

We Chart a Responsible Course



Our World of Waste Water Treatment

KSB has been successfully manufacturing pumps and valves for over 140 years. The expertise acquired over this time has been applied to our designs and can be seen in the build quality and attention to detail of our waste water products. Whether in municipal, industrial or domestic waste water applications, the absolute reliability of components is an essential prerequisite to efficient overall process operation. Our pumps, valves and systems are in use everywhere water is to be transported, purified or processed.

KSB waste water pumps keep the beaches in Rio de Janeiro clean. They give reliable service along the river Nile and can be found in New York waste water treatment systems.

Our products are in use in the steel, cellulose, paper, textile and food industries and offer all-in solutions for applications such as waste water transport, stormwater stand-by systems, drainage, tank cleaning and the removal of surface water. The corrosive and abrasive qualities of waste water may require the use of extremely durable materials. The efforts of the KSB materials research specialists and our own foundry enable our pumps to provide decades of economically efficient service under the most adverse conditions.

Wherever in the world waste water is to be transported, future-oriented communities make KSB their partner of choice. We not only supply advanced technology for sewage treatment, pumping stations, sludge transport and many other applications. Our customers also benefit from our specialist expertise should customised all-in solutions be required. These include energy efficient drive systems and intelligent automation. Sewage lifting units, pumped drainage systems, special solutions for buildings in groundwater protection areas and residential areas with high groundwater level ... KSB has offered a proven product range and innovative consultation for domestic waste water applications for many years. Our systems expertise offers plant operators, consultants and municipal authorities decisive advantages in the development of turn-key solutions.

World-wide demand for waste water treatment products and the number of restrictions imposed by environmental considerations are both increasing. KSB's staff of over 14,000 are committed not only to the highest standards of product and service quality but also to the natural environment in which we all live.

Waste water treatment: vital to our future

Water is synonymous with life and is the motor of modern civilisation. Sustainable supplies of fresh water, keeping water clean, and careful waste water processing are essential in a world with an ever-increasing population. As a leading international manufacturer in the water and waste water sectors we are aware of our responsibilities to the world's population and its resources.





