FISON

Operational Manual

Manual Lifting Rotary Evaporator FM-LRE-A200

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1. Safety Measures

- Before using, thoroughly read the Operational manual.
- The power connection should include a dependable ground wire to guarantee that the frame is properly grounded for safety.
- When disassembling and cleaning glass instruments, it's important to handle them gently to avoid any shocks or collisions that could lead to breakage.
- Avoid using electric or direct flame heating methods, as well as the evaporation of any flammable, explosive, toxic, or corrosive substances.
- When handling heavy solutions, users are required to implement the appropriate safety precautions and adhere to the specified safety procedures.
- Before starting regular operations, Precious Solutions should conduct simulated experiments to ensure that the equipment meets the necessary technological requirements.
- The water bath must be filled with water before being powered on and should be turned off after use.
- To avoid submersion of electrical components.

2. Introduction

Manual Lifting Rotary Evaporator FM-LRE-A200 features a 5-liter evaporation flask and achieves a vacuum degree up to –0.098 MPa, making it ideal for precise solvent removal under reduced pressure. Built with high-borosilicate 3.3 glassware, PTFE sealing, and a manually adjustable lift bath, it ensures uniform heat distribution and efficient thin-film evaporation. Its design supports high-yield recovery and thermal stability during low-boiling-point operations.

3. Features

- 5 L evaporating and 3 L collection flask
- Manual lift bath compatible with water or oil heating
- PTFE sealing for vacuum-tight performance
- Optional explosion-proof motor for enhanced safety
- Adjustable evaporating angle for sample flexibility
- Digital temperature display for precise control

4. Specifications

Model No.	FM-LRE-A200
Rotary flask capacity	5 L
Collection flask capacity	3 L
Rotating speed	3 to 120 rpm
Water bath power	2 kW
Bath temperature range	RT 199 °C
Sealing system	PTFE sealing
Vacuum degree	–0.098 MPa
Motor power	60 W
Power supply	220 V / 50 Hz
Dimensions (L×B×H)	1000mm × 400mm × 500mm
Packing Dimensions (L×B×H)	1020mm × 450mm × 560mm
Net Weight	50 kgs
Gross Weight	60 kgs

5. Applications

For solvent recovery, concentration, crystallization, and separation in chemical synthesis, drug development, food quality testing, and academic research.

6. Structure Introduction

Characteristics:
The process operates under vacuum conditions, with consistent heating and a steady rotation of the bottle. This setup allows the material inside the rotating bottle to create a thin film over a large surface area, which enhances the evaporation efficiency. The solvent vapor is then directed through a highly effective glass condenser for cooling and collection, significantly boosting the overall evaporation efficiency. This method is ideal for concentrating and purifying biological products, particularly those that are sensitive to high temperatures and prone to decomposition.

7. Installation

Rotating speed requirements:

1) The greater the vacuum level, the quicker the liquid will evaporate; the vacuum should be maintained at no less than -0.096 MPa.
2) As the temperature of the water bath increases, the rotation speed tends to increase as well, typically not exceeding 80°C. The process should be conducted in accordance with specific requirements.
3) Lower cooling water temperatures and higher rotation speeds lead to increased cooling efficiency.

8. Operations

Operation Procedure:

1) **Vacuum:** Verify the sealing of each component to ensure that all cokes are securely closed. Then, connect the vacuum pump and the vacuum gauge using hoses.
2) **Charging:** It is possible to suction liquid material straight into the rotary flask by using a charge system and negative pressure. No more than half of the rotational bottle should be filled with liquid. The device can be charged continuously. Be mindful of the charging duration:

- Turn off the vacuum pump.
- Please stop heating.
- After the distillation is complete, gradually open the inlet valve to avoid backflow.

3) **Heating:** The device is specifically crafted with an automatic lifting feature and requires the addition of water or oil prior to heating, with a temperature range of 0 - 200°C. Due to thermal inertia, the real temperature tends to exceed the set temperature by approximately 2 degrees.
4) **Rotation:** Turn on the device and adjust the rotation speed using the knob. Be careful to prevent any water splashing.
5) To effectively cool the condenser, it's essential to connect a chiller or your coolant source directly to it. Doing so will ensure optimal performance and efficiency. R.
6) **Recovering solvent:** Deactivate the vacuum pump, open the valve (the one that doesn't have a hose attached), and open the discharge valve.

9. Maintenance

1) If you suspect a leak in the vacuum system, stop working immediately and inspect the sealing components. Most leaks are caused by loose joints; apply a small amount of vacuum grease to the sealing surfaces and glass joints for better sealing. Also, ensure that all valves and cocks are securely closed before starting any procedures to maintain optimal vacuum integrity.
2) Regularly clean the bottles. The heating bath must be cleaned after it has been used.
3) Once you have finished using the equipment, check the circuit regularly and turn it off.
4) Glass components need to be handled with caution.