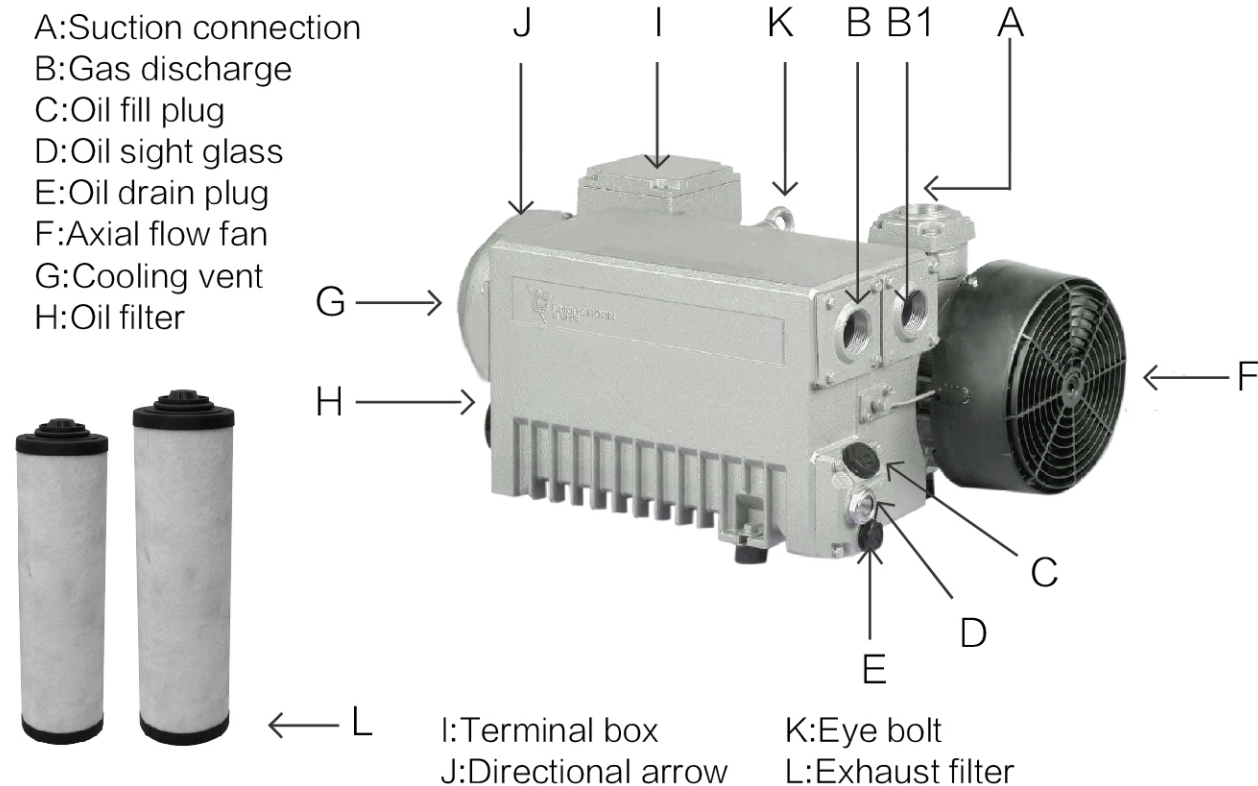


Vacuum Pump Installation and
Operating Instructions



EMORE HORN
EMORE HORN Machinery inc.

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Application of Vacuum Pump:

The instruction hereunder is used for Oil-sliding-vane Rotary Vacuum Pump.

Nominal suction capacity of ERV60-ERV100 is 63/76 m³/h and 100/120 m³/h(50/60Hz)

The vacuum pump is intended for the suction of air and dry, non-aggressive, non-toxic, non-explosive and non-flammable.

Principle:

Sliding-vane Rotary Vacuum Pump includes the cylinder, fuel tank, rotor, sliding-vane rotary, end cover, etc., the rotor with the eccentric gear is equipped in the cylinder, and there are three vanes in the slot of rotor. The air is inputted through the inlet port (A) with filter screen, when the rotor and cylinder continue to import the air, the air will be compressed gradually and discharged from the vent (B, B1).

