ADI 0008-A

CONCOA®
PRECISION GAS CONTROLS

C Series Gas Cabinets

INSTALLATION AND OPERATING INSTRUCTIONS

Carefully Read These Instructions Before Operating

Controls Corporation of America
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INTENDED USE OF PRODUCT

The C Series Gas Cabinet is for the storage and or use of high purity, flammable, pyrophoiric, toxic, corrosive asphyxiant or oxidizing gases that require the use of a cabinet because of their location and or specific hazard. The Please note the safety information shown in the later sections.

USER RESPONSIBILITY

This equipment will perform in conformity with the description contained in this manual and accompanying labels and/or inserts when installed, operated, maintained, and repaired in accordance with the instructions provided. This equipment must be checked periodically. Improperly working equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated, should be replaced immediately. CONCOA recommends that a telephone or written request for service advice be made to CONCOA Customer Service in Virginia Beach, Virginia.

PHONE: 1-800-225-0473
FAX: 1-757-422-3125
E-MAIL: info@concoa.com

This equipment or any of its parts should not be altered without prior written approval by CONCOA. The user of this equipment shall have the sole responsibility for any malfunction that results from improper use, faulty maintenance, damage, improper repair, or alteration by anyone other than CONCOA or a service facility designated by CONCOA.

CUSTOMER ASSISTANCE

In the event of equipment failure, call CONCOA Customer Assistance Line. Please be prepared to provide the model number and serial number of the equipment involved, in addition to some details regarding its application. This would include inlet and outlet pressures, flow rate, environmental conditions, and gas service.

Things to consider before installing the cabinet

1. Know the properties and special handling requirements of the gas being used. Many specialty gases, especially those requiring the use of a gas cabinet are quite dangerous (flammable, pyrophoric, toxic, corrosive, asphyxiant, or oxidizers). Equipment failure or misuse may lead to problems such as a release of gas through the relief valve or regulator diaphragm. Proper safety measures, such as the use of this gas cabinet, dedicated ventilation, gas scrubbing systems or gas detectors, should be established to handle these and other component failures, if required for that gas.

2. Be sure that the gas cabinet and any assembly purchased is suitable for the gas and type of service intended. The regulator or product label provides the following information:
   a. Model number
   b. Serial number
   c. Maximum inlet pressure

3. Inspect the cabinet and any assembly upon receipt to be sure that there is no damage or contamination. Pay particular attention to connecting threads. While CONCOA assembles system components to exacting leak-tight standards, the customer should also inspect for any loosening of parts that may occur in shipping or installation. Loose parts may be dangerously propelled from an assembly. If there are adverse signs (leakage or other malfunction), return the assembly to the supplier. While it is advised that soiled regulators be returned for cleaning, simple

external dust or grease may be removed by a clean cloth and if required with aqueous detergent suitable for the application. If there are signs of internal contamination, return to the supplier.

4. Before system startup, it is recommended that all systems be pressure tested, leak tested, and purged with an inert gas such as nitrogen. To accomplish this with connections other than a CGA580, it will be necessary to use an adapter. The recommended use of an adapter is for temporary use, for start-up and system checks only. Adapters should never be used on a permanent basis.

5. Before system startup, it is recommended that all systems be pressure tested, leak tested, and purge with an inert gas such as Nitrogen. To accomplish this with connections other than a CGA 580, it will be necessary to use an adapter. The recommended us of an adapter is for temporary us, for start-up and system checks only. Adapters should never be used on a permanent basis.

⚠ CAUTION!

