

THE INSTITUTION OF GAS ENGINEERS AND MANAGERS

TRANSMISSION AND DISTRIBUTION SERIES

AMENDMENTS AT FEBRUARY 2009

Amendments apply to the following publications:

- **IGEM/TD/1 Edition 5. Communication 1735**
Steel pipelines for high pressure gas transmission
Amendments: Feb 2009 (1 side)
- **IGEM/TD/1 Edition 5. Supplement 1. Communication 1736**
Handling, transport and storage of steel pipe, bends and fittings
No Amendments
- **IGEM/TD/2. Communication 1737**
Application of pipeline risk assessment to proposed developments in the vicinity of high pressure Natural Gas pipelines
Amendments: Feb 2009 (1 side)
- **IGE/TD/3 Edition 4. Communication 1677**
Steel and PE pipelines for gas distribution
Amendments: Feb 2005 superseding all previous amendments (3 sides)
- **IGE/TD/3 Edition 4. Supplement 1. Communication 1682**
Handling, transport and storage of PE pipe and fittings
No Amendments
- **IGE/TD/4 Edition 4. Communication 1725**
Gas Services
No Amendments
- **IGE/TD/12 Edition 2. Communication 1681**
Pipework stress analysis for gas industry plant
Amendments: Feb 2005 (3 sides)
- **IGE/TD/13. Communication 1672**
Pressure regulating installations for transmission and distribution systems
Amendments: Feb 2005 (13 sides)
Amendment: July 2006 (1 side) additional to Amendments Feb 2005
- **IGE/TD/101. Communication 1674**
Adoption of pipe systems by a GT – management of UIP activities
No amendments

If the user copies these amendments onto A4 labels, the Amendments can be cut out and applied to the appropriate places within the relevant technical publications i.e. the individual Amendments are tailored to fit over the existing text.

ENHANCEMENTS

There are currently no enhancements.



**IGEM/TD/1 EDITION 5
COMMUNICATION 1735
2008**

The following amendments (February 2009) apply to all copies of IGEM/TD/1 Edition 5 published in December 2008.

Figure 6 Delete key entirely and substitute as follows to amend the values for C_2

		C_1	C_2
A	Wall thickness < 9.52 mm	0.12	12
B	Wall thickness \geq 9.52 mm	0.08	5
C	Wall thickness \geq 11.91 mm	0	3

END OF AMENDMENTS TO IGEM/TD/1 EDITION 5.

**IGEM/TD/2
COMMUNICATION 1737
2008**

The following amendments (January 2009) apply to all copies of IGEM/TD/2 published in December 2008.

Table 13 Delete title entirely and substitute

**TABLE 13 - PIPELINE RUPTURE FAILURE FREQUENCY DUE TO NATURAL
LAND SLIDING**

END OF AMENDMENTS TO IGEM/TD/2.

**IGE/TD/3 EDITION 4
COMMUNICATION 1677
2003**

The following amendments (January 2005) apply to all copies of IGE/TD/3 Edition 4 published in 2003.

Inner front cover

(Not essential) Amend to:

*Price Code: T10
The Institution of Gas Engineers and Managers
Charnwood Wing
Holywell Park
Ashby Road
Loughborough
Leicester LE11 3GH
Tel: 01509 282728
Fax: 01509 283110
Email: general@igem.org.uk*

Footer to each page

(Not essential) Amend to:

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Website: www.igem.org.uk.

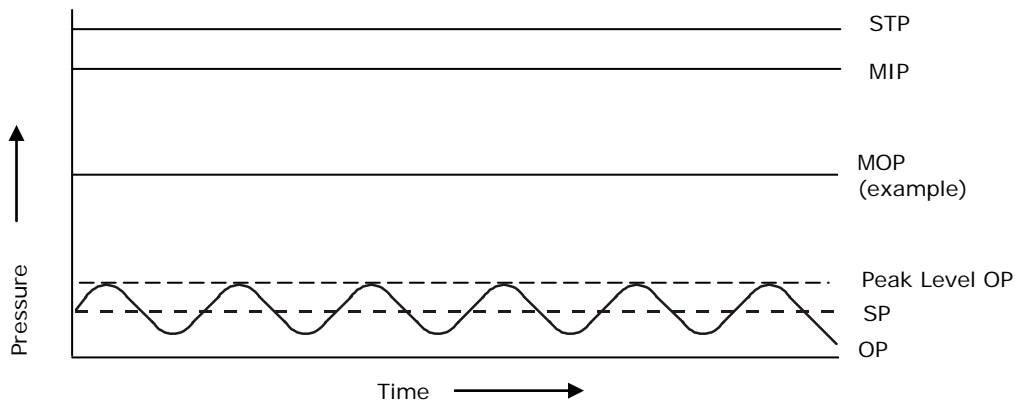
Sub-Section 1.13

(Not essential) Add at end: Address amended to:

IGEM, Charnwood Wing, Holywell Park, Ashby Road, Loughborough, LE11 3GH

Figure 1

Delete entirely and substitute as follows to amend the representation of MOP



STP	=	Strength test pressure
MIP	=	Maximum incidental pressure
OP	=	Operating pressure
MOP	=	Maximum operating pressure
SP	=	Set point of the regulator.

