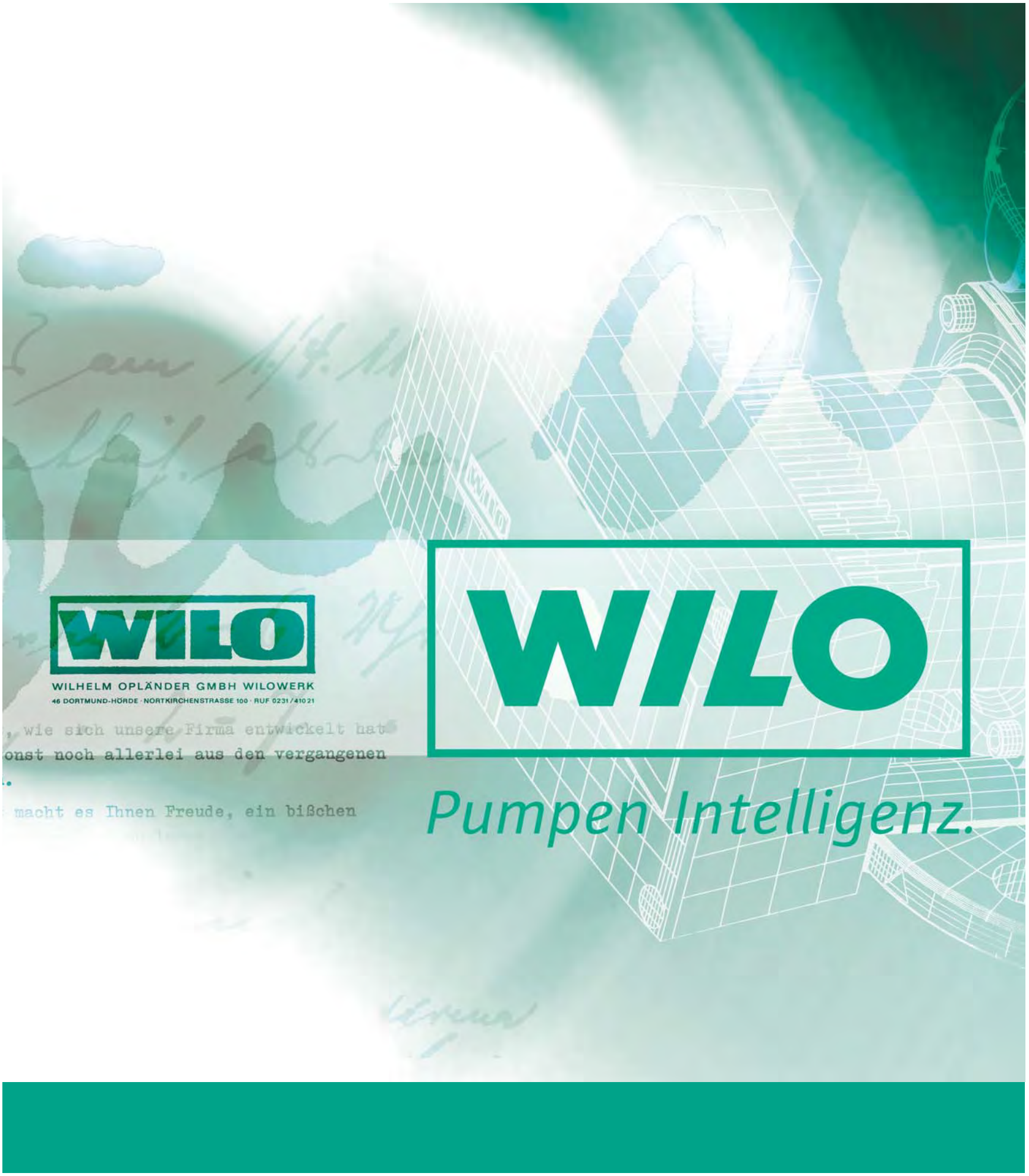
WILO

Pumpen Intelligenz.

Intelligent solutions for industrial systems.

Application brochure.

Reliable solutions for industrial applications.



Transporting fluids of all kinds forms the basis of many industrial production processes. This requires pumps and components which can optimally pump the required fluid in the individual systems as efficiently and for as long as possible. Wilo pumps and systems for commerce and industry guarantee the highest levels of reliability, flexibility and efficiency.

Our particular strength lies in the peripherals that accompany the process in applications in the foodstuffs and metals industries, as well as in mining and in energy generation. Wilo pumps offer convincing performance in precision air conditioning for special office, production or storage rooms, as well as in fire extinguishing technology, water supply, disposal and processing. We set new standards time and time again in all areas. Our acknowledged expertise results from a mature product range, effective quality management and our expertise in pumps.

Hof, Germany.
Volume flow: 18,000 m³/h
Motor power: 1,000 kW

Pune, India.
Volume flow: 60,000 m³/h
Motor power: 4,500 kW

Wilo – in use worldwide.

Thomasville, USA.
Volume flow: 3,500 m³/h
Motor power: 112 kW

Gimhae, South Korea.
Volume flow: 25,000 m³/h
Motor power: 1,100 kW

Well founded know-how and decades of experience in pump technology form the basis for Wilo's system expertise which is appreciated worldwide. Our expertise enables us to develop innovative solutions.

Many customers are increasingly demanding internationally active business partners, and Wilo is responding to these demands with production sites all over the world. Test rigs with the latest technology are used for putting Wilo pumps and systems through their paces worldwide before they are delivered to the customer. In this way, we guarantee the highest quality and operational reliability.

