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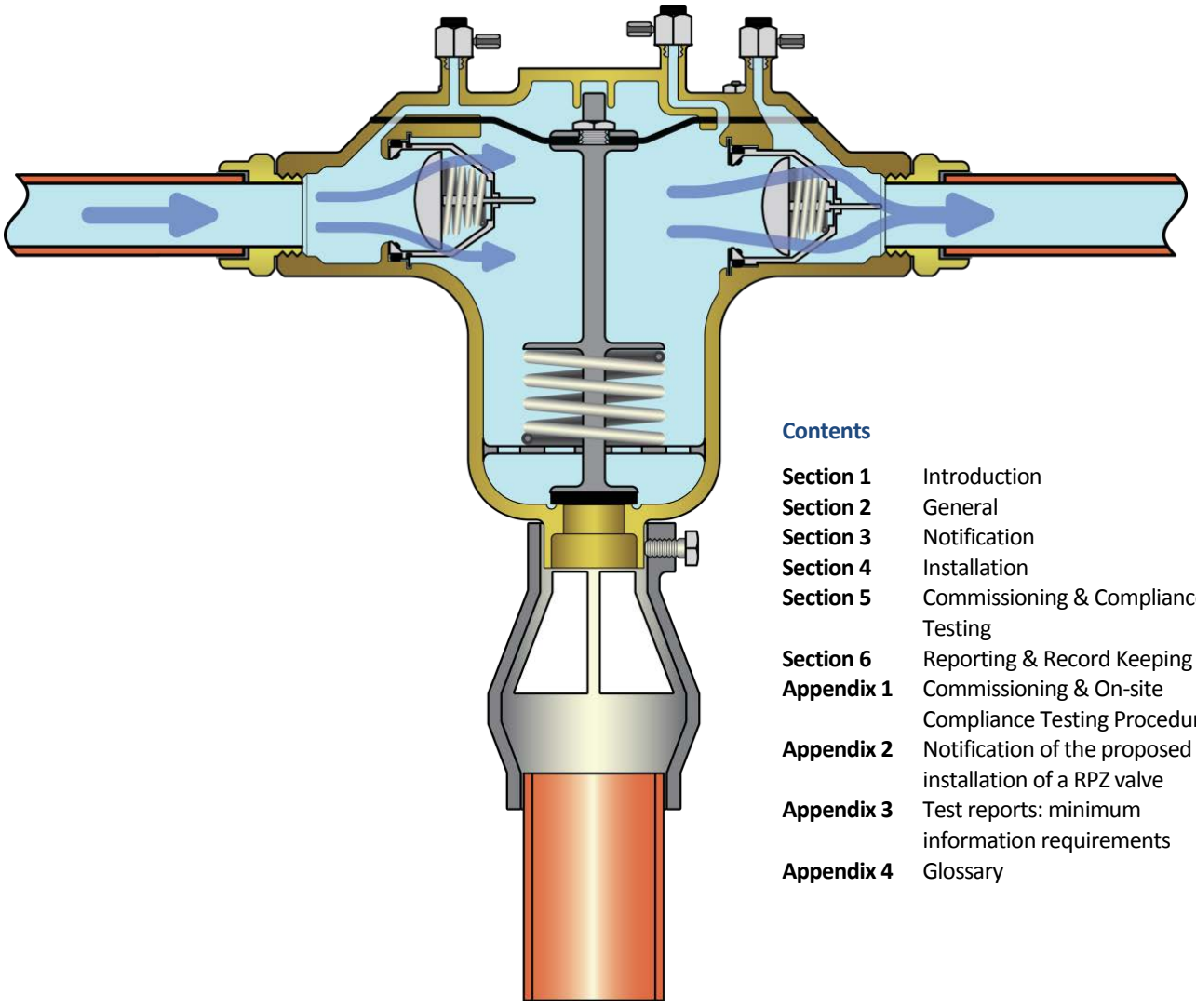
Water Undertakers' Approved Installation Method (AIM)

Approved Installation Method AIM
APPROVED BY YOUR LOCAL WATER SUPPLIER

Type BA Device – Verifiable Backflow Preventer with Reduced Pressure Zone (RPZ Valve)

Requirements for installation, commissioning and compliance testing of Type BA devices (RPZ valves)



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Approved Installation Method

Type BA Device – Verifiable Backflow Preventer with Reduced Pressure Zone (RPZ Valve)

1. INTRODUCTION

1.1 This Approved Installation Method (AIM) sets out the Water Supply Industry's requirements for the installation, commissioning and on-site compliance testing of the Type BA Device – a Verifiable Backflow Preventer with Reduced Pressure Zone – which can be referred to as either a BA device or RPZ valve. This AIM should be read in conjunction with The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014 and Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.

Reference to 'regulations' in this AIM means the Water Supply (Water Fittings) Regulations 1999, the Water Supply (Water Fittings) (Scotland) Byelaws 2014 and the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.

The regulations apply to any water fitting installed or used, or to be installed or used, in premises to which water is or is to be supplied by a water undertaker.

The regulations include specific requirements for water fittings, including RPZ valves, and their installation, which must be complied with.

To demonstrate on-going conformity with the requirements of Regulation 3, specifically that a RPZ valve continues to function satisfactorily as a backflow prevention device, acceptable evidence of on-site compliance testing shall be required for all RPZ valves (this will normally be required under the terms and conditions of consent issued by the water undertaker prior to installation) (see Section 3). To conform to the requirements of Regulation 4(6) [Byelaw 4(5) in Scotland], work on RPZ valves shall either be in accordance with a method of installation approved by the Water undertaker or an appropriate British Standard (or equivalent specification).

