

## Filamatic

### Your Specialist in Liquid Filling

Filamatic, a division of National Instrument, LLC, has been serving the pharmaceutical, biotech, healthcare, contract packaging, cosmetic, chemical specialty and food industries since 1950. We provide a wide range of equipment that can be customized to suit your unique application and budget.

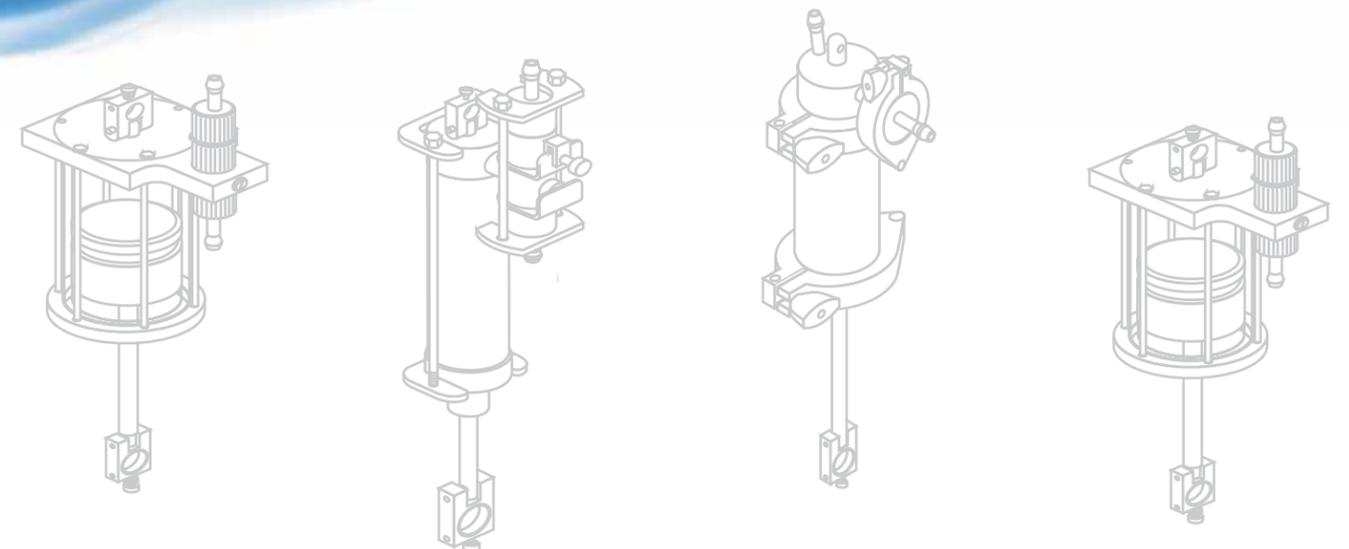
We meet the ever changing demands of our customers by providing high performance, reliable liquid filling systems that deliver value, accuracy, faster changeover, and low total cost of ownership year after year. Today as always, the heart of our business lies in the strong and lasting relationships we enjoy with our customers.



*Specialists in Liquid Filling Systems*

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## Piston Filling Units



## Filamatic Piston Pumps

### The Heart of the Filling System

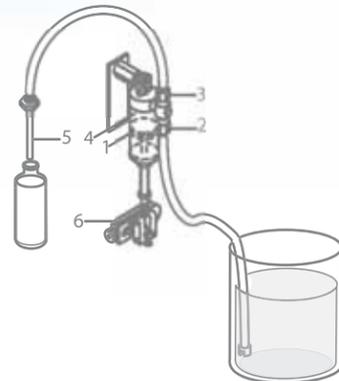
Filamatic's positive displacement piston pumps are designed to repetitively dispense preset volumes of fluids with a high degree of accuracy. The pumps are interchangeable up to the rated capacity of the filler and are available in a variety of models. Some features include:

- 💧 Fills liquids including molten products, injectables, corrosive chemicals, and shear sensitive products
- 💧 Accuracy to  $\pm 1/2\%$  or better
- 💧 Self-priming
- 💧 Easy to disassemble and clean; fully autoclavable
- 💧 Fills from floor level drum, overhead supply, or pressurized reservoir
- 💧 Sanitary pumps are available that meet pharmaceutical and cosmetic good manufacturing practices
- 💧 All metal product contacting parts are fabricated of type 316 or 316 L stainless steel

## How It Works

### A Closer Look at the Piston Pump

Product is supplied to the Filling Unit from a floor level reservoir, an overhead supply or a pressurized source. Downward motion of the piston (1) creates a vacuum in the pump chamber (4), thus opening the intake valve (2). A preset volume of liquid then flows from the supply source into the pump chamber. Upward motion of the piston (1) closes the intake valve (2) and opens the discharge valve (3). Liquid is then discharged from the nozzle. (5) A graduated micrometer control (6) adjusts the piston travel, and thus the volume of liquid dispensed per stroke.



