

GRUNDFOS SQ/SQN

MEETING YOUR WATER SUPPLY NEEDS

THE CHOICE IS YOURS



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THE CHOICE IS YOURS

The SQ pump is the basic model of the Grundfos 3" submersible pump range. With a wide range of performance parameters, you're sure to find a model that will suit your individual requirements.

Long and lean, this multistage pump is constructed of corrosion-resistant stainless steel, ensuring a long, reliable life. Only 3" in diameter, the compact design allows placement in small boreholes of the same size, or even 4" boreholes that have become smaller due to ochre deposits. Other pumps with similar capacities are usually 4" in diameter.

The SQ single high-speed pumps are ideally suited for a variety of applications:

- Domestic water supply
- Small water works
- Irrigation
- Groundwater lowering

PERMANENT MAGNET MOTOR

A series of unique features make the SQ series very easy to install and operate, and ensure a reliable water supply at all times. Thanks to its' high-speed permanent magnet motor, it offers a very high performance in relation to its compact design.

The motor enables the SQ to pump water from a borehole to a depth of 238 metres.

The special SQN pumps are engineered in an even higher grade of stainless steel for applications with slightly aggressive liquids.

YEARS OF RELIABILITY

The individual models of the SQ series are composed of high-quality stainless steel. Combining this with a robust internal construction and sturdy impellers provides the user with years of reliable operation.

PROTECTION AGAINST DRY RUNNING

Dry running is one of the most disastrous situations a pump can experience. The absence of liquid can cause the pump shaft to seize up, initiating the burn out of motor windings, unless the power is switched off. In case of dry running the SQ pump automatically switches off.



GRUNDFOS SQ/SQN – an outstanding solution

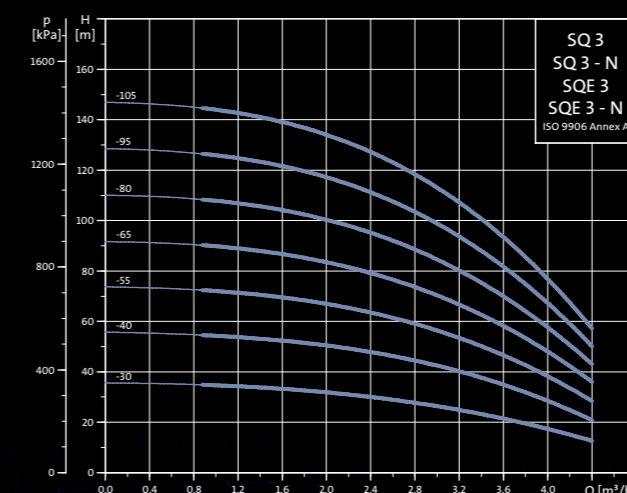
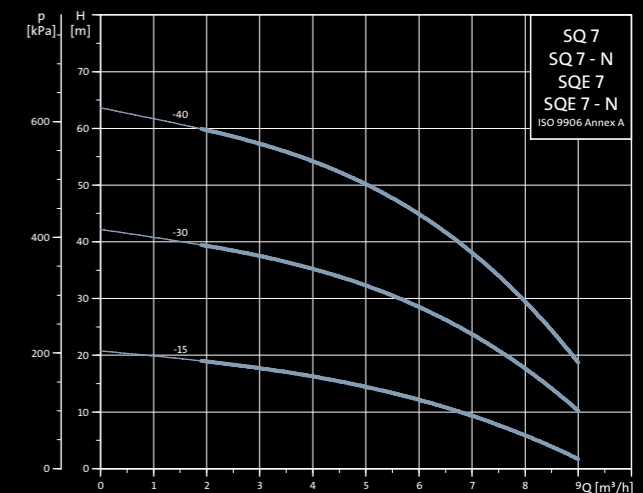
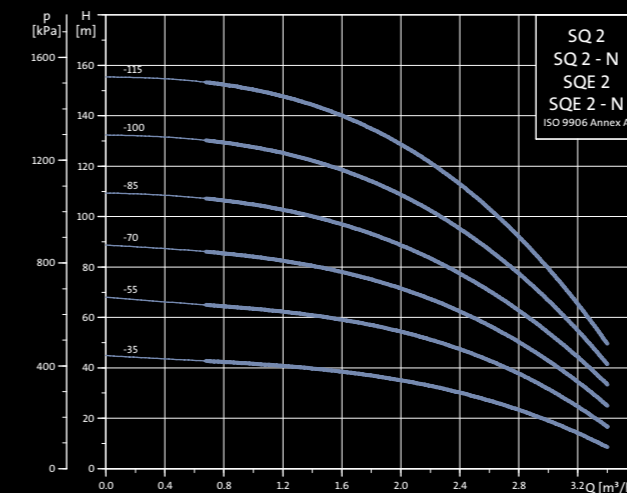
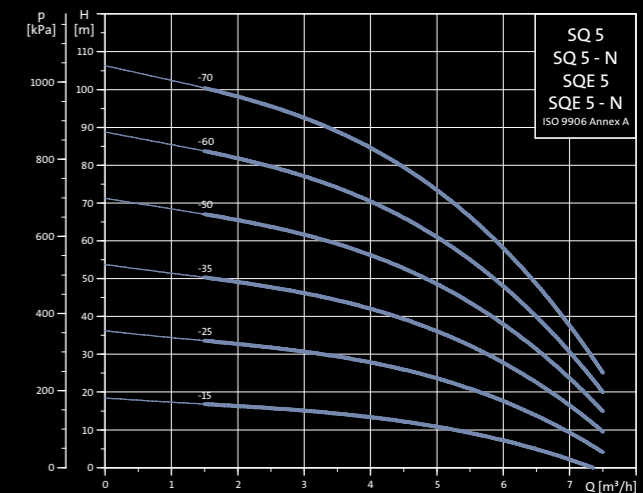
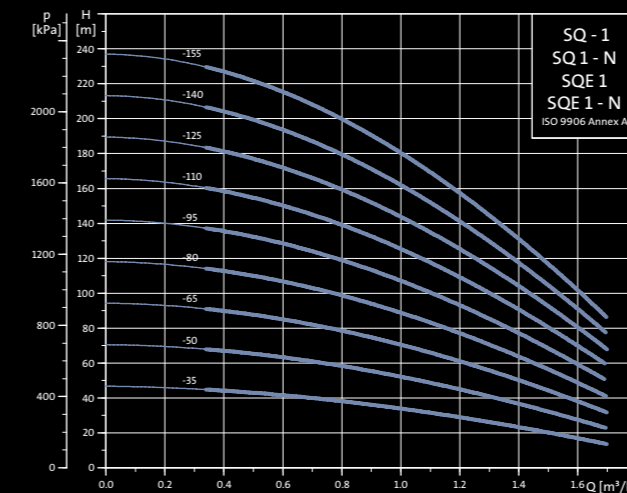
- Soft start reduces wear on motor and prevents spikes in electrical demand
- High starting torque, even at low supply voltage
- Overload protection protects motor from unstable voltage supplies
- Dry running protection safeguards against damage from an absence of liquid
- Automatic re-start ensures a reliable water supply following preventative shutdown
- 100% stainless steel construction provides durability and peace-of-mind

