

# FLOM Products Catalog

2024.VER. 10.0

## High Precision Fluid Control Devices and Components

**Pumps**

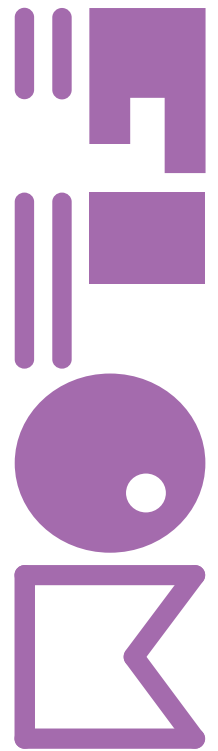
**Valves**

**Degassing Units**

**Liquid Level Sensor**

**OEM Products**

**Tubing and Fittings**



## Message to Our Customers

Inception	<p>Our company started in October 1990 as a developer and manufacturer of components for liquid flow control, particularly as it applied to liquid chromatography. At first we focused on supplying the large OEMs involved in analytical instrumentation with high-pressure valves and related products.</p>
Growth	<p>The next year we began selling our GASTORR line of super-compact, high performance degassing systems to the OEM, general, and overseas markets. In 1992 we reached another milestone with the development of the super-compact non-pulsatile feedback control pump. We were highly gratified to see this pump, embodying a revolutionary feedback system, become a major hit, widely used in a multitude of analytical applications.</p>
Expansion	<p>We have introduced many new products to the market since our inception, and in every instance we have focused on our core mission as a component maker, always striving to develop and manufacture products with ever higher performance and quality. As part of our international sales efforts, we aggressively market our components in the US, Europe, Australia, and many parts of Asia, exhibiting not only at Pittcon, the world's largest analytical fair, but in many other venues throughout the world as well. And every year we announce and demo our latest creations to manufacturers and distributors throughout the industrialized world.</p>
Our Mission	<p>Current analytical applications demand not only ever higher performance and precision, but also products with minimal environmental impact (which includes resource recycling). In line with these new realities, we at FLOM have rededicated ourselves to providing high performance, compact, light, and low cost components that amply comply with the latest environmental regulations and recycling initiatives. As good corporate citizens we take pride in developing new products that contribute to the growth of the analytical market, and to the greater benefit of human society as well.</p>

FLOM Corporation

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Note: The specifications and product design may change without prior notice. Due to continual product improvement, the photos and illustrations in this catalog may not match the current appearance of the products described herein. Contact your FLOM sales representative or distributor for information about special order products, which are not listed in this catalog.

# 1. Plunger Pump

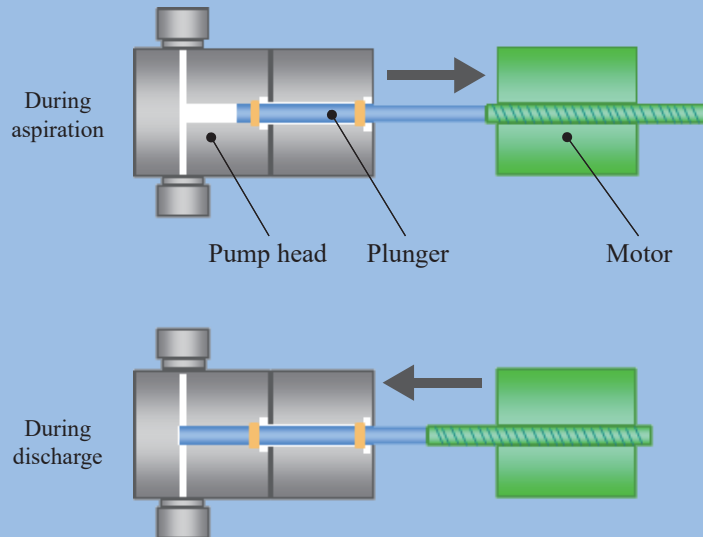
## Plunger Pump Design and Features

FLOM plunger pumps come in two configurations: Linear-drive and Cam-drive.

### Linear-drive for UI and MP Series

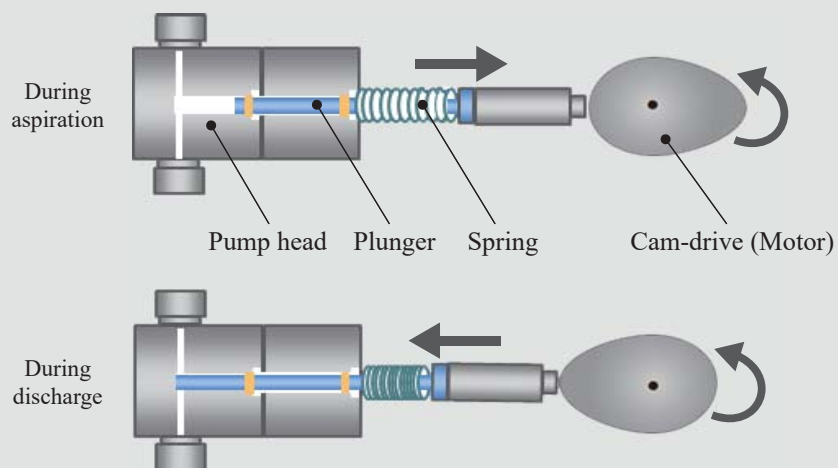
In a linear-drive, the plunger moves along the same axis as the motor.

- Dual pump heads are individually controlled to provide lowest-possible pulsation.
- Long plunger stroke provides strong aspiration and discharge performance.



### Cam-drive for SP Series

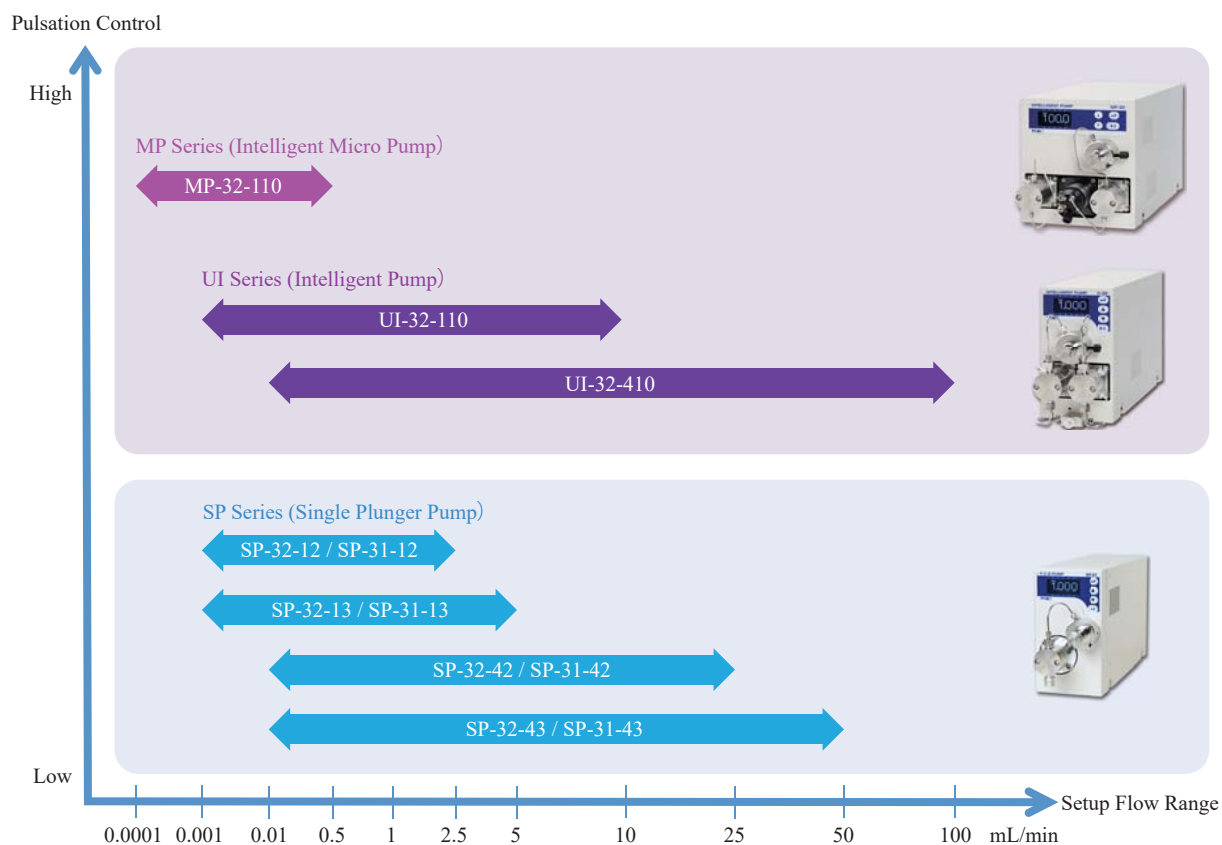
A cam translates the circular motion of the motor into linear motion of the plunger. The spring load returns the plunger to generates aspiration of liquid.



## Selection Guide for Plunger Pumps

FLOM features a full lineup of plunger pumps for a wide variety of flow control systems and flow volume ranges. Depending on your application and goals, choose SUS, PEEK, or Fluoropolymer as your pumphead material.

Pump Guide 1. Pulsation Control and Flow Range



Pump Guide 2. Pumphead Material

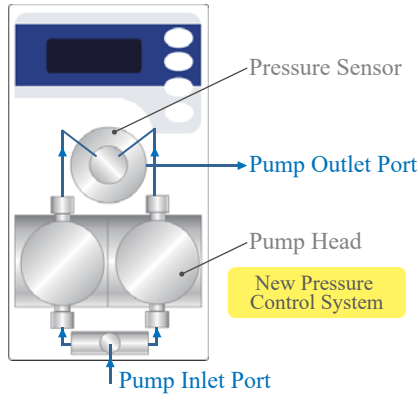
Material	SUS	PEEK	Fluoropolymer
Max Pressure	5 ~ 35 MPa* <sup>1</sup> (725 ~ 5075 psi)	5~20 MPa* <sup>1</sup> (725 ~ 2900 psi)	2 MPa (290 psi)
AVOID use with	<ul style="list-style-type: none"> <li>strong acids</li> <li>certain inorganic salts</li> </ul>	<ul style="list-style-type: none"> <li>tetrahydrofuran</li> <li>halogenated solutions</li> <li>strong acids</li> </ul>	<ul style="list-style-type: none"> <li>tetrahydrofuran</li> <li>halogenated solutions under high temp</li> </ul>

\*<sup>1</sup>: Depends on device

## About the Intelligent Pump UI-32 Series

The UI-32 Intelligent Pump is a high-precision pump which provides ultra-low pulsation flow. New real-time pressure control system equalizes the pump's internal/external pressure to ensure stable continuous flow.

### ● Design Concept



#### New Compact Linear Drive Mechanism Equipped



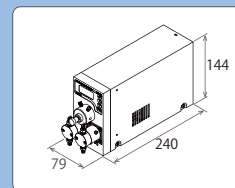
- Real-time pressure control system equalizes the pump's internal/external pressure to ensure ultra-low pulsation continuous flow.
- Independent control of dual pump mechanism prevents pressure drop or unstable flow condition when air is accidentally aspirated into the pump.

### ● Compact Design



Smaller pump design saves space and increase possibility of making OEM built-in specification

20% less in width



### ● Features

**Wetted Materials**

#### Selectable Material Lineups

SUS

PEEK

PCTFE

Under development

**High Pressure**

#### Max. 40 MPa (5800 psi)

The greatest advantage of the plunger pump is its reliable, continuous flow at high pressure.

**Pulsation Reduced**

#### Self-learning Controlled Flow

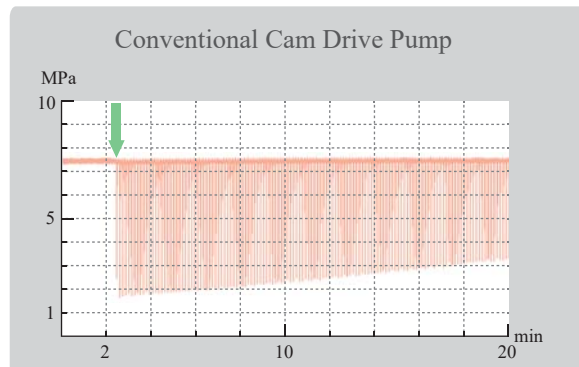
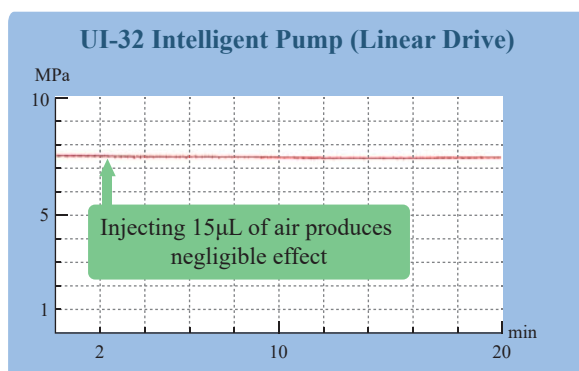
The pump minimizes automatically pulsation with adjusting flow condition.

