

**EagleBurgmann®**



DiamondFaces® structure of a dynamically loaded seal face. Due to extreme hardness and resistance of the diamond coating, an outstanding service life of the seal can be achieved.

1 cm  $\approx$  4.0E-06 m



# Our seals are like our customers: unique.

## Our Products.

The truly interesting thing about a seal often is not the product itself but rather the problem it solves. It is the applications that make our product portfolio so varied: our seals are used in nearly every industry, from chemical industry all the way to oil and gas production and power generation.

Every sealing gap has a different requirement and calls for a very specific sealing solution. However, they all have one thing in common: the challenge is always to provide an absolutely dependable leakage barrier. The application may be to contain pressure, temperature, liquids or gas. The seal contact area may be a fraction of a millimeter or several meters in size. Whatever the task is, it takes the right product to manage the situation.

With all this in mind, we offer a broad portfolio of high-quality standard products. Furthermore, our design and sales engineers also develop exactly the right solution for your specific application. Be it a one-off and bespoke design, a large-volume production, highly complex dynamic sealing systems or specific gaskets, we give top priority to quality, durability and reliability on each and every product.

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# 1 $\mu\text{m}$ can make a world of difference.

## Our Company.

Sometimes you have to look very closely to see how things really work. If you look under a microscope at the surface of some of our high-precision mechanical seals, you will notice the interesting texture of pure diamond. The seal face that it covers is flat to within 0.3  $\mu\text{m}$  (one third of one thousandth of a millimeter). A human hair is about 100 micrometer thick. Neither the texture nor the flatness is apparent at first glance, but together they stand for a very important function. They ensure that the seal works reliably and operates for a long time.

We would like to invite you to take a closer look at EagleBurgmann on the pages that follow. You will become acquainted with a company that is passionate about sealing technology and takes its responsibilities seriously, from research and development and state-of-the-art production right through to comprehensive customer service.

We profit from the combined know-how and wealth of experience of two well-respected companies in the sealing technology industry, namely Eagle Industry (Japan) and Burgmann Industries (Germany). 2004 the two companies forged EagleBurgmann Industries, the worldwide alliance for sealing technology. Under the Freudenberg and NOK umbrella, we are one of the leading manufacturers of sealing products. We employ over 5,000 people and realize a turnover of more than half a billion Euros.

As a technology leader and agile business partner, we draw on our expertise to provide local support to our customers and solve their problems quickly and efficiently wherever they are located around the world. By delivering top-quality products and the best local service, we aim to become the world's most respected and customer-oriented supplier of sealing solutions.

Why not read on and see for yourself.



Feodor Burgmann  
1857–1916



Feodor Burgmann  
1924–1988



Burgmann premises  
1951



Burgmann Headquarters  
in Wolfratshausen, Germany



Syogo Tsuru  
1915-1998  
Founder of NOK, Japan



EagleBurgmann plant  
in Niigata, Japan

## A brief history.

**Eagle Industry** has its roots in the Mechanical Seal Division of NOK Corporation (Japan). Nippon Sealol Co., Ltd. was formed in **1964** as a joint venture between NOK's Mechanical Seal Division and an US seal manufacturer. The name was changed to Eagle Industry Co., Ltd. in **1978**. The partner withdrew from the joint venture at a later date. Subsidiaries were subsequently founded in Asia and Australia. In **1989** Eagle Machine Works Co., Ltd., the production site for mechanical seals in Niigata (Japan), was established. **1993** Eagle Techno East Japan Co., Ltd., encompassing eight local companies, was founded with the aim to improve customer service.

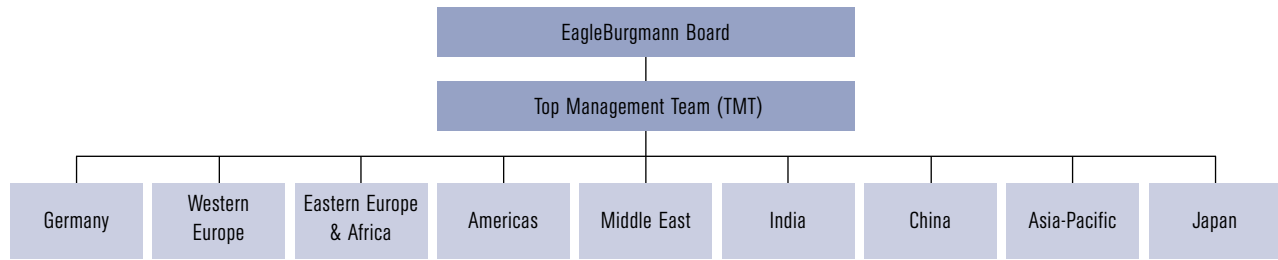
**1884** Feodor **Burgmann** established a company in Dresden, Germany to supply "technical articles". The company founder invented the machine-braided self-lubricating stuffing box packing – a pioneering achievement that was to have a major influence on the development of sealing technology. Other domestic and foreign offices and production plants were established over the years. **1945** Feodor Burgmann jr. relaunched the business in Seeleiten in Bavaria. Company headquarters moved to Wolfratshausen in **1951**. The company began

to develop and manufacture mechanical seals in **1962**, and expansion joints were added to the product portfolio in **1965**. An international expansion program began in **1978** and has continued to enhance worldwide market presence with more than 50 subsidiaries and joint ventures. The Scandinavian KE Group was acquired in **1993**, followed by the BT Group in Italy and Gustav Espey GmbH in Duisburg, Germany in **1998**.

