



## Location

Before you install your Storemasta Gas Bottle Storage – Premium Range, we recommend that you identify the safest and most practical area onsite. While stores can be either inside or outside, outdoor storage for gas cylinders is best practice.

Some of the biggest risks when storing compressed gases in cylinders are leaks, and this is the key reason why indoor storage of gas cylinders should be avoided wherever possible.

If a gas leak occurs outdoors, in many instances the gas will be dispersed safely. But indoors, a whole room or building can quickly fill with gas. When gas like LPG — which is highly flammable and denser than air — collects in low areas instead of dissipating, accumulated gas remains in its explosive range.

## Installation & Set-up

While the Gas Bottle Storage – Premium Range is a ready-made solution for Class 2 gases, there are some considerations to make before you install and set-up your storage equipment.

Remember: The rules of segregation do apply, so make sure you only store compatible gases within the store – and not a combination of aerosols and gas cylinders as this is a dangerous and non-compliant practice.

To install and set-up your Gas Bottle Storage – Premium Range, you need a safe, secure and level site.

We recommend the following considerations when installing your Storemasta Gas Bottle Storage – Premium Range:

- **Base** - The store should be at ground level, and any space between the cylinders and the ground filled with a solid base. We recommend bolting down your gas bottle stores or conducting a risk assessment to determine if this is necessary for your site.
- **Level** - The base materials must be sturdy, non-combustible and able to withstand all weather conditions without becoming indented or damaged.
- **Traffic** - Where possible locate storage areas away from traffic and machinery. If this is not possible then bollards or crash barriers must be installed to minimise the risk of cylinders being hit by vehicles.
- **Heat** - Class 2 stores must not be close to artificial sources of heat — so locate away from radiators, boilers, steam pipes etc and direct sunlight.
- **Security** - Untrained staff and other unauthorised personnel must not be able to access cylinder stores. Make sure the Gas Bottle Storage is kept locked.

## Segregation

Like all hazardous chemicals, compressed gases must be segregated and separated according to their gas and hazard class. Segregation is about isolating incompatible gases from one another, whereas separation is about physically separating the gas cylinder stores away from site machinery and operations; pedestrians and traffic; other dangerous goods and hazardous chemicals.

In the Standard, the following gases must be segregated by at least 3 metres:

- **Class 2.1 flammable gases** (for example, acetylene, LPG)
- **Class 2.2 (5.1) non-flammable, oxidizing gases** (such as oxygen)
- **Class 2.3 toxic gases** (including gases such as chlorine)

The 3 metre segregation rule also applies to combustible materials, refuse and vegetation.

**NOTE:** Segregation distances can vary according to the hazard class of each gas, plus the quantities being used and stored at your worksite.

## Configurable Gas Bottle Storage

### How to Set up Your Store for your Gases

As most\* Gas Bottle Stores are configurable within the Premium Range, you have the option to store different capacities of either aerosols, cylinders or gas bottles.

Configurable parts include:

1. Shelving - for models GSC 2 to GSC 8
2. Chain Restraints - for all models
3. Restraint Bars - fixed bars: only for models GSC 9 and GSC 10

You must adjust your store to ensure you are using the correct hazard controls for your stored Class 2 gases.

- **Aerosols** – To reconfigure your store for aerosol storage, simply choose the shelving positions that best suit your quantity of aerosols, and remove the gas cylinder restraint chains, as these are not required with aerosols. We recommend attaching a padlock to the doors to ensure security for your aerosols. **You must only store compatible aerosols within your store.**
- **Gas bottles** – To reconfigure your store for gas bottle storage, simply choose the shelving positions that best suit your quantity of gas bottles and remove the gas cylinder restraint chains, as these are not required with bottles. We recommend attaching a padlock to the doors to ensure security for your gas bottles. **Only store compatible gas bottles within your store.**
- **Gas cylinders** - To reconfigure your store for gas cylinder storage, simply choose the shelving positions that best suit your quantity of gas cylinders and add the restraint chains. We recommend attaching a padlock to the doors to ensure security for your gas cylinders. **Only store compatible gas cylinders within your store.**

\*Check Storage Capacity on each product page to see the quantities available for storage within each model. Note: GSC 9 and GSC 10 are only suitable for bottles and cylinders, not aerosols. These larger models also have FIXED restraint bars that can't be adjusted.

