S128 Peristaltic Pump – S4M Model SPECIFICATIONS

1:128 RATIO PUMP WITH FLOW RATE OUTPUT TO 110 GPD

1.0 SCOPE

This specification covers the supply, construction materials and operation of a completely functional variable speed peristaltic chemical metering pump including all accessories as shown on the drawings and described herein. The chemical metering pump manufacturer shall be responsible for supplying pump manufacturer accessories featuring a peristaltic pump tube and pump head with 3-point roller design.

1.1 Quality Assurance

For the purpose of establishing quality assurance, experience, and system reliability, the products described herein are based on the metering pumps manufactured by the Stenner Pump Company. All pumps shall be factory-tested for power and function before packaging. All pumps shall be manufactured in the United States of America.

1.2 Warranty

The chemical metering pump manufacturer shall provide a two-year limited warranty on the metering pump from the date of purchase (proof of purchase required).

2.0 PUMP

2.1 Manufacturer: Stenner Pump Company

2.2 Description

A. General

The chemical metering pump shall be a DC motor-driven, peristaltic pump.
The pump shall include brushless DC Motor with ball bearing support, potentiometer, totally enclosed housing with NEMA 4X rating, and patented QuickPro® pump head. The main shaft shall be splined for ease of maintenance. The pump shall offer a single signal cover with eight screws, O-ring seal, and two liquid tight cord grips for signal cables. Pump shall have integral clear cover on the control panel with screw for tamper resistance.
The power supply shall be 120V 60Hz Single Phase.
The liquid shall only be in contact with the pump tube located within the QuickPro® pump head but may touch accessories including but not limited to, weighted suction line strainer, suction & discharge tubing, and injection ball check valve.

B. Accessories Included

1. Each pump shall come standard with one latching mounting bracket suitable for vertical or horizontal mounting.
2. Each pump shall come standard with three connecting nuts 3/8”.
3. Each pump shall come standard with one injection ball check valve.
4. Each pump shall come standard with one weighted suction line strainer 3/8”.
5. Each pump shall come standard with one 20’ roll of suction/discharge tubing 3/8” white or UV black.
6. Each pump shall come standard with one additional pump tube.
7. Each pump shall come standard with one Installation and Maintenance Manual.

8. Each pump shall come standard with one Reference Poster.

C. Agency Listings and Ratings

The pump provided shall require the following agency listings and ratings.

1. cULus
2. Tested by IAPMO to confirm to ANSI/NSF STD 61 & 372.

D. Materials of Construction

1. The pump shall have a polycarbonate tube housing and tube housing cover. The tube housing cover shall have an integral, oil impregnated bronze bushing for shaft support. The tube housing cover shall be secured to the tube housing via stainless steel latches that do not require a tool to fasten or unfasten.
2. The pump tube shall be FDA approved Santoprene®.
3. The injection ball check valve shall have one of the following:
    a. Ceramic ball FDA approved; tantalum spring; FKM seat & O-ring
    b. Ceramic ball FDA approved; stainless steel spring; EPDM seat; Santoprene® O-ring
4. The pump head roller assembly shall have three rollers with the ability to expand and collapse. These rollers shall be constructed of polyethylene.
5. The roller bushings shall be oil impregnated bronze to aid in roller movement.
6. The suction/discharge tubing shall be FDA approved polypropylene.
7. Pump tube fittings & injection fittings shall be constructed of NSF listed PVC or polypropylene.
8. Pump tube connecting nuts shall be constructed of PVC or polypropylene (both NSF listed).
9. The pump shall have a suction line strainer and cap constructed of PVC or polypropylene (both NSF listed). The strainer shall also include a ceramic weight.
10. All fasteners shall be stainless steel.
11. Pump shall have pump head latches constructed of stainless steel.
12. The pump shall have Leak Detect components consisting of springs, pins and clips constructed of Hastelloy®. Leak Detect landing pads shall be gold plated. Leak Detect housing and drip pan shall be polypropylene.

