

TACMINA

Smoothflow Pump

Q Series

Slurry Pumps

VTCE/VTCF/TTCT/6T6T

Supplementary Instructions

This document provides supplementary instructions for Q Series slurry pumps (VTCE/VTCF/TTCT/6T6T).

For items not listed in this document, please see the Q Series OPERATION MANUAL (booklet).

www.tacmina.com

Piping

Connecting tubes

Cut the included tube into segments with the required lengths, and then connect these to the suction-side joint and the discharge-side joint.

●VTCE/VTCT (Q-500/100/60)

(1) Set a cap nut and sleeve on the tube, and then connect it to the joint.

(2) Tighten the cap nut by hand.

Continue tightening the cap nut until the gap between it and the joint is approximately 1 to 1.5mm.

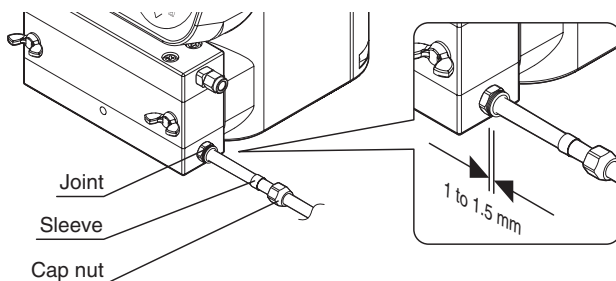
If it is difficult to tighten the cap nut by hand, use a wrench to retighten the cap nut by 1 to 2 turns (until the joint on the pump side cannot rotate).

* Do not tighten the cap nut excessively. Doing so may lead to tube deformation or damage.

* It is easy for the stress relaxation phenomenon to occur in the resin joint, and liquid may leak from the threaded part. Retighten the cap nut to eliminate leakage. If retightening no longer stops leakage, replace the joint.

* When reusing a tube that has been removed, first cut off the deformed part of the tube tip.

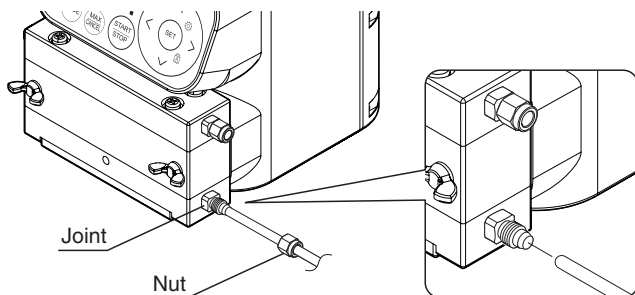
* When replacing the tube with a new one, replace the sleeve with a new one if it is difficult to pass the tube through the sleeve.



Piping

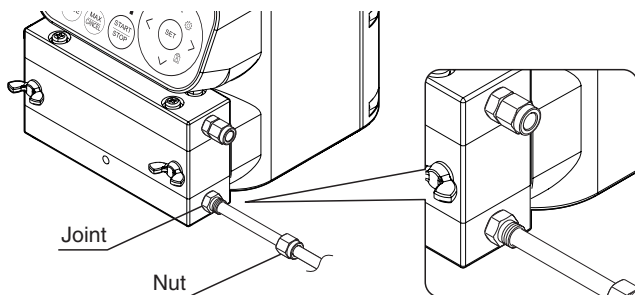
●TTCT (Q-500/100/60)

- (1) Pass the tube through the nut, and then insert the tube until its tip reaches the back of the joint.
 - (2) Gently tighten the nut by hand until it becomes stiff.
 - (3) Use a wrench to secure the joint in place so that it does not turn, and then use another wrench to rotate the nut an additional 1 and 1/4 turns (1.25 turns).
- * The reference value for the tightening torque is 2.3 kgf·cm. The torque varies depending on various conditions, but do not use a tightening torque that is 1.5 times the reference value or more. Excessive tightening may result in deformation or damage.
 - * Resin joints are susceptible to stress-relaxation, which may cause leakage from the threaded part. Retighten the cap nut to eliminate leakage. If retightening no longer stops leakage, replace the joint.
 - * When reusing a tube that has been removed, cut off the deformed part of the tube tip before using.



