

## Technical Publication

1330300	-	MF2
1330100	-	MF2S
1330900	-	MF4
1330500	-	MF4S

## TIMBER SEASONER

# INSTALLATION, OPERATION & MAINTENANCE MANUAL

Ebac Ltd Commercial Division  
St Helen Trading Estate  
Bishop Auckland  
Co. Durham  
DL14 9AD  
Tel: (01388) 664400  
Fax: (01388) 662590  
Website: [www.ebacuk.com](http://www.ebacuk.com)

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## INTRODUCTION

The purpose of the Ebac Timber Seasoner is to take the moisture out of the air of an enclosed space containing timber to be dried, thereby allowing the air to absorb more moisture from the timber and subsequently speeding up the whole drying process

Fans inside the Timber Seasoner draw moisture laden air over the evaporator coil where it is cooled. Since the Evaporator coil temperature is maintained below the dewpoint of the air, water condenses on this cold surface and drains into the drain tray and out of the machine via the drain tube. The dehumidified air is then passed over the condenser coil where it is reheated before leaving the unit. The air discharged is therefore drier and, as a consequence, slightly warmer than the air intake.

Being specifically designed for use in the elevated temperatures and low relative humidities encountered when drying a wide variety of hard wood and soft wood, the Timber Seasoner will work continuously in temperatures up to 60°C 60%RH

A heater is incorporated in the dryer for heating the lumber to the required temperature.

A control unit is a separate piece of equipment. It controls the drying and heating by use of signals received from the temperature and humidity sensors situated inside the drying chamber.

The MF range of Timber Seasoner's comprise of the following major components

- a) Compressor
- b) Evaporator Coil(s)
- c) Condenser Coil(s)
- d) Circulation Fan(s)
- e) Low Pressure Stat
- f) Heater Elements
- g) Drain Tray
- h) A Cabinet to house the components listed above

## SPECIFICATION

	1330300 MF2	1330100 MF2S	1330900 MF4	1330500 MF4S	
Height	1,190	1,190	1,535	1,535	mm
Width	1,100	1,100	1,100	1,100	mm
Depth	460	460	460	460	mm
Weight	128	128	190	190	kg
Number Fans	1	1	2	2	
Airflow	3,000	3,000	6,000	6,000	m <sup>3</sup> /hr
Supply Voltage	415	415	415	415	V
Supply Frequency	50	50	50	50	Hz
Power (Dryer)	3.0	3.0	6.0	6.0	kW
Power (Heating)	4.5	4.5	9.0	9.0	kW
Connected Load	8.0	8.0	16.0	16.0	kW
Max Drying Temperature	60	60	60	60	°C
Typical Extraction	60-150	60-150	120-300	120-300	l/24hr
Typical Wood Load	20	20	40	40	m <sup>3</sup>
Evaporator Coil Type	Cu	St/St	Cu	St/St	

## SYSTEM INSTALLATION

### Positioning

Position the Timber Seasoners in the area leaving enough room at either end of the unit to allow for servicing. Using a spirit level ensure the unit is level in both directions. Failure to do so may result in the drain tray overflowing and flooding the chamber

### Wiring

Connect a suitable control system to the Terminal Block position at one end of the equipment. See enclose wiring schedules in order to identify the correct terminal position.

### Drainage

Connect the outlet from the drain tray (located behind the front panel and under the evaporator coils) to a permanent drain.  
Ensure that the drainage does not rise above the level of the drain tray. Failure to observe this requirement will result in internal flooding of the dehumidifier.

## OPERATION

Although the operation tests will differ depending on which control system is being used, the basic points should be verified for correct operation

### **Fan Operation**

Switch the unit on and ensure the airflow is discharged from the top of the unit.

### **Heaters**

Set the control system for "HEAT" and measure the heater current draw in order to verify their operation

### **Compressor**

Set the control system for "DRYING" and measure the compressor current draw in order to verify their operation

Leave the unit running in the "DRYING" mode for approximately 30 minutes after which check the drainage system for water leaks.

## ROUTINE MAINTENANCE

**WARNING - ISOLATE THE MACHINE AND CONTROL SYSTEM BEFORE CARRYING OUT ROUTINE MAINTENANCE**

To ensure continued full efficiency of the Timber Seasoner it should be subjected to periodic maintenance procedures as follows :-

- Clean the surface of the evaporator coil and condenser coils by blowing the dirt out from behind the fins with compressed air. Hold the nozzles of the air hose about 150mm away from the coil to avoid damaging the fins. Alternatively vacuum clean the coils.