**Trouble Reduced**

#### Prevents Trouble by Air Bubbles

The independently controlled linear-drives compress air bubbles to ensure stable flow.

### ● Flow Stability





## Linear-Drive Pulsation Control Intelligent Pump UI-32 Series

Combines high-precision flow and ease of use



Intelligent Pump  
UI-32-110S

Intelligent Pump  
UI-32-110P

### Features

- ☐ Provides ultra-low pulsation continuous flow
- ☐ Trouble related to air bubble greatly reduced
- ☐ Long life plunger seal
- ☐ Selectable 3 convenient flow modes
- ☐ Upper and lower pressure limiters
- ☐ Space-saving compact design
- ☐ Control with RS232C communication protocol
- ☐ Choose SUS, PEEK, or PCTFE (under development)

Product Name	Intelligent Pump			
Product Number	UI-32-110S	UI-32-110P	UI-32-410S	UI-32-410P
Pump Head Material	SUS316	PEEK	SUS316	PEEK
Max Pressure* <sup>1</sup>	40 MPa (5800 psi)	20 MPa (2900 psi)	5 MPa (725 psi)	5 MPa (725 psi)
Flow Rate Range* <sup>2</sup>	0.001 ~ 9.999 mL/min		0.01 ~ 99.99 mL/min	
Flow Per Stroke	80 μL		718 μL	
Plunger Stroke	10 mm			
Flow Repeatability* <sup>2</sup>	< 0.3 % (0.1 ~ 5.0 mL/min)		< 0.3 % (1 ~ 50 mL/min)	
Flow Accuracy* <sup>2</sup>	± 2.0 % or ± 2 μL/min or less, whichever is greater (at 5 mL/min or the lower)		± 2.0 % or ± 20 μL/min or less, whichever is greater (at 50 mL/min or the lower)	
Flow Mode	Continuous flow mode , Consistent pressure flow mode , Timer flow mode			
Satefy Function	Upper / lower pressure limiters			
Pressure Accuracy	± 0.2 MPa (± 29 psi)			
Wetted Materials	SUS : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , FFKM , ELGILOY®* <sup>3</sup> , PEEK , SUS316 PEEK : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , FFKM , PEEK ,ETFE			
Remote Control	Input : START / STOP , Output : ERROR / FUNC (either one of READY / END / RUN) DC1-5V input : Flow rate setup , DC1-5V Output : Pressure signal			
Communication	RS232C , RS485 (between FLOM devices)			
Dimensions	144 (H) × 79 (W) × 240 (D) mm , excluding protuberances			
Weight	Approx. 3.8 kg	Approx. 3.0 kg	Approx. 3.8 kg	Approx. 3.0 kg
Power	AC100 ~ 240V (50 / 60 Hz) , MAX 80 VA			
Environment Temperature	5 ~ 40 °C , 20 ~ 80 % RH (Non-condensing)			
Order Code	SLP-P5006	SLP-P5008	SLP-P5010	SLP-P5011

\*1: Maximum pressure is only sustained intermittently, this does not mean maximum pressure under continuous use.

\*2: Test data generated under FLOM's standard test conditions.

\*3: ELGILOY® is a registered trademark of the Elgiloy Specialty Metals.

## Automated Pressure Control for UI and MP Series Auto Backpressure Regulator BP-11 Series

Automatic pressure regulation for changes due to factors such as temperature and flow fluctuations

### Features

- ☐ Provide consistent pressure by tracking variable pump pressure in real time
- ☐ UI and MP Series provide stable flow, BP-11 Series maintains set pressure



Auto Backpressure Regulator  
BP-11S

Product Name	Auto Backpressure Regulator	
Part Number	BP-11S	BP-11D
Wetted Materials	SUS316, PFA	PCTFE, PFA
Path Diameter	0.6 mm	
Setup Pressure Range	0.10 ~ 5.00 MPa (14.5 ~ 725 psi)	
Flow Rate Range	0.1 ~ 100 mL/min	
Features	Manual mode, Auto-stop	
Pressure Accuracy* <sup>1</sup>	± 0.1 MPa (± 14.5 psi)	
Pressure Signal Range	Uses pressure signal from UI / MP pumps [ DC1 - 5V ]	
Remote Control	Input: Start / Stop, Output: FUNC RS232C, RS485 (between FLOM devices)	
Dimensions	144 (H) × 79 (W) × 240 (D) mm, excluding protuberances	
Weight	Approx. 2.7 kg	
Power	AC100 ~ 240 V (50 / 60 Hz) MAX 70 VA	
Order Code	SBP-F012	SBP-F019

\*1: Using pure water or methanol, pressure 0.5 ~ 5.0 MPa / flow rate 0.1 ~ 50.0 mL/min.

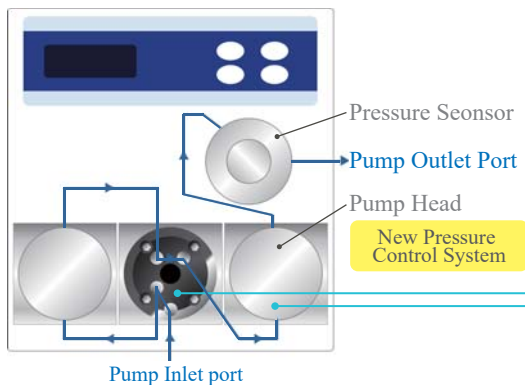
※: please contact us if you need flow rates outside 0.1 ~ 50 mL/min.



## About the Intelligent Micro Pump MP-32 Series

The MP-32 Intelligent Micro Pump is specially designed for needs of continuous low-pulsation flow in micro-liter scale flow range.

### ● Design Concept



Active Valve



Linear-drive Pump

- Active valve perfectly controls timing of opening / closing the flow path without causing flow fluctuation.
- FLOM linear-drive ensures accurate control of the plunger's motion with monitoring the pump's internal / external pressure.

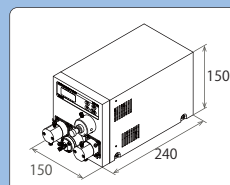
### ● Compact Design



Smaller pump design saves space and increase possibility of making OEM built-in specification

20% less in width

15% less in depth



### ● Features

Low-pulse  
Continuous  
Flow

#### Switching Valves + Linear Drive Pump

FLOM's unique design concept reduces pulsing to an absolute minimum.

Trouble  
Reduced

#### Designed without Check Valves!

Reliable, stable flow at low flow rates.

New  
Design

#### Cost-effective

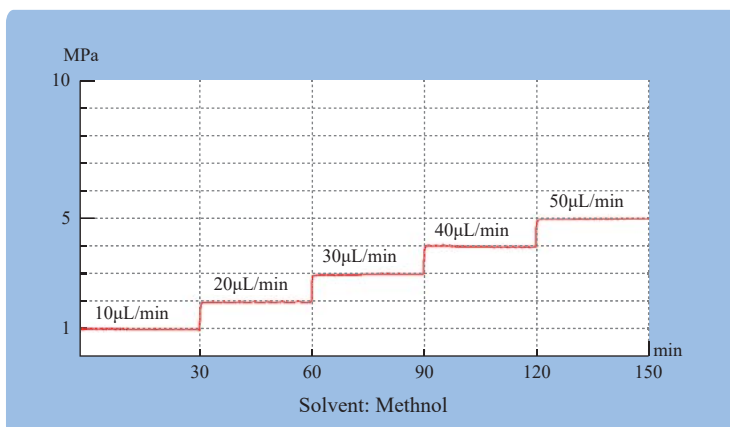
Several parts could be reduced by applying the new high performance valve.

High  
Pressure

#### Maximum Pressure 40MPa (5800 psi)

The greatest advantage of the plunger pump is its reliable, continuous flow at high pressures.

### ● Flow Stability







Intelligent Micro Pump  
MP-32-110S



Intelligent Micro Pump  
MP-32-110P



## Auto Valve-Equipped Linear-drive Pulse Control Intelligent Micro Pump MP-32 Series

Uses FLOM's unique configuration of  
switching valve and linear-drive pump

### Features

- Improved near-zero pulse flow
- Problems with bubbles greatly reduced
- Long life plunger seal
- Upper and lower pressure limiters
- Space-saving compact design
- Control with RS232C communication protocol

Product Name	Intelligent Micro Pump	
Product Number	MP-32-110S	MP-32-110P
Pump Head Material	SUS316	PEEK
Max Pressure* <sup>1</sup>	40 MPa (5800 psi)	20 MPa (2900 psi)
Flow Rate Range* <sup>2</sup>	0.1 ~ 500.0 $\mu$ L/min	
Flow Per Stroke	80 $\mu$ L	
Plunger Stroke	10 mm	
Flow Repeatability* <sup>2</sup>	< 0.3 % RSD (10 ~ 250 $\mu$ L/min)	
Flow Accuracy* <sup>2</sup>	$\pm 2.0$ % or $\pm 0.2$ $\mu$ L /min or less, whichever is greater (at 250 $\mu$ L/min or the lower )	
Flow Mode	Continuous flow mode , Timer flow mode	
Safety Function	Upper / lower pressure limiters	
Pressure Accuracy	$\pm 0.2$ MPa ( $\pm 29$ psi)	
Wetted Materials	SUS : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , FFKM , ELGILOY®* <sup>3</sup> , PEEK , SUS316 PEEK : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , FFKM , PEEK	
Remote Control	Input : START / STOP , Output : ERROR / FUNC (either one of READY / END / RUN) DC1-5V input : Flow rate setup , DC1-5V Output : Pressure signal	
Communication	RS232C , RS485 (between FLOM devices)	
Dimensions	150 (H) $\times$ 150 (W) $\times$ 240 (D) mm , excluding protuberances	
Weight	Approx. 5.1 kg	
Power	AC100 ~ 240V (50 / 60 Hz) , MAX 250 VA	
Environment Temperature	5 ~ 40 $^{\circ}$ C , 20 ~ 80 % RH (Non-condensing)	
Order Code	SMP-P5501	SMP-P5502

\*1: Maximum pressure is only sustained intermittently, this does not mean maximum pressure under continuous use.

\*2: Test data generated under FLOM's standard test conditions.

\*3: ELGILOY® is a registered trademark of the Elgiloy Specialty Metals.

## Roller Pump

### Roller Pump WP-21

Great for plunger pump cleaning and basic pumping  
applications

### Features

- Choose tubing to match your solvent
- Tube cassette can be set in any of 4 directions
- Space-saving compact design

Product Name	Roller Pump
Part Number	WP-21
Flow Rate Range	Approx. 0.5, 1.0, 2.0, 3.0 mL/Min. (4 step settings in rotary style)
Features	hold down front switch to purge (approx. 5mL/min)
Flow Rate Accuracy	$\pm 5$ % (fresh Pharmed® BPT* <sup>1</sup> )
Max Pressure	90 kpa or less (Pharmed® BPT* <sup>1</sup> )
Intake Pressure	-90 kpa or less (Pharmed® BPT* <sup>1</sup> )
Liquid Temperature Range	5 ~ 50 $^{\circ}$ C
Rotary Direction	Clockwise when viewed from front
Remote Control	Input : OFF / ON switch Output : Error from open collector
Tubing	Pharmed® BPT* <sup>1</sup> / Fluran F-5500-A / TransMaster TM-15
Dimensions	65 (H) $\times$ 46 (W) $\times$ 110 (D) mm, excluding protuberances
Weight	Approx. 0.5 kg
Power	DC 24 V, MAX 15 W (AC Adapter included)
Order Code	SWP-F021

\*1: "Pharmed® BPT" is a registered trademark of Saint-Gobain, S.A.

※ Product comes with Pharmed® BPT tubing standard.

Please contact us if you prefer Fluran F-5500-A or TransMaster TM-15 tubing.

※ Pumping action begins automatically as soon as the power is turned on.



Roller Pump  
WP-21



Pharmed® BPT  
standard



Fluran F-5500-A  
(sold separately)



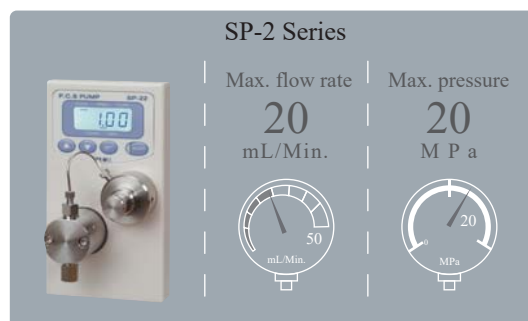
TransMaster TM-15  
(sold separately)

## About the Single Plunger Pump SP Series

A new cam-drive mechanism provides stable flow up to the maximum setup flow rate. Low pulsation continuous flow can be provided with using a pulsation damper.

### ● High Performance Single Plunger Pump

- Wider setup flow rate range
- Improved maximum pressure



Pump head material is available to choose from Stainless Steel and PEEK specifications.

