



marine

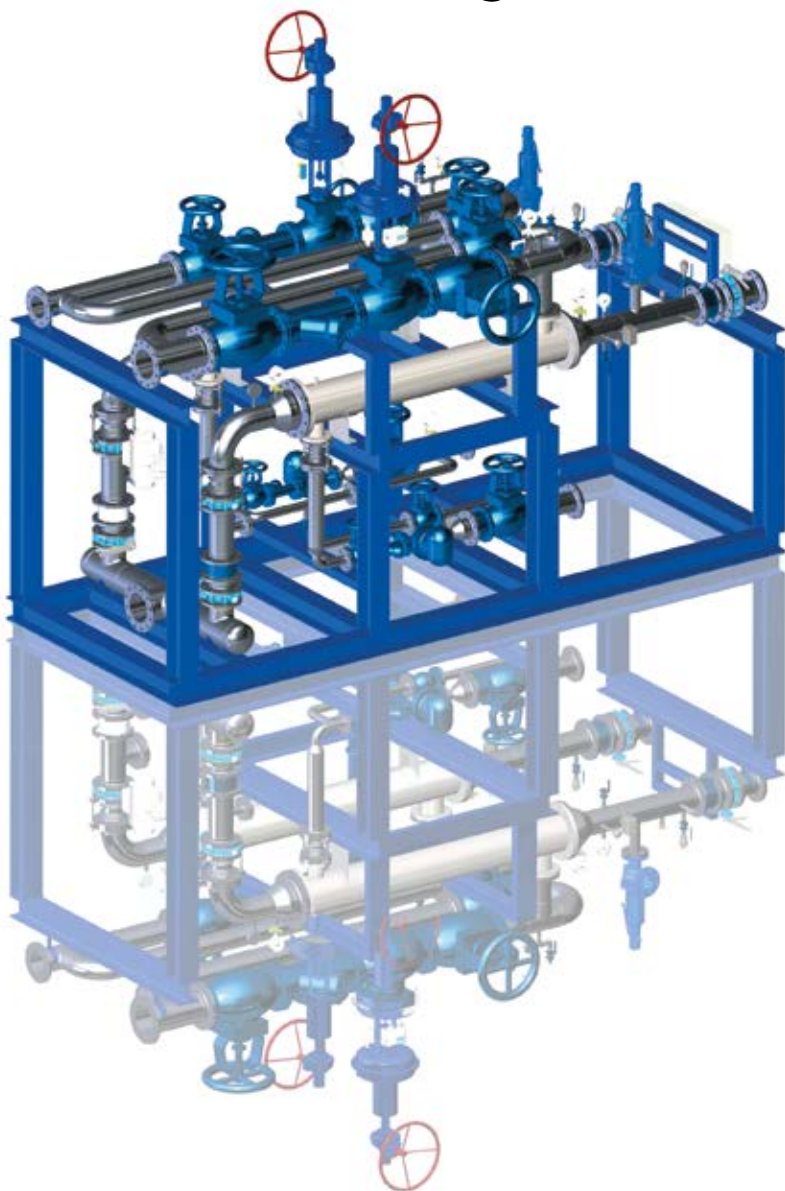
First for Steam Solutions

EXPERTISE | SOLUTIONS | SUSTAINABILITY

spirax
sarco

SPIRAX SARCO Marine

**Respect, Accountability,
Passion, Integrity, Delivery..
...riding the wave of knowledge**



WHO SpiraxSarco

At Spirax Sarco, We aim to be the first choice provider of efficient solutions in the use of steam and related industrial fluids.

We have over 5,000 employees across 38 operating companies worldwide. Our philosophy is to use our knowledge and experience to help our customers finding the Best solution.

We aim to be the first choice provider by having a comprehensive product offering. From the most sophisticated package system to the smallest pressure gauge, Spirax Sarco is able to provide the largest product choice, within its area of expertise, to the widest geographic area. This extensive range of

products isn't just limited to the steam and condensate loop but covers applications in most related fluids. Our product offering enables us to provide total solutions for our customers.

We aim to be the first choice provider by offering the right solution for marine applications.

We fully appreciate today's demands on our customers. Our multi-year experience allows us to solve their specific problems and provide complete integrated customized solutions for their business.

It is the combination of expertise, comprehensive product offering and our worldwide capability as a solutions provider, that makes Spirax Sarco an unequalled business partner for our customers.



