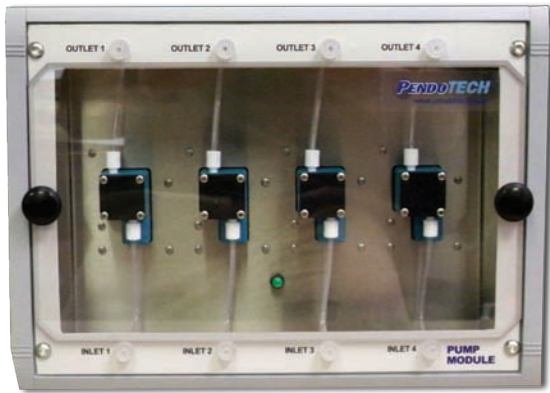


## Filter Screening System Pump Module

The Pump Module is an accessory for the PendoTECH Filter Screening System. The module can only be operated by interface with the system and is not designed to be operated independently. The pumps in the module are precision diaphragm pumps that are controlled from the Filter Screening System.



### Product Features:

- Low shear, long life diaphragm pump technology
- Minimal drop in flow while pumping against back pressure
- Stepper motor control “Rapid Intake” stroke technology that minimizes pulsation
- Space-saving design with quiet operation
- In digital mode, precise pumping from 0.20 mL/min to 30.00 mL/min
- In analog mode, precise pumping from 1.0 mL/min to 30.0 mL/min
- Low internal hold-up volume
- Broad range of chemical compatibility (product contacting internal pump components are all fluoropolymer based)
- May be run dry



### Compact, High-Powered Integrated System for Normal Flow Filter Screening and Sizing



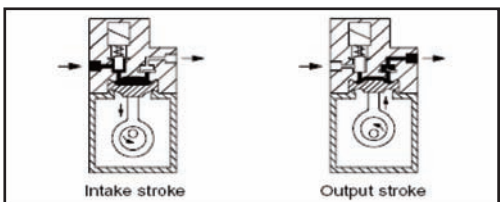
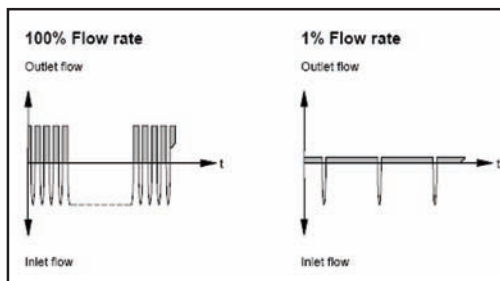
The Pump Module combined with the system and PC based Graphical User Interface provides a compact, high-powered system. With all the pumps in digital mode there is high level of accuracy across the entire pump flow range. In digital mode the Filter Screening System scale inputs are disabled and the total volume filtered is calculated by the control system based on the pumped volume. So this may eliminate the requirement for a scale for each train.

If scales are required to determine exact weight of filtered material, the pump operation can be switched to analog mode, but minimum flow rate is 1 ml/min.

### The “Heart” of the System - Precision Diaphragm Pump

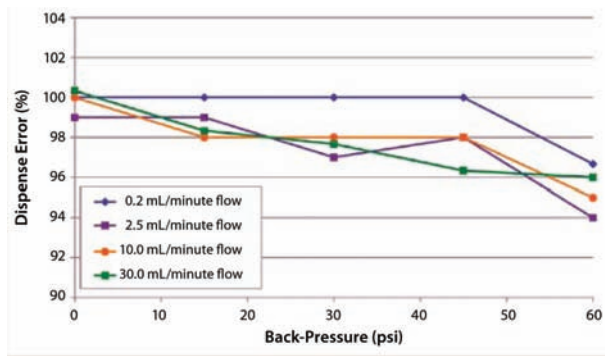
The stepper motor driven diaphragm pump provides the required accuracy and precision along with low shear in a compact design. This pump also has low pulsation due to its unique operating method where the intake stroke is very rapid compared to a varied outlet stroke so that liquid is dispensed evenly. (See picture at left)

A flexible diaphragm is moved up and down by an eccentric connected to the motor shaft. During its downward movement, liquid is sucked through the inlet valve into the chamber; by its upward movement, liquid is pushed through the outlet valve. The pump’s working chamber is hermetically separated from the motor to protect the liquid from contamination. The stepper motor is controlled by an electronic module. The intake stroke is carried out at maximum speed, and the output stroke is varied so liquid can be dispensed evenly — resulting in a quasicontinuous, low-pulsation flow.



## Performance Against Back-Pressure

The pump continues to deliver the set flow rate across the range of back-pressures that may be encountered during a normal flow filtration process. The data in the graph represents there is minimal flow decay as pressure downstream of the pump increases.



## Pump Module Specification Table

System Component	Specifications	
Enclosure (with legs not retracted)	H x W x D: 9.85"x13.8"x10.3" (25 x 35.1 x 26.3 cm) Approx: 15 lbs. (6.80 kg), Material: Aluminum with powder polyester paint Front panel: 304 Stainless Steel with Lexan® cover; Back panel: anodized aluminum	
Power Inlet With Power Switch	IEC 320 cord connection, 100 – 240 Volts, 50 – 60 Hertz, 2 amp max	
Fuse	2 amps (housed integral with the Power Switch) at full voltage range	
Environmental Operating Range	All components rated to a temperature range of 5 to 40° C Humidity: 0 to 95% Relative Humidity, no condensation	
Pump Diaphragm Lifetime	>10,000 hours	
Diaphragm Pump Fittings	UNF 1/4inch-28 threaded connectors	
Fluid Property Range	Permissible temperature of the medium being handled: 5 to 80°C The dosing pump has been developed for liquids with viscosities of up to 150cSt. If particles greater that 25micron are present, a filter is recommended.	
Digital Pump Control*	Four DB-9 female connectors. Each configured for serial communication command from PendoTECH Filter Screening System (if in digital mode) Flow Range: 0.2 to 30 mL/min, Accuracy: 0.2-0.5 mL/min +/- 10% of value; 0.5-30 mL/min +/- 5% of value, Repeatability: +/- 1%	
Analog Pump Control*	One DB-25 male connector. Configured for 4-20mA signals from PendoTECH Filter Screening System (if in analog mode) Control System Settings for Pump Setup: 0.167 ml/rotation, Maximum RPMs: 180, Flow Range: 1.0 to 30 mL/min Accuracy: +/- 5% of value, Repeatability: +/- 1%	
Diaphragm Pump Hold Up Volume	Pump Chamber: 0.167 mL Other: 0.47 mL Total pump: 0.637 mL for one train	
Tubing for Connection of Pump to Panel	1/8 inch (0.3175 cm) OD Length: 5 inches (12.7cm) per piece Tubing total: 0.44 mL for one train	ID: 0.059 inches (0.15cm) Hold-up: 0.22 mL per piece
Hold Up Volume per Train	1.077 mL	



\*Digital/Analog control selection is made in the system and the pumps must be re-configured by PendoTECH to receive the correct signal if any changes are desired after initial installation.

## Ordering Information

PDKT-PUMP-NFFSS	Pump Module for PendoTECH Filter Screening System
PDKT-STAND-NFFSS	Stainless steel stand for filter screening system

