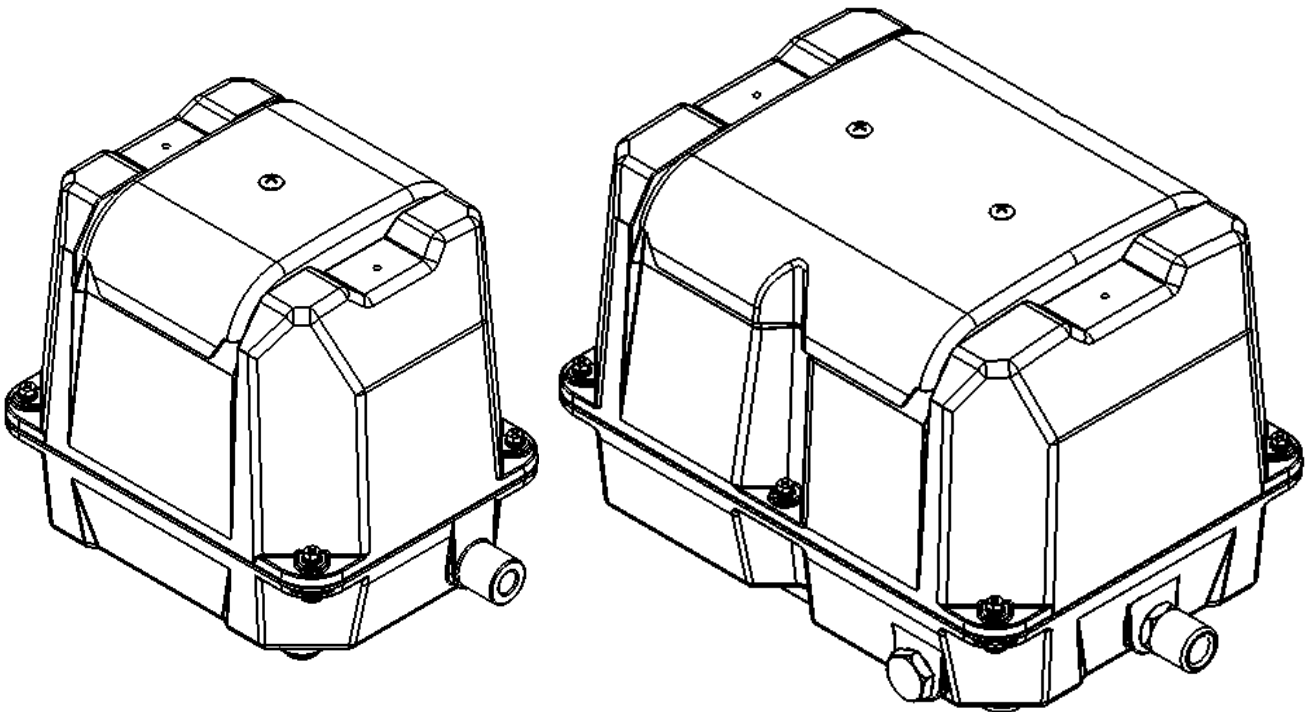


INSTRUCTION MANUAL FOR LINEAR COMPRESSORS

MODEL : TKO-150/200/250

300/400/500



READ AND FOLLOW ALL SAFETY INSTRUCTIONS.
KEEP THIS MANUAL FOR FUTURE REFERENCE.

