KSB

Industry 4.0:
we have experience with the future
工业 4.0：我们具有面向未来的经验

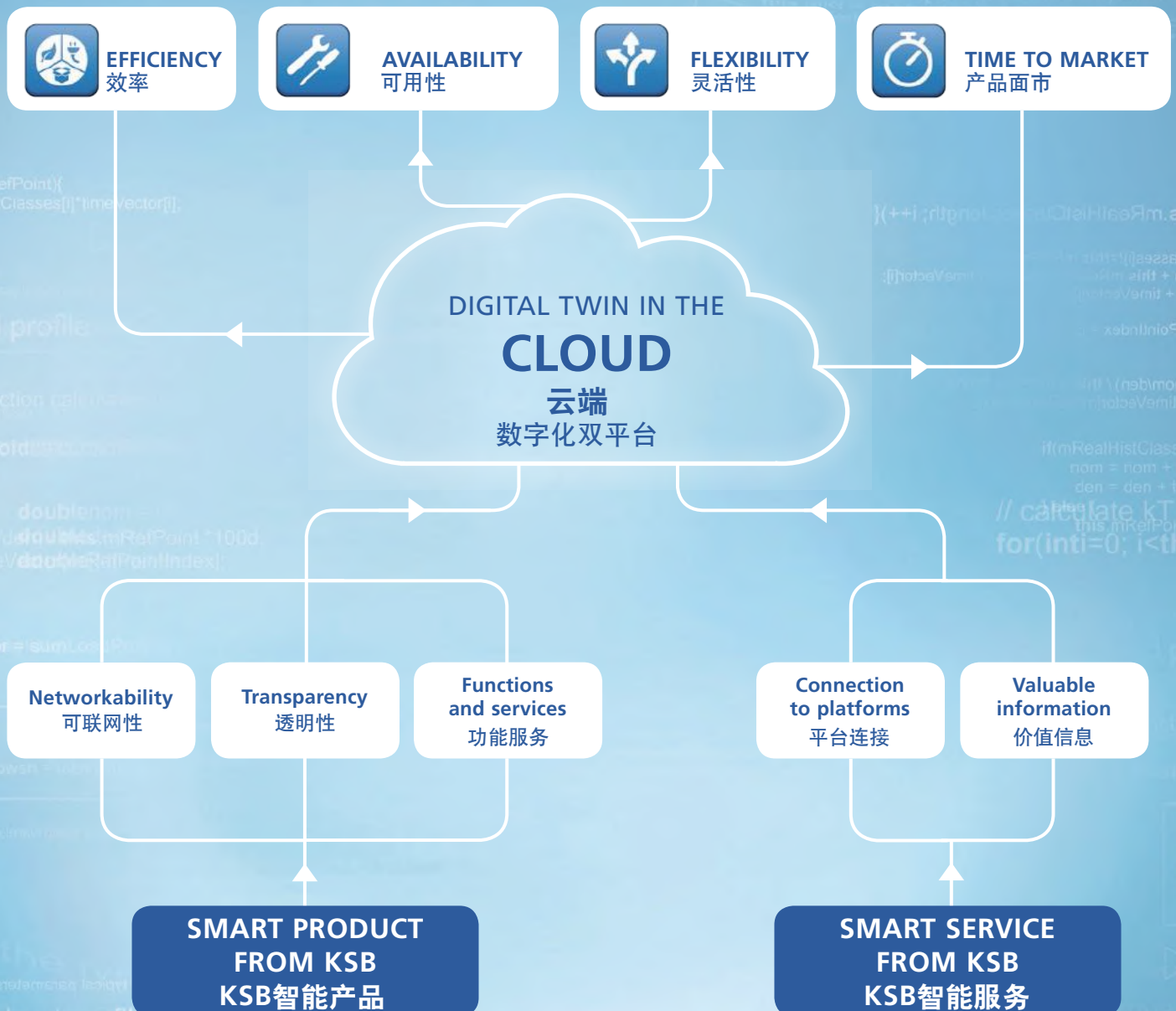# Industry 4.0: KSB takes on the production of the future
工业4.0：KSB从事面向未来的生产

Thanks to digitalisation and intelligent networking, systems are becoming more flexible, more efficient and more reliable in their operation. With KSB's pioneering solutions, you can today already benefit from Industry 4.0.

