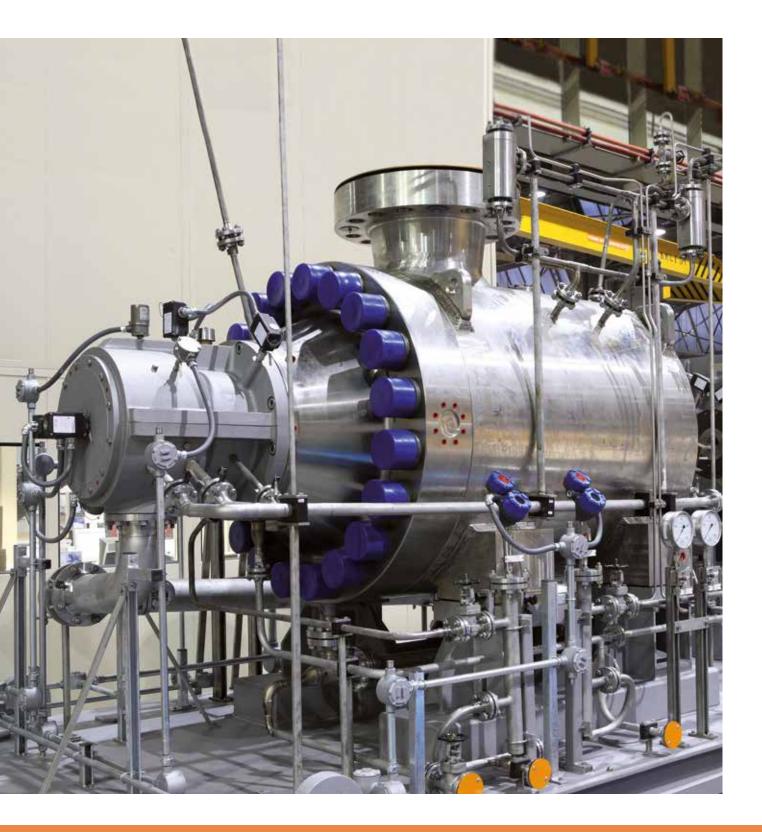
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# Pumps Equipment Sales program



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# SULZE

Polígono Industrial O Rebullón s/n. 36416 - Mos - España - rodavigo@rodavigo.com

# Creating tomorrow's solutions

Sulzer is at the cutting-edge of design and technology. As an innovative manufacturer, Sulzer is a principal provider of solutions for pumps, agitators, mixers, and turbocompressors.

#### Your partner

Supported by a global network of manufacturing sites and service centers, customers can receive local support anywhere in the world.

With a very strong heritage in pump design, decades of experience and continuous investment in its employees and facilities, Sulzer enables its customers to stay ahead of the competition.

#### Technology

Efficiency and sustainability are at the core of the Sulzer ethos. Using the latest design and manufacturing technology to optimize energy consumption, enables the environmental impact of every product to be minimized.

By tailoring every solution to the individual application, it is possible to deliver the most cost-effective and energy-efficient product.

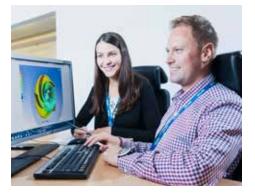
### Digitalization

Delivering performance and efficiency to every application, Sulzer is leading the way in digitalization. We offer state-of-the-art technology, such as BLUE BOX™ providing expert analysis of pump performance to improve reliability and reduce operational costs.

The in-depth knowledge and expertise of our design engineers in all major industrial processes enable them to create the most effective designs for each application.







# Dedicated solutions for modern industrial applications

### Oil, gas and chemicals

As specialists in the complex processes involved in producing oil and gas as well as petrochemicals, Sulzer delivers high performance pumps through its unique expertise. Using cutting-edge technology, Sulzer offers a comprehensive solution for reliable and efficient production processes.



### Power generation

Pumps are at the heart of power generation processes and Sulzer understands the need to deliver sustainable systems for the future. By creating robust and efficient pumps, Sulzer can help to reduce operating costs.





### Water and wastewater

With such a large volume of pumping assets, the water industry demands efficiency and reliability to minimize operational costs. Sulzer provides innovative designs that optimize performance and class-leading support across the world.



