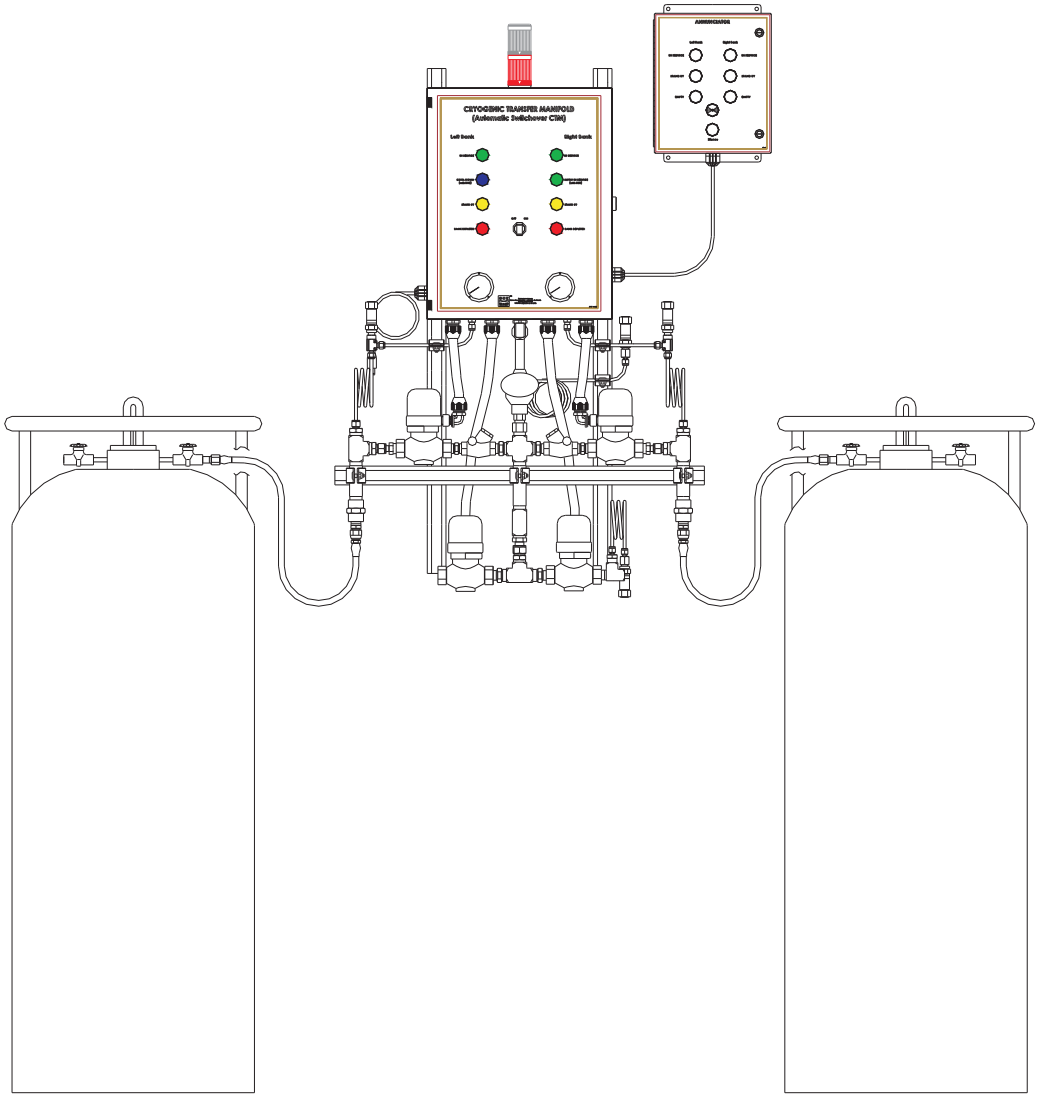
EQUIPMENT BROCHURE

Fully Automatic
Cryogenic Transfer Manifold
Liquid Withdrawal / Dispensing

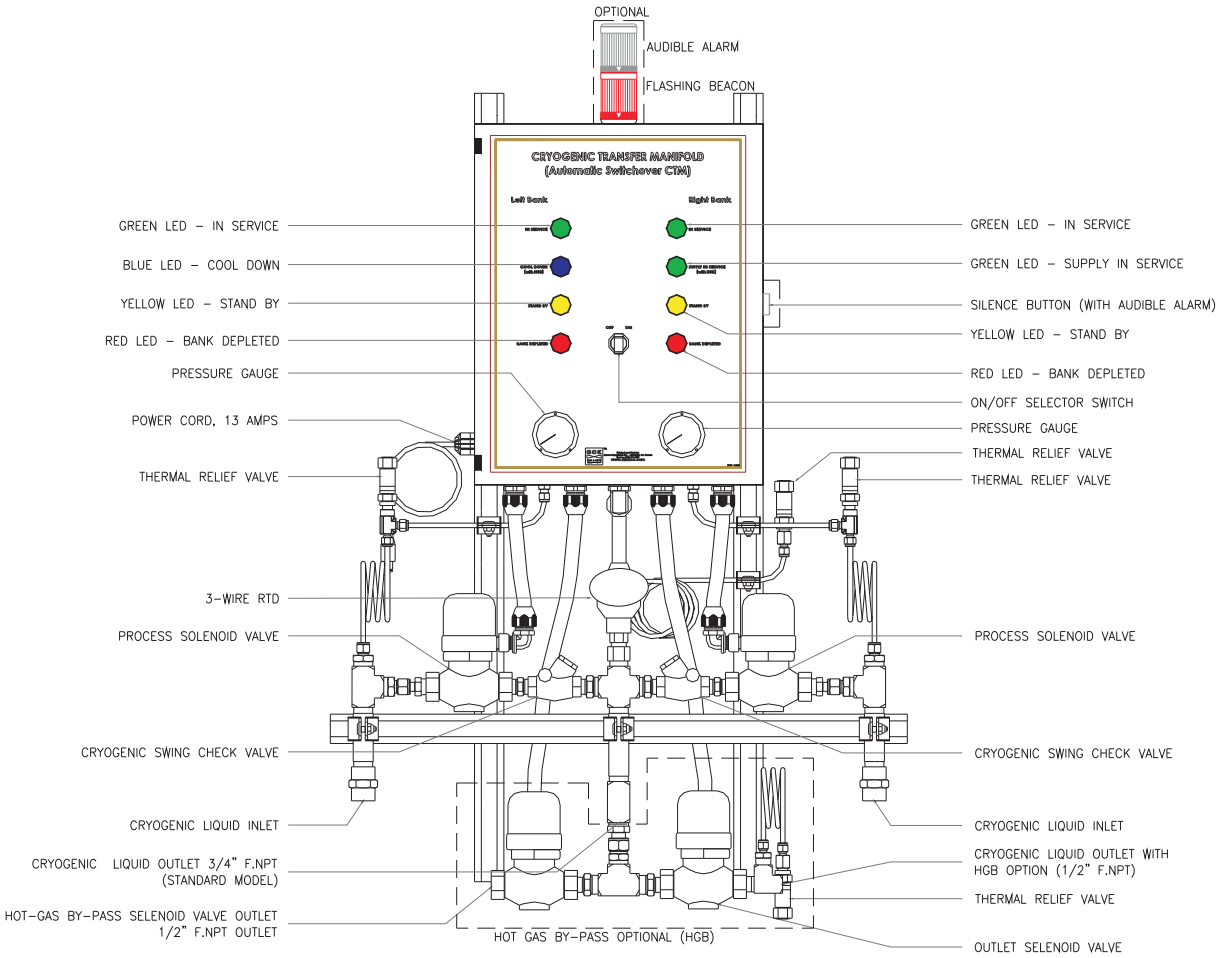


GCE™
GAS & CRYO EQUIPMENT

Helping our customers to become more effective

FULLY AUTOMATIC SWITCHOVER MANIFOLDS FOR LIQUID CYLINDERS (LIQUID WITHDRAWAL / DISPENSING)

CTM75 SERIES



DESCRIPTION

The CTM75 Cryo Transfer Manifold assures a continuous supply of cryogenic liquid. It is set to transfer from the "in use" empty bank to the "reserve" full bank based on pressure and temperature.

This PLC-based system is continuously monitoring the pressure and temperature of both banks. In "read only" mode, the PLC screen indicates actual pressure and temperature of each bank and compares them to their switchover (target) settings. In "programming" mode, the PLC allows you to change the switchover settings.