●VTCE/VTCF (Q-30/10), 6T6T

- (1) Pass the tube through the nut, and then insert the tube until its tip reaches the back of the joint.
 - (2) Use a wrench to secure the joint in place so that it does not turn, and then use another wrench to tighten the nut until it touches the joint.
- * When reusing a tube that has been removed, cut off the deformed part of the tube tip before using.



Piping

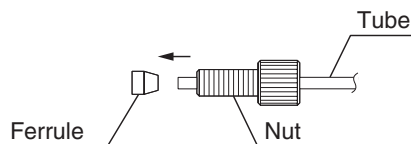
●TTCT (Q-30)

Cut the included tube into segments with the required lengths, and then connect these to the suction-side joint and the discharge-side joint.

- (1) In the same way as for TTCT (Q-500/100/60), slide the nut onto the tube on the suction side and insert the end of the tube all the way into the joint, then tighten the joint.

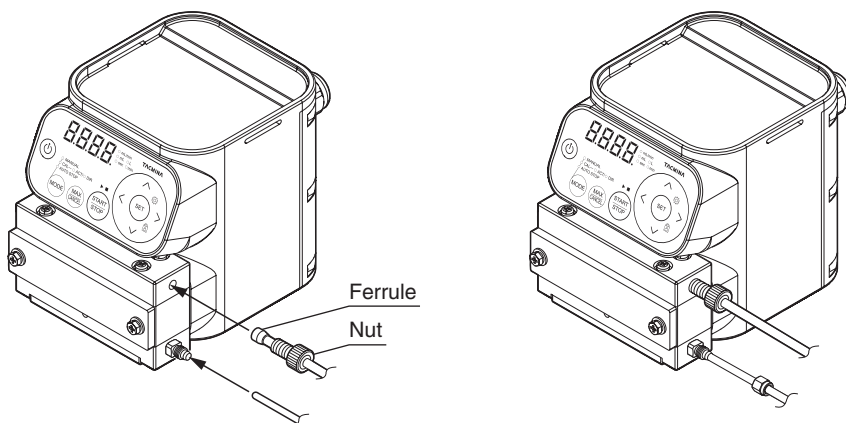
- (2) Set a nut and ferrule on the tube.

Position the tapered end of the ferrule toward the nut.



- (3) Install the nut on the discharge side.

Tighten by hand without using a tool.



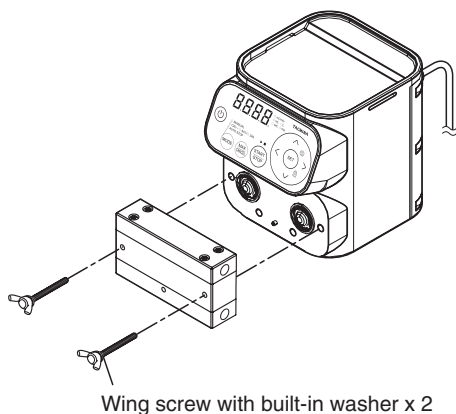
- * Do not tighten the cap nut excessively.
Doing so may lead to tube deformation or damage.
- * It is easy for the stress relaxation phenomenon to occur in the resin joint, and liquid may leak from the threaded part. Retighten the nut to eliminate leakage. If retightening no longer stops leakage, replace the ferrule and the tube.
- * When replacing the tube with a new one, replace the ferrule with a new one as well.

Disassembling the liquid-end section

- (1) Disconnect the tubes from the joints on the suction and discharge sides.

- (2) Remove the wing screws with built-in washer or the Cross recessed hexagon socket head bolt (30/10 models), then remove the pump head.

