

Gas Cylinder Manual Handling Information Sheet

Manual handling is defined as any transporting or supporting of a load (living or inanimate) including lifting, carrying, pushing, pulling, or putting down by hand or bodily force. This covers a wide variety of tasks including lifting, lowering, pushing, pulling, carrying. If any of these tasks are not carried out safely there is a risk of injury. Common manual handling injuries include:

- Musculoskeletal disorders.
- Back, neck and spine injuries.
- Strains and sprains.
- Hernias.
- Injuries and bruising to the hands, feet, ankles, and wrists (including crush injuries / broken bones).

Where gas cylinders are to be manually handled you must:

- Ensure risk assessments are completed, and the control measures identified are implemented.
- Ensure all individuals who move gas cylinders are trained as gas “users.”
- Provide suitable gas trolleys for the safe movement of gas cylinders.
- Ensure individuals who move gas cylinders wear the correct Personal Protective Equipment.

Only people who have received “user” training are authorised to move gas cylinders. Practical manual handling training is provided by the faculty and includes the safe use of trolleys and churning.

Manual Handling Risk Assessment

Where it is reasonably practicable, the manual handling of gas cylinders by hand should be avoided. This can be achieved by redesigning the task:

- Install an on-site gas source e.g. bulk tank or gas generator.
- The use of cylinder bundles.
- The use of a palletised process, where cylinders remain in a pallet.

For any manual handling activities that cannot be avoided, a manual handling risk assessment must be completed prior to handling of gas cylinders.

A manual handling risk assessment should be carried out using the Task, Individual, Load, Environment (TILE) methodology and needs to consider the following.

1.1 Task

This considers the requirements of the activity. For example, cylinder churning, lifting of small cylinders, quantity to be moved, the distance.

Example considerations and controls for the task:

- Individuals must be provided with and wear suitable personal protective equipment (PPE). As a minimum, safety shoes (preferably with metatarsal protection), safety glasses and gloves (for grip and to prevent cuts and abrasions) must be worn. A higher level of personal

protective equipment may be required, depending on the gas to be handled, this will be based on risk assessment (e.g. gas-tight goggles, respiratory protective equipment, high-vis jacket).

- Where many cylinders are to be moved by hand, share the task with other people, or break up the task over a period of time and take regular breaks.
- Churning cylinders must only be used for short distances (less than 5 metres) and on a firm, even surface. Be aware that wet cylinders may be slippery and difficult to grasp. Only churn cylinders that are within your physical capability.
- Gas cylinders typically have a large height to diameter ratio, this makes them susceptible to toppling and difficult to move. When handling gas cylinders, they must not be left freestanding at any time. They should be secured in a suitable cylinder trolley, cylinder support bracket. Never try to catch a falling cylinder, get out of the way.
- Always ensure the cylinder valve is closed before moving (including empty cylinders).
- Always ensure attachments have been removed from the valve outlet before moving (e.g. regulators, hoses etc.). Where a cylinder(s) is part of a mobile gas supply system, for example, an oxy-fuel set on a trolley, then it may be acceptable to move these cylinders as an assembly for specific work purposes - but ensure the cylinder valves are closed prior to moving (BGCA - CP7).

1.2 Individual

This considers the capability, training and competence of the individual(s) carrying out the task and number of individuals required to complete the task.

Example considerations and controls to help individuals:

- Staff and students who move gas cylinders require gas cylinder training for "users" (see Control Measures – Gas Cylinder Safety Training document), this includes how to use a cylinder trolley and how to safely churn a gas cylinder.
- Fitness, age, and height may affect a person's ability to move larger or heavier gas cylinders. Avoid moving cylinders and contact your supervisor/ line-manager. Alternative arrangements or reasonable adjustments should be made.
- Pregnant workers and young people (U18) must not move gas cylinders.
- People with a medical condition (e.g. musculoskeletal disorders) or a disability that affects their ability to move gas cylinders must avoid moving cylinders and contact their supervisor/ line-manager. Alternative arrangements or reasonable adjustments should be made such as others who are capable and appropriately trained carrying out the manual handling.

1.3 Load

This considers the weight, size, shape, stability, specific hazards (such as heat, radiation, sharp edges, etc.) of the of the load.

Example considerations and controls to help control the load:

- Minimise the size and weight of cylinders purchased.
- Individuals who are moving gas cylinders must be aware of the chemical hazards associated with the gas. Obtain and read the Safety Data Sheet. When moving toxic/ corrosive cylinder always ensure the plug or cap-nut is in place prior to moving; this acts as a secondary seal and must be used even if the cylinder is "empty."
- Do not drop, drag, or roll gas cylinders on the ground.
- Cylinders are heavy and need to be handled with care. Mechanical aids, such as a suitable trolley must be used. The trolley must be suitable for the size, shape, and weight of the

cylinder. Always carry out a pre-use check of the trolley before it is used to ensure it is in good repair. Straps/ chains must be used to secure the cylinder. Four (or 3) wheel trolleys, which support the full weight and distribution of the load from a cylinder(s) are preferable and provide more stability when moving larger cylinders. Cylinder trolleys with brakes can be used to control the speed of movement (e.g. for traversing sloping surfaces).

1.4 Environment

This considers the work environment such as, the work area, obstacles on the route, ground conditions, lighting conditions, weather conditions and other activities in the area.

Example considerations and controls to help when thinking about the environment:

- Identify and assess the best route.
- Obstacles on the route could include doors, lifts, stairs, kerbs, ramps, and trip hazards etc.
- Ground conditions i.e. is it sloping, slippery, soft, or uneven ground.
- Are there areas where there is limited space to manoeuvre, poor lighting conditions.
- Weather conditions.
- Other nearby activities such as crowded areas or moving vehicles.
- Where possible, remove obstacles and arrange for assistance (e.g. to hold open doors as you move through them).
- You may require modifications to the route. Contact the Estates and Campus Services Helpdesk to check if improvement can be made to lighting, drop kerbs, install ramps etc.
- Always ensure there will be a safe place to secure the cylinder once it has been moved.
- Where possible avoid moving cylinders when the corridors and lifts are busy.

If you are required to use a lift (for full and empty cylinders) you must:

- Use a Goods Only Lift - where these are available.
- Choose an appropriate time when it is not busy.
- Ensure the cylinder is secure and stable.
- Use suitable atmospheric monitoring.
- Do not accompany gas cylinders in lifts or allow people to enter it. Use key control (preferred) or manage access (top and bottom) and use signage.
- Have an emergency plan available for gas leaks.

The gas manual handling risk assessment template provided is suitable for assessing the moving gas cylinders using a trolley and churning.

The completed risk assessment must be shared with people authorised to move gas cylinders. The risk assessment must be regularly reviewed such as, periodically if there is a reason to suspect it is no longer valid e.g., if significant changes are made, new information comes to light, changes to personnel or following an adverse event.

2. References and Further Guidance

Additional information can be found in the following:

- British Compressed Gas Association (BCGA) Guidance Note 3, Rev 4: 2022.
- British Compressed Gas Association (BCGA) TIS 38.

- EIGA – Doc 229/22, Guidance for manual handling activities of cylinders. This includes manual handling guidance sheets: Lifting, lowering, and carrying small standing cylinders/ Lifting a cylinder from horizontal/ Strapping pallets/ Pushing a cylinder with a trolley/ Cylinder churning/ Handling cylinders on pallet ramps/ Loading and unloading wine racks.