SECOH

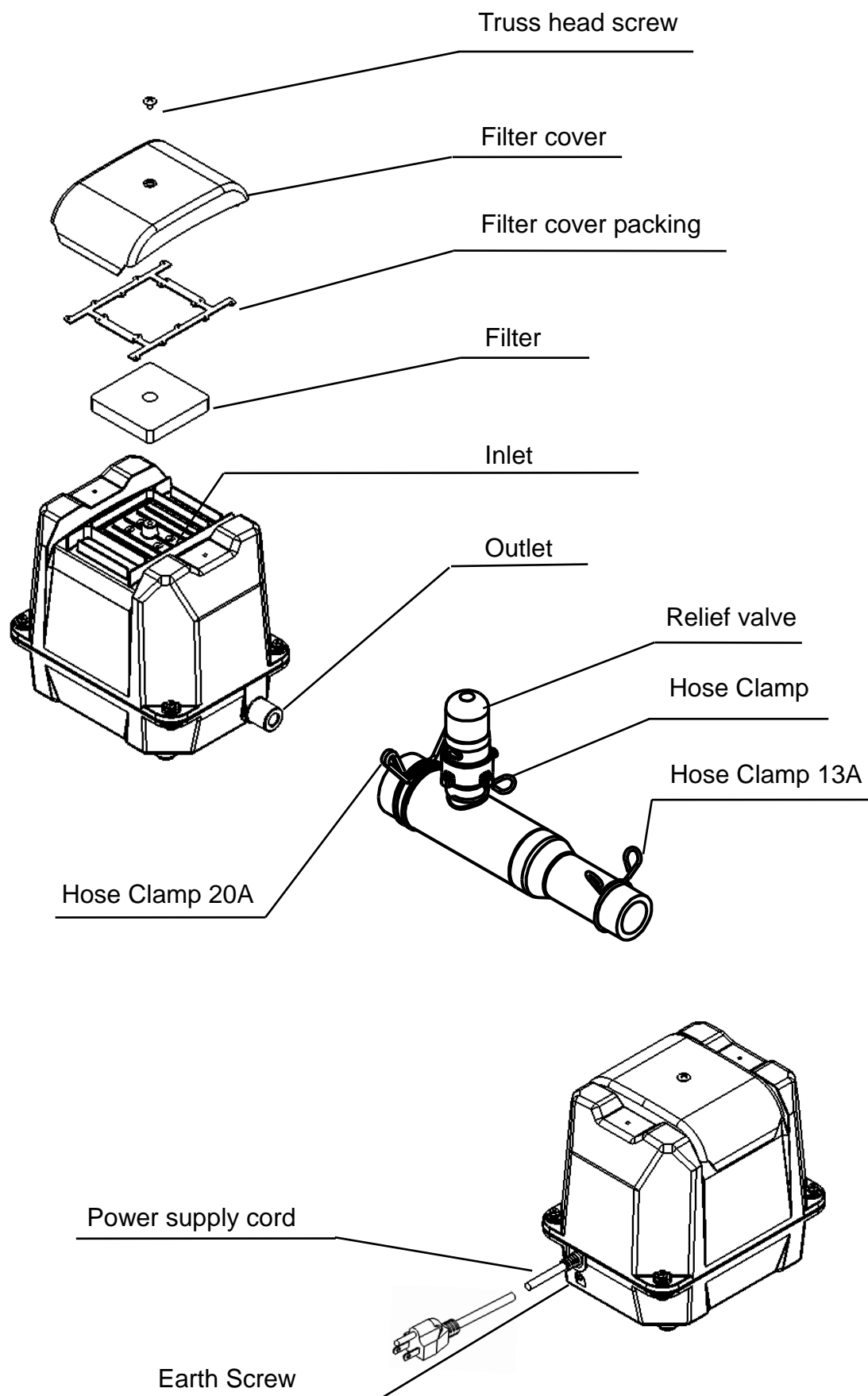
SECOH SHANGHAI MEC LTD

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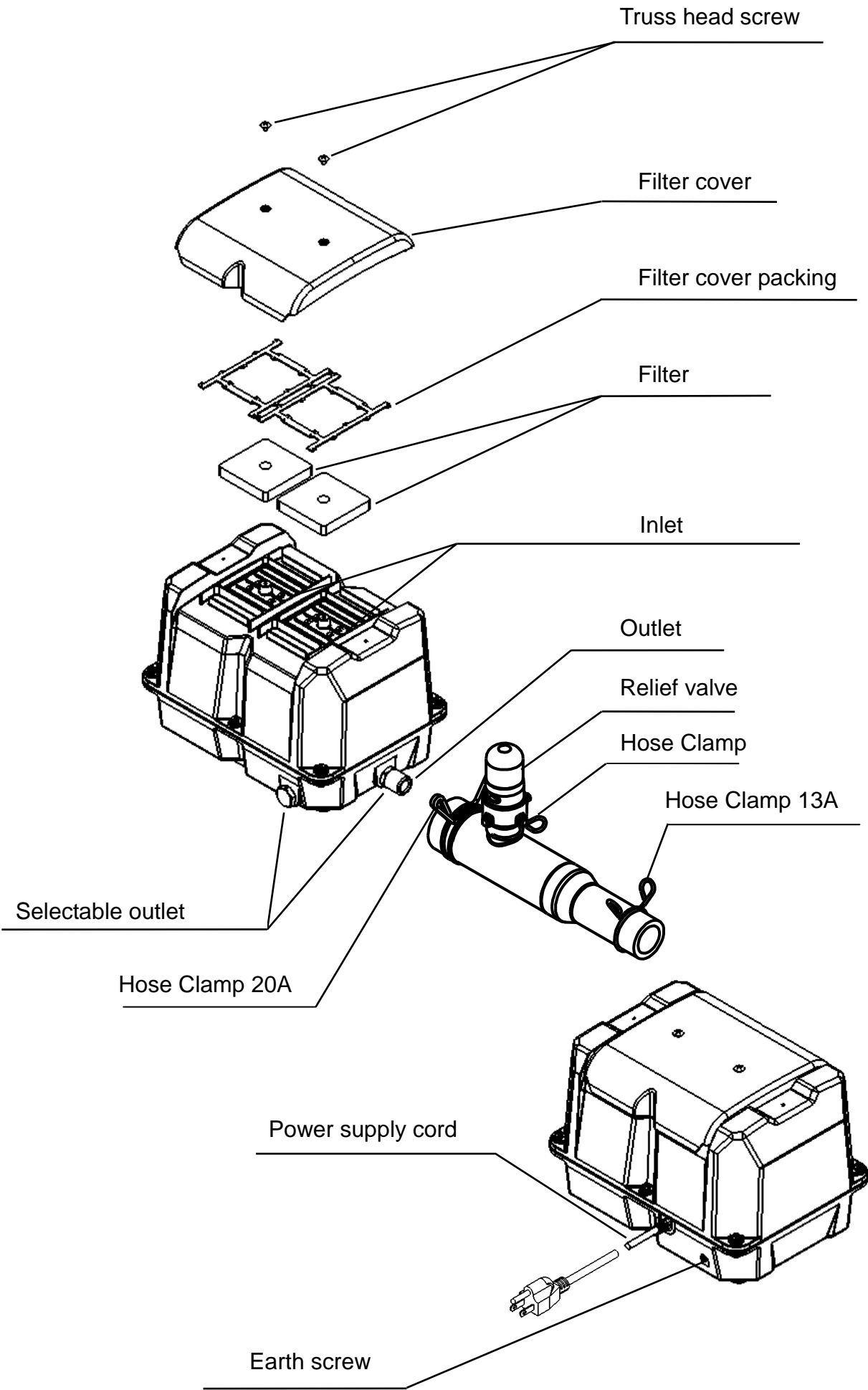
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1. Parts name

TKO-150/200/250



TKO-300/400/500



2. Instructions

- Read information carefully to ensure that this product operates correctly.
- Follow the safety instructions.
- Any servicing other than that recommended in this manual should be performed by an authorized service facility.

The following is an explanation of the three different types of hazards.



DANGER

Severe personal injury or death will occur if hazard is ignored.



WARNING

Severe personal injury or death can occur if hazard is ignored.



CAUTION

Minor injury or property damage can occur if hazard is ignored.

2-1 Prior to operation



WARNING

- This product is designed for air only.
 - To reduce the risk of ignition, electric shock or short circuit, do not pump flammable gas or liquid. Pumped fluid passes through the live parts.
- To avoid electric shock or short circuiting, connect this product to the supply voltage specified on the name plate.
- Close supervision is necessary when any appliance is used by or near children.

- This product is not designed for mounting on a vehicle.

2-2 Storage and transfer



WARNING

- Carry this product by both hands.
 - Do not carry this product by holding filter cover. The body which may slip from the filter cover can cause injury.
 - To avoid damage on wire, do not carry this product by holding the power supply cord.
