

Management Summary

Guide to Good Industry Practices for LPG Cylinder Management

GOOD INDUSTRY PRACTICES



The WLPGA Guide to Good Industry Practices for LPG Cylinder Management addresses the life cycle of an LPG cylinder from acquisition through to disposal

LPG is one of those unique products where the packaging often costs more than the contents. The majority of LPG consumed around the world is delivered to the consumer in steel cylinders of various sizes and types.

The cylinder is an important asset of the business that not only needs to be procured and protected for commercial reasons, it is also required to withstand all the challenges of the distribution chain in order to keep the contents secure and safe.

This guide focuses on the management of LPG cylinders right through the life cycle, including the key principles of selection, design, manufacturing, filling, maintenance, repair & requalification and disposal.

Composite cylinders are becoming more popular and some of the same principles, not specific to steel, set out here will also apply.

This guide should therefore be essential reading for anyone involved in the LPG cylinder business who is responsible for acquiring, maintaining and using any form of cylinders.

With different types of cylinders now available in the market, it is critical to choose the right one for your business. This will largely depend on the particular application, environment, budget and market conditions where it will be used.

LPG cylinders come in many different sizes depending on the application. The gross weight of an LPG cylinder is often one of the limiting factors in selecting the size, especially for domestic applications. This and other factors are covered.

There are two basic types of LPG cylinder valves for vapour service, self-closing clip-on valves and hand wheel operated valves. They can come with or without pressure relief valves depending on local regulations.

Cylinders (and valves) should be limited to a few standard types and sizes as much as possible. This will allow: filling plants to automate facilities and operate efficiently; distribution trucks to optimise capacity; distributors' to have uniform cylinder cages and display racks; and procurement to achieve scale when sourcing.

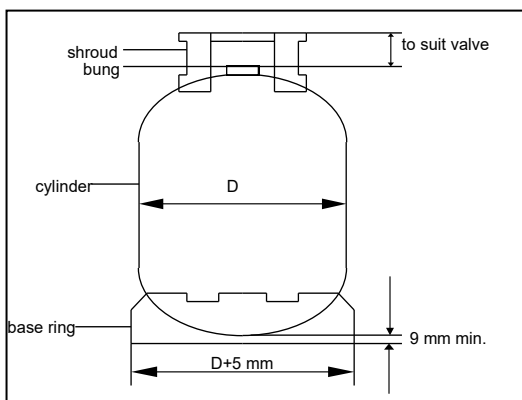
The *WLPGA Guide to Good Industry Practices for LPG Cylinder Management* stresses the importance of having good quality

LPG is a highly flammable product that is commonly stored under pressure. Any leakage of LPG from its container has a potential to cause fire and injury, especially a liquid leak.

Cylinders should be designed and manufactured in accordance to recognised international codes and standards.

In countries where the vapour pressure of LPG is not strictly controlled, or is variable in practice, then cylinders must be designed for propane service.

An LPG cylinder consists of a few basic parts, a shroud (collar or handle), a bung, a body and a foot (or base) ring. Each part has a specific function which is explained in the Guide and they should be designed and manufactured to meet fitness for purpose. Poor designs result in damage and may cause injury to users.



The body is generally made in either a two or three piece design depending on the size and application. Two-piece construction is common for domestic cylinders. Larger capacity cylinders for industrial and commercial applications will generally require three-piece construction.

The purpose of the shroud is to protect the valve from damage due to impact, and when cylinders are stacked on top of each other. In the absence of a shroud, the valve must be protected using a removal cap which is also to be fitted when the cylinder is in transit.

The foot ring provides stability to the cylinder when standing alone or if stacked on top of another cylinder. It also protects the underside of the body from touching the ground and risking corrosion.

The *WLPGA Guide to Good Industry Practices for LPG Cylinder Management* discusses the importance of having a certified manufacturer

Only manufacturers certified to ISO 9001 that can demonstrate their ability to produce to quality standards should be selected and they should have the certifications to produce to specific codes and standards i.e. DOT, EN, etc.

It is important also to ensure that manufacturers comply with the requirements of the design code and manufacturing specifications by appointing an independent inspection authority before, during and after manufacturing in order to verify compliance. DOT specifies the manufacturing inspection for cylinders which should be carried out by DOT approved inspectors.

Prior to the commencement of production, the manufacturer and buyer should agree/approve the design code or standards, the manufacturing drawings and specifications, and the destructive and non-destructive testing requirements.

The Guide details some of the key manufacturing issues such as the material, the welding process, appropriate heat treatment, surface preparation, painting and the importance of applying a zinc metal base, internal cleaning and drying, the application of the valve, measuring tare weight, checking water capacity, testing, and stamping, markings and labelling.



Finally, the Guide addresses the important issue of maintenance, repair and requalification of cylinders and, if they are to be disposed of, how they are scrapped beyond repair.

The complete *Guide to Good Industry Practices for LPG Cylinder Management* and other WLPGA publications, can be found here:

<https://www.wlpga.org/publications/wlpga-publications/>

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