

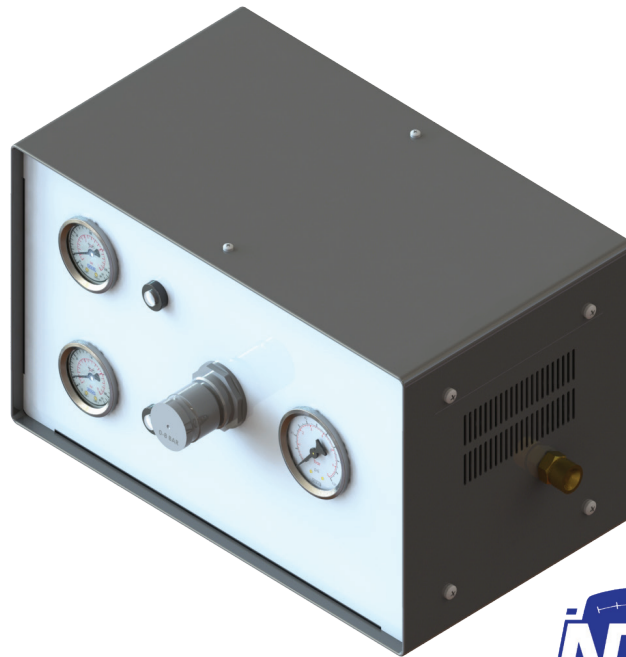


Your gateway to a world

of miniature fluid control

Chromachange CC100 Series

Automatic Gas Cylinder Change-Over Unit



Installation and operating instructions CC100, CC100-BCOA
For gas CHROMATOGRAPHY and other gas dependent techniques.

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»»» INSTALLATION

CHROMACHANGE can be installed at any point in the gas supply lines between the gas bottle regulators and the equipment being served, most conveniently situated where the operator can monitor it's operation. CHROMACHANGE can be free-standing on a horizontal surface or wall mounted.

This unit will release small amounts of gas into the working area when the automatic change-over takes place and when the outlet regulator is adjusted. Suitable ventilation must be present at all times when the unit is in use.

CHROMACHANGE can be wall mounted on suitable screws (not supplied) secured in keyholes as detailed in Fig.1.

N.B. OPENING THE UNIT WILL INVALIDATE THE WARRANTY.

