FLOTEC
MADE IN USA
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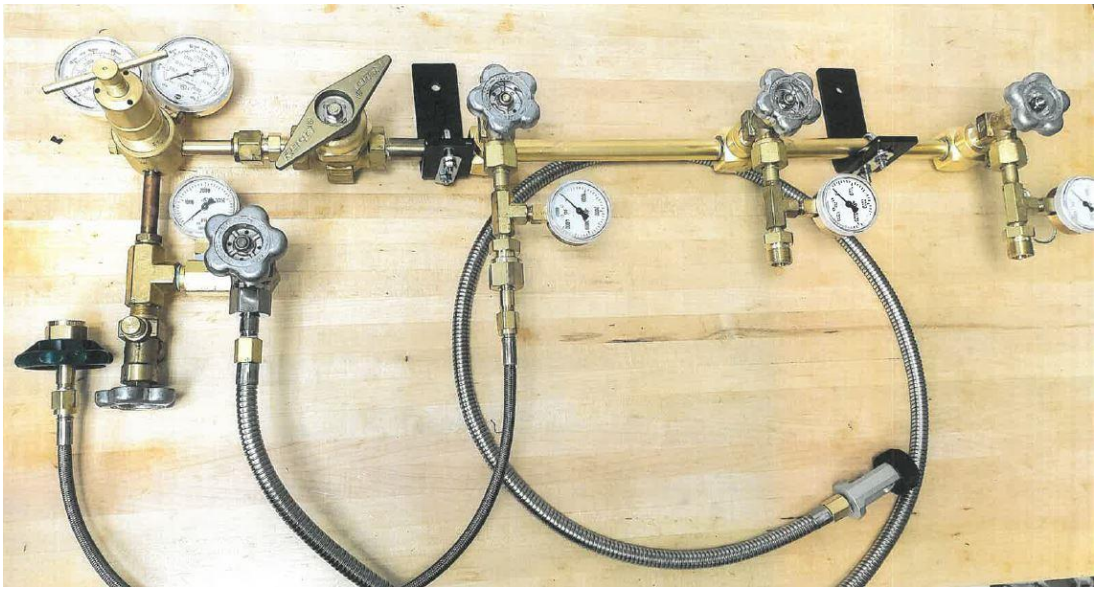
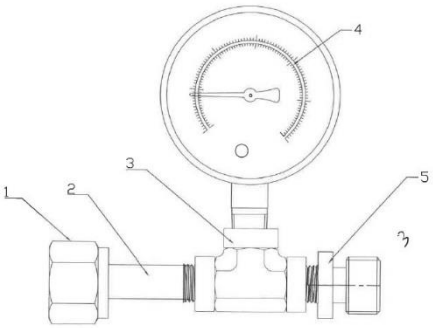
Order Desk: 800-401-1723

Transfill Cascade System



TCS-132g Transfill Cascade System shown with one of three inlet High Pressure Stainless-Braided Source Gas Cylinder Hose Hand tight CGA540 Connections. Also shown is one outlet High Pressure Stainless-Braided Source Gas Cylinder Hose Hand tight CGA870 Connections.



The optional TCS-TGA allows the operator to keep track of each source cylinders pressure. This helps selecting the cylinder with the lowest pressure in each stage of the transfilling process.

21 CFR 801, 803, 806, 807, 820, & 821		ISO 13485:2016	MDSAP	CE Mark 1434
CGA E-7	CGA G4.1	SOR/98-282	TG(MD)R 2002	EN ISO 14971:2012
ASTM-G175-03	MRI Conditional (selected P/N's)	Council Directive 93/42/EEC		RoHS

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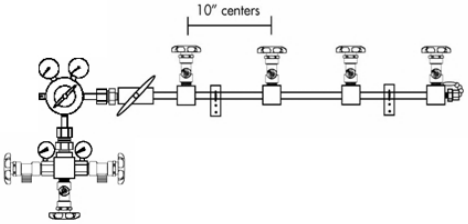
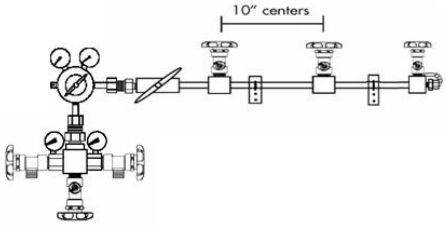
TCS SERIES OXYGEN CASCADE TRANSFILLING SYSTEMS

TCS-100 4 in x 2 out



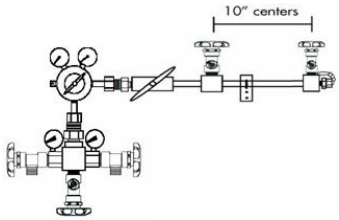
4-Cylinder Supply Inlet Manifold w/ 2ft. CGA-540 Nut & Nipple Connections
20 ft. CGA-540 Nut & Nipple Hand-Tight Fill Whip (H and M Cylinder)
2 ft. CGA-870 Yoke Fill Whip (D and E Cylinder)



