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Installation Instructions
And
Operating Instructions
Low Pressure Ambient Vaporizer

I. Installation Instructions

A. Select a location for the unit that has good sunshine and that has no restriction to airflow. If multiple units are to be installed, the units should be placed at least 24" apart. Do not remove the flange covers on the unit until the piping is ready to be connected to the unit.

B. If the unit is shipped with the legs loose, bolt the legs to the bottom frame using the bolts that are supplied with the legs. Make sure to install the Knee braces that are supplied with the legs. If there are "special" braces, these generally will be installed on the side of the unit with the inlet and outlet connections. Generally it is easier to mount the knee braces with one inside the frame and one outside the frame on the smaller units where the braces cross each other.

C. Often the units are shipped upside down. If this is the case, lay the unit on its side to install the legs and knee braces. This can be done by attaching a sling to the bottom frame of the unit and tilting the unit onto its side. Be careful in doing this operation.

D. Stand the unit up using the holes supplied in the top frame if a top frame is supplied. If a top frame is not supplied, slide a section of 1" schedule 80 pipe or 1" flat bar through the extrusions at the top of the unit. The bar or pipe should be located below the clips that hold the extrusions together. Attach a sling to the bar approximately in the middle of the bar. Using a small crane or cherry picker (make sure the lifting equipment is designed to lift the load of the ambient vaporizer), lift the unit to the vertical position.

E. Lift the unit onto the pad or piers that the unit is supposed to sit on. Mark the location of the bolt holes through the pads on the unit. Lift the unit off the pad.

F. Drill the anchor holes in the concrete for the unit and set the anchors.

G. Set the unit and tighten the anchors. Make sure the feet are shimmed to prevent heavy loading or twisting of the framework - this may occur if one of the feet is off the concrete and the anchor bolts are tightened. Make sure that the unit is vertical - check the extrusions with a level. Shim the feet pads as required to level the unit.

H. Connect the inlet and outlet piping to the unit. Make sure that no piping loads are placed on the connections and piping of the vaporizer. Flex sections should be supplied at all

connections to eliminate any loading from the piping. Make sure that the piping complies with all local codes and pressure requirements.

I. Leak check all the piping at 1.25 times MAWP with nitrogen gas or other inert gas.

J. Clean the piping for the appropriate gas service.

K. The unit is now installed.

II. Operating Instructions

A. The unit requires very little maintenance and is very easy to start up. If the unit is charging or packing a gas pipeline, it may be advisable to throttle the flow through the unit as the line is filling initially. Turn the liquid on to the unit slowly.

B. The vaporizer is a natural convection vaporizer and depends on airflow through the extrusions to make the unit work. If the airflow is obstructed, the unit will not work properly. The top and bottom of the unit should be free from all obstructions. The air cools as it comes in contact with the fins and flows downward through the unit. If there are any obstructions, the air will not be able to flow and the performance of the unit will be degraded.

C. The outlet temperature will be between 5 and 50^0F below the ambient temperature. This temperature difference between the outlet gas temperature and the air temperature is dependent on the amount of sunshine, the amount of gas flowing through the unit, and the amount of ice built up on the extrusions.

D. As the unit operates for longer periods of time, the unit will build up large accumulations of ice. The ice will have to be removed or eventually the ice will completely cover the unit, reducing the heat transfer to the point where the unit will no longer be able to vaporize the product. There are several means available to remove the ice build up on the unit. One method is to turn off the flow of gas through the unit and allow the unit to warm up. As the unit warms up the ice will melt off the unit. This form of natural convection defrost is acceptable, but slow and the time for defrost will depend on the outside temperature, the humidity, and the amount of sunshine that the unit is exposed to. If faster defrost is required, water may be run over the unit. This will melt the ice off the unit fairly rapidly. Hot water will work better and steam will work even better. Pointing the hot water or steam on the extrusions will loosen the ice as the extrusion heats up. Under no circumstances should the fins of the extrusion be beat on with a hammer or other heavy object to fracture the ice off. While this is effective in removing the ice, an ill-aimed blow may damage the extrusion tubes and cause a leak.