通过数字化和智能物联网，系统的运行正变得更灵活、更高效、更可靠。有了KSB的开创性解决方案，今天您可能已从工业4.0中受益。

You can find all the information also on our web site: **www.ksb.com/industry40**
您能在我们的网站上找到所有信息：www.ksb.com/industry40

EFFICIENCY
效率

AVAILABILITY
可用性

FLEXIBILITY
灵活性

TIME TO MARKET
产品面市

DIGITAL TWIN IN THE
CLOUD
云端
数字化双平台

Networkability
可联网性

Transparency
透明性

Functions and services
功能服务

Connection to platforms
平台连接

Valuable information
价值信息

SMART PRODUCT FROM KSB
KSB智能产品

SMART SERVICE FROM KSB
KSB智能服务

The fourth industrial revolution with KSB
KSB的第四次工业革命

Industry 4.0 describes a profound change in industrial value creation. Following the mechanical, electric and electronic transformation of industry, the age of extensive digital networking has arrived with the Internet of Things and Services. Here, real production and digital processes combine to create so-called cyber-physical systems. If these encompass the entire system and all processes, we refer to this as a smart factory.

工业4.0描述了工业价值创造的深刻变革。在机械、电气和电子工业转型后，广泛的数字网络时代已随着物联网和服务到来。实际生产流程和数字流程共同创造了所谓的物联网系统。如果这些系统包含了整个系统及所有流程，我们称之为智能工厂。

KSB is your ideal partner on this path. As a founding member of the technology initiative SmartFactoryKL, we have many years of experience in developing Industry 4.0 solutions and today already offer you smart pump technology of the future.

KSB是这条道路上您的理想合作伙伴。作为工业4.0前身 - SmartFactoryKL 的创始成员，我们对于工业4.0解决方案有着多年开发经验，如今已向您提供面向未来的智能泵技术。

Optimum productivity thanks to smart networking
智能物联网创造的最优生产力

The aim of Industry 4.0 is to maximise productivity and the ability to adapt production quickly and efficiently in response to changing conditions and new orders – even for lot size 1. For this purpose, the systems of the future require maximum:

工业4.0旨在实现生产力最大化，并使生产快速、高效适应变化的条件和新订单，即使对于最小生产批量也是如此。为此，面向未来的系统必须具有最优的：

Resource efficiency and optimised use of materials
资源效率及材料的最佳利用

Availability and operating reliability
可用性和运行可靠性

Flexibility through short-term reconfigurability
可实现短期重新构建的灵活性

Reduction of time to market
产品面市时间缩短

This requires individual products to communicate with each other decentrally and respond autonomously to changes in the system condition. The foundations for this are delivered by KSB's smart products and services, whose digitalisation capabilities create a strong foundation for developing the smart factory.

由此要求个别产品彼此分散通信并自主地响应系统条件的变化。KSB的智能产品和服务为其提供了基础，其数字化能力为智能工厂的开发奠定了坚实的基础。

A piece of Industry 4.0: smart pump technology from KSB
工业4.0：KSB的智能泵技术

KSB provides a range of products and services to increase the productivity of your system. From the mobile app KSB Sonolyzer®, which uses motor noise to identify potential savings, to the PumpMeter diagnostic system – they all have one thing in common: they supply information and provide functions in the form of a digital twin. A digital twin is the virtual image of a real object such as a smart pump. It enables networking in the smart factory, thereby maximising productivity.

KSB提供全系列可增加您的系统生产力的产品和服务。从移动应用程序KSB Sonolyzer®（其使用电机噪声识别潜在节能）到PumpMeter智能设备 - 它们都有一个共同点：以数字化双平台的形式提供信息和功能。数字化双平台是智能泵等实物的虚拟影像，它使智能工厂的互联成为可能，从而实现生产力最大化。

Ready for Industry 4.0
with smart pumps and smart services
通过智能泵和智能服务为工业4.0做好准备

Integration of products and services into the smart factory requires information, functions and services to be available at the right place at the right time.

将产品和服务整合到智能工厂中，即要求在正确的时间、正确的地点提供信息、功能和服务。

Smart products therefore provide three key qualities:
因此，智能产品具有三种重要特性：

Networkability:
可联网性：

KSB products differ in their networkability: they are either static and passive through a QR code on the pump, which is read by mobile devices, or dynamic and active through the provision of process data in real time via network connections.

