BRITISH STANDARD

BS EN
1555-4:2002

Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) —

Part 4: Valves

The European Standard EN 1555-4:2002 has the status of a British Standard

ICS 23.060.01; 91.140.40

BSI
British Standards

National foreword

This British Standard is the official English language version of EN 1555-4:2002. No existing British Standard will be made obsolescent by implementation of this part of this standard.

NOTE 1 CEN/TC 234 in co-operation with CEN/TC 155 drafted an installation document for gas applications and this was published as EN 12007-2:2000, *Gas supply systems — Pipelines for maximum operating pressure up to and including 16 bar — Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar)*[1]. As a consequence of this, TC 155 agreed that they would not draft a Part 6 in the EN 1555 series.

NOTE 2 Part 7 has been prepared as a CEN/TS to allow further development. CEN/TS 1555-7 is not mandatory under the Public Procurement Directive.

The UK participation in its preparation was entrusted by Technical Committee PRI/88 (previously PRI/61), Plastics piping systems, to Subcommittee PRI/88/2 (previously PRI/61/2), Plastics piping for pressure applications, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Attention is drawn to any appropriate safety precautions. It is assumed in the drafting of a standard that the execution of its provisions is entrusted to appropriately qualified and competent people.

The UK National Annex NA attached to this standard provides additional information on the selection and installation of piping systems and components in the UK.

Attention is drawn to the following statutory regulations:

Health and Safety at Work etc. Act 1974 and subsequent regulations.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled "International Standards Correspondence Index", or by using the "Search" facility of the *BSI Electronic Catalogue* or of British Standards Online.

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 does not of itself confer immunity from legal obligations.

[1] It is the opinion of Technical Committee PRI/88 that the Code of Practice published by the gas industry represents established UK practice, copies of which are available from the current national network distributor, Transco.

This British Standard, was published under the authority of the Standards Policy and Strategy Committee on 7 January 2004

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 15, the National Annex NA page, an inside back cover and a back cover.

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Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 4: Valves

Systèmes de canalisations en plastique pour la distribution de combustibles gazeux - Polyéthylène (PE) - Partie 4: Robinets

Kunststoff-Rohrleitungssysteme für die Gasversorgung - Polyethylen (PE) - Teil 4: Armaturen

This European Standard was approved by CEN on 1 November 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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Contents

Foreword

This document EN 1555-4:2002 has been prepared by Technical Committee CEN /TC 155, "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2003, and conflicting national standards shall be withdrawn at the latest by December 2004.

It has been prepared in liaison with Technical Committee CEN/TC 234 "Gas supply".

This standard is a part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

System Standards are based on the results of the work undertaken in ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids", which is a Technical Committee of the International Organization for Standardization (ISO).

They are supported by separate standards on test methods to which references are made throughout the System Standard.

The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

EN 1555 consists of the following parts, under the general title *Plastics piping systems for the supply of gaseous fuels – Polyethylene (PE):*

— *Part 1: General*

— *Part 2: Pipes*

— *Part 3: Fittings*

— *Part 4: Valves* (this standard)

— *Part 5: Fitness for purpose of the system*

— *Part 7: Guidance for assessment of conformity* (to be published as CEN/TS).

NOTE The document dealing with recommended practice for installation which was initially submitted for CEN enquiry as prEN 1555-6 was withdrawn when EN 12007-2:2000[1], prepared by CEN/TC 234 Gas supply, was published with the title "Gas supply systems - Pipelines for maximum operating pressure up to and including 16 bar - Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar)".

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard : Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The System Standard, of which this is Part 4, specifies the requirements for a piping system and its components made from polyethylene (PE) and which is intended to be used for the supply of gaseous fuels.

Requirements and test methods for material and components, other than valves, are specified in EN 1555-1, EN 1555-2 and EN 1555-3. Characteristics for fitness for purpose are covered in EN 1555-5. PrCEN/TS 1555-7[2] gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2[1] prepared by CEN/TC 234.

This part of EN 1555 covers the characteristics of valves.

1 Scope

This part of EN 1555 specifies the characteristics of valves made from polyethylene (PE) for piping systems in the field of the supply of gaseous fuels.

