



NO COMPROMISE

Highest total efficiency wastewater pumping

ULTIMATE WASTEWATER PUMPING TECHNOLOGY

The renewed and expanded range of Grundfos SE and SL wastewater pumps continue the tried and tested SE and SL story, providing technologically advanced pumps for wastewater pumping.

Designed for demanding situations, the Grundfos SE and SL pumps show our no compromise approach to innovative technologies and functionality, ensuring optimised performance and pumps with the highest wire-to-water efficiency yet. The SL range is for submerged installation and the SE range for dry and submerged installation.

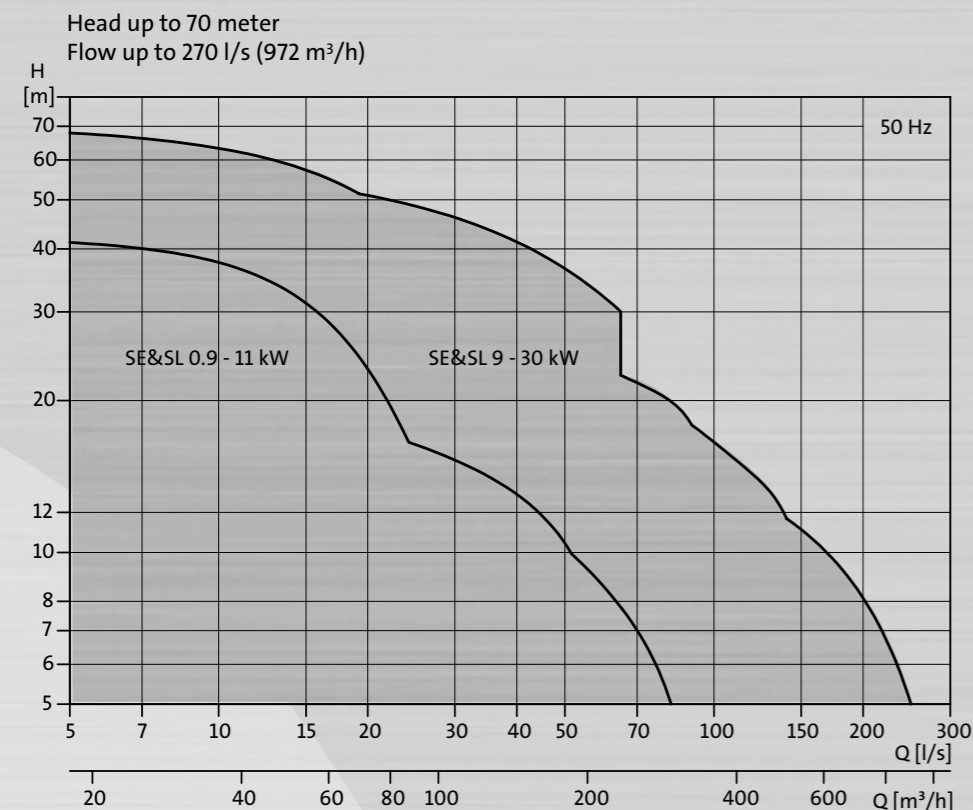
New state-of-the-art hydraulics

The very nature of wastewater is challenging, with dry solids content varying over time. Similarly, water use has not remained static either. However, the demands on the wastewater pump remain the same:

In addition to being as efficient as possible, it must also pump media containing large solids, rags and fibres without clogging the pump.

The SE and SL ranges are available with the **S-tube** impeller – the only impeller on the market designed to take on these challenges. The simple and robust design of the **S-tube** impeller meets the requirements of today's wastewater with varying solids content, offering world class hydraulic efficiency without compromising free passage.

HIGHEST EFFICIENCY OVER A WIDER RANGE



Performance range of the combined SE and SL pump program

DESIGNED WITH STATE-OF-THE-ART HYDRAULICS

When we decided to develop brand new state-of-the-art hydraulics, we looked at the technologies available on the market and decided that we had to keep things simple. We were not just chasing the highest efficiency at a specific duty point; we wanted our new hydraulics to have extremely high efficiencies over a wider range of the curve than can be seen in the market since wastewater pumps always run with varying loads.

