Reliable and trouble-free operation

GRUNDFOS

Keep operation reliable with all wastewater flows

The pump is at the core of any wastewater network. Wastewater requirements are ever-changing, and this impacts pump reliability and durability. Keeping the reliability of wastewater pumps high requires that we continuously focus on improving hydraulic design and material choices. With a relentless focus and by setting new standards, we are able to ensure further reductions in downtime for the pump.

As the world's largest pump manufacturer, Grundfos continues to develop and improve pump design. We push the limits of what is possible for hydraulic concepts in a simple and robust design, with self-cleaning capabilities and reduced wear and tear of components. In addition, the quick and easy replacement of wear parts restores the pump to original factory performance. This helps reduce operating costs and downtime even further, with the added benefit of enhancing the owner's sustainability profile.

Starting with a quality pump at the core offering trouble-free operation, we add the benefits of energy savings, system optimisation and lower total cost of ownership. Increasingly, our solutions are digitally enabled, to exploit further the benefits of smarter asset management in a truly connected system.

INNOVATION A PART OF WHO WE ARE

At Grundfos, we have approached water in this way since 1945. The result: We make it easy for operators and owners of wastewater networks to improve reliability and take advantage of synergies when scaling up operations.

We continue to challenge and push the limits for what you can expect from a pump in a wastewater network:

- We collect feedback continuously from customers about their most challenging applications.
- We use advanced in-house simulations, product design and test programs, optimising the operation and efficiency.
- We conduct component and product testing for functionality and durability followed by testing in challenging installations around the world prior to market release.

A FRONTRUNNER IN INNOVATIVE TECHNOLOGY

1950	First submersible motor
1982	First solar-driven pump systems
1990	First submersible pump with motor running 23,000 rpm to keep unit compact
1993	First VFD build into submersible motors
2000	First variable-speed stepper motors in precision dosing pumps
2010	First wastewater pumps with build in sensors and smart technology, for full autonomous operation
2012	First wastewater pumps with S-**tube®** impellers
2021	First wastewater pumps with open S-**tube®** impellers

Wide range of application and installation options

SE/SL pumps are available in multiple versions from 1 to 63 kW/1.5 to 84 hp. These pumps can handle drainage and surface water, domestic, municipal and industrial wastewater, and process water. They are designed for water and wastewater transportation from water utility, commercial and industrial applications, and are ideal for network pumping stations and wastewater treatment plants.

INSTALLATION OPTIONS

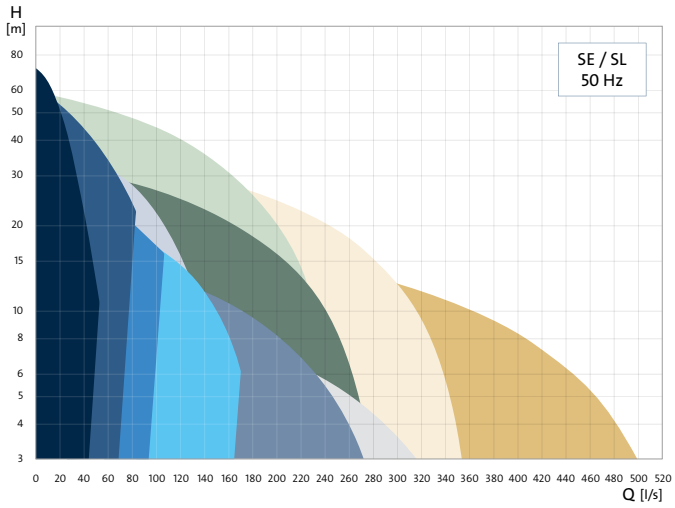
The SL range without cooling jacket is for submerged installation, and the SE range with cooling jacket is for all installation types, both dry and submerged. Submerged installation can be with an auto-coupling system, or free-standing as a transportable utility pump. SE pumps can be dry installed either vertically or horizontally, offering versatility for your project.

