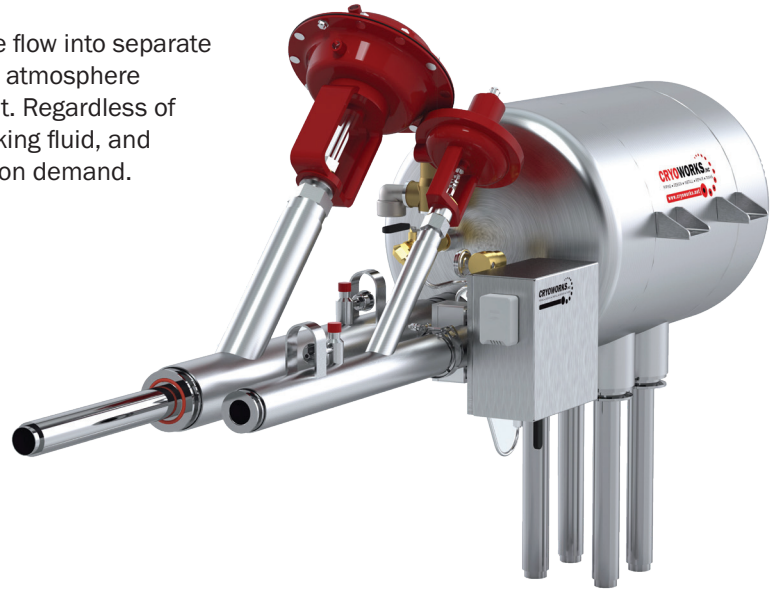


Adjustable Pressure Phase Separator

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.



APPS Design Specifics:

A CryoWorks Adjustable Pressure Phase Separator (APPS) is designed to maintain high-quality liquid for on-demand withdrawal at customer-specified and adjusted pressure. The vent control valve proportionally controls the gaseous nitrogen venting from the phase separator to maintain the set head pressure.

APPS Features:

- Pressure Reduction** — use on any application that requires high-quality liquid delivery at a pressure that is less than the Bulk Tank or Branch Line Pressure.
- Proportionally Controlled Inlet Fill Valve** — controls incoming flow from the Higher-Pressure Liquid Nitrogen Source to maintain the set Liquid Level.
- Back Pressure Regulator Valve** — maintains user defined set delivery pressure.
- Differential Pressure Controller** — dependable Liquid Nitrogen Levels.
- Related Components** — CryoWorks Rigid VIP and Flexible VIP (Coaxial and Triaxial), Vacuum Insulated Valves & TAL bayonet.

APPS 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
- BACK PRESSURE REGULATING VALVE** — Vacuum Insulated 1" Modular Assembly
Adjustable Pressure: 0 - 150 PSIG
- SERVICE/MAWP** — Liquid Nitrogen (LN2): 150 PSIG Max
- UTILITIES REQUIRED** — Gaseous Nitrogen (GN2): 50 - 400 PSIG Sensor Box
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
Adder: Modbus® RTU
- DRY WEIGHT** — 145 lbs (66 kg) - 245 lbs (111 kg)
- FULL WEIGHT** — 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 Gravity Feed or Line Pressure Phase Separator designs- see CryoWorks GFPS & LPPS literature.



Controller



Touchscreen User Interface

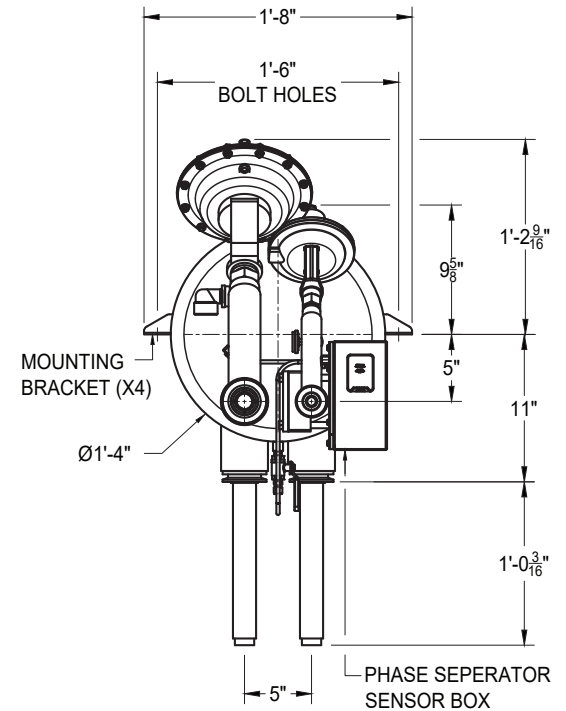
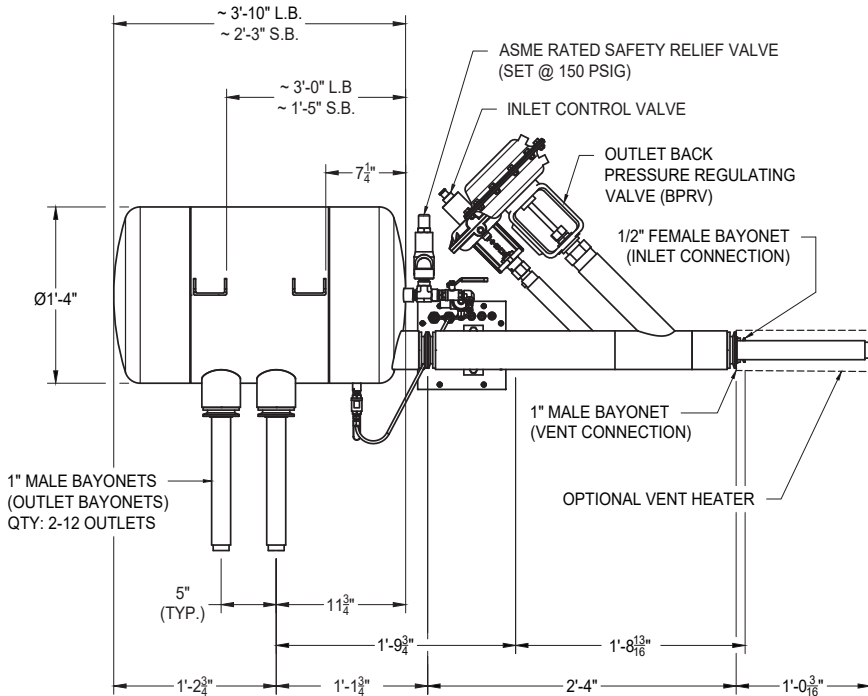
Key APPS Benefits:

