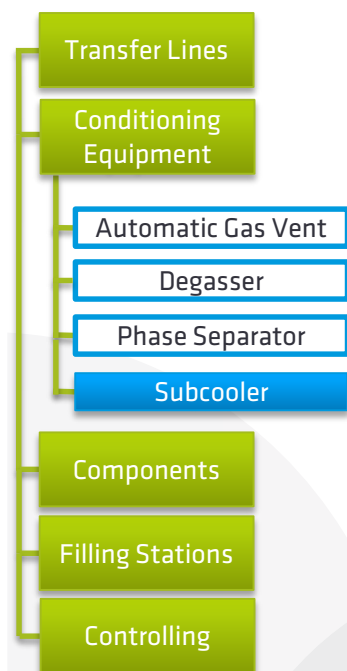


PRODUCT SHEET

SUBCOOLER



The presence of boil-off gas within a vacuum insulated transfer line, created by static and dynamic losses, may reduce the functionality or capacity of your system. Vacuum insulated subcoolers are used to condition two-phase cryogenic gasses to an one-phase flow. With this one-phase flow, control systems can operate better and become more stable. Stabilization of control systems reduces over spillage and sometimes transfer line diameters can be downsized.

The liquid nitrogen subcoolers consists of a heat exchanger submerged in a bath of liquid nitrogen at atmospheric pressure. By diverting some liquid from the incoming process line to the atmospheric bath the system is self-supplying. The level inside the atmospheric bath is automatically controlled by a combination of an electro-pneumatic (regulating) valve, level sensor and level controller.



BENEFITS

One-phase flow allows better and stable temperature control

Possibility to spray liquid on products

Works ideal in situations when nitrogen supply from bulk tank becomes unstable

FEATURES

All stainless steel design

Vertical orientation

Universal in- and outlets with Demaco Johnston bayonet couplings

Up to 16 bar working pressure

Integrated DC-LS-050 capacitive level sensor

Electro pneumatic valve for filling atmospheric bath

Standard cleanliness: Process clean

PED approved design with CE certificate

APPLICATION

Direct after bulk storage tank to maintain one phase flow at large consumptions

At the end of transfer lines direct before consuming machine(s)

Freeze tunnels in food industries or aluminum extruders

STANDARD STOCK MODELS

Type	Cooling Spirals	Max mass flow [kg/h] ⁽¹⁾
DC-SC-500	1	500
DC-SC-1500	3	1500
DC-SC-3500	7	3500

(1) Large gas volumes in pre-supplied liquid results in less cooling capacity

PRODUCT SHEET

SUBCOOLER

TECHNICAL DATA		DC-SC-500	DC-SC-1500	DC-SC-3500
Positioning	Indoor / Outdoor			
Ingress protection	IP65			
Ingress protection	Vertical			
Design pressure				
- Spiral	PN 18			
- Bath	PN 0,5			
Working pressure				
- Spiral	Max. 16 barg			
- Bath	Atmospheric			
Level indication	Capacitive			
Safety precautions	Pressure relief valve			
Power supply	24/110/240 VAC or 24 VDC			
Pneumatic supply	Minimum 6 barg			

OPTIONS

2x PT100 to measure inlet and outlet temperature

Regulating filling valve

Two media cooler

Oxygen clean on request

FDA certification on request

MATERIALS

Inner vessel and cooling spiral
1.4301/1.4306/1.4307 ~304(L)

Vacuum jacket
1.4301/1.4306/1.4307 ~304(L)

Spacers
Epoxy reinforced glass fiber

Multi-Layer Insulation
Glass paper and Aluminum foil

Johnston bayonet coupling
Fe36Ni and Buna N

(1) Large gas volumes in pre-supplied liquid results in less cooling capacity

DESIGN SPECIFICATIONS

Standard according Pressure Equipment Directive (PED)

Design according AD2000

Cleanliness level:

Cleaned oil and fat free, inspected for process clean

Oxygen clean on request

Static vacuum with Multi-Layer Insulation

Standard testing for each subcooler:

Dimensional check

Pressure test

NDE by X-ray or PT

Helium leak test (1×10^{-9} mbarL/sec)

Vacuum retention test after 24h at ambient temp (acceptance level 2×10^{-4} mbar)

Functional test at -196°C

DOCUMENTATION

Standard manufacturer data book record is part of each project and contains:

As built isometrics (if applicable)

Safety guidelines

User manuals

Declaration of conformity