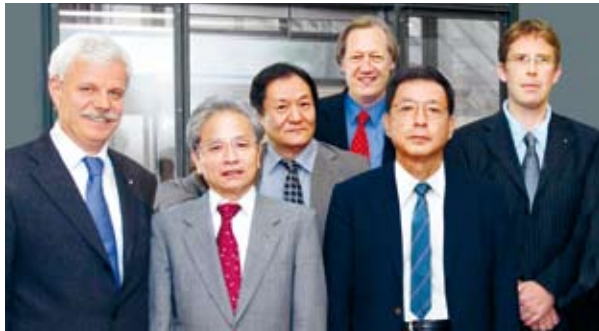
In **2005**, EagleBurgmann acquired Elof Hansson Industrikomponenter AB of Sweden. Other subsidiaries were formed in Saudi Arabia and Russia. In India, Eagle acquired all shares of Eagle-Poonawalla which it then transformed into ESSIL (Eagle Seals & Systems India Ltd.).

Behind the EagleBurgmann alliance stand the Freudenberg & Co. of Weinheim, Germany (turnover around 5 billion Euros, more than 30,000 employees) and the Tokyo-based NOK Corporation (turnover around 3 billion Euros, more than 25,000 employees).





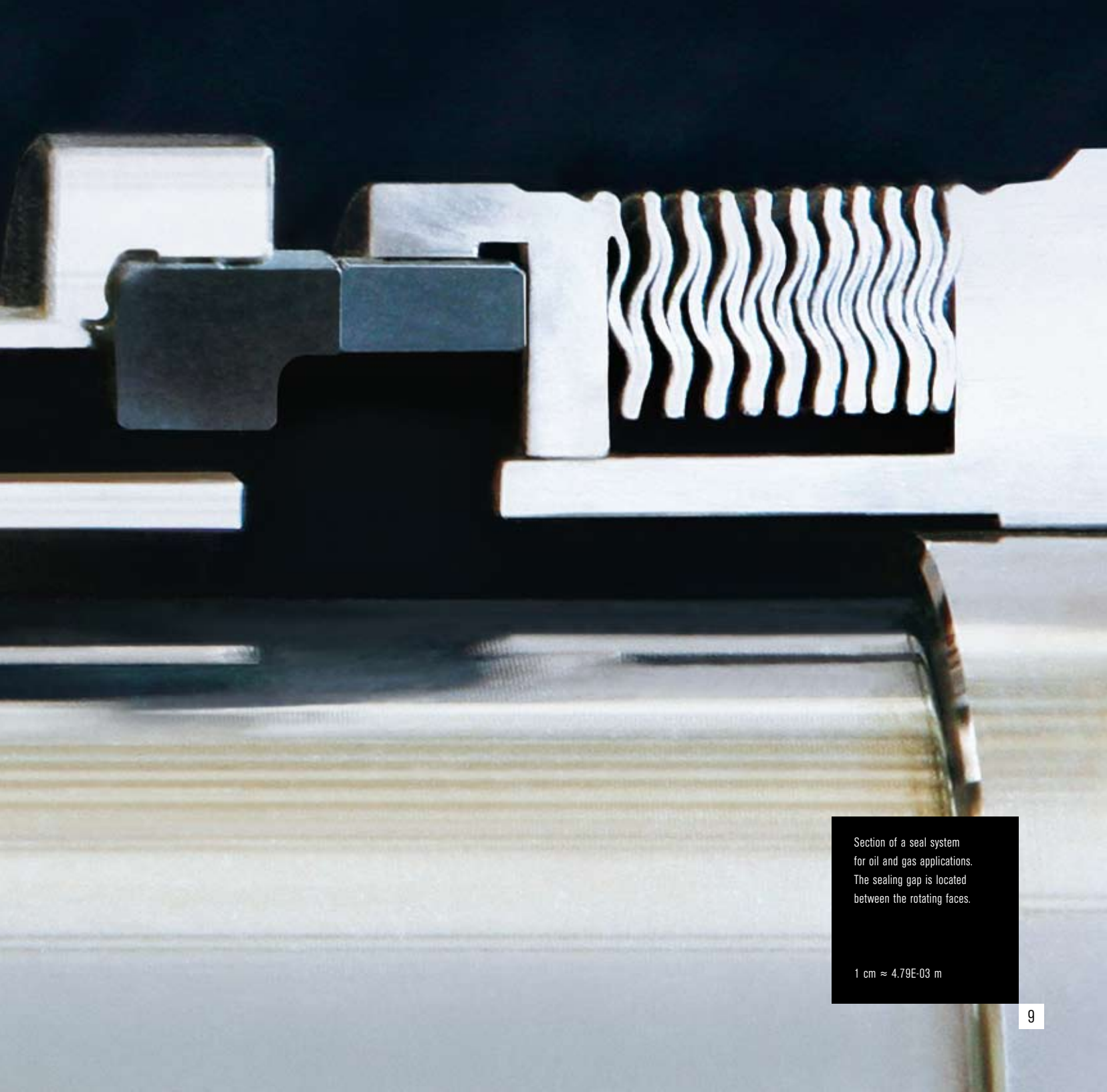
## Our organizational structure.