Note: This is extracted from IGE/TD/13 and simplified for the purposes of IGE/TD/3 Edition 4.

Sub-Section 2.4

1st paragraph. 3rd Line. Amend "10" to: 11

Clause Page 22. Top line. Delete entirely. Substitute:

5.4.2 $f_{sp} = (14.7519 + 3.5657X + 0.0362X^2)^{-2}$

Table 5 5th sub-row of each primary row (5 in total). Delete 't ≤ 9.52'. Substitute:

t < 9.52
t < 9.52
t < 9.52
t < 9.52
t < 9.52

Table 5 6th sub-row of each primary row (5 in total). Delete 't > 9.52 ≤ 11.91'. Substitute:

t ≥ 9.52 < 11.91
t ≥ 9.52 < 11.91
t ≥ 9.52 < 11.91
t ≥ 9.52 < 11.91
t ≥ 9.52 < 11.91

Table 5 7th sub-row of each primary row (5 in total). Delete "t > 11.91". Substitute:

t ≥ 11.91
t ≥ 11.91
t ≥ 11.91
t ≥ 11.91
t ≥ 11.91

Note: If your copy has not been amended previously (2003), no change is needed to the original.

Table 5 4th primary row. 3rd and 4th proximity columns. Delete '5' (twice). Substitute: 8 and 8

Clause Delete entirely. Substitute:

7.4.1.2 A standpipe should be connected at one end of the pipework to be tested and should incorporate a relief valve set to lift at 5% above STP. Gauges should be fitted as appropriate. Consideration should be given to the fitting of pressure recorders.

Clause Delete entirely. Substitute:

7.4.1.7 The temperature of the air inside the pipe should be stable before commencing the test.

Note: Typically, temperatures will be stable within 10 minutes for small volumes and up to 2 hours for large volumes.

Clause Add under current text:

7.8.1 *Note: See note at bottom of this page.*

Add under the page number 65:

Note to clause 7.8.1: If a test failure is indicated, it is permitted to extend the test period to confirm that the "failure" is not attributable to falling temperature or creep effects. However, the extension is not permitted if the ambient temperature is rising.

Clause 8.4.3.2 Delete 1st paragraph. Substitute:

A simple squeeze off tool should be used only in the following circumstances:

- for pipelines of diameter ≤ 180 mm and OP ≤ 75 mbar
- for pipelines of diameter ≤ 63 mm and OP ≤ 2 bar.

Clause 8.4.4.1 Delete 1st and 2nd paragraphs. Substitute:

For a pipeline of OP not exceeding 75 mbar, the equipment used for stopping-off should utilize semi-supported bags for a nominal bore ≤ 300 mm or fully-supported inflated bags for larger bores. Unsupported bags should not be used.

Inner back cover (Not essential) 2nd Line. Amend to:

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Outer back cover (Not essential) 2nd Line. Amend to:

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END OF AMENDMENTS TO IGE/TD/3 EDITION 4.

**IGE/TD/12 EDITION 2
COMMUNICATION 1681
2003**

The following amendments (January 2005) apply to all copies of IGE/TD/12 Edition 2 published in 2003.

**Inner
Front
Cover**

(Not essential) Amend to:

*Price Code: T6
The Institution of Gas Engineers and Managers
Charnwood Wing
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**Footer
each
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Website: www.igem.org.uk.

**Sub-
Section
1.10**

(Not essential) Address amended to:

IGEM, Charnwood Wing, Holywell Park, Ashby Road, Loughborough,
Leicestershire, LE11 3GH

Clause 2.1 **4th Bullet. Delete "IGE/GM/1". Substitute: IGE/GM/8**

**Clause
5.2.1** **Delete formula entirely. Substitute:**

$$t_{\min} = \frac{PDX}{20fS_{YT}}$$

**Clause
8.5.7.1** **In 1st equation. Delete n_{eg} . Substitute: n_{eq}**

A2.2.1 **2nd Bullet. Delete "Distribution mains". Delete Note.
Substitute: Steel and PE pipelines for gas distribution**

A2.2.2 **Delete 1st bullet. Substitute:**

- IGE/GM/8 on gas meter installations
Note: Publication anticipated in 2005.

A2.3 **1st Bullet. Add a note:**
Note: Now obsolete. Superseded by BS EN 13480, metallic industry piping.

