## Industrial Refrigeration Cooling, Heating and Energy Solutions







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#### **Johnson Controls**

## Technology at your service

We lead the search for smart, sustainable, environmental technology, thanks to our heritage.

People have always sought to make homes and workplaces, products and processes, safer and more secure. Now, as companies seek to better address the aspirations of a growing global population, there is an ever-increasing need for smart and sustainable technology.

Johnson Controls began addressing these needs a long time ago. In 1885, Warren Johnson patented the world's first electric room thermostat and founded Johnson Controls.

Today we focus on buildings and buildingrelated technologies, where we have an unrivalled heritage and a global portfolio of proven solutions covering:

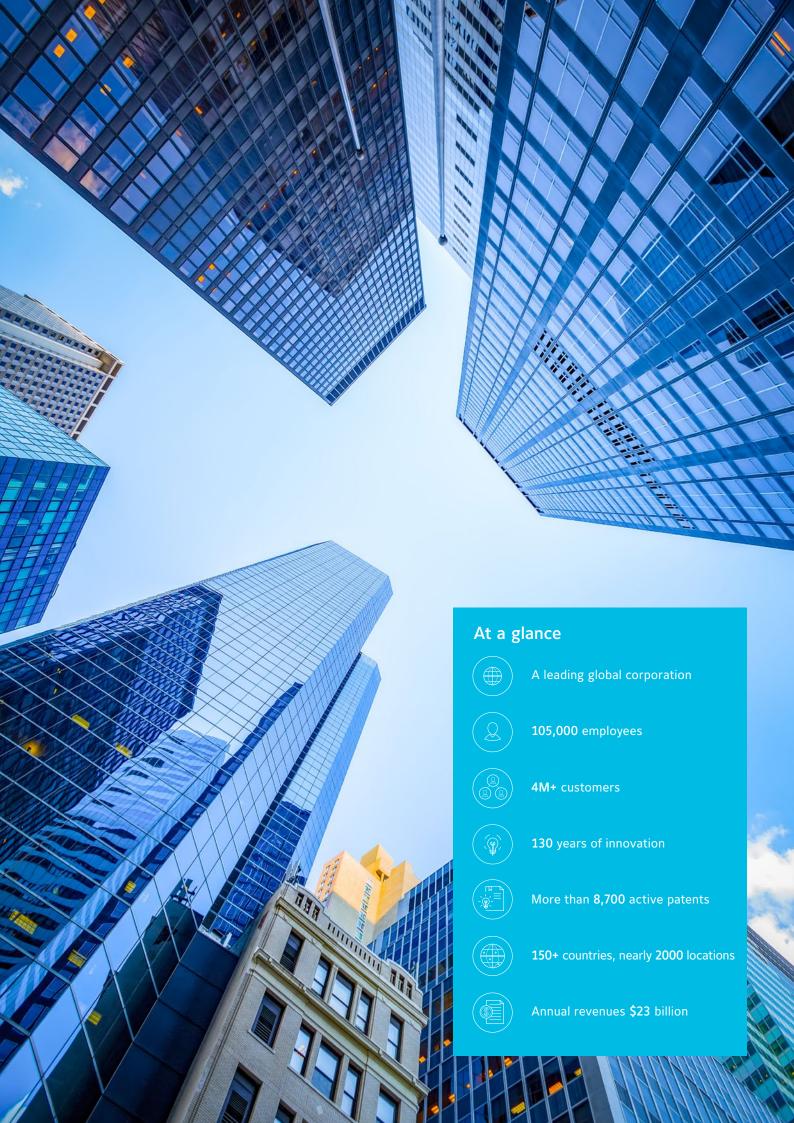
- Intelligent buildings
- Energy-efficient solutions
- Integrated infrastructure
- · Cooling heating and energy solutions
- Next generation production and transportation systems

All over the world, our people and products help to create safe, comfortable and sustainable products, processes and places.

Thanks to our world-class tech heritage, global market experience and deep industry expertise, we are uniquely positioned as a dependable partner for smart, safe and sustainable solutions.

#### **Our Portfolio**

- Industrial Refrigeration Cooling Heating and Energy Solutions
- HVAC Equipment
- Building Automation and Controls
- Security
- · Fire Detection and Suppression
- Digital Solutions
- Residential and Smart Home
- Retail Solutions



### **Industrial Refrigeration Europe**

## Expertise and presence for peace of mind

We are leaders in industrial refrigeration cooling, heating and energy solutions with innovative products and deep industry expertise.



