NSZ(50Hz)

Swimming Pool Pump
Operation Manual

CONTENT

Read manual carefully before installation and start-up.

Implementation standard:Q/HNB036《Swimming Pool Pump》

Ⅰ Application and conditions

The structure of NSZ swimming pool pump(Hereafter as pump) is single-stage, horizontal type, axial suction and with a vertical upward water outlet.NSZ have the features of energy-saving, low noisy, environment-protection, compact structure, beautiful appearance, light-weight, convenient maintenance and high reliability.

NSZ pumps are single satge centrifugal pump for water circulation and refilltration.

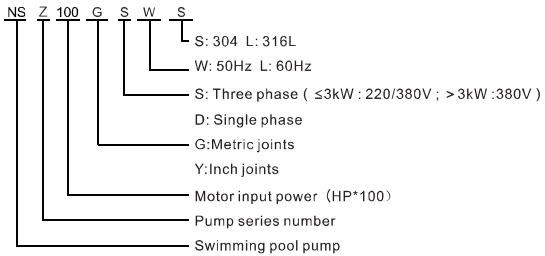
1 Applications

Domestic and commercial swimming pool
Water park
Water landscape
Seawater farming
Hot spring spa

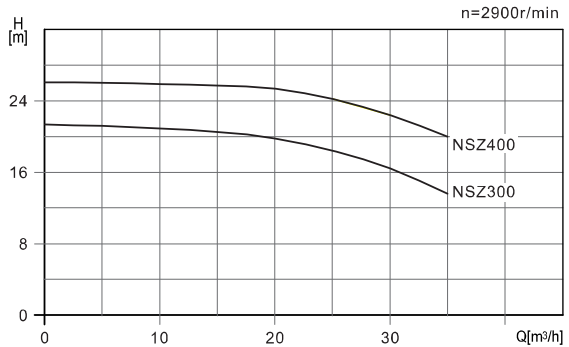
2 Working conditions

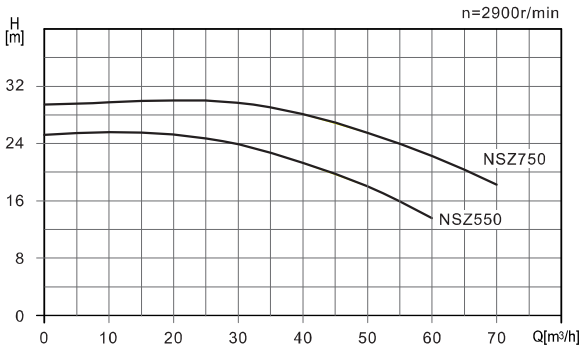
Liquid temprature: -20℃~100℃
Max. ambient temprature: 40℃
Max. working pressure: ≤10bar

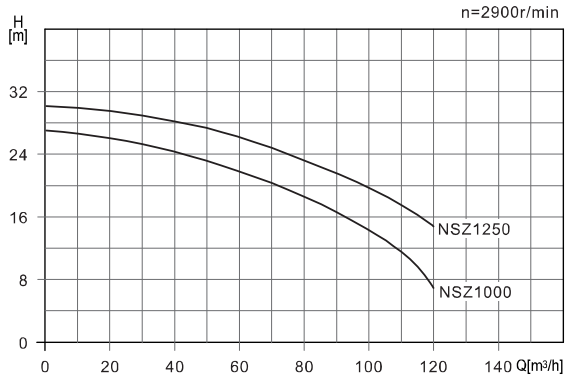
Ⅱ Model definition

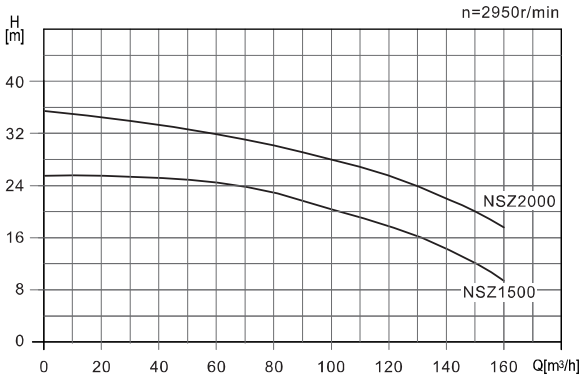


III Performance curve









IV Structure

- The pump is mainly composed of motor, pump cover, impeller, pump body and mechanical seal. As shown in Fig 1
- The key components of NSZ - impeller, pump body, pump cover etc, are all made of stainless steel 0Cr18Ni9
- The pump adopts a single-end built-in mechanical seal, and the grinding block is ceramic/graphite.
- Pump and pipeline are connected with flange.
- The pump structure is shown below

