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BSI British Standards

Specification for domestic gas meter boxes and meter bracket

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Contents

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 54, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 31 July 2009. It was prepared by Technical Committee GSE/25, *Gas meters*. A list of organizations represented on this committee can be obtained on request to its secretary.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

In particular, attention is drawn to the Gas Safety (Installation and Use) Regulations 1998 [1].

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Introduction

As competition in the gas industry has increased, the introduction of new products has led to changes to certain designs of meter box for housing gas meters. Consequently, for some types of meter installations the market now comprises several distinct box designs. The number of different designs is causing difficulties for gas installers, meter asset managers and other parties involved in meter installation.

This Standard aims to address some of the disparities in existing box designs to facilitate the installation of meters across the UK. However, it is recognized that some designs, particularly those for the semi-concealed box, will need to be modified over time to obtain a solution that meets the aspiration of this Standard.

Attention is drawn to the fact that the type and construction of a meter box is subject to approval by the Gas Transporter, and, without this approval, the Gas Transporter may refuse to connect or, in some cases, may disconnect the gas supply to the consumer's premises.

1 Scope

This British Standard specifies requirements for gas meter boxes for use with single gas meter installations conforming to BS 6400, which:

a) are supplied with gases of the 2nd and 3rd family, with a maximum capacity of 6 m^3/h and a maximum operating pressure not exceeding 2 bar; and

b) incorporate any of the following meters: diaphragm, ultrasonic, credit or prepayment.

It does not apply to multiple meter installations which are installed in the same housing.

NOTE 1 The composition of fuel gases of the 2nd and 3rd family is specified in BS EN 437.

NOTE 2 All pressures quoted in this standard are gauge pressures.

It covers the following designs of meter box, including any associated box extensions:

1) built-in;

2) surface mounted;

3) semi-concealed;

4) universal.

It does not cover security shrouds intended to provide additional protection to meter installations.

This British Standard also specifies requirements for the design of the standard meter bracket.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 476-7, *Fire tests on building materials and structures – Part 7: Method of test to determine the classification of the surface spread of flame of products*

BS 746, *Specification for gas meter unions and adaptors*

BS 2782-6:Method 640A:1979, ISO 2577:1975, *Methods of testing plastics – Part 6: Dimensional properties – Method 640A: Determination of shrinkage of test specimens in the form of bars of compression moulded thermosetting moulding materials*

BS 3532, *Method of specifying unsaturated polyester resin systems*

BS 3643-1, *ISO metric screw threads – Part 1: Principles and basic data*

BS 3643-2, *ISO metric screw threads – Part 2: Specification for selected limits of size*

BS 4781:1990, *Specification for pressure-sensitive adhesive plastics labels for permanent use*

BS 5378-2, *Safety signs and colours – Part 2: Specification for colorimetric and photometric properties of materials*

BS 6400, *Installation of exchange, relocation and removal of domestic-sized gas meters (2nd and 3rd family gases)*

BS 7371-12, *Coatings on metal fasteners – Part 12: Requirements for imperial fasteners*

BS EN 10051, *Specification for continuously hot-rolled uncoated plate, sheet and strip of non-alloy and alloy steels – Tolerances on dimensions and shape*

BS EN 10087:1999, *Free cutting steels – Technical delivery conditions for semi-finished products, hot rolled bars and rods*

BS EN 10088-2:2005, *Stainless steels – Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*

BS EN 10111:2008, *Continuously hot rolled low carbon steel sheet and strip for cold forming – Technical delivery conditions*

BS EN 10130:2006, *Cold rolled low carbon steel flat products for cold forming – Technical delivery conditions*

BS EN 10131, *Cold rolled uncoated and zinc or zinc-nickel electrolytically coated low carbon and high yield strength steel flat products for cold forming – Tolerances on dimensions and shape*

BS EN 10346:2009, *Continuously hot-dip coated steel flat products – Technical delivery conditions*

BS EN 14020, *Reinforcements – Specification for textile glass rovings*

BS EN ISO 62:2008, *Plastics – Determination of water absorption*

BS EN ISO 178, *Plastics – Determination of flexural properties*

BS EN ISO 179-1:2001, *Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test*

BS EN ISO 295:2004, *Plastics – Compression moulding of test specimens of thermosetting materials*

BS EN ISO 1183-1:2004, *Plastics – Methods for determining the density of non-cellular plastics – Part 1: Immersion method, liquid pyknometer method and titration method*

BS EN ISO 2081:2008, *Metallic and other inorganic coatings – Electroplated coatings of zinc with supplementary treatments on iron or steel*

BS EN ISO 4042:2000, *Fasteners – Electroplated coatings*

BS EN ISO 4589-2, *Plastics – Determination of burning behaviour by oxygen index – Part 2: Ambient-temperature test*

BS EN ISO 9227, *Corrosion tests in artificial atmospheres – Salt spray test*

3 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

3.1 built-in meter box
purpose-made meter box, fitted with a meter bracket, for insetting into a building wall, normally during the construction of the wall

3.2 credit meter
meter in which the volume registered by the index is the basis of a periodic account rendered to the consumer

3.3 diaphragm meter
positive displacement meter in which the measuring chambers have deformable walls

3.4 emergency control valve (ECV)
valve for shutting off the supply of gas in an emergency, which is intended for use by a consumer of gas and is installed at the end of a service

3.5 gas transporter
company, licensed by Ofgem, which transports gas through its network on behalf of a gas shipper

3.6 installation pipework
pipework or fitting from the outlet of the primary meter installation to points at which appliances are to be connected

NOTE This definition varies from that given in Regulation 2 of the Gas Safety (Installation and Use) Regulations 1998 [1] so that the pipework within the meter installation can be distinguished from the consumer's installation pipework.

3.7 knockout
section of material which can be removed under pressure to leave a hole

3.8 low pressure (LP)
gas supply with a maximum operating pressure of 75 mbar

3.9 medium pressure (MP)
gas supply at the outlet of the emergency control valve with a maximum operating pressure exceeding 75 mbar but not exceeding 2 bar

3.10 membrane knockout
knockout where the thickness of the material has been reduced across the entire face to enable removal

NOTE Membrane knockouts are generally not more than 1 mm thick.

3.11 meter
instrument designed to measure, memorize and display the quantity of gas that has passed through it

3.12 meter box
purpose-made compartment designed and prefabricated to accommodate a meter installation

3.13 meter box adaptor
transition fitting used between the service pipe and the ECV

3.14 meter bracket
purpose-made support incorporating a means of securing meter unions from which a meter can be suspended

3.15 meter installation
installation that comprises a primary meter, valve, filter, meter regulator and associated protection devices, pliable connection, interconnecting pipework, fitting and support

NOTE A meter installation commences at the outlet of the ECV. Depending on the type of meter installation it terminates at:

a) the outlet connection of the meter;

b) the outlet of the meter outlet adaptor if fitted; or

c) in the case of a semi-concealed meter with a pliable connection downstream of the meter, the outlet of the meter box outlet adaptor.

3.16 prepayment meter
meter fitted with a mechanism that, on the insertion of a coin, mechanical token or smartcard, permits the passage of a predetermined volume of gas

3.17 semi-concealed meter box
purpose-designed meter box intended to be installed partially below ground level

NOTE This box is to be installed against a wall or existing structure.

3.18 service pipe
pipe for distributing gas to premises from a distribution main, being any pipe between the distribution main and the outlet of the first emergency control valve downstream from that distribution main

3.19 spigot
tubular case, sealed to an internal surface of a meter box, which is impermeable to gas and inserted in a prepared hole in a structure for the reception of an installation pipe

3.20 surface mounted meter box
purpose-designed meter box fitted with a meter bracket and intended for attaching to the outside face of an existing wall

3.21 thin-edged knockout
knockout where the thickness of the material has been reduced around the circumference to enable removal

NOTE Thin-edged knockouts are generally not more than 0.7 mm thick around the circumference.

3.22 ultrasonic meter
meter that infers the volume passing through it by means of the behaviour of an ultrasonic beam

3.23 universal meter box
multi-purpose meter box fitted with a meter bracket and intended to be installed, either surface mounted or partially buried into the ground

NOTE This box is to be installed against a wall or existing structure.

4 Dimensions and features

*COMMENTARY ON CLAUSE **4***
When designing a meter box, it is essential to consider two basic objectives. The meter box needs to:

a) allow the fitting, operation and replacement of any of the following meter types, when installed in accordance with BS 6400: diaphragm or ultrasonic, credit or prepayment;

b) provide unrestricted access, once the meter is installed, to enable:

1) the operation and replacement of the ECV, or its handle;

2) commissioning to be undertaken;

3) the operation of any prepayment mechanism by the consumer;

4) the meter index to be easily read;

5) safety inspections and maintenance activities, including the replacement of any associated gas fittings and batteries, to be carried out without the need to remove the meter.

*A meter box conforming to **4.1**, **4.2**, **4.3**, **4.4** and **4.5** can be expected to meet these objectives. However, in order to provide the additional space required for some diaphragm prepayment meters, it might be necessary to incorporate into the meter box a specific box extension or replacement door with increased depth. See **4.6**.*

4.1 All box types

4.1.1 Gas integrity

*COMMENTARY ON **4.1.1***
It is essential that a meter box is impermeable to gas at atmospheric pressure such that any leaking gas is prevented from directly entering the wall, cavity or property. The gas integrity of a meter box is affected by:

a) the composite material from which the box is manufactured; and

b) the design and assembly of the box.

*If a meter box conforms to Clause **7**, the finished material will provide adequate gas integrity. Requirements for the design and assembly of the box are specified in **4.1.1**.*

4.1.1.1 To ensure that the meter box is impermeable to gas at atmospheric pressure, the surface and structure of the finished box shall be complete and, when installed in accordance with the manufacturer's instructions, there shall be no paths for leaking gas to directly enter any adjacent wall, cavity or property. This shall be verified by visual inspection.

4.1.1.2 For a built-in box, the manufacturer's installation instructions shall provide information on the method of sealing the spigot to the box and the gas pipework within the spigot to ensure that leaking gas is prevented from entering the wall, cavity or property.

4.1.2 Security and weather resistance

*COMMENTARY ON **4.1.2***
A meter box conforming to this British Standard is deemed to protect the meter installation against vandalism and the weather.

4.1.2.1 The meter box shall be designed and manufactured such that:

a) features are incorporated in the door/lid to prevent warping; and

b) the latch is secure when locked.

4.1.2.2 To prevent unauthorized access to the meter installation, the meter box shall be supplied with:

a) a door or lid, as appropriate;

b) a lock, conforming to **7.2** and **7.3**; and

c) a special key, conforming to Annex A.

4.1.3 Ventilation

4.1.3.1 General

The meter box shall be ventilated by the inclusion of purpose-designed, non-closable ventilation, sized and located in accordance with **4.1.3.2** or **4.1.3.3**, as appropriate.

*NOTE For meters installed to BS 6400, a meter box conforming to **4.1.3.1** is deemed to be a Zone 2 hazardous area as defined by BS EN 60079-10, and is suitable for 2nd and 3rd family gas installations with a maximum operating pressure not exceeding 2 bar.*

4.1.3.2 Built-in and surface mounted boxes

The ventilation shall provide a total effective area that is a minimum of 2% of the plan area of the box. The ventilation openings shall be distributed and disposed at high and low levels, with a minimum of 1% at high level and a minimum of 1% at low level, via one or more exterior faces of the box.

NOTE The "plan area" is the largest internal cross-sectional area in plan view.

4.1.3.3 Semi-concealed and universal boxes

The ventilation shall provide a total effective area that is a minimum of 6% of the plan area of the box, equally distributed around the periphery of the box lid or door.

NOTE 1 The "plan area" is the largest internal cross-sectional area in plan view.

NOTE 2 Semi-concealed boxes by design are unable to provide ventilation equally disposed at high and low level.

NOTE 3 Typical universal boxes provide their ventilation around the periphery of the door, positioned so as not to allow water ingress.

4.1.4 General features

4.1.4.1 The wall thickness of the meter box, door and lid shall be not less than:

a) 2.5 mm at any point for built-in and surface mounted boxes;

b) 3 mm at any point for semi-concealed and universal boxes;

except where a knockout is indicated on Figure 2 or Figure 5.

4.1.4.2 The meter box door/lid shall be removable and replaceable. Where the meter box casing is designed to be removable and replaceable, this shall be possible with the installation pipework and service pipe in place.

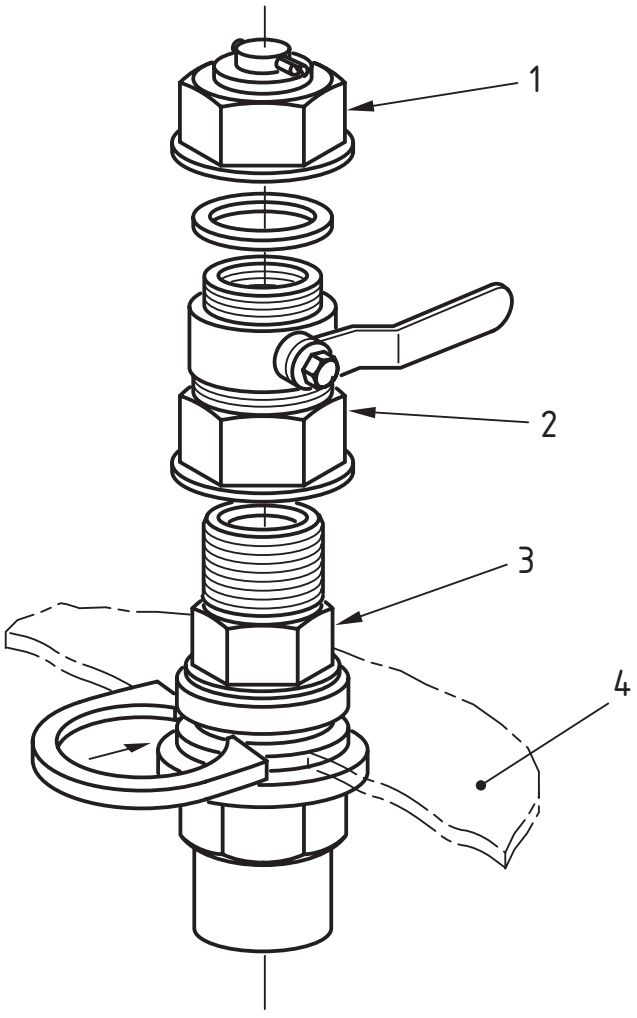
4.1.4.3 Where the meter box has a lid that opens upwards:

a) the lid, when at rest in an open position, shall be set at an angle of not less than 95°; or

b) a purpose-designed prop shall be incorporated within the meter box which secures the lid in its open position.

4.1.4.4 The meter box shall be designed to accommodate a meter box adaptor (see Figure 1), positioned in accordance with **4.2**, **4.3**, **4.4** or **4.5**, as appropriate.

Figure 1 **Typical meter box adaptor with ECV and cap**



Key

1 ECV cap
2 ECV
3 Meter box adaptor with circlip
4 Meter box base

4.2 Built-in boxes

4.2.1 The meter box shall meet the dimensional requirements of Figure 2, incorporating the following features:

a) a hole reinforced to a thickness of between 5 mm and 6 mm to allow the service pipe to enter the box and be secured using the meter box adaptor;

b) a membrane knockout to allow the installation pipework to exit on the outer face of the building;

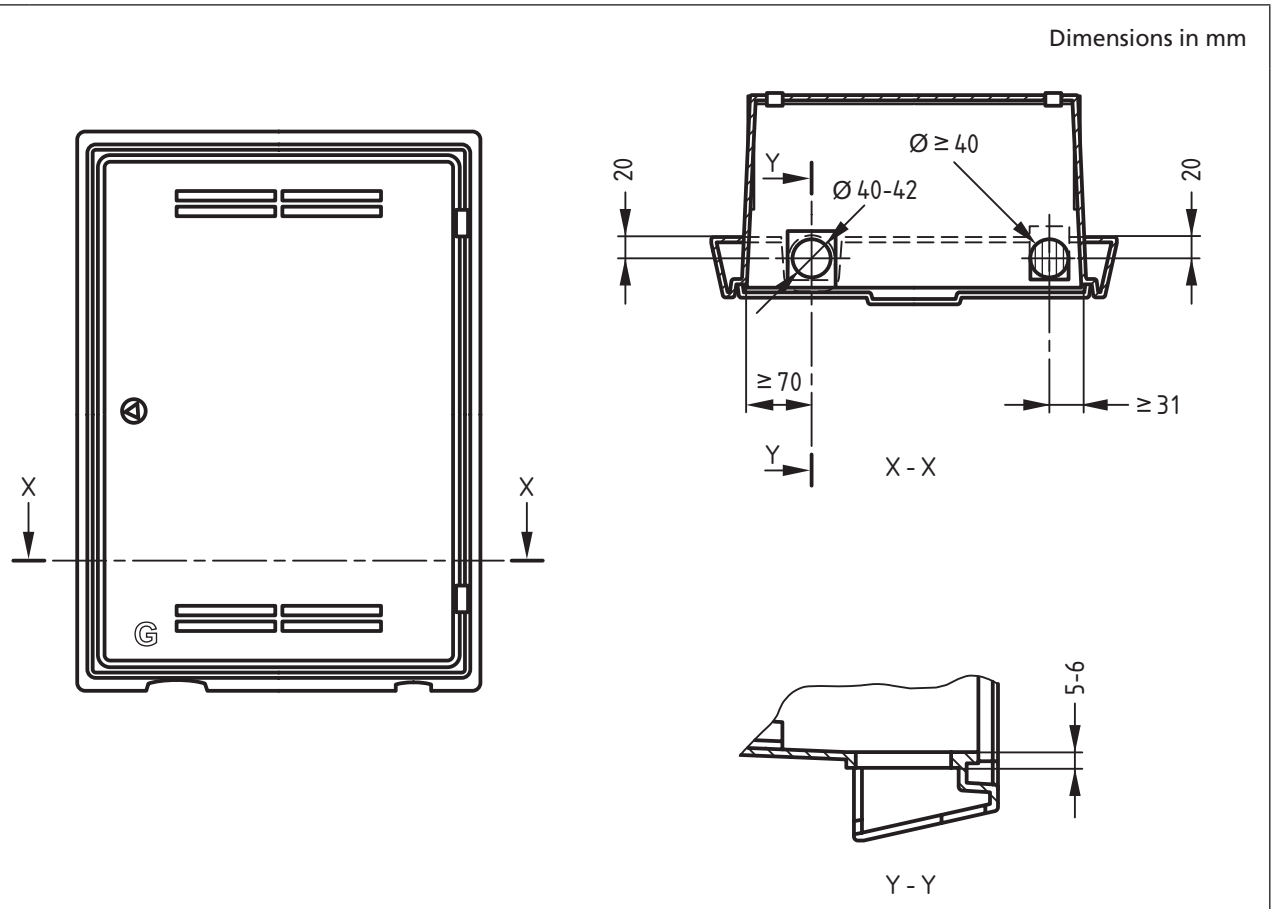
c) a fitted meter bracket conforming to Annex B.