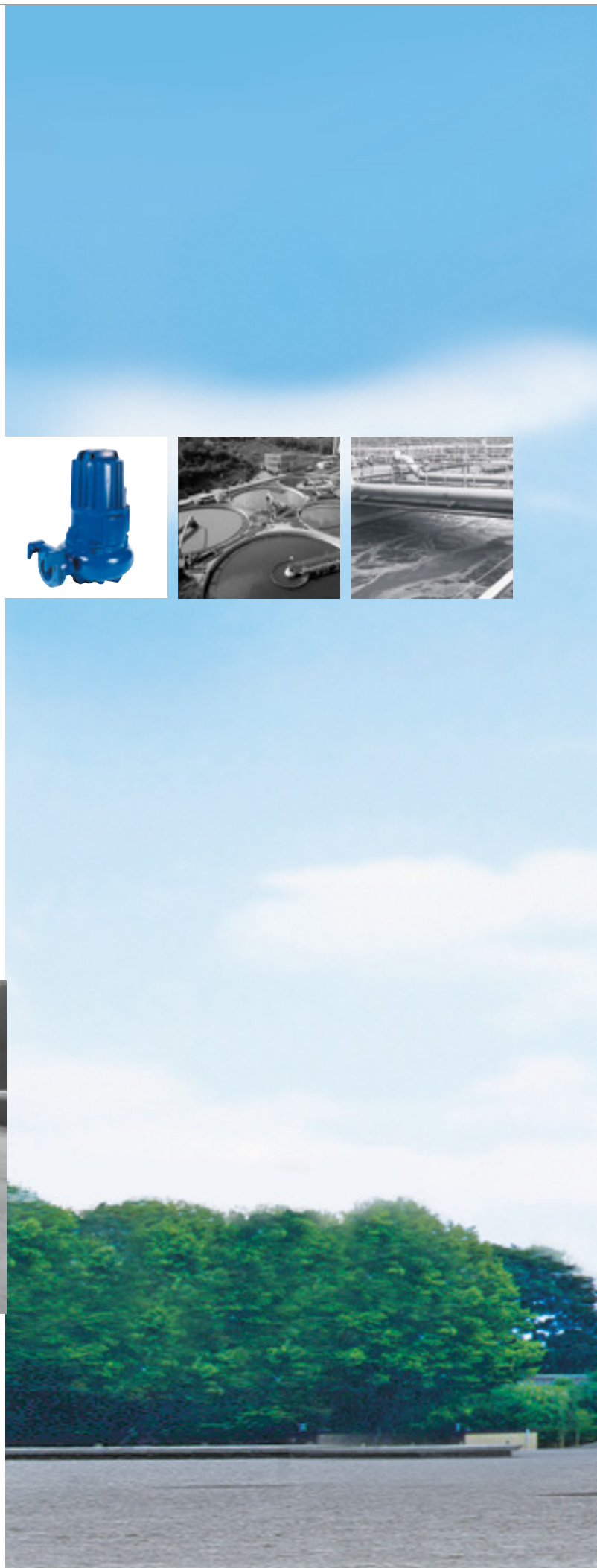
Waste Water Meets Architecture

People and industry: in highly populated areas everywhere the disposal of municipal and industrial waste water is becoming an ever more complex task. KSB has met this challenge for the Hamburg waste water utility with a solution based on innovative waste water technology.

Amarex KRT waste water pumps and Amajet injector-type jet pumps have been installed in the largest combined sewage retention tank of its kind. This 22,500 m³ capacity tank is situated below the “Berliner Bogen”, voted the best office building in Europe.



A stormwater and sewage retention tank with a capacity of 22,500 m³ and a floor area of 4,300 m². 24 KSB Amajets, total power 384 kW.

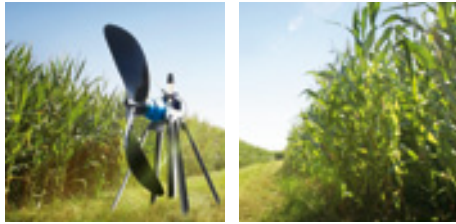






Farms Grow Clean Energy





Since May 2006 the operation of a biogas plant has given an agricultural business in Brome/Benitz, Germany, a second source of long-term income. Its two-stage biogas system produces methane which is converted into electricity and heat amounting to some 500 kW. Benitz not only covers its own energy needs, but also supplies numerous homes in the region with energy via the public networks. It relies on KSB's low-speed agitators, which use up to 50 % less energy than their higher-speed counterparts. Benitz now wants to build further on its partnership with KSB: Soon the facility will be producing 1,000 kW.





Pole Position on the Drainage Grid

Whether in the commercial or sporting arena – China is moving to the forefront at full speed. Grand Prix racing provides a good example: The huge motordrome in Shanghai was constructed in only 18 months and offers seating for 200,000 spectators, mostly in covered grandstands.

Unlike the spectators, the 5.45 km circuit is subjected to the full force of the weather. Only the most modern drainage systems can prevent monsoon-like rainstorms from flooding the track. A job for KSB: 20 submersible motor pumps with a capacity of 1,000 litres per second and a drive rating of 60 kilowatts drain the track in record time. Safety has right of way: Aquaplaning risks are reduced.





Waste Water Treatment from a Single Source

Innovative products for waste water treatment are in demand, especially in Eastern Europe. With an output of 200,000 m³ per day, the mechanical/biological water treatment plant at Poznań is one of the largest in Poland. This plant processes 85 % of the waste water generated by the Poznań conurbation.

The high level of technical refinement and the proven reliability of our pumps were decisive factors in the selection of KSB as a partner. Complex waste water systems demand the intelligent and perfect coordination of many components, preferably from a single source. In Poznań a diverse range of KSB products are currently giving reliable service in all phases of the water treatment process.



