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# Operating manual

ELECTRIC ASPIRATOR  
(Model : 35031-10)

Manual No: 00HAA0001135 (Rev : 2.1)

**Cole-Parmer®**

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Thank you for purchasing this Cole-Parmer product. This product is manufactured with state-of-the-art technology and materials.

This operation manual describes the functions of the unit and key points you should keep in mind when you operate it. Please be sure to read through this manual for an effective and utmost use of the unit before operating this Instrument.

## **CAUTION**

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Please read this operation manual carefully before you use this unit.

Especially, keep in mind and pay attention regarding safety secure

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# Safety Precautions



“Warning” means that the user may have serious damage by wrong handling on this unit.



“Caution” means that the user may have not so serious damage and unit may have physical damage by wrong handling on this

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## 1. Application and Features

- The Electric aspirator 35031-10 produces a low vacuum condition using Bernoulli's principle by pumping water through aspirator head. When using 35031-10 with rotary vacuum evaporator or for Gel dryer or low vacuum oven, inflow of a little water or solvent into the equipment do not make trouble to the instrument. And you can use this equipment continuously if you change the water in the bath.
- The 35031-10 is manufactured as polypropylene that has chemical resistance against most solvents. For effective usage, a small quantify of water (100ml/min) has to be continuously supplied by a user through the drain cock at the bottom part of the bath and drained through the over-flow nozzle. It reveals liquid circulation of the inner bath and means dilution that helps the instrument to be used longer.
- Check-valve is designed for preventing water from flowing backward during the power failure. But this valve can't protect the equipment permanently. It is for short protection that saves the time to fix its original troubles that may be happened.

### CAUTION

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To prevent flowing backward of water upon a power failure of the moment, the unit has a flowing backward double breaker. It only makes users have some times to deal with the situation however, it does not mean the complete stop valve.

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## 2. Installation

### CAUTION

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Please read this operating manual carefully before you use this unit.

If the unit is installed on an abnormal installing condition, it might cause damage or abnormal operating.

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- 1) Please check on the proper voltage for operating. You should check the electricity in accordance with the **ID label plate**. (The backside of unit)

### CAUTION

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Please check on the proper voltage, phase of capacity for an installing place.

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### WARNING

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Main power must be grounded.

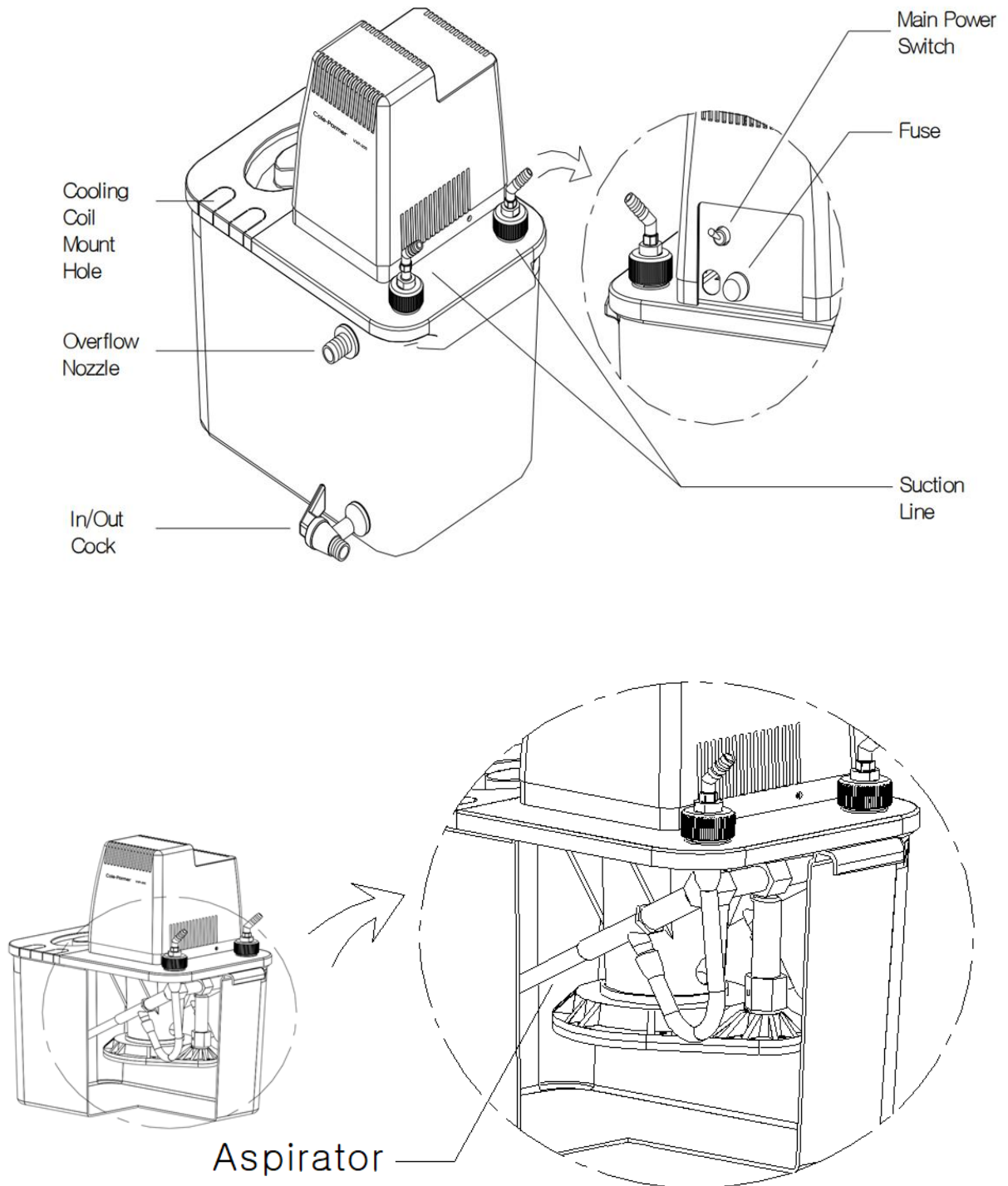
If it would not be, may cause a serious injury or damage on the unit.