4.2.2 Where an exit point from the rear of the box is provided:

a) it shall be in the form of a thin-edged knockout meeting the dimensional requirements of Figure 2;

b) a spigot conforming to Clause **6** shall be made available unless otherwise specified by the purchaser.

Figure 2 **Built-in box dimensions and features**



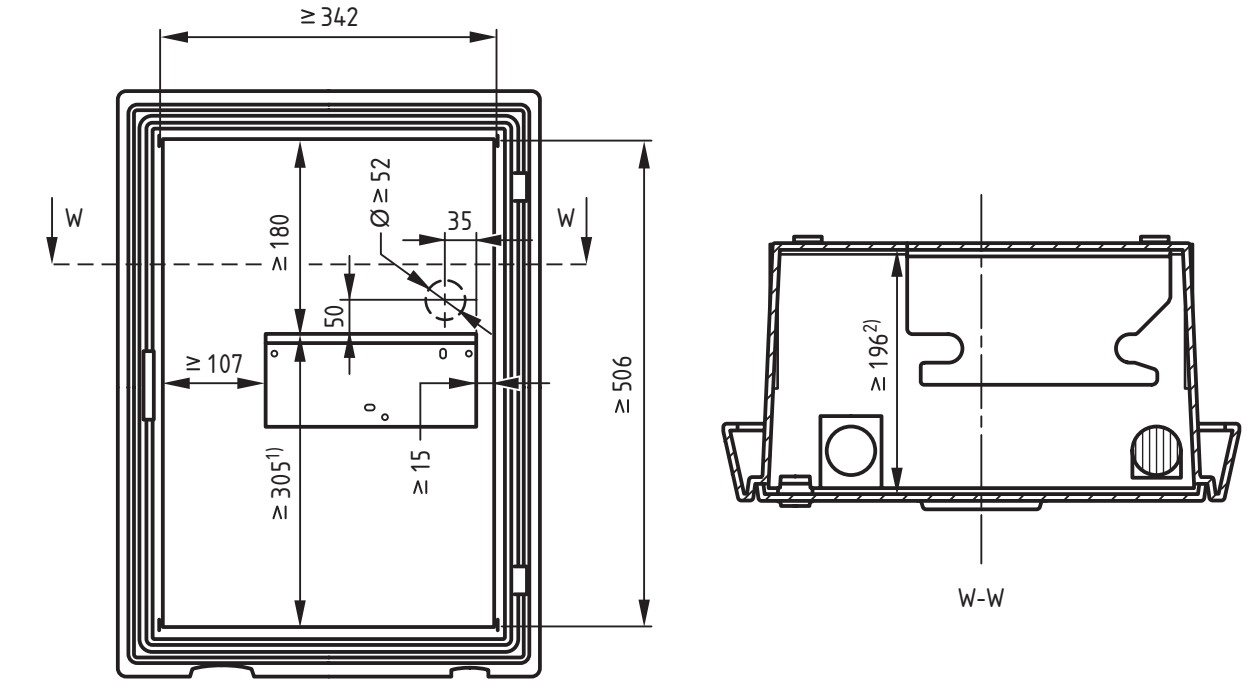
a) Meter box viewed from the front (door fitted), section X–X and section Y–Y

Key

Hole

Membrane knockout

Figure 2 **Built-in box dimensions and features** *(continued)*



b) Meter box viewed from the front (door removed) and section W–W

Key

Hole

Thin-edged knockout (optional)

Membrane knockout

[1)] When new tooling is introduced, this dimension should be increased to a minimum of 325 mm, to provide a consistent position across meter box designs.

[2)] When new tooling is introduced, this dimension should be increased to a minimum of 211 mm, to facilitate the installation of certain prepayment meters without the need for a special door.

NOTE Figure not to scale.

4.3 Surface mounted boxes

4.3.1 The meter box shall meet the dimensional requirements of Figure 3, incorporating the following features:

a) a hole reinforced to a thickness of between 5 mm and 6 mm to allow the service pipe to enter the box and be secured using the meter box adaptor;

b) an additional hole to allow the installation pipework to exit on the outer face of the building;

c) a fitted meter bracket conforming to Annex B;

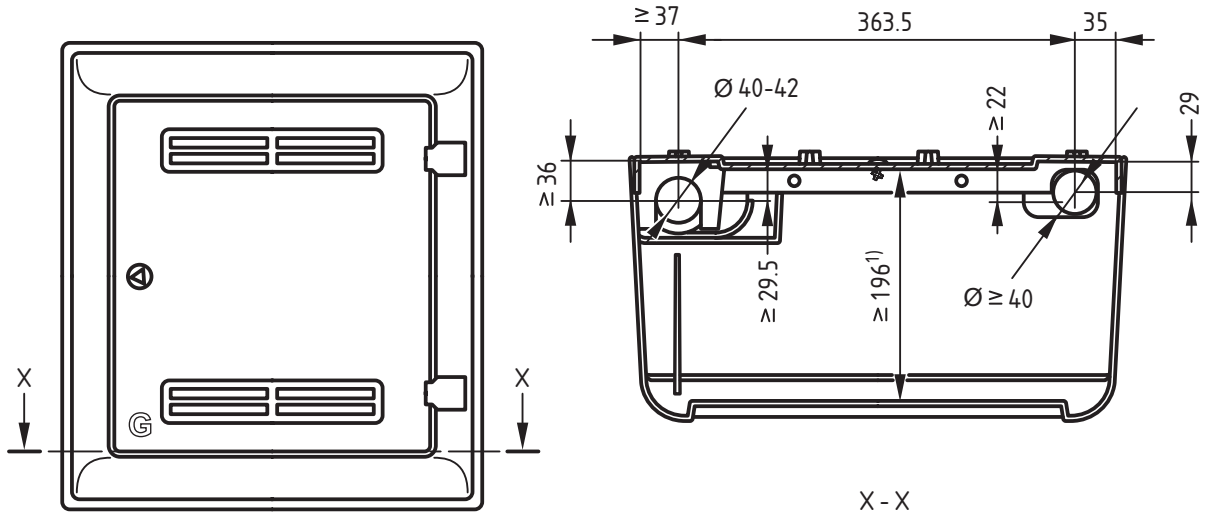
d) fixing holes to secure the box to the wall;

e) a separate backplate and removable outer case.

4.3.2 The meter box shall be designed such that, when installed, there is a gap of not less than 5 mm between the rear of the box and fixing area, e.g. brick wall.

Figure 3 **Surface mounted box dimensions and features**

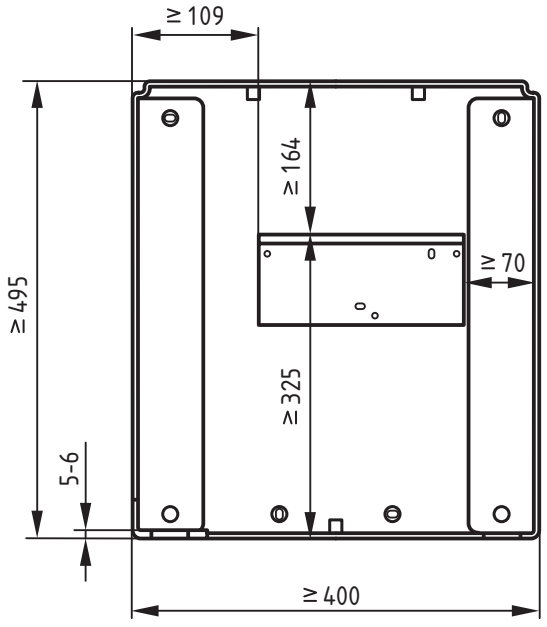
Dimensions in mm



a) Meter box viewed from the front (door fitted) and section X–X

Key

◯ Hole



b) Backplate

1) When new tooling is introduced, this dimension should be increased to a minimum of 211 mm, to facilitate the installation of certain prepayment meters without the need for a special door.

NOTE Figure not to scale.

4.4 Semi-concealed boxes

*COMMENTARY ON **4.4***
*Subclause **4.4** specifies the dimensional requirements for a semi-concealed meter box and incorporates the core dimensions of those box designs in use at the time of publication. However, in order to allow the fitting of the full range of meters covered by this Standard, it is recognized that existing designs might require modification when new tooling is introduced.*

*Therefore, when a manufacturer designs a new semi-concealed meter box, it should conform to both **4.4** and Figure 4. It is anticipated that the dimensions recommended in Figure 4 will become requirements when this Standard is revised.*

4.4.1 The meter box shall have:

a) a method of restraining the meter from tilting by more than 30°, which can be achieved by either the design of the box or the use of a meter bracket that has been fitted to the box;

NOTE 1 A meter with dimensions of 136 mm deep (excluding the depth of the meter index) × 188 mm wide × 218 mm high (including the meter connections) is to be assumed when verifying this requirement.

NOTE 2 On existing semi-concealed meter installations the method of restraining the meter has been the responsibility of the meter asset manager where the meter box itself or a meter bracket has held the meter in its correct position.

b) a hole, with a diameter between 40 mm and 42 mm, reinforced to a thickness between 5 mm and 6 mm, positioned on the left hand side of the base of the box (when viewed from the front) to allow the service pipe to enter the box and be secured using the meter box adaptor. The centre of this hole shall be not less than 55 mm from the front internal surface the box and 70 mm from the left hand side internal surface of the box (box side/front/back);

c) a hole, with a diameter of not less than 40 mm, positioned near the top rear right side of the box to allow the installation pipework to exit the box;

d) fixing holes and fixings to secure the box to the wall;

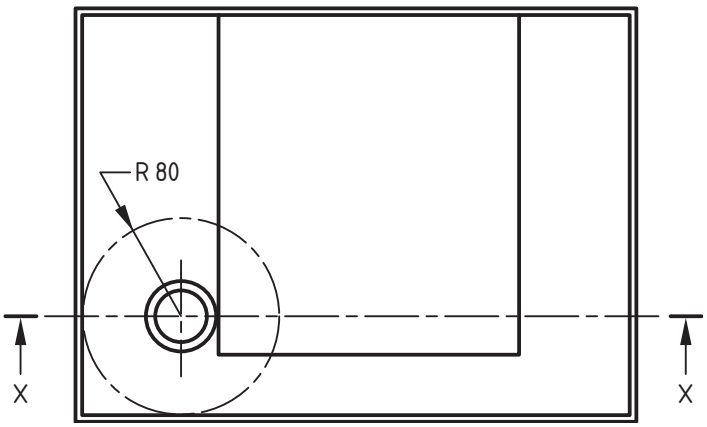
e) a ground level line indicated on the external surface of the box;

4.4.2 The box shall incorporate, either by design or by the provision of purpose provided spacers, a gap of not less than 50 mm between the rear of the box and fixing area, e.g. brick wall.

NOTE When attaching a meter box extension, this dimension can be reduced by the thickness of the extension, i.e. 5 mm.

Figure 4 **Recommended dimensions and features for new semi-concealed box designs**

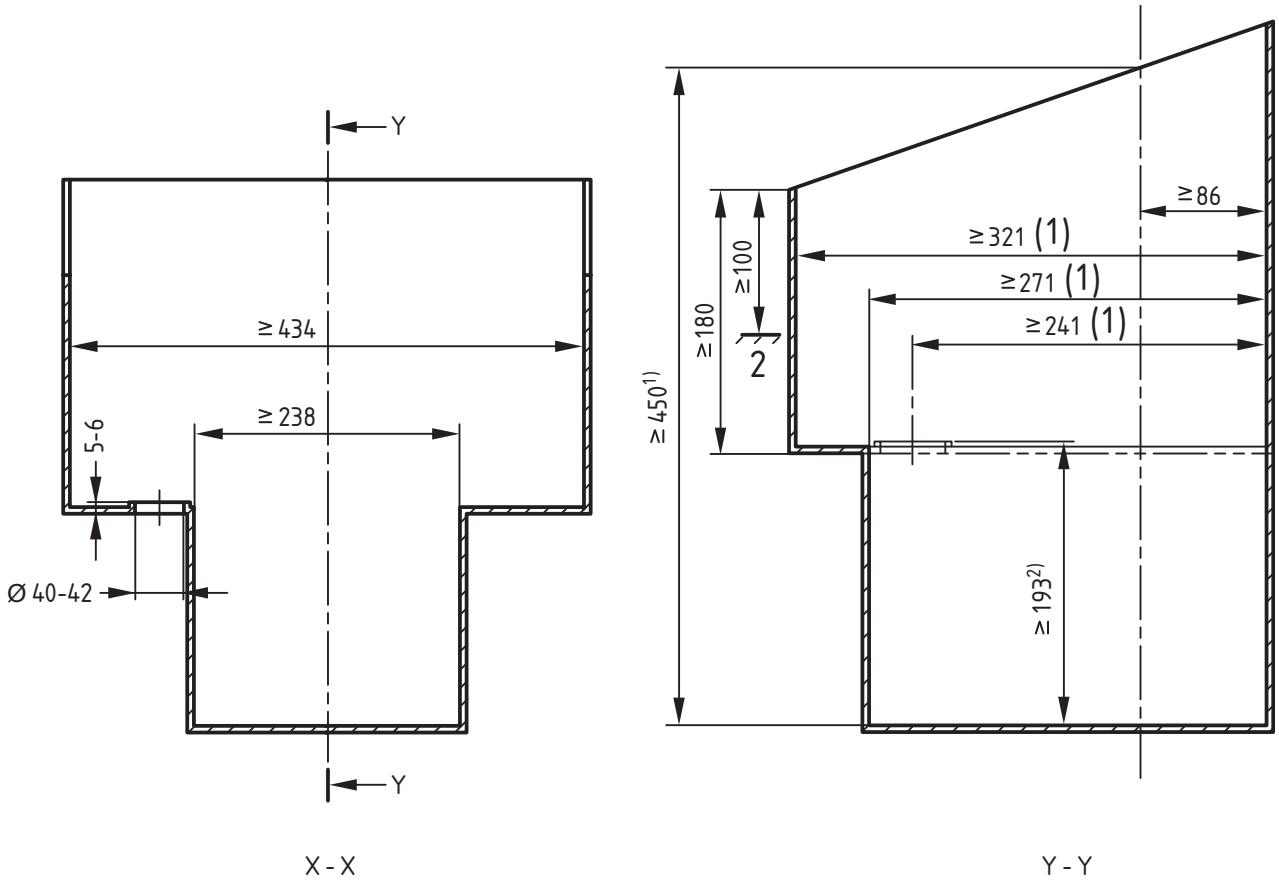
Dimensions in mm



Key

Hole

a) Plan view



b) Section X–X and section Y–Y

Key

1 From int. of A & B

2 Ground level line

NOTE 1 Dimension 450 mm required for clearance of 6 m^3/h steel-cased meters (see BS 6400-1:2006, Figure 3).

NOTE 2 Dimension 193 mm required for clearance of 6 m^3/h steel-cased meters (see BS 6400-1:2006, Figure 4). This dimension is measured from the base of the meter box to the face where the meter box adaptor is fitted.

NOTE 3 Figure not to scale.

4.5 Universal boxes

4.5.1 The meter box shall meet the dimensional requirements of Figure 5, incorporating the following features:

a) a fitted meter bracket conforming to Annex B;

b) at least one thin-edged knockout to allow the service pipe to enter the box and be secured using the meter box adaptor. The area around this knockout shall be reinforced to a thickness of between 5 mm and 6 mm. Where a second knockout is provided, it shall be reinforced to the same thickness and positioned in accordance with Figure 5;

c) a hole to allow the installation pipework to exit the box;

d) fixing holes to secure the box to the wall;

e) a ground level line indicated on the external surface of the box.

4.5.2 The depth between the inside rear face of the meter box and the internal surface of the front face of the box shall be a minimum of 211 mm, between a point 260 mm and 325 mm below the meter bracket.

The depth above this point shall be such as to allow the meter box lid or door to close for a meter with maximum dimensions of 200 mm deep (including the depth of the meter index) × 235 mm wide × 282 mm high (including the meter connections).

Free unobstructed access shall be provided from the top of the box to a point 260 mm below the meter bracket.

NOTE This space is necessary for commissioning, operation and maintenance of the meter, e.g. use of the consumer's gascard. The dimension can be achieved by the use of a removable panel.

