

Smoothflow Pump
Q Series

Autoclave-compatible Type
(Q□-100-6TA)

SUPPLEMENTAL MANUAL

This is a supplemental manual dedicated for the Q Series autoclave type.
For items not included in this manual, see the Q Series operation manual, original edition (a separate manual).

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Accessories

- A pump head assembly jig is provided.
- The pump stand comes already installed on the pump.

Specifications

Model		Q / QI / QT-100
Maximum flow rate	mL/min	100
	L/h	6
	US G/h	1.58
Flow rate control range		Variable from 0.1 to the maximum flow rate (in 0.1mL/min steps* ¹)
Maximum discharge pressure	MPa	0.3
	bar	3
	psi	43.5
Stroke length	mm	1.3
Transferable viscosity	mPa·s	200 or less
Transferable temperature	°C	0 to 60 depending on the conditions (no freezing)* ²
Connection diameter		φ4 × φ6
Environmental resistance		Corresponds to IP65 (dust proofing and waterproofing)* ³
Weight* ⁴	kg	3.0

*1 This can be changed in steps of 0.01 by using a parameter (manual operation mode only).
*2 Contact TACMINA for the conditions.
*3 Evaluated with the liquid end part installed.
*4 This is the weight of the Q (standard type). The weight of the stand is excluded.

●AC adapter supply

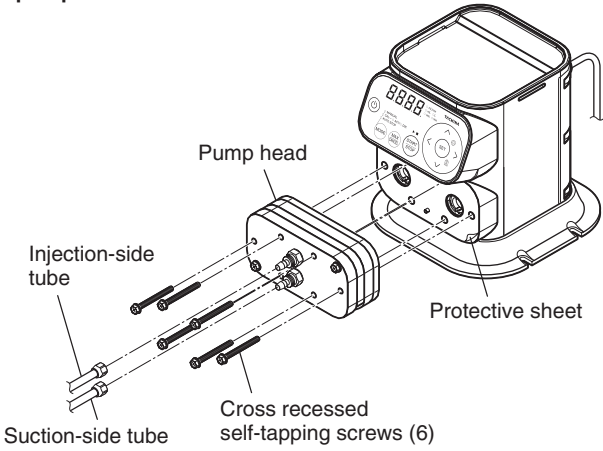
Power supply	Single phase, 100 to 240 VAC±10%, 47-63 Hz	
Max. input current	A	0.7



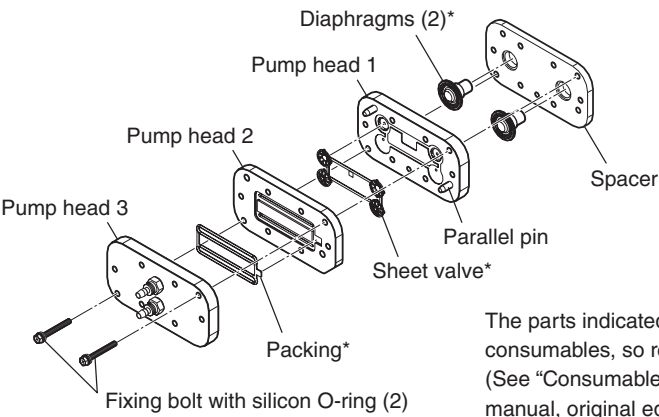
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Disassembling the liquid-end section

- * The pump head is heavy, so be sure to use the included stand.
- (1) Remove the tubes from the suction-side and discharge-side joints.
 - (2) Turn the cross recessed self-tapping screws (6) to remove them.
 - (3) Remove the pump heads.



- (4) Remove the fixing bolts with silicon O-rings (2).



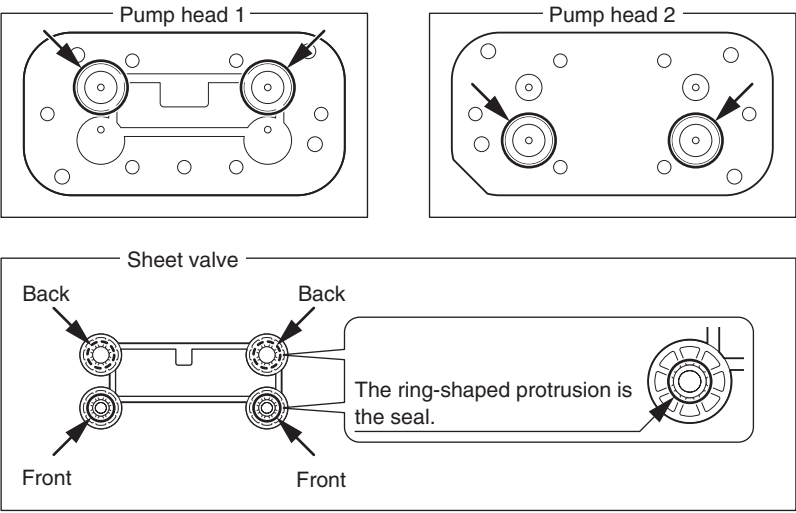
The parts indicated with an asterisk (*) are consumables, so replace them periodically. (See “Consumables list” in the operation manual, original edition.)