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- 2) This instrument is requested not to be used where is inclination and vibration place.
- 3) Avoid places with direct sunlight.
- 4) Prevent overflowing of water in the bath, and do not operate with wet hands.
- 5) Plug out the power cord when you do not use the instrument.

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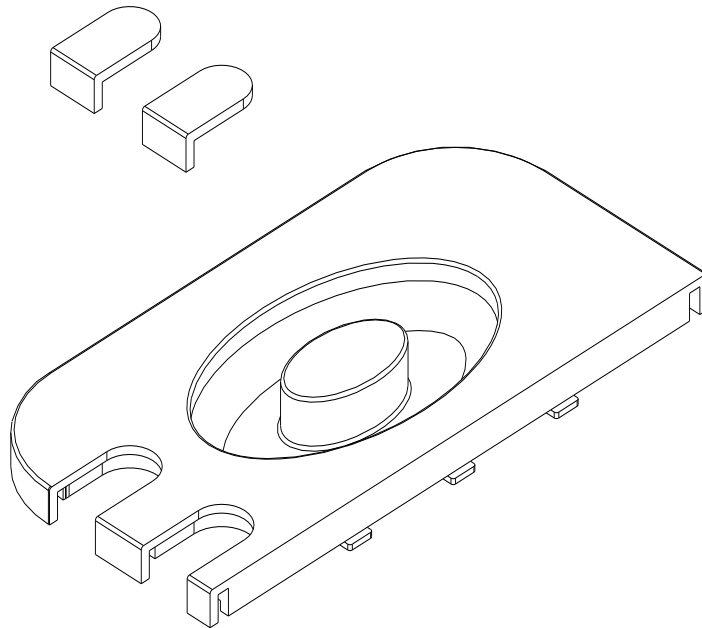
### 3. Name of each part



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## - Slots for cooling coil

When you need cooling coil, you can put in a cooling coil through these slots.  
(Cooling coil is optional accessory.)



## 4. Handling and operation

Use the machine in dry place, and keep away from flammable gas or dangerous explosive environment is.

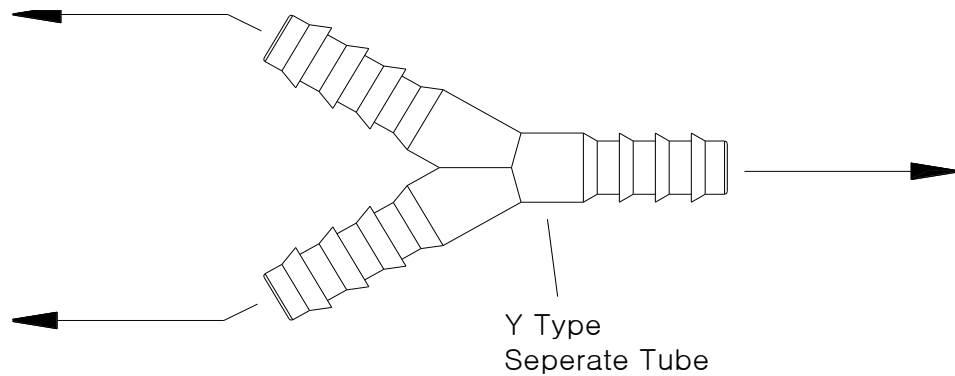
For fear that scale might be occurred in the bath, you had better use Distilled water.

