



# NS Misting Pump Operating Manual





# Table of Contents

1.	GENERAL INFORMATION .....	1
2.	SPECIFICATION .....	2
2.1	Specification.....	2
2.2	DimensionS .....	3
2.3	Parts Diagram.....	4
2.4	Parts Drawing.....	5
2.5	Part list.....	6
3.	Operation Instructions.....	9
3.1	Safety Instructions .....	9
3.2	DANGER .....	9
3.3	WARNING.....	9
3.4	CAUTION .....	10
4.	Preparation before Operation .....	11
5.	Operation .....	12
5.1	Operation Method .....	12
5.2	Storage.....	12
6.	Trouble Shooting .....	13
7.	Maintenance .....	14
7.1	Pump Maintenance.....	14
7.2	Inspection of Electrical Device .....	14
7.3	Inspection of Pipe Accessories .....	15
7.4	Filter Inspection .....	15
7.5	Handling the Cleaning Nozzles: .....	15
7.6	Sintered Filter Cleaning .....	16
7.7	Pump Component Replacement .....	16
7.8	Long Term Storage .....	16
7.9	The time to change oil and attention .....	17
7.10	Oil Changing Interval (hours or months) .....	19
7.11	Oil Selection .....	20
8.	Warranty.....	22

## 1. GENERAL INFORMATION

This manual provides you with the information for proper use and maintenance of the misting pump. Please, carefully follow the instructions provided. The manufacturer / supplier is not liable for any damage to people or goods, or to the system itself, if the equipment is used differently from as described in this manual.

This manual is provided to the user / technician for correct use of the misting pump. Information provided in this manual does not replace regulations on safety at work currently in force. Therefore, the user should comply with the regulations in the country where the pump is installed, as well as following common sense rules.

Do not use the product if you notice any defect or wear that may compromise the original safety standards. The user or the maintenance technician must report any fault to the supplier. The machine is meant for specific applications. Do not modify and /or use it for applications other than the specified ones.


Instructions, drawings, tables and all the contents of this document are confidential technical documentation and are the exclusive property of **TANONG Precision Technology Co. Ltd.** No information may be released to third parties without written permission by **TANONG Precision Technology Co. Ltd.** Descriptions and images in this document are meant as indications and practical examples. They may be modified at any time and without prior notice. If further technical and functional details are needed, please contact the manufacturer / supplier.

### IMPORTANT

- Please, read the information contained in this booklet since they will provide you with the information and instructions required for safe installation, use and maintenance.
- The manufacturer is not liable for any damage to people or goods, or to the machine itself, if the pump is used differently from that described in this manual.
- Keep this booklet in a safe place and make it available for future reference.
- On delivery, check for any possible damages due to transport

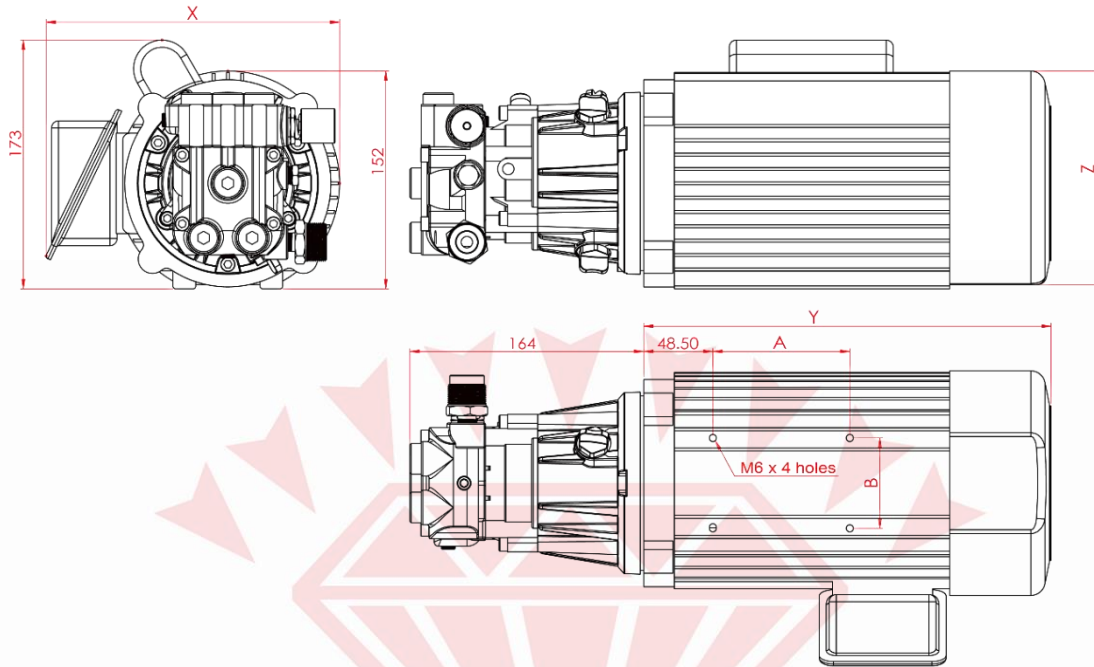
## 2. SPECIFICATION

### 2.1 Specification

NS-PUMP							
Model		NS1	NS2	NS3	NS5	NS6	NS8
Suction Volume	L/min	1.1/1.3	2.0/2.5	3.2/3.8	4.0/4.8	5.2/6.3	6.8/8.2
Operating Pressure	psi	1000					
	bar	70					
Motor	Hp	1/3	1/2	3/4	1.0	1.5	2.0
Weight	kg	11	12.3	15.6	17.1	18.6	21.1
Electricity Power	Volt/Hz	110V/220V				220V	
		50/60Hz				50/60Hz	
RPM		1450/1750					
Nozzle No. Approx.	0.15mm	14/16	25/31	40/48	50/61	66/80	86/104
Dimensions	L×W×H	Please refer to the first page					
Remark	 <b>DANGER</b> DO NOT USE THIS MACHINE IN RAINY DAY						

