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Agrément Certificate
06/4325
Product Sheet 1

DURGO AIR ADMITTANCE VALVES

DURGO 32 MM, 56 MM, 82 MM, 110 MM AND 140 MM AIR ADMITTANCE VALVES

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Durgo 32 mm, 56 mm, 82 mm (Class A1), 110 mm and 140 mm (Class B1) Air Admittance Valves, to BS EN 12380 : 2002, for the above-ground drainage systems described in this Certificate.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Drainage system design — the valves are for above-ground drainage systems and meet the performance requirements of BS EN 12380 : 2002 (see section 5).

Effect on water seals — the valves provide a means of ventilation to the drainage system to prevent the loss of water seals (see section 6).

Durability — the valves will have a life equivalent to that of the drainage system in which they are installed (see section 8).

The BBA has awarded this Agrément Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément



Brian Chamberlain

Head of Approvals — Engineering



Greg Cooper

Chief Executive

Date of First issue: 24 November 2011

Originally certified on 31 March 2006

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Durgo 32 mm, 56 mm, 82 mm, 110 mm and 140 mm Air Admittance Valves, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2010 (England and Wales)

Requirement:	H1	Foul water drainage
Comment:		The valves will: <ul style="list-style-type: none">• provide adequate ventilation to prevent the loss of water seals in trapped appliances. See sections 3.1 to 3.4, 5.1 to 5.9, 6.1 and 6.2 of this Certificate• prevent foul air from entering the building. See section 6.1 of this Certificate• enable access to the sanitary pipework for clearing blockages. See section 5.2 of this Certificate• contribute to the ventilation of underground drains. See sections 5.2 and 5.3 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The valves are acceptable. See section 8 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The valves can contribute to a construction satisfying this Regulation. See sections 7 and 8 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	3.7(b)(c)	Wastewater drainage
Comment:		Sanitary pipework incorporating the valves can satisfy the Requirements of this Standard, with reference to clauses 3.7.1 ⁽¹⁾⁽²⁾ , 3.7.7 ⁽²⁾ and 3.7.8 ⁽¹⁾ . See sections 3.1 to 3.4, 5.1 to 5.9, 6.1 and 6.2 of this Certificate. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The valves are acceptable. See section 8 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The valves are acceptable. See section 7 of this Certificate.
Regulation:	N2	Drainage systems
Comment:		The valves provide adequate ventilation to prevent the destruction of the water seals in traps. See sections 3.1 to 3.4, 5.1 to 5.9, 6.1 and 6.2 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

In the opinion of the BBA, there is no information in this Certificate which relates to the obligations of the client, CDM co-ordinator, designer and contractors under these Regulations.

Non-regulatory Information

NHBC Standards 2011

NHBC accepts the use of Durgo 32 mm, 56 mm, 82 mm, 110 mm and 140 mm Air Admittance Valves, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 8.1 *Internal services*.

General

This Certificate relates to Durgo 32 mm, 56 mm, 82 mm, 110 mm and 140 mm Air Admittance Valves to BS EN 12380 : 2002, for use in above-ground drainage systems designed in accordance with this Certificate and which have met the performance requirements of BS EN 12380 : 2002; Class A1 for the 32 mm, 56 mm and 82 mm sizes and Class B1 for the 110 mm and 140 mm sizes.

The valves provide a means of ventilation to the drainage system to prevent the loss of water seals in traps and consequent release of foul air into the building.

The drainage systems and the installation and use of the valves must be in accordance with the conditions set out in the *Design Considerations* and *Installation* parts of this Certificate.