This document sets out the UK Water Supply Industry's approved method of installation (AIM) [developed in accordance with the requirements of Regulation 12(3) of the Water Supply (Water Fittings) Regulations 1999; byelaw 4(6) of the Water Supply (Water Fittings) Byelaws (Scotland) 2014; and Regulation 11(1) of the Water Supply (Water Fittings) Regulations (Northern Ireland) 2009].

1.2 **It is a legal requirement to comply with the requirements of the regulations and failure to do so could result in criminal proceedings being taken.**

The regulations make it clear that any water fitting, whether or not it is installed for the purpose of preventing contamination, shall be installed, used and maintained in accordance with the requirements of the regulations. Failure to do so would be a criminal offence.

In relation to RPZ valves, non-compliance with this Approved Installation Method (AIM) would be a relevant consideration in determining whether an offence has been committed.

1.3 **On-site commissioning and compliance testing of a RPZ valve shall only be carried out by a person competent to carry out commissioning and compliance testing of a RPZ valve.** A list of such competent persons is available from water industry approved contractor schemes and WaterSafe www.watersafe.org.uk .

1.4 **This method of installation and testing is approved by:**

Affinity Water
Albion Water
Anglian Water
Bristol Water
Bournemouth Water
Cambridge Water
Dwr Cymru (Welsh Water)
Essex and Suffolk Water
Hafren Dyfrdwy
Independent Water Networks Ltd
Northern Ireland Water
Northumbrian Water
Portsmouth Water
Scottish Water
SES Water
Severn Trent Water
Southern Water
South East Water
South Staffs Water
South West Water
Thames Water
United Utilities
Wessex Water Services
Yorkshire Water Services

For further information about the regulations please refer to your water company website and WRAS www.wras.co.uk

2. GENERAL

2.1 All water fittings supplied with water by a water undertaker, including RPZ valves, shall comply with the requirements of the regulations.

2.2 The proposed installation and use of RPZ valves shall be notified in advance to the water undertaker (see Section 3). RPZ valves shall not be installed until consent is deemed to have been granted. Failure to comply with the requirements specified as a condition of consent may result in the water undertaker taking enforcement action which may include temporarily disconnecting the water supply to the premises and requiring the removal of the RPZ valve. Reconnection shall only be with the agreement of the water undertaker.

2.3 Failure to notify the water undertaker of the intention to install a RPZ valve could result in legal action being taken.

2.4 Water undertakers maintain and manage a register of RPZ valves in their area of water supply to ensure on-going compliance for enforcement purposes.

2.5 Water undertakers require valid commissioning and on-site compliance testing report(s) for all RPZ valves installed.

2.6 The installation and use of RPZ valves requires an on-going commitment to testing (this will normally be required under the terms and conditions of consent issued by the water undertaker prior to installation see Sections 3, 5 & 6).

2.7 In accordance with Regulation 4(1) RPZ valves shall be of an appropriate quality and standard and be suitable for the circumstances in which they will be used. Because RPZ valves create a flow and pressure drop across the device they may not be suitable for use on low pressure water supplies or systems likely to be subjected to pressure fluctuations. The full range of water pressures available at the intended location of a proposed RPZ valve shall be known before it is installed.

2.8 RPZ valves intended to be installed and used for hot water applications must be suitable for such circumstances.

2.9 RPZ valves can be installed to provide protection against backflow from a fluid not exceeding fluid category 4. Fluid risk categories are defined in Schedule 1 of the regulations. The category or risk will be determined by the highest level of risk downstream to which the water system is or maybe exposed.

2.10 Zone or whole-site protection does not replace the requirement of the regulations for adequate point-of-use backflow protection.

3. NOTIFICATION

3.1. **Any proposed installation, relocation, extension, alteration, change of use or disconnection of plumbing that incorporates a RPZ valve shall be notified, in advance, to the local water undertaker.**

3.2 **It is a requirement of all the water undertakers listed under section 1.4 of this Approved Installation Method (AIM) that prior notice shall be given and consent sought, from the relevant water undertaker, for the installation of all RPZ valves. Water industry approved contractors may be required to notify installation of RPZ valves as part of their scheme terms and conditions.** Details of the proposed work/installation shall be sent to the relevant water undertaker no less than ten working days before work is due to start. Installing or using RPZ valves without the required consent could result in enforcement action being taken by the water undertaker.

3.3 Water undertakers may withhold or grant consent. Consent for the installation of a RPZ valve will always be subject to conditions. These may include specific requirements in addition to the general requirements set out in this document, all conditions set shall be complied with.

3.4 Potential users of RPZ valves must be aware that water undertaker's consent will always be conditional upon installation, commissioning and on-site compliance testing requirements.

3.5 Details of the minimum information needed by a water undertaker, for consent to install a RPZ valve, are provided in appendix 2. Please note that failure to provide the minimum level of information required may delay consent. Contact the local water undertaker for further information.

4. INSTALLATION

4.1 RPZ valves shall **not** be installed in a location or position which:

- is liable to flooding;
- is above, or where, electrical equipment is located;
- is liable to mechanical or other damage;
- is exposed to freezing, unless measures are taken to prevent the assembly from freezing;
- is concealed;
- is below ground;
- creates a hazard or restricts access to the valve for operation/maintenance/repair/ commissioning or compliance testing;
- prevents identification of the unique serial number identifier.

Installation in a basement or plant room below ground may be accepted subject to the agreement of the water undertaker.

The RPZ valve shall be installed above floor level at a height that enables effective inspection, maintenance, commissioning and compliance testing (see Figure 1). The minimum distance from the underside of the exit port of the relief valve to the ground, floor level or the base of any cabinet shall be twice the inlet diameter or 300mm whichever is the greater. Unless otherwise agreed by the water undertaker, the maximum height from the ground or floor level, including permanently fixed gantries, shall be no more than 1.5m to the top of the valve. The use of permanently available or mobile platforms to access RPZ valves for testing etc. is subject to the consent of the water undertakers.

Except for the closure of secure cabinet doors and lids there shall be free access for both the maintenance of the assembly and the use of test equipment. The recommended minimum clearances are detailed in Figure 2.

Figure 1: Side view minimum clearances

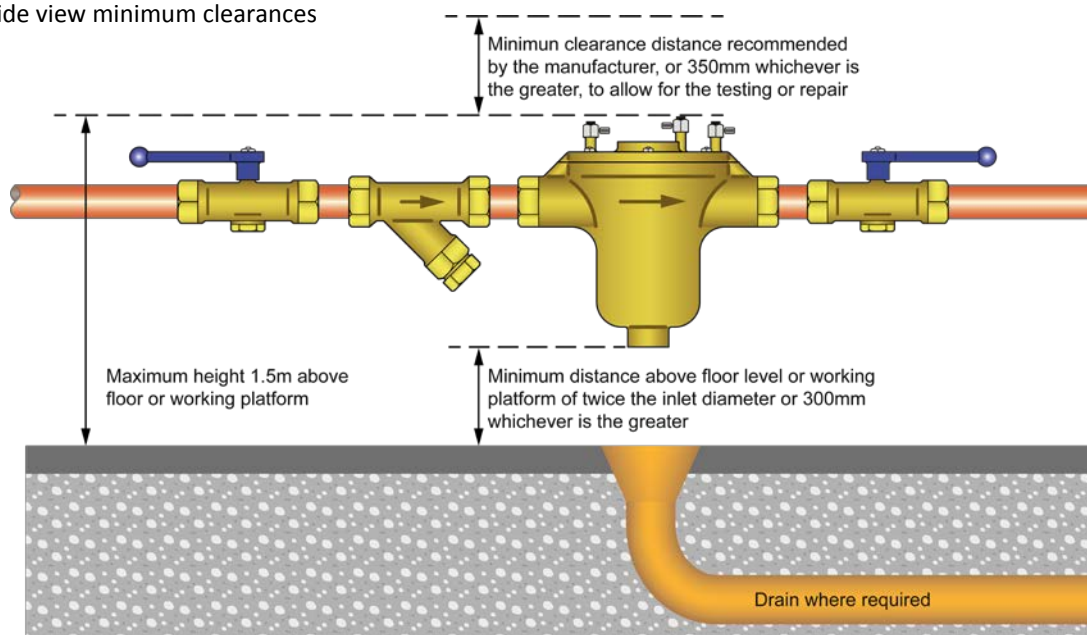
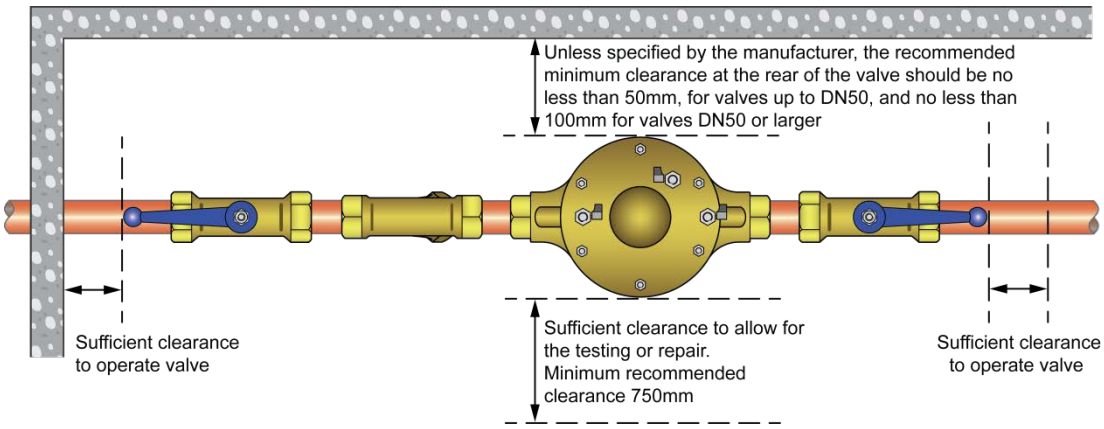