A global organizational structure that is focused on our markets forms the backbone of the company. Our subsidiaries and branch operations are organized into nine regions under the direction of our top management team (TMT). The TMT reports to the EagleBurgmann board, which includes representatives from Freudenberg and NOK.

The TMT members (from left to right):

Dr. Walter Steinbach, Dr. Asahiko Ishiyama, Yasunari Unemura, Christoph Mosmann, Tetsuji Tsuru, Jochen Strasser.



Section of a seal system  
for oil and gas applications.  
The sealing gap is located  
between the rotating faces.

1 cm  $\approx$  4.79E-03 m



# Our most important resource: knowledge.

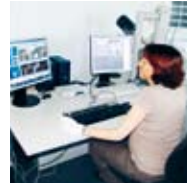
## Our Know-How.

To manage the most difficult, precious or dangerous media in any application, there's one thing you need: in-depth knowledge of sealing technology. Our goal of being the technology leader gives us an added incentive to improve our existing solutions, discover new ones and continually expand our knowledge base.

Our intensive research and development (R&D) scientific activities in sealing technology include specialist divisions, such as tribology, materials and fluid mechanics. We engage in multi-discipline collaboration with institutes and universities and carry out publicly subsidized research projects. We also continually work with our customers and suppliers to develop new solutions. Our team of experienced scientists, engineers and technicians has access to leading-edge tools and facilities.

In addition to a large number of test and assessment facilities around the world, EagleBurgmann has two large R&D centers in Germany and Japan. We have test beds to run acceptance tests on pump, agitator and compressor seals, development and test labs for expansion joints, and special acceptance test facilities for refinery seals (only a few of these exist worldwide).

Numerous patents and publications are a clear indication that our innovative solutions have made a major contribution to the development of sealing technology for more than 120 years. Our efforts are always characterized by a healthy mix of methodology, experience, expertise and the pure joy of discovery and innovation. The list of achievements includes innovative solutions, such as high-tech sensors for remote seal monitoring, clever groove geometry which optimizes gas-lubricated compressor seals and diamond face coatings that significantly extend the lifetime of mechanical seals. In short: we deploy our know-how to come up with solutions that benefit our customers.



Test facilities for mechanical seals in our R&D facilities in Wolfratshausen, Germany

## Research and development.

The fascination factor usually plays a role in intensive research, and at our company this is no exception. If you were to ask one of our design engineers about a current project, you would probably get a very enthusiastic response. He might briefly mention a theoretical simulation of new mechanical seal geometry which is based on a purely mathematical model. A detailed discussion

would be beyond anyone but the experts. He would however show you that what he is doing can enhance machine availability and reduce the risk of failure and damage to the environment. He would also tell you about our commitment to developing solutions that last longer than competitive products.



Research & Development facilities in Japan

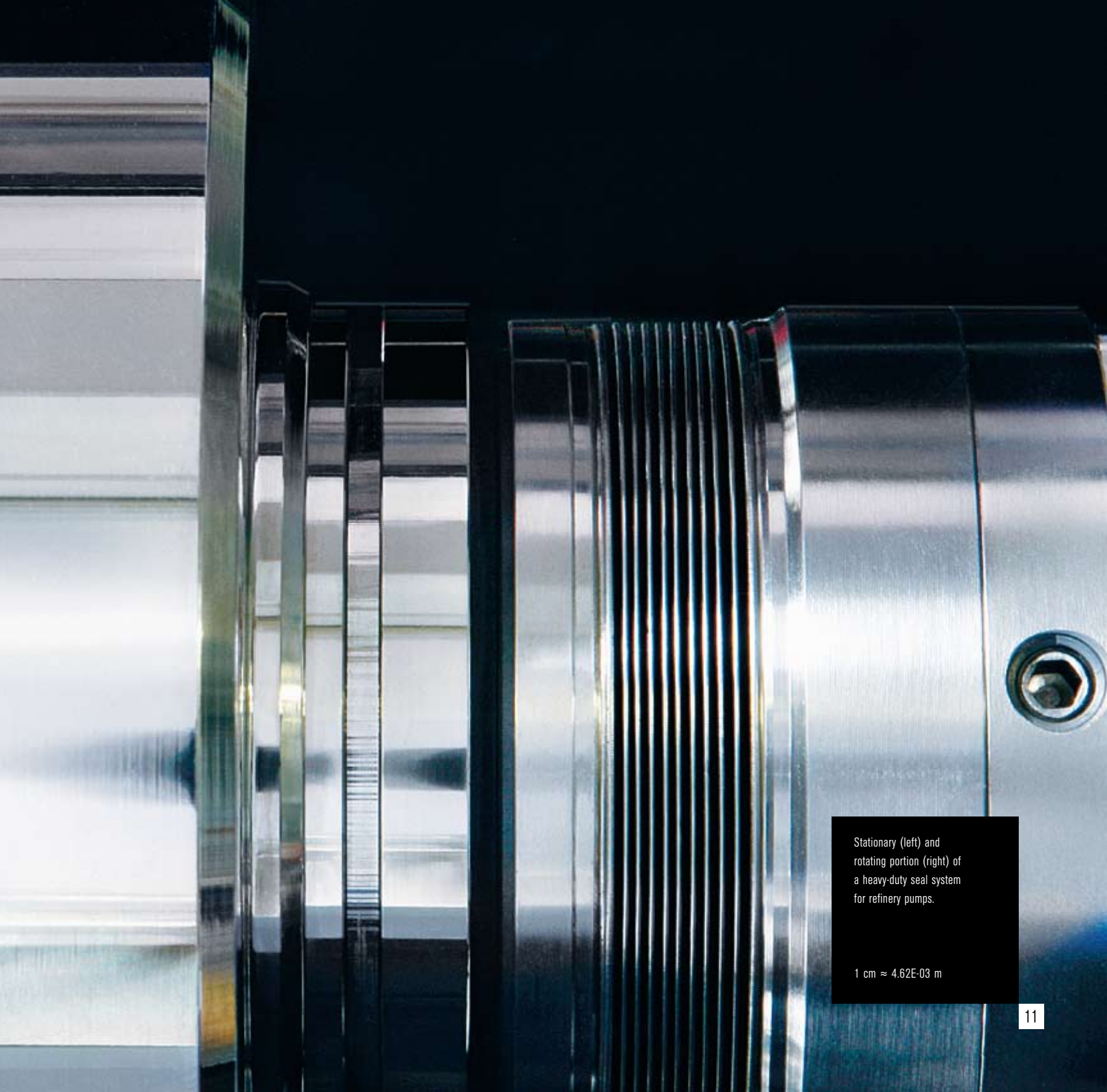
## Science working for you.

