

# Automatic Dewar Filling



ADF System

Pre-engineered Automatic Dewar Filling (ADF) System is to allow unattended filling of LN<sub>2</sub> dewar. The system comes with all the necessary safety features to prevent liquid nitrogen safety hazard like asphyxiation and cold burn, normally associated with manual filling process.

## How it Works

CSM Automatic Dewar Fast Filling system comes with automatic control to allow unattended filling of liquid cylinders. This is an extremely fast filling system in the market today.

It operates by two high pressure and high flow cryogenic solenoid valve for liquid supply and vapor venting. A thermistor sensor is used to detect liquid nitrogen overflow to prompt a superfast automatic shut-off the moment liquid cylinder is full. Built in post-filling pressure venting.

Beside thermistor signal input, ADF could also receive optional signal from other instruments such as weighing scale, oxygen level monitoring sensor, emergency over-ride signal to shut-off the LN<sub>2</sub> flow.

The ADF comes with 2 lengths of flexible hoses for easy connection between the ADF and dewar. If there is any leakage detected due to poor fitting connection between the hose and dewar, the ADF will not start the filling process.

Option is available for premium quality vacuum insulated hose to minimize heat leak and avoid cold burn incident to the operator.

Dewar Auto-Filling System comes with CSM renowned customer service, from conceptual design to implementation, and are backed by a 1-year Defect Warranty.

## Typical Applications

- Unattended dewar filling of cryogenic fluids
- Suitable for LIN and LAR

## Features and Benefits

- Accurate cryogenic sensing for faster, safer, and reliable fill sensing technology to automatically shut off the fill cycle
- Easy, single button operation for convenient filling operation
- Vent safety interlock ensure filling & vent lines are properly installed before system starts filling
- Higher filling output and higher operation safety
- Compact size enables ease of installation in limited spaces

# Auto Dewar Filling Specifications

Model	ADF10
Operating Pressure	22 – 300 psi (1.5 – 20.0 bar)
Max. Filling Rate (Duration)	10 LPM @ 90 psig (Less than 20 min for 160 L dewar)
Solenoid Valve, Size (Cv)	½" ( 3.5 )
Safety shut down Signal input 1	Liquid Nitrogen Overflow
Safety Shut down Signal input 2	Pipe Connection Leakage Detection
Safety Shut down Signal input 3	Emergency Shut Down Override Button
Safety Shut down Signal input 4	Oxygen Level Monitoring Sensor
Alarm dry output, 24 VDC	2 nos
Case Material Construction	Stainless Steel Series 300
Electrical Enclosure	Weather Tight
Filling Control Type	Automatic
Utilities	Electrical 110 - 230 VAC, Single Phase
Dimension	381(H) x 660(L) x 254(D) mm
Weight	25 kg
Standard Testing	Pressure Leak Test @ 10 bar
Optional	Functional Test Vacuum Insulated Flexible Hose to LN <sub>2</sub> supply

## Typical Auto Dewar Filling System