NOTE Valves made from other material than polyethylene designed for the supply of gaseous fuels conforming to the relevant standards are permitted to be used in PE piping system according to EN 1555 provided they have relevant PE connection for butt fusion or electrofusion ends (see EN 1555-3).

It also specifies the test parameters for the test methods referred to in this standard.

In conjunction with the other parts of EN 1555, it is applicable to PE valves, their joints and to joints with components of PE and other materials intended to be used under the following conditions:

a) a maximum operating pressure, MOP, up to and including 10 bar [1)] ;

b) an operating temperature of 20 °C as reference temperature;

NOTE 1 For other operating temperatures, derating coefficients should be used, see EN 1555-5.

c) an operating temperature between -20 °C and +40 °C.

EN 1555 covers a range of maximum operating pressures and gives requirements concerning colours and additives.

NOTE 2 It is the responsibility of the purchaser or specifier to make the appropriate selections from these aspects, taking into account their particular requirements and any relevant national regulations and installation practices or codes.

It is applicable to bi-directional valves with spigot end or electrofusion socket intended to be fused with PE pipes conforming to EN 1555-2 without any fittings or with PE fittings conforming to EN 1555-3.

This part of EN 1555 covers valves with a nominal size DN/OD ≤ 225.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 682, *Elastomeric Seals - Materials requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids.*

EN 728, *Plastics piping and ducting systems — Polyolefin pipes and fittings — Determination of oxidation induction time.*

EN 744, *Plastics piping and ducting systems - Thermoplastics pipes - Test method for resistance to external blows by the round-the-clock method.*

EN 917, *Plastics piping systems - Thermoplastics valves - Test methods for resistance to internal pressure and leaktightness.*

EN 1555-1:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General.*

EN 1555-2:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes.*

EN 1555-3:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 3: Fittings.*

[1)] 1 bar = 0.1 MPa

EN 1555-5:2002, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system.*

EN 1680, *Plastics piping systems - Valves for polyethylene (PE) piping systems - Test method for leaktightness under and after bending applied to the operating mechanisms.*

EN 1704, *Plastics piping systems - Thermoplastics valves - Test method for the integrity of a valve after temperature cycling under bending.*

EN 1705, *Plastics piping systems - Thermoplastics valves - Test method for the integrity of a valve after an external blow.*

EN 12100, *Plastics piping systems — Polyethylene (PE) valves — Test method for resistance to bending between supports.*

EN 12117, *Plastics piping systems — Fittings, valves and ancillaries — Determination of gaseous flow rate/pressure drop relationships.*

EN 12119, *Plastics piping systems — Polyethylene (PE) valves — Test method for resistance to thermal cycling.*

EN 28233, *Thermoplastic valves — Torque — Test method (ISO 8233:1988).*

EN ISO 1133, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:1997).*

prEN ISO 3126, *Plastics piping systems - Plastics piping components - Measurement and determination of dimensions (ISO/DIS 3126:1999).*

ISO 5208, *Industrial valves - Pressure testing of valves.*

ISO 10933, *Polyethylene (PE) valves for gas distribution systems.*

3 Terms and definitions, symbols and abbreviations

For the purposes of this European Standard, the terms and definitions, symbols and abbreviations given in EN 1555-1:2002 apply, together with the following.

3.1
external leaktightness
tightness of a valve body enveloping the space containing the gas, with respect to the atmosphere

3.2
internal leaktightness
tightness between the inlet and the outlet of the valve, obtained by closing the operating mechanism

3.3
leaktightness test
test for both of the following characteristics:

a) the internal leaktightness of a valve's closing seat when closed and pressurized from either side

b) the external leaktightness of a valve when half open

3.4
initiating torque
torque required to initiate movement of the obturator

3.5
running torque
torque required to achieve full opening or closing of the valve at maximum allowable operating pressure

3.6
leakage
emission of gas through a valve body, or any component of a valve

3.7
valve body
main part of a valve which contains the obturating device (rotating member, the seat, the packing seals and the operating stop), as applicable and provides the ends for connection to the PE pipe/fittings

3.8
operating cap
part of a valve for connection with the operating key which allows the opening and the closing of the valve

4 Material

4.1 Compound

The compound from which the valve body, with spigot end or electrofusion socket is made shall conform to EN 1555-1.

4.2 Material for non-polyethylene parts

4.2.1 General

All components shall conform to the relevant EN standard(s). Alternative standards may be applied in cases where the suitable EN standard(s) do not exist. In all cases fitness for purpose of the components shall be demonstrated.

The materials and the constituent elements used in making the valve (including rubber, greases and any metal parts as may be used) shall be as resistant to the external and internal environments as the other elements of the piping system and shall have a life expectancy under the following conditions at least equal to that of the PE pipes conforming to EN 1555-2:2002 with which they are intended to be used:

a) during storage;

b) under the effect of the gas conveyed therein;

c) with respect to the service environment and operating conditions.

The requirements for the level of material performance of non-polyethylene parts shall be at least as stringent as that of the compound for the piping system.

Valve materials in contact with the PE pipe shall not adversely affect pipe performance or initiate stress cracking.

Metal valve bodies for PE piping systems up to 10 bar shall conform to the relevant EN standard(s) where existing, or in their absence, to provisions acceptable in the country of use.

NOTE Standards covering metal valve bodies for the various types of valves are being developed by CEN/TC 69.

4.2.2 Metal parts

All metal parts susceptible to corrosion shall be adequately protected.

When dissimilar metallic materials are used which can be in contact with moisture, steps shall be taken to avoid the possibility of galvanic corrosion.

4.2.3 Elastomers

Elastomeric seals shall conform to EN 682.

Other sealing materials are permitted if suitable for gas service.

4.2.4 Other materials

Greases or lubricants shall not exude onto fusion areas, and shall not affect the long-term performance of valve materials.

Other materials conforming to 4.2.1 may be used provided that it is proven that the valves conform to this standard.

5 General characteristics

5.1 Appearance

When viewed without magnification, the internal and external surfaces of valves shall be smooth, clean and shall have no scoring, cavities or other surface defects to an extent that would prevent conformity to this standard.

No component of the valve shall show any signs of damage, scratches, pitting, bubbles, blisters, inclusions or cracks to an extent that would prevent conformity of the valves to the requirements of this standard.

5.2 Colour

The colour of the PE parts of valves shall be either yellow or black.

5.3 Design

5.3.1 General

The design of the valve shall be such that, when assembling the valve onto the corresponding component, electrical coils and/or seals or any other ancillary parts are not displaced.

PE valves bodies and their PE spigot end or electrofusion socket shall have a pressure rating of at least that of the pipe to which they are assembled. PE spigot ends or electrofusion sockets shall have sufficient fusion compatibility (see EN 1555-5:2002) to the pipe to which it is fused to meet the requirements of this standard.

5.3.2 Valve body

The valve body shall be such that it cannot be dismantled on site without rendering it unusable.

5.3.3 Operating cap

The operating cap shall be integral with or connected to the stem in such a way that disconnection is impossible without special equipment.

The valve shall close by turning the operating cap clockwise. For a quarter-turn valve, the position of the shut-off disk shall be clearly indicated on the top side of the operating cap.

Stops shall be provided at the fully open and closed positions.

5.3.4 Seals

The seals shall be so mounted as to be resistant to normally occurring mechanical loads. Creep and cold flow effects shall be taken into account. Any mechanism that puts a loading on the seals shall be permanently locked. Line pressure shall not be used as the sole means of seal activation.

6 Geometrical characteristics

6.1 General

Each valve shall be characterised by its dimensions and associated end connections.

The technical description given by the manufacturer shall include at least the following information:

a) the dimensional characteristics, by working drawings;

b) the assembly instructions.

6.2 Measurement of dimensions

Dimensions shall be measured in accordance with prEN ISO 3126 at (23 ± 2) °C, after being conditioned for at least 4 h. The measurement shall not be made less than 24 h after manufacture.

6.3 Wall thickness of the PE valve body

The wall thickness of the PE valve body, E, at any point that is subjected to line pressure shall be equal to or greater than the minimum wall thickness e_{min} of the corresponding SDR 11 series pipes unless either of the following conditions apply.

The relationship between the wall thickness of the valve body, E, and the pipe, e_n, shall conform to Table 1.

