

EWALA

DWO SERIES ELECTRIC WATER PUMP

INSTRUCTION MANUAL

1. Feature:

- 1.1 Hydraulic bulge technology is adopted, sturdy construction;
- 1.2 Compact design;
- 1.3 Efficient spiral cased pump body design;
- 1.4 Open impeller, convey solid with diameter 19mm;
- 1.5 The material of liquid parts is SUS304;
- 1.6 Mechanical shaft seal for security and tightness;
- 1.7 Multi-purpose, transport a wide range of liquid;
- 1.8 Connection mode: Thread, Hose connection.

2. Technical data:

- 2.1 Max flow: 50m³/h
- 2.2 Max head: 21m
- 2.3 pole induction motor
- 2.4 Insulation class: F
- 2.5 Protection class: IP55
- 2.6 Single phase: 220V/50Hz
Three phase: 220/380V/50Hz
- 2.7 Single phase motor built-in thermal protector
- 2.8 Liquid temperature: 5-90°C
- 2.9 Max. operation pressure: 10 bar

Type keys

DWO 400 T

Three phase: T
Single phase without marks
Power*100(4HP*100)
Stainless steel centrifugal
pump with open impeller

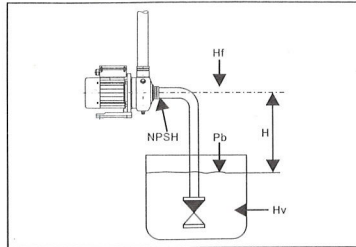
3. Application:

- 3.1 It's suitable for convey solid suspension in food processing;
- 3.2 Clean vegetable, meat or fish food;
- 3.3 Clean mental components, content etc;
- 3.4 Clean bottle, can or glassware etc;
- 3.5 Circulation and cleaning system for assembly;
- 3.6 Processing treatment on painting and general dirty liquid;
- 3.7 Convey weak corrosive liquid;
- 3.8 Swimming pool system;
- 3.9 Drainage system;
- 3.10 Farmland irrigation system.

4. Pump Selection

Pump selection should be based on following principle:

- Flow and pressure requested should be in allowable working range.
- Pressure loss as a result of height.
- Differences (H_{geo}) Loss in connection with long pipes, bends or valves etc.
- Best efficiency at the estimated duty point.



5. Pump Efficiency

- If the pump expected to operated as the same duty point, then select the pump which is operating at a duty point corresponding with best efficiency of the pump.
- If need to control operation or consumption, select the pump which best efficiency point is at the range of possible satisfaction max power consumption.

6. Pump Material

Liquid parts is optional as SUS304, SUS316.

The selection should be based on survey liquid.

7. Convey Liquid

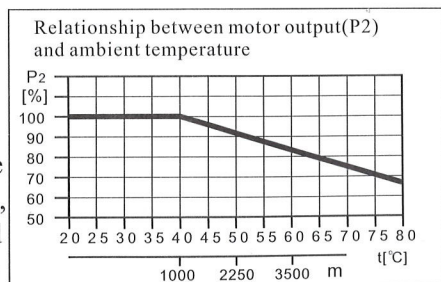
Liquid temperature: 5~90°C

Non-corrosive, non-incendive, explosive liquid.

8. Ambient temperature

Ambient temperature: Max +40°C.

If the ambient temperature exceeds +40°C, or the motor is located more than 1000 meters above seal level, the motor output must be reduced due to the low cooling effect of the air, in such cases, it may be necessary to use a motor with a higher output.



9. Inlet pressure

The pump max inlet pressure is limited by max working pressure.

10. Minimum inlet pressure

Calculation of the inlet pressure " H " is recommended when:

- The liquid temperature is high;
- The flow is significantly higher than the rated flow;
- Water is drawn from depths;
- Water is drawn through long pipes;
- Inlet conditions are poor.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump.

The maximum suction lift " H " in metres head can be calculated as follows: $H = P_b \times 10.2 - NPSH - H_f - H_s$

P_b : Barometric pressure in bar.

(Barometric pressure can be set to 1 bar).

In closed systems, P_b indicated the system pressure in bar.