NOTE

- When you remove the pump from its stand for storage, remove the pump head to prevent the pump from falling over.

Disassembling the liquid-end section

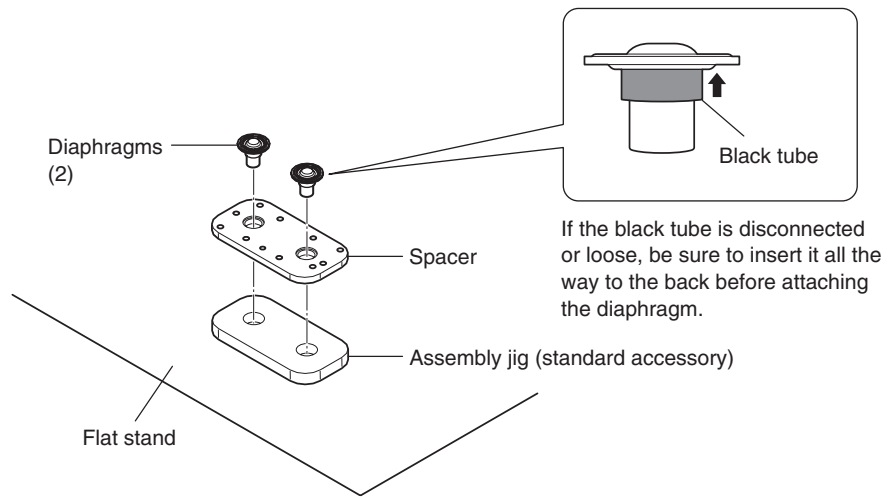
- (5) Inspect the parts.
 - (1) Pump heads, sheet valve, and packingCheck for damage and for the adherence of foreign material. Exercise special care when checking the seals of the pump heads and the sheet valve (see the following figures). Remove any foreign material that has adhered to the parts.



- (2) Protective sheet
- Check that there is no rust or damage on the protective sheet affixed to the surface where the pump body and the pump head come into contact with each other (the body side). If there is rust or damage on the protective sheet, replace it with a new one.

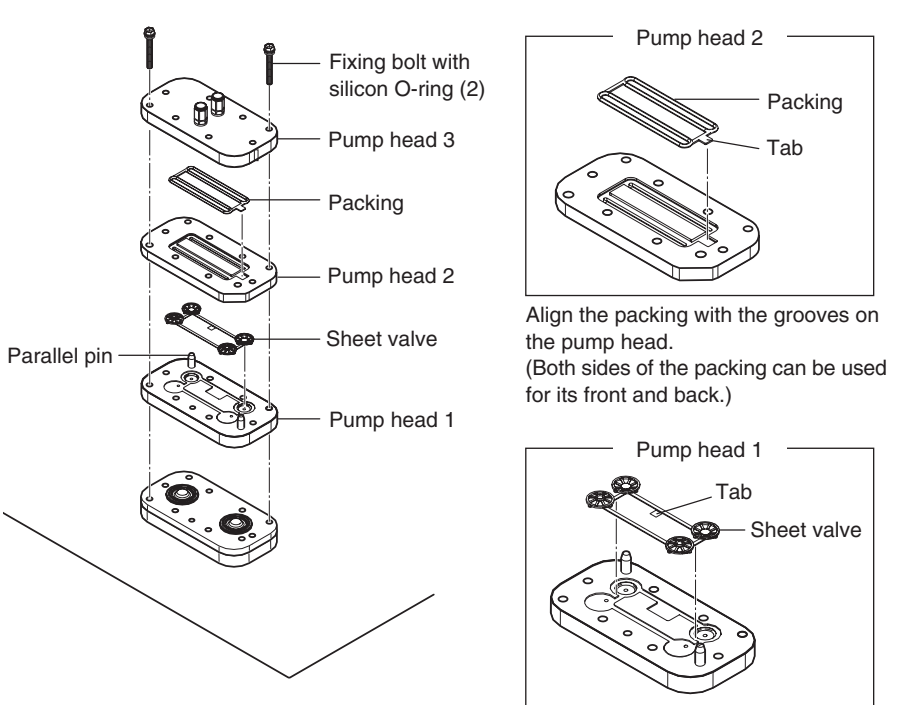
Assembling the liquid-end section

- (1) Place the included assembly jig on a flat stand.
- (2) Orient the spacer so that its protrusions face down, and then place it on the assembly jig.
- (3) Insert the diaphragms into the holes in the spacer.
- * Before inserting the diaphragms, check that the diaphragm tubes are not disconnected or loose.