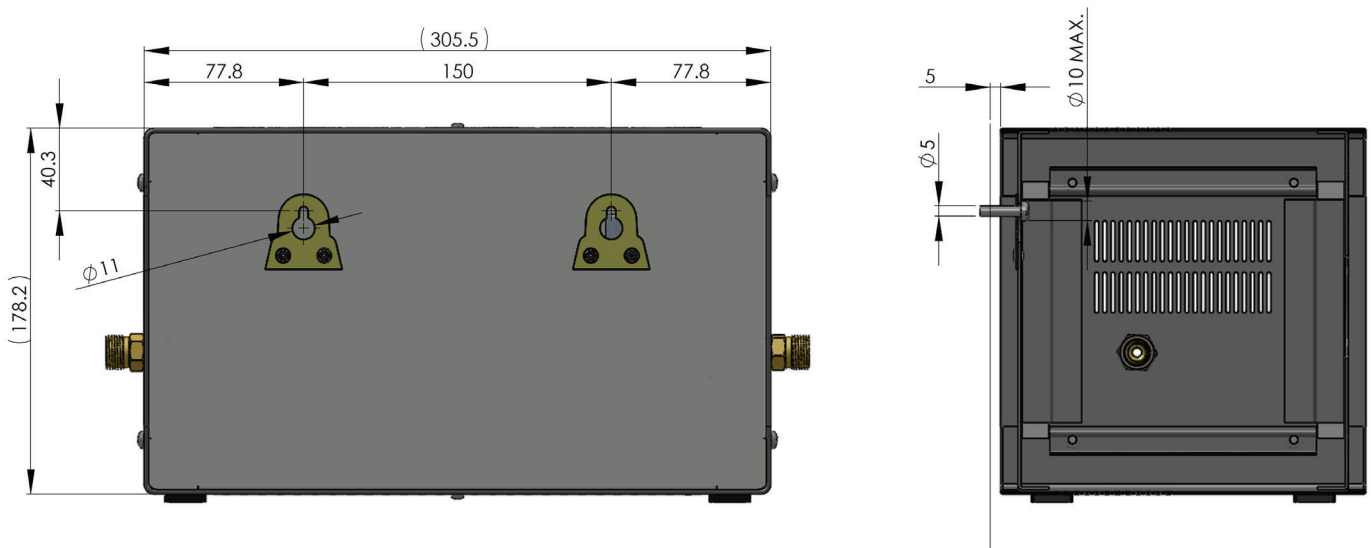


Fig.1

»»» CONNECTING GAS SUPPLIES

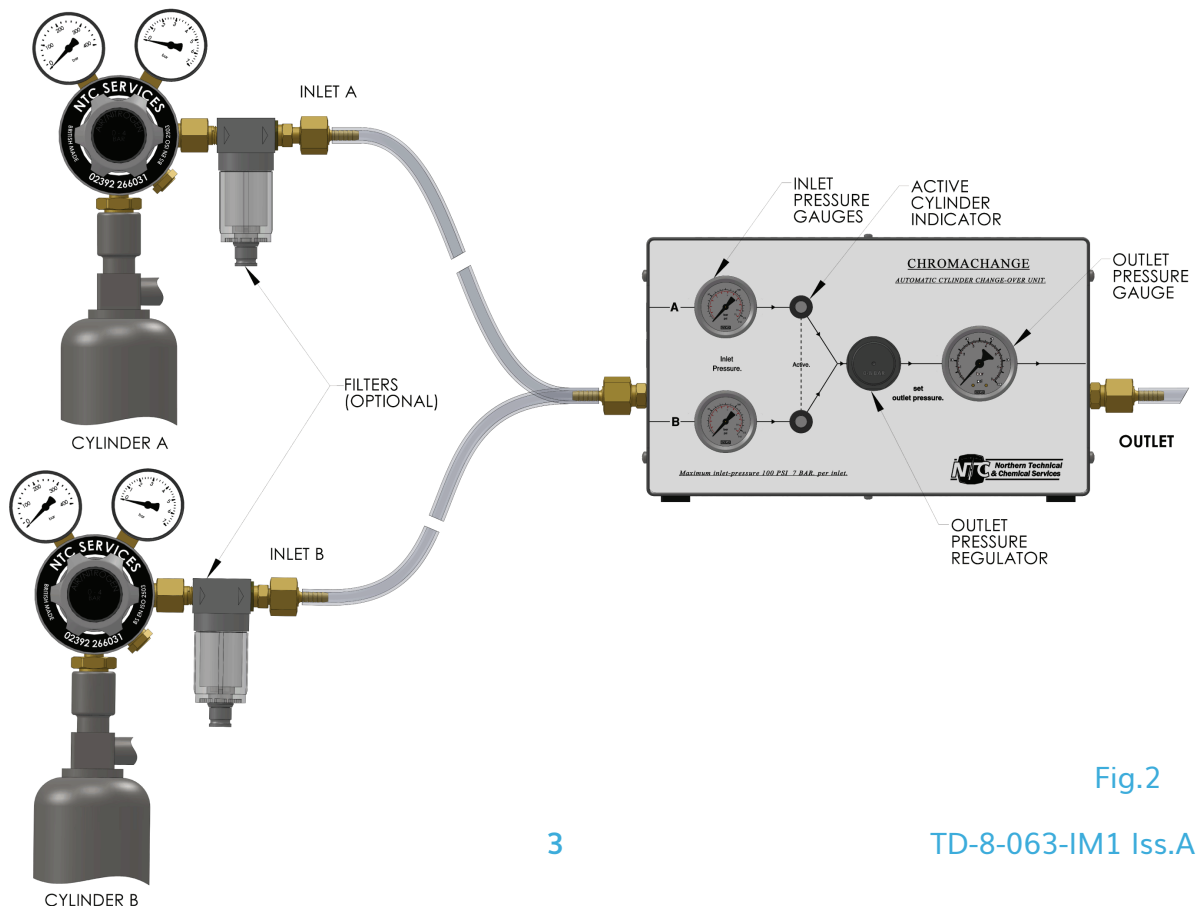


Fig.2

Gas cylinders feeding CHROMACHANGE units must be fitted with suitable regulators to reduce the supply pressure to less than 6.9bar [100psi]. The range of NTC regulators are recommended.

CHROMACHANGE is fitted with 3/8" BSPP male hose coupler ports to which standard UK regulator hosetails can be fitted. Hosetails for 6.4mm [1/4"] ID, hose are supplied. Other sizes can be purchased separately. For best results CFILT filters should be fitted to the inlet ports to prevent gas borne particles fouling internal valves.

Hoses should be secured with "Jubilee"™ or other suitable clips. Adaptors to connect CHROMACHANGE to alternative pipework.

The 3/8" BSPP port connectors are designed to seal between the faces of the convex hose coupler and the concave port without sealant. The use of sealant paste or PTFE tape is **NOT** necessary. Connect supply pipework to inlet ports.

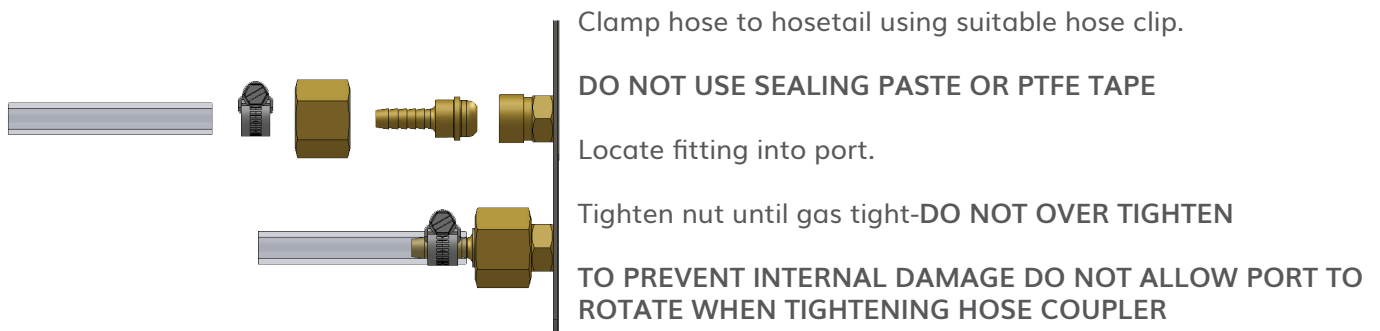


Fig.3

»» OPERATION

Starting with two full cylinders regulated down to between 3.1 to 6.9bar [45 to 100psi], ensure CHROMACHANGE inlet gauges indicate cylinder regulator outlet pressures. Set the CHROMACHANGE outlet pressure to that required by the equipment (Incubator etc.) being served. This will be found in the manufacturer's instructions. The unit will feed from the first connected cylinder until this exhausts then the unit will automatically feed from the other cylinder.

On replacing the empty cylinder **the unit will continue to feed from the currently active cylinder** until this is exhausted and the sequence will then repeat. No manual resetting is required.

»» RECOMMENDED INLET PRESSURE SETTINGS

CHROMACHANGE operates by pneumatic logic which detects pressure differences between both inlet port pressures. Cylinder changeover takes place when the active port falls to below 70% of the pressure on the inactive port. Successful changeover depends on the new pressure closing off the valve that controls the exhausted cylinder. If the inlet pressures are set too low then there may be insufficient differential pressure between in the inlet and outlet ports which will prevent the unit changing over successfully. This may result in the unit assuming a detent position with both cylinders feeding the unit. This problem is easily rectified by following the procedure in troubleshooting (page 6). **It is recommended that both inlets pressures are set at 6.7bar [97psi].** This will permit cylinder changeover at a pressure above that required for most laboratory procedures and hence little or no fluctuation on flow or pressure (set via the outlet pressure regulator and gauge) will be apparent on the cylinder change.