Technical information

Performance range: Flow up to 9m³/h (SQ/SQN 7), Head up to 238 m (SQ/SQN 1)
 Nominal voltage range: 1x200-230V
 Frequency (of the voltage supply): 50/60Hz
 Max. acceptable media temp: 30°C (40°C)
 Pump diameter: Ø74mm

Weight (min./max.): 4.7 - 6.4 kg
 Thread connections: RP 1¼ / RP 1½
 Minimum well diameter: Ø76mm
 Materials (Stainless steel): SQ - DIN W.-Nr. 1.4301, AISI 304, SQN - DIN W.-Nr. 1.4401, AISI 316

The SQ/SQN pumps can be installed vertically or horizontally.



SUBMERSIBLE SYSTEMS STRENGTH, PERFORMANCE AND EFFICIENCY



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COMPLETE SUBMERSIBLE PUMP SYSTEM

The SP range is your guarantee for reliable water supply and is capable of handling flows up to 1,400 gpm (318 m³/h) and head up to 2,800 ft. (853 m). With the new, updated 4" range Grundfos can equip any application with a complete SP system to optimize performance and energy efficiency. Should you require more components to accommodate your specific needs the flexible system easily makes room for these.

A complete system combines a stainless-steel SP submersible pump, an MS/MMS motor made to match the pump, a dedicated electronic motor protection unit or variable speed drive, and Grundfos GO. The complete package gives you total peace of mind by making sure your water supply application works every time.

THE PUMP

SP pumps combine the very best materials with superior hydraulic design.

- Efficient, reliable pumps
- Customization of products
- High availability through local Sub Factories and distributors
- A wide range of pump diameters and flow rates

THE MOTOR

For reliability, high efficiency and to keep lifecycle costs low, we build the motor to match the pump. We have been doing this for more than 30 years and our submersible motor know-how is unsurpassed.

