



Reduced refrigerant charge

Liquid desiccant solutions



For over 75 years, Alfa Laval Kathabar has engineered and manufactured liquid and dry desiccant systems for dehumidification and energy recovery applications. Our technologies improve the reliability, economy and efficiency of any manufacturing or processing operation that is humidity, temperature or microorganism-sensitive. We meet the ever-changing needs of our customers with quality products – providing reliable, precise and economical temperature and humidity control.

Alfa Laval Kathabar liquid desiccant systems provide a perfect solution for a wide range of applications for industrial, commercial, institutional and green/LEED facilities.

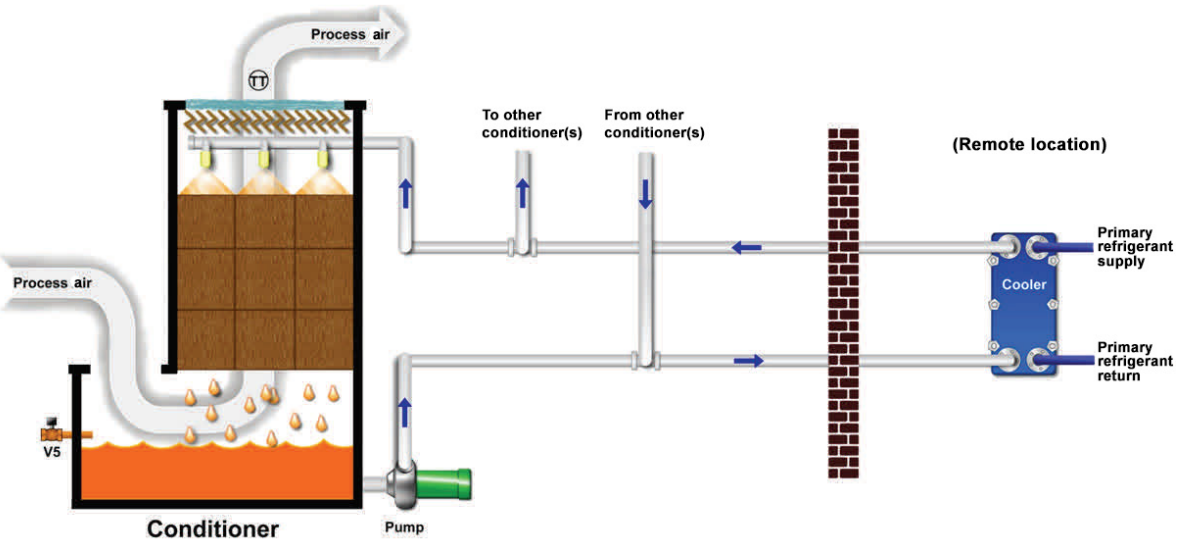
Advantages:

- Low refrigerant charge refrigeration system
 - Reduce refrigerant system charge to as low as 1 Lb/Ton
 - Utilize the desiccant solution as the secondary refrigerant
- Operate at temperatures as low as -60°F
- Remove refrigerant from product storage areas
- Eliminate defrost cycles
 - Hot gas piping, drip pans and the effects of sublimation disappear
 - Without frost, secondary refrigerants are simple to implement
 - Save energy by removing heat and moisture from the refrigerated space
- Design flexibility
 - Multiple conditioners with a single centralized regenerator
 - Use waste heat, hot water or low pressure steam for regenerating the desiccant
- Operational advantages
 - Simplify operator controls
 - Space humidity control
 - Safer environment with ice free, fog free and refrigerant free work areas

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Secondary refrigerant systems using liquid desiccants

The illustration below shows the Alfa Laval Kathabar conditioner used as a secondary refrigerant system. In operation, air to be conditioned is cooled and dehumidified by contacting Kathene in the conditioner. By continuously circulating the desiccant through a heat exchanger, energy is extracted from the air and transferred to a coolant. The amount of heat extracted by the Alfa Laval Kathabar dehumidifier is modulated to exactly match the load, by controlling the coolant flow through the heat exchanger. This configuration reduces refrigerant charge to as low as 1lb/ton, as well as increases system efficiency and safety.



Refrigerant systems comparison

	Distributed refrigerant systems (Ammonia)	Distributed refrigerant systems (Liquid desiccant)	Secondary refrigerant system (Ammonia)	Secondary refrigerant system with liquid desiccant
Refrigerant pumped throughout facility (volume)	Primary refrigerant: Typically ~20 lbs/ton of cooling	Primary refrigerant: Typically ~15 lbs/tons of cooling	Secondary refrigerant: ~1 lb/ton of cooling possible	Secondary refrigerant: ~1 lb/ton of cooling
Refrigerant charge in occupied areas	Yes	Yes	No	No
Maintenance requirements	Frequent coil cleaning required	No defrost required	Frequent coil cleaning required	No defrost required
Energy usage	33% of moisture which freezes on coil surface is reintroduced into space	100% modulation of heating and cooling sources. Additional energy used by desiccant pumps.	33% of moisture which freezes on coil surface is reintroduced into space.	100% modulation of heating and cooling sources.

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Alfa Laval reserves the right to change specifications without prior notification.

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