



## Liquid Cylinder Filling Station - LCFS Series

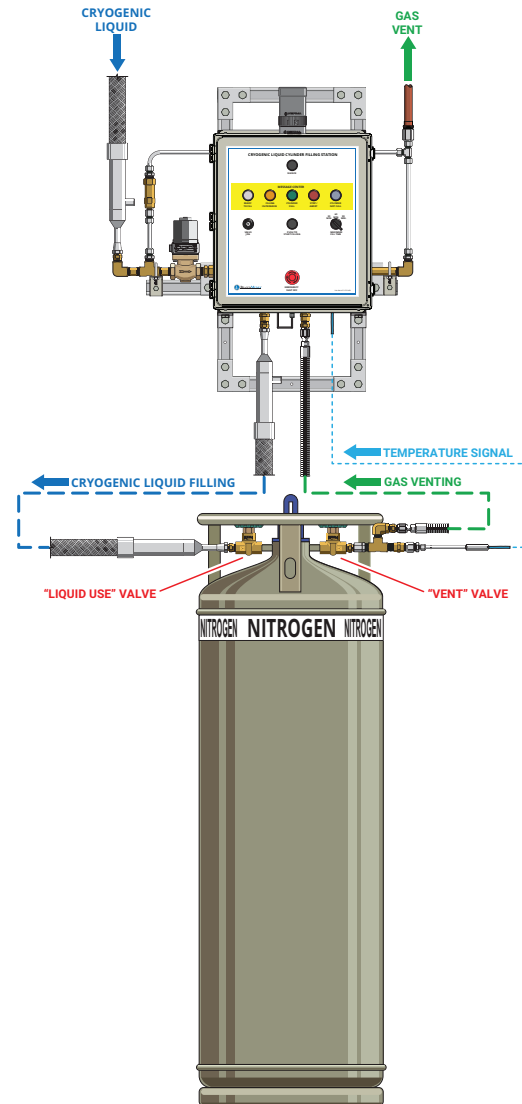
### SPECIFICATION

#### **Purpose**

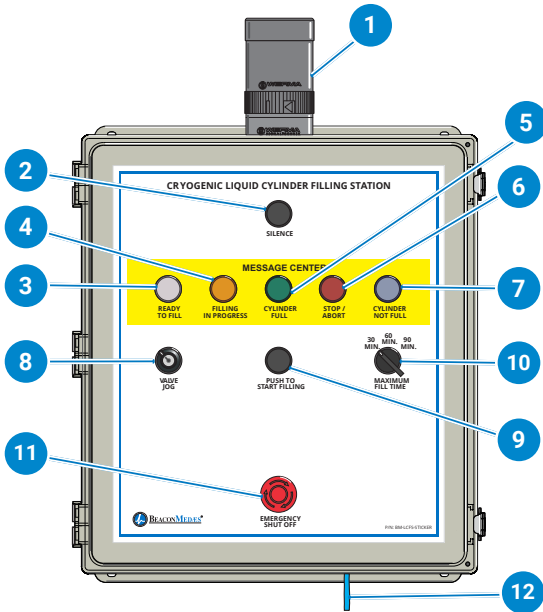
The LCFS Series Liquid Cylinder Filling Station is a manual start automatic stop fill station for conventional liquid cylinders ranging from 160-L capacity up to 230-L capacity. The station uses a temperature probe installed directly at the liquid cylinder vent outlet to detect a "full" condition. Once the full condition is reached, the station controller closes both solenoid valves and warns the operator that the liquid cylinder is ready for use.

#### **Operation**

Once all hoses and the temperature probe are all properly connected and the proper liquid cylinder valves are open, the operator is requested to press the start button. The PLC verifies critical system status, including liquid cylinder pressure. When all good conditions are met, both LCFS solenoid valves (vent and liquid supply) open. From there, cryogenic liquid is allowed to flow inside the liquid cylinder. Depending upon temperature of the supply piping, the temperature of the LCFS Station and the temperature inside the liquid cylinder to be filled, it may take a while for the cryogenic liquid to start rising inside the liquid cylinder. As the liquid rises inside the liquid cylinder, gas is evacuated through the vent valve and then to the vent piping.



