WALRUS PUMP

TPH-Q Series

Instruction Manual

Booster Pump



Model : 2T-Q / 4T-Q

To ensure safe and proper use, please read this instruction before operation.

ISO 9001 Certified **SUZHOU WALRUS PUMP CO., LTD.**

TPH–Q Instruction Manual

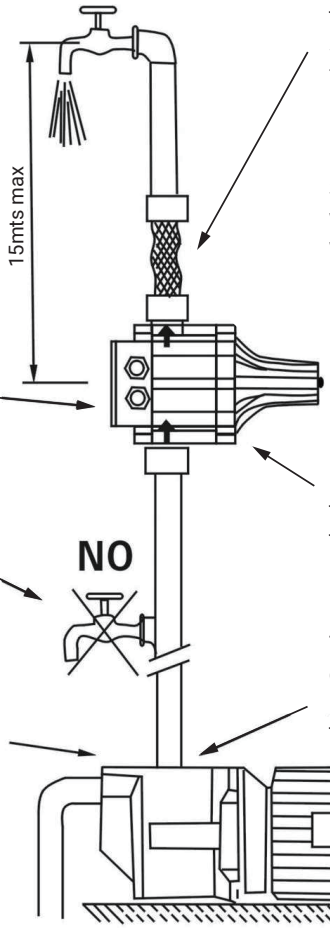
Before installing your new system, please study all instructions carefully, as the warranty does not cover failures caused by incorrect installation and operation.

If the column of water between the pump and the highest tap exceeds 15 mts, the unit cannot be installed directly on the pump, it has to be raised until the column of water between the unit and the highest tap does not exceed 15 mts.
I.E. If column of water is 20 mts. From the pump, the unit must be placed 5 mts higher than the pump.

The unit is equipped with a check valve to prevent the pipeline from losing pressure.

No taps can be installed between the pump and the unit.

PUMP'S PRESSURE
The unit is pre-set by the manufacturer at a resting pressure of 1.5bar.
The pressure produced by the pump must be normally 0.8 bar higher than the pre-set pressure.
Before starting the unit check suction and ensure that the pump is primed.



It is advisable to connect the unit outlet to the system by means of a flexible hose.

Safety valve preventing water emission in case of water diaphragm breaks.

DO NOT TOUCH

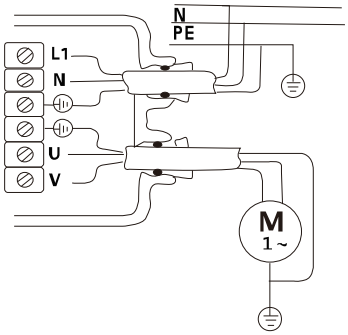
It is imperative to install the unit with the arrows in the upward position.

The unit can be installed directly on the pump, or between the pump and the first tap.

The control's is set at its standard starting pressure as 1.5 bar (0.15 MPa) and starting pressure at 1.0 bar or 2.2 bar are also available upon requests.

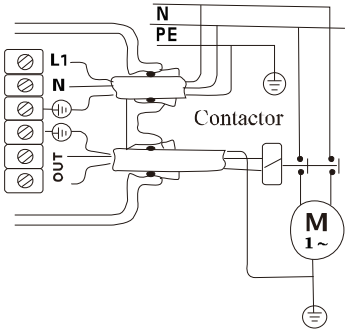
Starting pressure	Pump's pressure	The highest of water column(H)
1.0bar(0.10Mpa)	≥1.8bar(0.18Mpa)	≤10 m
1.2bar(0.12Mpa)	≥2.0bar(0.20Mpa)	≤12 m
1.5bar(0.15Mpa)	≥2.3bar(0.23Mpa)	≤15 m
2.2bar(0.22Mpa)	≥3.0bar(0.30Mpa)	≤22 m

Wiring diagrams for connecting the unit to different kinds of pump's motors



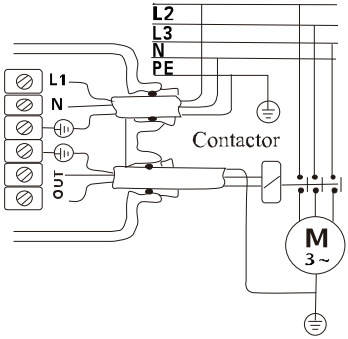
Wiring diagram for connection of single-phase 110-120V pumps up to 0.75 kW.

Wiring diagram for connection of single-phase 220-240V, 110-240V pumps up to 1.5kW.



Wiring diagram for connection of single-phase 110-120V pumps over 0.75 kW. Through remote control switch.
SPECIFICATIONS FOR REMOTE CONTROL SWITCH
Minimum contacts capacity of 4 kW or 5.5 HP approx. 110-120V

Wiring diagram for connection of single-phase 220-240V, 110-240V pumps over 1.5 kW. Through remote control switch.
SPECIFICATIONS FOR REMOTE CONTROL SWITCH
Minimum contacts capacity of 4 kW or 5.5 HP approx. 220-240V, 110-240V.