- Lower Incoming Line Pressure
- User Regulated Output Pressure
- Colder/Lower Pressure Liquid Nitrogen
- Liquid on Demand Delivery
- Max Ceiling Height Design

Versatile Controller:

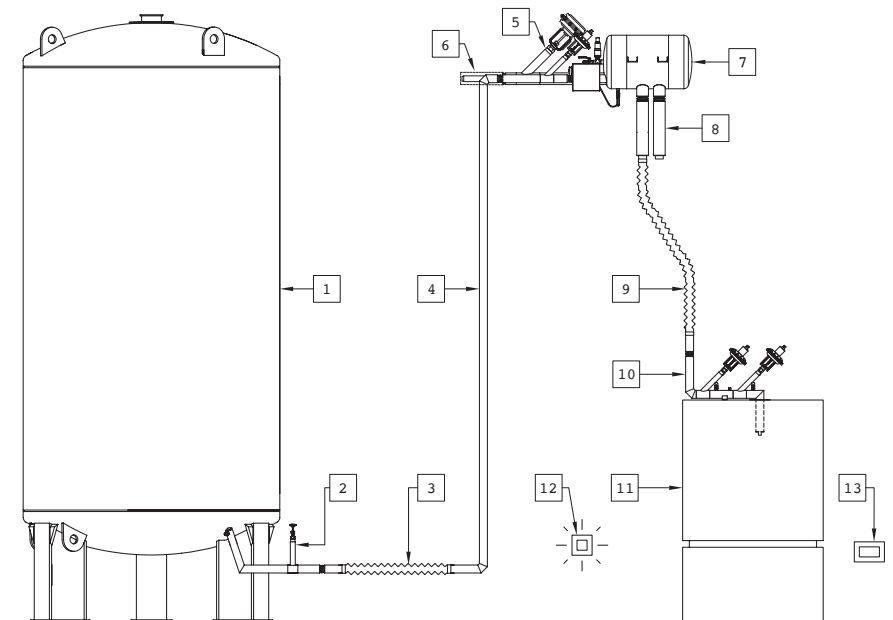
- Compatible with Most BMS Systems
- Easy to Read Liquid Level
- User Friendly Interface
- User Defined Alarm, Pressure and Liquid Level Set-Points
- 4.3 inch Color and Graphical Touch Panel
- Modular and Scalable
- Various Levels of Password Protections

Diagram:



Applications:

A CryoWorks APPS can be used on any application that requires high-quality liquid delivery at a pressure that is less than the bulk tank or branch line pressure. Ideal applications include Environmental Test Chambers and Thermal Vacuum Chambers. These either have valves or controls that cannot handle the full pressure from the bulk tank or would benefit from colder/ lower pressure liquid nitrogen.



ITEM #	DESCRIPTION
1	LN2 BULK TANK
2	V.J. WITHDRAWAL VALVE AND BAYONET
3	V.J. FLEX SECTION
4	V.J. RIGID PIPE
5	OUTLET BACK PRESSURE REGULATING VALVE (BPRV)
6	OPTIONAL VENT HEATER OR EXTENDED VJ VENT LINE
7	PHASE SEPARATOR (APPS)
8	CAPPED BAYONET
9	V.J. SUPPLY LINE
10	LN2 CONTROL MANIFOLD
11	CUSTOMER EQUIPMENT
12	O2 MONITOR
13	PHASE SEPARATOR LIQUID LEVEL CONTROLLER