Mr. Damiano Papagno

Head of Spirax Sarco Marine Division (Key Account Marine & Shipyards Manager)

The future is anywhere in the world and business is as big as the Ocean. Marine Market is growing fast nowadays and our challenge is to follow its growth. **Spirax Sarco Marine Division** operates worldwide, strengthened by a deep knowledge and decades of experience in shipbuilding and engineering.

Our track record is what differentiates us: our adventure in Marine began in 1989 with the first Cruise Ship equipped by Spirax Sarco. Today, more than 350 sailing vessels are supported by Spirax Sarco engineering solutions including Cruise ships, Yachts, Navy and Merchantships.

"Whether a ship is already sailing the seas or is just on the rise, Spirax Sarco is there"



where

WHERE SpiraxSarco

The presence of Spirax Sarco on a ship is capillary:



We provide all essential services at every strategic point in order to guarantee a perfect and safety navigation and to allow passengers to fully benefit a comfortable holiday. So, We work for different achievements, but all aimed at quality, efficiency and customer satisfaction.



Find out more of Spirax Sarco distinctiveness in the next pages...

Swimming pool

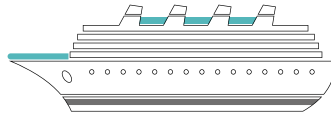
The comfort and leisure of the passengers is perhaps the most important theme in an Ideal Cruise holiday: the aim of every passenger is to have fun and relax during their stay on the ship!

Therefore, it is essential to maintain the optimum temperature in the swimming pool in every moment of the day: in the morning at start up or following any interruption of the heating, the water temperature must return to the desired conditions quickly and efficiently.

Spirax Sarco is always ready to provide the best solutions with dedicated equipment, including thermal management in large volumes and special fluids like sea water or water with chlorine, used in the swimming pools on cruise ships.

Our expertise allows us to offer the best solution in terms of efficiency, space saving and adaptability to all conditions: Our Turflow, a corrugated tube heat exchanger, is particularly suitable for low viscosity fluids, with small particles suspended. The corrugated tube configuration increases the turbulent current of the flowing fluid and ensures a high efficient heat transfer rate. We can also engineer special versions in cupro nichel and titanium, dedicated to marine applications.

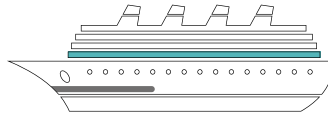




SXS PRODUCTS

TURFLOW





SXS PRODUCTS

DRV6 (PRESSURE REDUCING VALVES)

U HEAT EXCHANGER

Accomodation

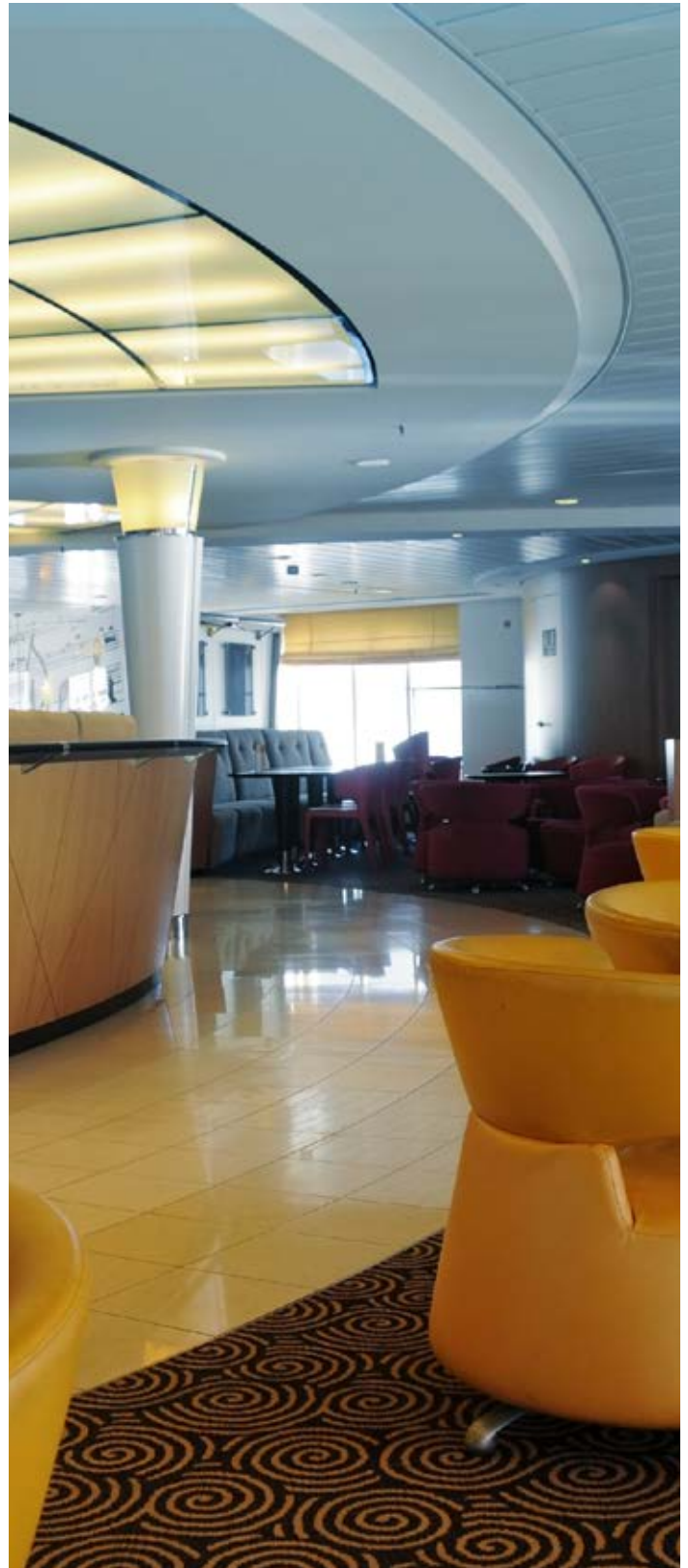
Spirax Sarco guarantees the privileged comfort that every cruiser expects to receive, through the complete monitoring and control of air conditioning systems and the distribution of sanitary hot and cold water in every cabin.

