CRYOGENIC INDUSTRIES

FROSTBITE

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Climate Affects the Selection of Ambient Air Vaporizers

When designing ambient air vaporizers, many factors need to be considered. The environmental effect is one such criterion. When designing and specifying fan-assisted and natural draft ambient air vaporizers, four main climate zones are used: tropical, Mediterranean, humid continental, and marine. Each of these zones, however, may contain micro climate zones with significantly different climate than the surrounding area.

In discussing climatic effects, a basic understanding of the principles of ambient air vaporizers is necessary. Fan-assisted vaporizers utilize forced convective heat transfer whereas natural draft ambient air vaporizers utilize natural convective heat transfer. Natural convective vaporizers are typically manufactured with three different fin spacings, depending on how long the vaporizers are going to be operated before complete defrost is achieved. Standard spaced vaporizers typically operate less than 24 hours before complete defrost and have a fin tip-to-tip air gap roughly 1.5"(38 mm). [Figure 1]

Wide gap natural convection vaporizers are generally designed to operate three to seven days without defrost and typically have a fin tip-to-tip air gap spacing of 3"(75 mm) or more. [Figure 2] Super-wide spaced ambient air vaporizers are

The following are basic vaporizer design considerations when dealing with the issues of location and duration of operation of ambient air vaporizers. Other considerations also must be

The main difference from the tropical zone is the low moisture content here can exist six to nine months of the year. Several unique weather characteristics result from this. Infrared radiation which escapes from the atmosphere at night often