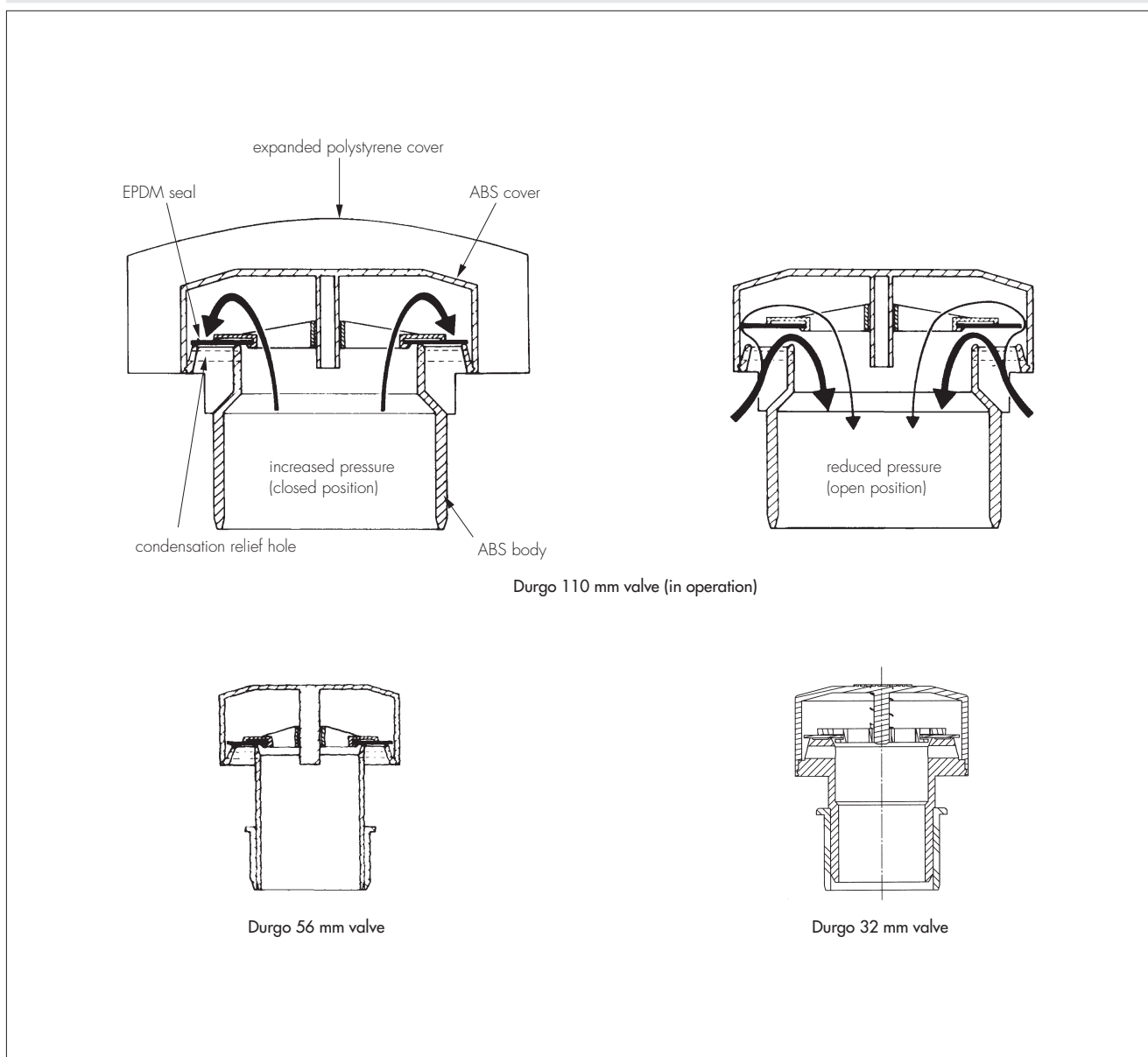
The products are manufactured by the Certificate holder and marketed in the UK by Marley Plumbing and Drainage, Dickley Lane, Lenham, Maidstone, Kent ME17 2DE. Tel: 01622 858888; Fax: 01622 858725; e-mail: marketing@marleypd.com; website: www.marleyplumbinganddrainage.com

Technical Specification

1 Description

1.1 Durgo Air Admittance Valves (see Figure 1) comprise an injection-moulded, two-part acrylonitrile butadiene styrene (ABS) body, snap-fitted and bonded together and incorporating a seating for sealing purposes. Two diametrically opposed holes in the lower moulding allow condensation to return to the discharge stack. The valve incorporates a sliding ABS disc and EPDM (ethylene propylene diene monomer) seal bought-in to the Certificate holder's specification. In addition the 32 mm valve incorporates a stainless steel spring.

Figure 1 Durgo Air Admittance Valves



1.2 The range of components is detailed in Table 1. The valves each incorporate a spigot for insertion into ring seal sockets or ABS and PVC-U solvent weld sockets.

1.3 The valves incorporate spigots with diameters that are in accordance with the Standards for waste pipe, including: BS EN 1329-1 : 2000, BS EN 1451-1 : 2000, BS EN 1455-1 : 2000, BS EN 1519-1 : 2000, BS EN 1565-1 : 2000, BS 5255 : 1989 and BS 4514 : 2001.

1.4 An expanded polystyrene insulating cover is supplied to prevent condensation forming within the valve under cold conditions. A label on the insulating cover cautions an installer not to remove it.

Table 1 Product range

Valve size (nominal diameter of spigot) (mm)	Product code	BS EN 12380 designation ⁽¹⁾	Use
32	152574	A1	see section 3.2
56	BA 5074	A1	see section 3.3
82	BA 7574	A1	see sections 3.4 and 3.5
110	BA 9074	B1	see sections 3.4 and 3.5
140	BA 12588	B1	see section 3.6

(1) A1 = permitted to be used below flood level in locations where the temperature is in the range of -20°C to 60°C.
B1 = rated at the same temperature but only for use above the flood level of the appliance served.

1.5 Continuous quality control is exercised during manufacture and assembly, including visual checks, checks on dimensional accuracy and airtightness. The raw materials and bought-in goods are subject to quality controls.

