

Management Summary

Guidelines for Good Industry Practices LPG Cylinder Filling

GOOD INDUSTRY PRACTICES



The WLPGA Guide to Good Industry Practices for LPG Cylinder Filling, describes some important issues to address when considering investment in cylinder filling facilities

When considering investment in an LPG cylinder filling plant there are many choices available. From simple manually operated filling plants to fully automated ones.

There are filling plants that are designed to fill just a few cylinders an hour, to ones that can handle several thousand cylinders per hour.

Some plants are designed to be permanent fixtures and require significant investment. Other more flexible options, that are designed in containers, can be located, and moved on, as the demand for LPG cylinders grows.

This *Guide to Good Industry Practices for LPG Cylinder Filling* addresses some of the key issues to consider in the decision-making process to select a filling plant that meets the current, and future, needs of the market.

These include size and location of market demand, size of cylinders to be filled, valve

type, available land, and whether cylinder filling is to be considered for third parties.

LPG cylinder filling plants vary considerably in size, complexity and layout. The type and size will depend on such factors as maximum potential throughput requirements, size and type of cylinders to be filled and the number and grades of products handled.

The land available and budget are two other important factors when deciding on the investment. The detailed design of filling plants, and the associated cylinder filling equipment, should be undertaken by an appropriate reputable supplier, based on the required performance specification.



The *WLPGA Guide to Good Industry Practices for LPG Cylinder Filling*, includes details of the plant specification covering the throughput, safety and quality requirements

This specification would likely include:

- Basic operations undertaken in the filling plant and cylinder maintenance areas (e.g. cylinder inspection and filling, testing for leaks, overfilling checks, cylinder evacuation and vapour recovery, re-valving, cylinder requalification, maintenance and repair, grit blasting, painting, etc.)
- Products to be handled, including contamination encountered in the marketplace that needs to be stored and properly disposed of
- Listing of all the relevant standards and legislation the plant is to comply with, including HSE requirements affecting operational personnel and the protection of people and property in offsite areas
- Licensing and other requirements for operating an LPG plant including the possibility of a risk analysis to identify any potential hazards
- Number of cylinder types/sizes and cylinder valve types involved
- Projected throughput per product, per cylinder size/type, per cylinder valve type, over the planning period and peak daily/weekly/monthly demand
- Number of productive operating hours available over the planning period, and peak periods
- Details of all operations and limits/tolerances related to each operation, e.g. filling accuracy, size of detectable leak, check weighing accuracies
- Manning levels and degree of automation
- Method of transporting and handling cylinders
- Capacity of requalification, repair, maintenance and painting facilities
- Bulk LPG storage requirements
- Storage areas for full and empty cylinders
- Requirements set out in the relevant codes of practice, standards and regulations in the country of use

The *WLPGA Guide to Good Industry Practices for LPG Cylinder Filling*, discusses the variety of different types of plants that are available

LPG cylinder filling plants are not stand alone items. They must be supported with all the ancillary features that are associated with filling plants such as the storage of LPG, the treatment of cylinders as they arrive and move through the filling plant to ensure they are fit for purpose, and the storage and handling facilities necessary to accommodate the cylinders before, during and after filling.

The options for filling cylinders will vary depending on circumstances and will include the simple manually operated type of filling head suitable for small volumes, temporary filling plants that can be stored, transported and operated out of containers, to large, permanent fully automatic filling carousels.

The same strict safety requirements will apply to them all.

The simplest form of cylinder filling facility is the stand alone filling plant which operates in isolation. In-line filling plants can be achieved by locating several filling heads in a row, in series, or installed on a carousel.



Where demand has not yet justified the investment in a more permanent facility, one option is to use containerised filling plants. Although modular, they still contain the key features required and found in more permanent facilities.

For high volume markets, where there are thousands of cylinders to fill every day, automatic filling carousels would be the option to consider.

The complete *Guide to Good Industry Practices for LPG Cylinder Filling* and other WLPGA publications, can be found here: <https://www.wlpga.org/publications/wlpga-publications/>

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