Removal and Placement:

1. Please reserve space for the follow-up maintenance when placing the vacuum pump. It is advised to reserve space of 20cm from the wall or obstacle at the air inlet (A), air vent (B, B1), oiling port (C), oil sight glass (D), fuel outlet (E), cooling port of cylinder (F), cooling port of motor (G), oil filter (H), wiring (I) so that the vacuum pump is cooled sufficiently;
2. Please use the eye bolt (K) on the vacuum pump when moving the vacuum pump.

Storage:

The vacuum pump is stored as the original package and in dry, clean and shock-proof environment as possible, it is advised to use the anti-corrosive oil maintain the vacuum pump.

Installation:

1. Air Inlet (A) and Air Vent (B, B1) with the treatment of vacuum pump.
If the pipeline of Air Inlet/ Air Vent is too long, it is possible to reduce the efficiency, and advised to use the pipeline with big diameter.
If the pipeline of Air Inlet/ Air Vent is too small, it is possible to reduce the discharge rate, and advised to use the pipeline that the diameter is not less than the Air Inlet/ Air Vent.
2. The information such as the mark and nameplate relative to the electric source is indicated on the data plate of motor. The wiring diagram is attached on the terminal box.
3. The lubricating oil is charged from the Oiling Port (C) up to the half under the observation by the oil sight glass(D), and then screws the Oil drian plug(E).
When to discharge the oil, please unscrew the Oil drian plug to take oil relief.
4. Please do not move the vacuum pump when the pump body is polluted by the oil.

Start-up:

When the vacuum pump is started up firstly, please turn off the power promptly after turn on the power and confirm whether the motor fan is rotated in consistent with the direction of arrow point (J) for avoiding the damage caused by the counterclockwise rotation of cylinder. If you need to change the direction, please swap any two phases in three-phase mains.

After the vacuum pump is started up, please see the oil sight glass observe the oil level and ensure the oil level is in the proper position; if the oil is insufficient, please charge the proper oil after turn off the power.

Potential Dangers and Safety Note:

1. Oil Gas: the gas discharged from the exhaust filter still remains a small part of oil gas, it is possible to harm the human body if inhaling it for long time, so please place the vacuum pump in the well-ventilated room.
2. When moving or storing the vacuum pump, please place the vacuum pump vertically, any inclination or inversion shall be prohibited for avoiding the oil spill.
3. When the vacuum pump works, its surface temperature is possible to be higher than 70°C, so please be careful to burn yourself.
4. When replacing the filter, please wear the protective equipment during the installation, disassemble and replacement because the vacuum pump is possible to absorb the foreign pollutants that shall be remained in the filter when it works.

Potential Dangers and Safety Note:

1. The vacuum pump is unable to start up:

- 1.1 please check whether the output voltage and related items is the same as the indication in the nameplate of motor;
- 1.2 please check whether the motor wiring is right or not

- 1.3 the motor is defective;
- 1.4 the vacuum pump is blocked and unable to work;
- 1.5 oil viscosity is too cold or too high;
- 1.6 the filter is jammed.

2. The vacuum pump is unable to reach normal pressure:

- 2.1 please check whether the gas or oil leak is incurred in the air inlet or pipeline;
- 2.2 viscosity of lubricating oil;
- 2.3 the lubricating oil is polluted;
- 2.4 the lubricating oil is insufficient;
- 2.5 the pipes of air inlet or vent are jammed;
- 2.6 oil filter and exhaust filter are jammed;
- 2.7 the air tube and oil pipe are damaged;
- 2.8 the parts in vacuum pump are damaged.

3. The gas absorbing capacity is insufficient:

- 3.1 the filter is partially clogged;
- 3.2 the pipeline of air inlet is too long or its diameter is too small.

4. The discharge rate is insufficient:

- 4.1 the filter is jammed;
- 4.2 the pipeline of air vent is too long or its diameter is too small;
- 4.3 the gas tube or oil pipe is jammed;
- 4.4 the vane is damaged;
- 4.5 cylinder is damaged.

5. the vacuum pump runs very hot

- 5.1 ambient temperature too high;
- 5.2 the circulatory system is bad;
- 5.3 the exhaust filter is clogged;
- 5.4 not enough oil in the tank;
- 5.5 oil burnt from overheating;
- 5.6 the voltage or power is too big.