**Stainless Steel Specification:**

Designed for high pressure with allowance for wide range of chemical resistance

**PEEK Specification:**

Designed for applications not expected to be exposed to metal

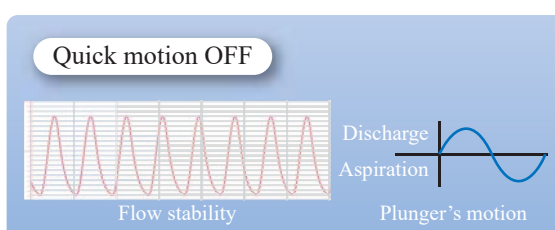
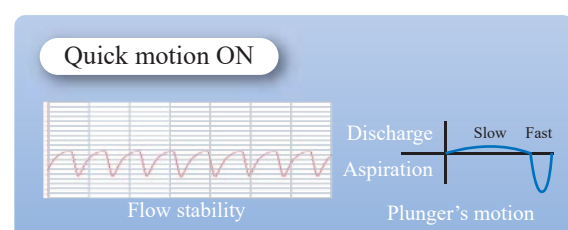
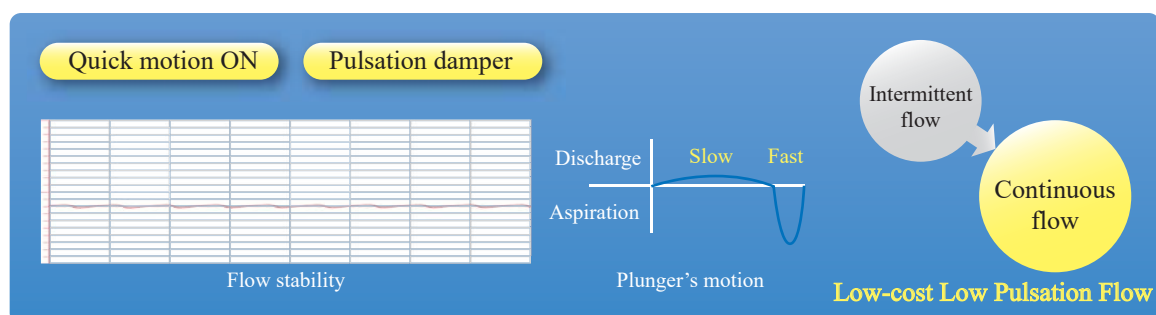
### ● Cost-saving Low Pulsation Continuous Flow

Instead of using dual plunger pump, we would like to recommend a combination of SP single plunger pump and pulsation damper.

The pulsation damper is available to choose from 3 types as low, medium and high pressure.



By setting a function of Quick Plunger Motion of SP pump and adding a pulsation damper,  
**low pulsation continuous flow can be provided.**



Solvent: Methanol, Flow rate: 1.0 mL/Min., Backpressure: 10 MPa (1450 psi)

PCS Pump  
SP-32-13SPCS Pump  
SP-32-13P

## Cam-drive Single plunger pump PCS Pump SP-32 series

Single plunger pump equipped with pressure sensor

### Features

- ☐ Uses proven cam-driven pump structure
- ☐ Maximum flow rate can be set for continuous operation
- ☐ Quick Plunger Motion for pulse control
- ☐ Pressure sensor allows setting upper / lower limits
- ☐ 3 selectable flow modes
- ☐ 8 separate configurations of flow range / pump head material
- ☐ Control with RS232C protocol

Product Name	PCS Pump (with pressure sensor)							
Product Number	SP-32-12S	SP-32-12P	SP-32-13S	SP-32-13P	SP-32-42S	SP-32-42P	SP-32-43S	SP-32-43P
Pumphead Material	SUS316	PEEK	SUS316	PEEK	SUS316	PEEK	SUS316	PEEK
Max Pressure* <sup>1</sup>	35MPa (5075psi)	20MPa (2900psi)	25MPa (3625psi)	20MPa (2900psi)	5MPa (725psi)	5MPa (725psi)	2MPa (290psi)	2MPa (290psi)
Flow Rate Range	0.001 ~ 2.500 mL/min		0.001 ~ 5.000 mL/min		0.01 ~ 25.00 mL/min		0.01 ~ 50.00 mL/min	
Flow Per Stroke	16 μL		32 μL		144 μL		287 μL	
Plunger Stroke	2 mm		4 mm		2 mm		4 mm	
Flow Repeatability* <sup>2</sup>	< 0.5 % RSD (at 0.100 mL/min or greater)				< 0.5 % RSD (at 1.00 mL/min or greater)			
Flow Accuracy* <sup>2</sup>	± 2.0 % or ± 2 μL/min or less, whichever is greater				± 2.0 % or ± 20 μL/min or less, whichever is greater			
Features	Quick Plunger Motion , Continuous Flow , Timer Mode , Consistent Pressure Mode , Upper / Lower Pressure Limiters							
Pressure Accuracy	± 0.2 MPa (± 29 psi)							
Wetted Materials	SUS : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , ELGIROY®* <sup>3</sup> , PEEK , SUS PEEK : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , FFKM , PEEK							
Remote Control	Input : START / STOP , Output : ERROR / FUNC (either one of READY / END / RUN) DC1-5V input : Flow rate setup , DC1-5V output : Pressure signal							
Communication	RS232C , RS485 (between FLOM devices)							
Dimensions	144 (H) × 79 (W) × 240 (D) mm , excluding protuberances							
Weight	Approx. 2.8 kg							
Power	DC24V , Max 30 W (AC adapter standard)							
Order Code	SSP-P3514	SSP-P3513	SSP-P3517	SSP-P3516	SSP-P3520	SSP-P3519	SSP-P3523	SSP-P3522

\*1: Maximum pressure is only sustained intermittently, this does not mean maximum pressure under continuous use.

\*2: Test data generated under FLOM's standard test conditions.

\*3: ELGILOY® is a registered trademark of the Elgiroy Specialty Metals.

PCS Pump  
SP-31-13SPCS Pump  
SP-31-13P

## Cam-drive Single plunger pump PCS Pump SP-31 series

Single plunger pump without pressure sensor

### Features

- ☐ Uses proven cam-driven pump structure
- ☐ Maximum flow rate can be set for continuous operation
- ☐ Quick Plunger Motion for pulse control
- ☐ Cost-saving without equipping pressure sensor
- ☐ 2 selectable flow modes
- ☐ 8 separate configurations of flow range / pump head material
- ☐ Control with RS232C protocol

Product Name	PCS Pump (without pressure sensor)							
Product Number	SP-31-12S	SP-31-12P	SP-31-13S	SP-31-13P	SP-31-42S	SP-31-42P	SP-31-43S	SP-31-43P
Pumphead Material	SUS316	PEEK	SUS316	PEEK	SUS316	PEEK	SUS316	PEEK
Max Pressure*1	35MPa (5075psi)	20MPa (2900psi)	25MPa (3625psi)	20MPa (2900psi)	5MPa (725psi)	5MPa (725psi)	2MPa (290psi)	2MPa (290psi)
Flow Rate Range	0.001 ~ 2.500 mL/min		0.001 ~ 5.000 mL/min		0.01 ~ 25.00 mL/min		0.01 ~ 50.00 mL/min	
Flow Per Stroke	16 μL		32 μL		144 μL		287 μL	
Plunger Stroke	2 mm		4 mm		2 mm		4 mm	
Flow Repeatability*2	< 0.5 % RSD (at 0.100 mL/min or greater)				< 0.5 % RSD (at 1.00 mL/min or greater)			
Flow Accuracy*2	± 2.0 % or ± 2 μL/min or less, whichever is greater				± 2.0 % or ± 20 μL/min or less, whichever is greater			
Features	Quick Plunger Motion , Continuous Flow , Timer Mode							
Pressure Accuracy	-							
Wetted Materials	SUS : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , ELGIROY®*3 , PEEK , SUS PEEK : Sapphire , Ruby , PCTFE , PFA , UHMW-PE , FFKM , PEEK							
Remote Control	Input : START / STOP , Output : ERROR / FUNC (either one of READY / END / RUN) DC1-5V input : Flow rate setup , DC1-5V output : -							
Communication	RS232C , RS485 (between FLOM devices)							
Dimensions	144 (H) × 79 (W) × 240 (D) mm , excluding protuberances							
Weight	Approx. 2.8 kg							
Power	DC24V , Max 30 W (AC adapter standard)							
Order Code	SSP-P3502	SSP-P3501	SSP-P3505	SSP-P3504	SSP-P3508	SSP-P3507	SSP-P3511	SSP-P3510

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## About the Switching Delivery Pump DP-11

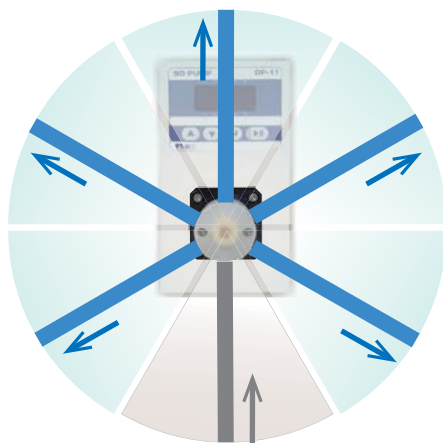
A new conception in multi-purpose pumps from FLOM.

This smart pump can either dispense up to 5 separate channels, or continuously dispense just 1 channel, all in one device.



### What This Pump Can Do!

The DP-11 reliably dispenses to any channels you choose.



Aspirate from one port, and then dispense to another selected port on the fly.  
The reverse is also possible: select any port on the fly to send flow to one port.



Volume  
mL

Flow Rate  
mL / min

Direction  
Aspiration  
Discharge



#### Simple Operation!

Start operation using the menu on the front panel.  
You can even make fine adjustments  
to the piston movement remotely.

### Special Features of the DP-11

#### Accurate Flow

**Accuracy :  $\pm 1.0\%$  or  $\pm 0.01$  mL**  
**Repeatability :  $\pm 0.1\%$  RSD or 0.00 1mL SD (Measuring Mode)**

The DP-11 offers high accuracy flow in both Continuous Flow and Measuring Modes.

#### Chemical Resistance

**Ceramic and PCTFE**  
**Chosen for the Wetted Materials**

High resistance with a wide range of liquids including strong acid

#### Fewer Maintenance Problems

#### NO CHECK VALVES!

This avoids the typical problems you get when pumping highly viscous liquids.

#### Rugged

#### Uses FLOM's Proven Linear Drive!

A smaller mechanical load reduces maintenance frequency.

- For more detailed info on the DP-11, check out the video below.



QR Code Here↑



Switching Delivery Pump  
DP-11

## Switching Delivery Pump DP-11

A single unit controlling high accuracy flow in multiple flow paths and useful in combined pump/valve applications

### Features

- Check valve-less design
- Can set flow to multiple paths
- High chemical resistance
- High accuracy flow volume
- Superior reliability
- Remote control thru RS232C communication

Product Name		Switching Delivery Pump
Part Number		DP-11
Pump Mechanism		Concentric Revolving Control Piston/Reciprocating Method
Pump Flow Modes		Measuring mode, Continuous flow mode, One-shot flow mode ※when remote controlled
Ports		6
Measuring Volume Settings		0.001 ~ 9.999 mL 0.01 ~ 99.99 mL 0.1 ~ 999.9 mL 1 ~ 9999 mL any of the above selectable 0.001 ~ 9999.999mL ※when remote controlled
Flow Rate Settings	Continuos Flow	0.1 ~ 10.0 mL/min (8 mm stroke) 0.1 ~ 6.0 mL/min (4 mm stroke)
	One-Shot Flow	0.1 ~ 25.0 mL/min ※when remote controlled
Maximum Pressure		0.5 (72.5 psi) MPa or less
Volume Per Stroke		300 $\mu$ L (8 mm stroke)
Measuring Mode	Accuracy	$\pm 1.0$ % or $\pm 0.01$ mL or less, whichever is greater* <sup>1</sup>
	Repeatability	0.1 % RSD or 0.001 mL SD or less, whichever is greater* <sup>1</sup>
Continuous Flow Mode	Accuracy	$\pm 2.0$ % or less, only when pumping 1 mL/min or higher* <sup>2</sup>
	Repeatability	0.1 % RSD or 0.005 minutes SD or less, whichever is greater* <sup>2</sup>
Special Functions		Variable piston stroke (8 mm / 4 mm) Piston quick movement (suction / discharge) Flow volume correction
Port Type		1/4-28 UNF
Connecting Tube Diameters		1/8", 3.0 mm, 2.0 mm, 1/16"
Wetted Materials		Ceramic, PCTFE, PTFE, FFKM
Remote Control Signals		Measuring: start measuring, end measuring Continuous flow: start continuous, error either one of the above sets
Communication		RS232C, RS485 (between FLOM devices)
Dimensions		144 (H) $\times$ 79 (W) $\times$ 240 (D) mm, excluding protuberances
Weight		Approx. 2.4 kg
Power		AC 100 ~ 240 V (50 / 60 Hz), MAX 80 VA
Order Code		SSD-F022

\*1: Pure water : Pump Pressure  $\approx$  0.0MPa

\*2: Methanol : Pump Pressure  $\approx$  0.0MPa

### DP-11 Optional Accessories

P/N	Product Name	Notes
9823D	1/8" Flat Seal Fitting D (10/Pack)	For OD 3.0 mm, 1/8" tubing
9774	1/8" Flat Seal Ferrule (10/Pack)	For OD 1/8" tubing
9775	3.0 mm Flat Seal Ferrule (10/Pack)	For OD 3.0 mm tubing
9773	1/16" HEX Flat Seal Fitting (10/Pack)	For OD 1/16" tubing
9706	1/16" M6 Flat Seal Ferrule (10/Pack)	For OD 1/16" tubing
8810	Suction Filter	For OD 3.0 mm, 1/8" tubing
8811	Suction Filter	For OD 1/16" tubing
2710	1/4-28 Seal Plug (4/pack)	DP-11 Stop plug





## Pump Accessories

### Pulse Dampers

These pulsation dampers will improve flow performance of single plunger pumps.  
Available to choose from 3 kinds.