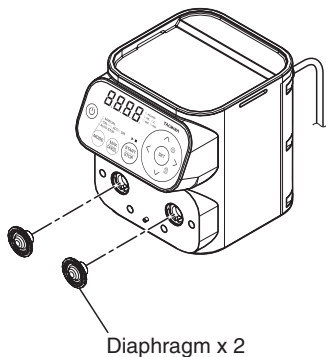
* For Q-10, remove the pump head from the spacer.



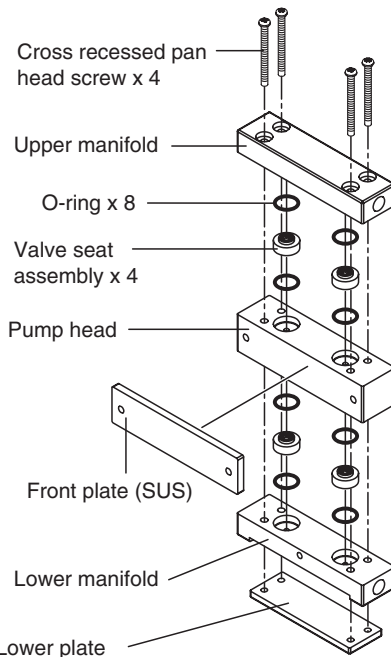
- (3) Pull the diaphragms out of the pump.

The diaphragms are magnet types, so you only have to pull on them firmly to remove them from the pump.

* Using a tool to pull on the diaphragms may damage them. Remove them by hand.

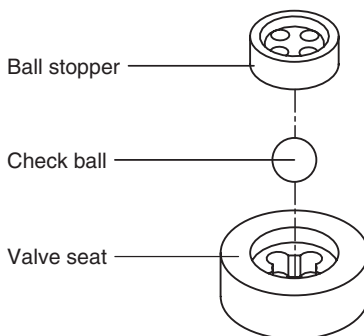


- (4) Remove the cross recessed pan head screws on the upper section of the liquid end part, then disassemble the pump head, manifold, and valve seat assemblies.



When the liquid end material is PTFE, there is a lower plate (SUS).

- (5) Disassemble the valve seat assemblies.



Assembling the liquid-end section

(1) Check for chemicals on the protective sheet.

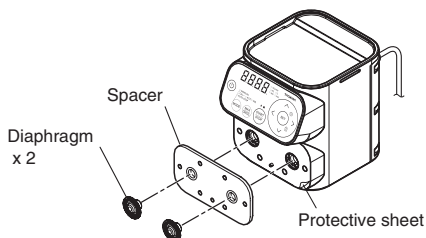
Wipe off any chemicals thoroughly as it can cause corrosion.

(2) Install the diaphragms.

(3) Assemble the valve seat assemblies.

Insert the check ball into the valve seat, then place the ball stopper.

(Either side of the ball stopper can face up or down)



(4) Insert the valve seat assembly into the lower manifold in the correct orientation.

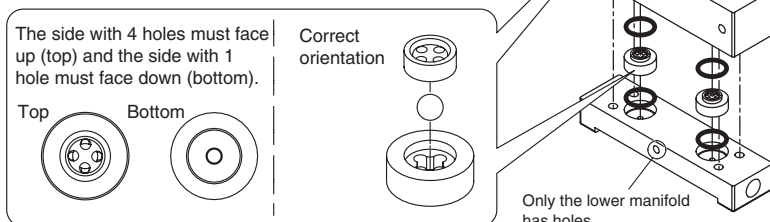
* If the valve seat assembly is installed in the wrong orientation, liquid cannot be suctioned.

(5) Place the pump head on top of it.

