

***IGEM/TD/13 Edition 2
Communication 1755***

***Pressure regulating installations for
Natural Gas, Liquefied Petroleum Gas and
Liquefied Petroleum Gas/Air***



*Founded 1863
Royal Charter 1929
Patron: Her Majesty the Queen*



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© The Institution of Gas Engineers and Managers
IGEM House
High Street
Kegworth
Derbyshire, DE74 2DA
Tel: 0844 375 4436
Fax: 01509 678198
Email: general@igem.org.uk

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SECTION 1 : INTRODUCTION

- 1.1 This Standard revises and supersedes IGE/TD/13, Communication 1672 which is obsolete.

This Standard now incorporates the updated content of IGE/SR/9 Edition 2, Communication 1654, which is obsolete.

- 1.2 This Standard complements, as far as practicable, the requirements of BS EN 12186 and BS EN 12279, the equivalent European Standards on which IGE/TD/13 provides more specific requirements.

Note: A limited number of the individual requirements prescribe a more stringent standard than BS EN 12186 and BS EN 12279 to reflect United Kingdom (UK) practice.

- 1.3 This Standard has been drafted by a Panel appointed by the Institution of Gas Engineers and Managers' (IGEM's) Gas Transmission and Distribution Committee, and has been approved by IGEM's Technical Co-Ordinating Committee on behalf of the Council of IGEM.

- 1.4 This Standard applies to the safe design, construction, inspection, testing, operation and maintenance of pressure regulating installations (PRIs) in accordance with current knowledge and operational experience.

The Standard reflects the need to ensure adequate reliability and continuity of supply at pressures that are safe for the downstream system and equipment.

- 1.5 This Standard now addresses Natural Gas (NG), Liquefied Petroleum Gas (LPG) and LPG/air. As a result, the scope of this Standard is shown in Table 1.

GAS	MOP (bar)	MAXIMUM CAPACITY (m³ h⁻¹)
Natural	≤ 100	No limit
LPG	≤ 16	No limit
LPG/air	≤ 2	No limit

Note: MOP is maximum operating pressure.

TABLE 1 - SCOPE OF IGE/TD/13 EDITION 2

In addition, significant changes have been made to this Standard including the addition of specific requirements for "small" PRIs as defined in Table 2.

GAS	MOP (bar)	MAXIMUM CAPACITY (m³ h⁻¹)
Natural	≤ 7	200
LPG	≤ 16	80
LPG/air	≤ 2	310

TABLE 2 - DEFINING A "SMALL" PRI

Other changes include:

- additional guidance on housings
- the inclusion of specific information on pipework sizing
- a justification for plug valves
- further clarification on the setting of regulators and safety devices
- new information on uprating and downrating.

- 1.6 It is now widely accepted that the majority of accidents in industry generally are in some measure attributable to human as well as technical factors in the sense that actions by people initiated or contributed to the accidents, or people might have acted better to avert them.
- It is therefore necessary to give proper consideration to the management of these human factors and the control of risk. To assist in this, it is recommended that due cognisance be taken of HSG48.
- 1.7 This Standard makes use of the terms "must", "shall" and "should" when prescribing particular requirements. Notwithstanding Sub-Section 1.9:
- the terms "must" identifies a requirement by law in Great Britain (GB) at the time of publication
 - the term "shall" prescribes a requirement which, it is intended, will be complied with in full and without deviation
 - the term "should" prescribes a requirement which, it is intended, will be complied with unless, after prior consideration, deviation is considered to be acceptable.
- 1.8 The primary responsibility for compliance with legal duties rests with the employer. The fact that certain employees, for example "responsible engineers", are allowed to exercise their professional judgement does not allow employers to abrogate their primary responsibilities. Employers must:
- have done everything to ensure, so far as is reasonably practicable, that there are no better protective measures that can be taken other than relying on the exercise of professional judgement by "responsible engineers"
 - have done everything to ensure, so far as is reasonably practicable, that "responsible engineers" have the skills, training, experience and personal qualities necessary for the proper exercise of professional judgement
 - have systems and procedures in place to ensure that the exercise of professional judgement by "responsible engineers" is subject to appropriate monitoring and review
 - not require "responsible engineers" to undertake tasks which would necessitate the exercise of professional judgement that is beyond their competence. There should be written procedures defining the extent to which "responsible engineers" can exercise their professional judgement. When "responsible engineers" are asked to undertake tasks which deviate from this, they should refer the matter for higher review.
- 1.9 Notwithstanding Sub-Section 1.7, this Standard does not attempt to make the use of any method or specification obligatory against the judgement of the responsible engineer. Where new and better techniques are developed and proved, they should be adopted without waiting for modification of this Standard. Amendments to this Standard will be issued when necessary and their publication will be announced in the Journal of IGEM and other publications as appropriate.
- 1.10 Requests for interpretation of this Standard in relation to matters within its scope, but not precisely covered by the current text, may be addressed to Technical Services, IGEM, IGEM House, High Street, Kegworth, Derbyshire, DE74 2DA, and will be submitted to the relevant Committee for consideration and advice, but in the context that the final responsibility is that of the engineer concerned. If any advice is given by or on behalf of IGEM, this does not imply acceptance of any liability for the consequences and does not relieve the responsible engineer of any of his or her obligations.
- 1.11 This Standard was published in September 2011.