- Pump surfaces can get very hot during operation. Do not touch hot surfaces until they cool.

- Do not store this product in temperatures below 14°F (-10°C). Failure to do so could result in decrease of air flow due to magnet deterioration.
- Store this product indoors out of the weather to avoid the deterioration of rubber parts.

2-3 Installation



WARNING

- Installation of this product including wiring and plumbing should be done by our distributor or specialist.
- Carefully examine the pump after installation. It should not be plugged in if there is water on parts not intended to be wet.

1) Location



WARNING

- To avoid short circuit or electric shock do not install this product in an area where it could be immersed in water or other liquids.
- Install this product above the water level to ensure no siphoning can occur if power should fail. Failure to do so will result in short circuit or electric shock from liquid running back into this product.



DANGER

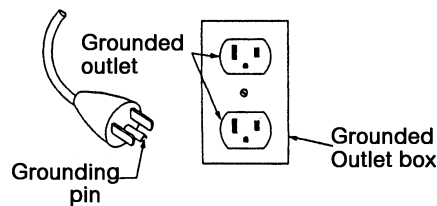
- To avoid ignition do not install this product in an area where it could come in contact with flammable or explosive gas.
- Install this product in the shade and well-ventilated area.
 - The heat of sunlight may shorten diaphragm and valve life due to very high temperatures.
- Do not install this product in a humid or dusty area.
 - Overheating caused by a clogged filter may result in shortened diaphragm and valve life.
- Install this product in an area where maintenance can be easily performed.