### How to Adjust Shelving

There are a series of shelf lug positions to suit various bottle sizes. You may move the shelving up or down to suit your needs, affixing the shelf lug in the appropriate position. Always make

sure the lugs are placed evenly around the walls, in a straight horizontal line – so the shelving is secure and even.

### **How to Add in Chains**

Chain restraints are clipped to the walls within the gas store to prevent bottles or cylinder from falling forward when the doors of the cage are opened. You can simply attach the chain restraints at the wall and secure your cylinders in place.

## **Changing Storage for a New Gas Type**

When you are changing your storage from one gas type to another (such as aerosols to LPG or flammable gases to toxic gases), you must ensure that not only the adjustable shelving and chains suit your needs – but that the store does not have any residue that could spark a hazard.

Check your Safety Data Sheet for the accidental release clean up methods, and apply this clean up strategy to your Gas Bottle Store – Premium Range. After you have ensured that your gas store is clean and free from residue, you will then change out the hazard controls (also wiped down and free of residue). You'll also have to change the signage to suit your new gas division.

Simple steps when changing gas type:

1. Clean the store so no residue remains
2. Adjust the shelving and/or chains to suit your gases
3. Change over the dangerous goods signage and hazard signage

**REMEMBER:** Storemasta's Premium Range comes with a pack of DG diamonds, so you can change your signage when you change your stored gases.

## **Gas Bottle & Gas Cylinder Storage**

Gas cylinders should always be stored upright in a secure safety cage and restrained by chains or safety straps. Valves must be closed, attachments removed, and safety caps in place.

The Standard also requires that -

- Copies of safety data sheets (SDSs) for each of the gases (plus first aid equipment) are nearby.
- Gas stores are NO SMOKING areas.
- Entry points and emergency exits are kept clear at all times.

- Adequate ventilation should maintain safe oxygen levels at all times, as well as safe gas exposure standards and within explosive limits.
- Like all storage areas for dangerous goods, cylinder stores must also have correct signage. This includes safety labels, hazard statements, and placards.

## Handling of Gas Cylinders

Gas cylinders are bulky and awkward, so they create a significant manual handling risk. Not only are they heavy, but their slim design makes them unstable when standing. Australian Standard AS 4332 is very clear about handling gas cylinders and specifies the following:

- Always make sure the valves are closed and cylinder caps in place.
- Never apply excessive force to cylinder valves — so don't lift or carry a gas cylinder using their valves, shrouds or caps.
- Always use a trolley or lifting device (like a forklift) for moving cylinders.
- Because a cylinder must always be protected from being knocked over, falling, or impact damage to the valve; make sure the trolley or lifting device has secure restraints and safety straps.
- Don't drop or roll cylinders over the side of trucks (again use a forklift or other lifting device).

Additionally, you should ensure that your staff are trained to:

- Not transfer or store cylinders with attachments (like welding torches) in place. Take care not to trap their fingers between cylinders.
- Use PPE like gloves and safety shoes (many workers have had their toes crushed from dropped cylinders).
- Never try to catch a falling gas cylinder — let the cylinder drop and get out of the way
- Approach a fallen cylinder with caution, making sure that valves are intact and not leaking.
- Gas-trolley-email-image

## Empty Cylinders

According to the Standard, empty cylinders must be afforded the same precautions as full cylinders. Make sure they are used, stored and handled in the same manner as if they were full — this includes being properly segregated and separated. What this effectively means for your workplace, is you need additional cylinder stores for your empties. Because (just as if it were full) you cannot store an empty O<sub>2</sub> cylinder with empty LPG cylinders.

## Get In Touch

Need some more advice? Simply connect with our experienced Dangerous Goods Storage Consultants who can help you reduce your risks.