That is what makes our scientific activity so interesting for the layman. You might find the following facts equally fascinating:

- Our compressor seals will withstand heat loads of up to 600 Watt/cm<sup>2</sup>. The hot plate on a kitchen stove only generates 3 Watt/cm<sup>2</sup>.
- Our gaskets made of heat-resistant mica which are used in flue gas systems will withstand temperatures up to 900 °C.
- The two seal faces on our gas-lubricated mechanical seals are only separated by a 5-µm gap as they rotate at speeds up to 750 km/h. That is equivalent to a jet aircraft flying at an altitude of only 0.3 mm above the ground!

- The wearing parts on a typical mechanical seal (diameter 48 mm, rotational speed 3,000 rpm) only need to be replaced about every 10,000 operating hours. That is equivalent to having covered a distance of 272,000 kilometers.
- Our heavy-duty agitator seals will withstand pressure that is equivalent to the level found in the deepest ocean.





Stationary (left) and rotating portion (right) of a heavy-duty seal system for refinery pumps.

1 cm  $\approx$  4.62E-03 m

# Our favorite development: experts.

## Our Employees.

The seals that we produce and the services we provide are not the whole story at EagleBurgmann. The two would not be possible without the people behind them. Around 5,000 dedicated employees make a vital contribution throughout our entire organization in all of the countries where we operate.

Partnership is our overriding principle. It forges the links between the corporate business units and the various cultures around the world, and it keeps us close to our customers, suppliers and other business partners.

Social responsibility is another key element of our corporate philosophy. We keep our business moving forward by embedding every employee into a team that he or she can rely on. Our organizational structure is designed to avoid friction and encourage the continual accumulation of knowledge. We remain innovative, because every individual strives to find the best possible solution and knows that it is worth the effort.

The ideas of our employees, their expertise and their ability to identify with the company make EagleBurgmann what it is today. Each and every employee assumes responsibility and helps shape the company. We are convinced that our success is based on intensive training and continuing professional development. Our know-how lies in the heads and hands of our employees, and we value and respect each and every one of them. It is they who make our company unique and our products so distinctive.

We believe that it is important that people enjoy working for us. On average, our employees stay with us for more than ten years. Yet we still have a young workforce. We seek to combine experience with imagination so that we are able to act as a reliable partner for our customers and suppliers.



Cartridge mechanical seal



Gas-lubricated  
compressor seal



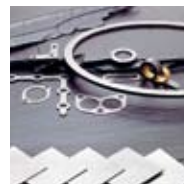
Mechanical sealing system  
for agitators



NMB high-efficiency  
magnetic coupling



Stuffing box packings



Static seals  
and sealing elements

## One product portfolio for many solutions.

**Mechanical seals** are dynamic seals which provide sealing between a rotating shaft and stationary housing in pumps, agitators and compressors. They are used in nearly all rotating equipment, from the water pump in dishwashers to high-performance industrial pumps in power stations, oil production facilities and the chemical industry. Due to the wide variety of designs, configurations and material combinations, the operating limits vary considerably. EagleBurgmann's liquid and gas-lubricated mechanical seals can handle virtually any job including high pressure and high sliding velocities, extreme temperatures and almost all conceivable types of media. In addition to providing seals, we also offer one-stop shopping for the associated flushing, cooling and pressurization supply systems, and we provide Espey segmented carbon seals for dynamic sealing of gaseous media.

