

Wallace & Tiernan[®] Liquid Chemical Feed System Chemtube[®] PPS Peristaltic Pump Systems

Introduction

The Chemtube[®] PPS positive displacement peristaltic pump system is designed for handling a wide range of chemicals and fluids from sodium hypochlorite to heavy slurries to sludge. Premium, efficient roller technology eliminates the cumbersome lubrication fluid typical of other peristaltic pumps using an inferior sliding-shoe design. In addition, there are no valves, no seats, and no seals required in the pumped fluid to foul or wear-out. The result is highest reliability and long-term operation with simple, low maintenance. For maximum versatility in municipal and industrial applications, there are eight different pump models available with hose sizes ranging from 5 to 76 mm diameter. Flow rates from 7.8 to 54,888 lph (2 to 14,500 gph) are available at pressures up to 15.5 bar (225 psi). A choice of constant speed, mechanical variable speed, or variable frequency variable speed drives are available for simple manual operation up to sophisticated automatic control schemes.

Features

Roller Technology

The Chemtube[®] PPS System features a heavy roller design for squeezing the hose within the pump housing. The smooth rolling action of the roller creates much less friction than sliding shoe design.

Standard Leak Detector

A float-type sensor is located at the lowest point of the pump housing. The smallest leak is detected, unlike the wet running pumps where a large quantity of chemical must leak before an alarm is actuated.

Compact Footprint

Most models utilize direct coupled, right angle gear boxes for the smallest footprint possible. This compact design simplifies installation and minimizes floor space.

Key Benefits

- Efficient and smooth, roller technology eliminates the need for an oil bath in the pump housing
- Flexible control options-constant speed, VFD and SCR
- Simplified service and maintenance
- Ideal for multi-phase fluids and slurries
- Early detection of hose failure - leak detector mounted at lowest point of housing
- Unobstructed flow-through pumping

Flexible Control Options

The capacity of the pump is controlled by the speed of the motor. A variety of speed control options are available:

- Constant speed via a constant speed AC motor for transfer applications
- SCR control with DC motor for a turndown ratio of 20:1
- Variable frequency control via a VFD and inverter duty motor for turndown ratio of 10:1, extendable to 100:1 with a vector drive motor



Product Sheet

Applications

Water & Wastewater Treatment

The Chemtube® PPS System is suitable for virtually any chemical used in the water and wastewater treatment process:

- **Chemical Metering** – It provides reliable metering to the point of application, either continuously or intermittent metering of the most difficult to feed chemicals. Sodium hypochlorite, which has a tendency to out gas and “air bind” some metering pumps, is easily handled with the Chemtube® PPS System.
- **Sample Pumps** – Ideally suited for supplying water and wastewater samples to on-line analytical equipment
- **Transfer of Chemicals** – All models can be used to transfer chemicals from bulk supplies to day tanks and process tanks
- **Sludge Handling** – Each pump model is capable of delivering a wide variety of sludge, including those with high solids content, to dewatering equipment.

Industrial

The versatile design of the Chemtube® PPS System results in a wide range of application areas across all industries. It is well-suited to handle liquids that exhibit any of the following characteristics or operating conditions:

- Shear sensitivity – The gentle operation of peristaltic technology does not damage the product
- High viscosity
- Abrasive products
- Highly corrosive products – Four choices of tube material (natural rubber, BUNA N, Hypalon®, and EPDM) and three choices of end fittings (PVC, 316 SS, and Titanium) offer a wide range of chemical compatibility
- High density products
- Products with high solids content—slurries, sludge, or other fluids with entrained solids—are pushed through the pump
- Crystallization products – There are no valves, seats, or orifices where crystals can accumulate
- High suction lift – Near full vacuum capability on suction provides over a 8.5-meter-of-water lift (28-foot-of-water lift)
- Self-priming capability – Since the pump seals even when dry, it will self-prime regardless of back pressure

Technical Data

Materials of Construction: Pump housing-cast iron, rotor-cast iron or carbon steel, roller-cast iron or 304 SS

Hose Sizes: 5, 10, 16, 26, 40, 55, 68, and 76 mm (inside diameter)

Discharge Pressure: Up to 15.5 bar (225 psi), dependent on hose size and pump speed

Suction Lift: over 8.5 m (28 ft).

Fluid Temperature: 95° C (203° F)