Figure 2: Plan view minimum clearances



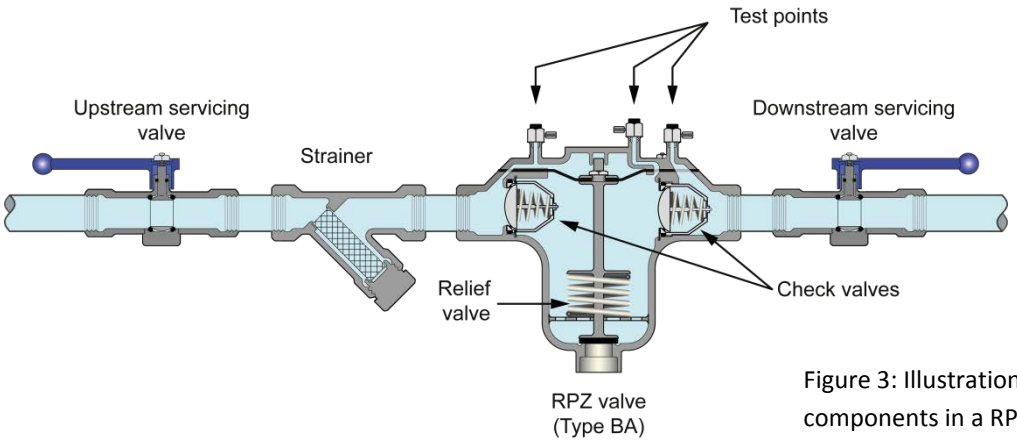


Figure 3: Illustration showing all the components in a RPZ valve assembly

4.2 Some plumbing systems may be subject to pressure fluctuations, where such fluctuations exceed the manufacturer's tolerances RPZ relief valves may be prone to discharge. For this reason consideration shall be given as to whether the use of a RPZ valve is suitable or other work is required to prevent the unwanted discharge of water from the relief valve.

4.3 Any discharge originating from a RPZ relief valve must be readily visible. The relief valve can discharge directly onto the floor or to drain. There must be an appropriate air gap between the relief valve discharge point and any arrangement used to channel it to waste. That is to say an air break to drain installed in accordance with the requirements of the current version of BS EN 1717, or a Type AA or AB air gap. If installed in a cabinet provision should be made to allow any discharge from the relief valve to drain freely.

4.4 Unless a RPZ valve is specifically designed, and is of an appropriate quality and standard, for vertical or inclined installation, it shall be installed horizontally with the relief valve discharging downwards. Large assemblies should be fitted with additional support brackets as necessary.

4.5 Unless otherwise agreed with the water undertaker, or already incorporated as part of the valve, an inline strainer shall be installed immediately upstream of a RPZ valve.

4.6 To minimize the discharge of water (when a RPZ is repaired or replaced) and facilitate maintenance and testing, sufficient servicing valves shall be installed immediately upstream and downstream of the RPZ valve assembly. The servicing valve on the inlet should be upstream of any inlet strainer installed (see figure 3).

4.7 Before a RPZ valve is first or re-commissioned it shall be flushed and, if required, disinfected in accordance with an appropriate standard.

4.8 It is recommended that a test record card (see figure 4) be attached to or left adjacent to the RPZ valve.

5. COMMISSIONING & COMPLIANCE TESTING

General

5.1 The on-site commissioning and compliance testing requirements specified in this AIM are the minimum requirements for demonstrating that a RPZ valve is operating as intended.

Serial number:
Date first commissioned:
Test due date:
Test interval:
Date tested:
Results of test:
Reason for test:
Name of tester:
Tester reference number:
Signature:
Re-test date:
Contact details:

Figure 4: Test record card

5.2 Valid commissioning and compliance test reports are required for all RPZ valves supplied with water by a water undertaker.

5.3 On-site commissioning and compliance testing of a RPZ valve shall only be carried out by a person competent to commission and compliance test a RPZ valve. That is to say a person recognised by a water undertaker as having gained a recognised qualification in RPZ valve commissioning and compliance testing from a recognised training provider. They shall either be a member of a scheme for RPZ testers recognised by the water industry (i.e. water undertaker approved contractor scheme or WaterSafe) or recognised by the relevant water undertaker on a site specific basis in their area of water supply.

5.4 On-site compliance testing shall only be undertaken using suitably calibrated test equipment.

5.5 RPZ valves used on hot water installations must be tested under normal operating conditions.

5.6 For identification purposes each RPZ valve shall have a unique serial number identifier. This detail shall be recorded in the commissioning and compliance test report.

New and replacement RPZ valves

5.7 Before the RPZ valve can be brought into service the local water undertaker shall require all newly installed RPZ valves, including replacement RPZ valves, to satisfy the requirements of both on-site commissioning and compliance testing, plus where required flushing, testing and disinfection (see clause 4.7).

5.8 The test due date for future on-site compliance testing of new and replacement RPZ valves shall be determined by the local water undertaker. The test due date for compliance testing of a replacement RPZ valve shall be related to the date of its commissioning and initial on-site compliance testing and not the test due date of the RPZ valve which it replaced (also refer to clause 5.21).

Existing RPZ valves

5.9 Valid on-site compliance test reports are required for all existing RPZ valves supplied with water by a water undertaker. On-site compliance testing shall be carried out at least annually or at more frequent intervals as specified by the water undertaker.

5.10 On-site commissioning and compliance testing is also required by the water undertaker for any existing RPZ valve which has:-

- had components replaced;
- been dismantled in anyway (e.g. following maintenance of an integral strainer); or
- has been relocated (this includes RPZ valves that form part of equipment which is portable or routinely moved, either within or between premises and reconnected e.g. a cement batching plant or attached to a standpipe).

Only when these RPZ valves satisfy these tests requirements can they be brought back into service (also refer to clause 5.8).

Commissioning

5.11 The commissioning procedure (sometimes known as a 'functional check ') is required to ensure the assembly is brought into service in a controlled manner and key components are operating correctly.

