



MALTA RESOURCES AUTHORITY

Summary of the MRA LPG Codes of Practice

COP A1

DESIGN and INSTALLATION

Code COP A1 deals with above ground installations where LPG is stored under pressure at ambient temperatures in fixed vessels larger than 150kg. It applies to all such installations whether or not the material is stored for use on site or for transshipment and subsequent use off site.

The code includes guidance on the design of LPG storage vessels and gives information on various issues including vessel location, storage protection, vessel design, electric protection, operations and fire protection.

Information is also given on the precautions to be taken during loading and offloading road tankers.

COP A 2

EXAMINATION and INSPECTION

The Code gives guidance for:

- Items to be included in written schemes of examination of bulk LPG vessels having a capacity of 150kg or more, or, any 6 or more interconnected portable LPG cylinders;
- Items, operating at pressures in excess of 0.25 bar gauge, to be included in written schemes of examination of distribution systems up to the consuming equipment;
- marking of bulk LPG vessels having a capacity of 150 kg or more, or any 6 or more interconnected cylinders, following examination and issuing reports on the examination;
- keeping of records of examination for bulk LPG vessels having a capacity of 150 kg or more, or any 6 or more interconnected cylinders;
- the routine inspection of bulk LPG vessels having a capacity of 150 kg or more, or any 6 or more interconnected cylinders, and their associated equipment;
- periodic inspection of equipment associated with bulk LPG vessels or LPG cylinders on a header.

This COP assumes that the system has been designed and installed in accordance with the MRA LPG COPS A1 & A3 and other relevant LPG COP or equivalent Standards.

COP A3

BURIED/MOUNDED STORAGE VESSELS

COP A3 deals with installations where LPG is stored under pressure at ambient temperatures in fixed underground or mounded vessels having a capacity greater than 150 kg. It applies to all such installations (whether or not the material is stored for use on site or for trans-shipment and subsequent use off site) and includes guidance on the design of LPG storage vessels.

This Code of Practice gives information on various issues including vessel location, storage protection, vessel design, floatation protection, corrosion protection and fire protection.

COP A4

PURGING VESSELS and SYSTEMS

This Code gives guidance on the purging of LPG bulk storage vessels and systems into, and out of, service and their preparation for entry. It describes the most common method of purging LPG vessels by the use of nitrogen as intermediate inert gas. Alternative methods of purging by the use of water, steam and vacuum are also described.

COP A5

CENTRAL STORAGE and DISTRIBUTION SYSTEMS for MULTIPLE CONSUMERS

COP A5 is applicable to all LPG multi-distribution systems and services supplied from central bulk LPG storage whether above ground, underground or mounded where pipe-work is limited to 63mm nominal outside diameter or less. Larger pipe-work is acceptable but may require consultation with the MRA.

This Code of Practice embraces:

- Storage facilities;
- Service pipe-work;
- Associated equipment up to the entry into consumer premises, or the meter or final stage regulator if located inside the premises.

COP B1

STORAGE of FULL and EMPTY CYLINDERS and CARTRIDGES

This Code of Practice recommends minimum safety standards for the storage of full and nominally empty LPG cylinders and cartridges at depots, stockists, retailers, service station forecourts and all other premises where they are normally stored. It also gives guidance on the action to be taken in the event of an emergency.

COP B1 applies where the total quantity of LPG kept in containers exceeds 15 kg. The principles may also be applied to smaller quantities and to containers on loaded vehicles at LPG stores, retail outlets, etc.

Advice is given on the storage and display of LPG at retail premises where quantities of less than 400 kg of LPG in containers having individual capacities of not more than 20kg, are kept.

COP B2

RECOMMENDATIONS for the SAFE FILLING of CYLINDERS at DEPOTS

This Code applies to permanent filling plants where cylinders are filled and stored. Recommendations on cylinder maintenance and re-qualification, which may be carried out on the same site, are also given.

COP B3

HAZARD INFORMATION and PACKAGING FOR COMMERCIAL CYLINDERS

This Code of Practice is for the guidance of those involved in the carriage and supply of commercial LPG (commercial Propane and commercial Butane to BS 4250: 1997 and mixtures thereof) in transportable and refillable cylinders used for fuel gas purposes in the Maltese islands only.