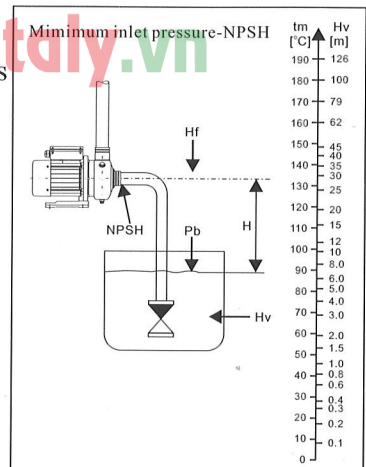
NPSH: Net positive suction Head in metres head. (To be read from the NPSH curve at the highest flow the pump will be delivering).

H_f : Friction loss in suction pipe (unit:m) (At the highest flow the pump will be delivering.)

H_v : Vapour pressure (unit:m) (To be read from the vapour pressure scale)

H_s : Safety margin = minimum 0.5 metres head.

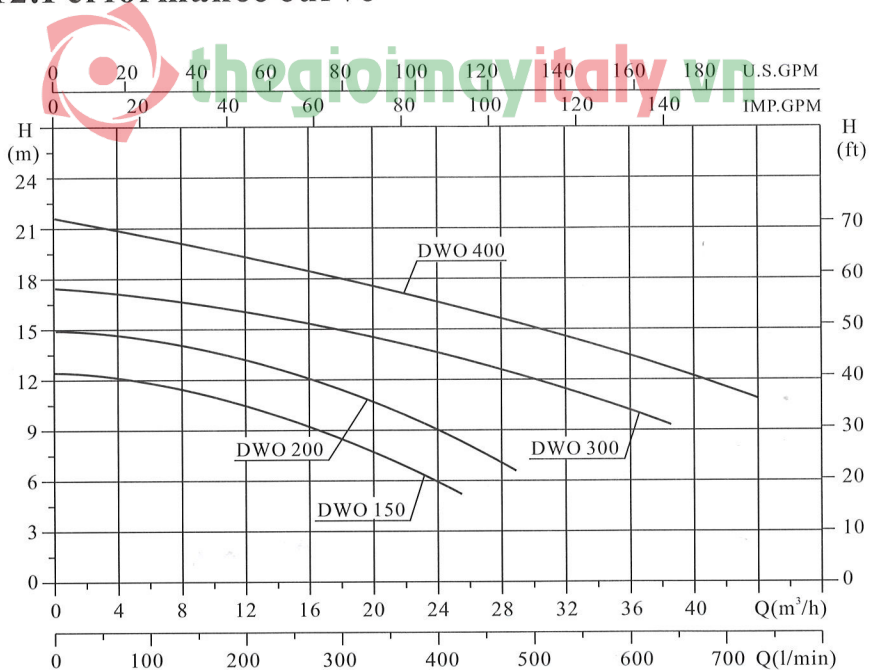
If the " H " calculated is positive, the pump can operate at a suction lift of maximum " H " metres head. If the " H " calculated is negative, an inlet pressure of minimum " H " metres head is required.



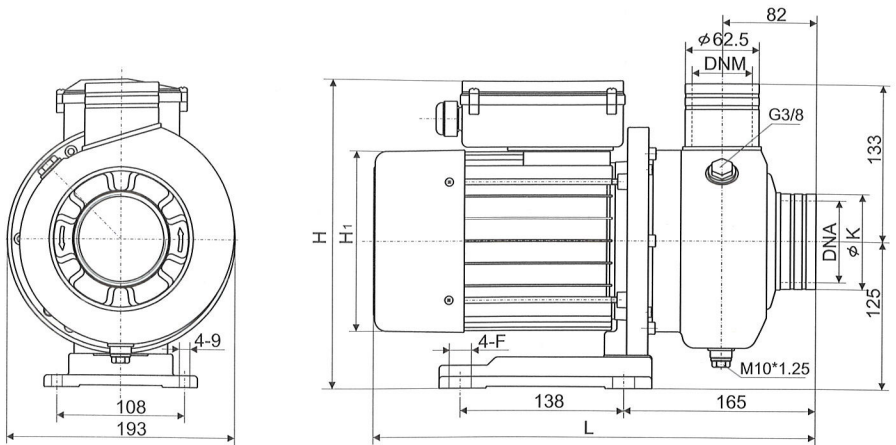
11 .Performance table

Model	Power P2 (KW)	Flow	L/min	0	100	200	300	400	500	550	600	700	800
			m ³ /h	0	6	12	18	24	30	33	36	42	48
DWO 150	1.1	H (m)	12	11.5	10	7.5	5						
DWO 200	1.5		15	14	13	10.5	9	6					
DWO 300	2.2		17	16.5	16	15	13.5	11	10.5	10	9		
DWO 400	3.0		21	20	19	17.5	16.5	15	14	13	12	11	

