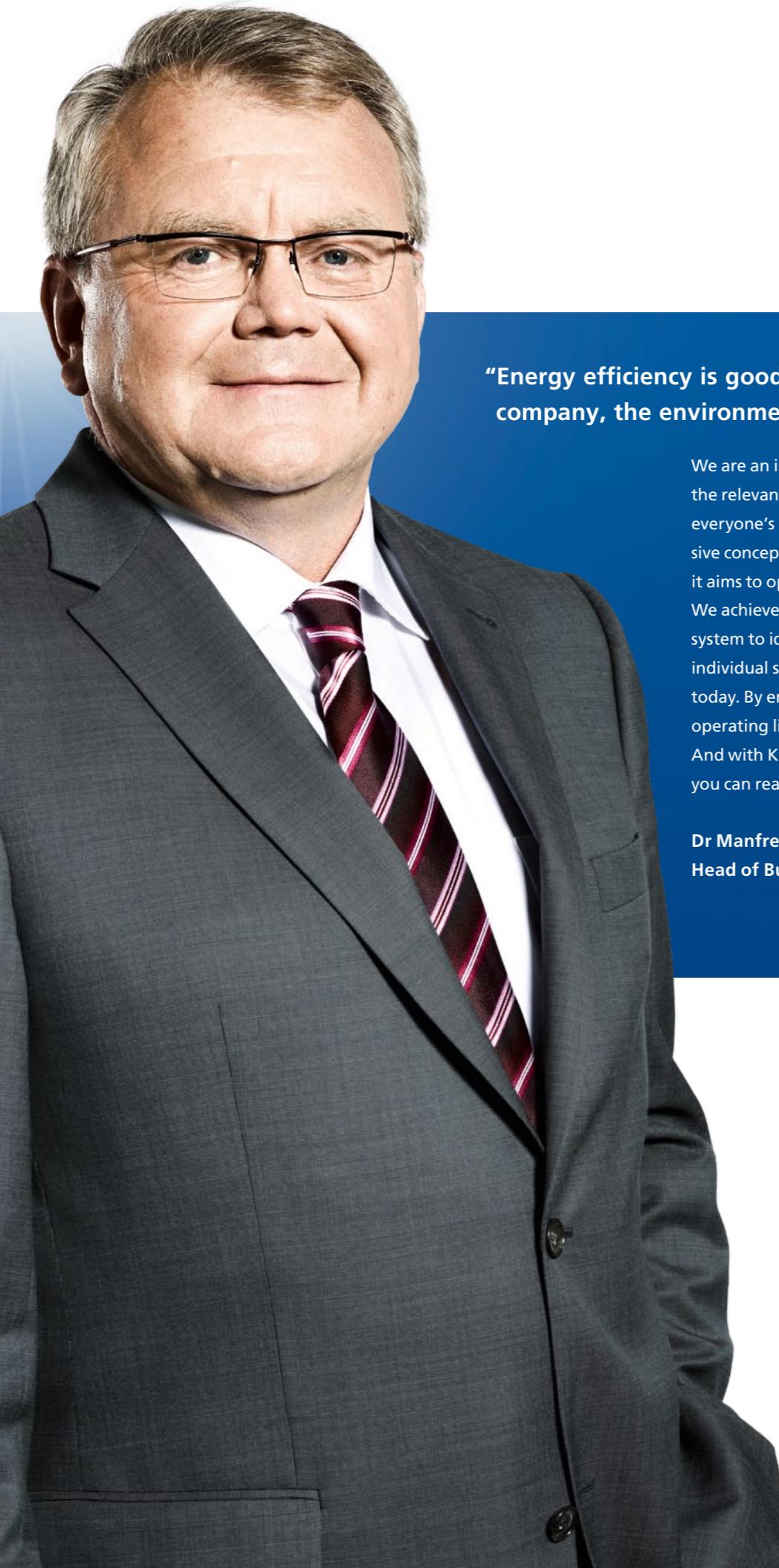


Pumps • Valves • Service



Energy: we spend all ours
to save lots of yours.





"Energy efficiency is good news all round – for your company, the environment and generations to come."