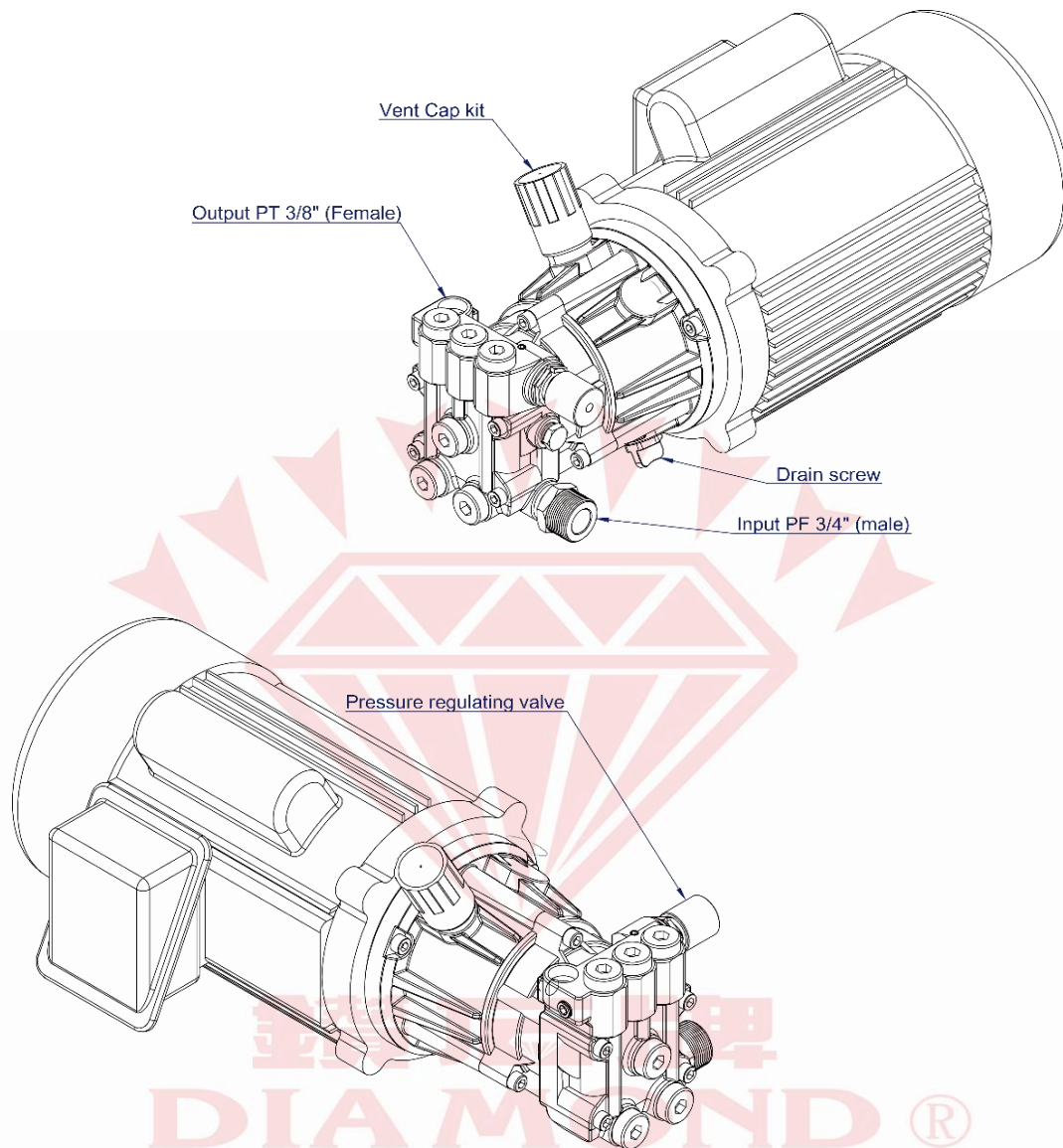
  
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## 2.2 DimensionS



Model	X	Y	Z	A	B
NS-1	155	185.5	129	100	45
NS-2	195	220	149	96	63
NS-3	195	228.5	149	96	63
NS-5	195	228.5	149	96	63
NS-6	202	263	149	96	63
NS-6	202	263	149	96	63

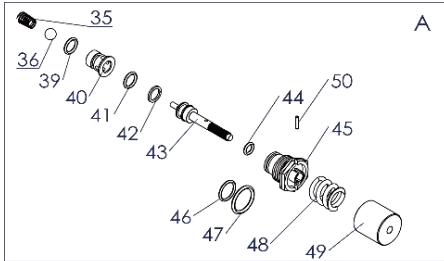
### 2.3 Parts Diagram



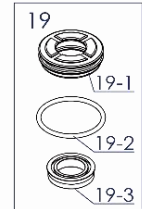
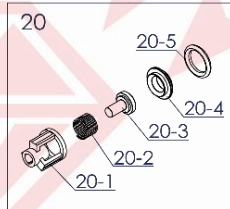
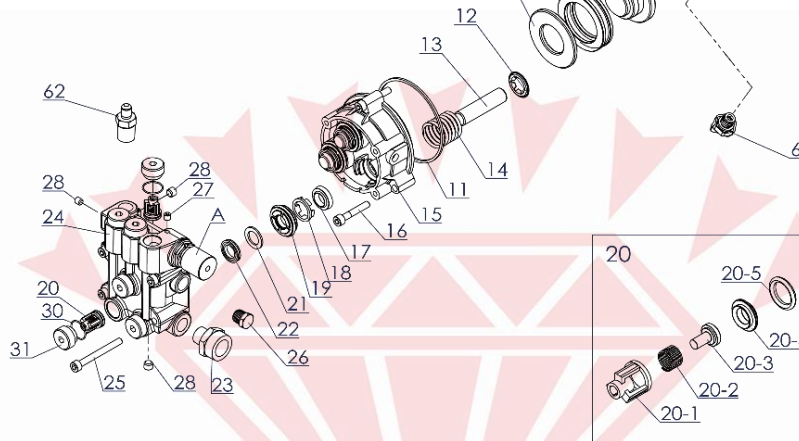
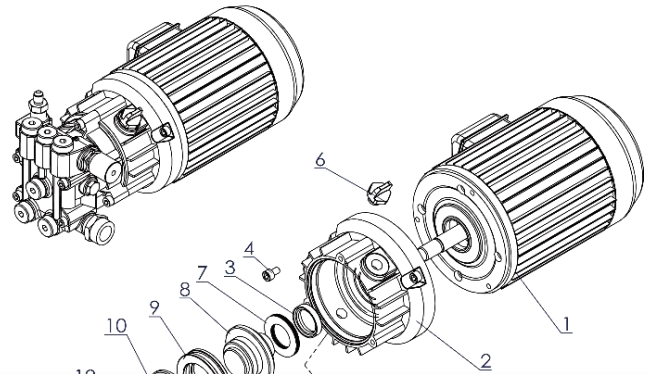
Description of parts			
1	Vent cap kit	4	Drain screw
2	Output( PT3/8", female )	5	Pressure regulating valve
3	Input( PT3/4", male )		