If industrial refrigeration is a fundamental factor in your value proposition, then deploying smart, safe and sustainable solutions is vital.

As a leading supplier of reciprocating and screw compressors, chillers for standard and low temperature applications, heat pumps and controls systems, we have the know-why, the know-how, the technological expertise and the market presence to support all your projects now and in future.

With an unrivalled equipment portfolio backed by full project engineering and lifetime service capabilities, Johnson Controls is the preferred partner for customers looking for industrial scale heating and cooling process, coupled with peace of mind and lower overall cost of ownership.

#### Consistent across the continent

Local market knowledge and straightforward communication are key when creating customer-tailored solutions.

As a provider of industrial refrigeration equipment, we cover Europe in a consistent and streamlined manner. That makes Johnson Controls the smart choice wherever you are and no matter how complex your needs or requirements.



#### One team to help you succeed

By having both our development teams and our manufacturing facilities in Europe, we are able to offer customers more responsive, better tailored and more dependable solutions.

Our European field sales engineers and field service managers work face-to-face with our customers providing full lifecycle support. This frontline feedback allows us to constantly refine our products and processes to better serve the evolving needs of the market.

#### Reliably made in Europe

At our manufacturing sites in Europe we also have state-of-the-art facilities for R&D and welcome visits from our customers for training or system testing purposes.



More than 1300 employees



More than 700 technicians in the field



European manufacturing facilities



Offices across Europe

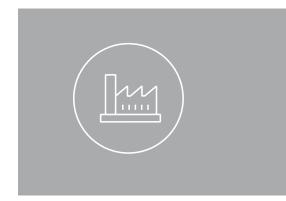
#### You can find us in:

- Austria
- Belgium and Luxembourg
- Czech Republic and Slovakia
- Denmark
- Finland
- France
- Germany
- Hungary
- Italy
- Netherlands
- Norway
- Poland
- Portugal
- Russia
- Spain
- Sweden
- Switzerland
- UK and Ireland

## Full lifecycle solutions

From concept and consulting to installing and commissioning, we offer fully-tailored solutions for absolute peace of mind. Every aspect of the design is fine-tuned to optimize your capital and operating expenditure.











### Development and manufacturing

Reducing complexity, streamlining collaboration Our sales engineers work closely with our development engineers in order to offer the smartest, safest and most sustainable equipment available. In addition to state-of-theart manufacturing, our sites in Europe boast an R&D centre and a testing

facility where factory solutions can undergo customer–supervised performance and operational validation before the modules are shipped to the installation site.

#### Solution design

Tailored solutions to win every time

With decades of experience developing the most complex applications, Johnson Controls is a market leader for optimised industrial refrigeration cooling, heating and energy solutions.

Having the know-why and the know-how means that our development engineers are able to offer smart enhancements, resulting in a more sustainable and cost-effective solution.

#### Installation

Dependability guaranteed

We are the right choice for big projects because we can oversee everything from the component specifications to the timelines and overall performance of our installations

Our customers can rely on the strength and experience of Johnson Controls.

#### Service

Lifelong performance enhancements

Our service offerings are designed to help optimise the full cost of ownership over the entire lifecycle.

Thanks to our deep engineering expertise, we service our own and other OEM machines.

#### We offer:

- Service agreements for planned maintenance
- Operational performance improvements with upgrades and retrofits
- Repairs and parts where needed
- 24/7 emergency service

#### Our markets

## Sector-specific know-why and know-how

With deep industry expertise and a focus on innovation, we create solutions to optimise production, distribution and operating environments precisely and cost-effectively.

Facilitating modern lifestyles

A farm-fresh meal in the middle of the city, a tropical fruit salad in Stockholm, a perfectly brewed beer or the fact that the internet never overheats: all these can be taken for granted and are actually made possible thanks to industrial refrigeration.

As a leading developer, and manufacturer of industrial refrigeration cooling, heating and energy solutions, Johnson Controls is a critical facilitator of our modern lifestyles. By helping our customers to precisely and reliably control the temperature of their manufacturing processes, supply chains or operating environments, we help them to guarantee product and service quality.

#### Wherever energy-optimisation is needed

We have experience in all industrial sectors where energy-optimised temperature transfer is required. Our deep subject matter expertise means we know why our customers have certain requirements and we know how to meet them with a winning combination of reliability, sustainability, flexibility, efficiency and performance.