Table 1 — Relation between valve and pipe wall thicknesses

Pipe and valve material		Relation between valve body wall thickness, E, and pipe wall thickness, e_n
Pipe	Valve	
PE 80	PE 100	$E \geq 0{,}8e_n$
PE 100	PE 80	$E \geq e_n/0{,}8$

Any changes in the wall thickness inside the valve body shall be gradual in order to prevent stress concentrations.

6.4 Dimensions of spigot ends for valves

The dimensions of spigot ends shall conform to Table 3 of EN 1555-3:2002.

6.5 Dimensions of valves with electrofusion sockets

The dimensions of electrofusion sockets shall conform to Table 1 of EN 1555-3:2002.

6.6 Dimensions of the operating cap

The dimension of the operating cap shall be designed so it can be operated with a ($50\ ^{+0}_{0}{}^{,5}$) mm square socket, (40 ± 2) mm depth.

7 Mechanical characteristics of assembled valves

7.1 General

All tests shall be carried out on valves assembled with pipe from the same series conforming to EN 1555-2, in accordance with the technical instructions and the extreme installation conditions recommended by the manufacturer.

NOTE The properties of an assembled valve depend on the properties of the pipes and the valve and on the conditions of their installation (i.e. geometry, temperature, type, method of conditioning, assembly and fusion procedures).

The technical descriptions of the manufacturer shall include at least the following information:

a) laying conditions (e.g. valve temperature limits);

b) assembly instructions;

c) for valves with electrofusion sockets, fusion instructions:

   1) power requirements;

   2) fusion parameters with limits.

7.2 Requirements

Unless otherwise specified by the applicable test method, the test pieces shall be conditioned at (23 ± 2) °C before testing in accordance with Table 2.

When tested in accordance with the test methods as specified in Table 2 using the indicated parameters, the valves shall have mechanical characteristics conforming to the requirements given in Table 2.

Table 2 — Mechanical characteristics of valves

Characteristic	Requirements	Test parameters		Test method
		Parameter	Value	
Hydrostatic strength (20 °C, 100 h)	No failure during the test period of any test piece	Conditioning time [a] Free length Number of test pieces [b] Type of test Circumferential (hoop) stress: PE 80 PE 100 Test period Test temperature	Shall conform to EN 917 $2d_n$ 3 Water-in-water 10,0 MPa 12,4 MPa 100 h 20 °C	Method A of EN 917
Hydrostatic strength (80 °C, 165 h)	No failure during the test period of any test piece [c]	Conditioning time [a] Free length Number of test pieces [b] Type of test Circumferential (hoop) stress: PE 80 PE 100 Test period Test temperature	Shall conform to EN 917 $2d_n$ 3 Water-in-water 4,5 MPa 5,4 MPa 165 h 80 °C	Method A of EN 917
Hydrostatic strength (80 °C, 1000 h)	No failure during the test period of any test piece	Conditioning time [a] Free length Number of test pieces [b] Type of test Circumferential (hoop) stress: PE 80 PE 100 Test period Test temperature	Shall conform to EN 917 $2d_n$ 3 Water-in-water 4,0 MPa 5,0 MPa 1000 h 80 °C	Method A of EN 917
Leaktightness of seat and packing	No leakage during the test period	Test temperature Type of test Number of test pieces [b] Test pressure Duration of the test	23 °C Air or nitrogen 1 25 mbar 24 h	ISO 5208

(continued)