4.5.3 The meter box shall incorporate, either by design, or by the provision of purpose provided spacers, a gap of not less than:

a) 5 mm between the rear of the box and fixing area, e.g. brick wall, when fitted as a surface mounted box; or

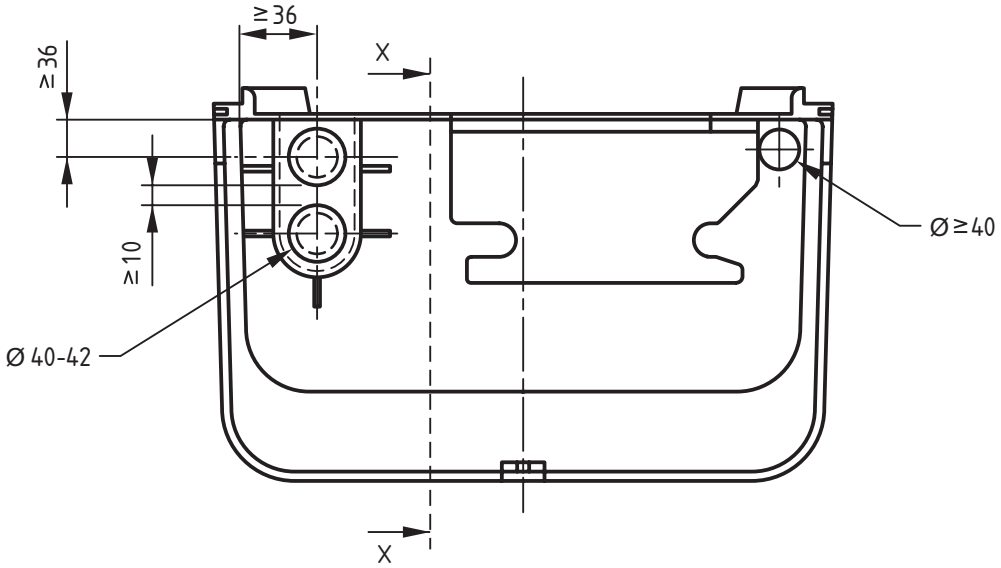
b) 50 mm between the rear of the box and fixing area, when fitted as a semi-concealed box.

4.6 Box extensions

Where a meter box extension is used, it shall be designed to be securely fastened directly to the meter box, and shall conform to **4.1** and Clauses **7** to **11**.

Figure 5 **Universal box dimensions and features**

Dimensions in mm

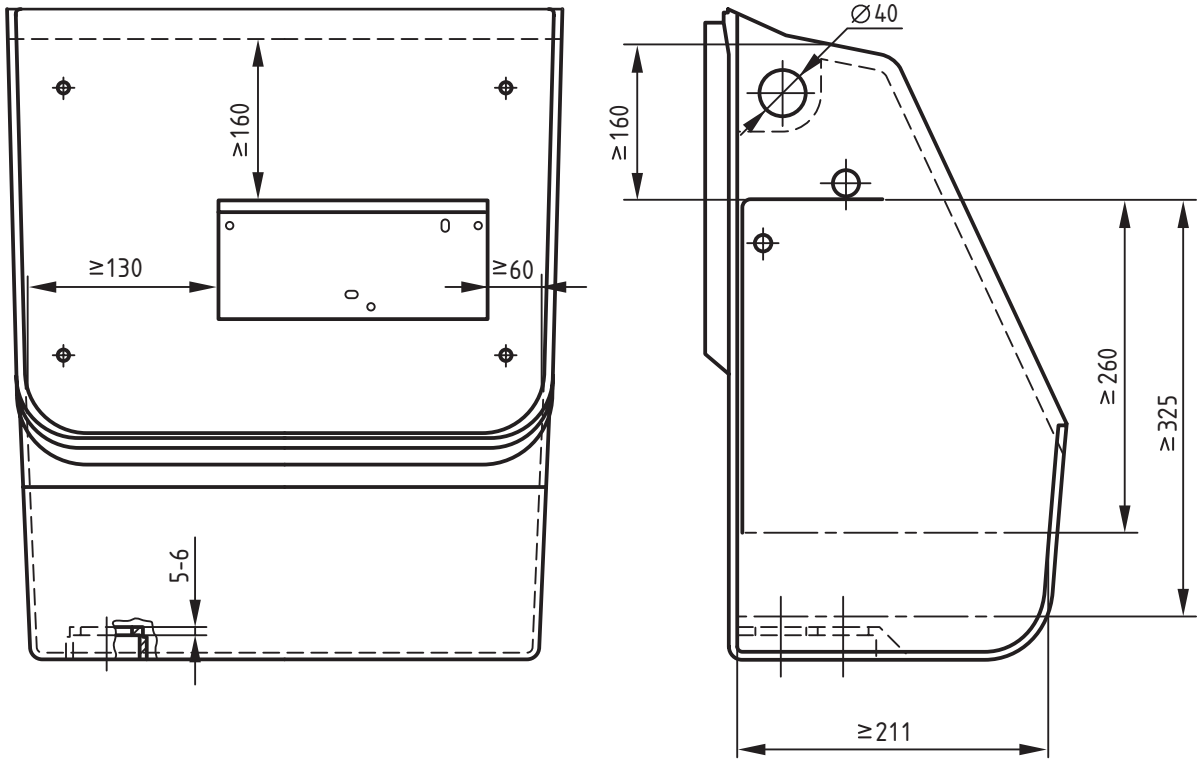


a) Plan view (door removed)

Key

Hole

Thin-edged knockout



b) Meter box viewed from the front (door removed) and section X–X

Key

Hole

NOTE Figure not to scale.

5 Meter bracket (supplied separately)

Where a meter bracket is supplied separately, it shall conform to Annex B.

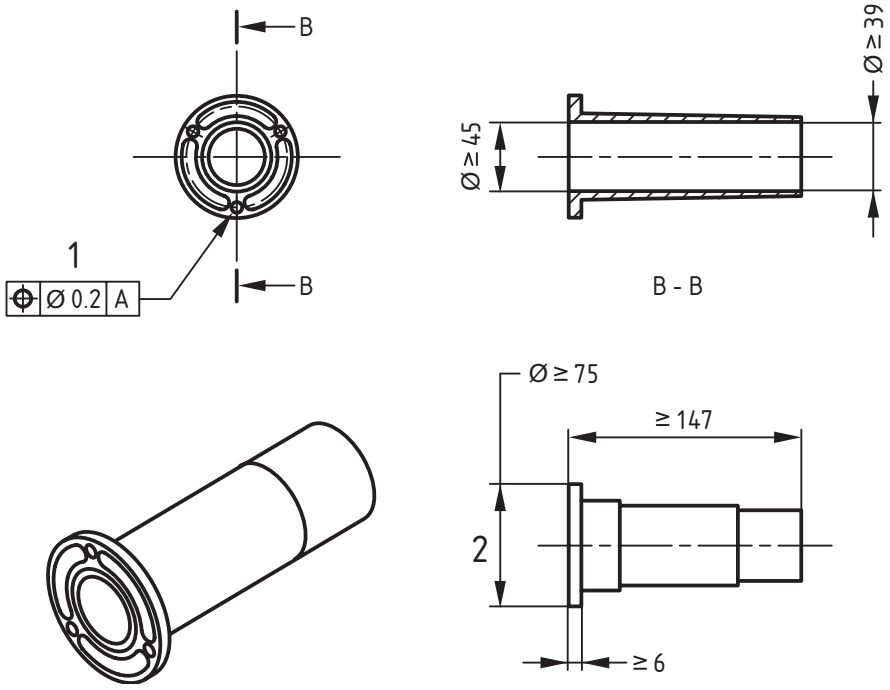
6 Spigot

6.1 The spigot shall be designed such that, when fitted in accordance with the manufacturer's instructions, leaking gas cannot enter the wall cavity or building.

6.2 The spigot shall meet the dimensional requirements of Figure 6 and be supplied complete with fixing screws. The fixing screws for the spigot shall be three M4 × 10 mm long, pan head, thread-forming, zinc-plated and chrome-passivated screws in accordance with BS 7371-12.

Figure 6 **Spigot dimensions**

Dimensions in mm



Key

1 3 holes of Ø4.4 mm, equi-spaced on a 64.4 mm PCD (pitch circle diameter); centre bore 8.0 DP × 2.0 DP (diametric pitch)

2 To suit the manufacturer's meter box

NOTE Figure not to scale.

7 Materials

7.1 Meter box

7.1.1 General

Bodies, lids, doors, panels, covers, spigots and any box extension shall be made from polyester moulding compound, comprising unsaturated polyester resin to BS 3532 and E glass fibre to BS EN 14020, EC 13, of a normal type suitable for polyester resin systems.

7.1.2 Surface spread of flame

When moulded, the polyester moulding compound shall conform to BS 476-7, Class 2 or better.

7.1.3 Testing

The polyester moulding compound shall be submitted for production testing in accordance with Annex C when a new batch of resin is used or every ten working days, whichever is shorter.

NOTE 1 Filler plus other constituents can be used providing sufficient polyester resin and E glass fibre are added by weight, to ensure that the compound meets the performance requirements within Annex C.

NOTE 2 Requirements for the test plaques to be used during production testing are specified in Annex D.

7.2 Latches and studs

Latch arms, latch pins and fastening studs shall be made from acetal copolymer or acetal homopolymer.

7.3 Small metal components (e.g. latch plates, latch washers)

Components shall be made from stainless steel, conforming to BS EN 10088-2:2005, grade 1.4301.

8 Finish

*COMMENTARY ON CLAUSE **8***
The colour of the meter box should be either brown, conforming to BS 4901:1976, 06 C 39, or white. Other colours may be used in agreement with the purchaser.

8.1 Meter box and box extension

The mouldings for bodies, lids, doors, panels, covers, spigots and box extensions shall be:

a) complete and uniform in colour;

b) free of all moulding flash;

c) free from imperfections.

NOTE Examples of what might constitute imperfection(s) are cracks, voids, glass protrusion, shrink or flow lines, resin starvation or enrichment. Clusters or quantities of pinholes that affect the appearance of outside surfaces are considered imperfections.

8.2 Screws

Screws shall be zinc plated and chrome passivated in accordance with BS 7371-12.

9 Marking

9.1 Meter box, excluding spigot

As part of the manufacturing process, the body and all detachable components (e.g. door/lid), excluding the spigot, shall be legibly and permanently marked on internal surfaces with the following information:

a) the manufacturer's name or trademark;

b) the day, month and year of manufacture;

such that when the box is assembled the marking is not externally visible.

9.2 Door

In addition to the marking specified in **9.1**, a capital letter "G" shall be permanently moulded into or embossed (1 mm deep) on the external surface of the lower left hand corner of the meter box door. This marking shall be in font style "Helvetica Medium", not less than 84 point (24 mm) in height.

9.3 Spigot

The spigot shall be legibly and permanently marked on the flange with:

a) the manufacturer's name;

b) the day, month and year of manufacture;

such that the wording is visible once installed.

9.4 Meter bracket

The meter bracket shall be marked in accordance with **B.6**.

10 Notices and labels

10.1 General

10.1.1 All notices and labels shall be in permanent form and conform to BS 4781:1990, Type 1.

10.1.2 Any notices and labels affixed to the meter box shall not obscure the marking specified in Clause **9**.

10.2 Colour

10.2.1 The background colour of the emergency notice shall be Process Yellow U to Pantone 109.

NOTE Pantone is a registered trademark of Pantone, Inc.

10.2.2 The printing on the emergency notice shall be black and colour fast.

10.2.3 The background colour of other notices and labels shall be either white or yellow. Where yellow is prescribed, it shall be Process Yellow U.

10.2.4 The colour of notices and labels and text shall conform to **10.3** to **10.5**.

NOTE Where the colour is not specified, the manufacturer may choose whether to use white or yellow.

10.3 Emergency notices

10.3.1 General

10.3.1.1 An emergency notice conforming to either **10.3.2** or **10.3.3**, dependent on the design of the box, shall be fitted to the meter box in a prominent position, either as a separate notice or as part of the meter box installation instructions. The notice shall inform the consumer:

a) to shut off the supply of gas if there is a gas escape at the premises;

b) to immediately notify the local gas emergency service if gas continues to escape;

c) not to reinstate the supply until remedial action has been taken by a competent person to prevent gas escaping again;

d) of details of the emergency service contact, including the emergency telephone number (see Note 1);

NOTE 1 Different telephone numbers are in use across the UK for gas emergency services. The notice should include:

a) 0800 111 999 for England, Wales and Scotland; or

b) 0800 002 001 for Northern Ireland; or

c) the telephone number for a specific LPG supplier.

e) of the date the notice was first displayed.

NOTE 2 Regulation 15(1) of the Gas Safety (Installation and Use) Regulations 1998 [1] requires that a suitably worded notice in permanent form is prominently displayed on or near the meter indicating the procedure to be followed in the event of an escape of gas.

10.3.1.2 The notice shall have black text and a yellow background conforming to **10.2**.

10.3.2 Emergency notice

The emergency notice (see Figure 7) shall be a minimum size of 105 mm × 148 mm. In addition to the emergency information specified in **10.3.1**, the notice shall have a white matt "write-on" area for inserting the date that the notice was first displayed with a ballpoint pen.

Figure 7 **Typical emergency notice**

10.3.3 Combined emergency notice

The combined emergency notice (see Figure 8) shall be a minimum size of 45 mm × 160 mm. The notice shall have a black border and, in addition to the emergency information specified in **10.3.1**, it shall have white matt "write-on" areas for inserting text with a ball point pen. The write-on areas within the label shall include:

a) a box separated into 14 squares for inserting the alpha-numeric meter serial number string;

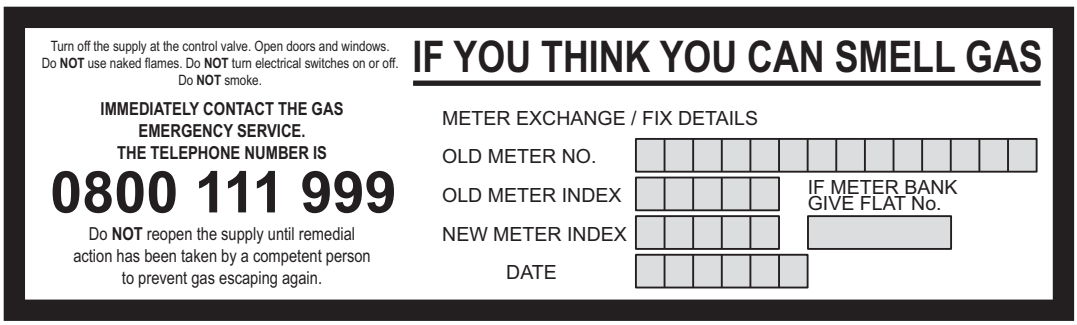
b) two boxes separated into 5 squares for inserting the old and new meter index readings;

c) a box separated into 6 squares for inserting the date the notice was first displayed;

d) a box for inserting the flat number.

NOTE This notice is typically used on semi-concealed boxes where strengthening ribs have restricted the space available.

Figure 8 **Typical combined emergency notice**



10.4 General instructions label

10.4.1 A general instructions label with a minimum size of 250 mm × 180 mm shall be fitted on the internal rear surface of the meter box body or the internal face of the door, providing information on:

a) how to install the meter box;

b) where installation pipework can exit the box;

c) the method of sealing the spigot to the back of the box.

NOTE Typical labels are shown in Annex E.

10.4.2 As part of the label the following statement shall be clearly displayed: "It is a legal requirement that only a 'competent person' shall carry out work in relation to a gas fitting. Employers have a responsibility to ensure that all employees undertaking work on any gas fitting are competent."

10.4.3 The label shall have black text and a yellow background conforming to **10.2**.

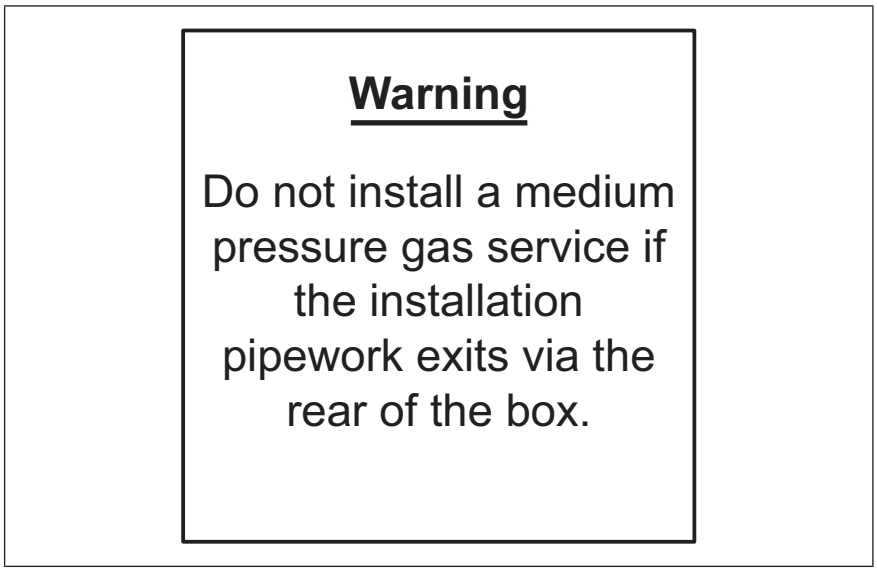
10.4.4 Where the meter box design allows installation pipework to exit from the rear of the box body, the following additional meter labels shall be fitted:

a) a spigot knockout warning label (shown in Figure 9) with red text and a white background, approximately 40 mm in diameter overlaying the internal surface of the spigot "knockout" section of the box body;

Figure 9 **Spigot knockout warning label (built-in boxes)**

b) a medium pressure service warning label (shown in Figure 10) with red printing on white background, approximately 40 mm square, located on the rear internal surface of the box adjacent to the termination point of the ECV.

Figure 10 **Medium pressure service warning label**



10.5 Manufacturer's label

10.5.1 Meter box

A manufacturer's label shall be affixed or moulded inside the meter box in a location readable after meter installation. The label shall state:

a) the number and year of this British Standard, i.e. BS 8499:2009[1)]

b) the manufacturer's name, full postal address and telephone number;

c) the box model number;

d) the following statement: "For meters installed to BS 6400, this box is deemed to be a Zone 2 hazardous area as defined by BS EN 60079-10, and is suitable for 2nd and 3rd family gas installations with a maximum operating pressure not exceeding 2 bar."

