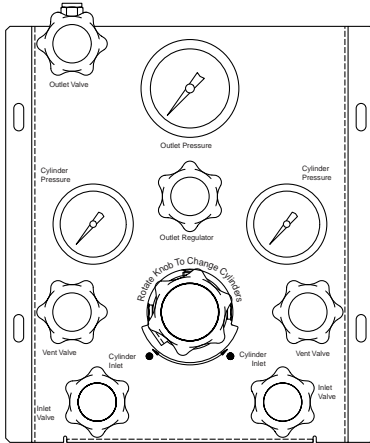




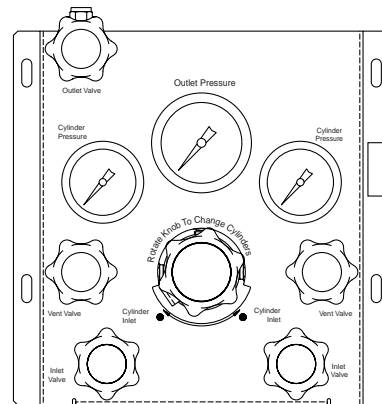
ChangeOver System

Installation and Operation Manual





ChangeOver System (with Outlet Regulator)



ChangeOver System (without Outlet Regulator)

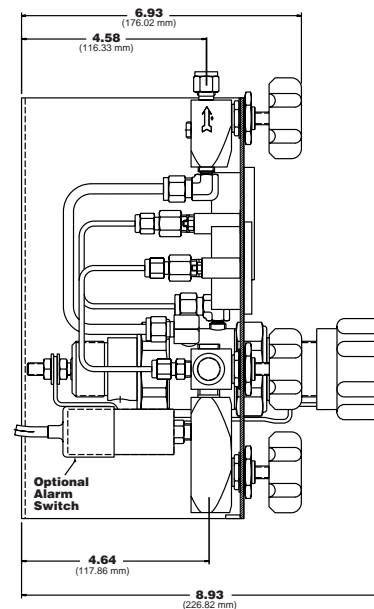
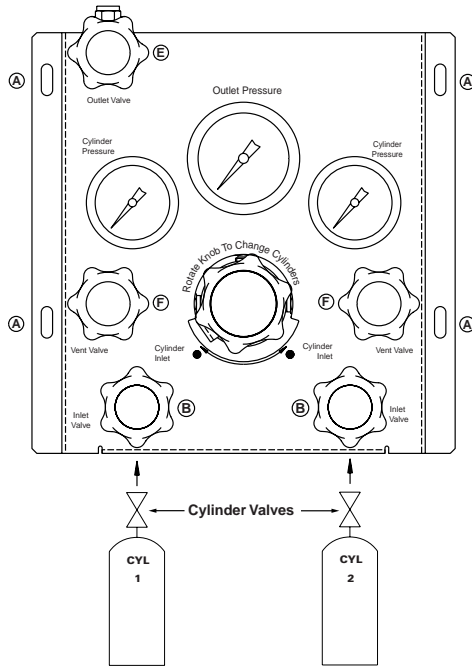
Introduction

The ChangeOver System is a unique device that manages the use of gas cylinders for applications requiring continuous flow. When connected to two cylinders (or two cylinder banks), the ChangeOver System will deliver gas at a set pressure from the selected cylinder until it is nearly depleted. The ChangeOver System will then change over to the second cylinder without interrupting the gas flow. The operator then selects the second cylinder which enables him to replace the depleted cylinder without interrupting the flow. Gas will continue to flow from the second cylinder until it is depleted and changeover to the first cylinder occurs. The changeover process can be repeated continuously as long as the depleted cylinders are replaced.

Safety Precautions

To install and operate this product safely, the user must:

- Be trained, experienced and equipped for the handling and use of high-pressure fluids and systems;
- Obey all local, government and agency codes and regulations;
- Follow all applicable safety procedures;
- Wear appropriate protective clothing, including approved safety glasses, gloves aprons, etc;
- Never exceed the maximum inlet pressure marked on the product.



