

Pneumatic Lubrication Pump PM-8S-18LP(Code No.102660)

INSTRUCTION MANUAL

- For your safety, read and understand this Manual thoroughly before handling the pump.
- Keep this Manual at a designated place for easy access at all times.



LUBE CORPORATION

Introduction

■ System Application

This Pneumatic Lubrication Pump “PM-8S-18LP ” is designed to lubricate each point on a machine by delivering relatively small amount of grease through a metering valve. Do not use this system for any other purposes.

■ Marks used in Manual

In this Manual, safety precautions are provided using the marks below in order to prevent accidents which might cause injuries to human bodies. Be sure to carefully read these safety precautions to understand the contents thoroughly before handling the pump.

 WARNING	Indicates a potentially hazardous situation which, if ignored, could result in death or serious injury.
 CAUTION	Indicates a potentially hazardous situation which, if ignored, may result in minor or moderate injury.

In addition to the above, the marks below will also appear in this Manual. Please read the following explanation in order to handle the pump correctly.

	Indicates referential information or points to which special attention should be paid while handling the pump. If ignored, the pump and/or the machine could be damaged.
	Indicates referential information or points which are helpful for handling the pump.
	Indicates a reference clause.

■ Questions/Contacts

If any question or doubt arises concerning the contents of this Manual, please contact the following.

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■ Changes in Specifications

Details of all illustrations and specifications in this Manual are subject to change without prior notice for improvement and development of the pump.

■ Resale or Leasing

At the time of resale, leasing out or lending out the pump to the third party, make sure to include with the pump all the manuals and any other documents supplied with the pump.

■ Disposal of Pump/Oil

Make sure to dispose pump or oil as designated by National laws and/or local regulations.

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1. Safety Precautions

1-1 Basic Safety Precautions



- Carefully read this Manual to understand the contents before handling the pump.
- Keep this Manual at a designated place for easy access at all times.
- This pump is handled by only personnel who have the knowledge and skill of its installation and adjustment.
- Never modify or change this pump without prior permission of LUBE.

1-2 Labels

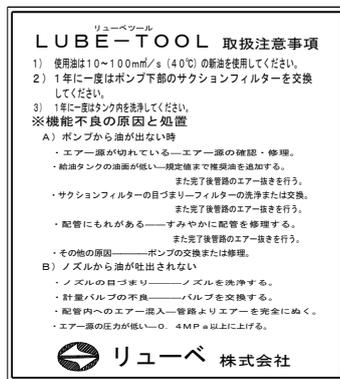
The following labels are affixed on the pump. If any label gets damaged or becomes illegible, contact LUBE immediately. A new one will be supplied at your own cost.



- Strictly observe the instructions on the labels affixed to the pump.
- Never remove from nor disfigure any labels on the pump.

