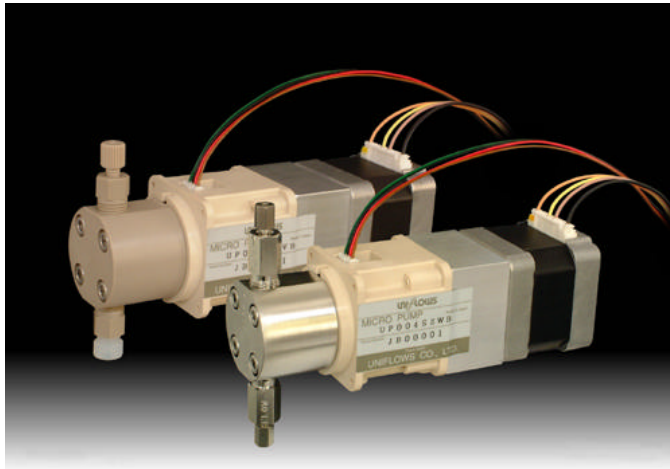
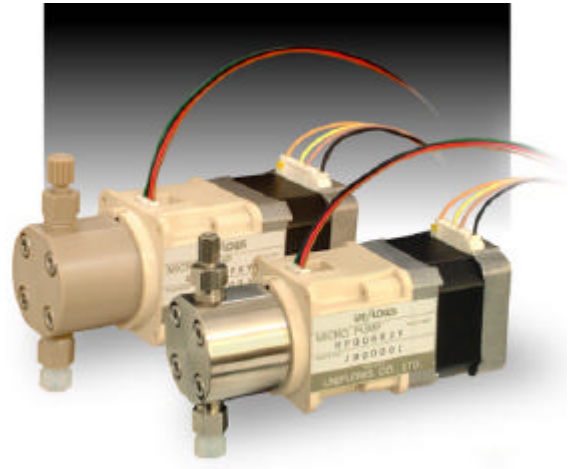


UP-, US- Series Micro Pump Module for Continuous Flow



High Pressure & High Flow Rate Type



All Purpose Type

***Compact & Light weight**

The small-sized micro pump modules equipped with a motor of 42 mm square can be snugly integrated into most of instruments.

***High Accuracy & High Resolution**

With direct acting stepping motor, the pump runs precisely at micro flow rate through high flow rate.

***High Pressure Resistance Type & All-Purpose Type**

In accordance with your specific application, two types can be selected between ;

- 1) High pressure & High Flow Rate Series and*
- 2) All-Purpose Series for general application.*

***Chemical Resistance & Long Service Life**

Materials for liquid contact parts can be selected for the application with organic solvents as well as acid/alkaline solution.

Driver dedicated for the micro pump module

High precision control driver suppressing heat from the motor enhances the entire performance of the micro pump.



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UP-, US- Series Micro Pump Module for Continuous Flow

High Pressure and High Flow Rate Series
with ball screw built in the driving part

(1)	(2)	(3)	(4)	(5)	A	B	C	D
UP	002	SZ	W	B	0.0198	50	0.5	1.2
		PZ	W	B				
UP	006	SZ	-	B	0.0792	35	2	5
		SS	-	B				
		PS	-	B		25		
UP	013	SZ	-	B	0.169	20	4.5	11
		SS	-	B				
		PS	-	B		15		
UP	031	SZ	-	B	0.385	9	10	25
		SS	-	B				
		PS	-	B		7		
UP	057	SZ	-	B	0.713	4	20	50
		SS	-	B				
		PS	-	B		3		
UP	123	SA	-	B	1.54	1.7	40	100
		PA	-	B		1.5		