Caution

Extreme care should be used when selecting products and materials for use in oxygen. A serious risk of ignition, fire and explosion exists.

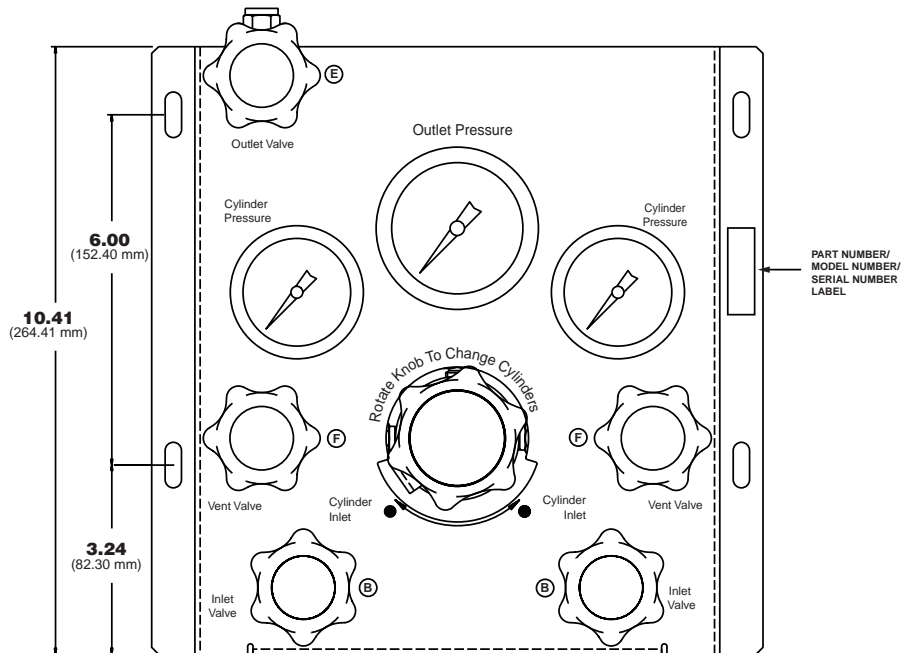
- *Products and components suspected of being contaminated (e.g. debris, oils, lubricants, etc.) should be removed immediately from service;*
- *Never interchange products and components with other types of gas service;*
- *Ensure appropriate filters are used;*
- *Always apply pressure slowly*

Utmost care should be used when selecting products and materials for use with oxygen. Veriflow recommends that users contact their oxygen supplier for guidance

Installation

- Step 1** Close all valves (B), (F), (E).
- Step 2** Install the ChangeOver System securely to a wall or sturdy surface using mounting holes (A) (mounting hardware not provided).
- Step 3** Before making any gas connection, verify that that the ports of valves (B), (F) and (E), and your mating CYL connections, hoses and plumbing, are clean and free of contamination.

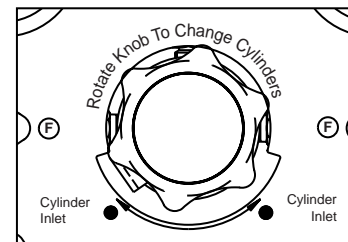
Note: ChangeOver Systems are available with different types of inlet, outlet and vent connections (1/4" NPT, compression, face seal). Always identify the type of connections provided with your particular ChangeOver System and use the appropriate mating connection following the connection manufacturer's recommended assembly instructions. If you are unsure of the connections contact the factory.



- Step 4** Connect each vent valve (F) to an appropriate destination source.
- Step 5** Connect the outlet valve (E) to your system.
- Step 6** Connect each inlet valve (B) to an independent cylinder or cylinder bank. Use appropriate high-pressure flexible hose, piping and connections. Cylinders should be properly secured at all times.
- Step 7** Verify all valves are closed and that all connections are tight.
- Step 8** To pressurize the ChangeOver System, slowly open your cylinder valves. Then, fully open inlet valves (B). Check all connections for leaks. Your ChangeOver System is now pressurized and ready for operation.