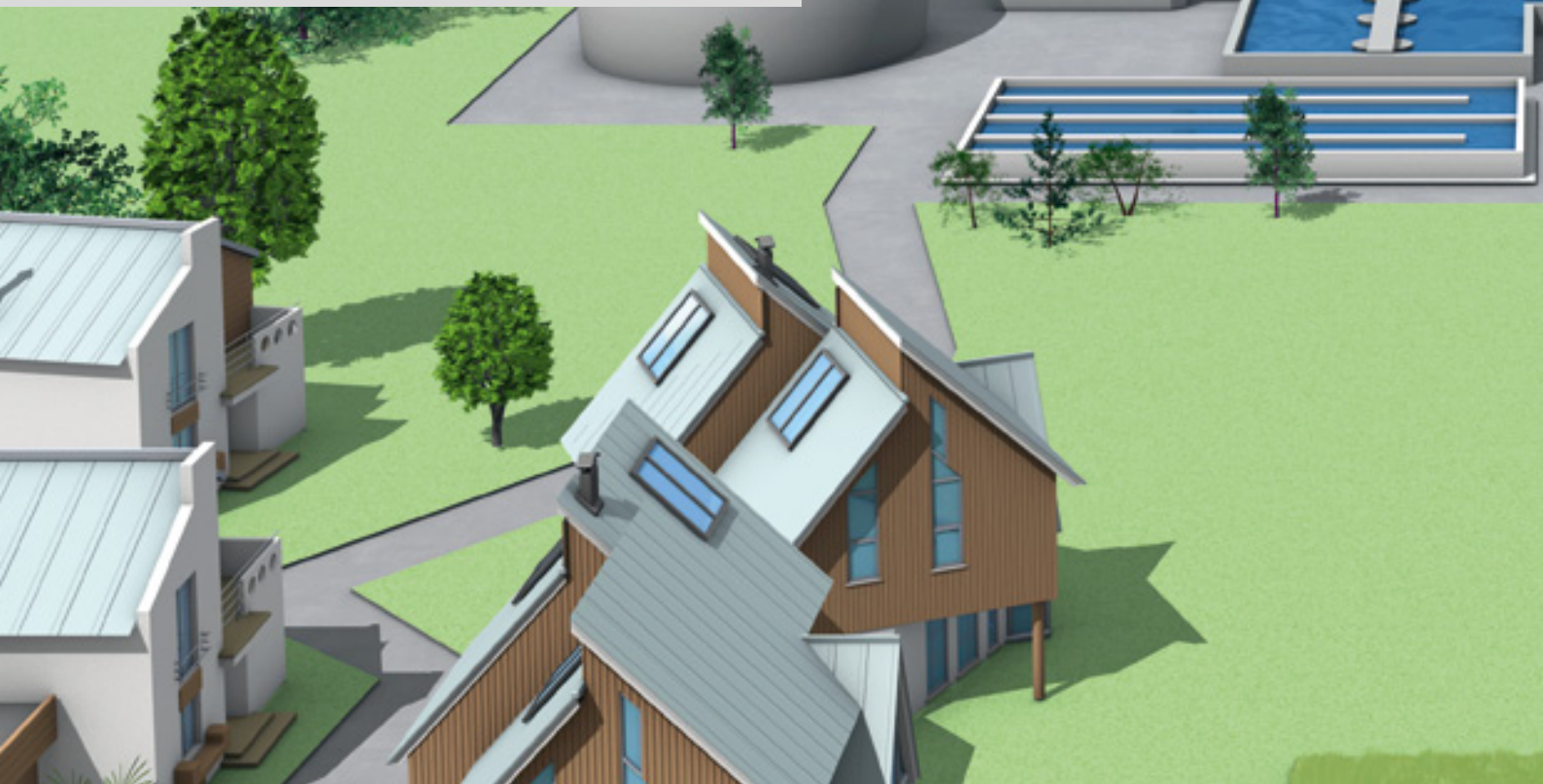


ST ENIM APVD DOMINVM DEVM NOSTR
NEC PERSONARVM ACCEPTIO
SERVVM QVOD AVDIAM CLAMOREM
GLADIO ET ERVNT VV
ET FILLI VESTRI PVPI



Waste Water Experts – Your Partners

Wherever in the world waste water is moved KSB is a popular partner for industrial, municipal and domestic waste water applications.



Amarex KRT
without cooling jacket



Amarex KRT
with cooling jacket



Amarex N



Sewatec



Amaprop



Amamix



Amaline



Amacan



Amajet



AmaDS³



A Safe Bet for Waste Water

The efficient submersible motor pump for all pumping duties in international waste water engineering. Available in a variety of materials and specially adapted hydraulic systems. Wide free passages ensure high operating reliability and economic transport of a wide range of fluids. ATEX-compliant models are available.

