

The [rotary evaporator](#) has a wide spread use in the laboratory. Moreover, it is also served as an ideal equipment in such fields as chemistry, medicine, food industry, and biology. The rotary evaporator is controlled by the electric, making the flask rotated at a constant speed. All the rotary evaporator have a lift motor inside that automatically lifts the flask above the heating pot when the power is turned off. Due to the great importance of rotary evaporator, in this paper, the author would like to make a brief introduction to the main components of rotary evaporator.

There are several factors to affect the speed of the rotary evaporator, including the temperature of water bath, the vacuum degree of the rotary evaporator, the efficiency of the condenser recovery unit, and the rotating speed of the sample bottle. After introducing the factors that affect the speed of rotary evaporator, the author would like to describe the main components of rotary evaporator.

The main components of rotary evaporator:

1. Rotating the motor

Driving the bottle containing the sample through the rotation of the motor.

2. Evaporation tube

The evaporation tube has two functions, one is to play the role of supporting the sample rotation, another is to use the evaporation tube so that the vacuum system will sample out.

3. Vacuum system

The vacuum system is used to reduce the pressure of the [rotary evaporator system](#).

4. Fluid heating pot

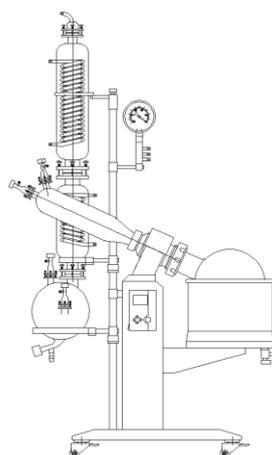
The fluid heating pot is usually under the water heating system.

5. Condensing tube

The [condensing tube](#) use the double serpentine condensation or other condensing system such as dry ice, acetone condensation sample.

6. Condensation sample collection bottle

The sample enters the condensation collection bottle after cooling.



Four Steps to Use the Rotary Evaporator

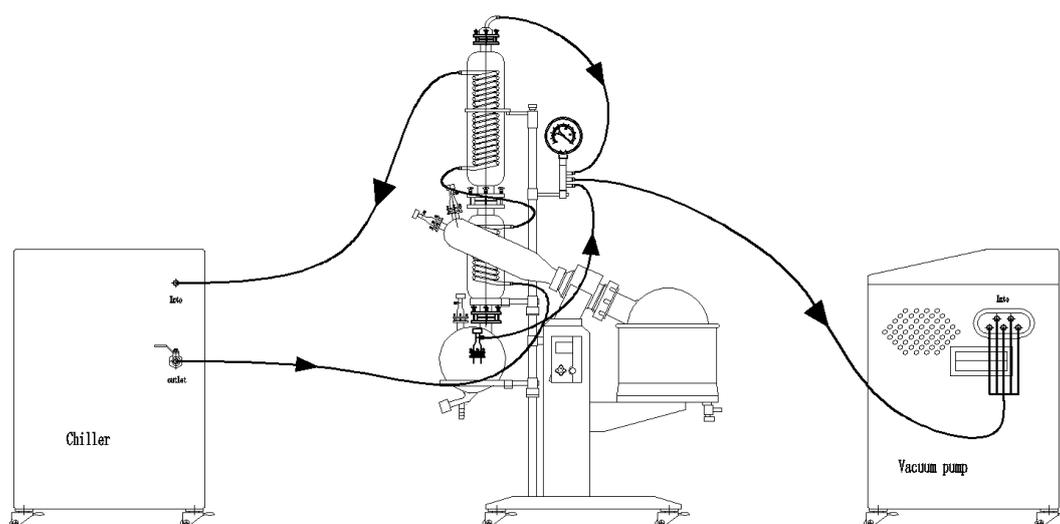
The use of rotary evaporator can be described as the following four steps:

The first step: height adjustment. The rotary evaporator can be raised or lowered manually. It is wise to rotate the hand wheel above the mast: if turning it, the rotary evaporator goes up; if reversing it, the rotary evaporator goes down. This equipment can be electrically lifted. If you press the rising button, the host can be lifted; if you press the dropping button, the host can be lowered.

The second step: There are two outer connectors on the condenser, which is used for picking up the cooling water. One outer connector is used for the water flow in, another is used for water flow out. In general, the outer connector is used for the tap water, the lower the temperature of the condenser water is, the more effective it is. The upper port is equipped with a vacuum connection, which is used for pumping vacuum.

The third step: please turn the speed control knob to the minimum before starting up. Then press the power button, and the switch light is turned on. Next, turning the right switch slowly to the desired speed. Generally speaking, the large evaporation bottle is in a medium and low speed, and the solution with high viscosity is in a low speed. The standard interface of flask is No.24 with two kinds of bottles, 500ml and 1000ml, to choose randomly. The general amount of solution is no more than 50%.

The fourth step: when using the rotary evaporator, you should relieve the stress first, and turn on the motor to turn the distillation flask. When it ends, you should stop the motor first and open the atmosphere to prevent the distillation flask from falling off during the rotation.



How to use rotary evaporation apparatus?

Step one: Warming up the water bath and cooling the glass condenser. If you operate a public used rotary evaporation equipment in laboratory, please firstly empty the solvent trap and watch out the left unknown solvents, because it maybe dangerous to human.

Step two: Fixing the bump trap and flask tight by using a clamp, and the loosen set up is not safe for filling heavy solvents.

Step three: Starting up the rotary rotor at a set rotary speed, the speed must be fast enough to create an balanced thin film on the inner surface of glass flask.

Step four: starting the vacuum pump and closing the stopcock on glass condenser until you can't hear it whistling. Let the sample to spin under vacuum for about one minute, it will soon begin to boil in a high probability. When the exterior surface of the flask begins to form condensation, lowering it into the water bath approximately half way.

Step five: keeping the situation for one or two minutes, opening the stopcock if there is danger. Then repeated this until the solvent is steadily streaming from the condenser. Then rotary evaporation equipment operator shall leave the rotary evaporator apparatus unattended.

Step six: checking the operation situation occasionally to ensure the rotary evaporation equipment functions well.