

General Data

3"WPS®(-CP)

3"WPS® and 3"WPS®-CP pumps are suitable for domestic applications in intermittent operation:

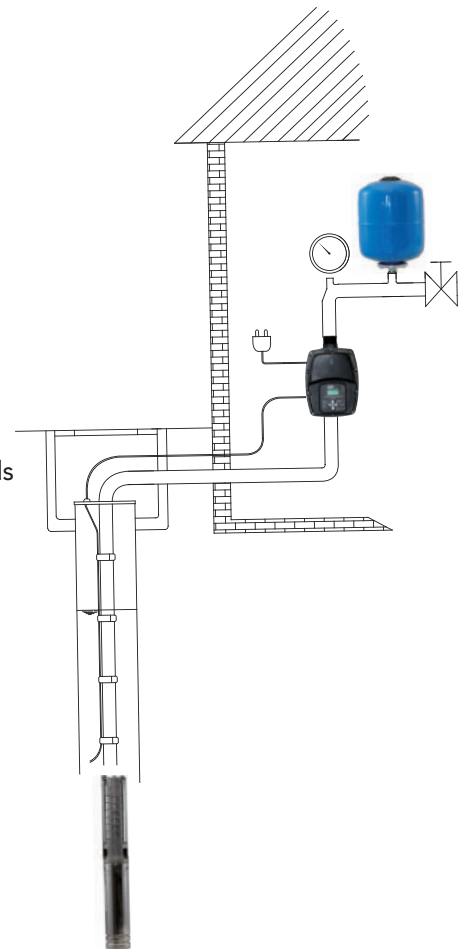
- Domestic water supply
- Small waterworks
- Irrigation
- Tank applications
- Pressure boosting
- Sampling of monitoring wells

Note: For other applications, please contact Well Pumps.

3"WPS®-CP

3"WPS®-CP pumps offer the following features:

- Pump entirely made out of stainless steel and fits in 3" or larger drilled wells
- Constant pressure with two set pressures possible
- Capacity from 0.2 to 7m³/h and a maximum head of 190m
- Motor rating up to 1,5kW, 140Hz
- Single phase supply to the controller
- Incorporated jam free check valve
- Dry-running protection
- High efficiency of pump and motor
- Excellent resistance to wear
- Soft start
- Overvoltage and undervoltage protection
- Overload protection
- Overtemperature protection.
- Variable speed
- Second set-pressure possible



The 3"WPS®-CP pump is fitted with a three phase 230V Well Pumps motor. The 3"WPS®-CP controller needs a single-phase supply and transforms it to a three-phase current to the motor. The controller is equipped with a frequency drive and performs a constant pressure of the flow through a variable speed of the pump. As a consequence, the pump can be set to operate in any duty point in the range between the pump min. and max. performance curves.

In case of a pump fault, an alarm will be indicated on the LCD screen of the 3"WPS®-CP controller.

The 3"WPS®-CP pump is sold as a kit and consists of the following elements:

- A 3" submersible pump WPS® entirely made of stainless steel.
- A WPS® high speed submersible motor able to run at variable frequencies up to 140Hz.
- A WPS®-CP constant pressure controller including a variable speed drive, a flow detection and a pressure sensor.
- A pressure vessel of 8 liter, a valve and a pressure gauge.

3"WPS®

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- Single phase supply
- Incorporated jam free check valve
- Dry-running protection
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- Soft start
- Overvoltage and undervoltage protection
- Overload protection
- Overtemperature protection
- Internal surge arrester

The 3"WPS® pump is fitted with a 230V Well Pumps motor and by means of the built-in frequency converter it is driven at a constant speed of 8200 RPM, 140Hz. Every time the pump is put on the supply (1~230) , a soft start will be performed.

Pump and motor range

3"WPS® and 3"WPS®-CP pump range consist of four flow models: 1, 2, 3, and 5 m³/h. The pump-end is entirely made out of Stainless steel DIN 1.4301, AISI 304.

3"WPS® and 3"WPS®-CP motors are in Stainless steel DIN 1.4301, AISI 304 and available in three motor powers: 600W, 900W and 1500W.

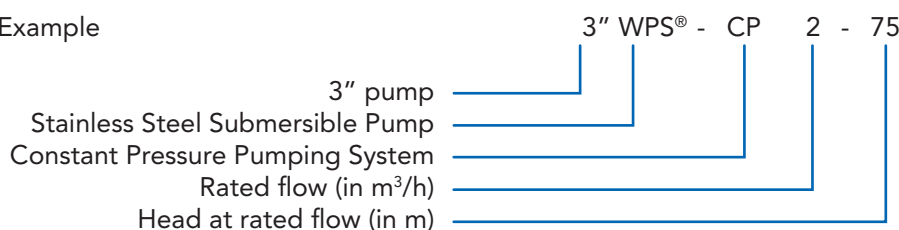
Pipe connection

All pump types have a threaded pipe connection Rp1 1/4".

The 3"WPS®-CP controller has a flow through design. The in- and outlet are 1 1/4" Male.

Pump identification code

Example



Pumped liquids

3"WPS® and 3"WPS®-CP pumps are designed for pumping thin, clean, non-aggressive and non-explosive liquids, not containing solid particles.