We are an innovative supplier of pumps, valves and the relevant service. And because energy efficiency is everyone's business, we've developed a comprehensive concept we call "FluidFuture®". First and foremost, it aims to optimise your plant's overall efficiency. We achieve that by examining your entire hydraulic system to identify optimisation potential in each individual section. That way, you don't just save cash today. By ensuring reliability and extending total operating life, you take care of tomorrow as well. And with KSB and FluidFuture®, that's a tomorrow you can really get moving.

**Dr Manfred Oesterle,
Head of Business Unit Automation and Drives**

There's incredible potential for better energy efficiency. Together, we can make best use of it.



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.

The one purpose of energy efficiency measures is to make your plant run more economically. And we help you save money by looking at all the costs over the entire life cycle. In most cases energy accounts for more than one-third of total costs, and offers the greatest opportunity for savings. And this is where the new ErP regulations take effect as they specify the minimum permissible energy efficiency levels of products from 2013. As part of FluidFuture®, we are already using high-efficiency pumps, valves

and drives which even exceed these regulations, thus making considerable energy savings. Maximising overall energy efficiency means your system runs better, longer and more cheaply – which speeds up your return on investment.

Further informationen is available on
www.ksb.com/fluidfuture



Saving energy with ErP is just the start. We optimise the entire system.

Global energy consumption using "Energy-related Products" – products with high energy requirements – continues to rise. It therefore became necessary to take measures that bring about a reduction in the long term. ErP regulations were developed that specify mandatory minimum efficiency levels for various product groups from 2013.

These will gradually be made even stricter by 2020. KSB has been meeting this challenge for quite some time by using all of its expertise to develop particularly energy-efficient products. These already fulfil the requirements of the ErP regulations for 2015, and in some cases, even exceed them.



The goal: more efficiency

The minimum efficiency requirements of the ErP regulations for standardised water pumps and circulators are expressed in terms of the values "MEI" (minimum efficiency index) and "EEI" (energy efficiency index). These values replace the old EU logo for energy consumption labelling.

Since the system of voluntary energy efficiency labelling has been replaced, the new globally harmonised classes (IE codes) are valid for almost all low-voltage three-phase motors.

www.ksb.com/fluidfuture/erp

At a glance

The requirements for the minimum efficiency level of pumps and motors will gradually be made even stricter by 2020. The specified values that must be attained or not exceeded are based on the individual product groups.

For standardised water pumps, the following values apply:

MEI (minimum efficiency index): a high value = high efficiency
 From 1 January 2013: MEI ≥ 0.10
 From 1 January 2015: MEI ≥ 0.40

For circulators, the following values apply:

EEI (energy efficiency index): a low value = high efficiency
 From 1 January 2013: EEI ≤ 0.27
 From 1 January 2015: EEI ≤ 0.23

For electric motors, the following codes apply:

IE4 = Super premium efficiency
 IE3 = Premium efficiency
 IE2 = High efficiency
 IE1 = Standard efficiency

From 1 January 2015:

IE3 or IE2 with frequency inverter P = 7.5 kW – 375 kW

From 1 January 2017:

IE3 or IE2 with frequency inverter P = 0.75 kW – 375 kW

Maximum Savings with FluidFuture®

The ErP regulations play an important role in saving energy at component level. Optimising the overall efficiency of your plant, however, holds even more potential. This is where FluidFuture® takes effect.



To keep a system running, you have to know it inside out.

A pump is a complex component in a larger system. Improvements in energy efficiency come from lots of small details, but the focus always has to be on analysis of the overall system. That is just as true of existing plants as of new designs. Careful examination of the pump's load profile is required both under current operating conditions and with a view to future demands. The aim is to

identify savings potential both today and tomorrow, and then achieve those savings in a comprehensive systems approach. Doing that requires years of experience and expertise. KSB has both – and brings you the benefits through its highly qualified consultants, top-class products and specialised service offers.



SYSTEM ANALYSIS

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

"Recognising the smallest details in highly complex systems and processes requires transparency. I'm here to provide it."