High Pressure Damper  
9810



Medium Pressure Damper  
9805



Low Pressure Damper  
9800

Product Name	High Pressure Damper	Medium Pressure Damper	Low Pressure Damper
Part Number	9810	9805	9800
Max Pressure	20 MPa (2900 psi)	10 MPa (1450 psi)	2 MPa (290 psi)
Pulse Control Range	8 ~ 12 MPa (1160 ~ 1740 psi)	0.5 ~ 5 MPa (72.5 ~ 725 psi)	0.1 ~ 0.7 MPa (15 ~ 102 psi)
Internal Volume	Approx 3.5 mL	Approx 0.8 mL	Approx 0.8 mL
Wetted Materials	PEEK , PTFE	PEEK , FEP	PEEK , FEP
Thread Size	No.10-32 UNF	No.10-32 UNF	No.10-32 UNF
Dimensions	OD 50 mm × 36.5 mm length	OD 45 mm × 150 mm length	OD 45 mm × 33 mm length
Weight	Approx 0.3 kg	Approx 0.3 kg	Approx 0.3 kg
Order Code	PDM-F001	PDM-F003	PDM-F002

### Side Panels for Valve and Pulse Damper

Manual valves such as sample injector, compact valves and pulsation damper can be installed on the side of all FLOM pumps



Side Panel 4512  
Injector Type



Side Panel 4513  
Injector/Damper Type



Side Panel 4514  
Compact Valve Type

Product Name	Side Panel		
Part Number	4512	4513	4514
Pump Type	UI Series, MP Series, SP Series, DP-11		
Attachable Parts	VI-11, VI-12, MI-11, V05	VI-11, VI-12, MI-11, V05	V200, V201, V204, V239, V512
Damper Attachable	No	Yes	No
Dimensions	144 (H) × 60 (W) × 44 (D) mm, excluding protuberances		
Order code	PB1001-10	PB1001-09	PB1001-11

## 2. Valves

We at FLOM have many years' experience developing switching valves and injectors featuring a variety of materials and functionality. The trend in recent years has been to increase our line-up with more compact, high-pressure, wear-resistant products. If you don't see what you're looking for here, let us know what you want. We can probably design a product that fits your needs perfectly.

### Selection Guide for Valves

FLOM valves come in 3 varieties of drive: manual, automatic, or pneumatic (air-driven).

#### Valve Types

Manual	Automatic		Pneumatic (Anti-explosive)
	Stand-alone	OEM	
<b>VI Series</b> (Injector)  <b>MI-11</b> (Ultra high pressure injector)  <b>V Series</b> (Switching valves)	<b>VA-21 Series</b> (High pressure, long life, non-metallic, high volume)	<b>VA-21A Series</b> (High pressure, long life non-metallic, high volume)  <b>VF-03 Series</b> (Ultra high pressure, long life non-metallic, low volume, high speed switching)	<b>415 Series</b>

#### Type of Valve Heads (Examples)

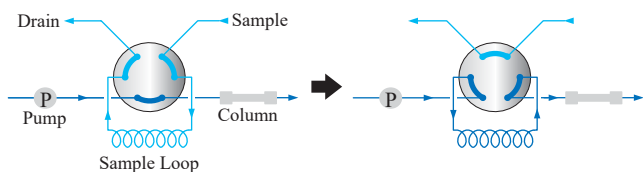




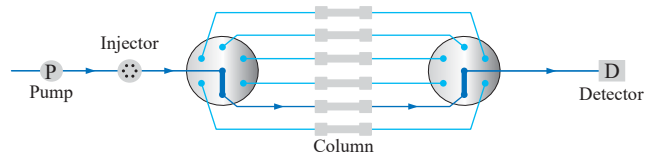
# Types of Switching Valves

These are only a few typical designs – there are many others. If you don't find the configuration you're looking for here, please contact us for more options.

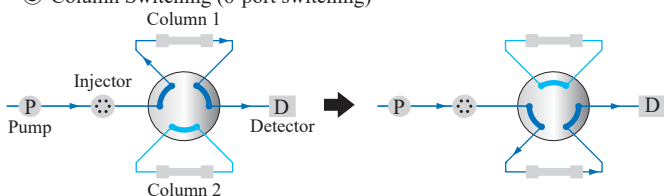
① Sample Injection (6-port switching)



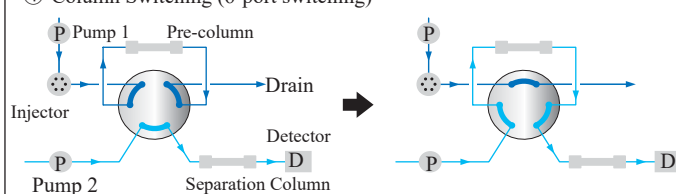
② Column Switching (6-port rotary)



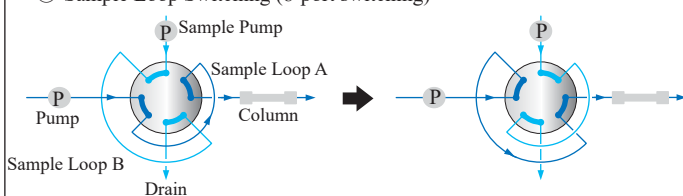
③ Column Switching (6-port switching)



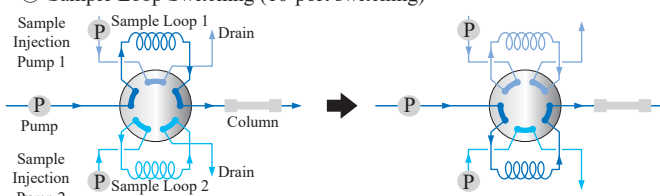
④ Column Switching (6-port switching)



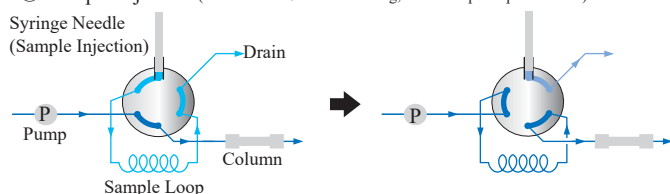
⑤ Sample Loop Switching (8-port switching)



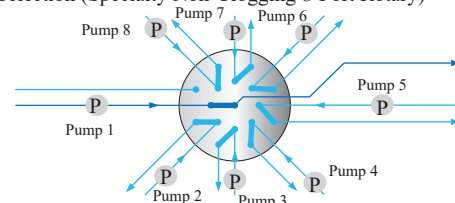
⑥ Sample Loop Switching (10-port switching)



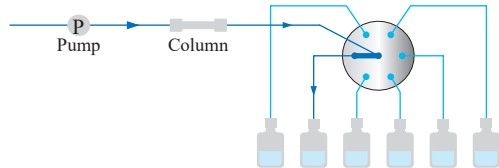
⑦ Sample Injection (Vertical Port 6-Port Switching, Auto Sampler Specification)



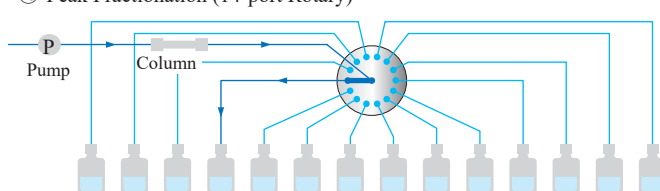
⑧ Pump Selection (Specialty Non-Clogging 8-Port Rotary)



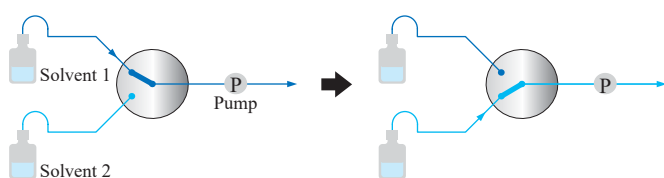
⑨ Peak Fractionation (6-port Rotary)



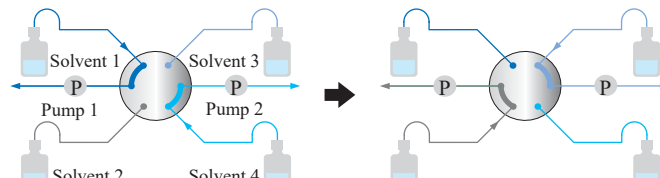
⑩ Peak Fractionation (14-port Rotary)



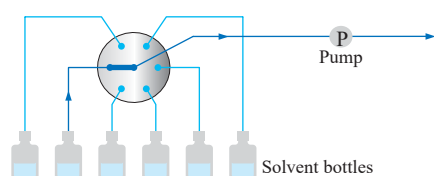
⑪ Solvent Switching (2-port Switching)



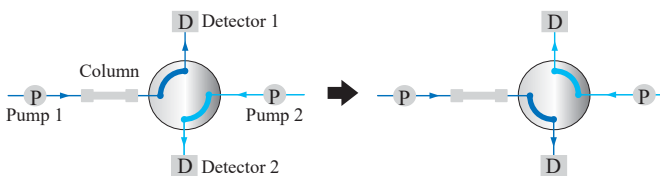
⑫ 2-way Solvent Switching (3-port 2-way Switching)



⑬ Solvent Switching (6-port Rotary)



⑭ Detector Switching (4-port Switching)





Auto Valve Unit VA-21

## Automatic Switching Valves Auto Valve Unit VA-21 series

For general, high speed, and fraction analysis, choose the flow paths you need to cover a wide variety of applications

### Features

- Pick the valve type that fits your application
- Featuring high flow and non-metallic types
- Long valve life based on FLOM technology

### Valve Drive

Product Name	Automatic Switching Valve
Product Number	VA-21
Drive	DC Gear motor drive
Switching Modes	2 position switching, Rotary switching
Manual Input	Position change, Position reset
Remote Control	Input : Position change / Set / Reset    Output : Position, Error
Communication	RS232C, RS485 (between FLOM devices)
Power	DC 24 V, MAX 50 W (AC Adapter standard)
Dimensions	116 (H) × 66 (W) × 200 (D) mm, excluding protuberances
Weight	Approx. 2.0 kg

Valveheads (Consult FLOM if you need valveheads with specs not shown in the graph below.)

P/N	Type	Path Position	Max Pressure	Wetted Material	Tube OD	Thread Size	Path Diameter	Order Code
VA-21-601	6 Port 2 position		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.25 mm (0.010")	SAV-VA-21-601
VA-21-602			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.25 mm (0.010")	SAV-VA-21-602
VA-21-603			40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-603
VA-21-604			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-604
VA-21-605			20 MPa (2900 psi)	SUS, PEEK	1/16"	No.10-32UNF	1.0 mm (0.039")	SAV-VA-21-605
VA-21-606			20 MPa (2900 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	1.0 mm (0.039")	SAV-VA-21-606
VA-21-607			5 MPa (725 psi)	SUS, PEEK	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")	SAV-VA-21-607
VA-21-608			5 MPa (725 psi)	PEEK, Ceramic	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")	SAV-VA-21-608
VA-21-609	4 Port 2 position		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-609
VA-21-610			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-610
VA-21-611	2 Port selection		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-611
VA-21-612			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-612
VA-21-613			5 MPa (725 psi)	SUS, PEEK	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")	SAV-VA-21-613
VA-21-614	4 Port Rotary		5 MPa (725 psi)	PEEK, Ceramic	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")	SAV-VA-21-614
VA-21-615			40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-615
VA-21-616			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-616
VA-21-617	6 Port Rotary		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-617
VA-21-618			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-618
VA-21-619			5 MPa (725 psi)	SUS, PEEK	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")	SAV-VA-21-619
VA-21-620	12 Port Rotary		5 MPa (725 psi)	PEEK, Ceramic	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")	SAV-VA-21-620
VA-21-621			20 MPa (2900 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-621
VA-21-622			20 MPa (2900 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-622
VA-21-623	8 Port 2 position		35 MPa (5075 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-623
VA-21-624	8 Port Rotary		35 MPa (5075 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")	SAV-VA-21-624
VA-21-627	12 Port 2 position		35 MPa (5075 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.25 mm (0.010")	SAV-VA-21-627

\*SUS316 is the material used for SUS.

