

For small-volume drips, flow synthesis, column purification,
and analytical equipment sample supply

Continuous, Precise Liquid Transfers

Microliter
in μL Amounts

For minute flow
rates as low as
5 $\mu\text{L}/\text{min}$

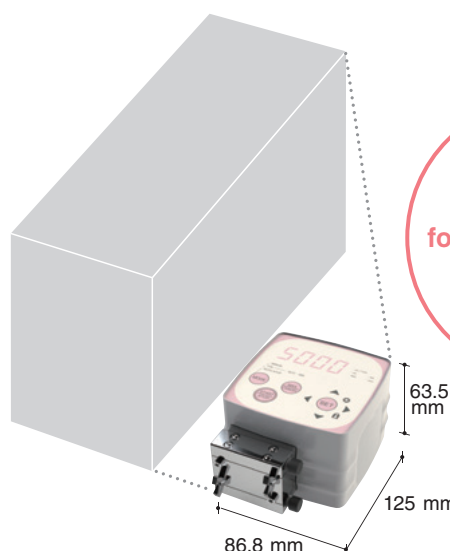


For ultra-small-volume liquid transfers

Smoothflow Pump **Q Series** **Microliter Class**

Advantages

- Excellent flow rate accuracy and reproducibility
- Continuous, constant flow with no pulsation for stable liquid transfer
- Flow rate adjustment between 5 and 5000 $\mu\text{L}/\text{min}$
- Maximum discharge pressure of 3 MPa
- No liquid leakage or exposure to outside air
(Transfer even strong acids, strong alkalis, and water-reactive substances!)
- No reduction in flow rate even after long-term use
- Minimal residual liquid (dead volume)
- Easy removal of liquid-end parts and easy replacement of liquids



Compact size
for greater freedom
of installation

Size comparison
between the Q Series
and a general-purpose
HPLC plunger pump

Model code

Q

[Control type]

Blank : Standard type
I : I/O signal control type

5

[Model
(flow rate standard)]

5 : 5 mL/min

KR

[Liquid-end part type]

KR : PEEK
6R : SUS316L

UP

[Power plug]

UP : Universal plug

E

[Language]

E : English
Blank : Japanese

S

[General]

S : Standard
X : Special order

Pump specifications

Item	Q / QI-5
Maximum flow rate*1	5000 µL/min (0.07 US G/h)
Flow rate control range	5 to 5000 µL/min
Maximum discharge pressure	3 MPa (435 psi)
Connection type	1/4-28 UNF
Connection diameter	φ1/16" × φ1/8" *2
Ambient temperature*3	0 to 40 °C
Transfer liquid temperature	0 to 40 °C (no freezing)
Transfer liquid viscosity	50 mPa·s or less
Environmental resistance	IEC standard: Corresponds to IP65 (dust proofing and waterproofing)
Power supply	Rated voltage
	100 to 240 VAC ±10%
	Phase/frequency
	1 φ / 50 Hz or 60 Hz
	Cord
	1.8 m
Weight	KR : 0.74 kg, 6R : 0.92 kg

*1 Conditions : Clean water at room temperature. *2 Contact TACMINA for applications with different sizes of fittings and tubes.

*3 -10 to 50°C during transportation and storage.

Control functions

Function	Description	Q	QI
Manual operation	Setting possible in units of 1 µL/min	●	●
Auto-stop operation	Operating time: 1 to 9999 seconds or 1 to 9999 minutes Discharge volume: 1 to 9999 µL or 1 to 9999 mL	●	—
Pulse-input proportional operation	1 to 9999 µL/pulse or 1 to 9999 mL/pulse	—	●
Analog-input proportional operation	Controllable according to set target value (SV) and max. flow rate (HV)	—	●

Liquid-end material

Item	KR	6R
Pump head	PEEK	SUS316L
Diaphragm	PTFE / CR	PTFE / CR
Check ball	Ruby	Ruby
Valve seat	Sapphire	Sapphire
Packing	PTFE	PTFE
Ball guide	PEEK	SUS316L

I/O signal specifications (QI only)

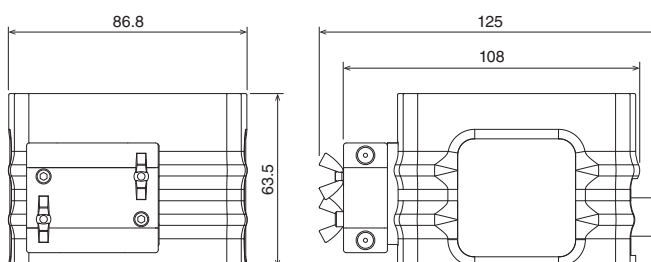
Signal	QI
Analog	Input 1 port; 4 to 20 mA DC; Input resistance: Approx. 110 Ω
Digital	Input 2 ports; No-voltage contact or open collector*1 Maximum pulse count: 6000 pulses/min Minimum pulse width: 5 msec (ON time) Assigned to one of the following: Pulse, pause/run, level, or MAX operation
	Output 2 ports; 25 VDC, 10 mA or less Assigned to one of the following: Unit pulse, alarm, or operation signal

*1 Make sure the residual voltage of the open collector does not exceed 1 V.

Accessories

Tube (PTFE, φ1/16" × φ1/8")	2 m	AC adapter (with A/C/O/BF plugs)	×1
Syringe set	×1	Signal cable (QI only)	1.5 m
Joint assembly (ETFE)	×2	Allen wrench (2.5 mm across flats)	×1
Nonslip sheet	×1	Operation manual	×1

External dimensions



Consumables (per pump)

Part name	Quantity	Recommended replacement interval
Diaphragm	2	4000 hours or 1 year
Check ball / valve seat assembly	4	
Packing	8	

Wide variety of Milliliter Class pumps are also available.

Milliliter Class pumps are able to handle flow rates between 0.1 and 100 mL/min. Choose from a wide range of liquid-end materials and control types to suit the application.

Smoothflow Pump Q Series
Milliliter Class



Product designs and specifications are subject to change without notice for product improvement.

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