A3.3.1 Delete Equation for Sq. Substitute:

$$S_q = i_q \frac{16 D_o M_q}{\pi[D_o^4 - D_i^4]} + i_s \frac{4V_T}{\pi[D_o^2 - D_i^2]}$$

A3.3.2 Delete all three equations. Substitute:

$$S_h = i_p \frac{P D_o}{2T} \pm i_b \frac{32 M_b D_o}{\pi[D_o^4 - D_i^4]}$$

$$S_a = i_t \left[\left(\frac{P D_o}{4T} + \frac{4F}{\pi[D_o^2 - D_i^2]} \right) \right] \pm i_t \frac{32 M_b D_o}{\pi[D_o^4 - D_i^4]}$$

$$S_q = i_q \frac{16 D_o M_q}{\pi[D_o^4 - D_i^4]} + i_s \frac{4V_T}{\pi[D_o^2 - D_i^2]}$$

A3.3.3.1 Delete 6th line (2nd equation for S_a). Substitute:

$$S_a = i_p \frac{P d_o}{4t} \pm i_b \frac{w 32 M_b d_o}{\pi[d_o^4 - d_i^4]} + i_t \frac{4F}{\pi[d_o^2 - d_i^2]}$$

A3.3.3.2 Delete 4th line (1st equation for S_a). Substitute:

$$S_a = i_p \frac{P D_o}{4T} \pm i_b \frac{32 M_b D_b}{\pi[D_b^4 - D_i^4]} + i_t \frac{4F}{\pi[D_b^2 - D_i^2]}$$

Delete 6th line (2nd equation for S_a). Substitute:

$$S_a = i_p \frac{P d_o}{2t} \pm i_b \frac{32 M_b D_b}{\pi[D_b^4 - D_i^4]} + i_t \frac{4F}{\pi[D_b^2 - D_i^2]}$$

Delete 7th line (equation for S_q). Substitute:

$$S_q = i_q \frac{16 D_b M_q}{\pi[D_b^4 - D_i^4]} + i_s \frac{4V_T}{\pi[D_b^2 - D_i^2]}$$

A4.10.2 Table 13. 1st column, 2nd row. Insert: 1.0

A4.10.4 Table 15. Note 1. Delete entirely. Substitute:

If $L_1 \geq 0.5\sqrt{r_i T_b}$, then r_e can be taken as the radius to the centre of T_b and $T_n = T_b$, otherwise $r_e = r_m$ which is the radius to the centre of T'_b and $T_n = T'_b$.

A8.2.1 Pg 80. Table. 5th column, 1st row. Amend "2.0" to: 1.0

Inner rear cover (Not essential) Delete address. Substitute:

IGEM, Charnwood Wing, Holywell Park, Ashby Road, Loughborough, Leicestershire, LE11 3GH

Rear cover (Not essential) Delete "12 York Gate, London, NW1 4QG. Substitute:

IGEM, Charnwood Wing, Holywell Park, Ashby Road, Loughborough, Leicestershire, LE11 3GH

Rear cover (Not essential) Delete list entirely. Substitute:

Item No.	Title	Date of Edition	Comm. No.	Price Code
IGE/TD/1 Edition 4	Steel pipelines for high pressure gas transmission	2001	1670	T14
IGE/TD/1 Edition 4 Supplement 1	Handling, transport and storage of steel pipe, bends and fittings	2001	1671	T2
IGE/TD/3 Edition 4	Steel and PE pipelines for gas distribution	2003	1677	T10
IGE/TD/3 Edition 4 Supplement 1	Handling, transport and storage of PE pipe and fittings	2003	1682	T3
IGE/TD/4 Edition 3	Gas Services	1994	1562	T3
IGE/TD/12 Edition 2	Pipework stress analysis for gas industry plant	2003	1681	T6
IGE/TD/13	Pressure regulating installations for transmission and distribution	2001	1672	TX
IGE/TD/15	Services and metering installations for a gas flow not exceeding 6 m ³ h ⁻¹ at supply MOP exceeding 75 mbar but not exceeding 2 bar	2002	1679	T3
IGE/TD/101	Adoption of pipe systems by a GT – management of UIP activities	2002	1674	TU
IGE/TD/1 Edition 4 IGE/TD/3 Edition 4 IGE/TD/12 Edition 2 IGE/TD/13	Combined Amendments	2005	-	-

END OF AMENDMENTS TO IGE/TD/12 EDITION 2.

**IGE/TD/13
COMMUNICATION 1672
2001**

The following Amendments apply to all copies of IGE/TD/13 published in 2001.

Inner cover (Not essential) Amend copyright holder and address to:

*Price Code: TX
The Institution of Gas Engineers and Managers
Charnwood Wing
Holywell Park
Ashby Road
Loughborough
Leicestershire
LE11 3GH
Tel: 01509 282 728
Fax: 01509 283 110
E-mail: general@igem.org.uk*

Footer to each page (Not essential) Amend to:

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Website: www.igem.org.uk

Contents (None are essential) Delete in 2.3 "IGasE Technical Publications"

Substitute: IGEM technical publications

Add: • 2.3.6 General Gas Guidance 6

Delete "2.8 Advantica Technologies Ltd"

Substitute: 2.6 Advantica Ltd

Delete "2.5" and "2.6" and titles and page numbers

Amend "2.7" to: 2.5

Amend "2.9" to: 2.7

Delete "station location", "station layout" and "station security" from 5.

Substitute: Location
Layout
Security

Delete • 7.14.2 and 7.14.3 and page numbers.

Add under APPENDIX:

7 Dealing with services of capacity $\leq 200 \text{ m}^3\text{h}^{-1}$ and MOP ≤ 16 bar 123

Delete Figures 11 and 12 "Locations of connections for a PRI by-pass on a single stream metering unit" and "Accuracy of regulators associated with a metering installation".

