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CEXSTEAM VAPORIZER

INSTALLATION AND OPERATING INSTRUCTIONS

SERIAL NUMBER _____

I. Installation Instructions

2. Install vaporizer on a level base or with condensate drain end slightly lower than steam inlet end. This will insure good drainage of condensate.
3. Set up condensate system so that condensate always drains completely from shell. If condensate is allowed to accumulate in the shell, ice will form in the shell and seriously impair the performance of the vaporizer.
4. Be sure that main steam supply line and steam control valves are adequate to provide design steam pressure at inlet to the unit.
5. A safety relief valve should be provided on any line in which liquid cryogen can be trapped.
6. Be sure that steam, condensate and process fluid lines do not put excessive bending loads on vaporizer connections.
7. If the process fluid is controlled down stream of the vaporizer by automatic valves, these valves must be located far enough downstream to allow the liquid already in the vaporizer and the stream of liquid flowing to the vaporizer to vaporize. There must be sufficient room for the gas to compress and stop flowing without generating serious pressure surges caused by the valves slamming shut. Another option is to control the valves so that they shut slowly.
8. Connect the liquid process connection to the connection marked process inlet on the unit.
9. Connect the gas process outlet connection to the connection marked process outlet connection on the unit.
10. Connect the condensate outlet from the shell to the condensate return system – the condensate must be allowed to drain back to a gravity system. If the

condensate has to be returned to a pressurized system, the condensate must be pumped back into the pressurized system using a condensate pumping trap of some sort – either steam or electrically powered.

11. Connect the drip trap on the steam inlet to the unit to a condensate return system. The condensate from the drip trap may return directly to a pressurized condensate return system.
12. Connect the steam supply to the connection marked steam inlet on the unit.
13. Leak check all connections at 1.25 times max working pressure with clean dry nitrogen. If any leaks occur, repair the leaking joint the retest the connections.
14. Connect a 120 vac, 50/60 htz power supply to the electrical connections in the control panel. The unit is pre-wired and functionally tested.

II. Operating Instructions

1. The unit consists of three inter-related components. The components consist of the following: a. Steam Vaporizer; b. Temperature Control System; c. Low Temperature Cut Off System.
 - A. The steam vaporizer consists of two main components. The shell, which contains the steam and the tube bundle that contains the process gas. The steam enters the shell and condenses on the tubes. This in turn causes heat to be transferred from the steam to the process gas.
 - B. The temperature control system consists of a pneumatic temperature controller that senses the outlet gas temperature as it exits the unit with either a bi-metallic element or a fluid filled bulb. The temperature controller then sends a pneumatic signal to the steam control valve causing it to open if the outlet gas temperature is cold and to close if the outlet gas temperature is too warm.
 - C. The low temperature cut off system also utilizes the same temperature controller to turn on and off the liquid flow through the vaporizer. The temperature controller is set to turn off the liquid supply valve when the outlet gas temperature from the valve reaches -20°F . The low temperature control system also utilizes a steam pressure switch to turn off the unit in case steam pressure is lost to the unit.
2. General Operating Instructions:

- A. On initial start up, remove the plug from the steam trap or wye strainer. Make sure that no one is around and then turn on the steam to the system. Thoroughly blow out all pipe dope and or debris from the piping to the unit.
- B. Replace the plug in the wye strainer and tighten
- C. Turn on the steam to the unit.
- D. Turn on the electrical power to the unit.
- E. Turn on the liquid supply to the vaporizer. Adjust the set points on the unit to the desired settings. The outlet gas temperature controller is set at 70⁰F at the factory. The low temp cut off controller is the low temperature cut off temperature and is usually set at – 20⁰F at the factory

If the unit is physically surging – the shell shaking around – this is generally a sign of condensate building up in the shell. If this is a problem, remove the cap from the condensate stand pipe to be sure that there is no condensate accumulating in the shell. It is not unusual for the condensate to exit the shell in surges when the unit is operating normally. The condensate trap is a thermostatic trap that will purge, shut off and purge again. This is normal operation for the unit. The unit physically shaking is not normal operation.

The unit is equipped with a vacuum breaker to keep the shell internal pressure from becoming negative. This is to prevent condensate from being pulled back into the shell.

Please refer to the operating manuals provided on the various components for specific details on their operation if required.