2 Delivery and site handling

Valves, complete with an insulating cover and installation instructions, are supplied in cardboard boxes and polyethylene bags, to limit the risk of contamination or damage. They must be stored upright in their boxes until required for use.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Durgo 32 mm, 56 mm, 82 mm, 110 mm and 140 mm Air Admittance Valves.

Design Considerations

3 Use

 3.1 When used in accordance with the provisions of this Certificate in above-ground drainage systems designed in accordance with BS EN 12056-1 : 2000 and BS EN 12056-2 : 2000, the valves:

- admit air under conditions of reduced pressure in the discharge pipes and prevent water seals in traps from being drawn
- prevent the release of foul air from the drainage system
- contribute to the ventilation of the main drain to which the discharge stack incorporating the valve is connected.

3.2 The 32 mm valve is for connection to waste pipes to prevent water loss from trap seals by self and induced siphonage arising from water flow in small diameter branch discharge pipes.

3.3 The 56 mm valve is for use on branch discharge pipes.

3.4 The 82 mm and 110 mm valves are for use on discharge stacks serving up to 10 storeys.

3.5 The 110 mm valve may be used as a substitute for the 82 mm valve where the 110 mm spigot diameter makes it more convenient to install.

3.6 The 140 mm valve is for use on discharge stacks serving up to 12 storeys. It may be used also as a substitute for the 110 mm valve where the 140 mm spigot diameter makes it more convenient to install.

3.7 The valves can be used in association with each other or separately.

4 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

5 Drainage system design



5.1 Drainage systems designed in accordance with BS EN 12056-1 : 2000 and BS EN 12056-2 : 2000 should be based on the airflow data given in Table 2. Typical installation details in accordance with BS EN 12056-1 : 2000 are given in Figures 2, 3 and 4.

Table 2 Airflow performance⁽¹⁾

Nominal size of pipe (mm)	Flow rate (litres per second)
32, 36	7.4
56	16.9
82	37.1
110	44.3
140	83.3

(1) These results are based on tests carried out by the BRE in accordance with BS EN 12380 : 2002.

Figure 2 Typical domestic installation (eg bungalow or house)