2) Grounding



DANGER

- Improper installation of the grounding plug can result in a risk of electric shock. If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with insulation having an outer surface that is green, with or without yellow stripes, is the grounding wire.
- This product should be grounded. In the event of an electrical short circuit, grounding reduces the risk of electric shock by providing an escape wire for the electric current. This product is equipped with an electric cord having an equipment grounding conductor and a grounding type plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all appropriate codes and ordinances.
- This product is for use on a nominal 120V volt circuit, and has a grounding plug. Make sure that the product is connected to an outlet having the same configuration as the plug as follows. No adapter should be used with the product.



- Use only 3-wire outdoor use extension cord that has a 3-blade grounding plug, and a 3-slot receptacle that will accept the plug on the product. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. For lengths less than 50 feet, 16AWG extension cords should be used. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. The extension cord should be marked “for outdoor use”.

3) Mounting



WARNING

- This product must be provided a roof or fence to avoid risk of electric shock or short circuit if it is mounted in an area exposed to water or other liquids.
- Ensure this product is securely mounted prior to operation.



CAUTION

○ The ambient temperature should not be over 104°F (40°C).

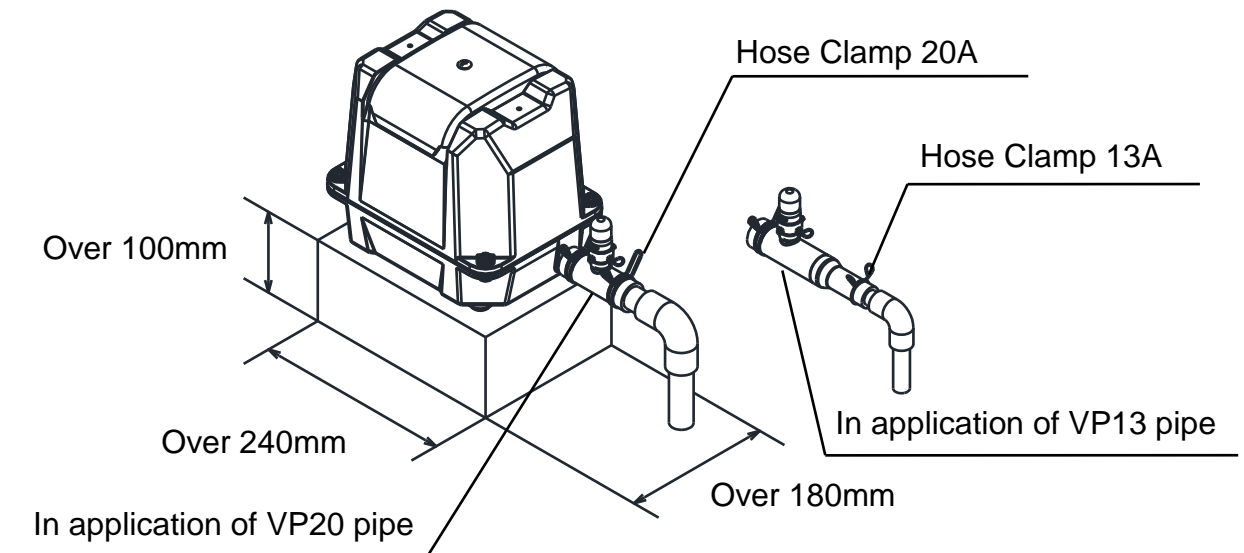
- Cooling fan is recommended to be installed when mounting in an area of higher temperature.

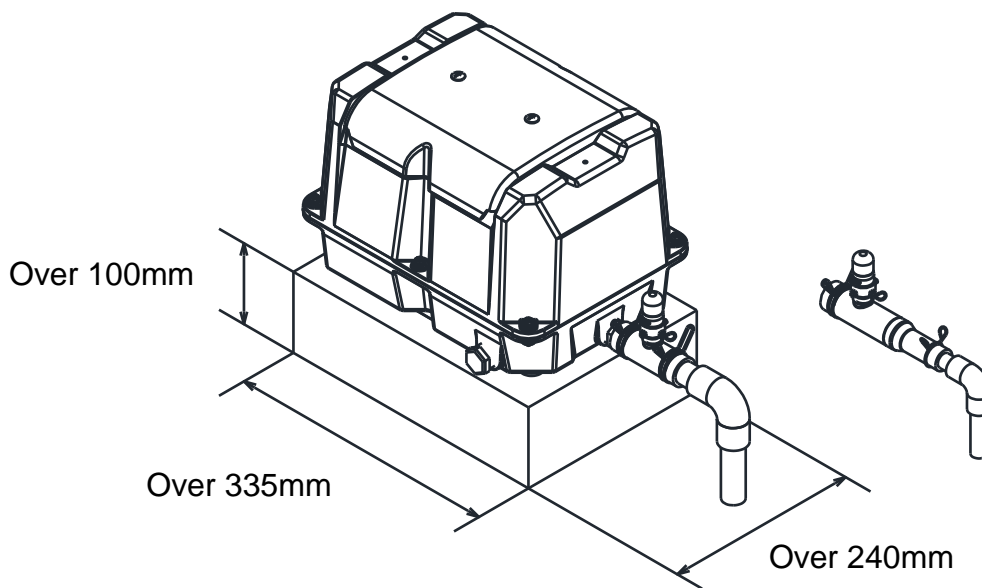
- The exclusive mount for air pump installation made of concrete should be arranged. The mount should be away from the foundation for at least 150mm and its height should be min 100mm higher than the foundation.
- Noise may be caused by vibration of the air pump mounted on an unstable place such as concrete blocks, shelf etc.