Amarex KRT Submersible motor pump – without cooling jacket



Technical data:	wet	dry
Nom. diameter: DN	40 to 700	80 to 200
Capacity: Q (l/s)	up to 2,800	up to 150
Head: H (m)	up to 120	up to 25
Temperature: t (°C)	up to 60	up to 40
Speed: n (rpm)	up to 2,900	up to 1,450
Power: P ₂ (kW)	4.0 to 850	up to 7,5

Your benefits:

- Variable hydraulic systems – the right impeller for every fluid
- Absolutely water-tight
- Two bi-rotational mechanical seals make for a long service life
- Excellent efficiency saves energy
- Premium Efficiency motors save energy

Applications:

Waste water transport, stormwater transport, waste water treatment, sludge treatment

With Cooling Jacket

Submersible waste water pump with closed jacket motor cooling. Optimum heat dissipation under all operating conditions (wet/dry installed, partly submerged or continuous above-surface operation). Exceptionally long motor life. Economical, powerful, low maintenance and environmentally friendly. ATEX-compliant models are available.

Amarex KRT Submersible motor pump – with cooling jacket

Technical data:

Nom. diameter:	DN	up to 700
Capacity:	Q (l/s)	up to 2,750
Head:	H (m)	up to 120
Pressure:	p (bar)	up to 10
Temperature:	t (°C)	up to 40
Power:	P ₂ (kW)	24 to 800

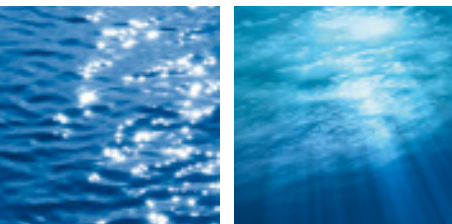
Your benefits:

- Closed cooling system without external cooler
- Variable hydraulic systems – the right impeller for every fluid
- Numerous sensors permanently monitor pump operation
- Supports TeleService (telemetry/remote monitoring)

Applications:

Waste water transport, stormwater transport, waste water treatment, sludge treatment





Masters International Regulations

Your absolutely reliable all-rounder for handling all kinds of waste water in municipal, industrial and commercial applications. In conjunction with the Amarex N CK pumping station also ideal for building services. Maximum economic efficiency and optimum operating reliability. No clogging. Short delivery times. Also available in ATEX-compliant design.

Amarex N Submersible motor pump – wet installation



Technical data:

Nom. diameter:	DN	32 up to 100
Capacity:	Q (l/s)	up to 53
Head:	H (m)	up to 49
Temperature:	t (°C)	up to 55
Speed:	n (rpm)	up to 2,900
Power:	P ₂ (kW)	up to 4.2

Your benefits:

- Variable hydraulic systems – the right impeller for every fluid
- A variety of construction materials are available in the standard product range, for problem-free handling of abrasive or corrosive fluids
- Higher operating efficiency than predecessor model

Applications:

Waste water transport, stormwater transport, waste water treatment, sludge treatment

A Clean Solution

The basis of a new generation of dry-installed waste water pumps. Service-friendly: highly reliable, easy to inspect and clean to maintain. Standard motors used. Modular design permits choice of hydraulic systems, materials, bearing assemblies and drive units. Minimised spare parts inventories. Numerous installation variants.

Sewatec Volute casing pump – dry installation

Technical data:

Nom. diameter:	DN	50 to 700
Capacity:	Q (l/s)	up to 2,800
Head:	H (m)	up to 95
Temperature:	t (°C)	up to 70
Speed:	n (rpm)	up to 2,900
Power:	P ₂ (kW)	up to 850

Your benefits:

- Reduced costs due to standardised components. Many components identical to Amarex KRT range. Minimised spare parts inventories
- Proven hydraulic system (over 100,000 pumps sold) and optimised sealing concept
- Cost-effective back pull-out design

Applications:

Waste water transport, stormwater transport, sludge treatment





The Powerful Giant

Low-speed submersible mixer/agitator with innovative, break-proof propeller. Propeller diameters up to 2.5 metres. Mixer configured and positioned for optimum energy efficiency. Maintenance intervals: every 16,000 operating hours or 2 years. Tandem mechanical seal with leakage reservoir.

