

Syringe Pump (SP)



NanoSpin syringe pumps offer exceptional versatility and value, securely holding 1 to 6 syringes of any brand with volumes ranging from 1 ml to 200 ml. They are ideal for a wide range of applications, including electrospinning processes, calibration infusions into mass spectrometers or reaction chambers, long-term drug delivery in animal studies, and any syringe pump use requiring precise fluid injection. With their high accuracy, robust design, and cost-efficiency, NanoSpin pumps are a reliable solution for both research and industrial settings.

NanoSpin SP Nomenclature Guide

Model Code: SP XY ABC

X: 1: One mechanical system, 2: Two mechanical systems

Y: Maximum Syringe (1, 2, 4 or 6)

A: L: LCD display ; T: Touch Screen

B: O: not programmable; P: Internal programmable; S: Software and Internal programmable

C: P: Plastic Holder; M: Metal Holder

Example:

- SP24 LSP** ▶ Syringe Pump, 2 motors, 4 syringes max, LCD display, Software programmable, Plastic holder
- SP16 TPM** ▶ Syringe Pump, 1 motor, 6 syringes max, Touch screen, Internal programmable, Metal holder
- SP11 LSM** ▶ Syringe Pump, 1 motor, 1 syringe max, LCD display, Software programmable, Metal holder





Specification

Input Power	• 100-240V AC, 50-60 Hz.
Number of Syringe	• Up to 2 (SP12 series) / Up to 6 (SP16 series)
Display	• 4-line, 20-character LCD display • HMI Touch Screen
Nonvolatile Memory	• Stores syringe inner diameter, rate, target volume, programs and settings
Syringe Type	• Plastic, metal or glass
Minimum Flow Rate	• 1 $\mu\text{l/hr}$ using a 10 μl syringe (barrel diameter: 1 mm)
Maximum Flow Rate	• 5968 ml/hr using a 60 ml syringe (barrel diameter: 29 mm)
Pedal resolution per step	• 10 nm
Linear Force (Max)	• 17 kg measured at the 120 ml/hr injection rate
Drive Motor	• 1.8° Stepper Motor
Motor Drive Control	• Microprocessor with 1/128 micro stepping
Number of Micro steps per one rev. of Lead Screw	• 25600
Step Resolution	• 0.049 $\mu\text{m}/\mu\text{step}$ & 0.117 $\mu\text{m}/\mu\text{step}$
Pusher Travel Rate Minimum	• 0.25 $\mu\text{m}/\text{min}$; Maximum: 152 mm/min
Connectors	• USB (LS Series)
Operating Temperature	• 0 – 45 °C
Storage Temperature	• 0 – 45 °C
Method of Operation	• Continuous
Dimension	• SP12: 24 × 26 × 20 cm, SP16: 24 × 34 × 20 cm
Weight	• SP12: 4 kg, SP16: 5.8 kg

Features

- Bright, user-friendly display interface
- Continuous flow stream capability
- Injection volumes in microliter (μl) scale
- Non-volatile memory for data retention
- Programmable functionality (P and S series)
- Windows-based control software (S series)
- Alarm notification upon injection completion
- Dual-pump configuration available (24 series)
- Autofill capability (P and S series; electric valve optional)
- Infuse/refuse capability (P and S series)



Software Description (Windows Platform)

The **S** series includes advanced programming capabilities for complex experimental workflows. In "Program Mode," the syringe pump can execute tasks based on scheduled times or external signals.

Functions include:

- Starting or stopping injections
- Switching between infusion and withdrawal
- Adjusting flow rates dynamically
- Delivering a precise volume before halting
- Executing ramp-up or ramp-down flow profiles
- Running formula-based injections

These programmable features can be seamlessly integrated to automate laboratory processes, offering a powerful and flexible solution for advanced research.