



Electronic Hydraulic Pump

UP-45SVG-3M

OPERATION & MAINTENANCE MANUAL



1. FOR SAFE USE

This instruction manual uses three types of pictograms to ensure the correct use of the product and to prevent harm to you and others and damage to property. The display and meaning are as follows. Please read the text after fully understanding the contents.

Danger

This indicates information that may result in imminent death or serious injury to the user if the display is ignored and handled

Warning

This indicates information that may result in death or serious injury to the user if the display is ignored and handled incorrectly.

Caution

This indicates contents that may cause injury to the user or physical/property damage if the display is ignored and handled incorrectly.

Cautions when installed

Warning

■ Install it stably.

Please do not place it in an unstable place or an slanted place. It may cause injury due to falling.

■ Please prepare the working environment.

Remove any objects (high temperature, fire, moving objects, sharp objects, corroded objects, etc.) that may cause injury or harm to the user's surroundings.

Caution

- Avoid rain and moisture, please use in a place with as little dust as possible.
- Please avoid direct sunlight in the summer.

There is a risk that the temperature of the hydraulic fluid will rise and cause trouble in processing and equipment.

- For outdoor use in extremely cold regions, replace with hydraulic fluid of appropriate viscosity.

Viscosity increases due to a decrease in the temperature of the hydraulic fluid, which may interfere with processing and equipment.

Cautions when in use

Warning

- Take safety measures.

Protect workers with protective equipment, work clothes, safety glasses, etc. when operating hydraulic equipment.

- Pay attention to the allowable pressure of the circuit.

Always check that the maximum allowable working pressure of the pump is below the allowable pressure of other connected hydraulic equipment and below the allowable load.

- Be careful of electric shock.

Do not pull out the power plug with wet hands.

When using, be sure to ground with the grounding clip of the power plug.

Do not place it on the side of the electric welder or on grounded materials or equipment.

Caution

- The power supply is AC100V / 200V (50 / 60Hz) single phase.

Using the wrong voltage may cause burnout or overheating.

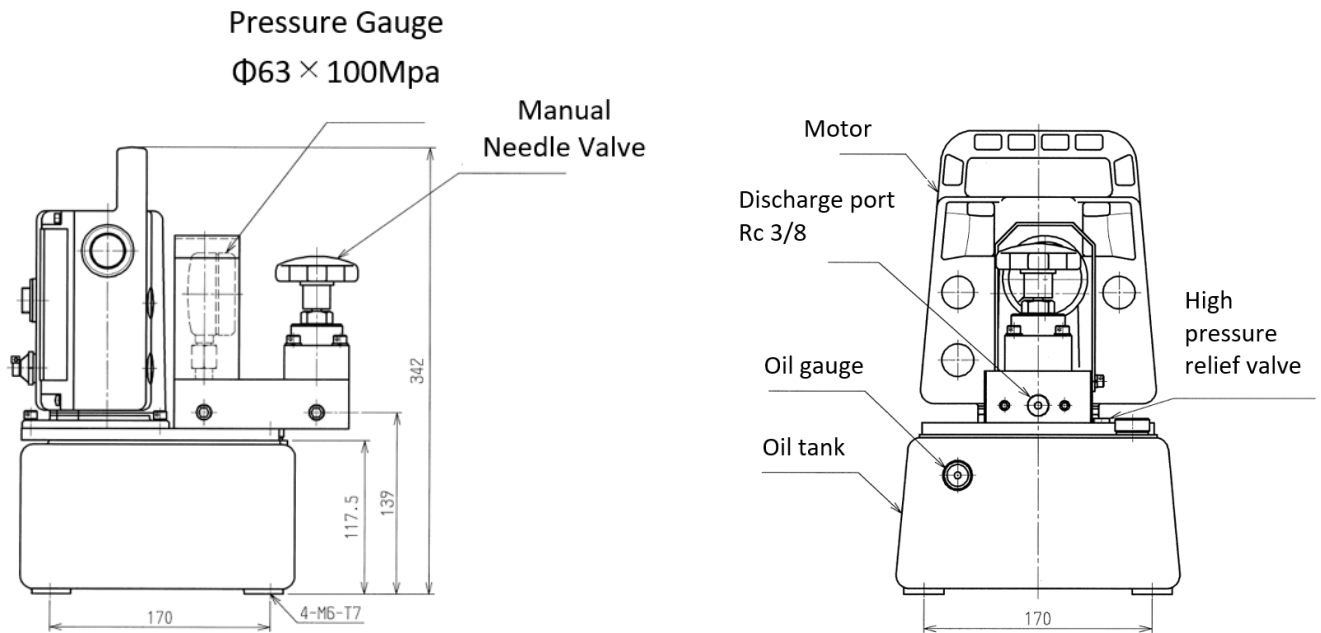
If it is used with the voltage lowered, it may burn out or generate heat. Pay particular attention to the voltage drop when using the generator.