(Either side of the pump head can face up or down)

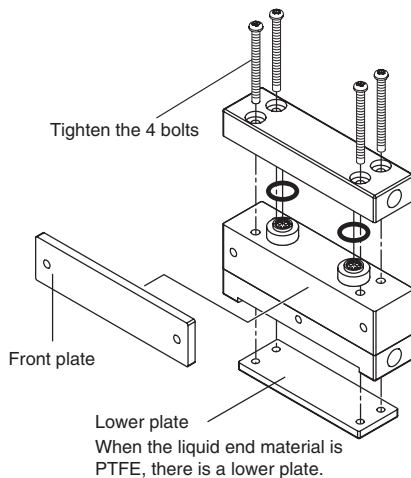
(6) Insert the valve seat assembly into the pump head in the correct orientation.

* If the valve seat assembly is installed in the wrong orientation, liquid cannot be suctioned.



(7) Place the upper manifold on top of it, then fasten with cross recessed pan head screws from above.

Materials	Proper torque
VTCE/VTCT	1.0N·m
TTCT	0.5N·m
6T6T	1.0N·m

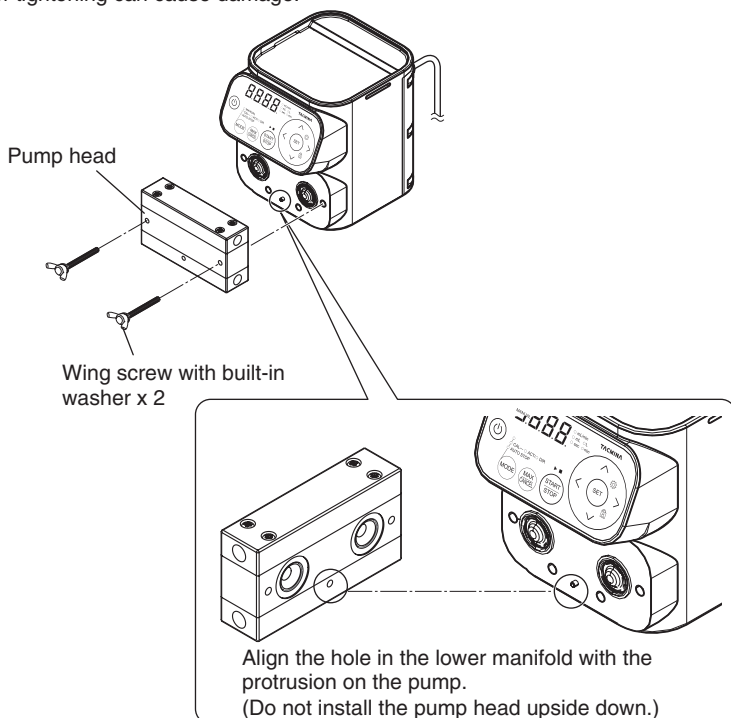


Assembling the liquid-end section

- (8) Install the assembled pump head, then fasten with the wing screws with built-in washer or the Cross recessed hexagon socket head bolt (30/10 models).

*Do not use a wrench when tightening.

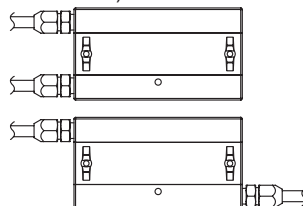
Over-tightening can cause damage.



- (9) Connect the tubes to the suction and discharge sides.

Remarks

The manifolds can be installed in either orientation (left or right). Install in the orientation that facilitates tube routing. Assembly variation example (pump head front view)



Model Code

Q **I** - **100** - **6T6T** - **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: Time control type

(3) Model (Flow rate standard)

500: 500mL/min

100: 100mL/min

60: 60mL/min

30: 30mL/min

10: 10mL/min

(4) Liquid-end section materials

	VTCE	VTCT	TTCT	6T6T
Pump head	PVC	PVC	PTFE	SUS316
Diaphragm	PTFE/CR	PTFE/CR	PTFE/CR	PTFE/CR
O-ring	EPDM	FKM	FFKM	FFKM
Check ball	Ceramic	Ceramic	Ceramic	SUS316
Joint	500/100/60 models:PP 30/10 models:PEEK	500/100/60 models:PP 30/10 models:PEEK	500/100/60 models:PTFE/ECTFE 30 model:PTFE/ETFE	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

Blank: Japanese E: English

(7) General specifications

S: Standard X: Special order

* You cannot freely combine the aspects of the model code.