Substitute: Figure deleted.
Figure deleted.

Clause 1.1.7 (Not essential) Delete "The Institution of Gas Engineers, 21 Portland Place, London, W1B 1PY". Substitute:

The Institution of Gas Engineers and Managers, Charnwood Wing, Holywell Park, Ashby Road, Loughborough, Leicestershire, LE11 3GH.

Clause 1.2.1 Add to Note after 1st paragraph:
and BS EN 12279.
Delete 2nd paragraph entirely

Clause 1.2.2 Delete entirely. Substitute:

These Recommendations cover any PRI that is installed in:

- a transmission pipeline (see IGE/TD/1)
- a distribution main (see IGE/TD/3)
- a service (see IGE/TD/4).

These Recommendations cover any PRI that is installed in any pipeline whose design is in accordance with IGE/TD/1 Edition 4, IGE/TD/3 Edition 4 or IGE/TD/4 Editions 3 or 4, as appropriate.

Note: For regulating installations downstream of the emergency control valve (ECV) defining the end of the Network, the relevant standards are IGE/TD/15, IGE/GM/4, IGE/GM/6, IGE/GM/8, and BS 6400 Parts 1 and 2, as appropriate.

The scope of the original IGE/TD/13 has been expanded to include services of capacity up to 200 m³ h⁻¹ and MOP ≤ 16 bar where previously only services of greater capacity or higher pressure were covered. This means that certain recommendations have had to be amended for such installations and this is done via additional reference to the new Appendix 7, where appropriate.

Clause 1.2.4 Delete entirely

Clause 1.2.5 Amend to: 1.2.4

**Sub-Section 2.1 Add to title:
AND GUIDANCE**

Add as new bullets at bottom of page 4:

- Pollution Prevention and Control Act 1999
- Utilities Act 2000
- Dangerous Substances and Explosive Atmospheres Regulations 2002

Delete "1988" from existing 16th bullet (COSHH). Substitute:

2002 + Guidance L5

Add to existing 17th bullet (CDM): + Guidance HSG224

Add to existing 19th bullet (EWR): + Guidance HSG85

Add to existing 20th bullet (GS(I&U)R): + Guidance L56

Add to existing 22nd bullet (LOLER): + Guidance L113

Add to existing 23rd bullet (MHSWR): + Guidance L21

Add to existing 24th bullet (MHOR): (as amended) + Guidance L23

Add to existing 25th bullet (NWR): + Guidance L108

Add to existing 26th bullet (PPEWR): + Guidance L25

Add to existing 30th bullet (PUWER): + Guidance L22

Add to existing 32nd bullet (WHSWR): + Guidance L24

Sub-Section 2.2 Delete entirely, retaining title: Substitute:

- HSE CoP 20 Standards of training in safe gas installation
- HSE HSG48 Reducing error and influencing behaviour
- HSE HSG150 Health and Safety in construction.

Sub-Section 2.3 Delete "IGasE". Substitute: IGEM

- Clause 2.3.1** Delete title “Distribution mains” of TD/3 Edition 4. Substitute:
Steel and PE pipelines for gas distribution
Delete note to IGE/TD/3 Edition 4 and reference to IGE/TD/5 entirely.
Substitute:
- IGE/TD/3 Ed 4 S1 Handling, transport and storage of PE pipe and fittings
- Delete note to IGE/TD/12 Edition 2 and 9th bullet (referring to IGE/TD/14) and its Note entirely.

- Clause 2.3.2** Delete 1st and 5th bullets entirely.
Substitute for 1st bullet:
- IGE/GM/7 Edition 2 Electrical connections and hazardous area classification for gas metering equipment
- Substitute for 5th bullet:
- IGE/GM/8 Non-domestic meter installations. Flow rate > 6 m³h⁻¹ and inlet pressure ≤ 38 bar.

- Clause 2.3.3** Delete 4th bullet entirely. Substitute:
- IGE/SR/18 Edition 2 Safe working practices to ensure the integrity of gas pipelines and associated installations.

- Clause 2.3.4** Delete 1st bullet and Note entirely. Substitute:
- IGE/UP/1 Edition 2 Strength and tightness testing and direct purging of industrial and commercial gas installations

Delete 2nd bullet entirely. Substitute:

- IGE/UP/1A Edition 2 Strength and tightness testing and direct purging of small low pressure industrial and commercial Natural Gas installations

Clause 2.3.6 Add new clause at bottom of page 6:
2.3.6 **General Gas Guidance**

- IGE/G/1 Defining the end of the Network, a meter installation and installation pipework

Sub-Sections 2.4 to 2.9 Delete entirely, including titles. Substitute on pages 6,7,8,9:

2.4

BRITISH STANDARDS (abbreviated titles)

- BS 21 Pipe threads for tubes and fittings
- BS 143 Malleable cast iron and cast copper alloy threaded pipe fittings
- BS 476 Fire tests on building materials and structures Parts 20-23
- BS 493 Air bricks and gratings for wall ventilation
- BS 1042 Measurement of fluid flow in closed conduits
- BS 1179 Glossary of terms used in the gas industry
- BS 1377 Test of soils for civil engineering
- BS 1387 Screwed and socketed steel tubes
- BS 1560 Circular flanges for pipes, valves and fittings
- BS 1640 Steel butt welding pipe fittings