### - Only use inner circulation without infusing cooling water

- ① Fill up the water in the bath up to the over-flow-nozzle.  
(About 2 cm below from the nozzle)



- 
- ② Connect a Y separate type tube to each of the suction ports and also something which vacuum is needed with silicone Hoses (Ø6).  
(Refer to the below image)



- ③ After then, turn on the main power switch.

After the power on, the unit is working and is making vacuuming condition.

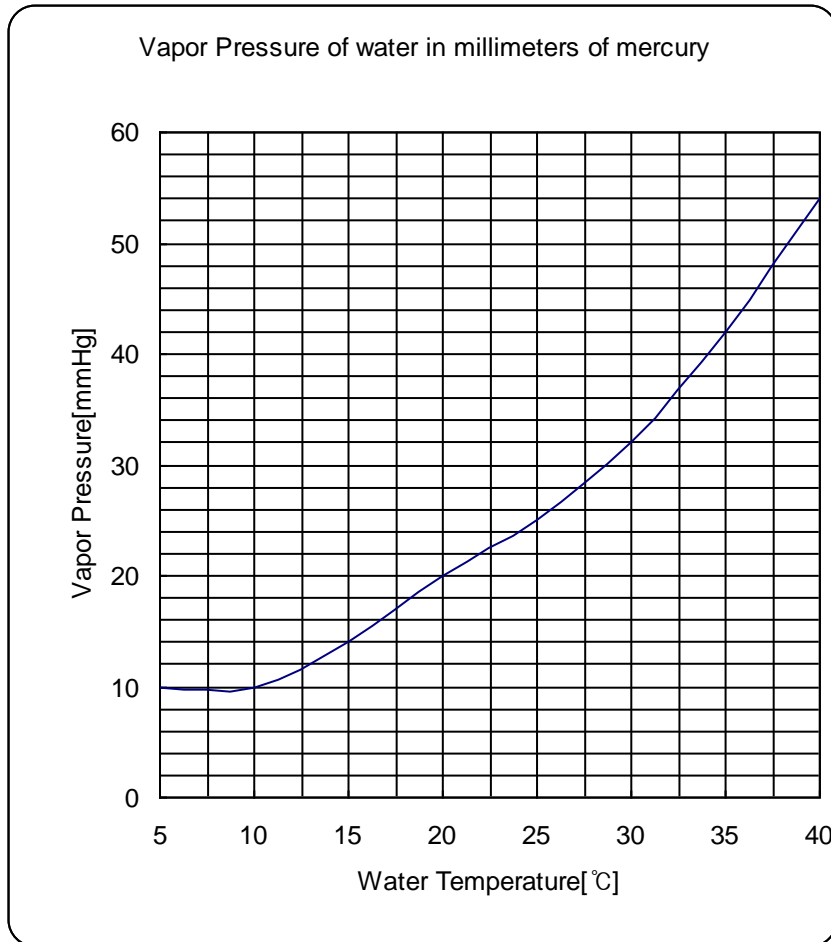
## **⚠ CAUTION**

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In case of using for inner circulation for a long time, if the water temperature in the bath might increase, the vacuuming condition would be limited.

In addition to the vacuuming condition might be influenced by dissolved gas or impurities that dissolving in the water.

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The above graph shows that vacuuming fluctuation is depending on water temperature in the bath.