The Wilo partnership philosophy.

At Wilo, we have a long tradition of customer support.
A major component of our partnership philosophy is our customer service, which is unique in the market.

Reliable, and on schedule, we provide you with advice on what will be the correct service solution for your particular pumps and systems: this is provided by our Wilo expert customer service technicians on your doorstep. Our specialists are there for you,

they listen to you and help you to achieve the best possible operational reliability. The high standard of quality sets standards in the market here. Also, our service is second to none when it comes to customer satisfaction.

Heating and hot water application in the chemicals industry.

"High performance, ease of maintenance, reliability" are properties that you can justifiably expect Wilo pumps to deliver. If you value peak performance, high-efficiency pumps from Wilo with the energy label A are the right ones for you. Extreme reliability is called for when things get hot. For this purpose, Wilo offers pump systems that are adapted to different fluids and extreme pumping temperatures.

Reference example:
Infracor GmbH, pg. 14–15

Cooling and refrigeration application in the foodstuffs industry.

Optimum temperatures for people, machinery and products. Wilo pumps are excellently suited to many fields of application. They guarantee effective function and offer a high potential for energy saving in a wide variety of applications. Efficient cooling makes exacting demands on technology and material when an extremely wide variety of cooling media are used, whether in process cooling systems for foodstuffs manufacture or the conservation of foodstuffs. Wilo pumps have demonstrated their reliability in low-temperature applications as well.

Reference example:
Ferrero Deutschland GmbH, pg. 16–17

Air conditioning and ventilation in the IT industry.

A pleasant interior climate forms the basis for high performance and well-being. It is also essential for storing perishable goods and operating computer centres and server rooms reliably. Our specialists come up with individual solutions when it is important to control the climate in a computer centre with the highest possible accuracy, or else to establish different climate zones in a high-bay warehouse for the pharmaceuticals industry. The climate control must be achieved by precisely matching the temperature, atmospheric humidity and air circulation to the various ways in which the rooms will be utilised. For example, office buildings, high-bay warehouses and production halls all have different climate control requirements.

Reference example:
Rittal GmbH & Co. KG, pg. 18–19

Pumping production water in the steel industry.

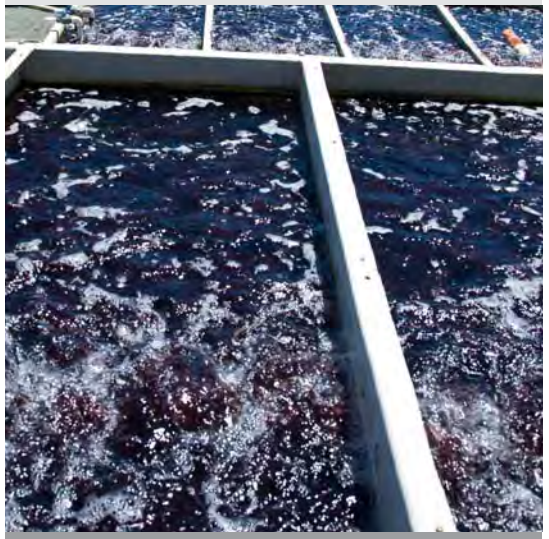
Demands for different climate control and reliable water supply and disposal in production or storage rooms impose exacting requirements on technology and materials. At the same time, reliable and trouble-free operation must be guaranteed all the time during all phases of the production process. Wilo offers high-performance pumps in different designs for this purpose, as well as expert advice to go hand-in-hand with individual solutions.

Reference example:
Salzgitter Flachstahl GmbH, pg. 20–21

Production water circuit in the foodstuffs industry.

The industry imposes the most exacting requirements on production water circuits. A high solids content and large volume flows frequently mean that special materials and hydraulics are called for. Secure transport of abrasive media must also be guaranteed in permanent operation. Wilo pumps are used worldwide in these applications. Wilo's specialists work out individual concepts and solutions for each task.

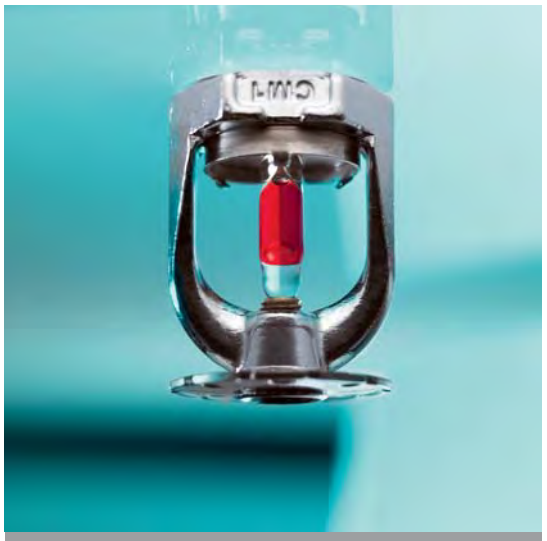
Reference example:
Fischtechnik International Engineering GmbH, pg. 22–23



Cleaning and washing application in the hygiene industry.

Getting the optimum solution for cleaning and washing applications represents an important economic factor in the industry. Environmental aspects also play a major role in this. Wilo offers innovative and mature solutions for all requirements in the field of industrial cleaning and washing applications.

Reference example:
Beiersdorf Manufacturing Hamburg GmbH, pg. 24–25



Fire protection and fire extinguishing in the hygiene industry.