- BS 2633 Arc welding of ferritic steel pipework
- BS 2765 Temperature detecting elements and pockets
- BS 2971 Arc welding of carbon steel pipework
- BS 3605 Austenitic stainless steel pipes and tubes
- BS 3693 Design of scales and indexes on analogue instruments
- BS 3799 Steel pipe fittings - screwed and socket welding
- BS 4368 Metallic tube connections
- BS 4515 Welding of steel pipelines
- BS 5493 Protective coating of iron and steel structures against corrosion
- BS 5628 Use of masonry
- BS 5925 Ventilation principles and designing for natural ventilation
- BS 5930 Code of Practice: Siteworks
- BS 6031 Earthworks
- BS 6400 Installation of domestic-sized gas meters
- BS 6651 Protection of structures against lightning
- BS 6739 Instrumentation in process control systems
- BS 6755 Testing of valves
- BS 7079 Preparation of steel substrates before application of paints, etc
- BS 7361 Cathodic protection
- BS 7671 IEE Wiring Regulations
- BS 8004 Foundations
- BS 8110 Concrete
- BS EN 334 Gas pressure regulators
- BS EN 1092 Flanges and their joints
- BS EN 1127 Explosive atmospheres
- BS EN 1254 Copper and copper alloy fittings
- BS EN 1435 Non destructive examination
- BS EN 1555 Plastics piping systems
- BS EN 10208-1 Steel pipes for pipelines for combustible fluids – pipes of class A
- BS EN 10208-2 Steel pipes for pipelines for combustible fluids – pipes of class B
- BS EN 10216 Seamless steel tubes
- BS EN 10217 Welded steel tubes
- BS EN 10222 Steel forgings
- BS EN 12007 Gas systems
- BS EN 12186 Gas pressure regulating stations for transmission and distribution
- BS EN 12279 Gas pressure regulating installations on service lines
- BS EN 12732 Welding steel pipework
- BS EN 13445 Unfired pressure vessels
- BS EN 60079 Electrical apparatus for explosive gas atmospheres
- BS EN 61672 Electrical acoustics
- BS EN ISO 5167 Fluid Flow

- BS EN ISO 9000 Quality management and quality assurance standards
- PD 5500 Unfired fusion welded pressure vessels.

2.5

OVERSEAS STANDARDS (abbreviated titles)

- API 5L Linepipe
- ASTM A 106 Seamless carbon steel pipe
- ASME B 16.5 Steel pipe flanges and flange fittings
- ASME B 31.8 Gas transmission and distribution piping systems
- ASME B 31.11 Slurry transportation piping systems
- AGA 3 Orifice meters
- IEC 801 Electromagnetic Compatibility (EMC) for Industrial Process Measurement and Control Equipment
- IEC 1024 Protection of Structures against Lightning Part 1: General Principles
- IEC 1024.1.1 Section 1: Selection of Protection Levels for Lightning Protection Systems
- IEC 81 (sec 57) Protection against LEMP.

2.6

ADVANTICA LIMITED TECHNICAL DOCUMENTS

2.6.1

Specifications

- L1/E Seamless line pipe 40 mm to 100 mm inclusive nominal size for operating pressure greater than 7 bar – February 2001
- LX1/E Submerged arc-welded pipe 400 mm to 1400 mm inclusive nominal size for operating pressure greater than 7 bar – February 2001
- LX4/E Seamless pipe 150 mm to 450 mm inclusive nominal size for operating pressure greater than 7 bar - February 2001
- LX5/E Electric-welded pipe 150 mm to 450 mm inclusive nominal size for operating pressure greater than 7 bar – February 2001.

2.6.2

Procedures

- PT1/E Pressure testing pipework installations – June 2001
- PT5/E Pressure testing small bore pipework – June 2001.

2.7.1

MISCELLANEOUS (abbreviated titles)

- IEEE 518 Guide to the Installation of Electrical Equipment to Minimise Electrical Noise to Controllers from External Sources
- IEEE C62.41 Recommended Practice on Surge Voltages in Low Voltage AC Power Circuits
- HSC The safe isolation of plant and equipment ISBN 071608719 OCNA Spec. NGW – 1, 4, 5
- MSS SP-75 High test wrought butt welding fittings.

**Section 3
Glossary
and
Acronyms**

Add in alphabetical position:

ECV	Emergency control valve.
emergency control valve (ECV)	As defined in IGE/G/1.
meter installation	As defined in IGE/G/1.
Network	As defined in IGE/G/1.

