

# FLOM Products Catalog

2020.VER. 8.2



## High Precision Fluid Control Devices and Components

Plunger Pumps  
Switching Valves  
Degassing Units  
Tube Reactors  
Liquid Level Sensors  
Tubing



## Message to Our Customers

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inception   | 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.                                                                                                                                                                                                                                                                                                                                                 |
| Growth      | 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.                                                                                                                                                                                                                    |
| Expansion   | 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 high performance and quality. As part of our international sales effort, 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. |
| Our Mission | Current analytical applications demand not only ever higher performance and precision, but also demand products with minimal environmental impact (which includes resource recycling). In line with this 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.                                           |

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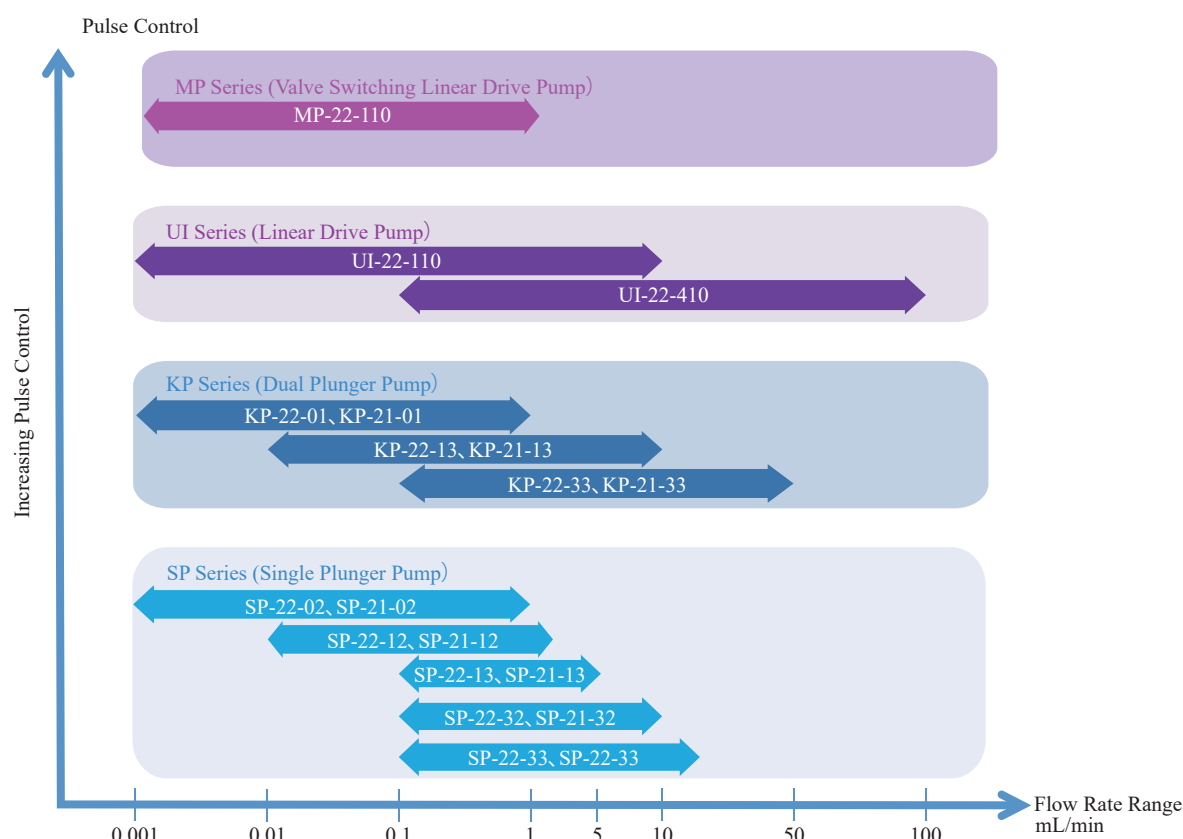
Note: The specifications and product design may change without prior notice. Due to continual product improvement, the photos and illustrations in this catalog may not match the current appearance of the products described herein. Contact your FLOM sales representative or distributor for information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

# 1. Plunger Pumps

## Selection Guide for Plunger Pumps

FLOM Plunger Pumps are compact and easy to use. Use the guide below to select the pump that is right for your application, whether handling high viscosity solvents, bubble-sensitive situations, super-low pulsation and high throughput or high pressure applications. Also match the pump head material to the application at hand, whether SUS (stainless steel), PEEK (polyetheretherketone), plastic or PCTFE.

### Pump Guide 1 (Pulse Control and Flow Range)



### Pump Guide 2 (Pumphead Material)

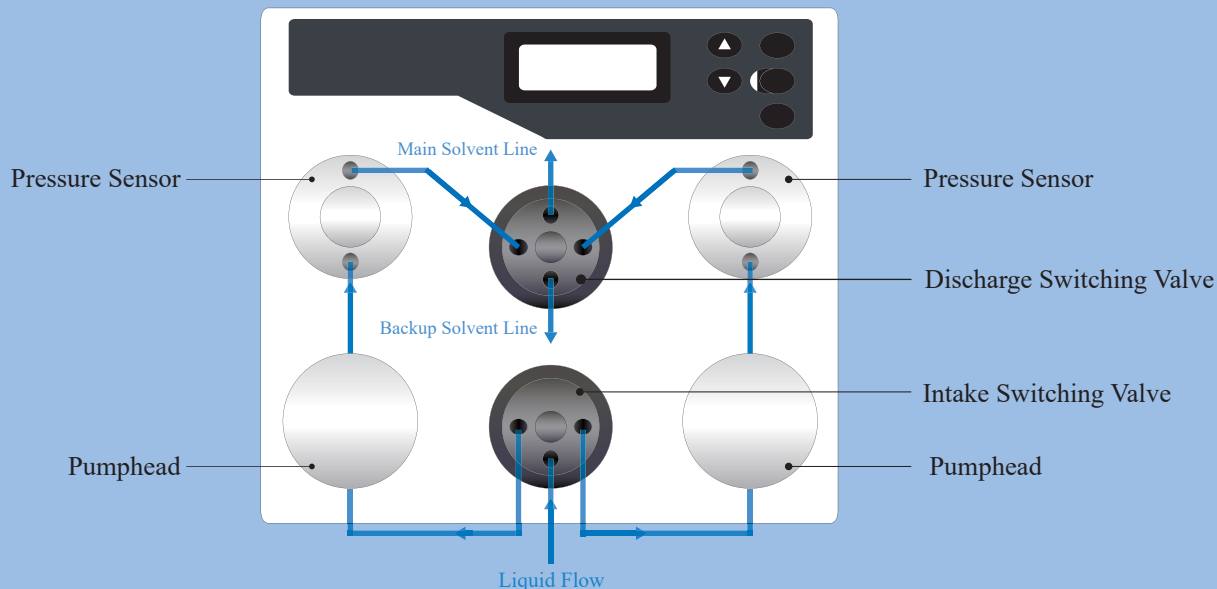
| Material       | PCTFE                                                                                                            | PEEK                                                                                                                   | SUS                                          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

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

## Intelligent Micro Pump MP-22

Pump and Valve Integrated as only FLOM can do it!  
FLOM's newest addition to its line of plunger pump solutions.

### ● MP-22 Design and Features



#### < Check Valve-Less Design >

A switching valve is used in place of a check valve. This achieves super low pulse control under low flow rates that check valves can't handle.

#### < Features of the Micro Pump MP-22 >

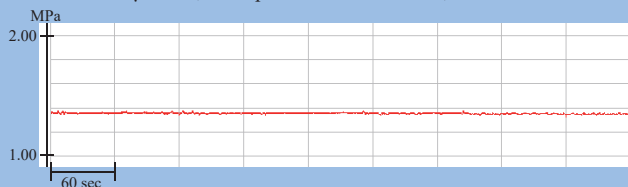
Check valve-less design combines super low pulse control under low flow rates with the pressure resistance advantages of plunger pump functionality, achieving continuous stable flow rates.

#### ◎ Simple to set up

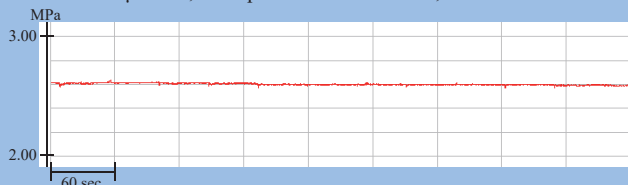
To set up, all you need do is connect the tubing.  
Easy setup by pressing a button.

### ● MP-22 Flow Stability

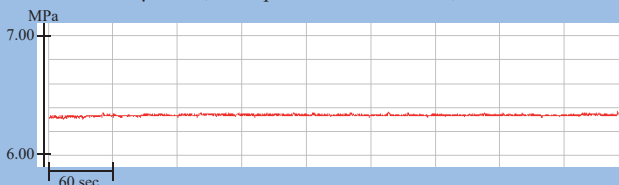
• Flow rate: 50  $\mu\text{L}/\text{min}$ , Output Pressure: 1.4 MPa, Solvent: Methanol



• Flow rate: 100  $\mu\text{L}/\text{min}$ , Output Pressure: 2.6 MPa, Solvent: Methanol



• Flow rate: 250  $\mu\text{L}/\text{min}$ , Output Pressure: 6.3 MPa, Solvent: Methanol





Intelligent Micro Pump  
MP-22-110S

### Valve Switching Micro Pump

## Intelligent Micro Pump MP-22

Check valve-less design for super low pulse control under low flow rates

### Features

- ☐ Improved near-zero pulse flow
- ☐ Problems with bubble greatly reduced
- ☐ Easy setup
- ☐ Upper and lower pressure limiters
- ☐ Space-saving compact design
- ☐ External control available with RS232C protocol

| Product name      | Intelligent Micro Pump                                                |
|-------------------|-----------------------------------------------------------------------|
| Part number       | MP-22-110S                                                            |
| Pumphead material | SUS                                                                   |
| Max Pressure*1    | 35 MPa (5075 psi)                                                     |
| Flow rate range*2 | 0.1 - 999.9 $\mu$ L/min                                               |
| Flow per stroke   | 80 $\mu$ L                                                            |
| Plunger stroke    | 10 mm                                                                 |
| Flow accuracy*3   | < 0.3 %                                                               |
| Features          | Active pulse reduction, Upper/lower pressure limiters                 |
| Pressure accuracy | < 5%                                                                  |
| Wetted materials  | Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, PEEK, SUS         |
| Remote control    | Input: PUMP ON / OFF, Output: Error signal                            |
| Communication     | RS232C, RS485 (between FLOM devices)                                  |
| Dimensions        | 150 (H) $\times$ 160 (W) $\times$ 280 (D) mm, excluding protuberances |
| Weight            | Approx. 6.7 kg                                                        |
| Power             | AC100 - 240 V (50 / 60 Hz) MAX 140 VA                                 |
| Order Code        | SMP-P505                                                              |

\*1: Maximum pressure is only sustained intermittently.

\*2: Maximum output is not sustainable over long periods of time.

\*3: Using Methanol at flow rate 10~500  $\mu$ L/min, output pressure > 1 MPa ~ 20MPa

### Roller Pump Roller Pump WP-21

Great for plunger pump cleaning and basic pumping applications

### Features

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



Roller Pump  
WP-21

| Product name      | Roller Pump                                                                |
|-------------------|----------------------------------------------------------------------------|
| Part number       | WP-21                                                                      |
| Flow rate range   | 4 step settings (approx. 0.5 • 1.0 • 2.0 • 3.0 ml/min)                     |
| Switching         | 4 steps from front switch (rotary style)                                   |
| Features          | hold down front switch to purge (approx. 5 mL/min)                         |
| Flow accuracy     | $\pm$ 5 % (Pharmed BPT)                                                    |
| Output pressure   | 90 kpa or less (Pharmed BPT)                                               |
| Intake pressure   | -90 kpa or less (Pharmed BPT)                                              |
| Temperature range | 5 - 50 $^{\circ}$ C                                                        |
| Rotary direction  | Clockwise when viewed from front                                           |
| External I/O      | Input: OFF/ ON switch (powering on begins pumping)<br>Output: Error Signal |
| Tubing            | Pharmed BPT / 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             | AC100 - 240 V (50 / 60 Hz) MAX 15 W                                        |
| Order code        | SWP-F021                                                                   |

※ 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.



Pharmed BPT  
(standard)



Fluran F-5500-A  
(sold separately)

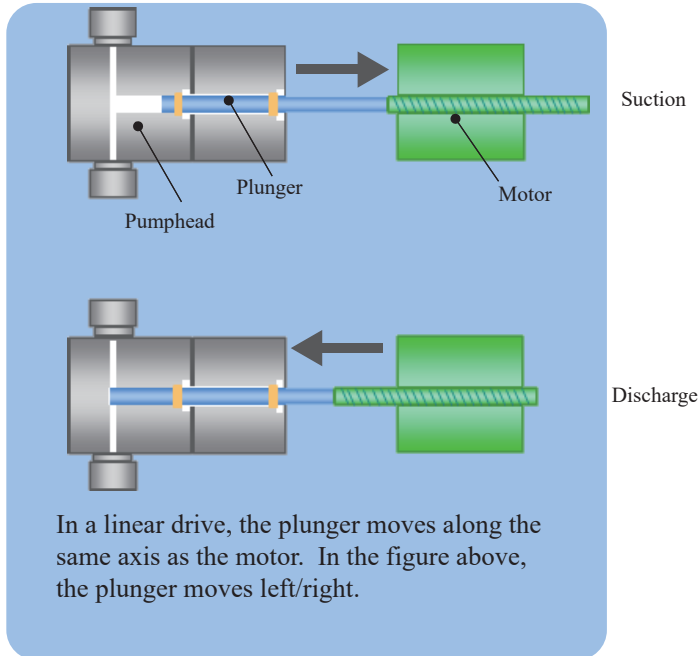


TransMaster TM-15  
(sold separately)

## Plunger Pump Design and Features

FLOM Plunger Pumps come in two configurations: linear drive and cam drive.

