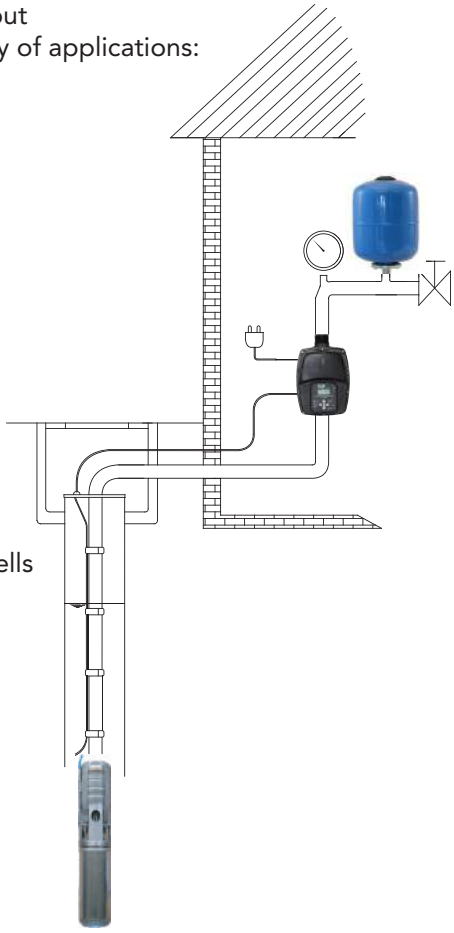
General Data

4"WPS® and 4"WPS®-CP pumps are constructed of stainless steel throughout and are suitable for both continuous and intermittent operation for a variety of applications:

- Domestic and general water supply
- Small waterworks and fountains
- Irrigation
- Tank applications
- Pressure boosting
- Heating pumps (only for 4"WPS)
- Dewatering, mining, hot springs
- Industrial applications

Note: For other applications, please contact Well Pumps.



4"WPS®-CP

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

- Pump entirely made out of stainless steel and fits in 4" or larger drilled wells
- Constant pressure with two set pressures possible
- Capacity from 0.2 to 8 m³/h and a maximum head of 140m
- Motor rating up to 2kW, 90Hz
- 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 4"WPS®-CP pump is fitted with a three phase 230V Well Pumps motor. The 4"WPS®-CP controller needs a single-phase supply and transforms it to a three-phase current to the motor. The controller is fitted 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 4"WPS®-CP controller.

The 4"WPS®-CP pump is sold as a kit and consists of the following elements:

- A 4" submersible pump WPS® entirely made of stainless steel.
- A WPS® high speed submersible motor able to run at variable frequencies up to 90Hz.
- A WPS®-CP constant pressure controller including a variable speed drive, a flow detection and a pressure sensor.
- A pressure vessel of 8 liter.

4"WPS®

4"WPS® pumps offer the following features:
- Pump entirely made out of stainless steel and fits in 4" or larger drilled wells
- Capacity from 0,5 to 15m³/h and a maximum head of 410m
- Motor rating up to 7,5kW, 50Hz
- Incorporated jam free check valve, designed for low loss of head
- Coupling with 4"Nema standard for motor assembly
- Generously dimensioned intermedite bearings located at each stage of the pump
- High efficiency of pump and motor
- Very strong construction and excellent resistance to wear
- Rugged cable guards
- Great ease of dismantling and assembly

Pump and motor range

4"WPS®-CP pump range consists of three flow models: 2, 4 and 6 m³/h. The 4"WPS® pump range consists of five flow models: 1.5, 2.5, 4, 7 and 13m³/h. The pump-end is entirely made out of Stainless Steel DIN 1.4301, AISI 304 or 1.4401, AISI 316. Seals and bearings are standard constructed out of NBR rubber but are also available in Viton® for special applications.
4"WPS®-CP motors are in Stainless Steel DIN 1.4301, AISI 304 and available in three motor powers: 1100W, 1500W and 2000W. 4"WPS® motors are in Stainless Steel DIN 1.4301, AISI 304 or DIN 1.4401, AISI 316 and available in single phase from 0,37kW up to 2,2kW and in three phase from 0,37kW up to 7,5kW.

