

NOVA NSP Series

The New generation of Wall-Mounting Pumps! Professional Line



NOVA NSP SERIES is a line of professional electromagnetic pumps, designed for wall installation, with advanced electronics and high-performance hydraulics.

The full range of available options (pump heads, flow rates, inputs, outputs) will allow you to choose the perfect pump for your application needs.

The basic version is equipped with a multifunctional connector for external consent / pulse / mA inputs and input for level switch; available options include "Flow Control" input, relay output, RS485 serial interface with Modbus protocol.

AVAILABLE MODELS

- **NOVA NSP161:** Multifunctional pump, which can work in manual mode, pulse command, automatic calculation, analogic input signal, duty cycle, batch mode
- **NOVA NSP162:** Pump with inbuilt pH/ORP meter, electrode input on BNC connector
- **NOVA NSP163:** Pump with inbuilt chlorine meter, input for amperometric cell CLE11 / CLE12 (NSP163A) or CLE16 (NSP163B) available on M8 connector

MAIN TECHNICAL FEATURES

- Bilingual interface (English / second language to be chosen among Italian, French, Spanish)
- Backlit alphanumeric LCD, with customization of the info shown on the second row
- Intuitive configuration, protected by 3-level password
- Counters of injected litres, working hours and stroked of the diaphragm
- Calibration and configuration data saving in a non-volatile memory for at least 10 years
- **"Autoset" function** for a quick configuration of your pump
- **"Reset" function** to restore specific factory settings for each model
- **"Service" menu**
- Multifunctional pump with **multifunctional connector** for external consent / pulse / mA inputs
- Pump with inbuilt meter feature **"Eco-Mode" function** (with Set Point change controlled by external contact or Timer) and Sample Water input to monitor the sample water flow
- Input for level probe
- Internal system for **overheating control / safety**
- Dosing chamber with **anti-leakage system** towards the magnet
- Housing with **V-0 flame classification**
- Standard power supply 230 V~, cable with Schuko plug; on request, power supply 115 V~, cable with type B plug; other plug types available on request
- Optional input for **injection flow control** with **self-priming function**
- Optional output: alarm relay (NO / NC) or pulse repetition
- Optional **RS485** serial port with **galvanically isolated signal** and **Modbus communication protocol**
- **Optional timer** to schedule the up to 14 dosing events, at set days and time; management of 14 daily events or 2 events over 7 days, and automatic update of summer / winter time

Each pump is supplied with standard accessory kit (foot filter; injection valve; suction, injection and bleeding hoses), kit of fittings, cables with M8 connector for inputs / outputs wiring.

TECHNICAL DATA

Power Supply	standard: 230 V~, 50/60 Hz, cable with Schuko plug (other plugs available); on request: 115 V~, 50/60 Hz, cable with type B plug (other plugs available)
Protection	fuse 5x20, F2A @ 230 V~
Display	2-row (x 12 characters) alphanumeric LCD, with backlight
Frequency	adjustable, from 0 to 180 strokes / minute
Clock	real time, precision ± 5 sec/month, with LR44 buffer battery (autonomy min 3 years without power supply); with automatic update of summer / winter time enabled through configuration menu
Materials	PP housing charged with glass fibre; PVDF dosing head (even with self-bleeding option), high-quality EPDM diaphragm with fabric reinforcement, steel core and PTFE coating on the side in contact with the liquid; PTFE (FPM, EPDM) seals; ceramic ball valves (PTFE balls on request)
Viscosity of Dosed Product	0 ... 200 mPas (cP), standard dosing head 200 ... 500 mPas (cP), head with spring valve, available on request

Environment	Storage temperature	-20 ... +60 °C
	Working Temperature	-10 ... +45 °C (no freezing liquids)
	RH	max 92 % no condensing
Protection rate	IP65	
Dimensions	226 x 115 x 175 mm (wirings excluded)	
Weight	approx. 2.8 kg	

Inputs / Outputs

The external commands pass through a multipolar connector entirely in plastic material with IP65 sealing, thus avoiding any possible oxidation.