The LEDs indicates the status of each bank at all times.

STANDARD FEATURES

- ❑ Continuous cryogenic liquid supply
- ❑ Automatic switchover from "depleted" bank to "stand-by" bank without operator's involvement.
- ❑ Built-in "hot gas by-pass" (optional) for each manifold side. Two supply modes:
  - On Demand (Default)
  - Keep Full (If Activated By Customer)
- ❑ Audible (optional) and visual alarms indicating when a supply side is depleted.
- ❑ Use the entire amount of cryogen in the liquid cylinders.
- ❑ Eliminates downtime due to empty cylinders.
- ❑ Easy field pressure and temperature settings to better meet your application needs.

HOW TO ORDER - PART NUMBER MATRIX

CTM75 – ____ – ____ – ____ – ____ – ____

Basic series

Service Gas
- ❑ Argon = Ar
- ❑ Nitrogen = N_2
- ❑ Oxygen = O_2

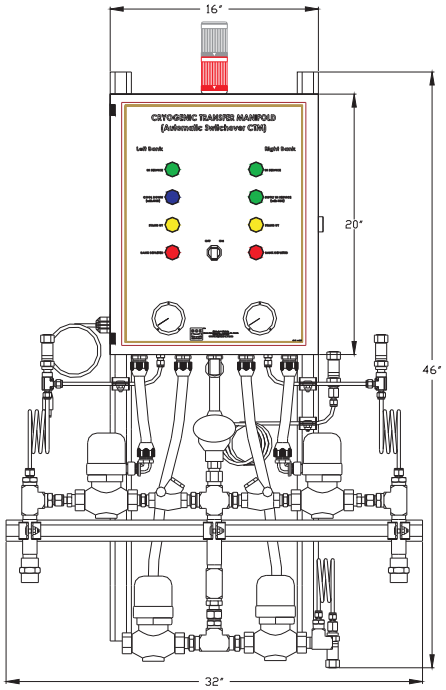
Qty. of cyl. (Max. 2 cylinders)