Construction of the pump

Impeller
1 6 contact points with the shaft
2 6 welding points on each vane
3 5 different shapes and 8 flows
4 Stainless steel sheet whith a minimum thickness of 1mm

Diffuser
5 Stainless steel sheet whith a minimum thickness of 1mm
6 Generously dimensioned intermediate bearing in NBR (or Viton®) at each pump stage
7 Neck ring in PTFE

Top Bearing
8 Water-lubricated upper bearing in NBR (or Viton®) for each pump

Shaft
9 Hexagonal shaft in stainless steel
10 Pin to ensure motor power up to 7,5kW
11 High-quality coupling made of full stainless steel shaft
12 Quenched disc for absorption of axial forces

13 Up-trust Washer (patented)

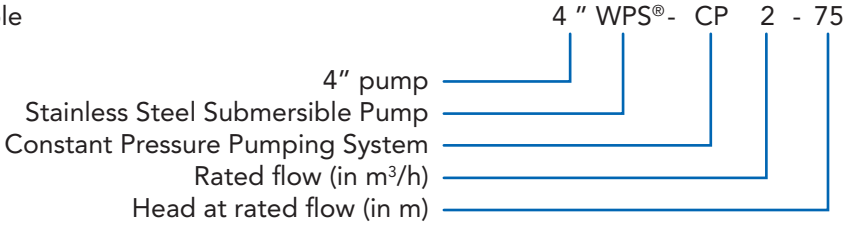
General Data

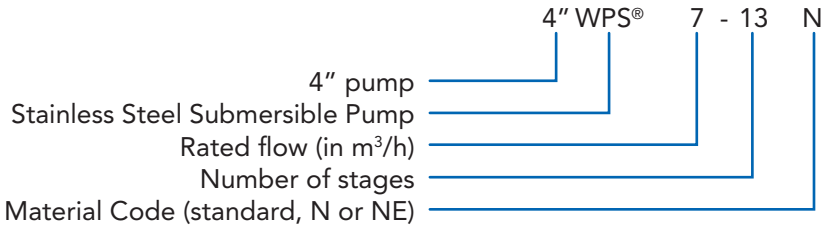
Pipe connection

All 4"WPS®-CP pump types have a threaded pipe connection Rp1 ½".
The 4"WPS® pumps have a Rp1 ½" connection for the models 4"WPS® 1,5 (NE), 4"WPS® 2,5 (NE) and 4"WPS® 4 (NE). The 4"WPS® 7 (NE) and 4"WPS® 13 (NE) pumps have a Rp 2" outlet.
Flange adaptors are available on request.

Pump identification code

Example





Pumped liquids

4"WPS® and 4"WPS®-CP pumps are designed for pumping thin, clean, non-aggressive and non-explosive liquids, not containing solid particles.
4"WPS® and 4"WPS®-CP pumps are suitable for pumping liquids with a content of sand up to 150 g/m³. A higher content of sand will shorten pump lifetime.
The maximum fluid temperature is 30°C. For higher temperatures, please contact Well Pumps.

Operating condition

4"WPS® and 4"WPS®-CP pumps can be installed in horizontal or vertical position. The maximum pumped liquid temperature is limited to 30°C with a minimum flow over the motor of 8 cm/sec and this to ensure the cooling of the motor. For applications with a higher liquid temperature or lower cooling speeds, please contact Well Pumps S.A.

Curve Conditions

- Curve tolerances according to ISO 9906:2012, class 3B.
- The performance curves show pump performance at actual speed of the standard motor range.
- The measurements were made with airless water at a temperature of 20°C and a kinematic viscosity of 1 mm²/s (1 cSt). For pumping liquids with a higher density than clear water, motors must be used with correspondingly higher outputs.
- Q/H: The curves are inclusive of valve and inlet losses at the actual speed.
- Power curve: P_2 shows pump input power at the actual speed for each individual pump size.
- Efficiency curve: η shows pump efficiency.

Service

The pump and motor are very easy to maintain and repair. The modular pump and motor design facilitates installation and service.

Features and benefits for 4"WPS®-CP

Dry-running protection

4"WPS®-CP pumps are protected against dry running. The 4"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 (Qmin is about 0,1m³/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.

High pump efficiency and Wear resistance

The 4"WPS®-CP 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 4"WPS®-CP pumps ensure high wear resistance to sand for long product life.
Excellent starting capabilities
The integrated electronic unit of the 4"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 4"WPS®-CP pump will be cut out if voltage falls below 185V or rises above 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.

Overtemperature protection

The electronic unit of the 4"WPS®-CP controller has a built-in temperature sensor.
The 4"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 controller. When the temperature has dropped to 45°C, the motor is automatically restarted.

Variable speed

The 4"WPS®-CP controller enables continuously variable speed control within the 3000 and 5350 rpm. The pump can operate in any duty point in the range between the 3000 and 5350 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
The 4"WPS-CP controller is standard equipped with an auxiliary contact that can be activated by changing a specific parameter in the programming of the 4"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, …)