SECTION 2 : SCOPE

2.1 This Standard covers the design, construction, inspection, testing, operation and maintenance of any PRI installed as below and whose extent is shown in Figure 8 (a), (b) and (c).

2.2 This Standard covers any PRI containing NG that is installed in a Network pipeline, i.e:

- a transmission pipeline (whose design is in accordance with IGEM/TD/1) or
- a distribution main (whose design is in accordance with IGE/TD/3) or
- a service (whose design is in accordance with IGE/TD/4).

This Standard covers any PRI containing LPG or mixtures of LPG and air, that is installed in a distribution main whose design is in accordance with IGE/TD/3 or in service pipework whose design is in accordance with IGE/TD/4.

Note 1: For regulating installations downstream of an emergency control valve (ECV) (which defines the end of the Network as in IGEM/G/1 (NG) or downstream of a distribution main or service pipework (LPG and LPG/air)), and which are associated with a meter installation, the relevant standards are IGE/GM/4, IGEM/GM/6, IGE/GM/8, BS 6400-1, BS 6400-2 (all for NG) and BS 6400-3 (for LPG), as appropriate. There are no recognised, equivalent, Standards to the IGE/GM Standards where LPG or LPG/air is used. The principles of the IGEM/GM Standards may be applied. Where it is required to install a PRI downstream of an ECV or downstream of a distribution main or service not associated with a meter installation, the principles of this Standard may be applied. See also Figures 1, 2 and 3.

Note 2: Minimum requirements are contained in appropriate normative Standards (see Figures 1, 2 and 3).

2.3 This Standard covers PRIs of MOP not exceeding:

- for Natural Gas, 100 bar

Note: Higher MOPs may be accommodated, in which case specialist advice needs to be sought in addition to adopting the principles of the Standard.

- for LPG, 16 bar
- for LPG/air, 2 bar.

2.4 This Standard covers PRIs of operating temperature:

- for Natural Gas, between -20°C and 120°C
- for LPG, between -20°C and 50°C
- for LPG/air, between -20°C and 50°C.

2.5 This Standard covers PRIs for gases in the vapour phase. This Standard does not address gases in the liquid phase.

2.6 There is no intention that this Standard be applied retrospectively. However, for inspection, testing, operation and maintenance, IGEM/TD/13 Edition 2 can be applied to existing PRIs that were designed and constructed to IGE/TD/13 Edition 1, IGE/TD/9 or IGE/TD/10, but it may be necessary to continue some operations in accordance with those Recommendations.

Note: There are no equivalent obsolete IGEM Standards for PRIs operating on LPG or LPG/air.

2.7 This Standard covers PRIs handling odourised or unodourised gases.

2.8 All pressures quoted are gauge pressures unless otherwise stated.

2.9 Italicised text is informative and does not represent formal requirements.

2.10

Appendices are informative and do not represent formal requirements unless specifically referenced in the main sections via the prescriptive terms “must”, “shall” or “should”.

