

Advantages of Low Charge Ammonia Evaporators

What differentiates the design of ammonia-based low charge evaporators from conventional ones? Essentially, there is no difference. However, reduced refrigerant mass flow rates require precise coil circuiting to ensure the evaporator functions effectively. An imprecise circulation will cause liquid to settle on the lower tubes portion and render upper portions “dry” resulting in poor evaporator performance due to stratified, unstable flow. The latest auxiliary equipment, such as motorized electronic valves, are essential in administering accurate flow control to the evaporator.

Lower refrigerant inventories within large industrial refrigeration systems provide many benefits to the owner or end user:

1. Reduced regulatory requirements
2. Lower investment costs
 - smaller pipe diameters (reduced pipe and insulation costs)
 - fewer vessels and when employed reduced volume
 - fewer refrigerant pump power requirements
3. Lower operating costs
 - reduced process safety management requirements
 - lower energy consumption, lower refrigerant pumping costs
 - reduced maintenance
 - lower insurance premiums

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