Qty. of cyl. (Max. 2 cylinders)

Application
- ❑ Bio Medical = BM
- ❑ Industrial = I
- ❑ High Purity = HP

Options
- ❑ Floor Stand = FS
- ❑ Vacuum Insulated flexible hose = VJH
- ❑ Flashing Beacon = FB
- ❑ Audible alarm = AA
- ❑ Annunciator Box = AB
- ❑ Hot gas by-pass = HGB

DIMENSIONAL DRAWING



FRONT VIEW

Operation mode description of optional HGB

STANDARD SYSTEMS (WITHOUT HOT GAS BY-PASS)

Once there is an external demand signal (live or Dry contact), the process solenoid valve opens and remains open for 4 minutes as long as the pressure remains above the set point. If the target temperature is not reached or the pressure drops below the set point, the system switches over to the standby bank if the demand signal is still there.

OPTIONAL HOT GAS BY-PASS SYSTEM

The hot gas by-pass solenoid valves are designed to reach the target temperature before turning on the process solenoid valve.

There are two supply modes with the hot gas by-pass option; On-demand or Keep Full.

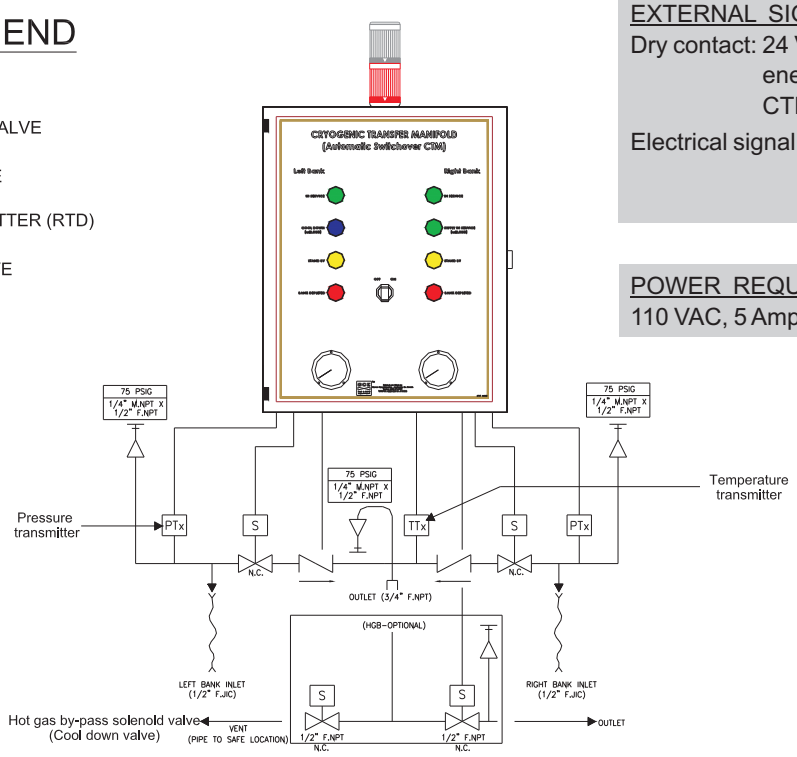
On-demand Mode (Default): The "on-demand" supply mode vents the "hot gas" through the cool down solenoid valve before opening the process solenoid valve. This process will only occur when receiving an external signal (Live or dry contact).You can expect a delay of several minutes before the process valve open due to the cooling cycle..

Keep full Mode (If Activated By Customer): The "Keep Full" supply mode assures instant liquid withdrawal (no delay) whether or not dispensing, so, liquid nitrogen is available anytime up to the process solenoid valves.

FLOW DIAGRAM & ELECTRIAL DATA

MECHANICAL LEGEND

- FLEX CONNECTION
- CRYOGENIC SOLENOID VALVE
- PRESSURE RELIEF VALVE
- TEMPERATURE TRANSMITTER (RTD)
- CRYOGENIC CHECK VALVE



EXTERNAL SIGNAL ALLOWED

Dry contact: 24 VDC circuit energized by the CTM75

Electrical signal: 110 VAC circuit energized by the end user

POWER REQUIREMENTS

110 VAC, 5 Amp

STANDARD MATERIALS OF CONSTRUCTION

Part Description	
Process solenoid valve	Body: cast brass - Plunger: 430 Stainless Steel. - Seal: Teflon
Temperature sensor	Well: 316 Stainless Steel
Pressure transmitter	Body & diaphragm: 316 Stainless Steel
Cool down solenoid valve	Body: brass
Fittings	304 Stainless Steel - Brass: CDA 360
Relief valves	Body: brass - Spring: St. St. - Disc: fluorosilicone
Flexible hoses	Fittings: 316 St. Stl. - Innercore: 304 St. St. - Braiding: St. Stl.