○ Install the air pump on a horizontal mount taken a level after the concrete has been completely dry.

- Setting the air pump before concrete has been completely dry can embed it therein.
- The load caused by setting the air pump in a declining position may shorten the life of the parts.

TKO-150/200/250

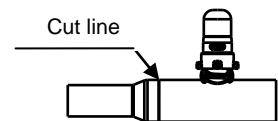




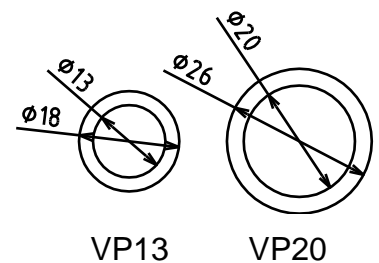
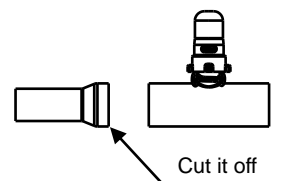
4) Plumbing

- The pipe to discharge air should be hard vinyl chloride pipe VP13(ID13mm × OD18mm) or VP20(ID20mm × OD26mm).
- To confirm the dimension of the air pipe, please read the instruction manual of purification tank first.
 - If the air pipe is VP13, using the hose intactly.
 - If the air pipe is VP20, cut off the part of VP13 along the cut line.
- Air piping should be as short and straight as possible.
 - The total length of air piping should be shorter than 10m(each bend is regard as1.5m). The longer air piping, the larger air pipe diameter should be picked.
- Make sure that no particles of soil,sand,etc are left in the in the piping under its construction.

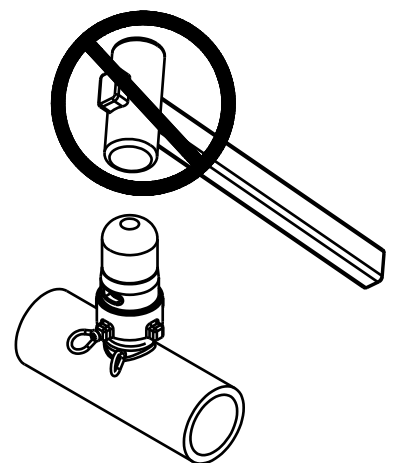
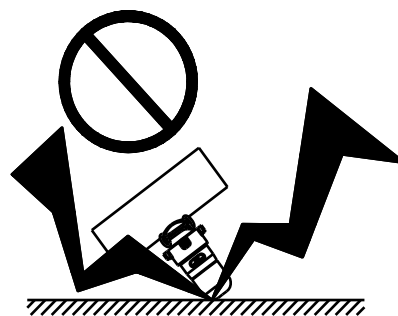
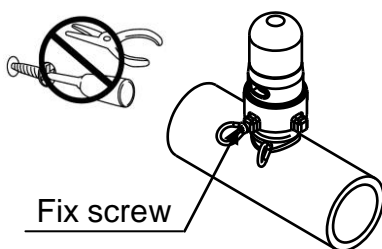
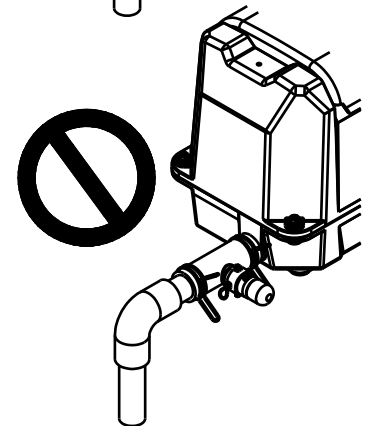
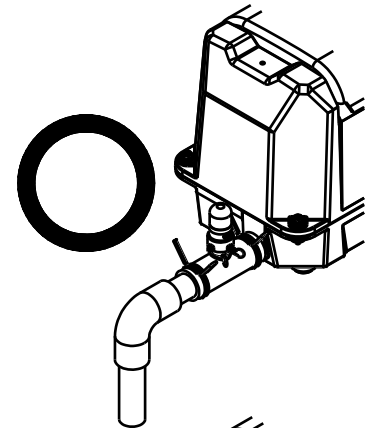
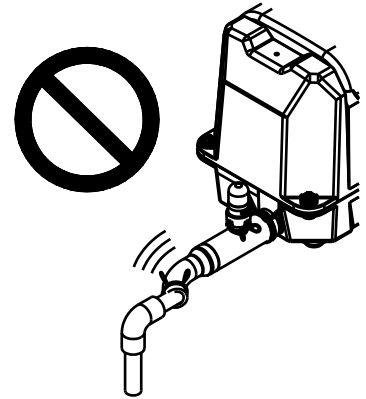
In application of VP13 pipe