## 2.4 Parts Drawing

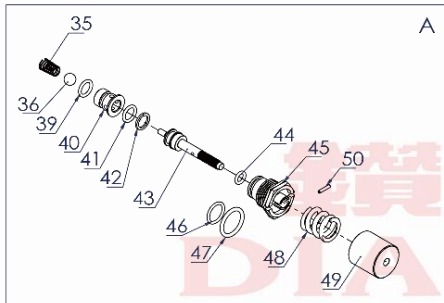
### NS1/ NS2 Type



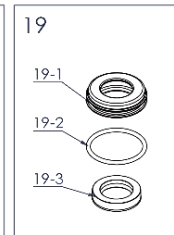
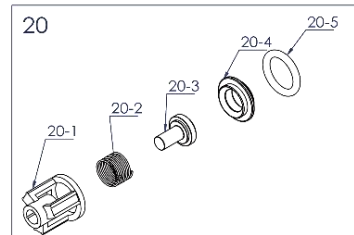
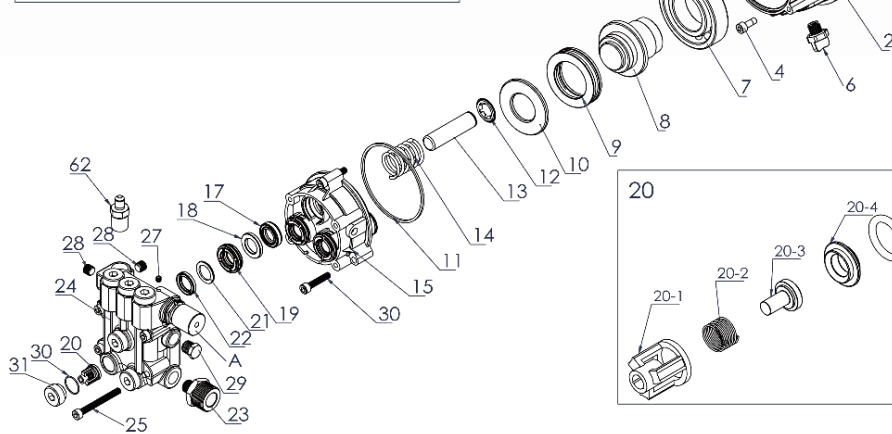
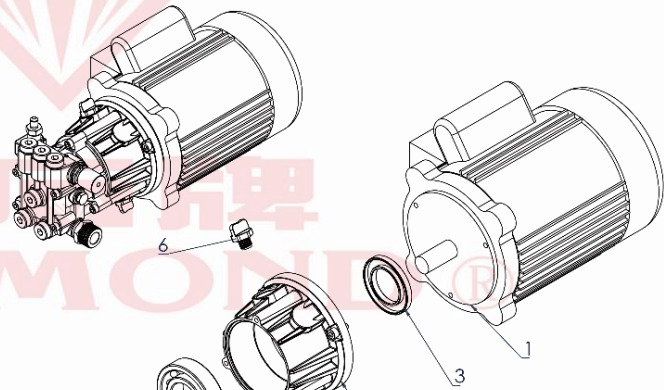
41~50 is the pressure regulating valve assembly  
Part No. 2A-07-0005



### NS3/ NS5 Type



41~50 is the pressure regulating valve assembly  
Part No. 2A-07-0005





## 2.5 Part list

### 2.5.1 NS1/NS2 Type

Pos.	Parts NO.	Parts Name	Quantity
1-1	09-01-0005-A	Motor( for NS1 )	1
1-2	09-01-0010-A	Motor( for NS2 )	1
2	02-12-0007	Oil Tank	1
3	04-01-0007	Oil Seal	1
4	06-01-0507	Bolt	3
6	925-2200-001	Plug, Fuel Drain &O-Ring	2
7	06-07-0004	Needle Roller Bearing	1
8	02-13-0008	Eccentric Shaft	1
9	06-07-0001	Bearing	1
10	02-14-0001	Eccentric Shaft Plane	1
11	04-04-0035	O-Ring	1
12	06-14-0001	Stop slice	3
13	02-16-0003	Plunger Ass'y	3
14	06-04-0001	Spring, Plunger	3
15	02-04-0006	Suction Metal	1
16	06-01-0509	Bolt	3
17	04-01-0003	Oil Seal	3
18	06-15-0001	Plastic Washer	3
19	2A-13-000	Packing Retainer Set	3
19-1	06-15-0007	Packing Retainer	3
19-2	04-04-0025S	O-Ring	3
19-3	04-02-0001S	Water Seal	3
20	02-08-0001	Valve Ass'y	6
20-1	02-09-0001	Box, Valve	6
20-2	06-04-0004	Spring, Valve	6
20-3	02-11-0001	Flat, Valve	6
20-4	02-10-0001	Seat, Valve	6
20-5	120-1217-001	O-Ring	6
21	04-03-0010	Back-Ring	3
22	04-02-0009S	Water Seal	3
23	06-05-0701	Joint	1
24	06-05-0701	Suction &Discharge Metal	1
25	06-01-0511	Bolt	4
26	053-2800-001	Plug	1
27	06-01-2201	Bolt	1
28	06-01-2206	Bolt	3
30	04-04-0019S	O-Ring	6
31	02-11-1002	Flat, Valve	6
35	06-04-0003	Taper Spring	1
36	06-31-0001	Ball Valve	1
39	04-04-0002S	O-Ring	1

Pos.	Parts NO.	Parts Name	Quantity
40	02-15-0001	Unloader Valve Seat	1
41	04-04-0002S	O-Ring	1
42	04-03-0001	Back Ring	1
43	06-01-8007	Release Spindle	1
44	04-04-0003S	O-Ring	1
45	06-01-8002	Adjusted Valve Screw	1
46	04-04-0004S	O-Ring	1
47	04-04-0011S	O-Ring	1
48	06-04-0007	Adjusted ValveSpring	1
49	02-18-0002	Nut	1
50	06-09-0001	Pin	1
62	06-05-0001	Bushing	1

### 2.5.2 NS3/NS5 Type

Pos.	Parts NO.	Parts Name	Quantity
1-1	09-01-0014A	Motor( for NS3 )	1
1-2	09-01-0214A	Motor( for NS5 )	1
2	02-12-0008	Oil Tank	1
3	04-01-0008	Oil Seal	1
4	140-0600-003	Bolt	3
6	925-2200-001	Plug, Fuel Drain &O-Ring	2
7	06-07-0010	Needle Roller Bearing	1
8-1	02-13-0003	Eccentric Shaft	1
8-2	02-13-0004	Eccentric Shaft	1
9	06-07-0001/1	Bearing	1
10	02-14-0002	Eccentric Shaft Plane	1
11	04-04-0035	O-Ring	1
12	06-14-0001	Stop slice	3
13	02-16-0003	Plunger Ass'y	3
14	06-04-0001	Spring, Plunger	3
15	02-04-0006	Suction Metal	1
16	06-01-0509	Bolt	3
17	04-01-0003	Oil Seal	3
18	06-15-0001	Plastic Washer	3
19	2A-13-0007	Packing Retainer Set	3
19-1	06-15-0007	Packing Retainer	3
19-2	04-04-0025S	O-Ring	3
19-3	04-02-0001S	Water Seal	3
20	02-08-0001	Valve Ass'y	3
20-1	02-09-0001	Box, Valve	6
20-2	06-04-0004	Spring, Valve	6
20-3	02-11-0001	Flat, Valve	6
20-4	02-10-0001	Seat, Valve	6

