



WALRUS

TPHP Series

MULTISTAGE CENTRIFUGAL PUMP Instruction Manual



ISO 9001 Certified

WALRUS PUMP CO., LTD.

EC Declaration of Conformity

Manufacturer:

Walrus Pump Co., Ltd.

Address:

No.83-14, Dapiantou, Sanzhi Dist., New Taipei City 252, Taiwan

Declare that the machinery described:

Name : Water Pump

Model : TPHP Series

Conform to the following directive:

2006/42/EC—Machinery directive

2014/35/EU—Low voltage directive

2014/30/EU—EMC (Electromagnetic compatibility) directive

Refer to the following standards:

EN ISO 12100:2010

EN ISO 13857:2008

EN 809:1998+A1:2009

EN 60204-1:2006

EN 60335-1:2012

EN 60335-2-41:2003

EN 61000-6-2:2005

EN 61000-6-3:2007

R&D department manager: Kao Tien-chuan

Manager:



TPH Instruction Manual

Please study all instructions carefully before installing your new system, as failures caused by incorrect installation and operation are not covered by the warranty.

1. General Data:

1.1 Applications

The TPH pumps are primarily designed for industrial applications:

- Water supply and pressure boosting
- Air-conditioning
- Water treatment
- Heating and cooling i industrial processes
- Industrial washing and dish-washing machines
- Softened water
- Pressure boosting of process water
- Fertilizer / dosing systems

1.2 Pump Construction:

Horizontal, multistage centrifugal pump of the non selfpriming type with extended pump/motor shaft and fitted with a mechanical shaft seal.

Compact pump unit with small physical dimensions, axial suction port and radial discharge port.

1.3 Operation conditions:

1. Ambient temperature : Max. +40°C
2. Liquid temperature range: +0°C ~ +90°C
3. Operating pressure: Max. 10 kg/cm²
4. Inlet pressure: Max. 6 kg/cm²
5. Head: 50Hz : Up to 55M
60Hz : Up to 75M

1.4 Pumped liquids

Thin, clean and non-explosive liquids without solid particles or fibres.

The pumps are able to pump liquids such as demineralised water, softened water, cleaning solutions and light oils.

When pumping liquids with a density and/ or viscosity higher than that of water, motors with correspondingly higher outputs must

be used, if required.

Whether a pump is suitable for a particular liquid depends on a number of factors of which the most important are chloride content, pH value, temperature and content of solvents, oils, etc.

2. Installation and piping

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°C(104°F) and the flowing liquid temperature does not exceed 40°C(104°F) .
- 2.1.4 Do not operate the pump under explosive environment.
- 2.1.5 Horizontal installation is recommended. When it is installed in other positions, please provide drain holes to allow drainage of the pump.
- 2.1.6 Indoor: TO avoid your furniture damage, do not install the pump on ceiling, carpet or any place close to electrical appliance, and also must provide drain hole.
- 2.1.7 Outdoor: 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.

2.2 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 Residual

current device (RCD, 30mA) is in your system and grounding is properly connected to prevent from electric shock.

2.2.3 Motors must be connected to a motor-protective circuit breaker which can be manually reset. Set the motor-protective circuit breaker according to the rated current of the motor. See nameplate.

2.2.4 Three phase motors must be connected to a motor starter for protection of overload and single phase running. Please be sure if the direction of rotation is correct. For three phase motor you can reverse the direction of rotation by interchanging any two of the incoming supply wires. Before your first operation, please place a allen wrench against the shaft at motor end and turn by the direction of rotation to see if rotor spins freely.

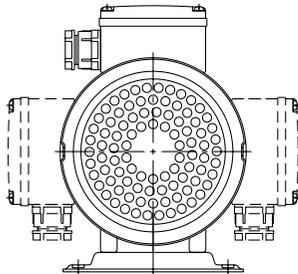


Fig.1

2.2.5 The position of the connection box is adjustable. It can be turned either side before the pump is installed. The preset position from the factory is on the top of the motor. To change the position of the connection box, please remove the bolts on the motor frame (4 bolts which are bolted into the chamber) and turn the stator housing to the required position. Replace the screws and tighten securely.

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

2.6 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.

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

2.8 The pump lifting capacity is related to the temperature of flowing liquid. Under normal flowing temperature (20°C - 30°C), it will lift up to 5M. At high temperature operation (over 60°C), the pump must be installed at the level lower than the liquid source or the pump inlet pressure must be higher than 1 atmosphere (15 PSI).

2.9 It is extremely dangerous to run the pump against a closed discharge valve, because it will cause extremely high liquid flow temperature and damage your pump. You may connect a bypass/ a drain to the discharge pipe to allow a minimum liquid flow through the pump.