Amaprop Mixer/agitator



Technical data:

Speed:	n (rpm)	24 to 208
Power:	P_2 (kW)	1.25 to 20
Propeller Ø:	D (mm)	1,000 to 2,500
Installation depth:	(m)	up to 30

Your benefits:

- Optimised hydraulic system, for reduced energy costs
- 16,000 operating hours (or 2 years) without oil change
- 3-stage sealing concept

Applications:

Biological and general waste water treatment, biogas production

Maximum Safety and Efficiency

Higher-speed submersible mixer with hydraulically improved propeller, maximum energy input into the fluid. Reliable, resistant to clogging by fibrous material. Extremely long maintenance intervals and minimised spare parts inventories.

Amamix Mixer

Technical data:

Speed:	n (rpm)	up to 1,400
Power:	P_2 (kW)	up to 16
Propeller Ø:	D (mm)	215 to 600
Installation depth:	(m)	up to 30

Your benefits:

- Optimised hydraulic system reduces investment costs
- 3-stage sealing concept
- 16,000 operating hours (or 2 years) without oil change

Applications:

Waste water treatment, biogas production





The Waste Water Marathon Runner

Highly robust recirculation pump. With its ECB (Ever-Clean-Blade) hydraulics and electrically optimised, permanently monitored motor, AMALINE transports large waste water flows at low heads. Proven design for trouble-free continuous operation.

Amaline Submersible pump in discharge tube



Technical data:

Nom. diameter:	DN	300 to 800
Capacity:	Q (l/s)	up to 1,500
Head:	H (m)	up to 2
Temperature:	t (°C)	up to 40
Speed:	p (bar)	up to 960
Power:	P ₂ (kW)	up to 16

Your benefits:

- Mature technology ensures maximum operating reliability
- Easy and safe installation and removal, reduces costs
- Material variants for every waste water application
- 2 mechanical seals as standard – concept proven in over 100,000 units sold

Applications:

Waste water treatment, flow generation in leisure park water attractions

Slim Design, Slim System Costs

A high-performance pump, slender and versatile. This submersible motor pump fits even the narrowest of discharge columns and is extremely powerful despite its compact design. Versions with mixed-flow impeller (Amacan S), axial propeller (Amacan P), or channel-type impeller (Amacan K). Hydraulically optimised, easy to install, robust, and low maintenance.

Amacan Submersible pump in discharge tube

Technical data:

Nom. diameter:	DN	up to 1,500
Capacity:	Q (l/s)	up to 7,000
Head:	H (m)	up to 40
Temperature:	t (°C)	up to 40
Speed:	n (rpm)	up to 1,450
Power:	P ₂ (kW)	up to 700

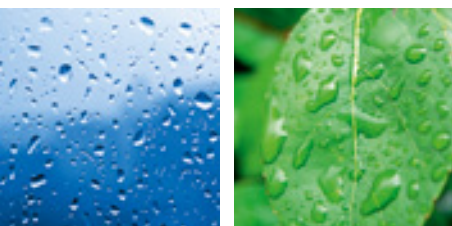
Your benefits:

- Top efficiency saves energy
- Easy and safe installation/removal saves costs
- High flow rates and heads

Applications:

Waste water treatment, aquaculture





Efficient Stormwater Tank Cleaning

AMAJET system for cost-effective cleaning of stormwater retention/stand-by tanks and industrial process tanks. Easy to install, no expensive site alterations required. Energy-efficient, low maintenance. Intelligent control and perfect automation by process controller.

Amajet Tank cleaning



Technical data:

Nom. diameter:	DN	100 to 150*
Temperature:	t (°C)	up to 40
Speed:	n (rpm)	up to 1,450
Power:	P ₂ (kW)	up to 16*

*Higher ratings on request.

Your benefits:

- Exceptional cleaning performance. AMAJET system generates optimum turbulence and high bulk flow for efficient cleaning action
- Highly versatile, rapidly effective and available in many installation variants – including dry installation

Applications:

Stormwater tanks, sewers with storage capacity and overflow

The systematic approach to pumped drainage.

AmaDS³ is an innovative waste water pump station, which is also suitable for pumped drainage systems covering long distances. The patented upstream solids separation system offers reliable service, protects the pump from coarse solids and helps prevent clogging. Maximum economic efficiency, operating reliability and ease of maintenance. Based on tried and tested waste water pumps from KSB. Higher efficiencies, less wear and improved plant availability compared with conventional waste water pump stations.