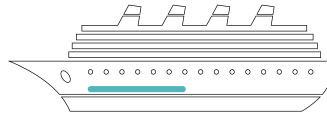
Air conditioning and cold/hot sanitary water must be guaranteed by maintaining the same quality standards and proper functionality, regardless of the climate changes that the vessel is subject to along the routes around the world: either crossing colder geographic areas (near the Poles), or sailing through exotic tropical areas, (near the equator). The Spirax Sarco air-conditioning service supplies two different circuits: not only for heating / cooling the air, but also for air treatment (humidification, etc...).

The sanitary/drinking hot water production system is extremely sophisticated because it is distributed to multiple networks at the same time with fluctuating demand:

- food processing area (Galley)
- all the common areas
- every single cabin, even contemporarily

In addition, it has to comply with specific USPHS standards: potable water is regulated by the *Centers for Disease Control U.S Public Health Service Vessel Sanitation Program (CDC-USPH-VSP)* and each vessel is inspected by USPH at least twice a year.

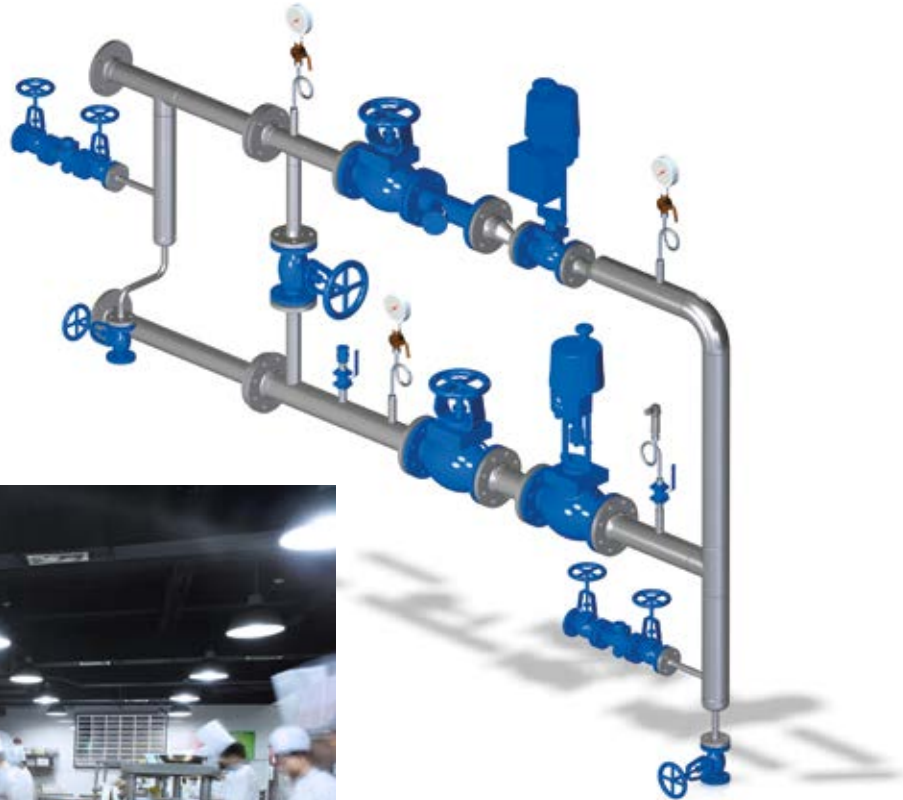




SXS PRODUCTS

PRE-ASSEMBLED PACKAGE

Galley



Every day on a cruise ship more than 9000 meals are prepared and served consuming 1,500 liters of water daily.

As described before, drinking water is distributed in every cabin, but it is used also to prepare all the meals.

Spirax Sarco, guarantees with its experience the perfect functioning of the production and distribution of hot water and low pressure vapor distillation for kitchens meeting all safety and hygienic norms, and preserving the health of passengers and crew.

Hot water production:

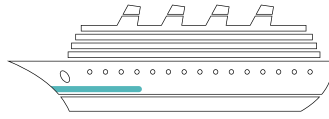
packages for the production of sanitary drinking water. The group guarantees full compliance with USPHS 2011.

Galley pressure reduction group:

ensure the low vapor pressure distribution required for cooking and dishwasher feeding.

Hot and cold sanitary water distribution to the various bridges:

through our self-actuated pressure reduction valves (DRV6) we ensure a capillary distribution.



SXS PRODUCTS

CSG-CLEAN STEAM GENERATOR

Laundry

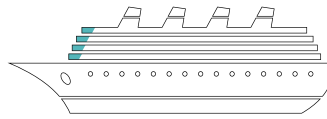


Today, ships can be considered as floating cities, and as such, the Laundry Service is essential: for the washing, sterilization and ironing of tablecloths and napkins used in indoor restaurants, and bedroom linen in the cabins.

According to statistics, daily laundry services on a cruise ship are carried out for about 2,500 cabins or more, so maximum productivity and efficient delivery is required, whilst maintaining high quality and impeccability of the ironing process.

The "Clean Steam" produced by Spirax Sarco Clean Steam Generators, manufactured in stainless steel, avoids unpleasant stains on the immaculate sheets and table linen and supports the huge demand of steam production needed on the ship.

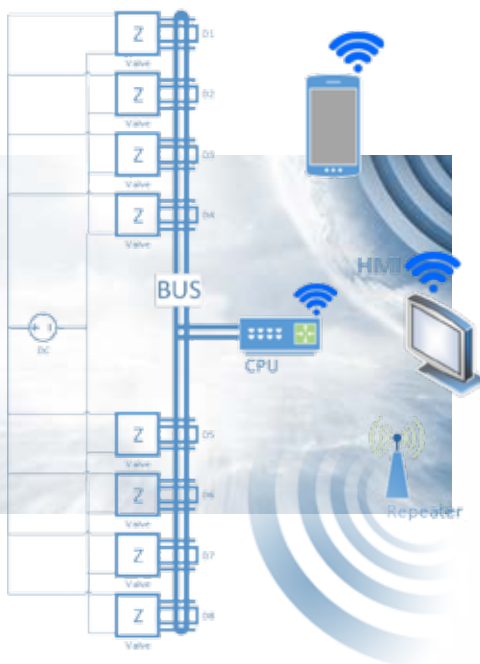




SXS PRODUCTS

NEW AUTOMATIC WASHING SYSTEM

Windows washing

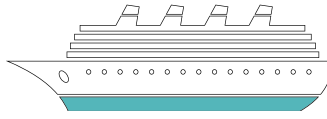


The external cleaning of a cruise ship is important in the maritime industry and, if neglected, it will negatively impact upon the appearance of the ship and incur future maintenance costs.

The slime that is deposited on the ship, if not carefully eliminated, increases the rate of surface deterioration. Therefore, repeatable and reliable cleaning is important in order to achieve a service of excellence.

Through an advance computer system, Spirax Sarco controls the night-time washing of windows for an entire cruise ship. Our on/off valves are operated for washing through two circuits: one of water (suitable for deep cleaning of surfaces contaminated with dirt and sea salt), and one of air (to avoid limestone disintegration of pipes). The images testify Spirax Sarco's constant desire for shipyard industry growth in a world with changing technologically, so we aim to find innovative, hi-tech solutions for thermal management.