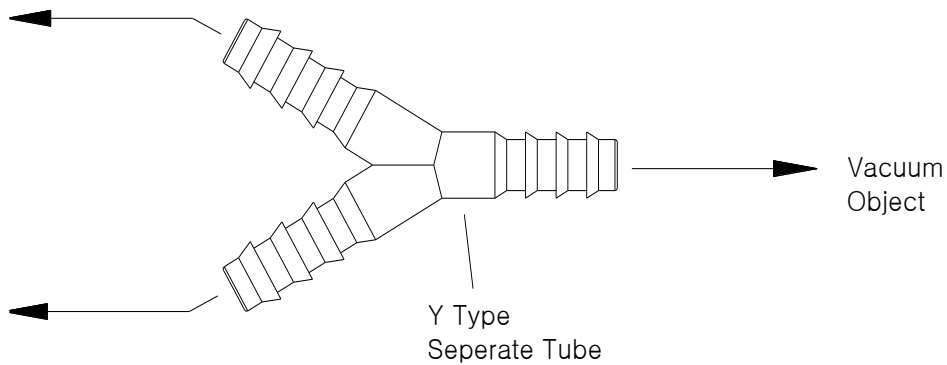
In case of using for inner circulation for a long time, if the water temperature in the bath might increase by the motor, the vacuuming condition would be limited.

When you use it for a long time, you had better infuse some cooling water to decrease the water temperature.

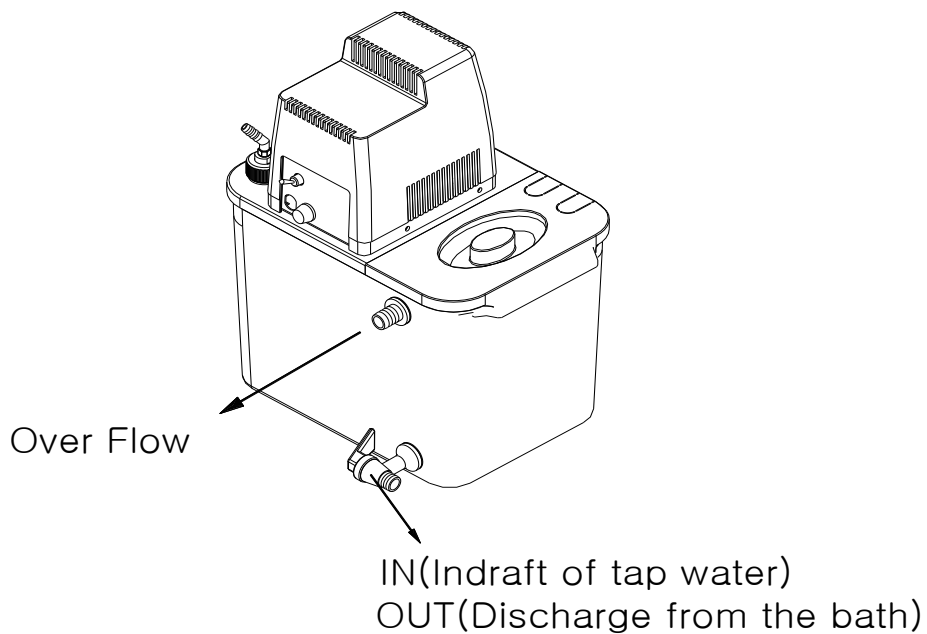
**- Use with inserting cooling water**

- ① Fill up the water in the bath up to the over-flow-nozzle.  
(Under about 2 cm of the nozzle)

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- ② Connect a Y separate type tube to the suction ports each and also something which vacuum is needed with silicone Hoses (Ø6).  
(Refer to the below image)



- ③ Connect a hose with the over flow nozzle to discharge water.
- ④ Connect a hose to the cock to infuse water (cooling water).



- ⑤ Turn on the main power switch.  
After the power on, the unit is working and is making vacuuming condition.

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## 5. Precautions for using the organic solvents

- ① Whenever possible, supply running water regularly in the tank.
  - ☞ Connect the hose for supplying the running water from In/Out cock and drain from Overflow nozzle.
- ② If you are using organic solvents, you must supply running water. After operation, drain the water in the tank. Draining the water will prevent the unit loss from the organic solvents and vapor.
- ③ If running water cannot be supplied, change the tank water as often as is necessary for its frequency of use. In case of using the toxic solvents, you must change the tank water more frequently.
- ④ After operation, Rinse the aspirator thoroughly after each use . Clean and empty the tank in order to avoid any contamination.

Followings are example of organic solvents which need this sort of special care.

