

Mojonnier Low Temperature Evaporator

Mfg: Mojonnier

Model: LTFL

Stock No: 185.CI03.30

Serial No: 42

Mojonnier Lo-Temp Evaporator. Model: LTFL. S/N: 42. Includes: Separator (jacketed): 1ft. 4-1/2 in. straight wall. Collection glass: 1 ft. L x 6-1/2 in. dia. Inlets/outlets: (1) 2 in. S-line, (1) 4-5/8 in. sight glass, (1) 1-3/4 in. sight glass. Overall height is 6 ft. 6-1/2 in. H. Condenser: collection glass: 1 ft. L. x 6-1/2 in. dia. Outlet: (1) 1-3/4 in. sight glass. Overall height is 5 ft. 10-1/2 in. H. Pumps include: Waukesha 18 positive displacement pump, model: 18. S/N: DO59316SS. Flow rate for new pump is 17 gpm with required horsepower and pressure. Reliance electric motor: 1 Hp, 1725 rpm, 208-230/460 V, 3.4-3.4/1.7 A, 60 Hz, 3 Phase. Dodge Master XL speed reducer: 2.23 max input Hp, 1750 input rpm, 324 Cap. In. lbs., 4 to 1 ratio. Beach-Russ Co. Rotary Pump. No. 110-20/C. S/N: 72063. Motor specifications: 1 hp, 1800 rpm, 230 V, 1.8 amps. Centrifugal pump. Impeller diameter: 3-7/8 in. Leeson electric motor, 1 hp, 1725 rpm, 115/208-230 V, 12.8/6.5 amps, 60 Hz, single phase. Inlets/Outlets: (2) 1-1/2 in. dia. S-line fitting. Inlets: (2) 1/2 in. dia. infeed (product), (1) 1/4 in. dia. FNPT (steam). Outlets: (1) 1/2 in. dia. port (condensate), (1) 3/4 in. dia. port (vapor), (2) 1-1/2 in. dia. ports (product). Overall dimensions: 4 ft. 7 in. L x 3 ft. 11 in. W x 6 ft. 11-1/2 in. H.

Operating Principle

This Mojonnier low temperature evaporator heats sensitive products at very low temperatures and is capable of evaporating at room temperature using both remote, hot and cold water sources. The evaporation rate increases as product temperature is raised.

In a standard evaporator, cooling tower water is used to condense vapors, as product temperatures are much higher than room temperature. In this evaporator, chilled water must be run through the condenser in order to help condense the vapor from the separator.

This system is designed to work in a manual mode in that the product is introduced and removed manually, and condensate is removed manually. Pumps are also started manually.

Startup and Operation

(note: this section references the attached evaporator diagram to identify the valves mentioned here.)

1. Open the water to the vacuum pump and start the pump, **VP**. Ensure all valves leading into the evaporator are closed off. Monitor the vacuum gauge and ensure the unit is building up vacuum.
2. Once the system is under a vacuum, a product inlet hose should be connected to the product inlet. Care should be taken to avoid introducing too much air into the system. The fact that the system is under vacuum will cause product to get sucked into the system. **V1** should be turned off and **V2** should be set to recirculate until the operator is ready to introduce product. When that is the case, switch **V2** so that product can be introduced into the system.
(note: it is recommended that product be introduced at or near the maximum desired temperature this will ensure quicker evaporation time.)

3. When the desired amount of product has been put into the evaporator, then the hot water pump should be turned on. The hot water should be at a temperature of 10-20 degrees above the maximum desired product temperature. **V2** should be turned off and **V1** should be turned on, and the pd pump should be turned on to start recirculating product.

note: never operate a pd pump dry as substantial damage could result. Refer to owner's manual for complete operating instructions.

4. Recirculate cold water through the condenser. This is a low temperature evaporator and is meant to evaporate at lower temperatures; a cold condenser will help condense room temperature water. **V3** under the condenser should be turned off. Once water starts condensing, it will be visible in the sight glass immediately above **V3**. It may be necessary once the sight glass is full to open **V3** and allow the condensate to drain through the vacuum pump. Close **V3** after draining to see condensate form again. The reason for this sight glass is to show you that the evaporator is still removing water.

5. While the evaporator is running, ensure you have deep vacuum (over 27inHg) and that your product temperature is not above your maximum desired product temperature.

6. Once your product reaches the desired concentration, turn off the vacuum pump, turn off the water to the vacuum pump. Turn off the hot water.

7. Switch **V2** so that product exits the evaporator. Collect the product coming out of the separator. The pd pump should still be running and will drain the separator.

8. Turn off the pd pump. Do not allow this pump to run dry.

Cleaning Instructions

1. Turn on the vacuum pump. Turn on the water to the vacuum pump.

2. Introduce your cleaning solution to the evaporator similar you did with the product. Refer to the instructions above.

3. Recirculate cleaning solution using the pd pump similar to the product for 10 minutes. Drain following the same instructions above used to drain product. Repeat as necessary.