* 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. Also, joints may not be included in the accessories. Please prepare compatible joints on your own.

* A front plate (SUS) or a lower plate (SUS) may be attached to a pump in case of X specifications.

* For models ending in X, ETFE materials can be also chosen for the joint fittings.

Specifications

Item		Q / QI / QT				
Model		500	100	60	30	10*1
Maximum flow rate	mL/min	500	100	60	30(27)*2	10
	L/h	30	6	3.6	1.8	0.6
	US G/h	7.92	1.58	0.95	0.47	0.15
Flow rate control range		5 to 500	Variable from 0.1 to the maximum flow rate (in 0.1mL/min steps*3)			
Maximum discharge pressure	MPa	0.3	0.3	0.6	1	2
	bar	3	3	6	10	20
	psi	43.5	43.5	87	145	290
Stroke length	mm	1.8	1.3	0.9	0.5	
Transferable viscosity	mPa·s	50 or less	200 or less		100 or less	
Transferable temperature	°C	0 to 40 (no freezing)				
		0 to 60 for the Q/QI/QT-100-6T6T depending on the conditions (no freezing)*4				
Connection diameter		φ4 × φ6 φ1/16"×φ1/8" on the discharge side only for Q□-30-TTCT (thread diameter: RC1/8 tapered female thread, 1/4-28 unified thread on the discharge side only for Q□-30-TTCT)*5 (φ8×φ10 on the suction side only for Q□-500 models)				
Environmental resistance		Corresponds to IP65 (dust proofing and waterproofing)*6				
Weight (kg)*7	VTCE/VTCT	1.7	1.6	1.7	1.7	1.8
	TTCT	1.9	1.8	1.9	2.0	
	6T6T	2.9	2.9	3.0	3.0	
Sound pressure level		Less than 70 dB				

*1 When the liquid end material is PTFE, 10 model is not supported.

*2 Values in () are for when the liquid end material is PTFE.

*3 This can be changed in steps of 0.01 by using a parameter (manual operation mode only).

*4 Contact TACMINA for the conditions.

*5 When using different joints, contact your salesperson.

*6 Evaluated with the liquid end part installed.

*7 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

Consumables list

The recommended replacement cycles are for cases where the pump is operated under constant conditions (room temperature and clean water).

These cycles change according to individual site conditions, so use the recommended replacement cycles as a guide for replacing consumables. Neglecting to replace consumables may cause defective discharge (injection) or malfunction.

IMPORTANT

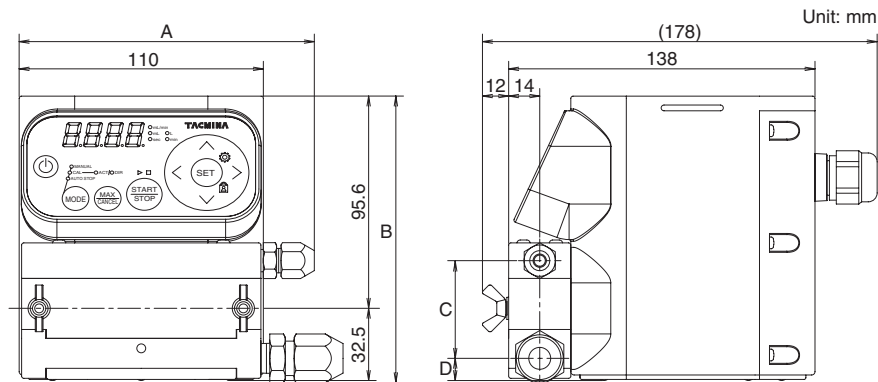
- Replace consumables after 4000 hours of operation or 1 year of use, whichever is first.
- The hose and tube durability varies greatly depending on factors such as the chemical used, temperature, pressure, ultra-violet rays. Inspect the parts and replace any that have deteriorated. Even during the warranty period of this product, you will be charged for replacement parts.

Part name	Quantity	Recommended replacement interval
Diaphragm	2	4000 hours or 1 year* ¹
Check ball	4	
Valve seat	4	
Ball stopper	4	
O-ring	8	
Protective sheet	1	When deteriorated or damage is visible

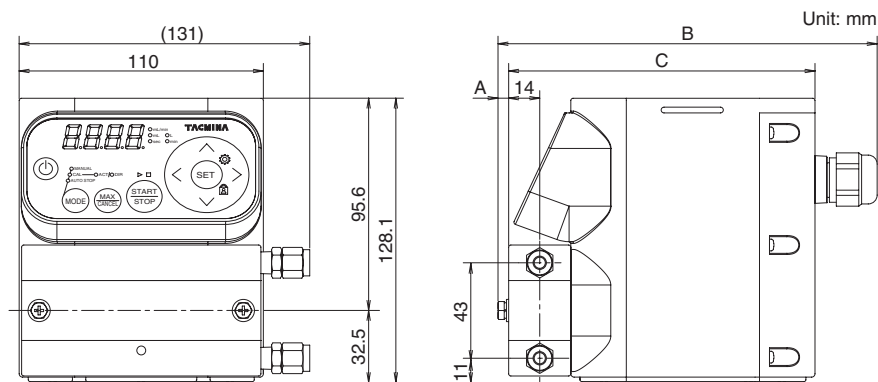
*¹ Using highly abrasive slurry liquids may shorten the recommended replacement intervals.

External Dimensions

* The example given here is of the standard model. For information on the separate models, see the diagrams.



	Q-500			Q-100,60			
	VTCF	TTCT	6T6T	VTCE	VTCF	TTCT	6T6T
A	146	141	136.5	133			
B	129.1	128.1	128.1	128.1			
C	44	41.5	44	43			
D	10	12.5	10	11			



	Q-30				Q-10		
	VTCE	VTCF	TTCT	6T6T	VTCE	VTCF	6T6T
A	4.8	4.8	9.8	4.8	4.8	4.8	4.8
B	171	171	176	171	174	174	174
C	138	138	138	138	141.1	141.1	141.1

EU DECLARATION OF CONFORMITY

(Directive 2006/42/EC, 2014/35/EU, 2014/30/EU, 2011/65/EU - Annex II A)

Manufacturer : TACMINA CORPORATION

Address : 2-2-14, Awajimachi, Chuo-ku, Osaka, 541-0047, Japan

Herewith declares that

Product : Pulseless Motor-Driven Diaphragm Metering Pump

Model (Type) : Q Series (See Appendix 2-4)

- is in conformity with the provisions of Machinery Directive 2006/42/EC,
- is in conformity with the provisions of Low Voltage Directive 2014/35/EU,
- is in conformity with the provisions of EMC Directive 2014/30/EU.
- and, is in conformity with the provisions of Restriction of the use of certain hazardous substances Directive 2011/65/EU.

And furthermore declares that

- the following (parts / clauses of) harmonized standards have been applied :

Machinery Directive

EN809, EN12100

Low Voltage Directive

EN61010-1, EN60529

EMC Directive

EN55011, EN61000-3-2/3, EN61000-6-2, EN61000-4-2/3/4/5/6/8/11

RoHS Directive

IEC 63000:2018

Date: 27. Oct. 2025

Tadashi Kunitome

Name : Tadashi Kunitome

Position : Head of Development Center

TACMINA CORPORATION

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

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