Fire extinguishing and fire protection systems are only used in case of a fire, but they do need to operate smoothly when they are called on. With the Wilo FLA series, Wilo meets the specifications of DIN 14462 without exception, and thus offers a perfect and safe solution for individual requirements.

Reference example:
Proctor & Gamble Germany GmbH & Co Operations oHG, pg. 26–27

Salt water extraction in the energy business.

Water from the sea, rivers and lakes requires rugged materials to be used, because of the impurities, such as sand and salt which the water can contain. Wilo meets these requirements by using the most modern materials and advanced technology. Materials such as Duplex or Ni-Al bronze and coatings such as Ceram withstand corrosion from aggressive or abrasive fluids and guarantee the longest service life.

Reference example:
Nord-West Kavernengesellschaft mbH, pg. 28–29

Water extraction in the chemicals industry.

When pumping ground water out of drilled wells, the installation depth and productivity determine which pumps are used. The wide range of Wilo submersible pumps and polder pumps from 4“ to 24“ guarantees the best possible efficiency for minimising energy costs, whilst high-quality materials ensure long-lasting and maintenance-free pump operation.

Reference example:
SOLVAY GmbH, pg. 30–31

Water supply in the foodstuffs industry/ brewery.

Efficient water supply increasingly requires the utilisation of intelligent systems made up of optimally matched components. Wilo submersible pumps represent the optimum solution for demanding water supply tasks. These pumps can be installed vertically or horizontally, and are ideally suited for long-term operation.

Reference example:
Paulaner Brauerei GmbH & Co. KG, pg. 32–33

Wastewater and sewage transport in the steel industry.

Sewage from commerce and industry contains many chemical and biological waste substances. As a result, the most exacting requirements are imposed in terms of correct and safe handling of these harmful substances. Continuous challenges such as increasing solid contents in sewage, which hinder operating conditions for systems and devices, require new and innovative approaches to improve the processes. Wilo can offer a safe solution to meet all requirements, for correct and safe handling of harmful substances.

Reference example:
ThyssenKrupp Steel Europe AG, pg. 34–35

Wastewater and sewage treatment in the foodstuffs industry.

In wastewater treatment plants, industrial sewage is treated to remove the harmful constituents from it. Sewage must be treated in a lengthy and costly process before the resulting product can be returned to the water supply safely. Experts in this field are under constant pressure to save costs, whilst still meeting the requirements of national regulations and laws. With the highly efficient technology that it has developed, Wilo has enormous potential to offer when it comes to husbanding water resources and saving costs at the same time.

Reference example:
FrieslandCampina Germany GmbH, pg. 36–37

Heating and hot water application in the chemicals industry.

Infracor GmbH, Marl, Germany.

The third-largest integrated facility in Germany.
The Marl Chemicals Park covers an area of 6.5 square kilometres and includes about 100 production plants. As a result, this integrated facility is the third largest in Germany. Infracor GmbH is the operator, and responsible for the technical equipment of the buildings. Increasing energy prices represent a major incentive for localising potential savings in the heating and cooling technology as well as in the hot water supply.

Starting with initial consulting and energy analysis.
A production company for super absorbers gave specialists from Wilo the task of identifying potential for optimising the existing pump systems.
The uncontrolled glandless pumps have efficiency values of only 15–20 %, compared to the 40–45 % of Wilo-Stratos high-efficiency pumps. After these pumps had been installed in selected circuits, it was possible to confirm savings of up to 80 % by comparative measurements.

High hydraulic efficiency.
The Wilo-CronoLine glanded pump is used in the performance range above 60 m³/h. Minimum flow losses and the high hydraulic efficiency permit savings of up to 50 %.

Extremely short pay-back time.
Under the described conditions, replacing pumps without speed control for the Wilo-Stratos and Wilo-CronoLine series can pay for itself within less than four years. In the long term, this adds up to a significant saving in operating costs and a reduction in CO_2 emissions by 71 tonnes annually.

Comparison of electricity consumption

	Old system	New system
Number of pumps	40	40
Annual electricity consumption	220,000 kWh	90,000 kWh
Annual energy cost saving		11,700 €*
Saving		59 %
Investments approx.		40,000 €

** Assumed energy price 0.09 €/kWh.*

Wilo-Stratos

- Highest degrees of efficiency due to ECM technology
- Secure adjustment thanks to the proven red-button technology

Savings of up to 80 %

- The plastic can made of carbon-fibre composite prevents eddy losses
- Significantly higher motor efficiency

Franz-Josef Kluck

"With expert advice from Wilo, we have reduced our operating costs and CO_2 emissions considerably."
Franz-Josef Kluck,
Head of TGA, Infracor GmbH

Cooling and refrigeration application in the foodstuffs industry.

Ferrero Deutschland GmbH, Frankfurt am Main, Germany.

Innovative strength creates strong brands.
Ever since 1957, the company has established 28 high-profile brands in the confectionery business, most of which make us think spontaneously of perfect pleasure and high quality. Take for example the Piedmont cherries in Mon Chéri or the longest praline in the world, just as much as Nutella or the Kinder egg. All these products are made at the production facility located in the Marburg-Biedenkopf district in the west of Hesse, Germany.

Production with energy recovery.
The production volume has doubled during recent years. From an ecological perspective, the production process has been optimised to result in scarcely any waste, while sewage pollution has been reduced by 50 %.

