

## Quick Start Manual for OIL DIFFUSION Ejector PUMP PBL-02, PBL-04, PBL-06, PBL-10, PBL-14, PBL-20,

### «For safe use»

This quick start manual is prepared to help users to quickly understand the product's operating method and display content. Please read the instruction manual beforehand for detailed usage, caution on product use, and safety information to use the pump correctly.

You can download the instruction manual from Ulvac website.

<https://showcase.ulvac.co.jp/ja>

### 1. Setting

Upon delivery of this product, check first that the delivered is exactly what you have ordered and there is no break or damage through transport or the like.

Oil one time portion	ULVOIL B-6	1set
Quick Start Manual		1copy

### 2. Ambient Condition for Storage, Install and Operation

As precise clearances are provided with this machine, be sure to fulfill the following for its storage, install and operation;

- ① Ambient temperature and humidity for storage :  
-20°C to 60°C, less than 95%RH
- ② Ambient temperature and humidity for operation :  
10°C to 40°C, less than 95%RH
- ③ Height (for both storage and operation) :  
Lower than 1,000 meters altitude
- ④ External vibration (for both storage and operation) :  
Vibration acceleration less than 114dB (0.5G)
- ⑤ Miscellaneous (for both storage and operation)
  - a. There shall be no corrosion behavior or explosive gas.
  - b. There shall be no freeze or dew formation.
  - c. There shall be no dust.
  - d. It shall be in house.
  - e. Another pump shall not be put on the Pump.  
The Pump shall not be laid down nor put touching its motor edge face or oil gauge edge face with the ground.
  - f. There shall be no direct sun beam.
  - g. Heat source shall be put away from the Pump.

Install the machine horizontal to a place where there are less dust and humidity. Make a layout taking into consideration of works such as setting, removal, check, cleaning and so on.

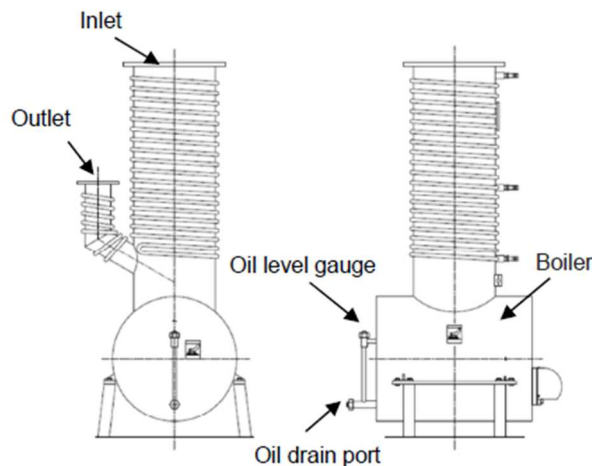
### 3. Preparation

- 1) Inlet port and exhaust port of this pump closes the cover so that a dust, garbage is not contained, and there is it. At first, remove the cover, and please confirm whether the main body of pump, nozzle system, an inlet port do not have abnormality.
- 2) Please raise an O ring or corner gasket of vent baffle flange at inlet port and an exhaust port.
- 3) Please confirm whether there is a wound in the seal surface.
- 4) When you don't use a pump immediately, please attach the cover to Inlet port and exhaust port.

### 4. Oil filling

It is attached to PBL-02 and PBL-04 fluid.

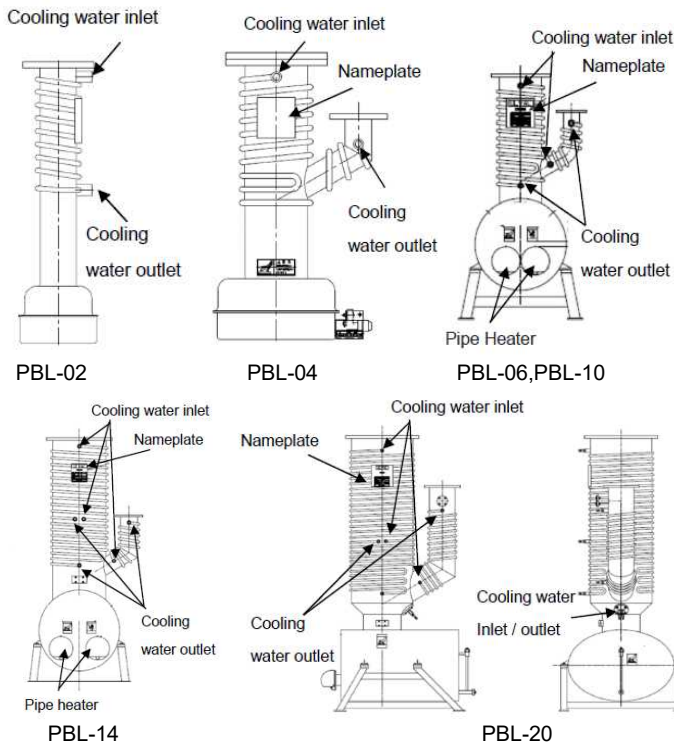
As for PBL-06, PBL-10, PBL-14 and PBL-20, fluid is in the pump. Please confirm that fluid is contained by the fluid level gauge.



