

For Replacement from Tube Pumps and Syringe Pumps

Precise Liquid Transfer with Trace Amounts in Laboratory Processes!

Compatible with acids, bases and solvents

PVC type



PTFE type **NEW**



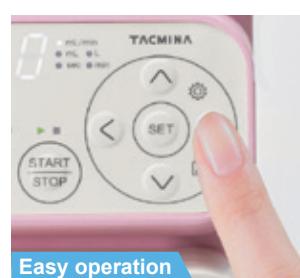
Stainless steel type **NEW**



Smoothflow Pump **Q** Series

Merits

- Pulseless and continuous flow provides excellent fluid transfer precision. (Repeatability: $\pm 1\%$)
- Diaphragm pump that can transfer liquids gently
- Enables precise flow rate settings at 0.01mL units (Setting range : 0.1 to 100mL/min) *This is the weight of the Q-100.
- Lightweight, compact, quiet, low vibration
- Simple operation and easy maintenance
- Long-life consumable parts
- Safe against abnormal pressure increase or dry running.
- Analog & pulse proportional control (Q1 type) **NEW**
- Interval & gradient control (QT type) **NEW**



Easy operation



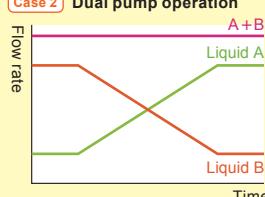
Simple disassembly and assembly

Gradient Operation (QT type)

Case 1 Single pump operation



Case 2 Dual pump operation



Solving the Problems of Laboratory Pumps!

Comparison		Syringe pump	Q Series	Tube pump
Specifications and capabilities	Metering performance	○	Point!	Repeatability of $\pm 1\%$ or less
	Pulse performance	○	Point!	Pulseless and continuous flow
	Continuous operation	×	Point!	Stable precision over a long period of time
	Contamination	○	Point!	No sliding part which generates contamination
	Fluid property changes	○	Point!	Gently transfers fluid without shear.
Usability	Installation space	△	Point!	For a multiple pump
	Calibration of initial settings	△	Point!	When replacing the syringe, etc.
	Controllability	○	Point!	Accurate calibration based on the actual discharged volume
	Maintenance	○	Point!	Intuitive flow rate settings
	Dry running	△	Point!	During reuse
Other	Variety	×	Point!	Causes an overload, which leads to breakdowns
	Running cost	△	Point!	No concerns regarding heat generation and pump damage
	Environmental impact	△	Point!	The lineup contains high-precision, high-pressure, and large-quantity products to match different processes.

Feel free to contact us with any other questions and comments !

Specifications

Item	Model	Q / QI / QT			
		100	60	30	10
Maximum flow rate ^{*1}	mL/min	100	60	30	10
	G/h	1.58	0.95	0.47	0.15
Flow rate control range					Variable from 0.1 to the maximum flow rate
Max. discharge pressure	MPa	0.3	0.6	1	2
	psi	43.5	87	145	290
Repeatability					$\pm 1\%$ (F.S)
Connection type					$\varnothing 4 \times \varnothing 6$
Ambient temperature	°C	0 to 40 ^{*2}			
		0 to 40°C (no freezing)			
Transferable temperature	°C	0 to 60 for the Q-100-6T depending on the conditions (no freezing) ^{*3}			
Transferable viscosity	mPa·s	200 or less		100 or less	
Environmental resistance					IEC standard: Equivalent to IP65 (dust proofing and waterproofing)
Power supply	Rated voltage	100 to 240VAC $\pm 10\%$			
	Phase/frequency	1φ / 50 Hz or 60 Hz			
	Cord	2 m			
Weight ^{*4 *5}	kg	VE / VF: 1.6, TT: 1.7 ^{*6} , 6T: 2.5 ^{*7}			

^{*1} Conditions: Clean water at room temperature.

^{*2} -10 to 50°C during transportation and storage.

^{*3} Contact TACMINA for the conditions.

^{*4} The weight of the stand is excluded.

^{*5} This is the weight of the Q (standard type).

^{*6} This is the weight of the Q-100. The Q-60 is 1.8 kg

^{*7} This is the weight of the Q-100. The Q-60/30 is 2.6 kg. The Q-10 is 2.9 kg

Liquid-end materials

Item	VE ^{*1}	VF ^{*1}	TT ^{*1}	6T
Pump head	PVC	PVC	PTFE	SUS316
Diaphragm	PTFE	PTFE	PTFE	PTFE
Sheet valve and packing	EPDM	Special fluoro rubber	Special fluoro rubber (perfluoro)	Special fluoro rubber (perfluoro)
Joint	PP	PP	PTFE	SUS316

^{*1} This can only be selected for the Q-100.

It cannot be selected for the Q-60, Q-30, or Q-10.

Model code

Q □ - 100 - VE - ULP - E S

Control type	Model (flow rate standard)	Liquid-end type	Power code	Language	General
Blank: Standard			ULP: UL Plug	E: English	S: Standard
I: I/O signal control	100: 100mL/min	VE VF	AUP: Australia plug	Blank: X : Special	
T: Timer control	60: 60mL/min	TT 6T	EUP: EU plug	Japanese	
	30: 30mL/min		UKP: UK plug		
	10: 10mL/min		JPL: Lead wire		

Control functions

Function	Description	Q	QI	QT
Manual operation	Setting possible in units of 0.1 mL/min or 0.01 mL/min	●	●	●
Auto-stop operation	Operating time: 1 to 9999 seconds or 1 to 9999 minutes Discharge volume: 0.1 to 999.9 mL or 0.1 to 999.9 L	●	—	—
Pulse-input proportional operation	0.1 to 999.9 mL/pulse or 0.1 to 999.9 L/pulse	—	●	—
Analog-input proportional operation	Controllable according to set target value (SV) and max. flow rate (HV)	—	●	—
Interval operation	Flow: 0.1 mL to MAX (0.1 mL units) ON time / OFF time: 1 to 9999 seconds or 1 to 9999 minutes	—	—	●
Gradient operation	Flow: 0.1 mL to MAX (0.1 mL units) Time: 1 to 9999 seconds or 1 to 9999 minutes (Initial retention time, gradient time, final retention time)	—	—	●

Input/output signal specifications (QI and QT only)

Item	QI	QT
Analog Input	1 port 4 to 20 mA DC Input resistance: Approx. 110 Ω	—
Digital Input	2 ports No-voltage contact or open collector Max. number of pulses: 6000 pulse/min Min. pulse width: 5 msec (ON time) Allocatable through selection of the following: Pulse, pause/run, level, or MAX operation	2 ports No-voltage contact or open collector Max. number of pulses: 6000 pulse/min Min. pulse width: 5 msec (ON time) Allocatable through selection of the following: Start, pause/run, level, or MAX operation
	2 ports 25 VDC, 10 mA or less Allocatable through selection of the following: Unit pulse, alarm, or operation signal	2 ports 25 VDC, 10 mA or less Allocatable through selection of the following: Unit pulse, end signal, alarm, or operation signal
Digital Output	2 ports 25 VDC, 10 mA or less Allocatable through selection of the following: Unit pulse, alarm, or operation signal	2 ports 25 VDC, 10 mA or less Allocatable through selection of the following: Unit pulse, end signal, alarm, or operation signal
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Product designs and specifications are subject to change without notice for product improvement

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