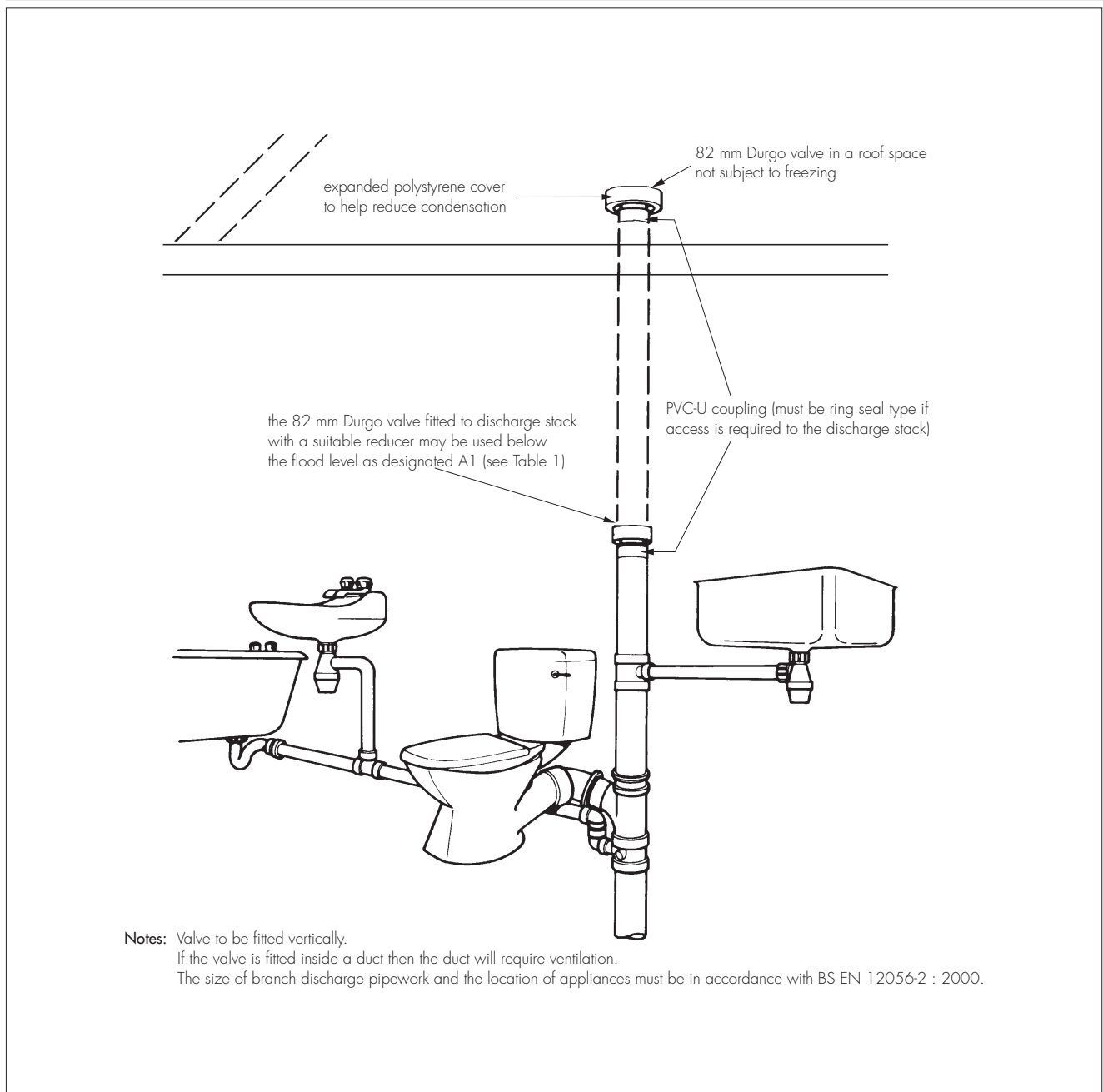


Figure 3 Domestic discharge system (eg multi-storey flats and halls of residence)

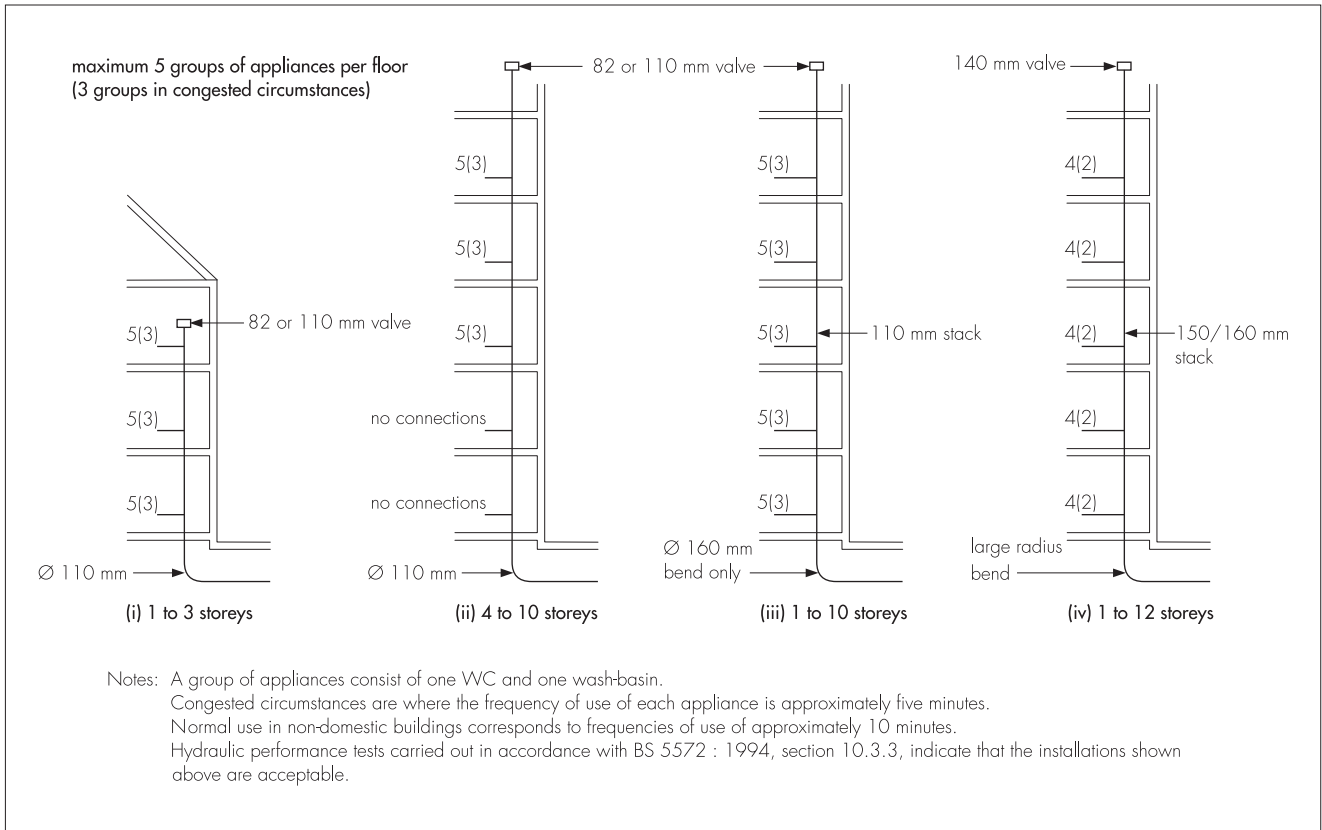
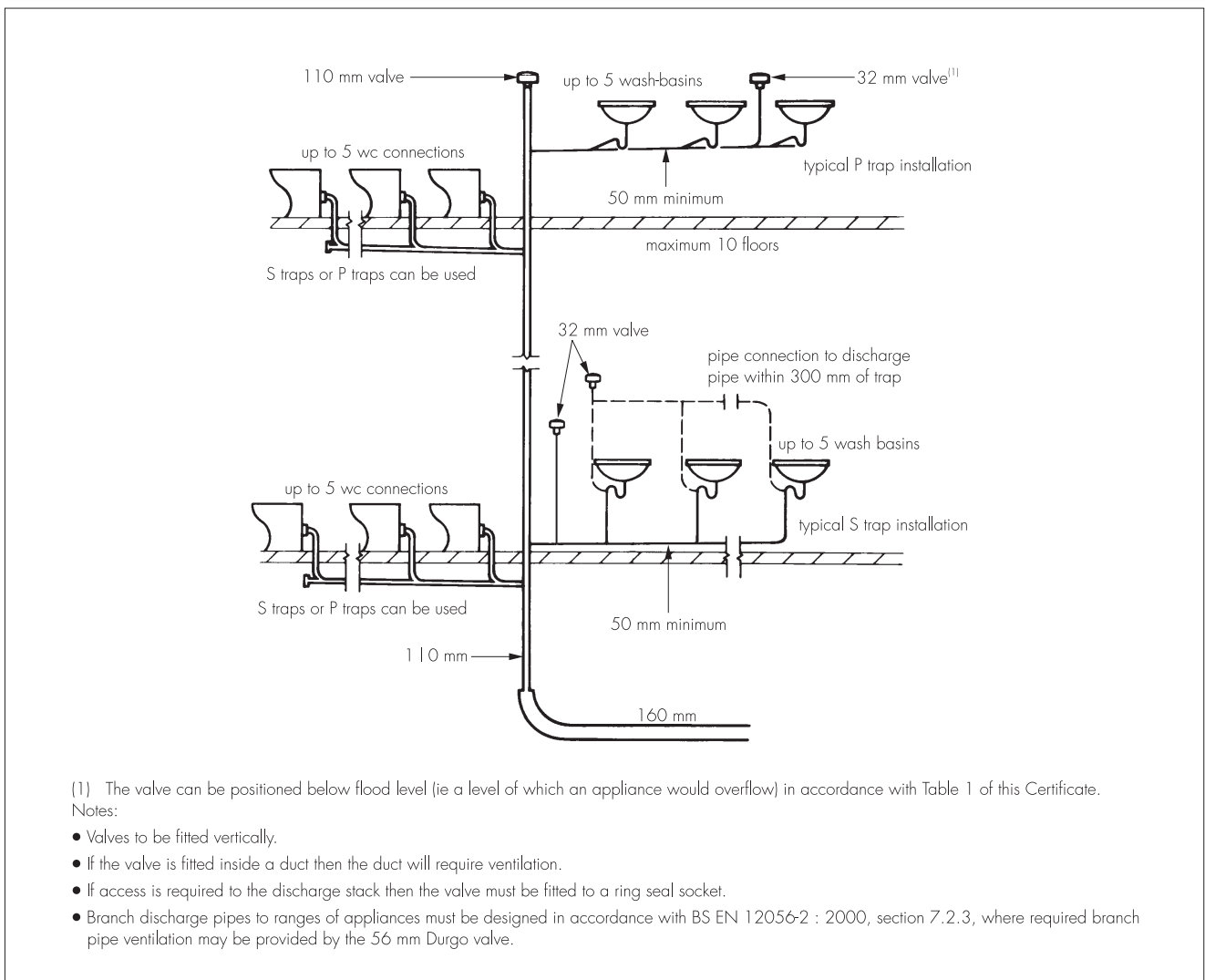