12. Performance curve



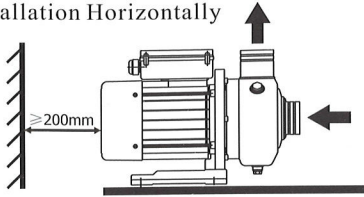
13.Installation sketch



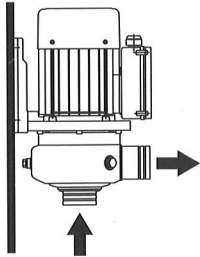
Model		H		H1	L	K	DNA	DNM
Single-phase	Three-phase	Single-phase	Three phase					
DWO 150	DWO 150T	265	235	155	378	62.5	G2	G2
DWO 200	DWO 200T	265	235	155	378	62.5	G2	G2
DWO 300	DWO 300T	242	242	169	415	80	G2 1/2	G2
—	DWO 400T		242	169	432	80	G2 1/2	G2

14. Installation quomodo

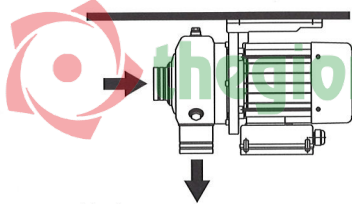
1. Installation Horizontally



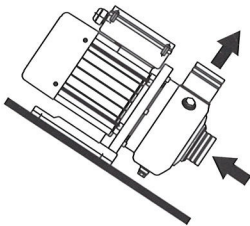
2. Installation Vertically



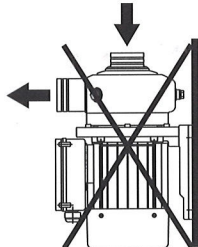
3. Installation Horizontally.(reverse 180°)



4. Slope Installation

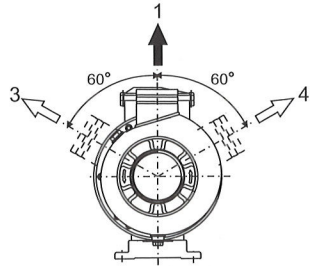


5. Non-motor down to installation



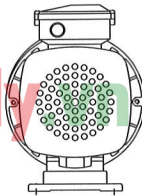
Outlet and inlet direction:

Standard direction is 1, others direction is 2.3.4.5

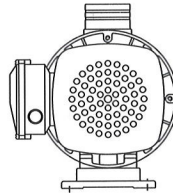


Terminal block location

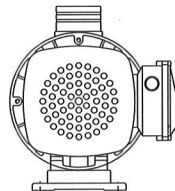
1. on top (standard)



