

**Read before using!**  
**Observe all safety instructions!**  
**Keep at the place of operation!**



These operating instructions contain important notes and warnings. By all means, read the operating instructions before installing, electric connection and commissioning.

Other operating and installation instructions dealing with components / accessories of the garden pumps have to be taken into consideration in addition.

We cannot assume liability or guarantee for damage and consequential damage, which are caused by the non-observation of these instructions or technical rules and recommendations.



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Subject to technical modifications and error. No liability is accepted for printing errors.

## 1 General aspects

Installation and commissioning by qualified staff only!

### 1.1 Intended use

The Garden 1000 is a self-priming, horizontal electric centrifugal pump with built-in injector for suction heights up to max. 9 m, for the following fields of application:

- Water supply for domestic services
- Garden irrigation
- minor watering installations
- Re-filling of tanks etc.

Clear water without aggressive and abrasive components only must be used as pumping medium.

The Garden 1000 is permitted for the operation

- of 230 volt 50 Hertz alternating voltage
- it is not permitted for the transportation/filling of explosive media, food or waste water
- up to a water temperature of 40 °C
- in the area of residential, commercial and industrial areas as well as small companies; not suitable for open-air installation.



To avoid suction loss, the suction height should be as low as possible and the suction line as short as possible.

The pump has to be installed dry and flood-proof.

The suction line must be resistant to low pressure and end at least 25 cm below the water level. Because of this, vortex formation and inevitably connected air inlet are thus avoided.

Pipe connections must be 100 % airtight. Over its whole length, the suction line should have a minimum slope on 2%. The diameter of the suction line must be equal to or greater than the suction connector.

For the pressure line, a pipe diameter has to be selected which is preferably equal to the inside diameter of the pressure socket of the pump.

**Attention!** The following pumping media are not suitable:

- corrosive, combustible and explosive media
- sewage from urinal installations and lavatories

### Caution

Use in swimming pools, garden ponds and their protected area is permissible only, if built in keeping with VDE 0100/49 D. The pump may not be placed or submersed in water.

## 1.2 Constructional design

The garden pump is completely wired including mains cable H05 RNF, 1.5 m long, with plug and ON/Off-switch

Never put the pump into operation in a dry state.

### 1.3.1 Technical data



Frequency:	50 Hz
Type of motor:	Squirrel-cage motor
Protection class:	IP 55
Insulation:	Protection class F
Motor protection:	Single-phase with built-in motor cut-out