Pos.	Parts NO.	Parts Name	Quantity
20-5	120-1217-001	O-Ring	6
21	04-03-0010	Back-Ring	6
22	04-02-0009S	Water Seal	3
23	06-05-0701	Joint	1
24	02-05-0006	Suction & Discharge Metal	1
25	06-01-0511	Bolt	4
26	053-2800-001	Plug	1
27	06-01-2201	Bolt	1
28	06-01-2206	Bolt	3
30	04-04-0019S	O-Ring	6
31	02-11-1002	Flat, Valve	6
35	06-04-0003	Taper Spring	1
36	06-31-0001	Ball Valve	1
39	04-04-0002S	O-Ring	1
40	02-15-0001	Unloader Valve Seat	1
41	04-04-0002S	O-Ring	1
42	04-03-0001	Back-Ring	1
43	06-01-8007	Release Spindle	1
44	04-04-0003S	O-Ring	1
45	06-01-8002	Adjusted Valve Screw	1
46	04-04-0004S	O-Ring	1
47	04-04-0011S	O-Ring	1
48	06-04-0007	Adjusted Valve Spring	1
49	02-18-0002	Nut	1
50	06-09-0001	Pin	1
62	06-05-0001	Bushing	1

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### 3. Operation Instructions

#### 3.1 Safety Instructions



**DANGER**

It indicates that an unfair use can cause possible death or sustain serious injury.



**WARNING**

It indicates that an unfair use may highly cause possible death or sustain serious injury.



**CAUTION**

It indicates that an unfair use may highly wound the user and/or damage the product, also is possible to bring out an unpredictable event.

#### 3.2 DANGER



**DANGER**

- 3.2.1 If any malfunctions happen, stop using this machine immediately.
- 3.2.2 Do not use this machine under rain or thunder. There will be the risk of fire or electrical shock.
- 3.2.3 Be sure the electrical plug is removed from the electrical socket before attempting any cleaning or maintenance. Fail to do so may cause electric shock.
- 3.2.4 Any electrical maintenance out must be done by a specialized technician, a qualified electrician, who is professionally qualified and trained for the inspection, installation and repair of electrical equipment.
- 3.2.5 Check cables, plug, contacts, and ground connection before operation. Do not run the machine if there is any part loose or damaged.
- 3.2.6 The machine must be out of reach for children. In order to avoid accidents, be sure that there won't be anyone approaching this machine within 1 meter of radius from it during operation.
- 3.2.7 Do not pull hard, roll up and stamp on the electric wire.
- 3.2.8 All parts are designed for high pressure. If any part damaged, please replace it with the parts from original manufacturer.

#### 3.3 WARNING



**WARNING**

- 3.3.1 Connect the machine with correct electric specification (Frequency, Voltage and Current) as instructed.
- 3.3.2 Never run the machine without water.
- 3.3.3 Please always follow the periodic inspection items and daily maintenance instructions. Fail to do so may cause abnormal conditions and damage the machine.
- 3.3.4 Check cables, plug and ground connection before operation. Do not run the machine if there is any part loose or damaged.

3.3.5 This pump is rated for a maximum operating pressure of 1000 psi (70kg/cm<sup>2</sup>).

### 3.4 CAUTION

#### CAUTION

- 3.4.1 The water temperature for the machine is recommended between 5°C ~ 40°C.
- 3.4.2 Please turn off and unplug the machine in case the power goes off during operation.
- 3.4.3 Usually, water will be sucked into the pump when motor starts after 10 seconds. If there is no water into the machine for over 20 seconds, please stop the machine and check it.
- 3.4.4 Do not attempt to change the oil or perform maintenance while the unit is plugged in and always allow the pump and motor to cool before performing the oil change.
- 3.4.5 Please always follow the periodic inspection items and daily maintenance instructions. Fail to do so may cause abnormal conditions and damage the machine.
- 3.4.6 For hygienic purposes, please use filtered tap water. Do not pump the following liquids into the pump:
- Unfiltered water or with impurities.
  - Storage water in the tank for long time.
  - River water, industrial water or sea water.
  - Water containing detergent solutions or water mixed oil or chemicals.
- 3.4.7 Always use tap water connecting with inlet to fill water tank. It's the last choice to directly pour water from the water tank.
- 3.4.8 When connecting the hose of tap water to the inlet, use the water with upward volume 100 L/min, pressure below 0.5 MPa.
- 3.4.9 Regularly clean the water tank.
- 3.4.10 The orifice of misting nozzle is very fine. If impurities or trash choke the hole, it may cause damages to the machine. Do not let impurities or trash get into the pump, especially when the outlet hose has been disconnected.
- 3.4.11 Check if all screws have been tightened before operation.
- 3.4.12 Please check whether lubrication oil inside the pump is sufficient or not and do not overfill the oil.
- 3.4.13 Please wipe out oil if spilled.
- 3.4.14 Make sure there won't be anything approaching this machine within 1 meter of radius during operation.
- 3.4.15 Keep it out from fire at all time.
- 3.4.16 Do not exceed the maximum pressure of 70 kg/cm<sup>2</sup> or 1000 psi.

## 4. Preparation before Operation

- 4.1 Before using this machine, please connect all pipes and hoses. Connect pile of tap-water and water inlet joint. Connect quick coupler of water outlet hose with inlet of this machine. Connect high pressure hose with high pressure water outlet.
- 4.2 Make sure the pump has been filled with sufficient oil. Fill crankcase with **gear oil 150 ml** per pump specifications. **(Suggest using ISO VG 68 oil, oil level have to reach at least SAE GEAR 80W90).**

### **DANGER**

- Ensure plug is connected with power supply safely. Connect the grounding wire. Failing to do so may cause electric shock.
- Do not pull hard, roll up and stamp on the electric wire.
- Do not splash water to the electrical part.
- Do not touch the electrical part with wet hands.
- During conducting electric wiring, please switch off the electric breaker, and turn off the machine at same time.
- For safety purpose, please avoid bare wires.