In application of VP20 pipe



- Extra pressure caused by foreign objects in the piping will be applied on the air pump, which will result in overheat of the air pump. It may shorten the life of diaphragms and valves.
- Connect the air pump to the air piping with an accessory hose, and secure the connection with a hose band.
- Adjust the locations of the air pump outlet and air piping so that no forcible loads are applied to the hose.
- The function of the relief valve is to prevent the breakage of air pump and piping when pressure exceed the limit. To prevent the mishandling to it, pay attention to the following instructions when installing.
 - Set the valve vertical to the ground.
 - The relief valve is set to open when exceed the range of working pressure and locked with screw. Loosening the screw will change the setting pressure. So do not adjust the screw.
 - Once the relief valve is open, the discharged air volume will decrease and noise will rise. Shut down the air pump right away and clean up the blocked area.
 - Do not let it fall or being striken. Great impact could cause breakage or mishandling of the relief valve.
 - The accessory relief valve is designed only for the electromagnetic air pump of our company. Do not use it out of our pump.



5) Operation



DANGER

- To avoid the risk of fire or electric shock do not modify, heat or pull the power cord.
- Do not put a heavy load on the power cord. The power cord may be damaged, if hazard is ignored.
- Clean electric source plug connectors once a year and plug in securely.
 - Dust on source plug connectors or improper plugging can cause fire or electric shock.



WARNING

- Do not touch the electric source plug with wet hands.
- Grasp plug to remove power cord from the outlet. Do not remove by pulling on power cord.
- Do not operate if the cord or plug is damaged or if this product is malfunctioning, dropped, or damaged in anyway.

3. Periodic maintenance



WARNING

- Always disconnect power before servicing. Failure to do so could result in electrical shock, personal injury or death.



CAUTION

- Clean the filter element quarterly. A clogged filter can cause overheating or pump failure.

3-1 Filter cleaning

- Undo the truss head screw. (Ref.:Fig.1)
- Remove the filter cover by pulling off in the direction shown.
- Take out the filter, and slap down dust hand. If it is heavily contaminated, wash it by rubbing using neutral detergent. Then, wash with water and dry it in the shade.
- Please confirm whether there is any sewage or dirt blocking the inlets. If yes, please clean it up.
- Reassemble the filter back in place.
- Secure the filter cover with truss head screw.

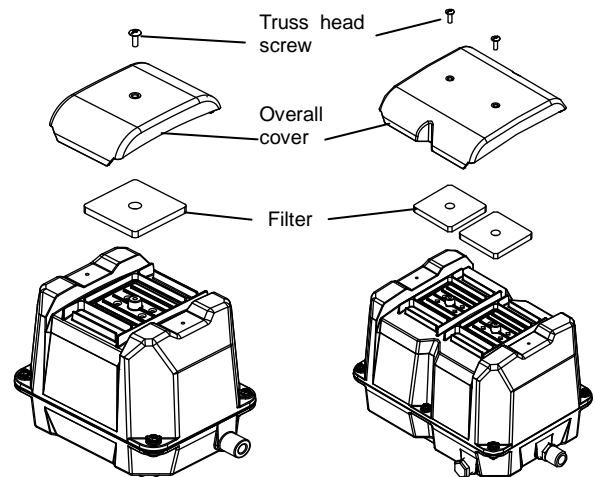


Fig 1

3-2 Replacement of filter, valve box, diaphragm

- Replace the filter following the procedure in 3-1 filter cleaning step.
- Undo the corner bolts and remove the overall cover. (Ref.: Fig 2)
- Use a screwdriver to pry the overall cover open when necessary. (Ref.: Fig 3)