Connection: Mains cable H05 RNF, 1.5 m long and plug

Speed: 2900 min<sup>-1</sup>

## 1.4 Connection and performance data

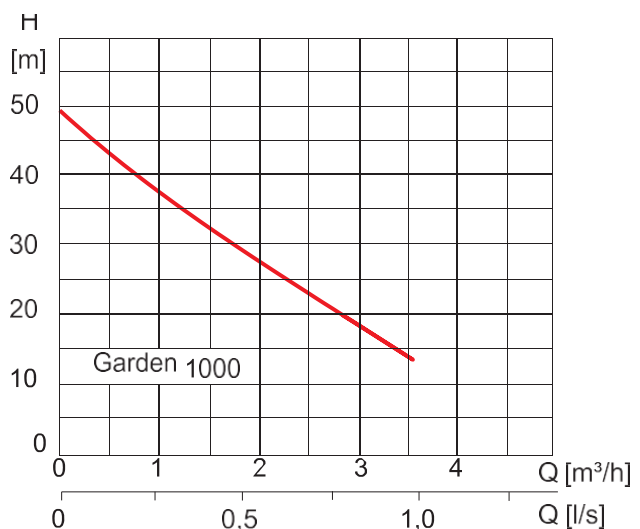
### 1.4.1 Operating data

Operating temperature: Max. 40°C

Operating pressure: max. 8 bar

Pumping head: max 50 m

Feed volume max. 3.6 m<sup>3</sup>/h



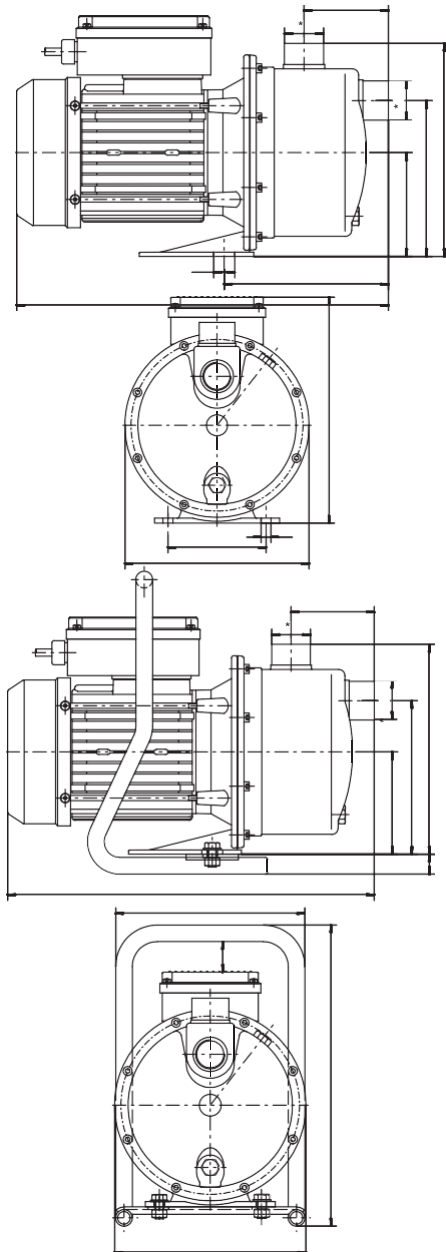
### 1.4.2 Electric specification

Type	Rated current [A] 1 ~ 230 V	Motor power P <sub>1</sub> [kW] 1 ~ 230 V	μF
GARDEN 1000	5.2	1.0	20

### 1.5 Material specification

- Pump case, sealing case and impeller made of stainless steel 1.4301
- End face mechanical seal consisting of carbon / ceramic / NBR
- Diffusor and injector from thermoplastic material approved for drinking water
- Shaft end made of stainless steel 1.4401
- Stainless steel filling and draining plugs

### 1.6 Dimensions [mm] and weight [kg]



- Pressure connection: DN 1" (DNM)
  - Suction connection: DN 1" (DNA)
- Weight [kg]** 11.8 kg

## 2 Safety

These operating instructions contain basic instructions which have to be observed during set-up, operation and maintenance. For this reason, these operating instructions must by all means be read before installation and commissioning by the installation technician as well as by the competent specialist staff / user, and must be permanently available at the location of the plant. Not only the general safety instructions mentioned in this chapter on safety have to be observed, but also the special safety instructions mentioned in the other chapters.

### 2.1 Labelling of notes in the operating instructions

The safety instructions mentioned in these operating instructions, which may cause hazards for persons in case of non-observation, have been marked by the general danger symbol



(Safety signs in conformity with ISO 7000 - 0434), in case of warning against electrical voltage with



(Safety signs in conformity with IEC 417 - 5036).

In case of safety instructions, the non-observation of which may cause hazard for the plant and its functions, the word added is

**Attention!**

Instructions attached directly to the plant, such as

Rotation arrow (on fan cover)

Marks for fluid connections must be observed and must be kept in legible condition.

### 2.2 Qualification and training of staff

The staff for operation, maintenance, inspection and installation must have the corresponding qualification for this work. For this reason, the area of responsibility, the competency and the supervision of the staff has to be precisely defined by the company. If the staff does not have the necessary knowledge, the said has to be trained and instructed. If and when necessary, this may be carried out by the manufacturer / supplier by order of the purchaser of the plant. Moreover, the user has to ensure that the content of the operating instructions is understood completely by the staff.

### 2.3 Hazards caused by non-observation of safety instructions

The non-observation of the safety instructions may endanger persons as well as the environment, and may have consequences for the plant. The non-observation of the safety instruction will result in the loss of all claims for damages.