1-2-1 Types of Labels

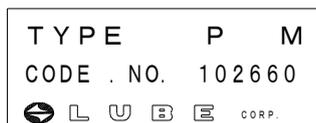
①



②

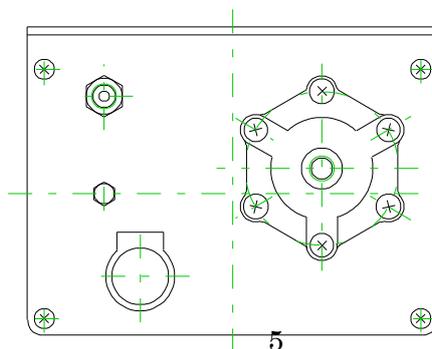


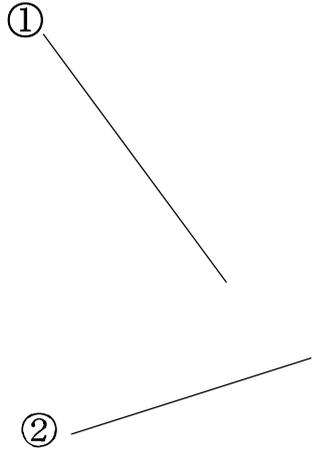
③



1-2-2 Location of Labels

③



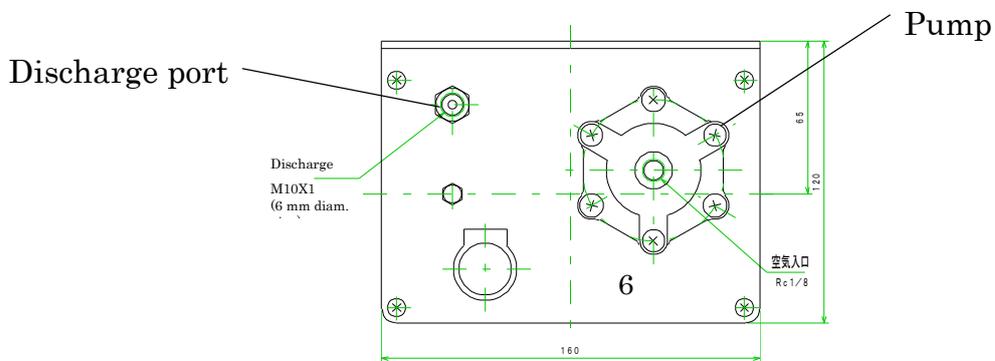


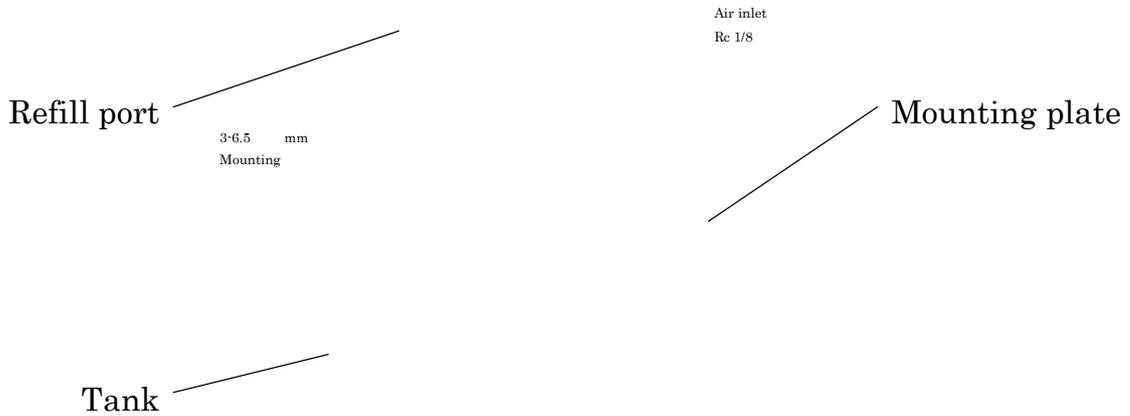
2. Specifications and General Information

2-1 Specifications

		Specifications
Pump	Discharge volume	8 m ³ · /shot
	Discharge pressure ratio	5:1 (ratio of internal pump pressure to supplied air pressure)
	Discharge pressure	1.75 to 2.5 MPa See “3-4 Discharge pressure and air supply pressure.”
	Pressure relief mechanism	Internal pressure relief mechanism
Tank	Effective capacity	1.8 liters
Air	Range of air pressure	0.35 to 0.5 MPa
	Air consumption	0.35 MPa: 0.25N ³ · /shot 0.5 MPa: 0.3N ³ · /shot

2-2 Description of each part





3. Installation

3-1 Environmental Requirement

Be sure to this pump in the following environment.