Assembling the liquid-end section

- (4) Place pump head 1 on top of the spacer.
- (5) Position the sheet valve so that it is aligned with the grooves in pump head 1.
- (6) Place pump head 2, the packing, and pump head 3 in that order.
- (7) With all the parts placed on top of the assembly jig, temporarily tighten the fixing bolts with silicon O-rings in two corners (upper right and lower left) of the assembled pump head.
- * Lightly tighten the bolts by hand, ensuring that the silicon O-rings are not compressed.



* A character that indicates the material of the sheet valve or packing is inscribed on the tab of each of these parts.
T: Special fluoro rubber (perfluoro)

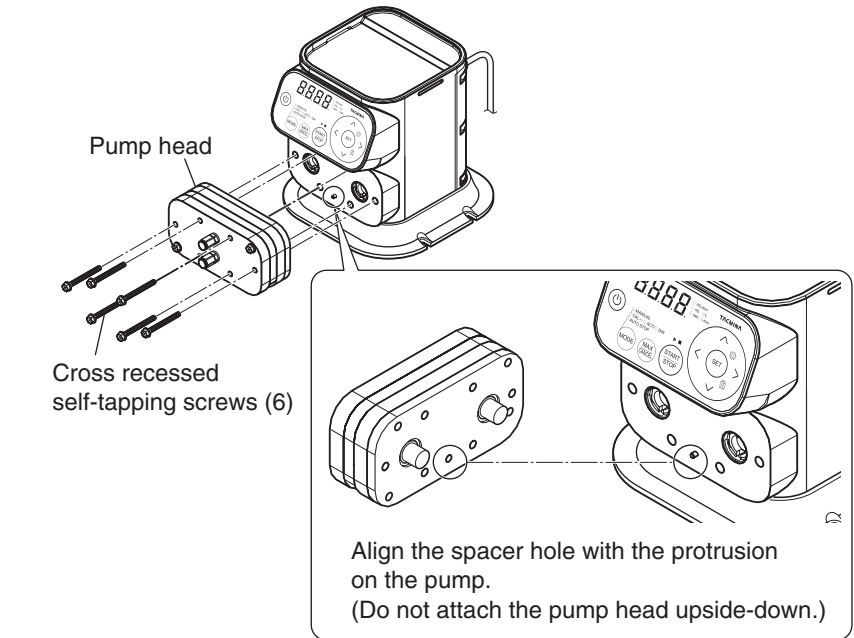
Align the sheet valve with the grooves on the pump head.
(If the parts do not match, their orientations are incorrect.)

IMPORTANT

- Check that the sheet valve and the packing fit tightly in the grooves on the pump head. Attaching these parts incorrectly may result in discharge defects or leaking fluid.

Assembling the liquid-end section

- (8) Connect the suction-side and discharge-side tubes.
- See "Connecting tubes" in the operation manual, original edition.
 - * If it is not necessary to sterilize the tubes, you can also connect them as the last step.
- (9) Sterilize the pump head by inserting it into the autoclave.
- * Set the autoclave temperature to 123°C or less and the time to 30 minutes or less.
 - * You can leave the pump head on the assembly jig or remove it from the assembly jig.
- (10) Remove the pump head from the autoclave (after the autoclave processing), and then wait for the pump head to return to a normal temperature.
- (11) Attach the pump head to the pump body, and then insert the cross recessed self-tapping screws.
- (12) Use a Phillips head screwdriver to tighten the cross recessed self-tapping screws.
- Cross recessed self-tapping screw tightening torque = 2.0 N·m
 - * Do not use a wrench to tighten these parts.
 - Tightening them with excessive force may lead to damage.



- (13) Perform calibration.
- See "Calibration" in the operation manual, original edition.
 - * The flow rate may change after autoclave processing, so you have to perform calibration. (The reproducibility after calibration is maintained. This is not an error.)

Model code

Q I - 100 - 6TA - ULP - E S
(1) (2) (3) (4) (5) (6) (7)

- (1) Series name
Q Series

- (2) Control method
Blank: Standard type
I: I/O signal control type
T: Timer control type

- (3) Model (Flow rate standard)
100: 100mL/min

- (4) Liquid-end section materials

	Pump head	Diaphragms	Sheet valve/Packing	Joint
6TA	SUS316	PTFE/CR	Special fluoro rubber(perfluoro)	SUS316

- (5) Power cord
ULP: Type A
* Plug types O, C, BF are included.
Complies with UL Standards only when a Type A plug is used.

- (6) Language
E: English
Blank: Japanese

- (7) General specifications
S: Standard
X: Special order

- * An X at the end of a model code indicates a made-to-order product. For the detailed specifications, see the diagrams, approval documents, or similar materials.
- * For models ending in X, ETFE materials can be also chosen for the joint fittings.
- * Also, joints may not be included in the accessories. Please prepare compatible joints on your own.