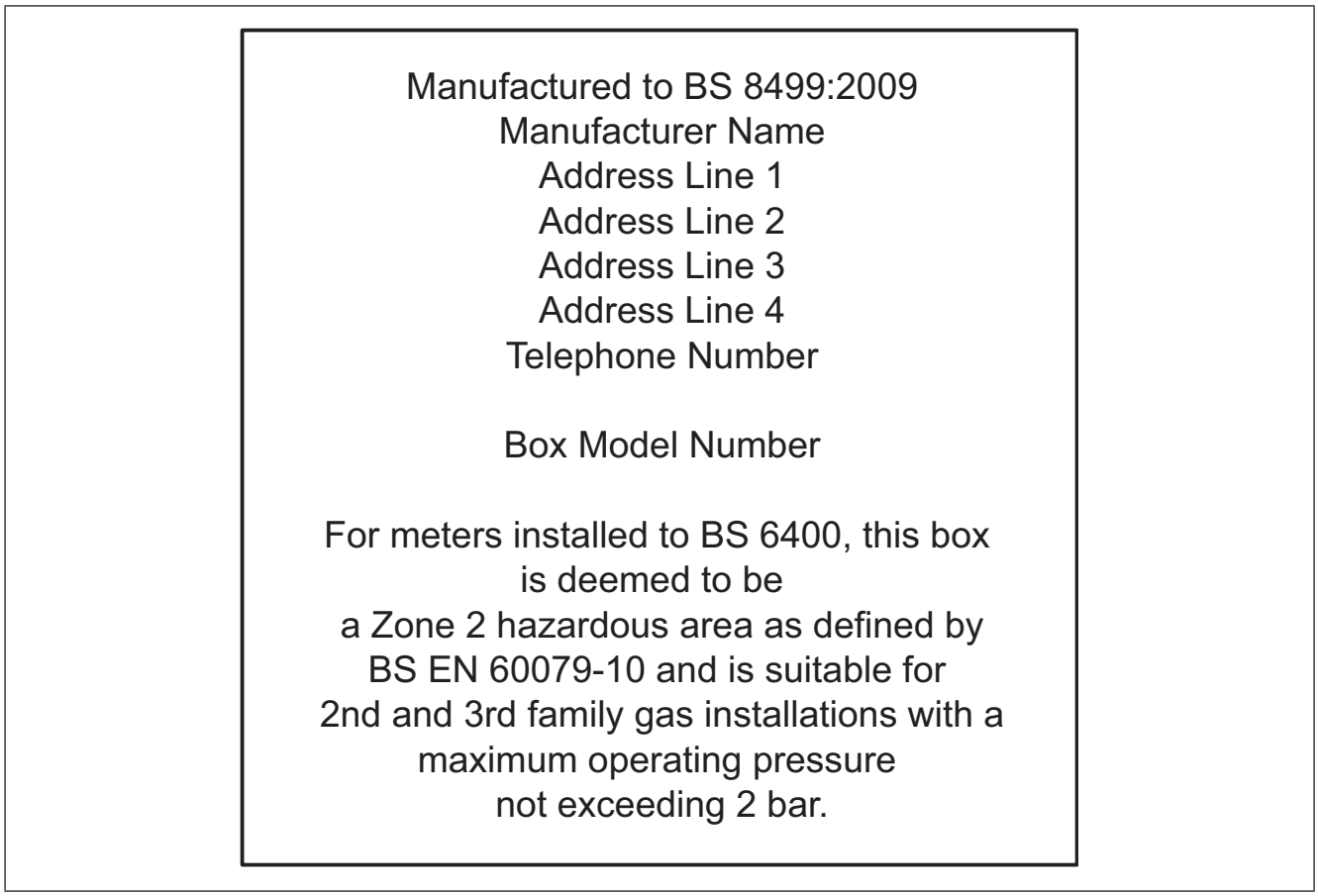
NOTE A typical manufacturer's label is shown in Figure 11.

10.5.2 Meter box extension

A label conforming to **10.5.1** shall be affixed inside the meter box extension in a location readable after meter installation.

1) Marking BS 8499:2009 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.

Figure 11 **Typical manufacturer's label**



11 Type testing and performance requirements

NOTE 1 Production testing on the polyester moulding compound used to manufacture the meter box is specified in Annex C.

*NOTE 2 The methods of test for hinge strength (see **11.4**) and door flatness (see **11.5**) are given in Annex F and Annex G respectively. Cutting plans for test samples are shown in Annex H (see **D.1** for guidance).*

11.1 Flexural properties

Ten specimens from a box sample conforming to **D.1** shall be tested in accordance with BS EN ISO 178, using V (relative rate of movement of the loading nose and supports) equal to (5 ±1) mm per minute. Each flexural property shall be not less than that specified in Table 1, as appropriate.

Table 1 **Flexural properties of box samples**

Property	Built-in/surface mounted boxes	Semi-concealed/ universal boxes
Flexural stress at rupture	70 MPa	80 MPa
Flexural modulus of elasticity	7.5 GPa	9.0 GPa

NOTE The value specified for each property refers to the arithmetic mean value obtained from the appropriate 10 test specimens cut from the box.

11.2 Charpy impact strength

Ten specimens from a box sample conforming to **D.1** shall be tested in accordance with BS EN ISO 179-1:2001, Method ISO 179/1eU (specimen type 1, un-notched). The Charpy impact strength shall be not less than that specified in Table 2, as appropriate.

Table 2 **Charpy impact strength of box samples**

Property	Built-in/surface mounted boxes	Semi-concealed/ universal boxes
Charpy impact strength	12 kJ/m^2	24 kJ/m^2

NOTE The value specified refers to the arithmetic mean value obtained from the appropriate 10 test specimens cut from the box.

11.3 Density

Three specimens from a box sample conforming to **D.1** shall be tested in accordance with BS EN ISO 1183-1:2004, Method A. The density shall be (1.9 ±0.1) g/cm^3.

NOTE The value specified refers to the arithmetic mean value obtained from the appropriate three test specimens cut from the box.

11.4 Hinge strength

11.4.1 Built-in and surface mounted boxes

Hinge strength shall be tested in accordance with **F.1**. The average maximum force for each hinge section shall be not less than that given in Table 3.

Table 3 **Hinge strength**

Hinge section	Average peak force for built-in box	Average peak force for surface mounted box
Top	500 N	400 N
Bottom	350 N	250 N

11.4.2 Semi-concealed and universal boxes

The box assembly shall be tested in accordance with **F.2**. There shall be no catastrophic failure in the area of the hinge pinhole on five of the six samples.

*NOTE The test specified in **F.2** applies to the moulding only. Failure of the hinge fastenings at or before the above load may be disregarded provided that no breakage occurs on the lid or body.*

11.5 Door flatness of built-in and surface mounted boxes

The door flatness shall be tested in accordance with Annex G. The door shall not be distorted to such an extent that any gap between the door periphery and the surface table is more than 31 mm or less than 29 mm at any point.

11.6 Water absorption of semi-concealed and universal boxes

Water absorption shall be tested in accordance with BS EN ISO 62:2008, Clause **6**, Method 1. The percentage change in mass shall be not more than 0.25% after 24 hours.

Annex A (normative)

Meter box key

A.1 The meter box key shall meet the dimensional requirements of Figure A.1 and shall be manufactured from polypropylene.

A.2 The key shall be yellow in colour in accordance with BS 5378-2, e.g. 08E51, BS 4901 or ICE55.

A.3 The key shall be marked on Side 1 with the lettering "GAS METER BOX". The key shall be marked on Side 2 with the lettering "SMELL GAS?", followed, as a minimum, by emergency contact information.

NOTE The lettering on Side 2 should include the emergency phone contact number. Examples of suitable lettering for Side 2 include the following (see also Figure A.1):

a) "SMELL GAS? CALL FREE 0800 111 999" (England, Wales and Scotland);

b) "SMELL GAS? CALL FREE 0800 002 001" (Northern Ireland);

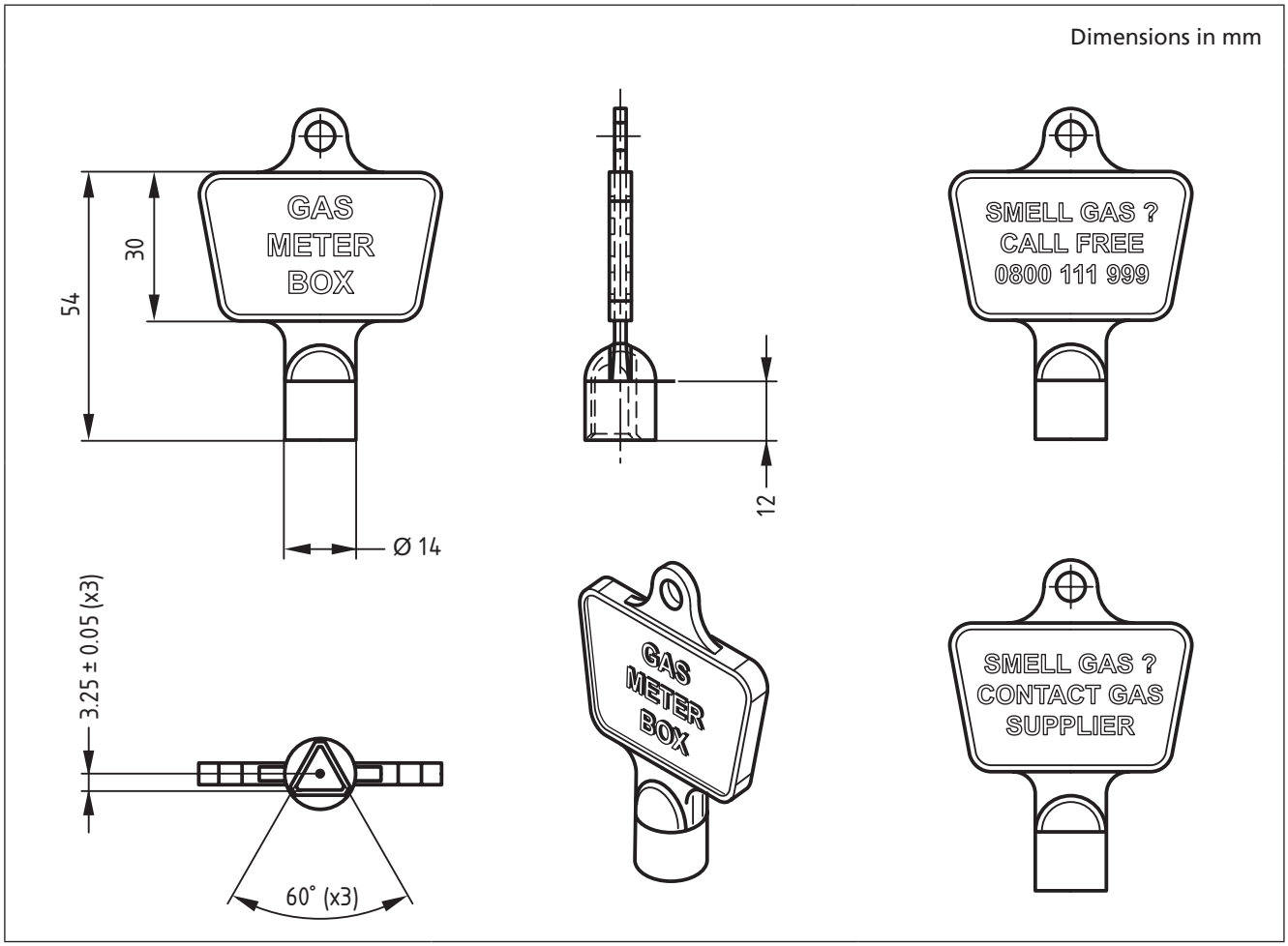
c) "SMELL GAS? CONTACT GAS SUPPLIER" (LPG only).

A.4 The lettering on both sides of the key shall be raised level with the rim. The lettering shall be in the font "Futura Display":

a) sized at 18 point on Side 1 of the key;

b) sized at a minimum of 14 point on Side 2 of the key.

Figure A.1 **Meter box key**



Annex B (normative) Meter bracket

B.1 General

The bracket shall be capable of receiving a meter with 1" BS 746 connections at (152.4 ±0.2) mm centres.

B.2 Dimensions and features

The bracket shall meet the dimensional requirements of Figure B.1.

When supplied, the bracket shear bolts and security washers shall meet the dimensional requirements of Figure B.2 and Figure B.3 respectively.

NOTE The purchaser will need to specify whether the bracket shear bolts and security washers are to be supplied with the bracket.

All threads shall conform to BS 3643-1 and BS 3643-2.

B.3 Materials

The bracket shall be made from 2.0 mm thick steel conforming to BS EN 10130:2006, steel grade DC01, steel number 1.0330, or to BS EN 10111:2008, steel grade DD11, steel number 1.0332, and conforming to BS EN 10051 and BS EN 10131, as appropriate.

When supplied, the shear bolts shall be made from hot-rolled and cold-drawn mild steel conforming to BS EN 10087:1999, steel grade 11SMn30, steel number 1.0715. The steel shall be lead bearing and free cutting.

When tested in accordance with **B.7.5**, the hexagonal head of the bolt shall shear.

NOTE The head end diameter of 2.4 mm to 2.6 mm (as shown in Figure B.2) is based on a typical tensile strength for steel to BS EN 10087:1999, steel grade 11SMn30, steel number 1.0715. This diameter might require adjustment (depending on tensile strength) in order for the bolt to conform.

When supplied, the security washers shall be made from 1.0 mm thick galvanized mild steel sheet to BS EN 10346:2009, Fe PO2 G Z275.

B.4 Surface imperfections

When subjected to a visual inspection, the bracket shall be free from burrs and sharp edges, and stress cracks, which might cause component failure.

Surface imperfections caused by machining operations or surface treatments shall be kept to a practical minimum.

B.5 Surface finish (zinc plating and chrome passivation)

B.5.1 General

The surfaces of the bracket shall be clean and free from dirt, grease and rust before plating.

The bracket shall be zinc plated and then chrome passivated in accordance with **B.5.2** and **B.5.3**.

Screws and shear bolts shall be zinc plated and chrome passivated in accordance with BS 7371-12, or BS EN ISO 4042:2000, Grade Zn 5.

The plated bracket shall be free from clearly visible plating defects, such as blisters, pits, roughness, cracks or un-plated areas, and shall not be stained or discoloured.

B.5.2 Zinc plating of meter bracket

The zinc coating shall not contain mercury.

When tested in accordance with **B.7.1**, the thickness of the zinc coating shall be not less than 8 µm.

When tested in accordance with **B.7.2**, the zinc coating shall continue to adhere to the bracket.

NOTE Poor adhesion will be indicated by the appearance of a loose blister that grows as rubbing is continued. If the quality of the zinc deposit is poor, the blister might crack and cause the coating to peel away from the bracket.

B.5.3 Chrome passivation of meter bracket

The chrome passivation shall be in accordance with BS 7371-12.

NOTE 1 Passivation is carried out so as to increase the protective value of zinc plating.

The chromate conversion coating shall be trivalent, rather than hexavalent, and conform to BS EN ISO 2081:2008, Table 2, for the corresponding chromate conversion code.

The chromate film shall be free from bare patches.

When tested in accordance with **B.7.3**, the chromate film shall continue to adhere to the bracket.

NOTE 2 The appearance of anything more than the faintest stain on the paper or any indication that the treated surface has been rubbed through means that the film is considered non-adherent.

When tested in accordance with **B.7.4** for a minimum of 72 h, the chromate film shall not show any formation of white corrosion products.

B.6 Marking

The bracket shall be legibly and permanently marked with the following information:

a) the manufacturer's name or trade mark;

b) the date of manufacture, which can be encoded;

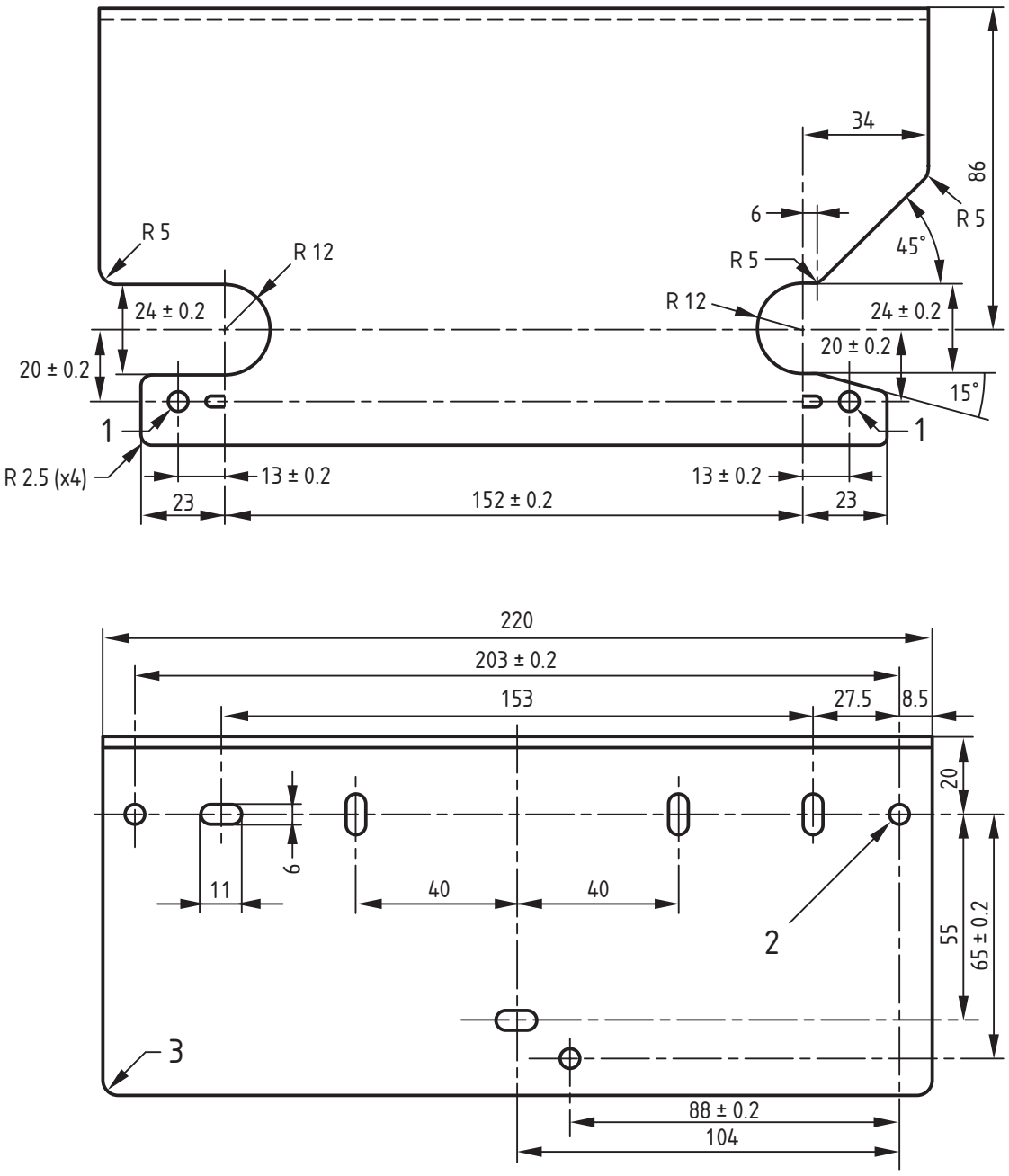
c) the bracket size 3/4 × 3/4.