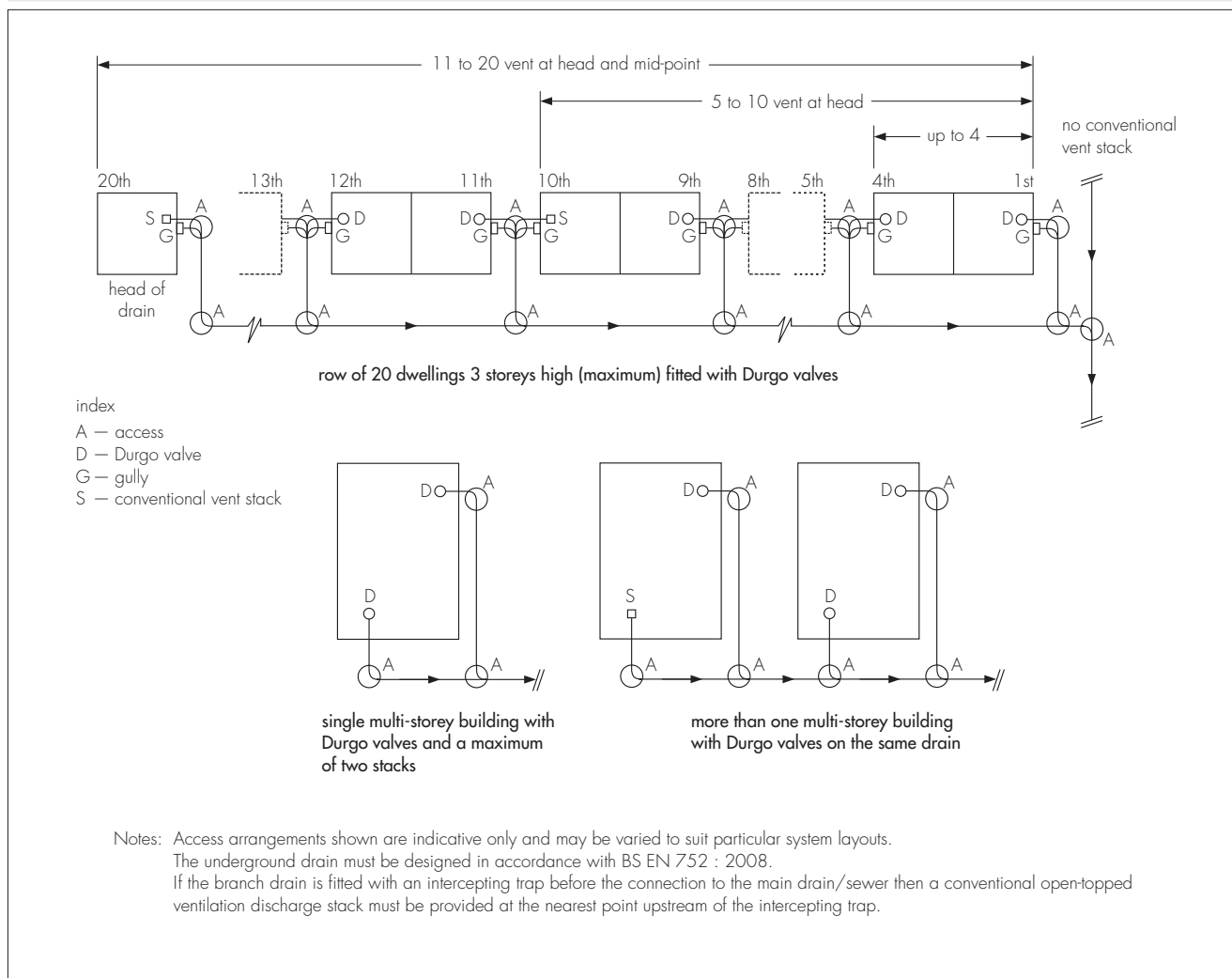
Figure 4 Typical non-domestic installation (eg offices, factories, schools and other types of public buildings)