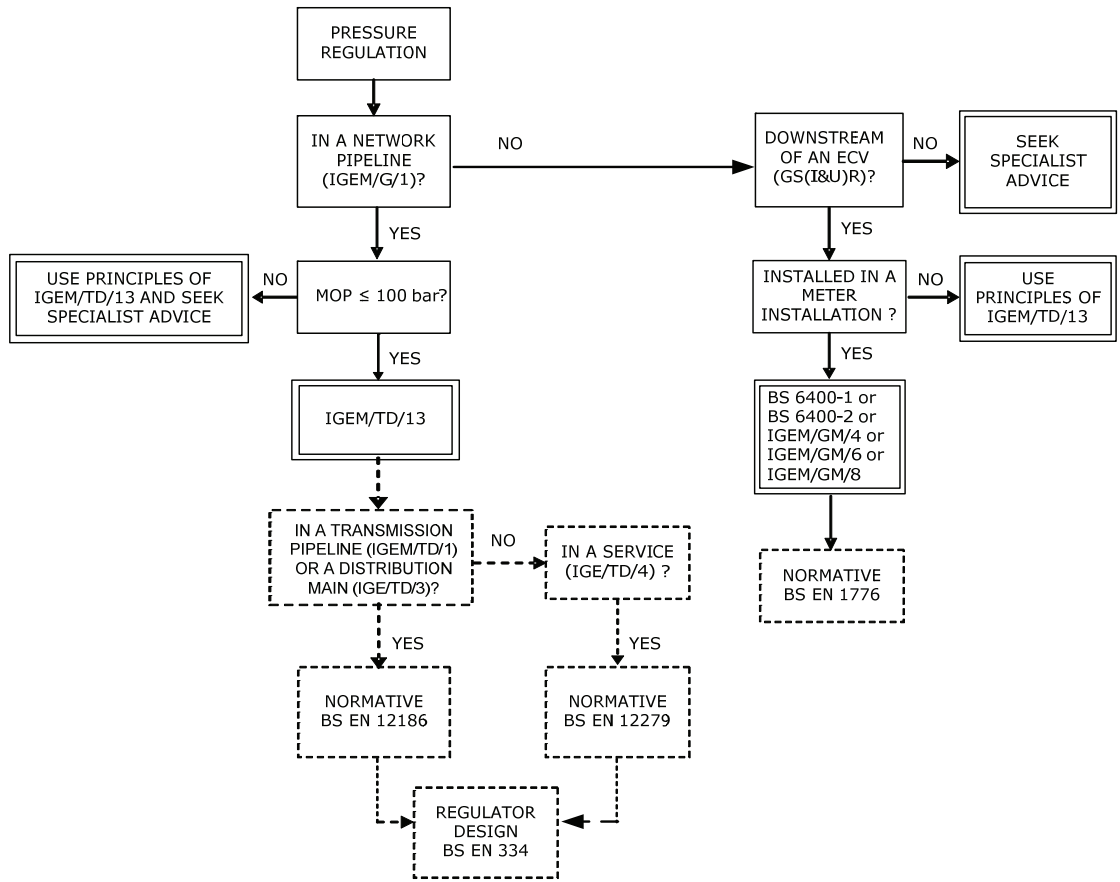


FIGURE 1 - SELECTION OF STANDARDS (NG)

