



## Industrial Freezer Sales

A division of IDS

5311 Derry Avenue Building D Agoura Hills CA 91301

Phone (818) 597-4300 Fax (818) 597-4301

[www.freezerlink.com](http://www.freezerlink.com)

### Liquid Nitrogen System

The Liquid Nitrogen System piping, if your freezer is so equipped, is built-in and always ready to use at a moments notice. It only requires a pressure nitrogen supply and connecting tube to hook-up. Our built-in liquid nitrogen system will not interfere with the normal function of the low temperature equipment or deform the lid gaskets. It permits the normal use of the sub lids, which are important to good temperature control.

**SAFETY PRECAUTIONS:** Good safety precautions should always be used with liquid nitrogen. Nitrogen is an inert, colorless, odorless and tasteless gas which makes up four-fifths of the air you breathe. Liquid nitrogen is obtained by cooling air until it becomes a liquid and then removing the oxygen which makes up the other fifth of the air. Liquid nitrogen reaches a temperature of -320 deg F under normal atmospheric pressure.

**EXTREME COLD - COVER EYES AND SKIN:** IDS's liquid nitrogen system is designed to shield and divert the liquid nitrogen away from the normal position in which you would stand. Nevertheless, always use the utmost safety precautions when it is connected and in use. ACCIDENTAL CONTACT OF LIQUID NITROGEN OR COLD ISSUING GAS WITH SKIN AND EYES MAY CAUSE A FREEZING INJURY SIMILAR TO A BURN. PROTECT YOUR EYES AND COVER THE SKIN WHERE THE POSSIBILITY OF CONTACT WITH THE LIQUID, COLD PIPES, COLD EQUIPMENT OR COLD GAS EXISTS. SAFETY GOGGLES OR A FACE SHIELD SHOULD BE WORN IF LIQUID EJECTION MAY OCCUR. Clean, insulated gloves that can be easily and quickly removed and long sleeves are recommended for arm protection. Since about 1990, we have installed a switch in the lid to prevent the liquid nitrogen from shooting into the freezer when the lid is up, but the best safety program is to close the liquid nitrogen valve when reaching into the cabinet, then open the valve when the lid is closed.

**KEEP EQUIPMENT AREA WELL VENTILATED.** Although nitrogen is non-toxic and non-flammable, IT CAN CAUSE ASPHYXIATION IN A CONFINED AREA WITHOUT ADEQUATE VENTILATION. ANY ATMOSPHERE WHICH DOES NOT CONTAIN ENOUGH OXYGEN FOR BREATHING CAN CAUSE DIZZINESS, UNCONSCIOUSNESS, OR EVEN DEATH. Nitrogen cannot be detected by the human senses and will be inhaled normally as if it were air. Without adequate ventilation, the expanding nitrogen will displace the normal air without warning that a non-life-supporting atmosphere is present. Store liquid containers outdoors or in other well-ventilated areas.

The Lock Hasp in an IDS Cabinet equipped with a liquid nitrogen system is **purposely loose to permit venting when the liquid nitrogen system operates.** When the liquid nitrogen stops flowing, the magnetic gaskets on the cabinet lid will automatically reseal for maximum efficiency in using the liquid nitrogen.



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When using Liquid Nitrogen, it is necessary that the freezer be equipped with a cryogenic high pressure solenoid valve. **Be sure to use high pressure hose from the LN2 bottle to the valve.** Provide an LN2 cylinder with a drop pipe for liquid nitrogen or invert the cylinder if there is not a drop pipe. Connect the high pressure hose from the LN2 bottle to the solenoid valve on the rear of the freezer using an 1/8" NPT to 1/4" flare stainless steel fitting.

### Installation and Maintenance Instructions

Electric on-off controls E55 series

#### Process Start Up

After the freezer has reached operating temperature, turn setting dial of the control to the desired emergency temperature (higher than operating temperature) and open nitrogen valve. For economic reasons the nitrogen control should be set at the highest temperature setting permissible.

*\*\*\*LN2 cylinders should be weighed frequently to determine the amount of LN2 that remains in the cylinder.*

#### Trouble Shooting Guide

##### Trouble

##### Common Cause

*No supply pressure*

Closed supply valve.  
Source pressure exhausted.

*Low supply pressure*

Nitrogen exhausted (Liquid).

*Process temperature shift up*

Thermal assembly failure.  
Liquid nitrogen exhausted.  
Solenoid valve not opening.  
Supply valve closed.

*Valve not operating*

Low battery charge.  
Charger not operating.  
Open electric circuit.  
Solenoid valve failure.