Efficient motors as standard.
High-performance motors in the highest efficiency classes make Wilo-Crono standard pumps champions when it comes to saving energy. This series comes equipped with an IE2 motor as standard, which guarantees optimum efficiency levels in conjunction with outstanding hydraulics. Wilo-Crono pumps with an IE2 motor have been demonstrated to achieve a higher overall efficiency than other manufacturers' models with an IE1 motor.

Champions in all categories.
Maximum efficiency is achieved by providing an IE2 motor.
The electronically controlled version with extremely precise control over the pump rotation speed achieves peak values with energy savings up to 50 %. A significant advantage of this series is: both motors are standard motors, and can be replaced without difficulty even many years later.

Wilo-CronoNorm

For an exceedingly diverse range of requirements and reliable operation.

Low-cost maintenance

- With Burgmann mechanical seal
- Easy maintenance thanks to spacer coupling
- Straightforward replacement of components

Highest efficiency

The extremely precise control of pump rotation speed makes it possible to achieve an energy saving of up to 50 %.

Air conditioning and ventilation in the IT industry.

Rittal GmbH & Co. KG, Herborn, Germany.

Energy-efficient air-conditioning.
Guaranteeing a pleasant room climate with the highest energy efficiency was the demanding task of an air-conditioning concept for a new office building with workplaces for about 2,000 people.
The company has defined sustainability as an important goal in the company's strategy. As a result, particular importance is paid to reducing CO_2 emissions.

Three alternatives in comparison.
Three air-conditioning systems were evaluated in an analysis.
The comparison encompassed all investment, operating and sales costs as well as energy consumption and CO_2 emissions. The result showed that the most economical and energy efficient solution was an autonomous, weatherproof central air-conditioning unit on the roof of the building with a heat pump and rotation heat exchanger. Special in-line pumps from Wilo make a significant contribution to energy efficiency.

Glanded pump in tip-top form.
The interaction between motor and hydraulics is decisive for the overall efficiency of a pump. In this case, the perfect design of the Wilo-Crono series sets standards in terms of workmanship and efficiency.
In conjunction with maintenance and optimum operability, using these glanded pumps offers the greatest levels of efficiency and economy.

Extreme precision.
The outstanding hydraulics of the Wilo-Crono ensure perfect power and responsiveness because of the exceedingly precise match-up between the impeller and pump housing. The lowest gap sizes minimise fluid flow energy losses and reduce abrasion on wearing parts such as bearings and the mechanical shaft seal. Equipped with an IE2 motor, Wilo-Crono pumps achieve the highest overall efficiency.

Wilo-CronoLine

- Drive with integrated electronic speed control
- High corrosion protection thanks to cataphoretic coating

Perfect hydrodynamics

- Optimum pressure and fluid flow conditions
- Smoother operation and operational reliability by reducing the axial and radial forces

Made in Germany

500 standard types in several thousands of variants are made to order at the Dortmund site in response to customers' requirements.

Pumping production water in the steel industry.

Salzgitter Flachstahl GmbH, Salzgitter, Germany.

Steel technology – leading in Europe.
As the largest steel subsidiary of the Salzgitter Group, a leading European conglomerate, Salzgitter Flachstahl GmbH produces about 4.6 millions of tonnes of crude steel annually. About 4,800 employees work in an integrated steelworks making products for the automotive industry, pipe manufacturers, cold rolling mills and the construction industry, achieving a turnover of about 2.4 billion Euros.

In focus: operational reliability.
The alignment towards modern plant technology and new process technology demanded extensive investments. The focus was directed on achieving maximum operational reliability and minimised wear. Following the expansion of the hot strip rolling mill, the increased production also significantly boosted utilisation levels of the sintering water circuit (from 8,000 to 11,000 m^3 per hour), making a second circuit necessary. This was also equipped with Wilo pumps in response to positive experience with the Wilo-EMU FA 30 submersible pump with a 340 kW motor and an output of 1,800 m^3/h with a 45 m water column.

Long lifetime, rapid replacement.
The standard pumps from various manufacturers which were previously installed had to be removed and serviced every three to four months – something which proved disruptive to the production sequence since it involved three specialists working for a week in each case. The highly wear-resistant FA 30 submersible pump installed by Wilo, on the other hand, achieved a lifetime of more than one year, and was replaced by two fitters in two days.

Special materials reduce life cycle costs.
Special materials are available for demanding chemical and mechanical loads, thereby significantly increasing the lifetime of a pump. When faced with aggressive or abrasive media, Wilo uses ceramic coatings or chilled iron alloys in order satisfy the harshest process requirements. Special coatings offer inexpensive solutions for difficult media. In this way, Wilo pumps guarantee low life cycle costs because the servicing and maintenance work is cut to a minimum.