5.12 The procedure is only required to be undertaken at the time of installation (see clause 5.7) and after the repair, dismantling or relocation of an existing RPZ valve as described in clause 5.10.

5.13 The commissioning of a RPZ valve and associated fittings should only be carried out by a person competent to commission RPZ valves (see clause 5.3).

5.14 Before being commissioned the assembly shall be flushed and, if required, disinfected in accordance with an appropriate standard.

Commissioning procedure:

5.15 Confirm that consent for the installation of the RPZ valve has been granted and all conditions of consent, excluding those relating to compliance testing, have been complied with. The absence of consent, or failure to comply with any conditions of consent, shall be recorded as a test failure (see clauses 6.8-6.12).

5.16 Confirm the RPZ valve assembly complies with the requirements of regulation 4(1).

5.17 Visually inspect the assembly to confirm that the installation:-

- conforms to the installation requirements set out in section 4 'Installation' of this document;
- the satisfactory functioning of the strainer (debris to be removed if present);
- is leak free and water tight.

Failure to satisfy any of these requirements shall be recorded as a test failure (see clauses 6.8-6.12).

5.18 Complete the commissioning procedure detailed in Appendix 1. This procedure shall demonstrate that all key components are functioning. That is to say:-

- both the upstream (inlet) and downstream (outlet) servicing valves shut off the water supply;
- the RPZ Valve assembly is free from air;
- the relief valve will open when the upstream pressure is relieved and close water tight once the upstream pressure has been restored; and
- both number 1 check valve (upstream) and number 2 check valve (downstream) will close tight when there is no flow of water.

Failure to satisfy the commissioning procedure shall be recorded as a failing to meet the commissioning procedure (see clauses 6.8-6.12).

5.19 Upon completion of the commissioning procedure, if the RPZ valve satisfies all requirements, refill the RPZ valve ensuring that no leaks are visible. The RPZ valve shall be isolated by closing the upstream and downstream servicing valves; it shall not be put into service until compliance testing is satisfactorily completed.

Compliance testing

5.20 Compliance testing shall always be carried out in accordance with the conditions of consent identified by the water undertaker. These will include but are not limited to specified test intervals as well as testing following installation, repair and relocation (also see clause 5.10).

5.21 The test due date and compliance testing intervals shall be determined by the water undertaker and cannot be changed without their consent. On site compliance testing of all existing RPZ valves shall be carried out no later than the test due date. In the case of RPZ valves to be tested at 12 month intervals on-site compliance testing can be carried out no earlier than 30 days prior to the test due date. Early testing of other RPZ valves may be undertaken with the agreement of the water undertaker.

5.22 The compliance testing of a RPZ valve and associated fittings shall only be carried out by a person competent to test RPZ valves (see clause 5.3).

5.23 All test kit equipment used shall be suitably calibrated and appropriate for the installation being tested (e.g. suitable for hot water testing). RPZ test kits shall be calibrated by a pressure calibration service accredited by UKAS. Kits should be calibrated at least annually or, where specified by the kit manufacturer more frequently.

Compliance testing procedure

5.24 Confirm that the RPZ valve has satisfactorily completed the commissioning procedure detailed in Appendix 1. Failure to confirm this shall be recorded as a test failure (see clauses 6.8-6.12).

5.25 Visually inspect the assembly to confirm that the installation:-

- conforms to the requirements set out in section 4 'Installation' of this document;
- the satisfactory function of the strainer (debris to be removed if necessary).

Failure to satisfy any of these requirements shall be recorded as a test failure (see clauses 6.8-6.12).

5.26 Complete the on-site compliance test procedure detailed in Appendix 1. This procedure will demonstrate that all the key components in a RPZ valve are functioning correctly and the assembly is providing up to fluid category 4 backflow protection. That is to say that:-

- the number 1 check valve (upstream) is water tight at low pressure;
- there is an adequate pressure differential between the upstream and intermediate zone;
- the relief valve is operating correctly; and
- the number 2 check valve (downstream) is water tight at low pressure.

Failure to satisfy the on-site compliance test shall be recorded as a test failure (see clause 6.8-6.12).

6. REPORTING & RECORD KEEPING

6.1 Valid commissioning and compliance test reports, submitted in a format acceptable to the water undertaker, are required for all RPZ valves, supplied with water by a water undertaker.

6.2 Upon completion of a commissioning and or compliance test a signed test report shall be completed by the tester who undertook the test and issued to the person responsible for the RPZ valve. The tester shall retain a copy of the signed test report and send a copy to the water undertaker within 10 working days of completion of the test unless the RPZ valve failed the test, in which case the requirements set out in clauses 6.8-6.12 shall be followed. Failure to satisfy this reporting requirement shall invalidate a test report.

6.3 It is recommended that customers retain commissioning test reports for the lifetime of a valve. All compliance test reports, irrespective of the results, shall be retained by the customer for a period of at least five years.

6.4 The customer shall make available to the water undertaker on demand a copy of the current test report and any maintenance records.

6.5 Testers shall provide the minimum level of information required by the water undertaker in on-site commissioning and compliance testing reports. Details of minimum information required by water undertakers are provided in Appendix 3. Please note that failure to provide the minimum level of information required may render a test report invalid. Contact the local water undertaker for further information.