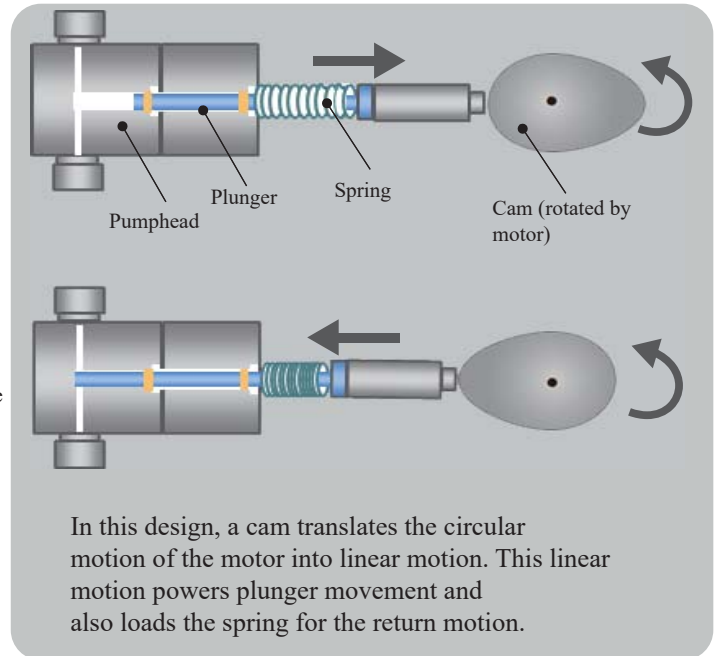
### Linear Drive (UI Series)



Left and right pumpheads are independently controlled.

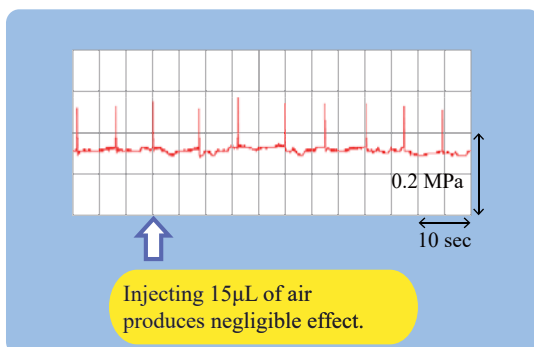
The plunger stroke is about 2.5 times longer than in a cam drive, producing much more powerful suction and discharge actions.

### Cam Drive (KP, SP Series)

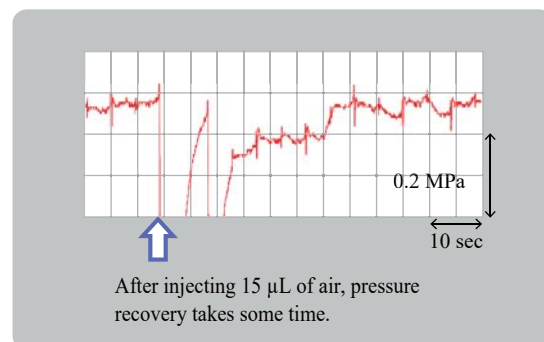


1 motor can be used to power 2 plungers in this case, but the cam's rotary action can cause the plungers to wobble up and down (thus there is a limit to stroke length).

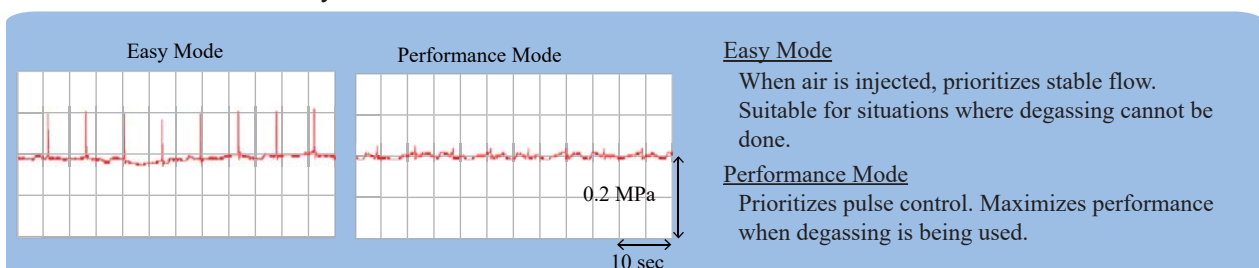
### • Response to air injection



✦ Since right and left pumpheads are controlled separately, their output is stable even with the injection of air.



### • UI-22 Series Flow Stability





Intelligent Pump  
UI-22-110S

Intelligent Pump  
UI-22-110P

Intelligent Pump  
UI-22-110D

Linear Motor Pulse Control Intelligent Pump

## Intelligent Pump UI-22 Series

Combines high precision flow and ease of use

### Features

- ☐ Pulses reduced to absolute minimum making low flow rate pumping possible
- ☐ Bubble problems greatly reduced
- ☐ Long life plunger seal
- ☐ Upper and lower pressure limiters
- ☐ Space-saving compact design
- ☐ Control with RS232C protocol
- ☐ Choose SUS, PEEK, or PCTFE to fit your solvent

| Product name                  | Intelligent Pump                                               |                   |                 |                     |                 |                 |
|-------------------------------|----------------------------------------------------------------|-------------------|-----------------|---------------------|-----------------|-----------------|
| Part number                   | UI-22-110S                                                     | UI-22-110P        | UI-22-110D      | UI-22-410S          | UI-22-410P      | UI-22-410D      |
| Pumphead material             | SUS                                                            | PEEK              | PCTFE           | SUS                 | PEEK            | PCTFE           |
| Max pressure* <sup>1</sup>    | 35 MPa (5075 psi)                                              | 20 MPa (2900 psi) | 2 MPa (290 psi) | 5 MPa (725 psi)     | 5 MPa (725 psi) | 2 MPa (290 psi) |
| Flow rate range* <sup>2</sup> | 0.001 - 9.999 mL/min                                           |                   |                 | 0.01 - 99.99 mL/min |                 |                 |
| Flow per stroke               | 80 μL                                                          |                   |                 | 708 μL              |                 |                 |
| Plunger stroke                | 10 mm                                                          |                   |                 |                     |                 |                 |
| Flow accuracy                 | < 0.3 %                                                        |                   |                 |                     |                 |                 |
| Features                      | Active pulse reduction, upper/lower pressure limiters          |                   |                 |                     |                 |                 |
| Pressure accuracy             | < 5 %                                                          |                   |                 |                     |                 |                 |
| Wetted materials              | SUS: Sapphire, Ruby, PTFE, PCTFE, PFA, FFKM, HDPE, PEEK, SUS   |                   |                 |                     |                 |                 |
|                               | PEEK: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, PEEK |                   |                 |                     |                 |                 |
|                               | PCTFE: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM            |                   |                 |                     |                 |                 |
| Remote control                | Input: PUMP ON / OFF, Output: Error signal                     |                   |                 |                     |                 |                 |
| Communication                 | RS232C, RS485 (between FLOM devices)                           |                   |                 |                     |                 |                 |
| Dimensions                    | 144 (H) × 105 (W) × 240 (D) mm, excluding protuberances        |                   |                 |                     |                 |                 |
| Weight                        | Approx. 5.6 kg                                                 |                   |                 |                     |                 |                 |
| Power                         | AC100 - 240 V (50 / 60 Hz) MAX140 VA                           |                   |                 |                     |                 |                 |
| Order Code                    | SLP-P509                                                       | SLP-P514          | SLP-P517        | SLP-P511            | SLP-P516        | SLP-P510        |

\*1: Maximum pressure is only sustained intermittently.

\*2: Maximum output is not sustainable over long periods of time.

Auto Back Pressure Regulator for the UI-22 Series

## Auto BPR BP-11 Series

### Automatic Pressure Regulation

#### Features

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



Auto BPR  
BP-11S

| Product name          | Auto BPR                                               |            |
|-----------------------|--------------------------------------------------------|------------|
| Part number           | BP-11S                                                 | BP-11D     |
| Wetted materials      | SUS, PFA                                               | PCTFE, PFA |
| Path diameter         | 0.6 mm                                                 |            |
| Pressure range        | 0.10 - 5.00 MPa (14.5 - 725 psi)                       |            |
| Flow rate range       | 0.1 - 100 mL/min                                       |            |
| Pressure range*1      | 0.5 - 5.00 MPa (72.5 - 725 psi)                        |            |
| Pressure accuracy     | ±0.1 MPa (±14.5 psi)                                   |            |
| Pressure signal range | uses pressure signal from UI-22 [ DC1 - 5V ]           |            |
| Communication         | RS232C, RS485 (START-IN, READY-OUT)                    |            |
| 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 distilled water or methanol, pressure 0.5~5.0MPa / flow rate 0.1~50.0mL/min are controllable.

※: please contact us if you need flow rates outside 0.1~50.0mL/min.

Dual Pump  
KP-22-13SDual Pump  
KP-22-13P

## Dual Plunger Pump Dual Pump KP-22 Series

A general use pump equipped with pressure sensor

### Features

- Cam-driven design with high flow accuracy and low pulsing
- Pressure sensor allows setting upper/lower limits
- 6 separate configurations of flow range/pumphead material
- RS232C control protocol

| Product name                  | Dual Pump (with pressure sensor)                                                                                                                         |                   |                     |                   |                   |                 |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------|-------------------|-------------------|-----------------|
| Part number                   | KP-22-01S                                                                                                                                                | KP-22-01P         | KP-22-13S           | KP-22-13P         | KP-22-33S         | KP-22-33P       |
| Pumphead material             | SUS                                                                                                                                                      | PEEK              | SUS                 | PEEK              | SUS               | PEEK            |
| Max pressure* <sup>1</sup>    | 25 MPa (3625 psi)                                                                                                                                        | 20 MPa (2900 psi) | 25 MPa (3625 psi)   | 20 MPa (2900 psi) | 5 MPa (725 psi)   | 5 MPa (725 psi) |
| Flow rate range* <sup>2</sup> | 0.001 - 1.000 mL/min                                                                                                                                     |                   | 0.01 - 10.00 mL/min |                   | 0.1 - 50.0 mL/min |                 |
| Flow per stroke               | 4 μL                                                                                                                                                     |                   | 32 μL               |                   | 154 μL            |                 |
| Plunger stroke                | 2 mm                                                                                                                                                     |                   | 4 mm                |                   | 4 mm              |                 |
| Flow accuracy                 | < 0.3 %                                                                                                                                                  |                   |                     |                   |                   |                 |
| Features                      | Pulse control* <sup>3</sup> , Consistent pressure flow* <sup>4</sup> , Set volume dispensing* <sup>5</sup> , Upper/lower pressure limiters* <sup>6</sup> |                   |                     |                   |                   |                 |
| Pressure accuracy             | < 5 %                                                                                                                                                    |                   |                     |                   |                   |                 |
| Wetted Material               | SUS: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, PEEK, SUS<br>PEEK: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE PEEK                      |                   |                     |                   |                   |                 |
| Remote control                | Input: PUMP ON / OFF, Output: Error signal                                                                                                               |                   |                     |                   |                   |                 |
| Communication                 | RS232C                                                                                                                                                   |                   |                     |                   |                   |                 |
| Dimensions                    | 144 (H) × 79 (W) × 285 (D) mm, excluding protuberances                                                                                                   |                   |                     |                   |                   |                 |
| Weight                        | Approx. 4.3 kg                                                                                                                                           |                   |                     |                   |                   |                 |
| Power                         | AC100 - 240 V (50 / 60 Hz) MAX 80 VA                                                                                                                     |                   |                     |                   |                   |                 |
| Order Code                    | SDP-P1081                                                                                                                                                | SDP-P1080         | SDP-P1077           | SDP-P1076         | SDP-P1079         | SDP-P1078       |

\*1: Maximum pressure is only sustained intermittently. Continuous pump operation at maximum pressure cannot be guaranteed.

\*2: The unit cannot run continuously at maximum flow rate.

\*3: Pulse control is based on cam rotary compensation, activated below a flow pressure of 5 MPa.

\*4: Set consistent pressure flow mode adjusts the flow rate in real time to stabilize pressure. It uses the average of measured pressure and does not attempt pulse control.

\*5: In set volume mode, when the set volume has been dispensed, pumping automatically stops.

\*6: The lower pressure limiter can only be set by RS232C remote control.