### VA-21 Optional Accessories

Part Number	Product Name	Cable Length
UF2100-01	VA-21 I/O Cable (Change / Reset only)	1 m
UF2100-02	RS232C Cable (for VA-21 only)	1 m
PF505-01	RS485 Cable	50 cm
PF505-03	RS485 Extension Cable	1 m



Manual Injector VI-11



UHPLC Micro Injector MI-11

## Manual Sample Injector VI Series

### Features

- Choose Stainless Steel or PEEK for the fluid path
- Can output injection marker

## UHPLC Micro Injector MI-11

### Features

- Ultra high-pressure spec allows sample injection into high pressure fluid pathways
- Ultra high precision minimizes sample loss
- Can output injection marker

Product Name	Manual Sample Injector		
Part Number	VI-11	VI-12	MI-11
Wetted Materials	SUS, PEEK, Ceramic	PEEK, Ceramic	SUS, PEEK, Ceramic
Max Pressure	35 MPa (5,075 psi)	35 MPa (5,075 psi)	100 MPa (14,500psi)
Tube OD	1/16"	1/16"	1/16"
Path Diameter	0.5 mm (0.020")	0.5 mm (0.020")	0.25 mm (0.010")
Port Thread Size	No. 10-32 UNF	No. 10-32 UNF	No. 10-32 UNF
Sample Loop (Standard)	20 µL (SUS)	20 µL (PEEK)	5 µL (SUS)
Injection Marker	Built-in (1.5 m Lead Wire)		
Order Code	VH-V271	VH-V276	VH-V340

\*SUS316 is the material used for SUS.

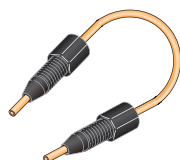
## Optional Accessories



SUS, 20 µL

### SUS Sample Loops (Recommended for SUS Valveheads)

P/N	Volume
7511S	10 µL
7512S	20 µL
7513S	50 µL
7514S	100 µL
7515S	200 µL
7516S	500 µL
7517S	1 mL



PEEK, 20 µL

### PEEK Sample Loops (Recommended for PEEK Valveheads)

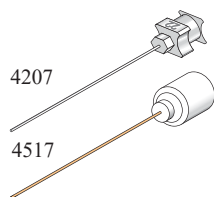
P/N	Volume
7511P	10 µL
7512P	20 µL
7513P	50 µL
7514P	100 µL
7515P	200 µL
7516P	500 µL
7517P	1 mL



MI-11 Sample Loop

### MI-11 Sample Loop

P/N	Volume
7500M	5 µL



4207

4517

### VI-11 • VI-12 Syringe Needles

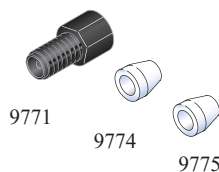
P/N	Spec.
4207	SUS22G* <sup>1</sup>
4517	PEEK* <sup>2</sup>

\*<sup>1</sup> ID 0.5 mm  
\*<sup>2</sup> OD 0.7 mm x ID 0.3 mm

### MI-11 Syringe

P/N	Spec.
4701	SUS26G*

\* ID 0.25 mm



9771

9774

9775

### Low Pressure Fittings (10 / pack) 1/4-28 UNF, rated to 1 MPa

P/N	Name
9771	1/8" HEX Flat Seal Fitting
9774	1/8" Flat Seal Ferrule
9775	3.0 mm Flat Seal Ferrule



9001

9003

9135

9935P

### Medium Pressure Fittings (10 / pack) No.10-32 UNF, rated 20 - 40 MPa

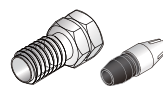
P/N	Name
9001	Easy Fitt 10 mm
9003	Hex Fitt
9135	Hex Fitt Mini
9935P	1/16" Single Lock Fitting P



9935S

### High Pressure Fitting (10 / pack) No.10-32 UNF, rated to 50 MPa

P/N	Name
9935S	1/16" Single Lock Fitting S



9620

### Ultra High Pressure Fittings No.10-32 UNF, rated to 140 MPa

P/N	Name
9620	Dual-Fitt SET (10 /pack)
9621	Dual-Fitting (10 / pack)
9623-05	Replacement Ferrule (5 / pack)
9623-10	Replacement Ferrule (10 / pack)



Compact Manual Valve  
V200



Compact Manual Valve  
V239

## Compact Manual Valves

A convenient, ultra-compact valve for switching flow paths

### Features

- ☐ Attach to the valve panel (sold separately) to allow operation from valve head side
- ☐ A line-up of 5 units to cover a wide variety of applications

Product Name	Compact Manual Valve				
Product Number	V200	V201	V204	V512	V239
Type	6 port 2 position	3 port 2 way	2 port selection	2 port selection	2 port selection
Path Position					
Max Pressure	20 MPa (2900 psi)	20 MPa (2900 psi)	20 MPa (2900 psi)	30 MPa (4350 psi)	1 MPa (145 psi)
Wetted Material	PEEK	PEEK	PEEK	SUS316 , PEEK	PEEK
Tube OD	1/16"	1/16"	1/16"	1/16"	3.0 mm or 1/8"
Path Diameter	0.6 mm (0.024")	0.6 mm (0.024")	0.8 mm (0.032")	0.8 mm (0.032")	1.0 mm (0.039")
Thread Size	No.10-32 UNF	No.10-32 UNF	No.10-32 UNF	No.10-32 UNF	1/4-28 UNF
Order Code	VH-V200	VH-V201	VH-V204	VH-V512	VH-V239



Manual Valve V05

## Manual Valve

A convenient manual valve for switching between flow paths.

### Features

- ☐ Low torque design for easy switching
- ☐ Maximum pressure 35MPa (5075 psi)

Product Name	Manual Valve
Product Number	V05
Type	6 port 2 position
Path Position	
Max Pressure	35 MPa (5075 psi)
Wetted Material	SUS316 , PEEK
Tube OD	1/16"
Path Diameter	0.6 mm (0.024")
Thread Size	No.10-32 UNF
Order Code	VH-V05



### Injector Panel

P/N	Name
4515	Injector Panel

\* The valve shown in the picture is not included and must be purchased separately.

\*This cannot be attached to FLOM pumps. See page 11 for side panels for valve attachment to FLOM pumps.



### Compact Valve Panel (V200, 201, 204, 239, V512)

P/N	Name
45150	Valve Panel

\* The valve shown in the picture is not included and must be purchased separately.

\*This cannot be attached to FLOM pumps. See page 11 for side panels for valve attachment to FLOM pumps.

### 3. Degassing Units

We have redesigned our AG and BG Series units for trouble-free operation.

Consult our “Degassing Performance Comparison Chart” below to find the right unit for your application.



Gastorr AG-42

Gastorr AG-44

#### Solvent Degassing Units

##### Gastorr AG Series

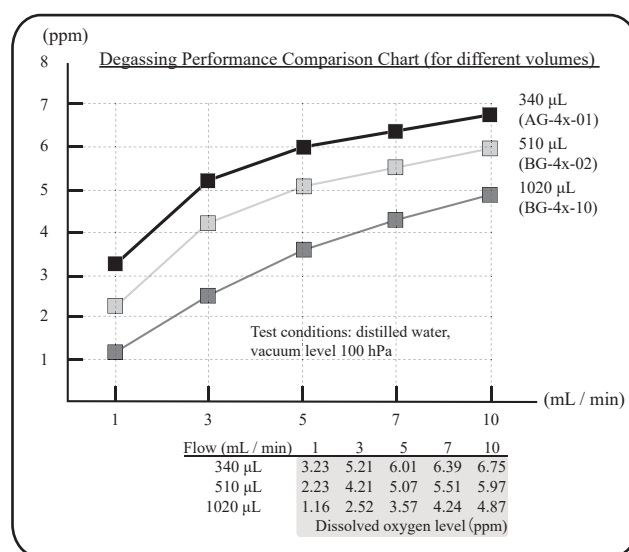
Redesigned high precision degassing unit with improved self-cleaning function

##### Features

- Uses Teflon™AF tubing for minimal internal volume
- Self-cleaning function protects device interior
- CPU control achieves stable degassing
- Independent chamber design prevents solvent contamination
- Choose from 2 channel or 4 channel configurations

Product Name	Gastorr Solvent Degassing Unit	
Product Number	AG-42-01	AG-44-01
Channels	2	4
Internal Volume	340 µL	
Flow Rate	≤ 10 mL/min	
Vacuum Range	100 hPa fixed	
Thread Size	1/4-28 UNF	
Wetted Material	Teflon™ AF*1, PFA, PPS	
Remote Control	—	
Dimensions	108 (H) × 70 (W) × 240 (D) mm (excluding protuberances)	
Weight	Approx. 2.1 kg	
Power	AC 100 ~ 240 V (50 / 60 Hz) MAX 80 VA	
Order Code	SGA-G3001	SGA-G3002

\*1: Teflon™ AF is a registered trademark of the Chemours Corporation.  
Note: cannot be used with fluorinated solvents.



Note that degassing performance may vary depending on operating conditions.



Gastorr BG-42

Gastorr BG-44

#### Solvent Degassing Units

##### Gastorr BG Series

A higher volume degassing unit for even better degassing functionality

##### Features

- Uses Teflon™AF tubing for minimal internal volume
- Choose from 2 internal volumes to fit flow rate
- Self-cleaning function preserves device interior
- CPU control achieves stable degassing
- Independent chamber design prevents solvent contamination
- Choose from 2 channel or 4 channel configurations
- Real time display of chamber vacuum level (OLED display)

Product Name	Gastorr Solvent Degassing Unit			
Product Number	BG-42-02	BG-44-02	BG-42-10	BG-44-10
Channels	2	4	2	4
Internal Volume	510 μL		1020 μL	
Flow Rate	≤ 10 mL/min			
Vacuum Range	100 hPa fixed			
Thread Size	1/4-28 UNF			
Wetted Material	Teflon™ AF*1, PFA, PPS			
Remote Control	Input: —    Output: Error			
Dimensions	108 (H) × 70 (W) × 240 (D) mm (excluding protuberances)			
Weight	Approx. 2.1 kg			
Power	AC 100 ~ 240 V (50 / 60 Hz) , MAX 80 VA			
Order Code	SGA-G3003	SGA-G3004	SGA-G3005	SGA-G3006

\*1: Teflon™ AF is a registered trademark of the Chemours Corporation.  
Note: cannot be used with fluorinated solvents.



Gastorr FG-42

## Solvent Degassing Unit Gastorr FG-42

Degassing unit for fluorinated solvents

### Features

- Meant for use with fluorinated solvents
- Self-cleaning function protects device interior
- CPU control achieves stable degassing
- Independent chamber design prevents solvent contamination

Product Name	Gastorr Solvent Degassing Unit	
Product Number	FG-42	
Channels	2	
Internal Volume	10 mL	
Flow Rate	$\leq 5$ mL/min	
Vacuum Range	150 hPa fixed	
Thread Size	1/4-28 UNF	
Wetted Material	PTFE, ETFE, PPS	
Remote Control	Input: — Output: Error	
Dimensions	108 (H) × 70 (W) × 240 (D) mm (excluding protuberances)	
Weight	Approx. 2.3 kg	
Power	AC 100 ~ 240 V (50 / 60 Hz) , MAX 80 VA	
Order Code	SGA-G3008	



Gastorr PG-41P

Gastorr PG-42P

## Solvent Degassing for Fractionating Applications Gastorr PG Series

Degassing units with flow rates up to 50 mL/min for fractionating applications

### Features

- Flow rates up to a max of 50 mL/min
- Self-cleaning function protects device interior
- CPU control achieves stable degassing
- Independent chamber design prevents solvent contamination
- Choose from 1 channel or 2 channel configurations
- Real time OLED display of chamber vacuum level

Product Name	Gastorr Solvent Degassing Unit	
Product Number	PG-41P	PG-42P
Channels	1	2
Internal Volume	62.0 mL	
Flow Rate	$\leq 50$ mL/min	
Vacuum Range	150 hPa fixed	
Thread Size	1/4-28 UNF	
Wetted Material	PTFE, ETFE, PEEK	
Remote Control	Input: — Output: Error	
Dimensions	180 (H) × 90 (W) × 400 (D) mm (excluding protuberances)	
Weight	Approx. 5.0 kg	Approx. 6.0 kg
Power	AC 100 ~ 240 V (50 / 60 Hz) , MAX 80 VA	
Order Code	SGA-G3501	SGA-G3502



## 4. Liquid Level Sensor



Sonic Reservoir Sensor SR-13

Product Name	Sonic Reservoir Sensor
Product Number	SR-13
Wetted Material	Solvent probe: non-contact, Waste probe: PTFE
Remote Control	Input : — Output: Error
Communication	RS232C (option)
Dimensions	115 (H) × 85 (W) × 80 (D) mm, (excluding protuberances)
Weight	Aprox. 0.7 kg
Power	DC 24V , MAX 15W (AC Adapter standard)
Order Code	FA007-500

### Sonic Reservoir Sensor SR-13

Non-contact liquid level sensor using sound

#### Features

- ☐ Monitors liquid levels in solvent bottles and waste tanks
- ☐ Liquid level displays
- ☐ Alarm sounds at danger level
- ☐ One-touch connection
- ☐ Control with RS232C protocol (option)



#### Probes and Optional Accessories

##### SR-13 Accessories

P/N	Name
FD007-502	Solvent Probe
FD007-503	Waste Probe
FD007-504	Solvent Bottle
FD007-505	Waste Tank
FD007-506	RS232C Terminal



Solvent Probe



Waste Probe



Solvent Bottle  
(1000 mL, Glass)



Waste Tank  
(20L, PE)

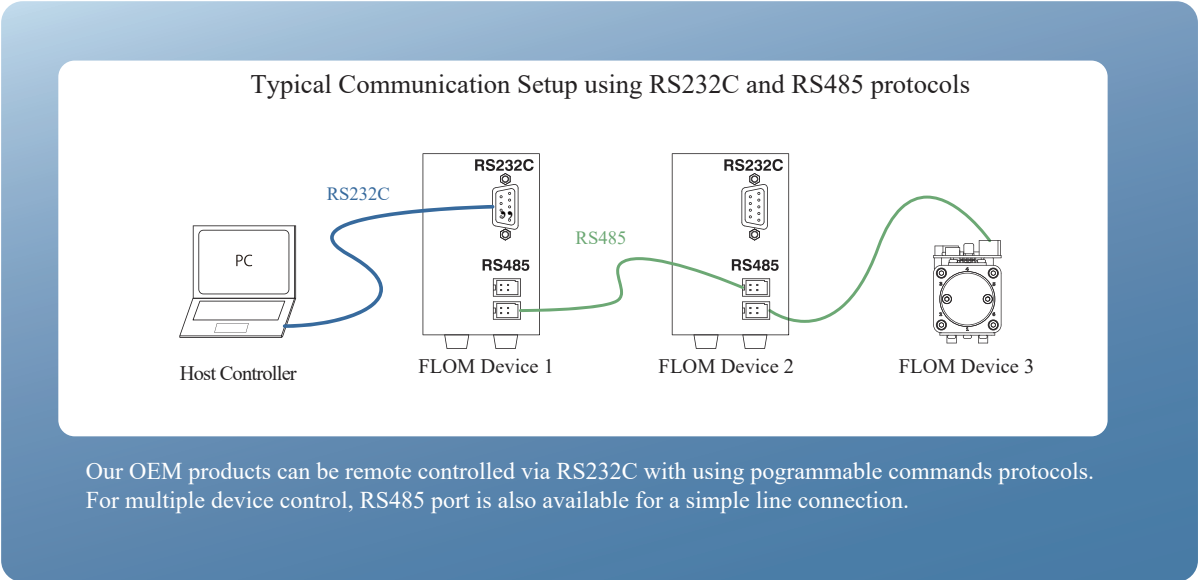


## MEMO

## 5. OEM Products

From the start, our company has developed and manufactured OEM products which have been early sought by the major analytical instrument manufacturers. Our products are highly rated by users for their high accuracy flows, the result of our deep research into and development of flow process mechanisms.

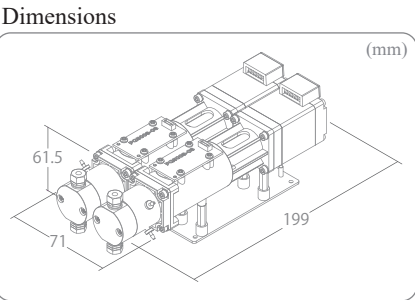
Our device lineup promises high functionality, compact design, and low cost, and all products have been designed to be easy to use.



OEM UNIT

NEW

Linear Drive Pulse Control Intelligent Pump  
**<OEM> Intelligent Pump UI-32 Series**



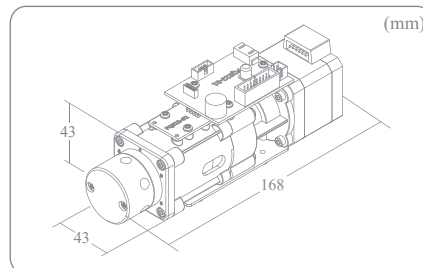
Product Specifications	
Product Name	UI-32A
Pumphhead Material	SUS316, PEEK
Flow Rate Ranges	Choose either 0.001 ~ 9.999 mL/min or 0.01 ~ 99.99 mL/min
Remote Control	Input : START / STOP Output : ERROR / FUNC (either one of READY / END / RUN) DC1-5V input : Flow rate setup , DC1-5V Output : Pressure signal
Communication	RS232C, RS485 (between FLOM devices)
Power	DC 24V , Max 50 W

Note: see page 4 for the standalone version of this product.

## Multi-Functional Piston Pump <OEM> Switching Delivery Pump DP-11



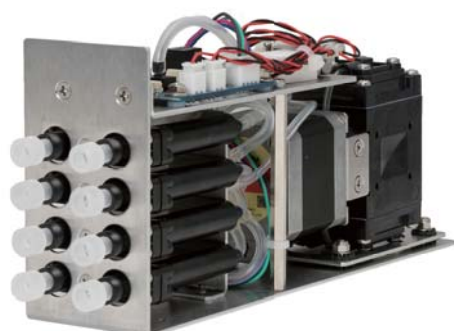
Dimensions



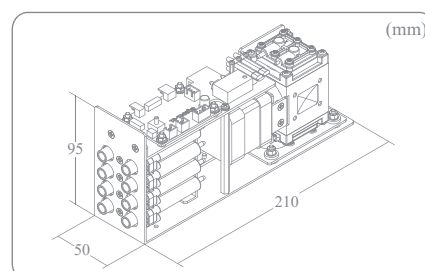
Product Specifications	
Part Number	DP-11A
Pump Flow Modes	Measuring volume, Continuous flow, One-shot flow
Numbers of ports	6
Measuring Vol. Settings	0.001 ~ 9999.999 mL
Flow Rate Ranges	0.1 ~ 25.0 mL/min
Communication	RS232C, RS485 (between FLOM devices)
Power	DC 24 V , MAX 30 W

Note: see page 10 for the standalone version of this product.

## Solvent Degassing Units <OEM> Gastorr AG / BG Series



Dimensions

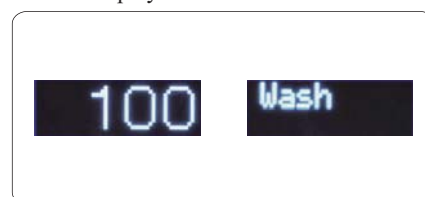


OEM UNIT

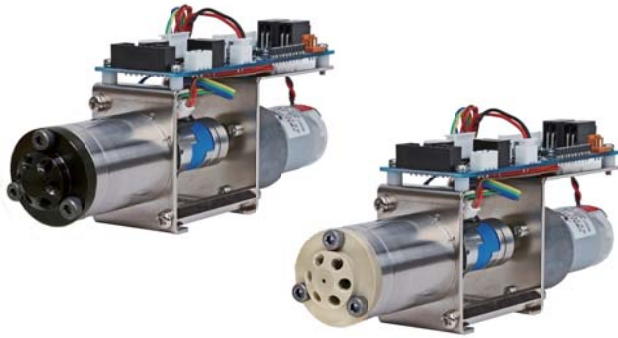
Product Specifications	
Product Number	AG / BG-4xA
Channels	1 ~ 6 (pictured is 4-channel unit)
Wetted Material	Teflon™ AF *1 , PFA, PPS
Internal Volume	340 µL or 510 µL
Remote Control	Input: —, Output: Error
Display	AG: —, BG: OLED Display
Power	DC 24 V , MAX 30 W

\*1:Teflon™ AF is a registered trademark of the Chemours Corporation  
Note: see page 17 for the standalone version of this product..

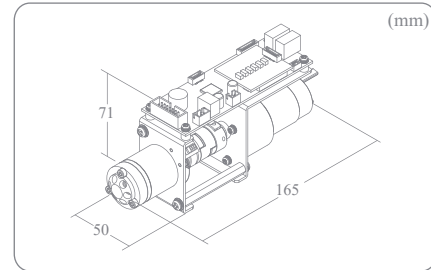
OLED Display



## Automatic Switching Valves <OEM> Auto Valve Unit VA-21A Series



Dimensions



### Valve Drive

Part Name	Auto Valve Unit
Part Number	VA-21A
Drive	DC Gear motor drive
Switching Modes	2 position switching, Rotary switching
Switching Speed	0.5 sec (when switching 60°)
Remote Control	Input: Position change, Set, Reset Output: Position, Error
Communication	RS232C , RS485 (between FLOM devices)
Power	DC 24 V , MAX 50 W
Weight*1	Approx. 0.8 kg

\*1: Weight given is only one example. Actual weight depends on the valvehead installed.

### Valveheads (Contact Flom if you need valveheads with specs not shown in the graph below.)

Part Number	Type	Path Position	Max Pressure	Wetted Material	Tube OD	Thread Size	Path Diameter
VA-21A-601	6 Port 2 position		40 MPa (5800 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.25 mm (0.010")
VA-21A-602			30 MPa (4350 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	0.25 mm (0.010")
VA-21A-603			40 MPa (5800 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-604			30 MPa (4350 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-605			20 MPa (2900 psi)	SUS , PEEK	1/16"	No.10-32UNF	1.0 mm (0.039")
VA-21A-606			20 MPa (2900 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	1.0 mm (0.039")
VA-21A-607	4 Port 2 position		5 MPa (725 psi)	SUS , PEEK	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")
VA-21A-608			5 MPa (725 psi)	PEEK , Ceramic	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")
VA-21A-609			40 MPa (5800 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-610			30 MPa (4350 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-611			40 MPa (5800 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-612			30 MPa (4350 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-613	2 Port selection		5 MPa (725 psi)	SUS , PEEK	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")
VA-21A-614			5 MPa (725 psi)	PEEK , Ceramic	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")
VA-21A-615			40 MPa (5800 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-616			30 MPa (4350 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-617			40 MPa (5800 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-618			30 MPa (4350 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-619	6port Rotary		5 MPa (725 psi)	SUS , PEEK	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")
VA-21A-620			5 MPa (725 psi)	PEEK , Ceramic	3.0 mm or 1/8"	M8×1.25	2.0 mm (0.079")
VA-21A-621			20 MPa (2900 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-622			20 MPa (2900 psi)	PEEK , Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-623			35 MPa (5075 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-624			35 MPa (5075 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VA-21A-627	12 port 2 position		35 MPa (5075 psi)	SUS , PEEK	1/16"	No.10-32UNF	0.25 mm (0.010")

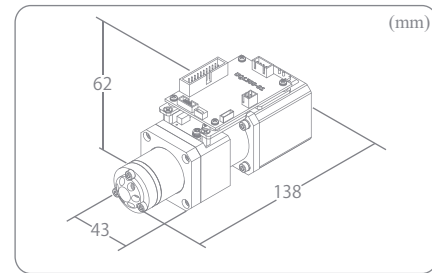
\*SUS316 is the material used for SUS.



## High Speed Automatic Switching Valves <OEM> Auto Valve Unit VF-03 Series



Dimensions



### Valve Drive

Part Name	Auto Valve Unit
Part Number	VF-03
Drive	Direct drive with stepping motor
Switching Modes	2 position switching, Rotary switching
Switching Speed	0.1 sec (when switching 60°)
Remote Control	Input: Position change, Reset    Output: Busy, Home
Communication	RS232C, RS485 (between FLOM devices)
Power	DC 24 V, MAX 50 W
Weight*1	Approx. 0.7 kg

\*1: Weight given is only one example. Actual weight depends on the valvehead installed.

Valveheads (Contact Flom if you need valveheads with specs not shown in the graph below.)

Part Number	Type	Path Position	Max Pressure	Wetted Material	Tube OD	Thread Size	Path Diameter
VF-03-701	6 Port 2 position		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.25 mm (0.010")
VF-03-702			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.25 mm (0.010")
VF-03-703			40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-704			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-709	4 Port 2 position		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-710			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-711	2 Port selection		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-712			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-715	4 port Rotary		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-716			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-717	6 port Rotary		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-718			30 MPa (4350 psi)	PEEK, Ceramic	1/16"	No.10-32UNF	0.5 mm (0.020")
VF-03-728	6 Port 2 position		40 MPa (5800 psi)	SUS, PEEK	1/16"	No.10-32UNF	0.15 mm (0.006")
VF-03-729			140 MPa (20305 psi)	SUS	1/16"	No.10-32UNF	0.15 mm (0.006")
VF-03-730			140 MPa (20305 psi)	SUS	1/16"	No.10-32UNF	0.25 mm (0.010")

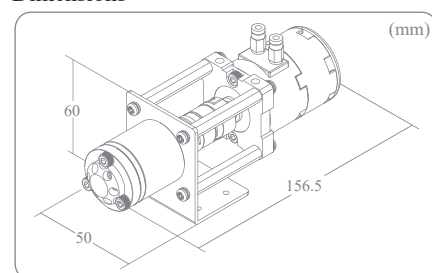
\*SUS316 is the material used for SUS.

OEM UNIT

### Pneumatic Drive Valve (Non-Electric)

#### <OEM> Air Valve 415 Series

Dimensions



Part Name	Pneumatic Drive Valve
Part Number	415
Drive	Pneumatic Drive
Switching Mode	2 position switching
Air Tube OD*1	1/8"
Weight*2	Approx. 0.7 kg

\*1: for tube sizes other than 1/8", contact FLOM.

\*2: Weight given is only one example. Actual weight depends on the valvehead installed.