All-Purpose Series for General Application
with trapezoidal thread

(1)	(2)	(3)	(4)	(5)	A	B	C	D
US	002	SZ	W	3	0.00594	20	0.15	0.6
		PZ	W	3				
US	006	SS	W	3	0.0237		0.7	2.5
		PS	W	3				
UP	002	SZ	-	0	0.0198		0.5	1.2
		PZ	-	0				
UP	006	SZ	-	0	0.0792		2	5
		SS	-	0				
		PS	-	0				
UP	013	SZ	-	0	0.169	14	4.5	11
		SS	-	0				
		PS	-	0		11		
UP	031	SZ	-	0	0.385	6	10	25
		SS	-	0				
		PS	-	0		5		
UP	057	SZ	-	0	0.713	3	20	50
		SS	-	0				
		PS	-	0		2.5		
UP	123	SA	-	0	1.54	1.2	40	100
		PA	-	0		1		

(1)	UP Series : "U"-type Pump Head driven by Unipolar Stepping Motor DC 3.96 V, 3.3 Ohm/phase, 1200 mA/phase, 2.4 mH/phase, self-start rotation at approx. 800 pps and max. speed of approx 2000 pps at constant current drive (Please set at 1,000 pps or less in normal service.)
	US Series : "U"-type Pump Head driven by Unipolar Stepping Motor DC 3.96 V, 4.8 Ohm/phase, 820 mA/phase, 2.3 mH/phase self-start rotation at approx. 800 pps and max. speed of approx 4000 pps at constant current drive (Please set at 1,000 pps or less when the pump continuously used.)
(2)	Volume/Stroke (Plunger OD x Stroke) 002 : 15.8 μL (Ø1.588 mm x 8 mm) 006 : 63.3 μL (Ø3.175 mm x 8 mm) 013 : 135 μL (Ø4.64 mm x 8 mm) 031 : 308 μL (Ø7 mm x 8 mm) 057 : 570 μL (Ø9.525 mm x 8 mm) 123 : 1231 μL (Ø14 mm x 8 mm)
(3)	Liquid Contact Parts : SZ : SUS316 Pump Head + Zirconia Plunger SS : SUS316 Pump Head + Sapphire Plunger SA : SUS316 Pump Head + Alumina Plunger PZ : PEEK Pump Head + Zirconia Plunger PS : PEEK Pump Head + Sapphire Plunger PA : PEEK Pump Head + Alumina Plunger Other parts : UP002 & US002 : Sapphire, Ruby, PTFE, PEEK Others : Sapphire, Ruby, PTFE, PEEK, COP Also available, although not listed left are : FZ : PCTFE Pump Head + Zirconia Plunger FS : PCTFE Pump Head + Sapphire Plunger FA : PCTFE Pump Head + Alumina Plunger TZ : Titanium Pump Head + Zirconia Plunger TS : Titanium Pump Head + Sapphire Plunger TA : Titanium Pump Head + Alumina Plunger
(4)	Check Valve : Specify V or W. V : Single Check Valve W : Double Check Valves NB : Please select W check valve for micro flow application and the use of the solution with low viscosity or containing tiny particles.
(5)	<High Pressure and High Flow rate Series> Ball thread. Please add B when the above type is selected. <All-Purpose Series> Resolution (2 Phase Drive) mm/Pulse 0 : 0.01 mm/Pulse 3 : 0.003 mm/Pulse
A	Resolution (2 Phase Drive) μL/Pulse
B	Max. Output Pressure, MPa Variable by the drive circuit of motor 1 MPa = 10.2 kgf/cm ²
C	Max. Flow Rate, mL/min, Self-Start*
D	Max. Flow Rate, mL/min, Slow-Start, Slow Down*

*For reference only. However, max. speed of self-start at constant current drive is 800 pps approximately.

Tubing Joints OD :
US002 & UP002 : Ø1/16" (Inlet & Outlet)
Others : Ø3 mm or Ø1/8" (Inlet), Ø1/16" (Outlet)

In ordering, specify (1), (2), (3), (4) and (5) ;

UP - 006 - SZ - V - B

(1) (2) (3) (4) (5)

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