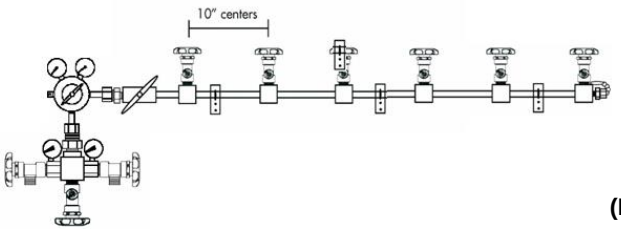
3 in x 2 out TCS-132

3-Cylinder Supply Inlet Manifold w/ 2ft. CGA-540 Nut & Nipple Connections
20 ft. CGA-540 Nut & Nipple Hand-Tight Fill Whip (H and M Cylinder)
2 ft. CGA-870 Yoke Fill Whip (D and E Cylinder)

TCS-122 2 in x 2 out



2-Cylinder Supply Inlet Manifold w/ 2ft. CGA-540 Nut & Nipple Connections
20 ft. CGA-540 Nut & Nipple Hand-Tight Fill Whip (H and M Cylinder)
2 ft. CGA-870 Yoke Fill Whip (D and E Cylinder)



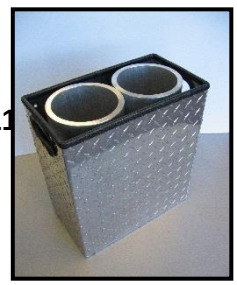
6 in x 2 out TCS-162

6-Cylinder Supply Inlet Manifold w/ 2ft. CGA-540 Nut & Nipple Connections, 20 ft. CGA-540 Nut & Nipple Hand-Tight Fill Whip (H and M Cylinder) 2 ft. CGA-870 Yoke Fill Whip (D and E Cylinder)

OXYGEN CYLINDER FILL POT

3003 H-22 Tread Plate Aluminum with ½" Solid 6061-T6511
Extruded Seamless Aluminum Inner Shell.
Wall Mountable.

TCS-FP1 **TCS-FP2**



21 CFR 801, 803, 806, 807, 820, & 821		ISO 13485:2016	MDSAP	CE Mark 1434
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TCS Transfill System Instructions for Use:

The TCS Transfill system is designed to maximize the pressurization potential of your pressurized supply cylinders. In order to utilize the system's benefits, you must follow the numbered instructions listed below. The TCS Transfill system maximizes your pressurization potential by saving your most highly pressurized supply cylinder for the very end of the pressurization process. It is important to number the pressurized supply cylinders in order to remember which of your supply cylinders is the most highly pressurized. When you begin to fill the unpressurized tank with your first pressurized supply cylinder, the tank will fill with pressurized air until the pressure inside both the supply cylinder and the tank is equal. This new pressure will be lower than the pressurized supply cylinder's initial pressure because the same amount of pressurized air will be filling a larger volume. This decrease in the pressure of the pressurized supply cylinder will change through each step of the process. The decrease in pressure of the final supply cylinder in the TCS Transfill system will be very small because the difference in pressure between the tank being filled and the pressurized supply cylinder will be nearly negligible by the end of the pressurization process. Thus, the TCS Transfill system ensures more high pressure fills per pressurized supply cylinder.

Figure 1

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Figure 1 shows a three-supply tank system with one outlet. The greater the number of supply tanks the better utilization of the gas supply because the supply tanks can be drained to lower pressures while maintaining a higher final pressure in the tank being filled.

1. Label the pressurized supply cylinders with numbers in order to easily identify the order of use. The lowest pressure supply tank should be labeled one, the second lowest, two and so on.
2. Attach the empty tank to the outlet fill hose and open its tank valve.
3. In some cases, FDA guidelines require that the tank be vented and evacuated prior to refilling. This is done using the venting valve. It is oriented to face the wall to reduce the possibility of injury from debris ejected during the venting process. If you use a vacuum pump for evacuation, it may be connected to the vent port after venting.
4. When you have attached the tank, you wish to pressurize to the system, open the supply manifold master shutoff valve.
5. Next, begin to pressurize the empty tank by shutting the evacuation/venting valve, opening the supply manifold valve attached to the first pressurized supply tank.
6. Once the two tanks are equal in pressure, close the first supply manifold valve and open the second supply manifold valve, then continue with each valve until you have equalized with the highest-pressure supply tank. Be sure to close each successive valve before opening the next fill valve to avoid equalizing the supply tanks. This will reduce the effectiveness of the system. Note that there is a filtered restrictor to control the fill rate to maintain a safe rate of fill to prevent excessive heating of the gas, which can cause oxygen fires. This will extend the equalization time during filling. If this time interval increases significantly, the filter orifice may need replacement.
7. Close all valves (including the supply manifold master shutoff valve) and remove the now pressurized tank.
8. When your highest-pressure supply tank depletes to below your highest desired fill pressure rotate a fresh tank into the highest numbered tank and renumber the supply tanks accordingly.

For additional information and tips for using Transfill systems visit the following URLs.

http://www.fda.gov/downloads/drugs/guidancecomplianceregulatoryinformation/guidances/ucm070270.pdf

http://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/PublicHealthNotifications/ucm062088.htm