### Pulp, paper and board

Sulzer's expertly crafted pumps are ideally suited to the harsh operating conditions and competitive marketplace that characterize the pulp and paper industry. Combined with extensive industry knowledge and worldwide support network, Sulzer is the ideal partner.

### Food and beverages

Challenging applications involving sugars and starches require specialist pumping systems for the most effective and efficient process. Sulzer's design expertise and industry knowledge deliver the best solutions.



### Mining and metals

Sulzer offers decades of experience in designing and manufacturing pumps for mining, mine water management and metal processing applications. Our comprehensive range of equipment provides robust performance with reliability built in.





#### **Fertilizers**

Sulzer's pumps, mixers and agitators provide durability and reliability for fertilizers production as well as for corrosive and abrasive liquids and high gas content. Advanced materials, a wide range of shaft seals and sealing systems, and the overall operating efficiency ensure a reliable process with minimized life-cycle costs.



# Sustainability is key

Reducing the environmental impact of an industry is increasingly important and Sulzer prides itself on the contribution that its products make.



Sulzer designs its pumps, agitators, mixers, grinders, aerators, and turbocompressors to deliver reliability and efficiency. With the potential for decades of service, the aim is to minimize operating costs by reducing energy consumption and the associated emissions. Using innovative designs to optimize both, mechanical and electrical efficiency, Sulzer supports its customers in their efforts to promote sustainability.

At the same time, manufacturing high-quality products ensures a longer operational life, especially when supported by an extensive range of services that can deliver upgrades and retrofits. This minimizes any material waste and promotes continued operation even when application specifications change.

Sulzer also has very high standards for its own facilities; constantly working to reduce waste, water consumption and greenhouse gas emissions. Every business evaluates its ecological footprint and sets the goals for improvement. Working collectively, the combined contributions in reducing the company's environmental impact are better appreciated.

# Sulzer's global footprint

With more than 180 production sites, sales offices and service centers in more than 50 countries, Sulzer has a global footprint. Wherever you are, Sulzer is close by.

Thanks to our global network of modern manufacturing facilities and innovative processes we ensure the highest quality. All manufacturing plants have testing facilities capable of demonstrating product performance.



# Production sites

### Bruchsal, Germany

The German facility in Bruchsal comprises a stateof-the-art engineering department where experts provide enhanced rotor dynamic efficiency, vibrate and noise emissions and analyze the performance of the products. Pump types such as OH, HZB, GSG are being assembled in tact production in order to increase efficiency. All areas like machining, tool room, assembly, painting, and testing follow a station concept with constant material flow. The packaging hall with its rolling platforms allows enhanced processes of large aggregates up to 32 tons. The test bed allows up to  $15'000 \text{ m}^3/\text{h} - 4.0 \text{ MW}$ , up to 66 Hz testing of bare pumps or complex units.

### Burgos, Spain

The facility in Burgos provides expert know-how in the design and manufacturing of vertical pumps. Typical applications include seawater intake pumps for desalination plants, all kinds of cooling water and condensate extraction services in power plants, and pumps for pumping stations and irrigation plants. Burgos also produces and packages axially-split horizontal pumps. With its 1.2 MW LV/MV test bed facility, this factory is flexible enough to test horizontal and vertical pumps. A double loop with a suction tank for horizontals and verticals and a 6.5 m pump pit depth for verticals allow testing units at nominal running speeds for flows up to 11'000 m<sup>3</sup>/h and pressure ratings of 40 kg/cm<sup>2</sup>.

### Cuautitlán Izcalli, Mexico

This modern facility produces complete semiengineered pumps for the downstream market for the Americas and the rest of the globe and acts as packaging center for the Americas for power plant equipment including cooling water, boiler feed and condensate extraction applications. The testing facility includes testing with power ratings up to 7.0 MW over a range of frequencies. The quality control systems are registered and independently audited to the ISO 9001:2008 and ISO 14001:2004 standards, and actually migrated into ISO 9001:2015 as well as 18001:2007 OHSAS Management System certification.







