COLMAC COIL
Manufacturing Inc.

INTERLACED GLYCOL DEFROST

for refrigeration air coolers

Interlaced warm glycol defrosting uses a heated brine or glycol solution to introduce defrost heat into the coil block via a secondary interlaced tubing circuit. This method is particularly useful for defrosting CO_2 evaporators.

The glycol is heated in a heat exchanger which absorbs heat from the discharge gas of one or more compressors. The heated glycol is held in an insulated tank until a defrost cycle is required. Glycol pump(s) deliver the warm glycol, normally kept at 60 - 70°F (15 - 20°C), to the evaporator being defrosted by opening a solenoid valve in the glycol delivery pipe work at the coil block.

The warm glycol is delivered into dedicated glycol tubes in the coil block, which are arranged in the coil such that heat can conduct from the tubes into the coil fins melting the frost. The drainpan is also warmed by a glycol tubing loop to insure the pan is kept warm while melted frost is collected and drained.

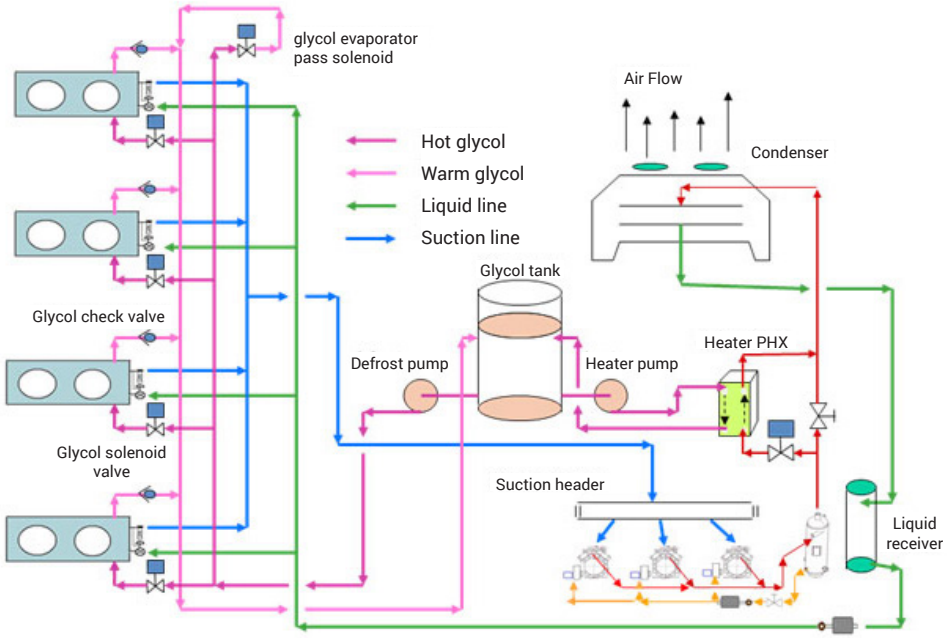
APPLICATION

- Uses closed loop warm glycol system for defrosting
- Convenient method of defrost for CO_2 evaporators
- Available on all A+Series™ evaporators

BENEFITS

- Glycol for defrosting can be heated using any source of waste heat
- Close control of defrost heat to the coil limits heat loss to the refrigerated space
- Defrost control valve group is simple and low cost
- Glycol pipework is simple and low cost

Glycol defrost system for multiple evaporators



LIMITATIONS

- Practical lower limit for room temperature with this defrost method: 0°F (-18°C)
- Below room temperatures of 0°F (-10°F evaporating temp) several challenges arise:
  - Glycol pumping power rises due to increased viscosity
  - Pumping pressure required to move cold glycol out of the coil block at start of defrost increases due to increased viscosity
  - Care must be taken to adjust and maintain a high enough glycol solution percentage to avoid freezing and bursting coil tubes during normal cooling operation. i.e. The freezing point of the glycol solution must be kept lower than the refrigerant evaporating temperature in the coil.

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Products

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www.colmaccoil.com

"The Heat Transfer Experts"

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CE(PED) Certification, ASME Sec. VIII,
Canadian Registration Number, UL508, Canadian Standards Association