### **CAUTION**

- With a generator motor for power supply, if there is not enough electric capacity, it will cause a voltage drop, damaging electromagnetic switch, making rpm of motor drop, and may force the motor burn out.
- Please refer to following measure for capacity of generators:

Output Power	Frequency	Reference Capacity
1.0 kw	50 Hz /60 Hz	2.0 kVA above

### **CAUTION**

- If using smaller electric wire, it will cause voltage drop, failure to start, lower revolution, and other serious breakdown. Please note the following reference.

Motor Output Power	Rated Current	Electric Wire with Machine	Length Extension Cord
1.0kw or less	9.5A	3C 2.0mm <sup>2</sup> × 2mm	3C 3.5mm <sup>2</sup> (within <b>32m</b> )

- Extension leads are not allowed to exceed 32m from the electric breaker to the machine. Otherwise, potential voltage drop will damage the motor.

## 5. Operation

### 5.1 Operation Method

5.1.1 With the power switch type:

5.1.1.1 Plug in the plug, then turn the switch on, the machine will start.

5.1.1.2 Adjust the regulator till the operating pressure at 70 kg/cm<sup>2</sup> or 1000 psi.

5.1.1.3 Turn the switch off, the machine will shut down, then plug off the plug.

5.1.2 Without the power switch type:

5.1.2.1 Connect the circuit breaker, then turn the circuit breaker on, the machine will start.

5.1.2.2 Adjust the regulator till the operating pressure at 70 kg/cm<sup>2</sup> or 1000 psi.

5.1.2.3 Turn the circuit breaker off, the machine will shut down.

#### CAUTION

- We highly suggest to install the filter before let the water into the pump.

### 5.2 Storage

When it may cause water freeze in storage place, please follow the steps below to drain water from pump.

- a. Please drain off the water.
- b. It will start to drain the water after plug in the plug. If water cannot be drained off from the unit, please plug off the plug to protect the pump from running without water.

#### CAUTION

- When the machine is not in use, please keep it indoors.
- If exposed to rain, please stop the machine and remove plug to avoid electric shock or leakage.
- Take care when taking apart the pressure hose, water pipe and filter because there may be still pressure (5kgf/cm<sup>2</sup>) inside. The water inside the system may spray out.
- Do not use this machine when temperature is below 0°C. Running pump with ice in the hose or pump will cause damage to the pump.

## 6. Trouble Shooting

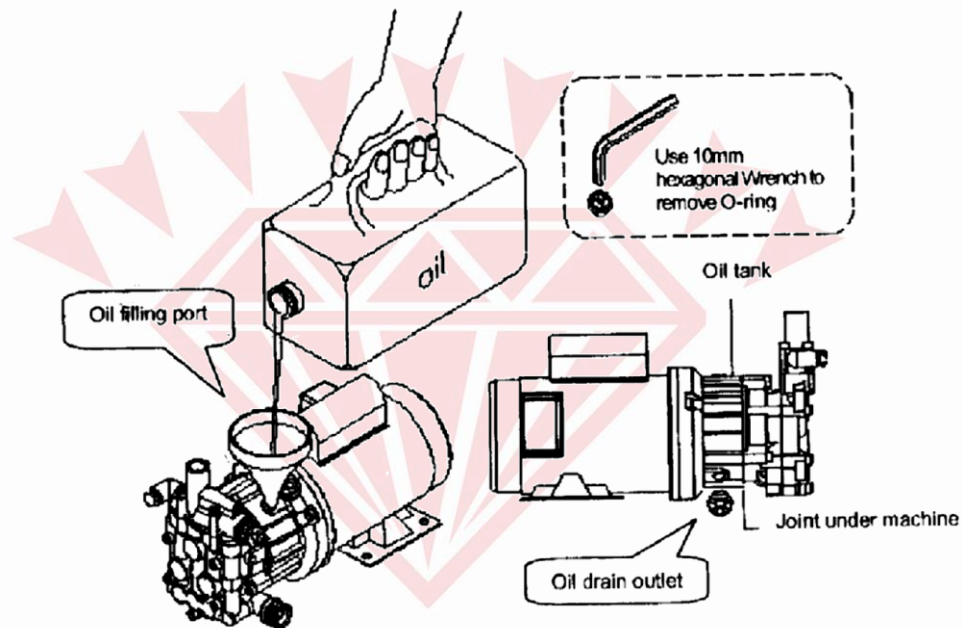
FAULT	CAUSE	REMEDY
No mist come out of nozzle	<ul style="list-style-type: none"> <li>• The misting nozzle get blocked.</li> <li>• Air exist in the pipe line.</li> <li>• Air get into the pump.</li> <li>• The valves worn out or the pump is clogged with rubbish</li> <li>• Misting nozzle worn out.</li> </ul>	<ul style="list-style-type: none"> <li>• Clean the nozzle. If it doesn't work, change the nozzle.</li> <li>• Let go the air.</li> <li>• Tighten all joints connected to the water inlet.</li> <li>• Check or change the O-ring of all joints if necessary.</li> <li>• Change or clean the valves, then reset the pump.</li> <li>• Change misting nozzle.</li> </ul>
The pump is fail to absorb water	<ul style="list-style-type: none"> <li>• No water supply</li> <li>• The valves worn out or the pump is clogged with rubbish.</li> <li>• Air get into the pump.</li> <li>• The water filters is blocked.</li> <li>• The seals or packings inside the pump worn out.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn on the water faucet.</li> <li>• Change or clean the valves, then reset the pump.</li> <li>• Tighten all joints connected to the water inlet.</li> <li>• Check or change the O-ring of all joints if necessary.</li> <li>• Clean the water filters.</li> <li>• Replace the worn out seals or packings.</li> </ul>
Unstable output pressure	<ul style="list-style-type: none"> <li>• The pump's regulator worn out or get stuck.</li> <li>• The pump's valves worn out.</li> <li>• The seals or packings inside the pump worn out</li> </ul>	<ul style="list-style-type: none"> <li>• Dismantle the regulator, clean and/or change related parts if necessary.</li> <li>• Change valves.</li> <li>• Replace the worn out seals or packings.</li> </ul>
Abnormal noise or vibration	<ul style="list-style-type: none"> <li>• The lubrication ability from oil is insufficient.</li> <li>• Water pipe and nozzle circuit get blocked.</li> <li>• Water supply (include inlet pressure) is abnormal.</li> </ul>	<ul style="list-style-type: none"> <li>• Add or change oil.</li> <li>• Clean or change nozzle and/or water pipes.</li> <li>• Check water supply line, clean or reset it.</li> </ul>
Oil or water leaks	<ul style="list-style-type: none"> <li>• The seals or packings inside the pump worn out or are damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Replace the worn out or damaged seals or packings.</li> </ul>
Motor cannot run	<ul style="list-style-type: none"> <li>• The voltage of the power supply is not stable.</li> <li>• The wire extend too long, and cause voltage and current drop.</li> <li>• The built-in thermos switch activates to protect the motor.</li> <li>• The setting of the control panel restrains the motor.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply a constant voltage regulator and/or shorten the extension of the power cable.</li> <li>• Check the operating pressure is within a proper range.</li> <li>• Run the machine in a ventilation space.</li> <li>• Refer back to the manual and check all setting are correct.</li> </ul>



## 7. Maintenance

### 7.1 Pump Maintenance

- 7.1.1 Oil must be changed after first 50 hour operation, and then be changed every 250-300 hour running. Use gear oil VG68 or equivalent. The oil capacity is around 150 ml.
- 7.1.2 Disconnect power first to prevent electric shock.
- 7.1.3 Remove the M10 bolt x 4 to drain off oil.
- 7.1.4 Be sure to check area near vent hole, and ensure that there is no oil leakage at the bottom.



