Limited Warranty

Products manufactured by Walrus Pumps Co (Walrus) are warranted to the first user only to be free of defects in material and workmanship for a period of 12 months from date of installation, but no more than 24 months from date of shipment. Walrus' liability under this warranty shall be limited to repairing or replacing at our election, without charge, FOB Walrus' distribution center or authorized service agent. Walrus will not be liable for any cost of removal, installation, transportation or any other charges that may arise in connection with warranty claim.

The warranty period commences on the date of original purchase of the equipment. Proof of purchase and installation date, failure date, and supporting installation data must be provided when claiming repairs under warranty.

This warranty is subject to due compliance by the original purchaser with all directions and conditions set out in the installation and operating instructions. Failure to comply with these instructions, damage or breakdown caused by fair wear and tear, negligence, misuse, incorrect installation, inappropriate chemicals or additives in the water, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive water, lightning or high voltage spikes or through unauthorized persons attempting repairs are not covered under warranty.

Walrus will not be liable for any incidental or consequential damages, losses, or expenses, arising from installation, use, or any other causes. There are no express or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

Certain states do not permit the exclusion or limitation of incidental or consequential damages or the placing of limitations on the duration of an implied warranty, therefore, the limitations or exclusions herein may not apply. This warranty sets forth specific legal rights and obligations, however, additional rights may exist, which may vary from state to state.

Supersedes all previous publications

WALRUS®

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WALRUS®

TQCN Series

HOT WATER PUMP
Instruction Manual

50Hz

ISO 9001 Certified

Walrus Pump Co., Ltd.

TQCN Series Instruction Manual

Before beginning installation procedures, these installation and operating instructions should be read carefully.

I. Applications:

This TQCN Series are designed for hot water supply (up to +90°C) and pressure boosting in residential and commercial applications.
They are suitable for solar energy hot water system or other types of hot water systems.

II. Product Features:

1. consisting of pump, motor, pressure tank, and electronic controller. The built-in electronic controller provides constant pressure which ensures that the pump starts automatically when water is consumed and operates continuously until water is not required.
2. Compact design and quiet operation make the TQCN series suitable for many applications.
3. The TQCN is constructed from the top quality corrosion resistant materials.
4. The motor has built-in thermal overload to protect against high operating temperatures and over current.
5. The TQCN has an anti-cycling feature which prevents the pump from continuous starting and stopping when you have a dripping tap or minor leak in the system.
6. Relief value will automatically release the pressure when the TQCN full system pressure exceeds 5kg/cm².

III. Operating conditions:

1. Ambient temperature: Max. +40°C
2. Liquid temperature: +4°C ~ +90°C
3. Relief pressure value automatically : 5kg/cm²
4. Relative humidity: Max. 85% (RH)
5. Before using the pump, be sure the inlet pressure setting is lower than factory pressure setting.

Model	Orignal Pressure Setting (kg/cm²)
TQCN200	1.2
TQCN400	1.8

IV Controller instruction

When the pump starts to deliver liquid, the pressure switch will sense an inlet pressure and compare it with the preset pressure. It will automatically start the pump if inlet pressure is lower than the preset pressure.
When the liquid is not consumed, there will be no flow go through Reed switch, the pump will automatically stop.

V. Installation

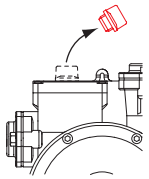
1. Choose a site with sold foundation, dry and good ventilation. Please provide accessible space around the pump and leave at least 30cm clearance between your motor end to the wall.
2. When the pump is installed inside please provide drain holes, allowing drainage to avoid damage to flooring, carpet etc. which over time may occur from leaking pipe joints or pump seals. When it is installed outside please provide a good cover to protect your pump from weather.
3. Always mount the pump horizontally on a firm base.
4. Please install the pump as close to water source as possible. The long suction pipes may cause pressure loss.
5. Ensure all connections are completely sealed using thread tape only. An air leak on the suction may cause your pump running without discharge flow.
6. Make sure the environment of your pump site free from abrasive liquid, PVC, metal chips or anything else that will damage your equipment.
7. The pump has a built-in check valve; please do not install any other valve on the suction.
8. For best performance use pipes at least the same diameter as the pump's inlet and delivery outlet openings. It is recommended to use metal hose for outlet piping.