6. The vacuum pump smokes or has visible oil mist when the air vent exists gas:

- 6.1 the exhaust filter installment is improper;
- 6.2 the exhaust filter is damaged;
- 6.3 O-ring is damaged or gets loose;
- 6.4 the oil line is broken;
- 6.5 the lubricating oil deteriorates or is the unqualified product.

7. The lubricating oil deteriorates:

- 7.1 topping up of incompatible oil;
- 7.2 the lubricating oil is mixed by the water to cause emulsification;
- 7.3 oil change intervals are too long;

8. Abnormal Noise

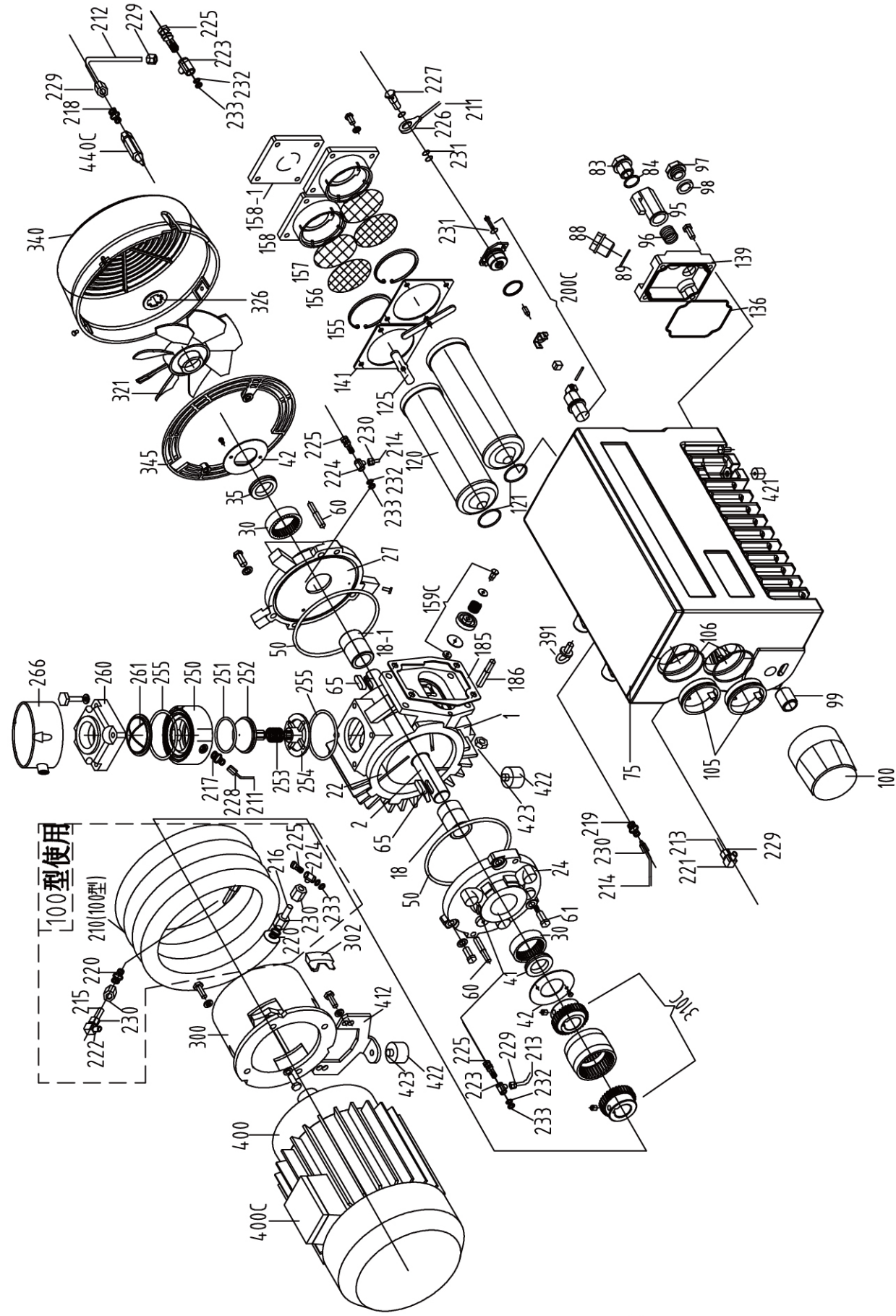
- 8.1 stuck vanes;
- 8.2 defective bearing;
- 8.3 defective coupling;
- 8.4 lubricating oil viscosity is too cold or too high;
- 8.5 it is normal to hear the sound of vane engaged within 3 minutes after the vacuum pump is started up, such sound will disappear when it works for several minutes.

