# Phase Separator

## Atmospheric Pressure

Stainless steel, over-head horizontal type vacuum jacketed cryogenic conditioning system designed to store $LN_2$ at atmospheric pressure condition. Once the system has been set up, the liquid Level is controlled automatically by the controller.

Compatible with Triax piping system to transport pure LN2 from the Phase Separator, with no gaseous nitrogen will pass through your equipment

All Phase Separators comes with CSM renowned customer service, from conceptual design to implementation, and are backed by a one year warranty

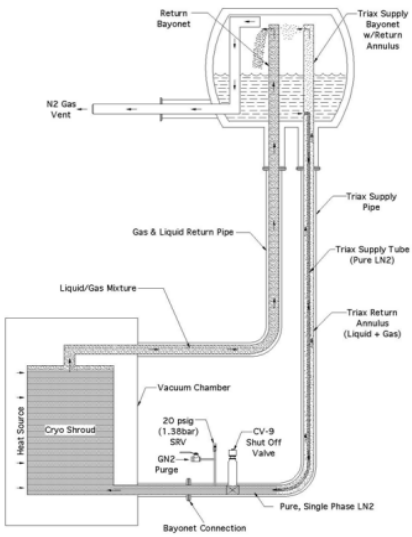
### Phase Separator

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 LN2 doser or closed Loop liquid nitrogen circulation system typically found in MBE (Molecular Beam Epitaxy) system application.

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

**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 Triax pipes or vapor return Triax pipes. This feature improve installation flexibility in a multiple pairs of closed loop piping system

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SPECIALTY MANUFACTURING
QUALITY WITH A DIFFERENCE

# Phase Separator Specifications

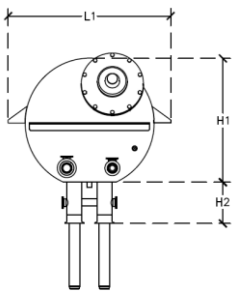
| Model | C22.2 | C22.4 | C22.6 | C46.8 | C46.10 | C46.12 |
|---|---|---|---|---|---|---|
| Operating Capacity*<br>Full capacity | 6 gal (22L)<br>10 gal (36L) | 6 gal (22L)<br>10 gal (36L) | 6 gal (22L)<br>10 gal (36L) | 12 gal (46L)<br>20 gal (78L) | 12 gal (46L)<br>20 gal (78L) | 12 gal (46L)<br>20 gal (78L) |
| Outlets (bottom) | 2 (C10) | 4 (C10) | 6 (C10 ) | 8 (C10) | 10 (C10) | 12 (C10) |
| Max. Inlet Pressure<br>Max. Back Pressure | 125 psig (9 bar)<br>22 psig (1.5 bar) | 125 psig (9 bar)<br>22 psig (1.5 bar) | 125 psig (9 bar)<br>22 psig (1.5 bar) | 125 psig (9 bar)<br>22 psig (1.5 bar) | 125 psig (9 bar)<br>22 psig (1.5 bar) | 125 psig (9 bar)<br>22 psig (1.5 bar) |
| Vessel MAWP | 150 psig (10 bar) | 150 psig (10 bar) | 150 psig (10 bar) | 150 psig (10 bar) | 150 psig (10 bar) | 150 psig (10 bar) |
| Max. Withdrawal Rate | 10 gal/min (38LPM) | 10 gal/min (38LPM) | 10 gal/min (38LPM) | 20 gal/min (76LPM) | 20 gal/min (76LPM) | 20 gal/min (76LPM) |
| Weight – Empty | 115 lbs (52 kg) | 115 lbs (52 kg) | 115 lbs (52 kg) | 177 lbs (80 kg) | 177 lbs (80 kg) | 177 lbs (80 kg) |
| Weight – Full | 154 lbs (70 kg) | 154 lbs (70 kg) | 154 lbs (70 kg) | 259 lbs (117 kg) | 259 lbs (117 kg) | 259 lbs (117 kg) |
| Vacuum Insulation | Static | Static/Dynamic | Static/Dynamic | Static/Dynamic | Static/Dynamic | Static/Dynamic |
| Level Control | Differential Pressure with PID valve | | | | | |
| System Utilities | Electricity: 80 – 240 VAC, GN2 @40 psig (2.7 bar) | | | | | |
| Certifications | NEMA 4X, CE | | | | | |
| Materials | Stainless Steel Series 300 | | | | | |
| Standard Testing | Dimensional Check<br>He leak checked 1 x 1 0 - 9 cc/s | | | | | |
| Optional | Pneumatic pressure test, Vacuum retention testing, LN2 cold shock, pre-material certs.,<br>CFOS cleaning for O2 services, X-ray, ASME coded pressure vessels BPVC Section VIII | | | | | |

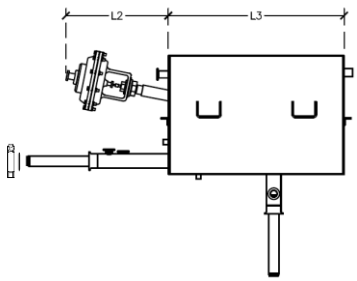
*Factory preset operating capacity, field adjustable by user depend on liquid flow output requirement and in-coming liquid saturation characteristic

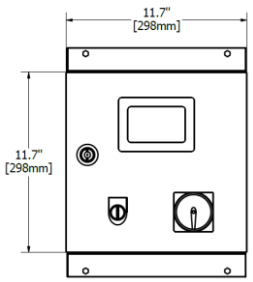
# Phase Separator C22/C46 Dimensions

| Model | H1 | H2 | L1 | L2 | L3 |
|---|---|---|---|---|---|
| C22 | 16.4” (417mm) | 5.5” (140mm) | 21.6” (549mm) | 14.2” (361mm) | 24.4” (620mm) |
| C46 | 16.4” (417mm) | 5.5” (140mm) | 21.6” (549mm) | 14.2” (361mm) | 41.7” (1060mm) |

C22

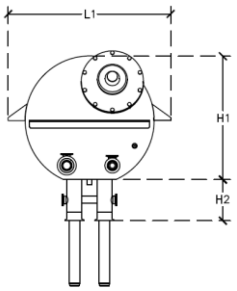


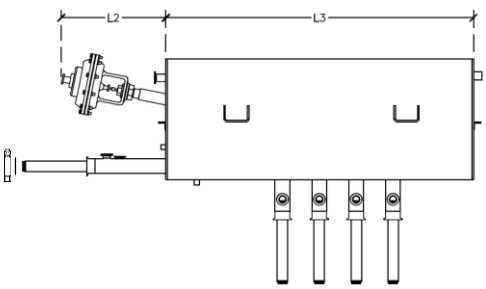




Controller Dimensions

C46

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