Wilo-EMU FA 30

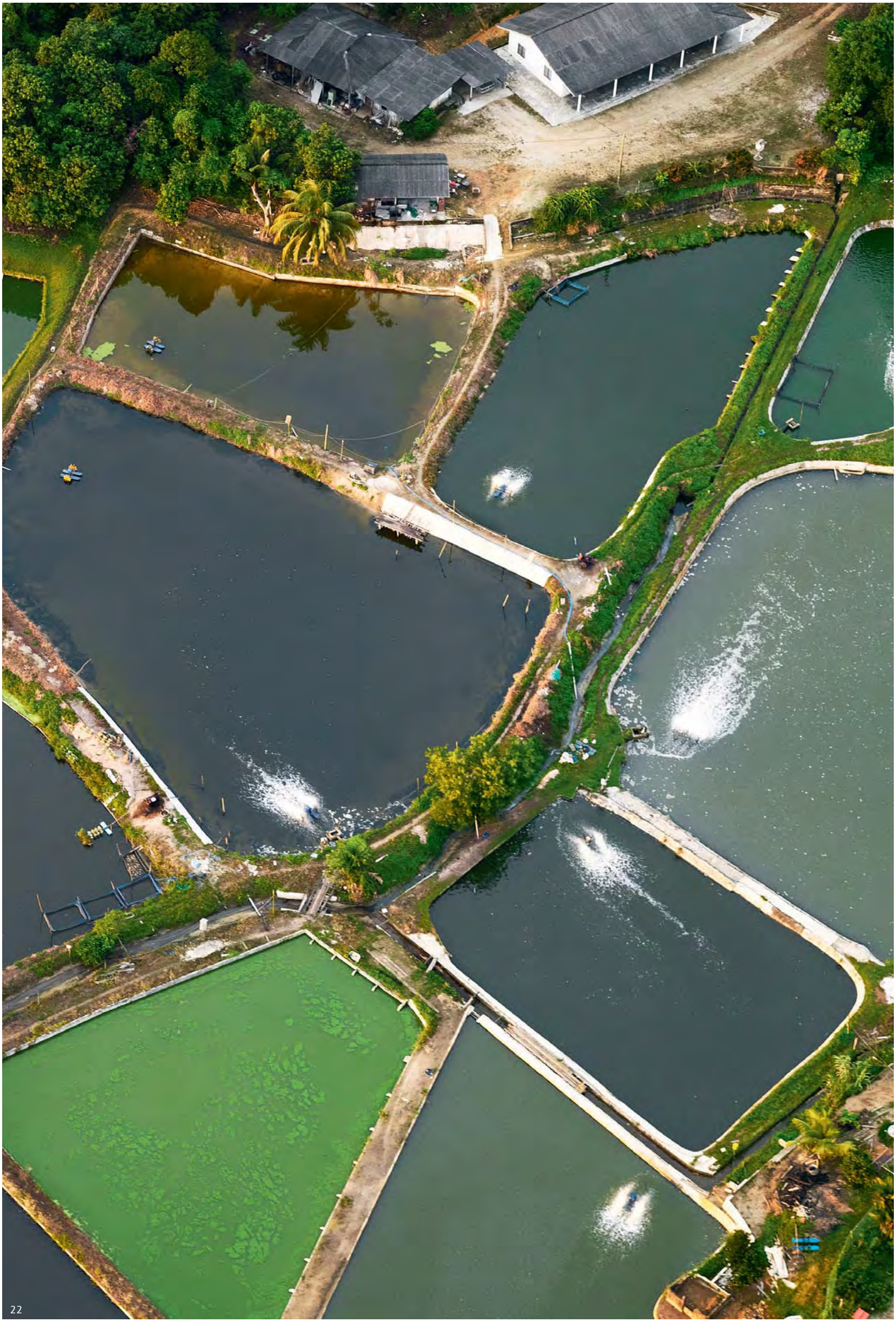
- Pumping of sewage with solid constituents
- Submersible
- Special materials and coatings against abrasion and corrosion

Economical

- For demanding chemical and mechanical loads
- For an increased pump lifetime
- For uninterrupted operation

Rolling mill III of Salzgitter AG

Nine Wilo-EMU FA pumps circulate the sintering water in the production water circuit.



Production water circuit in the foodstuffs industry/aquaculture.

Fischtechnik International Engineering GmbH, Moringen, Germany.

Elementary source of protein.
Fish is an essential source of protein for the world's population, but almost 80 % of natural stocks are overfished. Commercial aquaculture can help to solve this problem by using environmentally friendly technology in closed-circuit system. Fischtechnik International Engineering has undertaken pioneering work in this context, and is involved worldwide in the planning, delivery and installation of modern fish farming systems.

Large volume in a short time.
The closed circuit technology permits fish to be produced in almost any location, without emissions. Using the latest technology creates excellent growing conditions. An important step involves gently acclimatising the newly arriving fish to their future conditions. This involves pumping water from the habitat tank into the transport tank, which demands a high volume flow combined with a low head.

Broad application range.
The unit that is preferred for this task in the systems planned by FTIE is the Wilo-Drain TP 65 submersible pump, which ideally meets the requirements with a performance of about 50 m³/h on a 6 m water column. The low weight of only 24.5 kg means handling is possible by one person, therefore offering a wide spectrum for flexible applications.

The combination of plastic and stainless steel materials can even withstand aggressive media, while the large free passage in the impeller allows sewage contaminated with large particles to pass through unhindered.

Well equipped.
A transition coupling from Storz C to Storz B is available as an accessory for this pump type, in order to connect a DN 75 mm hose. This accessory component for large volume flows helps to minimise hydraulic losses, and ensures good efficiency.

Wilo-Drain TP 65

- Submersible sewage pump
- Submersible monobloc unit
- For stationary and portable wet well installation

Stationary application

- For pumping wastewater and drainage water
- Standard-equipped with clogging-free sheath current cooling

Mobile application

The Wilo-Drain TP 80/TP 100 series can be used as mobile units by installing the pump in a trolley. This makes it optimally suited to use with the fire brigade or in civil protection.

Cleaning and washing application in the hygiene industry.

Beiersdorf Manufacturing Hamburg GmbH, Hamburg, Germany.