Hose Materials: Natural Isoprene, BUNA N, Hypalon®, and EPDM

Connection Sizes: 12.7 mm (1/2") NPT to 76.2 mm (3") ANSI 150lb. flange

Connection Materials: Choice of PVC, 316 SS, or Titanium

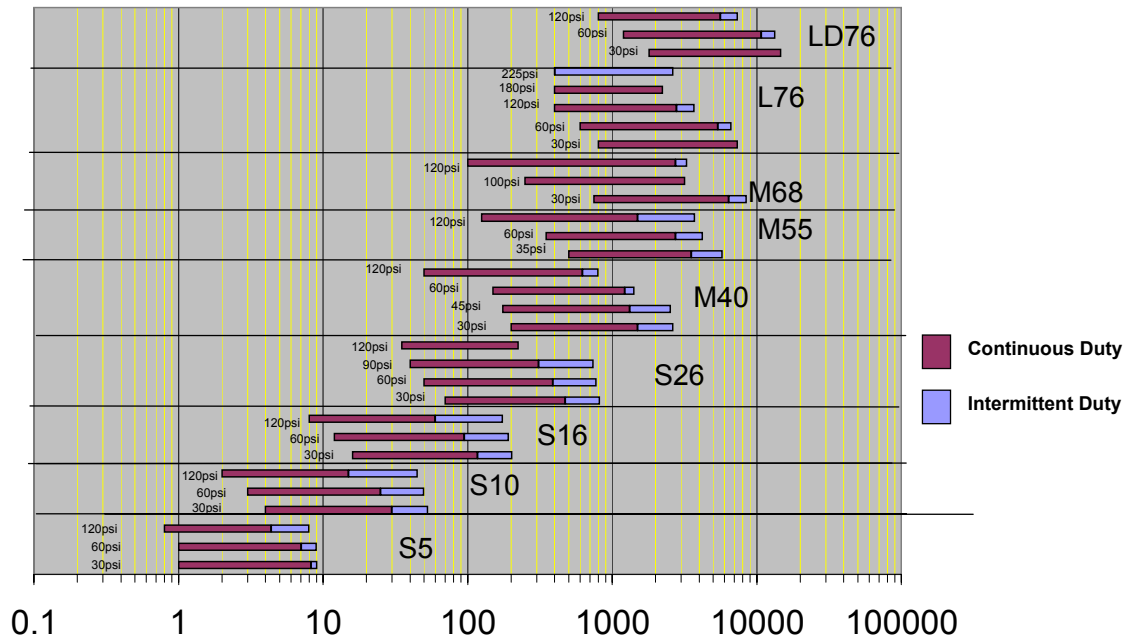
For detailed technical and sizing information, refer to the individual Technical Information data sheets for each model.



Sludge Feed



Lime Slurry



Capacities

There are seven different hose sizes and eight different models of the Chemtube® PPS system available. This chart identifies the approximate model for your application based on capacity and backpressure. To obtain maximum hose life, you must also take the duty cycle into consideration. If operation is intermittent (maximum one hour running

with minimum one hour off), then it is possible to use a smaller size pump running at a higher speed. For continuous operation, select a pump with a larger hose size that runs at a lower speed.

Models

S Series

The Chemtube® PPS S Series Systems consist of the four smallest size pumps. This includes the S5, S10, S16, and S26 models. These pumps all feature a compact, right-angle gear reducer and motor. The resulting footprint is smaller than similar capacity hose pumps and even more compact than the less robust, peristaltic tubing pumps. A clear acrylic cover provides visual indication of pump operation.



M Series

The Chemtube® PPS M Series Systems feature the M40, M55, and M68 models. Similar to the S Series, the M Series features a compact, right-angle gear reducer and motor for the lower pressure applications. A direct-coupled, coaxial drive arrangement is used for high-pressure applications. An acrylic window provides visual indication of pump operation. Inlet and discharge connections are flanged for ease of service and installation.



L Series

The Chemtube® PPS L Series Systems consist of two models, L76 and LD76, both of which utilize the same 76 mm hose size. The LD76 is a dual hose configuration, which is double the capacity of the L76. The inlet and discharge connections can be manifolded so that only a single customer connection is required at the inlet and outlet. This series uses three rollers, spaced 120° apart to provide for a smoother flow. In the LD76 arrangement, the combined six rollers are spaced 60° apart to provide a virtually constant flow output.



In spite of the high capacity, the L Series of pumps offers a small footprint compared to other hose-pump manufacturers. The motor is mounted behind the pump housing and connected via a multiple belt drive to the direct-coupled gear reducer.

Other Liquid Feeders from Siemens:

Premia® 75 Metering Pumps

A six-model line of solenoid pumps, available from single mode control to microprocessor control, with capacities to 79.5 lph (21 gph) and backpressure to 20.7 bar (300 psi). Premium solenoid for continuous duty. See publications WT.460.150.000.IE.PS.



Chemtube® 200 Metering Pumps

Low to Medium capacity tubular, hydraulic diaphragm metering pump with capacities up to 227.1 lph (60 gph) and backpressure to 26.9 bar (390 psi). A second, independently controller pump head can be added to double capacity or meter a second chemical. Built-in pressure relief valve and an automatic hydraulic system ensure long, trouble-free operation. See publication WT.430.500.000.IE.PS.



Encore® 100 Metering Pumps

A robust class of mechanical diaphragm metering pumps featuring a premium composite TFE/Hypalon® diaphragm and clear PVC cartridge valve. Handle capacities up to 181.7 lph (48 gph) and backpressure to 10.3 bar (150 psi). Available with standard induction and variable speed motors. Double simplex capacity. See publication WT.440.050.000.IE.PS.



Chemtube® 2000 Metering Pump

High capacity hydraulic, tubular diaphragm metering pump with capacities to 1998.7 lph (528 gph) and backpressure to 13.8 bar (200 psi). A double simplex configuration available to provide higher capacity. Built-in pressure relief valve and an automatic hydraulic system ensure long, trouble-free operation. See publication WT.430.500.000.IE.PS.



LVN 2000™ Liquid Chemical Feed System

The LVN 2000™ liquid chemical feed system provides reliable feeding of sodium hypochlorite and sodium bisulphate. It uses a vacuum source such as a injector or induction mixer to draw the chemical to the point of application. See publication WT.490.100.000.IE.PS.



Encore® 700 Metering Pumps

Rugged, heavy-duty mechanical diaphragm metering pump available with six diaphragm sizes, duplex and double simplex capability for capacities up to 2400 lph (634 gph) and backpressure to 12.1 bar (175 psi). Same composite diaphragm construction and clear PVC cartridge valves as Encore® 100 pumps with a non-loss motion stroke adjust and optional four-stop-pulley. See publication WT.440.400.000.IE.PS.



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