**Magnetic Couplings** are used likewise for sealing pumps and agitators but are hermetically tight. Using high-performance magnets, power is transmitted contact-free from the drive to the shaft running in the product. Hazardous or expensive media thus remain where they belong – in the closed system circuit.

**Stuffing box packings and static seals** have always been part of our product portfolio. Packings remain an economical and high-quality method for sealing shafts: with versatile, modern materials we are able to seal nearly any medium in valves, pumps, agitators and similar equipment. Especially important for environmental protection and cost-effective processes are our packing sets for fugitive emission control. They are among the most reliable seals on the market, and they comply with the most stringent environmental standards. Our static seals are applied to seal stationary machine parts, such as flanges on pipe joints.





Metal bellows  
mechanical seal



Thermosiphon system for  
supplying mechanical seals



Espey shaft seal



Fabric, metal and  
rubber expansion joints



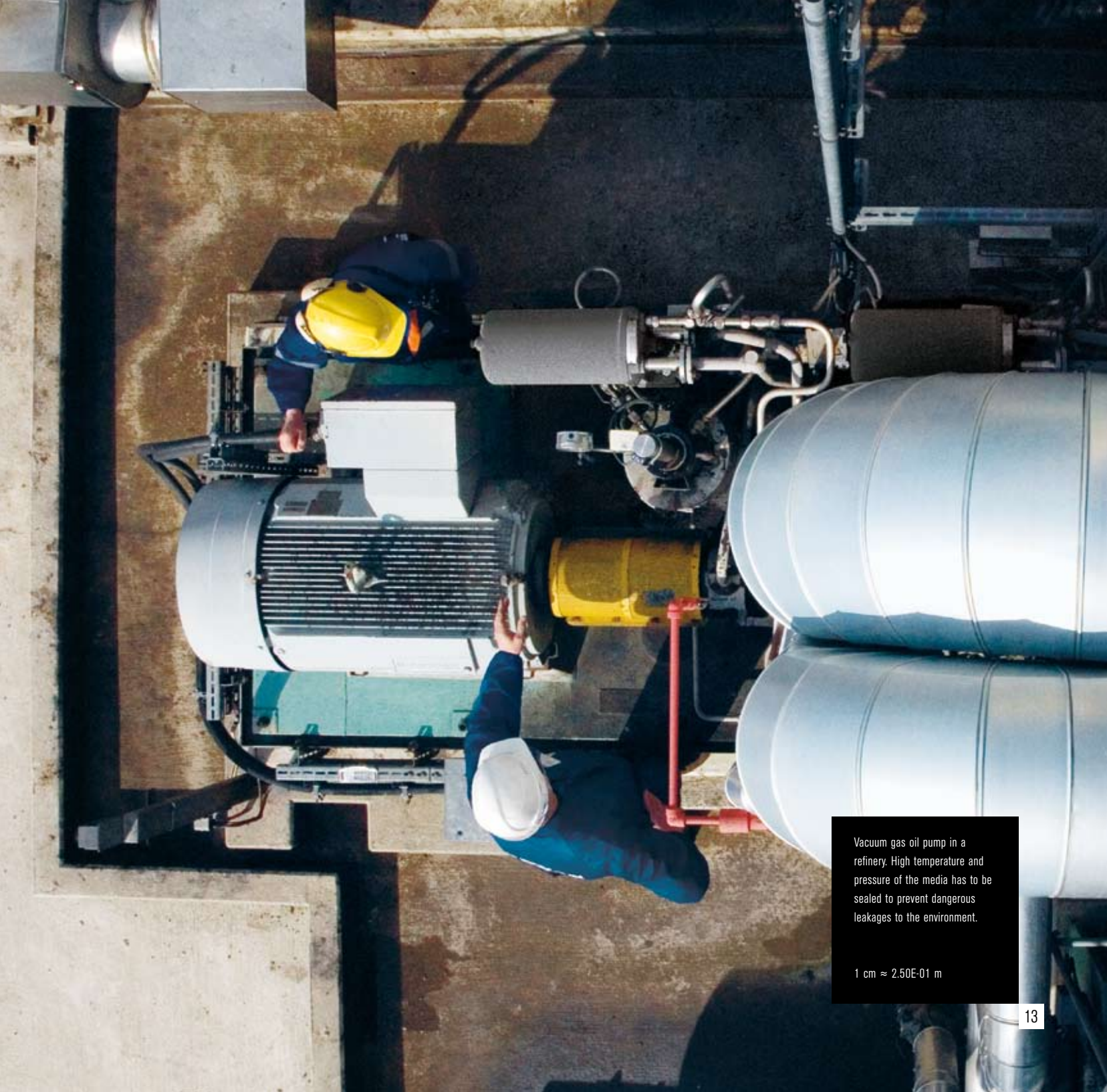
Diaphragm coupling



Metal bellows  
and special parts

**Expansion joints** compensate for motion, vibration and misalignment in duct systems. They have to provide reliable sealing and be resistant to media (e.g. aggressive flue gas) at the same time. Our expansion joints are used in pipeline systems which carry liquids as well as in flue gas systems in power stations. As one of the market leaders in this field, we are able to supply single or multi-layer fabric KE expansion joints, rubber expansion joints or Bredan metal expansion joints which are designed for the specific application.

