

► Our technology. Your success.

Pumps • Valves • Service



The new PumpDrive: flexible speed control for top efficiency

Optimum



Optimum operating speeds

Maximum savings

Demand-driven operation allows maximum energy savings. The new PumpDrive ensures energy-efficient, reliable pump operation. As part of our FluidFuture® energy efficiency concept, PumpDrive plays a key role in optimising the entire hydraulic system while enabling up to 60 % energy savings.

Optimising system performance with FluidFuture®

By leveraging our comprehensive concept for boosting efficiency, we optimise a system's overall efficiency in five interlocking modules and maximise its savings potential. Following analysis of the system and technical consultancy, KSB's highly efficient pumps and valves are integrated. Controlled in line with demand, these units reduce energy consumption even further.

Long-term cost savings

Energy costs account for approximately one third of all life cycle costs and can be substantially reduced by controlling power input, especially with fluctuating demands. PumpDrive not only increases energy efficiency, but also the availability of the pump itself. And this right from the start, since pump and PumpDrive parameters are factory-set and perfectly matched to each other – for quick commissioning and maximum savings.



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.



Top efficiency. And much more

In order to enable energy savings of up to 60 %, it is particularly important to recognise changing requirements and respond to them with suitable control concepts. This is why PumpDrive continuously matches the speed of the pump to actual demand.

All benefits at a glance

Energy efficiency

- High-efficiency unit in combination with KSB SuPremE® motor and PumpMeter
- Integrated multiple pump operation
- Dynamic pressure compensation function

Operating reliability

- Characteristic curve control
- Flow rate estimation
- Functions package for waste water applications
- Full redundancy by dual pump management

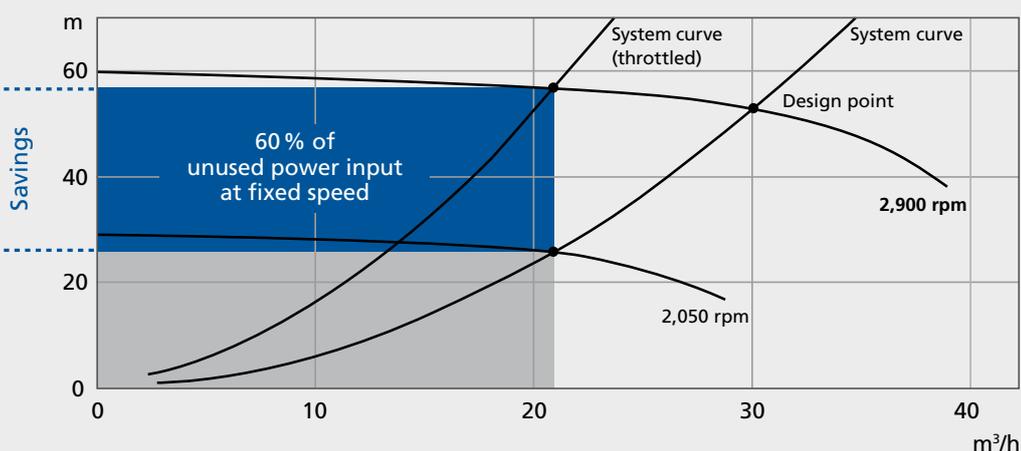
Flexibility

- Functions package for pressure boosting applications
- Motor-mounted up to 55 kW
- Ratings from 0.37 to 110 kW (up to 1.4 MW available on request)
- Several mounting options
- Various field bus modules

Ease of use

- Parameters factory-set for specific pump
- Integrated interfaces
- App for control and monitoring purposes

Sample calculation



Etanorm PumpDrive 32-200/552. A demand-based reduction in the flow rate by just 30 % translates into savings of € 1,712/8,000 operating hours (at 12 cents/kWh).

Always running at best efficiency point

Demand-driven operation through speed control is just the beginning, as PumpDrive comes with numerous functions that save even more on energy. By means of continuous measurements and calculations as well as thanks to enhanced pump functions, the unit ensures optimum operation for any demand and at all times.

Highly efficient combination: KSB SuPremE® motor, PumpMeter and the new PumpDrive make for pumps operating as efficiently as possible.



Speed control – now more efficient than ever

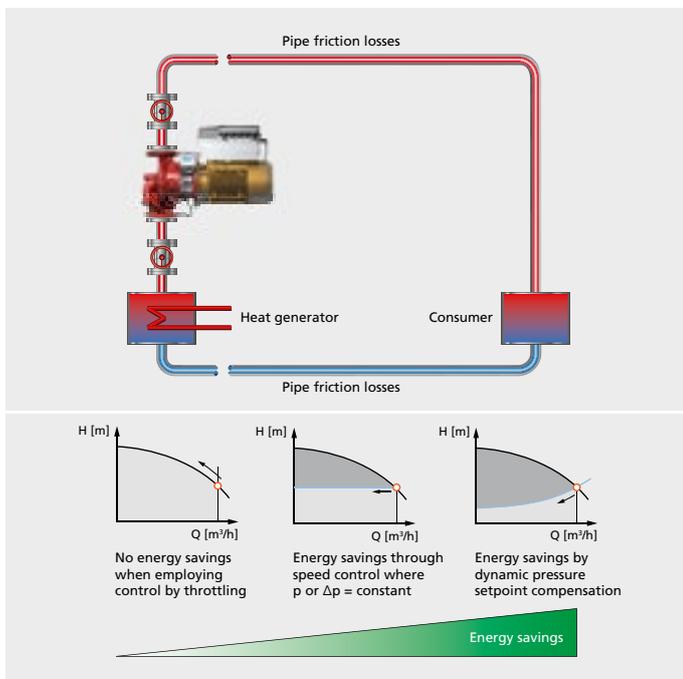
PumpMeter, KSB SuPremE® motor and the new PumpDrive combine into a highly efficient unit. The values measured by PumpMeter enable even more precise operating point estimation and, hence, speed control. Connected by a pre-configured cable, the components can easily update themselves on site, including in retrofit applications. A special plug-type connector joins PumpDrive with the world's most efficient magnet-less pump motor. The motor control method is also optimally designed for the highly efficient combination, since the MotionControl firmware enables optimum control of asynchronous motors as well as synchronous reluctance motors.

Integrated multiple pump operation

During parallel operation of up to six pumps connected by pre-configured M12 cable, the speed control systems start up or stop pumps in line with demand.

Dynamic pressure compensation function

Thanks to the differential pressure setpoint compensation function, the new PumpDrive is capable of automatically compensating for pressure losses. The unit calculates or estimates the pipe friction losses, which vary with the flow rate, and increases the pressure to match the setpoint defined.





Full transparency adds reliability

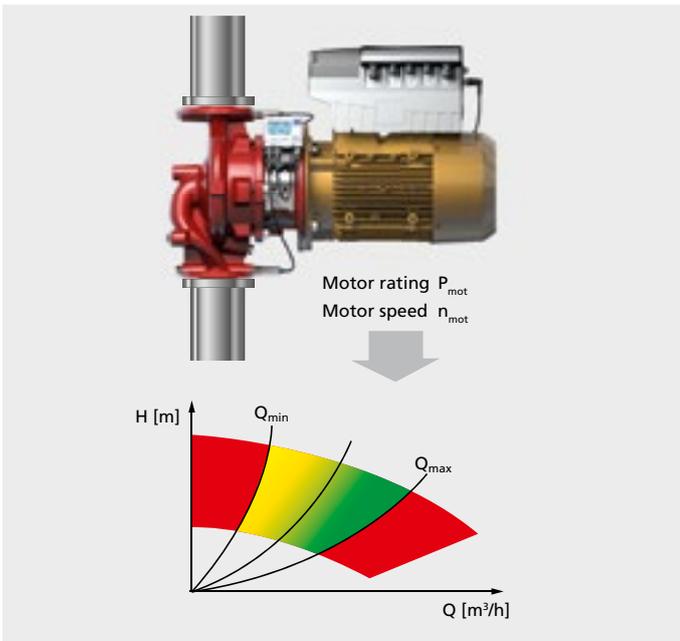
Continuous monitoring of the pumps' operating status lays the foundation for reliable operation. The new PumpDrive therefore continuously records and processes values, readings and data to monitor the permissible operating range at all times and ensure system availability.

Full redundancy by dual pump management

Thanks to integrated dual pump management, the predefined setpoint for the system is ensured at all times by way of two identical pumps. Two operating modes can be set.

- The setpoint is achieved with one pump operating at rated values (2 x 100 %).
- The system's rated operating point is achieved with both pumps operating at rated values (2 x 50 %).





Characteristic curve control and flow rate estimation

The new PumpDrive checks the operating status of the pump around the clock to avoid potential damage and failures. It controls the pump's characteristic curve and estimates the operating point on the basis of the motor input power and the current speed. This, in turn, allows PumpDrive to detect operation outside the permissible range such as extremely low flow, dry running, or overload. Messages are generated based on predefined settings and, upon request, the pump set is switched off before damage can occur.

PumpDrive also continuously estimates the flow rate. Based on power measurement or differential pressure measurement and characteristic curve function, it estimates the current flow rate which is also needed for dynamic pressure compensation and other important functions.



Waste water functions package*

Waste water applications in particular place heavy demands on pumps, which is why PumpDrive increases their availability by leveraging functions designed to control speed in a targeted manner. The waste water pump is started at maximum speed. In addition, anti-contamination measures help keeping pipes free and unobstructed: PumpDrive never controls the operating speed below the minimum flow velocity to prevent the build-up of contamination and triggers a rinsing function.

*Available from January 2015

Unlimited flexibility

For every requirement and every application: With a broad range of ratings from 0.37 kW up to 110 kW (up to 1.4 MW available on request), PumpDrive provides for top levels of operating reliability and optimum efficiency in industrial applications much in the same way that the "Eco" design caters to building services systems.

Always where you need it

Mounted to the motor, the wall or in a control cabinet – PumpDrive can be positioned to meet customer requirements and conditions on site.



Motor mounting The new PumpDrive can be mounted on motors up to ratings of 55 kW, making it compatible with the constraints on site. Retrofit applications also do not pose a problem by eliminating the need for installation space in the control cabinet and making it unnecessary to search for a suitable section of wall.



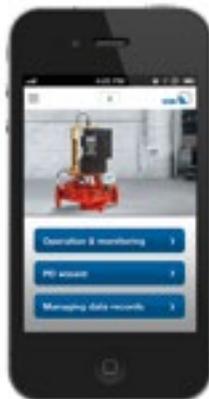
Wall mounting allows the pump and PumpDrive to be arranged right next to each other for optimum control at a glance.



Cabinet mounting If the pump is installed in a demanding environment, PumpDrive can be mounted in a control cabinet. Cabinet-mounted PumpDrives can be used up to ratings of 1.4 MW.

Easy installation adds convenience

- Preprogrammed at the factory
- Remote control via an iPhone app for quick commissioning, operation and monitoring, and data management at off-site locations (optional)
- Easy-to-fit M12 cable connector for joining PumpMeter with PumpDrive
- Optionally integrated master switch for disconnection of the entire pump set from the power supply and protection against unintentional start-up





Pressure boosting functions package*

System pressure is influenced by many factors. The new PumpDrive integrates special functions that ensure operating pressure remains constant to safeguard the availability of water:

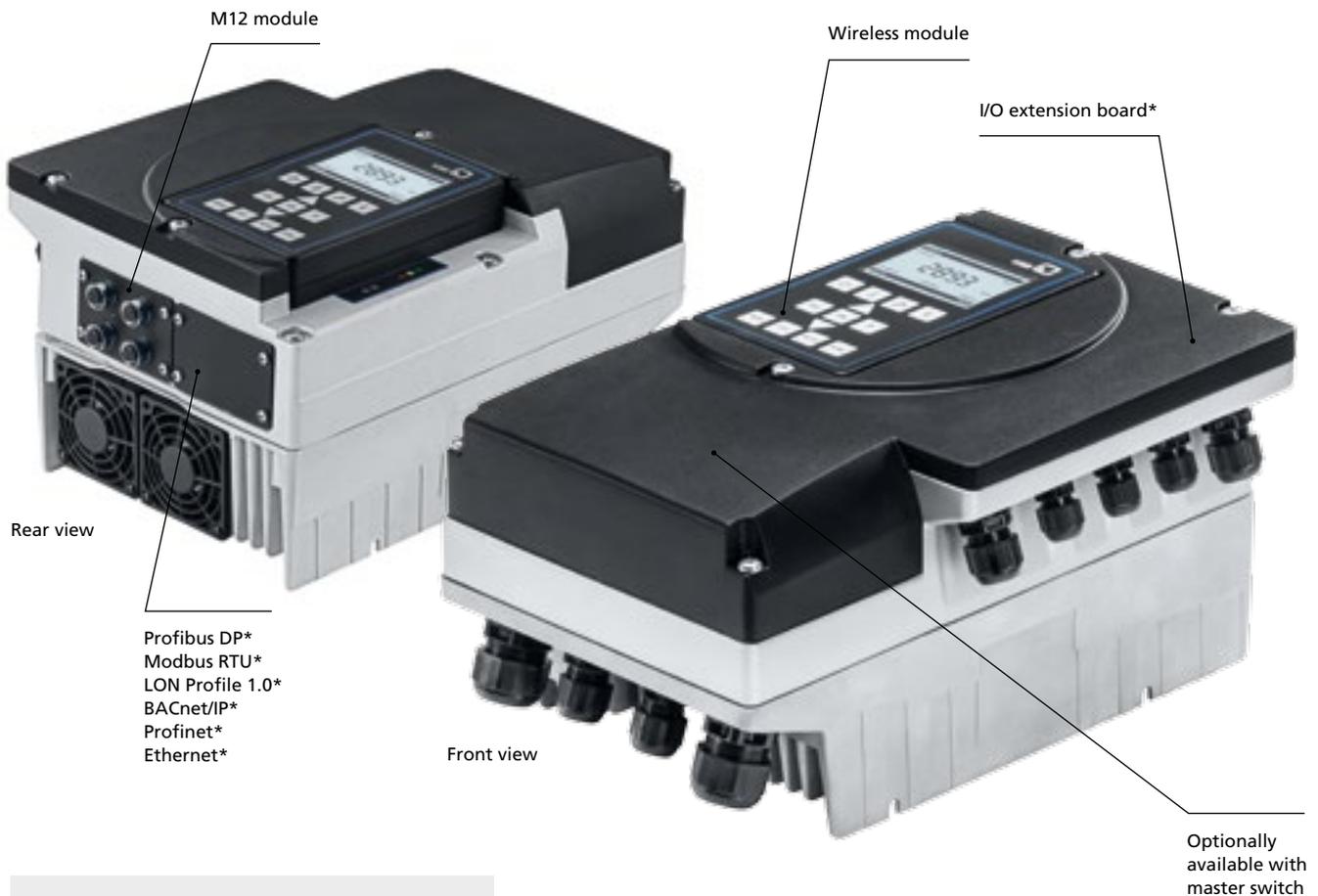
- **Lack of water function:** Should the pressure in the water supply network drop because large quantities of water are being withdrawn, the new PumpDrive reduces the setpoint. This makes it possible to avoid a full-scale shutdown.
- **Jockey pumps:** The new PumpDrive can simultaneously control pumps of different sizes.
- **Tank control:** The new PumpDrive actuates the valves of inlet tanks directly to restore fill levels.

*Available from January 2015

Variety in its most efficient form

The new PumpDrive is available in various configurations, each of which offers a different level of functionality to ensure optimum speed control: a fully equipped model for flexible applications and an Eco version that includes the full range of basic functions.

PumpDrive



Main applications

PumpDrive

- Air conditioning systems
- Heat generation/distribution
- Water supply systems
- Water extraction/withdrawal
- Water treatment/conditioning
- Water distribution/transport
- Refrigeration/distribution
- Fluid transport
- Cooling lubricant distribution
- Water extraction
- Service water supply
- Tank drainage
- Waste water transport

PumpDrive Eco



Main applications

PumpDrive Eco

- Air conditioning systems
- Heat generation/distribution
- Water supply systems

Technical data of PumpDrive/PumpDrive Eco:

Mains voltage	3 ~ 380 V AC -10 % to 480 V AC +10 %
Voltage difference between the three phases	±2 % of the supply voltage
Mains frequency	50/60 Hz ±2 %
Mains types	TN-S, TN-CS, TN-C, TT and IT mains (to IEC/EN 60364)
Type of protection	IP 55 to EN 60529
Ratings	PumpDrive – 0.37 to 55 kW PumpDrive Eco – 0.37 to 11 kW PumpDrive R (cabinet-mounted) – 0.37 to 110 kW (up to 1.4 MW available on request)
In-service ambient temperature range	-10 °C to +50 °C
In-storage ambient temperature range	-30 °C to +80 °C



Technology that **makes its mark**

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