Facing the future, we introduce the new wireless electronic wash control system that will be installed onboard the ships of our major partners. This provides the benefits of reduced manual labour required to wash a large number of windows and reduced ship maintenance cost and maintaining a high quality physical appearance.



SXS PRODUCTS

RS LARGE BRONZE VALVE

Engine Room

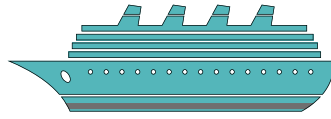
Accuracy, reliability, optimum temperature control, repeatability and eco-sustainability are the core values behind our plant engineering solutions with the innate ability to make the difference in a constantly changing world.



We are able to deliver solutions in line with our customer requirements even in extremely complex and difficult environments. In the engine room of the ships we can handle the entire process of engine cooling with low pressure and high flow, distributing water, but also thermal oil, to an area of about 25.000 m². We manage two separate cooling systems, one with fresh water, the second with sea water. We also regulate the flow to the main engine, ensuring a constant input thanks to a precise operating pressure setting.

The above image shows our three-way mixing valve RS series, used for, engine cooling systems:

- Freshwater, high temperature and low temp
- Sea water (bronze valve version)
- Lube oil



SXS PRODUCTS

DUMPING DRAIN

SPIRATROL

SP500

HT COOLING (RS VALVES)

Energy recovery

Dumping & Heat Recovery, heart button for energy saving and efficiency



Our specialists with their proven experience in system engineering ensure that our projects meet all the health, safety and environmental standards while ensuring reliability, productivity and energy efficiency.

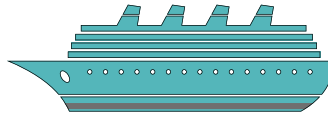


Thanks to dumping systems, surplus energy in the ships steam network, can be recovered, stored and re-used by introducing a Hot Well (at temp. 95 °C).

Two-way and three-way regulation valves also play a key role in Heat Recovery. Over time, economical saving will be achieved and a proven extension of plant life.

Looking to the future, Spirax Sarco promotes innovative ecosystem services and systems to safeguard environment and return on investment will guarantee future economic saving and extend plant life.





STEAM SYSTEM AUDIT
STEAM SYSTEM SURVEY
COMMISSIONING
PREDICTIVE/CORRECTIVE SYSTEM MAINTENANCE

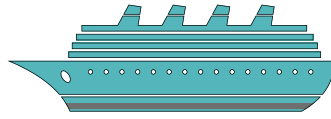
SERVICE SpiraxSarco

What we can offer to our customers does not end with design and execution. A ship is the result of huge investments therefore must be protected with the highest care and attention. We can support you in keeping your systems efficient and at peak performance thanks to our top-quality services. Our knowledge of spaces, processes and technology makes us capable to manage complex projects; our specialist skills, the extensive market knowledge and our proven experience can also drive you in extending your systems to meet changing needs.



Specifying the right equipment for your system is critical, but if installation and commissioning are not undertaken accurately, your performance can fall short. We offer full support when the equipment arrives on site, ensuring rapid installation and precise commissioning. Through our Steam System Audits we can assess the status of your equipment in different areas of your ship: from the laundry to the engine room, to the energy recovery systems, identifying eventually new energy recovery options. We are able to analyze the entire steam system (or water/air/oil) and its operation. Each audit is designed to your particular requirements and conducted by experienced Spirax Sarco engineers

- We can provide spare parts for predictive/corrective maintenance and software upgrade
- We can suggest, if necessary, how to modernize or upgrade your current steam generators or the steam/hot water distribution piping in order to cut your energy costs, improve the heat transmission efficiency, decrease load losses, as well as reduce maintenance workload.