In detail, the non-observation may cause the following hazards, for example:

- Malfunction of important functions of the plant
- Malfunction of the mandatory methods of maintenance and repair
- Danger to persons caused by electrical, mechanical and chemical effects
- Danger to the environment caused by leakage of dangerous substances

### 2.4 Safety-conscious work

The safety instructions mentioned in these operating instructions, the existing national regulations on accident prevention as well as potential in-company work, operating and safety instructions of the user must be observed.

### 2.5 Safety instructions for user / operator



If hot or cold machine parts could lead to hazards, these parts have to be protected against touch by the user.



Touch protection for moving parts (such as coupling) must not be removed from the plant in operation.



Leakage (of the shaft seal, for example) of hazardous material conveyed (e.g. explosive, toxic, hot) must be removed in such a way that no danger is caused to persons and the environment. Legal regulations have to be observed.



Hazards caused by electric energy must be excluded (for details here, please refer to the country-specific regulations and the regulations of the local energy supply companies).

### 2.6 Safety instructions for maintenance, inspection and installation work

The user has to make sure that all maintenance, inspection and installation work is carried out by authorised and qualified specialist personnel only, who has sufficiently been informed by studying the operating instructions.

Basically, work on the plant may be carried out only at standstill. The procedure to shut down the plant described in the operating instructions must be observed by all means.

Pumps or pump assemblies, which convey media hazardous to health, must be decontaminated.

Immediately after completing the work, all safety and protection devices have to be fitted again and/or have to be made functional again.

Before restart, the points listed in the chapter on initial commissioning have to be observed.

### 2.7 Unauthorised modification and spare parts production

Modifications or changes to the plant shall be permissible only after consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer serve to ensure safety. The use of other parts may result in the loss of liability for the consequences that may occur.

### 2.8 Impermissible operating modes

The operational safety of the plant supplied is ensured only when used as intended in chapter (4) of the operating instructions. The statutory threshold indicated in the instruction must by no means be exceeded.

## 3 Transport and intermediate warehousing

### 3.1 Transport

During transport, it has to be made sure that the plant cannot be knocked into and is not dropped.

### 3.2 Intermediate warehousing / conservation

For this purpose, the plant has to be warehoused horizontally in a dry, dark or sun-protected as well as frost-proof area. Additional conservation is not required.

## 4 Installation / assembly

### 4.1 Safety regulation



Your electrical system must be in conformity with standard IEC 364/VDE 0100, i.e. the sockets must have been fitted with earthing terminals.



The electrical connection may be carried out by an electrically qualified person! The pertinent VDE regulation 0100 must be observed!



The electrical network, to which the plant is connected, must have been fitted with a highly sensitive FI protected switch <30 mA.

When using an extension cable, please make sure that this complies qualitatively (cross-section and quality) with the plant cable supplies.



Make sure that the electric connections are not subjected to moisture.



Before every installation and disassembly of pipes or other work on the plant, the mains plugs must be removed!

Keep unauthorised persons (such as children) away from the plant.

### 4.2 Installation

Check whether according to the packaging the plant is suitable for the power system (230 V / 50 Hz). Make sure that all safety rules are observed. Check whether the conveyed media corresponds to the media mentioned in chapter 1.1.

The plant must be installed in a frost-safe room on a flat and horizontal surface.

## 5 Commissioning

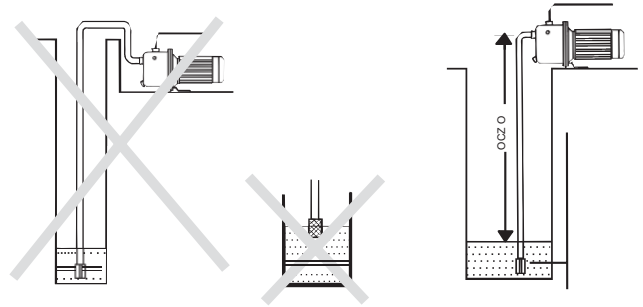
### Attention!

Before putting the unit into service, please observe that no warranty claims can be asserted in case of damage and malfunctions caused by incorrect handling.

The Garden 1000 is a horizontal electric centrifugal pump with built-in injector. The suction line must be absolutely leak-proof to ensure the self-priming.

The suction and pressure line must be properly connected.