### Dalian, China

Sulzer Dalian was founded in 1999. With extensive experience in engineering and manufacturing the company produces standard and configured pumps for the general industry and water markets. It offers a high capacity, optimized production line, including a 1'500 m<sup>3</sup> volume test pool with up to DN900 pipework and 3.1 MW motor starting power. End-suction, double-suction, multistage, axial flow and vertical pumps can be tested. The Sulzer global supply center in Dalian is an important sourcing hub, providing short lead and quick response times.

### Easley, USA

Sulzer's Easley, South Carolina plant assembles, tests and packages standard and configurable pumping products intended for industrial, clean water and municipal applications. Products produced in Easley include horizontal end suction pumps, vertical turbine pumps and submersible pumps. Additionally, Easley manages a separate warehouse which is designed to house products from other Sulzer facilities for distribution to the North American market. The Easley plant currently has three test rigs including a 5'600 m³/h and 650 kW test pit for vertical and submersible pump testing as well as two test rigs for horizontal end suction pump testing.

### Jundiaí, Brazil

The Brazilian site in Jundiaí has become one of Sulzer's primary development, manufacturing, and distribution centers. Sulzer's test bed in Brazil is the largest pump test facility in the Southern hemisphere. With 13'800 V electrical supply installed, a sump depth of 11 m and a motor capacity of up to 15.0 MW, this facility is able to test any centrifugal pump type from vertical to horizontal and submersible, single or multistage.

### Karhula, Finland

The manufacturing site in Finland comprises a fullscale testing facility and several test beds. A mediumconsistency pulp pump loop, with power up to 1.5 MW as well as a general test station for vertical, process, multistage and axially-split pumps with power up to 500 kW and a test bed for multistage pumps at 2.7 MW power make the factory in Finland well equipped to test all equipment prior to leaving the site. Karhula factory manufactures also high-speed compressors, compressor accessories, mechanical aerators and agitators for municipal and industrial customers around the world.









### Kunshan, China

Kunshan specializes in submersible products, mainly for wastewater applications. The company manufactures submersible pumps, mixers and grinders in a large variety of sizes and configurations both for domestic and global markets. Pumps up to DN600 and a flow up to 9'000 m<sup>3</sup>/h can be produced. The workshop, with a total area of 8'000 m<sup>2</sup>, is utilized for assembly, test, painting and packaging. The test facility consists of five different test stations and is highly automated. The factory is certified according to ISO 9001, ISO 14001 and OHSAS 18001 and is also certified to meet FM/CSA/ATEX requirements.

### Leeds, UK

Sulzer Leeds has the world's only dedicated pump test bed for string testing gas turbine driven pump packages with an installed drive power of up to 30 MW. To be able to test subsea processing equipment under realistic submerged conditions, Leeds also has a dedicated multiphase subsea test bed. The factory specializes in custom-engineered pumps for the oil and gas industry, packaged to meet customers' exact specifications and requirements. Both the world's largest and highest pressure injection pumps were manufactured, packaged and string tested at full power here.

### Navi Mumbai, India

The facility in India supplies complex packaged pumps all over the world. Test bed capacity is 3.5 MW (50Hz/60 Hz) and it can handle up to eight pumps for performance testing. NDT such as liquid penetrant/ magnetic particle/radiographic testing is also possible. All products comply with the latest internationally recognized standards, and the facility is certified according to ISO 9001, ISO 14001 and OHSAS 18001.

### Portland, USA

The Portland, OR facility is a modern, state-of-the-art manufacturing facility for engineered pumps, producing horizontal and vertical pumps designed to the stringent requirements of API 610, ISO and HI standards used in the oil and gas and power generation markets. The facility includes full CNC machining technology with extensive packaging and testing capabilities. Testing is performed through its multiple test bed stations including 115 kVA power supply, up to 15 MW (20'000 hp), flows to 45'000 m<sup>3</sup>/h (200'000 gpm) along with VFD availability. The quality control systems are registered and independently audited to ISO 9001, ISO 14001, OHSAS 18001standards.