Table 2 — Mechanical characteristics of valves *(continued)*

Characteristic	Requirements	Test parameters		Test method
		Parameter	Value	
Leaktightness of seat and packing	No leakage during the test period	Test temperature Type of test Number of test pieces [b] Test pressure Duration of the test	23 °C Air or nitrogen 1 1,5 MOP (not to exceed 6 bar) 30 s	ISO 5208
Pressure drop	Air flow rate (value indicated by the manufacturer)	Type of test Number of test pieces [b] Test pressure Pressure drop for $d_n \leq 63$ mm $d_n > 63$ mm	Air 1 25 mbar 0,5 mbar 0,1 mbar	EN 12117
Operating torque [d]	Maximum value with: - $d_n \leq 63$mm: 35 Nm - 63 mm < $d_n \leq$ 125 mm: 70 Nm - 125 mm < $d_n \leq$ 225 mm: 150 Nm	Test temperatures Number of test pieces [b]	–20 °C and +23 °C and +40 °C 1	EN 28233
Stop resistance	a) No failure at stops, and b) No leakage at seat and packing	Torque Test temperatures Number of test pieces [b]	2 times the value of the max. measured operating torque with minimum 150 Nm, during 15 s –20 °C and +40 °C 1	a) EN 28233, followed by b) ISO 5208
Actuation mechanism resistance	Maximum value: 1,5 times the value of the maximum measured operating torque (see this table)	Pressure Number of test pieces [b]	6 bar 1	EN 28233
Resistance to bending between supports	No leakage and maximum value for operating torque (see examination of operating torque)	Load applied for: 63 mm < $d_n \leq$ 125 mm 125 mm < $d_n \leq$ 225 mm Number of test pieces [b]	 3,0 kN 6,0 kN 1	EN 12100
Thermal cycling resistance $d_n > 63$ mm	No leakage and maximum value for operating torque (see examination of operating torque)	Number of test pieces [b]	1	EN 12119
Leaktightness under bending with thermal cycling $d_n \leq 63$ mm	No leakage	Number of cycles Temperature of cycling Number of test pieces [b]	50 –20 °C/+40 °C 1	EN 1704
Leaktightness under tensile loading	No leakage and maximum value for operating torque (see examination of operating torque)	Number of test pieces [b]	1	ISO 10933
Leaktightness under and after bending applied to the operating mechanism	No leakage	Number of test pieces [b]	1	EN 1680
Impact loading resistance	No leakage and maximum value for operating torque (see examination of operating torque)	Drop height Mass of the striker Type of the striker Test temperature Number of test pieces [b]	2 m 2,5 kg d 90 in accordance with EN 744 –20 °C 1	EN 1705

(continued)

Table 2 — Mechanical characteristics of valves *(concluded)*

Characteristic	Requirements	Test parameters		Test method
		Parameter	Value	
Multiple test [e]				
1) Resistance to long-term internal pressure loading	The test piece shall fulfil the requirements of the following characteristics:	Conditioning time [a] Free length Type of test Number of test pieces [b] Test pressure for: PE 80 PE 100 Test period Test temperature	Shall conform to EN 917 2 d_n Water-in-water 1 16,0 bar 20,0 bar 1000 h 20 °C	EN 917 Method A
2) Leaktightness of seat and packing	Shall conform to this table			ISO 5208
3) Operating torque	Shall conform to this table			EN 28233
4) Impact loading resistance	Shall conform to this table			EN 1705

a The valves shall not be pressurized within 24 h after fusion.

b The numbers of test pieces given indicate the numbers required to establish a value for the characteristic described in the table.
The numbers of test pieces required for factory production control and process control should be listed in the manufacturer's quality plan. For guidance see prCEN/TS 1555-7[2].

c Only brittle failures shall be taken into account. If a ductile failure occurs before 165 h, the test may be repeated at a lower stress. The stress and the associated minimum test period shall be selected from Table 3 or from a line based on the stress/time points given in Table 3.

d Neither the initiating torque nor the running torque shall exceed the values given in this table. It shall not be possible to operate the valve by hand without the operating key.

e As soon as possible after the completion of the internal pressure test the other three tests shall be carried out on the valve in the order stated.

Table 3 — Circumferential (hoop) stress at 80 °C and associated minimum test period

PE 80		PE 100	
Stress MPa	Minimum test period H	Stress MPa	Minimum test period h
4,5	165	5,4	165
4,4	233	5,3	256
4,3	331	5,2	399
4,2	474	5,1	629
4,1	685	5,0	1000
4,0	1000	––	––

8 Physical characteristics

8.1 Conditioning

Unless otherwise specified by the applicable test method, the test pieces shall be conditioned at (23 ± 2) °C before testing in accordance with Table 4.

8.2 Requirements

When tested in accordance with the test methods specified in Table 4 using the indicated parameters, the valves shall have physical characteristics conforming to the requirements given in Table 4.