### 7.2 Inspection of Electrical Device

- 7.2.1 Check if there is any loose of electrical wiring, plug, terminals, and other parts.
- 7.2.2 Do not splash water to electromagnetic switch, motor, plug and etc. Keep the machine dry and check insulation resistance.
- 7.2.3 When the motor is hygroscopic, check over the value of insulation.
- 7.2.4 The motor is required  $1M\Omega$  or more for 1 minute at  $40^{\circ}C$  while motor is at 500 VDC.
- 7.2.5 Lower the continuous rated current at low condition when motor is loaded. If at high current, install pressure gauge to the water outlet and lower the pressure to the indicated range.

### 7.3 Inspection of Pipe Accessories

Check carefully if there is any leaking, damage, and wear for pressure hoses, suction hose, electric wires, nozzles, overflow hoses, etc. If something is wrong, please immediately contact the supplier for repair or replacement part.

### 7.4 Filter Inspection

7.4.1 Check if there is any damage, cracked, broken or anything inside.

7.4.2 Exchange the filter element if it is damaged or broken. Clean the filter if there are any impurities in it.

#### **⚠ CAUTION**

- Please assemble the filter properly.

### 7.5 Handling the Cleaning Nozzles:

7.5.1 Fabricated by a special technique, the nozzles are the key elements to the high pressure misting system. It is essential that the nozzles operate perfectly in order to safeguard the correct operation of your high pressure system.

7.5.2 The orifice of the nozzles is very small, therefore subject to clogging by the particles in impure water. The filtration system helps to eliminate this problem. In the meantime, if the water is calcareous, a residue will form inside the nozzle and the quantity of the mist will be lowered.

#### **⚠ CAUTION**

The operations described below must only be carried out when the misting system is switched off.

- It is recommended to regularly clean the nozzles.



- To clean, detach the nozzles; disassemble into 4 parts as pictured above. Plunge into a scale dissolving solution (i.e. CM nozzle cleaner) for a minimum of 8 hours, rinse with clean water.
- If the mist is still uneven despite cleaning the nozzle, it must be replaced. The nozzle must be replaced with one identical to that which was originally installed.

#### **⚠ CAUTION**

- Do not use a metallic object to clean holes of nozzles.
- Forget to inset the pin-head may lead to spray high pressure water column when machine running and injure the body.
- In case of heavy drops from the tip of nozzles when stop the machine; please clean the valve of the nozzles.

## 7.6 Sintered Filter Cleaning

When there is no misting or after 200-hour running, please clean the sintered filter.

## 7.7 Pump Component Replacement

- 7.7.1 All repair or replacement of components must be completed by supplier's technician or a qualified technician.
- 7.7.2 Contact our customer service department for more information if needed.

## 7.8 Long Term Storage

### 7.8.1 Definition

If the machine has not been used at an interval of every 3 months, or it has never been used for 6 months from the date of shipment.

### 7.8.2 Influence

7.8.2.1 It may cause parts deterioration under poor temperature and humidity conditions.

7.8.2.2 Engine oil will be oxidized in contact with air or vapor and it may cause parts deterioration.

7.8.2.3 Parts deformation may be occurred if long term storage without operation.

7.8.2.4 It may also cause parts deterioration under other conditions such as sunlight, dust, radiation, packing and so on.

### 7.8.3 Conditions

7.8.3.1 Temperature and humidity : Machine should be stored properly under 25°C and relative humidity 50%.

7.8.3.2 Oil : Oil should be drained and rust prevention oil should be applied on the rotating parts every 3 months for long term storage.

7.8.3.3 Seals : Rubber parts may deteriorated for environmental and time fact. It is suggested to change the seals if stored for more than 6 months.

7.8.3.4 Cleaning : Keep away from vibration and dust and clean it periodically.

7.8.3.5 Sunlight : Keep away from direct sunlight to avoid parts deterioration.

7.8.3.6 Radiation : Keep away from radiation to avoid parts deterioration.

7.8.3.7 Deformation : It is suggested to rotate the moving parts periodically.

7.8.3.8 Packing : Keep away from moisture, vibration, dust and sunlight and repack the unit when doing periodical maintenance.

### 7.9 The time to change oil and attention

Question	Reason	Method
<p>The effect of oil selection, time of change and working environment on machine.</p>	<ul style="list-style-type: none"> <li>For changing the oil, it should follow the regulation of using hour or regular interval. Overdue or expired will cause components damage because of lack of lubricity.</li> </ul>	<ul style="list-style-type: none"> <li>Change oil regularly or whichever occurs first. (see Chapter 4.7)</li> </ul>
	<ul style="list-style-type: none"> <li>1. Using improper or inferior quality oil (e.g. recycle oil) cannot achieve proper lubricant function and components protection.</li> <li>2. If used oil is not drained completely whenever changing oil, the left impurities of used oil will be dissolved in new oil. That will accelerate the oil deterioration.</li> <li>3. Please do not mix up with different group oil because their chemical composition and additives are different. Mixed oil could cause deterioration.</li> <li>4. Please avoid using PAG oil.               <ol style="list-style-type: none"> <li>Most common rubber and plastics are closed to polarity that will be affected by PAG, led to swell or shrinkage.</li> <li>The paint will be eroded and then peeled off by PAG oil.</li> <li>Light metals (e.g. Aluminum alloy) will be eroded or cracked by PAG under the effect of stress.</li> <li>PAG oil is hydrophilic; thus, water cannot be filtered out by filtering system.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>1.1 Please choose good quality oil sold from us or other qualified brands. Please avoid using inferior oil such as recycled oil.</li> <li>2.1 Whenever the time of changing oil, please ensure the used one is as drained as possible for the quality of new oil.</li> <li>3.1 For replacing oil with different group oil, the used one needs to be drained completely and then washing the oil tank with replaced oil before refill it.</li> <li>4.1 Please avoid using PAG oil.</li> </ul>