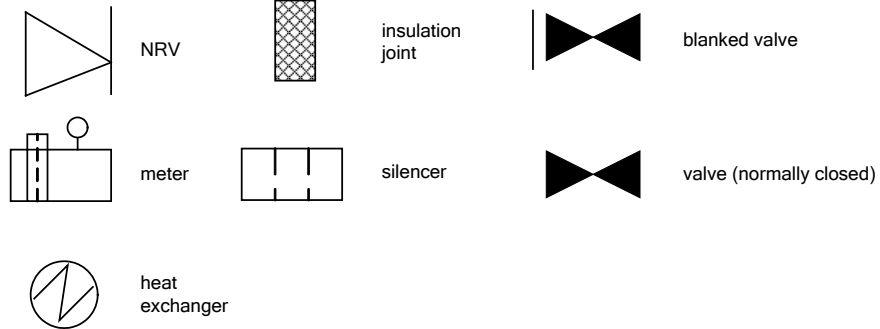
Section 3

Delete term "station" and its definition entirely

Section 3

In "Abbreviations and symbols, add to  valve:
(normally open)

Add to the depictions of components:



Section 5

Delete "STATION" from titles of 5.2, 5.3 and 5.4

**Sub-Section
5.1**

1st sentence. Delete entirely. Substitute:

Consideration should be given to the layout and other uses of the installation, for example gas storage, the need for security of the installation and any housing for the PRI.

**Sub-Section
5.2**

Delete text entirely. Substitute:

See revised Sub-Section 5.2 on next page.

5.2

Add on page 17:

When selecting the location for a PRI, consideration should be given to the following factors:

- accessibility of the site
- below ground installations being located away from any carriageway, for example in the verge of footpath
- vulnerability of sites where traffic accidents, etc. could result in damage to the PRI
- clearance from overhead power cables and large trees
- proximity to tall buildings where eddy currents around the building may cause problems with gas dispersal (see IGE/SR/23)
- where the PRI serves part of a Network, its proximity to occupied buildings should be determined from the building proximity distances given in IGE/TD/1 (for MOP > 16 bar), or IGE/TD/3 (where the part of the Network is a distribution main) or IGE/TD/4 (where the part of the Network is a service of capacity > 200 m³ h⁻¹). In any event, the distance should not be less than 3m.

For a PRI in a service of capacity ≤ 200 m³ h⁻¹ and MOP ≤ 16 bar, reference should be made to Appendix 7.

- Clause 5.3.4** Amend “station” to: installation
In the Note, amend “metering installation” to:
meter installation
and, amend “metering installations” to:
meter installations
- Clause 5.4.1** Amend “Any station” to: Installations
- Clause 5.4.2** Delete “station”
- Section 6** Add new sentence at end of the introduction and before Sub-Section 6.1:
For a PRI in a service of capacity $\leq 200 \text{ m}^3 \text{ h}^{-1}$ and MOP $\leq 16 \text{ bar}$, additional reference should be made to Appendix 7.
- Figure 1** Delete Note 3 entirely. Substitute:
Note 3: Where a meter is installed with the PRI and within the PRI housing, additional ventilation may be required. IGE/GM/4, IGE/GM/6 and/or IGE/GM/8 may be referenced to provide guidance.
- Figure 2** Delete Note 2 entirely. Substitute:
Note 2: Where a meter is installed with the PRI and within the PRI housing, additional ventilation may be required. IGE/GM/4, IGE/GM/6 and/or IGE/GM/8 may be referenced to provide guidance.
- Clause 6.2.9.1** 2nd line. Delete “free”
- Clause 6.3.5** 3rd paragraph. Add:
Temporary (removable) means of reducing the free volume, including for maintenance, should not be used.
- Clause 6.3.10** 2nd line. Amend “6.2.10” to: 6.2.9
- Sub-Section 6.4** 2nd paragraph. Add: or BS EN 13445.
- Clause 7.1.1.3** 4th bullet. Delete Note entirely
- Clause 7.1.4.2(a)** 1st bullet. Delete entirely. Substitute:
- at the inlet and, where necessary, the outlet
- Clause 7.1.4.4** 10th bullet. Delete from “IGE/GM/1.....” to end. Substitute:
IGE/GM/4, IGE/GM/6 or IGE/GM/8, as appropriate.
- Sub-Section 7.3** 5th bullet. Add: or BS EN 13445
- Clause 7.4.3.2** 2nd sentence. Add between “should” and “taken”: be
- Clause 7.10.1.2** Delete list of bullets entirely. Substitute:
- API 5L
 - ASTM A 106
 - BS EN 10216
 - BS EN 10217
 - BS EN 10208
 - BS ISO 3183-2.

Clause 7.10.1.3 Note 2. Delete entirely. Substitute:

Note 2: Historically, API 5L is the most commonly specified pipe standard. In Europe, increasing use is being made of BS EN 10208 (BS ISO 3183-2). Company standards, such as those of Advantica Limited, for example E/L1, E/LX1. E/LX4 and E/LX5 may specify additional requirements to these national and international specifications.

Clause 7.10.1.5 Add new (2nd) paragraph:

On installations with inlet pressures exceeding 2 bar, screwed pipe and fittings should not be used for main inlet pipework upstream of the stream inlet isolation valve(s).