**Special products**, such as our dynamic and static seals for the aerospace industry, meet the most demanding high-tech quality requirements. We are also a leading manufacturer of high-quality welded metal bellows for special industrial applications, such as nuclear power, semiconductors and medical equipment. EagleBurgmann's portfolio also includes diaphragm couplings for gas turbines for power generation and compressors, stern tube and marine seals and other components for industrial applications.



Vacuum gas oil pump in a refinery. High temperature and pressure of the media has to be sealed to prevent dangerous leakages to the environment.

1 cm  $\approx$  2.50E-01 m

# We have a common goal: keeping things going.

## Our Service.

From a distance, everything seems harmless enough, but don't bet on it. If a component fails, the situation can quickly escalate and cause damage that can run into the millions. We want to be there and provide the on-site 24/7 support that you need.

EagleBurgmann offers a full range of service solutions to meet any challenge. Our teams can perform installation, commissioning and complete maintenance on all of the seals which are installed at a facility, and we can take charge of warehouse management and employee training. We offer our customers modular service packages tailored to meet their specific needs. Our services help our customers reduce costs, increase system availability and improve reliability and safety.

Our service coverage is international, because our customers are international. Just as we modify our seals to meet specific needs, we continually customize our services to meet the ever-changing market requirements. We travel to Siberia to assess compressor space requirements. We go to the Brazilian rain forest to replace a seal. We send a team of experts and a service container to the Middle East to install expansion joints. We have service centers around the world, and we come right to your site when you need us.









## The big picture: TotalSealCare™.

Maintaining a focus on the environment in which our products are used can have a crucial influence on service life, functional reliability and maintenance intervals. In our field, a manufacturer's ability must always include applications expertise. We make this skill available to our customers as a modular service strategy called TotalSealCare™. The various services that are included in the package form the basis for a reliable partnership which is forged to guarantee maximum system availability.

**Our classic service** includes installation, commissioning, maintenance, repair and retrofit of seals. Our installation team and field engineers make their services available to you and support you throughout the life of the seals, from installation to replacement.

We provide **consulting and engineering services** when you install a new plant or want to get the most out of your existing one. We find the bad actors at your site and we develop a standardization proposal. When you minimize the variety of seal types and sizes, cost can be reduced.

**Seminars and training** ensure that your employees keep up with the latest developments in the field of sealing technology. Our seminars transfer valuable hands-on knowledge to maintenance personnel and facilities engineering staff. A well-structured program of basic and advanced courses and seminars round off our range of professional development services.

We assemble the individual service modules to create **service strategies and partnership agreements** which are tailored to meet individual needs. On request, we will take responsibility for a defined subset or complete seal service for your plant. Our many international contracts show how much confidence well-known companies have in our services.





Thousands of sealing spots demand attention in facilities like this: gas ducts, flanges, valves, pumps, compressors, agitators ...

1 cm  $\approx$  1.43E+01 m



An aerial photograph of a rural landscape. In the foreground, there are large, rectangular agricultural fields in various shades of brown and green. A winding river or stream flows through the middle ground. In the background, a small town or village is visible, surrounded by more fields and some trees. The sky is clear and blue.

# Everything is safe. Even your money.

## Our Standards.

In the field of sealing technology (and consequently at EagleBurgmann too), dependable operation plays a major role in environmental protection. A lot of our work is directed at preventing leakage and keeping hazardous substances where they belong, namely inside machines and systems and not in the environment. We take this responsibility very seriously, and we accept it willingly as human beings and as conscientious business partners.

As a multinational company, we have a global, geographical and environmental perspective. When it comes to environmental protection, we make no compromises in designing and making recommendations to our customers. We are fully aware that human health and the future of our environment are at stake.

This responsible approach permeates the business activities at all of our locations worldwide. We introduced quality management systems in the mid 1980s. We have also implemented an environmental management system to control and monitor responsible resource utilization. Part of our strategy is to design durable products that remain in service for many years with the support of our service teams. This approach protects the environment, reduces raw material consumption and relieves the pressure on our customers' budgets.







26% Germany

12% Western Europe

7% China

12% Americas

11% Asia-Pacific

7% Eastern Europe

12% Japan

9% India

4% Middle East

EagleBurgmann employee distribution 2006

## Because we make seals, we like things to be smooth.

We aim to be the world's best supplier of sealing solutions, therefore we are totally focused on our customers and their industries. It takes more than product knowledge to be a good sealing technology partner. It is vital for us to understand the machines and the processes in which our products are used. That is why we have organized our consultants, engineers and applications specialists into operating units which are aligned along industry lines: oil & gas, refinery, chemical, pharmaceutical, food, water, pulp & paper, and power generation. We have teams of experts who provide professional support to all key industries. You as the customer can be assured that we understand your problems, are familiar with your industry-specific requirements and offer the most cost-effective solutions.

Communication is a crucial aspect of cooperation. It is very important to our team of customer consultants, sales engineers, applications technicians, designers, project managers, production specialists and service engineers that the various functions work seamlessly together without friction. We know that there is no other way to keep our customers satisfied. We are pleased that many partners have placed their trust in us for many years, and it motivates us to continue to earn their confidence in the future.