KSB产品有不同的可联网性：它们可以是静态地、被动地通过泵上的二维码由移动设备读取信息；或者动态地、主动地经网络连接，实时提供过程数据。

Transparency:
透明性：

All smart products can be uniquely identified digitally and can be captured, for example, using their serial number. The amount of relevant product information available depends on the type of networking and level of digitalisation.

所有智能产品具有数字化标识，可通过序列号获取信息；提供的相关产品信息数据取决于联网类型及数字化水平。

Functions and services:
功能和服务：

Smart pump sets independently contribute to optimising operation through decentralised intelligence. They do this by autonomously carrying out functions, such as control of operation, and making these functions available to the digital twin at the network interfaces.

通过分散性智能泵机组互相独立地促进信息优化操作，通过自主执行运行控制等功能，并将其提供给数字化双平台的网络接口来实现。

Two aspects of digitalisation turn services into smart services:
通过数字化可将以下两方面转变成智能服务：

Provision of valuable information:
提供价值信息：

Smart services are based on valuable information from networked products such as electronic history files or mobile condition monitoring. This enables increased efficiency during servicing and maintenance, for example.

智能服务以电子化历史数据或移动状态监控等物联网设备提供的信息为基础，进而提升维护和保养效率等。

Connection to platforms:
平台连接：

Service information is available on platforms and mobile devices. Every relevant work step and every change to the product is recorded and provided digitally.

服务信息在上层平台及移动设备上均可提供，每个相关工作步骤及每项产品变化可实现数字化记录。

DIGITAL TWINS IN THE
CLOUD
云端
数字化双平台

Potential identification with KSB Sonolyzer®
KSB Sonolyzer®
识别潜在节能

KSB Equipment Management via QR code
通过二维码实现KSB设备管理

Operation using the My PumpDrive app
通过My PumpDrive App
进行运营操作

REAL PRODUCTS IN THE SYSTEM 系统实际设备

At the **heart of the smart factory:**
the digital twin in the cloud
智能工厂的中心：云端数字化双平台

Much more than pump data: the digital twin
不仅仅是泵数据：数字化双平台

The fact that pumps and other products in Industry 4.0 are networked means that current and relevant information relating to condition, operation and history can be called up any time. To ensure that different applications and users always work on the same correct data basis, this information is provided by the digital twin. Each physical pump set has its own digital twin that portrays it and serves as a central source of information. Here, every change to the real product is also registered. Unlike the concept of big data, it is not purely about data collection, but rather valuable information. When combined with standardised interfaces, the digital twin serves as a basis for networking with other devices and systems.

工业4.0中的泵及其他产品的事实联网意味着可随时获取当前工况、运行及历史数据及相关信息。为了保证不同的应用程序及用户依据相同的正确数据来工作，这些信息由数字化双平台来提供。即各物理泵组有自己的数字化双平台，同时数字化双平台对泵组进行管理并作为中央数据源。数字平台会记录实际设备的每项变化。不同于一般大数据概念，数字化双平台不只是用作数据采集，更涉及价值信息分析。数字化双平台通过标准化接口作为与其他设备和系统联网的基础。

Where digitalisation of production is at home: the cloud
生产数字化尤为便捷：云端

Different users and functions from different divisions of the company can access the digital twin during every process step, either via the cloud or through a direct connection to the device. In this way, details of the operational status or history files are easily accessible also on mobile devices. At the same time, all data is protected against unauthorised access and data loss, making the digital twin in the cloud the core element of the smart factory.

公司内不同部门的用户和职能人员经云端或通过直连设备可在任一工序访问数字化双平台。 通过这种方法也可实现在移动设备上便捷获取设备运行状态和历史数据。同时保护所有数据免遭非法访问和丢失，从而使云端数字化双平台成为智能工厂的核心要素。

The products illustrated as examples are partly fitted with options and accessories incurring a surcharge.
作为举例说明的产品，部分需要额外收费的选配件或附件。

The fluid technology of the smart factory:
smart pumps from KSB
智能工厂的流体技术：KSB智能泵

With KSB's smart pump sets, you can today already benefit from a piece of Industry 4.0. A smart pump set consists of a pump and drive, as well as the PumpDrive variable speed system and the PumpMeter monitoring unit. The principle behind this is one of the fundamental ideas of the digitalised industry: sensors and control systems are integrated directly to the product. In this way, operation can be adjusted locally, automatically and autonomously, and information is available via network interfaces.