Clause 7.10.1.7 8th line. Delete subscript “u” (twice)

Figure 8

1st row. 4th column. Delete entry. Substitute: BS EN 1555-3
9th row. 3rd column. Delete “Ø > 50mm”. Substitute: Ø ≤ 25mm
11th row. 4th column. Add: BS 13445
12th row. 1st column. Delete or stations
15th row. 4th column. Add: BS 13445
17th row. 4th column. Delete entry. Substitute: BS EN 10222 Parts 1 to 5
18th row. 4th column. Delete BS 4504: PN16 and BS 4504
Substitute: BS EN 1092 Part 1

Clause 7.10.3.1 Delete entirely. Substitute:

and
Figure 10
Sensing, instrument and auxiliary pipework should be designed to BS 6739 and conform with appropriate national standards for the material and duty involved, for example as shown in Figure 10.

	Carbon steel	Stainless steel	Copper	Maleable iron
Pipe	BS 1387 BS EN 10216/7 API 5 L	BS 3605 ASTM A269-316 or 321		
Fittings	BS 1640 BS EN 10241 BS 3799	BS 4368	BS EN 1254 pt 2	BS 143/1256

Clause 7.12.2.1 Delete entirely. Substitute:

Pipework should be designed and installed to a standard, for example BS 6739, compatible with that of the main pipework and routed to minimise the number of joints, be protected from impact and not interfere with plant maintenance.

Clause 7.12.4.3 Delete entirely (retaining Note). Substitute:

The design of any flow metering system should be in accordance with appropriate standards such as IGE/GM/4, IGE/GM/6, IGE/GM/8, BS 1042 and BS EN ISO 5167.

Clause 7.12.4.4 5th paragraph. 2nd Bullet. Delete “BS 1503-316 S40 or S41”

Substitute: BS EN 10222-1

Clause 7.12.4.4 Final Note. Delete entirely

Clause 7.14.1.1 Delete entirely (including Note). Substitute:

For associated metering, reference should be made to the following, as appropriate for the pressure and meter type:

- IGE/GM/4
- IGE/GM/5
- IGE/GM/6
- IGE/GM/7
- IGE/GM/8
- IGE/UP/6 (for a meter associated with a large compressor).

Note: Reference may also be made to other international metering standards such as BS EN ISO 5167 and AGA3 for orifice plates.

- Clause 7.14.1.2 Delete entirely
 Clause 7.14.1.3 Delete entirely
- Figure 11 Delete entirely including title
- Clause 7.14.2 Delete entirely
 Clause 7.14.3 Delete entirely
 Figure 12 Delete entirely
- Clause 7.15.5.5 **Note. 2nd line. Delete entirely. Substitute:**
IGE/TD/3 Edition 4 Supplement 1 provides guidance on handling PE pipe and fittings.
- Section 8 **Under the section title, add:**
See note at the bottom of this page.
- Clause 8.1.1 **Add a 3rd paragraph:**
- For PRIs in services of capacity $\leq 200 \text{ m}^3 \text{ h}^{-1}$ and
 MOP ≤ 16 bar, additional reference should be made to Appendix 7.
- Clause 8.1.2 **Underneath Figure 13, add:**
Important Note:
IGE/TD/13 applies to new and replacement PRIs. It is not usually necessary to apply IGE/TD/13 retrospectively to existing PRIs, and it should be noted that some IGE/TD/13 recommendations were not contained in IGE/TD/9 and IGE/TD/10, for example on Accuracy classes (ACs) and Accuracy groups (AGs). However, existing installations designed to IGE/TD/9 or IGE/TD/10 may benefit from appraisal and review in accordance with IGE/TD/13 in all respects, including AGs and ACs.
- Figure 14 **2nd row. 4th column. Delete "The lower of 2.5 DP_a and 0.2 bar".**
Substitute: 0.2 bar*
- Figure 14 **Add between table and Note 1:**
*Note *: Where the maximum operating pressure (MOP) of a network is declared as being less than 75 mbar for reasons of integrity, MIP may be less than 0.2 bar.*
- Figure 14 **Note 5. 4th line. Amend "1.3 MOP." to: 1.33 MOP.**
- Figure 14 **Add a new Note:**
Note 6: For further information, see A1.6.1, A1.6.2 and A1.6.3.
- Figure 15 **Column 1, Row 1. Delete "(0-100 mbar)"**
- Figure 17 **Column 1, Row 1. Amend "0.3 bar" to: 0.35 bar**
- Clause 10.1.3 **Amend "station" (twice) to:** installation
 installation
- Clause 10.1.4 **Note. Delete final (3rd) sentence**
- Clause 11.9.3 **Amend "station" (six times) to:** installation
 Clause 11.9.4 installation
 Clause 11.9.5 installation
 installation
 installation
 installation
 installation

- Appendix 1** Under the appendix title, add:
See note at the bottom of this page.
- A1.1** At the bottom of page 93, add:
It is not suggested that the following examples be used for existing PRIs not designed to IGE/TD/13 as they include aspects that may not have been applied for installations designed to IGE/TD/9 or IGE/TD/10, for example Accuracy Groups and Accuracy Classes.
- A1.3.1** Table. Column 1, Row 1. Delete "(0 to 100 mbar)"
- A1.3.4** Table. Column 2, Row 1. Amend "0.3 bar" to: 0.35 bar
- A4.2.1.2** Delete "BS 60651:". Substitute: BS EN 61672:
- A5.6** 2nd paragraph. Delete entirely
- A5.7.6** Final bullet. Delete "metering installation". Substitute:
meter installation
- A6** 1st paragraph. Delete "Technologies"
- A6.2.3** Delete "IGE/GM/1 Edition 2, GM/4 or GM/6, as appropriate". Substitute: IGE/UP/1.
- Appendix 7** New. Insert attached (pages TD/13/11 and TD/13/12) on final two (blank) pages.
- Back cover** Delete. Substitute attached (page TD/13/13).