5.2 To contribute to the ventilation of the underground drain and to minimise the effects of excessive back pressures when a drain blockage occurs, the branch or main drain serving a stack, or stacks, fitted with Durgo valves may require venting at a point upstream of the stack connection. For guidance the following should be noted (see Figure 5):

- for up to and including four dwellings, one, two or three storeys in height, additional drain venting is not required. Where a drain serves more than four such dwellings equipped with the valves, the drain should be vented according to the following rule, either by a conventional open topped ventilation or discharge stack:
 - 5 to 10 such dwellings — conventional ventilation to be provided at the head of the system
 - 11 to 20 such dwellings — conventional ventilation to be provided at the mid-point and at the head of the system.
- for multi-storey domestic dwellings (other than those referred to above) and non-domestic buildings, conventional drain venting should be provided if more than one such building, each equipped with the valves, is connected to either a common drain, itself not vented by means of a ventilation stack, or to a discharge stack not fitted with a valve.

Figure 5 Drain ventilation provisions



5.3 In all installations, stacks should not be fitted with the valves when the connecting drain(s) are subject to periodic surcharging or are fitted with intercepting traps. An open-topped discharge stack or ventilating stack should be used in such cases.

5.4 The valves should be installed within the building, preferably in a freely ventilated non-habitable space such as a duct or roof, or externally to the building where they are protected from dust and insects, and easily accessible but not likely to be subject to interference, eg from vandals.

5.5 If the valves are to be installed in, or in close proximity to, a habitable space where noise of operation may cause a nuisance, consideration must be given to the use of a suitable form of sound insulation.