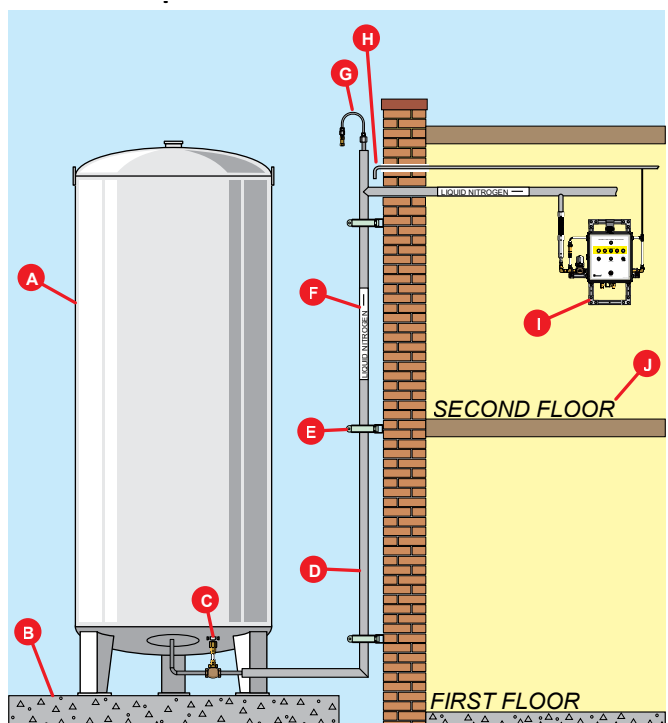
## System Controller Standard Configuration



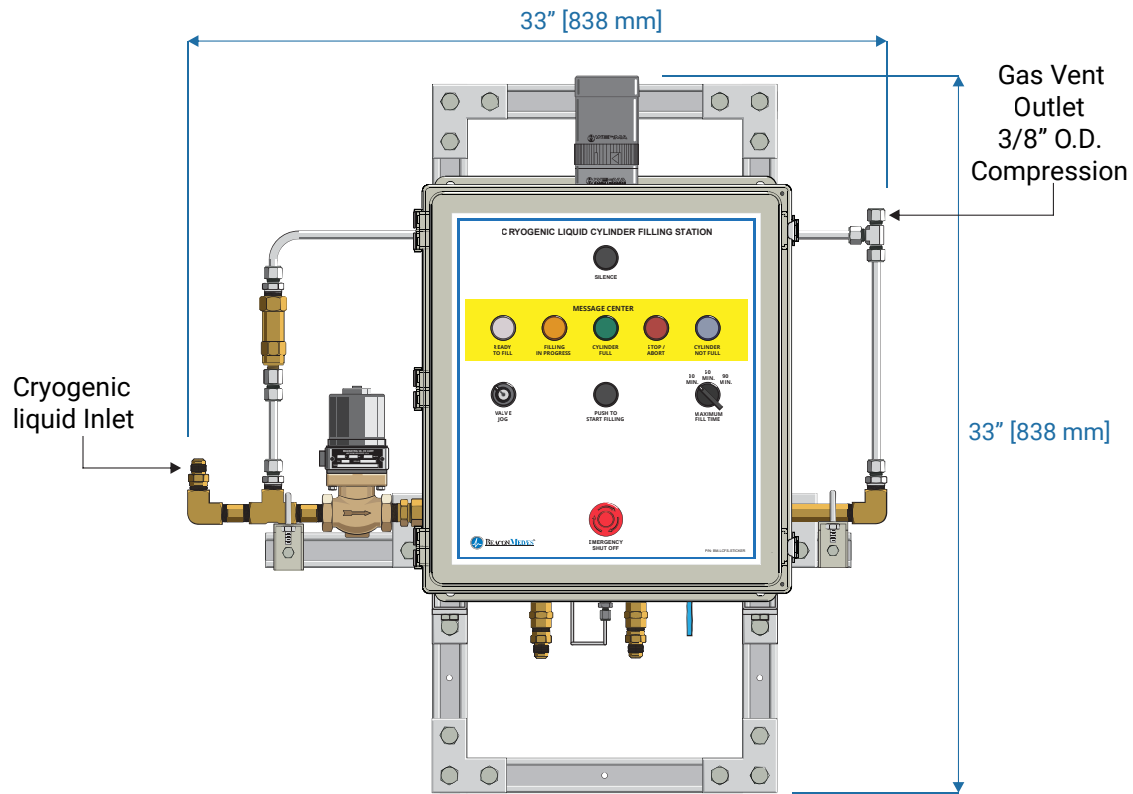
- 1 Buzzer (Audible Announcer)
- 2 Buzzer Silence Push Button
- 3 White LED - "Ready to Fill" Visual Indicator
- 4 Yellow LED - "Filling in Progress" Visual Indicator
- 5 Green LED - "Cylinder Full" Visual Indicator
- 6 Red LED - "Stop / Abort Indicator" Visual Indicator
- 7 Blue LED - "Cylinder Not Full" Visual Indicator
- 8 "Valve Jog" Key to Actuator
- 9 "Push to Start Filling" Push Button
- 10 "Maximum Fill Time" Three-Position Selector
- 11 "Emergency Shut Off" Push Button
- 12 Temperature Probe Cable