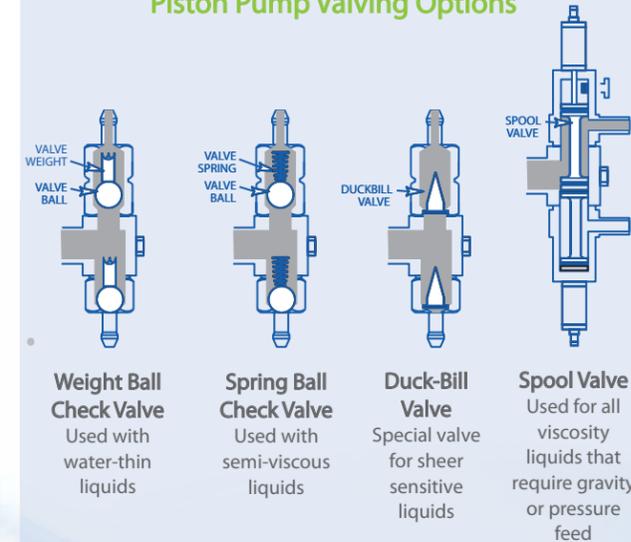
**Built To Order, Built To Last**

## Sanitary Filling Units

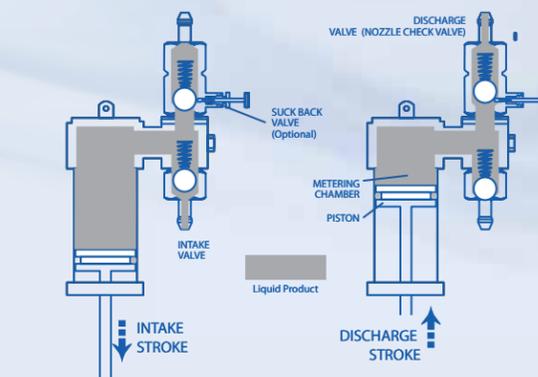
### Ideal for Pharmaceutical & Cosmetic Applications

For applications requiring frequent cleaning and product changeover, non-threaded type SAN/TP Filling Units or Series DUS Filling Units offer the advantage of quick and easy disassembly and assembly.

### Piston Pump Valving Options

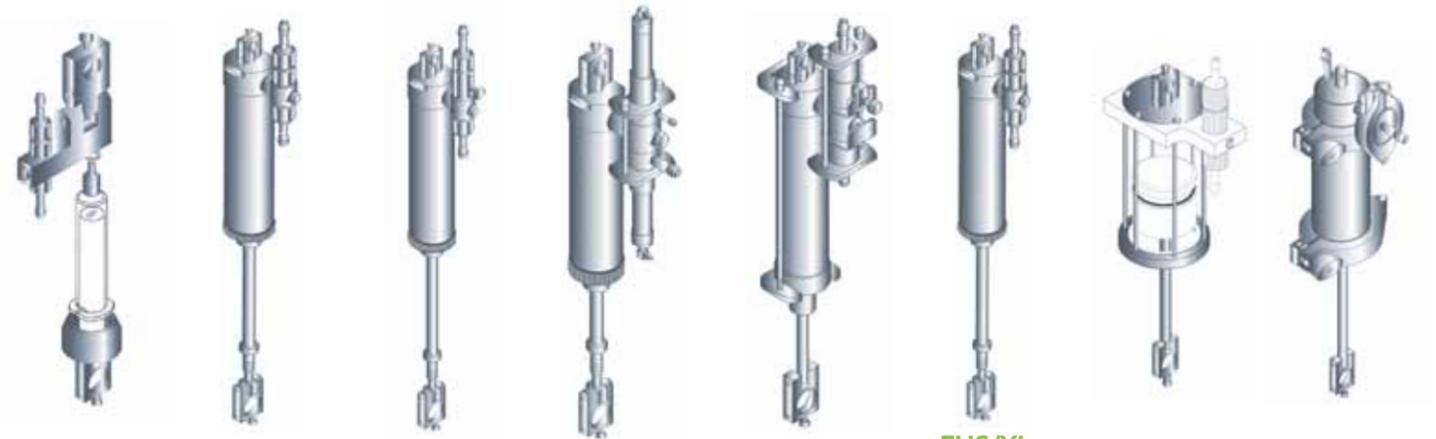


### Piston Pump Operation Description



1. Downward motion of the piston creates a vacuum in the pump chamber, thus opening the intake valve
2. A preset volume of the liquid then flows from the supply source into a pump chamber
3. Upward motion of the piston closes the intake valve and opens the discharge valve
4. Liquid is then discharged from the nozzle