- Acetic Acid Chloride
- Acetone
- Alcohols: Benzyl
- Alcohols: Methyl
- Ammonia
- Benzene
- Benzene Chloride
- Cyclohexane
- Chlorobenzene
- Chloroform
- Cyclohexanone
- Dichloroethane
- Diethyl Ether
- Ethylene Dichloride
- Ethanolamine
- Ethyl ether
- Ethyl Acetate
- Hexane
- Kerosene
- Methyl Acetate
- Methylene Chloride
- Methyl Butyl Ketone
- Methyl Ethyl Ketone
- Nitrobenzene
- Nitrometane
- Pentane
- Perchloroethylene
- Toluene(Toluol)
- Trichloroethylene
- Turpentine
- Xylene

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## 6. Maintenance and its cleaning

### 1) Cleaning the body

#### **CAUTION**

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The main plug must be separated from a terminal before cleaning and repairing it.  
It might cause an electric shock.

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- Remove the power plug from the consent first.
- Clean up the body using a soft cloth or sponge damped with neutral detergent.
- Wipe with dry cloth.
- ※ Do not use organic solvent.

### 2) Cleaning the bath

- Clean with sponge or soft cloth with neutral detergent.
- Clean with wet cloth.
- ※ If you can, please use distilled water to prevent the bath from scaling.
- ※ If you do not use 35031-10 for a long time, drain the water from the bath.

### 3) Silicon hose or Connector

- Immerse the silicon hose or connector in the water for 3~5minutes.
- Clean all surfaces with the wet sponge or cloth by neutral detergent.
- Rinse with a wet cloth by clean water.
- Wipe down all surfaces with dry cloth.

## 7. Causes of malfunction and its repairs

Symptoms	Problems	Solutions
1. When the unit stops running	Check on the fuse connection.	Exchange with new same one.
	Check on the power failure.	
	Check on the main power switch is on	Turn on the main power switch.
	Check on the terminals of the motor and capacitor.	If the motor is corroded, request the service. If the capacitor terminal has problems, request the service.
2. Has trouble with the vacuuming condition.	Check on the hose nipple sticks to the check valve.	If it is loose, exchange those.
	Check on the temperature of water in the bath. (over 40°C)	If it has a high temperature, exchange the water in the bath or connect with a piped water line to cool it.
3. Making excessive noise	Check on shortage of the water.	If it is short of water, fill up the water in the bath up to the over-flow-nozzle. (Under about 2 cm of the nozzle)
4. A liquid (water) leaks out from the cock part.	Check on the vacuuming hose gets left out.	Fixing up the vacuuming silicon hose tightly.
	Check on the corrosion of the motor.	If it is corroded, request the service.
	Check on the nut is untied.	After checking, if it keeps leaking, exchange it.

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## CAUTION

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The motor has a thermal protector within.

In case of the motor over heating, it would stop automatically. After the over heated motor is getting cool, it will operate again normally.

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### 8. After Services

1) When there are malfunctions caused in producing in spite of user's normal operation, then repairs are going to be provided free of charge for one year from purchasing.

Please give us the information as below;

- Malfunctioning parts and status (if possible, please explain the state of problems in details.)
- Type of model
- Serial Number
- Purchasing day/month/year

2) Malfunctions are to be fixed with charge in these cases notwithstanding it is In the warranty period;

- Malfunction due to the user's mistake, improper repairs, or remodeling the part or whole unit.
- Malfunction due to the user's improper handling or carrying the unit after purchasing.
- Malfunction due to disasters such as fire, flood, or abnormal power supply.
- Malfunction due to user's not following the operation manual.

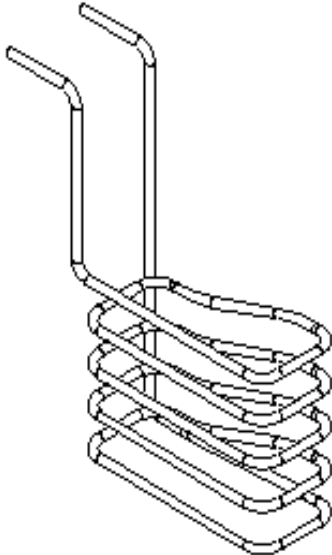
3) Contact to our company or dealer for more information or questions.

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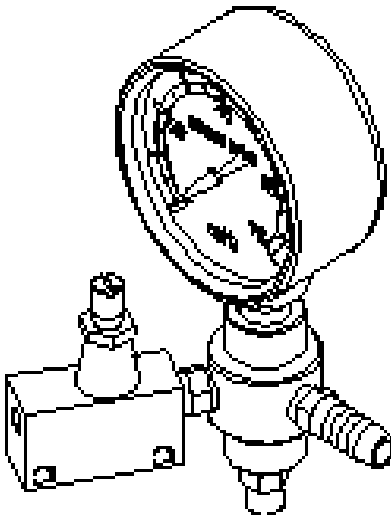
## 9. Accessories

Accessories are optional.