- A Bulk tanks are the preferred mode of cryogenic liquid supply to fill portable liquid cylinders
- B Bulk tanks concrete pads have to be poured and installed as per the bulk tank manufacturer or the gas company specifications.
- C Connect the VJ piping to the liquid withdraw valve of the bulk tank.
- D The conduit of choice to supply cryogenic liquid to the LCFS series liquid cylinder filling station is static vacuum jacketed piping.
- E The installer shall install the proper wall/ceiling brackets to support the vacuum jacketed piping for both indoor and outdoor locations.
- F The installer is responsible to properly identify the fluid inside the piping as well as the flow direction.
- G The thermal expansion pressure relief valve should preferably be installed at the highest point of the VJ piping. It should be pointing down and discharge to a safe location.
- H The best location for the vent piping discharge is outside a building. It shall be pointing down and discharge to a safe location.
- I The LCFS Series liquid cylinder filling station shall be installed as per requirements listed in this instruction manual.
- J It is highly recommended to keep the height to a minimum. By doing so, the flow and pressure loss will be kept to a minimum.

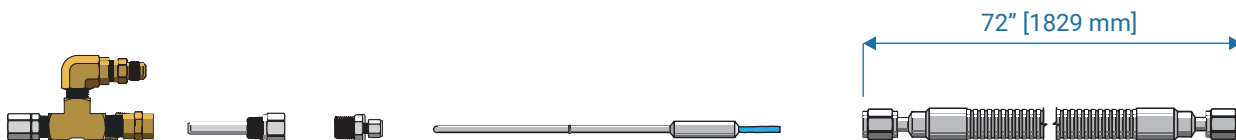
## Location Requirements



**System Components with Dimensions**

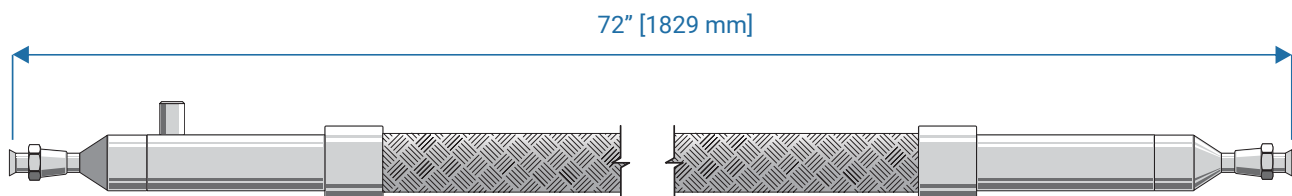


**Controller & Valve Assembly  
(Quantity = 1)**



**Temperature & Vent Kit may ship  
pre-assembly (Quantity = 1)**

**Gas Vent Hose  
(Quantity = 1)**



**Cryogenic Liquid Supply Hose  
(Quantity = 1)**

### Ordering Information

LCFS150B -      - VJH - SSHAG -       
                                  A                                  B                                  C                                  D

BeaconMedaes Liquid Cylinder Filling Station Model Number Chart			
Variable	Definition	Allowable Value	Description
A	Fluid Service	CGA295A	Liquid Argon
		CGA295N	Liquid Nitrogen
		CGA440	Liquid Oxygen
B	Hose	VJH	Vacuum Jacketed Hoses
C	Hose Type	SSHAG	Stainless Steel Hose with Armor Guard
D	Voltage	110	110 VAC
		220	220 VAC

Technical Specifications	
Fluids	Liquid Argon, Liquid Nitrogen, Liquid Oxygen
Maximum Working Pressure	150 PSIG (Pressure Relief Valve Set Point)
Operating Temperature Range	-325°F to 120°F [-198°C to 49°C]
Inlet Connection and Hose Connection	Liquid Argon and Liquid Nitrogen: CGA 295 - Liquid Oxygen: CGA 440
Vent Outlet	3/8" Compression
Audible & Visual Alarm	Standard
Cryogenic Liquid Header	1/2" Nominal Pipe Size - Brass
Vent Tubing	3/8" Outside Diameter - Stainless Steel
Power Requirements	120 VAC or 220 VAC, 6 Amp. Max., 50-60 Hz
Output Alarm Signal	Dry Contact, C-Shape Normally Open, Normally Close, Common, 30 amp. MTBA: 5 million operations

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