The suction line must be selected so that the clear, uncontaminated water is always added to the pump. A filter (suction basket) may be used to protect the pump. The mesh size should not be selected to be too fine. Practice has shown that mesh sizes from 1 - 3 mm are ideal.

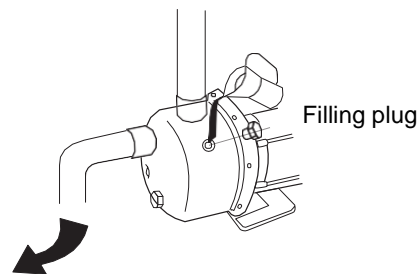


If a filter with a smaller mesh size is desired for special purposes, it should preferably be installed on the pressure side. Filter systems must be maintained (cleaned) on a regular basis. The pump may be damaged if filter systems are not maintained.

If the pump pumps from a pressure-less container (for example, cistern) or a waterway, a foot valve must be installed on the suction side.

### 5.1 Inspection measures before initial commissioning

1. Make sure that voltage and frequency of the mains and pump (see type plate) match.
2. Make sure that the pump shaft can rotate freely.
3. Open all possibly available shut-off valves in the pressure and suction line
4. Fill the pump body and the suction line with water by screwing open the corresponding filling connection and close the filling hole again.



### Attention!

Never put the pump into operation in a dry state!

5. Insert the plug into the socket. Set the main switch to ON and wait until the self-priming phase of the pump has been completed. When a foot valve has been installed, this takes place immediately after switching on the pump. The suction time may be up to 3 minutes depending on the height of the suction line. If the pumps do not transport anything, they must be filled again.



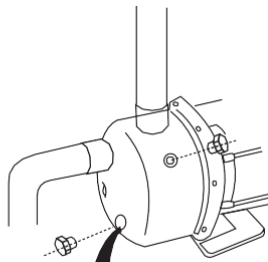
If the plant does not work properly, the table on page 7 "Repairing errors" and its remedies should be consulted.

### 6 Maintenance

The proper functionality and quiet performance of the pump should be inspected regularly. This can help prevent bigger disruptions.

Dry-running of the pump should be avoided, because the lubricating ring seal cools down with the liquid. The motor is maintenance-free. Empty the pump if there is a risk of freezing through the drain plugs.

During the cold season and with a longer standstill, the pumps should be emptied. If the pump is not used at all for a longer period of time, the pump must be cleaned and stored in a dry, well-ventilated area.



Drain plug

### 7 Warranty

The warranty period (in conformity with the German Commercial Code) shall be twenty-four months starting on the day of sale to the final consumer.

It comprises and is limited to the free removal of defects, which can provenly be traced back to the use of faulty materials during production or installation, or free replacement of parts.

Wrong use or commissioning as well as independently carried out installations or repairs, which are not indicated in our operating instructions, shall rule out warranty. Parts subject to wear shall be excluded from warranty as well. We explicitly reserve the right of deciding on warranty. The warranty shall lapse when the unit has been opened by a third party.

Transport damage, general damage and failures caused by deficient repair work shall not be included in the warranty claim. **The purchase of the unit has to be proven by presenting delivery note, invoice or till receipt when claiming warranty.**

As far as legally possible, we shall exclude any liability for any bodily injury, material and consequential damage, in particular when the unit has been used for purposes other than those mentioned in the operating instructions, when not put into operation according to our operating instructions, or repair or maintenance have been carried out independently by a non-expert.

We shall reserve the right to carry out in the works repair and maintenance work which exceeds what is mentioned in the operating instructions.

Warranty claims can be asserted only in case of freight-paid delivery to the following address:



Zehnder Pumpen GmbH  
 Zwönitzer Str. 19  
 D-08344 Grünhain-Beierfeld  
 Tel.: (03774) 52 - 100  
 Facsimile: (03774) 52 - 150  
 e-mail: info@zehnder-pumpen.de  
 Internet: www.zehnder-pumpen.de

**Upon request, we will indicate the service partner authorised for you.**

### 8 Declaration of conformity

Herewith we

**ZEHNDER Pumpen gmbH  
 Zwönitzer Strasse 19  
 08344 Grünhain.Beierfeld,**

that the self-priming centrifugal pump type **Garden 1000** comply with the relevant directives as follows:

Machinery Directive	2006/42/EU
Low-Voltage Directive	2014/35/EU
Electromagnetic compatibility	2014/30/EU
RoHS Directive	2011/65/EU

Application of consistent standards, in particular

- EN 809
- EN 60 335-1
- EN 60 335-2-41
- EN 50 081-1
- EN 50 082-1

Grünhain, 21th June 2017



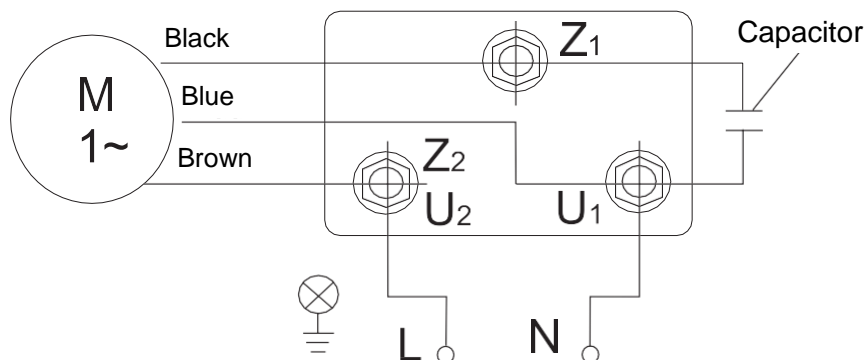
Matthias Kotte  
 Product Development

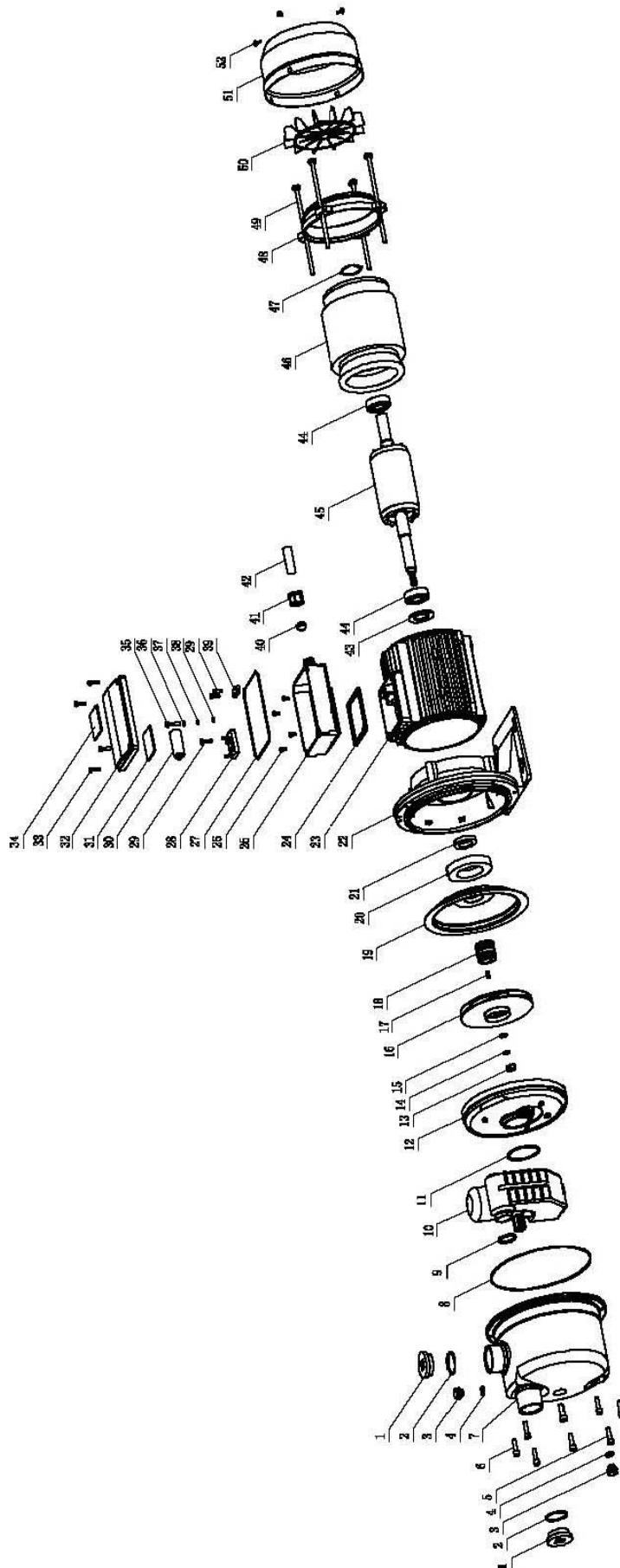
## 9 Removal of failures



Remove the plug by all means before opening and disassembling the pump part. Repair and maintenance work on electrical equipment or on the motor may be carried out by a trained electrician only!

Problem	Possible cause	Troubleshooting
Motor does not start	Supply voltage missing	Check if the plug is in the outlet
	Pump wheel blocked Thermal sensor has therefore switched off the motor	Dismantle and clean pump part Definitely remove plug
Pump does not start to suck	Suction valve not in water	Attach suction valve under water
	Pump wheel without water	Fill pump with water Fill up connection hose if necessary
	Air in suction line	Check leaking of suction line
	Foot valve clogged	Clean foot valve
	Max. suction height exceeded	Check suction height, change location of pump if necessary (closer to the water level)
Flow rate unsatisfactorily	Suction height too high	Check suction height, if necessary, change location
	Suction basket contaminated	Clean suction basket
	Water level lowers	Lower suction valve
	Pump performance reduced through contamination	Dismantle and clean pump, if necessary, replace wear parts
Thermal switch shuts off the pump	Motor overloaded, because friction too high through contamination in pump housing	Dismantle and clean pump, Reduce suction of foreign objects
