

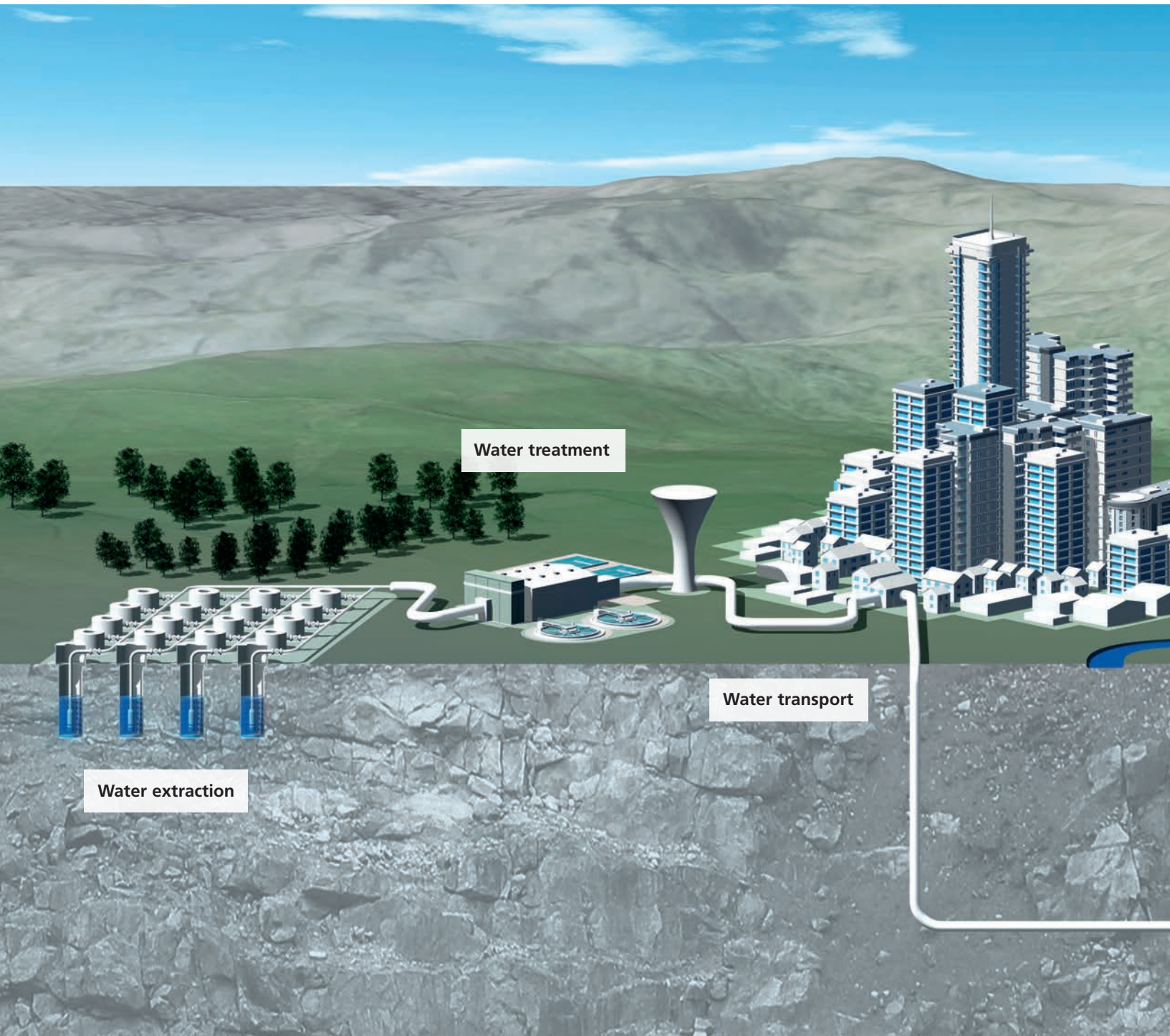
The cycle of solutions:
water technology by KSB
循环解决方案：由KSB提供的水处理技术



Water is life – and our passion 水是生命——我们为之激动

A responsible approach to water as a precious resource has always been one of KSB's core competencies. Some of the greatest challenges facing the world today involve the provision of clean water and the efficient treatment of waste water. In striving to meet these challenges, our product portfolio embodies an approach based on simplicity and sustainability when handling this vital resource.

将水作为一种珍贵的资源来对待一直是KSB的核心竞争力之一。在当今世界，人类面临的一些最大挑战中就包括如何提供纯净的水以及如何高效地处理污水。在处理这种珍贵资源时，我们的产品组合提供了简单并可持续的解决办法以努力迎接这些挑战。



As a globally active supplier of all-in solutions, KSB is able to offer a range of pumps, valves and associated services that cover the entire water cycle: all the way from water extraction, water treatment, water transport, drainage and the treatment and transport of waste water.

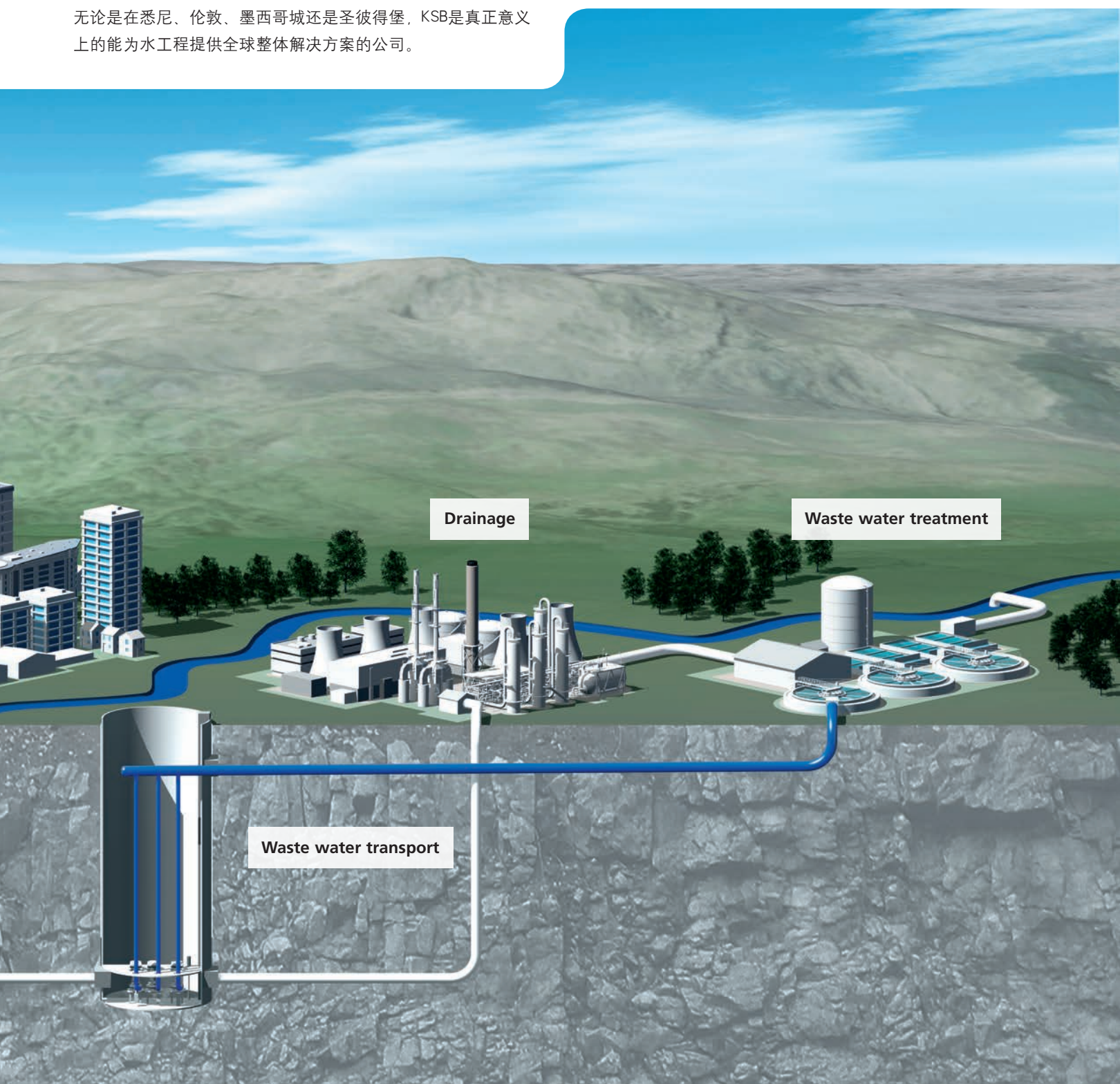
作为带有完整方案的一个全球化活跃的供应商，KSB能为整个水循环提供一系列的泵、阀门以及相关服务：水的提取、水的处理、水的输送、水的排放以及污水的处理和输送。

Whether in Sydney, London, Mexico City or St. Petersburg, KSB is on hand to offer truly global all-in solutions for water engineering.

无论是在悉尼、伦敦、墨西哥城还是圣彼得堡，KSB是真正意义上的能为水工程提供全球整体解决方案的公司。

Our role as a one-stop supplier goes far beyond providing a wide range of innovative products. Whatever your water or waste water needs, our 140 years of experience and expertise in the areas of planning, consultancy, research and development make us your first port of call.

作为一个一站式的供应商，我们所能提供的远不限于于各种创新产品。无论是清水项目还是污水项目，长达140余年的经验及专业技术能让我们在项目设计、咨询、研究与开发的各个阶段成为您的首选伙伴。



Reliable water supply for New York: drinking water for the Big Apple 纽约的可靠供水：大苹果的饮用水

More than half of New York's drinking water is conveyed to the city via the Rondout-West Branch Tunnel of the Delaware Aqueduct – a 71 kilometre-long tunnel which supplies up to 37 m³ of drinking water per second via a natural incline from Ulster County located 160 km away. Measuring over four metres in diameter, construction of the tunnel was completed in 1944. As a result of geological conditions, the tunnel was losing up to 130 million litres of drinking water a day through leaks under the Hudson River.

在纽约，超过一半的饮用水是通过Delaware水渠——一个长达71公里能每秒输送37m³饮用水的渠道——的Rondout-West Branch隧道，以自然坡度的原理从位于160公里外的Ulster郡输送而来。这个直径大于4m的隧道于1944年完工。由于地质条件的原因，每天，这个隧道中都有高达1亿3千万升的饮用水渗漏进Hudson河中。

To enable the tunnel to be pumped empty for repairs as quickly as possible, KSB supplied the most powerful single-entry submersible borehole pumps that our company has ever produced. Each of the 5 units is driven by a 2,000 kW, 4-pole electric motor operating at a voltage of 4,160 volts. The output of each pump is around 2,000 cubic metres an hour at a maximum rated head of 320 metres. In accordance with the customer's specifications, the components which come into contact with the fluid handled on selected pump sets are made of corrosion-resistant stainless steel. A special submersible connector system was used for the cable connections. 为了尽快排空隧道以便维修，KSB为此项目提供了迄今为止生产出的最大功率的单吸潜水深井泵。这5台泵均采用了电压为4,160V、功率为2,000kW的4级电机。每台泵在最高扬程320m时其流量约为2,000m³/h。按照客户的要求，这些泵中所有与介质有接触的部件均采用了耐腐蚀不锈钢的材料。在电缆与电机的连接处采用了特殊的潜水连接系统。



Valve for water extraction: SISTO-16TWA
取水所用的阀门：SISTO-16TWA



New York relies on KSB's expertise
纽约依赖KSB的专业技术



KSB UPA submersible borehole pumps
KSB UPA潜水深井泵

Water extraction with KSB: tapping all sources

KSB于取水：竭尽所能

Whether you need to pump surface water or tap groundwater from deep wells, KSB can provide equipment for all water extraction challenges. As a full-range supplier, we have the right products for virtually any application.

无论您是要抽取地表水亦或是通过深井抽取地下水，KSB能为所有的取水项目提供合适的产品。事实上，作为一个全程供应商，对于每项应用我们均有合适的产品。

You'll not only find a comprehensive portfolio of dry-installed and wet-installed pumps for pumping surface water, but also the right valves for the job, e.g. the diaphragm valve SISTO-16TWA, and the requisite auxiliary equipment.

在我们这里，你不仅能找到多种多样的干式泵或潜水泵用于泵送地表水，还能发现我们也有合适的阀门，例如隔膜阀SISTO-16TWA，以及其他必要的辅助设备。

For pumping water from wells, we offer extremely durable submersible borehole pumps that meet the most stringent of drinking water requirements and also keep energy costs as low as possible thanks to their efficient motors. Even better: with our new UMA-S synchronous motors which

offer over 8 % more efficiency compared to asynchronous motors, you can reduce your energy consumption even further.

为了将水从井中抽出，我们能提供非常耐用的潜水深井泵，这种泵能满足大部分饮用水输送的严格要求，并且归功于水泵配用了的高效电机，其能耗也非常低。更有甚者：若采用了我们新的UMA-S同步电机，您将能进一步地降低能耗，因为这种电机比普通的异步电机效率能提高约8%。

Alongside comprehensive consultancy, at KSB you'll receive customer-specific solutions that go far beyond standard offers. For example, we tailor pump systems precisely to your individual requirements with selected engineering services. With our measurement equipment fitted to your well pumps, you can ensure that the pumps are run in the optimum range to keep the operating and maintenance costs as low as possible in the long term.

除了全面的咨询，在KSB，您将能获得远远超出标准报价的针对客户需要的解决方案。例如，我们为您的特殊需求及选定的技术服务提供精确的水泵系统。若您的井用泵配备了我们的测量设备，您就能确保这些泵能运行在最恰当的运行范围，以使长期的运行和维护费用尽可能低。

Seawater desalination by KSB: providing drinking water for Singapore

KSB的海水淡化：为新加坡提供饮用水

The SingSpring seawater desalination plant in Singapore is one of the biggest desalination facilities in Asia. It produces 136,000 m³ of drinking water a day via the reverse osmosis process, covering ten percent of the island state's water demand.

位于新加坡的SingSpring海水淡化厂是亚洲最大的海淡设施之一。利用反渗透工艺，这个厂每天能生产出136,000m³的饮用水，满足了这个岛国10%的需水量。

As an established specialist for desalination, KSB was able to supply Singapore with numerous high-pressure feed pumps, filtered water pumps, booster pumps and intake pumps.

作为海淡产品的专业供应商，KSB有能力为新加坡提供大量的高压送水泵、过滤水泵、增压泵以及取水泵。

Four pumps from the Amarex KRT K range, each capable of handling up to 5,000 m³ per hour, pump raw seawater into the plant's pre-filtration system. 10 variable speed Omega pumps transport the prefiltered seawater to a total of 10 HGM-RO pumps; with a rating of 1,170 kW each, these high-pressure units force 708 m³ of seawater per hour through the osmo-

sis membranes.

