Technical Bulletin No: 49-2025

Title:	LPG Equipment Rubber Tubing / Hoses
Priority:	Amber – Minor Nonconformance
Legislation:	HASWA, MHSWR, PUWER, PSSR, DSEAR & Gas Safety (Installation and Use) Regulations
Brief Description:	Following a number of SafeHire Audit findings and member enquiries, this bulletin covers guidance on industry best practice regarding the inspection, maintenance and expiry of liquid petroleum gas (LPG) hoses / tubing
Equipment Affected:	LPG Equipment including but not limited to; Space Heaters, Plaque Heaters, Calamander (Bin) Heaters, Cabinet Heaters, Drying Lances, Blow Torches etc

During HAE SafeHire Certification audits at a number of locations, auditors have identified issues with both the condition of LPG hoses on Hire Fleet Equipment and Work Equipment, as well as the understanding of expiry of gas hoses as illustrated in Fig.1 below.

LPG & Butane Gas Hose/Tubing Standards:
The British Standards Institution (BSI) withdrew BS3212 on 31/10/2019, superseded by EN16436-1 which is currently the relevant standard for rubber and plastics hoses, tubing, and assemblies used with propane and butane.

BS EN 16436 is a European standard that specifies the requirements for rubber and plastic hoses, tubing, and assemblies used with propane and butane in the vapour phase. The standard, which is divided into parts, covers the hoses and tubing themselves (Part 1) and the complete assemblies (Part 2).

Key Aspects of BS EN 16436
Scope:
The standard applies to connections between a pressurised gas container, a regulating device, and an appliance, within a specific temperature range and working pressure.

Part 1:
Covers the specifications for the hose and tubing itself, including material properties and performance under conditions like ageing.

Part 2:
Covers the requirements for the complete assemblies, including the hoses, tubing, and any attached components like clamps.

Hose Classes: **Class 1:** Unreinforced tubing with a maximum rating of 0.2 bar.
Class 2: Reinforced hose with a maximum rating of 10 bar.
Class 3: Reinforced hose with a maximum rating of 30 bar.

Identification:
All classes must be identified as LPG hose, typically with an orange stripe if the hose itself isn't orange.

Limitations:
The standard does not apply to hoses used for welding, propulsion, or LPG transfer purposes.

Why the Standard is Important
Safety:
It ensures that hoses used with LPG are safe and reliable, preventing leaks and potential fires.

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Compliance:
Adherence to the standard helps ensure that equipment complies with regulations and best practices within the rubber and plastics tubing and hoses manufacturers industry, hire and rental industry, catering and event industry, HVAC, petrochemical, chemical, industrial gasses, other industries, and in applications like caravanning and boating.

International Alignment:
The standard brings European LPG hose standards in line with international requirements.

Hose/Tubing Expiry:
LPG hoses classified as **BS EN 16436-1 Class 2** (up to 10 bar) and **Class 3** (up to 30 bar) **typically have no fixed expiry date; the marking indicates manufacture date.** Industry recommends replacing these hoses every 5 to 10 years due to material degradation. Aligned with manufacturers guidance the hire industry has adopted a best practice approach to replacing these hoses 5 years following the date of manufacture marked on the hose due to material degradation and due to not being able to determine exactly what conditions that hoses have been subject to whilst on hire.

For **Class 1** tubing, often supplied on Cabinet Heaters, Patio Heaters, BBQ's, has **an explicit expiry date of 5 years is usually marked**.

Recommendations for All Classes of Gas Hose – Pre Hire Inspections
Regardless of the specified expiry or recommended replacement interval, all gas hoses should be:

- **Visually Inspected:** Check for any signs of damage or degradation including cracks, abrasions, bulges, kinks, hardening or any other damage/defects. Any hose showing signs of damage or degradation should be replaced immediately, irrespective of its age.
- **Replaced if Damaged:** Even minor damage can compromise the integrity of the hose and lead to dangerous gas leaks.
- **Replaced if Unsure:** If there is any doubt about the condition or suitability of a hose, it should be replaced.

Further information regarding pre-hire inspections of LPG Heaters can be found at:
https://www.hae.org.uk/members/safehire-resources/

Fig. 1
BS312 Class 2
Expired (Displaying UV degradation) marked with production date.

Fig. 2
BS EN 16436-1 Class 2
Within expiry (new) marked with production date.

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HAE HIRE CERTIFICATION SERVICES

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Recommended Actions:	• Review table below and your existing management system for hire fleet equipment hose expiry • Ensure users are briefed regarding care and maintenance of LPG equipment. • Train maintenance operatives on Combined Inspection and Testing procedures including inspection of LPG hoses
Circulation:	• Management team / Workshops

BS EN 16436-1 Propane & Butane Hose Specifications
Quick Reference Table

Feature	Class 1 Tubing	Class 2 Hose	Class 3 Hose
Standard	BS EN 16436-1	BS EN 16436-1	BS EN 16436-1
Max Pressure	200 mbar	10 bar	30 bar
Gas Type	Propane / Butane	Propane / Butane	Propane / Butane
Markings	Manufacturer Name EN 16436-1 class 1 Xmm. 0.2 bar Propane/Butane EXP DATE	Manufacturer Name EN 16436-1 class 2 Xmm. 10 bar Propane/Butane PROD DATE YYYY	Manufacturer Name EN 16436-1 class 3 Xmm. 30 bar Propane/Butane PROD DATE YYYY
Colour	Orange with black marking OR Black with Orange line and marking OR White with Orange line and marking	Orange with black marking or Black with orange line and marking	Orange with black marking or Black with orange line and marking
Intended Use	Downstream of low-pressure regulator device used indoors or contained in an appliance	Downstream of regulator device either low pressure or up to 10 bar	Upstream of regulator (operating at full cylinder pressure)
Other Info.	Single-ply construction, Expiry date on tubing, Internal diameter (mm) Normally 8mm for tubing	Two-ply construction, No expiry date on hose, Internal diameter (mm)	Two-ply construction, No expiry date on hose, Internal diameter (mm)

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