On course for global growth.
Even when the company was founded 130 years ago, Beiersdorf already had an eye on global expansion. Today, it is one of the biggest companies in the cosmetics industry. 22,000 employees provide the impetus for familiar brands, above all Nivea, Hansaplast (sticking plasters) and Tesafilm (sticky tape). The steady course for growth has been consistently plotted according to the principles of economic, ecological and social responsibility.

Focus on sustainability.
Therefore, active environmental protection is a firmly integrated goal of the company. Frugal use of natural resources, careful selection of raw materials as well as a considerable reduction in waste volumes at the production sites all make their contribution to this goal. Particular attention has been paid to reducing emissions by increasing energy efficiency – a basis for the decision to use pressure boosting systems with Wilo-Helix high-pressure multistage centrifugal pumps.

Low energy consumption and low life cycle costs.
The interplay between innovative pump design, highly efficient hydraulics and energy-saving IE2 motors reduces energy consumption by about 15 % compared to conventional pumps, and guarantees a high level of efficiency. Durability combined with extremely low life cycle costs are achieved thanks to an extreme shortening of maintenance times due to the innovative X-Seal cartridge system and the use of high-quality, low-wearing materials.

Individual adaptation for versatile applications.
Nowadays, future-oriented low-energy planning is a primary concern in all fields of application. Individual adaptation to different requirements is a significant feature of Wilo-Helix high-pressure multistage centrifugal pumps. A team of experts designs the most economical solution that is tailor-made for the particular customer application, such as

- Water supply and pressure boosting
- Industrial circulation systems
- Washing and cleaning systems
- Process water
- Cooling water circulation systems
- Fire extinguishing systems
- Sprinkling systems

Wilo-Comfort CO-/COR-Helix V.../CC

- Pressure boosting system with high-pressure multistage centrifugal pumps
- Very convenient due to connection to the building automation system

High-efficiency hydraulic design

- High-performance hydraulics produced with the highest precision
- Material: Corrosion-resistant, austenitic stainless steel 1.4307

Highest quality standard

Each system is manufactured and hydraulically tested according to the customer requirements.

Fire protection and fire extinguishing in the hygiene industry.

Procter & Gamble Germany GmbH & Co Operations oHG, Schwalbach, Germany.

Protecting the environment and saving energy.
Economy and ecology do not have to be mutually exclusive. The producer of well known consumer goods brands such as Pampers and Gillette demonstrates this fact time and time again, making it one of the leading companies in the Dow Jones Sustainability Index. The achievement is built on the carefully planned use of energy and water combined with modern technical equipment.

Optimum fire protection.
The new version of the fire protection regulations in accordance with DIN 14462 released in 2009 demands new concepts for fire extinguishing systems in many locations. At the company's Schwalbach site, fire protection is guaranteed for a building complex with offices and test laboratories by means of a 100 % redundant Wilo-FLA double-pump system, which has been individually produced according to the specifications of the building.

100 % reliable in operation and in line with the standard.
The pressure boosting system for fire extinguishing purposes with energy-efficient Wilo-Helix high-pressure multistage centrifugal pumps guarantees total operational reliability in case of a fire. The pressure boosting system in line with the standard meets all the stipulations of DIN 14462, and is delivered with settings already made in advance at the factory for the particular specifications of the building.
All valves are factory-sealed, meaning they are secured against unauthorised manipulation.

100% reliable.
The system control – with the Made in Germany cachet – meets the most exacting technical standards and is exclusively used for fire fighting. The needle throttle valves are preset for the specific minimum flow rate, which ensures that the systems are never operated in the critical range. Continuous functional readiness of the needle throttle valves without external energy means that the Wilo-FLA meets the requirements for reliable system operation in line with the standard with no ifs or buts.

Wilo-FLA

Pressure boosting system with Wilo-Helix high-pressure multistage centrifugal pumps for fire extinguishing purposes.

100 % reliable

- Set in advance at the factory for the minimum flow rate
- Function readiness without external energy

Operational readiness with reliability

All valves are factory-sealed to prevent unauthorised manipulation.

Salt water extraction in the energy business.

Nord-West Kavernengesellschaft mbH, Wilhelmshaven, Germany.

Crude oil storage facility in salt domes.
NWKG is a wholly owned subsidiary of the German strategic crude oil storage organisation, and the largest oil bunkering operator in Europe. About 10 million m³ of crude oil and its products are bunkered in four different sites in northern Germany. The storage facilities used are salt domes, out of which approx. 600 –1,500 m deep caverns are created by using special drilling and flushing technologies, and are used for storing crude oil.

Challenging media – crude oil, salt water, sand.
Wilhelmshaven is the most important port in Germany for importing mineral oil, with a high frequency of unloading. A pumping station on the jetty in the dock transports seawater through a pipe approx. 7 km in length to a central high-pressure pumping station. This is where the pumps used for flushing the caverns are located. The seawater pump needs to meet special requirements: With a practically uninterrupted operating time of about 7,500 hours per year, the pumps have to transport salt water that carries a sediment load and is additionally contaminated during berthing and anchoring manoeuvres.

Robust and economical.
Significant criteria in selecting submersible pumps involve achieving the best possible efficiency for minimising energy consumption and using high-quality materials to ensure long and maintenance-free pump operation. Submersible pumps in the Wilo-EMU series permit precise definition of the required output, and guarantee the highest possible operational reliability even during continuous application.

Ni-Al bronze withstands seawater.
For use in aggressive seawater and water with elevated sand content, Wilo offers pumps with stage housings and impellers made from Ni-Al bronze. This special material has increased values for strength and elongation at rupture, while the protective aluminium film makes it highly resistant to corrosion.