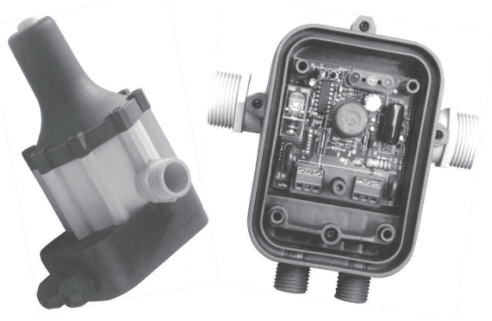
Wiring diagram for connection of three phase 190V pumps through remote control switch.
SPECIFICATIONS FOR REMOTE CONTROL SWITCH
Minimum contacts capacity of 4 kW or 5.5 HP approx. 110-120V

Wiring diagram for connection of three phase 380V pumps through remote control switch.
SPECIFICATIONS FOR REMOTE CONTROL SWITCH
Minimum contacts capacity of 4 kW or 5.5 HP approx. 220-240V, 110-240V.

Possible working defects

Type of defect	Causes depending on the unit	Causes not depending on the unit
-The pump does not stop	-The electronic card is broken	-Voltage failure -Pump jammed -Electric cables inverted(Line/motor)
-The pump does not stop	-The electronic card is broken -The flow detector is blocked in the upper position -The reset buttom is blocked -The pump does not provide sufficient pressure	-Presence of leaks which are higher than the minimum flow 0.61/min
-Intermittent pump working	-The electronic card is broken -The pump does not provide sufficient pressure	-Presence of leaks which are lower than the minimum flow 0.61/min
-The pump is jammed	-The electronic card is broken -The pump provides a pressure which is lower than the restarting pressure	-Water failure -Suction problems

Automatic Control For Water Pump



SPECIFICATIONS	
Input voltage: 220-240V	Frequency: 50/60Hz
Maximum working pressure: 10bar	Intensity Max.: 10A
Max working temperature: : 60 ºC	Protection rating: IP65
Connection: R1" / NPT" male	

Unit starting and working

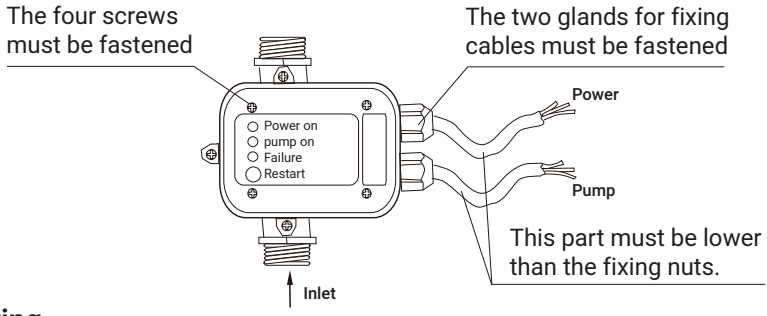
Warning

Never take the electronic board out of the control box.

The wiring diagram inside the terminal block will show you how to make correct connection. Wrong connection will destroy the whole electronic circuit.

Cable used for connection must be a three-wired one with compulsory grounding end. It shall have the outer diameter at 7.5mm min and 9.2mm max. One of the leading end of the cable must be lower than the position of the fixing screws while the cable being connected to the power as shown in the Fig.

The four screws on the panel board and the two glands for fixing cable must be well fastened to avoid water entering into the control box and damaging the electronic circuit.



Starting

When the unit is connected to the electrical network, all green, yellow and red led light up and then red led goes out indicating that the pump has been started. The pump continues to operate for dozens of seconds enabling the system to fill the pipe and reach maximum pump lift.

Dry-run Protection

Two modes of functions are available upon request

1. Normal operation without automatic restart from dry-run protection.

   When particular operational breakdowns occur, such as water failure, obstruction of the suction pipe etc., the unit recognizes the breakdown and the red led "Failure" lights up and at the same time a stop signal is sent to the pump to prevent damages caused by its working in the absence of water. Rectification of the failures that have caused the blockage, allows the system to be restarted by pressing the "Restart" button.

2. Periodically automatic restart from dry-run protection

   When breakdowns occur, such as water failure, obstruction of the suction pipe etc., the unit can prevent damages caused by its working in the absence of water.

   When there is no water supply in the system, the water pump will stop automatically after 20s running and the red led "Failure" will glint. The water pump runs automatically for 40s after stopping for 10s and checks the water supply; If there is no water supply, the water pump runs automatically for 40s after stopping for 10s again and checks the water supply; If there is still no water supply, the water pump will stop automatically and turn to the dry-running protection status.

   After 24 hours, the pump will start automatically and repeat the above procedures.

   During stopping the pump, the water pump will start automatically if the flow through the controller is more than the starting flow.