- Ambient temperature : 0 ~ +40°C
- Humidity : 35 ~ 85% RH

3-2 Mounting Unit



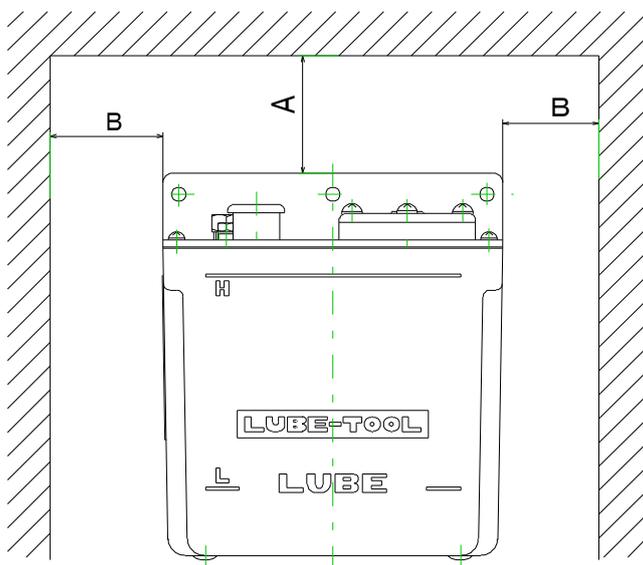
Make sure to fix the pump firmly.
Insufficient mounting of the pump could fall itself and cause injury.



Be sure to fix the pump against the vertical and flat surface, which can sustain its weight sufficiently.

Mount and fix the pump firmly using two (2) M6 bolts.

■ Weight of the pump and required space



Note: The weight of oil is not included.

Pump model	Code number	Weight (kg) (see note below)	Required space (mm)
PM-8S-18LP	102660	1.1	A: 150 B: 200

3-3 Wiring



Wiring work must be done by a qualified electrical engineer only.

This pump has no electric wiring.
In installing electric wiring for the air supply controller,
follow the instructions given in its operation manual.

3-4 How to connect pipes

Connect the main line pipe from the machine to be lubricated to the pump discharge port (M10X1).

Connect the controlled air for driving the pump to the pump air port (Rc 1/8).



As the main line pipe, use a high-strength pipe that can withstand the operating pressure of more than 3.0 MPa.

First tighten the pipe by hand until it does not turn any further. Then set a wrench on the pipe and turn the wrench two to three full revolutions to further tighten the pipe.

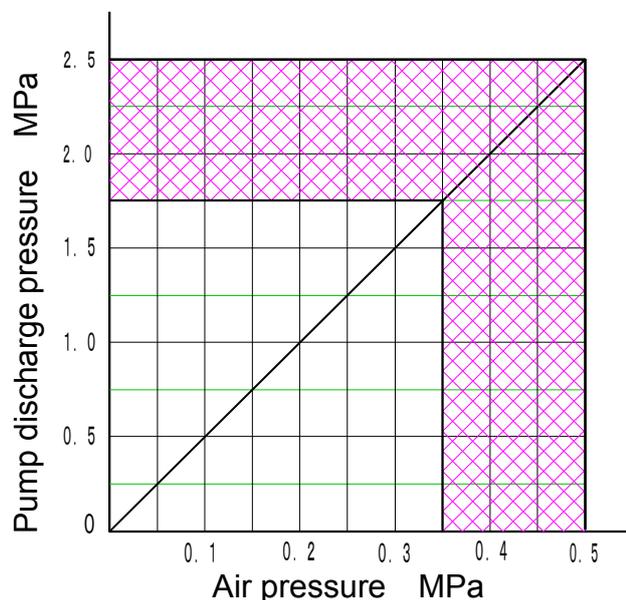


For information on proper tightening torque, refer to “Pipe tightening torque.”

After piping work is complete, make sure that there is no leakage of oil from joints.

■ Discharge pressure and air supply pressure

Adjust the air supply pressure in the range from 0.35 MPa to 0.5 MPa (indicated by the diagonally shaded area).



4. Controlling the pump

Install a timer on a machine to be lubricated, and make the operation and pause cycle settings of the three-way solenoid valve for driving the pump.