E. Standard Features

1. The pump shall have a 3-point roller design to assist in anti-siphon protection.
2. The pump shall have reproducible flow rate outputs +/- 2%.
3. The pump shall have a maximum vertical suction lift of 25 ft. (7.6 m)
4. The pump head shall require no valves or tools for easy maintenance.
5. The pump shall be self-priming against maximum working pressure. A foot valve shall not be required.
6. The pump shall not lose prime or vapor lock.
7. The pump shall require a toolless tube change procedure. Pump tube change shall mandate no lubrication.

F. Pump Flow Rate Outputs

S4M Model 60 psi (4.1 bar) max.

Item Number Prefix	Pump Tube	Ounces per Minute	Milliliters per Minute
S4M8X	8X	10.0	295.7

Approximate Outputs @ 50/60Hz

2.3 CONTROL

A. Pump shall have 45 RPM maximum

B. Pump shall have a potentiometer used to set the pulse rate to match that of the water meter used: 1 PPG, 1 PPL and 10 PPG in order to deliver at a rate of 1:128.

C. Pump shall have a potentiometer setting for PRIME

D. Pump shall have a potentiometer setting for RESET TUBE TIME

E. Pump shall be turned off by rotating the potentiometer fully counterclockwise to off position.

F. Pump shall be activated by a dry contact pulse water meter

2.4 FUNCTION

A. Pump shall prime at full speed after a 5 second delay for a 60 second cycle when rotated from off to PRIME. Pump cycle shall be stopped when potentiometer is moved from PRIME position

B. Pump will deliver 1 oz per gallon of system flow rate by activation from a signal from a dry contact water meter.

C. Pump shall accumulate pulses for 1 PPL and 10 PPG settings and shall activate by a predetermined number of pulses dependent upon system flow rate.

D. Pump shall deliver at 3 different speeds for even distribution of product. Pump shall automatically increase and decrease in speed at each of the following thresholds:

1. 0 – 1.5 gpm
2. 1.6 – 3.0 gpm
3. 3.1 – 10.0 gpm

2.5 SETTINGS AND CONFIGURATION

A. Pump shall include highly sensitive leak detector. The sensitivity shall be factory preset to distinguish between water and common water treatment chemicals to reduce the number of false tube leaks.

B. Pump shall have a bank of 8 dip switches for use with tube change timer and/or leak detection

C. Pump shall have four LED indicator lights on the control panel

1. LEAK / FAULT
    a. LEAK shall be solid run when a leak is detected. LEAK shall activate a relay and indicator light. Both are activated by conductivity on Hastelloy pins. Tube leak sensitivity shall be calibrated by a potentiometer located under the signal cover. LEAK shall be disabled by using dip switches. LEAK shall be cleared by disconnecting power to pump
    b. FAULT shall blink red if pump has a drive fault error.
2. OVERRUN shall be solid red when system flow rate exceeds 10 gpm. Pump shall continue to run. Red LED shall reset when system flow is below gpm.
3. CHANGE / LEVEL
    a. CHANGE shall be solid red when tube timer setting has been reached. CHANGE shall be programmable in increments of 100 hours up to 3000 hours using the dip switches. CHANGE shall be disabled by dip switches. CHANGE shall be reset by using RESET TUBE TIMER setting on potentiometer.

b. LEVEL shall blink red when pump receives a contact closure on the level inputs.

4. POWER / STANDBY
    a. POWER shall be solid green when mains power is connected.
    b. STANDBY shall blink green when pump receives a contact closure OR when dial is set to off position

D. Pump shall have 3 normally open signal inputs- LEVEL, STANDBY and PULSE

1. LEVEL shall close when receiving a contact from a low-level device. The pump shall continue to operate.
2. STANDBY shall start the pump remotely when receiving a contact
3. PULSE shall activate pump when receiving a dry contact pulse from a water meter.

E. Pump shall have two internal relays for output indication from the pump to a control system, another pump or PLC. Relays shall be rated for 24VDC @ 50mA. Each relay shall be normally open and assigned to a pump function or condition

1. Output relay 1 - LEAK DETECT/ DRIVE FAULT/ LOW LEVEL shall close if a leak is detected, a drive fault occurs, or a low level is indicated.
2. Output relay 2 – SIGNAL REPEATER shall repeat incoming pulse to another pump or device. SIGNAL REPEATER shall work at all pulse rates. Pump must have power applied to use SIGNAL REPEATER.

END OF SPECIFICATION

