

## PROXIMA – PSP SERIES

### DIGITAL PROFESSIONAL PUMPS FOR HORIZONTAL MOUNTING, W/ MECHANICAL ADJUSTMENT OF STROKE



STEIEL presents a full line of professional electromagnetic pumps, designed for horizontal installation, with mechanical adjustment of stroke, advanced digital electronics and high performance hydraulics. The wide range of available models and options (pump heads, flow rates, inputs and outputs) will allow you to choose the perfect pump for your application needs.

#### List of models

- PSP161 :** Multifunctional pump, with pulse and 0/4-20 mA inputs
- PSP162 :** Pump with built-in pH/ORP meter and electrode input on BNC connector
- PSP163 :** Pump with built-in chlorine meter, available in two versions (PSP163A with input for CLE12 cell, or PSP163B with input for CLE16 cell)
- PSP164 :** Pump with built-in conductivity meter and input for 2-electrode conductivity cell with NTC, also configurable for automatic purge of cooling towers



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**MAIN FEATURES**

- Advanced **multifunctional electronics**, with backlit alphanumeric display
- **Mechanical adjustment** of stroke length (injection volume)
- Multilingual interface (Italian, English, French, Spanish, German)
- Two configuration levels, standard and advanced, both password-protected
- Storage of configuration and calibration data in non-volatile memory for at least 10 years
- Dosing schedule at set hours and days (internal clock)
- Built-in counter of injected litres, and membrane working hours and shots
- **"Service" menu**
- **"Autoset" function**, for factory data restoring with different codes for different pump models and configurations
- **Self-priming function** (only available with optional injection flow control)
- Internal system for **overheating control / safety**
- Dosing chamber with **anti-spill system**
- **Multi-voltage** power supply 100 ... 240 V~
- Standard digital inputs for external consent and level control
- Optional input for injection flow control
- Optional relay outputs: can be an alarm relay (configurable NO / NC) or an SSR relay for "Pulse repetition", for sending remotely the magnet pulse to other pumps provided with pulse input
- Optional RS485 serial port with **Modbus RTU** communication protocol
  
- These pumps are supplied with standard accessory kit (foot filter; injection valve; hoses for suction, delivery and bleed lines), fitting kit, cables with M8 connector for input / output wiring

**TECHNICAL DATA**

Power Supply	100 ... 240 V~, 50/60 Hz, 60 VA max. cable with Schuko plug (standard); w/o plug or with type B plug, upon request	
Electrical Protection	Fuse 5x20 F1.6A	
Display	2-row (x 12 characters), alphanumeric, with backlight	
Internal Clock	RTC, precision $\pm 5$ sec/month, with CR2032 buffer battery (minimum autonomy of 3 years with no power supply)	
Dosage Precision	-5 ... +10% (with max stroke length)	
Materials	Housing	PP reinforced with glass fibre
	Pump head	PVDF or methacrylate; self-bleeding option available for some flow rates
	Membrane	high quality EPDM with fabric reinforcement, steel core and PTFE coating on the side in contact with the fluid; "full PTFE" option upon request
	Seals	PTFE for PVDF heads, FPM for methacrylate heads
	Valves	ceramic (standard) or PTFE ball

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Viscosity of injected product	0 ... 200 mPas (standard head) 200 ... 500 mPas (head with spring valve) 500 ... 3000 mPas (PKT/HV special head, only for flow rates > 5 l/h, no for version 3202)	
Environment	Storage temperature	-20 ... +60 °C
	Working temperature	-10 ... +45 °C
	RH max	92 % no condensing
Protection Rate	IP65	
Dimensions	110 x 260 x h 190 mm (max overall dimensions, wirings excluded)	
Weight	approx. 3 to 5.5 kg (depending on model)	
<i>Note: Dimensions and weight may slightly differ depending on configurations.</i>		

### **Digital Inputs**

EXT.CON / PULSE

this input changes depending on the pump model:

- for pump with analogic input, accept voltage-free contact (NO / NC), from filter pump contactor or input for three-wire micro-magnetic flow sensor
- for PSP161 model, is a pulse input for water meter; accept voltage-free contact; if connected in parallel with other similar inputs of similar pumps, it is advisable to insert a signal splitter

*Note: physically this input is only one, so it will be not possible to have a pump with separate pulse and consent inputs; a possible "cut-off" of the pulse signal should be managed externally to the pump.*

LEV	voltage-free contact from level sensor
FLW (injection)	optional; contact from injection flow sensor

### **Analog Inputs Specifications (depending on model)**

*(Note: precision/repeatability data refer to the electronics, and do not take into account the sensor)*

mA	0-20 or 4-20 mA (configurable); input impedance 30 Ω; precision > ± 0.05 mA, repeatability > ± 0.03 mA								
pH/RX	input impedance > 10 <sup>12</sup> Ω; range pH: 0.00 ... 14.00 pH; precision > ±0.03 pH, repeatability > ±0.03 pH range ORP: 0 ... +1000 mV; precision > ±3 mV, repeatability > ±2 mV								
Chlorine	with open amperometric cell (CLE12 or CLE16) range 0 ... 1.00 or 0 ... 2.00 ppm (specify upon order), linear range, may reach 5 ppm with cell saturation error; precision > ±0.03 ppm, repeatability > ±0.02 ppm								
Conductivity	automatic thermo-compensation not available; also available with software for automatic purge of cooling towers; range depending on the cell constant: <table style="margin-left: 40px;"> <tr> <td>K = 10cm</td> <td>→ 2, 20, 200 μS/cm</td> </tr> <tr> <td>K = 1cm</td> <td>→ 2, 20, 200, 2000 μS/cm</td> </tr> <tr> <td>K = 0.1cm</td> <td>→ 20, 200, 2000 μS/cm, 20 mS/cm</td> </tr> <tr> <td>K = 5cm</td> <td>→ 2, 20, 200, 2000 μS/cm</td> </tr> </table> precision > 0.5% FS, repeatability > 0.3% FS	K = 10cm	→ 2, 20, 200 μS/cm	K = 1cm	→ 2, 20, 200, 2000 μS/cm	K = 0.1cm	→ 20, 200, 2000 μS/cm, 20 mS/cm	K = 5cm	→ 2, 20, 200, 2000 μS/cm
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K = 5cm	→ 2, 20, 200, 2000 μS/cm								

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### Outputs (optional)

Alarm Relay	NO / NC contact, configurable, max 30V~ (40V-), 3A resistive
Pulse Repetition	SSR contact (solid state relay), max 40V 50mA, duration 60msec
Serial Port	RS485, three-wire, 9600 or 19200 or 38400 BPS, 8 bit, no parity, 1 stop bit, Modbus RTU communication protocol

### Hydraulic Specifications

These data refer to pumps with standard head, stroke 100%, frequency 180 strokes/min, ambient temperature 25°C, dosing water with a delivery hose of 5 meters.

Version	Flow Rate (l/h)	Pressure max (bar)	Hose (IDxOD) (mm)
0216	2	16	4x6
0310 (**)	3	10	4x6
0416 (*)	4	16	4x6
0425 (*)	4	25	4x6
0510	5	10	4x6 (5x8) (***)
0516	5	16	4x6 (5x8) (***)
0807	8	7	5x8
0810	8	10	5x8
1304	13	4	5x8
1307	13	7	5x8
2002	20	2	9x12
2004	20	4	9x12
3202	32	2	9x12

(\*) Size available upon order.

(\*\*) Only for version PKTT/AS.

(\*\*\*) When dosing liquids of medium viscosity (valves with spring), for models 0510 and 0516 it is recommended to use hoses with a diameter bigger than the standard one; the value is shown within brackets.