CLASSIFICATION SOCIETIES
INTERNATIONAL STANDARDS

CLASSIFICATION Societies



INTERNATIONAL Standards



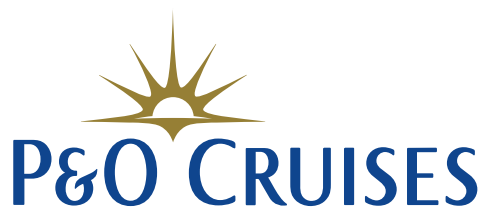
experience

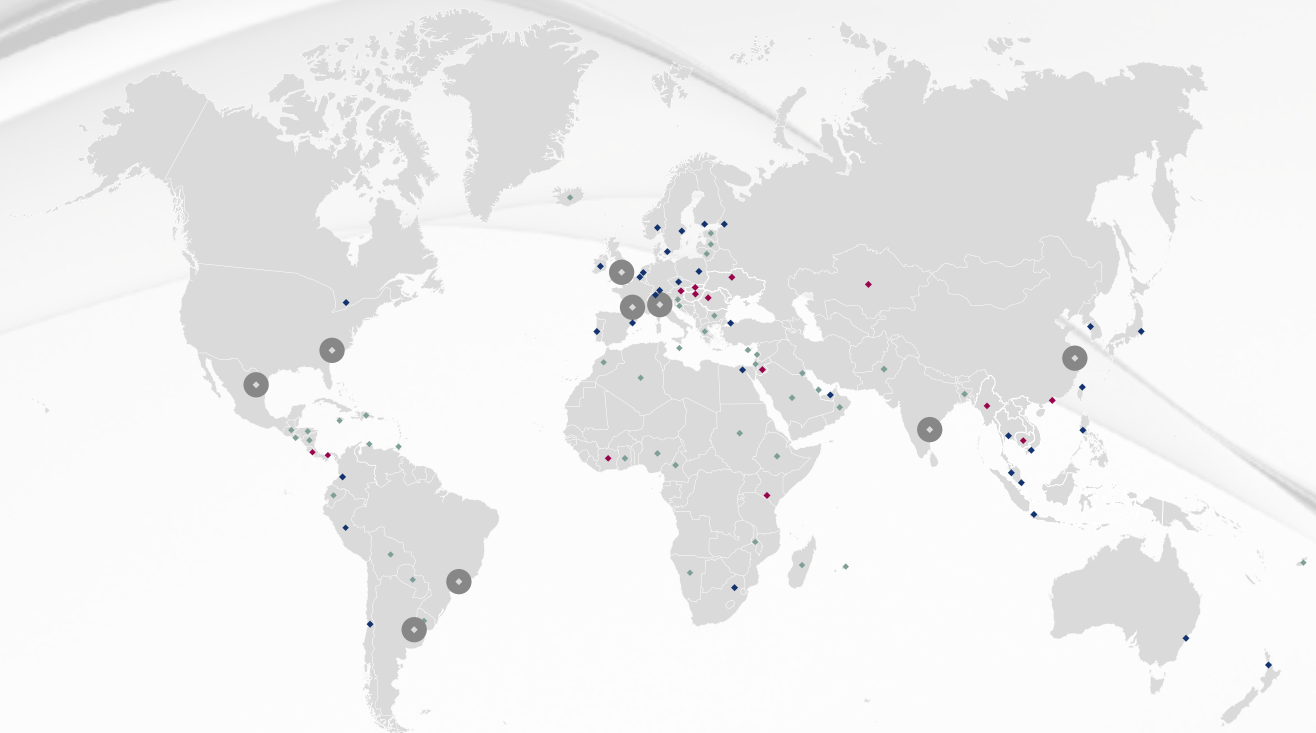
EXPERIENCE SpiraxSarco



Our adventure in Marine began almost 30 years ago and today, more than 350 vessels are sailing equipped with Spirax Sarco solutions.

Our growing customer list includes the majority of the top Shipbuilders and Ship-owners. We operate in the major shipyards all around the world. Our proven experience; our specialized expert engineers; our presence worldwide; our wide portfolio of Marine Certified products and solutions: these are our key strengths.





Operating Companies

EMEA

Belgium	Netherlands
Czech Republic	Poland
Denmark	Portugal
Egypt	Russia
Finland	South Africa
* France	Spain
Germany	Sweden
Ireland	Switzerland
* Italy	Turkey
Middle East	* UK
Norway	

Americas

* Argentina	Colombia
* Brazil	* Mexico
Canada	Peru
Chile	* USA

Asia Pacific

Australia	New Zealand
* China	Philippines
* India	Singapore
Indonesia	South Korea
Japan	Taiwan
Malaysia	Thailand

* Manufacturing sites

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Ivory Coast
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Hong Kong
Myanmar
Vietnam

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Greece	Mauritius	

Americas

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Dominican Republic	Jamaica	Uruguay
Ecuador	Netherlands Antilles	
El Salvador	Nicaragua	
Guatemala	Paraguay	

Asia Pacific

Bangladesh	Fiji	Pakistan
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