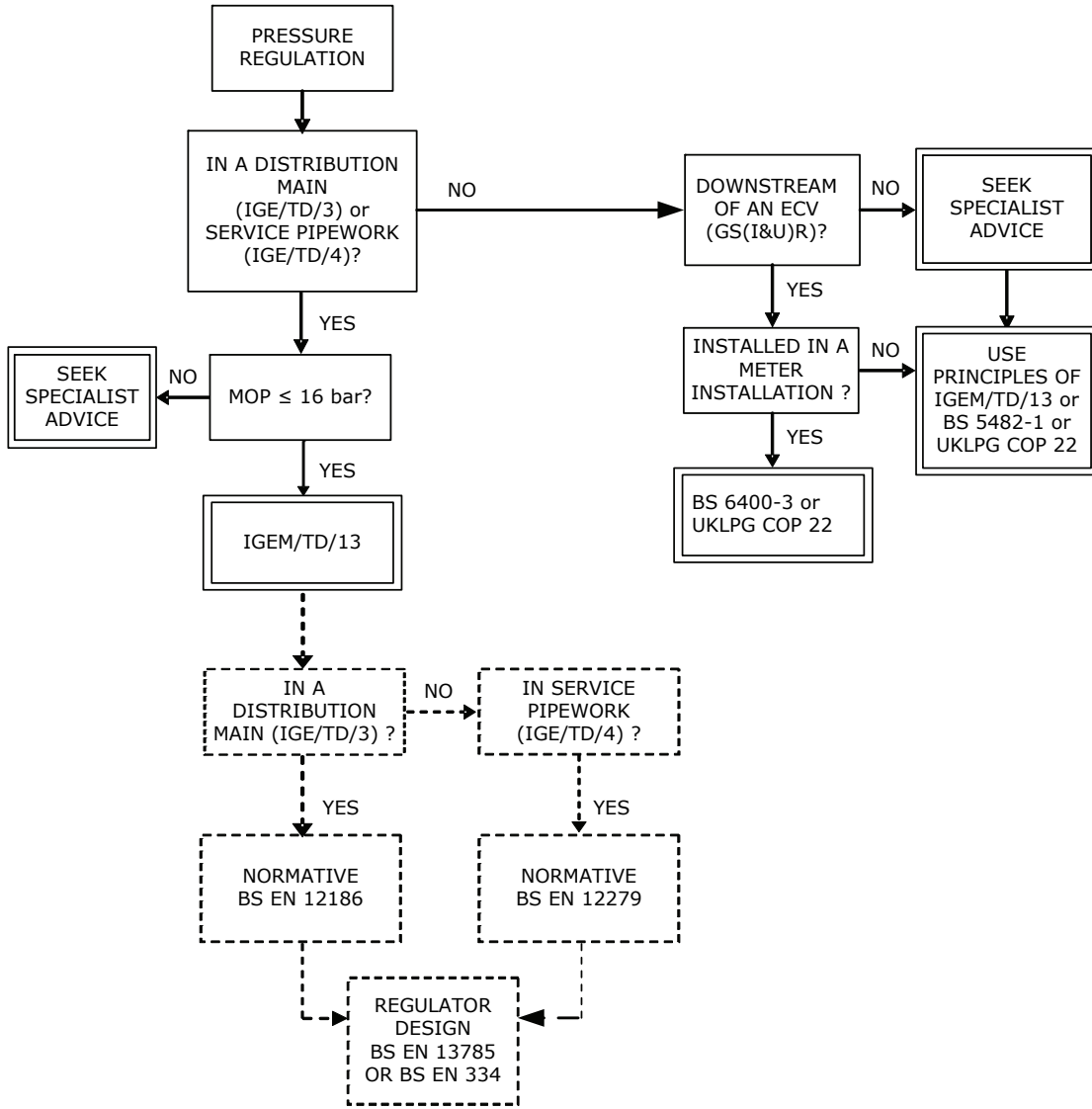


FIGURE 2 - SELECTION OF STANDARDS (LPG)

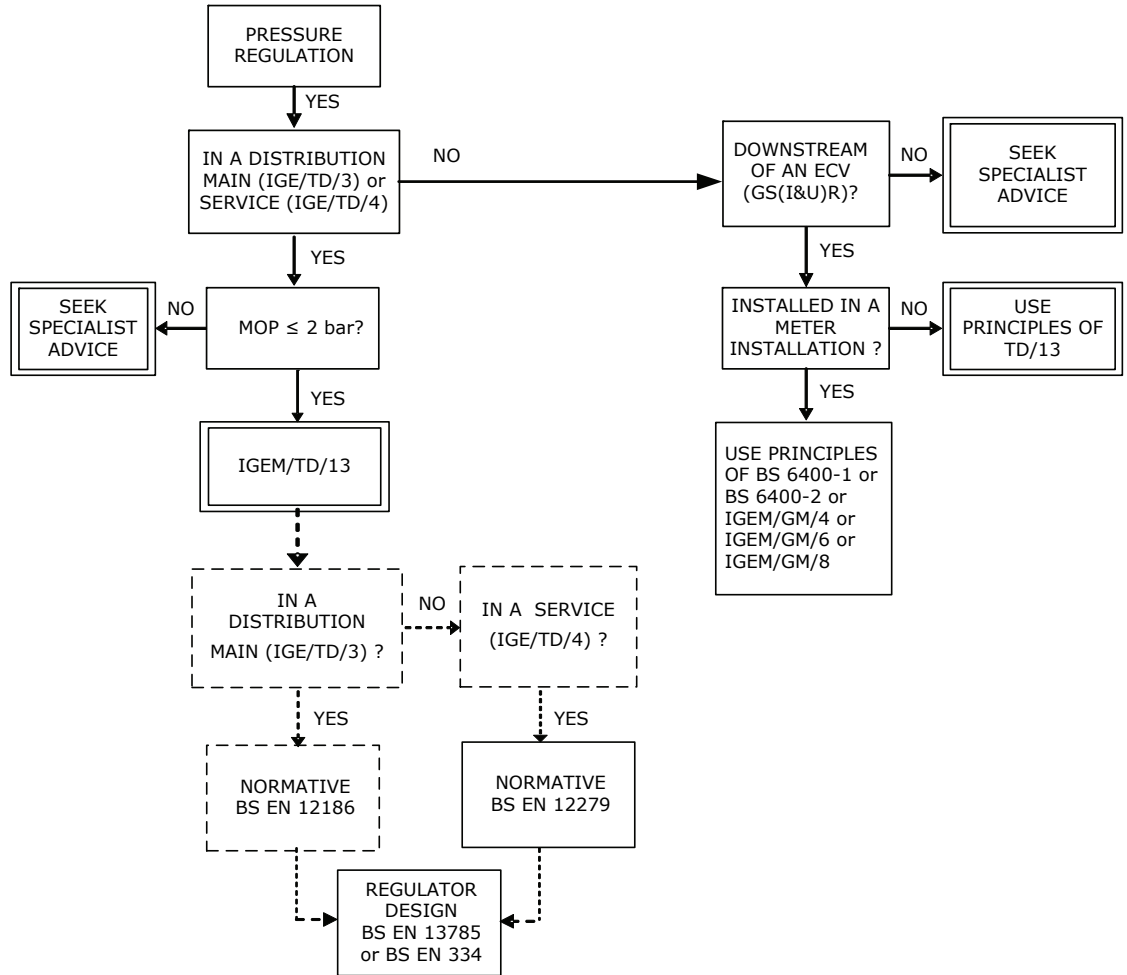


FIGURE 3 - SELECTION OF STANDARDS (LPG/AIR)