

## **Operating Condition for Nelson Model 12DIP, 16DIP, 12DIP-HV, 16DIP-HV**

### **TO CHANGE TEMPERATURE SETTING**

Press the "SET" key to display the current temperature set point, which will flash, then release the set key.

Use the UP & DOWN arrow keys to adjust to the new temperature set point.

Press and release the "SET" key to lock in the new temperature setting.

After about 10-15 seconds, the temperature control will display the current temperature.

### **INSTALLATION GUIDELINES**

**The Nelson visual display ice cream cabinets require a store temperature of 75 degrees (F) and 55% RH.**

1. The cabinets need to be installed with regard to moving air currents such as fans, air conditioning vents, or open doors. Moving air around the cabinet will cause excessive frost buildup and may prevent the cabinet from achieving proper temperatures.
2. The display cabinets must be located away from windows that would allow direct sunlight into the cabinet.
3. The Nelson 12DIP-HV and 16DIP-HV require the compressor vents to be free and open on both the operator side(air intake) and the customer side (air exhaust).

**BLOCKING THE CUSTOMER COMPRESSOR VENT WILL CAUSE THE COMPRESSOR TO OVERHEAT AND CAUSE POOR PERFORMANCE.**

4. The cabinets must be cleaned regularly to keep frost build-up to a minimum. Nelson cabinets are all stainless steel interiors and the frost can be scraped off the sidewalls daily, reducing the need to completely empty the freezer for a total defrost.

**EXCESSIVE FROST BUILD-UP WILL PREVENT THE DIPPING CABINET FROM ACHIEVING OPTIMUM TEMPERATURES**

Nelson equipment must always be connected to a properly grounded electrical outlet per local electrical standards.

The cabinets, per NSF guidelines, should be caulked to the floor with an NSF-grade silicone sealant or the cabinet should have casters installed.

## **Trouble-Shooting guide.**

### **I. Compressor does not start.**

1. Check electrical supply to insure outlet is working properly.
2. Check on/off switch located below the temperature display
3. If compressor does not start and temperature display is on, then:
  - a. verify integrity of wires into the temperature display.
  - b. verify the integrity of the wiring from the temperature display to the compressor.
  - c. verify the operation of the temperature control and the temperature probe.  
replace and/or repair as needed
4. check to verify compressor is not defective and replace if necessary.

### **II. Cabinet is too cold**

1. Refer to the temperature-adjustment instructions and set the temperature to a higher number (warmer). Generally, it is recommended that you do not adjust more than a couple of degrees at a time.
2. If the compressor runs continuously and adjusting the temperature control to a higher (warmer) number does not cut off the compressor, then verify the integrity of the temperature control:
  - a. verify the integrity of the wiring of the temperature control.
  - b. verify the temperature control shuts off the compressor as required.
  - c. verify the temperature control probe is seated adequately in the well above the compressor. The probe should be inserted into the well about 12" or 25-30 cm.

### **III. Cabinet is too warm.**

Before beginning work on a cabinet that is too warm, make sure the cabinet has been cleaned and defrosted and that the compressor air flow is not restricted in any way.

1. Refer to the temperature-adjustment instructions and set the temperature to a lower number (colder). Generally, it is recommended that you do not adjust more than 2 degrees at a time.
2. If compressor runs continuously and cabinet is too warm and temperature control is functioning properly.
  - a. Check items 1 through 4 above under "**Installation Guidelines**" to make sure the environment of the cabinet location is suitable.
  - b. Check to insure that the condenser fan motor(s) are functioning properly. Some units have 2 condenser fans and both must be working for proper operation.
  - c. insure that the air flow over the compressor is not blocked or reduced by dirt or debris. Compressor/condenser compartment must be kept clean.

If the conditions above are correct and the cabinet is still too warm, it will be necessary for a technician to check the integrity of the refrigeration system, which requires special tools and training.

#### **IV. Checking the refrigeration system:**

All Nelson cabinets are equipped with a low-side access valve for charging the system and diagnostics of the refrigeration system. All Nelson dipping cabinets use capillary tubes for control of the refrigeration flow.

**DO NOT ADD A HIGH-SIDE VALVE TO THE SYSTEM. IT CAUSES LEAKS AND BLEEDS TOO MUCH REFRIGERANT FROM THE SYSTEM.**

Capillary Tube systems are somewhat critically charged and the high side valve should not be used. All trouble-shooting can be determined from looking at the low side pressure reading.

1. When operating properly, one should observe a cabinet temperature of approximately 0 DEG (F) or -18 DEG (C) and a low side temperature of approximately 12 psig +/- 2psi.

The suction line to the compressor should be cold but there should not be frost on the compressor housing. A slight glaze or frost on the suction line close to the compressor is ok.

2. If the low side pressure is below 10 psig, then the system is short refrigerant and should be checked for leaks.
3. Particular attention should be paid to the cap on the low-side access valve and the sealing stem of the valve, particularly if the cabinet has sat without being used for an extended period of time.
4. If the low side pressure is above 0 psig and below 10 psig, some refrigerant may have seeped out since the cabinet left the factory. It is suggested that approximately 1 oz of R404a be added to the system. After operating the unit for about 30 minutes, observe the low side pressure. If it is still below 10 psig, then add 1 more oz of R404a.
5. If the low side pressure is below 0 psig (running in a vacuum) then thoroughly check for leaks in the system. If none are found, add refrigerant to the system and observe the low side pressure.

If the low side pressure does not increase with added refrigerant, (up to 12 oz. of R404a) but stays in a vacuum or near 0 psig, then most likely the capillary tube is plugged or the filter/drier is blocked. Replace the filter drier, unblock the capillary tube, then recharge the system.

6. If the low side pressure is above 12 psig, then slowly remove a small amount of refrigerant from the system until you achieve a balance of around 10-12 psig low side pressure and 0 (F) or -18 (C) temperatures in the cabinet.
7. If the low side pressure is around 10-12 psig and the suction line is warm to touch and the freezer is too warm, then the compressor may be weak and need replacement.