APPENDIX 7 : PRESSURE REGULATING INSTALLATIONS IN SERVICES OF CAPACITY $\leq 200 \text{ m}^3 \text{ h}^{-1}$ AND MOP $\leq 16 \text{ bar}$

Unless amended in this Appendix, the recommendations given in the preceding sections apply to the design PRIs in services of capacity $\leq 200 \text{ m}^3 \text{ h}^{-1}$ and MOP $\leq 16 \text{ bar}$.

A7.1 INSTALLATION LOCATION

In addition to Sub-Section 5.2, consider the following factors when selecting a site: :

- avoidance of below ground installations where traffic hazards and parking make maintenance difficult
- the PRI if supplying domestic premises, has to be sited outside any building in a surface mounted box or a free standing housing
- anticipated or planned alterations or extensions to buildings which would affect the installation
- avoidance of hazardous or potentially hazardous conditions and of any gas venting from regulator relief valves entering property through open windows, airbricks, balanced flues or similar openings in the structure.

A7.2 HOUSINGS

Section 6 applies except where amended below.

A7.2.1 PRIs of MOP_u $\leq 7 \text{ bar}$

A7.2.1.1 Where it is necessary to house a PRI, ensure the housing embodies the following features:

- robust, secure construction using durable materials
- access for replacement and maintenance of the installed equipment
- provision for sealing where the inlet, outlet and vent pipes pass through the housing

A7.2.1.2 For a free standing housing of internal volume less than 1.5 m^3 , a minimum ventilation of 5% of the floor area distributed across a minimum of 2 walls and equally spread between high and low level.

A7.2.1.3 Where a housing is attached to an outside wall of occupied premises, use a surface mounted or semi-concealed domestic (U6 size) meter box and:

- ensure ventilation of not less than 2% of the floor area for a surface mounted box or housing and 6% of the floor area for a semi-concealed box. Use purpose designed, non-adjustable louvre type ventilators and/or loose fitting doors/lids to achieve the ventilation
- allocate hazardous zone classification within the meter box/housing of zone 2.
- site the box/housing such that:
 - the edge of the box/housing is at least 0.18 m from any opening into the property AND at least 0.33 m away from any electrical equipment
 - the outlet of the regulator relief vent is at least 1.0 m from any opening into the property, at least 1.55 m away from any electrical equipment and the vent is external to the housing, pointing downwards
- do not permit any installed outlet pipework to enter the building, directly from the back of the box/housing, or near the vent termination point.
- ensure there are no openings on the back of any box/housing that would permit gas to track into the building.
- do not build housings of this type into the outer skin of an external wall.

A7.3 PRESSURE CONTROL AND SAFETY SYSTEMS

Section 8 applies except where amended below.

A7.3.1 PRIs of $MOP_u > 75 \text{ mbar} \leq 7 \text{ bar}$

A7.3.1.1 Include a slam-shut valve.

Note: The primary safety consideration for all types of installation is protection against overpressure. Installations feeding into small downstream volumes require fast-acting safety devices such as a slam-shut valve rather than monitor regulators. If the customer requires security of supply, this can be provided by the addition of a standby stream.

A7.3.1.2 In addition, take the following factors into consideration when designing the PRI:

- determine the number of regulator streams and the capacity of each stream in consultation with the shipper, to ensure the necessary level of supply security and to provide appropriate facilities for routine maintenance work
- on a single stream unit, make provision for an inlet, and an outlet, valved, tapping for the connection of a temporary regulated by-pass for maintenance purposes
- where the inlet pressure exceeds 2 bar, ensure the inlet pipework up to and including the stream inlet isolation valve is of welded/flanged construction, with no screwed fittings.

A7.3.2 Breathers and vents

Where the internal volume of a free standing housing is less than 1.5 m^3 , and the ventilation complies with A7.2.1.2, it is acceptable for vents to terminate within the housing.

Installations housed in domestic (U6 sized) meter boxes, which are attached to the outside walls of occupied premises, have to comply with A7.2.1.3.

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END OF AMENDMENTS TO IGE/TD/13 (FEB 2005) SEE ALSO AMENDMENTS JULY 2006

**IGE/TD/13
COMMUNICATION 1672
2001**

The following Amendment applies to all copies of IGE/TD/13 published in 2001.

Figure 8 **6th row. 4th column, i.e.** Forged or extruded bends, tees, reducers, caps, etc.

Delete "Ø > 600 mm"

Substitute Ø ≤ 600 mm

END OF AMENDMENT TO IGE/TD/13 (JULY 2006) SEE ALSO AMENDMENTS FEB 2005