Industrial plants and our habitat often are at close quarters. Stringent environmental standards and reliable technologies contribute to prevent noxious emissions and contaminations.

1 cm  $\approx$  1.54E+02 m



# Our favorite place: the whole world.

## Our Locations.

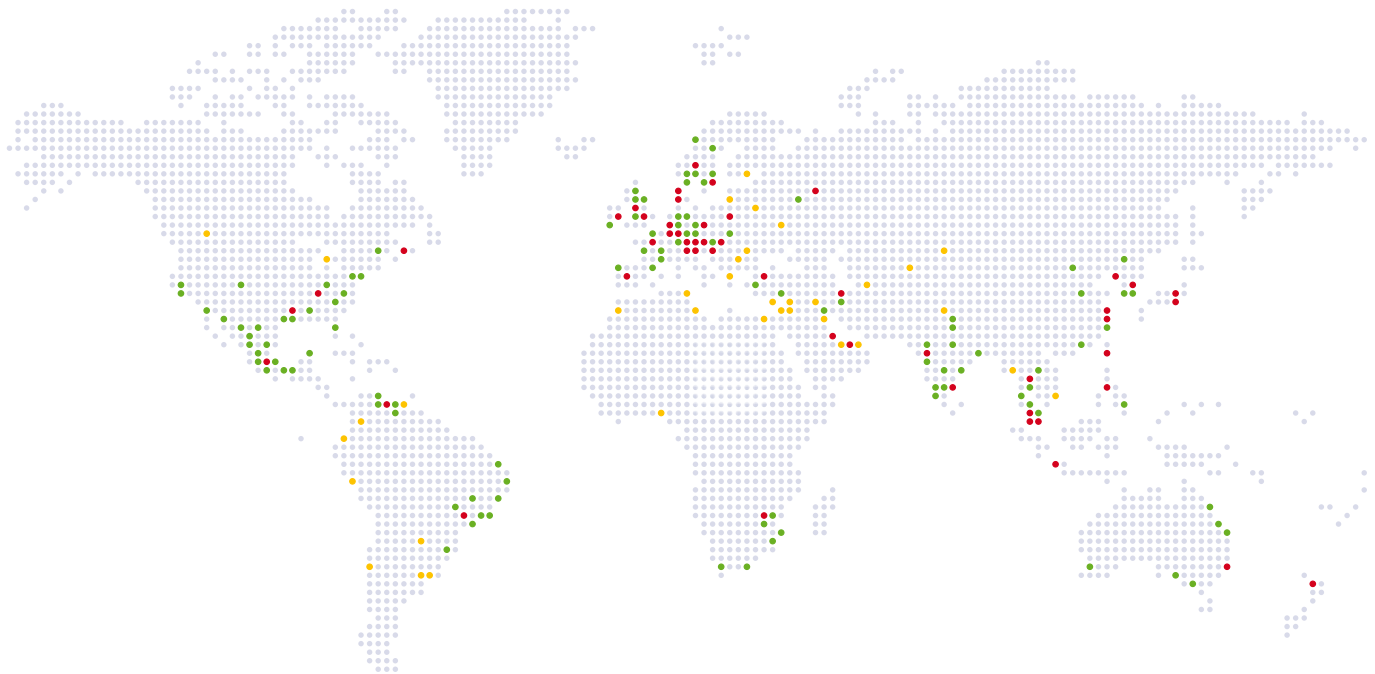
We will probably seldom have the opportunity to be as close to you as we are now. After all, you are holding our brochure in your hands. But we are never very far away from you. We have a presence at more than 270 locations on all continents around the globe, including 20 production sites and over 130 service centers. More than 30 agencies provide support to our sales network.

We would consider working with you in any way you choose. Close person-to-person contact is very important to us. We also value fast local service and good long-term relationships, regardless of whether our customers are located in large metropolitan areas or less accessible regions.

We do not maintain a presence around the world simply because we enjoy visiting faraway places. We do it so that we are flexible enough to move with our customers. We have been following this strategy since the 1970s.

We maintain close proximity to the customer. We familiarize ourselves with local market conditions. We need to do that so that we can offer the right products and services to meet your specific requirements anywhere around the world.





- Subsidiary
- Service Center
- Agency

The brief summary on this page represents merely a country-specific selection of our subsidiaries. Interactive access to a complete list of addresses for more than 270 locations around the world is available at [www.eagleburgmann.com/world](http://www.eagleburgmann.com/world)