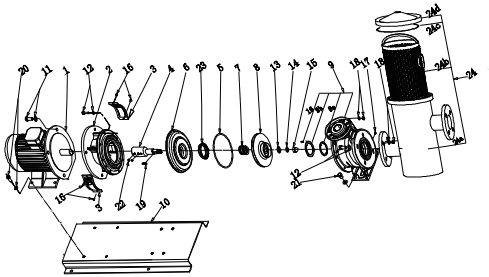


Fig.1

1.Motor 2.Pump head 3.Guard plate 4.Shaft 5.O ring 6.Lining 7.Mechanical seal 8.Impeller 9.Casing 9a.Impeller ring 9b.Impeller ring cover 10.Base plate 11.Bolt&Washer 12.Bolt&Washer 13.Impeller washer 14.Spring washer 15.Impeller nut 16.Cross recessed pan head screw 17.Hexagonal socket head plug 18.Bolt&Washer 19.Key 20.Bolt&Washer 21.Bolt&Washer 22.Shaft screw 23.Back impeller ring 24.Hair interceptor 24a.Hair interceptor bucket 24b.Filter basket 24c.O ring 24d.Hair interceptor cover

V Installation and connection

1. Installation

- The pump must be installed on a hard and flat surface, using a short and straight pipe system to reduce water flow loss.Installation position should not be higher than 3 meters above the water surface. A valve should be installed respectively in the water inlet and outlet place of the pump and the drainage system of machine house must be excellent to prevent machine house from being too humid. Machine house space must be ensured sufficient for the convenience of pump an pipeline maintenance.
- Be sure to read the warning above motor after installation. Except from components providing safe ultra-low voltage smaller than 12V , live parts must be inaccessible to people in the pool.
- For Class I devices without plugs, they must be permanently connected to a fixed line. Electrical components except remote controls must be located or fixed.

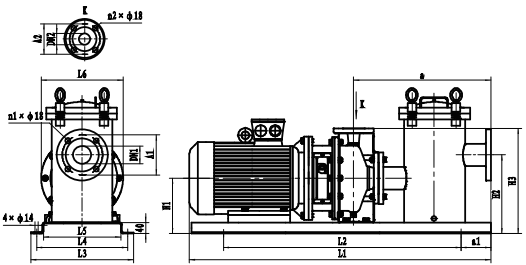
2. Pipeline device

- Inlet and outlet pipes should not be supported by the pump body. The diameter of the inlet pipe must be larger than or equal to the pump inlet. The inlet pipe should be slightly inclined to avoid air remaining in the pipe.
- Avoid dripping water on the motor, otherwise the motor will be damaged.

3. Electrical connection

- Electrical equipment should have a multiple isolation system with a contact opening of at least 3 mm length. Electrical installation must refer to national wiring rules. To continuously prevent possible electric shock, the unit should be mounted on the base in accordance with the installation instructions.
- The power line should be connected through a circuit with a residual current circuit breaker (RCD). The operating value should not exceed 30 mA. The power supply cable should comply with the EMC standard (2). Single-phase motors have built-in thermal protection. Electrical connections must be carried out by qualified personnel in strict accordance with the "EN60335-2-41" standard. Make sure the ground wire is connected properly.
- Make sure that the equal potential bonding between the swimming pool and the pump is correct. The cross-section of the equal potential bonding conductor should be between 2.5 and 6 mm and should be fitted with suitable terminals.

4. Shape and installation sketch



Pump model	Dimension(mm)																
	DN1	DN2	A1	A2	n1	n2	a	a1	H1	H2	H3	L1	L2	L3	L4	L5	L6
NSZ300	65	40	145	110	4	4	160	35	152	272	294	882	810	280	210	192	210
NSZ400	65	40	145	110	4	4	160	35	152	272	294	912	840	300	260	212	250
NSZ500	65	50	145	125	4	4	166	41	172	293	338	950	870	330	290	242	250
NSZ700	65	50	145	125	4	4	180	41	200	290	380	1060	960	370	330	280	300
NSZ1000	80	65	160	145	8	4	535	50	200	320	380	1125	1025	370	330	280	300
NSZ1300	80	65	160	145	8	4	535	50	200	320	380	1125	1025	370	330	280	300
NSZ1500	100	80	180	160	8	8	675	50	220	370	445	1380	1280	420	380	330	350
NSZ2000	100	80	180	160	8	8	675	50	220	370	445	1380	1280	420	380	330	350

Ⅵ Start-up and maintenance

1. Check up before the initial start
- The pump should be fixed firmly.
- Running without water is strictly forbidden.
- There should be no obstacles in the pipeline.
- The pump shaft should be flexible and free to rotate.
- The power supply voltage and frequency should have no difference from these on the nameplate.
- Check motor rotation, make sure the direction of which being consistent with the motor hood indication. If the motor does not start, try to find the problem in the common fault table and seek possible solutions. The pump should not be operated without water.