## 6. Tubing and Fittings

### ○Stainless Steel Fittings for 1/16” Tubing

Ultra-high Pressure Fittings (up to 140 MPa)



#### Dual-Fitt

Reuseable high pressure joints

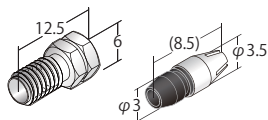
##### Features

- Reduces tube twisting
- Ferrule does not bite into tube, making reuse easy

##### Tightening guide

Part No.	Pressure	Sealing Torque	Tube
9620	140 MPa (20000 psi)	1.4 N•m	Stainless Steel tube
	100 MPa (14500 psi)	0.8 N•m	
	50 MPa (7250 psi)	0.4 N•m	

\* Values will vary depending on tube type.



Name: Dual-Fitt SET  
P/N: 9620  
Material: SUS316, PEEK  
Quantity: 10/pack



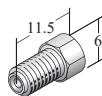
Name: Dual-Fitting  
P/N: 9621  
Material: SUS316  
Quantity: 10/pack



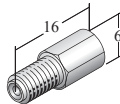
Name: Replacement Ferrule  
P/N: 9623-05 (5/pack), 9623-10 (10/pack)  
Material: SUS316, PEEK  
Quantity: 5/pack, 10/pack

### Medium Pressure Fittings (up to 40 MPa)

SUS Ferrule Type (No.10-32 UNF, OD 1/16” Tubing)



Name: 1/16” Fitting S  
P/N: 9501  
Material: SUS316  
Quantity: 10/pack



Name: 1/16” Fitting L  
P/N: 9502  
Material: SUS316  
Quantity: 10/pack



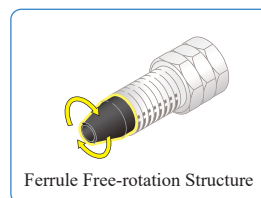
Name: 1/16” Ferrule  
P/N: 9601  
Material: SUS316  
Quantity: 10/pack

## ○Stainless Steel and PEEK Fittings for 1/16" Tubing

Medium Pressure Fittings (up to SUS: 50 MPa , PEEK: 40 MPa)

### Single Lock Fitting for 1/16" Tubing

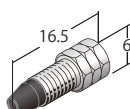
An unique fitting which prevents tube twisting and ferrule falling down while tightening




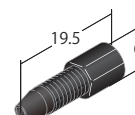
Tightening guide

Part No.	Pressure	Sealing Torque	Tube
9935S	50 MPa (7250 psi)	1.4 N•m	Stainless Steel tube
9935P	30 MPa (4350 psi)	0.3 N•m	
	40 MPa (5800 psi)	0.5 N•m	
	30 MPa (4350 psi)	0.3 N•m	PEEK tube

\* Values will vary depending on tube type.



 Name: 1/16" Single Lock Fitting S  
P/N: 9935S  
Material: SUS316 , PEEK  
Quantity: 10/pack



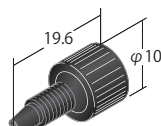
 Name: 1/16" Single Lock Fitting P  
P/N: 9935P  
Material: PEEK  
Quantity: 10/pack

## Medium Pressure Fittings (20 ~ 40 MPa)

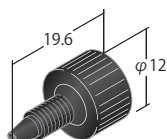
EASY FITT Series (No.10-32 UNF, OD 1/16" Tubing)

Sealing Torque: 0.3 N•m (at pressure of 40 MPa)

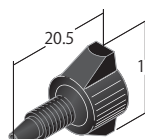
Note: when using OD 1/16" ID 0.13 mm PEEK Tubing



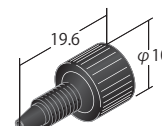
Name: Easy Fitt 10 mm  
P/N: 9001  
Material: PEEK  
Quantity: 10/Pack



Name: Easy Fitt 12 mm  
P/N: 9002  
Material: PEEK  
Quantity: 10/Pack

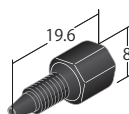


Name: Easy Fitt Type 2  
P/N: 9130  
Material: PEEK  
Quantity: 10/Pack

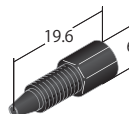


Name: Stop Fitt  
P/N: 9004  
Material: PEEK  
Quantity: 10/Pack

HEX FITT Series (No.10-32 UNF, OD 1/16" Tubing)



Name: Hex Fitt  
P/N: 9003  
Material: PEEK  
Quantity: 10/Pack



Name: Hex Fitt Mini  
P/N: 9135  
Material: PEEK  
Quantity: 10/Pack

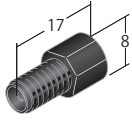
Note: The dimensions listed are in mm.



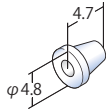
## ○ Other Polymer Fittings for OD 1/16", 1/8", 3.0 mm, and 2.0 mm Tubing

### Low Pressure Fittings (up to 1 MPa)

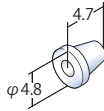
FLAT SEAL Series (1/4-28UNF, OD 1/16" or 2.0 mm Tubing)



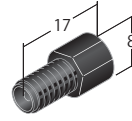
Name: 2.0 mm HEX Flat Seal Fitting  
P/N: 9772  
Material: PEEK  
Quantity: 10/pack



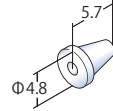
Name: 2.0 mm M6 Flat Seal Ferrule (Penetrating)  
P/N: 9755  
Material: ETFE  
Quantity: 10/pack



Name: 2.0 mm M6 Flat Seal Ferrule (Non-Penetrating)  
P/N: 9705  
Material: ETFE  
Quantity: 10/pack

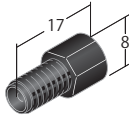


Name: 1/16" HEX Flat Seal Fitting  
P/N: 9773  
Material: PEEK  
Quantity: 10/pack

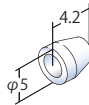


Name: 1/16" M6 Flat Seal Ferrule  
P/N: 9706  
Material: ETFE  
Quantity: 10/pack

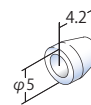
FLAT SEAL Series (1/4-28UNF, OD 1/8" or 3.0 mm Tubing)



Name: 1/8" HEX Flat Seal Fitting  
P/N: 9771  
Material: PEEK  
Quantity: 10/pack

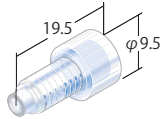


Name: 1/8" Flat Seal Ferrule  
P/N: 9774  
Material: ETFE  
Quantity: 10/pack



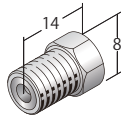
Name: 3.0 mm Flat Seal Ferrule  
P/N: 9775  
Material: ETFE  
Quantity: 10/pack

FLAT SEAL Plug (1/4-28 UNF)



Name: Flat Seal Plug  
P/N: 9720P  
Material: PP  
Quantity: 10/pack

Stainless Steel Fitting (M8×1.25, OD 1/8" Tubing)

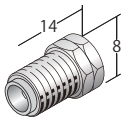


Name: 1/8" Fitting  
P/N: 9306  
Material: SUS316  
Quantity: 10/pack

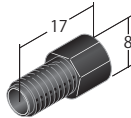


Name: 1/8" Ferrule  
P/N: 9321  
Material: SUS316  
Quantity: 10/pack

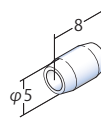
DOUBLE LOCK Series (M8×1.25, OD 3.0 mm or 1/8" Tubing)



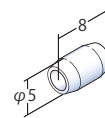
Name: 1/8" Double Lock Fitting  
P/N: 9303  
Material: SUS316  
Quantity: 10/pack



Name: 1/8" Double Lock Fitting  
P/N: 9303P  
Material: PEEK  
Quantity: 10/pack



Name: 1/8" Double Lock Ferrule  
P/N: 9402  
Material: ETFE  
Quantity: 10/pack

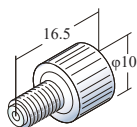


Name: 3.0 mm Double Lock Ferrule  
P/N: 9405  
Material: ETFE  
Quantity: 10/pack

Note: The dimensions listed are in mm.

## ○ETFE Fittings and Joints for OD 1/16", 1/8", 3.0 mm Tubing

### ETFE Fitting and Ferrule (No.10-32 UNF, OD 1/16" Tubing)

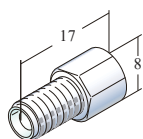


Name: 1/16" Fitting D  
P/N: 9820D  
Material: ETFE  
Quantity: 10/pack

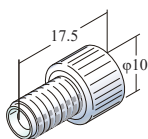


Name: 1/16" Ferrule D  
P/N: 9821D  
Material: ETFE  
Quantity: 10/pack

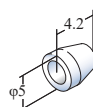
### ETFE FLAT SEAL Series (1/4-28 UNF, OD 3.0 mm or 1/8" Tubing)



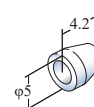
Name: 1/8" HEX Flat Seal Fitting D  
P/N: 9822D  
Material: ETFE  
Quantity: 10/pack



Name: 1/8" Flat Seal Fitting D  
P/N: 9823D  
Material: ETFE  
Quantity: 10/pack

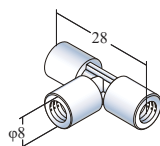


Name: 1/8" Flat Seal Ferrule  
P/N: 9774  
Material: ETFE  
Quantity: 10/pack

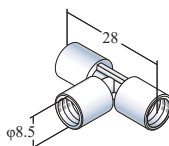


Name: 3.0 mm Flat Seal Ferrule  
P/N: 9775  
Material: ETFE  
Quantity: 10/pack

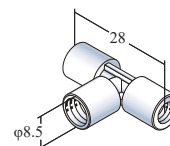
### ETFE T-joints



Name: T-joint D  
P/N: 9824D  
Material: ETFE  
Thread: No.10-32 UNF  
ID: 1.0 mm  
Quantity: 1



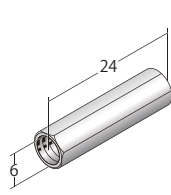
Name: T-joint D  
P/N: 9825D  
Material: ETFE  
Thread: 1/4-28 UNF  
ID: 1.0 mm  
Quantity: 1



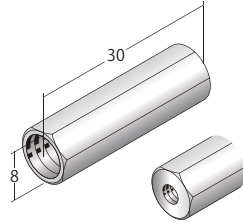
Name: Multi-thread T-joint D  
P/N: 9826D  
Material: ETFE  
Thread: No.10-32 UNF, 1/4-28 UNF  
ID: 1.0 mm  
Quantity: 1

## ○Stainless Steel Unions, Joints and Tubing

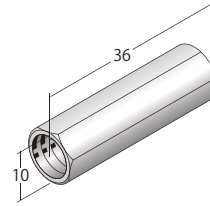
### Stainless Steel Unions



Name: Union  
P/N: 9511  
Material: SUS316  
Thread: No.10-32 UNF  
ID: 0.5 mm  
Quantity: 1

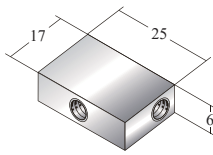


Name: 1/8"×1/16" Reducing Union  
P/N: 9309  
Material: SUS316  
Thread: M8×1.25, No.10-32 UNF  
ID: 1.0 mm  
Quantity: 1

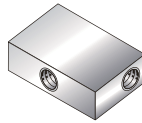


Name: 1/8" Union  
P/N: 9330  
Material: SUS316  
Thread: M8×1.25  
ID: 2.0 mm  
Quantity: 1

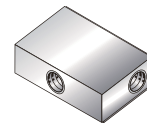
### Stainless Steel T-joints (for OD 1/16" Tubing)



Name: T-joint 0.3  
P/N: 9513-03  
Material: SUS316  
Thread: No.10-32 UNF  
ID: 0.3 mm  
Quantity: 1

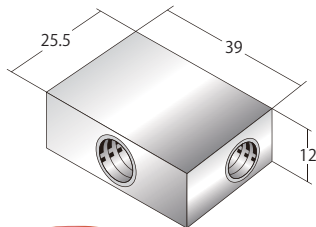


Name: T-joint 0.5  
P/N: 9513-05  
Material: SUS316  
Thread: No.10-32 UNF  
ID: 0.5 mm  
Quantity: 1



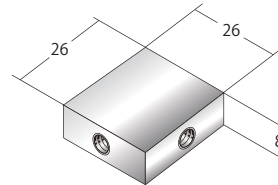
Name: T-joint 1.0  
P/N: 9513-10  
Material: SUS316  
Thread: No.10-32 UNF  
ID: 1.0 mm  
Quantity: 1

### Stainless Steel T-joint (for OD 3.0 mm or 1/8" Tubing)



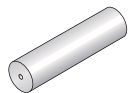
**NEW**  
Name: 1/8" T-joint  
P/N: 9314  
Material: SUS316  
Thread: M8×1.25  
ID: 2.0 mm  
Quantity: 1

### Stainless Steel Cross Joint (for OD 1/16" Tubing)

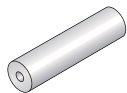


Name: Cross Joint 1.0  
P/N: 9520  
Material: SUS316  
Thread: No.10-32 UNF  
ID: 1.0 mm  
Quantity: 1

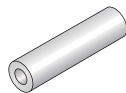
### Stainless Steel Tubing (OD 1/16" or 1/8")



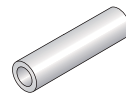
Name: SS Tubing  
P/N: 7021  
Material: SUS316  
OD: 1/16"  
ID: 0.25 mm  
Length: 10 m



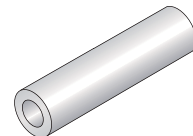
Name: SS Tubing  
P/N: 7022  
Material: SUS316  
OD: 1/16"  
ID: 0.5 mm  
Length: 10 m



Name: SS Tubing  
P/N: 7023  
Material: SUS316  
OD: 1/16"  
ID: 0.8 mm  
Length: 10 m



Name: SS Tubing  
P/N: 7024  
Material: SUS316  
OD: 1/16"  
ID: 1.0 mm  
Length: 10 m

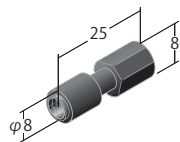


Name: SS Tubing  
P/N: 7025  
Material: SUS316  
OD: 1/8"  
ID: 2.1 mm  
Length: 2 m

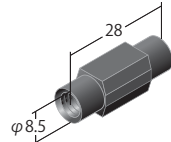
Note: The dimensions listed are in mm.

