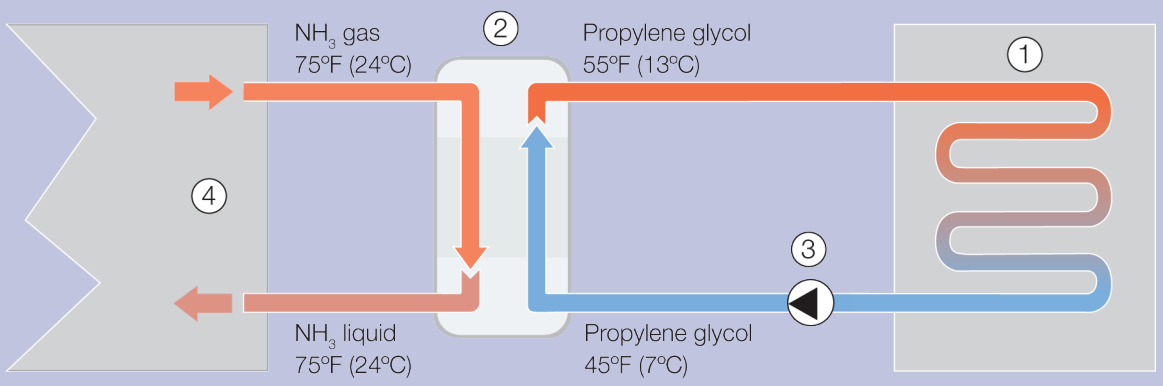
Floor warming with AlfaNova™

100% stainless steel fusion-bonded heat exchangers



1. Concrete slab with circulating glycol
2. AlfaNova™ 100% stainless steel fusion-bonded heat exchanger
3. Glycol pump
4. Ammonia receiver

General information

One of the challenges of maintaining the structural integrity of the concrete slab floor in cold storage warehouses and freezer rooms is preventing the floor from freezing. Condensation and ice on storage room floors also create an unsafe working environment. Traditional floor warming solutions consist of pipes embedded in a concrete slab circulating propylene glycol normally around 45˚F (7°C) to 55°F (13°C). The glycol circuit is heated in a heat exchanger using an available heat source such as ammonia at approximately 75°F (24°C).

Alfa Laval is now offering the AlfaNova™, a revolutionary new series of 100% stainless steel fusion-bonded heat exchangers, ideal for floor warming using ammonia. The AlfaNova offers a new level of mechanical strength for ammonia applications unmatched by any nickel-brazed heat exchanger on the market today. Pressure fatigue and thermal fatigue conditions that would destroy a nickel-brazed heat exchanger are no match for the rugged AlfaNova. The compact size of the AlfaNova is only 60% of the size and 20% of the weight of a comparable shell-and-tube heat exchanger.

AlfaNova™ 27

AlfaNova™ 76

AlfaNova – a breakthrough in heat transfer technology

Like brazed heat exchangers, the AlfaNova consists of a series of corrugated stainless steel plates with integrated end plates. But instead of brazing, the plate pack is bonded by AlfaFusion, a new technology patented by Alfa Laval. AlfaFusion is a method of bonding 316 stainless steel plates using 316 stainless steel filler in the fusion process. The result is a new class of all stainless steel corrosion-resistant heat exchangers with greater mechanical strength, maximum hygiene and higher temperature and thermal fatigue resistance.

Advantages of the AlfaNova™

- Corrosion resistance – high resistance to corrosion from natural refrigerants such as ammonia
- High mechanical strength – improved durability and reliability over conventional nickel-brazed units
- Smaller size – up to 60% smaller size than comparable shell-and-tube heat exchangers means easier installation
- Lower weight – approximately 20% of the weight of a comparable shell-and-tube heat exchanger
- Lower hold-up volume – means faster temperature response compared to a comparable shell-and-tube
- Environment-friendly – refrigerant is restricted to sealed fusion-bonded channels
- Cost-competitive – versus shell-and-tube and nickel-brazed heat exchangers

Sizing guide for AlfaNova floor warmers

Model	Part number	Parallel tubing circuits	Nominal capacity (kBtu/h)	Connection diameter	Notes
AlfaNova 27-40H	3287000876	5	95	1" Male NPT	
AlfaNova 27-100H	3287000879	10	190	1" Male NPT	
AlfaNova 76-50H	3287000910	15	280	2″ Weld	
AlfaNova76-70H	3287000912	20	375	2" Weld	
AlfaNova76-90H	3287000914	25	470	2″ Weld	
AlfaNova76-90H	3287000914	30	560	2″ Weld	9 psid on PG side
AlfaNova76-100H	3287000855	35	650	2″ Weld	10 psid on PG side

Notes for all units:
- PED approved to 435 psi
- Propylene glycol flow= 4 gpm/circuit
- Designs assume condensing ammonia in range of 70˚F to 85˚F
- Designs assume heating 40% propylene glycol 45˚F inlet to 55˚F outlet, 7psi drop maximum

ASME code and other sizes available upon request.

For more information, contact your local representative or Alfa Laval at +1 800 ALFA LAVAL or visit www.alfalaval.us