Dual Pump  
KP-21-13SDual Pump  
KP-21-13P

## Standard Dual Plunger Pump Dual Pump KP-21 Series

A general use pump without pressure sensor

### Features

- Cam-driven design with high flow accuracy and low pulsing
- Reasonable price without equipping pressure sensor
- 6 separate configurations of flow range/pumphead material
- RS232C control protocol

| Product name                  | Dual Pump (without pressure sensor)                                                                                                  |                   |                     |                   |                   |                |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------|-------------------|-------------------|----------------|
| Part number                   | KP-21-01S                                                                                                                            | KP-21-01P         | KP-21-13S           | KP-21-13P         | KP-21-33S         | KP-21-33P      |
| Pumphead material             | SUS                                                                                                                                  | PEEK              | SUS                 | PEEK              | SUS               | PEEK           |
| Max pressure* <sup>1</sup>    | 25 MPa (3625 psi)                                                                                                                    | 20 MPa (2900 psi) | 25 MPa (3625 psi)   | 20 MPa (2900 psi) | 5 MPa (725 psi)   | 5MPa (725 psi) |
| Flow rate range* <sup>2</sup> | 0.001 - 1.000 ml/min                                                                                                                 |                   | 0.01 - 10.00 ml/min |                   | 0.1 - 50.0 ml/min |                |
| Flow per stroke               | 4 μL                                                                                                                                 |                   | 32 μL               |                   | 154 μL            |                |
| Plunger stroke                | 2 mm                                                                                                                                 |                   | 4 mm                |                   | 4 mm              |                |
| Flow accuracy                 | < 0.3 %                                                                                                                              |                   |                     |                   |                   |                |
| Features                      | Set volume dispensing* <sup>3</sup>                                                                                                  |                   |                     |                   |                   |                |
| Pressure accuracy             | —                                                                                                                                    |                   |                     |                   |                   |                |
| Wetted Material               | SUS: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, PEEK, SUS<br>PEEK: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, PEEK |                   |                     |                   |                   |                |
| Remote control                | Input: PUMP ON / OFF, Output: Error signal                                                                                           |                   |                     |                   |                   |                |
| Communication                 | RS232C                                                                                                                               |                   |                     |                   |                   |                |
| Dimensions                    | 144 (H) × 79 (W) × 285 (D) mm, excluding protuberances                                                                               |                   |                     |                   |                   |                |
| Weight                        | Approx. 4.3 kg                                                                                                                       |                   |                     |                   |                   |                |
| Power                         | AC100 - 240 V (50 / 60 Hz) MAX 80 VA                                                                                                 |                   |                     |                   |                   |                |
| Order Code                    | SDP-P1087                                                                                                                            | SDP-P1086         | SDP-P1083           | SDP-P1082         | SDP-P1085         | SDP-P1084      |

\*1: Maximum pressure is only sustained intermittently. Continuous pump operation at maximum pressure cannot be guaranteed.

\*2: The unit cannot run continuously at maximum flow rate.

\*3: In set volume mode, when the set volume has been dispensed, pumping automatically stops.

PCS Pump  
SP-22-13, SUSPCS Pump  
SP-22-13, PEEK

## Single Plunger Pump PCS Pump SP-22 Series

Single plunger pump equipped with pressure sensor

### Features

- Can choose Quick Return mode for Pulse Control
- Pressure sensor allows setting upper/lower limits
- 10 separate configurations of flow range/pumphead material
- RS232C control protocol

| Product name                  | PCS Pump (with pressure sensor)                                                                                                |           |                    |           |                   |           |                   |           |                   |           |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|-----------|-------------------|-----------|-------------------|-----------|-------------------|-----------|
| Part number                   | SP-22-02S                                                                                                                      | SP-22-02P | SP-22-12S          | SP-22-12P | SP-22-13S         | SP-22-13P | SP-22-32S         | SP-22-32P | SP-22-33S         | SP-22-33P |
| Pumphead material             | SUS                                                                                                                            | PEEK      | SUS                | PEEK      | SUS               | PEEK      | SUS               | PEEK      | SUS               | PEEK      |
| Max pressure* <sup>1</sup>    | 20 MPa (2900 psi)                                                                                                              |           | 20 MPa (2900 psi)  |           | 10 MPa (1450 psi) |           | 5 MPa (725 psi)   |           | 2 MPa (290 psi)   |           |
| Flow rate range* <sup>2</sup> | 0.001 - 1.000 mL/min                                                                                                           |           | 0.01 - 2.00 mL/min |           | 0.1 - 5.0 mL/min  |           | 0.1 - 10.0 mL/min |           | 0.1 - 20.0 mL/min |           |
| Flow per stroke               | 8 μL                                                                                                                           |           | 16 μL              |           | 32 μL             |           | 77 μL             |           | 154 μL            |           |
| Plunger stroke                | 2 mm                                                                                                                           |           | 2 mm               |           | 4 mm              |           | 2 mm              |           | 4 mm              |           |
| Flow accuracy                 | ± 0.5 %                                                                                                                        |           |                    |           |                   |           |                   |           |                   |           |
| Features                      | Pulse control* <sup>3</sup> , Set volume dispensing* <sup>4</sup> , Upper/lower pressure limiters                              |           |                    |           |                   |           |                   |           |                   |           |
| Pressure accuracy             | < 0.5 %                                                                                                                        |           |                    |           |                   |           |                   |           |                   |           |
| Wetted Material               | SUS: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, SUS<br>PEEK: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, PEEK |           |                    |           |                   |           |                   |           |                   |           |
| Remote control                | Input: PUMP ON / OFF, Output: Error signal                                                                                     |           |                    |           |                   |           |                   |           |                   |           |
| Communication                 | RS232C                                                                                                                         |           |                    |           |                   |           |                   |           |                   |           |
| Dimensions                    | 144 (H) × 79 (W) × 285 (D) mm, excluding protuberances                                                                         |           |                    |           |                   |           |                   |           |                   |           |
| Weight                        | Approx. 3.0 kg                                                                                                                 |           |                    |           |                   |           |                   |           |                   |           |
| Power                         | AC100 - 240 V (50 / 60 Hz) MAX 80 VA                                                                                           |           |                    |           |                   |           |                   |           |                   |           |
| Order Code                    | SSP-P3062                                                                                                                      | SSP-P3061 | SSP-P3064          | SSP-P3063 | SSP-P3066         | SSP-P3065 | SSP-P3068         | SSP-P3067 | SSP-P3070         | SSP-P3069 |

\*1: Maximum pressure is only sustained intermittently. Continuous pump operation at maximum pressure cannot be guaranteed.

\*2: The unit cannot run continuously at maximum flow rate.

\*3: Pulse control is based on cam rotary compensation, activated below a flow pressure of 5 MPa.

\*4: In set volume dispensing mode, when the set volume has been dispensed, pumping automatically stops.

PCS Pump  
SP-21-13, SUSPCS Pump  
SP-21-13, PEEK

## Single Plunger Pump PCS Pump SP-21 Series

Single plunger pump without pressure sensor

### Features

- Can choose Quick Return mode for Pulse Control
- Reasonable price without equipping pressure sensor
- 10 separate configurations of flow range/pumphead material
- RS232C control protocol

| Product name                  | PCS Pump (without pressure sensor)                                                                                             |           |                    |           |                   |           |                   |           |                   |           |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|-----------|-------------------|-----------|-------------------|-----------|-------------------|-----------|
| Part number                   | SP-21-02S                                                                                                                      | SP-21-02P | SP-21-12S          | SP-21-12P | SP-21-13S         | SP-21-13P | SP-21-32S         | SP-21-32P | SP-21-33S         | SP-21-33P |
| Pumphead material             | SUS                                                                                                                            | PEEK      | SUS                | PEEK      | SUS               | PEEK      | SUS               | PEEK      | SUS               | PEEK      |
| Max pressure* <sup>1</sup>    | 20 MPa (2900 psi)                                                                                                              |           | 20 MPa (2900 psi)  |           | 10 MPa (1450 psi) |           | 5 MPa (725 psi)   |           | 2 MPa (290 psi)   |           |
| Flow rate range* <sup>2</sup> | 0.001 ~ 1.000 mL/min                                                                                                           |           | 0.01 - 2.00 mL/min |           | 0.1 - 5.0 mL/min  |           | 0.1 - 10.0 mL/min |           | 0.1 - 20.0 mL/min |           |
| Flow per stroke               | 8 μL                                                                                                                           |           | 16 μL              |           | 32 μL             |           | 77 μL             |           | 154 μL            |           |
| Plunger Stroke                | 2 mm                                                                                                                           |           | 2 mm               |           | 4 mm              |           | 2 mm              |           | 4 mm              |           |
| Flow accuracy                 | ± 0.5 %                                                                                                                        |           |                    |           |                   |           |                   |           |                   |           |
| Features                      | Set volume dispensing* <sup>3</sup>                                                                                            |           |                    |           |                   |           |                   |           |                   |           |
| Pressure accuracy             | —                                                                                                                              |           |                    |           |                   |           |                   |           |                   |           |
| Wetted Material               | SUS: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, SUS<br>PEEK: Sapphire, Ruby, PTFE, PCTFE, PFA, ETFE, FFKM, HDPE, PEEK |           |                    |           |                   |           |                   |           |                   |           |
| Remote control                | Input: PUMP ON / OFF, Output: Error signal                                                                                     |           |                    |           |                   |           |                   |           |                   |           |
| Communication                 | RS232C                                                                                                                         |           |                    |           |                   |           |                   |           |                   |           |
| Dimensions                    | 144 (H) × 79 (W) × 285 (D) mm, excluding protuberances                                                                         |           |                    |           |                   |           |                   |           |                   |           |
| Weight                        | Approx. 3.0 kg                                                                                                                 |           |                    |           |                   |           |                   |           |                   |           |
| Power                         | AC100 - 240 V (50 / 60 Hz) MAX 80 VA                                                                                           |           |                    |           |                   |           |                   |           |                   |           |
| Order Code                    | SSP-P3052                                                                                                                      | SSP-P3051 | SSP-P3054          | SSP-P3053 | SSP-P3056         | SSP-P3055 | SSP-P3058         | SSP-P3057 | SSP-P3060         | SSP-P3059 |

\*1: Maximum pressure is only sustained intermittently. Continuous pump operation at maximum pressure cannot be guaranteed.

\*2: The unit cannot run continuously at maximum flow rate.

\*3: In set volume dispensing mode, when the set volume has been dispensed, pumping automatically stops.

## Pump Accessories



High Pressure Damper 9810

Low Pressure Damper 9800

### Pulse Dampers

These pulse dampers will improve flow performance on SP and KP type pumps. Choose either high or low pressure type.

| Product name        | High Pressure Damper         | Low Pressure Damper            |
|---------------------|------------------------------|--------------------------------|
| Part number         | 9810                         | 9800                           |
| Max pressure        | 20 MPa (2900 psi)            | 2 MPa (290 psi)                |
| Pulse control range | 8 - 12 MPa (1160 - 1740 psi) | 0.1~0.7 MPa (14.5 - 101.5 psi) |
| Internal volume     | Approx. 3.5 mL               | Approx. 0.8 mL                 |
| Wetter material     | PEEK , PTFE                  | PEEK , FEP                     |
| Thread size         | No.10-32 UNF                 | No.10-32 UNF                   |
| Dimensions          | φ50 mm × 36.5 (D) mm         | φ45 mm × 33 (D) mm             |
| Weight              | Approx. 0.3 kg               | Approx. 0.3 kg                 |
| Order Code          | PDM-F001                     | PDM-F002                       |

### Side Panels for Valve Attachment

For attachment of switch valves, sample injectors, and other accessories to pumps. Can be attached to all UI, KP, and SP type pumps.

Side Panel 4512  
Injector TypeSide Panel 4513  
Injector/Damper TypeSide Panel 4514  
Small Manual Valve Type

| Product name      | Side Panel                                            |                                |                                |
|-------------------|-------------------------------------------------------|--------------------------------|--------------------------------|
| Part number       | 4512                                                  | 4513                           | 4514                           |
| Pump type         | UI-22, KP-2x, SP-2x Series                            |                                |                                |
| Attachable parts  | VI-11 , VI-12,<br>MI-11 , V05                         | VI-11 , VI-12 ,<br>MI-11 , V05 | V200, V201, V204<br>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. Degassing Units

We have redesigned our AG and BG Series units for truly trouble-less operation.  
Consult our “Degassing Performance Comparison Chart” below to find the right unit for your application.



Gastorr AG-42

Gastorr AG-44

| Product Name    | Gastorr Solvent Degassing Units                                      |           |
|-----------------|----------------------------------------------------------------------|-----------|
| Product Number  | AG-42-01                                                             | AG-44-01  |
| Channels        | 2                                                                    | 4         |
| Internal volume | 340 $\mu$ L                                                          |           |
| Flow rate       | $\leq 10$ mL/min                                                     |           |
| Vacuum range    | 100 hPa fixed                                                        |           |
| Thread size     | 1/4-28 UNF                                                           |           |
| Wetted material | Teflon <sup>TM</sup> AF*1, ETFE, PTFE                                |           |
| Remote control  | —                                                                    |           |
| Dimensions      | 108 (H) $\times$ 70 (W) $\times$ 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 <sup>TM</sup> AF is a registered trademark of the Chemours Corporation.  
Note: cannot be used with fluorinated solvents.