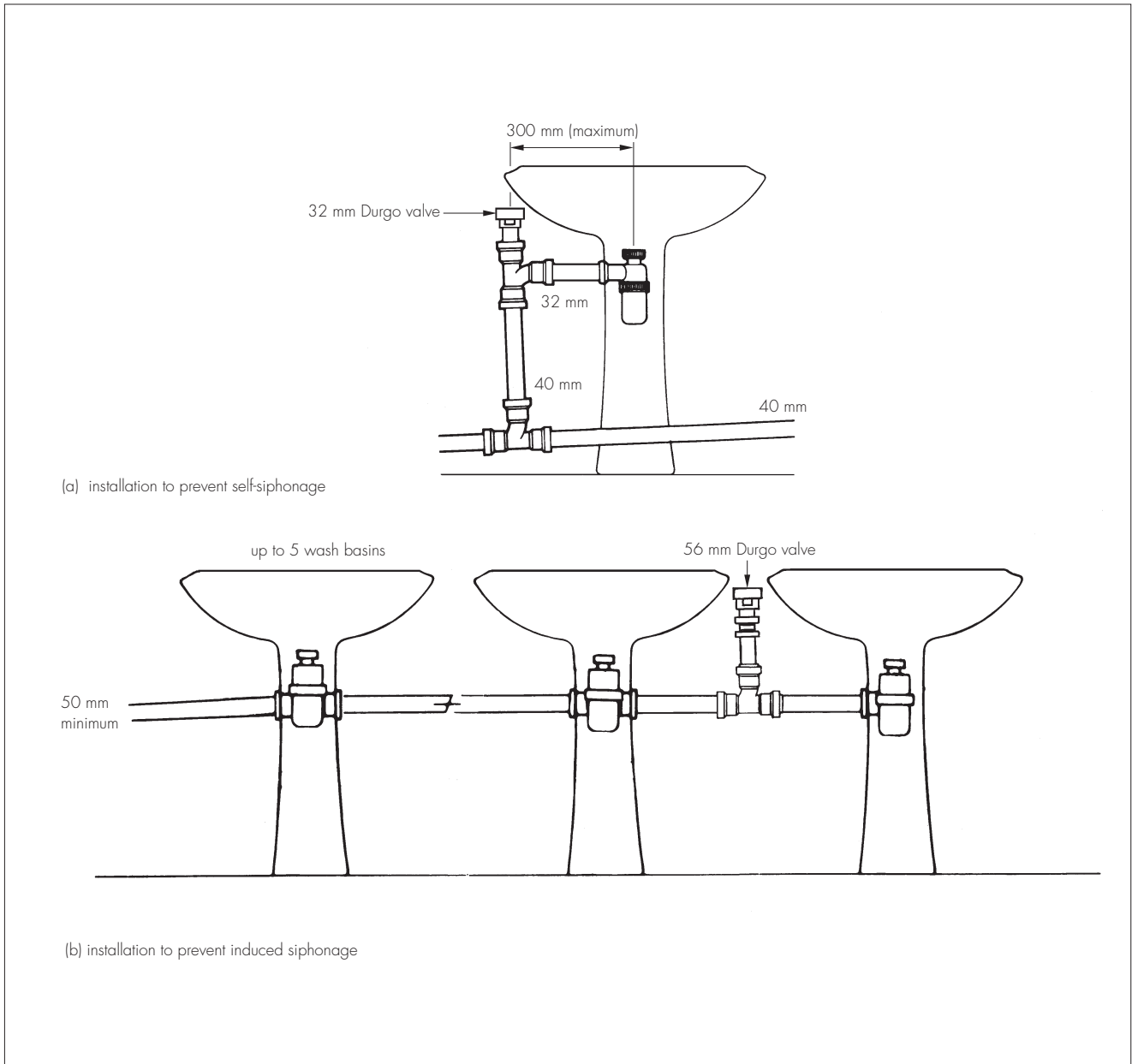
5.6 With the 110 mm and 82 mm valves the insulating cover should be used when there is a possibility of condensation forming and freezing within the valve body.

5.7 If self-siphonage may occur, a connection to the 32 mm valve is required within 300 mm of the trap (see Figure 6).

5.8 To prevent induced siphonage in a row of wash-basins, a 32 mm or 56 mm valve should be fitted between the two wash-basins furthest from the discharge stack (see Figure 6).

5.9 Air admittance valves should not be used when the discharge stack provides the only ventilation to septic tanks or cesspools.

Figure 6 Installation



6 Effect on water seals

6.1 Under conditions of increased pressure in the drainage system, each valve will remain closed, thereby preventing the release of foul air into the building. In a correctly designed drainage system incorporating the valves in accordance with the recommendations given in this Certificate, increases in pressure will not be sufficient to cause traps in WCs or other appliances to become unsealed. The valves will admit sufficient quantities of air into the stack when they are subjected to a reduced pressure and thereby prevent loss of water seals in appliance traps.

6.2 Should a pressure increase occur such that it is sufficient to cause the loss of water seals, it is an indication that a drain blockage has occurred or that the system is being overloaded or otherwise misused.

7 Maintenance

The valves do not normally require maintenance. However, in the event of accidental damage or vandalism, valves fitted to ring seal sockets can be replaced easily.

8 Durability

The valves are manufactured from conventional materials in drainage systems. Repeated opening and closing will not adversely affect the sealing or operation of the valve. When used in the context of this Certificate, the product will not be subject to significant deterioration and will have a life equivalent to that of the drainage system in which it is installed.

