

# Safe handling of gas cylinders

Pocket Safety Guide No. 2



## Dear Gas User,

Messer produces and supplies a broad portfolio of gases.

Gas cylinders are considered to be portable pressure equipment; they pose certain risks that must be considered, and they must be handled with care. Gas cylinders are heavy and, depending on their size, difficult to handle. The cylinder valves are inherently robust. Nevertheless, it is important that certain guidelines be followed, given that the gas cylinders are under high pressure and may contain dangerous gases.

This safety leaflet is intended to inform you about the basic things that need to be considered when handling pressurised gas cylinders.

Handling refers here to a manual or simple mechanical method or activity by means of which the individual gas cylinders are moved or transported.

We recommend that you keep this leaflet on hand at all times.

With every product, you will receive a safety data sheet containing all the important safety instructions for gases. Please familiarise yourself with this information.

Your Messer Team





## The gas cylinder

A gas cylinder is a refillable pressurised gas container used for the transport and storage of gases; it typically has a capacity of three to 60 litres held at a **pressure** of up to 300 bar.

### Main hazards

Gas cylinders are heavy because they are made of metal and must withstand a high pressure. Furthermore, their long, narrow shape means that they are unstable when standing and can easily tip over if they are not secured. The gases that they contain are under pressure and are characterised by certain properties. This offers advantages, but also gives rise to hazards.

**Gas cylinders are much heavier than they look.**

## Receipt of gas cylinders

**Make sure** that the cylinder label is present and easily legible.

**Make sure** that the information on the cylinder label matches your order.

If the label is illegible or missing, do not use this gas cylinder. **Exchange** the gas cylinder for a cylinder with a label that is in good condition.

As a new user, you must be issued with the relevant safety data sheet containing further **safety instructions** for the gas that you have received.

**Check** the UN number (material number). The UN number is a four-digit number that identifies hazardous substances in the framework of international transport.

## Inform yourself about:

- the properties of the gases and their associated hazards
- the safety data sheet
- the safe transport, loading and unloading of gas cylinders
- the safe storage of gas cylinders
- the safe handling of gas cylinders and associated equipment
- emergency measures

## General safety

**Pay attention** to possible risks in your working environment that could make it dangerous to handle the gas cylinder.

**Use** appropriate personal protective equipment, such as gloves and safety shoes.

**Make sure** you have a secure grip.

**Do not work** with gas cylinders if you are tired, physically impaired or under the influence of medication, alcohol or drugs.



## Basic information on the handling of gas cylinders

**Store gas cylinders at normal ambient temperatures.** Excessive heat will cause the internal pressure to rise and may adversely affect the strength of the gas cylinder. In extreme cases, the gas cylinder could rupture. Never direct a welding torch or any other open flame at the gas cylinder.

**Handle gas cylinders with care and avoid any kind of damage that could result from external influences.** Do not throw gas cylinders from vehicles or ramps when loading or unloading. The gas cylinder or the cylinder valve could be damaged, which could then give rise to a gas leak. Take care that no heavy objects are allowed to fall on to the gas cylinders. Dents may reduce the strength of the vessel walls, which could lead to premature fatigue of the material and, ultimately, cause the cylinder to rupture.

**Keep away from electrical welding equipment, glowing metal and other sources of heat.** Always maintain a safe distance between the gas cylinder and the welding torch. Any arcing between the tool and the gas cylinder could result in localised overheating of the wall of the gas cylinder.

**Keep the gas cylinder and the cylinder valve clean.** Do not allow the gas cylinder or the cylinder valve to come into **contact with oil or grease.**

The labels that are permanently affixed to the gas cylinder contain important information about its manufacture, usage and certification. Never change or damage this data.

Never attempt to repair or paint a gas cylinder. A damaged gas cylinder is not safe to use. **Sort out any damaged gas cylinders and mark them clearly. Inform Messer**



**and have a thorough examination of the gas cylinder carried out.** Never conceal or fail to mention damage to a gas cylinder. This would endanger your own safety and the safety of others, and it could have legal consequences.

Use gas cylinders only with equipment that is clean and in sound condition.

Gas cylinders are intended for use as gas discharge vessels. Never attempt to refill gas cylinders, regardless of the gas being used.

Return gas cylinders that are empty, or whose inspection date has expired, to Messer. Never scrap a cylinder that is not your property.

**Return empty gas cylinders to Messer as quickly as possible.**

# Handling of gas cylinders

**Avoid** as far as possible manual handling of gas cylinders; it is recommended that you use mechanical aids (gas cylinder trolleys, forklifts, etc.) instead.

**Make sure** that the pressurised gas cylinder is properly secured to the mechanical handling aid and that the cylinder valve is closed.

Before transporting the pressurised gas cylinder, disconnect all attached equipment (such as pressure regulators), and fit the supplied valve protection cap.

Pay attention to the ambient conditions. For example, if gas cylinders are wet, hot or cold, this could adversely affect your ability to handle them safely.

**Gas cylinders are often rolled during handling.** This is done by balancing the standing cylinder at a slight angle and holding it upright with one hand, while the other hand moves the cylinder forwards by pushing on the body of the cylinder.

- One hand on the valve protection cap (or, in exceptional cases, on the cylinder shoulder if the cylinder is rolled without a valve protection cap).
- The second hand on the cylinder body.
- Nearly upright position.
- Move slowly and in a controlled manner.  
**DO NOT RUN.** Do not roll gas cylinders over steps or over uneven, yielding surfaces.

Never roll a gas cylinder horizontally along the ground. This could damage the cylinder valve, or the valve could open if the gas cylinder collides with an obstacle. Furthermore, rough surfaces could damage the gas cylinder labelling and paint.

Never roll two gas cylinders at the same time.

Never try to catch a falling gas cylinder. Gas cylinders are designed to withstand such an impact. Instead, let the gas cylinder fall and move out of harm's way.



## Manual lifting of gas cylinders

Before lifting a fallen cylinder, check that it is possible to approach the cylinder without putting yourself in danger. Make sure that the gas cylinder and the cylinder valve are not damaged or leaking. Make sure that there are no tripping hazards in the vicinity of the gas cylinder.

Put on your personal protective equipment (shoes and gloves).

Grip the shoulder of the gas cylinder or the valve protection cap with both hands. Never lift a gas cylinder by the cylinder valve.

Keeping your back straight, lift the gas cylinder, walking forwards as you do so.

Once the gas cylinder is standing upright, secure the cylinder.



## Individual gas cylinders and cylinder pallets

Gas cylinders are usually transported and stored on cylinder pallets specially designed for this purpose. Whenever you are about to take a gas cylinder off the pallet or place a cylinder back on the pallet, pay attention to the risks involved so as to avoid injury.

Pallet crossbars may fall if they are not secured. Gas cylinders may slide backwards when they are standing on the ramp.

**Take care not to trap your fingers between the cylinders.**

**Wear appropriate protective clothing.**



You can request additional **pocket safety guides** on our Internet page or obtain them directly from your experts.

#### IMPORTANT

This leaflet contains general information only. It is not a substitute for training and is not intended as such. Messer is not liable for the information contained in this leaflet.

**MESSER**   
Gases for Life

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