LEV Input	input from level switch, accepts voltage-free contact
CONTROL Input	depending on model / configuration, to this input can be connected one of the following signals: • Pulse signal from volumetric water meter; if the input must be connected in parallel with other similar inputs of other pumps, it is recommended to use a signal splitter device • 0/4-20 mA analogic signal, with 100Ω input impedance, precision better than ±0.3% FS, repeatability better than ±0.2% FS • External consent; voltage-free contact from electrical panel or sample water flow sensor (for pumps with inbuilt instrument)
FLOW Input	optional input for FLOW CONTROL sensor (injection flow control); • NSP163: Sample Water input to connect a proximity sensor
OUT Output	optional output, to be chosen between: • Alarm relay, configurable as NO / NC, max 30V~ / 40V-, 3A resistive • SSR relay for pulse repetition, 40V- / 50 mA
DIGITAL Output	optional RS485 serial port, even with Modbus communication protocol; galvanically isolated signal
MEAS Input	always provided for pumps with inbuilt instrument: • NSP162: BNC connector for pH or ORP electrode • NSP163: M8 connector for chlorine cell of the CLE series

Advanced Functions for NSP Series

Self-Priming	This function, only available with the "Flow Control" option, allows automatic priming of the pump after a missing dosage signal. The control conditions (acceptable blank shots and number of trigger shots) are fully configurable.
Information	You can select which operation parameters (one or two) are shown on the second line of the display.
Timer	Optional feature which allows to schedule up to 14 events, activated for daily repetition or on weekly base (2 events for 7 days). The clock provides the automatic function of summer / winter time update, settable by the user through the configuration menu.
Relay Output	The relay working mode is fully configurable and combinable with multiple working states of the pump.
Password	The pump software provides a three-level configuration menu, protected by three passwords.

Advanced Functions for NSP161

Automatic Calculation	Depending on the connected water meter, concentration of the chemical product and desired dosage, the pump calculates automatically the dosing parameters. • Dosing can be expressed in ppm - ml/q - % • Pump calibration wizard
Pulse / Stroke Self-Adjustment	The management of the dosage strokes according to the pulses coming from the water meter is performed with the distribution of strokes in the interval between two subsequent pulses.
Maintaining	If no pulses come from the water meter, the pump performs some dosing strokes to maintain a minimum level of product in the system and / or to avoid the disengagement of the suction line.

Hydraulic Specifications for 230 V Version

Size	Flow Rate	Pressure max.	Volume per stroke	Hose ID x OD
	l/h	bar	ml	mm
B0220	2.04	20	0,19	4 x 6
C0512	5.58	12	0,52	4 x 6
D0808	8.04	8	0,74	5 x 8
E1504	15.30	4	1,41	5 x 8
F1903	18.60	3	1,72	9 x 12

Notes:

- These data refer to standard dosing heads, dosage of no viscous liquids, temperature 25°C, working frequency 180 strokes / minute.
- For pumps powered at 115 V, performances may slightly differ from data listed in tables and diagrams.
- For pumps with AS (self-bleeding) head, consider a flow rate yield reduced by 25-30%.

Size B0220

Working Pressure (bar)	0.5	4	8	12	16	20
Injection Volume (ml)	1.08	0.41	0.30	0.26	0.21	0.20
Flow Rate (l/h)	11.7	4.3	3.2	2.8	2.3	2.0

Size C0512

Working Pressure (bar)	0.5	4	8	12
Injection Volume (ml)	1.47	0.73	0.59	0.52
Flow Rate (l/h)	15.8	7.9	6.4	5.6

Size D0808

Working Pressure (bar)	0.5	4	8
Injection Volume (ml)	1.83	1.04	0.74
Flow Rate (l/h)	19.8	11.3	8.0

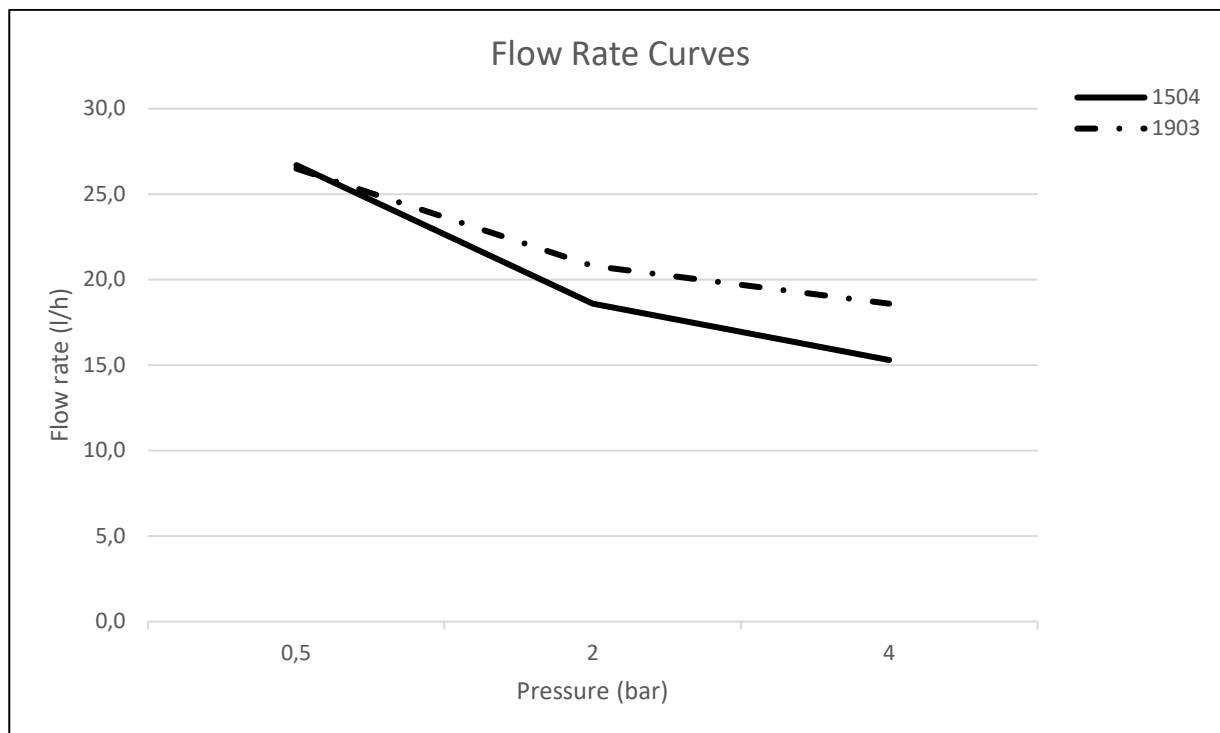
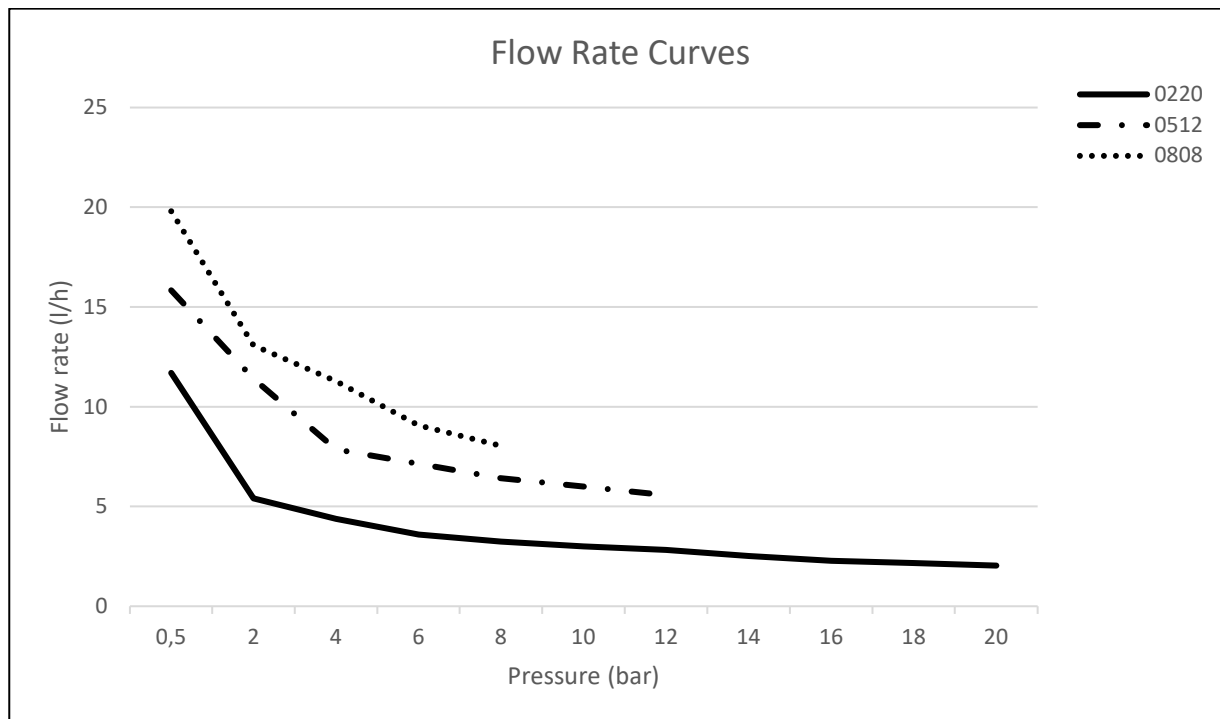
Size E1504

Working Pressure (bar)	0.5	2	4
Injection Volume (ml)	2.47	1.72	1.42
Flow Rate (l/h)	26.7	18.6	15.3

Size F1903

Working Pressure (bar)	0.5	2	3
Injection Volume (ml)	2.46	1.93	1.72
Flow Rate (l/h)	26.5	20.8	18.6

Flow Rate Curves at 230 V



CODING SYSTEM (standard options in bold):

91	Dosing Pumps of NOVA Series		
	Pump Model		
A	NSP161 – Multifunction Pump		
B	NSP162 – Pump with inbuilt pH/ORP meter		
C	NSP163A – Pump with inbuilt chlorine meter and input for CLE11 / CLE12 cell		
D	NSP163B – Pump with inbuilt chlorine meter and input for CLE16 cell		
	Range		
00	Not applicable (NSP161) or fixed (NSP162)	01	Range 0-1 / 0-5 ppm for models NSP163
	Flow Rate (l/h bar)		
B0220	– 2.0 l/h @ 20 bar (hose 4x6)	E1504	– 15.3 l/h @ 4 bar (hose 5x8)
C0512	– 5.6 l/h @ 12 bar (hose 4x6)	F1903	– 18.6 l/h @ 3 bar (hose 9x12)
D0808	– 8.0 l/h @ 8 bar (hose 5x8)		
	Dosing Head		
2	PKT – PVDF with ceramic balls and PTFE (FPM, EPDM) seals		
3	PKT/AS – PKT with 2-way self-bleeding option (only sizes 0220 and 0512)		
4	MKV – methacrylate with ceramic balls and FPM seals (only sizes 0220 and 0512)		
5	PKT500-1 – PKT with spring valves, to dose viscous liquids up to 500 cP (flow rates ≤ 5 l/h)		
6	PKT500-2 – PKT with spring valves, to dose viscous liquids up to 500 cP (flow rates ≥ 7 l/h)		
8	PTT – PVDF with PTFE balls and PTFE (FPM, EPDM) seals		
B	PKTT/AS – PKT with “full PTFE” diaphragm and 2-way self-bleeding valve		
C	MKV/AS – MKV with 3-way self-bleeding option (only size 0220)		
D	MKVT/AS – MKV with “full PTFE” diaphragm and 3-way self-bleeding (only size 0220)		
	Hydraulic Accessory Kit		
0	Pump without accessories		
1	Standard accessory kit	3	Standard kit + SLP5 level switch
2	Accessory kit with PTFE hoses	4	Kit with PTFE hoses + SLP5 level switch
	Power Supply / Plug		
0S	230 V~, with Schuko plug	1B	115 V~, with type B plug
0E	230 V~, with English plug	1A	115 V~, cable without plug
0A	230 V~, cable without plug		
	Inputs		
2	Level + external consent		
4	Level + external consent + injection flow control		
	Optional Output		
0	No output		
1	Alarm relay		
2	Relay for pulse repetition		
	Digital Communication Option		
0	No options		
1	RS485 serial port with Modbus protocol		
	Timer Option		
0	No option		
1	Timer (clock with automatic update of summer / winter time)		
A	Dark grey front, light grey housing		
	Software Second Language (English always provided)		
1	Software in English + Italian		
2	Software in English + Spanish		
0	Documentation in English / second sw language		
...	Different options on request		