Table 4 — Physical characteristics

Characteristic	Requirements	Test parameters		Test method
		Parameter	Value	
Oxidation induction time (Thermal stability)	> 20 min	Test temperature Number of test pieces [a]	200 °C[b] 3	EN 728
Melt mass-flow rate (MFR)	After processing maximum deviation of ± 20 % of the value measured on the batch used to manufacture the valve	Loading mass Test temperature Time Number of test pieces [a]	5 kg 190 °C 10 min Shall conform to EN ISO 1133	EN ISO 1133

a The numbers of test pieces given indicate the numbers required to establish a value for the characteristic described in the table.

The numbers of test pieces required for factory production control and process control should be listed in the manufacturer's quality plan. For guidance see prCEN/TS 1555-7[2].

b Test may be carried out at 210 °C providing that there is a clear correlation to the results at 200 °C, in case of dispute the reference temperature shall be 200 °C.

9 Performance requirements

When valves conforming to this standard are assembled to each other or to components conforming to other parts of EN 1555, the joints shall conform to EN 1555-5.

10 Marking

10.1 General

10.1.1 Unless otherwise stated in Table 5, the marking elements shall be printed or formed directly on the valve in such a way that after storage, weathering, handling and installation legibility is maintained during use of the valve.

NOTE The manufacturer is not responsible for marking being illegible due to actions caused during installation and use such as painting, scratching, covering of the components or using detergents etc. on the components unless agreed or specified by the manufacturer.

10.1.2 Marking shall not initiate cracks or other types of defects which adversely influence the performance of the valve.

10.1.3 If printing is used, the colour of the printed information shall differ from the basic colour of the valve.

10.1.4 The size of the marking shall be such that it is legible without magnification.

10.2 Minimum required marking

The minimum required marking shall conform to Table 5.

Table 5 — Minimum required marking

Aspects	Mark or symbol
Number of the System Standard [a]	EN 1555
Manufacturer's name and/or trademark	Name or symbol
Nominal outside diameter(s)of pipe, d_n	e.g. 110
Material and designation	e.g. PE 80
Design application serie	e.g. SDR 11
SDR fusion range [a]	e.g. SDR 11 - SDR 26
Manufacturer's information	[b]
Internal fluid [a]	Gas

[a] This information may be printed on a label associated with the valve or on an individual bag.

[b] For providing traceability, the following details shall be given:

- the production period, year and month, in figures or in code;
- a name or code for the production site if the manufacturer is producing in different sites.

10.3 Additional marking

Valves conforming to this standard, which are third party certified by a certification body, may be marked accordingly.

NOTE Attention is drawn to the possible need to include CE marking when required for legislative purposes.

11 Delivery conditions

The valves shall be packaged in bulk or individually protected where necessary in order to prevent deterioration. Whenever possible, they shall be placed in individual bags, in cardboard boxes or cartons.

NOTE It is recommended to protect the spigot end by external caps.

The cartons and/or individual bags shall bear at least one label with the manufacturer's name, type and dimensions of the part, number of units in the box, and any special storage conditions and storage time limits.

Bibliography

[1] EN 12007-2:2000, *Gas supply systems — Pipelines for maximum operating pressure up to and including 16 bar — Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar).*

[2] prCEN/TS 1555-7, *Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 7: Guidance for the assessment of conformity.*

National Annex NA (informative)
Additional information on the selection and installation of piping systems and components in the UK

The responsible UK committee gives the following advice concerning the selection and installation of piping systems and components conforming to this British Standard.

a) Gas supply companies and other entities deemed to be within the scope of the Public Procurement Directive (PPD) are obliged to use EN 1555-1, EN 1555-2, EN 1555-3, EN 1555-4 and EN 1555-5, produced under EC/U mandate, if they wish to purchase PE pipe systems or components within its scope.

b) Where there are options, care should be taken to ensure that agreement is established between suppliers and purchasers, e.g. in terms of colour, size, physical characteristics and quality assurance.

c) For colour it is the practice of UK gas companies to use yellow PE valves[1)] to facilitate identification of buried gas pipelines, in accordance with the recommendations of the National Joint Utilities Group (NJUG) concerning the colour coding of pipelines and other services.

d) The body wall thickness of valves as specified in **6.3** does not fully reflect current practice. The relevant specification of the national network distributor(s)[1)] should be consulted for information on UK dimensional requirements.

[1)] The relevant standard published by the current national network distributor, Transco, is: T/SP/V4: Part 2.

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