Wilo-EMU KM 1300

- Submersible pump in bronze version for use with seawater
- High output for small well diameters

Stage housing made of Ni-Al bronze

- Wear-resistant against increased sand content
- Corrosion-resistant to seawater

Uninterrupted application

Seawater is transported to the pumping station along 7 km long pipes.

Water extraction in the chemicals industry.
SOLVAY GmbH, Rheinberg, Germany.

Chemistry shapes the future.
How can the sun cool our food? Why are climate guardians in the cellar? How does tobacco protect against the 'flu? The internationally active company, Solvay, is a global leader for chemicals, plastics and pharmaceutical products. It is one of the instigators of the "Chemistry shapes the future" campaign. This has the objective of asking unusual questions to draw attention to technologies that make our life cleaner, safer and more comfortable. Solvay employs 30,000 people worldwide whose research and production activities contribute to creating groundbreaking innovations.

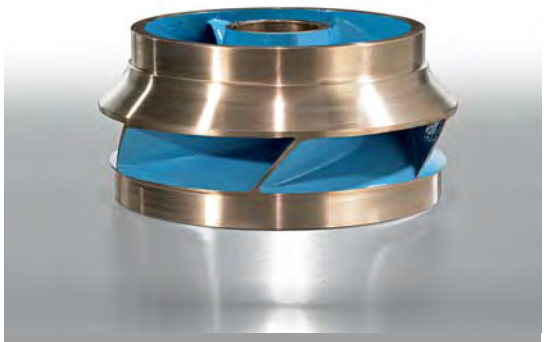
Water supply from the Rhine.
Water is an essential element of production, and is also needed for operating office buildings. Solvay supplies a complete works site located on the banks of the Rhine by means of two well shafts that provide the necessary water using polder pumps. The wells are located 10 m away from the river, and use the filtration of the gravel and sandy soil for primary treatment of the industrial water.

Highest priority for reliable supply.
The water must be extracted reliably even given fluctuating water levels. Wilo-EMU polder pumps have been specifically designed for use with an extremely low water level, and is very reliable thanks to a media-cooled motor. The simple and inexpensive installation and maintenance-free operation make it the first choice for renewing outmoded pumps.

Ceram coating saves costs.
The Ceram CT coating with KTW approval has been specifically developed for submersible technology. It is characterised by very good adhesion, high abrasion resistance and low levels of surface roughness. This means minimum maintenance and repair costs combined with increased efficiency. A sample calculation shows: the additional costs for a Ceram coating pay off in 38 days.

Wilo-EMU polder pump

- Standard-equipped with two mechanical seals for high operational reliability
- In various material versions



Ceram CT coating

- For increasing efficiency and reducing energy costs
- With KTW approval
- Optimum properties to resist mineral deposits

Water extraction

Even with a low water level, the water for production is pumped out of the well shafts as required.

Water supply in the foodstuffs industry/ brewery.

Paulaner Brauerei GmbH & Co. KG, Munich, Germany.

The art of brewing in tune with nature.
Paulaner beer – a product first created by monks 345 years ago, and now appreciated all over the world as an ambassador of the Bavarian brewing art and lifestyle. With 15 different varieties and an output of more than 2 million hectolitres annually, this famous company delights beer drinkers around the globe. Success then and now is based on one guiding principle: The art of brewing in tune with nature.

Water, the central element.
The quality of the water plays a central role in the quality of the finished product. Paulaner has four deep wells with depths as much as 240 m which supply the water for the brewing procedure and additionally provide water for parts of the production sequence such as bottle cleaning. 60,000 bottles per hour are prepared for filling in each of four cleaning machines. The total annual water requirement is about 900,000 m³.

coolact

Needs-based supply.
Potable water for the brewing process and for production is supplied by five Wilo-EMU NK 82 multistage submersible pumps which are installed about 80 metres down in the wells. The needs-based supply with fluctuating requirements is controlled by means of a frequency converter. Each deep well can thus deliver a maximum capacity of 25 l/s.

Innovative motor technology.
The newly designed CoolAct motor series with a performance range from 75 kW to 630 kW (50 Hz) allows the maximum delivery capacity with the minimum motor diameter. Compared to conventional motors, the units with CoolAct technology provide up to 25 % more power and a higher power density for the same package lengths. This is made possible by internal active closed-circuit cooling. Thanks to a constantly driven impeller on the motor shaft, the cooling fluid is conducted directly through the bearing and winding. This way, the heat given off by the motor can be optimally absorbed and be passed on to the circulating fluid via the outer motor jacket in a defined way.

The Paulaner Brewery does not just look for quality in its beer: using Wilo submersible pumps has been paying off for more than 50 years now in Munich's brewing art.

Wilo-EMU NK 82

- For pumping water from great depth
- In various material versions

CoolAct motor technology.

- Internal active cooling – no external cooling jacket necessary
- Performance increase up to 25 %
- Small installation diameter reduces investment costs

Needs-based supply

The submersible pumps pump about 900,000 m³ of water per year from as much as 240 m down.

Wastewater and sewage transport in the steel industry.

ThyssenKrupp Steel Europe AG, Duisburg, Germany.

Innovations in steel.
ThyssenKrupp Steel Europe is one of the world's leading manufacturers of high-quality flat steel. The range of products and services includes intelligent material solutions, product-specific processing and finished components. The company sets the standards in the steel industry with progressive production technologies. The integrated steelworks in Duisburg with its smelting, processing and finishing sections is one of the best performing steel making plants in the world.