Question	Reason	Method
	<ol style="list-style-type: none"> <li>1. The interval between the highest and the lowest temperature will directly affect the liquidity and lubricity of oil.</li> <li>2. Under wretched work environment (e.g. heat, stuffy, directly exposed under sunlight or rain, dusty, high humidity, bad air quality), the selection of oil and time of changing oil will directly affect the maintenance and lubricity of the machine.</li> </ol>	<ul style="list-style-type: none"> <li>• 1.1 Please select the oil with adequate viscosity according to workplace environment in order to have best lubricity and protection. (see Chapter 4.8)</li> <li>• 2.1 The time of changing oil is based on regular operation. Operator should consider the affection of workplace, temperature and humidity for increasing or decreasing the interval of changing oil, and should also shorten the interval, depending on the condition of the liquidity, impurity, odor and deterioration.</li> </ul>
<p>The effect of oil selection, time of change and working environment on machine.</p>	<ol style="list-style-type: none"> <li>1. If the operator uses the machine under constant overpressure, it will lead to losing of oil lubricity rapidly.</li> <li>2. If the machine is left unused for long time or only used rarely. It will lead to oil deterioration by oxidation, or even cause internal components rusted.</li> </ol>	<ul style="list-style-type: none"> <li>• 1.1 If operational condition is strict such as operation in constant overpressure, then the interval of changing oil should be shortened.</li> <li>✘ The performance of machine is limited. Overpressure operation will lead to component damage and then reduce life of machine. Please follow the instructions of pressure specification for the sake of long- term use.</li> <li>• 2.1 Please change the oil regularly when the machine remains unused for long time.</li> <li>• 2.2 If the machine needs to be used after long-term unused status, please check the internal components and also change oil.</li> <li>• 2.3 If the components are rusty, please do not use it and return it to the manufacturer.</li> </ul>

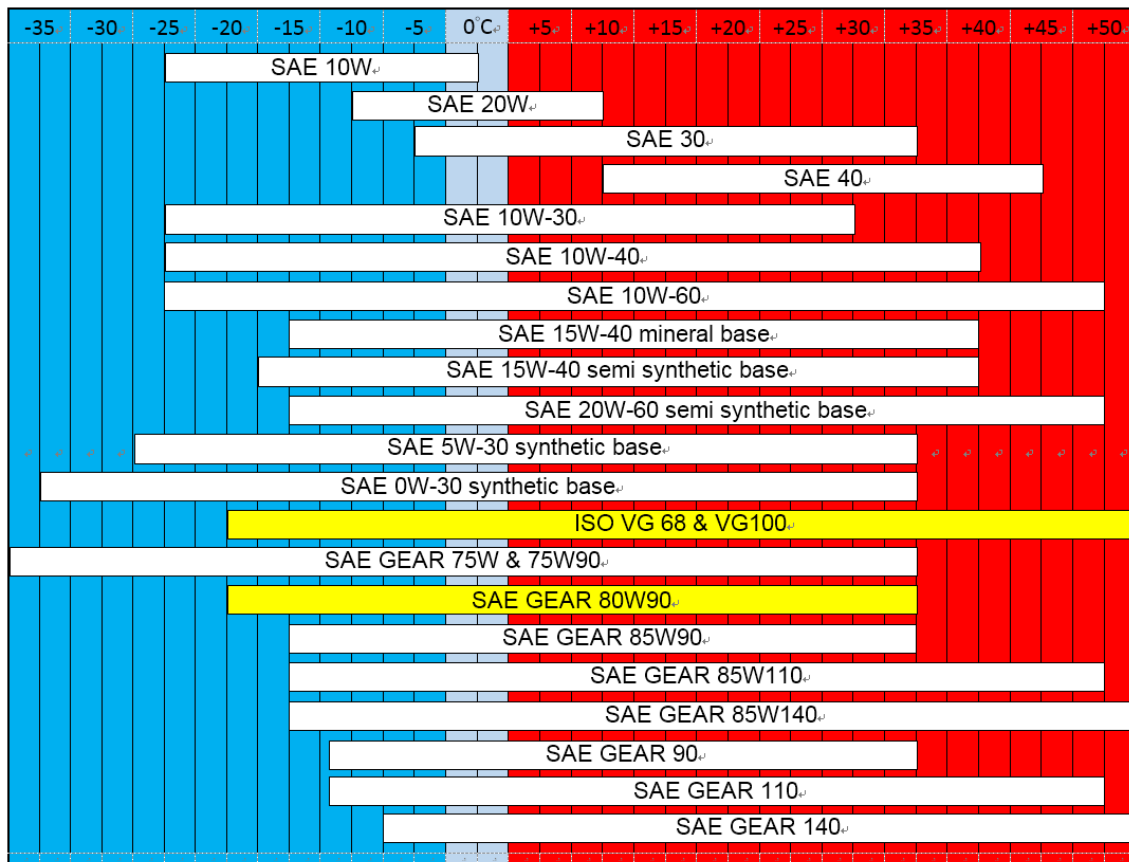
### 7.10 Oil Changing Interval (hours or months)

Oil Type Interval Frequency	Above VG68 Mineral base	Above VG68 Semi synthetic base	Above VG68 synthetic base	Remark
First time use	50 hr. or 1 month	50 hr. or 1 month	50 hr. or 1 month	<ul style="list-style-type: none"> <li>First time use is for component running in period result in scraps. It is important to change oil.</li> </ul>
Monthly average 8 hr. /days above	500 hr. or 2 months	600 hr. or 2.5 months	700 hr. or 3 months	<ul style="list-style-type: none"> <li>For reference only. The affection of workplace and environmental elements also should be considered.</li> </ul>
Monthly average 2 hr. /days above	300 hr. or 1.5months	400 hr. or 2 months	500 hr. or 2.5 months	<ul style="list-style-type: none"> <li>For reference only. The affection of workplace and environmental elements also should be considered.</li> </ul>
Monthly average 8 hr. /days below or only use occasionally	100 hr. or 1 month	200 hr. or 1.5 months	300 hr. or 2months	<ul style="list-style-type: none"> <li>For reference only. The affection of workplace and environmental elements should be considered.</li> </ul>
Left unused for long time	Once every 2 months	Once every 3 months	Once every 4 months	<ul style="list-style-type: none"> <li>If the machine is left unused for long time. It will lead to oil deterioration by oxidation, or even causes internal components rusted.</li> <li>If the machine needs to be used after long-term unused status, please check the internal components and change the oil. If the internal components are rusty, please do not use it and then return to the manufacturer.</li> </ul>