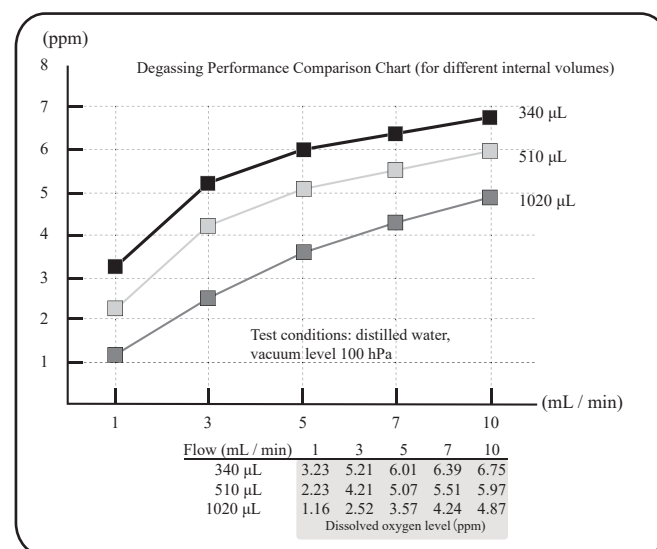
NEW

### Solvent Degassing System Gastorr AG Series

A trouble-less degassing series

#### Features

- Low-cost alternative for low flow applications
- Auto cleaning function prevents vacuum pump deterioration
- CPU control achieves stable degassing
- Independent chamber design prevents solvent contamination
- Choose from 2 channel or 4 channel configurations



Note that degassing performance varies greatly depending on operating conditions.



Gastorr BG-42

Gastorr BG-44

| Product Name    | Gastorr Solvent Degassing Units                       |           |           |           |
|-----------------|-------------------------------------------------------|-----------|-----------|-----------|
| Product Number  | BG-42-02                                              | BG-44-02  | BG-42-10  | BG-44-10  |
| Channels        | 2                                                     | 4         | 2         | 4         |
| Internal volume | 510μL                                                 |           | 1020 μL   |           |
| Flow rate       | ≤ 10 mL/min                                           |           |           |           |
| Vacuum range    | 100 hPa fixed                                         |           |           |           |
| Thread size     | 1/4-28 UNF                                            |           |           |           |
| Wetted material | Teflon ™ AF*1, ETFE, PTFE                             |           |           |           |
| Remote control  | Input: — Output: Error signal                         |           |           |           |
| 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 <sup>TM</sup> AF is a registered trademark of the Chemours Corporation.  
Note: cannot be used with fluorinated solvents.

NEW

### Solvent Degassing System Gastorr BG Series

A trouble-less degassing series equipped with larger internal volume and real time display

#### Features

- Pick the model with the right internal volume for your application
- Auto cleaning function prevents vacuum pump deterioration
- CPU control achieves stable degassing
- Independent chamber design prevents solvent contamination
- Choose from 2 channel or 4 channel configurations
- Real time display of vacuum level



Gastorr FG-42



## Solvent Degassing System Gastorr FG-42

Degassing system for fluorinated solvents

### Features

- ☐ Designed for use with fluorinated solvents
- ☐ Auto cleaning function prevents vacuum pump deterioration
- ☐ CPU control achieves stable degassing
- ☐ Real time display of vacuum level
- ☐ 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     | 1/4-28UNF                                                            |  |
| Wetted material | PTFE, ETFE, PPS                                                      |  |
| Remote control  | Input: — Output: Error signal                                        |  |
| Dimensions      | 108 (H) $\times$ 70 (W) $\times$ 240 (D) mm, excluding protuberances |  |
| Weight          | Approx. 2.3 kg                                                       |  |
| Power           | AC100 $\sim$ 240 V (50 / 60 Hz) MAX 80 VA                            |  |
| Order code      | SGA-G3008                                                            |  |



Gastorr PG-41, PEEK

Gastorr PG-42, PEEK

## Solvent Degassing for Fractionating Applications Gastorr PG Series

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

### Features

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

| Product Name    | Gastorr Solvent Degassing Units                                      |                |
|-----------------|----------------------------------------------------------------------|----------------|
| Product Number  | PG-41P                                                               | PG-42P         |
| Channels        | 1                                                                    | 2              |
| Internal volume | 62.0 mL                                                              |                |
| Flow rate       | $\leq 50$ mL/min                                                     |                |
| Vacuum range    | 150 hPa                                                              |                |
| Thread size     | 1/4-28UNF                                                            |                |
| Wetted material | PEEK: PTFE, ETFE, PEEK                                               |                |
| Remote control  | Input: — Output: Error signal                                        |                |
| Dimensions      | 180 (H) $\times$ 90 (W) $\times$ 400 (D) mm, excluding protuberances |                |
| Weight          | Approx. 5.0 kg                                                       | Approx. 6.0 kg |
| Power           | AC100 $\sim$ 240 V (50 / 60 Hz) MAX 80 VA                            |                |
| Order code      | SGA-G3501                                                            | SGA-G3502      |

# 3. Valves

We at FLOM have many years of 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 and high-pressure 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<br>(Explosion-proof) |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|--------------------------------|
|                                                                                                                             | Stand-alone                                                                           | OEM                                                                                                        |                                |
| Injectors<br><b>VI Series</b><br>(Standard)<br><b>MI-11</b><br>(Ultra high pressure)<br>Switching Valves<br><b>V Series</b> | <b>VA-21 Series</b><br>(High pressure,<br>Long life,<br>Non-metallic,<br>High volume) | <b>VA-21A Series</b><br>(Standard speed<br>switching)<br><br><b>VF-02 Series</b><br>(High Speed switching) | <b>415 Series</b>              |

VALVES

### Type of Valve Heads (Examples)

|                                                                                                                                                                                                             |                                                                                                                                                                                                             |                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>4-port switching</b><br><br>       | <b>6-port switching</b><br><br>       | <b>16-port switching</b><br><br> |
| <b>2-way 3-port switching</b><br><br> | <b>2-way 4-port switching</b><br><br> | <b>4-port rotary</b><br><br>     |
| <b>6-port rotary</b><br><br>          | <b>8-port rotary</b><br><br>          | <b>12-port rotary</b><br><br>    |



Valve Unit VA-21

## Automatic Switching Valves Valve Unit VA-21 Series

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

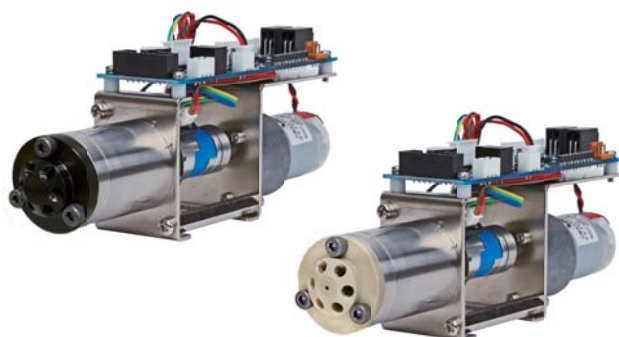
### Features

- ☐ 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           | Direct drive by DC motor                                        |
| Switching Modes | 2 position switching, rotary                                    |
| Manual Input    | Position change, position reset                                 |
| Remote Control  | Input : position change / set / reset, Output : position, error |
| Communication   | RS232C , RS485(between FLOM device)                             |
| Power           | AC100 ~ 240V , 50/60Hz , MAX 50 W                               |
| Dimensions      | 116 (H) × 66 (W) × 200 (D) mm , excluding protuberances         |
| Weight          | Approx 2.0 kg                                                   |

Choose the valve head you need from the chart on the right.  
Consult us directly if you can't find the type you need on the chart.



Valve Unit VA-21A

## Auto Switching Valves for OEMs Auto Valve VA-21A Series

Auto Switching VA-21 valves for OEM applications

### Features

- ☐ Space-saving compact design
- ☐ Remote control with RS232C/RS485 protocols

### Valve Drive

| Product Name    | Automatic Switching Valve                                       |
|-----------------|-----------------------------------------------------------------|
| Product Number  | VA-21A                                                          |
| Drive           | Direct drive by DC motor                                        |
| Switching Modes | 2 position switching, rotary                                    |
| Remote Control  | Input : position change / set / reset, Output : position, error |
| Communication   | RS232C , RS485(between FLOM device)                             |
| Power           | DC+24V                                                          |
| Weight*1        | Approx 0.8 kg                                                   |

\*1: weight shown is only for reference. Weight can vary greatly depending on type of valve head installed.

FLOM welcomes your queries about valve heads and specifications.

## Switching Valves

| Product number   | VA-21-601                                                                         | VA-21-602         | VA-21-603         | VA-21-604         |
|------------------|-----------------------------------------------------------------------------------|-------------------|-------------------|-------------------|
| Type             | 6-port                                                                            |                   |                   |                   |
| Path Position    |  |                   |                   |                   |
| Max Pressure     | 40 MPa (5800 psi)                                                                 | 30 MPa (4350 psi) | 40 MPa (5800 psi) | 30 MPa (4350 psi) |
| Wetted materials | SUS , PEEK                                                                        | PEEK              | SUS , PEEK        | PEEK              |
| Tube OD          | 1/16"                                                                             | 1/16"             | 1/16"             | 1/16"             |
| Thread size      | No.10-32UNF                                                                       | No.10-32UNF       | No.10-32UNF       | No.10-32UNF       |
| Path diameter    | 0.25 mm (0.01")                                                                   | 0.25 mm (0.01")   | 0.5 mm (0.02")    | 0.5 mm (0.02")    |
| Order Code       | SAV-VA-21-601                                                                     | SAV-VA-21-602     | SAV-VA-21-603     | SAV-VA-21-604     |

| Product number   | VA-21-605                                                                         | VA-21-606         | VA-21-607       | VA-21-608       | VA-21-609                                                                           | VA-21-610         |
|------------------|-----------------------------------------------------------------------------------|-------------------|-----------------|-----------------|-------------------------------------------------------------------------------------|-------------------|
| Type             | 6-port                                                                            |                   |                 |                 | 4-port                                                                              |                   |
| Path Position    |  |                   |                 |                 |  |                   |
| Max Pressure     | 20 MPa (2900 psi)                                                                 | 20 MPa (2900 psi) | 5 MPa (725 psi) | 5 MPa (725 psi) | 40 MPa (5800 psi)                                                                   | 30 MPa (4350 psi) |
| Wetted materials | SUS , PEEK                                                                        | PEEK              | SUS , PEEK      | PEEK            | SUS , PEEK                                                                          | PEEK              |
| Tube OD          | 1/16"                                                                             | 1/16"             | 3.0 mm or 1/8"  | 3.0 mm or 1/8"  | 1/16"                                                                               | 1/16"             |
| Thread size      | No.10-32UNF                                                                       | No.10-32UNF       | M8×1.25         | M8×1.25         | No.10-32UNF                                                                         | No.10-32UNF       |
| Path diameter    | 1.0 mm (0.04")                                                                    | 1.0 mm (0.04")    | 2.0 mm (0.079") | 2.0 mm (0.079") | 0.5 mm (0.02")                                                                      | 0.5 mm (0.02")    |
| Order Code       | SAV-VA-21-605                                                                     | SAV-VA-21-606     | VA-21-607       | VA-21-608       | VA-21-609                                                                           | VA-21-610         |

| Product number   | VA-21-611                                                                           | VA-21-612         | VA-21-613       | VA-21-614       |
|------------------|-------------------------------------------------------------------------------------|-------------------|-----------------|-----------------|
| Type             | 1-2 port (3-way valve)                                                              |                   |                 |                 |
| Path Position    |  |                   |                 |                 |
| Max Pressure     | 40 MPa (5800 psi)                                                                   | 30 MPa (4350 psi) | 5 MPa (725 psi) | 5 MPa (725 psi) |
| Wetted materials | SUS , PEEK                                                                          | PEEK              | SUS , PEEK      | PEEK            |
| Tube OD          | 1/16"                                                                               | 1/16"             | 3.0 mm or 1/8"  | 3.0 mm or 1/8"  |
| Thread size      | No.10-32UNF                                                                         | No.10-32UNF       | M8×1.25         | M8×1.25         |
| Path diameter    | 0.5 mm (0.02")                                                                      | 0.5 mm (0.02")    | 2.0 mm (0.079") | 2.0 mm (0.079") |
| Order Code       | SAV-VA-21-611                                                                       | SAV-VA-21-612     | SAV-VA-21-613   | SAV-VA-21-614   |

## Rotary Valves

| Product number   | VA-21-615                                                                           | VA-21-616         | VA-21-617                                                                             | VA-21-618         | VA-21-619       | VA-21-620       |
|------------------|-------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|-------------------|-----------------|-----------------|
| Type             | 1-4 port rotary                                                                     |                   | 1-6 port rotary                                                                       |                   |                 |                 |
| Path Position    |  |                   |  |                   |                 |                 |
| Max Pressure     | 40 MPa (5800 psi)                                                                   | 30 MPa (4350 psi) | 40 MPa (5800 psi)                                                                     | 30 MPa (4350 psi) | 5 MPa (725 psi) | 5 MPa (725 psi) |
| Wetted materials | SUS , PEEK                                                                          | PEEK              | SUS , PEEK                                                                            | PEEK              | SUS , PEEK      | PEEK            |
| Tube OD          | 1/16"                                                                               | 1/16"             | 1/16"                                                                                 | 1/16"             | 3.0 mm or 1/8"  | 3.0 mm or 1/8"  |
| Thread size      | No.10-32UNF                                                                         | No.10-32UNF       | No.10-32UNF                                                                           | No.10-32UNF       | M8×1.25         | M8×1.25         |
| Path diameter    | 0.5 mm (0.02")                                                                      | 0.5 mm (0.02")    | 0.5 mm (0.02")                                                                        | 0.5 mm (0.02")    | 2.0 mm (0.079") | 2.0 mm (0.079") |
| Order Code       | SAV-VA-21-615                                                                       | SAV-VA-21-616     | SAV-VA-21-617                                                                         | SAV-VA-21-618     | SAV-VA-21-619   | SAV-VA-21-620   |

| Product number   | VA-21-621                                                                           | VA-21-622         |
|------------------|-------------------------------------------------------------------------------------|-------------------|
| Type             | 1-12 port rotary                                                                    |                   |
| Path Position    |  |                   |
| Max Pressure     | 20 MPa (2900 psi)                                                                   | 20 MPa (2900 psi) |
| Wetted materials | SUS , PEEK                                                                          | PEEK              |
| Tube OD          | 1/16"                                                                               | 1/16"             |
| Thread size      | No.10-32UNF                                                                         | No.10-32UNF       |
| Path diameter    | 0.5 mm (0.02")                                                                      | 0.5 mm (0.02")    |
| Order Code       | SAV-VA-21-621                                                                       | SAV-VA-21-622     |