GENERAL SAFETY PRACTICES

- Comply with precautions listed in C.G.A. Pamphlet P-1, Safe Handling of Compressed Gases in
- Containers.
- Consult the cylinder distributor for the proper use of cylinders and for any restrictions on their use
- (such as flow rate and temperature requirements).
- Store cylinders with valve caps screwed on, and cylinders chained and strapped inside the cabinet or to a supporting wall or column.
- Handle cylinders carefully and only with valve caps screwed on. The cap will reduce the chance that the cylinder valve will break off if the cylinder is accidentally dropped or falls over. The cap also protects the cylinder valve from damage to screw threads, which could cause leaky connections.
- All manifolds used with flammable gases should be provided with approved flashback arrestors to stop any burning gas in the pipeline from getting back to the manifold or cylinders.
- No smoking should be permitted near oxygen, nitrous oxide, any other oxidizer, flammable gases, or flammable mixtures, or in areas where cylinders are stored.
- Where an oxidizer (such as NO_2 or O_2) is used, the system and any and cylinders must be kept clean. No oil, grease, or combustible substances should come in contact with oxygen or nitrous oxide storage or handling equipment. Such materials in contact with oxygen or nitrous oxide are readily ignitable and when ignited, will burn intensely.
- Never lift gas cylinders with a magnetic lifting device.
- Never use an open flame when leak testing.
- Always open valves slowly when high-pressure gases are being used.
- Always be sure that a cylinder contains the correct gas before connecting it to any regulator panel or manifold.
- Always close all cylinder valves before disconnecting cylinders from a system or manifold.
- Always remove all empty cylinders from a cabinet or manifold before connecting full cylinders.
- Always test cylinders to be sure the cylinders are full before connecting to a manifold.

All gas cabinet installations and distribution piping systems must meet the appropriate industrial standards for the intended service and must be thoroughly cleaned before using. For the United States, some applicable safety rules and precautions are listed below:

1. American National Standards Institute standard Z49.1, Safety in Welding and Cutting, American Welding Society, 2501 NW Seventh Street, Miami, Florida 33125
2. NFPA 55, Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks 2010 Edition
3. Local Ordinances
4. O.S.H.A. Standard 29 CFR
5. C.G.A. Pamphlet C-4, American National Standard Method of Marking Portable Compressed Gas Containers to Identify the Material Contained.
6. C.G.A. Pamphlet G-4, Oxygen – Information on the properties, manufacture, transportation, storage, handling, and use of oxygen.
7. C.G.A. Pamphlet G-4.1, Equipment Cleaned for oxygen service.
8. C.G.A. Pamphlet G-4.4, Industrial Practices for Gaseous Oxygen Transmission and Distribution Piping Systems.
9. C.G.A. Pamphlet G-5, Hydrogen – Information on the properties, manufacture, transportation, storage, handling, and use of hydrogen.
10. C.G.A. Pamphlet G-6, Carbon Dioxide – Information on the properties, manufacture, transportation, storage, handling, and use of carbon dioxide.
11. C.G.A. Pamphlet G-6.1, Standard for Low Pressure Carbon Dioxide Systems at Consumer Sites.
12. C.G.A. Pamphlet P-1, Safe Handling of Compressed Gases in Containers.
13. C.G.A. Safety Bulletin SB-2, Oxygen Deficient Atmospheres.

*C.G.A. pamphlets can be obtained from the Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202-3239, (703) 979-0900. Publications: (703) 979-4341. Fax: (703) 979-0134.

INSTALLATION

Keep cabinets, cylinders and manifolds away from any source of high temperature over 120°F (50°C) or possible fire hazards. High-pressure gas contained in a closed cylinder becomes increasingly dangerous when exposed to high temperature because pressure increases and the strength of the cylinder decreases. Cabinets installed in open locations should be protected from weather conditions. Unless the cabinet if specifically designed for outside conditions protect the cabinet from ice and snow. In summer, shade the cabinet and cylinders from continuous exposure to direct sunlight. Always leave access to the cabinet for cylinder replacement.

The site chosen for the cabinet installation shall be level, well ventilated, and at a safe distance from sources of flames, sparks, and excessive heat. The cabinet should not be placed in an area that may subject the cabinet to damage from passing forklifts, trucks, or other heavy machines. Oxygen cabinets must not be installed under shafting, belting, or other places where oil can drip on them. For other location guidelines, see NFPA standard 55 and consult local standards that may apply.

Consider the following when installing the cabinet and any manifold or system.