The bracket shall be marked prior to being zinc plated.

Markings shall be made in such a manner that they do not cause distortion of the brackets and they are not affected by the application of the coating.

Figure B.1 **Meter bracket dimensions**

Dimensions in mm



Key

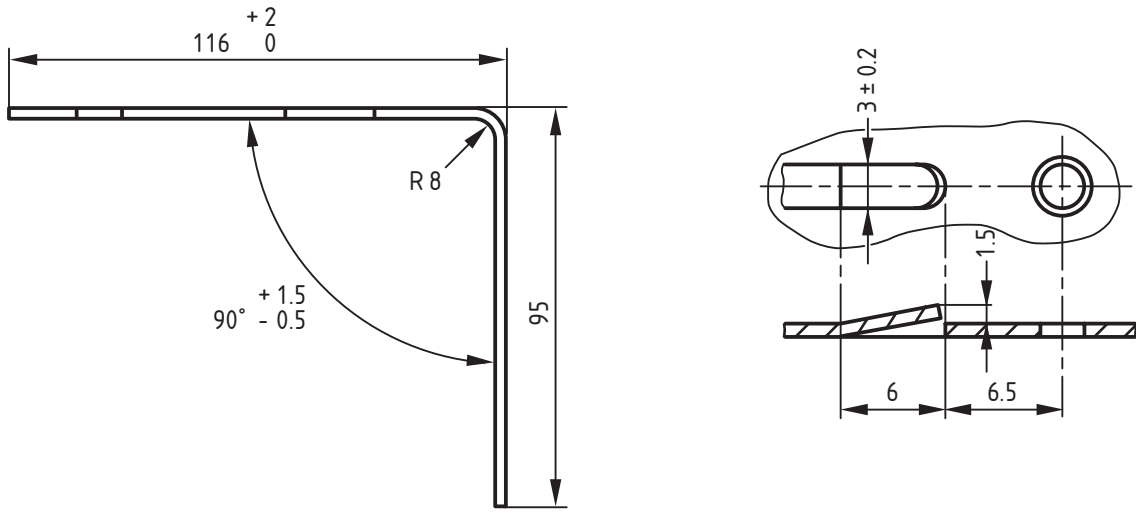
1 2 holes M5

2 3 holes of Ø(5 ±0.1) mm

3 4.0 mm radius or chamfer

NOTE Figure not to scale.

Figure B.1 **Meter bracket dimensions** *(continued)*



Key

1 2 holes M5

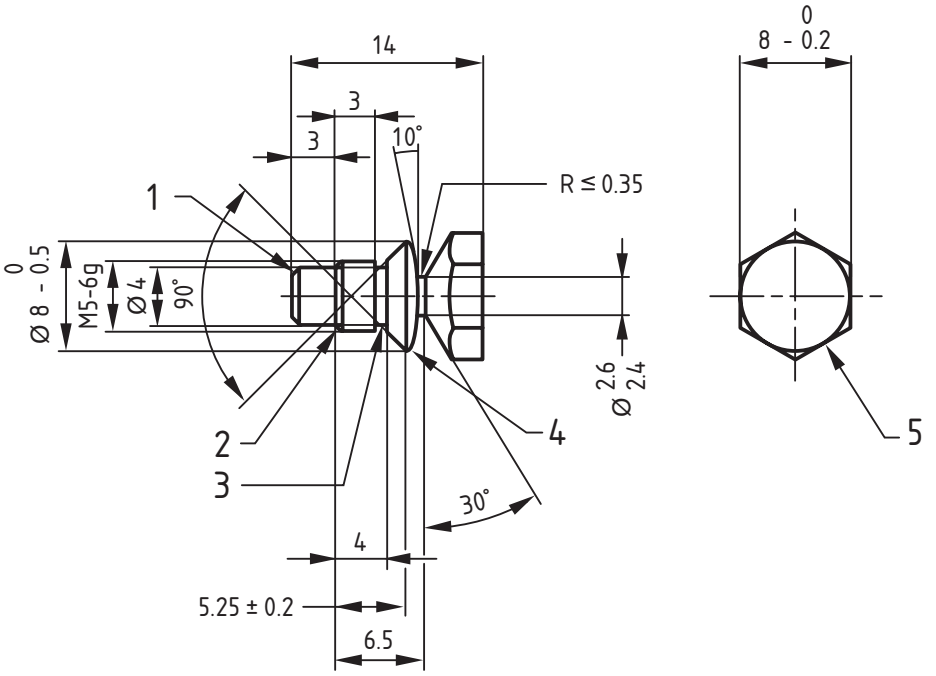
2 3 holes of Ø(5 ±0.1) mm

3 4.0 mm radius or chamfer

NOTE Figure not to scale.

Figure B.2 **Meter bracket shear bolt dimensions**

Dimensions in mm



Key

1 Chamfer 0.5 mm × 45°

2 Chamfer 45° to root of thread

3 Undercut to root of thread

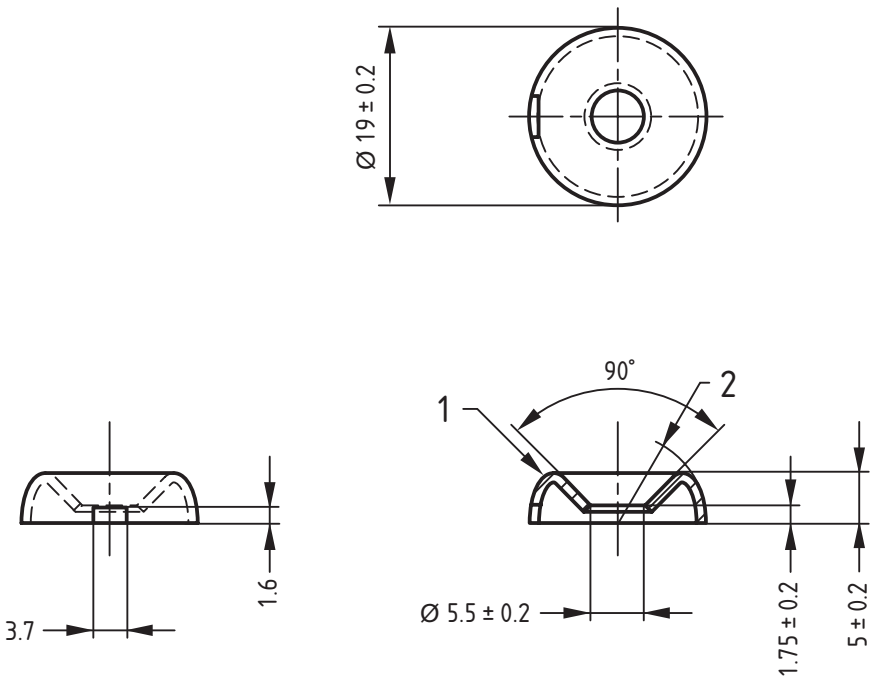
4 Blend radius

5 Chamfer 0.5 mm × 30°

NOTE Figure not to scale.

Figure B.3 **Meter bracket security washer dimensions**

Dimensions in mm



Key

1 Blend radius

2 SPH R9.5

NOTE Figure not to scale.

B.7 Type tests on the surface finish of bracket

B.7.1 Method of test for determining thickness of zinc coating

B.7.1.1 Sample

B.7.1.1.1 *Zinc-plated and chrome-passivated bracket.*

B.7.1.2 Preparation

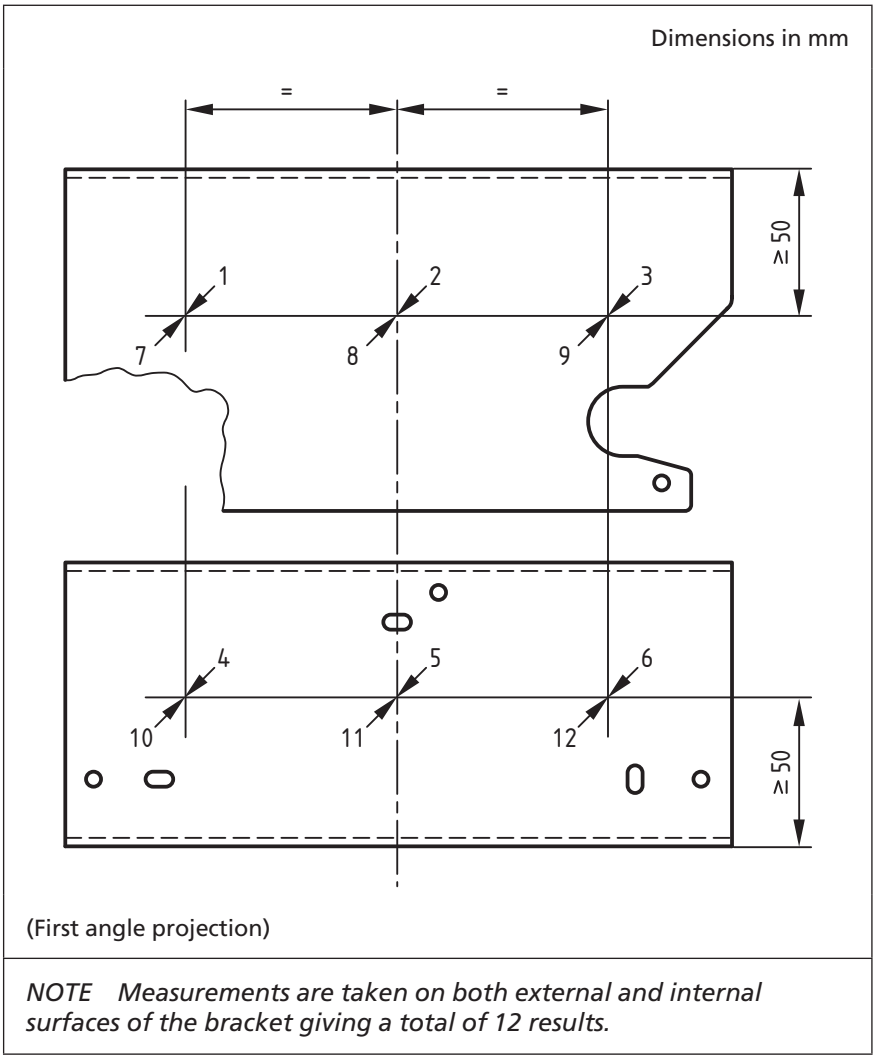
Remove any grease from the surface to be tested.

NOTE Grease may be removed effectively by rubbing the surface with a damp cloth on which a little light magnesium oxide has been sprinkled, or by treatment with an organic solvent, e.g. isopropyl alcohol. The bracket should then be rinsed with water and dried with a grease-free cloth or absorbent paper, or rinsed with acetone and dried in the air.

B.7.1.3 Procedure

Test the zinc coating at the location points shown in Figure B.4, using a suitable coating thickness gauge.

Figure B.4 **Location points for measurement of thickness of zinc coatings on meter brackets**



NOTE Measurements are taken on both external and internal surfaces of the bracket giving a total of 12 results.

B.7.2 Method of test for determining the adhesion of zinc coating

*NOTE This test is based on BS EN ISO 2819:1995, **2.1**.*

B.7.2.1 Sample

B.7.2.1.1 *Area of the zinc-plated and chrome-passivated bracket,* not more than 6 cm^2.

B.7.2.2 Preparation

Remove the chromate file from the sample using a mild abrasive.

NOTE A suitable abrasive is a paste of levigated alumina.

B.7.2.3 Procedure

Rub the sample with a smooth implement for about 15 s, applying sufficient pressure to burnish the zinc coating at every stroke, but not so great as to cut the coating.

NOTE A suitable implement is a steel rod 6 mm in diameter with a smooth hemispherical end.

B.7.3 Method of test for determining the adhesion of chromate film

B.7.3.1 Sample

B.7.3.1.1 *Area of the zinc-plated and chrome-passivated bracket*, selected at the discretion of the tester.

B.7.3.2 Preparation

Allow the chromate film to harden for 24 h before testing.

B.7.3.3 Procedure

Rub the sample firmly with a fragment of white paper on the tip of the finger for 5 s.

B.7.4 Method of test for determining the chromate film corrosion resistance

B.7.4.1 Sample

B.7.4.1.1 *Sample of the zinc-plated and chrome-passivated bracket*.

NOTE The edges of the test piece should be excluded from the test area.

B.7.4.2 Preparation

Allow the chromate film to harden for 24 h before testing.

B.7.4.3 Procedure

Subject the sample to the neutral salt spray test specified in BS EN ISO 9227.

B.7.5 Type test on meter bracket shear bolt

B.7.5.1 Sample

B.7.5.1.1 *Meter bracket shear bolt*.

B.7.5.2 Procedure

Hold the thread end of the bolt securely while gradually applying a clockwise torque of (2.0 $\pm$0.5) N·m to the hexagonal head end of the bolt.

Annex C (normative) Polyester moulding compound production testing

C.1 Flexural properties

Ten specimens from a test plaque conforming to **D.2** shall be tested in accordance with BS EN ISO 178, using V (relative rate of movement of the loading nose and supports) equal to (5 ±1) mm per minute. The flexural property shall be not less than that specified in Table C.1, as appropriate.

Table C.1 **Flexural properties of test plaques**

Property	Built-in/surface mounted boxes	Semi-concealed/ universal boxes
Flexural stress at rupture	80 MPa	90 MPa
Flexural modulus of elasticity	7.5 GPa	9.0 GPa

NOTE The value specified for each property refers to the arithmetic mean value obtained from the appropriate 10 test specimens cut from the test plaque.

C.2 Charpy impact strength

Ten specimens from a test plaque conforming to **D.2** shall be tested in accordance with BS EN ISO 179-1:2001, Method ISO 179/1eU (specimen type 1, un-notched). The Charpy impact strength shall be not less than that specified in Table C.2, as appropriate.

Table C.2 **Charpy impact strength of test plaques**

Property	Built-in/surface mounted boxes	Semi-concealed/ universal boxes
Charpy impact strength	12 kJ/m^2	30 kJ/m^2

NOTE The value specified refers to the arithmetic mean value obtained from the appropriate 10 test specimens cut from the test plaque.

C.3 Mould shrinkage

Mould shrinkage shall be determined in accordance with BS 2782-6:Method 640A:1979. The shrinkage shall be within the range of:

a) 0.05% to 0.15% for built-in and surface mounted boxes;

b) 0.05% to 0.30% for semi-concealed and universal boxes.

C.4 Flammability by oxygen index

Oxygen index shall be tested in accordance with BS EN ISO 4589-2. The oxygen index shall be not less than 26%.

NOTE The flame igniter fuel may be either butane or propane, without premixed air.

Annex D (normative) Selection of meter box samples and test plaques for testing

D.1 Meter box and box extension samples

*NOTE Types tests on meter box and box extension samples are specified in Clause **11**.*

D.1.1 When testing flexural properties (**11.1**), Charpy impact strength (**11.2**) and density (**11.3**) on box samples, samples shall be selected from each of the flat areas of the meter box and cut from the components shown in Annex H.

D.1.2 When cutting the sample, features such as ejector pads, markings and changes in section shall be avoided, wherever possible.

D.1.3 Actual test specimens shall be cut as shown in Figure D.1.

D.2 Test plaques

NOTE Production tests on test plaques are specified in Annex C.

D.2.1 Test plaques shall be manufactured from the materials specified in **7.1** and prepared in accordance with BS EN ISO 295:2004, Clause **8**.