### VA-21 Optional Accessories

| P/N       | Name                                       |
|-----------|--------------------------------------------|
| UF2100-01 | VA-21 I/O Cable<br>(only for change/reset) |
| UF2100-02 | VA-21 Serial Comm Cable                    |
| PF505-01  | RS485 Comm Cable                           |
| PF505-03  | RS485 Comm Extension Cable                 |



Auto Valve VF-02-1005

## Auto Valves for OEMs

### Auto Valve VF-02 Series

High-speed, long life and compact design in a auto switching valve for OEM applications

#### Features

- Space-saving super compact design
- High revolving speed (60°, 0.1 second) reduces pressure shock  
the ceramic type seal improves seal life to 100,000 cycles
- Can switch in valvehead rated to 100 MPa for super high speed analytical applications
- Detachable valvehead permits fast, efficient maintenance

#### Valve Drive

| Product Name   | Auto Switching Valve for OEMs                                                                |
|----------------|----------------------------------------------------------------------------------------------|
| Product Number | VF-02                                                                                        |
| Drive          | Direct drive by DC motor                                                                     |
| Switching Mode | 2-position switching                                                                         |
| Remote Control | Operation Input : position switching, home position reset<br>Status Output : position, error |
| Power          | DC 24 V                                                                                      |
| Weight*1       | about 0.7kg                                                                                  |

\*1 : weight shown is only for reference. Weight can vary greatly depending on type of valve head installed.

Valve Heads (Contact FLOM if you need valve heads with specs not shown in graph below.)

| Product Number  | VF-02-1002       | VF-02-1003            | VF-02-1005       | VF-02-1103         | VF-02-1104                     | VF-02-1039       |
|-----------------|------------------|-----------------------|------------------|--------------------|--------------------------------|------------------|
| Type            | 6-port           |                       |                  |                    |                                |                  |
| Path Position   |                  |                       |                  |                    |                                |                  |
| Max pressure    | 40MPa (5800 psi) | 40MPa (5800 psi)      | 20MPa (2900 psi) | 40MPa (5800 psi)   | 40MPa (5800 psi)               | 40MPa (5800 psi) |
| Wetted material | SUS, PEEK        | PEEK(outer layer SUS) | PEEK             | SUS, PEEK, Ceramic | PEEK(outer layer SUS), Ceramic | SUS, PEEK        |
| Tube OD         | 1/16"            | 1/16"                 | 1/16"            | 1/16"              | 1/16"                          | 1/16"            |
| Path diameter   | 0.4mm (0.016")   | 0.4mm (0.016")        | 0.4mm (0.016")   | 0.4mm (0.016")     | 0.4mm (0.016")                 | 0.25mm (0.01")   |
| Thread size     | No.10-32UNF      | No. 10-32UNF          | No.10-32UNF      | No.10-32UNF        | No.10-32UNF                    | No.10-32UNF      |

| Product Number  | VF-02-1034            | VF-02-1056            | VF-02-1010       | VF-02-1012       | VF-02-1013       | VF-02-1015       |
|-----------------|-----------------------|-----------------------|------------------|------------------|------------------|------------------|
| Type            | 6-port                |                       | 3-port 2-way     |                  | 4-port           |                  |
| Path Position   |                       |                       |                  |                  |                  |                  |
| Max pressure    | 40MPa (5800 psi)      | 20MPa (2900 psi)      | 40MPa (5800 psi) | 20MPa (2900 psi) | 40MPa (5800 psi) | 20MPa (2900 psi) |
| Wetted material | PEEK(outer layer SUS) | PEEK(outer layer SUS) | SUS, PEEK        | PEEK             | SUS, PEEK        | PEEK             |
| Tube OD         | 1/16"                 | 1/16"                 | 1/16"            | 1/16"            | 1/16"            | 1/16"            |
| Path diameter   | 0.25mm (0.01")        | 0.25mm (0.01")        | 0.4mm (0.016")   | 0.4mm (0.016")   | 0.4mm (0.016")   | 0.4mm (0.016")   |
| Thread size     | No.10-32UNF           | No.10-32UNF           | No.10-32UNF      | No.10-32UNF      | No.10-32UNF      | No.10-32UNF      |

| Product Number  | VF-02-1040       | VF-02-1058       | VF-02-1050                     | VF-02-1065       |
|-----------------|------------------|------------------|--------------------------------|------------------|
| Type            | 8-port           |                  | 6-port vertical injection port |                  |
| Path Position   |                  |                  |                                |                  |
| Max pressure    | 40MPa (5800 psi) | 20MPa (2900 psi) | 40MPa (5800 psi)               | 20MPa (2900 psi) |
| Wetted material | SUS, PEEK        | PEEK             | SUS, PEEK                      | PEEK             |
| Tube OD         | 1/16"            | 1/16"            | 1/16"                          | 1/16"            |
| Path diameter   | 0.25mm (0.01")   | 0.25mm (0.01")   | 0.4mm (0.016")                 | 0.4mm (0.016")   |
| Thread size     | No.10-32UNF      | No.10-32UNF      | No.10-32UNF                    | No.10-32UNF      |



Air Valve 415

## Pneumatic Drive Valves Air Valve 415 Series

Pneumatically driven valve particularly suitable for explosion-proof

### Features

- Valve switching done pneumatically (no electric power)
- Space-saving compact design

### Valve Drive

|                |                 |
|----------------|-----------------|
| Product Name   | Air Valve       |
| Product Number | 415             |
| Drive          | Pneumatic Drive |
| Air Tube OD*1  | 1/8"            |

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

Valve Heads (contact FLOM if you need a valve not shown here)

|                 |                                                                                   |                   |
|-----------------|-----------------------------------------------------------------------------------|-------------------|
| Product Name    | 415-605                                                                           | 415-606           |
| Product Number  | 6-port                                                                            |                   |
| Switching Modes |  |                   |
| Max Pressure    | 20 MPa (2900 psi)                                                                 | 20 MPa (2900 psi) |
| Wetted Material | SUS , PEEK                                                                        | PEEK              |
| Tube OD         | 1/16"                                                                             | 1/16"             |
| Fluid Path      | 1.0 mm (0.04")                                                                    | 1.0 mm (0.04")    |
| Thread Size     | No.10-32 UNF                                                                      | No.10-32 UNF      |



Manual Injector VI-11



UHPLC Micro Injector MI-11

## Manual Sample Injectors

### Manual Sample Injector VI Series

#### Features

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

## Ultra High Pressure Injectors

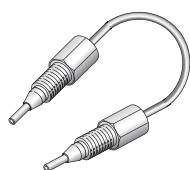
### UHPLC Micro Injector MI-11

#### Features

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

| 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 (14,500 psi) |
| Tube OD                | 1/16"                               | 1/16"              | 1/16"                |
| Path diameter          | 0.5 mm (0.02")                      | 0.5 mm (0.02")     | 0.25 mm (0.01")      |
| 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 maker        | Built-in (1.5 m lead wire enclosed) |                    |                      |
| Order code             | VH-V271                             | VH-V276            | VH-V340              |

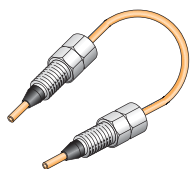
### Optional Accessories



SUS, 20 µL

#### VI-11 Sample Loop (For OD 1/16" SUS)

| P/N  | Volume |
|------|--------|
| 7501 | 10 µL  |
| 7502 | 20 µL  |
| 7503 | 50 µL  |
| 7504 | 100 µL |
| 7505 | 200 µL |
| 7506 | 500 µL |
| 7507 | 1 mL   |



PEEK, 20 µL

#### VI-12 Sample Loop (For OD 1/16" PEEK)

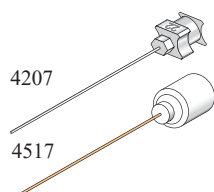
| P/N  | Volume |
|------|--------|
| 7201 | 10 µL  |
| 7202 | 20 µL  |
| 7203 | 50 µL  |
| 7204 | 100 µL |
| 7205 | 200 µL |
| 7206 | 500 µL |
| 7207 | 1 mL   |



SUS, 5 µL

#### MI-11 Sample Loop (For OD 1/16" SUS)

| P/N   | Volume |
|-------|--------|
| 7500M | 5 µL   |



4207

4517

#### VI-11 • VI-12 Syringe Needles

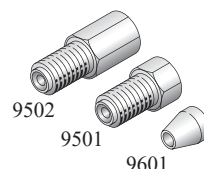
| P/N  | Volume               |
|------|----------------------|
| 4207 | SUS22G* <sup>1</sup> |
| 4517 | PEEK* <sup>2</sup>   |

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

#### MI-11 Syringe

| P/N  | Volume  |
|------|---------|
| 4701 | SUS26G* |

\* ID 0.25 mm



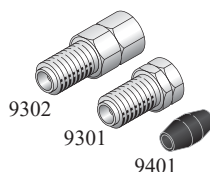
9502

9501

9601

#### SUS Fittings (Qty : 10 / pack)

| P/N  | Name           |
|------|----------------|
| 9502 | 1/16 Fitting L |
| 9501 | 1/16 Fitting S |
| 9601 | 1/16 Ferrule   |



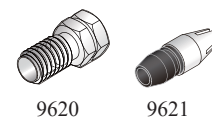
9302

9301

9401

#### PEEK Fittings (Qty : 10 / pack)

| P/N  | Name                      |
|------|---------------------------|
| 9302 | 1/16 DoubleLock Fitting L |
| 9301 | 1/16 DoubleLock Fitting S |
| 9401 | 1/16 DoubleLock Ferrule   |



9620

9621

#### Dual Fittings (Qty : 10 / pack)

| P/N  | Name                           |
|------|--------------------------------|
| 9620 | Dual-Fitt Set                  |
| 9621 | Dual-Fitting                   |
| 9623 | Replacement ferrule(5 / pack)  |
|      | Replacement ferrule(10 / pack) |



#### Injector Panel

| P/N  | Name           |
|------|----------------|
| 4515 | Injector Panel |

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

\* This cannot be attached to FLOM pumps. See page 8 for side panels for valve attachment to FLOM pumps.



Manual Valve V05

## Manual Valve

A convenient manual valve for switching between flow paths.

### Features

- Low torque design for easy switching
- Maximum pressure 35MPa (5000 psi)

| Product Name        | Manual Switching Valve                                                            |
|---------------------|-----------------------------------------------------------------------------------|
| Product Number      | V05                                                                               |
| Type                | Analytical 6-port                                                                 |
| Path position       |  |
| Max pressure        | 35 MPa (5075 psi)                                                                 |
| Wetted material     | SUS , PEEK                                                                        |
| Tube OD             | 1/16"                                                                             |
| Fluid Path Diameter | 0.6 mm (0.024")                                                                   |
| Order Code          | VH-V05                                                                            |

## Optional Accessories



PEEK Fittings (Qty : 10 / pack)

| P/N  | Name          |
|------|---------------|
| 9001 | Easy Fitt     |
| 9003 | Hex Fitt      |
| 9135 | Hex Fitt Mini |

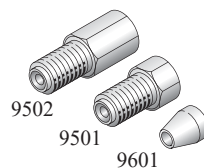


Injector Panel\*

| P/N  | Name           |
|------|----------------|
| 4515 | Injector Panel |

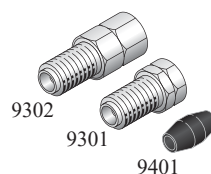
\* The valve in the picture is not included and must be purchased separately.

\*This cannot be attached to FLOM pumps. See page 8 for side panels for valve attachment to FLOM pumps.



Fittings (Qty : 10 / pack)

| P/N  | Name            |
|------|-----------------|
| 9502 | 1/16 Fittings L |
| 9501 | 1/16 Fittings S |
| 9601 | 1/16 Ferrules   |



Fittings (Qty : 10 / pack)

| P/N  | Name                       |
|------|----------------------------|
| 9302 | 1/16 DoubleLock Fittings L |
| 9301 | 1/16 DoubleLock Fittings S |
| 9401 | 1/16 DoubleLock Ferrules   |



Manual Valve V200

Manual Valve V239

## Compact Manual Valve

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        | Manual Switching Valve |                         |
|---------------------|------------------------|-------------------------|
| Product Number      | V200                   | V201                    |
| Type                | Analytical 6-port      | Analytical 3 port 2 way |
| Path position       |                        |                         |
| Max pressure        | 20 MPa (2900 psi)      | 20 MPa (2900 psi)       |
| Wetted material     | PEEK                   | PEEK                    |
| Tube OD             | 1/16"                  | 1/16"                   |
| Fluid Path Diameter | 0.6 mm (0.024")        | 0.6 mm (0.024")         |
| Thread size         | No.10-32 UNF           | No.10-32 UNF            |
| Order Code          | VH-V200                | VH-V201                 |

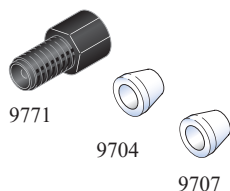
| Product Name        | Manual Switching Valve |                       |                       |
|---------------------|------------------------|-----------------------|-----------------------|
| Product Number      | V204                   | V512                  | V239                  |
| Type                | Analytical 1-2 rotary  | Analytical 1-2 rotary | Analytical 1-2 rotary |
| Path position       |                        |                       |                       |
| Max pressure        | 20 MPa (2900 psi)      | 30 MPa (4350 psi)     | 1 MPa (145 psi)       |
| Wetted material     | PEEK                   | SUS , PEEK            | PEEK                  |
| Tube OD             | 1/16"                  | 1/16"                 | φ3 or 1/8"            |
| Fluid Path Diameter | 0.8 mm (0.03")         | 0.8 mm (0.03")        | 1.0mm (0.04")         |
| Thread size         | No.10-32 UNF           | No.10-32 UNF          | 1/4-28 UNF            |
| Order Code          | VH-V204                | VH-V512               | VH-V239               |

## Optional Accessories



PEEK Fittings (Qty : 10 / pack)

| P/N  | Name          |
|------|---------------|
| 9001 | Easy Fitt     |
| 9003 | Hex Fitt      |
| 9135 | Hex Fitt Mini |



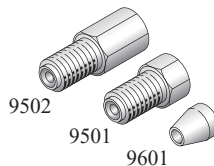
Fittings (Qty : 10 / pack)

| P/N  | Name                      |
|------|---------------------------|
| 9771 | 1/8HEX Flat Seal Fittings |
| 9704 | ø3•M6 Flat Seal Ferrules  |
| 9707 | 1/8•M6 Flat Seal Ferrules |



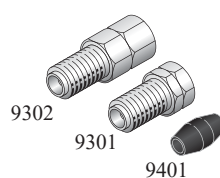
Compact Valve Panel  
(for V200, 201, 204, 239, V512)

| P/N   | Name        |
|-------|-------------|
| 45150 | Valve Panel |



Fittings (Qty : 10 / pack)

| P/N  | Name            |
|------|-----------------|
| 9502 | 1/16 Fittings L |
| 9501 | 1/16 Fittings S |
| 9601 | 1/16 Ferrules   |

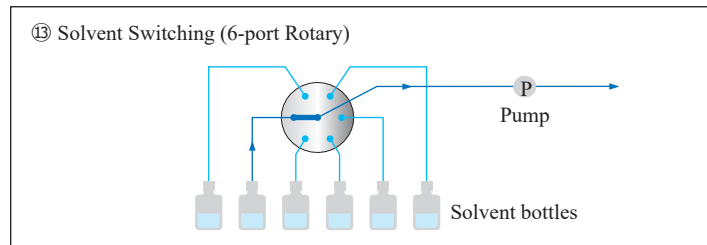
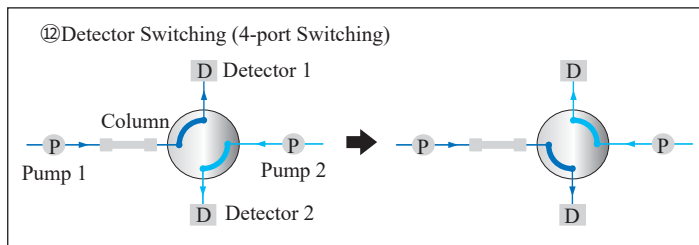
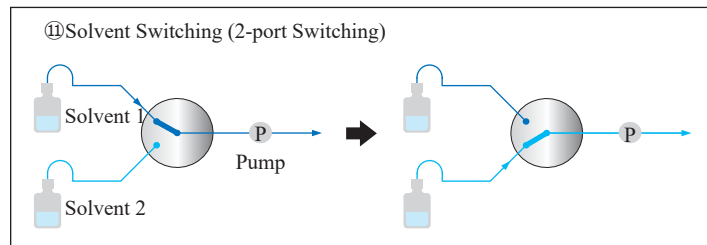
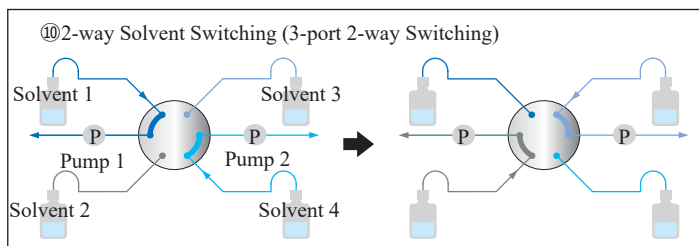
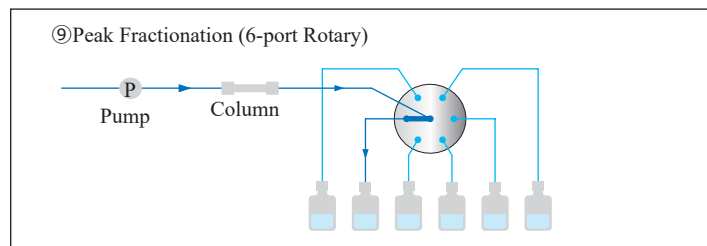
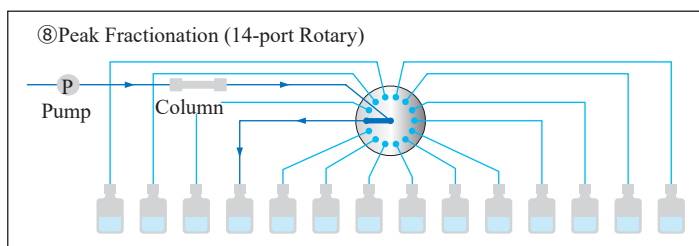
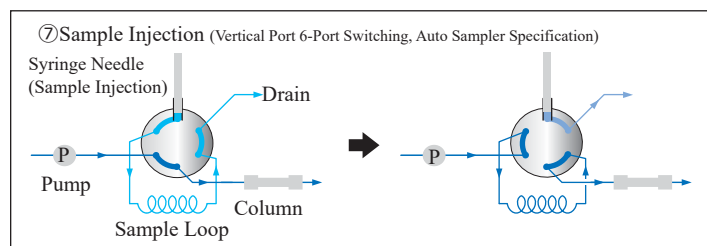
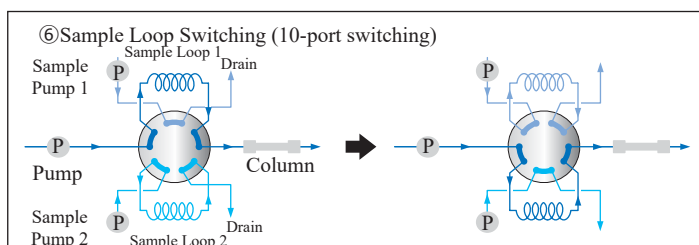
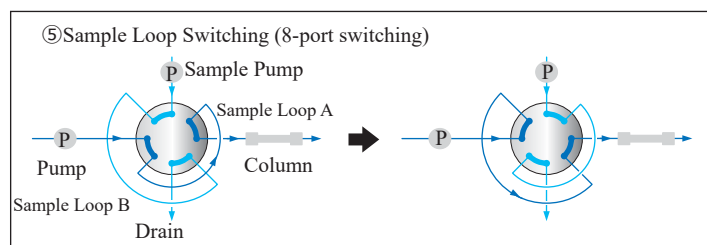
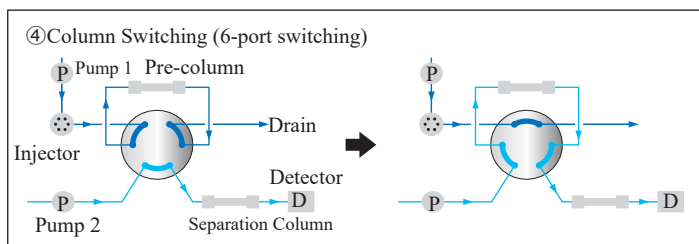
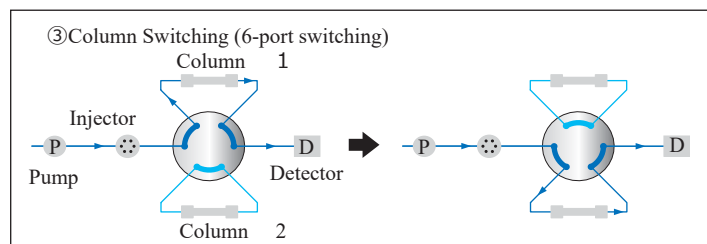
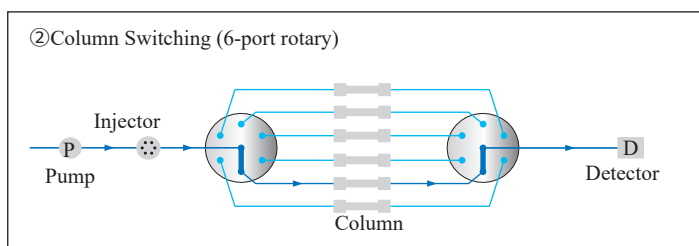
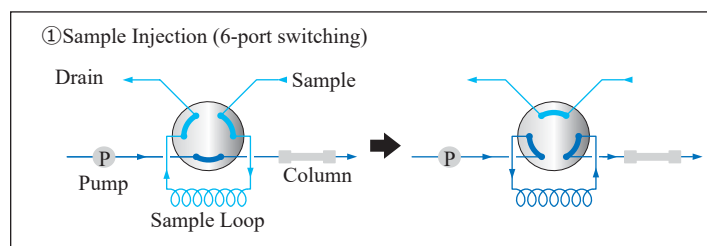


Fittings (Qty : 10 / pack)

| P/N  | Name                       |
|------|----------------------------|
| 9302 | 1/16 DoubleLock Fittings L |
| 9301 | 1/16 DoubleLock Fittings S |
| 9401 | 1/16 DoubleLock Ferrules   |

# Type 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.



4. Liquid Level-Sensing Reservoir Sensors

Liquid Level Sensors  
Sonic Reservoir Sensor SR-13

Non-contact liquid level sensor using sound wave

Features

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



Sonic Reservoir Sensor SR-13

|                 |                                                       |
|-----------------|-------------------------------------------------------|
| Product Name    | Sonic Reservoir Sensor                                |
| Product Number  | SR-13                                                 |
| Wetted material | PTFE                                                  |
| Remote control  | Input : —<br>Output: Error signal                     |
| Communication   | RS232C (option)                                       |
| Dimensions      | 115 (H) × 85 (W) × 80 (D) mm, excluding protuberances |
| Weight          | Approx 0.7 kg                                         |
| Power           | AC ~ 240 V (50 / 60 Hz) MAX 15W                       |
| Order Code      | FA007-500                                             |



RESERVOIR SENSORS

SR-13 Accessories

| P/N       | Name           |
|-----------|----------------|
| FD007-502 | Solvent probe  |
| FD007-503 | Waste probe    |
| FD007-504 | Solvent bottle |
| FD007-505 | Waste tank     |
| FD007-506 | Serial port    |



Solvent probe



Waste probe



Solvent bottle



Waste tank

## 6. Reactors



Reactor RT-11

| Product name      | Reactor                                                 |
|-------------------|---------------------------------------------------------|
| Product number    | RT-11                                                   |
| Heat regulation   | Block Reactor (Cartridge Style)                         |
| Temperature range | 40 ~ 100°C (when ambient temp is 25°C)                  |
| Accuracy          | ±1.0°C                                                  |
| Reaction tube*1   | OD 1/16" × 10m × 1 tube                                 |
| Safety feature    | Overheating Prevention Function (120°C)                 |
| Remote control    | Input : Signal conducted, Output : Signal released      |
| Dimensions        | 170 (H) × 110 (W) × 285 (D) mm, excluding protuberances |
| Weight            | Approx 3.5 kg                                           |
| Power             | AC100V (50 / 60 Hz) MAX130 VA                           |
| Order code        | SOV-K452                                                |

\*1: PTFE tube (OD 1/16" × ID 0.5mm × 10m) comes as standard accessory

### Reactor RT-11

A chemical reaction chamber settable from 40° to 100° C

#### Features

- High accuracy temperature regulation
- Real-time display of internal temperature
- Tube cartridge for easy replacement
- Can set up to 10m of OD 1/16" tubing
- Overheating prevention function



Reactor RT-12

| Product name      | Reactor                                                 |
|-------------------|---------------------------------------------------------|
| Product number    | RT-12                                                   |
| Heat regulation   | Block Reactor (Cartridge Style)                         |
| Temperature range | 40 ~ 180°C (when ambient temp is 25°C)                  |
| Accuracy          | ±1.0°C                                                  |
| Reaction tube* 1  | O.D. 1/16" × 10m × 1 tube                               |
| Safety feature    | Overheating Prevention Function (200°C)                 |
| Remote control    | Input : Signal conducted, Output : Signal released      |
| Dimensions        | 170 (H) × 110 (W) × 285 (D) mm, excluding protuberances |
| Weight            | Approx 4.5 kg                                           |
| Power             | AC100V (50 / 60 Hz) MAX 130 VA                          |
| Order code        | SOV-K451                                                |

\*1: PTFE tube (OD 1/16" × ID 0.5mm × 10m) comes as standard accessory

### Reactor RT-12

A chemical reaction chamber settable from 40 to 180°C

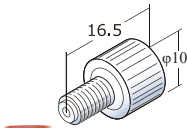
#### Features

- High accuracy temperature regulation
- Real-time display of internal temperature
- Tube cartridge for easy replacement
- Can set up to 10m of OD 1/16" tubing
- Overheating prevention function

# 7. Tubing and Fittings

## ○ETFE Fittings for OD 1/16", 1/8", 3.0 mm, 2.0 mm tubing

ETFE Ferrule Type (No.10-32UNF, OD 1/16" tubing)

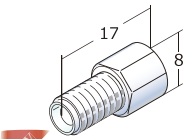


**NEW**  
Name: 1/16" Fittings D  
P/N: 9820D  
Material: ETFE  
Quantity: 10 / pack

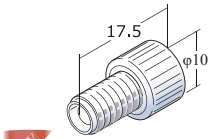


**NEW**  
Name: 1/16" ferrule D  
P/N: 9821D  
Material: ETFE  
Quantity: 10 / pack

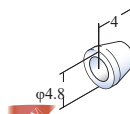
FLAT SEAL Series (1/4-28UNF, OD 3.0 mm or 1/8" tubing)



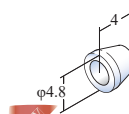
**NEW**  
Name: 1/8" HEX Flat seal  
Fittings  
P/N: 9822D  
Material: ETFE  
Quantity: 10 / pack



**NEW**  
Name: 1/8" Flat seal  
Fittings  
P/N: 9823D  
Material: ETFE  
Quantity: 10 / pack

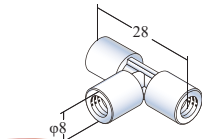


**NEW**  
Name: 1/8"•M6 Flat seal  
ferrule  
P/N: 9707  
Material: ETFE  
Quantity: 10 / pack

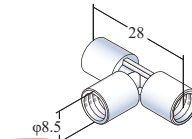


**NEW**  
Name: 3.0 mm•M6 Flat seal  
ferrule  
P/N: 9704  
Material: ETFE  
Quantity: 10 / pack

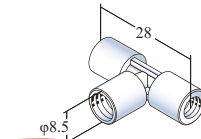
T-joints



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



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



**NEW**  
Name: Reducing T-joint  
P/N: 9826D  
Material: ETFE  
Threads: No.10-32UNF, 1/4-28UNF  
ID: 1.0 mm  
Quantity: 1



## ○SUS Fittings, for OD 1/16" tubing Ultra High Pressure Fittings (up to 140 MPa)



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

### Dual-Fitt

Reuseable high pressure joints

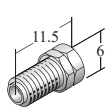
#### Features

- Reduces tube twisting
- Hexagonal ultra high pressure type
- Ferrule does not bite into tube, making reuse easy

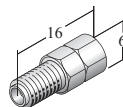
| Tightening Guideline<br>(Values will vary depending on tube type.) |                      |                        |                        |
|--------------------------------------------------------------------|----------------------|------------------------|------------------------|
| Sealing Torque                                                     | 0.4 N•m              | 0.8 N•m                | 1.4 N•m                |
| Pressure Rating                                                    | 50 MPa<br>(7252 psi) | 100 MPa<br>(14500 psi) | 140 MPa<br>(20300 psi) |

## High Pressure Fittings (up to 60 MPa)

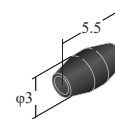
DOUBLE LOCK Series (No.10-32UNF, OD 1/16" tubing)



Name: 1/16" DoubleLock Fittings S  
P/N: 9301  
Material: SUS316  
Quantity: 10 / pack



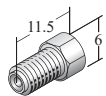
Name: 1/16" DoubleLock Fittings L  
P/N: 9302  
Material: SUS316  
Quantity: 10 / pack



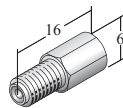
Name: 1/16" DoubleLock Ferrule  
P/N: 9401  
Material: PEEK  
Quantity: 10 / pack

## High Pressure Fittings (up to 40 MPa)

SUS Ferrule type (No.10-32UNF, OD 1/16" tubing)



Name: 1/16" Fittings S  
P/N: 9501  
Material: SUS316  
Quantity: 10 / pack



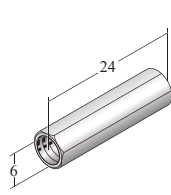
Name: 1/16" Fittings L  
P/N: 9502  
Material: SUS316  
Quantity: 10 / pack



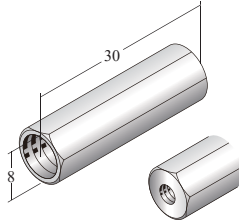
Name: 1/16" Ferrule  
P/N: 9601  
Material: SUS316  
Quantity: 10 / pack

## ○SUS Unions, Joints, and Tubing

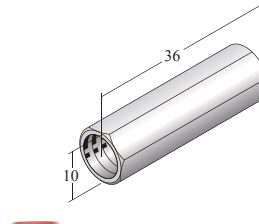
### SUS Unions



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

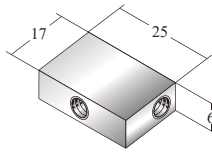


Name: 1/8" x 1/16" Reducing Union  
P/N: 9309  
Material: SUS316  
Thread: M8×1.25, No.10-32UNF  
ID: 1.0 mm  
Quantity: 1

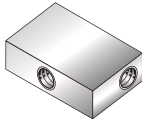


**NEW**  
Name: 1/8" Union  
P/N: 9330  
Material: SUS316  
Thread: M8×1.25  
ID: 2.0 mm  
Quantity: 1

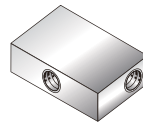
### SUS T-joints



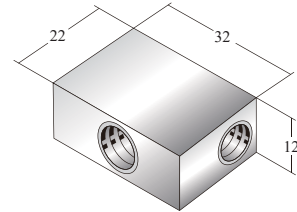
Name: T-joint 0.3 mm  
P/N: 9513-03  
Material: SUS316  
Thread: No.10-32UNF  
ID: 0.3 mm  
Quantity: 1



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

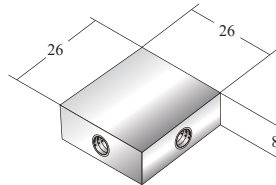


Name: T-joint 1.0 mm  
P/N: 9513-10  
Material: SUS316  
Thread: No.10-32UNF  
ID: 1.0 mm  
Quantity: 1



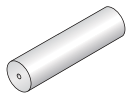
Name: 1/8" T-joint  
P/N: 9313  
Material: SUS316  
Thread: M8×1  
ID: 1.0 mm  
Quantity: 1

### SUS Cross Joints (OD 1/16")

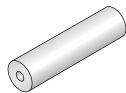


**NEW**  
Name: Cross joint 1.0 mm  
P/N: 9520  
Material: SUS316  
Thread: No.10-32UNF  
ID: 1.0 mm  
Quantity: 1

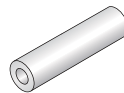
### SUS Tubing (OD 1/16" , 1/8")



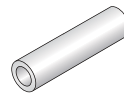
Name: SUS Tubing  
P/N: 7021  
OD: 1/16"  
ID: 0.25 mm  
Length: 10 m



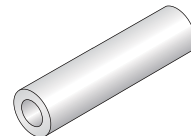
Name: SUS Tubing  
P/N: 7022  
OD: 1/16"  
ID: 0.5 mm  
Length: 10 m



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



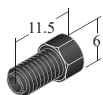
Name: SUS Tubing  
P/N: 7024  
OD: 1/16"  
ID: 1.0 mm  
Length: 10 m



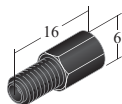
Name: SUS Tubing  
P/N: 7025  
OD: 1/8"  
ID: 2.1 mm  
Length: 2 m

## ○PEEK Fittings, for 1/16" tubing Medium Pressure Fittings (~35 MPa)

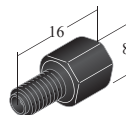
DOUBLE LOCK PEEK Series (No.10-32UNF, OD 1/16" tubing)



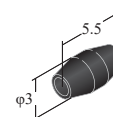
Name: 1/16" Double Lock Fitting S  
P/N: 9411  
Material: PEEK  
Quantity: 10 / pack



Name: 1/16" Double Lock Fitting L  
P/N: 9412  
Material: PEEK  
Quantity: 10 / pack



Name: 1/16" HEX Double Lock Fitting  
P/N: 9415  
Material: PEEK  
Quantity: 10 / pack



Name: 1/16" Double Lock Ferrule  
P/N: 9401  
Material: PEEK  
Quantity: 10 / pack

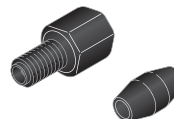
DOUBLE LOCK PEEK Series (with PEEK Ferrule)



Name: 1/16" Double Lock Fitting S Set  
P/N: 9411-9401  
Material: PEEK  
Quantity: 10 sets / pack



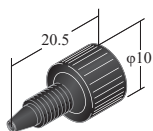
Name: 1/16" Double Lock Fitting L Set  
P/N: 9412-9401  
Material: PEEK  
Quantity: 10 sets / pack



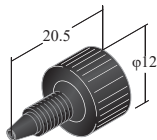
Name: 1/16" HEX Double Lock Fitting Set  
P/N: 9415-9401  
Material: PEEK  
Quantity: 10 sets / pack

## Medium Pressure Fittings (~ 20 MPa)

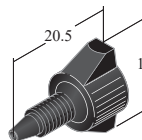
EASY FITT Series (No.10-32UNF, OD 1/16" tubing)



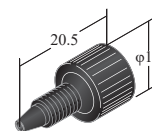
Name: Easy Fitt 10 mm  
P/N: 9001  
Material: PEEK  
Quantity: 10 / pack



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

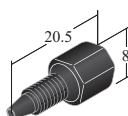


Name: Easy Fitt Type 2  
P/N: 9130  
Material: PEEK  
Quantity: 10 / pack

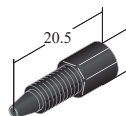


Name: Stop Fitt  
P/N: 9004  
Material: PEEK  
Quantity: 10 / pack

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

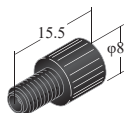


Name: Hex Fitt  
P/N: 9003  
Material: PEEK  
Quantity: 10 / pack

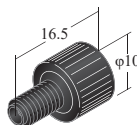


Name: Hex Fitt Mini  
P/N: 9135  
Material: PEEK  
Quantity: 10 / pack

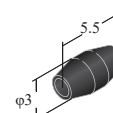
DOUBLE LOCK PEEK Series (No.10-32UNF, OD 1/16" tubing)



Name: 1/16" EASY8 Double Lock Fitting  
P/N: 9416  
Material: PEEK  
Quantity: 10 / pack



Name: 1/16" EASY10 Double Lock Fitting  
P/N: 9413  
Material: PEEK  
Quantity: 10 / pack



Name: 1/16" Double Lock Ferrule  
P/N: 9401  
Material: PEEK  
Quantity: 10 / pack

## DOUBLE LOCK PEEK Series (with PEEK ferrule)



Name: 1/16" EASY 8 Double Lock Set  
P/N: 9416-9401  
Material: PEEK  
Quantity: 10 sets/pack

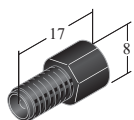


Name: 1/16" EASY 10 Double Lock Set  
P/N: 9413-9401  
Material: PEEK  
Quantity: 10 sets/pack

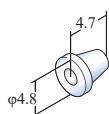
## ○ Other Polymer Fittings for OD 1/16", 1/8", 3.0 mm, 2.0 mm tubing

### Low Pressure Fittings (~1 MPa)

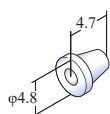
#### FLAT SEAL Series (1/4-28UNF, OD 1/16" or 2.0 mm tubing)



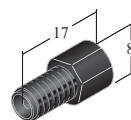
Name: 2.0 mm HEX Flat Seal Fitting  
P/N: 9772  
Material: PEEK  
Quantity: 10 / pack



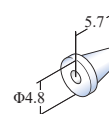
Name: 2.0 mm M6 Flat Seal Ferrule (Penetrating)  
P/N: 9755  
Material: ETFE  
Quantity: 10 / pack



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

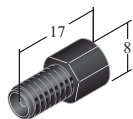


Name: 1/16" HEX Flat Seal Fitting  
P/N: 9773  
Material: PEEK  
Quantity: 10 / pack

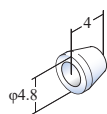


Name: 1/16" M6 Flat Seal Ferrule  
P/N: 9706  
Material: ETFE  
Quantity: 10 / pack

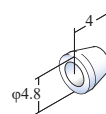
#### FLAT SEAL Series (1/4-28UNF, OD 3.0 mm or 1/8" tubing)



