Product Catalogue

valid from
July 2006

Reliance™
WATER CONTROLS

The Safety Valve Specialist

COMPANY OVERVIEW

Part of the Australian based Group of Companies, collectively known as Reliance Worldwide, Reliance Water Controls is a specialist in the design, distribution and technical support of advanced water control devices.

Located in the market town of Evesham, Worcestershire, operating from tailored office, laboratory, production and warehouse facilities, the company is well situated and equipped to supply UK and export markets.

PRODUCT OVERVIEW

Reliance is a leading supplier to the Sanitary, Plumbing and Heating Industry. We design, manufacture and distribute an extensive range of complementary products, details of which are listed in this catalogue.

Key areas of expertise include:

- Temperature
- Pressure
- Flow

The company provides unrivalled technical support to specifiers, contractors, merchants and end-users alike, in the form of product training and demonstrations (either at our premises or on location) email and telephone support.

The expertise employed by Reliance Water Controls in technology and personnel enables the company to satisfy customer requirements in terms of technology and price in the most effective way.

MARKET OVERVIEW

Specification Market and Distribution Network

Reliance Water Controls works with the major specifiers, architects, consultants and mechanical contractors in the UK. Due to the sustained quality of product and technical support available, the company can assure customers peace of mind when dealing with any items from its extensive range of products.

The merchant chains and specialised distributors, an established area for the company, enjoy an ever-increasing range of high quality control products developed to meet all industry needs. A substantial marketing support programme is in place to enhance even further the sales efforts of the stockists of Reliance Water Controls products, with a focus on training and education and raising market awareness of control valves.

MEMBERSHIPS AND ASSOCIATE MEMBERSHIPS

- Thermostatic Mixing Valve Manufacturers Association (TMVA).
- Manufacturers of Domestic Unvented Supply System Equipment (MODUSSE).
- The Institute of Plumbing (IOP).
- Association of Plumbing and Heating Contractors (APHC).
- Underfloor Heating Manufacturers Association (UHMA).
- Scottish and Northern ireland Plumbing Employers Federation (SNIPEF)

Call the Reliance Sales Department direct on

UK Freephone: **0800 389 5931**

Rest of World Telephone: **+44 (0) 1386 712 400**

Our team of highly trained sales professionals are available between 8.30am and 5pm to process your orders or answer any questions that you may have about Reliance products.

Fax us on:

UK Freefax: 0800 389 5932

Rest of World Fax: +44 (0) 1386 47028

To ensure that your order is processed quickly and without errors, please include the following information on your fax:

Catalogue Product Number

Product Description

Quantity Required

Delivery Address

Invoice Address

Date Required

Delivery Method: Standard or Express Overnight at extra cost

Your Purchase Order Number

Email us at sales@rwc.co.uk

To ensure that your order is processed quickly and without errors please include your company name and telephone number in addition to the information described above.

Please note, the minimum order value is £100.00

Carriage and Delivery

Carriage on a 3 day service for UK mainland delivery is included for orders over £250 in value. Carriage for orders below £250 is chargeable.

For next day or timed deliveries and deliveries outside the UK mainland, carriage charged at cost.

N.B. Reliance products are only available through merchants, unless sold direct to Original Equipment Manufacturers (OEMs).

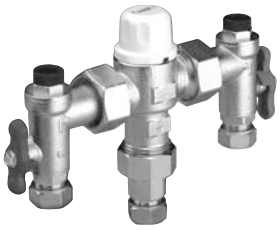
Product Queries

We would ask you, in the first instance, to contact our Sales Department with your product queries. Our sales personnel are highly trained and are able to answer the majority of your queries, including those considered technical in nature. If need be, they will transfer you to the Technical Department without delay.

Pricing

All prices are in Pound Sterling (£) and exclusive of VAT.

