



# Phase Separator

## Atmospheric Pressure

Stainless steel, over-head horizontal type vacuum jacketed cryogenic conditioning system designed to store LN<sub>2</sub> at user required pressure setting. Once the system has been set up, the liquid level and pressure is automatically control by the controller. The controller comes with a HMI to allow user to set their required pressure.

Compatible with TriFlex piping system to transport pure LN<sub>2</sub> from the Phase Separator, with no gaseous nitrogen will pass through your equipment.

### Phase Separator - Atmospheric Pressure

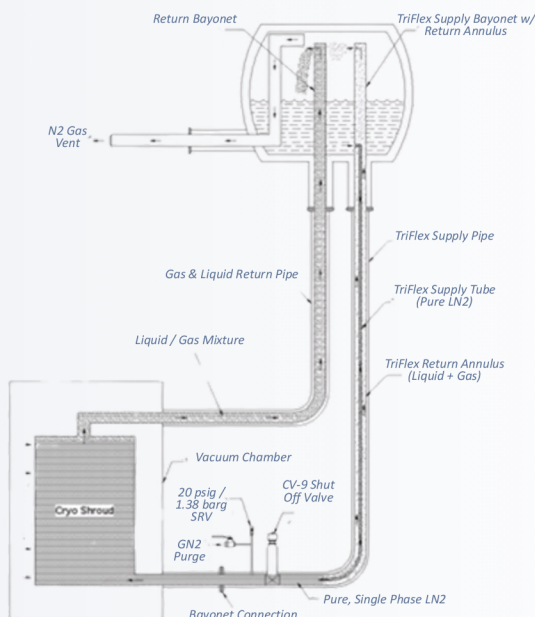
A CSM atmospheric type of Phase Separator is mainly used in specialized applications that demand extremely high quality, low pressure liquid nitrogen. CSM Phase Separator is a vacuum insulated reservoir holding tank for liquid nitrogen with a differential pressure level control system that operates with a proportional inlet valve.

The Phase Separator is continuously full of liquid nitrogen under atmospheric conditions. Typical applications include direct feed to a LN<sub>2</sub> doser or closed Loop liquid nitrogen circulation system typically found in Molecular Beam Epitaxy (MBE) system application.

Liquid nitrogen is fed from bulk storage tank to phase separator by StatiRigid or SemiFlex piping system.

All Phase Separators comes with CSM renowned customer service, from conceptual design to implementation, and are backed by a 5-years Vacuum Warranty, & 1-year Defect Warranty.

### Phase Separator Closed Loop Application:



### Features and Benefits

- Differential pressure controls and a proportional inlet valve helps to maintain a constant liquid level at +/- 5%
- Provides a ready supply of vapor free pure liquid nitrogen to critical applications
- Available in 22 and 46 Litre operating capacity with bottom outlets from 2 to 12 outlets. Higher capacity for custom application available
- It comes with special designed universal outlet connections, which allow either connections interchangeable with liquid feed TriFlex pipes or vapor return TriFlex pipes. This feature improve installation flexibility in a multiple pairs of closed loop piping system

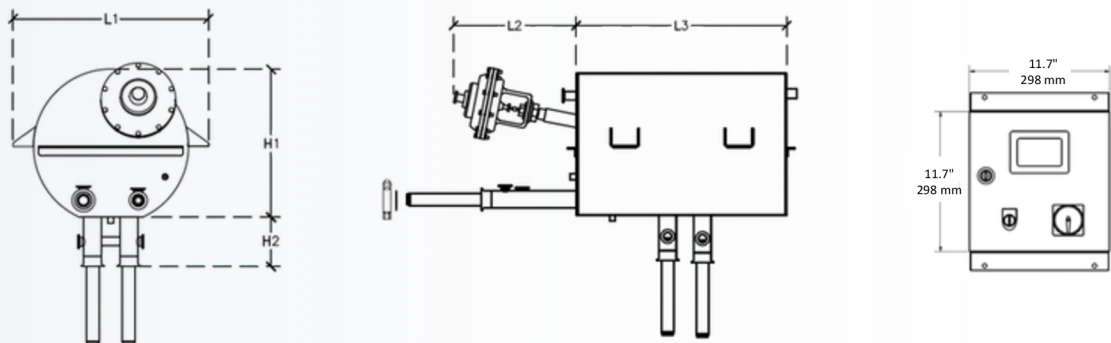
# Phase Separator Specifications

Model	C22.2	C22.4	C22.6	C22.8	C46.8	C46.10	C46.12
Operational Capacity <sup>[1]</sup> / Full Capacity	6 gal (22 L) / 10 gal (36 L)				12 gal (46 L) / 20 gal (78 L)		
Outlets (Bottom)	2 (C10)	4 (C10)	6 (C10)	8 (C10)	8 (C10)	10 (C10)	12 (C10)
Max. Inlet Pressure Max. Back Pressure	125 psi (9 bar) 22 psi (1.5 bar)						
Vessel MAWP	150 psi (10.3 bar)						
Max. Withdrawal Rate	10 GPM (38 LPM)				20 GPM (76 LPM)		
Weight - Empty - Full	115 lbs (52 kg) 180.8 lbs (82 kg)	119.1 lbs (54 kg) 185.2 lbs (84 kg)	123.5 lbs (56 kg) 189.6 lbs (86 kg)	127.9 lbs (58 kg) 194.0 lbs (88 kg)	176.4 lbs (80 kg) 315.3 lbs (143 kg)	180.8 lbs (82 kg) 319.7 lbs (145 kg)	185.2 lbs (84 kg) 324.1 lbs (147 kg)
Vacuum Insulation	Static	Static / Dynamic					
Level Control	Differential Pressure / Cryo-Stic Level Sensor						
System Utilities	Electricity: 80-240 VAC; GN2: 40 psi (2.7 bar)						
Materials	Stainless Steel 300 Series						
Standard Testing	Dimensional Check He Leak Checked @ $1 \times 10^{-3}$ cc/s						
Optional	Pneumatic Pressure Test, Vacuum Retention Testing, LN2 Cold Shock Testing, CFOS Cleaning for O2 Services, X-ray Inspection, Pre-Material Certs., ASME-coded Pressure Vessels BPVC Section VIII Certification						

<sup>[1]</sup> Factory preset operational capacity, field adjustable by user depending on liquid flow output requirement, and in-coming liquid saturation characteristics

# Phase Separator Dimensions

Model	H1	H2	L1	L2	L3
C22	16.4" (417 mm)	5.5" (140 mm)	21.6" (549 mm)	14.2" (361 mm)	24.4" (620 mm)
C48	16.4" (417 mm)	5.5" (140 mm)	21.6" (549 mm)	14.2" (361 mm)	41.7" (1060 mm)



All dimensions provided are for indication purposes only and may not accurately represent the actual product dimensions. Please contact us for updated and actual measurements.