Dr Falk Schäfer, Head of SES System Efficiency Services

SES System Efficiency Services: reliable all the way

Take our tried and tested SES System Efficiency Services, for example. A data logger records process and vibration values at the site. Those enable us to identify the pump's current load profile and compare it with the specifications. Then we can recommend action to maximise energy efficiency and ensure that your pumps and systems run economically.

www.ksb.com/fluidfuture/ses

PumpMeter: a true measure of innovation

Our innovative PumpMeter increases the transparency of pump operation, and helps you identify further potential for energy savings. PumpMeter tracks all the key data and displays them clearly. You can check the current operating point at every stage, and see precisely how the load profile develops over time. PumpMeter enables you to increase energy efficiency and keep your pumps running and running.

www.ksb.com/fluidfuture/pumpmeter



SES System Efficiency Services data logger



Etabloc with PumpMeter







Our selection turns planning into partnership.

Our KSB consultants all have one aim: to find the ideal technical solution for long-term cost savings. That means working in close partnership with you, the customer. And it means taking a comprehensive approach that will stand the test of time. We use a wide

range of professional instruments, or put them at your direct disposal. You can access KSB EasySelect, for example. Our well-known pump and valve selection program lets you make the choice and reduce your long-term costs.

"Partnership? For me, that means understanding my customers so that I can offer the best solution for each of them."

Jürgen Schraff, Sales South Germany



SELECTION

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

You know where you are, because we know what's what

For us, strategic partnerships start right from the design phase. Together with each customer we analyse the transport task in question, and check exactly what is needed. That way, we meet all the process requirements economically and sustainably. After all, what really matter are the total life cycle costs. After the information and design phase, it's time for realisation. That's where the detail engineering comes in: We look for alternatives that might be even better suited. Which is yet another difference between KSB and its competitors.

Straightforward and fast: KSB EasySelect

KSB EasySelect has proved its worth, time and again. It is the only program on the market that lets you choose your pumps and valves. KSB EasySelect is quick, clear and simple to use. Step by step, the program takes you through the KSB product range and finds the right product for every requirement – whether it is a pump, valve or a complete module with valve, actuator and matching automation solution. The choice is yours, seven days a week and round the clock. And of course your KSB partner is available by phone or e-mail as well.

www.ksb.com/fluidfuture/easyselect



Really big differences come from really small details.

A complex fluid transport system puts heavy demands on the interplay of pump, valves and the other components. For energy-efficient, problem-free operation, absolute precision is key. A pump's most

important performance criterion is that it runs at its actual operating point in its maximum efficiency range. Pumps running at their best efficiency point are quieter and have a longer operating life.



The high-efficiency standardised water pumps:

ErP 2015-ready even today

The success of the Eta type series speaks for itself: Around 70,000 pumps are installed each year in, for example, industrial and building services facilities. Thanks to the various sizes, variants and materials, every pump of the Movitec type series can also be adapted to the specific requirements of the respective plant. This enables exceptional efficiency levels to be achieved in each of the many applications as well as maximises the savings potential of the entire plant.

www.ksb.com/fluidfuture/waterpumps



Etanorm



Calio





**HIGH-EFFICIENCY
PUMPS & VALVES**

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

"High-precision results depend on more than just cutting-edge technology. You also need highly skilled professionals."

**Dr Jochen Fritz, Head of Research –
Hydraulics and Structural Mechanics**

Other high-efficiency pumps

Technical equipment with optimised hydraulic properties and maximum efficiency also makes an important contribution to the energy efficiency of a plant in applications that are not defined in the ErP regulations. In addition, a reliable pump drive is essential in ensuring the availability of the system. KSB meets the plant's strict requirements for products with its intelligent technology, broad diversity, flexibility and ease of servicing.

www.ksb.comfluidfuture/higheffpumps



MegaCPK

Impeller trimming

Whether with standard pumps or special variants, there are several good ways to save energy. Optimum flow passage and speed control both contribute; impeller trimming is another cost-effective option. This involves reducing the outside diameter until the pump output exactly matches customer needs. Just a small drop in efficiency enables a significant reduction in pump input power. This means no energy is wasted.