\* A graduated micrometer volume or a servo pump drive determines the piston travel and thus the volume of the liquid product dispensed from the filling nozzle



#### FU-50 Piston Pump 0.3ml to 50ml

Recommended for dispensing free-flowing liquids, the FU-50 uses a glass syringe and 316 stainless steel valving. The syringe sizes are 3ml, 5ml, 10ml, 20ml, 30ml, & 50ml and are interchangeable. Accuracy to  $\pm 1/2\%$  or better.

#### FUS Piston Pump .05ml to 1100ml

Recommended for dispensing free-flowing liquids (perfumes, alcohol, solvents, suspensions and saturated solutions), the FUS Piston Pump's adjustable Teflon piston rings take all the wear. Optional elastomer o-ring seal is available and the entire mechanism is easily disassembled for cleaning. Furnished complete with tubing and nozzle. Elastomer o-ring seals suggested when filling water-based products. Accuracy to  $\pm 1/2\%$  or better.

#### FKS Piston Pump 0.3ml to 1100ml

Recommended for dispensing medium viscosity liquids including shampoos, syrups, and oils, the adjustable suck-back provides sharp, clean cut-off even with stringy material. The adjustable Teflon piston rings take all the wear and the entire mechanism is easily disassembled for cleaning. Optional elastomer o-ring seal is available and the FKS is furnished complete with tubing and nozzle. Accuracy to  $\pm 1/2\%$  or better.

#### FSV Piston Pump 0.3ml to 1100ml

The FSV is a multi-purpose filling unit used for handling a wide variety of free-flowing to viscous materials such as perfumes, petroleum jelly, sauces, cosmetics, etc. It can handle liquids and semi-liquids containing particle matter that is  $1/8"$  and smaller. The FSV Piston Pump will operate with intake pressures up to 75 p.s.i. and is equipped with a positive acting, air-operated spool valve. Accuracy to  $\pm 1/2\%$  or better.

#### FUS/TP & FKS/TP Piston Pump 0.1ml to 1100ml

FUS/TP is for dispensing perfumes, alcohol, solvents, etc. The FKS/TP is for dispensing more viscous products such as shampoos and oils. These pumps are recommended for applications requiring frequent disassembly. The non-threaded tie-rod construction allows for a more sanitary design. By loosening a pair of clamps, you can disassemble the entire pump. Furnished complete with tubing and nozzle. Comes standard with o-ring piston seals. SAN/TP with polished surfaces is also available. Accuracy to  $\pm 1/2\%$  or better.

#### FUS/XL, FKS/XL & FSV/XL Piston Pump 1ml to 1100ml

XL Piston Pumps have an extended range to use with free-flowing, semi-viscous or viscous liquids. Longer stroke and smaller cylinder size permit more pumps to be installed on Filamatic multiple station fillers; expanding the production capabilities of some Filamatic machines by as much as 66%. They provide a 20 to 1 volumetric adjustment—twice the fill range of FUS, FKS and FSV Filling Units. Fill accuracies to  $\pm 1/2\%$ .

#### KYU Piston Pump 0.3ml to 1100ml

Ideal for corrosive chemicals and metal sensitive liquids such as acids and reagents, the KYU pump has a heavy wall, precision bore Pyrex glass cylinder with Kynar piston head and valve housings. Standard Viton or optional Silicone duckbill valving provides greater filling accuracy. Check valves with ceramic balls and Teflon coated springs are available. Piston head, cylinder head and valve casings are fabricated from Kynar. Accuracy to  $\pm 1/4\%$  or better.

#### DUS-HP Piston Pump 0.01ml to 1100ml

Ideal for the pharmaceutical industry, the DUS Piston Pump has no frictional wear parts in the liquid stream, and greatly reduces particle generation. Liquid is contained in a platinum cured silicone diaphragm and the DUS-HP is hand polished injectable grade with 316L stainless steel construction. Accuracy to  $\pm 1/4\%$  or better.



Proudly built in the U.S.A.