AmaDS³ Waste water pump station with solids separation system

Technical data:

System performance:	up to 120 m ³ /h (max. inflow rate)
Head:	standard model up to 85 m
Tank volume:	up to 3,400 l

Your benefits:

- Easy installation of pre-assembled AmaDS³ system
- Cost reduction thanks to standardised components
- Patented technology for maximum operating reliability
- Reliable transport of challenging waste water types

Applications:

Sewage transport (for example in municipal and industrial plants, hotels, hospitals, campgrounds)



KSB's Impeller Family

The impeller – the heart of all waste water pumps. Its design and geometry as well as free passage determine the efficiency of a pump. KSB offers a complete family of impellers matched to all waste water requirements. KSB – we know what it takes to make your world flow round.

D-type

The open diagonal single-vane impeller can handle sludges and waste water containing long fibres, up to a dry matter content of 13%. Coarser solids up to 150 mm can also pass without any problems.

S-type

The cutter is an economic solution for domestic waste water containing solids up to 7 mm in size.

F-type

The free-flow impeller allows fluids with larger solids up to 135 mm to pass. The presence or formation of gases (up to 8%) is not a problem either.

E-type

The closed single-vane impeller ensures smooth passage for waste waters containing solids and long fibres up to 280 mm.

K-type

The closed multi-vane impeller for solids-laden and muddy fluids offers the highest efficiency for waste water and a free passage of up to 290 mm.



Simply efficient – LevelControl Basic 2

As a supplier of systems, KSB offers all-in solutions, automation products included – for efficient processes in any waste water system. Pump and LevelControl Basic 2 are a powerful combination for handling waste water safely and economically. With its straightforward user interface, the LevelControl Basic 2 control unit is entirely geared to our customers' requirements. This level-dependent pump control and monitoring unit with display provides operators with a perfectly matched combination of pump and control unit for single-pump and dual-pump installations.

Fast, easy, efficient

- Ample connection space allows straightforward connection of pumps and sensors
- Available in numerous installation options and with a wide variety of accessories
- Factory-set parameters for swift commissioning

Reliable operation based on comprehensive information

- Highly visible display indicates major parameters
- Display of measured values such as water level, operating hours, mains voltage, starts per pump, rotary field detection, etc.
- Operation and fault indication per pump

Comprehensive functionality makes for high system availability

- Overcurrent and short-circuit protection by motor protection switches (400 V model)
- High water alert
- Monitoring of the pumping station (voltage and phases, dry running, moisture)
- System redundancy by control of stand-by pump
- Optional activation of functional check run after idle period
- Rechargeable battery retrofit kit for powering electronics, sensors and alarm equipment, e.g. horn



Where it Counts. When it Counts. Service Worldwide

Installation, commissioning, inspections, emergency calls, repairs on site or in our more than 120 service centres worldwide: KSB's 2,400 experienced service experts are there to support you round the clock at any stage of your system's life cycle. Our complete service offers, for instance the Total Pump Management contract, ensure reliable operation of your system and minimise downtime. Backed by our finely-tuned spare parts logistics we provide fast service, fuss-free. Our service also applies to related systems and non-KSB products. Especially where waste water is concerned, preventative maintenance is the key.

This is why we have supplemented our classic inspection service with the KSB Vario concept: from simple functional checks through regular servicing, 24h on-call duty to complete operations management. KSB Vario modules A-E are tailored to your requirements.

The KSB Service team would be pleased to share their expertise with you to improve the performance and energy efficiency of your plant or advise you on subjects such as spare parts stock levels, inventory management and financing models.



Fast Help for Plant Designers

Your direct line

If there is ever anything you need, something that might be lacking or damaged:
We will help you straight away and organise your spare parts supply, if required.

Your contact person:

Annett Engelhardt, annett.engelhardt@ksb.com

Phone: +49 345 4826-4628, Fax: +49 345 4826-4691

Helps PumpSelection

KSB HELPS was developed to meet the needs of plant designers in the waste water industry – it is a planning software package with an integrated pump selector that can drastically reduce the design effort required for complex projects.

Perfect technology and perfect presentation

Our Waste Water CD-ROM offers more interesting insight into KSB's product technology and service philosophy. A perfect presentation – also for your own consultations with customers and partners.

For both these products, just contact your sales representative now. Turn to the back of this brochure for the contact data.



Your local KSB representative:

More space for solutions.



KSB Aktiengesellschaft
Turmstraße 92
06110 Halle (Germany)
www.ksb.com