

SUBMERSIBLE SYSTEMS STRENGTH, PERFORMANCE AND EFFICIENCY



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GRUNDFOS 

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.

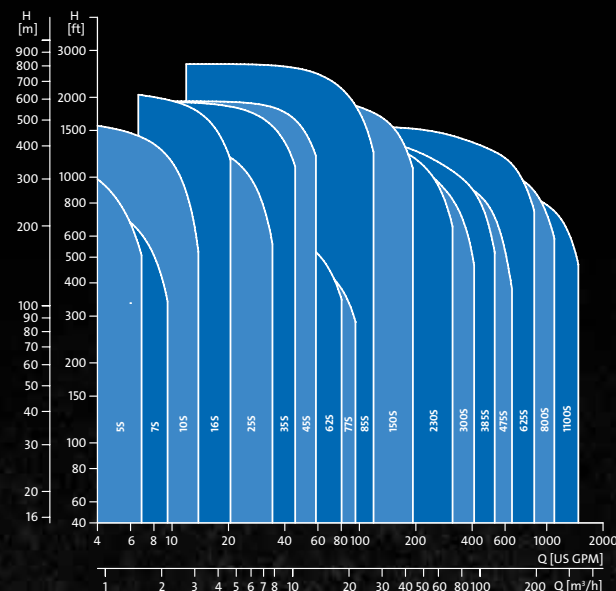
More timesaving

- 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.



TECHNICAL DATA SP SUBMERSIBLE PUMPS

The following is an overview of the SP system's technical specifications. Complete documentation is available in data booklets, or from the Grundfos Product Center. To access full information online, follow the link from www.grundfos.us



TECHNICAL DATA MOTORS

	MS 402	MS 4000
Phase	1 and 3 phase	1 and 3 phase
Start/run methods	1 phase: PSC, 2W, 3W	1 phase: 3W
3 phase	DOL	DOL
Frequency	60 Hz	60 Hz
Voltage	115-575 V	208-575 V
Thrust load	Max. 3.5 kN	2.2 kN or 4.4 kN
Efficiency %	57-77	75-81
Insulation class	B	F
Ambient temperature	See Grundfos documentation	See Grundfos documentation
Mechanical connection	4" Nema flange	4" Nema flange
Material	Stainless steel AISI 304 (EN 1.4301)	Stainless steel AISI 304 (EN 1.4301) and AISI 904L (EN 1.4539)
Certification	UL	CSA

	MS 6000C	MMS
Phase	3 phase	3 phase
Start/run methods	DOL, SD	DOL, SD
Frequency	60 Hz	60 Hz
Voltage	200-575 V	200-575 V
Thrust load	27 kN or 40 kN	6", 15 kN or 27.5 kN 8" and 10", 50 kN 12", 70 kN
Efficiency %	81-86	70-91
Insulation class	F	A
Ambient temperature	See Grundfos documentation	See Grundfos documentation
Mechanical connection	6" Nema flange.	6" and 8" with Nema flange
Material	Stainless steel AISI 304 (EN 1.4301) AISI 904L (EN 1.4539)	Stainless steel AISI 304 (EN 1.4301) stator tube with cast iron endbells EN-JL-1040, all-stainless steel AISI 316L (EN 1.4401), or all-stainless steel AISI 904L (EN 1.4539)
Certification	cCSAus	CE

WaterPRO

GRUNDFOS DEALER PROGRAM



WATERPRO DEALER BENEFITS:

- Paperless, Free 5 year warranties (see WaterPro certificate for details)
- Listing on the WaterPro Website Installer Finder
- Exclusive WaterPro events, promotions, giveaways and communications

QUALIFYING WATERPRO PRODUCTS



To receive the dealer benefits, you must be a WaterPro member that has met the WaterPro purchase requirements.

For more information, please refer to the 2015 WaterPRO rules and information at www.grundfos.us/waterpro or contact your local distributor.



Grundfos offers a complete portfolio of products and solutions for the Groundwater & Irrigation markets through a number of marquee brands.

THE SP SYSTEM

A complete Grundfos submersible system consists of an SP pump, a dedicated motor, a frequency drive and monitoring. Every component is designed to work perfectly together to ensure reliable performance and high energy efficiency.

Grundfos offers decades of submersible experience and comprehensive application know how within water supply, irrigation and mining.

For more information on the benefits of a complete SP system please visit www.grundfos.us

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