COP B3 also gives information about the UN Number, the cylinder colours and labelling of cylinders.

COP C1

AUTOGAS INSTALLATIONS

This Code of Practice sets minimum standards for the safe installation and use of LPG as a motive fuel for road going vehicles. The Code includes the design and installation of the LPG fuel tank and the fuel feed system comprising fittings, pipe-work, connections and controls for the internal combustion engine.

The Code gives guidance also on garaging, repair and maintenance.

Detailed design of modification of the engine and its management system, and the electronic controls for stoichiometric or lean-burn operation are all state of the art developments subject to continuous development by engine manufacturers and conversion specialists, and are **not** part of this Code.

COP C2

PROPULSION OF BOATS, YACHTS & OTHER CRAFT

COP C2 covers the installation of LPG fuel containers and the design and installation of fittings, connections and controls, to provide LPG as a fuel, wholly or as an alternative, for the propulsion of the various types of craft. This Code also covers the filling, commissioning, operation and maintenance of the LPG equipment, re-filling procedures and fuelling facilities.

COP C3

AUTOMOTIVE REFUELLING FACILITIES

This Code of Practice applies to facilities designed to refill fuel tanks on vehicles and includes:

- Installations at commercial or own use premises;
- Installations designed for retail to the general public (other than petrol filling stations);
- Installations at petrol filling stations;
- Installations for site-only vehicles, e.g. fork-lift trucks.

The guidance applies to all installations whether assembled on site or pre-fabricated ("skid") units.

The guidance may also be applied to facilities for on-site refilling of transportable cylinders used for mechanical handling and maintenance equipment. After filling, such cylinders should be stored in accordance with MRA LPG Code of Practice B2.

COP C4

INSTALLATIONS for MOTIVE POWER on MECHANICAL HANDLING & MAINTENANCE EQUIPMENT

COP C4 sets minimum standards for the safe installation and use of LPG as a motive fuel for mechanical handling and maintenance equipment (e.g. fork lift trucks, lawnmowers, floor polishers etc.) The Code includes the design and installation of the LPG fuel tank and the fuel feed system comprising fittings, pipe-work, connections and controls for the internal combustion engine.

COP D1

HOSES for the TRANSFER of PRODUCT in BULK: INSTALLATION, INSPECTION, TESTING & MAINTENANCE

This Code of Practice covers the basic requirements for the installation, inspection, testing and maintenance of hose assemblies used for the transfer of LPG in liquid or vapour phase at tank pressure normally un-vented between operations.

This Code applies to hose assemblies complying with MSA EN 1762: 2003 and BS 4089: 1999 or equivalent. However, the general principles apply to other assemblies used for the same service. This Code contains recommendations for the provisions of records and for the imperative periodic testing of hose assemblies.

COP D2

SAFETY VALVES

COP D2 covers the materials of design, construction, manufacture, testing, reconditioning, and certification of pressure relief valves and their systems for use with vessels or equipment containing commercial butane and commercial propane as defined in BS 4250:1997 or equivalent and mixtures thereof, and similar un-odorised product, within a service temperature range of (minus) -20°C to 50°C.

Requirements include details of:

- (a) Pressure relief valves and systems for use on static storage vessels containing LPG.
- (b) Pressure relief valves for use in road tanker vehicles conveying LPG.
- (c) Pressure relief valves on refillable LPG cylinders;
- (d) Hydrostatic relief valves.

COP D3

VALVES for TRANSPORTABLE CYLINDERS

COP D3 covers the materials of design, construction, manufacture, testing and maintenance of valves with tapered stem threads in accordance with the relevant parts of MSA EN 13322-1: 2003 or other accepted designs suitable for the conveyance, storage and use of LPG within a service temperature range of (minus) -20°C to 50°C.

Requirements include details of:

- (a) cylinder neck threads,
- (b) valve stem threads,
- (c) service valve connectors and
- (d) associated equipment for vapour and/or liquid service.

Critical valve dimensions are given for:

- the inlet and outlet connections that provide for interchange ability of equipment, and
- stem threads. (It does not provide dimensions for general valve design).

Details of 'valving' of cylinders are also given. Valve body stem threads are specified to be compatible with refillable cylinders that comply with relevant specifications issued by the MRA.