1. Be sure to consider all factors when selecting materials.
2. Do not use oil or grease on fittings.
3. Be sure that all fittings are secure and leak tight. PTFE tape should be used on pipe threads.
4. If supplied with or being used with a manifold or system that includes a captive vent kit (550

0001) be sure to connect suitable tubing from the vent kit fitting to suitable gas exhaust, scrubbing system or safe discharge area.

5. Is supplied with or being used with a manifold or system with a relief valve.The purpose of the relief valve is to protect the system and its components only. If there is pressure sensitive equipment downstream of the system, it is recommended that a relief valve (534 Series) be installed in the line to protect this equipment. When using toxic, corrosive, or flammable gases, the relief valve exhaust shall be piped to suitable gas exhaust, scrubbing system or safe discharge area.
6. Purge devices: if equipped with purge devices. Purge devices are used to remove toxic, corrosive, or flammable gases from the customer's system to a suitable gas exhaust, scrubbing system or safe discharge area.
7. Pressure switch gauges and Intrinsic safety barriers: if supplied with a system that includes pressure switch gages and intrinsic safety barriers for flammable or pyrophoric gases the intrinsic safety barriers are to be installed in a nonhazardous location outside the gas cabinet. These devices are optional. Refer to the instructions for the appropriate remote alarm for wiring instructions.

Securing the gas cabinet to the ground or Wall

The mounting surface for the cabinet must be level and constructed of a suitable material. It is the user' responsibility to ensure level and secure mounting of the cabinet.

The type and size of the mounting bolts will be influenced by the type of flooring or wall supporting the gas cabinet. CONCOA recommends that a qualified professional engineer determine the proper method of securing the cabinet. Some areas of the country require seismic restraints to be employed when mounting gas cabinet enclosures. It is the user' responsibility to secure the services of a qualified professional to meet all requirements and codes.

If securing the Gas Cabinet to the floor

There are two channels welded to the bottom of the cabinet that act as "feet" for the cabinet. Measure approximately 1" from outside of the gas cabinet where these channels are located and four ½" diameter holes thru the cabinet diamond plate floor. Then mount the cabinet to the floor by using at least 3/8" bolts.

If securing the Gas Cabinet to the wall

Locate and drill four ½" diameter holes thru the cabinet back. Then mount the cabinet to the wall by using at least 3/8" bolts. Grounding the gas cabinet general instructions

1. Determine a convenient spot on the gas cabinet.
2. Drill a hole for a ¼" or 3/8" bolt.
3. Remove the paint down to the metal where the bolt will go through the cabinet, and the surrounding area where the washers will touch the cabinet.
4. Either weld the threaded bolt to the cabinet, or install the bolt with flat washer, lock washer, and lock nut. If using standard buts use two nuts.
5. Always use a round lug for the ground wire. Do not use a forked lug which may slip out.
6. Install the lug onto the threaded stud, and tighten with washer, lock washer, and lock nut. . If using standard buts use two nuts.
7. Attach the other end of the wire onto a suitable grounded pipe or other approved grounding device.

All local electrical codes must be followed, and supersede these instructions if different. It is the user's responsibility to secure the services of a qualified professional to meet all requirements and codes.

Connecting the gas cabinet exhaust duct
The exhaust vent is located on top of the cabinet. Louvers located on the door allow air to enter cabinet for exhausting, never allow these louvers to become obstructed as they provide maximum of airflow through cabinet. Where cylinder shelves are supplied the, shelves are perforated in order to allow maximum air flow through cabinet.

The gas cabinet is equipped with a 6” exhaust duct connect the exhaust duct to a forced ventilation duct made of materials compatible with the gas being used with a minimum of 200 cubic feet per minute of air flow. The exhaust system should be dedicated to the gas and cabinets being installed. The exhaust duct should be connected to a suitable scrubbing system or safe discharge area.