VI. Operation

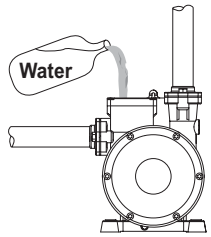
Do not start the pump untill the system has been filled full water. please follow the instructions on Fig. 2 to start up the operation.

1. Remove the filling plug and fill the chamber with water and then replace the plug.

a. Remove the filling plug



b. Fill water in chamber



c. Replace the filling plug

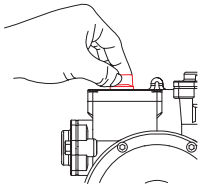


Fig. 2

2. When the pump inlet is lower than the water supply level, please remove the filling plug to let water back flow to the chamber. It can be repeated as many times as necessary till the air is completely released from system. Then, replace your filling plug.
3. For start up of the first operation or after long time inactivity, please place a screwdriver against the shaft at motor end and turn clockwise to see if rotor spins freely. (Fig. 3). If it is, you are free to run the pump.

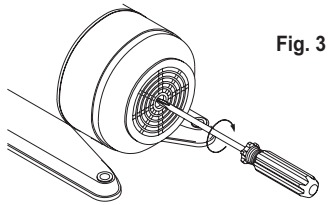


Fig. 3

4. Connect the power cable to the electricity supply, turn faucet ON and OFF the pump will start immediately. If not, please refer to X for troubleshooting.
5. If pump does not start, please switch it OFF. Fill in water to chamber until pump will start (Fig 2). Or when suction is lower than water supply level, follow the instructions in VI 2. to start your pump.
6. After successful start up of your pump, please turn your faucet ON and OFF several times to check if it starts and stops automatically. Please refer to troubleshooting check if you have any problem.
7. When the pump is running normally, please measure the running current with a wattmeter. If it exceeds the rated value on nameplate, please check if your power supply voltage is within ±10%. Please contact your pump supplier if you are not sure how to correct it.

VII.Pressure switch

Adjust the pressure switch setting (according to the pump models) as shown in Fig 4. Make sure the system is primed.

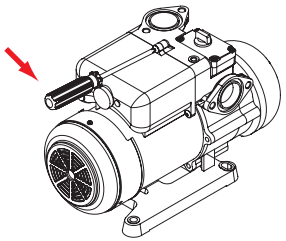
The pump is supplied with a preset pressure in the pressure switch. For most applications, it will be satisfactory. In some cases a different pressure may be required. This can be achieved by following the instructions below. However, it is highly recommended that the adjustment is only done by the professional personnel.

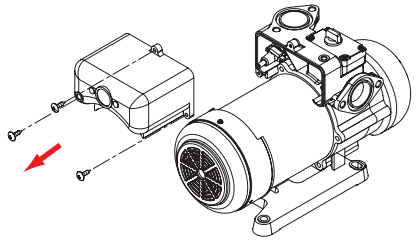
Instructions for pressure adjustment (Fig. 4):

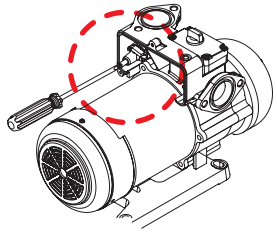
1. If pump does not start when tap is on, adjust clockwise ("+") till it starts.
2. If pump does not stop when no water is consumed, adjust counterclockwise ("-") till it stops.
3. After adjustment is made, turn it on and off several times to make sure it operates normally.

TQCN 200/400

Open the cover to adjust the pressure







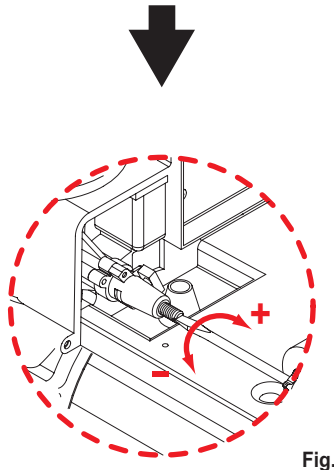
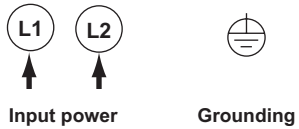


Fig. 4

VIII. Wiring diagram

Before operation, please check if the voltage is correct and be sure if the circuit breaker and grounding connectors are all connected in accordance with local regulations.

