

Cylinder Size and Colour Chart Medical Applications



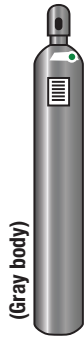
(Purple body)



(Black and White shoulder)

Medical Air, U.S.P. Grade

CGA 346 and CGA 950 (E and D sizes only)



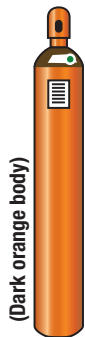
(Grey body)



(Grey shoulder)

Carbon Dioxide (CO₂) U.S.P. Grade

CGA 320 and CGA 940 (E and D sizes only)



(Dark orange body)



(Brown shoulder)

Helium (He), U.S.P. Grade

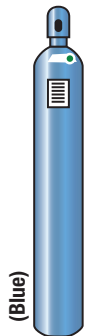
CGA 580 and CGA 930 (E and D sizes only)



(Black body)

Nitrogen (N₂), NF Grade

CGA 580 and CGA 960 (E and D sizes only)



(Blue)

Nitrous Oxide (N₂O), U.S.P. Grade

CGA 326 and CGA 910 (E and D sizes only)



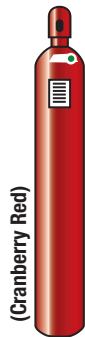
(Green body)



(White shoulder)

Oxygen (O₂), U.S.P. Grade

CGA 540 and CGA 870 (E and D sizes only)



(Cranberry Red)

Specialty Gas Mixtures

(Pink Shoulder)

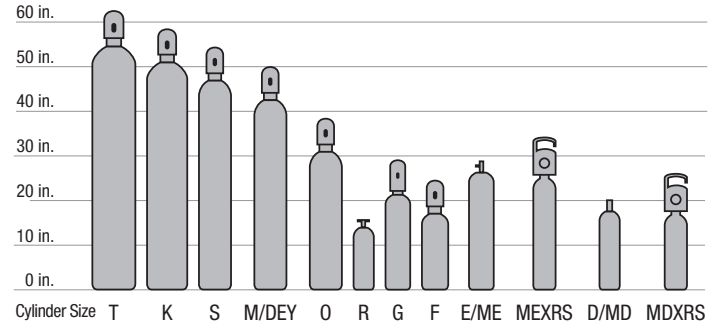
Various CGAs

Caution:

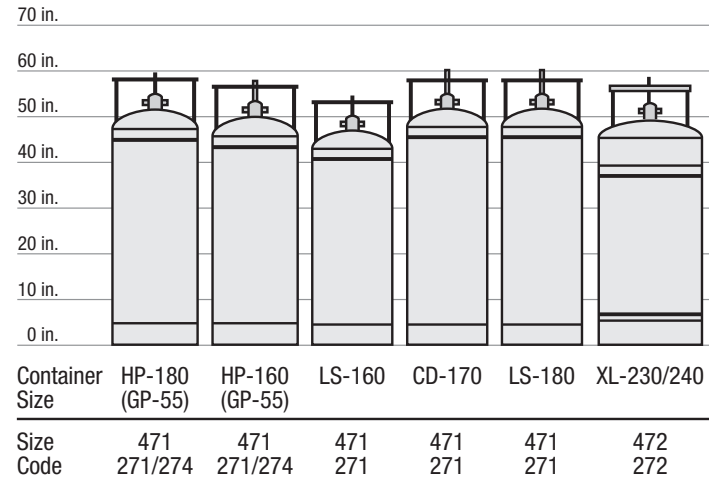
Do not use cylinder colour to identify gases.

Always read labels to identify contents. CGA connection may be used as a secondary check of contents.

High Pressure Cylinders

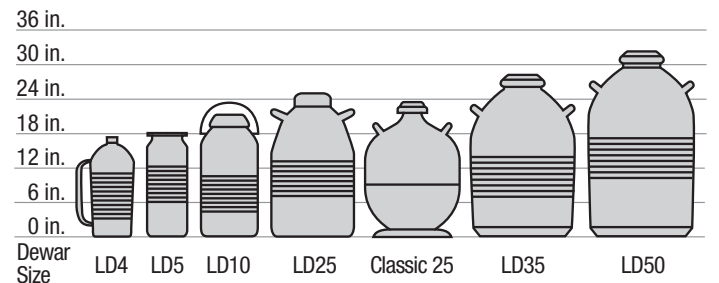


Cryogenic Containers



Product	Gas (Use)	Liquid
Nitrogen – Cryogenic Liquid	CGA 580	CGA 295
Oxygen – Cryogenic Liquid	CGA 540	CGA 440
Carbon Dioxide – Refrigerated Liquid	CGA 320	CGA 622
Nitrous Dioxide – Refrigerated Liquid	CGA 326	CGA 326

LD Series Dewars



General Safety Information

Moving Cylinders and Containers

Cylinders and containers must always be moved carefully. Mishandling that results in a damaged valve or ruptured cylinder can expose personnel to the hazards associated with these gases. In addition, most gas cylinders are heavy and bulky. A cylinder striking someone or pinching a finger, toe, or other extremity is a common cause of injury. For these reasons, all cylinder handlers must always wear certain minimum personal protective equipment prescribed by OSHA.

