Technical Bulletin 080

Changes to liquefied petroleum gas (LPG) regulator standards
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Note: *This version of Technical Bulletin (TB) 080 replaces the version originally published on 19 August 2010, which is now withdrawn. This version has been reviewed and revised, where appropriate, to ensure that it remains both current and relevant.*

This Technical Bulletin provides guidance to Gas Safe registered businesses/engineers on the range of industry standards that applies to liquefied petroleum gas (LPG) regulators.

Introduction

The publication of BS EN 16129: 2013[1] merged the requirements of the three European standards listed below, which covered the requirements for liquefied petroleum gas (LPG) regulators:

- BS EN12864: 2001+A3: 2009[2]
- BS EN13786: 2004+A1: 2008[3]
- BS EN13785: 2005+A1: 2008[4]

Together these three European Standards replaced BS 3016[5], which was withdrawn.

The table below summarises the related pressure differences between the relevant standards.

Note 1: *For details of current gas safety legislation, building legislation and industry standards for the geographical areas covered by Gas Safe Register, see the Legislative, Normative & Informative Document List (LNIDL)[6] by logging into your online account at: https://www.gassaferegister.co.uk/sign-in/*

Note 2: *For general information about the process behind the development of Gas Safe Register Technical Bulletins and the expectations for all Stakeholders, see TB 1000[7] by logging into your online account at: https://www.gassaferegister.co.uk/sign-in/*

Bibliography

(1) BS EN 16129: *2013 Pressure regulators, automatic change-over devices, having a maximum regulated pressure of 4 bar, with a maximum capacity of 150kg/H, associated safety devices and adaptors for butane, propane and their mixtures*

(2) BS EN12864: 2001+A3: 2009 *– Low pressure, non-adjustable regulators having a maximum outlet pressure of less than or equal to 200mbar, with a capacity of less than or equal to 4kg/h and their associated safety devices for butane, propane or their mixtures (Withdrawn)*

(3) BS EN 13786: 2004+A1 *– Automatic changeover valves having a maximum outlet pressure up to and including 100kg/h, and their associated safety devices for butane, propane or their mixtures (Withdrawn)*

(4) BS EN 13785: 2008+A1 *– Regulators with a capacity of up to and including 100kg/h, having a maximum nominal outlet pressure up to and including 4bar, other than those covered by EN12864 and their appropriate safety devices for propane, butane or their mixtures (Withdrawn)*

(5) BS 3016: 1989 – *Incorporating Amendments Nos 1 and 2 Specification for pressure regulators for liquefied petroleum gases (Withdrawn)*

(6) LNIDL – *Gas Safe Register Legislative, Normative & Informative Document List*

(7) TB 1000 – *An introduction to Gas Safe Register Technical Bulletins*

Fuel	Nominal outlet pressure mbar	Minimum outlet pressure mbar	Maximum outlet pressure mbar	Maximum lock-up pressure (above set pressure) mbar	Relief valve operating range mbar (a)	UPSO Operating range mbar	OPSO Operating range mbar (a)
BS 3016 – Cylinder single stage regulator set pressures:							
Butane	28	23	33	+10	–	–	–
Propane	37	32	42	+15	–	–	–
BS 3016 – Final (second) stage regulator set pressures (low pressure)							
Propane	37	32	42	+10	50-62(b)	25-32	70-80
BS 3016 – Cylinder automatic changeover device set pressure (low pressure)							
Propane	37	32	42	+15	50-62(b)	–	70-80
BS EN 12864 or BS EN 16129 – Cylinder single stage regulator set pressures							
Butane	29	22	35	40	48-150	–	48-150
Propane	37	27(c)	45	50	60-150	–	60-150
BS EN 13785 or BS EN 16129 – Final stage regulator set pressures (low pressures)							
Propane	37	32(d)	45	50	60-150	25-32(e)	60-150
BS EN 13786 or BS EN 16129 – Cylinder automatic changeover device set pressures (low pressure)							
Butane	29	22	35	40	48-150	–	48-150
Propane	37	27(c)	45	50	60-150	–	60-150

(a) For BS EN 13785 and BS EN 16129 regulators, this operating range is the maximum and minimum values within which the device needs to activate. BS EN 16129 specifies a tolerance on the manufacturer's declared set pressure of +/- 20% for a relief valve and +/-15% for an OPSO
(b) Normal setting 55mbar
(c) Value is the minimum outlet pressure specified in the regulator standard to align with BS EN 437. However, it is recommended that, for the UK market, the minimum operating pressure for propane regulators is 32mbar.
(d) Due to the UK-agreed UPSO range, the minimum outlet pressure for regulators manufactured for the UK market is taken as 32mbar and NOT the 27mbar declared in BS EN 13785 or BS EN 16129.
(e) Industry-agreed figures for regulators manufactured for the UK market (not formally documented in the standards).