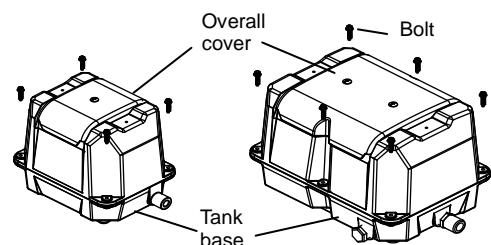


Fig 2

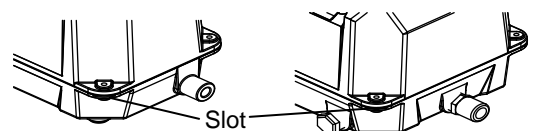


Fig 3

○ Remove the shock absorber. Undo the screws and remove the holder cover. (Ref.: Fig 4)

○ Undo the screws and with cross screwdriver and pull out the outlet of valve box from connect rubber. Remove the valve box. (Ref.: Fig5)

○ Undo the nuts and remove diaphragm holders and diaphragms from the magnet holder. (Ref.: Fig 6)

● Magnetic force is very strong, please be careful during operation.

○ Insert the magnet support jig in four corners between the magnet holder and the core. (Ref.: Fig 7)

○ Insert the protrusion of the new diaphragm in the locating notch of the diaphragm holder. (Ref.: Fig 8)

○ Set the new diaphragm holder and diaphragm to the magnet holder and fix them, installing into the solenoid holder. (Ref.: Fig 9)

● Please replace the diaphragm and valve box for both sides.

○ Replace the valve box. (Ref.: Fig 10)

○ After the completion of the replacement parts, pull out the magnet support jig. Make sure the magnet holder is in the middle of the iron core. (Ref.: Fig 11)

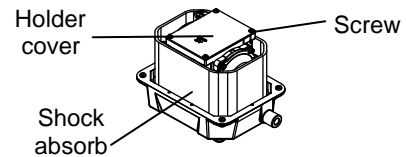


Fig 4

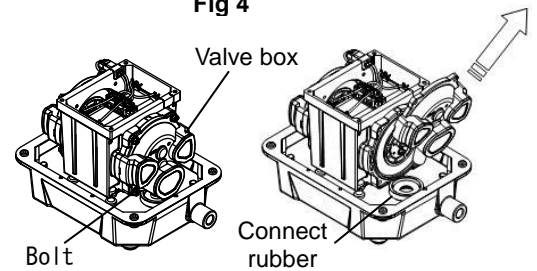


Fig 5

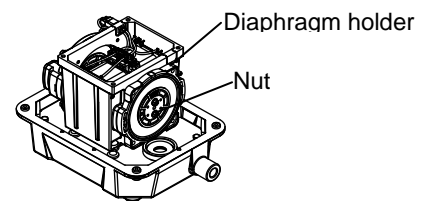


Fig 6

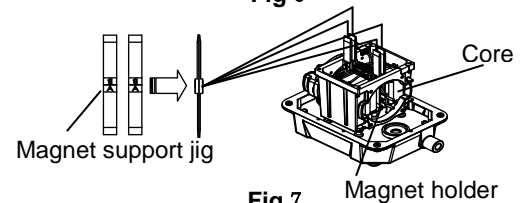


Fig 7

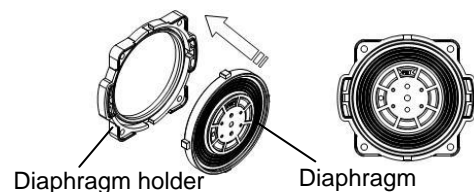


Fig 8

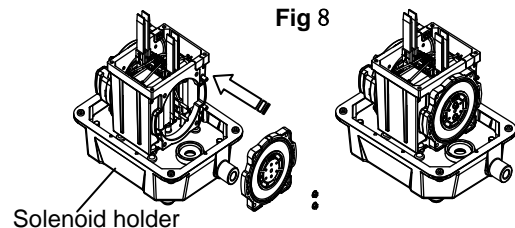


Fig 9

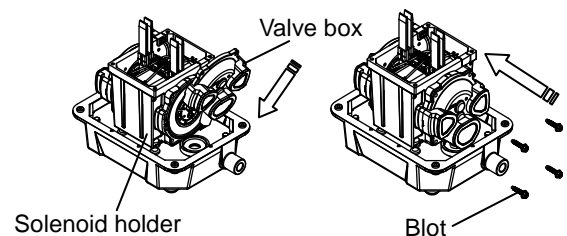


Fig 10

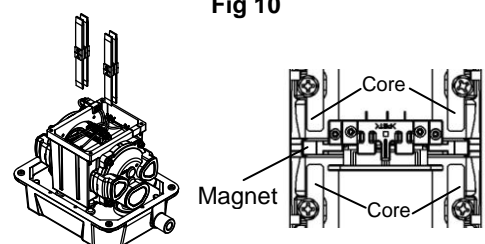


Fig 11



WARNING

- If the magnet contacts the solenoids during operation, it will cause damage on parts, abnormal heat, and short circuiting.