### 5. Water piping

Make connections so that the cooling water enters from the cooling water inlet at the upper part of the pump body and then comes out of the cooling water outlet at the upper part of the evacuation pipe.

For the amount of cooling water and the connections. Attach the joints for water piping (nylon tubes etc.) to install the piping. Connect the cooling water in parallel per system. However, if a sufficient flow rate can be obtained within the specified water pressure, even series connection is allowed. Adjust the flow rate of each part as necessary so that the difference in temperature between the inlet and outlet ports of the cooling water is within 10°C.



### 6. Inlet / Outlet port Piping

- (1) Thoroughly clean the inside of the vacuum chamber, piping, vacuum valves, etc. and then connect to the pump. If it is connected under a dirty condition, the ultimate pressure becomes higher or the time required for the pressure to decrease down to a given pressure becomes longer.  
Do not touch any part under vacuum by bare hands but wear clean nylon gloves.
- (2) Remove the gaskets set on the inlet and outlet port flanges, lightly wipe them with a cloth moistened with a solution, such as alcohol to remove dirt on the surface.
- (3) Do not apply even grease with a low vapor pressure to the gasket surfaces. Only wipe dirt off.
- (4) Also wipe the gasket grooves on the flange and the corresponding flange surfaces with a clean cloth.
- (5) Set gaskets in place.

### 7. Electrical Connection

Use wire compatible with your local safety codes (e.g. UL, TUV compatible). In addition, use a heat-resistant wire (LKGB, KGB) by all means.

With reference to a Table 5, prepare for power supply capacity to the power supply specifications of this pump.

	PBL-02	PBL-04	PBL-06	PBL-10	PBL-14	PBL-20
	200V (1 Ph)			200V (3 Ph)		
Power requirement (kW)	0.44	1.8	4.0	8.0	11	18

Connect power wire at the terminal of the pump. The connection terminal part becomes the double nut. When you tighten a nut, I fix the nut of the root side with spanners, and, please tighten it.



※ Important notice : wiring of PBL-04

After having wired the primary side of the plug-type cord inlet like fig, please coat the connection of PBL-04 in a thermal contraction tube.



Heat-shrinkable tubing  
SUMITUBE  
FZ φ40 L=65, Black  
SUMITOMO ELECTRIC FINE POLYMER, INC.

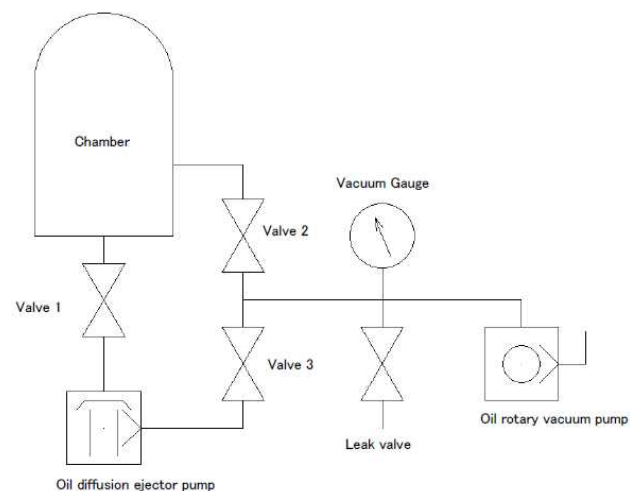
PBL-04 Primary side of the plug type cord

### 8. Operation

#### 8-1. Pump operation

FIG shows a use example of general oil diffusion ejector pump. The operation of this case, please reach as follows.

- (1) Close the valve 1 and valve 2, and please exhaust oil diffusion ejector pump to 13-1.3 Pa in the oil rotary vacuum pump.
- (2) Open the cooling water valve and confirm that no cooling water leaks, and regulate flow rate.
- (3) Turn on the power supply at the heater. Close a valve if you set water-cooled baffle, an L-N2 trap, a valve in the upper air inlet of the pump and drain a coolant into water cooling baffle, and, please inject liquid nitrogen to an L-N2 trap.
- (4) After having closed valve 3, open valve 2, and, please exhaust bell glass to 13-1.3 Pa.
- (5) Close valve 2, and open valve 3, valve 1, and, please perform exhaust by oil diffusion ejector pump.



ULVAC SHOWCASE



You can download the instruction manual from here.