### 7.11 Oil Selection

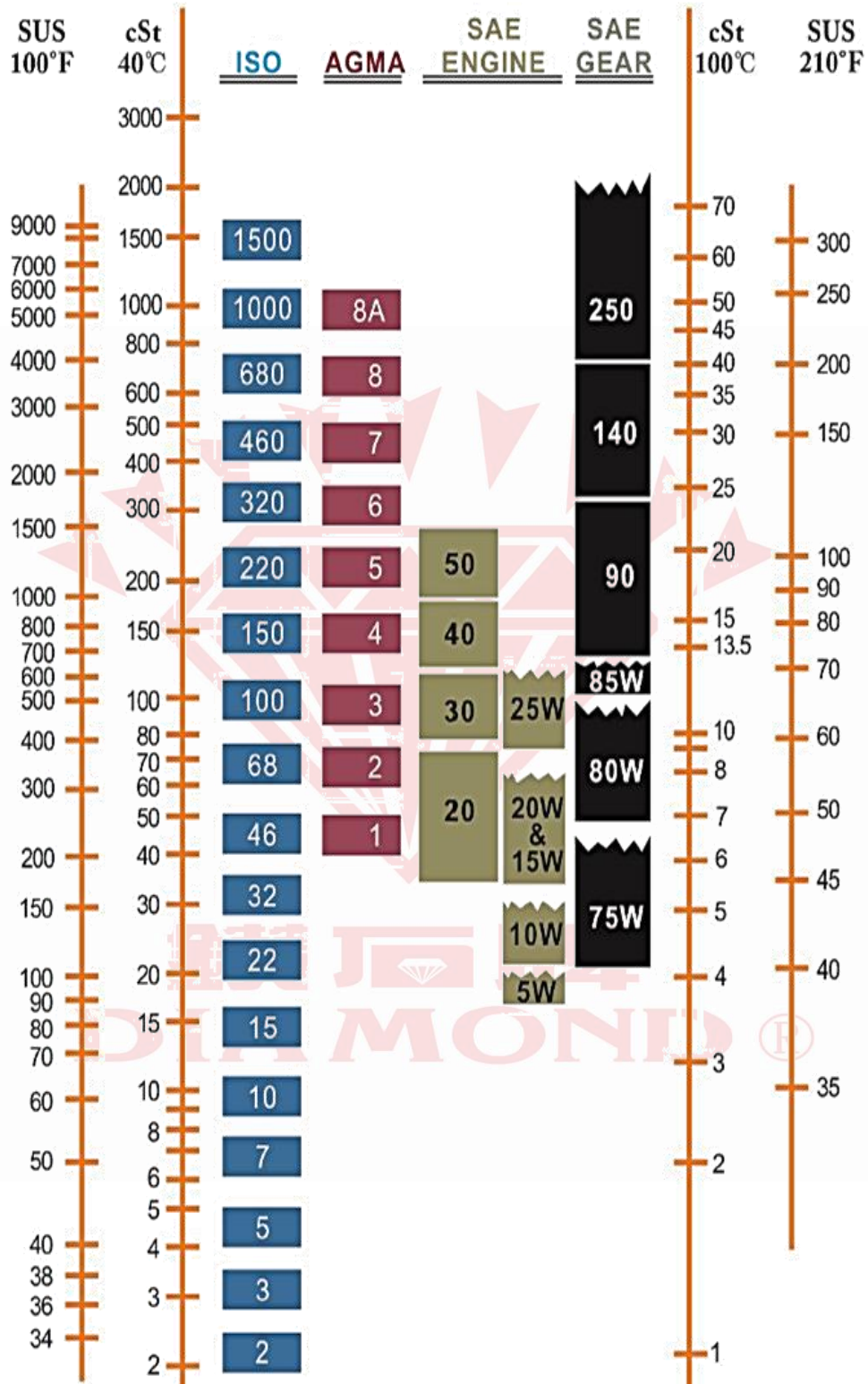
Please select the oil with adequate viscosity according to workplace environment in order to have best lubricity and protection.



Maintenance



# Viscosity Classification Equivalents



Maintenance



## 8. Warranty

### **DANGER**

Please read the Operating manual carefully before use

8.1 Warranty content : If the original parts that constitute the product are not suitable in terms of materials and manufacturing, please apply for warranty in accordance with the period and conditions indicated in this manual.

Warranty is based on the exchange or repair of parts, and the unsuitable parts removed will be owned by Tanong Precision Technology Co., Ltd.

8.2 Warranty period : The warranty period is within one year from the delivery date. °

8.3 Non-warranty items :

- Modifications and changes that our company does not recognize.
- Exceed the usage limit indicated by our company.
- Failure to regularly inspect or fail to comply with prohibited matters or storage methods.
- The machine is repaired by untrained or unauthorized personnel when it is break down.
- Use non-original parts and other brand oils (lubricating oil) other than the original oil.
- Damage caused by natural phenomena such as natural rust caused by time changes and natural disasters such as earthquakes.
- Additional costs incurred due to the unsuccessful use of the machine (such as: losses caused by closure, costs of renting other machines and operating losses, etc.)
- There is no effect on the function, and the abnormality is judged based on the feeling alone (sound, vibration and slight scratches on appearance, etc.)
- The cause of the machine failure is because user didn't used according to our "Operation Manual".
- Filters, nozzles, pressure, high pressure pipes, oil seals and other related consumables.

### **CAUTION**

- When requesting warranty, be sure to show this warranty, otherwise, the warranty repair will not be provided.
- When the machine is placed in an environment containing asbestos, dangerous dust, or in an environment where radiation may explode, these environments may cause health hazards to repairers, so warranty repairs cannot be accepted in these dangerous environments.



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## Quality Assurance Certificate

Name : **Misting Pump**

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Model : **NS-Series**

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Serial Number :

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Date of purchase :        年        月        日

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1. This product is made through strict quality management and inspection process.
2. When there is an abnormality in this product, free after-sales service can be obtained within 1 year after installation.
3. Even if the quality guarantee period is not exceeded, the following items will still be charged for the service (repair fee + parts fee + travel fee, etc.)
  - Failure caused by improper maintenance and repair.
  - Natural disasters (fire, flood and others).
  - Failure or damage caused by falling, etc. after installation.
  - The life of the part itself is exhausted (filter, etc.)
  - Unspecified matters, as stated in the warranty terms.
4. This warranty must be presented when repairs are required.

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### Service Application

1. Before contacting, please reconfirm the usage method in the instruction manual and the inspection items at the time of failure.
2. If the abnormality still exists after confirmation, please stop using it and consult the sales office or the company.



Qualification chapter : \_\_\_\_\_

Quality assurance supervisor : \_\_\_\_\_

Note :



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