**WARNING - Do not steam clean refrigeration coils.**

- Check the fans are secured to the motor shafts and that the fans rotate freely. The fan motor is sealed for life and therefore does not need oiling.
- To check the refrigerant charge, run the unit for 15 minutes (with the controls set in the "DRYING" position) and remove the front cover. The evaporator should have an even coating of frost across its width. At temperatures above 20°C the coil may be covered with droplets of water rather than frost. Partial frosting across the evaporator coil accompanied by frosting of the thin capillary tubes indicates a loss of refrigerant.
- Check all wiring connections for security.
- The bolts retaining the compressor and fan motor should be inspected to ensure they have not become loose. Check the insulation sleeves on the refrigeration pipework have not become detached.
- Inspect the drain tray for water marking. If marking is excessive check the drain pipe for blockages.

## REPAIRS

Should an electrical component fail simply replace it with a spare supplied by the manufactures.

If refrigerant gas is lost from the machine it will be necessary to use a Refrigeration Engineer to correct the fault. The type and quantity of refrigerant used can be found on the Serial Number plate normally positioned in the electrical box.

It is essential that any refrigerant repairs are carried out by competent Refrigeration Engineers. The following procedure must be used :-

- a) The source of the leak must be traced and found
- b) The filter dryer must always be replaced if there has been a leak on the refrigeration system
- c) The machine should be thoroughly evacuated before recharging.
- d) The units must be recharged with the refrigerant measured accurately by weight. Type and quantity by specification.
- e) For evacuation and recharging of the machine use the crimped brazed charging stubs attached to the compressor and filter dryer.

The charging stub should be crimped and rebrazed after servicing. Never allow service valves to be fitted to any part of the circuit. Service valves may cause a leak causing further loss of refrigerant.

The refrigerant compressor fitted to the dehumidifier is a durable unit that should give many years service.

Compressor failures can result from the machine losing it's refrigerant gas. The compressor must be replaced by a competent Refrigeration Engineer

Failure of the compressor can be confirmed by :

- a) Establish that the power is present at the compressor terminals using a volt meter
- b) With the power disconnected check the continuity of the internal windings by using a meter across the compressor terminals. An open circuit indicates that the compressor should be replaced.
- c) Check the compressor is not "Down to Earth" by establishing that a circuit does not exist between the compressor terminals and the shell of the compressor.

## FAULT FINDINGS

SYMPTON	CAUSE	REMEDY
<b>Unit Inoperative</b>	<b>No Power to unit</b>	<b>Check Power Supply</b>
Little or No Airflow	Loose Fan Fan Motor Burnt Out Dirty Refrigeration Coils Loose Electric Wiring Fuse Blown or CB Tripped	Tighten Fan Replace Fan Motor See Maintenance Section Check Wiring Diagram Replace Fuse Reset CB
Little Or No Water Extraction	Insufficient air movement Compressor Fault Loss Of Refrigerant Gas Blocked Filter Dryer	Check all of Above See Repairs Section See Repairs Section Replace
Unit Vibrates Excessively	Loose Compressor Damaged Fan	Tighten Compressor Fixings Replace With A New fan
Water Flooding	Drain Pipe Blocked, Frozen Drain Pipe Too High	Clear The Obstruction Reposition To A Level Below The Water Outlet On The Drain Tray

## SPARES PARTS LIST

Description	Part No.	1330300	1330100	1330900	1330500
Compressor (MF2)	3020107	1	1	-	-
Compressor (MF4)	3020123	-	-	1	-
Compressor (MF4S)	3020129	-	-	-	1
Condenser Coil	3020725	1	1	2	2
Evaporator Coil (Cu)	3020733	1	-	2	-
Evaporator Coil (St/ST)	2330322	-	1	-	2
Fan Motor	3030130	1	1	2	2
Fan Blade	3040119	1	1	2	2
OHP	3031716	1	1	2	2
Pressure Stat	3021118	-	1	-	1
Heater Element	2330325	3	3	6	6
Filter Dryer	3020905	1	1	-	-
Filter Dryer	3020907	-	-	1	-
Filter Dryer	3020929	-	-	-	1