4台KRT水泵，每台流量为5,000m³/h，将未经处理的海水泵送至厂内的粗滤系统。10级的Omega泵则将这些粗滤后的海水输送至10台功率为1,170kW的HGM-RO泵，这些高压泵每台每小时能将708m³的海水压送通过反渗透系统。

Thanks to a compact design, flexible connection nozzles and plug & play installation, KSB was able to supply the equipment ahead of schedule, enabling the construction costs to be kept to the absolute minimum.

归功于紧凑设计、灵活连接的喷管和塞子、模块化安装，KSB能提前交货，使整个工程的建设成本降到最低。



Butterfly valve ISORIA 25
蝶阀ISORIA25



Salino Pressure Center: low life cycle costs thanks to 4-in-1 technology
Salino高压中心：低寿命周期成本归功于4合1的技术



City-state of Singapore – the smallest country in South East Asia desalinates seawater with KSB
新加坡——东南亚最小的国家，由KSB提供海淡产品

**Innovative, durable and efficient:
KSB solutions for water treatment**
创新、耐用、高效：KSB的水处理方案

KSB is a globally recognised specialist in the field of water treatment and seawater desalination. Our pumps, valves and services set technical standards in waterworks and desalination plants.

KSB是全球公认的水处理和海水淡化领域的专家。我们的水泵、阀门和服务在自来水厂和海水淡化厂设立了技术标准。

We have become the global market leader for desalination plant equipment with our solution-orientated approach and innovative products. For example, we have tailored our HGM-RO high-pressure pump to meet the requirements of seawater desalination. Our Salino Pressure Center is the first ever 4-in-1 solution, replacing a high-pressure pump, energy recovery device, booster pump and electric motor with a single compact unit. This makes it ideal for use in small and medium-sized desalination systems – for example in industry, ships and hotels.

因着合适的解决方案和创新的产品，我们已经成为海淡设备的全球市场领导者。例如，我们改进了HGM-RO高压泵以适用于海水淡化的特殊需求。我们的SALNIO压力中心更是首个4合1解决方案，用1台机组替代了高压泵、能力回收装置、增压泵和电机。这为中小型的海淡设施，例如在工厂、船上和旅馆中提供了理想的解决方案。

We also provide numerous cutting-edge pump ranges for water treatment in water-works, all highly efficient, extremely reliable and cost-effective to maintain. This enables you to reduce the life cycle costs of your systems, creating the ideal conditions for a cost-effective and reliable water supply.

我们也能水厂中的水处理提供多种先进的水泵，高效、可靠、低维护成本。这能使您减少整个系统的运行费用，保证了水厂在可靠供水的同时具有高效益。

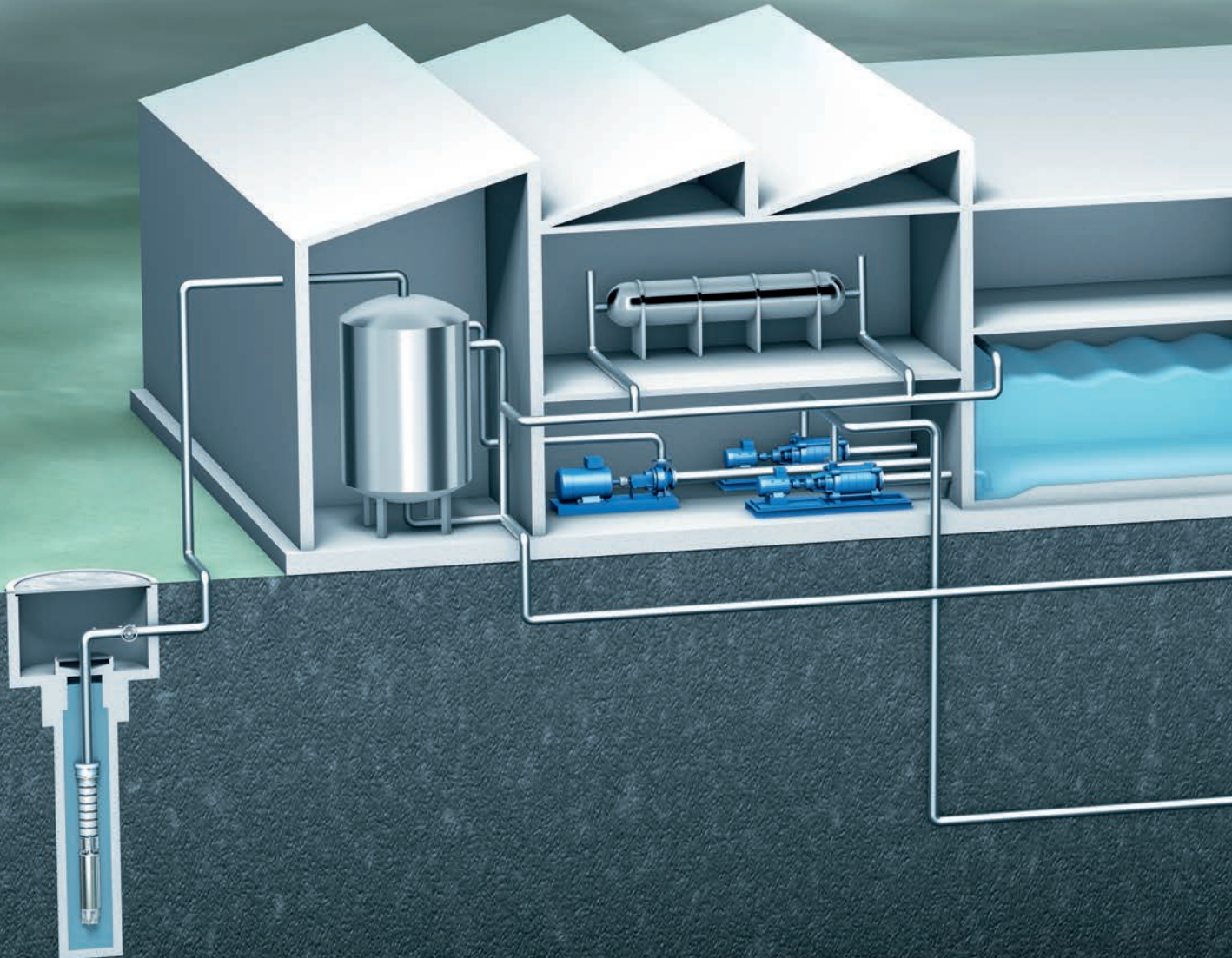


Water treatment with top performers: KSB pumps in central roles

水处理的顶级表演者：KSB泵做主角

Whether extracting water or channelling it into the drinking water network: water treatment with KSB offers optimised, energy-efficient top performance with exceptionally low life cycle costs.

无论是取水还是将水输送入整个饮用水网络中，KSB都能提供最优化的、最佳能效的、寿命周期成本极低的解决方案。



Well chamber 井室

Water is extracted from a deep well and pumped to the waterworks by pumps from the UPA type series.

UPA泵将地下水从深井中抽出并送至自来水厂。

Waterworks 自来水厂

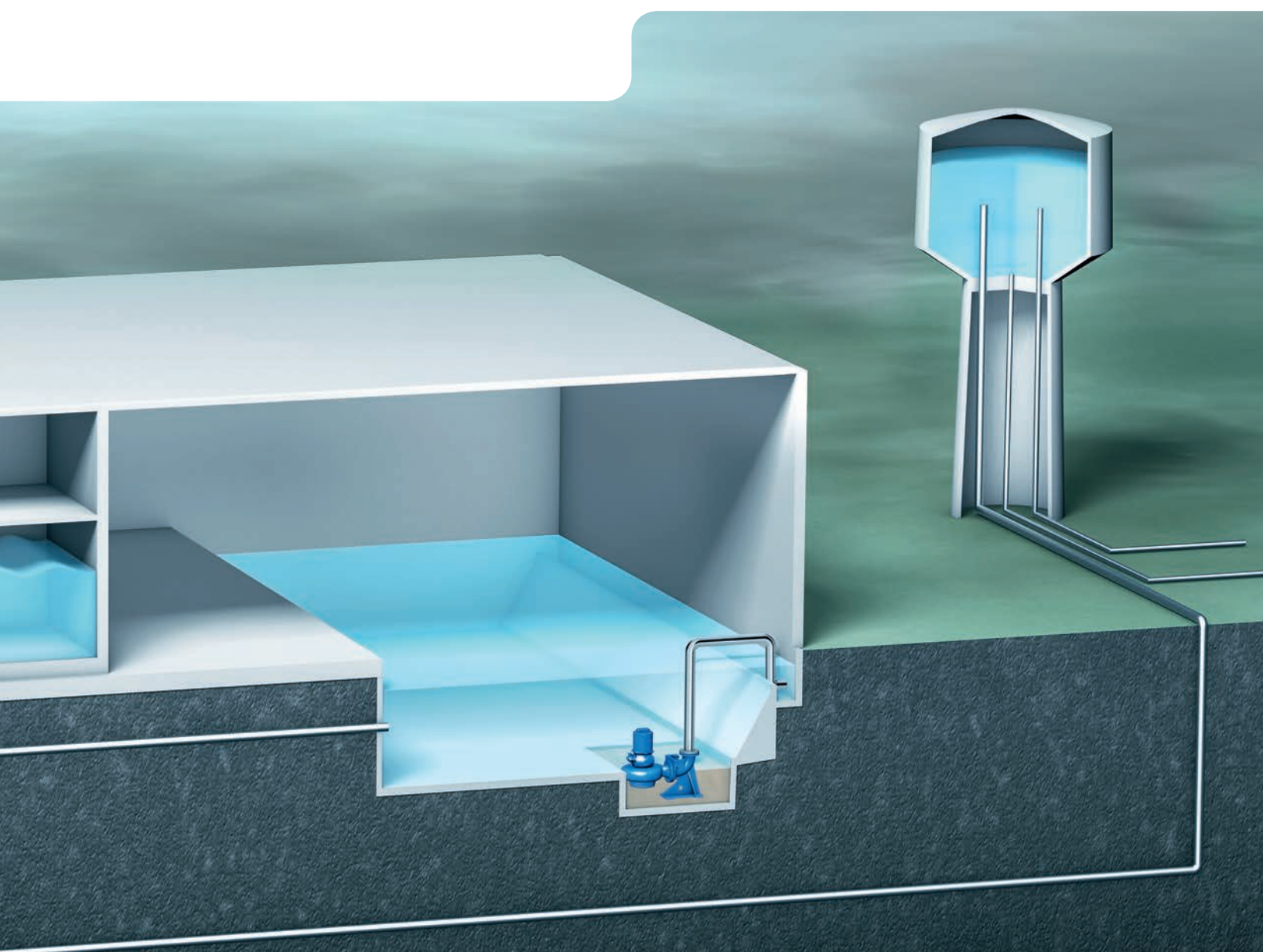
Pumps from the Etabloc/Etanorm series are used as backwash pumps for filter vessels, while feed pumps from the Multitec series pump treated water from the pure water chamber into the supply network.

Etabloc/Etanorm泵可用于过滤器的反冲洗，而Multitec供水泵则将处理过的水从净水池输送到供水系统中

Settling tank 沉淀池

Deposited solids are pumped by Amarex KRT pumps to the waste water treatment tank.

沉积的污泥由Amarex KRT泵输送至污水处理池。



Water transport down under: Sydney pumps drinking water with KSB pumps 澳洲的水输送：悉尼用KSB的泵输送引用水

The biggest city in Australia derives part of its drinking water from the Nepean Dam, which is located some 100 km south-west of Sydney and its several million inhabitants. For transporting the water, the city relies entirely on KSB. Three high-efficiency KSB pumps of the RDLO series extract raw water at the lowest point of the dam and transfer it to a filtration plant. It is then treated and pumped to Sydney via a network of pipelines.

这个澳大利亚最大的城市的一部分饮用水来自于Nepean大坝，位于悉尼西南100公里。这些水供应着城市内数以百万计的居民。悉尼完全信任由KSB来负责输送这些水。3台KSB提供的高效RDLO水泵能将雨水和大坝内最低处的水抽送至过滤厂。在那里，水被处理并通过管网输送到悉尼。

To ensure that the pumps run at maximum efficiency even under conditions of fluctuating demand, they are fitted with frequency inverters. These ensure that the motor speed is always in the most energy-efficient range, thus minimising the operating costs of the pumping station. 为了保证这些泵即使在工况变动的情况下也能运行在高效点，水泵配备了变频器。这些变频器能保证电机转速永远处于高效能的范围内，因此能使泵站的运行成本降到最低。

However, KSB provided its customer, the construction company Baulderstone Hornibrook, with much more than just pumps. During the planning stage of the project, we supported the customer by designing and sizing the entire system. The KSB competence centre in Germany and our team on site provided valuable help with the calculations and assisted with the entire process right through to commissioning of the system. 然而，KSB为其客户Baulderstone Hornibrook所提供的不仅仅是这些泵。在这个项目的规划阶段，我们就为整个系统的设计以及制定整个标准提供了支持。KSB在德国的技术中心以及当地的销售团队为这个项目提供的宝贵帮助贯穿了项目全过程直至系统调试。



100 km of drinking water transport: KSB supplies Sydney
长达100公里的水输送：KSB供应着悉尼



High-efficiency water transport pump RDLO
高效的水输送泵RDLO



Reliable and cost-effective: unbeatable water transport

可靠且划算：无与伦比的水处理

When it comes to transporting water, the key priorities are reliability and energy efficiency, as these factors play a major role in determining the operating costs. As a full-liner, KSB is able to offer a wide selection of powerful pump ranges that guarantee not only maximum availability and operating reliability, but also outstanding efficiencies and low maintenance costs.

当涉及到水的输送时，运行的可靠性和高效能是会被着重考虑的，因为这些因素在决定运行成本方面扮演了重要的角色。KSB有能力提供各式强大的水泵，不仅能保证最大限度的实用性和运行可靠性，更能体现出高效率 and 低维护成本的特点。



Centred-disc butterfly valve MAMMOUTH
中线型蝶阀MAMMOUTH

Our pumps are built for easy servicing and set worldwide standards with regard to quality, reliability and durability. We've optimised the pump design to offer minimal life cycle costs. Furthermore, with accessories such as our PumpMeter, you can ensure that your pumps are always operating with the lowest possible energy consumption. Reliable valves, e.g. the centred-disc butterfly valve MAMMOUTH complement our comprehensive range of products for water transport applications.