6.6 To be considered as valid a commissioning test report shall:

- be completed by the competent person (see clause 5.3) who undertook the test;
- provide the minimum required level of information;
- be signed and dated by the tester (water undertakers may accept electronic signatures);
- be received by the water undertaker within 10 working days of commissioning of the RPZ valve unless reporting a test failure (refer to clause 6.8-6.12).

6.7 To be considered as valid a compliance test report shall:

- be completed by the tester who undertook the test using suitably calibrated test equipment (see clause 5.3 and 5.4);

- provide the minimum required level of information;
- be signed and dated by the tester (water undertakers may accept electronic signatures);
- satisfy all conditions of consent relating to compliance testing;
- be received by the water undertaker within 10 working days of the compliance test being completed unless reporting a test failure (refer to clauses 6.8-6.12).

Reporting test failures

6.8 Failure to satisfy any of the requirements of either the commissioning procedure or compliance testing shall be recorded and reported to the local water undertaker as a test failure within the timescales set out below.

6.9 In the event of a commissioning test failure the nature of the failure shall be recorded in the test report and notified to the water undertaker **within 24 hours**. The RPZ valve must remain isolated until any actions required by the water undertaker have been carried out.

6.10 If a RPZ valve fails the compliance test but is repaired and satisfactorily retested immediately then it may be returned to service. The test failure and successful retest, together with details of the repairs undertaken and any suspected contributing factors to the failure, shall be reported to the water undertaker **within 24 hours**.

6.11 In the event of a compliance test failure where an RPZ valve cannot be repaired and satisfactorily retested immediately, the tester shall notify the water undertaker **immediately in order for the water undertaker to confirm what action is to be taken.**

6.12 Actions required by the water undertaker shall be notified to the person responsible for the RPZ valve by the tester.

APPENDIX 1: COMMISSIONING & ON-SITE COMPLIANCE TESTING PROCEDURES

COMMISSIONING PROCEDURE: COMPONENT TESTING

A1.1 The RPZ valve must satisfactorily complete 4 consecutive cycles of stages 1 to 3.
Failure to satisfy any of the stages shall be deemed a test failure (see clauses 6.8 -6.12).

A1.2 Procedure:
Testing should be carried out under the normal operating conditions for the installation.
The downstream servicing valve shall remain closed for the duration of the test.

A1.3 Stage 1:

Requirement: verification that RPZ assembly is leak free and water tight

Test Method
Fill the assembly with water from the upstream supply, purging air through the test points until no further air discharges.
Once filled and air free, close all test points, after 2 minutes inspect the assembly.

Acceptance criteria:
Verify by visual inspection that the RPZ assembly is free from air and water tight.

A1.4 Stage 2:

Requirement: verification of the operation of the relief valve

Test Method
Isolate the upstream water supply by closing the upstream servicing valve.

Release the pressure from the upstream zone by opening test point 1.

Observe the operation of the relief valve discharge system.

Acceptance criteria:

Verify by visual inspection that water is evacuated from the intermediate zone via the relief valve when the upstream pressure is relieved.

A1.5 Stage 3:

Requirement: verification of the operation of the number 2 check valve and downstream isolation valve

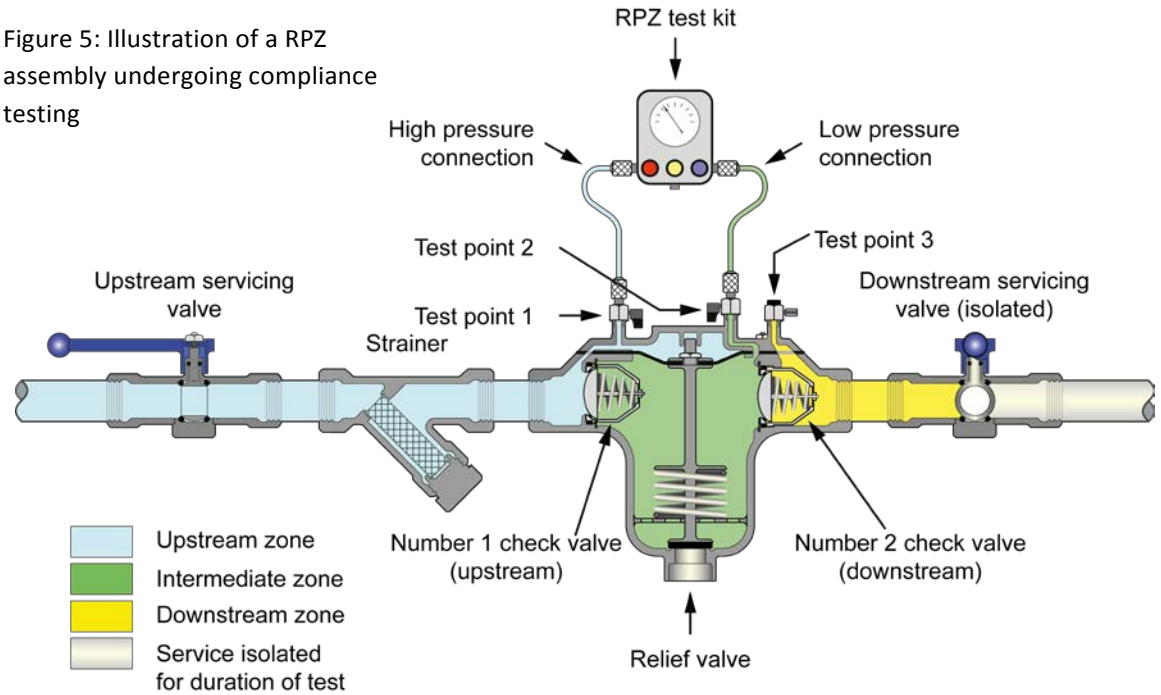
Test Method
Ensure test point 3 (downstream zone) is dry. Open and observe test point 3 (downstream zone).

