

GENERAL SAFETY

- **DO** use mechanical aids in preference to direct manual handling of cylinders (ramps, trolleys, forklifts, scissor lifts).
- **DO** remove any connected equipment, eg regulator, AND refit any supplied valve protection cap and or valve outlet gas tight cap/plug prior to moving cylinders.
- **DO** ensure cylinders are positively secured to mechanical lifting/handling devices prior to movement.
- **DO** familiarise yourself with and observe appropriate safe lifting techniques/postures prior to manually handling heavy large gas cylinders.
- **DO** assess the load weight and dimensions before attempting any lift.
- **DO** use suitable personal protective equipment (PPE) – wear safety footwear and leather gloves to protect against falling or slipping cylinders crushing hands or feet during moving.
- **DO** ensure a positive hand grip prior to commencing a manual lift.
- **DO** ensure that loads are equally shared when attempting two person lifts.
- **DO** note environmental conditions prior to handling cylinders – wet, hot or cold cylinders may diminish the quality of hand grip and footing may be compromised.
- **DO NOT** attempt to catch or restrain a falling cylinder.
- **DO NOT** bear hug cylinders to effect a lift.
- **DO NOT** lift or lower cylinders where the operators hands are above shoulder height or below mid thigh height.
- **DO NOT** edge roll cylinders up or down steps of 250mm or greater.
- **DO NOT** edge roll cylinders over discontinuous or soft surfaces.
- **DO NOT** attempt to handle cylinders if you are fatigued, physically compromised or under the adverse influence of medication or alcohol.
- **DO NOT** drop cylinders as a method of transfer – this may seriously damage the cylinder or its valve resulting in their failure and product release.

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MANUAL HANDLING HEAVY OR LARGE GAS CYLINDERS in New Zealand

Consider this BEFORE handing your cylinders



Think before you lift



Don't bear hug
cylinders



Team lifts share
the load

IMPORTANT

Please read the rest of this document fully BEFORE handling large gas cylinders.

(Cylinders weighing greater than 45kg)



Australia New Zealand
Industrial Gas Association

PREVENTING INJURY

Risks when handling heavy or large gas cylinders

(which may be any cylinder over small or D size)

Awkward postures

Excessive bending and twisting can increase the likelihood of injury.

High skeletal forces

Loads that are excessive or unexpected can increase the likelihood of injury.

Work height differences

Moving large cylinders from ground to vehicle or from dock to vehicle may increase the likelihood of injury.

Poor hand grip

Uncontrolled lifts and insecure grip of load can lead to increased likelihood of injury.

Physical capacity

Age, physical condition, gender, medications and alcohol can influence safe cylinder handling.

Environmental conditions

Wet conditions, cold or excessive heat may affect safe cylinder handling.

High centre of gravity and small base area

Some large high pressure cylinders have increased instability due to this, especially on uneven surfaces.

Notes

- Liquefied gas cylinders e.g. LPG, Carbon Dioxide etc. are considerably heavier than those containing permanent gases such as Oxygen, Nitrogen, Argon etc.
- Full cylinders are heavier than empty cylinders
- Large or G size cylinders may weigh over 100kg

CYLINDER HANDLING TECHNIQUES

Manual handling

Edge rolling, trundling or churning

Terms used to describe moving cylinders short distances, usually no more than about 2 metres, by tilting and rolling on the base edge or base ring. It is a technique that requires a high level of coordination and should be restricted to experienced and trained operators.

Sliding

Sliding a cylinder up or down over a smooth edge should be limited to situations where the operator's hand height remains above that of their standing mid thigh height. It is best employed where transfer distances are small (approx. 200 mm) and the operator can avoid bending by transferring the cylinder weight through their legs.

Assisted lifts

Allows two operators to share the cylinder load. A two stage, two person lift can be employed to transfer cylinders a vertical distance approx. 50% of the cylinder height. The technique employs a lift/slide action against the edge of the destination platform. The force is applied from the cylinder base. Operators employing this technique should be trained in the practice and coordinated in the action.

Unassisted lifting

Unassisted lifting of the full cylinder weight should be confined to lighter smaller cylinders.

Mechanical aids

Tailgate lifters

Allow vertical transfer of cylinders from ground level to tray height. Tall cylinders with narrow bases that are unstable should be secured during the transfer to avoid falling. Operators must not ride on tailgate lifters.

Trolleys or hand trucks

Trolleys or hand trucks fitted with large diameter pneumatic tyres allow cylinder transfers over short to medium distances e.g. up to 50 metres and over any discontinuous surfaces e.g. gutters, low steps and broken ground. Cylinders must be secured to the trolley or handcart to avoid falling during movement.

Ramps

Provide a continuous surface (suitable for cylinder trundling) between two levels. The ramp surface should be textured to reduce the likelihood of cylinders slipping. The ramp gradient must be small enough to allow for controlled cylinder descent or comfortable ascent and prevent slipping.

Loading docks

Approximate common vehicle tray heights and reduce total cylinder lift distance. Height differences between loading docks and vehicle tray may necessitate raising or lowering cylinders by hand. Note sliding technique as described above.

Forklifts

Can be used to lift cylinders, which are secured in special pallets, directly onto a vehicle or up to its tray height allowing same level transfer of cylinders by trundling directly from pallet to vehicle tray. Cylinders should be secured in pallet during lift.