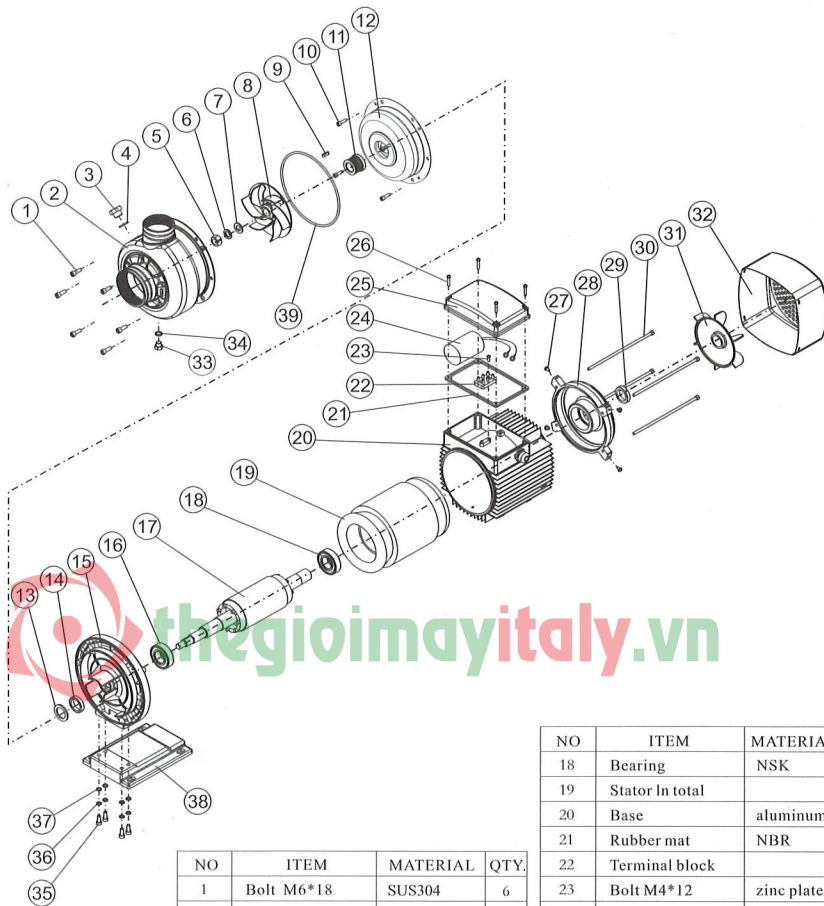
2. on left side



3. on right side



15.DWO Series explode drawing



NO	ITEM	MATERIAL	QTY.
1	Bolt M6*18	SUS304	6
2	Pump body	SUS304	1
3	Priming plug	SUS304	1
4	O-Ring d16*2.4	FPM	1
5	Nut M10	SUS304	1
6	Spring Washer	SUS304	1
7	Flat Washer	SUS304	1
8	Impeller	SUS304	1
9	Flat key 6*14	SUS304	1
10	Bolt M5*16	SUS304	4
11	Mechanical seal	CARBON/NBR/CERMIC	1
12	Pump cover	SUS304	1
13	Washer	EPDM	1
14	Reinforced seal	NBR	1
15	Front end bearing	AKUMINUM	1
16	Bearing	NSK	1
17	Rotor in total		1

NO	ITEM	MATERIAL	QTY.
18	Bearing	NSK	1
19	Stator In total		1
20	Base	aluminum	1
21	Rubber mat	NBR	1
22	Terminal block		1
23	Bolt M4*12	zinc plated	1
24	Capacitor (1PH)		1
25	Terminal box	aluminum	1
26	Bolt M4*22	zinc plated	4
27	Bolt M4*8	SUS304	4
28	Back end cover	aluminum	1
29	Reinforce seal	NBR	1
30	Bolt	zinc plated	4
31	Fan	PP	1
32	Fan cover	08F	1
33	Drain plug	SUS304	1
34	Washer	Pa66	1
35	Bolt M6*18	zinc plated	4
36	spring washer	spring steel	4
37	Flat washer	zinc plated	4
38	Base	FCD	1
39	O-Ring D155*3.5	FPM	1

TROUBLESHOOTING GUIDE

PROBLEMS	POSSIBLE	CAUSESSOLUTIONS
1.The pump does not deliver any flow.	1.The suction and discharge pipes circuit and impeller blocked. 2.The suction connectors is air leaking. 3.Water level is lower than required.	1.Clean pipes circuit and impeller. 2.Sealed the connecting surfaces. 3.Reinstall and lower the suction pipe.
2.Insufficient Flow	1.Impeller seriously damaged and corrosive. 2.Seal Ring is damaged and corrosive. 3.Motor Speed is lower than the required.	1.Replace by new one. 2.Replace by new ring. 3.Make sure the voltage is normal.
3.Losses of Head	1. Wrong Rotation. 2.NPSH because of high water temperature. 3.Impeller seriously damaged and corrosive.	1.Change motor wiring (3 phase motor). 2.Lower the liquids temperature. 3.Replace by new one.
4. Motor over-heating	1.Flow beyond the applicable scope. 2.There is mechanical wearing. 3.The voltage is lower or higher than standard or motor fan is damaged.	1.Make sure the correct pump model was chosen or adjust the outlet valve to make the pump working around rated scope. 2.Check and erase the mechanical wearing.
5. Pump leak seriously	1.Motor bearing is damaged or lack lubricating oil. 2.Vibration is caused by the unbalanced ground.	1.Replace by new one. 2.Replace by new one.
6. Motor big vibration, loud noise, bearing become hot	1.Motor bearing is damaged or lack lubricating oil. 2.Vibration is caused by the unbalanced ground.	1.Adjust motor is lined with the center of pump, replace bearing or clean bearing and add lubricant oil. 2.Level up the base, and fasten the bolt of bracket.
7.There is noise in Pump	1.Flow is beyond the applicable scope and cause the loss of head. 2.Nut is loose.	1.Make sure the correct pump model was chosen and turn off the outlet valve. 2.Fasten any possible nuts.

All specifications change without prior notice.

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