- MS and MMS submersible motors have been specially developed for the SP pump
- Motors that match the best efficiency point of the pumps
- Motors are available in various grades of stainless steel
- Reliable and corrosion resistant
- Long life even in rough conditions

CONTROLS AND MONITORING

Add functionalities and increase reliability of the SP system by using a motor protection unit (MP 204) or a variable frequency drive (CUE, CU331SP), and Grundfos Grundfos GO.

- Variable frequency drive (CUE, CU331SP), for speed, pressure, level and flow control of the pump
- Full control over your pumps on the go; you can change configuration parameters and monitor electrical data
- Protection of all vital pump parameters, including dry running and overload
- Trouble-free operation
- Reduced need for pump service
- Quick and easy access to information
- Compatible with MP204



STAINLESS STEEL FOR ALL ENVIRONMENTS AND APPLICATIONS

SP systems are used worldwide wherever efficient water handling is called for. The main application areas are irrigation of farmland and groundwater extraction for tap water, but there are many other, more specialized uses. Wherever you need water to move, SP systems will do it with complete reliability.

- **Reliability** – 100% high-grade stainless steel inside and out with resistance to sand and corrosive water built in
- **High efficiency** – superior hydraulics and a motor that is made for the pump result in superior efficiency
- **Lower lifecycle costs** – the system approach keeps reliability and efficiency high and reduces costs over the product lifetime
- **Testing performance to the highest standards**
- **A wide range** – available in 4, 6, 8 and 10 inch diameter versions with flow rate up to 1,400 gpm (318 m³/h) and head up to 2,800 ft. (853 m)



FIND FULL DATA ONLINE

Complete data is available at our online library at product-selection.grundfos.com



EXPERT DESIGN, EXPERT TESTS

The current SP pumps are the result of decades of experience and constant improvements.

Grundfos has a state of the art facility where pump performance is tested to the highest standards in the industry.

A CLOSER LOOK AT THE SP PUMP



- **Improved octagonal discharge**
Ensures better engagement with a pipe wrench for easier and safer attachment to the drop pipe
- **Improved cable guard attachment**
Screw mounted to ensure a secure fit
- **Built-in check valve**
All SP pumps are delivered with a check valve to minimize the risk of water hammering
- **Corrosion resistant**
Robust stainless steel construction - 304, 316, 904L
- **Wear resistance - less abrasive wear**
Octagonal bearings and sand flush channels remove particles with the pumped water. Sand resistance is further increased by using the bearing offering longer life in sandy environments
- **Optimized hydraulics**
For increased performance and higher efficiency
- **Viton and Teflon parts**
This option makes the SP suitable for water slightly contaminated with, for example, oil
- **Stop ring**
Protects the pump in case of up thrust
- **Customized solutions**
Contact your Grundfos distributor if you require a SP system tailored to your specific application

MOTORS MADE TO MATCH THE PUMP

Grundfos has been making submersible motors for more than 30 years and is one of the world's largest manufacturers of high-quality submersible motors. The MS and MMS submersible motors are not only rated among the very best on the market for use with submersible pumps of any make, they are also designed to be the perfect fit for the SP pumps, matching their best duty points.

- Canned MS motors, 4" and 6", up to 40 HP (30 kW)
- Rewindable MMS motors, 6" - 10", up to 250 HP (187 kW)
- Water-filled motors and drinking water-approved cables
- Overheating protection with Tempcon (MS) or Pt 100/1000 on request
- Mechanical ceramic/carbon shaft seal – SiC/SiC shaft seal optional for high sand resistance
- Warm water versions available – up to 140°F (60°C)



MS: COMPACT AND EFFICIENT

The MS range of canned submersible motors comes in sizes of 4" and 6".

- **MS 402**
Designed for the domestic ground water market and covers outputs up to 3 HP (2.2 kW)
- **MS 4000/MS 6000**
Covers a range of water supply applications that require power up to 40 HP (30 kW)

All external surfaces of Grundfos MS motors in contact with water are made of stainless steel AISI 304 (EN 1.4301) unless otherwise specified. R-versions made from AISI 904 L (EN 1.4539) are also available for aggressive water.

MS motors are fitted with a built-in Tempcon sensor to monitor the motor's operation temperature – a solution which together with a Grundfos MP 204 eliminates the need for external temperature sensors.

MMS: POWERFUL, EFFICIENT, AND EASY TO REPAIR

The MMS range of rewindable motors is available in sizes 6", 8" and 10", up to 250 HP (187 kW). They are suitable for any submersible installation, including heavy-duty industrial applications and dewatering operations.

