

## 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

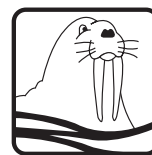


**WALRUS®**

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**WALRUS®**

***TQCN Series***

## ***HOT WATER PUMP Instruction Manual***



ISO 9001 Certified

**Walrus America Inc**

# EC Declaration of Conformity

Manufacturer:

Walrus Pump Co., Ltd.

Address:

No. 83 -14, Dapiantou, Sanjih Township, Taipei County 252,  
Taiwan

Declare that the machinery described:

Name : Water Pump

Model : TQCN Series

Conform to the following directive:

98/37/EC-----Machinery directive

2006/95/EC—Low voltage directive

2004/108/EC----EMC (Electromagnetic compatibility) directive

Refer to the following standards:

EN ISO 12100-1:2003

EN ISO 12100-2:2003

EN1050:1996

EN60335-1:2001

EN 809:1998

EN60335-2-41:2001

EN61000-6-2

EN61000-6-3

R&D department manager: Kao Tien-chuan

Manager:

*Kao Tien chuan*

## **TQCN Series Instruction Manual**

Please read all instructions carefully before installing your new systems, as failures caused by incorrect installation or operation are not covered by the warranty.

### **I. Product**

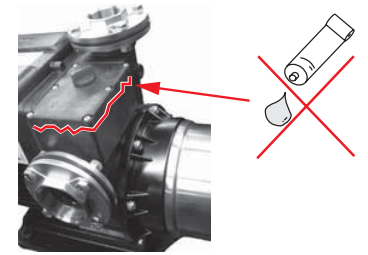
The TQCN series are designed for the pumping of non-aggressive water, or water not containing solid particles.

### **II. Operating conditions:**

1. Ambient temperature: Max. +104°F (40°C)
2. Liquid temperature: +39°F(4°C) ~ +194°F(90°C)
3. Relief pressure value automatically : 70psi
4. Relative humidity: Max. 85% (RH)

### **III. Installation**

1. The pump foundation should be rigid enough to absorb any vibration from the motor, and the pump should be securely bolted to the foundation.
2. It is recommended that the plumber/installer provides an adequate draining system to avoid damage in case of leakage, particularly when installed indoors. When it is installed outside, it should be covered by a weather-proof housing, well ventilated to allow motor heat to escape.
3. The pump should be installed with horizontal suction port and vertical discharge port; and as close as possible to the liquid source.
4. When use with water heaters, a check valve should be installed between pump (discharge) pipeline and water heater (suction) to avoid high-pressure steam backflow.
5. It is required to shut off the pump when the liquid source is unavailable; although it has the dry run cut off function.
6. The pump has a built-in check valve. Please do not install any other valve on the suction.
7. Relief value will automatically release the pressure when the TQCN full system pressure exceeds 70psi.
8. When performing regular maintenance, the prime cover has to open in order to check the condition of the check valve. DO NOT apply any bonded material (such as silicon, glue etc) to seal the chamber cover (see drawing below).



### **IV. Piping**

1. The suction line should be installed as short and straight as possible, with a minimum of bends. The internal diameter of the suction pipe must be equal to, or greater than the ports of the pump.
2. The connection between the suction line and pump must be airtight, and the suction pipe must be positioned so it has an upward slope to the pump (thus avoiding the formation of air pockets).
3. When used on a suction lift, a foot valve should be fitted on the suction line, below the liquid level.
4. If hose is used as the suction pipe, it must be non-collapsible.
5. To minimize pressure drop, the discharge pipe should be at least the same size as the discharge port of the pump.
6. For long suction pipes or high suction lifts over 13 ft, the suction pipe should be of greater diameter than the suction port.
7. Ensure all connections are completely sealed using thread tape only.

### **V. Electrical connection**



This mark located outside the connection box is a warning for an electrical hazard.

1. Ensure the mains voltage is the same as the value shown on the motor plate and that the pump is safely connected to ground/earth.
2. The single phase models are supplied with plug and lead and can be connected directly to the mains supply.

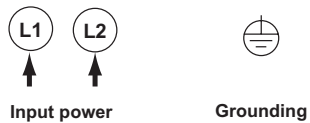
## VI. Wiring diagram

### WARNING:

Risk of Electric Shock - This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle".

1. Before operation, please ensure the voltage is correct and the circuit breaker and grounding connectors are all connected in accordance with local regulations.

### Single-phase power supply



### 2. Dual voltage switch

Before the power cord is connected please make sure if your voltage is the same as the nameplate value. You can follow instructions on Fig.1 to select the required voltage.

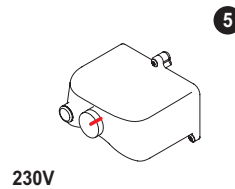
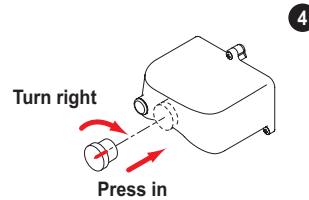
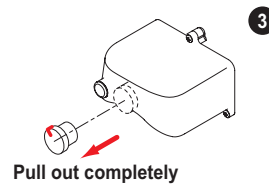
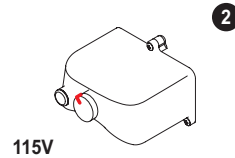
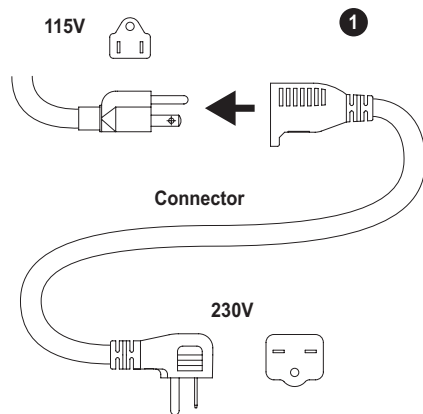
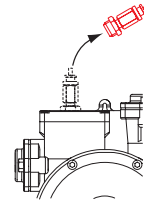