我们的水泵易于维修，并树立了全球的质量、可靠性、耐用性标准。我们采用了最优化的水泵设计以达到将寿命周期成本降至最低的要求。而且，若配用了我们的Pumpmeter这个配件，您就能保证您的水泵永远运行在低耗能的工况。可靠地阀门，例如中线型蝶阀MAMMOUTH则有力地补充了我们在水输送领域的应用范围。

You also directly benefit from our wealth of expertise. On request, we advise our customers during all project phases, supply complete or partial solutions for special requirements and provide continuous support with projects right from the initial planning stage to commissioning and maintenance.

您也能直接受益于我们的专业知识。根据需要，我们会在项目的所有阶段支持客户，按照特殊需求提供完整的或部分解决方案，这些支持将从项目最初计划阶段一直持续到最终的调试和维护。



KSB drainage equipment installed in museum: protecting a World Heritage Site

安装于博物馆中的KSB排水设备：保护世界遗产

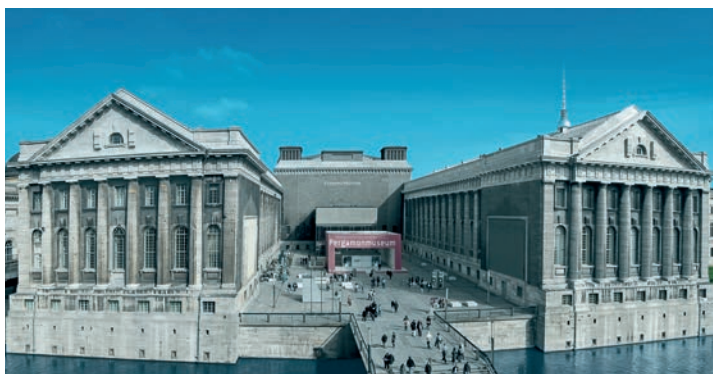
Berlin's Pergamon Museum is one of the most important museums in Germany, attracting around a million visitors every year. In the cellars of this historic building, waste water is handled by an AmaDS³ pump station with solids separation system from KSB. This waste water pump station is especially dependable, ensuring reliable operation thanks to upstream separation systems which protect its pumps against clogging from solids. A redundant design concept encompasses all of the key components located in the basement of the Pergamon Museum. This virtually rules out an entire system failure and also enables maintenance work to be carried out while the equipment is in operation.

柏林的Pergamon博物馆是德国最重要的博物馆之一，每年约有上百万的游客到访。在这个古老的历史建筑的地下室，由KSB提供的带固体分离装置的AmaDS³ 泵站处理着所有的污水。这个泵站是特别可靠地，其上游的分离系统将污水中的固体颗粒物分离出来，避免了泵内产生堵塞，从而保证了运行的可靠稳定性。泵站内设有备用系统，包含了所有的关键组件，均位于Pergamon博物馆的地下室。这将消除整个

系统发生故障的可能性，也能在设备运行的同时进行必要的维护工作。

The fully dry-installed system offers hygienic working conditions for the operating personnel as gases or fluids are kept tightly sealed. Carrying out maintenance work is also very straightforward because the solids separators are externally installed for easy accessibility. 完全干式安装的系统保证了操作人员的健康工作环境，因为所有的气体和液体均被密封在设备内。固体分离器装在外部的，安装简便，因此整个维护工作也是十分简单的。

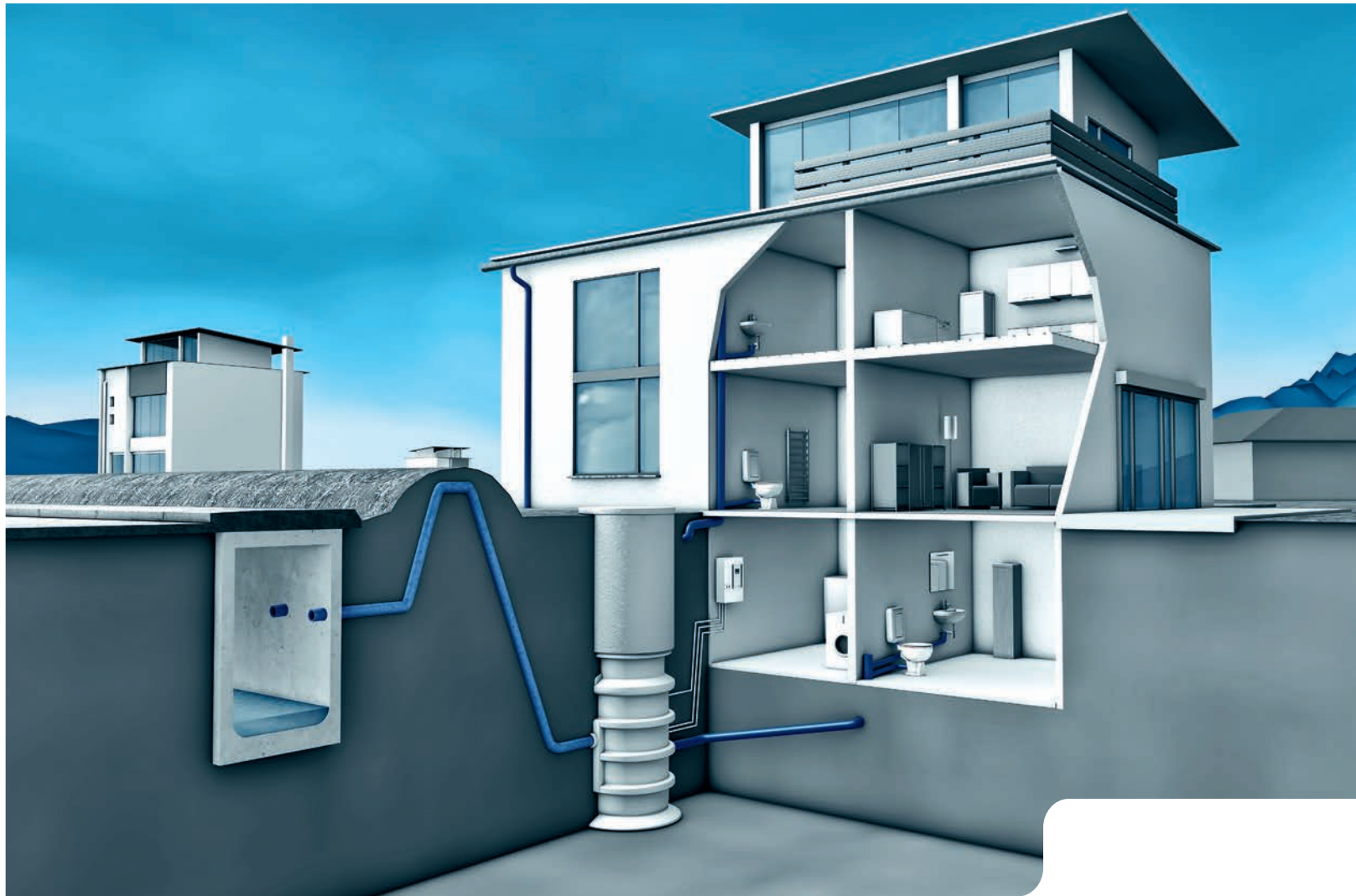
KSB designed AmaDS³ with two especially energy-efficient pumps from the Sewabloc range. Due to their high level of efficiency, these pumps make a major contribution to reducing the energy costs of the entire system. KSB从Sewabloc系列中选取了两台特别节能的泵来进行AmaDS³的设计。水泵的高效率促使了整个系统的能源成本的降低。



The Pergamon Museum on Berlin's Museum Island
柏林博物馆岛上的Pergamon博物馆



The patented AmaDS³ pump station with solids separation system
KSB专利的带有固体分离装置的AmaDS³泵站



Quick, clean, reliable – KSB offers optimum all-in solutions for drainage
快速、干净、可靠——KSB提供最恰当的排水解决方案

Maximum reliability at minimum overall costs

最大的可靠性最小的总成本

Just like the equipment installed at the Pergamon Museum in Berlin, KSB products ensure reliable drainage of houses, public buildings and industrial facilities all over the world. Whether it's rainwater, groundwater from drainage systems or highly solids-laden waste water that needs to be transported, KSB is guaranteed to have the right product to suit your needs, offering a diverse range of pumps and numerous valves. This broad range of products enables us to offer the perfect product for your particular situation – from waste water lifting units and pumps for cellar drainage and waste

water right through to sewage lifting units and powerful waste water pumping stations.

就如在柏林Pergamon博物馆中安装的设备那样，KSB的产品能为全世界的房屋、公共建筑、工业设施提供可靠的排水。不管输送的是雨水、排水系统中的地下水还是有大量固体杂质的污水，KSB都能根据您的需要提供合适的不同种类的泵和阀门。正是这些品目众多的产品系列保证了我们能为您的特殊环境——从小型污水提升装置、地下排水泵，到中途污水传输，直至大型的污水提升装置和污水泵站。

The reliability of our systems takes top priority and we are always developing new technical solutions, like AmaDS³. Right from the design stage we strive to maximise operating reliability

and minimise the amount of maintenance required. This reduces your overall costs and, in combination with extremely efficient drives such as the KSB SuPremE motors, ensures that your energy requirements are kept as low as possible.

系统的稳定可靠性是我们最先考虑的，并且我们也在一致发展新技术解决方案，比如AmaDS³。在设计阶段，我们就在努力实现运行可靠性的最大化和维护需求的最少化



Europe's deepest waste water pumping station: pumping from the depths

欧洲最深的污水泵站：从深渊内泵水

In St. Petersburg, Russia, a major waste water project has been under way since 2005. The aim is to conserve water resources and to protect the Baltic Sea against the discharge of untreated waste water and associated eutrophication.

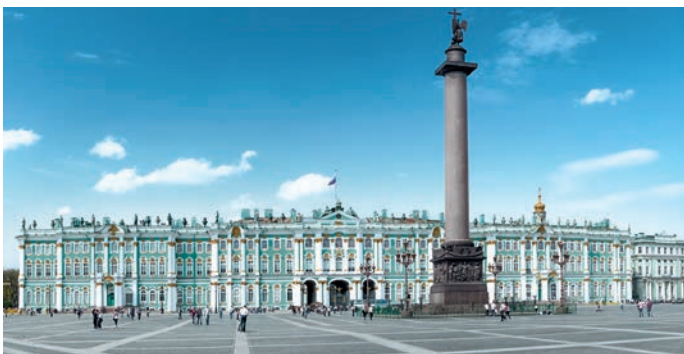
在俄罗斯的圣彼得堡，一项重要的污水项目始建于2005年。这个项目旨在保护水资源，避免向波罗的海输送未经处理的污水，防止水体的富营养化。

One of the most important sub-projects is the deepest waste water pumping station in Europe, which reaches a depth of 92 metres. Here, numerous pumps from KSB handle the rain-water and waste water that collect from a twelve kilometre-long tunnel system. An average of approx. 600,000 m³ of waste water is pumped into a channel from which it flows by gravity to the waste water treatment plant.

这个地下工程的最重要的一点在于它是欧洲最深的污水泵站，泵站的深度达到92m。在这里，来自KSB的多台水泵处理着雨水和从十二公里长隧道内输送过来的污水。平均约有600,000m³的污水被泵送入排水管道，然后通过重力作用直接到污水处理厂。

The bulk of the work is carried out by 12 dry-installed pumps from the Amarex KRT K 400-710 submersible motor pump range. With a nominal power of 580 kW per hour each, they transport 2,592 m³ of waste water at a head of 59 m, achieving 81 % efficiency. In addition to the main pumps and frequency inverters, KSB also supplied a number of drainage and sump drainage pumps.

大部分的工作由12台干式安装的Amarex KRT K 400-710潜水泵承担。水泵的功率为580kW，这些泵流量为2,592m³/h，扬程为59m，其水力效率为81%。除了主泵和变频器，KSB还提供了大量的排水池和沉淀池排水泵。



St. Petersburg, formerly Leningrad – the second biggest city in Russia
圣彼得堡，前列宁格勒——俄罗斯第二大城市



Amarex KRT
submersible motor
pump in operation
in St. Petersburg
运行于圣彼得堡的
Amarex KRT潜水泵



Incorporating control equipment for each pump and an uninterruptible power supply (UPS) system complete with power cables, control cables and cable ducts, the control cabinets installed play a crucial role in ensuring the effective functioning of the entire system.

对每一台泵以及每个包含动力电缆、控制电缆和电缆管道的不间断电源系统（UPS）进行合并控制，控制柜的设置则在确保整个系统有效运行方面起到了至关重要的作用。

Complete supply programme for waste water transport

污水运输的整体供给规划

From municipalities and cities to industrial companies, individual buildings and private households, KSB provides comprehensive solutions for waste water transport. Whether performing surface drainage or transporting aggressive waste water, we offer a broad range of technically advanced equipment for waste water transport, pumping stations and sewage treatment plants. This is complemented by decades of experience and our bespoke all-in solutions.

从乡镇城市到工业工厂、单体建筑、私人住宅，KSB能为所有的污水输送提供全方位的解决方案。无论是地表排水还是输送有害的废水，我们均能为污水输送、泵站、污水处理厂提供多种专业的先进的设备。辅以过去几十年的应用经验，我们将为客户定制的是一个整体解决方案。

KSB provides powerful waste water lifting units, pumps for pumped drainage and special solutions for residential areas with a high groundwater table or for buildings in water protection areas. But that's not all. We also offer propulsive jet pumps for use in storm-water retention tanks or waste water pump stations with an integrated solids separation system. KSB能提供强大的污水提升装置、排水泵以及用于高地下水位的居民区和水保护区建筑内的特殊解决方案。但那并不是全部。我们同时也能为雨水存储池或污水泵站提供装有前置固体分离器的射流泵。

KSB's products are optimised for minimum energy consumption and a maximum life cycle. Our in-house materials laboratories develop wear-resistant materials that are extremely resilient to corrosive and abrasive waste water. From these materials our foundry staff produce highly durable components that can withstand adverse conditions for many decades, providing an important basis for minimising the costs of waste water transport in the long term.

KSB的产品具有最佳的能耗设计和长寿命。我们内部的材料研究室开发了适用于强腐蚀和强磨损污水的材料。使用这些材料，我们的员工生产出来能抵御长年累月不利运行环境的及其耐用的组件，为减小污水输送产品的长期成本提供了强有力的支持。

Waste water treatment with KSB: rising to the challenge in Shanghai

KSB的污水处理：迎接来自上海的挑战

The Bailonggang waste water treatment plant in Shanghai is the biggest in Asia and one of the largest in the world. With a population in the double-digit millions, a third of the waste water produced in the city is treated here. Every day over two million cubic metres of waste water flow through the plant, which handles the waste water from around 3.6 million inhabitants in a catchment area covering more than 270 km².