- When unplugging the power from the outlet, be sure to grasp the power plug.

Pulling the cord and disconnecting it from the outlet may cause disconnection or short circuit.

- When using an auxiliary cord, use a cord with a thickness of 1.25 mm² or more, and keep the length within 10m so that the voltage does not drop.

2. COMPONENTS' NAMES



3. PREPARATION BEFORE WORKING

3-1) Confirmation of the product

Check for damage during transportation and oil leaks.

3-2) Confirmation of the refueling stopper

⚠ Caution

The oil filler is sealed during transportation. Turn it 1 ~ 2 times to the left to allow the air inside and outside the tank to flow freely. If the valve is closed, it may fail to discharge or increase pressure.

3-3) Confirmation of power supply

⚠ Warning

The power supply is AC100V - AC230V (50 / 60Hz) single phase. Be sure to take the ground when using.

3-4) Confirmation of hydraulic oil

Warning

Check the amount of oil in the following way.

Be sure to check the amount of oil in the pump before operation with the cylinder of connected equipment fully returned. Always use the proper amount.

If you refuel while the cylinder lot of the connected device is out, there will be no place in the cylinder where the oil returns. In that case, it is dangerous because oil overflows or high pressure occurs in the tank.

1 Return the cylinder of the connected device completely.

2. Check the oil gauge and if it is half the gauge, it is normal. If it decreases, supply more oil

4. HOW TO OPERATE

■ For Single Acting

UP-45SVG-3M

The manual needle valve actuates the single-acting cylinder.

Turn the needle valve handle clockwise.

When the ON switch is pressed, the motor rotates and the cylinder moves forward.

Turn the needle valve handle counterclockwise to return the cylinder.

The return speed of the cylinder can be adjusted by opening the needle valve to control the amount of oil.

*The amount of oil flowing varies depending on the equipment used.

5. MAINTAINANCE

5-1) Hydraulic working oil

① Type

Hydraulic OIL ISO 32

Temperature

Appropriate operating temperature of hydraulic fluid 55°C or less. If the oil temperature rises above the proper temperature, stop the work until the oil temperature falls to the proper temperature.

If continuous operation is unavoidable, install an oil cooler.

② Oil change

Caution

The hydraulic oil will deteriorate, so replace it regularly. The replacement time should be 300 hours or 3 months as a guide.

When replacing, remove the oil filler plug, drain the oil by tilting the pump, and put it in the middle of the oil gauge, taking care not to allow impurities such as dust to enter.

There are three points to note when replacing.

Change the oil with the cylinder fully returned.

Never add different types oil, even in small quantities.

When refueling, be careful not to mix foreign matter.

③ Others

Warning

If oil gets into your eyes, rinse with clean water. Get medical attention immediately.

If oil gets into the skin such as a wound, wash it off with soapy water and consult a doctor immediately after hemostasis.

5-2) Pressure and piping

① Components of hydraulic equipment system

Warning

When configuring hydraulic equipment by combining pump, high-pressure hoses, cylinders, couplers, valves etc., make sure that the maximum operating pressure of each equipment is the same. If one of the lowest operating pressures is used, adjust the pump pressure to the lowest operating system pressure.

② Pressure Gauge

Attach a pressure gauge so that the pressure can always be checked, or set it immediately.

③ Piping

⚠ Caution

When piping a taper pipe thread to a hose, or when connecting various valves and couplers, wrap seal tape. Take care not to over-tighten, referring to the taper screw tightening torque table.

NPT, PT size	Tightening torque N-m (kgf - m)	
1/8	13 - 14	(1.3 - 1.4)
1/4	30 - 40	(3.0 - 4.0)
3/8	60 - 70	(6.0 - 7.0)
1/2	100 - 110	(10.0 - 11.0)

⚠ Caution

When replacing the tapered threads, remove the remaining sealing tape completely to prevent it from entering the equipment or the circuit. Remove the removed male screw side in the same way.

5-3) High pressure hose

① Hose installation

⚠ Warning

High-pressure hoses expand and contract slightly when pressurized, so be sure to allow some space for expansion and contraction. Be careful not to rub against other hard objects.

Do not clamp the high-pressure hose. When pressure is applied, the high-pressure hose moves to become hard and straight.

Clamping at the bent position may apply excessive force and cause damage. The life of a high-pressure hose will be extremely short if it is handled improperly.

High-pressure hoses are particularly vulnerable to fire (high temperature), extreme bending, and twisting. Therefore, do not use the product in a high-temperature environment, with a minimum bending radius or in a twisted condition.

② Hose handling

⚠ Danger

Never drop anything onto a high-pressure hose.

The impact of falling objects can cause the high-pressure hose to burst, causing a serious accident.

Do not allow the high-pressure hose to come into contact with welding fire or hot objects.

Do not pull the high-pressure hose with strong force.

If a pump or cylinder is dragged or carried by a high-pressure hose, it may damage the high-pressure hose and cause a serious accident.