D.2.2 Actual test specimens shall be cut as shown in Figure D.1 and the dimensions of the test specimens shall be as follows:

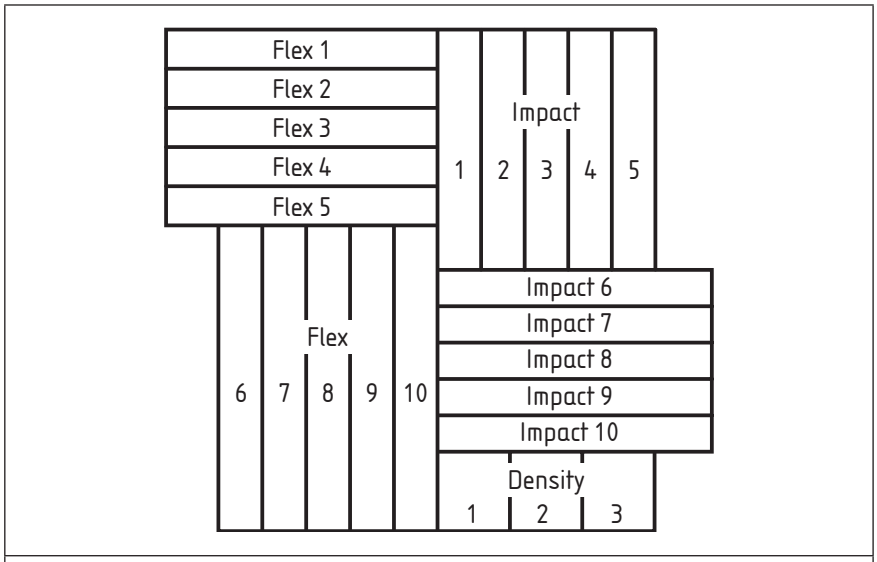
a) each "Flex" – [$(80\ ^{+2}_{-1})$ mm × (15 ±0.5) mm];

b) each "Impact" – [(80 ±2) mm × (10 ±0.5) mm].

NOTE 1 "Density" is not required for plaque testing. If density is used, dimensions should be [(25 ±1) mm × (25 ±1) mm].

*NOTE 2 When testing flexural properties (**C.1**) and Charpy impact strength (**C.2**) on test plaques, a suitable size for the test plaques is [(250 ±5) mm × (250 ±5) mm × (3 ±0.2) mm].*

Figure D.1 **Basic cutting plan**



NOTE Figure not to scale.

Annex E (informative) General instructions labels

Figure E.1, Figure E.2, Figure E.3 and Figure E.4 give examples of the general instructions label specified in **10.4**. Each label provides information on installing both the meter box and the meter installation, including references to relevant British Standards and the Institution of Gas Engineers and Managers (IGEM) publication IGE/UP/1B [2].

Figure E.1 **Built-in box general instructions (typical)**

It is a legal requirement that only a competent person shall carry out any work in relation to a gas fitting. Employers have a responsibility to ensure that all employees undertaking work on any gas fitting are competent.

INSTALLING THE BOX

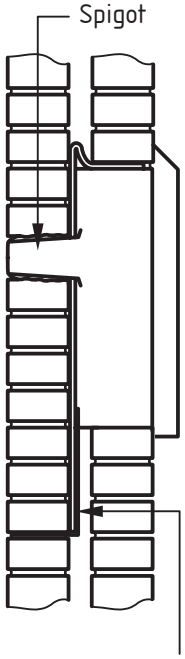
Ensure that the meter box is not damaged.

Build the box into the wall in the position specified, ensuring it does not bridge the damp-proof course.

The base and sides of the box shall be fully bedded into the mortar to hold it into the wall with the sides of the architrave touching the outer leaf of the brickwork or any framework.

A 0.1 mm thick polythene sheet or similar, at least 700 mm wide shall be fitted as a damp-proof course above and behind the box as shown. Alternatively, a suitable cavity tray may be used.

Where a spigot is fitted, build the inner wall around it, filling any space between the spigot and the wall with mortar. (The spigot will be cut flush with the inner finish of the wall by the pipework installer).



CUSTOMER

This space is reserved for your gas meter.

When you require a meter to be installed, please telephone your gas supplier.

PLEASE TRY TO GIVE AT LEAST 7 DAYS' NOTICE.

INSTALLATION PIPEWORK

All work shall be carried out in accordance with the Gas Safety (Installation and Use) Regulations.

The installation pipework shall leave the box through either a knockout hole on the bottom right, or via the purpose-designed spigot in the back.

WARNING

The rear 'knockout' SHALL NOT be used when the meter installation is supplied with gas at **medium pressure**.

In such cases, the installation pipework shall exit the box through one of the alternative exit points provided before entering the property.

Where the installation is routed via the spigot, the gap around the pipe shall be sealed with a flexible sealing compound in accordance with BS 6891 or BS 5482-1.

Where the installation pipework leaves the box at the base, care shall be taken to allow sufficient space to install the meter.

Where the pipework enters the property, the pipe shall pass through the wall using a sleeve (sealed to the wall and pipe) in accordance with BS 6891 or BS 5482-1.

Where the meter is installed remote from the dwelling it serves, an emergency control valve shall be installed at a point where the installation pipework enters the dwelling, in accordance with the Gas Safety (Installation and Use) Regulations.

Where soldered joints are used, care shall be taken to avoid heat damage to the box.

Pipework external to the box and building shall, wherever necessary, be suitably protected against corrosion.

The complete installation shall be tested for gas tightness in accordance with IGE/UP/1B or BS 5482-1.

UNLESS INSTRUCTIONS ARE COMPLIED WITH, THE GAS METER SHALL NOT BE INSTALLED.

GAS SHALL NOT BE MADE AVAILABLE TO APPLIANCES UNLESS THEY HAVE BEEN FULLY COMMISSIONED.

PROTECTIVE EQUIPOTENTIAL BONDING

Protective equipotential bonding shall be made in accordance with BS 7671.

IF YOU THINK YOU CAN SMELL GAS

Turn off the supply at the control valve. Open doors and windows. Do NOT use naked flames. Do NOT turn electrical switches on or off.
Do NOT smoke.

IMMEDIATELY CONTACT THE GAS EMERGENCY SERVICE.

THE TELEPHONE NUMBER IS

0800 111 999

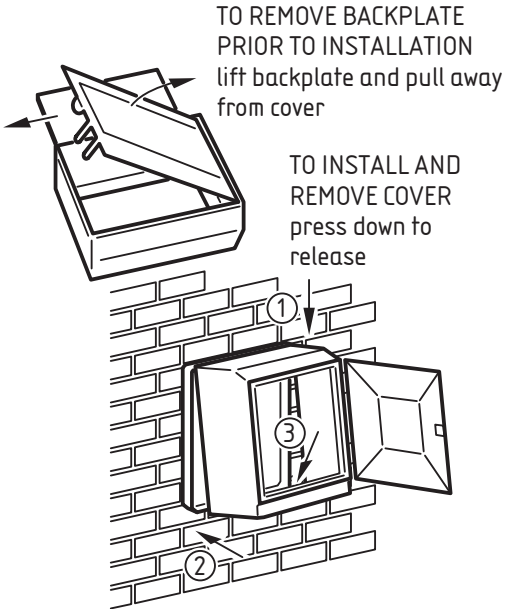
Do NOT reopen the supply until remedial action has been taken by a competent person to prevent gas escaping again.

IMPORTANT

HOLES SHALL NOT BE MADE IN THE METER BOX EITHER DURING OR AFTER INSTALLATION OTHER THAN IN THE PRESCRIBED POSITION.

Figure E.2 **Surface mounted box general instructions (typical)**

It is a legal requirement that only a competent person shall carry out any work in relation to a gas fitting. Employers have a responsibility to ensure that all employees undertaking work on any gas fitting are competent.



INSTALLING THE BOX

Ensure that the meter box is not damaged.

Fix the box in the position specified.

The position shall be in an accessible location so that the box does not cause an obstruction or leave it exposed to damage from vehicles etc.

It should be located as close as practicable to the point where the dwelling pipework is required to enter the building.

Position the box so that it is level, with its base preferably between 500 mm and 1 500 mm from the finished level. Ensure the box does not bridge the damp-proof course.

Using the backplate as a template, mark the fixing holes on the wall, ensuring that the box is level. Drill and plug the wall.

Secure the box to the wall using suitable screws, washers and plugs (not supplied).

CUSTOMER

This space is reserved for your gas meter.

When you require a meter to be installed, please telephone your gas supplier.

PLEASE TRY TO GIVE AT LEAST 7 DAYS' NOTICE.

INSTALLATION PIPEWORK

All work shall be carried out in accordance with the Gas Safety (Installation and Use) Regulations.

The installation pipework shall leave the box via the cut-out at the bottom right-hand side.

When installing the installation pipework through the box at the base, care shall be taken to allow sufficient space to install the meter.

Where the pipework enters the property, the pipe shall pass through the wall using a sleeve (sealed to the wall and pipe) in accordance with BS 6891 or BS 5482-1.

Where the meter is installed remote from the dwelling it serves, an emergency control valve shall be installed at a point where the installation pipework enters the dwelling, in accordance with the Gas Safety (Installation and Use) Regulations.

Where soldered joints are used, care shall be taken to avoid heat damage to the box.

Pipework external to the box and building shall, wherever necessary, be suitably protected against corrosion.

The complete installation shall be tested for gas tightness in accordance with IGE/UP/1B or BS 5482-1.

UNLESS INSTRUCTIONS ARE COMPLIED WITH, THE GAS METER SHALL NOT BE INSTALLED.

GAS SHALL NOT BE MADE AVAILABLE TO APPLIANCES UNLESS THEY HAVE BEEN FULLY COMMISSIONED.

PROTECTIVE EQUIPOTENTIAL BONDING

Protective equipotential bonding shall be made in accordance with BS 7671.

IF YOU THINK YOU CAN SMELL GAS

Turn off the supply at the control valve. Open doors and windows. Do NOT use naked flames. Do NOT turn electrical switches on or off.
Do NOT smoke.

IMMEDIATELY CONTACT THE GAS EMERGENCY SERVICE.

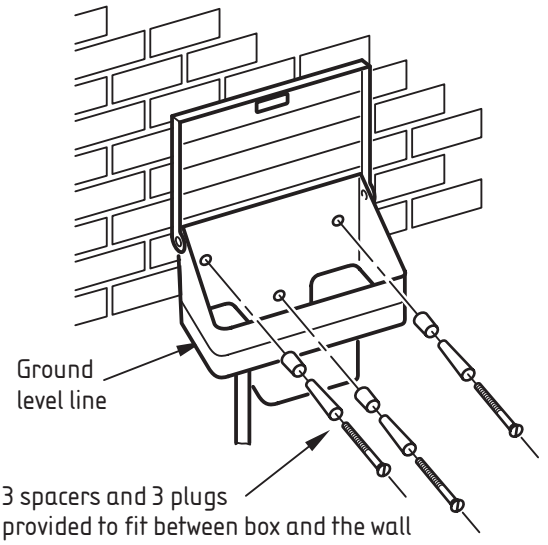
THE TELEPHONE NUMBER IS

0800 111 999

Do NOT reopen the supply until remedial action has been taken by a competent person to prevent gas escaping again.

Figure E.3 **Semi-concealed box general instructions (typical)**

It is a legal requirement that only a competent person shall carry out any work in relation to a gas fitting. Employers have a responsibility to ensure that all employees undertaking work on any gas fitting are competent.



INSTALLING THE BOX

Ensure that the meter box is not damaged.

Fix the box in the position specified.

The position shall be in an accessible location so that the box does not cause an obstruction or leave it exposed to damage from vehicles etc.

It should be located as close as practicable to the point where the dwelling pipework is required to enter the building.

Excavate trench for meter box against an exterior property wall in the position previously agreed.

Position the box so that the indicated line is at ground level. Unless previously determined, ground level is assumed to be two bricks below the damp-proof course. Ensure the box does not bridge the damp-proof course.

Using the box as a template, mark the fixing holes on the wall, ensuring that the box is level. Drill and plug the wall.

Fit the spacers as indicated.

Secure the box to the wall using the screws, washers and plugs provided with the box.

Back fill the trench. Fit the lid using the fasteners provided and lock the box.

CUSTOMER

This space is reserved for your gas meter.

When you require a meter to be installed, please telephone your gas supplier.

PLEASE TRY TO GIVE AT LEAST 7 DAYS' NOTICE.

INSTALLATION PIPEWORK

All work shall be carried out in accordance with the Gas Safety (Installation and Use) Regulations.

The installation pipework shall be connected to an outlet adaptor fitted to the right-hand side of the box.

The installation pipe should enter the property as close as practicable to the outlet of the meter box, keeping to a minimum the pipework external to the dwelling. If necessary, the installation pipework may be run behind the box in the space provided below hinge level.

Where the pipework enters the property, the pipe shall pass through the wall using a sleeve (sealed to the wall and pipe) in accordance with BS 6891 or BS 5482-1.

Where the meter is installed remote from the dwelling it serves, an emergency control valve shall be installed at a point where the installation pipework enters the dwelling, in accordance with the Gas Safety (Installation and Use) Regulations.

Where soldered joints are used, care shall be taken to avoid heat damage to the box.

Pipework external to the box and building shall, wherever necessary, be suitably protected against corrosion.

The complete installation shall be tested for gas tightness in accordance with IGE/UP/1B or BS 5482-1.

UNLESS INSTRUCTIONS ARE COMPLIED WITH, THE GAS METER SHALL NOT BE INSTALLED.

GAS SHALL NOT BE MADE AVAILABLE TO APPLIANCES UNLESS THEY HAVE BEEN FULLY COMMISSIONED.

PROTECTIVE EQUIPOTENTIAL BONDING

Protective equipotential bonding shall be made in accordance with BS 7671.

IF YOU THINK YOU CAN SMELL GAS

Turn off the supply at the control valve. Open doors and windows. Do NOT use naked flames. Do NOT turn electrical switches on or off.
Do NOT smoke.

IMMEDIATELY CONTACT THE GAS EMERGENCY SERVICE.

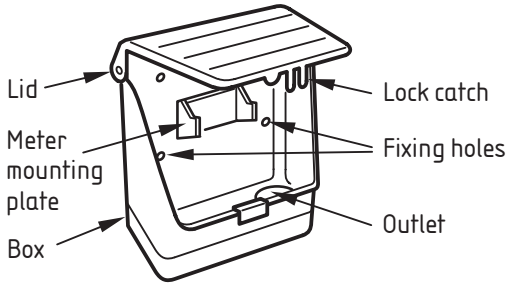
THE TELEPHONE NUMBER IS

0800 111 999

Do NOT reopen the supply until remedial action has been taken by a competent person to prevent gas escaping again.

Figure E.4 **Universal box general instructions (typical)**

It is a legal requirement that only a competent person shall carry out any work in relation to a gas fitting. Employers have a responsibility to ensure that all employees undertaking work on any gas fitting are competent.



INSTALLING THE BOX

Ensure that the meter box is not damaged.

Fix the box in the position specified.

The position shall be in accessible location so that the box does not cause an obstruction or leave it exposed to damage from vehicles etc.

It should be located as close as practicable to the point where the dwelling pipework is required to enter the building.

The universal box may be used in semi-concealed or surface mounted applications.

SEMI-CONCEALED INSTALLATION

Where the box is used as a semi-concealed installation, excavate trench for meter box against an exterior property wall in the position previously agreed.

Position the box so that the indicated line is at ground level. Unless previously determined, ground level is assumed to be two bricks below the damp-proof course. If in doubt, ask the site agent. Ensure the box does not bridge the damp-proof course.

Using the box as the template, mark the fixing holes on the wall, ensuring that the box is level. Drill and plug the wall. Secure the box to the wall using the screws, washers and plugs provided with the box.

Back fill the trench. Fit the lid using the fasteners provided and lock the box.

SURFACE MOUNTED INSTALLATION

Where the box is used as a surface mounted installation, position the box so that it is level, with its base preferably between 500 mm and 1 500 mm from the finished level. Ensure the box does not bridge the damp-proof course.

Using the box as the template, mark the fixing holes on the wall, ensuring that the box is level.

Drill and plug the wall. If a rear outlet is used, mark the centre of the knockout on the wall, and drill through the wall. Fit the spigot and build the inner wall around it, filling any space between the spigot and the wall with mortar. (The spigot will be cut flush with the inner finish of the wall by the pipework installer.)

Secure the box to the wall using the screws and washers provided. Fit the lid using the fasteners provided and lock the box.

CUSTOMER

This space is reserved for your gas meter.

When you require a meter to be installed, please telephone your gas supplier.

PLEASE TRY TO GIVE AT LEAST 7 DAYS' NOTICE.

INSTALLATION PIPEWORK

All work shall be carried out in accordance with the Gas Safety (Installation and Use) Regulations.

The installation pipework shall leave the box through either a knockout hole on the top or bottom right.

Where a bottom outlet is utilized, care should be taken to allow sufficient space to install the meter.

Where pipework enters the property, the pipe shall pass through the wall using a sleeve (sealed to the wall and pipe) in accordance with BS 6891 or BS 5482-1.

Where the meter is installed remote from the dwelling it serves, an emergency control valve shall be installed at a point where the installation pipework enters the dwelling, in accordance with the Gas Safety (Installation and Use) Regulations.

Where soldered joints are used, care shall be taken to avoid heat damage to the box.

Pipework external to the box and building shall, wherever necessary, be suitably protected against corrosion.

The complete installation shall be tested for gas tightness in accordance with IGE/UP/1B or BS 5482-1.

UNLESS INSTRUCTIONS ARE COMPLIED WITH, THE GAS METER SHALL NOT BE INSTALLED.

GAS SHALL NOT BE MADE AVAILABLE TO APPLIANCES UNLESS THEY HAVE BEEN FULLY COMMISSIONED.

PROTECTIVE EQUIPOTENTIAL BONDING

Protective equipotential bonding shall be made in accordance with BS 7671.

IF YOU THINK YOU CAN SMELL GAS

Turn off the supply at the control valve. Open doors and windows. Do NOT use naked flames. Do NOT turn electrical switches on or off.
Do NOT smoke.

IMMEDIATELY CONTACT THE GAS EMERGENCY SERVICE.

THE TELEPHONE NUMBER IS

0800 111 999

Do NOT reopen the supply until remedial action has been taken by a competent person to prevent gas escaping again.

Annex F (normative) Methods of test for hinge strength

F.1 Built-in and surface mounted boxes

F.1.1 Sample

F.1.1.1 *Top hinge section of meter box*.

F.1.1.2 *Bottom hinge section of meter box*.

F.1.2 Apparatus

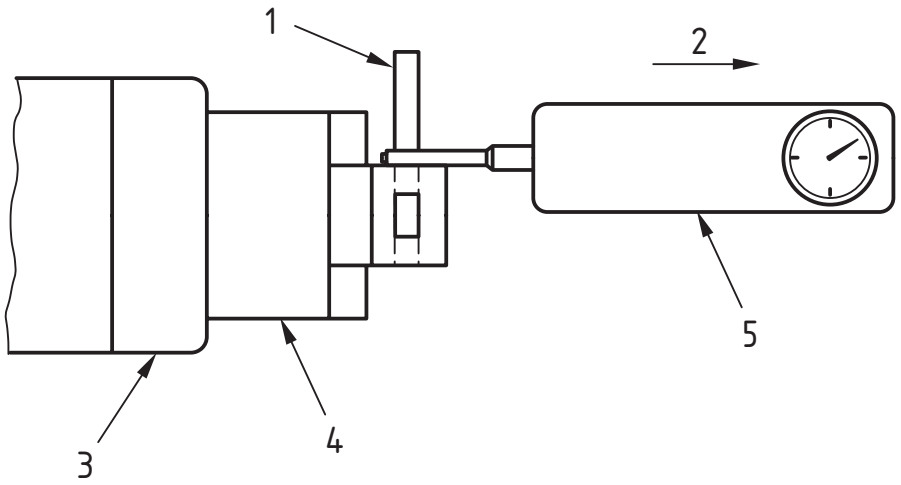
F.1.2.1 *Tensile testing machine or force gauge*, fitted with a hook, with a range of at least 0 N to 700 N and an accuracy of ±5 N.

F.1.3 Procedure

Clamp the top hinge section of the meter box door just behind the hinge. Place the hook around the hinge pin adjacent to its mounting (see Figure F.1). Pull in a direction that is perpendicular to the axis of the pin and parallel to the plane of the front face of the door. Gradually increase the force until the hinge fails completely. Record the peak force. Calculate an average peak force from five such tests.

Repeat the tests on the bottom hinge section.

Figure F.1 **Built-in and surface mounted hinge strength test**



Key

1 Hinge pin
2 Applied force
3 Clamp
4 Test piece
5 Force gauge

F.2 Semi-concealed and universal boxes

F.2.1 Sample

F.2.1.1 *One meter box body*, selected at random.

F.2.1.2 *Six meter box lids*, selected at random.

F.2.2 Apparatus

F.2.2.1 *Sturdy bench*.

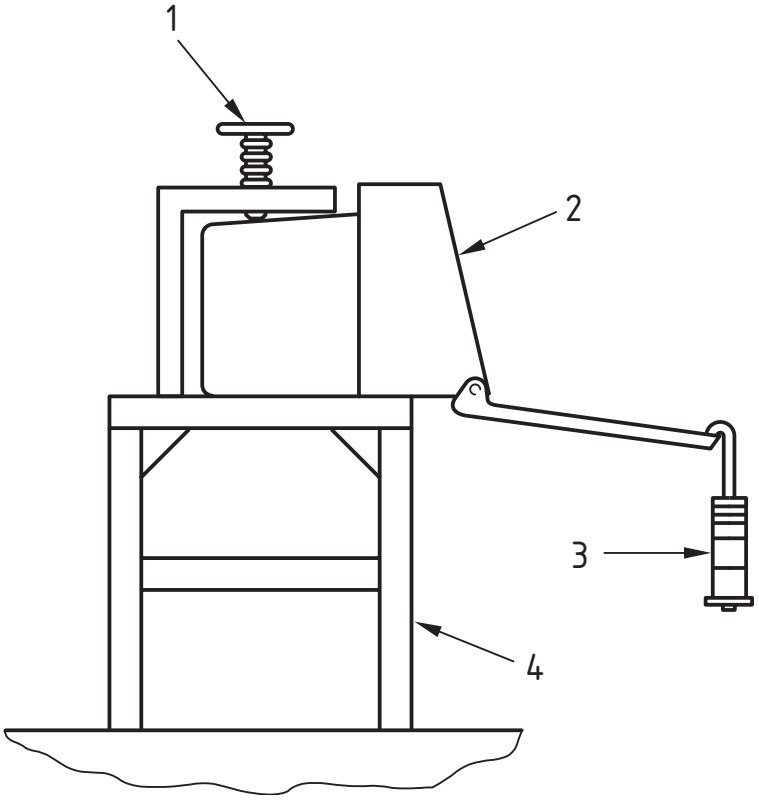
F.2.2.2 *Clamp*.

F.2.2.3 *Weights fitted with a hook*, weighing up to 7 kg in 500 g increments.

F.2.3 Procedure

Assemble the box body and one lid with the hinge. Rotate and clamp the box to the sturdy bench such that the hinge axis and the point of applied force are in the same horizontal plane. Hang the hook on the lid lip. Add weights in 500 g steps until a total of 7 kg is reached. Repeat the above method for the remaining lids.

Figure F.2 **Typical apparatus for semi-concealed and universal box hinge strength test**



Key

1 Clamp
2 Semi-concealed meter box
3 Weights
4 Sturdy bench

Annex G (normative) Method of test for door flatness (built-in and surface mounted boxes)

G.1 Sample

G.1.1 *Door of meter box*.

G.2 Apparatus

G.2.1 *Flat table surface*.

G.2.2 *Three spacers*, each having a length of (30 ±0.02) mm.

G.2.3 *Nominal mass*, of 1 kg.

G.3 Procedure

Place the door, with its external surface uppermost, on a flat surface. Place the three spacers between the door periphery and the flat table surface, with one spacer at each hinge and one adjacent to the latch. Place the nominal mass on the external surface of the door, approximately at the centre of the door, to hold the door in position.

Measure the gap between the door periphery and the flat table surface, taking the measurement for the built-in box from along the edges of the door.

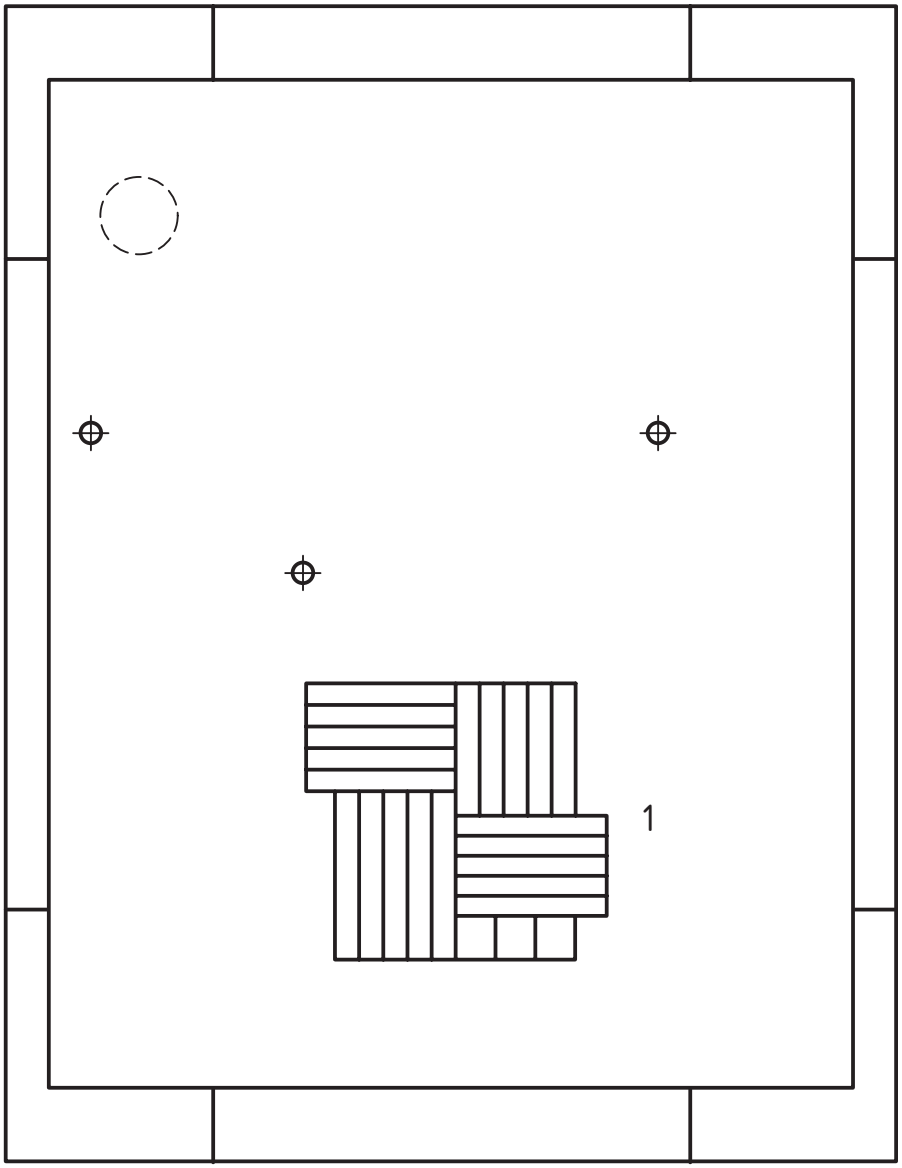
Annex H (normative) Cutting plans for meter box test samples

For boxes, other than those to drawings herein, samples shall be selected from the largest flat areas, using Figures H.1 to H.8 for guidance.

Test specimens shall be cut as shown in Figure D.1.

NOTE When cutting the sample, features such as ejector pads, markings and changes in section should be avoided.

Figure H.1 **Locations of built-in box body cutting plan**



a) Back of box body

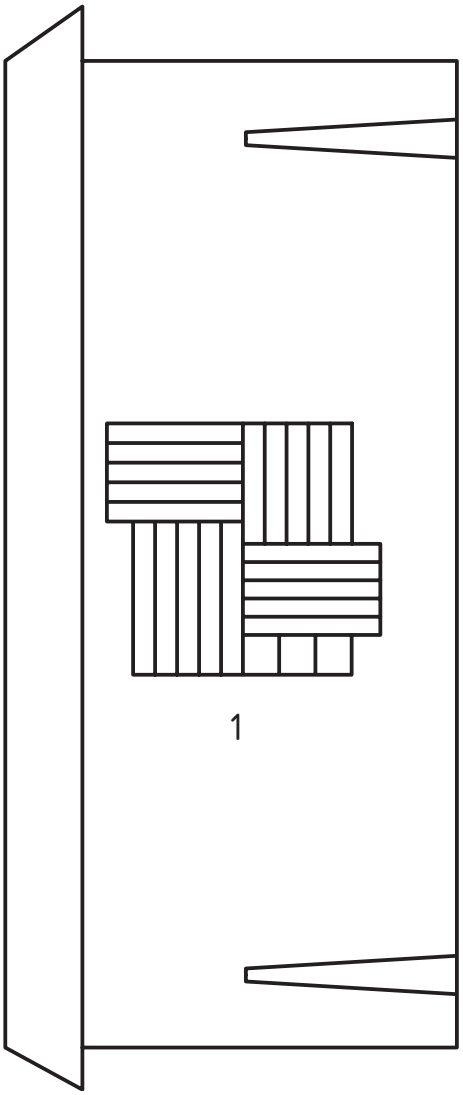
Key

1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from behind box body.

NOTE 2 Basic cutting plan is to be cut central to the lower half section as shown.

Figure H.1 **Locations of built-in box body cutting plan** *(continued)*



b) Side of box body

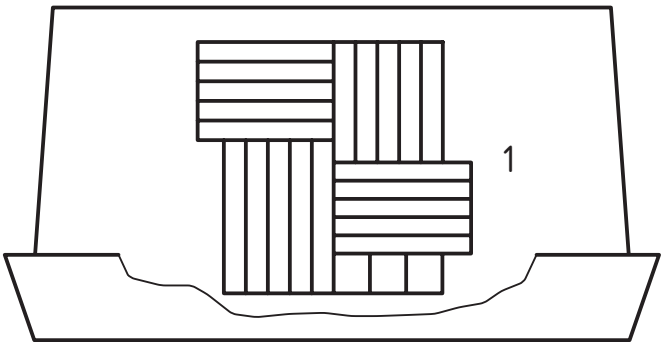
Key

1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from side of box body.

NOTE 2 Basic cutting plan is to be cut central to the panel as shown.

Figure H.1 **Locations of built-in box body cutting plan** *(continued)*



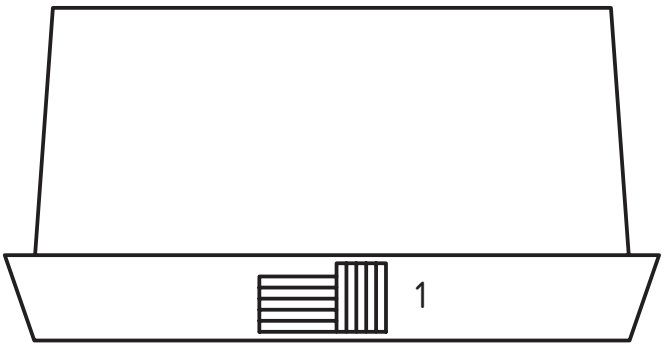
c) Top of box body

Key

1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from top of box body.

NOTE 2 Basic cutting plan is to be cut centrally to the panel as shown.



d) Architrave of box body (Charpy impact flexural test only)

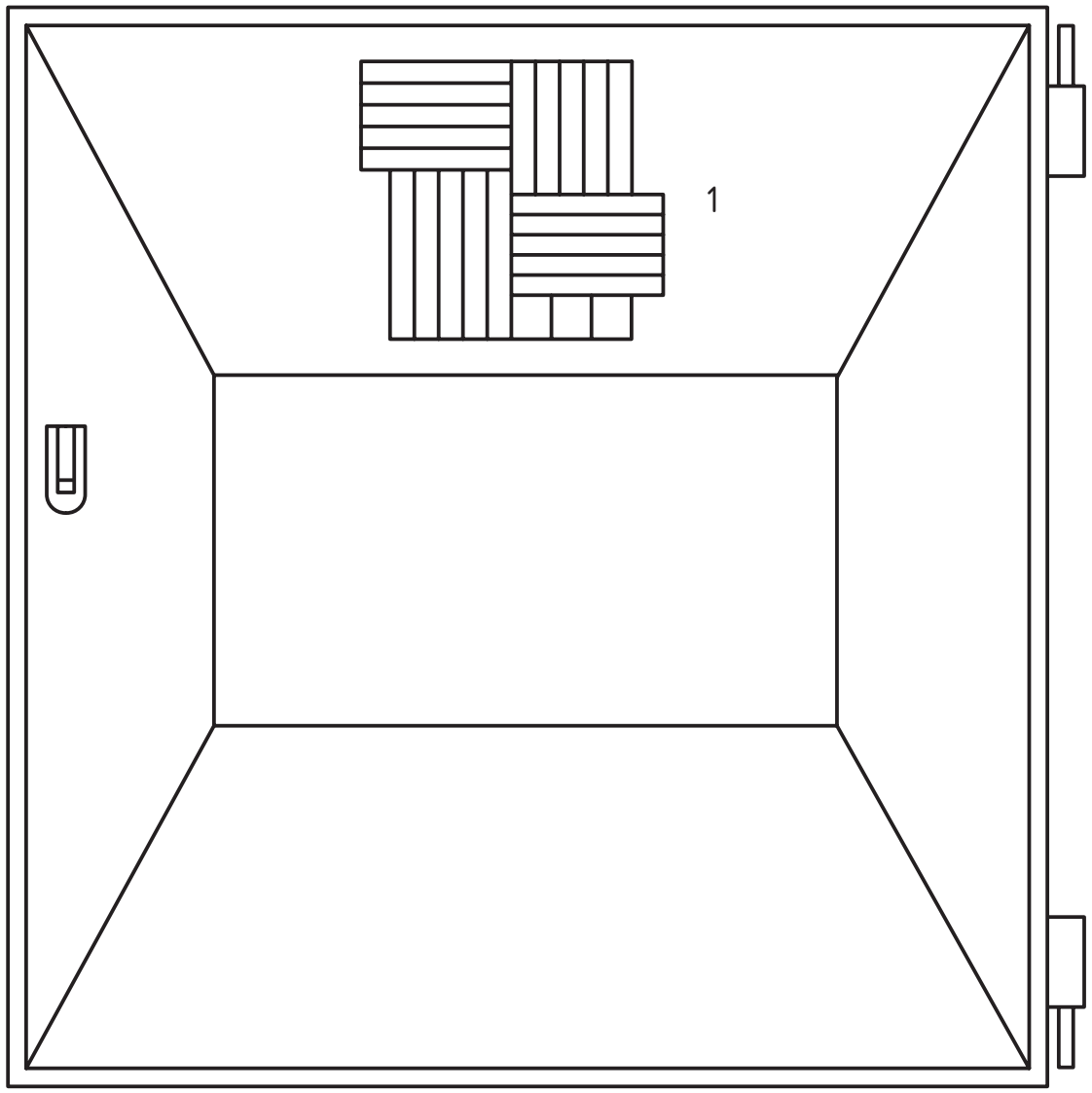
Key

1 Impact test specimens

NOTE 1 Figure showing view from top of box body.

NOTE 2 Property test specimens are to be cut central to the panel as shown. Dimensions of test specimens are for each "Impact" and "Flex" – (50 mm ±1 mm) × (6 mm ±0.2 mm).