The **S-tube** impeller developed by Grundfos includes a tube-shaped impeller and a pump housing around it that matches the tube shape through the entire pump. This is a new and unique hydraulic solution that contributes to making the SE and SL ranges the most innovative and efficient wastewater pumps available today.

The **S-tube** impeller is not only dynamically balanced in air, but also whilst submerged in water. This lowers the vibration level dramatically.

Highest efficiency and largest free passage

When you experience the **S-tube**, you get the highest efficiency over a wider range, the largest free passage and the lowest vibrations, and there are no edges, dead zones, cutting functions or alternative constructions that will get worn over time. We have created an impeller that is quite simply the best at fulfilling the core function for which a wastewater impeller is designed: providing the user with trouble-free operation at the highest possible efficiency.

This really is simplicity at its best. As the **S-tube** increases in flow range, the simple design means that the free passage also increases.

THE BEST TOTAL WIRE-TO-WATER EFFICIENCY

Although the pump system may not be the largest single investment in the wastewater installation, over the time from cradle to grave, it is the component in the system that is the key element to ensuring long-term cost-effectiveness of the wastewater installation. Therefore it is important that we and our customers have a common understanding when we talk efficiencies.

When we say total efficiency, we mean the total, wire-to-water efficiency. In a wastewater pump there will be electrical, mechanical, and hydraulic losses. A pump manufacturer needs to master all of these without compromising reliability. At Grundfos, we do precisely this and can therefore supply high efficiency products.

We have listened to and understood our customers' concerns with the costs they incur for inefficient operation, maintenance and downtime.

When you package the innovative, elegant and simple **S-tube** impeller in the outstanding SE and SL ranges of submersible wastewater pumps and add super intelligent and self-adaptive controls and motors with market leading efficiencies, we truly believe we are looking at the ultimate in wastewater pumping technology with the best total, wire-to-water efficiency yet seen.



HEAVY DUTY DEPENDABLE OPERATION, SUBMERGED OR DRY-INSTALLED

The key to optimising performance in your system is to minimise known risk factors and reduce maintenance requirements. The SE and SL ranges are available in multiple versions from 0.9 to 26.5 kW

The SL range is for submerged installation and the SE range for dry and submerged installation.

These pumps can handle drainage and surface water, domestic, municipal and industrial wastewater, and process water.

They are designed for the transfer of water and wastewater in:

- Network pumping stations
- Wastewater treatment plants
- Public buildings
- Industry
- Water harvesting

The SE and SL ranges of wastewater pumps can be permanently installed using an auto-coupling guide-rail system or with a fixed pipe connection, and are also for freestanding installation as transportable utility pumps. SE pumps can in addition be vertically and horizontally dry-installed.

Perfect for your refurbishment project

These products leave a small footprint on your existing installation. By this we mean that you can replace your wastewater pumps with new SE and SL pumps, without necessarily having to change your system or sump.

This means the benefits of high total efficiency pump operation are immediately available to you on the basis of minimal investment.

Material variants for demanding applications

A number of material variants are available for SE pumps, from variants with a stainless steel impeller to stainless steel variants for aggressive environments, meeting the standards EN 1.4408 and EN 1.4517/1.4539. A stainless steel impeller is available for SL pumps.



TECHNOLOGIES FOR THE SE & SL RANGES

At Grundfos, our commitment is to introduce breakthrough technologies for the wastewater market, raising the bar and setting new standards for wastewater pump systems and solutions.

functionality and the **S-tube** impeller ensure the best total efficiency, the lowest life cycle costs and trouble-free operation for your wastewater pump systems and solutions.

Optimum wire-to-water efficiency is ensured by the technologies that we put into our pumps and pump systems. The highest motor efficiency, the adaptive intelligence that can be built in, the user-friendly design and



Grundfos Blueflux® guarantees the highest motor efficiency from Grundfos. The Grundfos Blueflux® label guarantees that the motor technology used is ahead of current market standards, and either meets or exceeds global legislative requirements for motor efficiency, where these apply.



AUTOADAPT is the intelligent controls that allow a Grundfos pump system or solution to autonomously adapt its operation to dynamic operating conditions in the application. This results in a substantial reduction in service calls, savings on energy consumption and on installation and commissioning costs. **AUTOADAPT** opens up for the benefits of remote surveillance, controls and management, making life easier while saving time and money.



What we call **smartdesign** describes the functional design of our products that combines elegant appearance with smart features, created with customer needs in mind. **smartdesign** doesn't only look good; the design also makes installation, operation and maintenance of the product easier and more user-friendly.



The **S-tube** impeller is the only impeller available in the wastewater market that does not compromise either hydraulic efficiency or free passage through the pump. Offering simplicity in design and operation, we expect the **S-tube** impeller will be the impeller of choice for wastewater applications in the future.

WHAT THESE PUMPS CAN DO FOR YOU

Shared between the SE and SL wastewater pumps are a range of features offering functionality that meets your needs. Installation, operation and maintenance of your SE or SL pump are made easy and user-friendly. Also available in stainless steel versions, the SE and SL ranges of pumps can be tailored to your requirements.

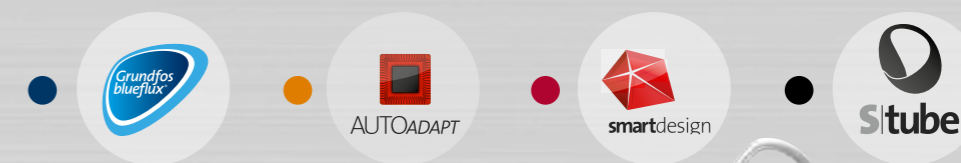
- **IE3 motor**
The highest standards of motor efficiency ensure substantial energy and cost savings.
- **Intelligent adaptive controls**
AUTOADAPT builds intelligent monitoring and controls into the pump system, ensuring tangible benefits during the operational cycle. Installation and commissioning costs are reduced substantially, pump reliability is increased, and operation is with low energy consumption.
- **Integrated analogue sensors**
In addition to the standard thermal sensors in motor windings, many analogue sensor options and a digital leakage sensor offer complete monitoring of pump condition, offering you the advantage of continual surveillance, warnings and alarms.
- **Lifting handle**
The lifting handle is designed for optimum point-of-balance, ensures correct lifting and will protect the auto-coupling sealing.
- **Smooth, easy to clean surface**
The extremely robust impact-resistant surface is smooth and easily cleaned.
- **One cable to the pump**
With just one cable containing sensors and power supply, an important at-risk area is removed, simplifying pump installation, commissioning and maintenance.
- **Easy-to-remove cable entry**
The innovative and patented stainless steel cable entry ensures that liquid cannot penetrate through the cable inlet into the motor and is easy to dismantle in case of service.
- **Patented SmartSeal**
The patented Grundfos SmartSeal auto-coupling gasket provides a completely leak-proof connection between the pump and the base unit of the auto-coupling system.
- **Easy to open clamp (up to 11 kW)**
The stainless steel clamp assembly system requires no tools for the quick and easy disassembly of pump from motor unit, offers easy access for pump maintenance. The bolts used on larger pumps are easy to remove and do not require special tools.
- **Double mechanical shaft seal**
Primary and secondary seal in one cartridge unit providing longer seal lifetime and easy fail-proof replacement - even in the field. Replacement can be done without special tools.



- **Short rotor shaft**
Compact motor construction reduces vibrations to protect shaft seals and bearings, and this ensures longer operational lifetime with less maintenance.
- **Liquidless motor cooling (SE less than 11 kW)**
Solid-block stator housing with built-in cooling conduits efficiently transfer excess heat to the pumped liquid via a solid cast iron flange, for continuous operation, even in dry installations.
- **SmartTrim**
Patented easy adjustment of the factory-set impeller clearance helps maintain maximum pump efficiency and does not require special tools or dismantling the pump.

OPTIMAL IMPELLER CHOICE:

- **Greater free passage – SE1/SL1 pumps**
For applications with required high operating hours and where dry matter content is up to 3%, the S-tube impeller with spherical free passage up to 160 mm is perfect. The world class hydraulic efficiency that doesn't compromise free passage means better solids handling capabilities and greater non-clogging capabilities.
- **Higher dry matter content – SEV/SLV pumps**
For applications with required low operating hours and where dry matter content is over 3%, the SuperVortex impeller with spherical free passage up to 100 mm is ideal. The vortex generated in the pump housing keeps fibres or gassy sludge moving, ensuring trouble-free operation.





See more at:
www.grundfos.com/no-compromise