Operation

Step 1 Check ChangeOver System pressures: Verify that the inlet valves (B) and cylinder valves are open. The cylinder pressure gauges should be indicating the expected cylinder pressure. The outlet pressure gauge should be indicating the factory preset outlet pressure for your particular ChangeOver System. If your ChangeOver has an optional outlet regulator, adjust it to the desired outlet pressure.



Step 2 To begin gas flowing to your system, turn the large cylinder selector knob to Cylinder 1 and slowly open the outlet valve (E). Gas is now flowing from Cylinder 1 and Cylinder 2 is in standby.

Step 3 When Cylinder 1 is nearly empty, gas will automatically begin to flow from Cylinder 2. This will be indicated by a 250 psig or less pressure reading on the Cylinder 1 pressure gauge and a 20% drop in the outlet pressure, approximately. The drop in outlet pressure is not noticeable on ChangeOver Systems with the optional outlet regulator.

Step 4 To replace Cylinder 1 (empty):

Caution

Purging may be required before disconnecting a cylinder. Contact your gas supplier for proper purging procedures and methods.

- 4.1** Rotate the large cylinder selector knob to Cylinder 2. The outlet pressure should return to its original setting.
- 4.2** Close the cylinder valve for Cylinder 1.
- 4.3** Vent trapped line pressure by opening the Cylinder 1 vent valve (F). The Cylinder 1 pressure gauge should read 0 psig.
- 4.4** Close the Cylinder 1 vent valve and inlet valve. Replace the empty cylinder with a new cylinder.
- 4.5** When replacing an empty cylinder, always verify that connections are clean and free of contamination before connecting the new cylinder. Slowly open the new cylinder and the cylinder 1 inlet valve. The Cylinder 1 pressure gauge should be indicating the expected cylinder pressure.

Step 5 The ChangeOver System is now flowing gas from Cylinder 2 and Cylinder 1 is in standby. When Cylinder 2 is nearly empty, gas will automatically begin to flow from Cylinder 1. Replace Cylinder 2 by following Step 4 for Cylinder 2.

Limitations

The ChangeOver System is intended use with gas cylinders of an identical gas or gas mixture with initial cylinder pressures of 1500 psig to 3000 psig. Flow rates should be limited to the chart shown below. If your system requires the use of lower cylinder pressures or higher flow rates, please consult the factory.

COS Model	Maximum Recommended Flow
COS 250	70 slpm N ₂
COS 150	70 slpm N ₂
COS 100	100 slpm N ₂
COS XXX OR*	70 slpm N ₂

* ChangeOver System with optional outlet regulators

Trouble Shooting

The two most common problems that you may experience with your ChangeOver System is simultaneous consumption of both cylinders and leakage from one cylinder side to the other. The following information should help correct the problem.

- **As inlet pressure is applied, pressure leaks through to the opposite cylinder side.**
When applying pressure slowly (as you should) from a new cylinder, gas will momentarily leak through to the second cylinder side if the second side is not pressurized. The leak will stop when full outlet pressure is reached (or an inlet pressure of 400 psig).
- **When replacing a cylinder, pressure leaks through from the active cylinder side.**
Before replacing an empty cylinder, the cylinder selector knob must be rotated to the active cylinder (Step 4).
- **Both cylinders are consumed simultaneously.**
Check for leaks. A high pressure connection or a vent valve seat leak will give the appearance that both cylinders are being consumed. Inspect all connections including connections located behind the ChangeOver System panel. Verify that the vent valves (F) are closed and are not leaking.
- **Contamination.**
Even though the ChangeOver System design includes internal filters, continual exposure to contamination could damage the regulator and valve seats. The resulting leaks can cause the simultaneous consumption of both cylinders. The ChangeOver System should be removed from service if you suspect contamination has occurred.
- **Pressure and Flow Limitations.**
Review the pressure and flow limitations. Low initial cylinder pressures or exceeding the maximum recommended flow can cause the ChangeOver System to function improperly including simultaneous consumption of both cylinders.

If problems persist, please contact the factory.

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