#### Notes:

- Standard heads can dose liquids with a maximum viscosity of 200 mPa•s (cP), with a yield decrease depending on pressure losses.
- For pumps with **AS head** (self-venting), the dosage yield is reduced of approx. 25-30%.
- Warning! In case of **HV head** for dosing highly viscous liquids, hose 16x24 mm is used.

**CODING SYSTEM**

The diagram below allows to build the code of the pump with the desired characteristics.  
Options in bold characters refer to the standard version of the pump.

***Pump Model***

- 985 PSP161 – Multifunctional pump
- 986 PSP162 – Pump with inbuilt pH/ORP meter
- 987 PSP163A – Pump with inbuilt chlorine meter and input for CLE12 cell
- 988 PSP163B – Pump with inbuilt chlorine meter and input for CLE16 cell
- 989 PSP164 – Pump with inbuilt conductivity meter and input for 2-electrode cell

***Power Supply***

- 0 100-240 V~ - cable with Schuko plug**
- 1 100-240 V~ - open cable (without plug)
- 2 100-240 V~ - cable with American plug, type B
- 6 100-240 V~ - cable with English plug, type G

***Optional Outputs***

- |                    |  |
|--------------------|--|
| <b>0 No output</b> | 3 Relay for pulse repetition             |
| 1 Alarm relay      | 8 RS485 serial port with Modbus protocol |

***Inputs***

- 2 Level + external consent**
- 4 Level + external consent + injection flow control

***Colour***

- A Dark grey front, light grey housing**

***Dosing Head***

- 2 PKT – PVDF with ceramic ball valves and PTFE (FPM, EPDM) seals**
- 3 PKT/AS – PKT with 2-way self-bleeding option (only for some flow rates 0216, 0510, 0516)
- 4 MKV – methacrylate with ceramic ball valves and FPM seals (only for 0216, 0510, 0516)
- 5 PKT500-1 – PKT for dosing viscous liquids, up to 500 cP; for flow rates  $\leq 5$  l/h
- 6 PKT500-2 – PKT for dosing viscous liquids, up to 500 cP; for flow rates  $\geq 8$  l/h
- 7 PKT-HV – PKT for highly viscous liquids, up to 3000 cP; for flow rates  $\geq 5$  l/h (no 3202)
- 8 PTT – PVDF with PTFE ball valves and PTFE (FPM, EPDM) seals
- 9 PTT500-1 – PTT with spring for viscous liquids, up to 500 cP; for flow rates  $\leq 5$  l/h
- A PTT500-2 – PTT with spring for viscous liquids, up to 500 cP; for flow rates  $\geq 8$  l/h
- B PKTT/AS – PKT with “full PTFE” diaphragm and 2-way self-bleeding (LEGION pump)
- C MKV/AS – MKV with 3-way self-bleeding option (only for flow rate 0216)
- D MKVT/AS – MKV with “full PTFE” diaphragm and 3-way self-bleeding (only for 0216)

***Flow Rate (l/h bar)***

- |                    |                    |
|--------------------|--------------------|
| A 0216 (hose 4x6)  | H 0425 (hose 4x6)  |
| B 0510 (hose 4x6)  | J 0516 (hose 4x6)  |
| C 1304 (hose 5x8)  | K 0807 (hose 4x6)  |
| D 2002 (hose 9x12) | L 0810 (hose 4x6)  |
| E 3202 (hose 9x12) | M 1307 (hose 5x8)  |
| F 0310 (hose 4x6)  | N 2004 (hose 9x12) |
| G 0416 (hose 4x6)  |                    |

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**Notes:**

- Customized versions are available upon request. Contact STEIEL Elettronica for more details.
- For models PSP163 and PSP164, when ordering, you also need to specify the measurement range and (only for PSP164) the cell constant. Contact the manufacturer for more details.
- All models are also available with accessory kit including PTFE hoses.

**Standard PKT head****MKV head****Head for high viscosity (HV)**