

MODEL'S CT-P15, CT-P30, CT-P45 & CT-P60  
CARBON DIOXIDE  
ELECTRIC DIRECT TO PROCESS VAPORIZER  
OPERATION MANUAL



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## **SAFETY PRECAUTION ! PLEASE READ !**

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Carbo Tech Carbon Dioxide Direct to Process Vaporizers are not complex, but are highly specialized. The knowledge of carbon dioxide and its properties, and the hazards associated with these systems is essential for a safe installation and trouble free operation of the unit.

The information provided in this manual is intended to be used by a qualified carbon dioxide specialist.

We strongly suggest that only qualified personnel install and maintain this equipment.

Refer to the appropriate Compressed Gas Association pamphlet for the proper materials to be used in the installation of carbon dioxide equipment.

Refer to the National Electric Code and/or appropriate governing body and consult a qualified electrician for proper power supply and hookup.

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### **CAUTION**

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This equipment is operated under high pressure. EXERCISE EXTREME CAUTION !

This equipment is operated with high voltage. EXERCISE EXTREME CAUTION !

Always provide adequate relief protection for the piping system by installing safeties between block valves. Failure to do so could result in equipment damage and possible injury to operating personnel.

Always install carbon dioxide equipment in a well ventilated area. If the possibility of trapped vapor exists, consult local codes as to the requirements concerning area monitoring and personnel notification.

## **Disclaimer**

The material contained in this manual is for information purposes only. The contents and the product it describes are subject to change without notice. Carbo Tech makes no representations or warranties with respect to this manual. Under no circumstances shall Carbo Tech be held responsible for any damages, direct or incidental, arising from the use of this manual.

## **Installation, Operation and Maintenance Instructions**

### **Carbo Tech Direct to Process Vaporizers**

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#### Installation

Uncrate and inspect the unit for shipping damage. Report damage to the freight carrier.

Install the vaporizer on a level surface. The unit can be anchored through the holes provided in the base assembly.

Check the nameplate for power requirements. Be sure the voltage and service supplied agrees with the nameplate. Connect the power to the line terminals of the disconnect switch.

Connect process fluid lines to the unit. Ensure the inlet and outlet are properly connected as improper installation will damage the unit and void the warranty.

#### Operation

Turn the main disconnect switch "ON"  
Turn the control power switch "ON". If the ambient temperature is above the gas temperature setting, the heater will come on and heat the unit up to ambient. If the Ambient temperature is below the gas temperature setting, the unit will stay off until a flow is initiated.

Open the supply line to the vaporizer and initiate a reduced flow through the unit to start the vaporizing process.

After the unit starts to cycle, monitor the gas temperature leaving the vaporizer. If necessary, adjust the gas temperature controller to achieve a temperature of 70 degrees F. Any variance from this temperature can cause problems with the unit such as reduced vaporizing capacity. To get the best service from the unit, the gas temperature should be as cold as possible based on the customers needs.

A low temperature controller is provided to stop the flow of product in the event the vaporizer should fail. It is set at approximately 5 degrees F and will close the automatic valve located on the discharge side of the vaporizer.

High temperature safety switches are located on top of each heater casting. These switches are set at 200 degrees F and will shut the unit down in the event of an overheat situation. The switches automatically reset when the castings cool to 165 degrees F.

Do not operate the unit at temperatures above 80 degrees F unless the vaporizer has been specifically directed to deliver hot gas (above 80 degrees F).

## Troubleshooting

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- Unit Functions (relay turns on/off), but doesn't appear to acknowledge temperature
- Thermistor not properly installed. Check for loose or improperly installed probe. Probe must be in the provided well or in direct contact with the casting and the discharge tube.  
Temperature setting is too high.
- No dial control- Thermistor is good.
- Control voltage failure, Check control voltage fuses. Bad board. Replace.
- Unit functions, but the gas temperature gets too cold before unit comes on
- Thermistor not properly installed. See above.  
Gas temperature board set too low. Readjust.  
Gas temperature board set too high allowing unit to
- When rotating temperature control board dial, clicking is heard, but contactor does not energize.
- Casting is too hot and high temperature cutout has unit cut off. Allow unit too cool and check gas temperature control board.  
High temperature cutout bad. Replace.
- Unit turns on, stays on and does not respond to adjustment.
- Bad board. Replace.
- Unit does not get warm, freeze up and contactor does not pull in
- Check main power to the unit  
Check control voltage fuses and transformer.  
Check thermistor for continuity. Replace if necessary.  
Check gas temperature control board for proper operation and setting.

## **FEATURES AND SPECIFICATIONS**

Built to requirements of the National Electric Code

UL listed electrical components

Durable electric cast aluminum heating platens with separate cast aluminum/SS tube platens

Minimum of screwed fittings to lower leak potential

Use of reliable Fenwal controller, A-B pressure switch, C-H contactor and Sporlan solenoid

Durable and corrosion resistant fiberglass Nema 4X electrical enclosures

In line orifice to prevent over draw

Special two piece construction to separate control circuit from heater

Electrical door interlock for added safety

**SYSTEM COMPONENT  
SPECIFICATION SHEETS**