As CHROMACHANGE uses differential pressure to operate correctly, it is necessary for the unit to vent pressure slowly from the inactive valve during changeover. For this reason the yellow indicators on the front panel may both be showing for a few moments during changeover. The inactive indicator should fade from view within 10 seconds. A very small volume of gas will vent during changeover to atmosphere. No special maintenance is required.

WARRANTY AND SERVICING

The NTC range of equipment supplied by The West Group Ltd carries a 12 month warranty. No special maintenance is required. Should repair or service be required after the warranty period the unit should be returned to The West Group Ltd for evaluation. Any attempted repair by unauthorised parties will invalidate the warranty. In line with BCGA codes of practice, we recommend that changeover units, regulators and hoses are replaced after 5 years.

The equipment supplied may contain a battery, if so please dispose of the battery according to the approved WEEE regulations, or return to the supplier.

PORT ADAPTORS

The following hoesetails and adaptors can be purchased separately.

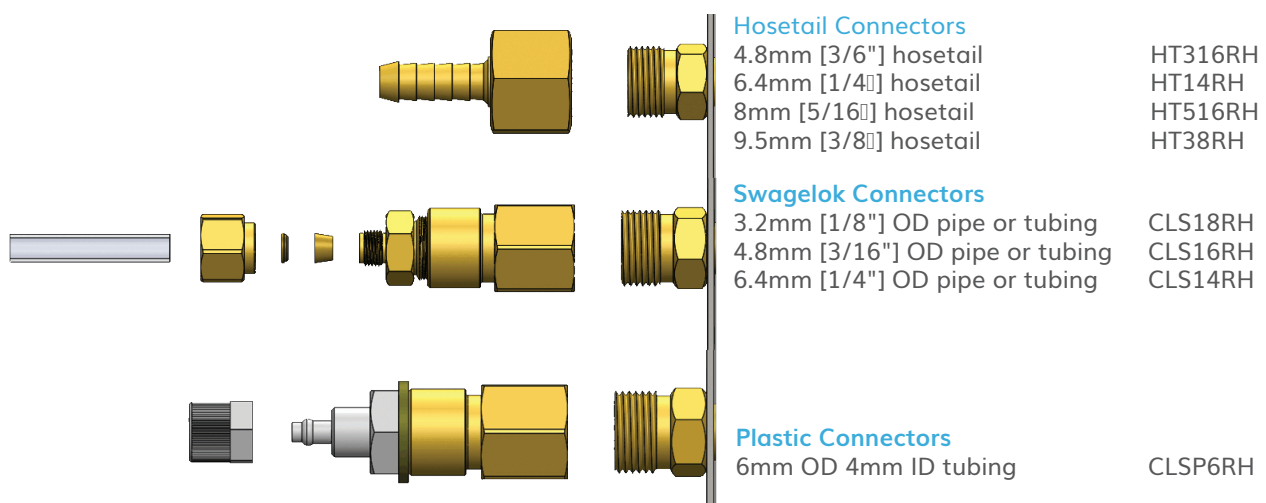
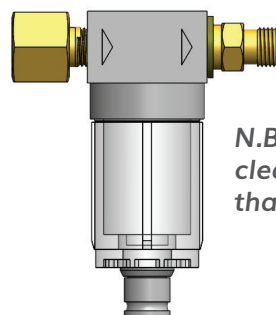


Fig.4

FILTER ASSEMBLY (recommended option)

Inlet filters fitted to regulator outlet ports prevent foreign particles in the gas supply becoming trapped in the valve or regulator seals, causing malfunction. Filters will prolong the life of your CHROMACHANGE unit and can be purchased in pairs.