9 General

9.1 Installation of Durgo Air Admittance Valves must be carried out in accordance with the manufacturer's instructions. Joints are effected by conventional ring-seal or solvent-weld joint methods.

9.2 When valves are fitted to a ring-seal socket, a suitable lubricant recommended by the Certificate holder should be applied to the valve spigot.

9.3 Solvent weld connections must be made using solvent cement to BS EN 14680 : 2006. This cement is suitable for solvent welding the valves to ABS and PVC-U fittings. Care must be taken in making solvent welded joints to prevent contact with the moving parts of the valve. Solvent welding must not be used for connection to polypropylene or polyethylene pipes and fittings.

9.4 The valves must be fitted in a vertical position above the pipe being ventilated.

9.5 The valves are installed in discharge and/or ventilating pipes and obviate the need to penetrate the roof covering. Care should be taken to avoid contamination of the sealing surfaces, as this may affect airtightness.

Technical Investigations

10 Tests

10.1 As part of the assessment resulting in the issue of previous Certificates Nos 82/977, 85/1557, 89/2285 and 97/3427, tests were carried out to determine:

- dimensional accuracy
- airtightness when tested to a pressure of 50 mm water gauge
- airtightness at low positive pressure
- reduced pressure required to open the valve
- effect of repeated operation.

10.2 Tests were carried out on the 32 mm and 140 mm valves to establish:

- airtightness when tested to a pressure of 40 mm and 200 mm water gauge
- effect of pressure cycling
- airtightness under normal operating conditions
- performance in use on a stack when tested in accordance with BS 5572 : 1994
- impact drop tested and correct functioning
- effect of repeated operation
- airtightness at low positive pressure
- reduced pressure required to open
- practicability of installation
- dimensional checks
- Shore hardness of diaphragm seals.

10.3 Tests were conducted to determine the performance in use for the conditions covered in this Certificate.

10.4 Tests were carried out on the full range of valves in accordance with BS EN 12380 : 2002:

- drop test
- airtightness test at 30 Pa, 500 Pa and 10000 Pa
- airtightness after endurance testing at 20°C and 60°C
- opening characteristics and airflow capacity
- effectiveness at temperatures below zero.

11 Investigations

11.1 The manufacturing process was examined including the methods adopted for quality control and details were obtained of the quality and composition of materials used.

11.2 A re-examination was made of the data on which the previous Certificates were based. The conclusions drawn from the original data remain valid.

11.3 An examination was made of data in relation to:

- effect on trap seals when tested on five-storey test rigs
- self and induced siphonage
- stress relaxation
- creep durability.

11.4 Regular factory inspections have been carried out to ensure that quality is being maintained.

11.5 A user survey has been carried out to confirm performance in use.

11.6 An evaluation was made of reports by the BRE and Valve Accessory and Control, Sweden AB, of tests to BS EN 12380 : 2002.

Bibliography

BS 4514 : 2001 *Unplasticized PVC soil and ventilating pipes of 82.4 mm minimum mean, outside diameter and fittings and accessories of 82.4 mm and of other sizes — specification*

BS 5255 : 1989 *Specification for thermoplastics waste pipe and fittings*

BS 5572 : 1994 *Code of practice for sanitary pipework*

BS EN 752-1 : 1996 *Drain and sewer systems outside buildings — Generalities and definitions*

BS EN 752-2 : 1997 *Drain and sewer systems outside buildings — Performance requirements*

BS EN 752-3 : 1997 *Drain and sewer systems outside buildings — Planning*

BS EN 752-4 : 1998 *Drain and sewer systems outside buildings — Hydraulic design and environmental considerations*

BS EN 1329-1 : 2000 *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Unplasticized poly(vinyl chloride) (PVC-U)*

BS EN 1451-1 : 2000 *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polypropylene (PP) — Specifications for pipes, fittings and the system*

BS EN 1455-1 : 2000 *Plastics piping systems for soil and waste (low and high temperature) within the building structure — Acrylonitrile-butadiene-styrene (ABS) — Specifications for pipes, fittings and the system*

BS EN 1519-1 : 2000 *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Polyethylene (PE) — Specifications for pipes, fittings and the system*

BS EN 1565-1 : 2000 *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Styrene copolymer blends (SAN + PVC) — Specifications for pipes, fittings and the system*

BS EN 12056-1 : 2000 *Gravity Drainage Systems inside Buildings — General and performance requirements*

BS EN 12056-2 : 2000 *Gravity Drainage Systems inside Buildings — Sanitary pipework, layout and calculation*

BS EN 12380 : 2002 *Air admittance valves for drainage systems — Requirements, test methods and evaluation of conformity*

BS EN 14680 : 2006 *Adhesives for non-pressure thermoplastic piping systems — Specifications*

12 Conditions

12.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

12.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

12.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

12.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

12.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal.

12.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