COP D4

INSTALLATIONS DISPENSING ROAD VEHICLE FUEL - FLOW RATES up to 80litres/min

This Code of Practice sets the minimum standard for the design and proving of liquid measuring systems for LPG with *flow-rates* up to 80 litres/min. This applies both for installations for internal use and for resale.

It is primarily intended for installations dispensing LPG as a road-vehicle fuel. However, the general principles are applicable to all such measuring equipment.

Although the Code primarily addresses metering by volume displacement this does not preclude alternative methods of measurement provided the same parameters are achieved.

This Code covers:

- Fixed installations for measuring liquid LPG into permanently mounted containers on road vehicles and other mobile equipment;
- Parameters to be considered when selecting a meter;
- The required accuracy and method of testing such installations.
- Sale of liquid LPG
- Meter proving
- Temperature compensation

COP D5

TRANSFERS between Mobile Equipment and Fixed Storage - FLOW RATES ABOVE 80litres/min

COP D5 describes the measuring systems associated with the transfer of LPG at flow rates above 80 l/min primarily between mobile equipment and fixed LPG storage by weight and by volume. It covers:

- systems to measure the quantity of LPG delivered from road tankers into fixed storage, for example at consumer premises;
- systems to measure the quantity of LPG delivered from fixed storage into mobile equipment such as tankers.

This COP gives guidance on:

1. Measurement by Volumes.
2. Sale of Liquid LPG by Volume
3. Volumetric Meter Proving
4. Maintenance of Liquid Volume Meter Measuring Systems
5. Measurement by Weight
6. Sale of LPG in accordance with the Metrology Act 2002
 - a. Fixed Installations for Dispensing into Permanently-mounted containers on road vehicles and other mobile equipment.
 - b. Road Tanker Metering System
 - c. Bulk Deliveries by Weighing of Road and Rail Tankers
7. Site Proving Methods

COP D6

PIPING SYSTEMS - DESIGN and INSTALLATION

COP D6 covers the pipe-work system for conveying LPG both in the liquid and vapour phases. It is not intended as complete guidance on steel pipe-work over 150 mm nominal bore, copper pipe over 35 mm outside diameter or polyethylene pipe-work over 90 mm outside diameter for which additional requirements may be necessary.

The Code includes pipe-work at premises subject to the LPG legislation upstream of and including the emergency valve. For installation piping downstream of the emergency control, reference should be made to BS 5482-1: 2005 or equivalent.

This COP gives guidance on:

- Location and Design
- Pipe-work Materials and Construction of Assemblies
- Fabrication and Assembly
- Special Requirements for Pipe-work Installed Below Ground Level (Buried)
- Pre-Service Inspection, Testing and Commissioning
- Examination and Modification / Repairs

COP E1

CYLINDERS at DOMESTIC and COMMERCIAL-RESIDENTIAL PREMISES

COP F1 covers the installation and safe use of LPG in cylinders at residential and commercial premises.

Cylinders covered by this Code are refillable and designed, manufactured and maintained in accordance with appropriate regulations and standards, e.g. the Transportable Pressure Equipment Regulations (L.N. 331 of 2002) and MSA EN 13322-1: 2003.

The following are excluded from this Code:

- Non-refillable cartridges and associated equipment;
- Installation and use of LPG cylinder in boats, caravans and catering activities;
- Liquid off-take uses.

COP E2

CYLINDERS AT CONSTRUCTION SITES

This Code of Practice recommends minimum safety standards for the storage and use of LPG at construction sites. It also gives guidance on the action to be taken in the event of an emergency.

COP E3

CYLINDERS at COMMERCIAL and INDUSTRIAL PREMISES

This Code of Practice covers the installation and safe use of LPG in cylinders at commercial and industrial premises. This Code relates to LPG cylinders located out of doors supplying appliances via a fixed pipe work installation, and LPG cylinders connected to equipment indoors.

Cylinders covered by this Code are refillable and designed, manufactured and maintained in accordance with appropriate regulations, e.g. the Transportable Pressure Equipment Regulations (LN 331 of 2002) and standards e.g. EN 13322-1:2003.

This Code does not cover use of the following:

- non-refillable LPG cartridges and associated equipment;
- LPG fuelled Mechanical Handling and Maintenance Equipment for which reference should be made to MRA Code of Practice C4.