Maintenance and Repair:

1. It is noted to turn off the power for avoiding that the parts are damaged due to the pump's operation or any person is injured due to the electric shock;
2. Please take the maintenance or repair after the vacuum pump body is cooled for avoiding being burned by the high-temperature oil or parts.

Maintenance and Repair of Parts:

1. Air inlet Filter Screen (A) or Exhaust filter (L): please clean regularly, if finding the visible dirty, please clean or replace it;
Method of Replacement: please (a) dismount the air inlet filter (A) and replace it with the new parts, or (b) unscrew the air inlet (A) and dismount the filter screen to clean.
2. Exhaust filter: the exhaust filter will be damaged or deteriorated because of absorbing the foreign pollutants or super-high temperature, at this time, it needs to be replaced.
Method of Replacemnt : Please (a) unscrew the air vent(B,B1); (b) remove the exhaust cover;(c) press the filter spring then loosen and rotate the filter springs; (d) pull of hte Exhaust filter; (e)replce the new exhaust filter ;(f) tighten the filter springs;(g) mount the exhaust cover with the gasket and tighten the screws
3. Oil filter: under the normal condition, the oil filter must be replaced every half a year.
Method of Replacement: please (a) dismount the oil filter and (b) install and screw the new oil filter.
4. Oil: please replace the lubricating oil after 300 hours when it is used firstly under the normal temperature with the dry and clean environment, and replace the oil every 500-2000 hours subsequently. If the vacuum pump is used under the severe environment, the replacement period shall be shortened.
Method of Replacement:
Filling in Oil: please (a) turn off the power of vacuum pump; (b) unscrew the oil drain plug (E) and discharge the oil (the vacuum pump will discharge the waste oil within 30 minutes after it is turn off under the normal use). fuel outlet.
Draining Used oil: please (a) ensure to turn off the power of vacuum pump; (b) unscrew the oil cover (C) to charge the qualified lubricating oil used for the vacuum pump; (c) observe the oil sight glass(D) up to the half; (d) tighten the gasket ring and screw the oil cover.



Local Number	Name	Local Number	Name	Local Number	Name	Local Number	Name	Local Number	Name
1	Cylinder	96	Screw	186	Stud bolt	227	Link bolt	326	Locking ring
2	Rotor	97	Plug	200C	Float valve	228	Retaining nuts	340	Fan cover
18	Shaft sleeve	98	Gasket	210	Oil supply	229	Retaining nuts	345	Protective grid
18-1	Shaft sleeve	99	Nipple	211	Oil line	230	Retaining nuts	391	Eye bolt
22	Vane	100	Oil filter	212	Oil line	231	Washer	400C	Motor
24	Top cylinder cover	105	Drum plug	213	Oil line	232	Washer	400	Motor cover
27	Back cylinder cover	106	O-ring	214	Oil line	233	Washer	412	Foot
30	Needle bearing	120	Exhaust filter	215	Oil line	250	Inlet flange	421	Rubber foot
41	Shaft seal ring	121	O-ring	216	Oil line	251	Inlet O-ring	422	Rubber foot
42	Supporting washer	125	Filter spring	217	Cutting ferrule	252	Inlet cover	423	Screw
50	O-ring	136	Round gasket-service cover	218	Cutting ferrule	253	Inlet spring	425	washer
60	Taper pin	139	Service cover	219	Cutting ferrule	254	Inlet sets	440C	Gas ballast
61	Fit screw	141	Gasket	220	Cutting ferrule	255	O-ring		
65	Parallel key	155	Locking ring	221	90° elbow	260	Inlet top cover		
75	Tank	156	Screen	222	90° elbow	261	Screen		
83	Sight glass	157	Screen	223	Angel swivel screw	266	Inlet filter		
84	O-ring	158	Exhaust Cover	224	Angel swivel screw	300	Motor flange		
88	Plug	158-1	Exhaust Cover	225	Link bolt	302	Caps		
89	O-ring	159C	Exhaust valve	225-1	Link bolt	310C	Couplings		
95	Plug(Fuel drain valve)	185	Gasket	226	Weld fitting	321	Axial flow fan		