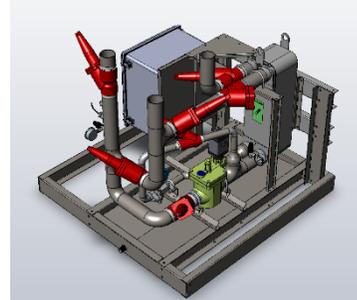




## Engineering Bulletin

ENG00020119 Rev A



## Ammonia Subcooler Assembly

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Colmac DX Subcooler Assemblies are designed to provide the necessary liquid subcooling for the successful installation of Colmac ADX™ Low Charge Ammonia Evaporators. They are pre-engineered for field placement in the plant engine room near the high pressure receiver.

Colmac DX Subcooler assemblies are offered in three sizes, up to 100, 300 & 700 evaporator tons depending upon the system liquid flow requirements. These units are built around fusion welded compact plate heat exchangers for a minimum ammonia charge and optimum heat transfer efficiency. It will be pre-piped and mounted on a base frame. The system liquid lines will be sized for a velocity of less than 4 ft/sec.

### Included Items

- Fusion welded plate heat exchanger suitable for 400 PSIG DWP at 300°F.
- System liquid inlet, outlet, and bypass lines, each with mounted seal cap service valves.
- Hydrostatic safety relief valves provided on both sides of plate heat exchanger.
- Liquid outlet pressure gauge with service valve.
- Temperature probe in a well for controlling and monitoring subcooled ammonia temperature.
- Suction line with seal cap service valve.
- Liquid feed line with seal cap service valve.
- Heat exchanger liquid feed solenoid valve.
- Electronic expansion valve mounted and piped.
- Seal cap service valve with capped outlet for draining the assembly.
- Support stand for the stud mounted heat exchanger and piping support.
- Stainless steel drip tray.
- UL listed mounted control panel prewired and programmed by Colmac.
- NEMA 4 enclosure with non-fused disconnect and indicating light.

### CONTROL PANEL

A UL Listed, control panel will be mounted, prewired and programmed by Colmac. It will be housed in a NEMA 4 enclosure with indicating lights. The following functions control will be controlled or monitored.

### Included Items

- Subcooler energized Light
  - Subcooled liquid temperature, digital readout
  - Subcooler expansion valve % capacity, digital readout
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## SKID ASSEMBLY AND PIPING

All of the above components will be mounted on a steel skid assembly with lifting eyes. All of the piping will be of 304 SS per IIAR-2, and ASME B31.5 requirements. All of the piping clearances will allow for a minimum of 2" of insulation where required. Once assembled, the entire assembly will be pressure tested to 385 Psig, evacuated and nitrogen charged. It will then be shrink wrapped for shipment.

## MODEL DATA

Model Number	System Cap., Tons	Max. System Flow, lb/hr	Sub cooling Cap., Tons	Main Liq. Line, NPS	Suction Line, NPS	Ammonia Charge, lbs	Dry Weight, Pounds	Size, in H X W X D
SC-100	100	2400	12	1	1 1/2	6	275	38" X 39" X 46"
SC-300	300	7200	36	1 1/2	2 1/2	14	350	38" X 39" X 46"
SC-700	700	16000	84	2 1/2	2 1/2	44	470	38" X 39" X 46"

## SELECTION

Simply determine the total capacity in Tons of all of the evaporators to be fed with subcooled liquid. Select the model that is larger than this total capacity. For installations requiring over 700 Tons contact your local Colmac representative. Part load operation of the subcooler assembly down to 25% of full load capacity is acceptable, with the limitation being the turn down range of the liquid pressure regulating valve. The heat exchangers are sized to cool 95°F liquid to 40°F with a maximum 30°F evaporating temperature. Alternately, there is sufficient heat exchanger capacity to subcool flash cooled intermediate or economized liquid by 10°F with an evaporating temperature 20°F lower than the leaving subcooled liquid temperature. Refer to the Colmac DX Ammonia Piping Handbook which can be downloaded from the Colmac website at [www.colmaccoil.com](http://www.colmaccoil.com) for system piping diagrams and a detailed discussion of liquid subcooling and system piping.



Colmac reserves the right to change product design and specifications without notice.

For more information on Colmac products call us at 1-800-845-6778 or visit us online at:

[WWW.COLMACCOIL.COM](http://WWW.COLMACCOIL.COM)