Thermal switch shuts off the pump after a short humming of the motor	Capacitor defective	Replace capacitor (consult an electrician)







No.	Designation	Material specification	Number
1	Cap for suction and pressure socket	PP	2
2	Dust seal	NBR	2
3	Filling-/draining plug M10x1,25	SUS304	2
4	O-ring for filling plug	NBR	2
5	Hexagon screw M5x10	SUS304	6
6	Hexagon screw M5x18	SUS304	2
7	Pump housing	SUS304	1
8	Housing O-ring 160x4.5	NBR	1
9	O-ring injector, small, D30x3.1	NBR	1
10	Injector	PPO	1
11	Seal guide wheel	NBR	1
12	Guide wheel	PPO	1
13	Nut M8	SUS304	1
14	Spring washer	SUS304	1
15	Washer	SUS304	1
16	Impeller	SUS304	1
17	Bolt 04x12	SUS304	1
18	End-face mechanical seal	Carbon/Ceramic NBR	1
19	Pressure plate	SUS304	1
20	Seal ring	NBR	1
21	Seal rear wall	Rubbe	1
22	Rear wall	ADC3	1
23	Motor housing		1
24	Seal for terminal box, bottom	NBR	1
25	Terminal box case base	Flame resistant ABS	1
26	Screw M4x8	Zinc Plating	4
27	Seal terminal box, top, D 120x2	NBR	1
28	Terminal board	Melamine	1
29	Screw ST3.5x13	Zinc Plating	3
30	Capacitor 20uF/450V		1
31	Connecting diagram	Sticker	1
32	Terminal box cover	Flame resistant ABS	1
33	Screw ST3.5x16	Zinc Plating	4
34	Type plate		1
35	Screw M5x10	SUS304	1
36	Spring washer	SUS304	1
37	Pad	SUS304	1
38	Pad	SUS304	1
39	Bracket	Flame resistant ABS	1
40	Seal of cable inlet	NBR	1
41	Threaded cable connector	Flame resistant ABS	1
42	Cable		1
43	Seal	NBR	1
44	Ball bearing 6202-2RS		2
45	Rotor		1
46	Stator		1
47	Spring washer		1
48	Bearing cover	ADC3	1
49	Threaded rods	Zinc Plating	4
50	Fan impeller	PP	1
51	Fan cover	08 F	1
52	Screw M4x8	SUS304	1