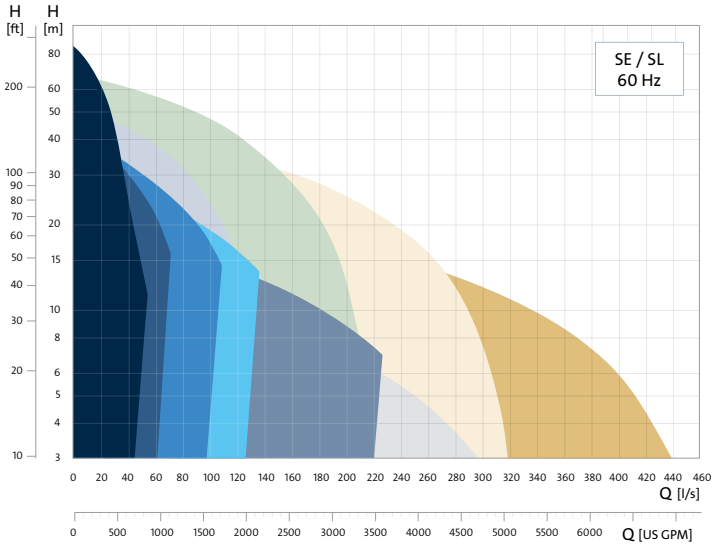
LOWER COST OF OWNERSHIP

Pump uptime and functional performance is central for keeping cost of ownership low, because unplanned callouts and breakdowns are very costly and potentially a risk to the environment. For the SE/SL range of wastewater pumps, this is achieved with a design focus that ensures:

- Reliable operation with optimised flow
- High wire-to-water efficiency
- Many customisation possibilities
- Easy and predictive maintenance

Frame size 52	Frame size 56
SLV/SEV (High)	**SE/SL** (High)
SL/SE/SL1/SE1 (Super-high)	**SE/SL** (Medium)
SL/SE/SL1/SE1 (High)	**SE/SL** (Medium)
SL1/SE1 (Medium)	**SE/SL** (Low)
SL2/SE2 (Low)	
SL2/SE2 (Extra-low)	
SE/SL (High)	





Proven reliability in installations around the world

USA

Clogging and repetitive maintenance issues were resolved by installing an SE pump in a municipality in Florida.

THE NETHERLANDS

The Water Authority Vechtstromen installed an SE pump and kept operations reliable.

DENMARK

A Danish municipality installed SE pumps to resolve clogging issues, resulting in no callouts since installation.

Complete range of hydraulic solutions

SE/SL pumps come with a range of hydraulic designs for reliable and efficient operation with the highest level of performance in all wastewater applications:

S-**tube®** closed impellers with one or two channels provide large free passage and high efficiency. SE/SL pumps fitted with the closed S-**tube®** impeller are ideal for low to medium contaminated wastewater.

Open S-**tube®** semi-open impellers provide high efficiency over a wide operating range. They can be trimmed to meet a specific duty point, and SE/SL pumps fitted with Open S-**tube®** impellers are the ideal solution for medium to extreme contamination of wastewater.

SuperVortex free-flow impellers are ideal for challenging applications with high abrasives content or long fibrous materials.

High energy efficiency

SE/SL pumps offer both high wire-to-water efficiency and high motor efficiency with IE3/IE4 compatible components, keeping the total energy consumption at a minimum. After being in operation for some time with wear and tear, the SE and SL pump ranges can easily be serviced, and performance and efficiency restored to original factory level.

Many customisation possibilities

Besides a broad range of products, SE/SL pumps offer a wide range of customisation options, such as EMC screened cables and various test reports and certificates. To extend suitability for corrosive and aggressive applications, we offer various advanced coatings and material variants including duplex stainless-steel impellers.

CAST IRON
The most widely used material in wastewater pumping applications, cast iron is relatively low-cost and has good machinability. For most wastewater applications it has good wear resistance.

STAINLESS STEEL
Stainless steel is a group of ironbased alloys with a composition that gives excellent corrosion resistance, making this material variant suitable for industrial applications.

WHITE IRON
High chromium white cast iron is a ferrous alloy. This combination gives it a very good wear resistance when compared to other metallic materials and better abrasive resistance than cast iron.

The hydraulics design ensures the impeller and volute are self-cleaning, and this maintains the highest degree of efficiency and performance for handling wastewater containing solids, rags and foreign objects.

Easy maintenance

SE/SL pumps are designed with easy service in mind. This is shown by many of the design features that are a part of the pump:

- The cable inlet is a plug solution that can be removed on site. The pump can easily be lifted without having to remove the cables and even without compromising the sealing when mounting the cable again.
- The shaft seal is made as a cartridge unit including both the primary and the secondary seal. This means the seal faces are protected and cannot be damaged or mounted wrongly during assembly.
- Replaceable wear rings or SmartTrim functionality to maintain high efficiency operation
- As standard, SE/SL pumps are protected with an advanced environmentally friendly coating consisting of a priming by electrocoating bath covering all surfaces.
- A top powder coating provides very strong corrosion protection and an easy-to-clean smooth surface. Because all surfaces are coated, repair of paint is not required following service repair.