Single-phase power supply



IX. Maintenance and service

Under normal operating conditions, the pump is maintenance free. It is especially critical, when the ambient temperature reaches 104ºF (40ºC), to keep your pump site dry and maintain good ventilation. It is always advisable to provide accessible space around the pump.

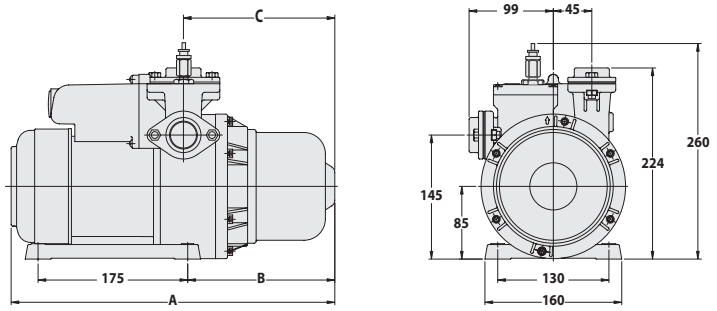
You may refer to troubleshooting check list to find out a quick solution for your problems. However if the problems are still existed after your attempts or you need other services, please contact your pump supplier. Do not attempt to disassemble the pump as it will void your warranty.

X. Troubleshooting

Before starting work on the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.

Problem	Cause	Remedy
1. pump does not start	a. No power supply	Connect the electricity supply
	b. Too low/high voltage	Make sure the supply voltage Singal Phase 200~240V
	c. Inadequate pressure at suction or discharge	Follow V & VI of the Operation Manual
	d. Seized-up pump	Place a screwdriver against the shaft end of the motor to check it the rotor will spin freely or contact your pump supplier.
2. Pump cuts out during operation	a. Seized-up pump	Same as above
	b. Overloaded motor	Turn off the power supply and restart or contact your pump supplier.
	c. Poor water supply	Check if pump suction line is blocked.
	d. Overheating due to excessive water temperature	1. Wait till water temp. cool down before restarting the pump. 2. For rapid restart, fill cold water to the chamber to quickly cool down the liquid temp.
3. Pump starts when no water is consumed	a. Existing pipe is leaking	Fix the leakage
	b. Defective check valve	Clean or replace new check valve.
4. Pump starts and stops too frequently	a. Leakage in suction pipe or air in the water.	Check the suction pipe and water supply.
	b.Discharge flow is too low.	Set your tap on a higher water flow.
	c.Too low or too high pressure in pressure tank.	Check the pressure limit of pressure tank and adjust the pressure to the original setting. TQCN 200 : 1.0 kg/cm² (14 psi) TQCN 400 : 1.5 kg/cm² (21 psi)
5. Electric shock	a.Ineffective grounding	Reactivate grounding.
6. Pump does not stop when water is not consumed	a. Poor water supply or air suck in.	1. Turn off the power supply and open the refilling plug to release the air. Then restart. 2. In case of long suction pipes, turn off the power and make sure if water supply is adequate.
	b. Pressure set is too high	Adjust pressure per VII
7. Pump runs normal but with very low discharge flow	a. Poor water supply	check if water supply is adequate and if the suction pipe is blocked.

XI. Dimensions: (mm)



Model	A (mm)	B (mm)	C (mm)
TQCN200	389	183	188
TQCN400	405	198	203

XII. Specification:

Model	Power (W)	Cycle (Hz)	Phase (Ø)	Voltage (V)	Amp's (A)	Inlet (in.)	Outlet (in.)	Start Pressure Setting (kg/cm²)	H max. (m)	Q max. (L/min)	N.W. (kg)
TQCN200	180	50	1	200 ~ 240	1.5	1"	1"	1.2	22	45	7.4
TQCN400	370	50	1	200 ~ 240	3	1"	1"	1.8	30	75	8.9

XIII. Performance curve: