



The ABS EffeX range
The world's first premium-efficiency
submersible sewage pumps!

A completely new approach

At ABS we make it our business to understand wastewater, whether it is our ongoing investigation into causes of blockage, the reduction of water consumption, changing personal hygiene habits or public opinion on environmental issues.

We also closely follow changes to legislation at the global level that set higher levels of wastewater treatment, and legislation at the equipment level that sets minimum efficiency levels for all energy-using equipment. Thus we make sure we recognise the impacts on our equipment and your business.

A time for change

The pressures on the wastewater business have increased regardless of whether you are a publicly funded municipality, privately owned water company or a private operator of a wastewater collection system.

Now we clearly see an increased focus on energy use with regard to cost and CO₂ footprint, and requirements for fewer blockages and the associated reduced risk of overflows and pressure to keep operator costs under control. Moreover, we must not forget the constant battle to improve service levels for your customers and the quality of treated water.

ABS firmly believes that the time is now right for advancing the design of submersible wastewater pumping equipment. What was acceptable even five years ago no longer comes close to meeting the ever-changing market needs.

Setting new standards

The new ABS EffeX range is not a modification to an existing design but a completely fresh concept in submersible wastewater pumping equipment. Our new range pushes available technology to the limit to achieve a design



In response to numerous global, business and social drivers, ABS is the first to launch a series of premium-efficiency submersible sewage pumps – the new ABS EffeX range.

that not only satisfies today's stringent requirements, but also exceeds planned legislation*. It focuses on delivering the utmost in reliable operation, including advanced designs with greater safety margins, and market-leading blockage resistance offering the best rag handling available on the market today with a minimum free solids passage of 75 mm.

Our ABS EffeX range also sets new standards when it comes to optimum energy efficiency. As it incorporates the first premium-efficiency IE3 motor designed and tested in accordance with IEC60034-30 together with optimised hydraulics, the new ABS EffeX range gives the best total efficiency available on the market today.

The right choice if you want to be first

The ABS EffeX range of submersible sewage pumps offers you a complete solution for your pumping needs. It does this by a combination of much improved reliability, greater energy saving, the highest level of blockage resistance, future-proof designs and a clear commitment to achieving the highest sustainability in both manufacturing and operation.

Simply put: We now give you greater peace of mind in running your wastewater business.



* Contact your local ABS Sales Office for more details.



Six families of ABS EffeX range models will eventually cover virtually all submersible sewage pump applications in the segments Domestic and Commercial Wastewater, Wastewater Collection Networks and Wastewater Treatment.

Now you can make the right choice if you want to be first,
or more importantly,
the first choice if you want to be right!

Premium efficiency and a lot more

A premium-efficiency motor is just one of many benefits you get with the ABS EffeX range. After analysing market needs and the design of our submersible sewage pumps, we have built in a number of new features that makes our ABS EffeX range the best pumps available. The five major features we now offer you are summarised below along with their corresponding benefits. A detailed description of the features is presented when you fold out the middle spread.

Long-term reliability

- Reduced risk of pollution from overflows
- Reduced risk of interruption to services to customers
- Reduced breakdown costs
- Reduced tankering costs
- Reduced maintenance costs

Greater energy saving

- Reduced energy costs
- Smaller CO₂ footprint
- Qualification for capital allowance schemes

Excellent rag handling

- Lowest blockage on the market
- Reduced risk of pollution from overflows
- Reduced risk of interruption to services to customers
- Reduced breakdown costs
- Reduced tankering costs

Future-proof design

- Compliance with planned EU, US and other legislation for conventional motors
- Impeller designs based on future wastewater content
- High reliability to ensure compliance with overflow reduction targets

Sustainable in manufacturing and operation

- Reduced CO₂ emissions in pump manufacturing and operation
- Prolonged pump lifecycle
- Reduced maintenance costs by adjustment rather than repair

Optimal lifecycle operation

The sum total of these five major benefits is optimal lifecycle operation. That is, when you install an ABS EffeX range premium-efficiency pump, you know that no other similar type of pump on the market can match its benefits. ABS EffeX range pumps are designed to reduce energy costs and CO₂ emissions, and to ensure a prolonged lifecycle compared with competitive pumps. Moreover, they comply with forthcoming equipment motor legislation in relevant countries and contribute to sustainable development.





Our ABS Effex range has several built-in features that make them the best submersible sewage pumps available.

Details make the best pump

When it comes to pumping wastewater you have to look at the complete picture. Simply focusing on producing a pump with the best hydraulic efficiency will not result in trouble-free operation. High hydraulic efficiency without excellent blockage resistance, rag handling and free solids passage will only result in more blockage, overflows and increased operator costs.

Similarly, products that focus merely on using low-efficiency impellers that are good for rag handling result in unacceptable much higher energy costs and a bigger CO₂ footprint.

Conversely, our ABS EffeX range is a complete concept that ensures that all aspects of handling wastewater are considered to provide you with several major benefits. These are discussed in detail below.

Long-term reliability

Long-term reliability starts with understanding the application. When we discuss wastewater handling it is clear that it is not the same as pumping a clear liquid. Wastewater pumping is like handling abrasive liquids with a high content of rag and other solids in an application where regular stopping and starting are required.

This subjects equipment bearings and motors to high loads, high wear and poor cooling.

Reliability of the ABS EffeX range starts with built-in IE3 premium-efficiency motors. These give the major advantage of lower operating temperatures (NEMA Class A) along with reducing the need for cooling, considerably improving the bearing environment and reducing load on the stator.

It is also possible to operate smaller motors (PE1 & PE2 pumps) without any cooling. Add to this an increased bearing design life, reduced shaft deflection and increased shaft fatigue safety factors, and you have a highly robust and reliable submersible motor design.

Optimum operating conditions

When it comes to hydraulic reliability, the key is blockage and wear resistance coupled with easy adjustment to maintain optimum operating conditions. The ABS EffeX range makes use of our new Contrablock Plus impeller design with adjustable bottom plate to ensure efficiency and reliability throughout the pump lifetime. Larger pumps also use optimised closed impeller designs to give the best balance between reliability and energy consumption.



Our long-term reliability gives you:

- Reduced risk of pollution from overflows
- Reduced risk of interruption to services to customers
- Reduced breakdown costs
- Reduced tankering costs
- Reduced maintenance costs



Greater energy saving

The impact of good energy management is twofold. Firstly, from a purely operational point of view, good energy management results in lower energy costs, particularly important with ever-increasing energy prices. Secondly, and equally important, is the impact on CO₂ production. Reduced energy used in pumping equipment has a direct impact on the CO₂ footprint of your organisation.



When we consider the energy consumption of pumping equipment, calculations must always be based on the total efficiency of the pump; that is, the sum of the efficiency of the hydraulics and the motor. To achieve the best result one must optimise both efficiencies. It is no good saying we have the best hydraulic efficiency and then fit the hydraulics to a sub-standard efficiency submersible motor.

Highest efficiency available

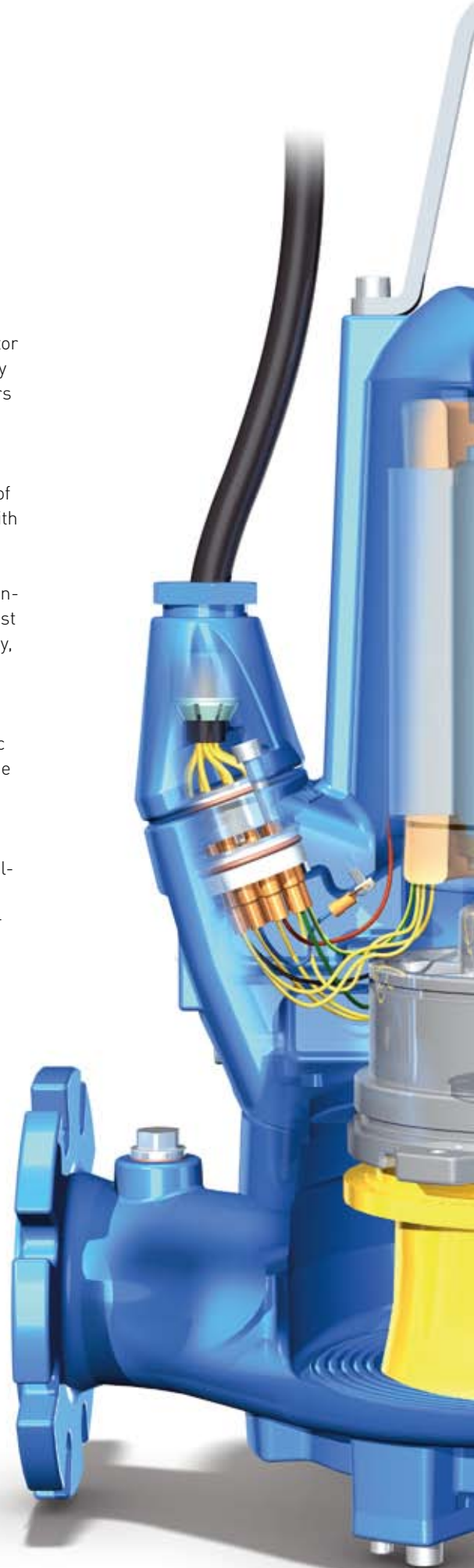
The ABS EffeX range has built-in IE3 premium-efficiency motors in accordance with IEC60034-30 to optimise motor efficiency. And we are the first company in the world to offer submersible motors with such a high standard. The main benefit of using this type of motor is the highest efficiency available on the market without any impact on the risk of increased blockage often associated with hydraulic efficiency.

When we come to hydraulic efficiency, traditional thinking when designing impellers has dictated that you must always compromise between efficiency, rag handling and free solid passage. However, the ABS EffeX range boosts impeller design to the next level and achieves some of the highest hydraulic efficiencies in the market, providing the best resistance to blockage while still maintaining a minimum 75 mm free solid passage.

This is achieved by optimising impellers for efficiency using the latest CFD technology and then completing extensive testing to measure the blockage resistance of the impeller.

Our greater energy saving gives you:

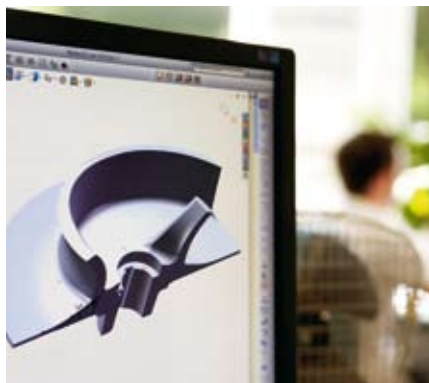
- Reduced energy costs
- Smaller CO₂ footprint
- Qualification for capital allowance schemes





Excellent rag handling

On average, over 60% of the breakdown calls from a typical wastewater pumping station are a direct result of a pump problem. This is probably not surprising as pumps are the only piece of rotating equipment installed in many wastewater pumping stations. But what is most alarming is that when we look at these breakdown figures in more detail, we see that over 60% of the pump-related breakdowns are a direct result of blockage.



This situation has not improved in recent years, and even with all the improvements made to impeller design, reduced water consumption and changing personal hygiene habits still continue to increase blockage problems.

New impeller concept

Our ABS EffeX range makes use of a completely new impeller concept called Contrablock Plus. This solution takes the best of the tried and tested Contrablock designs and adds new functionality to enhance the levels of blockage resistance above that of any other supplier on the market. In addition, we ensure that the free solids passage is never reduced below 75 mm to give a further level of protection against blockage.

How can we be so sure of our designs? Because ABS has invested in over 5,000 man-hours in blockage testing, understanding the content of wastewater, benchmarking available designs and optimising the impellers used in the ABS EffeX range.

Our excellent rag handling gives you:

- Lowest blockage on the market
- Reduced risk of pollution from overflows
- Reduced risk of interruption to services to customers
- Reduced breakdown costs
- Reduced tankering costs

Future-proof design

Earlier we talked about anticipating the future, trying to understand the trends and forthcoming requirements of the wastewater market. What do we see?

Firstly we can observe the changing characteristics of wastewater, driven mainly by the reduction in water consumption and changes to personal hygiene habits. Have we seen the end of this change? No, the general feeling is that water consumption will continue to reduce with the consequent increase in rag content.

We can also see legislation and other incentives push all users of energy-using products (EuP) to install higher-efficiency and explosion-proof units. There is already legislation in place controlling circulator pumps with others to follow, including submersible pumps.



Our guiding principle when looking at the manufacturing phase is to minimise the consumption of resources. This means designing products that have a long design life and which can be kept running at their optimum performance for a long period of time.

The key benefit achieved here is the optimisation of CO₂ used in the operating phase while significantly reducing the overall CO₂ footprint of the product during its lifetime.

When it comes to the operating phase, we keep the energy consumed to a minimum with the equipment running most efficiently throughout its design life.

Already way ahead

The ABS EffeX range looks to the future; it already more than complies with any legislation under discussion with regard to motor efficiency, hydraulic or total efficiency. With regard to rag handling, the new optimised impeller designs take into account reduced water consumption and increased rag content. The levels of reliability are again in excess of the requirements of global legislation controlling the standard of wastewater collection networks. All models have Ex-configuration as standard.

Our future-proof design gives you:

- Compliance with planned EU, US and other legislation for conventional motors
- Impeller designs based on future wastewater content
- High reliability to ensure compliance with overflow reduction targets

Sustainable in manufacturing and operation

ABS believes in long-term relationships with our customers. To achieve this we must ensure that our business and that of our customers are sustainable in the long term. We also believe in looking far ahead when designing products to make sure that we minimise our impact on the environment with regard to both the manufacturing and operational phases of a product lifetime.

Long product lifetime

The ABS EffeX range scores highly on both counts. The models are designed with easily adjustable features that prolong the life of components while maintaining optimal performance.

Moreover, the long life of all components and the highest total efficiency available on the market ensure that the environmental impact of our premium-efficiency submersible sewage pumps is minimised without compromising operational reliability

Our sustainability in manufacturing and operation gives you:

- Reduced CO₂ emissions in pump manufacturing and operation
- Prolonged pump lifecycle
- Reduced maintenance costs by adjustment rather than repair



A total solution supplier

It's not surprising that ABS is the first worldwide to introduce premium-efficiency submersible sewage pumps. Our long history of innovation includes being first with high-efficiency pumps, introducing our new Contrablock Plus impeller design that offers the highest available resistance to blockage on the market today, and our AquaWeb advanced alarm management system for wastewater.



Your long-term partner

Our strength lies in the unique ability to combine products, services and application know-how into diverse solutions that satisfy a variety of application needs. When you choose us as your solution provider you get:

- A long-term partner from design to operation
- Application expertise and process know-how
- Reliable solutions that enhance process efficiency
- Strong relations through support and after-sales service
- The most complete range of products on the market

ABS solutions not only increase process efficiency, but also enhance overall process performance. Combined with our control and monitoring equipment and services, they provide peace of mind in any wastewater application.

A wealth of expertise

Advanced R&D, backed by an engineering heritage going back over 100 years, forms the backbone of our competence and expertise in the design and installation of centrifugal pumps. This, combined with our know-how in wastewater applications, enables us to offer integrated pump solutions that are designed and sized to perfectly match the conditions of your wastewater system. We also provide installation, operational optimisation and training of a customer's own maintenance personnel.

Service, spares and asset management

Our comprehensive range of services tailored to your needs includes:

- Planned maintenance, workshop repair, spares and spare parts kits, replacement and upgrading
- Installation, operational support, telemetry and diagnostics, equipment optimisation, asset management.

Flexible and responsive

ABS uses high-quality materials and manufacturing techniques with all its product ranges. We have a very modern manufacturing machine park, including our own production equipment operated by highly skilled personnel.

In our efforts to offer high-performance products, we work in close cooperation with our customers to receive important feedback for continuous product improvement.



Make the right choice and choose ABS as your partner in wastewater handling.



At the forefront of wastewater technology

ABS has a long tradition in the wastewater industry with more than 100 years of application experience and manufacturing of customer-oriented solutions based on the latest technology.

We develop and supply individual products and integrated solutions for use in the wastewater segments: Domestic and Commercial Wastewater, Wastewater Collection Networks and Wastewater Treatment. ABS is the main brand of Wastewater Technology, which is one of four divisions of the Cardo Group. Cardo is listed on NASDAQ OMX Stockholm and has its headquarters in Malmö, Sweden.

ABS Group

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