Figure H.2 **Location of built-in box door cutting plan**



Key

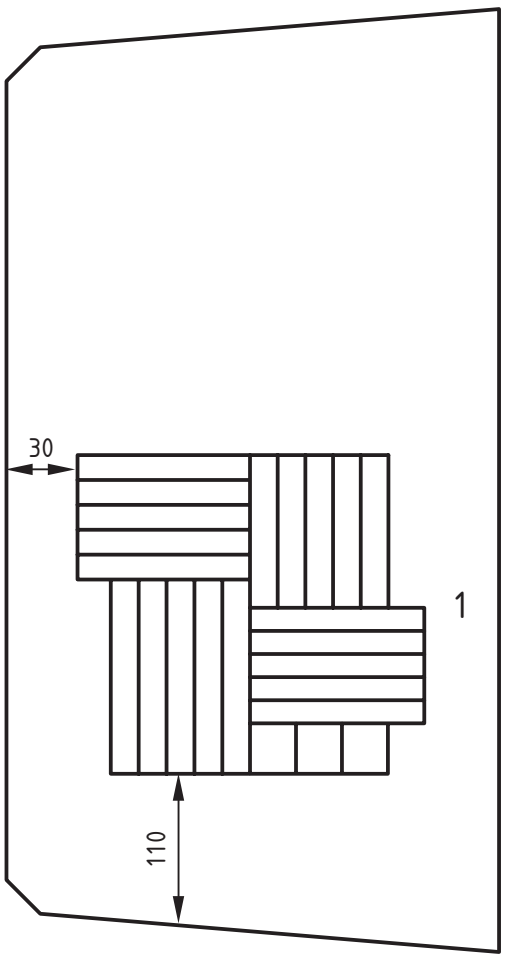
1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from behind cover.

NOTE 2 Basic cutting plan is to be cut central to the panel as shown.

Figure H.3 **Location of surface mounted box cover cutting plan**

Dimensions in mm



Key

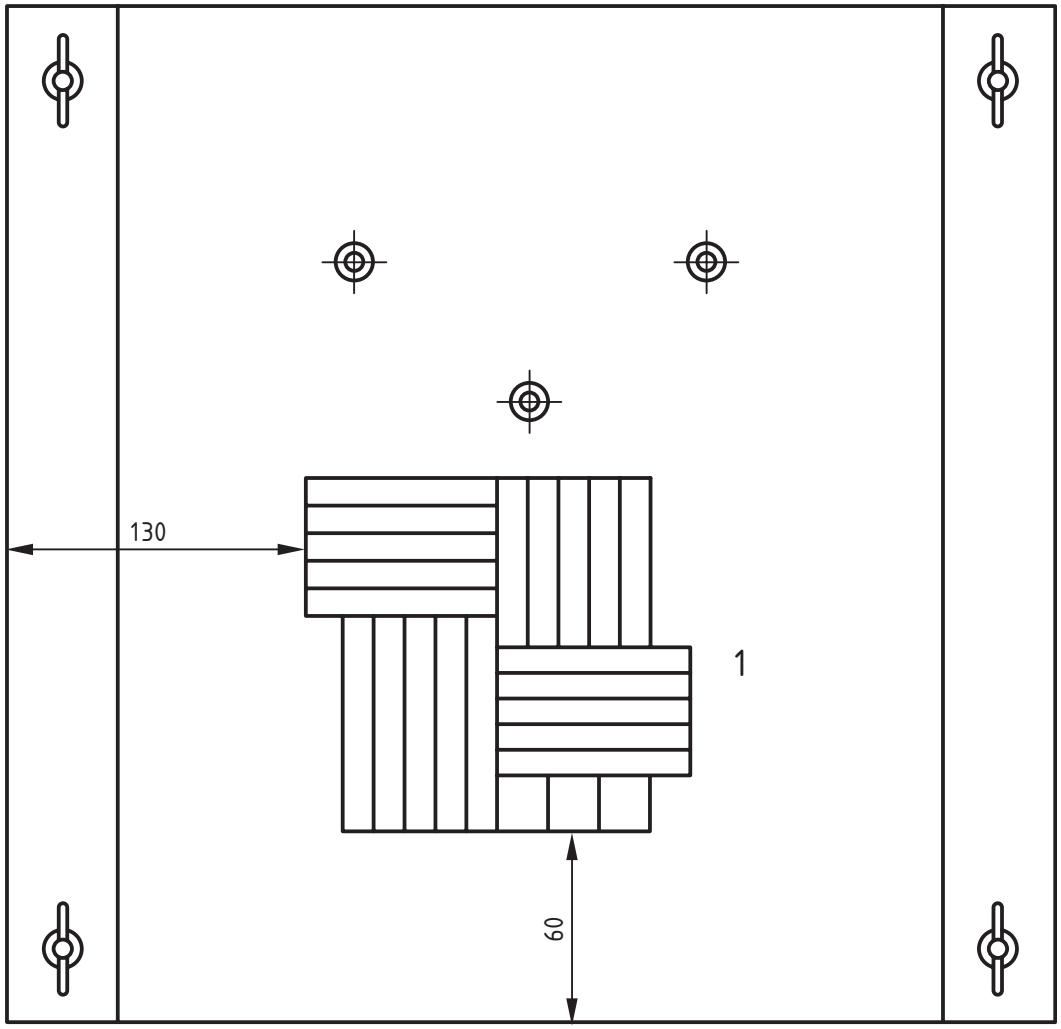
1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from side of cover.

NOTE 2 Dimensions in mm are approximations.

Figure H.4 **Location of surface mounted box back panel cutting plan**

Dimensions in mm



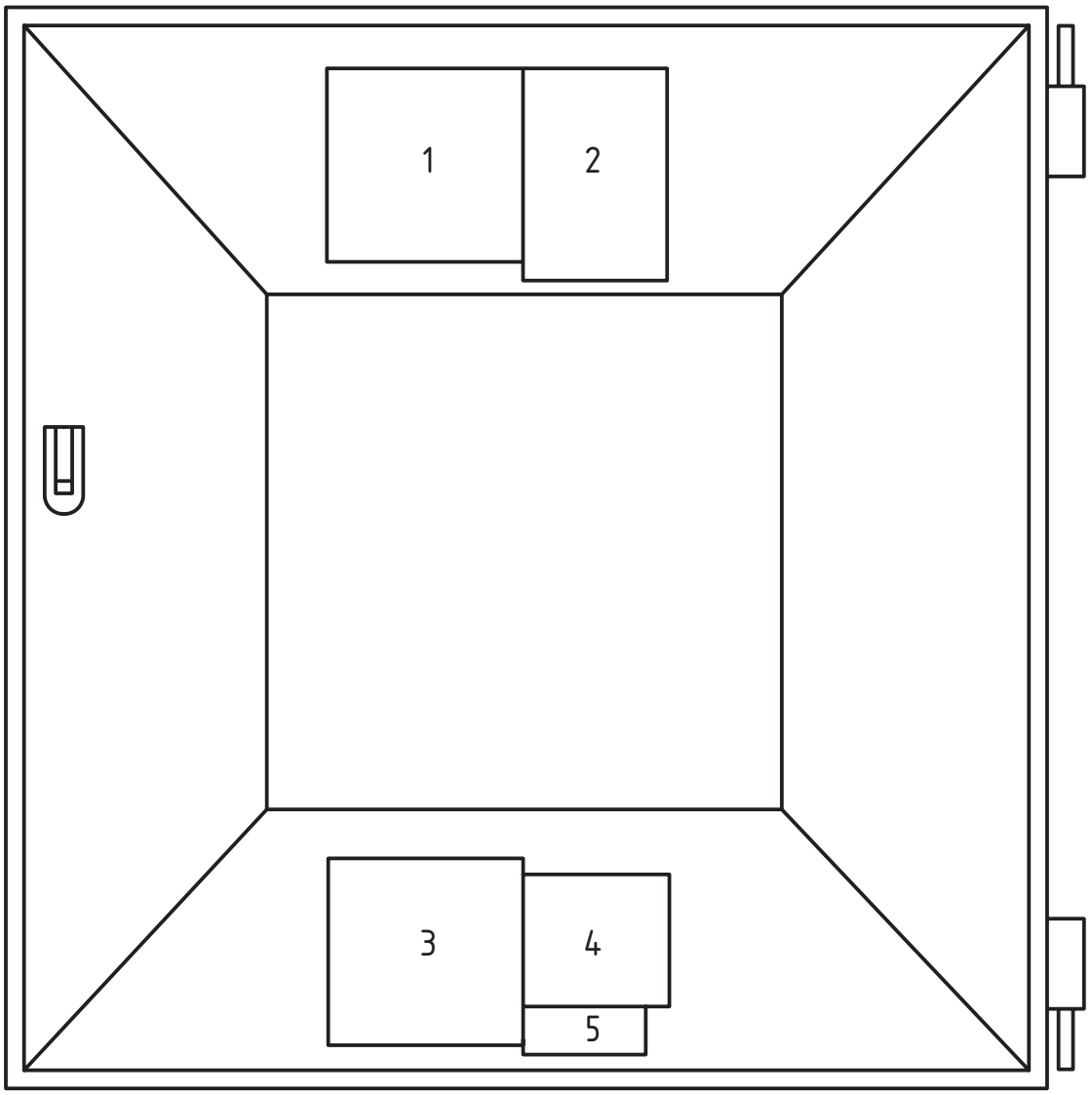
Key

1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from behind of back panel.

NOTE 2 Dimensions in mm are approximations.

Figure H.5 **Location of surface mounted box door cutting plan**



Key

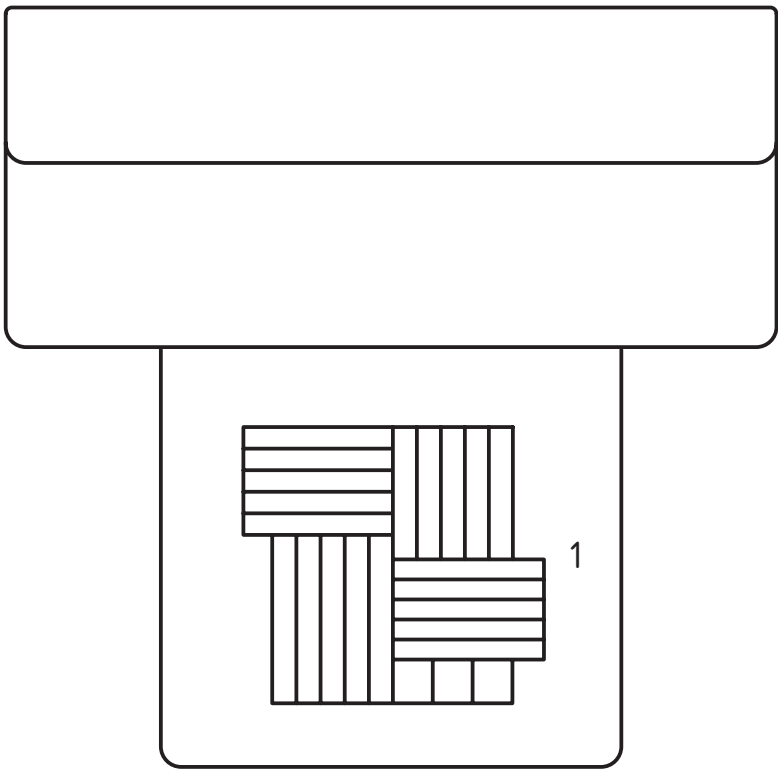
1 Flex. 1 to 5
2 Impact 1 to 5
3 Flex. 6 to 10
4 Impact 6 to 10
5 Density 1 to 3

NOTE 1 Figure showing view from behind door.

NOTE 2 Property test specimens are to be cut central to each panel.

NOTE 3 See Figure D.1 for dimensions of test specimens.

Figure H.6 **Location of semi-concealed box body cutting plan**



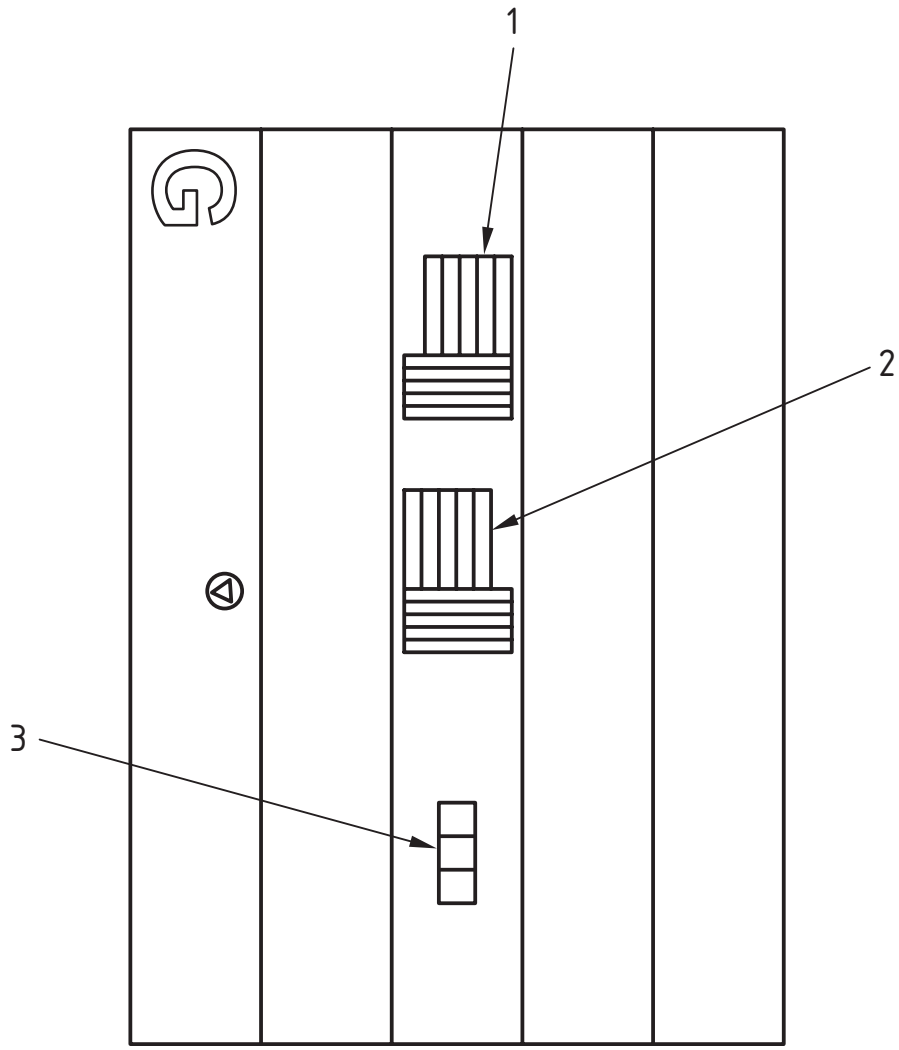
Key

1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from front.

NOTE 2 Basic cutting plan is to be cut central to the panel as shown.

Figure H.7 **Location of semi-concealed box lid cutting plan**



Key

1 Flex. 1 to 10

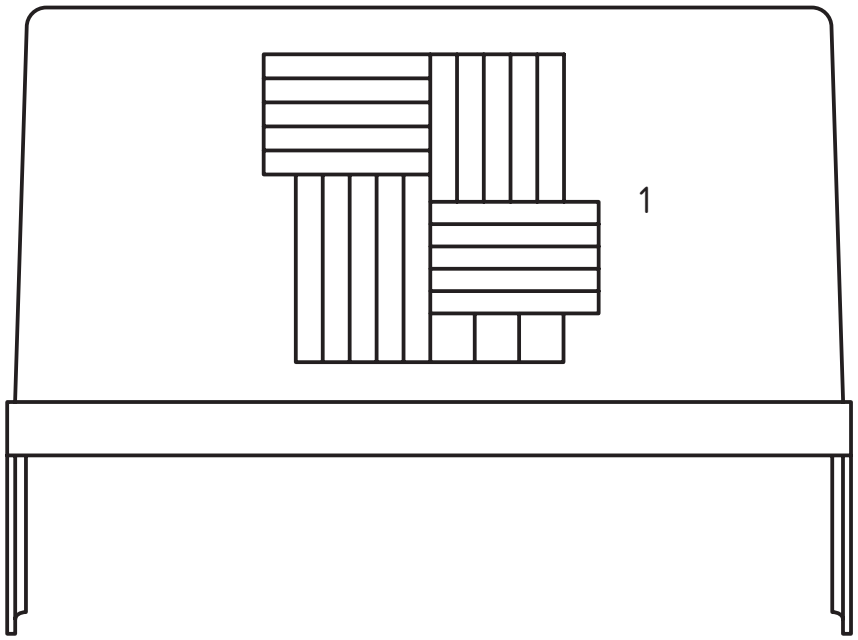
2 Impact 1 to 10

3 Density 1 to 3

NOTE 1 Figure showing view from above lid.

NOTE 2 See Figure D.1 for dimensions of test specimens.

Figure H.8 **Location of semi-concealed box extension cutting plan**



Key

1 Basic cutting plan (see Figure D.1 for dimensions of test specimens)

NOTE 1 Figure showing view from the rear.

NOTE 2 Basic cutting plan is to be cut central to the panel as shown.

Bibliography

Standards publications

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 4901:1976, *Specification for plastics colours for building purposes*

BS 5482-1, *Code of practice for domestic butane- and propane-gas-burning installations – Part 1: Installations at permanent dwellings, residential park homes and commercial premises, with installation pipework sizes not exceeding DN 25 for steel and DN 28 for corrugated stainless steel or copper*

BS 6891, *Installation of low pressure gas pipework of up to 35 mm (R1 1/4) in domestic premises (2nd family gas) – Specification*

BS 7671, *Requirements for electrical installations – IEE Wiring Regulations*

BS EN 437, *Test gases – Test pressures – Appliance categories*

BS EN 60079-10, *Electrical apparatus for explosive gas atmospheres – Part 10: Classification of hazardous areas*

BS EN ISO 2819:1995, *Metallic coatings on metallic substrates – Electrodeposited and chemically deposited coatings – Review of methods available for testing adhesion*

Other publications

[1] GREAT BRITAIN. Gas Safety (Installation and Use) Regulations 1998. London: The Stationery Office.

[2] INSTITUTION OF GAS ENGINEERS AND MANAGERS (IGEM). *Tightness testing and purging of domestic sized Natural Gas installations*. IGE/UP/1B. Edition 2. Loughborough: IGEM, 2006.

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