1. Operation

The electronic controller orders the pump start and stop when opening or closing tap or valve of the system. The controller can keep a constant pressure and water flow in the system as long as any tap in the system during the pump's operation.

2. Installation

2.1 Installation site

2.1.1 For secure operation, please mount and bolt the pump base to the foundation.

2.1.2 Select a dry and good ventilated site and provide accessible space around the pump for future maintenance and service.

2.1.3 Make sure the ambient temperature is below 40^{O}C(104^{O}F) and the liquids temperature does not exceed 60^{O}C(140^{O}F) .

2.1.4 Do not operate the pump under explosive environment.

2.1.5 When the pump is installed outside, please provide a suitable cover to protect it from weather and frost. Please do not allow any foreign objects fall into the motor fan cover.

2.1.6 Horizontal installation is recommended. When it is installed in other positions, please provide drain holes to allow drainage of the pump.

2.2 Electrical connection

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

2.2.2 The electrical connection should be carried out in accordance with local regulations.

The operating voltage and frequency are marked on the nameplate. Please make sure that these data match with your job requirement. For your safety, be sure the circuit breaker is in your system and grounding is properly connected to prevent from electric shock.

2.3 The pump should be installed so that the suction pipe is as short and the suction lift as small as possible.

2.4 When draw liquid from the same level of the pump suction inlet, please allow a downward slope from the liquid source to the pump suction inlet to avoid air sucked in. If it is to pump liquid from a level lower than the pump suction inlet, a foot valve must be fitted to the end of the suction pipe.

2.5 All piping joints must be completely tight. Leakage in suction piping may result in the loss of the suction capability. Leakage in discharge piping may cause the "cycling" of the pump.

2.6 Please do not allow any foreign objects (chewing gum, dirt, and sand etc.) fall into the pump or motor.

2.7 The pump lifting capacity is related to the temperature of flowing liquid. Under normal flowing temperature (20^{O}C - 30^{O}C), it will lift up to 5M.

2.8 Please select the pipe size specified in the specifications. Smaller piping will cause considerable pressure loss and affect pump efficiency.

3. Maintenance

3.1. Lubrication

The pumped liquid lubricates the mechanical seal and shaft sleeves.

3.2. Periodic Checks

To ensure regular operation, please follow the below-checking points:

3.2.1. Check the amount of liquid and operating pressure.

3.2.2. Check there are no leaks on piping joints.

3.2.3. Check the tripping of the motor starter.

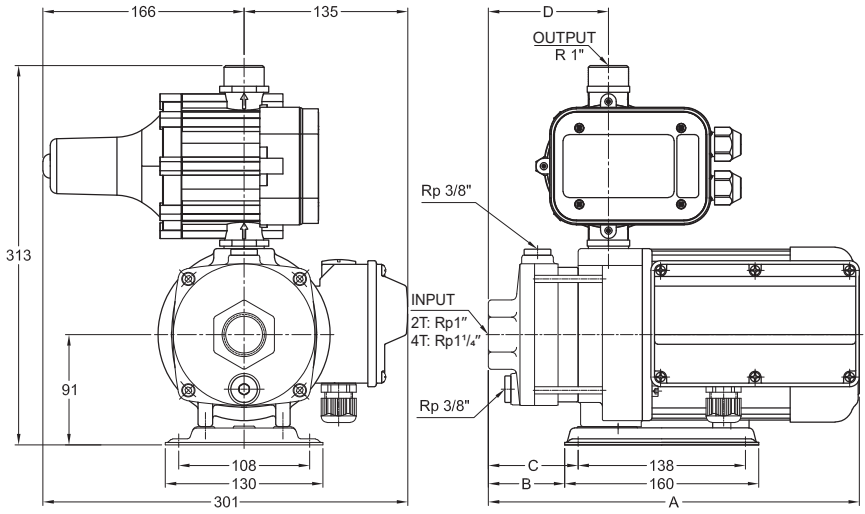
3.2.4. Check that all controls are functioning normally.

3.3. DO NOT use the pump to transfer explosive liquids.

3.4. DO NOT use the pump should not be used to transfer toxic or contaminated liquids. Please carefully follow all instructions in the manual as Walrus may refuse to accept the contaminated pump for servicing.

3.5. If the power supply cord is damaged, it must be replaced by an authorized engineer or assembly available from the manufacturer or service agent.

4. Dimensions (mm)



TPH 2T_Q

Model	Dimensions (mm)			
	A	B	C	D
TPH2T3KQ	324	81	92	117
TPH2T4KQ	382	99	110	135
TPH2T5KQ	400	117	128	153
TPH2T6KQ	418	135	146	171

TPH 4T_Q

Model	Dimensions (mm)			
	A	B	C	D
TPH4T4KQ	439	126	137	162
TPH4T5KQ	491	153	164	189
TPH4T6KQ	518	180	191	216

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