A CLOSER LOOK AT THE MS/MMS MOTORS



- **Replaceable shaft seal**
Our SiC/SiC seal is standard across the range, offering longer life in sandy and abrasive applications
- **Tempcon sensor (MS)**
MS motors are available with a built-in Tempcon or Pt 100/1000 temperature sensor, eliminating the need for extra cables or sensors
- **Corrosion resistant**
The MS/MMS motors are available in 304, 316, and 904L stainless steel options to match the corrosion resistance of the SP pump. All stainless steel construction standard on 6-inch range (MS 6000C)
- **Industry leading thrust capacity**
Michell-type thrust bearings with high thrust capacity. Quickly builds up a water film during start-up to ensure high thrust capacity
- **Motor protection and monitoring**
Optimize reliability and monitor performance by using a motor protection unit, a variable frequency drive and remote management
- **Warm water versions**
Available for temperatures up to 140°F (60°C) for MS and 122°F (50°C) for MMS motor series

CONTROL AND MONITORING FOR ALL SITUATIONS

As part of the SP system, Grundfos offers reliable, easy to set up and easy to use motor protection (MP 204), a complete range of external Variable Frequency Drives designed for speed control (CUE, CU331SP) and cost-effective and straightforward monitoring and management of the pump installation with Grundfos GO.

Open and interoperable networks

For data communication, the Grundfos fieldbus concept is the ideal solution for complete control of pumps and pump systems and utilizes open and interoperable networks. Our data communication interfaces offer ease of installation and commissioning, user-friendliness, and great value.

MP 204, CUE and CU331SP are compatible with Grundfos GO and gives you remote access to pump data.



MP 204 MOTOR PROTECTION

The perfect partner for the SP system in many applications, protection is provided for motors ranging from 3 to 999 amps and voltages from 100 to 480 VAC against undervoltage, overvoltage and other variations in power supply that may cause overheating of the submersible motor.

When used with the SP/MS configuration, the Tempcon sensor lets MP 204 keep an eye on the motor temperature at all times. If the temperature reaches 140°F (60°C) it will issue a warning signal. If it reaches 167°F (75°C), the MP 204 will stop the motor to prevent damage.

Other benefits include:

- Power factor measurement, giving an indication of clogging in the intake or impeller wear
- Motor power consumption continually checked with precision, stopping the pump before dry running, preventing pump damage
- Warning for ground failure/insulation resistance, allowing preventive maintenance of the motor, cables, or cable joints

MP 204 protection and monitoring parameters

- Insulation resistance before start-up
- Temperature (Tempcon, Pt sensor and thermal switch)
- Overload/underload
- Overvoltage/undervoltage
- Phase sequence
- Phase missing
- Power factor (cos ϕ)
- Power consumption
- Harmonic distortion
- Current asymmetry
- Run and start capacitor (single-phase)
- Operating hours and number of start



VARIABLE FREQUENCY DRIVES – CUE & CU331SP

Our complete range of external frequency converters is designed for speed control of the pump and motor, enabling substantial running costs savings at varying capacity demands. Furthermore, the frequency converter gives motor protection as well as soft start and stop of the submersible motor.

Predefined control modes (speed, flow, level and pressure), sensor range and pump family data make it very easy to set up a system in only a few steps.

CUE and CU331SP shares the unique Grundfos intuitive interface with Grundfos control equipment. Installation and set-up is easy – with minimum steps required to get a system up and running. Additional functions are available that for example provide better application support and system optimization.

The frequency converter can be built into a panel and supplied as a complete solution ready for easy onsite installation.

GRUNDFOS MONITORING

Full control

- Grundfos GO Remote gives you complete control over every aspect of pump performance, whether you are dealing with one or more pumps at a time. Now, you can monitor all relevant pump data, group pumps for increased manageability, change settings and much more.

More information and assistance

- The user-friendly GO Remote interface gives you all the information and help you will ever need. GO Remote works with all our E-pumps and communicates using both radio and infrared technology. It provides easy-to-follow tips and guidance as well as live pump data feeds (duty point, power consumption, speed, temperature, etc.). Even the alarm log system has been designed to make error codes fully descriptive and intuitive.

More connected

- With GO Remote, you will never be out of touch. You get around-the-clock help such as quick-links to all relevant documentation and full integration with our easy online sizing and replacement tools. Since your GO Remote application will be updated with new features and functions in the future, you will always be at the forefront of mobile pump technology.

More timesaving

- GO Remote has been designed to save you time and effort. The built-in PDF generator stores your pump reports (documenting your pump configurations) and important notes safely in an easy-to-share format. This saves you the trouble of dealing with pen, paper and printouts. In larger systems, you can install or reconfigure groups of pumps easily and quickly with the Clone Pump Settings function.