Fig. 1

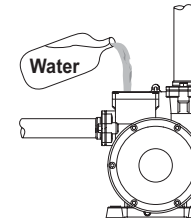
## VII. Starting

1. Before starting, the pump must be primed. Please follow the procedure as shown in Fig 2.

a. Remove the filling plug (the filling plug is the stainless plug packed separately in the box. The Plug also functioned as pressure release valve)



b. Fill water in chamber



c. Replace the filling plug

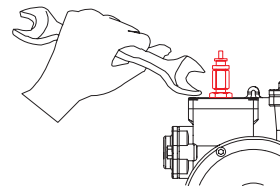


Fig. 2

- Installation where the pump inlet is below the water supply, remove the priming plug and allow the water to flow into the priming chamber until all air is expelled.
- The priming procedure should be repeated until all air is expelled and the pump delivers a full stream of water without air bubbles.
- The pump must always be checked for prime if not used for a prolonged period. It is imperative to fill the pump with liquid before operation as dry running causes irreparable damage to the mechanical seal.

## VIII. Precautions

- The pump should be shut down and the trouble corrected if the pump is running at speed and found to have any of the following problems:
  - No liquid discharged - Not enough liquid discharged
  - Excessive vibration - Motor runs hot
- Do not allow the pump to continually start and stop (cycling) as this will reduce the motor life.
- Cycling can occur on pressure units when the pressure tank pre-charge drops, or where there is a leak in the discharge plumbing.

## IX. Operation and maintenance

Under normal operating conditions, the pump does not require any maintenance as long as the following points are observed:

- Periodically check the condition of the check valve and strainer (if used).
- If the pump is to be inactive for long periods, it should be rinsed thoroughly with clean water, then, drained and stored in a dry place.

3. If the pump sticks after periods of inactivity, a screw driver slot is provided on the motor shaft end to free up the pump/motor. To do so, insert a screw driver in the slot in the motor shaft as shown in Fig 3 and turn to free the rotor. If this does not remedy the problem, the unit will need dismantling.

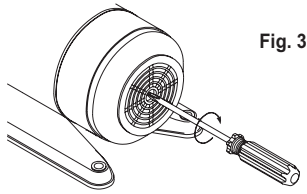


Fig. 3

4. Pressure tank air charge should be checked at regular intervals of every 3 months and after the pump has not been used for a prolonged period. To check the Pressure Tank air pressure, turn off power, open a tap on the discharge line to release pressure from the pump, unscrew the black plastic cover and apply an accurate pressure gauge to the valve as shown in Fig 4.

Pressure should be adjusted to the original pre-charge as follows:

TQCN200: 14 psi (1.0 Kg/cm<sup>2</sup>)  
TQCN400: 21 psi (1.5 Kg/cm<sup>2</sup>)

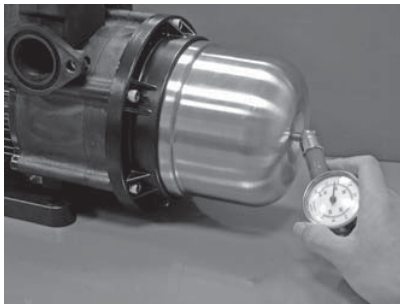


Fig. 4

### X. Adjustments and Reset procedures

The TQCN has a preset activation pressure as per the table below. For most applications this will be satisfactory.

The factory preset activation point is as follows:

Model	Power ( HP )	Preset activation point ( psi )
TQCN200	¼	17
TQCN400	½	26

1. When the inlet pressure is below the preset pressure range, please DO NOT adjust the original setting.
2. The activation pressure can be adjusted higher when the inlet pressure exceeds the preset pressure range. Remember that inlet pressure adds to the TQCN pressure, so take the 30 psi inlet pressure supplied to the TQCN400 for example, internal pressure can reach approximately 70 psi (40 + 30 psi). If too high internal pressure is the concern, it is recommended to install a regulator to reduce the inlet pressure. The TQCN maximum pressure as per the table below.

Model	Maximum Pressure point ( psi )
TQCN200	31
TQCN400	40

3. The activation pressure must be at least 10 psi below maximum pump pressure.
4. The maximum discharge pressure is NOT adjustable.
5. The flood suction performance table is as below:

### Flooded Suction Performance Table

TQCN200

Inlet pressure (psi)	Flow rate				
	3 gpm	6 gpm	9 gpm	12 gpm	15 gpm
5	32	27	22	17	10
10	37	32	27	22	15
15	42	37	32	27	20
** 20	47	42	37	32	25
** 25	52	47	42	37	30

\*\* Need to adjust pressure switch setting when inlet pressure is higher than the preset activation point (TQCN200 preset at 17 psi)

TQCN400

Inlet pressure (psi)	Flow rate					
	3 gpm	6 gpm	9 gpm	12 gpm	15 gpm	18 gpm
10	48	42	37	30	23	15
20	58	52	47	40	33	25
** 30	68	62	57	50	43	35
** 40	78	72	67	60	53	45

\*\* Need to adjust pressure switch setting when inlet pressure is higher than the preset activation point (TQCN400 preset at 26 psi)

### XI. Adjust pressure switch

Adjust the pressure switch setting (according to the pump models) as shown in Fig 5. 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.