位于上海的白龙港污水处理厂是亚洲最大的污水处理厂，同时也是全世界最大的污水处理厂之一。这个城市住着几千万人，其中城内三分之一的污水被输送到白龙港污水处理厂。每天，有超过两百万吨的污水在这里被处理，这些污水来自于270km²中心城区上的360万居民。

Hundreds of pumps were needed to equip the waste water treatment plant. The operating company opted for KSB as the supplier because KSB pumps meet all relevant requirements, deliver higher levels of hydraulic efficiency than many competitor products and thus make a major contribution to the overall energy efficiency of the pumping system.

污水厂内需要配备数以百计的水泵。业主选择KSB作为供应商正是因其产品能满足所有的相关要求，能提供力效率高于所有竞争对手的水的产品，这对水泵系统整体能效作出了重要的贡献。

KSB supplied a total of 241 submersible motor pumps from the Amacan range, 65 from the Amarex KRT and Amarex N ranges, six dry-installed SPN waste water pumps and six dry-installed ZL axial flow pumps. The pumps were delivered with all requisite components ready for connection, some already with the necessary control cabinets.

在白龙港污水处理厂，KSB提供了241台潜水轴流泵Amacan、65台潜水电离泵Amarex KRT / Amarex N、6台干式污水泵SPN和6台干式轴流泵ZL。这些水泵均配备了必要的安装附件，有一些还提供了控制柜。



Knife gate valve HERA BD
刀形闸阀GERA BD



Shanghai – a megacity with state-of-the-art
waste water equipment from KSB
上海——一个采用了KSB最先进的污水产品的大城市



Amacan submersible pump
in discharge tube
筒式安装的潜水轴流泵Amacan

Comprehensive portfolio for waste water applications

污水应用产品的全面组合

KSB offers you a comprehensive portfolio of pumps for tackling all waste water treatment tasks. You'll find not only classic waste water pumps, but also sludge handling pumps, progressive cavity pumps, propulsive jet pumps for stormwater tank cleaning, and clean and hot water pumps for general use. Whatever the application, reliability always takes top priority. KSB therefore sets great store by choosing the most suitable hydraulic system for waste water handling, selects especially wear-resistant materials or incorporates carefully considered details such as absolutely water-tight cable entries and mechanical seals with a covered spring for particularly abrasive waste water. We also offer a wide range of mixers that prevent sludge deposits in sedimentation tanks and ensure that contaminants are fully eliminated. The Amaprop low-speed mixer, for example, is one of the best products in its segment on the market – a powerful performer with an optimised hydraulic system, a break-proof propeller and especially long maintenance intervals. Last, but not least come our reliable valves such as the HERA knife gate valve. They ensure the precise control of all processes in waste water treatment.

KSB能为所有种类的污水处理提供综合组合的水泵。您会发现我们不仅有传统的污水泵，也有输送污泥的泵、螺杆泵、用于清洁雨水储池的射流

泵以及通用的热水净水泵。无论是哪种应用，可靠性总是首要任务。因此，KSB为污水处理产品选择了最合适的水力系统，采用特殊的抗磨损材料或在细节处小心处理比如采用完全水密封的电缆进线装置和包覆式机械密封用以处理含固量较多的污水。我们还能提供多种潜水搅拌机，用以防止储泥池内的沉淀并达到清除所用污染物的目的。例如，低速搅拌机Amaprop就是市场同类产品中的佼佼者——最佳的水力设计、最强劲的性能、抗冲击的桨叶、特别长的维修周期。最后，但也很重要是我们可靠的阀门产品比如刀形闸阀HERA。这些使整个污水处理流程得到精密的控制。

The best impellers for every application

为各种应用而设的最佳叶轮

In waste water applications impellers play a vital role in preventing clogging and maximising energy efficiency. We ensure the right impeller for every application with a choice of five different impeller types featuring large free passages and high levels of efficiency.

在污水处理领域中，叶轮在防止水泵堵塞和能效最大化方面起到了决定性的作用。我们有着五种不同的叶轮型式，确保在面对各种污水处理时能选到最合适的叶轮，以提供大过流通道和高效率。

The right impeller type for every application (from left): semi-open free-flow impeller, closed multi-channel impeller, free-flow impeller with cutter, closed single-channel impeller, semi-open single-channel impeller
为各种污水处理准备的叶轮（左起）：半开始自由流动叶轮、闭式无堵塞叶轮、带切割刀的自由流动叶轮、闭式单通道叶轮、半开式单通道螺旋叶轮

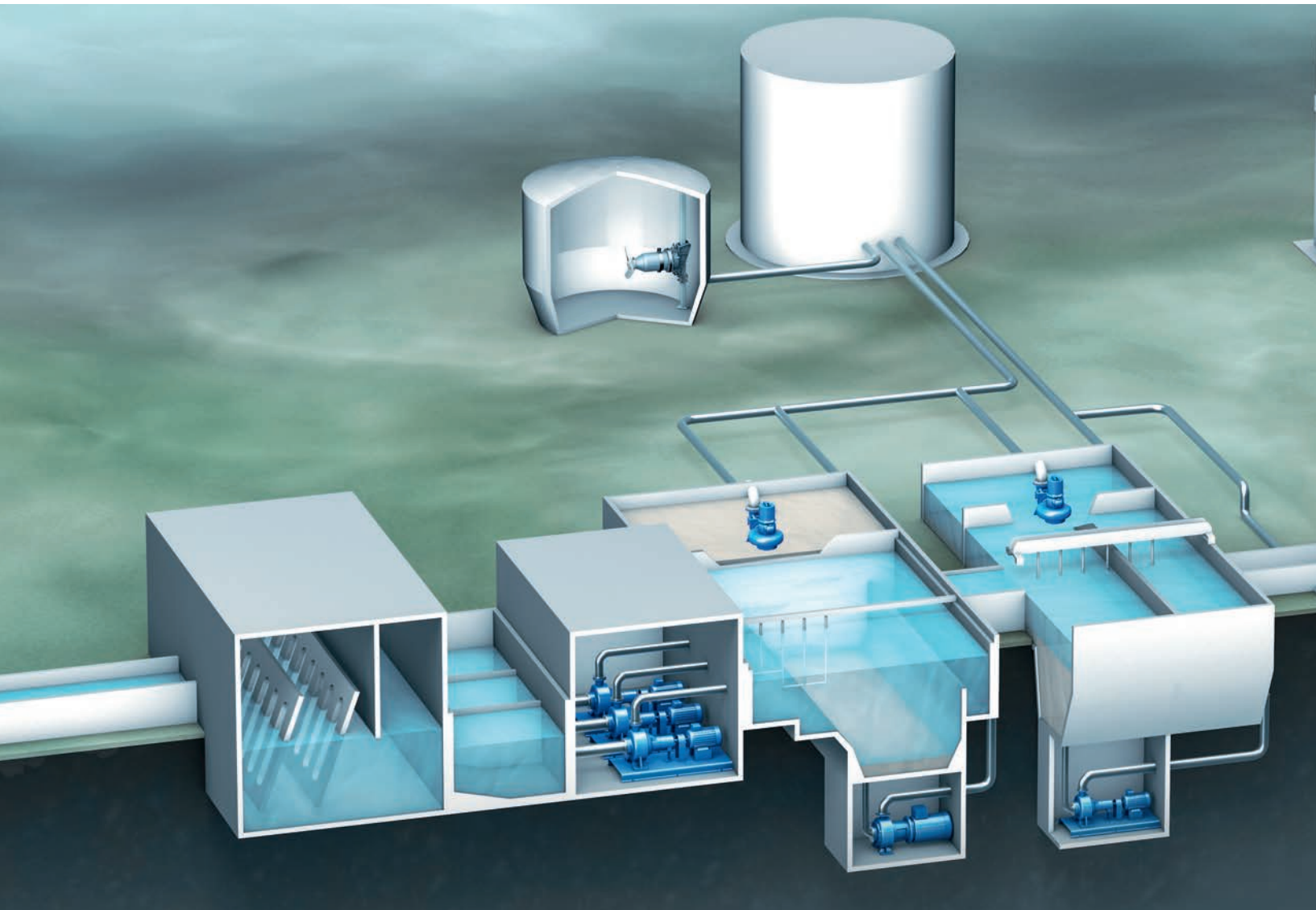


KSB solutions for waste water treatment: reliable, sustainable and efficient

KSB的方案用于污水处理：可靠、可持续、高效

From intake to biological treatment and final clarification: waste water equipment from KSB ensures smooth process chains.

从进水到生化处理再到最后净化：来自KSB的污水设备确保流程链平稳



Intake pumping station 取水泵站

Waste water is transported via combined and separate sewers to the treatment plant, Amarex KRT or Sewatec pumps lift the incoming waste water to the pretreatment stage.

污水通过联合的和分隔的排水管送到处理厂，Amarex KRT或Sewatec泵将这些污水提升至预处理阶段。

Screening installation 格栅装置

Coarse solids are mechanically removed, Movitec pumps boost the scrubbing water pressure.

大固体杂质被筛除。Movitec泵则用来进行输送高压冲洗水。

Sand trap 沉砂池

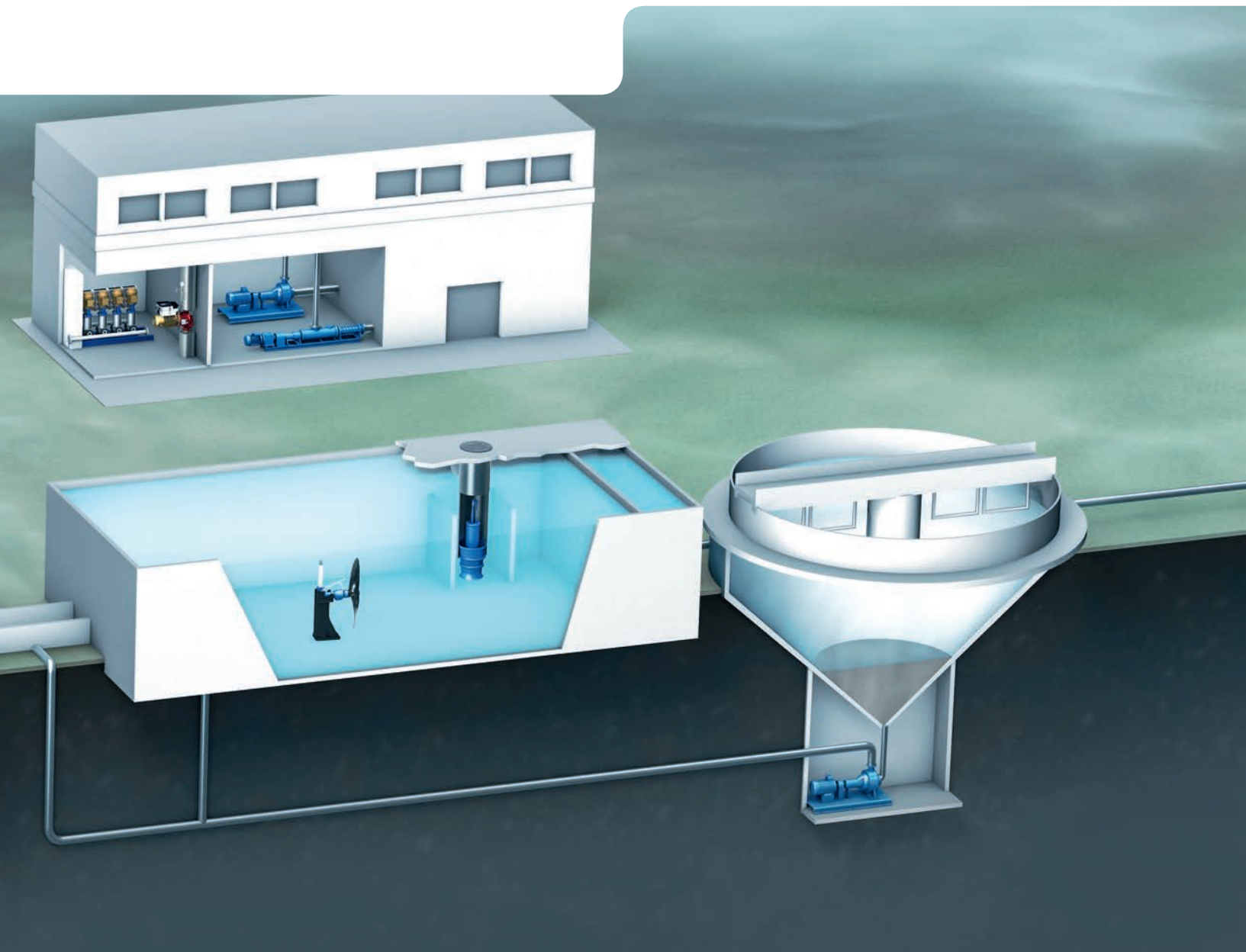
The sand contained in the waste water is separated, a Sewatec or KWP pump is used to pump the sand and water mixture; the sand is handled by a Amarex KRT pump; the water and fat mixture is pumped by a Amarex KRT or Sewatec pumps; Movitec pumps boost scrubbing water pressure.

污水中的砂石被分离开来，Sewatec泵或KWP泵用来抽送含砂污水；沉淀后的砂石则由Amarex KRT泵来输送；水和油脂混合物由Amarex KRT或Sewatec泵输送；Movitec泵则用来进行输送高压冲洗水。

Primary clarification 初级净化

Primary sludge is handled by Amarex KRT or Sewatec pumps, floating sludge by Amarex KRT or Sewatec pumps.

初级污泥或浮动污泥均能由Amarex KRT或Sewatec泵输送。



Biological sewage treatment 污水的生物处理

Amamix and Amaprop mixers circulate the activated sludge; Amarex KRT, Amacan P, Sewatec pumps return the activated sludge; Amaline pumps recirculate the activated sludge.

Amamix和Amaprop搅拌器用以搅拌活性污泥；Amarex KRT、Amacan P、Sewatec能泵送回流的活性污泥；Amaline泵则能将活性污泥再循环。

Final clarification tank 最终沉淀池

The sludge is returned from final clarification to biological treatment using Amacan, Amarex KRT and Sewatec pumps; Amarex KRT and Sewatec pumps take care of floating sludge handling.

通过Amacan、Amarex KRT和Sewatec泵，污泥可以从最终沉淀池回流至生物处理池；Amarex KRT和Sewatec则能输送浮动污泥。

Sludge treatment 污泥处理

The sludge liquor and sludge are pumped by Sewatec pumps. 使用Sewatec泵来输送污泥。

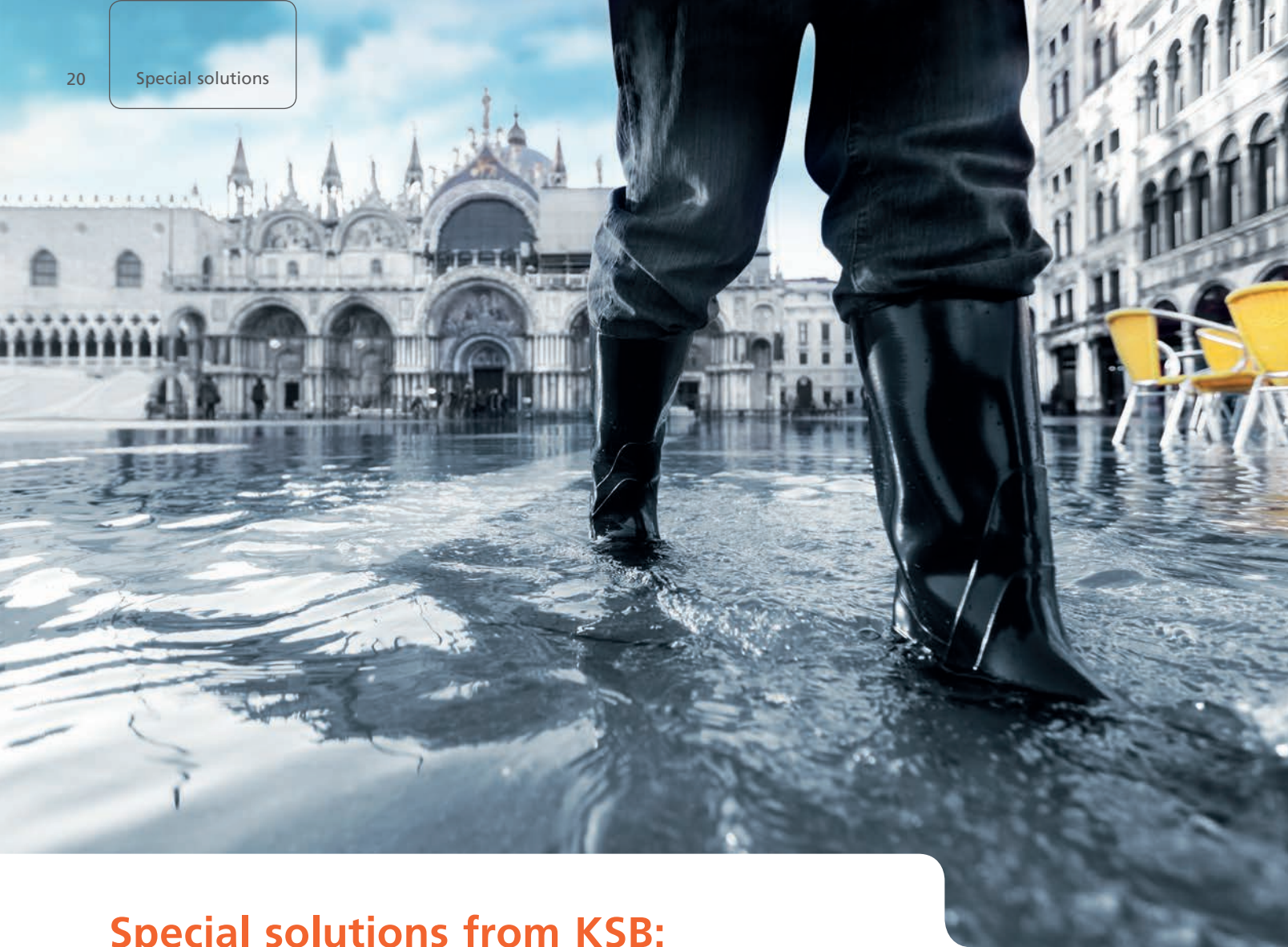
Sludge storage 污泥存储

Homogenisation of sludge with Amamix mixers. 使用Amamix搅拌器来使污泥变均匀。

Process water system 工艺水系统

Water extraction and pressure boosting in warm water and cooling water applications with UPA and Etaline pumps and Hyamat pressure booster systems.

温水或冷却水的取水和增压可以使用UPA泵、Etaline泵和Hyamat恒压供水系统。



Special solutions from KSB: going beyond circulation KSB的特殊方案：超出循环外

When it comes to water applications, we have every angle covered. As well as supplying pumps, valves and services for core applications, KSB is also a leading provider of special solutions.

当来到水处理领域，我们的产品能覆盖到每一个角落。和那些供水泵、阀门以及对核心应用的服务一样，KSB也是特殊解决方案的领先供应商。

We provide protection and safety: flood control

我们提供保护和安全的：防洪

Every year hundreds of thousands of people worldwide become victims of stormwater and flooding. KSB helps to secure living space and protect lives.

每年，世界上都有成千上万的人成为暴雨及洪水的受害者。KSB致力于提供安全的生活空间，保护地球上的生命。

Our efforts are above all dedicated to flood prevention: from Austria to Mexico, our pumps and valves work reliably and effectively in low-lift and drainage pumping stations that protect high risk zones against flooding or are used to drain flood-prone areas. Right from the outset, KSB

provides support with designing pumps and system elements as efficiently as possible, supplies piping calculations with regard to torsional stresses and natural frequencies, and conducts model tests for system optimisation. We are also on hand during installation, commissioning and test runs on site.

首先我们努力致力于防洪：从奥地利到墨西哥，我们的泵和阀门可靠、高效地用于低扬程和排水泵站，防范高风险地区发生洪涝或在已经洪水泛滥的地区进行排水。从一开始，KSB就为水泵和系统竟可能高效的设计提供支持，提供涉及到扭转应力和固有频率的管路计算，并进行模型试验以期获得系统优化。在设备安装、调试和试运行时我们也会在场提供支持和帮助。

KSB pumps put the splash into water: fun parks

KSB泵使水滴入水体：游乐园

Water is not only a vital resource, it can also be a great deal of fun – as shown by the fun parks where our pumps and valves are installed. There they are subject to extreme demands during continuous operation and have to meet the highest safety standards.

水不仅仅是珍贵的资源，同时也能为人们带来很多乐趣——如同哪些安装有我们的水泵和阀门的众多游乐园中所展示的那样。在那里，设备被要求能极端地连续运行，并能符合最严格的安全标准。

Our pumps and valves are not only used for transporting the water, they are also essential for many attractions: water rides and white water rides, water slides, standing waves, fountains and other water features – with pumps and valves from KSB the possibilities are virtually limitless. With KSB's decades of experience, your project is in safe hands. Our proven technology and high quality standards ensure maximum reliability and safety for your installations. As a one-stop provider, we offer you an all-in service, covering everything from professional advice, planning and design through to commissioning. This also includes specialised engineering services such as hydraulic and transient flow analyses, eco-



Europe's cutting-edge white water park: Markkleeberg canoeing park
欧洲前沿的漂流公园：Markkleeberg独木舟公园

nomical feasibility analyses and system optimisation, CFD modelling and physical model testing, installation management and commissioning.

我们的泵和阀门不仅能用来输送水，也能被用在许多景点：水上乐园、漂流、水滑道、冲浪、喷泉和其它水景设计——使用KSB的泵和阀门产品的可能性是无限定的。依靠着KSB几十年来的经验，您的项目将会非常安全。我们久经考验的技术和高质量标准将确保您设施的最大的可靠性和安全性。作为一个一站式供应商，我们提供给您全包服务，包含所有包括专业建议、规划设计直到系统调试完成。这其中也包含特殊的技术服务如水力的不稳定流态分析、经济可行性分析、系统优化、CFD模拟和物理模型试验、安装指导和调试指导。

Aquaculture 水产养殖业

We also provide pumps for aquaculture and fish farming. You'll find everything you need in our product portfolio – from products for fresh water supply or water treatment, for fish farming and transporting live fish. Just ask us!

我们同样能为水产产业和鱼类养殖业提供水泵。您能在我们的产品系列中找到所有您需要的设备——从产品到淡水供应再到水处理，用于渔业养殖和活鱼运送。来咨询我们吧！



Open-water fish farming is profitable with KSB technology
使用KSB的技术进行开放水域的渔业养殖将会盈利

World's biggest seawater distribution facility: KSB valves in Qatar

世界上最大的海水淡化工厂：KSB阀门用在卡塔尔



The seawater distribution facility with its 1,150 KSB valves is capable of providing up to one million cubic meters of seawater per hour
这个海淡工厂使用了1,150个KSB的阀门，以确保每小时能处理一百万吨的海水。

Established in 1997, Ras Laffan Industrial City in the State of Qatar is a large industrial complex located approximately 80 km north-east of the capital Doha on the Persian Gulf. As well as an industrial port, the location comprises petrochemical plants, power stations and facilities for seawater desalination and gas liquefaction.

Ras Laffan工业城，始建于1997年，是卡塔尔的大型工业联合中心，位于距首都多哈北方80公里的波斯湾。作为一个工业港口，其包含有石油化学工厂、电厂、海水淡化厂和液化天然气工厂。

To provide the necessary quantities of cooling water for these extensive plants and systems, Ras Laffan operates the world's biggest and most complex seawater distribution facility. It is capable of providing up to one million cubic metres of seawater per hour.

为了给这下数目繁多的工厂和系统提供足够的冷却水，Ras Laffan运行着世界上最大、最复杂的海水淡化设施。它每小时能处理上百万吨的海水。

Given the large volumes involved and the huge importance of the location, the reliability of key components such as butterfly valves was a

major priority in the construction of the seawater distribution facility. Economic considerations also played a role. KSB stood out from the competition and was clearly the best supplier for the job. The contract was awarded based on KSB's incredibly long experience in water transport and the demonstrably high quality of its valves, with which the customer had already had excellent experience in the past. During the first construction phase, KSB supplied over 600 butterfly valves, including numerous MAMMOUTH valves with diameters of up to 3.50 m. In the second construction phase, more than a further 550 butterfly valves from KSB were installed, again including numerous MAMMOUTH valves with diameters measuring up to 3.40 m.

基于这么大的服务量以及所处位置的重要性，关键组件比如蝶阀的可靠性对整个海水淡化工厂的运行至关重要。经济因素也起到了很大的作用。KSB从众多竞争者中脱颖而出，毫无疑问是此项目的最佳供应商。这个合同是基于KSB在水输送方面的长期经验以及其高品质的阀门来签订的，客户在之前就已经对此深有体会。在项目的首期，我们提供了600多个蝶阀，包括很多直径为3.5m的MAMMOUTH阀门。而到了项目的二期，我们同样提供500多个蝶阀，包括数个直径为3.4m的MAMMOUTH阀门。

Extensive range of valves

多种多样的阀门

Wherever water is handled, valves constitute key elements. Globe valves, gate valves, butterfly valves, ball valves and control valves have a decisive influence on the functioning of a system, while also influencing reliability and, last but not least, the operating costs of the entire system.

无论是哪种水处理，阀门均是一个关键组件。截止阀、闸阀、蝶阀、球阀和调节阀都能决定性地影响系统功能，同时也能影响可靠性和整个系统的运营成本。

For over 140 years KSB has been one of the world's leading valve suppliers. As a fully-equipped supplier for hydraulic applications, we offer our customers a comprehensive range of

high-quality, energy-efficient valves, serving as the perfect complement to our pumps portfolio.

140余年来，KSB一直是世界领先的阀门供应商。作为水力系统的全方位的供应商，我们将为客户提供广泛的、高质量的、节能的阀门，作为我们水泵组合的完美补充。

Whether for use in drinking water production, water transport, drainage or waste water treatment our product portfolio covers an enormous range of applications, ensuring you are fully equipped for every requirement. Just like our pumps, our valves are among the best on the market. Through our innovations, we have continually pushed back the technological boundaries and opened up new possibilities.

You, too, can profit from our wealth of exper-

tise – not only in terms of our products, but also through various forms of support when it comes to designing systems and dimensioning valves.

我们的强大的产品系列能覆盖极大的应用场合，无论是在饮用水保护、水输送、水排放还是污水处理，确保为您的每一个需求提供最全面的装备。如同我们的水泵那样，我们的阀门产品也是市场上最好的。通过创新，我们不断地打破技术壁垒，发掘新的潜力。您同样也能从我们大量的专业技术资源中获益——不只是局限于使用我们的产品，同样也能在系统设计阶段和确定尺寸时获得我们的各种支持。

KSB valves: MAMMOUTH, COBRA-SG, APORIS-DEB02, BOAVENT SVF/SVA
KSB阀门: MAMMOUTH, COBAR-SG, APORIS-DEB02, BOAVENT SVF/SVA



Comprehensive expertise: KSB engineering services for consultants, engineering contractors and operators

综合广泛的专业技术：KSB可为咨询公司、承包商、运营商提供工程技术服务

High-quality pumps and valves are extremely important in the water and waste water sectors – but they alone do not guarantee a perfectly working system. It is only by selecting the right system components and incorporating them in the pumping station that a flow-optimised system is created in which maximum output, a long service life and optimum energy efficiency go hand in hand. KSB therefore offers support to consultants, plant engineers and operators with a wide selection of engineering services that can address different stages of a project.

高质量的泵和阀门在水和污水领域非常重要——但它们本身并不能保证一个完美的工作系统。只有选择了正确的系统组件并将其装入泵站中，一个具有最佳流态的系统才能将最大输出、最长寿命、和最高能效做到齐头并进。因此，KSB向咨询公司、厂内工程师、运营商提供可选择多种

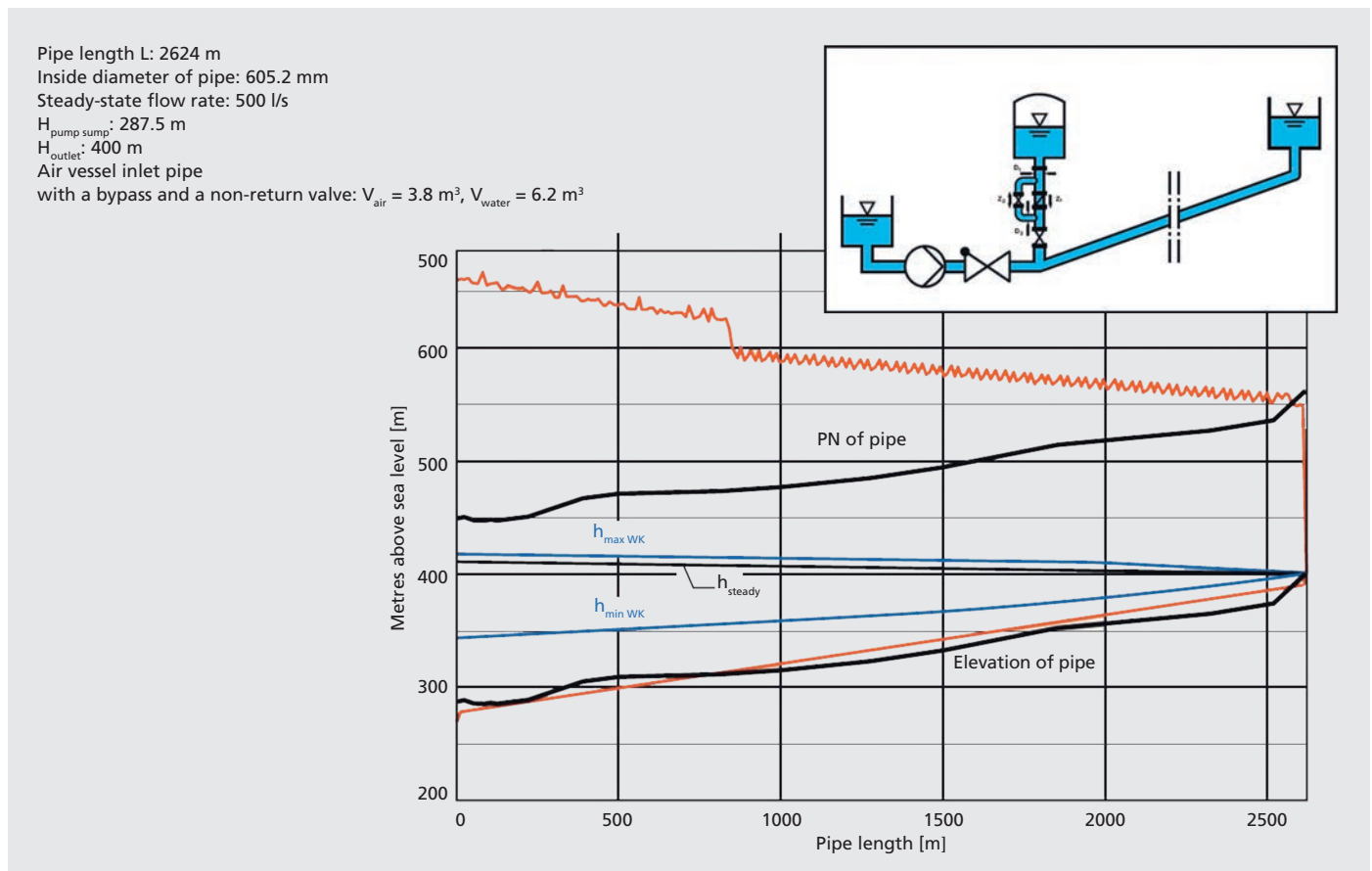
技术服务的支持，以满足不同阶段的项目要求。

On request we assess all project-relevant factors and prepare installation designs and budget quotes long before construction work begins. We can oversee the project through all phases of system planning and construction, contributing expertise where it counts while always pursuing the goal of creating an optimised and efficient system for the operator.

远早于基建工程开始之前，我们就按照客户的需求评估项目的所有因素，准备安装设计和预算报价。我们可以通过系统设计和建设的各个阶段介入到项目中，贡献我们的专业知识，帮助计算以达到帮助运营商创建最佳、最有效系统的目的。

Result of a transient flow analysis: the "pressure envelopes" of dynamic pressure changes after pump failure with and without air vessels

不稳定流态分析：泵未加装空气罐后动态压力的“压力线”改变了



*WK = Windkessel = air vessel

*WK=储气罐=空气罐



Air intake demonstrated in a model test: vortex formation with curtain wall and "balcony"
模型测试中的进气演示：在腔室内形成涡流

Comprehensive services for all key areas

为所有关键领域提供综合服务

In every planning and execution phase you can also use other KSB services to ensure the smooth functioning of your installation. As well as hydraulic calculations, we also assess economic feasibility and take care of system analysis and optimisation. We provide project planning services and help you to select suitable pumps, auxiliary equipment or alternative drives such as diesel motors. In addition, we advise you on achieving more energy efficient systems and assist you with designing the optimum in-take and outlet structures and optimising your pumping station. If required, we also perform model tests and CFD simulations, conduct piping system analyses, transient flow analyses, flow simulations and hydraulic calculations. Our trained professionals are on hand to provide support with commissioning and test runs of KSB equipment. Furthermore, we assist with designing control concepts, handle installation management, take care of on-site servicing and, last but not least, provide training for your employees.

在每一个计划和执行阶段，您也可以使用其他KSB的服务以保证设备的顺利运转。如同水力计算一样，我们同样也可以进行经济可行性评估和系统分析及优化。我们能提供项目规划咨询，帮助您选到合适的水泵、辅助设备或备用的驱动器比如柴油发动机。另外，我们也会在您建设更高的能效系统、设计绝佳的进水/排水结构以及优化泵站时提供强有力的帮助。如需要，我们会进行模型试验和CFD模拟实验、对管路进行系统分析、流态模拟和水力计算。当对产品进行调试和试运行，我们的专业技术人员将及时抵达提供支持。此外，我们还可以为控制设计提供帮助，处理安装管理，进行现场服务，以及非常重要的，对客户进行相关的培训。

Testing without compromise: at our test facilities

严格的测试：在我们的试验台

We take tough to the ultimate level: all pumps produced by us are put through their paces on the KSB test facility.

我们执行严格的控制：每台KSB产品都将经过测试

Thanks to painstaking technical design, cutting-edge production technology and a manufacturing process consistently geared to special care and quality, all KSB pumps fulfil the toughest of demands – above all those that we set ourselves. But even that's not enough for us. Every single pump that leaves one of our plants must first be rigorously tested in one of our test facilities.

通过辛勤的技术设计、前沿的生产技术、始终贯彻小心谨慎以及高质量要求的工艺流程，所有KSB泵完成了最艰难的要求——尤其是这些要求都是我们自己设定的。但即使是这样，我们也不会满足。每一台在我们工厂生产出来的水泵都会被运到我们的试验台上进行测试。

Halle's unique hydraulic test facility is the most technologically advanced of its kind in the world today. The length and height of the test line can be automatically changed, with diameters of up to DN 1,200. This enables very short set-up times even with pump sets having a rating of

up to 10 MW.

位于Halle工厂的独特的水力测试台是当今世上技术最先进的试验台。试验路线的长度和高度都能根据要求自动切换，直径最大能到DN1,200。这就保证了即使泵组需要高达10MW的电机，试验台也能在短时间内就被准备好。

The latest control technology ensures efficient operation and smooth interaction of all test room components. A frequency inverter allows the motor to be run at any speed required by the customer. The easy-access piping design enables the pump and motor to be replaced in a very short time.

最新的控制技术保证了高效的操作和测试车间内各个设备间的平稳配合运行。使用了变频器使电机能运行在任何客户所需的速度。采用快捷设计的管路系统保证能快速地更换泵和电机。

One of the most modern in the world: the test facility in KSB's factory in Halle, Germany
世界上最先进的测试台：位于KSB德国Halle工厂的测试台



Making the right choice simple: KSB selection tools 正确选型如此简单：KSB的选型工具

To make it as easy and straightforward as possible to select the optimum and most cost-effective system for you needs, we offer two professional tools:

我们提供两种专业的选型工具，以便您能尽可能简单且明确地选出所需的最合适、最划算的设备。

The Helps selection software

Helps选型软件

KSB designed the selection software Helps specifically for engineering contractors working in the waste water segment, simplifying the process of selecting equipment for demanding projects. Helps enables you to quickly and easily calculate pressure losses, identify suitable pumps and configure the pump sets. The CD contains precise CAD drawings for all pumps, complete with installation options and detailed tender texts – ideal for presentations to customers and business partners.

KSB特别为污水应用领域的工程承包商设计了这款选型软件，简化了为复杂工程进行设备选型的流程。Helps能使您快速且简便地计算出压力损耗，确定合适的水泵型号和配置。这张CD中包含所有泵型的CAD图纸，连同安装附件和详细的投标所需技术文件——特别适用于向客户和合作伙伴作介绍用。

It is not necessary to install Helps on your computer. The CD is available in 23 languages and available worldwide from all KSB sales companies.

Helps无需安装在您的电脑中，可直接使用CD。此软件包含23种语言，您可从全球的KSB销售公司那里获得。

Simply ask for the CD from your KSB field sales engineer!
请向您所在区域对应的销售员咨询获取此CD。

The KSB EasySelect selection software

KSB EasySelect选型软件

KSB EasySelect is the only software on the market that enables you to select pumps, valves and mixers.

KSB EasySelect是市场上仅有能同时选择水泵、阀门和搅拌器的选型软件。

Step by step, the software takes you through the KSB product range and finds the right product for every requirement. Within no time, you will be provided with individual solutions – whether it is a pump, valve or a complete module with drive/actuator and matching automation solution. While unregistered users also have access to the EasySelect selection software, registered users enjoy a number of additional benefits:

软件会带领您通过整个KSB的产品领域一步一步地选到符合您需求的合适的合适的设备。在任何时间内，您都能获得解决方案——不管是一台泵、一个阀门或一整个带电机/驱动器和相匹配的自动化操作方案的组件。未注册的用户也能使用EasySelect选型软件，但是注册的用户会获得更多的额外信息：

- Access to customer-specific net prices 可查询专门提供给客户的净价
- Direct ordering via the KSB Web Shop 可通过KSB Web Shop直接下单
- Hotline for software-related questions 可获得软件相关问题的直接咨询

KSB EasySelect is available in 19 languages.

At www.ksb.com/easyselect you can access the software around the clock and test the basic version.

KSB EasySelect能提供19中语言。在www.ksb.com/easyselect您可以访问此软件并试一下基本版本。

For full access please register and use KSB EasySelect via the KSB Web Shop.

如要使用完整版的KSB EasySelect软件需先在KSB Web Shop上注册。



Fluid

Energy: we spend all ours to save lots of yours

能量：尽我所能，为您节能

To operate a system efficiently and sustainably, you have to know it inside out. Drawing on our years of experience, we help you to save energy and money with our energy efficiency concept FluidFuture. 如何有效且持久地操作一个系统，这是您必须要了解的。凭借多年的经验，使用我们的能效管理概念FluidFuture能帮助您节约大量的能源和资金。

The ErP regulations play an important role in saving energy at the component level. But there's even more potential to be tapped by optimising the overall efficiency of a system with FluidFuture.

ErP规定在组件级别的节能上起来很重要的作用。但若利用FluidFuture则能在优化系统的总效率上发掘出更多的潜能。

We already use ErP-compliant high-efficiency pumps, valves and drives as part of our FluidFuture concept.

我们早已将符合ErP规定的高效水泵、阀门和电机用于FluidFuture理念中。

For static load profiles, we use IE3 motors as standard. KSB's own development of Amarex KRT submersible motors also meet the requirements of the IE3 efficiency class.

在静态加载配置文件中，我们采用IE3电机作为标准配置。KSB自行开发的Amarex KRT潜水电机同样也能满足IE3能效等级的要求。

Innovative synchronous motors are particularly suitable for variable load profiles – for example our new UMA-S synchronous motors designed for the UPA submersible borehole pump range offer at least 8 % higher efficiency than comparable asynchronous motors.

创新的同步电机特别适用于变载配置——例如我们的新UMA-S同步电机即为深井潜水泵UPA设计，它在效率上比常规的同步电机至少高了8%。

Even at part load, the KSB SuPremE magnet-less variable speed motor achieves higher levels of efficiency than specified by the 2017 ErP regulations and meets the requirements of efficiency level IE4 to IEC/CD 60034-30.

甚至在一些载荷上，KSB的SuPremE无磁变速电机能提供高于2017 ErP规定要求且符合IEC/CD 60034-30标准中IE4的等级的效率。



KSB SuPremE the world's most efficient magnet-less pump motor
世界上最高效的KSB SuPremE无磁泵用电动机



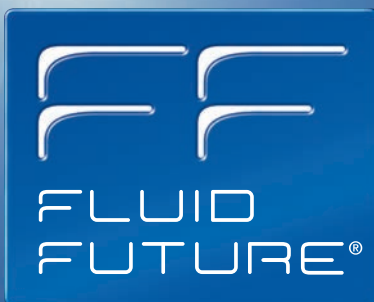
Waste water specific automation functions

污水应用中特定的自动化功能

Continuous-duty pumps operating under low-flow conditions are typically used in water treatment plants. By using automation components such as our PumpDrive frequency inverter, the pump power input is continually matched to actual demand to ensure maximum energy efficiency. But that's not all. PumpDrive also offers waste water specific functions. For example, incipient clogging is detected on the basis of the flow velocity and a rinsing function is triggered when this falls below the minimum flow velocity. Minimum pump speeds can be set to prevent flow velocities from dropping below a certain level. This ensures that sand and stones are reliably removed and prevents sludge deposits. All PumpDrive functions considerably reduce the frequency of maintenance work, incre-

ase system availability and help to minimise the overall costs.

在污水处理厂中，低流量连续运行的水泵是一种很典型应用。使用自动化操控组件比如我们的PumpDrive能使水泵的输入功率始终与实际需求相匹配，这就保证了能效的最大化。但不仅仅如此。PumpDrive还能为污水处理提供特殊功能。比如，水泵流速较低水池内会产生沉积，那么当流速降到最低要求以下时就需要立即触发清洗功能。可以设置水泵的最低转速以避免流速降到最低要求以下。这就能保证池内的砂石均被抽送出去，防止淤泥沉积。PumpDrive的所有功能大大降低了维修工作的频率，提供了系统的稳定可靠性，有助于降低整体成本。



SYSTEM ANALYSIS

Our experts analyse your system and show where you can save energy – with SES System Efficiency Services or PumpMeter.



SELECTION

Your KSB partner or KSB EasySelect will help you find exactly the right pumps and valves.



HIGH-EFFICIENCY PUMPS & VALVES

Top pump and valve performance with minimum loss – all thanks to 140 years of innovation and expertise.



HIGH-EFFICIENCY DRIVES

Our high-efficiency motors even exceed today's standards.



DEMAND-DRIVEN OPERATION

Optimised control systems like PumpDrive continuously match pump output to system requirements.

We don't just offer more.
We offer everything
我们不只提供更多, 我们提供一切

State-of-the-art equipment is rounded off by comprehensive service and spare parts solutions.

全方位的服务和备件方案使先进的设备变得更加完整。

We always give 100 per cent for the benefit of our customers – be it providing pumps and valves, complete systems or services and spare parts solutions that cover the entire life cycle. Whatever you need, over 3,000 service specialists are there for you in more than 160 service centres worldwide – around the clock, all over the world. Because your success is our success.

我们总将100%受益提供给客户——提供水泵、阀门、完整系统或服务 and 备件方案，覆盖整个生命周期。不管您需要什么，全球多于160个服务中心的3000多位专业的工程服务人员将为您提供服务——日以继夜，遍布全球。因为您的成功就意味着我们的成功。

KSB Service offers a broad range of individual solutions to ensure your success
KSB的服务能提供广泛的个性解决方案，以确保您的成功。



We offer a broad range of individual solutions for water and waste water systems, both for utilities and industry.
我们能为市政或工业的水和污水系统提供广泛的个性化解决方案。

You decide the scope of services within the framework of our inspection service concept. Our service engineers are perfectly equipped to carry out the job as efficiently and cost-effectively as possible. In addition to the usual certification, KSB's engineers meet the most stringent requirements of the Water Resources Management Act (German WHG) and SCCP Safety Certificate Contractors. Their professional training also encompasses servicing explosion-proof pump sets.

您可根据我们的服务理念框架来决定需要哪些服务。我们的服务工程师装备齐全，能尽可能的高效及低成本地完成所有服务。除了常规的认证以外，KSB的工程师符合最严格的《水资源管理法》（德国为WHG法案）和SCCP《承包商安全证书》的要求。他们提供的专业培训中还包

括防爆泵的服务。

In cooperation with our experts from the materials laboratory, fluid mechanics and other specialist departments, we develop refurbishment and upgrade solutions tailored to your system. These include special coatings that reduce the high level of wear caused by especially abrasive fluids or innovative solutions that ensure the availability of your submersible borehole pumps. The savings you make on energy, maintenance and repair costs ensure our solutions will really pay off.

基于与那些来自材料实验室、流体力学以及其他专业部门的专家们的合作，我们为您的系统开发了更新、升级的解决方案。这些包括特殊涂料的研制，用以降低因高含砂介质引起的材料磨损率，以及为保证潜水深井泵更稳定可靠运行而研发的创新方案。

Our knowledge, your success

我们的知识，您的成功

Current information on special service training for water and waste water products can be found at www.ksb.com.

你可在以下网址获得针对水和污水产品特殊服务培训的最新信息：
www.ksb.com

Rely on our good advice – through the entire life cycle of your equipment

时刻需要您的良好建议——贯穿设备的整个寿命周期

1. Products and systems 产品和系统

- Technical consultancy and support
- Pumps
- Valves
- Complete system solutions
- Customised pump sets
- Numerous fields of application
- 技术咨询和支持
- 水泵
- 阀门
- 整体系统方案
- 定制泵组
- 多种介质应用

2. Commissioning 调试

- Inspection of supplied pump sets
- Verification of system requirements and conditions
- Supervision of all installation steps
- Leak tests
- Correct alignment of pump sets using laser equipment
- Preservation measures taken in the event of delayed commissioning
- Checking of installed measuring equipment
- Instruction of operating staff
- Preservation measures in the case of delayed commissioning
- 所供泵组的检查
- 系统需求和条件的确认
- 安装附件的管理
- 泄漏测试
- 利用激光设备进行水泵的校准
- 考虑对延迟调试采取必要的保护措施
- 检查已安装的测量设备
- 指导操作人员
- 对延迟调试采取必要的保护措施

3. Operation 运行

- Inspection service
- Inventory management service
- Extension of the warranty period
- Maintenance inspection management
- Framework agreements such as TPM Total Pump Management

- Efficiency analyses using SES System Efficiency Service or PumpMeter
- 提供检查服务
- 仓储管理服务 延长质保期
- 维护检查管理服务
- 提供类似于TMP《水泵整体管理》的框架协议
- 用SES<系统效率服务>或PumpMeter进行效率分析

4. Repair 维修

- Repairs on site or at KSB's service centre
- 24-hour emergency service
- Worldwide service network
- Retrofitting: the alternative to buying new equipment
- Spare parts in manufacturer quality
- Services and reverse engineering – in particular for non-KSB products
- 可在现场或KSB服务中心进行维修
- 24小时应急服务
- 遍布全球的服务网络
- 改装：采购新设备作为替代物
- 原厂品质的备件
- 服务和逆向工程——尤其是针对非KSB的产品

5. Refurbishment and decommissioning 设备的更新和退役

- Modifications due to changed framework conditions
- Modernisation solutions
- Product upgrades
- Professional decommissioning of entire systems
- Preservation measures
- Quick and safe removal of components
- Environmentally friendly disposal and recycling
- Planning and project engineering of new systems
- 由于框架协议的修改而导致的修改
- 更现代的解决方案
- 产品升级
- 整个系统的停运
- 保护措施
- 安全快速地拆除设备
- 进行环境无害化的处理及资源回收
- 对新系统的规划和设计提供支持

Unbeatable performance whatever the location: wet or dry installation

无论何地，表现俱佳：潜水安装或干式安装

Wet installation 潜水式安装

Submersible motor pumps are used in pumping stations requiring wet installed pumps and are located directly in the wet zone, i.e. the pump sump. As the pump sets work either fully or partially submerged, separate machine rooms are not needed. As a result, the planning and investment costs for the pumping station building itself are correspondingly low. However, the investment costs for the actual pumps are slightly higher compared with dry-installed pumps.

潜水泵通常用于需要进行潜水安装的泵房内，直接安装于潮湿区域，比如泵井内。泵组工作时会被全部或部分淹没，不需要单独的泵房。因此，这种泵房在泵站建筑物本身上的规划和投资费用也就相对较低。但是，潜水泵的实际投资成本会略高于干式泵。

The space-saving design of the pumping stations is ideal for densely populated urban areas; the pumps' noise emissions are already low and are further dampened by the fluid handled.

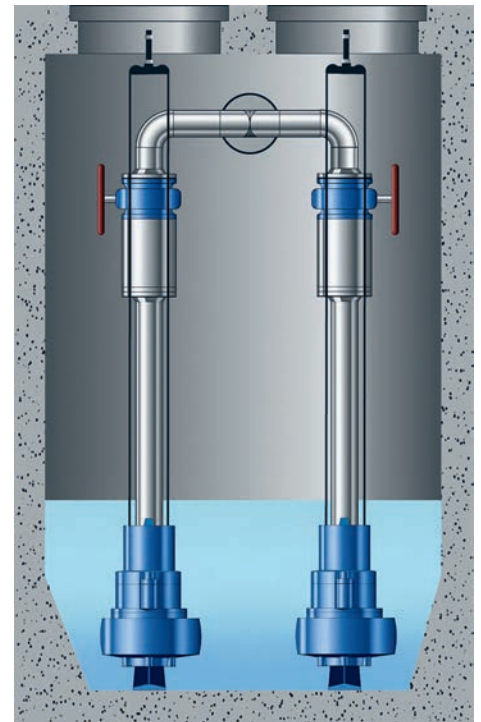
在人口稠密的城市地区设置潜水泵泵站能节约大量空间，水泵运行产生的噪音很低并且大部分都被所处理的介质吸收掉了。

For wet installation, a lifting chain and a guide arrangement are used to lower the submersible motor pump into its final installation position and lift it out again as necessary. The entire pump and sections of the motor cable are directly exposed to the fluid handled. Monitoring sensors are fitted to the submersible motor as standard in order to detect any water or moisture penetrating the motor. Before beginning maintenance work or in the event of pump failure, the pump set must be removed from the sump. This unavoidable step means that working on the pump set is extremely unhygienic. It must therefore be thoroughly cleaned before maintenance personnel can start working on it.

在潜水安装中，采用了提升链和导向装置以将潜水泵落至其安装位置，并且在需要时，能将水泵从泵坑内提出来。整个水泵和部分电缆都是直接与介质接触的。潜水电机内标配监控传感器，用于监控电机内的湿度。进行维修工作前或水泵发生故障时，必须将泵从泵坑中吊出。这个不可避免的一步意味着在泵装置处工作是非常不卫生的。因此，这就要求维修人员在开工作之前需要对水泵进行彻底地清洗。



Amarex KRT submersible motor pump, wet-installed in pump sump, side view
Amarex KRT潜水泵，在泵坑内潜水安装，侧视图



Amarex KRT submersible motor pump, wet-installed in pump sump, front view
Amarex KRT潜水泵，在泵坑内潜水安装，前视图

Installation in machine rooms 泵房内的安装

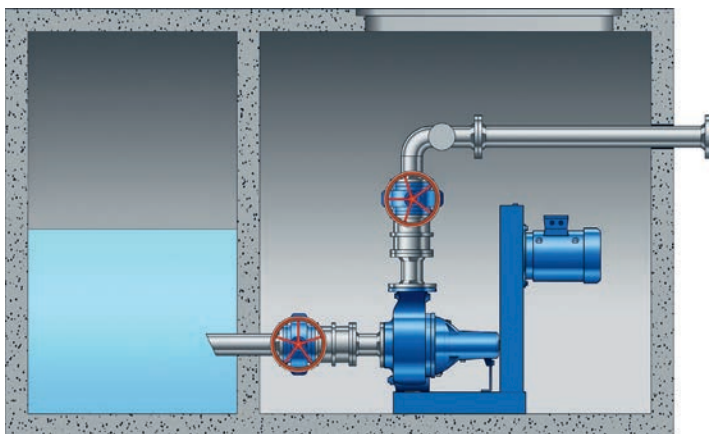
With dry installations in pumping stations, the wet zone and the machine room are separated – the pumps are located in the dry area of the machine room. A compact design is also feasible with this installation option, however the civil engineering costs are always higher than with wet installation.

对于使用干式安装的泵站，潮湿区域和设备间是分开的——水泵安装在设备间的干燥区域。若采用干式安装，紧凑型的设计也是一个很好的选择，毕竟相较于潜水安装来水，干式安装的泵房造价更高。

The main advantage of a pumping station with dry-installed pumps lies in their operation: the pumps are directly accessible, they can be seen, heard and felt during operation (skilled machine operators can tell by placing their hand on the pump whether everything is running smoothly). Maintenance work is performed under largely hygienic conditions, as only the inside of the pumps comes into contact with the fluid handled.

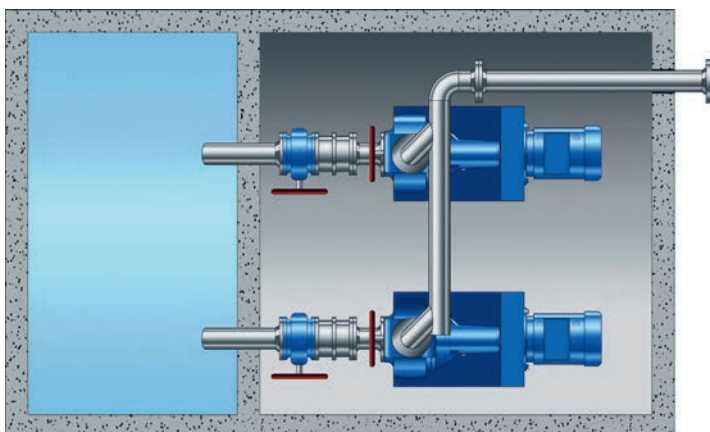
The operating point of the pumps can be established by measuring the differential pressure at the pump nozzles. The pump can be fitted with sensors (either at the factory or on site at a later stage) for the purposes of monitoring pump operation and planning maintenance work. Thanks to the combination of IE4 electric motors and operation on frequency inverters, a more efficient level of operation can be achieved than is possible with submersible motor pumps.

干式安装的泵房的优势在于其操作条件：人员可直接靠近水泵，他们直接可以看到、听到、感觉到水泵的运行（熟练的操作人员可以通过把手放在泵上的方案直接判断出设备是否运行平稳）。因为只有泵的内部与介质有接触，所以维修工作也可在极好的卫生条件下进行。通过测量进出口不同的压力即可得知水泵的运行点。水泵可以按照传感器（在工厂安装或后期在现场安装）用以监控水泵的运行以及进行维护工作的规划。归功于使用IE4电机和变频运行，与潜水泵相比，干式泵能实现更高效的运行。



Sewatec waste water pump, dry-installed, side view

Sewatec污水泵，干式安装，侧视图



Sewatec waste water pump, dry-installed, top view

Sewatec污水泵，干式安装，前视图

The cycle of solutions

循环解决方案

All KSB products used in the water cycle at a glance 用于水循环的KSB泵，一目了然


Type 水泵类型	Type series 水泵型号系列	Application Water extraction	Application Water treatment	Application Water transport
Automatic waste water lifting units	Ama-Drainer-Box Ama-Drainer-Box Mini			
Axially split pumps	RDLO	■		■
Axially split pumps	Omega	■	■	■
Axially split pumps	RDLP	■		■
Cleaning units	Amajet			
Concrete volute casing pumps	Beveron	■		
Deep-well turbine pumps	BEV, B-Pump	■		■
Dry-installed volute casing pumps	Sewatec/Sewabloc			
Floodable sewage lifting units	Compacta/Mini-Compacta			
Fully floodable submersible motor pumps	Ama-Drainer, Ama-Drainer 80/100 Ama-Drainer 400/500			
High-pressure in-line pumps	Movitec	■	■	■
High-pressure in-line pumps	Multitec, Multitec PumpDrive	■	■	■
High-pressure pump units with integrated energy recovery device	Salino Pressure Center		■	
In-line pumps	Etaline/Etaline R			■
Non-clogging impeller centrifugal pumps	KWP/KWP Bloc			
Pressure booster systems	Hyamat			
Pump stations	Amarex CK-Pump Station			
Pumps for desalination by reverse osmosis	HGM-RO		■	
Pumps for desalination by reverse osmosis	Multitec-RO		■	
Pumps for desalination by reverse osmosis	RPH-RO		■	
Standardised water pumps	Etanorm	■	■	■
Standardised water pumps	Etanorm R	■	■	■
Submersible borehole pumps	UPA	■	■	■
Submersible higher-speed mixers	Amamix			
Submersible low-speed mixers	Amaprop/Amaprop 1000			
Submersible motor pumps	Amarex N, S32	■	■	
Submersible motor pumps	Ama-Porter			
Submersible motor pumps	Amarex KRT	■		■
Submersible motor recirculation pumps	Amaline			
Submersible pumps with axial propeller	Amacan P	■		
Submersible pumps with mixed flow impeller	Amacan S	■		■
Submersible pumps with non-clogging impeller	Amacan K	■		
Tubular casing pumps	SEZ	■		■
Tubular casing pumps	SNW/PNW	■		■
Vertical low-pressure pumps	Etanorm GPV/CPV	■		
Volute casing pumps	SPY	■		■
Volute casing pumps in close-coupled design	Etabloc	■	■	■
Waste water pump station with solids separation system	AmaDS ³			

Application Drainage	Application Waste water transport	Application Waste water treatment	Application Flood control	Application Amusement parks	Application Aquaculture	Selection software
■				■		EasySelect
						EasySelect*
				■	■	EasySelect
	■					
■			■			
	■	■	■	■	■	EasySelect/Helps
■	■					EasySelect
■				■		EasySelect
		■				EasySelect
				■		EasySelect
	■	■		■	■	EasySelect
		■		■		EasySelect
■	■					EasySelect
						EasySelect
		■		■	■	EasySelect
		■		■	■	EasySelect
				■		EasySelect
	■	■		■		EasySelect*
		■				EasySelect*
■	■			■		EasySelect/Helps
■	■					EasySelect
■	■	■	■	■	■	EasySelect/Helps
		■		■	■	Helps
■		■	■	■	■	EasySelect/Helps
		■	■	■	■	Helps
	■	■	■	■	■	Helps
■		■	■	■		
■		■	■	■	■	
■	■	■	■			EasySelect
		■		■	■	
■						

*With special access on request

Water pumps/waste water pumps portfolio

清水泵/污水泵清单

Ama-Drainer	Ama-Drainer 400 / 500	Ama-Drainer 80 / 100	Ama-Drainer-Box	Ama-Drainer-Box Mini	AmaDS ³
					
Q max.: 16.5 m ³ /h H max.: 12 m	Q max.: 22.5 m ³ /h H max.: 50 m	Q max.: 26 m ³ /h H max.: 130 m	Q max.: 46 m ³ /h H max.: 24 m	Q max.: 10 m ³ /h H max.: 6.5 m	Q max.: 200 m ³ /h H max.: 85 m
■ LevelControl Switchgear	■ LevelControl Switchgear	■ LevelControl Switchgear	■ Automation options	■ Automation options	■ PumpDrive, LevelControl Switchgear ■ SuPremE ¹ , IE3 motor








Ama-Porter	Amaprop	Amaprop 1000	Amarex N CK-Pumpstation	Amarex KRT wet-installed	Amarex KRT wet-installed/dry-installed vertical/horizontal
					
Q max.: 40 m ³ /h H max.: 24 m	Drehzahl: 24–109 1/min 50 Hz 27–110 1/min 60 Hz Nominal propeller diameter: 1,200 mm–2,500 mm	Drehzahl: 166–208 1/min 50 Hz 158–200 1/min 60 Hz Nominal propeller diameter: 1,000 mm	Q max.: 50 m ³ /h H max.: 49 m	Q max.: 10,080 m ³ /h H max.: 120 m	Q max.: 550 m ³ /h H max.: 25 m
■ LevelControl Switchgear	■ PumpDrive		■ Automation options	■ PumpDrive HyaMatic Amacontrol LevelControl Switchgear ■ IE3 motor	■ PumpDrive HyaMatic Amacontrol LevelControl Switchgear ■ IE3 motor

■ Factory-automated 工厂自动化

■ Can be equipped with high-efficiency drive

¹ Only in combination with PumpDrive 仅在配置了PumpDrive后才能安装高效电机

Amacan K	Amacan P	Amacan S	Amajet	Amaline	Amamix
					
Q max.: 5,400 m ³ /h H max.: 30 m	Q max.: 25,200 m ³ /h H max.: 12 m	Q max.: 21,600 m ³ /h H max.: 55 m	Q max.: 195 m ³ /h	Q max.: 6,600 m ³ /h H max.: 3.5 m	Propeller diameter: max. 630 mm
<ul style="list-style-type: none"> ■ PumpDrive ■ HyaMatic ■ Amacontrol 	<ul style="list-style-type: none"> ■ PumpDrive ■ HyaMatic ■ Amacontrol 	<ul style="list-style-type: none"> ■ PumpDrive ■ HyaMatic ■ Amacontrol 			

Amarex KRT with closed cooling system	Amarex N S32	BEV, B-Pump	Beveron	mini-Compacta	Compacta	Etabloc
						
Q max.: 10,080 m ³ /h H max.: 120 m	Q max.: 16.5 m ³ /h H max.: 29.5 m	Q max.: 2,200 m ³ /h H max.: 350 m	Q max.: 108,000 m ³ /h H max.: 27 m (higher heads on request)	DN 32–100 m ³ /h Q max.: 36 m ³ /h H max.: 25 m T [°C] max. + 40 up to + 65 for short periods	DN 80–100 m ³ /h Q max.: 140 m ³ /h H max.: 24 m T [°C] max. + 40 up to + 65 for short periods	Q max.: 612 m ³ /h H max.: 102 m
<ul style="list-style-type: none"> ■ PumpDrive ■ HyaMatic ■ Amacontrol ■ LevelControl ■ Switchgear <ul style="list-style-type: none"> ■ IE3 motor 			<ul style="list-style-type: none"> ■ Discharge nozzle arranged below floor 	<ul style="list-style-type: none"> ■ LevelControl ■ Switchgear 	<ul style="list-style-type: none"> ■ LevelControl ■ Switchgear 	<ul style="list-style-type: none"> ■ PumpDrive ■ PumpMeter ■ HyaMatic <ul style="list-style-type: none"> ■ SuPremE¹

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我们很乐意与您亲自讨论项目中的特殊需求，从而为您找出准确的解决方案

Water pumps/waste water pumps portfolio

清水泵/污水泵清单

Etaline Etaline R	Etanorm Etanorm R	Etanorm GPV/CPV	HGM-RO	Hyamat VP
				
<p>Q max.: 700 m³/h H max.: 95 m</p> <ul style="list-style-type: none"> ■ PumpDrive ■ PumpMeter ■ Switchgear 	<p>Q max.: 1,900 m³/h H max.: 160 m</p> <ul style="list-style-type: none"> ■ PumpDrive ■ SuPremE¹ 	<p>Q max.: 660 m³/h H max.: 102 m</p>	<p>Q max.: 1,500 m³/h H max.: 950 m</p>	<p>Q max.: 660 m³/h H max.: 160 m</p> <ul style="list-style-type: none"> ■ Automation options






Omega	RDLO	RDLP	RPH-RO	Salino Pressure Center
				
<p>Q max.: 2,880 m³/h H max.: 210 m</p> <ul style="list-style-type: none"> ■ PumpDrive ■ PumpMeter ■ SuPremE¹ 	<p>Q max.: 10,000 m³/h H max.: 240 m</p> <p>(higher flow rates and heads on request)</p> <ul style="list-style-type: none"> ■ PumpMeter 	<p>Q max.: 18,000 m³/h H max.: 550 m</p>	<p>Q max.: 2,500 m³/h H max.: 150 m</p> <ul style="list-style-type: none"> ■ PumpDrive ■ SuPremE¹ 	<p>Q feed (feed water): 23 m³/h Q permeate: max. 250 m³/day Operating pressure: 70 bar (higher operating pressure on request)</p>

■ Factory-automated 工厂自动化

■ Can be equipped with high-efficiency drive

¹ Only in combination with PumpDrive 仅在配置了PumpDrive后才能安装高效电机

KWP / KWP Bloc	Movitec	Multitec-RO	Multitec
			
<p>Q max.: 15,000 m³/h (18,000 m³/h) H max.: 100 m</p> <ul style="list-style-type: none"> ■ PumpDrive ■ HyaMatic ■ Hyatronic 	<p>Q max.: 113 m³/h H max.: 401 m</p> <ul style="list-style-type: none"> ■ PumpDrive ■ PumpMeter ■ HyaMatic 	<p>Q max.: 850 m³/h H max.: 1,000 m</p> <ul style="list-style-type: none"> ■ PumpDrive ■ HyaMatic ■ SuPremE¹ 	<p>Q max.: 850 m³/h H max.: 630 m (1,000 m)</p> <ul style="list-style-type: none"> ■ PumpDrive ■ PumpMeter ■ HyaMatic

Sewatec / Sewabloc	SEZ	SNW / PNW	SPY	UPA
				
<p>Q max.: 60–10,000 m³/h H max.: 115 m</p> <ul style="list-style-type: none"> ■ HyaMatic ■ PumpDrive ■ LevelControl ■ SuPremE¹ 	<p>Q max.: 80,000 m³/h H max.: 120 m</p> <p>Discharge nozzle arranged above or below floor</p>	<p>Q max.: 9,000 m³/h H max.: 50 m</p> <p>Discharge nozzle arranged above or below floor</p>	<p>Q max.: 20,000 m³/h H max.: 50 m</p>	<p>Q max.: 330 m³/h H max.: 460 m</p> <ul style="list-style-type: none"> ■ HyaMatic ■ UMA ■ UMA-S

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The cycle of solutions

循环解决方案







All KSB valves used in the water cycle at a glance 用于水循环的KSB阀，一目了然








Type	Type series	Application Water extraction	Application Water treatment	Application Water transport
Actuators	ACTAIR	■	■	■
Actuators	ACTELEC	■	■	■
Air relief valves	BOAVENT-AVF	■	■	■
Air relief valves	BOAVENT-SVA			
Air relief valves	BOAVENT-SVF/SIV	■	■	■
Ball check valves	BOA-RPL			
Butterfly valves	APORIS-DEBO2	■	■	■
Butterfly valves	BOAX-B	■	■	■
Butterfly valves	BOAX-CBV13	■	■	■
Butterfly valves	DANAIS 150	■	■	■
Butterfly valves	ISORIA 10/16/20/25	■	■	■
Butterfly valves	KE ELASTOMER	■	■	■
Butterfly valves	MAMMOUTH	■	■	■
Butterfly / check valves	DUALIS			■
Butterfly / check valves	SISTO-RSK	■	■	■
Control Systems	AMTRONIC		■	■
Control Systems	SMARTRONIC MA		■	■
Diaphragm valves	SISTO-10/16/20	■	■	■
Diaphragm valves	SISTO-16RGA	■	■	■
Diaphragm valves	SISTO-16TWA	■	■	■
Diaphragm valves	SISTO-KB	■	■	
Gate valves	COBRA-SG	■	■	■
Gate valves	COBRA-SMP	■	■	■
Gate valves	ECOLINE GT40	■	■	■
Globe valves	BOA-Compact EKB	■	■	■
Globe valves	BOA-CVE EKB	■	■	■
Knife gate valves	HERA-BD		■	
Knife gate valves	HERA-BHT		■	■
Knife gate valves	HERA-SH		■	■
Pressure control valves	CONDA-VLC	■	■	■
Pressure control valves	CONDA-VRC/VRVA	■	■	■
Swing check valves	COBRA-SCBS	■	■	■
Swing check valves	ELA/ELA-K	■	■	■
Tilting-disc check valves	COBRA-TDC01 / TDC03	■	■	■
Twin plate check valves	SERIE 2000	■	■	■
Venturi-type check valves	BOA-RFV			

Application Drainage	Application Waste water transport	Application Waste water treatment	Application Flood control	Application Amusement parks	Application Aquaculture	Selection with: EasySelect
■	■	■	■	■	■	EasySelect
■	■	■	■	■	■	EasySelect
				■	■	
■	■	■		■	■	
■	■	■		■	■	
■	■	■	■	■	■	
■	■	■	■	■	■	EasySelect
■	■	■	■	■	■	
■	■	■	■	■	■	EasySelect
■	■	■	■	■	■	EasySelect
■	■	■	■	■	■	EasySelect
■	■	■	■	■	■	EasySelect
■	■	■	■	■	■	
■	■	■	■	■	■	EasySelect
	■	■	■	■	■	EasySelect
	■	■	■	■	■	EasySelect
■	■	■	■	■	■	
■	■	■	■	■	■	
■						
■	■	■	■	■	■	
		■				
■	■	■	■	■	■	
				■	■	
				■	■	
■	■	■	■	■	■	
			■	■	■	
				■	■	
				■	■	
				■	■	
			■	■	■	EasySelect
				■	■	







Water valves/waste water valves portfolio








清水阀/污水阀清单

AMTRONIC SMARTRONIC MA	APORIS-DEB02	BOAX-CBV13	BOA-Compact EKB	BOA-CVE EKB	BOAVENT-AVF
					
Enclosure IP67 Control air pressure [bar] 8 T [°C] -20 to +80	PN 10/16/25 DN 150–2,200 T [°C] -10 to +80 ■ m, e, p	PN 10/16 DN 500–1,200 T [°C] -10 to +115 ■ m, e, p	PN 10/16 DN 15–200 T [°C] -10 to +80 ■ m, e	PN 6/10/16 DN 15–200 T [°C] -10 to +120 ■ e	PN 16 DN 50–300 T [°C] -10 to +120

ECOLINE GT40	HERA-BD	HERA-BHT	HERA-SH	ISORIA 10	ISORIA 16	ISORIA 20
						
PN 10–40 DN 50–600 T [°C] -10 to +400 ■ m, e	PN 10 DN 50–1,200 T [°C] -10 to +120 ■ m, e, p	Class 150 DN 80–600 T [°C] -10 to +100 ■ m, e, p	Class 150 DN 50–600 T [°C] -10 to +180 ■ m, e, p	PN [bar] max. 10 DN 40–1,000 T [°C] -10 to +200 ■ m, e, h, p + AMTROBOX/ AMTRONIC/ SMARTRONIC	PN [bar] max. 16 DN 40–1,000 T [°C] -10 to +200 ■ m, e, h, p + AMTROBOX/ AMTRONIC/ SMARTRONIC	PN [bar] max. 20 DN 32–600 T [°C] -10 to +80 ■ m, e, h, p + AMTROBOX/ AMTRONIC/ SMARTRONIC

- Actuator type/automation 操作类型/自动化
- m = manual m = 手动的
e = electric e = 点的
p = pneumatic p = 气动的
h = hydraulic h = 液压的

BOAVENT-SVF / SIV		COBRA-SG		COBRA-SMP		COBRA TDC01 / TDC03		CONDA-VRC / VRVA		DANAis 150	
											
PN	16/25/40	PN	16/25	N	16	PN	10/16/25	PN	16/25/40	PN [bar]	max. 25
DN	25-300	DN	25-600	DN	40-300	DN	100-2,200	DN	15-150	or Class	150
T [°C]	-10 to +70	T [°C]	-10 to +70	T [°C]	-10 to +110	T [°C]	-10 to +70	T [°C]	-10 to +70	DN	50-1,200
		■ m, e		■ m, e						T [°C]	-50 to +260
										■ m, e, p +	
										AMTROBOX / AMTRONIC /	
										SMARTRONIC	

ISORIA 25		KE ELASTOMER		MAMMOUTH		SERIE 2000		SISTO-KB		SISTO-RSK		SISTO-16TWA	
													
PN [bar]	max. 25	PN [bar]	10	PN [bar]	6/10/16/20/25	PN	max. 16	PN	10	PN	16	PN	16
DN	32-1,000	DN	40-300	DN	1,050-4,000	DN	50-600	DN	15-200	DN	15-300	DN	15-200
T [°C]	-10 to +60	T [°C]	-20 to +150	T [°C]	0 to +65	T [°C]	-5 to +200	T [°C]	-20 to +140	T [°C]	-20 to +140	T [°C]	-10 to +140
■ m, e, h, p +		■ m, e, h, p +		■ m, e, p +				■ m, e, p				■ m, e, p	
AMTROBOX /		AMTROBOX /		AMTROBOX /									
AMTRONIC /		AMTRONIC /		AMTRONIC /									
SMARTRONIC		SMARTRONIC		SMARTRONIC									

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