○ Polymer Unions and Joints

Unions

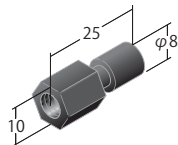


Name: Union  
P/N: 9005  
Material: PEEK  
Thread: No.10-32 UNF  
ID: 0.5 mm  
Quantity: 1

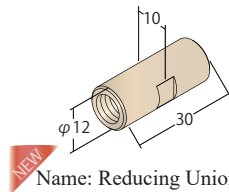


Name: Union  
P/N: 9101  
Material: PEEK  
Thread: 1/4-28 UNF  
ID: 1.0 mm  
Quantity: 1

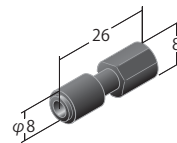
Reducing Unions



Name: Reducing Union  
P/N: 9110  
Material: PEEK  
Thread: 1/4-28 UNF, No.10-32 UNF  
ID: 1.0 mm  
Quantity: 1

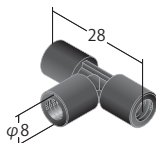


Name: Reducing Union  
P/N: 9330P  
Material: PEEK  
Thread: M8×1.25, No.10-32 UNF  
ID: 1.0 mm  
Quantity: 1

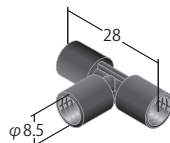


Name: Reducing Union  
P/N: 9112  
Material: PEEK  
Thread: No.10-32 UNF, Syringe  
ID: 1.0 mm  
Quantity: 1

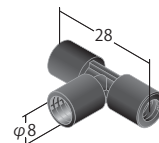
T-joints



Name: T-joint  
P/N: 9006  
Material: PEEK  
Thread: No.10-32 UNF  
ID: 0.5 mm  
Quantity: 1

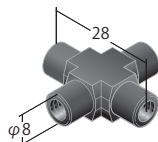


Name: T-joint  
P/N: 9131  
Material: PEEK  
Thread: 1/4-28 UNF  
ID: 1.0 mm  
Quantity: 1

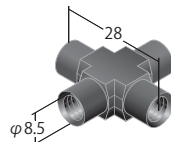


Name: Multi-thread T-joint  
P/N: 9108  
Material: PEEK  
Thread: No.10-32 UNF, 1/4-28 UNF  
ID: 1.0 mm  
Quantity: 1

Cross Joints



Name: Cross joint  
P/N: 9007  
Material: PEEK  
Thread: No.10-32 UNF  
ID: 0.5 mm  
Quantity: 1



Name: Cross joint  
P/N: 9109  
Material: PEEK  
Thread: 1/4-28 UNF  
ID: 1.0 mm  
Quantity: 1

Note: The dimensions listed are in mm.

## ○ PEEK, PTFE, ETFE, PFA Tubing

### PEEK Tubing (OD 1/16")



Name: PEEK Tubing  
P/N: 5999  
Line Color: Red  
OD: 1/16"  
ID: 0.13 mm  
Length: 5 m (P/N: 5999-05)  
10 m (P/N: 5999-10)



Name: PEEK Tubing  
P/N: 6001  
Line Color: Blue  
OD: 1/16"  
ID: 0.25 mm  
Length: 5 m (P/N: 6001-05)  
10 m (P/N: 6001-10)



Name: PEEK Tubing  
P/N: 6002  
Line Color: Orange  
OD: 1/16"  
ID: 0.50 mm  
Length: 5 m (P/N: 6002-05)  
10 m (P/N: 6002-10)

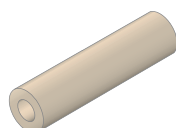


Name: PEEK Tubing  
P/N: 6003  
Line Color: Green  
OD: 1/16"  
ID: 0.75 mm  
Length: 5 m (P/N: 6003-05)  
10 m (P/N: 6003-10)

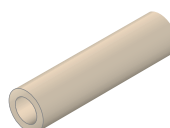


Name: PEEK Tubing  
P/N: 60031  
Line Color: Gray  
OD: 1/16"  
ID: 1.0 mm  
Length: 5 m (P/N: 60031-05)  
10 m (P/N: 60031-10)

### PEEK Tubing (OD 1/8")

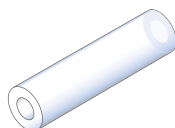


Name: PEEK Tubing  
P/N: 6004A  
OD: 1/8"  
ID: 1/16"  
Length: 10 m

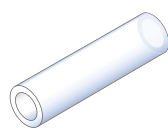


Name: PEEK Tubing  
P/N: 60042A  
OD: 1/8"  
ID: 2.1 mm  
Length: 10 m

### PTFE Tubing



Name: PTFE Tubing  
P/N: 7213  
OD: 1/8"  
ID: 1/16"  
Length: 10 m



Name: PTFE Tubing  
P/N: 7005  
OD: 3.0 mm  
ID: 2.0 mm  
Length: 10 m



Name: PTFE Tubing  
P/N: 7211  
OD: 1/16"  
ID: 0.25 mm  
Length: 10 m



Name: PTFE Tubing  
P/N: 7210  
OD: 1/16"  
ID: 0.50 mm  
Length: 10 m



Name: PTFE Tubing  
P/N: 7212  
OD: 1/16"  
ID: 0.80 mm  
Length: 10 m



Name: PTFE Tubing  
P/N: 7215  
OD: 1/16"  
ID: 1.0 mm  
Length: 10 m

### ETFE Tubing



Name: ETFE Tubing  
P/N: 7009  
OD: 1/16"  
ID: 0.20 mm  
Length: 10 m



Name: ETFE Tubing  
P/N: 7010  
OD: 1/16"  
ID: 0.30 mm  
Length: 10 m



Name: ETFE Tubing  
P/N: 7011  
OD: 1/16"  
ID: 0.50 mm  
Length: 10 m



Name: ETFE Tubing  
P/N: 7012  
OD: 1/16"  
ID: 0.80 mm  
Length: 10 m

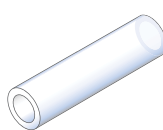


Name: ETFE Tubing  
P/N: 7013  
OD: 1/16"  
ID: 1.0 mm  
Length: 10 m

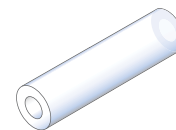
### PFA Tubing



Name: PFA Tubing  
P/N: 7103  
OD: 2.0 mm  
ID: 1.0 mm  
Length: 10 m



Name: PFA Tubing  
P/N: 7104  
OD: 3.0 mm  
ID: 2.0 mm  
Length: 10 m

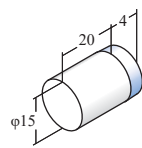


Name: PFA Tubing  
P/N: 7105  
OD: 1/8"  
ID: 1/16"  
Length: 10 m

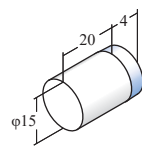
7. Other Components

○ Filters

Solvent Filters

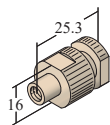


Name: Suction Filter  
P/N: 8810  
Pore Size: 20 μm  
Connection: OD 1/8", 3.0 mm Tubing  
Material: PTFE, PCTFE  
Quantity: 1

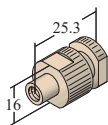


Name: Suction Filter  
P/N: 8811  
Pore Size: 20 μm  
Connection: OD 1/16" Tubing  
Material: PTFE, PCTFE  
Quantity: 1

Solvent Filters (Inline)



Name: PEEK Inline Filter  
P/N: 8502  
Pore Size: 5 μm  
Connection: No.10-32 UNF  
Material: PEEK  
Quantity: 1



Name: PEEK Inline Filter  
P/N: 8501  
Pore Size: 10 μm  
Connection: No.10-32 UNF  
Material: PEEK  
Quantity: 1



Name: PEEK Frit  
(Inline Filter Replacement)  
P/N: 8512  
Pore Size: 5 μm  
Material: PEEK  
Quantity: 5



Name: PEEK Frit  
(Inline Filter Replacement)  
P/N: 8511  
Pore Size: 10 μm  
Material: PEEK  
Quantity: 5

Note: The dimensions listed are in mm.

## ○ Solvent Bottles

---



Name: Solvent Bottle  
P/N: 9841  
Capacity: 1000 mL  
Cap Type: 9851 Bottle Cap  
Quantity: 1



Name: Solvent Bottle  
P/N: 9842  
Capacity: 500 mL  
Cap Type: 9851 Bottle Cap  
Quantity: 1



Name: Bottle Cap  
P/N: 9851  
Type: GL45 (for Schott Solvent Bottles)  
Tubing OD can be 1/16", 1/8", 3.0 mm, 2.0 mm  
Quantity: 1

## ○ Tube Cutters

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Name: PEEK Tube Cutter  
P/N: 9830  
Quantity: 1



Name: SUS Tube Cutter  
P/N: 9831  
Quantity: 1



### **SUS**

Stainless Steel. The material is mainly steel, but is corrosion resistant due to the chromium alloy, which forms a chromium oxide layer on the surface. Since it cannot be corroded by organic solvents and is highly pressure resistant, it is commonly used in pump heads, valve stators, tubing, fittings, and HPLC columns.

### **PEEK**

Abbreviation for the plastic, polyetheretherketone. Exhibits superlative chemical and mechanical resistance properties. Since it has much higher resistance than other high polymer materials, all of which are inferior to stainless steel in this respect, it is used in everything from pump heads and pump rotor seals to tubing and fittings. Especially good in analytical applications of ionic substances or certain solvents which can corrode metal.

### **PTFE**

Abbreviation of Polytetrafluoroethylene, a material exhibiting extremely high chemical resistance. Resistant to a wide variety of organic solvents and strongly acid/alkaline solutions, used as tubing in degassing units and in standard tubing and fitting products. However, because of its weak mechanical properties, it should only be used in low-pressure applications.

### **PCTFE**

Abbreviation of Polytetrafluoroethylene, a material exhibiting extremely high chemical resistance. Resistant to a wide variety of organic solvents and strongly acid/alkaline solutions, used as tubing in degassing units and in standard tubing and fitting products. However, because of its weak mechanical properties, it should only be used in low-pressure applications.

### **ETFE**

Abbreviation of Ethylene Tetrafluoroethylene. This material offers a good balance between chemical and mechanical resistance, and ease of formation. Used in a wide variety of tubing applications.

### **PFA**

Abbreviation of Perfluoroalkoxy alkane. Usually combined with Tetrafluoroethylene. Close to the chemical resistance of PTFE but much easier to form, so used in specialty components where PTFE is difficult to work with.

### **Tefron™ AF**

This is an amorphous polymer that, except for specialty fluorocarbon polymers, matches PTFE in its high chemical resistance. Since it has extremely high gas permeability compared to other fluorocarbon polymers, it is extremely useful as degassing tubing inside degassing units. Teflon is a registered trademark of the Chemours Company (USA).

### **FFKM**

Abbreviation of the elastomeric form of poly(tetrafluoro ethylene) or PTFE. This rubber-like substance exhibits very high chemical resistance, so when both chemical resistance and high elasticity are required, this materials is often chosen.

### **UHMW-PE**

Abbreviation of Ultra High Molecular Weight Poly Ethylene. This high molecular weight polymer shows high flexibility and strong mechanical properties and is often used in pump plunger seals which require both chemical and abrasion resistance.

### **PPS**

Abbreviation of Polyphenylene sulfide. Considered by some a “super engineering plastic” because of its high performance in chemical and mechanical resistance as well as in ease of molding. Often used in the vacuum chambers of degassing devices.

### **POM**

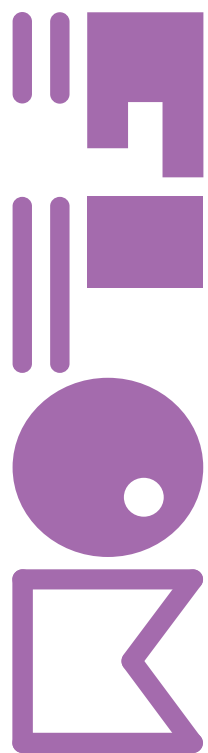
Abbreviation of Polyoxymethylene, widely referred to as Polycetal. This plastic is a well-balanced blend of chemical resistance, strength, slidability, abrasion resistance and cost performance. Widely used in fittings.

## MEMO



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