**Argentina** · Buenos Aires  
EagleBurgmann Argentina

**Australia** · Ingleburn  
EagleBurgmann Australia Pty. Ltd.

**Austria** · Salzburg  
EagleBurgmann Austria GmbH

**Belgium** · Sint-Job-in't-Goor  
EagleBurgmann Belgium B.V.B.A.

**Brazil** · Campinas  
EagleBurgmann do Brasil  
Vedações Industriais Ltda.

**Canada** · Dartmouth  
Nova Magnetics-Burgmann Ltd.

**China** · Shanghai  
EagleBurgmann China Co., Ltd.

**Czech Republic** · Prague  
EagleBurgmann Czech s.r.o.

**Denmark** · Vejen  
KE-Burgmann A/S

**Finland** · Vantaa  
KE-Burgmann Finland OY

**France** · Sartrouville  
EagleBurgmann France SAS

**Germany** · Wolfratshausen  
Burgmann Industries GmbH & Co. KG

**Hungary** · Budapest  
EagleBurgmann Hungaria Kft.

**India** · Pune  
ESSIL Eagle Seals and Systems  
India Ltd.

**Indonesia** · Bekasi  
PT EagleBurgmann Indonesia

**Iran** · Tehran  
Burgmann Pars Sealing Systems Co.

**Italy** · Osnago  
EagleBurgmann Italia s.r.l.

**Japan** · Tokyo  
EagleBurgmann Japan Co., Ltd.

**Korea** · Kyungki-Do  
EagleBurgmann Korea Co., Ltd.

**Malaysia** · Petaling Jaya  
EagleBurgmann (Malaysia) Sdn. Bhd.

**Mexico** · Cuautitlán  
EagleBurgmann Mexico S.A. de C.V.

**New Zealand** · Auckland  
EagleBurgmann New Zealand Ltd.

**Norway** · Skedsmokorset  
EagleBurgmann Norway AS

**Philippines** · Carmona  
Burgmann (Philippines) Inc.

**Poland** · Warsaw  
KE-Burgmann Polska Spółka z.o.o.

**Romania** · Bucharest  
EagleBurgmann RO SRL.

**Russia** · Zavolzhye  
EagleBurgmann OOO

**Saudi Arabia** · Dammam  
Burgmann Saudi Arabia Limited

**Singapore** · Singapore  
EagleBurgmann Singapore Pte. Ltd.

**South Africa** · Johannesburg  
EagleBurgmann Seals South Africa  
(Pty.) Ltd.

**Spain** · Villaviciosa de Odón  
EagleBurgmann Ibérica S.A.

**Sweden** · Norrköping  
EagleBurgmann Sweden AB

**Switzerland** · Höri  
EagleBurgmann (Switzerland) AG

**Taiwan** · Taipei  
EagleBurgmann Taiwan Co., Ltd.

**Thailand** · Samutprakarn  
EagleBurgmann (Thailand) Co., Ltd.

**The Netherlands** · Veenendaal  
EagleBurgmann Netherlands B.V.

**Turkey** · Tepeören-Tuzla/Istanbul  
EagleBurgmann Endüstriyel  
Sızdırmazlık San. Ve Tic. Ltd. Ş ti.

**United Arabian Emirates** · Dubai  
EagleBurgmann Middle East FZE

**United Kingdom** · Warwick  
EagleBurgmann Industries UK LP

**USA** · Houston  
EagleBurgmann Industries LP

**Venezuela** · Caracas  
Burgmann de Venezuela C.A.

[www.eagleburgmann.com/world](http://www.eagleburgmann.com/world)





1 cm  $\approx$  1.82E+04 m



# On the threshold to the future.

## Our Outlook.

In this brochure, we have shared information with you about where our company is today along with a few details about our history. You have found out that we are a technology leader with a very large experience base. You have learned that we offer a comprehensive product portfolio and deliver uncompromising quality. We would now like to share with you our vision for the future. The future challenges that lie ahead for a seal manufacturer are clear for all of us to see. Climate change and a growing awareness of the ecological imperatives will make it necessary for us to reduce the consumption of natural resources.

Emission regulations for industrial plants will become even more stringent in the future. We're ready for that. As fossil fuel reserves are depleted and raw materials become increasingly scarce, there will be greater reliance on

reserves that are very difficult to extract. We will provide the reliable sealing technology that is needed to do the job. Water supply and treatment facilities will be constructed in many countries, and they will have to provide reliable service. We will be involved in these projects too.

As we focus on worldwide market needs, we will continue to address the details and constantly develop new solutions. We will do this because we are confident that this is the road to success, but also because we understand our responsibilities and, ultimately, because we are driven by curiosity. We take great pleasure in innovation and discovery, and we enjoy making new contacts and meeting new people. If you have the feeling that we may be able to do something for you, do not hesitate to contact us. We would be delighted to hear from you.









ISO 9001:2000

EN 9100

ISO 14001

OHSAS 18001

ATEX  
94/9/EG

DIN/EN 729-2  
HPO

KTA 1401  
Nuclear  
Power Plants

ISO TS 16949

## Regulations that protect health and nature cannot be stringent enough.

Environmental protection also has a positive effect on human welfare. This is why we give top priority to quality standards and allow our products and our company to be certified on a regular basis by independent bodies.

The safety of our products is based on a fundamental commitment to meeting our responsibilities throughout the company, and it goes without saying that we maintain very stringent standards at our sites worldwide. This includes compliance with very strict occupational health regulations. Our HSE (health,

safety and environment) officer checks each of our sites on a regular basis. An internal HSE competition between all of our sites encourages safety awareness and sends out a clear message that suggestions on how to improve even further are welcome no matter what organization they come from. We want every employee as well as our customers to understand that safety has priority at all of our sites around the world.





1 cm  $\approx$  7.22E+05 m

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