### Riyadh, Saudi Arabia

The Sulzer manufacturing site in Saudi Arabia is fully equipped to machine, assemble, test and package high-quality pump packages. The site specializes in the manufacture of engineered horizontal and vertical centrifugal pumps to API 610 and ASME B73.1 standard, relying upon proven technology for the oil and gas and power industries. Sulzer's pump testing facility is among the largest in the Middle East, with 460 V, 3.3, 4.16, 6.6 and 11 kV electrical supply installed, motor capacity up to 4 MW and a sump depth of 11 meters to allow for vertical pump testing.

### Santa Ana, USA

JWC Environmental, a Sulzer brand, designs, builds and services the world's most dependable waste shredders and screening systems to help solve challenging waste reduction and recycling applications. JWCE assists customers in the energy, wastewater, recycling, marine, and facility management sectors.

### St. Quentin, France

Sulzer manufactures in this site axial flow, slurry and a wide range of vertically mounted pumps for various industries. The factory is optimized to produce medium-sized pumps and has a workshop area of 10'000 m<sup>2</sup>; fully equipped to machine, assemble, package, paint, and blast the products. Four dedicated test beds are available for axial-flow pumps (flow rates up to 7'000 m<sup>3</sup>/h), horizontal pumps (flow rates up to 3'500 m<sup>3</sup>/h) and vertical pumps (8 m depth, flow rates up to 2'000  $m^3/h$ ) with pressures up to 30 bars.

### Suzhou, China

The Suzhou factory is a state-of-the-art pump manufacturing facility. It produces a wide range of custom-engineered pumping solutions for the oil and gas and power industries. This modern factory has a workshop area of 23'000 m<sup>2</sup> and crane capacity of up to 52 tons. With 10 MW power supply and variable frequency drive ability, the test bed allows flow testing up to 65'000 m<sup>3</sup>/h of bare shaft pumps or packaged units.









### Thimister-Clermont, Belgium

Sulzer provides from Thimister a wide range of equipment for severe pumping conditions, including horizontal, vertical, axial flow and liquid ring vacuum pumps suitable for industrial applications with capacities up to 40'000 m<sup>3</sup>/h and temperature from -150°C to 900°C. Based on deep technical knowhow, we offer specialty pumps for solar power, petrochemicals and fertilizer slurries. The facility features all capabilities for design, production and testing of all pumps including a 2.5 MW test bed with three horizontal loops, one large flow loop for axial flow pumps and one pool with 14 m pit depth for vertical pumps.

### Vadstena, Sweden

The Vadstena factory has complete pump manufacturing capabilities, from component making to assembly, as well as performance testing, painting and final packaging. The factory has a long history and proven experience in providing engineered and preengineered pumps for the pulp and paper industry, general industry and water and wastewater markets. It also designs and manufactures horizontally and vertically-mounted agitators for water treatment, industrial and chemical applications. Vadstena has a test bed capacity up to 5'000 l/s and 1.4 MW and has obtained ISO 9001, ISO 14001 and OSHAS 18001 certifications.

### Wexford, Ireland

Wexford has a wide range of manufacturing capabilities including machining, assembly, packaging and shipping of submersible pumps, mixers and aerators for domestic and commercial wastewater, municipal wastewater and dewatering. Product research and development is located on site and the plant in Wexford is home to a state-of-the-art product testing facility with CSA accreditation. Wexford has obtained ISO 9001, ISO 14001 and OHSAS 18001 certifications.







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> Sulzer has been headquartered in Winterthur, Switzerland, since 1834 and operates in more than 50 countries with 15'500 employees.

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# Turning data into dollars with digital solutions

Sulzer's cloud-based solution BLUE BOX™ combines the Internet of Things and Sulzer's Advanced Analytics Engine. It provides remote monitoring of pump assets to deliver predictive maintenance actions, minimizing downtime while maximizing both performance and availability.

The BLUE BOX by Sulzer is a set of advanced analytics services to help customers optimize pumps' reliability and efficiency. It consists of the following three modules:

#### Data acquisition

to evaluate the actual efficiency and reliability

#### **Data analytics**

to identify bad performer and actor pumps

#### Actionable insights

to optimize customers' pumping solution

All data analytics components including data modeling, real-time predictive analytics and machine learning are performed in the Sulzer secure cloud platform. Further, this cloud-based solution simplifies regulatory compliance with a minimal IT footprint and was designed to be easily scalable.