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

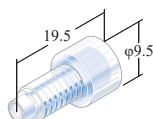


Name: 1/8" M6 Flat Seal Ferrule  
P/N: 9707  
Material: ETFE  
Quantity: 10 / pack



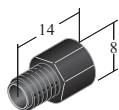
Name: 3.0 mm M6 Flat Seal Ferrule  
P/N: 9704  
Material: ETFE  
Quantity: 10 / pack

#### FLAT SEAL PLUG

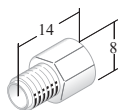


Name: Flat Seal Plug  
P/N: 9720P  
Material: PP  
Quantity: 10 / pack

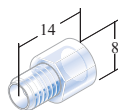
#### FLAT SEAL Series (M6×1, OD 2.0 mm tubing)



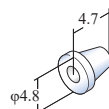
Name: 2.0 mm M6 Flat Seal Fitting  
P/N: 9752  
Material: PEEK  
Quantity: 10 / pack



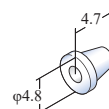
Name: 2.0 mm M6 Flat Seal Fitting  
P/N: 9732  
Material: POM  
Quantity: 10 / pack



Name: 2.0 mm M6 Flat Seal Fitting  
P/N: 9762  
Material: PP  
Quantity: 10 / pack

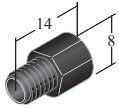


Name: 2.0 mm M6 Flat Seal Ferrule (Penetrating)  
P/N: 9755  
Material: ETFE  
Quantity: 10 / pack

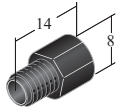


Name: 2.0 mm M6 Flat Seal Ferrule (Non-Penetrating)  
P/N: 9705  
Material: ETFE  
Quantity: 10 / pack

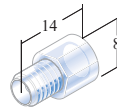
### FLAT SEAL Series (M6×1, OD 3.0 mm tubing)



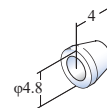
Name: 3.0 mm•M6 Flat Seal Fitting  
P/N: 9751  
Material: PEEK  
Quantity: 10 / pack



Name: 3.0 mm•M6 Flat Seal Fitting  
P/N: 9731  
Material: POM  
Quantity: 10 / pack

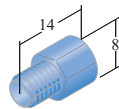


Name: 3.0 mm•M6 Flat Seal Fitting  
P/N: 9761  
Material: PP  
Quantity: 10 / pack

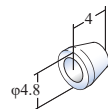


Name: 3.0 mm•M6 Flat Seal Ferrule  
P/N: 9704  
Material: ETFE  
Quantity: 10/pack

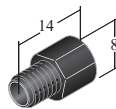
### FLAT SEAL Series (M6×1, OD 1/8" or 1/16" tubing)



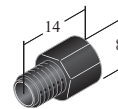
Name: 1/8"•M6 Flat Seal Fitting  
P/N: 9760  
Material: PP  
Quantity: 10 / pack



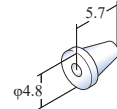
Name: 1/8"•M6 Flat Seal Ferrule  
P/N: 9707  
Material: ETFE  
Quantity: 10 / pack



Name: 1/16"•M6 Flat Seal Fitting  
P/N: 9753  
Material: PEEK  
Quantity: 10 / pack

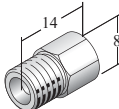


Name: 1/16"•M6 Flat Seal Fitting  
P/N: 9734  
Material: POM  
Quantity: 10 / pack

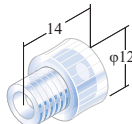


Name: 1/16"•M6 Flat Seal Ferrule  
P/N: 9706  
Material: ETFE  
Quantity: 10 / pack

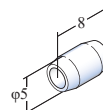
### DOUBLE LOCK Series (M8×1, OD 3.0 mm•1/8" tubing)



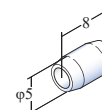
Name: 1/8" Double Lock Fitting  
P/N: 9304  
Material: SUS316  
Quantity: 10 / pack



Name: 1/8" Double Lock Fitting  
P/N: 9305  
Material: PP  
Quantity: 10 / pack

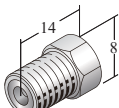


Name: 1/8" DoubleLock Ferrule  
P/N: 9402  
Material: ETFE  
Quantity: 10 / pack

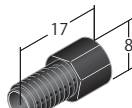


Name: 3.0 mm Double Lock Ferrule  
P/N: 9405  
Material: ETFE  
Quantity: 10 / pack

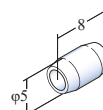
### DOUBLE LOCK Series (M8×1.25, OD 3.0 mm•1/8" tubing)



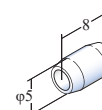
Name: 1/8" Double Lock Fitting  
P/N: 9303  
Material: SUS316  
Thread: M8×1.25  
Quantity: 10 / pack



Name: 1/8" Double Lock Fitting  
P/N: 9303P  
Material: PEEK  
Thread: M8×1  
Quantity: 10 / pack

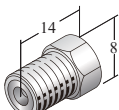


Name: 1/8" DoubleLock Ferrule  
P/N: 9402  
Material: ETFE  
Quantity: 10 / pack

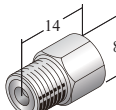


Name: 3.0 mm Double Lock Ferrule  
P/N: 9405  
Material: ETFE  
Quantity: 10 / pack

### SUS Fitting (M8×1.25, M8×1, OD 1/8")



Name: 1/8" Fitting  
P/N: 9306  
Material: SUS316  
Thread: M8×1.25  
Quantity: 10 / pack



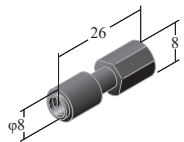
Name: 1/8"•M8 Fitting  
P/N: 9311  
Material: SUS316  
Thread: M8×1  
Quantity: 10 / pack



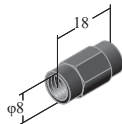
Name: 1/8" Fitting Ferrule  
P/N: 9321  
Material: SUS316  
Quantity: 10 / pack

## ○ PEEK Unions and Joints

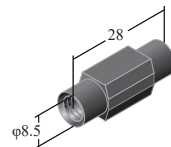
### Unions



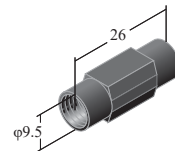
Name: Union  
P/N: 9005  
Material: PEEK  
Thread: No.10-32UNF  
ID: 0.5 mm  
Quantity: 1



Name: Union  
P/N: 9736  
Material: POM  
Thread: M6×1  
ID: 1.0 mm  
Quantity: 1

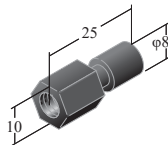


Name: Union  
P/N: 9101  
Material: PEEK  
Thread: 1/4-28UNF  
ID: 1.0 mm  
Quantity: 1

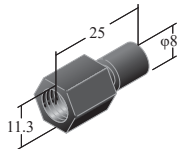


Name: Union  
P/N: 9111  
Material: PEEK  
Thread: M8×1  
ID: 1.0 mm  
Quantity: 1

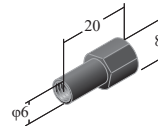
### Reducing Unions



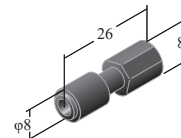
Name: Reducing Union  
P/N: 9110  
Material: PEEK  
Thread: 1/4-28UNF,  
No.10-32UNF  
ID: 1.0 mm  
Quantity: 1



Name: Reducing Union  
P/N: 9008  
Material: PEEK  
Thread: M8×1, No.10-32UNF  
ID: 1.0 mm  
Quantity: 1

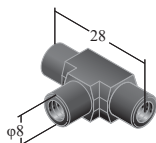


Name: Reducing Union  
P/N: 9737  
Material: POM  
Thread: M6×1, No.10-32UNF  
ID: 1.0 mm  
Quantity: 1

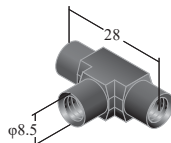


Name: Reducing Union  
P/N: 9112  
Material: PEEK  
Thread: No.10-32UNF, Syringe  
ID: 1.0 mm  
Quantity: 1

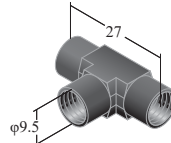
### T-joints



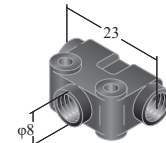
Name: T-joint  
P/N: 9006  
Material: PEEK  
Thread: No.10-32UNF  
ID: 0.5 mm  
Quantity: 1



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

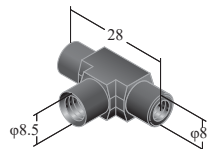


Name: T-joint  
P/N: 9121  
Material: PEEK  
Thread: M8×1  
ID: 1.0 mm  
Quantity: 1

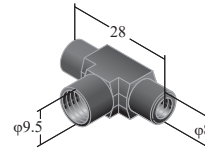


Name: T-joint  
P/N: 9738  
Material: POM  
Thread: M6×1  
ID: 1.0 mm  
Quantity: 1

### Reducing T-joints

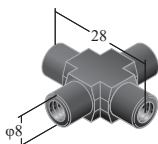


Name: Reducing T-joint  
P/N: 9108  
Material: PEEK  
Thread: No.10-32, 1/4-28UNF  
ID: 1.0 mm  
Quantity: 1

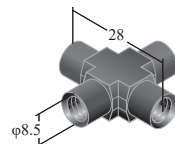


Name: Reducing T-joint  
P/N: 9107  
Material: PEEK  
Thread: No.10-32UNF, M8×1  
ID: 1.0 mm  
Quantity: 1

### Cross Joints



Name: Cross Joint  
P/N: 9007  
Material: PEEK  
Thread: No.10-32UNF  
ID: 1.0 mm  
Quantity: 1



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

## ○ 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  
10 m



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



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

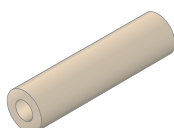


Name: PEEK Tubing  
P/N: 6003  
Line Color: Green  
OD: 1/16"  
ID: 0.75 mm  
Length: 5 m  
10 m

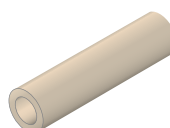


Name: PEEK Tubing  
P/N: 60031  
Line Color: Gray  
OD: 1/16"  
ID: 1.0 mm  
Length: 5 m  
10 m

### PEEK Tubing (O.D. 1/8")

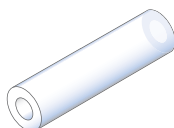


Name: PEEK Tubing  
P/N: 6004  
OD: 1/8"  
ID: 1/16"  
Length: 5 m

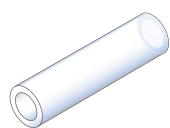


Name: PEEK Tubing  
P/N: 60042  
OD: 1/8"  
ID: 2.0 mm  
Length: 5 m

### 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

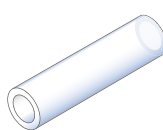


Name: ETFE Tubing  
P/N: 7013  
OD: 1/16"  
ID: 1.0 mm  
Length: 10 m

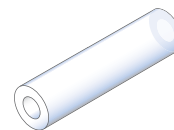
### PFA Tubing



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

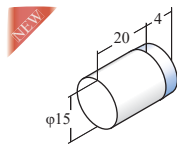


Name: PFA Tubing  
P/N: 7105  
OD: 1/8"  
ID: 1/16"  
Length: 10 m

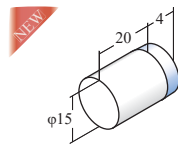
# 8. Other Products

## ○ Filters

### Solvent Filters

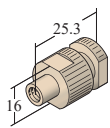


Name: Suction Filter  
P/N: 8810  
Pore size: 20  $\mu\text{m}$   
Connection: OD 1/8", 3 mm tubing  
Material: PTFE, PCTFE  
Quantity: 1

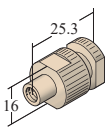


Name: Suction Filter  
P/N: 8811  
Pore size: 20  $\mu\text{m}$   
Connection: OD 1/16" tubing  
Material: PTFE, PCTFE  
Quantity: 1

### Solvent Filters (Inline)



Name: PEEK Inline Filter  
P/N: 8502  
Pore size: 5  $\mu\text{m}$   
Connection: No.10-32UNF  
Material: PEEK  
Quantity: 1



Name: PEEK Inline Filter  
P/N: 8501  
Pore size: 10  $\mu\text{m}$   
Connection: No.10-32UNF  
Material: PEEK  
Quantity: 1



Name: PEEK Frit (Replacement for inline filter)  
P/N: 8512  
Pore size: 5  $\mu\text{m}$   
Material: PEEK  
Quantity: 5 / pack



Name: PEEK Frit (Replacement for inline filter)  
P/N: 8511  
Pore size: 10  $\mu\text{m}$   
Material: PEEK  
Quantity: 5 / pack

## ○ Solvent Bottles

---



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



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



Name: Bottle Cap  
P/N: 9851  
Size: GL45 (for Schott Solvent Bottles)  
Tubing OD can be 1/8", 3.0 mm, 2.0 mm, 1/16"  
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 Polychlorotrifluoroethylene. Compared to PTFE, among organic solvents its use is restricted to strong acid/alkaline mixtures, but since it exhibits the strongest mechanical properties of all the fluorocarbon polymers, it is the 3rd most used material for pumpheads, after SUS and PEEK.

### **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.

### **Teflon®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.

### **HDPE**

Abbreviation of High Density Poly Ethylene. This high molecular weight polymer shows high flexibility and strong mechanical properties, so is often used to make pump plunger seals, where both chemical and abrasion resistance are required.

### **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.



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