借助KSB的智能泵组，今天您可能已从工业4.0的概念中受益。智能泵组由泵、电机及 PumpDrive变速系统和PumpMeter监控单元组成。其背后是数字化工业的基本理念之一：传感器和控制系统直接集成到产品中。通过这种方法可实现就地、自动及自主运行，并经网络接口提供信息。

With smart KSB products, the pump set has become a piece of Industry 4.0
有了KSB智能产品，泵组也将成为工业4.0的一部分

Full transparency with PumpMeter
PumpMeter 实现过程透明

The intelligent pump monitoring unit PumpMeter continuously measures the suction and discharge pressures of your pump and establishes the pump's operating point based on the differential pressure. The clear display provides transparency and also immediately shows whether energy can be saved through more efficient operation. PumpMeter therefore not only provides data but relevant information that can immediately serve as a basis for deciding how to optimise operation.

智能泵监控设备PumpMeter持续测量泵的进出口压力，并根据压差寻找泵的最优运行点。除了过程数据之外设备屏幕可以清晰显示当前泵是否处于效率运行状态。因此，PumpMeter不仅提供数据，而且能提供支持运行优化方式决策基础的相关信息。

Networkability   可联网性：

- Straightforward connection to process control systems
  便于连接到过程控制系统

- Analog interface and bus communication available via Modbus RTU
  可通过模拟信号及Modbus RTU进行总线通信

- Further field buses such as Profibus can be used via gateways
  借助网关可支持Profibus等现场总线

Transparency   透明性：

- On-site display of all important measured variables and operating data
  可就地显示所有重要测量变量和运行数据

- Supplied completely assembled
  出厂前完成一体化安装并组态

- Parameterised for the individual pump
  针对每台泵导入相关设置参数

Functions and services   功能和服务：

- Full transparency of operation as a basis for optimisation
  运行完全透明，作为优化基础

- Calculation of the pump's operating point
  推算泵的最优运行点

- Simple, clear display of savings potential through automatic analysis
  通过动态估算自动显示潜在节能

Find out more about PumpMeter at:
关于更多PumpMeter的详细信息，敬请访问：
www.ksb.com/pumpmeter

Autonomous speed control with PumpDrive
PumpDrive 实现自主速度控制

PumpDrive continuously matches the speed of the pump and thus the pump's output to actual system demand, ensuring that pump operation is as energy-efficient and reliable as possible. This can reduce costs considerably, particularly if a system has fluctuating demand. Demand-based operation can save up to 60 % of the required energy and increase availability and operating reliability.

PumpDrive根据系统实际需求不断与泵转速及泵输出匹配，保证泵的运行尽量节能、可靠。由此大量减少成本，特别是系统需求波动时尤其如此。基于需求的运行可省所需能源的 60%，并增加可用性和运行可靠性。

Networkability   可联网性：

- Straightforward connection to the control system possible via different field bus modules: Profibus DP, Modbus RTU, LON BACnet TCP/IP, Profinet
  经不同现场总线模块，可简单连接到控制系统：Profibus DP、Modbus RTU、LON BACnet TCP/IP、Profinet

- Integrated wireless module for connection via Bluetooth
  经蓝牙连接的集成无线模块

Transparency   透明性：

- The parameters are set at the factory based on all pump and motor data
  工厂根据所有泵和电机数据设置参数

- Display of operating data
  显示运行数据

Functions and services   功能和服务：

- Integrated multiple pump operation (up to six pumps with full redundancy)
  多泵集成运行（多达6台泵，冗余配置）

- Dynamic pressure compensation function (compensates for pipe friction losses)
  动态压力补偿功能（补偿管道摩擦损失）

- Sensorless differential pressure control
  无传感器压差控制

- Sleep mode 休眠模式

- Energy savings meter 节能模式

- Characteristic curve control/integrated operating point estimation
  特性曲线控制／最优运行点评估

