

# Gravity-Feed Phase Separator (GFPS)

A CryoWorks Phase Separator splits the incoming two-phase flow into separate liquid and vapor streams. The vapor stream is vented to the atmosphere while the single-phase liquid is dispensed to your equipment. Regardless of your application, single-phase liquid is a more effective working fluid, and a CryoWorks Phase Separator will supply high-quality liquid on demand. CryoWorks Phase Separators are versatile in design.



## Design Specifics:

A CryoWorks Gravity-Feed Phase Separator (GFPS) is designed to maintain high-quality liquid for on-demand withdrawal at atmospheric pressure. The headspace of the GFPS is open to the atmosphere to ensure no pressure build-up inside the phase separator.

## Features:

- Low Pressure Saturated Liquid** — Gravity-feed from the GFPS to your use points.
- Proportionally Controlled Inlet Fill Valve** — Controls incoming flow from the higher-pressure liquid nitrogen source to maintain the set liquid level.
- Differential Pressure Controller** — Dependable liquid nitrogen levels.
- Related Components** — CryoWorks Rigid VIP and Flexible VIP (Coaxial and Triaxial), Vacuum Insulated Valves & TAL Bayonet.

## Technical Specifications:

- Short Body Liquid Capacity** — 5.8 Gallons (22 Liters): 2 & 4 Outlets
- Long Body Liquid Capacity** — 12.8 Gallons (49 Liters): 2, 4, 6, 8, 10 & 12 Outlets
- Service/MAWP** — Liquid Nitrogen (LN2): 150 PSIG Max
- Utilities Required** — Gaseous Nitrogen (GN2): 50 - 400 PSIG Sensor Box  
 Power Cable: NEMA 5-15, 12' Standard Length  
 Controller Electricity: 100 - 240 VAC (50 - 60 Hz)
- Optional Vent Heater** — Standard: 100 - 120 VAC (50 - 60 Hz)  
 Optional: 220 - 240 VAC (50 - 60 Hz)
- Communication Protocol** — Standard: Ethernet Modbus TCP, USB 2 Standard Bus, SCPI  
 Communication Cable: 32', Low Voltage, Sheathed, Quick Disconnect Ends  
 Adder: Modbus® RTU
- Weight** — Dry: 145 lbs (66 kg) - 245 lbs (111 kg)  
 Full: 185 lbs (84 kg) - 330 lbs (150 kg)
- Vacuum Insulation** — Standard: Static Vacuum Design  
 Optional: Dynamic Vacuum Design
- Materials** — 304/304L Stainless Steel
- Codes and Certs** — Assembly: Built to ASME B31.3 Process Piping  
 Controller: NEMA 4X Electrical Enclosures
- Options** — Customization, Overflow Protection, Vertical Orientation, System Redundancy, Oxygen and Facility Monitor Integration. For Adjustable Pressure or Line Pressure Phase Separator designs - see CryoWorks APPS & LPPS literature. APPS & LPPS literature.



**Controller**



**Touchscreen User Interface**

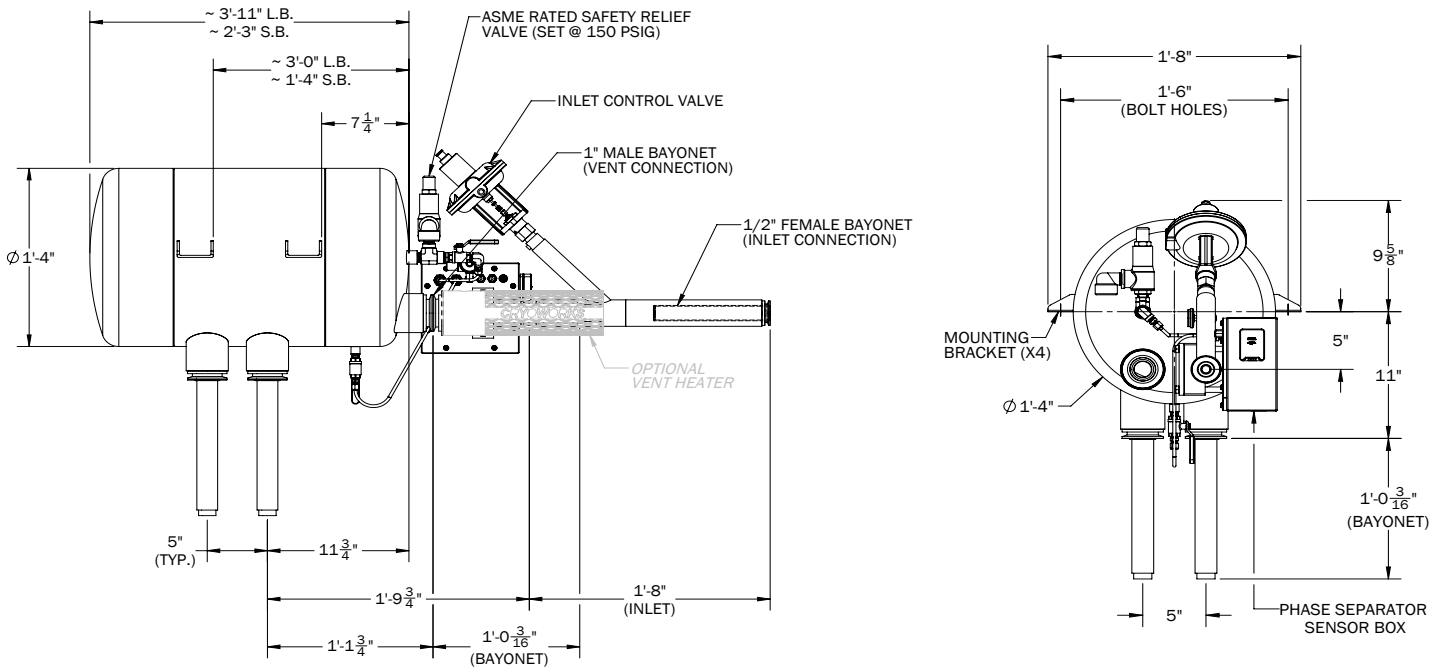
## Benefits:

- Atmospheric Pressure
- Low Temp/Gravity-Fed LN2
- Pure Saturated LN2
- Liquid on Demand Delivery
- Closed Loop Systems
- Triax Pipe Compatible
- Versatile Compact Design

## Versatile Controller:

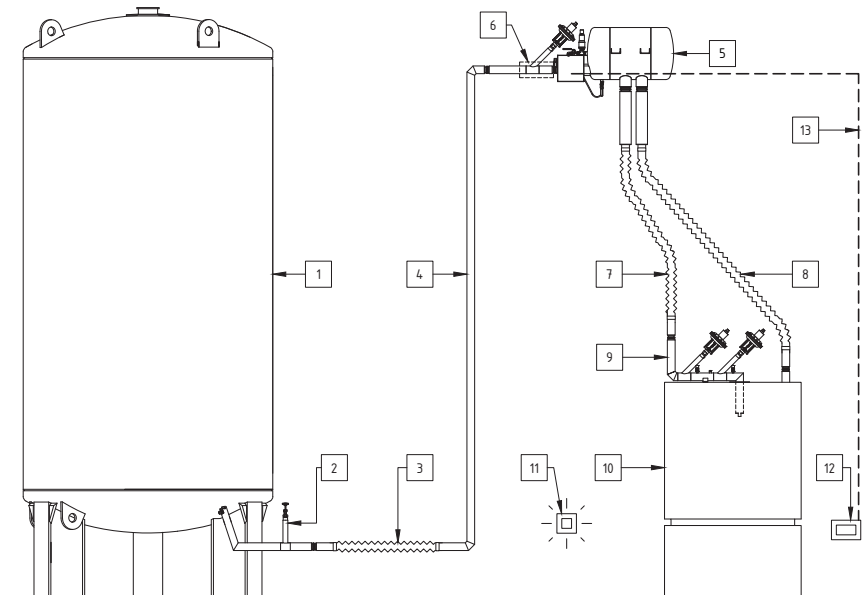
- Compatible with most BMS systems
- Easy to read liquid level
- User Friendly Interface
- User defined alarm, liquid level set points
- 4.3 inch color and graphical touch panel
- Modular and scalable
- Various levels of Password Protections

## Diagram:



## Applications:

A CryoWorks GFPS can be used with closed loop systems utilizing supply and return lines. Ideal for applications requiring gravity-fed liquid such as Molecular Beam Epitaxy (MBE), Thermal Vacuum Chambers (TVAC), and Food and Beverage (Ice Cream / Bottle Dosing & Inerting).



ITEM #	DESCRIPTION
1	LN2 Bulk Tank
2	V.J. Withdrawal Valve and Bayonet
3	V.J. Flex Section
4	V.J. Rigid Pipe
5	Phase Separator
6	Optional Vent Heater Or Extended VJ Vent Line
7	V.J. Supply Line
8	Optional V.J. Return
9	LN2 Control Manifold
10	Customer Equipment
11	O2 Monitor
12	Phase Separator Liquid Level Controller
13	32' Communication Cable