One milestone in the future concept was set with the commissioning of the new number 8 blast furnace with high environmental standards. A highly modern process for recovering sludge and dust containing iron has opened the door to zero-waste production.

Sewage containing significant solid concentrations.
The sewage arising during the production process is highly contaminated with solids. Wilo-EMU FA units are used as standard all over the company premises for transporting sewage. For years now, this series has proven its reliability and robustness under harsh operating conditions in all sorts of locations in the steelworks. The flexible application possibilities of the Wilo-EMU FA mean that a contingent of them is kept in stock as a standard measure.

Robust pumps for flexible application.
Wilo-EMU FA submersible monobloc units are suitable for stationary and portable wet well installation. The robust design in grey cast iron and straightforward installation make them a flexible and reliable standard product for a variety of requirements in transporting sewage in industrial systems, wastewater treatment plants and construction.

Version with special voltage 500 V.
The Wilo-EMU FA series is equipped with motors for voltage ranges of 230 V, 400 V and 690 V. Wilo-EMU FA is also offered in the version with a special voltage of 500 V for the steel, chemicals and mining industries.

Wilo-EMU FA

- Vertical and horizontal installation
- Reliable operation
- Corrosion-resistant thanks to Ceram coating

Ceram coating

- For longer lifetimes and low maintenance costs
- Coating can be added later

Field of application

Pumping wastewater with foreign matter out of pits, basins and sumps.

Wastewater and sewage treatment in the foodstuffs industry.

FrieslandCampina Germany GmbH, Heilbronn, Germany.

The number one in dairy cooperatives.
The Campina Deutschland Group belongs to the Royal Friesland Campina dairy cooperative, which with its 17,000 member enterprises is regarded as the world's number one. 22,000 employees at 100 production and sales sites process something like 11.7 billion kilograms of milk per annum into well known brands.

Giving sewage sludge the push.
At the production facility in Heilbronn, a large volume of sewage sludge is created during the production of yoghurt and milk desserts, and is carried onto fields as a fertiliser. When this is done, it is necessary to ensure that a homogeneous mixture is achieved in order to avoid concentrated deposits.
The management of the wastewater treatment plant decided to install innovative submersible mixers which cuts operating costs thanks to their significantly greater energy efficiency.

Innovation in wastewater treatment technology.
The new generation of Wilo-EMU Maxiprop and Megaprop submersible mixers has a previously unmatched specific thrust. The innovative blade geometry creates an efficiency which is up to 10 % greater. In conjunction with great expertise in configuration and the installed circulation system, it is possible to save up to 30 % energy.

Highly efficient due to Ceram coating.
Often, sewage contains problematic corrosive or abrasive constituents, which have the effect of reducing lifetimes or even service life.
The Ceram coating developed by Wilo provides protection against this. At the same time, lower friction losses deliver significantly improved efficiency and, with that, exceedingly high efficiency in energy consumption.

ceram protected

* In relation to comparable, slow-running mixers.

Wilo-EMU Megaprop TR 326

- Best thrust values with lowest performance coefficient (ISO 21630)
- Extremely sturdy, single-part GRP laminate blade

Planetary gear

- With two-stage planetary gear as standard
- Corrosion-resistant, seawater-proof output shaft

Water treatment system

The sewage sludge from production is processed into fertiliser.

Optimally advised, best planned.
After-sales service with Wilo.

Consulting and planning.
Optimum solutions come from objective-oriented planning.
Our customer consultants are there for you and will draw up an exact assessment of what you require.
From this, our specialists will work closely with you to find an individual solution.

Pump selection.
Once all the basic parameters and planning data are available, Wilo selects the appropriate product using a modern selection program.
In this way, we can offer you the most efficient and economical solution for your application.

Flow calculation.
Special software for our customers performs flow calculations in impellers, housings, inlet structures and pressure pipes.

Pipe calculation.
We will determine all relevant parameters for you, such as the static delivery head, head loss, volume flow, flow velocity, Reynolds number, etc.

Pump installation.
Our pumps are installed and fully connected by qualified construction personnel with many years of experience.

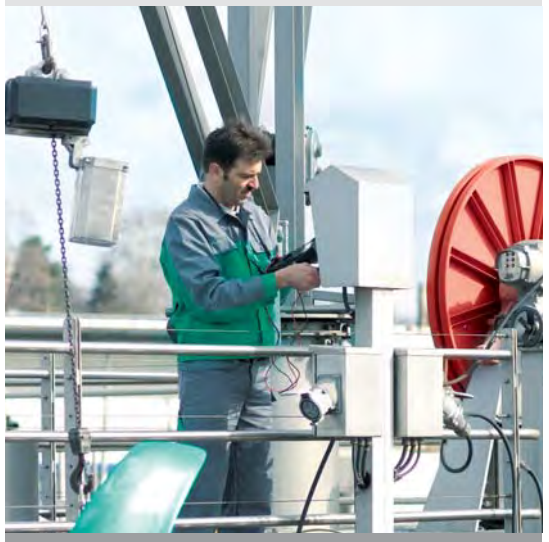
Customer service.
At Wilo, we have a long tradition of customer support. A major component of our partnership philosophy is our customer service, which is unique in the market.
We are able to offer a complete service 24 hours a day, seven days a week.

Tailored solutions

- Needs-based consulting
- Goal-oriented planning

Perfect software support

- Pump selection
- Flow calculation
- Pipe calculation



Personal customer service

- Pump installation
- Customer service

Pumpen Intelligenz.

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