We offer cooling and heating solutions in the following industrial sectors:



Food and beverage



**Utilities** 



Distribution and storage



High-tech



Chemical and petrochemical



Pharma and healthcare



Leisure and sports



Other industries





## Food and beverage

From extending product shelf life to guaranteeing texture and taste or managing a fermentation process, we can provide a tailored solution that meets and exceeds your needs.



#### Meat and poultry

From the slaughterhouse and meat processing plant through distribution to the end consumer, our solutions help to increase process productivity, reduce energy inputs and recover waste energy. Whether you need to better manage weight loss in the chilling process or upgrade your plant to meet tighter HACCP regulations, we can help you frame the problem and develop cost-effective solutions.



#### **Dairy**

We offer expertise in refrigeration and heating solutions for all types of liquid, powdered and fermented milk products. Whether you need to reduce your energy input costs or meet new environmental or legislative requirements, our dairy experts are ready to help.



#### **Breweries**

The authentic flavour of classic brands or craft beers, depends on highly accurate temperature control – from wort cooling and yeast propagation to fermenting, brewing water preparation and beer chilling. We offer safe and sustainable industrial refrigeration solutions for the entire process.



#### **Bakery and pastry**

We have a full basket of solutions for bakers. Besides traditional cooling and chilling for ingredients and the production environment, we are catering to the rise of semi-finished or parbaked products with smart and sustainable freezing and delivery logistics solutions.



#### Fruit and vegetables

Thanks to industrial refrigeration solutions, fruit and vegetables have gone from being regionally and seasonally marketed to being traded on a global scale. Grow your market share with our custom engineering or turnkey solutions for harvesting and distributing tastier produce.



### Food manufacturing and processing

Changes in the food production industry are being driven by rising food safety and process sustainability standards, coupled with a rising demand for ready meals or frozen produce. With comprehensive expertise in industrial refrigeration, we offer solutions and services spanning the entire plant lifecycle.

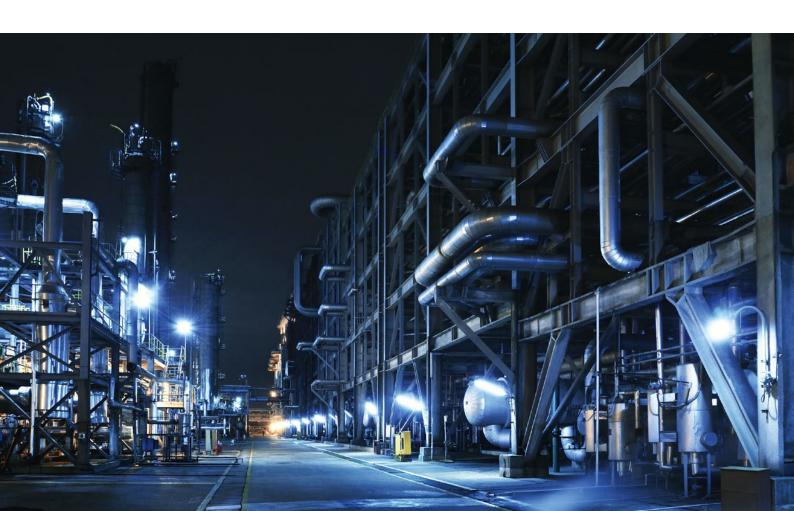
## **Utilities**

Today, utility service providers are expected to be forerunners in the energy transformation process.

We develop solutions that help lower emissions and reduce energy requirements for districts and regions.



Refrigeration and heat recovery are simply inverse processes, which is why Johnson Controls Industrial Refrigeration is a veteran of district heating. Long before the growth of green technologies, we were delivering heat pumps for large and prestigious district heating projects all over Europe.



### Further markets served



#### Distribution and storage

Perishable goods, ranging from food to pharmaceuticals, depend on increasingly complex temperature-controlled supply chains. Our expertise covering distribution centres, cold and chilled storage facilities includes everything from the design, implementation and servicing to the compliance documentation requirements.



High-tech

Digital tech companies are transforming our world, and they rely on solutions to cost-effectively manage equipment temperatures. For example, global bitcoin mining generates as much heat as a nuclear power station. We help prevent equipment meltdowns and offer clever energy recycling solutions for data centres, server farms, communications nodes or broadcasting installations.