– Cooling Coil



– Vacuum Controller





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## 10. Technical report

### 1) Bath

The bath is made of P.P (Poly Propylene). Please be attention to use the unit because P.P is an excellent durable material against drugs and chemicals, but it may transform the shape with the follow conditions.

#### (1) Need to avoid the follow conditions

It may be burned, but be fired no so easily. Avoid getting in touch with oxidizer, overheating, spark and flame.

#### (2) Need to avoid the follow materials

- Chlorine (liquid): reaction of explosion
- Hydrogen peroxide: a danger of fire and explosion
- Nitric acid: a danger of fire and explosion
- Oxidizer (strong): a danger of fire and explosion
- Hydrogen manganic acid potassium: firing
- Benzene, toluene (aromatic hydrocarbons, halogenations hydrocarbon): On over 80°C, dissolving by aromatic hydrocarbons like benzene and toluene.

### 2) Viton Packing

Viton is an excellent durable material against thermos-stability and chemical. Such as, antifriction, fuel oils, aliphatic hydrocarbons, aromatic hydrocarbons, hydrocarbon solvents.

#### (1) Need to avoid materials

(Please refer Page 12 "Precautions for using the organic solvents")

### 3) Silicone Packing

General rubber is eroded by strong acid and alkali, but it is durable against normal acid, base, basic inorganic drugs, alcohol, and polar organic compound like animal / vegetable oil.

#### (1) Need to avoid the follow materials

Gasoline, toluene and carbon tetrachloride etc.

(It is swelled by above of the nonpolar solvent but, if the solvent evaporates, it turns back to the original condition.)



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Please read this operating manual carefully and obey with the operating condition. If you would not obey, it might cause damage or abnormal operating.

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## 11. Warranty

### 1. Warranty Period

Each Product of Cole-Parmer purchased by customer will be free from defects in material and workmanship for 2 year limited warranty. Cole-Parmer will replace faulty parts for a fee based on then current component acquisition costs after warranty period.

Cole-Parmer will, at its option, repair at no charge, replace or refund the purchase price of a defective product purchased through a Cole-Parmer authorized sales outlet and at the applicable price during warranty period. Cole-Parmer will pay all costs for product repaired or replaced in-warranty in case of exported items.

### 2. Limitation

This warranty does not cover fuses, disposable batteries and damage from accident, neglect, contamination, misuse or abnormal conditions of operation or handling, including over-voltage failures caused by use outside the Products' specified rating, or normal wear and tear of mechanical components. This warranty covers the original purchaser only and is not transferable. Warranty is limited to the repair or replacement of the original unit. For inspection, return the units freight pre-paid to the nearest Dealer of Cole-Parmer .Upon Cole-Parmer's evaluation, defective units will be repaired or replaced at no charge. Cole-Parmer will not accept responsibility for unauthorized expenditures or losses.

### 3. General

Send defective product with a description of the problem to the nearest Cole-Parmer Service Center, postage and insurance prepaid. Cole-Parmer will pay return transportation for product repaired or replaced in-warranty. Before making any non-warranty repair, Cole-Parmer will estimate cost and obtain authorization, then invoice you for repair and return transportation.

This warranty is your only remedy. No other warranties, such as fitness for a particular purpose, are expressed or implied. Cole-Parmer is not liable for any special, indirect, incidental or consequential damages or loses, including loss of data, arising from any cause or theory. Authorized resellers are not authorized to extend any different warranty on Cole-Parmer 's behalf. Since some states do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

### 4. Required things for service

- Serial Number
- Model
- Purchase date from
- Claim & Service claim form

## 12. Specifications

Model		35031-10
Spec.		
Capacity	Exhaust volume	18 l /min × 2EA
	Vacuum range	Depend on saturated vapor pressure
Consisting of	Motor	150W
	Aspirator	Metal 2ea or plastic 2ea
Size	Bath internal size	298 × 210 × 227 mm
	Bath volume	9.5 l
	Bath material	Polypropylene
	Inhale	external Φ 9.5, 2ea
	Drain	Drain cock
	Over flow	Nozzle Φ 17
Exhaust		Pressurization circulating of water flow Pump
Safety device		Thermal protector, Fuse
External size		330 × 265 × 390
Weight		Approx. 5.7 kg
Power supply		230VAC, 50/60Hz
Power consumption		0.7A

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### 13. Exploded View