2.10 Metal piping is recommended when the operations require high lifting head or high liquid temperature.

2.11 In systems with hot liquids (over 60°C), extra caution should be exercised to prevent from personal injury caused by escaping water.

3. Operation instructions

- 3.1 For booster systems where the liquid level on the suction side is above the pump inlet, please remove the filling plug and let water back flow to the chamber. For pumping from tanks and wells where the liquid level on the suction side is below the pump inlet, please remove the filling plug and pour water through the chamber. Be sure suction pipe and pump are completely filled with liquid and vented. Replace the plug after water is filled.
- 3.2 Double check if the voltage and wiring connection are correct before you switch on the pump. Your pump should be operating shortly.
- 3.3 If there is no discharge flow after a few minutes, please turn off the pump and repeat the Process of 3.1 Turn the pump on and off several times until it is working normally.
- 3.4 When pump is working on normal condition, measure the motor current and check it with the nameplate value. If it exceeds the rated value, please reduce the lifting capacity or fully open the valve.
- 3.5 When pump is not in use for a period, it should be drained by removing the priming and drain plugs. For start up after long time inactivity, please check if the impeller and mechanical seal are free. If they are locked up by sand, rust or something else please clean them up.

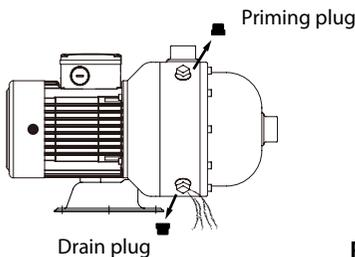


Fig.2

4. Noise level

The noise level of the pump is less than 70dB(A) of sound pressure level, the uncertainty is 4dB(A).

5. Maintenance

5.1. Lubrication

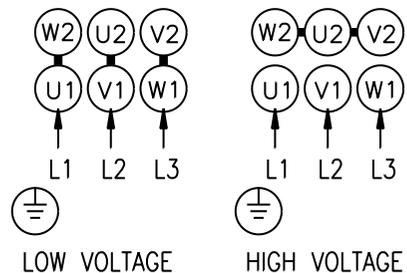
The mechanical seal and shaft sleeves are lubricated by the pumped liquid.

5.2. Periodic checks

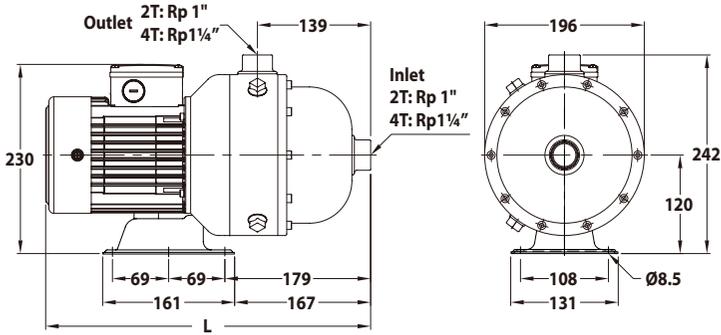
The following checks should be carried out periodically to ensure the normal operation.

- 5.2.1. Check the quantity of liquid and operating pressure.
- 5.2.2. Check there are no leaks on piping joints.
- 5.2.3. Check the tripping of the motor starter.
- 5.2.4. Check that all controls are functioned normally.
- 5.3. The pump must not be used to transfer explosive liquids. In systems with hot liquids (over 60°C), extra caution should be exercised to prevent from personal injury.
- 5.4. 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.
- 5.5. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

6. Wiring diagram



7. Dimensions (mm)



Model	L (mm)	N.W. (kg)
TPHP 2T 2K	400	11.6
TPHP 2T 3K	400	11.8
TPHP 2T 4K	400	12.0
TPHP 2T 5K	440	13.1
TPHP 2T 6K	440	13.3

Model	L (mm)	N.W. (kg)
TPHP 4T 2K	400	11.8
TPHP 4T 3K	440	12.9
TPHP 4T 4K	440	13.5

8. Fault finding

(Make sure to disconnect the power before attempting to diagnose any fault.)

Fault	Cause
1. Pump does not start	1. Check if electrical power source, fuse or circuit breaker failed.
	2. Check if pump is locked up by sand, rust or any foreign objects.
	3. Check if the motor is defective due to overload or other causes.
2. Pump runs at reduced capacity or no discharge water	1. If it is a three phase motor, please check if the direction of rotation is correct.
	2. Check if the inlet source is sufficient, the suction lift is not too great and the temperature is within the normal range.
	3. Check if there is any leakage in suction pipe, check valve works normal and mechanical seal is not defective etc.
3. Pump stops during operation	1. Motor overheat due to excessive suction lift or too high liquid temperature.
	2. Control circuit has cut out (pressure switch or level controller).

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



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