Connectivity and communication

SE/SL pumps come with a range of sensors built-in that monitor the condition of the pump and the installation. to ensure optimal and reliable operation. As standard, pumps are fitted with thermal protection and sensors to monitor ingress of moisture from either the atmospheric or media side. Additionally, our pumps can be customised with sensors to monitor temperature and vibration levels.

All signals from the pumps can be monitored on the local pump station controller or sent via Grundfos communication units to a SCADA system, or to a smartphone or tablet.

Installation accessories

Grundfos offers an extensive range of application and product specific installation accessories for SE/SL pumps to ensure easy and safe installation and long-term efficient operation. Installation equipment developed by Grundfos is engineered with robustness, reliability and compatibility as the main priority. If you require further information, design and engineering manuals for wastewater installations and applications are available from www.grundfos.com.

Full range of monitoring and controls

With a Grundfos monitoring and control system, you get the information you require to maintain and optimise your wastewater system. You gain effective alarm handling, surveillance and scheduling of workflows. A complete package of monitoring supported by our service offerings reduce downtime in the system, saving time and costs in your operations.

OUR FULL RANGE INCLUDES:

DEDICATED VARIABLE SPEED DRIVES
Grundfos CUE variable speed drives are optimised for operation of wastewater pumps with built-in start-up guide for easy commissioning. When used together with Dedicated Controls, you get added functionality such as automatic energy optimisation.

CONTROLS FOR LARGER STATIONS
Dedicated Controls is an advanced control system for network pumping stations with up to six pumps at each station. Extremely easy to set up and configure, you know the performance of each pump, each pit and the entire network.

CONTROLS FOR STATIONS WITH A MAXIMUM OF TWO PUMPS
Designed for installations with one or two pumps, the Grundfos LC 231/241 level controller is ideal for in wastewater applications. The controller is equipped with predefined settings to fit these applications for an easier and quicker start-up in the specific application.

Save time with Grundfos Product Center

Whether you are looking for a new or a replacement pump, our online selection and design tools are easy to use, address the key choices to be made and provide information for system design, operation and maintenance. We offer a full performance program that meets exact customer requirements, also for the most demanding applications.

Access Grundfos Product Center directly from our website and get all product information in one place, optimised for your PC, tablet or smartphone.Visit www.product-selection.grundfos.com

Global service and support

Water Utility applications generally have significant maintenance needs. That is why Grundfos approaches service with both traditional and connectivity-based services. In addition to our global service operations, our experience with water technology and wastewater applications helps us support you better.

SE/SL pumps are designed service-friendly and include easy-to-install components with fail-proof replacement, when required. Our approach increases pump reliability and component lifetime while reducing costs. Services include:

COMMISSIONING
Correct installation and commissioning of wastewater pumps reduces the risk of overlooking important activities that can affect future pump operation. We share our best-practice product support and back this with full documentation.

REPAIR, SPARE PARTS AND REPLACEMENT
Grundfos pumps are designed for easy service with less need for special tools and onsite repairs. With our global presence, quick delivery of critical service kits and parts helps you ensure optimal operation time.

CONSULTANCY AND INSPECTION AUDITS
Grundfos offers optimisation services to reduce energy consumption, improve pump efficiency and find the hidden savings in your pumps. For example, Energy Audit is a diagnostic tool offering a detailed, measurement-based analysis of your current pump performance with suggestions for future energy savings and improved performance.

DIGITALLY ENABLED CLOUD-BASED SERVICE SOLUTIONS
Transferring and utilising pump operational data lets us help you initiate predictive maintenance, reduce system or pump failure to a minimum and ultimately save costs. You are continuously informed and forewarned about the occurrence of incidents during operation.

Grundfos

Grundfos is a full-range supplier of intelligent pumps
and systems for all water supply and wastewater applications.

Grundfos products and solutions for wastewater transport, flood control and the wastewater treatment plant build on reliability, modularity and energy efficiency from optimised pump systems and modular solutions.

Find out more at www.grundfos.com

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