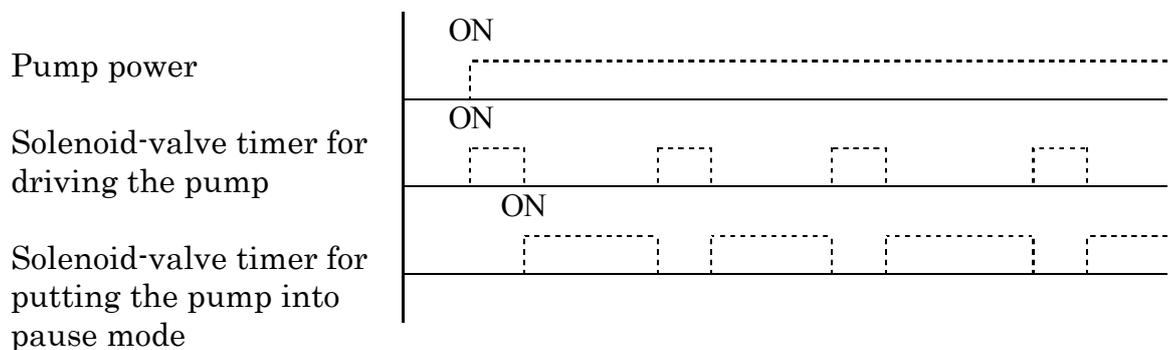


Make sure that you make this setting in the operation/pause cycle. In continuous operation (when the power is turned on), oil is discharged through the valve only once. After that, no oil is discharged, so that points of lubrication will be in an unlubricated condition.



The solenoid valve for air supply must be a three-way solenoid valve. Air in the pump is discharged through the three-way solenoid valve during a pause.

- ① The pump on the machine side is powered on.
- ② The solenoid-valve timer for driving the pump on the machine side is on.
- ③ The solenoid-valve timer for putting the pump on the machine side into pause mode is on.
- ④ The timers in ② and ③ above turn on and off repeatedly as illustrated below.



5. Lubricating oil and refilling

5-1 Lubricating oil to be used

Use industrial lubricating oil in the range from 10 to 100 mm²/s of ISO viscosity.



Do not use any lubricating oil other than that which has been recommended.

Use lubricating oil of the same grade made by the same manufacturer.

5-2 Refilling lubricating oil

Refill lubricating oil when the level gauge on the tank shows “L.”

Refill it through the refill port that you find above the pump flange.

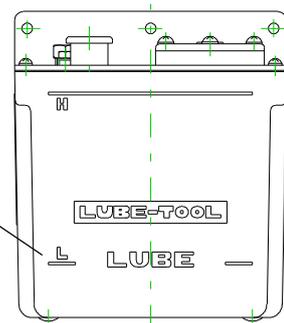


Use new lubricating oil. If lubricating oil contains any foreign substances, clogging may occur, causing the pump to stop discharging oil.



If lubricating oil overflows or leaks, wipe off the overflowing or leaking oil.

“L” level



6. Maintenance

6-1 Suction filter

Replace the suction filter once a year or clean it periodically.



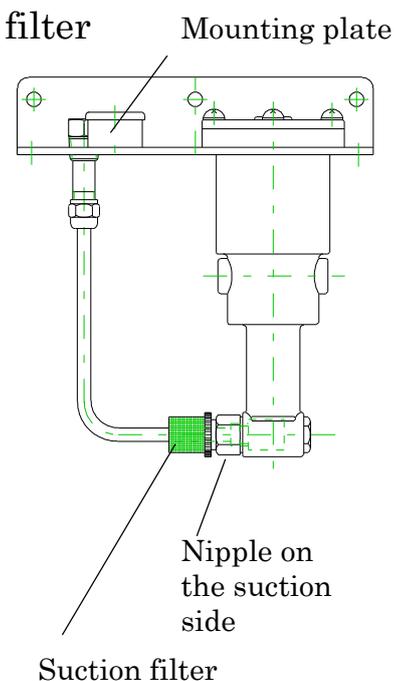
Before conducting maintenance on the pump, turn off the power and make sure that the pump is not operating. Conducting maintenance with the power turned on will increase the risk of the operator getting an electric shock or the fingers being pinched in moving parts of the pump drive unit. Also make sure that the supply of air is cut at the air supply source.