- Gloves to protect hands against common pinching injuries.
- Safety glasses to protect eyes against injuries associated with pressure release
- Safety shoes with metatarsal supports to protect against foot injuries from falling cylinders.

Before moving the cylinder to the storage area or point of use or before returning the cylinder to the supplier, ensure the following:

- The outlet valve is fully closed.
- The outlet valve dust plug or pressure cap is on tight for cylinders equipped with these protection devices (where supplied).
- The valve protection cap is properly secured in place on cylinders with neck threads (where supplied). **Note:** *Valve caps must always be in place while moving or transporting cylinders or when they are in storage.*

While moving full or empty cylinders:

- Always use carts or hand trucks designed for this purpose.
- Never drop cylinders or allow them to strike each other violently.
- Never lift cylinders by the cap or with a lifting magnet.

After moving a cylinder to its point of use, secure the cylinder in place. Use cylinder stands, clamps, or other securing devices recommended by your supplier.

Storing Cylinders and Containers

Storage of compressed gas cylinders and cryogenic liquid cylinders is governed by codes of the National Fire Protection Association (NFPA). Local codes may also apply. Know and obey codes governing storage at your location.

Safe Practices

In general, store cylinders so they can't be easily toppled over. Remember, danger exists not only from accidental release of gas by cylinders damaged in a fall but also from their striking someone and causing injury. Store cylinders upright in compact groups, interlocking them so that each cylinder physically contacts those around it. Do not stand cylinders loosely or in a haphazard manner. A single cylinder that topples over can create a domino effect causing other cylinders to fall. Single cylinders should be secured in place or on a cylinder cart so they can't be easily knocked over. Keep stored cylinders out of high traffic areas. Do not store them near the edges of platforms. Avoid storage in areas where there are activities that could damage or contaminate the cylinders. Electric arc welding can destroy the integrity of cylinder metal if a welder carelessly strikes an arc on a cylinder. Overhead hoists can drip oil or grease on cylinders, contaminating them. Never store cylinders with flammable materials.

Opening and Closing Valves

Observing a few simple rules when opening and closing valves can prevent damage to valves and equipment and add years of useful service life to the valves. Praxair supplies a new gasket/washer with each cylinder equipped with a post-style valve to ensure a gas-tight

connection with the gas regulating device. The gasket provided is designed for single-use and must be discarded every time a regulator or cylinder is changed. When changing the regulator or cylinder in a post-style valve, remove the dust cover and never use more than one gasket to provide the gas-tight seal. Always refer to the manufacturer's instructions for attaching the regulator to the cylinder. The proper way to open any cylinder valve is to first "crack" the valve (open the cylinder valve momentarily and then close it), then open it slowly by turning the handle or stem counterclockwise. This allows equipment to gradually adjust to full pressure. Stop turning as soon as there is any resistance. Turning the valve handle or stem too far in the open position can jam the stem causing damage and leaks and preventing later closure. Likewise, overtightening when closing a valve can damage or permanently distort the seat and result in leakage.

Receiving Cylinders – External Inspection

Personnel responsible for receiving cylinders should perform an external inspection on all packages before moving them to the point of use or to the storage area. Basic guidelines for performing this inspection are as follows:

Read the cylinder labels to be sure that the gas is what you ordered and that you understand the hazards associated with the product. Remember, the label is the only means of identifying the product in the cylinder. Never identify the product by the color of the cylinder. A secondary check of contents may be made by using the CGA connection on the valve.

Check the TC/DOT cylinder markings to be sure you understand the pressures contained in the cylinders.

Thoroughly inspect the cylinders for any obvious damage. The cylinder surface should be clean and free from defects such as cuts, gouges, burns and obvious dents. Such damage could weaken the cylinder metal, creating a danger of failure, or it could make the cylinder unstable and more likely to tip over. Make sure the cylinder stands steady on its base and does not wobble.

Cylinders with neck threads should have a cap in place over the valve. Remove the cap by hand. Never use a screwdriver, crowbar, or other leverage device to remove the cap. You could accidentally open the valve or damage it.

Check the cylinder valve to be sure it is not bent or damaged. A damaged valve could leak or fail, or it might not make a tight connection when the cylinder is placed into use. Make sure the valve is free from dirt and oil, which could contaminate the gas. Dirt particles propelled in a high velocity gas stream could cause a spark, igniting a flammable gas. Oil and grease can react with oxygen and other oxidizers, causing an explosion.

If any cylinder is received with missing or unreadable labels and markings; visible damage; an unstable base; a missing cap; or a bent, damaged, or dirty valve, do not use the cylinder. Contact your supplier and ask for instructions.

Testing for Leaks

After completing the external inspection, proceed as follows:

- Test the cylinder valve for leaks using the leak test method approved by your employer. If you detect leakage, follow the employer's procedures for handling leaking cylinders. **Note:** *It is normal for cryogenic liquid cylinders to vent through their relief valves to relieve excess pressure build up due to heat leak. This venting is not a leak.*
- If no leak is detected, secure the cylinder valve cap in place before moving the cylinder to the point of use or to the storage area.