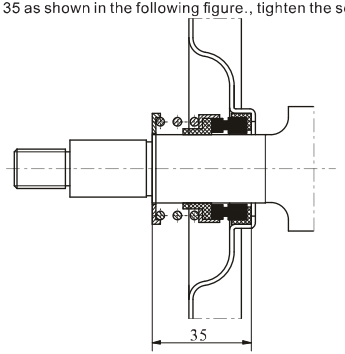
2. Start-up
- Open all valves and energize the motor. Check the breaking current of three-phase motor and adjust protector appropriately.
- Start the motor and adjust the pump outlet valve appropriately to achieve the required flow.

3. Maintenance and clean
- Be sure pump power is disconnected before any pump maintenance operation. Special maintenance and programming for pump are unnecessary but regularly clean of pump hair interceptor is suggested. Drain water out the pump if the pump is long-time unused, install hair interceptor cover after cleaning as well as apply vaseline on the rubber ring. Finally, be sure to store pump in a clean, well-ventilated area.

4. Anti-freezing measures
- When the ambient temperature is lower than 0℃,anti-freezing measures must be taken. When the pump is stopped, the water inside must be drained up to avoid damage to the pump because of freezing.

Ⅵ Assembly and disassembly

1. Install the pump shaft on the motor , tighten the set screw slightly.
2. Put the pump head on the motor and install the pump head lining.
3. Adjust the upper and lower positions of the pump shaft to ensure the size of 35 as shown in the following figure., tighten the set screws.



4. Install mechanical seal on the shaft, apply proper amount of lubricant on the mechanical seal friction surface.
5. Install the impeller, washer, and tighten the nut.
6. Install the pump body.
7.Turn the pump shaft with hand to ensure the pump shaft free from stagnation and tightness. The disassembly steps follow the opposite procedure of the above.

Ⅷ Common faults and solutions

⚠ Attention: Make sure the power has been switched off before opening terminal box cover.

Fault	Cause analysis	Solution
Motor does not run when started.	a) Possible power supply failure. b) Fuses are blown. c) Motor is overloaded. d) Starter failure e) Control circuit failure. f) Motor failure.	a) Check power supply. b) Replace fuses. c) Check system. d) Replace starter. e) Replace control circuit. f) Repair motor.
Overloaded device of starter switched off automatically	a) Fuses are blown. b) Contacts of overload device are faulty. c) Cable connections are loose or faulty. d) Motor winding failure. e) Pump interior blocked or worn. f) Overload current value is set too low.	a) Replace fuses. b) Check or replace starter. c) Check cable and power supply. d) Replace motor. e) Clear the blockage in the pump f) Reset overload current value.
Overload device trips out occasionally.	a) Overload supply power value is set too low. b) Periodic supply power faults. c) Too low voltage at peak times of power use.	a) Reset overload supply power value. b) Check supply power. c) Add voltage stabilizer.
Pump can`t work without overloaded device failure	a) Starter is not contacted well or the coil is faulty. b) Control circuit are faulty.	a) Change starter b) Check control circuit.
Unstable pump performance	a) Too low pump inlet pressure. b) Pipes/pumps are clogged with debris. c) Air suctioned in pump. d) Wrong pump rotating direction.	a) Check water suction condition. b) Clean pipelines/filters/ pump c) Check suction pipeline. d) Adjust motor rotating direction.

Fault	Cause analysis	Solution
Pump runs but pumping out no water	a)Pipeline/filter/pump is blocked by pump remnants. b) Foot valve or check valve is stuck in the closed position. c) Inlet pipe leakage. d) Air in the inlet pipe or pump.	a)Clean pipeline/filter/ pump b) Check and repair foot valve or check valve. c)Check and repair inlet pump line. d) Refill liquid into pump to remove out air.
Abnormal vibration and noise in pump	a) Inlet pipe leakage. b) Too small inlet pipeline or pumping remnants clogged in pump. c) Air in the inlet pipe or pump. d) Mechanical friction in pump. e) Motor bearing fault.	a)Check and repair inlet pipeline. b)Enlarge or clear inlet pipeline. c)Refill liquid into pump to remove out air. d)Check and repair pump. e)Replace the bearing.
Mechanical seal leakage	a) Mechanical seal failure.	a) Replace mechanical seal.

Ⅸ Important notice

1. Customers will not be informed if this manual is updated.
2. Pump will be guaranteed for one year under normal operation with the correct model.
3. Users shall be responsible for the damage if they disassemble the pumps by themselves in guaranteed period.