Connecting the internal sprinkler head
The gas cabinet is equipped with a water sprinkler head on ceiling of cabinet that activate between 160°F and 165°F. They are coated for protection from corrosive environments.
The connection is a ½” mpt fitting. Have a qualified fire system installer connect this to an appropriate building water fire sprinkler system.

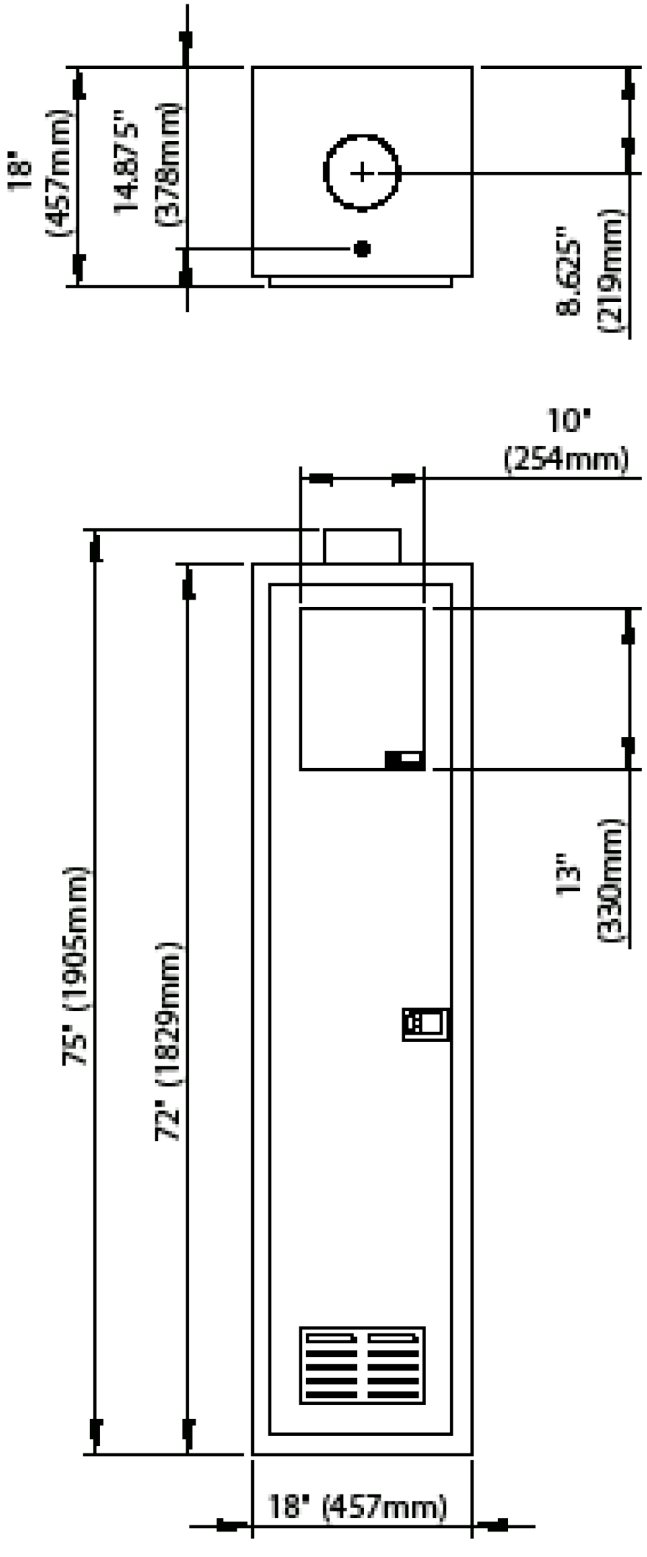
Securing cylinders in the gas cabinet
The cabinet is supplied with a cylinder bracket that is adjustable and includes a chain and strap. Always use both the chain and strap to secure the cylinders in the cabinet prior to removing the cylinder valve cap. The height of the bracket can be adjusted to accommodate different height cylinders. The bracket should be adjusted to match the size cylinder being used. If equipped with a shelf the shelf and bracket should be used to secure the cylinder at an appropriate height.

