BUFFALO TRIDENT

Quality System
Quality Endorsed Company
ISO 9001 Lic 5976
Standards Australia
MELBOURNE OFFICE

OPERATING & MAINTENANCE INSTRUCTIONS
BR SERIES
MEDIUM TEMPERATURE EVAPORATORS

MODELS

BR16 to BR177

CONTENTS

1. IMPORTANT RECOMMENDATIONS

BR evaporators are intended for installation only by **Qualified Refrigeration Personnel**, and are to be installed in accordance with the guidelines mentioned in this manual.
(All electrical work is to be carried out by **Qualified Electrical Personnel** and to be in accordance with local electrical regulations)

2. SAFETY RECOMMENDATIONS

Evaporators supplied with **Nitrogen Holding Charge. (Release fully before removing seals)**

Electrical power to be **isolated** prior to the commencement of any electrical work

During normal operation, **Pressurised Refrigerant** is contained within the evaporator. Extreme care should be taken to avoid leakage, as personal injury may occur. **(Avoid the use of sharp objects in close proximity to refrigeration piping)**

Extensive gas loss in enclosed area may result in asphyxiation.

Contact with refrigerant may cause personal injury. (Freeze Burns)

Normal operating conditions involve **Hot and Cold** surfaces within the evaporator. Extreme care should be taken to avoid contact.

These evaporators are designed to operate in temperatures above 0°C. As such, all care should be taken to avoid any fluid spillage within coolroom, as this may result in personal injury due to slippage.

Avoid contact with evaporator fins, as sharp edges may cause personal injury.

Insertion of any object into evaporator fans is to be avoided, as this may result in personal injury and/or equipment damage.

3. APPLICATION RANGES

These evaporators are intended for use in commercial application coolrooms, with an operating temperature between 1°C and 20°C. **(Standard evaporator circuiting to suit 2°C room temperature, -4°CSST)**

Recommended refrigerants: **HFCs, HCFCs**. Refer to identification label. (Also suitable for CFCs)

This series evaporator is **not suitable** for use with NH3. (Ammonia)

Standard evaporators are not to be installed in hazardous/combustible environments. **(Special designs available on application)**

4. REFRIGERANT DISTRIBUTORS

BR series evaporators are supplied with a replaceable orifice plate within the distributor body. Standard production evaporators are supplied with combination R404A/R507/R407B orifice plates "ex factory", with additional R22 and R134a orifice plate attached to the assembly.

To replace orifice plate:

Cut the end from the copper distributor stub, approx. 30mm from brass body.

Remove stainless steel retaining clip located inside body using a small, flat bladed screw driver or similar instrument.

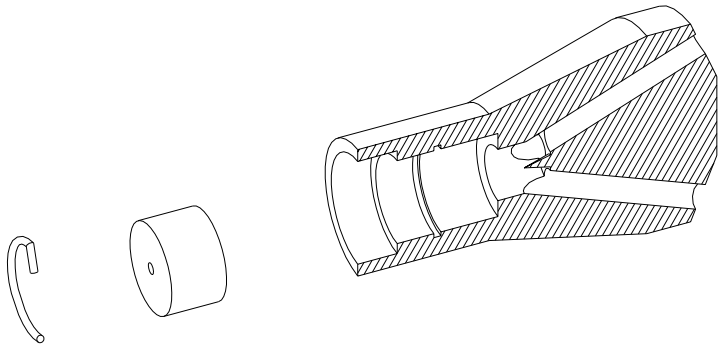
Orifice plate should now fall out with distributor stub in downward position.

Fit replacement orifice plate with distributor stub in upward position.

Refit stainless steel retaining clip, using same tool as used to remove clip, or alternatively, use a piece of copper tube with the same outside diameter as the orifice plate to snap the retaining ring into its original position.

Please Note: Refrigeration system must not be commissioned without the orifice plate and retaining clip in position, otherwise damage to compressor may occur.

Figure 1



5. INSTALLATION GUIDE

Using the flush mounting brackets provided, the evaporator should be fixed to the ceiling, allowing a **minimum** of 300mm between the wall and air-on side of the coil, and a minimum of 265mm from both the left and right hand side (looking at fans) for service access. Mounting of evaporator above doors should be avoided to reduce excessive frosting.

Please Note: Minimum diameter of fixing bolts to be 9.525mm (3/8").
The use of lifting devices during installation is recommended where applicable.

Fit externally equalised TX valves to all BR models. Locate TX valve bulb on the upper horizontal section of suction line (as per valve manufacturers recommendations), between the coil block and heat exchanger.

