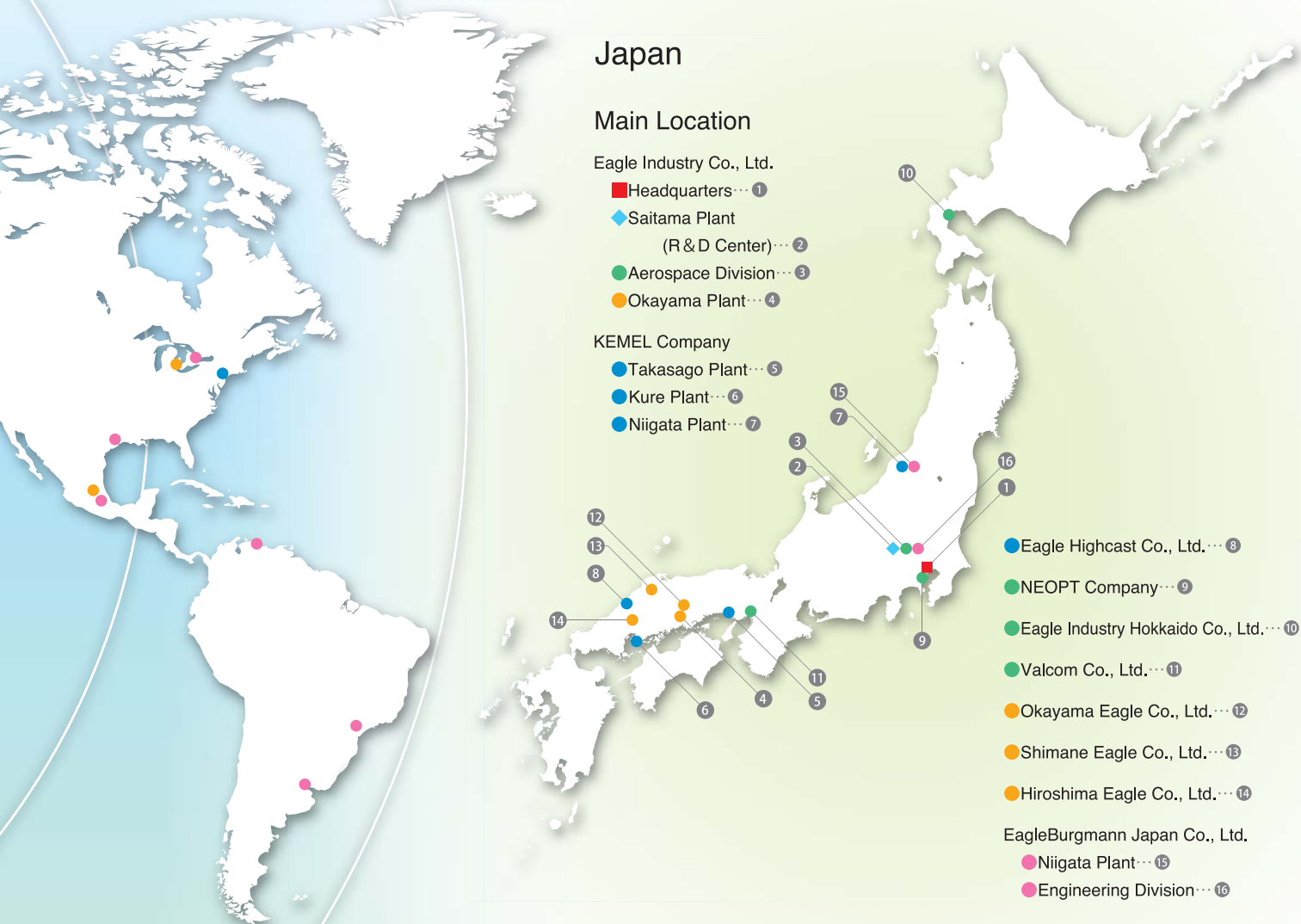


Overseas

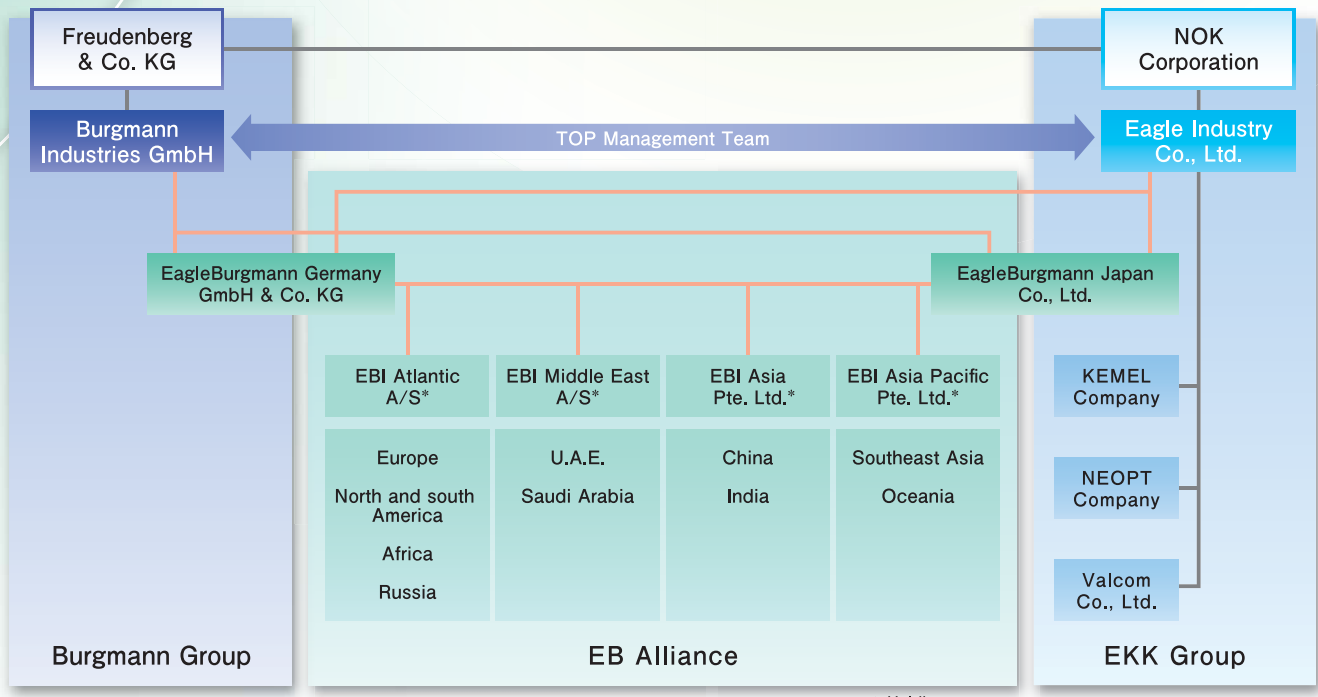
Main Location

- Eagle Simrax B.V. (Netherlands)
- EKK Sales Europe B.V. (Netherlands)
- Eagle Actuator Components GmbH & Co. KG (Germany)
- Eagle Industry France S.A.S. (France)
- Eagle Industry Hungary Kft. (Hungary)
- NEK Co., Ltd. (Korea)
- Eagle Industry Sales (Shanghai) Co., Ltd. (China)
- Eagle Industry (Wuxi) Co., Ltd. (China)
- Eagle Industry Taiwan Corporation (Taiwan)
- EKK Eagle (Thailand) Co., Ltd. (Thailand)
- EKK Eagle Industry Mexico S.A. de C.V. (Mexico)
- EagleBurgmann Germany GmbH & Co. KG (Germany)
- EagleBurgmann France S.A.S. (France)
- EagleBurgmann Italia S.r.l. (Italia)
- EagleBurgmann India Pvt. Ltd. (India)
- P.T. EagleBurgmann Indonesia (Indonesia)
- EagleBurgmann Australasia Pty. Ltd. (Australia)
- EKK Eagle Semicon Components Inc. (U.S.A.)
- KEMEL Europe Limited (United Kingdom)
- Eagle Materials Korea Co., Ltd. (Korea)
- KEMEL Asia Pacific Pte. Ltd. (Singapore)
- KEMEL USA Inc. (U.S.A.)
- Eagle Engineering Aerospace Singapore Pte. Ltd. (Singapore)

- Automobile, Construction Machinery, Housing Equipment
- Aerospace
- Petrochemical, Refinery, Energy, Steel, Pulp & Paper, Beverage
- Marine
- Semiconductor



EB Alliance



* Holding company



Company Overview

Name	Eagle Industry Co., Ltd.
Established	October 1, 1964
Headquarters	1-12-15, Shiba-Daimon, Minato-ku, Tokyo 105-8587, Japan
URL	http://www.ekk.co.jp/eng/
Paid-in capital	10,490 million yen
Total number of authorized shares	100,000,000 shares
Total number of issued shares	49,757,821 shares
Listing	First Section of Tokyo Stock Exchange (Securities Code: 6486)
Business outline	Manufacturing and sale of general-purpose/industrial mechanical seals, gas seals, magnetic fluid seals, special seals, bellows products, aerospace products, marine products, diaphragm couplings, special valves, fluid power components, optoelectronic products, pressure gauges and load meter products, and other products



Eagle Industry Co., Ltd.

1-12-15, Shiba-Daimon, Minato-ku, Tokyo 105-8587, Japan



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