Acceptance criteria:
Verify by visual inspection that water is discharged from or is visible in test point 3 (downstream zone) following its opening.

A1.6 Common faults:
Stage 2:
Should the upstream pressure be relieved and the relief valve fails to discharge water the relief valve has failed to operate correctly. The manufacturer's instructions and if necessary the manufacturer should be consulted to establish the fault.

Stage 3:
Should water fail to appear in test point 3 (downstream zone) it could be an indication of a failure of number 2 check valve or the downstream servicing valve failing to close correctly.

Figure 5: Illustration of a RPZ assembly undergoing compliance testing



COMPLIANCE TEST

A1.7 All individual performance tests identified shall be satisfactorily completed.
Failure to satisfy any of the individual performance tests shall be deemed a test failure (see clauses 6.8 – 6.12).

A1.8 Procedure:
Testing should be carried out under the normal operating conditions for the installation.
The downstream servicing valve shall remain closed for the duration of the test.
Testing shall be in accordance with an appropriate test method.

A1.9 Test method: AIM field test procedures – using RPZ test kits
Please note: other ways of demonstrating conformity with regulation 3 may be considered.

Measuring pressure differential between zones

Connect the RPZ test kit to the test points in the zones immediately upstream and downstream of the check valve being tested.
Ensure that any air is purged from the test equipment. Inspect the RPZ assembly and test equipment there shall be no visible leaks.
Induce a flow across the check valve. After 15 seconds $[^{+10\%}_{-0}]$ isolate the flow and allow the pressure to stabilize before measuring.

Acceptance criteria - pressure differential

- **Upstream & intermediate zone (pd1)**

The number 1 check valve shall maintain a pressure differential greater than 0.34bar (34kPa) between the upstream and intermediate zones.

- **Intermediate & downstream zones**

The number 2 check valve shall maintain a pressure differential between the intermediate and downstream zones greater than 0.07bar (7kPa). Unless the check valve conforms to BS EN 13959:2004, in which case the minimum pressure differential shall be greater than 0.005bar (0.5kPa).

Relief valve operation

- **Start of operation (pd2)**

Connect the RPZ test kit to test points 1 (upstream zone) and 2 (intermediate zone). Reduce the pressure differential between the upstream and intermediate zones in a manner appropriate to the test kit being used. Observe the relief port. Record the pressure differential at which point it starts to discharge.

Acceptance criteria

The relief valve shall begin to discharge when there is a pressure differential greater than 0.14bar (14kPa) between the upstream and intermediate zones.

- **Relief valve - water tightness in case of upstream pressure fluctuation (otherwise known as the buffer)**

By calculation:-

pd1 – pd2 = pressure fluctuation accommodated

where:

pd1 = the pressure differential between upstream & intermediate zones

pd2 = the pressure differential at which the relief valve discharges

The pressure fluctuation accommodated before the relief valve operates shall be within the water tightness range required.

Acceptance criteria

Where no specific conditions of consent exist the relief valve shall not discharge when the upstream pressure fluctuates by ±0.1bar (10kPa).i.e. a range of 0.2bar (20kPa).

Where the need to accommodate a greater pressure fluctuation is required details shall be provided when submitting notification.

The relief valve shall remain watertight when not in operation.

APPENDIX 2: NOTIFICATION OF THE PROPOSED INSTALLATION OF A RPZ VALVE

It is a requirement to notify a water undertaker of the proposed installation of a RPZ valve. To comply with this requirement any person who proposes to install a RPZ valve shall:-

a) give notice to the water undertaker that they proposes to begin work;
b) not begin that work without the consent of that undertaker; and
c) comply with any conditions to which the undertaker's consent is subject.

The notice shall include or be accompanied by:-

a) the name and address of the person giving the notice, and (if different) the name and address of the person to whom consent should be sent;
b) a full description of the proposed work;
c) the location of the premises;
d) a plan of those parts of the premises to which the proposal relates, and a diagram showing the pipework and fitting to be installed; and
e) where the work is to be carried out by an approved contractor, the name of the contractor.

For further details contact the local water undertaker.

APPENDIX 3 TEST REPORTS: MINIMUM INFORMATION REQUIREMENTS

The minimum information required to be provided by testers in completed test reports includes:-

- information about the tester, including:-
    - tester's name
    - tester's contact details including address, telephone number and email address
    - tester's signature (water undertakers may accept electronic signatures)
    - tester's scheme name and membership number
- information about premises at which the RPZ valve is located, including:-
    - the address
    - phone number
    - name and email address of the person responsible for the RPZ
- information about the installation including:-
    - the location of the RPZ valve on site
    - a description of the water system which the RPZ valve forms part of including details of the type of equipment downstream of the RPZ valve.
    - confirmation that consent to install has been granted
    - confirmation that RPZ valve is installed in accordance with the conditions of consent
    - date of installation/commissioning
    - date of last test
- details relating to the RPZ valve including:-
    - the name of the manufacturer
    - the model
    - the size
    - the serial number
- details relating to the testing including:-
    - test due date
    - date of test
    - test results, including in the case of a test failure details of any observations made and action taken.
    - reason for test
- information about the test equipment used including:-
    - the make of test kit
    - test kit serial number
    - calibration certificate
    - confirmation of its suitability for system being tested (e.g. hot water)

For further details contact the local water undertaker.