Refrigeration piping connections should be carried out in accordance with the current "Refrigeration Code of Good Practice"*.(Beware of **HOT** surfaces present during welding procedure)

BR low profile evaporators are designed for off-cycle defrosting. This arrangement achieves a positive defrost by cycling the compressor off while allowing the evaporator fans to run continuously. Defrost time may vary subject to room duty and atmospheric conditions. The cycling of the compressor can be achieved by installing a room thermostat and a low pressure control in series. The LP control is to be set as a back-up to the thermostat, with a cut-out point to correspond with the presence of ice on the evaporator, and cut-in point to correspond with a coil temperature above 2°C.

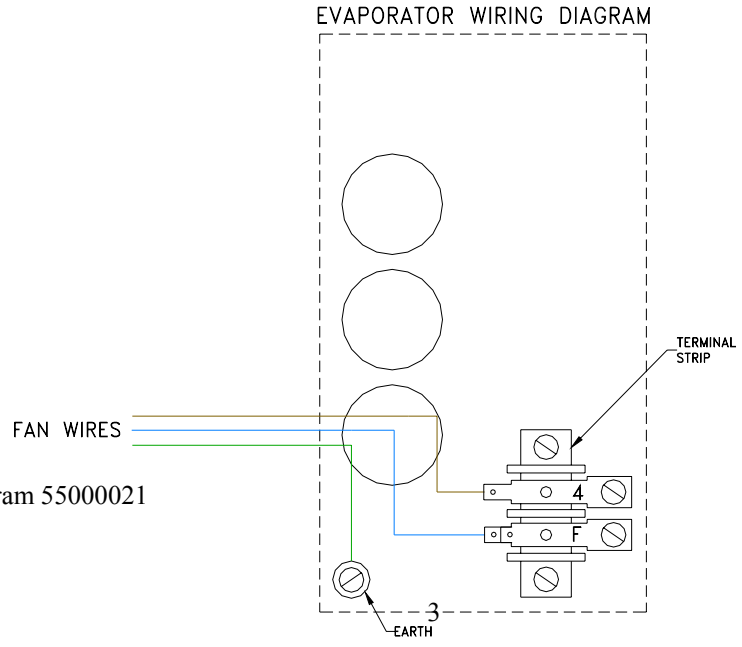
The suction line should lift towards the ceiling immediately after leaving the evaporator, to avoid possible liquid slugging to the compressor.

Drains should have a minimum I.D. of 32mm, and a fall of 150mm per metre should be provided within the refrigerated space. It is also advisable to keep the length of drain inside the room to a minimum, and once outside, a water trap must be provided to prevent air and/or odours entering the room via the drain. Plastic or rubber drains are usually suitable for room temperatures above -15°C.

6. ELECTRICAL CONNECTIONS

Fan motors are suitable for 240 Volt 50 Hz operations only, and are supplied pre-wired to terminal strip located in the electrical junction box.

All models are wired in accordance with the wiring diagram 55000021



Wiring Diagram 55000021

7. COMMISSIONING INSTRUCTIONS

Leak testing should be carried out in accordance with the current "Refrigeration Code of Good Practice"*.

Following leak testing, the system should be evacuated using accepted refrigeration practices. The vacuum pump should be connected to both the high and low pressure sides of the system with all shut-off valves open.

Refrigerant charging should be carried out in liquid form, directly into the condenser or receiver.

Extreme care should be taken to avoid direct contact with liquid refrigerant.(Freeze Burns)

Ensure that electrical wiring is in accordance with previously mentioned drawings, and that fan motor direction is correct (clockwise looking at junction box).

8. MAINTENANCE INSTRUCTIONS

Buffalo Trident evaporators require low maintenance, apart from regular cleaning of the fin face, drip tray, and drain. Frequency is dependant upon the operating environment of the evaporator.

It is recommended that fin surfaces are cleaned using a soft bristle brush and/or low pressure water, taking care to avoid all electrical components. **(Electrical power must be isolated prior to cleaning)**

Drip trays are easily hinged for cleaning by disconnecting drain pipe and removing tray fixing screws located on the front of the evaporator only.

All fan motors contain sealed bearings and are maintenance free.

9. DECOMMISSIONING INSTRUCTIONS

- Pump down refrigeration system into the receiver or suitable container. (As per "Refrigeration Code of Good Practice"*)
- Isolate power, and remove electrical wiring **(Remove earth wire last)** and associated components where necessary.
- Disconnect drain pipe.
- Disconnect refrigeration piping, and seal both the system and evaporator connections**. (Ensure that positive/negative pressure does not exist in evaporator prior to disconnection)**
- Evaporator can now be removed from ceiling. (The use of lifting devices during removal is recommended where applicable)

*** "Code of Good Practice" produced in conjunction with AFCAM.**