3"WPS® and 3"WPS®-CP pumps are suitable for pumping liquids with a content of sand up to 150 g/m³. A higher content of sand reduce the pump lifetime.

The maximum fluid temperature is 30°C. For higher temperatures, please contact Well Pumps.



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Features and benefits

Dry-running protection

3"WPS® and 3"WPS®-CP pumps are protected against dry running.

The **3"WPS®-CP** controller is equipped with a flow sensor that at all times measures the pumped flow. As soon as this flow drops under a minimum value (Q_{min} is about $0,1\text{m}^3/\text{h}$), the pump will be stopped. Simultaneously, also the absorbed power of the motor is measured. A minimum value of this power ensures cut-out of the pump. Both these measurements ensure in case of lack of water in the borehole, a shutdown of the pump and thus preventing a burnout of the motor.

The **3"WPS®** motor includes a built-in controller that is factory-set with a cut-out power and which continuously tracks the absorbed power of the pump. In case of lack of water in the borehole, the absorbed power by the pump will be reduced below the $P_{cut-out}$. Consequently the pump will be stopped and thus prevent a burnout of the motor. The pump will automatically restart after 20 minutes which gives time to the well to recover. In case of a second dry run the pump will wait for 45 minutes before an automatic restart. At the 3rd dry run, the pump will wait for 6 hours and the fourth time for 24 hours. If a 5th dry run occurs, the pump goes in permanent error and has to be reset by taking off the supply from the motor.

High pump efficiency and Wear resistance

The WPS® pumps are entirely made of stainless steel and ensure a high efficiency meaning low energy consumption and therefore low energy costs.

Due to its stainless steel construction in combination with the high performance NBR seals and bearings, the 3"WPS® and 3"WPS®-CP pumps ensure high wear resistance to sand for long product life.

Excellent starting capabilities

The integrated electronic unit of the 3"WPS® and 3"WPS®-CP controller features soft starting. A soft start reduces the starting current and gives the pump a smooth and steady acceleration.

A soft starter minimizes the risk of wear of the pump and prevents overloading of the supply during start-up.

The high starting reliability also applies in case of low voltage supply.

Overvoltage and undervoltage protection

Overvoltage and undervoltage may occur in case of unstable voltage supply.

The integrated protection of all three motor versions prevents damage to the motor in case the voltage moves outside the permissible voltage range.

The 3"WPS®-CP pump will be cut out if voltage falls below 185V or rises above 260V and for the 3"WPS® models below 160V or over 260V. The motor will restart automatically when the voltage is reestablished within the permissible voltage range.

Therefore no extra protection relay is needed.

Overload protection

Exposure of the pump to heavy load causes the current consumption to rise. When the maximum allowed current is exceeded, the pump will be stopped.

Also a locked rotor will automatically be detected and the power supply cut out. Consequently, no extra motor protection is needed.

The 3"WPS® pumps have an extra feature that automatically reduce the speed of the pump when overload occurs. Lower speed means lower power and thus reduction of the absorbed amps. In the case the pump is running at 60Hz and still overloading, the pump will stop and automatically restart after one hour.

Overtemperature protection

The electronic unit of the 3"WPS® and 3"WPS®-CP controller has a built-in temperature sensor.

The 3"WPS®-CP controller will cut out the pump when the temperature of the fluid rises over its limit of 55°C. The error code 'Inverter Error' will be mentioned on the display of the 3"WPS®-CP controller. When the temperature has dropped to 45°C, the motor is automatically restarted.

The 3"WPS® motor will reduce the speed as soon as the internal temperature in the motor reaches 80°C. This way the absorbed amps and consequently the dissipated heat of the motor will be reduced. In case that at 60Hz the temperature is still not reduced, the pump will shut off and restart automatically after one hour.

Protection against lightning

A surge arrester is built in the motor of the 3"WPS® pumps and is designed to protect the motor from damaging effects of spikes and transients caused by small lightning, electrical motor cycling or any other sudden change in electrical power flow on the supply line.

Reliability

The motors have been constructed with a view to high reliability and have the following features:

- Top quality high speed ball bearings.
- An efficient internal food grade oil circulation in the motor transfers the heat away from the rotor, stator and ball bearings and ensures an optimum operating condition for the motor.

Variable speed (only for 3"WPS®-CP units)

The 3"WPS®-CP controller enables continuously variable speed control within the 5740 and 8200 rpm. The pump can operate in any duty point in the range between the 5740 and 8200 rpm performance curves of the pump. Consequently, the pump performance can be adapted to any specific requirement.

On the basis of a required head the speed of the motor is calculated.

Auxiliary contact for Second set-pressure or Remote on/off switch (only for 3"WPS®-CP units)

The 3"WPS-CP controller is standard equipped with an auxiliary contact that can be activated by changing a specific parameter in the programming of the 3"WPS®-CP controller. The auxiliary contact can be used as a remote on/off switch (f.e. only run the pump when the irrigation is running, extra protection of the pump against dry running in a tank or cistern with a float switch, ...) or to create a second constant pressure level (f.e. higher pressure level when the irrigation system runs, lower pressure level to back-wash a water treatment system, ...)