If the suction filter is clogged or contaminated, the oil suction performance will deteriorate and lubricating oil will not be able to reach points of lubrication.

Replacing or cleaning the suction filter

- 1) Remove the pump from the oil feeding tank.
Remove it with the mounting plate attached.
- 2) Remove the suction filter.
Use a wrench to hold the nipple on the suction side so that the nipple does not turn together with the suction filter.
- 3) Replace the suction filter with a new one or clean the suction filter.
- 4) Assemble a new suction filter or a cleaned suction filter to the pump.
Make sure that the o-ring is set on the thread part.
- 5) Mount the pump on the oil feeding tank.



6-2 Troubleshooting

When troubles occur, take the measures as defined in the chart below.

Trouble	Cause	Measures to take
No oil discharged from pump	Low oil level	Refill the same oil in use ☞ Refer to “5. Lubricating oil and refilling”
	Clogged suction filter	Clean or replace filter, or change oil to new oil ☞ Refer to “6-1 Suction filter”
	Damage in the tubing inside the pump(Twisted, crashed, or disconnected)	Tighten or replace the connecting parts
	Viscosity is too high, so that oil can not be sucked	Recheck oil in use and replace it to proper oil ☞ Refer to “5. Lubricating oil and refilling”
Pressure in main tubing is not built up	No oil discharged from pump due to any of above causes	Refer to above measures
	Air in the tubing	Operate pump and bleed air in tubing
	Oil leaking from pump discharge port or pipe connection parts on machine (Due to looseness or excessive tightness)	Tighten them with proper torque or re-pipe them ☞ For proper torque refer to ”Tightening Level for Connecting Sections” of the next page
	Damaged tubing	Replace damaged tubing

Trouble	Cause	Measures to take
Air in the system	Air in the system due to above reasons	Refer to above measures for “Air in the pump” and “Air in the tubing”
	Due to low level of oil in tank, air is introduced into pump	Refill tank with same or equivalent oil and then bleed air
No oil discharged from valve(S)	Pressure does not increase	Refer to above measures for “Pressure in main tubing is not built up”
	Viscosity is too high, so the remaining pressure are not relieved completely	Check oil and change oil to proper oil  Refer to “5. Lubricating oil and refilling”

■ Tightening Level for Connecting Section

	Tightening level	Reference torque (N · m)
OD 4mm nylon pipe (Valve discharge port)	Turn compression bushing with hands until it stops and then tighten it 2/3 turn with a spanner ,etc	3.4
OD 6mm copper tubing & steel tubing (Valve discharge port)	Turn compression bushing with hands until it stops and then tighten it 2/3 turn with a spanner ,etc	4.1
OD 6mm copper tubing & steel tubing (Undercut joint)	Turn the nut part with hands until it stops and then tighten it 1/4 turn with a spanner ,etc	21
OD 8mm copper tubing & steel tubing (Undercut joint)	Turn the nut part with hands until it stops and then tighten it 1/4 turn with a spanner ,etc	25
Taper screw for tubing Rc1/8 (Pump discharge port & junction)	Turn the undercut joint with hands until it stops and then tighten it two and a half to three turns with a spanner , etc	7.1
Ceiling Washer (Brass & Aluminum)	Nipple on the suction side with hands until it stops and then tighten it 1/5 turn with a spanner ,etc	20.4

Appendix. Oil Contamination

Causes and Measures

■ Causes

Causes for contamination can be divided into two categories.

○ Before the completion of installation

Foreign particles in the tubing or pump tank.

(Manufacturing defects of the assembly parts or connecting parts and unconformity during construction.)

○ During operation

Foreign particles from outside or generated inside of the system.

(Condensation of the moisture in the air due to change in temperature or sludge by oxidation of lubrication oil itself.)

■ Measures

1. Clean the tank and remove the remove the foreign particles.
2. Keep the oil for refilling in the proper place.
If the system is installed and/or oil is stored outdoors, proper care must be taken since introduction of dust or rain into the oil would lead to system malfunction.