APPENDIX 4: GLOSSARY

Air Gap - means a visible, unobstructed and complete physical air break between the lowest level of water discharge and the level of potentially contaminated fluid downstream (critical water level) within a cistern, vessel, fitting or appliance that:-

a. is not less than 20mm or twice the internal diameter of the inlet pipe whichever is the greater; and
b. from which water discharges at not more than 15° from the vertical centreline of the water stream.

Air break to drain - an unobstructed air break, as defined in clause 9 of BS EN 1717:2000, between the lowest point of the relief port and the top point of the tundish which collects the discharge and conveys it to waste.
BS EN 1717:2000: 'Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow'

Approved contractor - means a person who, for the purpose of the regulations has been:-

a. approved by the water undertaker for the area where a water fitting is installed or used; or
b. certified as an approved contractor by an organisation specified in writing by the regulator.

Approved contractor schemes - a list of current schemes is available from the WRAS website www.wras.co.uk

Assembly - an arrangement of components or fittings forming a Type BA backflow prevention device which complies with the relevant requirements of this Approved Installation Method.

Backflow – means flow upstream that is in a direction contrary to the intended, normal direction of flow, within or from a water fitting.

Buffer - the difference between the differential pressure across the number 1 check valve and the differential pressure at the moment when the relief valve begins to discharge water.

Calibration - a test to determine the accuracy of instrumentation. RPZ test kits should be calibrated by a pressure calibration service accredited by UKAS at least annually or in accordance with the manufacturer's instructions if required more frequently.

Check valve - a valve which allows fluids to flow through in one direction only.

Commissioning procedure - a procedure to confirm that a newly installed or repaired RPZ valve is installed and functioning correctly.

Compliance testing - an on-site procedure to demonstrate that a RPZ valve is installed correctly and all key components are functioning as intended.

Competent person (tester) – a person recognised by a water undertaker as having sufficient knowledge, experience and skills to enable them to carry out the task of commissioning and/or compliance test a RPZ valve properly. That is to say in a way which a person competent in this activity would expect it to be done. A competent person will also be able to recognise hazards and have an appreciation of their own limitations. To be a recognised tester a person shall have gained a recognised qualification in RPZ valve commissioning and/or compliance testing from a recognised testing provider. They shall also be a member of a scheme for RPZ testers recognised by the water industry (e.g. water undertaker approved contractor scheme or WaterSafe) unless recognised by the relevant water undertaker on a site specific basis.

Concealed water fitting – means a water fitting which –

a) is installed below ground;
b) passes through or under any wall, footing or foundation;
c) is enclosed in any chase or duct; or
d) is in any other position which is inaccessible or renders access difficult.

Consent – the water undertaker's statutory approval for the proposed installation of water fittings, in accordance with regulation 5 of the Water Supply (Water Fittings) Regulations/Byelaws. Consent is deemed to have been granted unconditionally where no notice is given by the water undertaker under Regulation 5(5).

Fluid category 4 – as defined in Schedule 1 of the Water Supply (Water Fittings) Regulations/Byelaws, a fluid which represents a significant health hazard because of the concentration of toxic substances, including any fluid which contains:

a) Chemical, carcinogenic substances or pesticides(including insecticides and herbicides)
b) Environmental organisms of potential health significance

Point of use backflow protection – backflow prevention device(s) or arrangements used to protect against backflow from a particular fitting or system.

Pressure differential – the difference in pressure between two points of a system.

Strainer – a device used to separate solids from liquid.

Servicing valve – valve to isolate the water supply to a fitting or system. Also referred to as an isolation valve.

Test due date – the date, determined by the water undertaker, by which a new compliance test must be completed in order to satisfy the conditions of consent.

Type BA device – Verifiable backflow preventer with reduced pressure zone also called a RPZ valve - means a verifiable mechanical backflow prevention device consisting of an arrangement of water fittings with three pressure zones with differential obturators and that will operate when potential backflow conditions occur or there is a malfunction of the valve.

WaterSafe – is an online hub and search facility that enables customers to locate an approved contractor in their area. All Water Industry Approved Contractors Schemes are involved in WaterSafe.

Water supplied by a water undertaker – water supplied by a water undertaker either directly from their mains or via a customer's storage cistern.

Water undertaker– is a water undertaker with the duty to enforce the regulations in their area of water supply.

Water Industry - for the purpose of this document the water industry are those water undertakers that have approved AIM 08-01.

Whole site backflow protection – use of a single device or arrangement, usually located on the service pipe close to the boundary of the premises, to prevent backflow from the whole site entering the water main. This form of backflow protection is additional to point of use or zone protection.

Wholesome water – Water supplied by a water undertaker and complying with the requirements of relevant water quality legislation. The term 'wholesome water' is equivalent to potable water (i.e. fit to drink). Potable is a term no longer used in regulations.

Zone Backflow Protection – the use, typically in high risk premises such as industrial, chemical or medical premises, of a single device or arrangement, located on the supply or distributing pipe supplying a defined area of the premises, to prevent backflow from particular areas of activity or risk. This form of backflow protection is additional to point of use protection.