

## Cryogenic Conditioning Equipment

### SUBLIN Subcooler

Liquid Nitrogen is used as a cost-effective coolant for Industrial Applications. In many cases it is necessary to supply the liquid to the application under elevated pressure conditions and to de-pressurise it subsequently without any significant formation of gas or to allow adequate heat-absorption before the liquid reaches its boiling point.

#### Typical Subcooler applications;

- Spray cooling of large spaces, machines or plants via nozzle manifolds that require an even distribution of liquid nitrogen within the nozzle manifold, such as;
  - Spray cooling in tunnel freezers, mixers, kneading machines (mainly in the food industry)
  - High capacity cooling processes, precise temperature control in freeze-drying within chemical and pharmaceutical production processes
  - Deburring of rubber and plastic parts, e.g. in the automotive industry
- High efficiency cooling processes, especially at high differential temperature, such as mould or die-plate cooling in aluminium or other metal extrusion processes.
- Generation of high pressure cryogenic liquid jets
- Fast filling of pressure-less vessels, dewars and transport containers without the formation of fog for transport & general production purposes.
- Liquid conditioning for high pressure pumps.
- Liquid transfer to systems susceptible to the formation of gas bubbles, such as oscillating or rotart pumps, MBE cryogenic pumps
- HT super conductors cooling loops



#### Design features;

- Vacuum insulated vessel of horizontal or vertical design
- Top mounted gas vent and valves
- Liquid inlet and outlet connections located at the bottom (vertical version) or on the side (horizontal version)
- Non insulated connections with welded ends or metal sealed thread connections (flange connections on request), alternatively vacuum insulated Johnston type or welded couplings

For further details please contact Ian Davies at [idavies@igph.net](mailto:idavies@igph.net) or visit our website at



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[www.krytem.com](http://www.krytem.com)



[www.m-tech-gmbh.com](http://www.m-tech-gmbh.com)

## Technical Data

Coolant:	liquid nitrogen
Operating medium:	liquid nitrogen; optional: LOX; LAr and LNG (only with pressurised coolant bath)
Operating temperature:	coolant bath: -196°C (at ambient pressure) outlet on pressure side: 0.5 to 2°C above bath temperature
Operating pressure:	coolant bath: ambient pressure medium: 2 to 25 bar(g) optional: elevated bath / outlet temperature by means of pressurised coolant bath via a pressure retaining valve at the gas outlet; bath operating pressure 150 mbar(a) for cooling down to -208°C
Control:	ON-OFF level control via KRYTEM level sensor and solenoid inlet valve; Low exhaust gas temperature trip optional: steady level control via capacitive level sensor and pneumatic steady control valve outlet temperature control / monitoring by means of continuous level adjustment via an outlet temperature sensor / phase sensor level control without auxiliary energy with float valve (e.g., for operation in explosive atmosphere) integrated vacuum-insulated inlet valve (electric or electro-pneumatic)
Insulation:	vacuum max. 10 <sup>-4</sup> mbar at operating temperature
Current:	230 VAC / 24 VDC
Materials:	1.4541, 1.4571, copper, PTFE

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