www.ksb.comfluidfuture/impeller-trimming



Trimmed impeller

Energy-optimised valves

The choice of valves plays a major role in determining a system's energy efficiency. The KSB range includes BOA-H globe valves with optimum insulation, NORI 40 Y-valves designed especially for heat transfer systems and BOAX butterfly valves, whose hydraulically favourable flow path keeps pressure losses to a minimum. That means lower performance requirements – so you may even be able to choose a smaller pump. With the SERIE 2000 swing check valve, we also have a valve with exceptional flow properties, which give you the potential to make further savings.

www.ksb.comfluidfuture/insulation

www.ksb.comfluidfuture/butterfly-valves



BOA®-H

As a supplier of pumps, valves and the relevant service, we keep a constant eye on the pump system in its entirety. This is why we offer you all-in solutions from a single source: pumps and valves that complement each other perfectly, thus increasing the

energy efficiency of your system. Because by combining the right components, we enable you to maximise the hydraulic savings potential of the plant and reduce your energy requirements.





No losses, optimum performance: We put power in professionally.

Pump systems' efficiency depends heavily on their motors. For dry-installed pumps, KSB offers innovative synchronous motors that are even more efficient. But we also use IE2 motors as standard, in line with EU regulations. These motors come from well-known suppliers

and provide real added value. Energy savings of 3.5 % are possible without any additional investment. KSB's own submersible motors are similarly loss-free.

"My driving force? Getting the maximum out of each system. Customers' benefit? Getting maximum energy savings."

Ralf Kurrich, Head of Development –
Submersible Motors



HIGH-EFFICIENCY DRIVES

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

High-efficiency motors from KSB

The synchronous KSB SuPremE® motors are an innovative option for dry-installed pumps up to 45 kW. As well as being highly efficient at rated load, they offer four big advantages: They are speed-controlled, highly efficient at part load, and use fewer resources because they run without permanent magnets, but are just as robust as variable speed asynchronous motors. These synchronous motors already meet the IE4 efficiency level in line with IEC/CD 60034-30. So as well as standard IE2 models, we can already supply motors that comply with the ErP regulations for 2017 and beyond.

www.ksb.com/fluidfuture/supreme-motors

Way above the average, well below the surface

We also offer a wide range of watertight submersible motors for wet-installed pumps. As the developers and manufacturers, KSB perfectly matches these motors to the hydraulic requirements, mechanically and electrically. And with some very smart electrical and magnetic design work, we've adapted the motors of the KRT pump series to meet the demands of efficiency class IE2 and IE3.

www.ksb.com/fluidfuture/submersible-motors



KSB SuPremE® motor





It's not the maximum that counts. It's the optimum.

We take our responsibility seriously. At KSB we make sure our pumps are not only designed for high efficiency. Low energy requirements and a high availability of the pump over its entire service life are equally as important to us. It is not the maximum that counts. It is about responding to changing requirements over the entire opera-

ting life with suitable control concepts. Because analysing actual system requirements in detail is the only way we can ensure your pump runs in its optimum operating mode. Your benefit? Your power bill will be reduced by up to 70 %.



DEMAND-DRIVEN OPERATION

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

"Optimisation means constant adaptation to your needs. Those can change with time – so we have to stay flexible."

Marjan Silovic, International Business Development Automation

PumpDrive: maximum efficiency

Speed control pays, especially for fluctuating demands. The motor-mounted PumpDrive speed control system continually matches the pump power input to what is actually required. This means your pump will run more energy-efficiently, smoothly and reliably. For pump systems with ratings up to 600 kW the Hyamaster control system takes over.

www.ksb.com/fluidfuture/pumpdrive



Etaline® PumpDrive

BOA-Systronic pump/valve control system

Close examination of an entire system includes attention to heating and cooling performance. That offers further opportunities to save energy. For heating and cooling circuits in building services applications, we have developed BOA-Systronic. It controls not only the flow rate, but also energy transport. A further example of how we think beyond the task of fluid transport.

www.ksb.com/fluidfuture/boa-systronic



One thing KSB pumps, valves and the relevant service have in common is top-class efficiency. Our energy efficiency experts and high-precision automation solutions ensure that KSB products save you energy and money right across your plant.

Your local KSB representative:



The KSB newsletter –
don't miss out, sign up now:
www.ksb.com/ksb-en/
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