N.B. Before removing the filter bowl for cleaning or renewal of filter element, ensure that the inlet line pressure is vented.

Filter Assy
(Part No.
CFILT38FR6RHRLR)

Fig.5

»» TROUBLESHOOTING

1. **Outlet pressure slowly rises**
Foreign matter in gas supply has fouled the outlet pressure regulator diaphragm.
Action: Contact your supplier
2. **Unit appears to be operating normally but gas cylinder contents decrease abnormally fast**
There is a leak in the system. Examine external pipework connections testing for leaks with a detergent solution. If no external leak is detected assume the leak is internal.
Action: Contact your supplier
3. Both indicators are showing yellow at the same time and gas is escaping inside the unit (or through the exhaust port in the case of model CC100H)
This is caused when the flow of gas required by the equipment falls below that available from the unit. This situation obtains when there is a loss of differential pressure allowing the changeover valves to settle in an abnormal detent position allowing gas to escape through the vents ports.

The following are common causes of both indicators coming into view simultaneously:

- Insufficient inlet gas flow due to a long run of narrow pipework
- Partially closed inlet gas valves
- Gas being used by other application from the same feed source

In all the above cases the cause of the flow restriction should be removed. Both cylinders must be closed completely and then opened one at a time to re-establish normal status. If the above does not rectify the problem, contact your supplier.

»» FREQUENTLY ASKED QUESTIONS

- Q.** Does the Chromachange unit require electrical power to work?
A. The Chromachange unit does not require mains electrical power to operate.
- Q.** What is the maximum input pressure to a Chromachange unit?
A. 6.9bar [100psi].
- Q.** Do I need to use a pressure regulator on the gas cylinder?
A. Yes. As the maximum input pressure for a Chromachange unit is 100 psi, a regulator needs to be fitted to the gas cylinder. CO₂ gas cylinders are typically 50 to 60bar [725 to 870psi] and nitrogen is typically 250bar [3625psi].
- Q.** What are the input and output port connections?
A. The input and output port connections are 3/8" BSPP with a 60 degree cone. However, Chromachange units are supplied with brass hoesetails to suit 6.4mm [1/4"] ID hose. Other size hoesetails and adaptors are available to purchase separately.
- Q.** What gases can I use the Chromachange unit with?
A. Pneuchange is designed for use with inert gases.
- Q.** Can I use the Chromachange unit with Oxygen?
A. No. The Chromachange unit is not suitable for use with oxygen. However, our new high pressure change-over unit is suitable for oxygen. Please contact us for details.
- Q.** Can I use the Chromachange unit for Hydrogen?
A. No. Hydrogen is a flammable gas and the Chromachange unit is not suitable for flammable gases. However, our new high pressure change-over unit is suitable for flammable gases.

»»» FREQUENTLY ASKED QUESTIONS CONTINUED

Q. What is the most common application for the Chromachange units?

A. Pneuchange units are most commonly used to provide a continuous supply of gas to Chromatography machines.

Q. When should I replace my Chromachange units?

A. In line with BCGA recommendations, we recommend that all Pneuchange units and associated gas control equipment is replaced every 5 years.

Q. Can the Chromachange unit be used with CO₂?

A. Yes. The Chromachange unit was specifically designed to be used with inert gases including CO₂.

Q. Can you service/repair my broken Chromachange unit?

A. As the Chromachange units contain so many components, it is not cost effective for us to service Chromachange units.

Q. Why are the needles in the pressure gauges bent?

A. If a pressure supply of over 6.9bar [100psi] has been applied to the Chromachange unit, this will over pressurise the components including the gauges. The Chromachange unit must not be used and should be replaced.

Q. Can the Chromachange unit be used for medical applications?

A. The Chromachange unit is not designed for contact with patients.

Q. Does it matter which inlet port is utilised first?

A. No, The Chromachange will automatically feed from the first connected cylinder.



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T: +44 (0)2392 266031 | E: sales@eoxshop.com | W: eoxshop.com