Mounting regulators, panels or systems to inside the gas cabinet.
If supplied with a regulator panel or system the rear mounting panel that contains the regulator panel or system will be in the box containing that part of the product. It will include the four mounting bolts that secure the back panel to the rear of the cabinet. Locate and use the supplied bolts and washers to secure the panel to the cabinet securely.
Read, understand and follow any instructions that are included with that product.

Installing the gas cabinet outlet bulkhead
If the cabinet is supplied with a regulator panel or system that includes a tube fitting outlet, it will also include a stainless steel bulkhead fitting of the same diameter that can be used to connect the outlet of the system thru the roof or side of the cabinet.

Locate and drill a hole that matches the bulkhead fitting supplied with the cabinet. The bulkhead fitting is a bore thru fitting and is intended to allow the appropriately sized tuning to be connected thru it. Choose a tubing that is compatible with the regulator, panel, system outlet and the gas being used. Make sure that it’ size and material matches the flow required and that it complies with any safety code and requirements.

MOUNTING AND INSTALLATION INFORMATION



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WARRANTY INFORMATION

This equipment is sold by CONTROLS CORPORATION OF AMERICA under the warranties set forth in the following paragraphs. Such warranties are extended only with respect to the purchase of this equipment directly from CONTROLS CORPORATION OF AMERICA or its Authorized Distributors as new merchandise and are extended to the first Buyer thereof other than for the purpose of resale.

For a period of one (1) year from the date of original delivery (90 days in corrosive service) to Buyer or to Buyer's order, this equipment is warrantied to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts, provided that the same is properly operated under conditions of normal use and that regular periodic maintenance and service is performed or replacements made in accordance with the instructions provided. The foregoing warranties shall not apply if the equipment has been repaired: other than by CONTROLS CORPORATION OF AMERICA or a designated service facility in accordance with written instructions provided by CONTROLS CORPORATION OF AMERICA; or altered by anyone other than CONTROLS CORPORATION OF AMERICA; or if the equipment has been operated under improper conditions or outside published specifications; or if the equipment has been damaged or does not function due to improper installation, improper supply of required utilities, accident, abuse, misuse, natural disaster, insufficient or excessive electrical supply, abnormal mechanical or environmental conditions, or debris or particles in the gas or liquid source of supply.

CONTROLS CORPORATION OF AMERICA's sole and exclusive obligation and Buyer's sole and exclusive remedy under the above warranties is limited to repairing using new or reconditioned parts or replacing, free of charge except for labor if permanently installed for the continuous supply of gas by other than a technician certified by CONTROLS CORPORATION OF AMERICA specifically to do so, at CONTROLS CORPORATION OF AMERICA's option, the equipment or part, which is either (1) reported to its Authorized Distributor from whom purchased, and which if so advised, is returned with a statement of the observed deficiency, and proof of purchase of equipment or part not later than seven (7) days after the expiration date of the applicable warranty, to the nearest designated service facility during normal business hours, transportation charges prepaid, and which upon examination, is found not to comply with the above warranties with return trip transportation charges for the equipment or part paid by Buyer or (2) in the case of designated equipment permanently installed for the continuous supply of gas, reported to an Authorized Service Center with proof of initial installation no later than seven (7) days after the expiration date of the applicable warranty, and which is evaluated for compliance with the above warranties by technician certified by CONTROLS CORPORATION OF AMERICA, and which is determined by CONTROLS CORPORATION OF AMERICA based on said evaluation to be non-compliant.

CONTROLS CORPORATION OF AMERICA SHALL NOT BE OTHERWISE LIABLE FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO: INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, OR SPECIAL DAMAGES, WHETHER SUCH DAMAGES RESULT FROM NEGLIGENCE, BREACH OF WARRANTY OR OTHERWISE.

THERE ARE NO EXPRESS OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREINABOVE SET FORTH. CONTROLS CORPORATION OF AMERICA MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE EQUIPMENT OR PARTS THEREOF.

Certified ISO 9001:2008

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