- Integrated dual pump management 双泵集成管理

- Sensorless dry running protection   无传感器干运转保护

- Various service intervals (based on operating time or age)
  各种在役间隔（根据运行时间或年龄）

- Functional check run   功能运转检查

- Pressure boosting functions package   增压应用功能包

- Functions package for waste water applications 废水应用功能包

More information on PumpDrive at:
关于更多PumpDrive的详细信息，敬请访问：
www.ksb.com/pumpdrive

The products illustrated as examples are partly fitted with options and accessories incurring a surcharge.
作为举例说明的产品，部分需要额外收费的选配件或附件。

Perfectly networked for maximum efficiency 完美联网，实现最大效率

Through the combination of PumpMeter and PumpDrive, maximum savings are made. Based on the precise measurement data from PumpMeter, PumpDrive can estimate the operating point even more precisely – and control operation accordingly. The devices are connected quickly and easily via a pre-configured cable, which can also be easily retrofitted on site.

通过PumpMeter和PumpDrive的组合实现最大节能。根据PumpMeter的精确测量数据，PumpDrive能更精确地估算最优运行点并控制运行。通过预配的电缆可以更快、更便捷地连接设备，尤其适用于改造和升级项目。

My PumpDrive app My PumpDrive应用程序

Thanks to the integrated wireless module, PumpDrive can be controlled via Bluetooth. This turns a smartphone into a "remote control" for PumpDrive, while all data and information is available in the app. As a result, the My PumpDrive app is a digital twin of the smart pump set, ensuring maximum ease of maintenance, fast commissioning and more.

通过集成的无线模块，经蓝牙即可连接PumpDrive。由此将智能手机变成PumpDrive的"遥控装置"，同时在应用程序中能获取所有数据和信息，保证易于维护、快速调试等。

Valuable information 价值信息:

- Monitoring of operating data 监控运行数据
- Management of data   管理设备
- Quick and straightforward commissioning through mobile commissioning assistant
  通过移动组态助手实现快速、简便地调试

Connection to platforms 平台连接:

- The app is available on mobile devices
  提供移动设备应用程序
- Uses the digital twin of the smart pump set
  适配智能泵组的数字化双平台

Download at 下载网站：**www.ksb.com/pumpdrive**

FluidFuture®: the energy-saving concept for your system
FluidFuture®：系统的节能理念

To help you maximise energy efficiency in your system, we offer smart products and services as well as comprehensive system optimisation. We look at the system as a whole and realise maximum savings for your hydraulic system in four steps.

为了使您的系统能效达到最优，我们提供智能产品和服务及系统集成优化。KSB将系统看作一个整体，按4个步骤使您的泵（组）系统实现最大节能。

Experience FluidFuture® at
率先体验 FluidFuture®，请访问：
www.ksb.com/fluidfuture

Smart tools and services
for Industry 4.0
智能工具和服务 工业4.0

KSB products and services provide data and valuable information on the operation of your system on different platforms. Thus today, they already deliver the data basis for smart factory and Industry 4.0, contributing to increased resource efficiency, availability and flexibility.

KSB产品和服务在不同平台上提供泵系统的重要运行信息。通过智能工厂和工业4.0的数据基础，有助于增加能效效率、可用性和灵活性。

Smart tools and services from KSB provide valuable information:
KSB的智能工具和服务提供价值信息：

Identify optimisation potential with the KSB Sonolyzer® app
KSB Sonolyzer® 应用程序确定节能潜力

The KSB Sonolyzer® app is a free app that helps you quickly determine whether energy can be saved. It does this by measuring the noise frequency of the fixed-speed asynchronous motor through the microphone on a smartphone or tablet in just 20 seconds, identifying any potential for increasing pump efficiency. This works not only with KSB pumps but also with non-KSB brands and other rotating equipment.

KSB Sonolyzer® 应用程序是一款帮助您快速确定是否存在节能潜力的免费应用程序。通过智能手机或平板电脑上的麦克风，在20秒内测量定速异步电机的噪声频率，从而推算泵的效率和潜力。该应用程序不仅适用于KSB泵，也适用于非KSB泵及其他旋转设备。

Valuable information 价值信息:

- KSB Sonolyzer® offers a free initial assessment of whether optimisation potential exists and whether a comprehensive energy efficiency check is necessary.
  KSB Sonolyzer® 提供下列免费初步评估：是否存在优化潜力，是否需要进行综合能效检查。

- To do this, the app uses an estimation algorithm that was developed by KSB and is the first of its kind on the market.
  为此，应用程序采用KSB开发的估算算法，该算法属于行业首创。

- The results analysis shows whether the operating point is inside or outside the part-load range.
  结果分析显示运行点是在部分负荷范围之内还是之外。

Connection to platforms 平台连接:

- Based on your location, you can contact the responsible KSB expert directly by phone or e-mail with KSB Sonolyzer®.
  关于KSB Sonolyzer®，您可以根据地理位置通过电话或电子邮件与相关KSB人员进行联系。

- The app is available for free with Android and Apple, and runs on smartphones and tablets – with specially protected devices even in potentially explosive atmospheres.
  免费提供安卓和苹果应用程序，可在智能手机和平板电脑上运行，通过配备专用设备，可以在防爆环境下运行。

All information on KSB Sonolyzer® at: **www.ksb.com/sonolyzer**
关于KSB Sonolyzer® 的所有信息，请访问：**www.ksb.com/sonolyzer**

KSB Sonolyzer® app for Android smartphones

KSB Sonolyzer® app for iPhones

Precise analysis with the Pump Operation Check
通过泵运行检查（POC）实现精确分析

Pump Operation Check is a precise efficiency analysis of single-pump applications. Measurement and analysis are carried out by KSB experts with the help of the PumpMeter monitoring unit, which creates a precise load profile without impacting the operating process.

泵运行检查（POC）是一种精确的单泵应用效率分析。KSB专家借助PumpMeter进行测量和分析，在不影响生产过程的情况下生成精确的负荷曲线。

Valuable information 价值信息:

- Transparency of pump data with PumpMeter PumpMeter实现泵数据透明性

- Automatic analysis of load profile 自动负荷曲线分析

- Suggestions for optimisation from KSB experts KSB 专家的优化建议

- Comprehensive report of findings including economic efficiency analysis 包括经济效率分析在内的综合分析报告

Connection to platforms 平台连接:

- The analysis is carried out via a web front end 可通过相关网页进行访问

More information at 关于更多详细信息，请访问: **www.ksb.com/poc**

Recording operating data through the PumpMeter monitoring unit
通过PumpMeter监测记录运行数据

All data to hand thanks to KSB service tool
KSB服务工具使所有数据都易于获取

The KSB service tool enables operating status monitoring and central administration of pump data via the digital twin. The fact that the pumps' status and history are available also simplifies service and maintenance. A special assistant is available for commissioning.

借助数字化双平台，KSB服务工具使运行状态监控和泵数据的统一管理成为可能。泵状态数据和历史趋势也简化了维护保养，易于调试组态。

Valuable information 价值信息:

- Monitoring of operating data 监控运行数据

- Management of data 管理数据

- Quick and straightforward commissioning through mobile commissioning assistants
  通过移动调试助手，实现快速、简单调试

Connection to platforms 平台连接:

- PC integration via FDT interface 经FDT接口连接个人电脑

Learn more at 要了解更多信息，请访问: **www.ksb.com/servicetool**

Closer to the future: with KSB as a **strong partner** for Industry 4.0
未来已来：KSB是您实现工业4.0的**强大合作伙伴**

When realising the vision of Industry 4.0, we contribute not only by providing smart products and services, but by continuously further developing our future-oriented solutions in product development, in pilot projects and in cooperation with our partners. To come closer to achieving maximum productivity in the smart factory, we are trying to realise existing networking potential using the cloud. Here the digital twin integrates available information from different sources along the product life cycle.

为了实现工业4.0，我们不仅提供智能产品和服务，而且在产品开发、项目试点、并与我们的合作伙伴不断开发面向未来的解决方案，做出我们的贡献。为了进一步实现智能工厂最大生产力，我们正努力用云端实现物联网潜力，通过数字化双平台整合产品寿命周期中各种来源的有价值信息。

Actively shaping the future: smart pump technology for the megatrends of tomorrow
主动塑造未来：智能泵技术迎接未来的大趋势

Megatrends such as urbanisation, population growth and climate change also present new challenges for pump technology, making proactive research and development at KSB vital. Teams of KSB experts worldwide are working, for instance, on digital networking of hydraulic systems. Partly in cooperation with universities, research institutes and partner companies, we are analysing trends, adapting technologies and developing future-oriented business models in start-up projects.

城市化、人口增长和气候变化等大趋势对于泵技术提出了新挑战，从而使得KSB的前瞻性研发至关重要。KSB全球的专家团队正在从事水利系统的数字化联网。通过与大学、研究院所和伙伴公司合作，我们正在分析趋势，改进技术并研发面向未来的业务模式。

On the topic of Industry 4.0, KSB has been active in various working groups and associations for over 10 years. The industry has taken on a pioneering role in digitalisation, but KSB is also involved with smart solutions in other applications. We are working in all areas to fulfil customer requirements of tomorrow – today, with innovative products.

关于工业4.0的主题，KSB已在各类相关组织和协会中活跃逾10年。工业领域是当前数字化的先锋地带，同时KSB也涉及其他应用的智能解决方案。为了满足未来的客户需求，我们现在致力于研发创新型产品而奋力工作。

Quick, straightforward access to pump data with KSB Equipment Management: data accessed via a QR code on the pump set is displayed on a tablet browser.

KSB设备管理实现泵数据的快速和便捷访问：在平板电脑浏览器上访问经扫描泵上二维码所获取的数据。

The products illustrated as examples are partly fitted with options and accessories incurring a surcharge.
作为举例说明的产品，部分需要额外收费的选配件或附件。

**Smart maintenance in action:
pump data in the cloud
智能维护正在行动：云端泵数据**

Quick and easy access to pump data:
a KSB pilot project for smart Equipment
Management meets the requirements
of many a service engineer. The data is
stored in the cloud and can be accessed
on a tablet or smartphone using the QR
code on the pump set. This makes not
only technical data directly accessible, but
also the entire pump history, maintenance
measures and test reports with photos.

泵数据的快速和便捷访问：KSB智能设备管理
试点项目满足许多服务工程师的要求。
数据存储在云端，通过泵组上的二维码就可在
平板电脑或智能手机上进行访问。由此不但可
直接获取相关技术数据，而且可访问图形化显
示泵历史曲线、维护措施和测试报告。

With the pump data available on mobile devices,
we are testing networking.
通过联网的移动设备上获取相关的泵数据

**KSB and SAP: smart cooling for the cloud
KSB和SAP：云端智能冷却**

If your data is in the cloud, then there is a good chance
that it is actually stored at St. Leon-Rot Data Centre
operated by SAP, the leading innovator for enterprise
software. Here, customer data is stored with utmost
security, though the enormous amounts of computing
power do generate a lot of heat. As a stable cooling
supply is essential for the centre's operation, SAP places
its trust in technology from KSB.

如果您的数据现在存储在云端中，则有很大几率存储在企业
软件领域的创新公司SAP所有的St.Leon-Rot数据中心。在这
里，庞大的计算能力意味着产生很多热量，但是客户数据保
证以最安全的方式存储。因为稳定的供冷对于数据中心的运
营必不可少，SAP选择信任KSB的技术能力。

For the first time ever, KSB and SAP are now combining
their standards of technological excellence in a pioneering
Industry 4.0 application: in the future, PumpMeter and
PumpDrive will send a pump's current operating status
and the pump history into the cloud to SAP's Remote
Service Management via integrated interfaces. This will
allow system-wide status monitoring, fault detection
and the prediction of potential breakdowns. KSB and
SAP employ this concept to exploit the potential of
Industry 4.0 to ensure the availability of cooling at the
Data Centre.

开创性地，KSB和SAP现在正合作开发关于工业4.0的先进应
用技术标准；未来，PumpMeter和PumpDrive将通过集成接
口把泵的当前运行状态和历史数据发送给SAP远程服务管理
云端。由此实现系统范围内的状态监控、故障检测及预测性
维护。
KSB和SAP通过该理念开发工业4.0的潜力，保证数据中心冷
却功能的高效安全。

Smart pump sets from KSB ensure cooling supply at the Data Centre.
KSB智能泵组保证数据中心的供冷应用。

In the future, PumpMeter and PumpDrive will be connected to SAP's
Remote Service Management.
在不久的将来，PumpMeter和PumpDrive可直接连接到SAP远程服务管理系统。

Technology that makes its mark
技术 成就品牌

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