CAUTION

- Improper setting of the rubber bush can result in electric shock, air leakage.

3-3 Reset of auto stopper



DANGER

- Disconnect the power before servicing.
Do not touch the terminal of the switch. If hazard is ignored, electric shock is possible.
If not disconnected, magnet starts moving upon reset of auto stopper. Personal injury is possible.

If the diaphragm is broken, the magnet reciprocates with abnormal amplitude and projection hits the slider. The contact is interrupted and power is off.(Rer.:Fig.12)

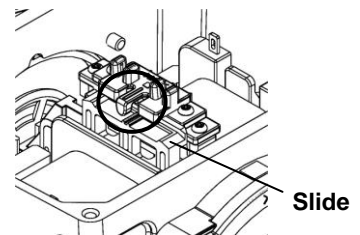


Fig 12

If the slider deviates from the middle, please set it back as the picture below. (Rer.:Fig.13)

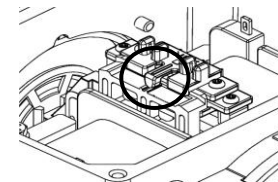


Fig 13

Can hear the sound when adjust the slider to the middle as the picture below. (Rer.:Fig.13)

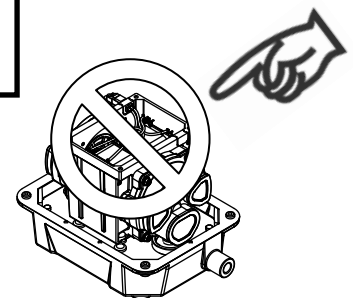
- Connect power, confirm whether the magnet holder is moving in the middle and whether air blowing out properly, then remove the plug and start next operation.



DANGER

- Do not touch live parts. Touching live parts will result in electric shock.

- Fasten the holder cover with the screw, put the shock absorber back.
- Replace the tank base packing.
- Use nuts and screw to fix overall cover carefully.
Note: Use the new nuts in the repair kit.



3-4 Automatically reset thermal protector

An automatically reset thermal protector installed on the solenoid stops pump operation if solenoid temperature becomes over 130 ± 5 °C. When the solenoid temperature cools down to 85 ± 15 °C, the protector is reset automatically and pump operation restarts.

4. Trouble shooting

Observation	Possible cause	Action
Pump does not operate.	<ul style="list-style-type: none">▪ Improper electrical connection	<ul style="list-style-type: none">▪ Check plug and outlet and plug completely.
Discharge air decreased. Pump surface is abnormally hot. Pump operates intermittently	<ul style="list-style-type: none">▪ Pipe or diffuser clogged▪ Valve in plumbing shut▪ Filter clogged	<ul style="list-style-type: none">▪ Clean pipe or diffuser.▪ Open the valve▪ Clean filter.
Pump operates but with abnormal noise.	<ul style="list-style-type: none">▪ Faulty valve or diaphragm	<ul style="list-style-type: none">▪ Replace valve and diaphragm.

5. Replacement parts

Kit name	Contained parts	Quantity (pcs)
Diaphragm repair kit for TKO Series.	Diaphragm	2
	Diaphragm holder	2
	Nut	4
	Valve box	2
	Filter	1
	Tank base packing	2

Note:TKO-300/400/500 needs to use 2 sets.

6. Specifications

Model		TKO-150	TKO-200	TKO-250	TKO-300	TKO-400	TKO-500
Voltage	V	120					
Frequency	Hz	60					
Rated pressure	psi	2.9					
	kPa	20					
Rated air flow	LPM	150	200	250	300	400	500
Amperage	Amp.	2.3	3.2	4.1	4.6	6.4	7.0
Bore diameter	mm	O.D.26 (hard vinyl chloride pipe VP20)			O.D.27 (hard vinyl chloride pipe VP20)		
Net weight	lbs.	Approx. 22			Approx.40		
	kg	Approx. 10			Approx. 18		
Accessory		Hose with relief valve (with hose band)					

The information presented in the specification table is based on technical and test results of nominal units. It is believed to be accurate and is offered as an aid in the selection of the products. It is the user's responsibility to determine suitability of the product for intended use and the user assumes all risk and liability whatsoever in connection therewith. Environmental and application conditions may affect advertised life.

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