### Features and benefits

- Possibility to build on your own data acquisition system by adding variables if needed
- Module easily integrated in your process
- Secure data handling and client access
- User-friendly panel providing a complete overview of all relevant data
- Real-time bad performers and actors identification
- Efficiency and reliability visibility to further optimize current operation and maintenance
- The pumps being analyzed can be Sulzer as well as third party equipment

### Applications

- Liquid pipelines
- Refinery, petrochemical and chemical process applications
- Power plants
- Desalination and water transport
- Mining





Sensor

Gateway

# Let Sense take care of your pump 24/7

Sulzer Sense condition monitoring is a unique solution that, in combination with Sulzer PumpsOnline cloud service, allows you to remotely view the operating status of all the pumps and other rotating equipment at your facility. Wireless sensors attached to the pump measure temperature and vibration in three axis and allow to optimize preventive maintenance and enable troubleshooting.

### Save time and money

- Accurate online measurement no manual measurement needed
- Enables troubleshooting of pumping and process problems
- Helps and enables optimized preventive maintenance
- Minimized risk for unplanned shutdowns
- Easy to install and use
- Wireless, no cabling work

### Easy, safe and convenient

- Results, trends and analysis available anywhere and anytime in Sulzer's online service via laptop, mobile phone or tablet
- Easy and safe thanks to an alert in the cloud service when adjusted temperature or vibration limits are exceeded
- · Secure cloud-based solution, no software installation required

### Wide range of applications

Sulzer Sense condition monitoring is suitable for all rotating equipment, such as pumps, agitators, mixers and motors, regardless of type or brand. Since nearly every production site has this kind of equipment, the applications are numerous.

Would you like to find out more?

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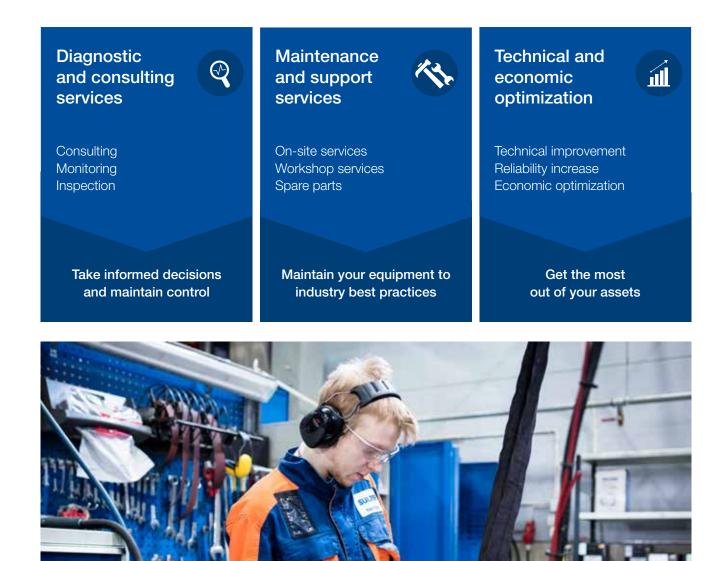
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# Sulzer – your ideal service partner

Sulzer is a worldwide provider of high-quality, technology-based maintenance solutions for rotating equipment including pumps, turbines, compressors, motors, and generators. Sulzer is your local service partner maintaining the industry's most comprehensive service center network worldwide. Global expertise provided by our competence centers is offered through every service center, everywhere, any time.



# Original spare parts

Original spare parts are often more than a simple 'new for old' replacement and can substantially improve the performance of your equipment.

Sulzer original spare parts maintain equipment performance by

- Restoring high operational efficiency
- Optimizing energy consumption
- Minimizing unexpected failures

Sulzer has acquired many companies over the years but you can trust us to serve your installed base with our original spare parts for the following brands:

- ABS
- Ahlström
- API
- Deplechin
- Ensival Moret
- Enso
- Gothia
- JMW
- Johnston Pump Company
- JWC Environmental
- Kestner
- Nopon
- Pump Industry
- Pumpex
- Salomix
- Scaba
- Scanpump
- Serlachius
- Swedmeter
- Tartek
- Warren
- Virax





#### www.sulzer.com

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