5-4) Quick Couplers

① Connection

Before connecting, make sure that there is no dust or sand adhering to the coupler.

After connecting, pull the high-pressure hose to check the connection.

② Handling

! Warning

Do not apply pressure with the coupler attached to the end of the high-pressure hose without attaching the cylinder. If the coupler is damaged, it will cause a serious accident.

When it is necessary to remove the coupler and apply pressure to check the operation, avoid the direction in which the coupler may pop out.

Do not remove the coupler while it is pressurized.

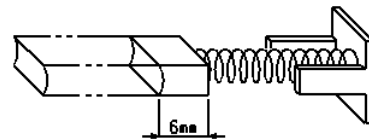
5-5) Preventing Air

- ① If a new cylinder or hose is connected to the pump, or if the pump is operated with extremely low oil content (for example, when replacing hydraulic oil), air may enter the pump, causing it to fail to discharge or causing a pressure drop. In this case, if the pump is idle intermittently for 2 ~ 3 minutes with no load applied, the air will automatically come out and return to the normal condition.

5-6) Carbon brushes

① Cautions when in use

Always pay attention to the wear condition of the carbon brush. The motor stops automatically when the carbon brush is worn out and it is time for replacement. As a guide, please replace the motor with a new one when it has been operating for more than 500 hours.



② How to exchange

To remove the carbon brush, first remove the rubber cap, then loosen the carbon mounting screw with a screwdriver. Replace the carbon brush with a new one, tighten the carbon brush attachment screw, and the replacement is complete. Please change both the left and right carbon brushes. Be sure to unplug the power plug from the outlet when replacing.

5-7) Relief valve adjustment

Loosen the side lock (Hex M4) of the relief valve, and turn the relief screw to adjust the set pressure.

Turning it to the right increases the pressure, and turning it to the left decreases the pressure. However, the standard product can be adjusted within the pressure range of 58.8 ~ 68.6 MPa (600 ~ 700 kg/cm²).

If you use it for less than that, you need to change the spring, so please contact our company.

6. TROUBLE SHOOTING GUIDE

Trouble	Possible cause	Counter measure
Motor does not run	No power current is flowing	Check the power supply
	Bad connection	Replacement
	Operation switch failure	Replacement
	Broken operation cord	Replacement
	Motor burnout	Repair or replacement
Abnormal motor sound	Pump or motor failure	Repair or replacement
	Bearing damages	Repair or replacement
The motor rotates but the cylinder does not operate	Solenoid valve failure	Repair or replacement
	Oil shortage	Refill oil
	Forget to replace the filler port	Replace with air breather
	Air entering the pump and cylinder	Empty the air
	Suction strainer clogging	Cleaning the strainer
	Failure of the pump body	Repair
	Relief valve failure	Repair or adjustment
	The cylinder works but there is no pressure.	Failure of the solenoid valve
Air entering the pump		Empty the air
Failure of the pump body		Repair
Decrease or failure of set pressure of relief valve		Adjustment of set pressure or Repair
The cylinder works but slow	Failure of the solenoid valve	Repair or replacement
	Air entering the pump	Empty the air
	Increase in oil temperature	Cool(55 °C or lower)
	Failure of the pump body	Repair
The cylinder does not return	Failure of the solenoid valve	Repair or replacement
	Cylinder spring failure or coupler failure	Repair or replacement
	Contact failure of solenoid valve operation switch	Repair or replacement
Oil leak	Seal failure of each part	Tightening or replacement of packing
Short circuit	Cord damage	Replacement
	Poor insulation of electrical parts	Repair or replacement

The cylinder might be broken, so please check it.

7. WARANTEE

7-1) WARANTEE PERIOD

Within 365 days from the last day of production month for general defect / failure.

i.e. If a customer purchases a pump on January 1, 2019, the warranty period is until January 31, 2020.

7-2) WARANTEE

All NITTOH products and parts, with the exception mentioned below, are warranted against defects in materials and workmanship, which results in damage to products and parts. This warranty shall cover repair and/or replacement of the products or components/parts free of charge. To qualify for warranty consideration, return the NITTOH product, freight prepaid, to a NITTOH factory. Or contact us by email.

7-3) EXCLUSIONS FOR WARRANTY

No warranty claim will be accepted for damage or breakdown arising for any of the following reasons.

“Abuse or improper use, fair wear and tear, faulty or negligent operation, improper storage, chemical/ electrical influences or climatic or other effects which cannot be related specially to faults in manufacture”

No liability is accepted for packing seals, springs, and/ or the like, and the following:

- ◎ Alterations or remodeling on the products undertaken by the purchasers without any prior notice and agreement to NITTOH.
- ◎ Severe and very highly frequent use, deviating from product specifications.
- ◎ Damage due to faulty installation or assembly by purchasers or third parties.
- ◎ Damage from natural disaster.
- ◎ Damage from such accidents as fire, submersion, dropping, etc.

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