#### Chemical and petrochemical

When you process highly flammable oil and gas in a refinery, the lives of your workers and safety of the plant depend on industrial cooling systems that cope with the harshest of environments. Talk to us to learn more about our flexible products that offer major savings due to high part-load efficiency.



#### Pharma and healthcare

Consistent and highly accurate refrigeration equipment is critical during biotech and pharmaceuticals production, distribution and storage. Our mechanical refrigeration solutions can meet the need for ultra-cold temperatures reliably and safely.



#### Leisure and sports

From ice fields in event stadiums to multi-zone bobsleigh tracks, today's winter sports installations need to be smarter, safer and more sustainable than ever. With an extensive product portfolio and systems integration expertise, Johnson Controls is the ideal partner for chilling solutions in today's sophisticated leisure markets.



#### Other industries

Johnson Controls industrial refrigeration cooling, heating and energy solutions are also relevant in a variety of other applications. You will find our expertise applied to solutions for temperature control in mine cooling, plastics and photovoltaic manufacturing, as well as in education and research facilities all over Europe.



### Our technology and products

## A comprehensive portfolio of dependable technologies

We are the dependable choice for machines at the heart of any heat transfer application.

Our tried and tested portfolio of high-performance refrigeration compressors, chillers, heat pumps and related equipment are designed to provide the most flexible starting point for any customer solution.

Meeting your needs for performance, operational flexibility and lifetime cost efficiency, our proprietary SABROE, York and Frick products are the culmination of around a century of technological advances. Besides R&D insights and improvements in manufacturing methods, we utilise insights from our many longstanding customer relationships to make our products smart, safe and sustainable.

- Smart: Our clever designs are intended to maximise performance, efficiency and operational flexibility to reduce your energy costs, which make up 80% of the lifetime operational expenditure of any refrigeration solution.
- Safe: Our products are optimised to meet the needs of each project and come with performance guarantees.
   In our testing facilities, we certify the performance of all our manufactured units under real conditions before shipping a process which customers are invited to attend. It is peace of mind in practice and not just on paper.
- **Sustainable:** Our extensive portfolio of equipment based on natural refrigerants makes Johnson Controls the safer and more sustainable choice. Besides lowering the environmental impact of customer projects in this way, we also lower your carbon footprint through more efficient and longer-lasting equipment.









# Solutions built on industry leading products

We are a leading OEM supplier of reciprocating and screw compressors, chillers for standard and low temperature applications, heat pumps, and control systems.

Our variable-speed drive technologies make our portfolio the most flexible on the market and allow owners to save up to 30% on energy costs when compared to traditional fixed-speed compressors.

Our SABROE and YORK brands focus on natural refrigerants like ammonia, CO<sub>2</sub>, hydrocarbon and water to maximise safety and sustainability and to comply with ever more stringent environmental regulations.

#### Optimising full lifecycle costs

In the average industrial refrigeration application, expenditure on energy is the most significant factor in the overall costs equation. This is why our solutions that focus on improving operating efficiency are so important to our customers.

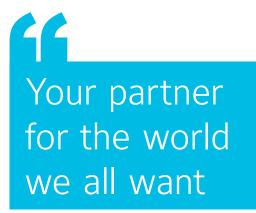
Your Johnson Controls representative would be delighted to provide information about the sizeable impact that small improvements in equipment performance specifications have on your total cost of ownership.

#### **Contacts**



Talk to your Johnson Controls representative for further information about our Industrial Refrigeration Cooling, Heating and Energy Solutions.

Whether you need help or advice in optimising your existing plant or processes, increasing capacity or planning a new project, we are here to help you find smarter, safer and more sustainable solutions for the heart of your processes.



#### **About Johnson Controls Building Technologies & Solutions**

Johnson Controls Building Technologies & Solutions is making the world safer, smarter and more sustainable – one building at a time. Our technology portfolio integrates every aspect of a building – whether security systems, energy management, fire protection or HVACR – to ensure that we exceed customer expectations at all times. We operate in more than 150 countries through our unmatched network of branches and distribution channels, helping building owners, operators, engineers and contractors enhance the full lifecycle of any facility. Our arsenal of brands includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, SABROE®, ZETTLER® and Sensormatic®.

For additional information, please visit www.johnsoncontrols.com or follow us @johnsoncontrols on Twitter.

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