THERMOSTATIC MIXING VALVES



Heatguard® TMV3-8

Product	Size	Product Code
Heatguard® TMV3-8 4in1	15mm	HEAT 160 030
Heatguard® TMV3-8 4in1	22mm	HEAT 160 035
Heatguard® TMV3-8 4in1 Universal	15/22mm	HEAT 160 025
Heatguard® TMV3-8 2in1	15mm	HEAT 160 015
Heatguard® TMV3-8 2in1	22mm	HEAT 160 020
Heatguard® TMV3-8 2in1 Universal	15/22mm	HEAT 160 005
4in1 Adaptor Service Kit	N/A	SKIT 300 020
2in1 Adaptor Service Kit	N/A	SKIT 219 053
Full Internal Service Kit	N/A	SKIT 160 302
Seals Service Kit	N/A	SKIT 160 301
Temperature Adjuster Cap	N/A	SKIT 160 300
Temperature Adjusting Key	N/A	ZKEY 160 001

Thermostatic Mixing Valve Upgrade Kits

Product	Product Code
Heatguard® TMV2 to Heatguard® TMV3 upgrade kit	HEAT 160 800

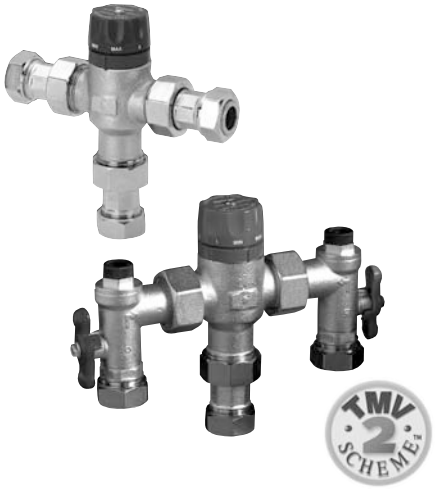
ProMix® 22-2

Product	Size	Product Code
ProMix® 22-2 4in1	22mm	PROM 022 007
Single-Piece Cartridge	N/A	SKIT 320 032
Seals Service Kit	N/A	SKIT 330 009
4in1 Adaptor Service Kits	N/A	SKIT 300 011

THERMOSTATIC MIXING VALVES

Heatguard® TMV2

Product	Size	Product Code
Heatguard® TMV2 2in1	15mm	HEAT 219 024
Heatguard® TMV2 2in1	22mm	HEAT 219 023
Heatguard® TMV2 2in1 Universal	15/22mm	HEAT 219 025
Heatguard® TMV2 4in1 Universal	15/22mm	HEAT 219 035
Heatguard® TMV2 to Heatguard® TMV3 Upgrade Kit	N/A	HEAT 160 800
2in1 Adaptor Service Kit	N/A	SKIT 219 053
4in1 Adaptor Service Kit	N/A	SKIT 300 020
Full Internal Service Kit	N/A	SKIT 320 010
Seals Service Kit	N/A	SKIT 330 002



Heatguard® BF2-2

Product	Size	Product Code
Heatguard® BF2-2 2in1	22mm	HEAT 115 100
Heatguard® BF2-2 4in1	22mm	HEAT 115 105
Heatguard® BF2-2 full internal service kit	N/A	SKIT 115 001
Heatguard® BF2-2 2in1 adapter service kit	N/A	SKIT 219 053
Heatguard® BF2-2 4in1 adapter service kit	N/A	SKIT 300 020

Heatguard® LS2

Product	Size	Product Code
Heatguard® LS2 2in1	15mm	HEAT 260 500
Heatguard® LS2 full internal service kit	N/A	SKIT 260 510
Heatguard® LS2 check valve service kit	N/A	SKIT 260 520

Heatguard Planar® Group Mixing Valves

Product	Size	Product Code
Heatguard Planar® 530 4 in 1	28mm inlet x 35mm outlet	HEAT 530 100
Heatguard Planar® 430 4 in 1	28mm	HEAT 430 100
Heatguard Planar® 330 4 in 1	22mm	HEAT 330 100
Heatguard Planar® 230 4 in 1	15mm	HEAT 230 100
Seal service kit for Planar® 430/530	N/A	SKIT 430 002
Full internal service kit for Planar® 530/430	N/A	SKIT 430 001
Full internal service kit for Planar® 330	N/A	SKIT 330 100
Full internal service kit for Planar® 230	N/A	SKIT 230 100
Planar® 530/430 4 in 1 adaptor service kit	N/A	SKIT 300 016
Planar® 230/330 4 in 1 adaptor service kit	N/A	SKIT 300 020

BLENDING VALVES

Masterguard®

Product Description	Size Inlet	Outlet	Product Code
Masterguard 810 4 in 1	½" FBSP	¾" FBSP	HEAT 800 010
Masterguard 820 4 in 1	¾" FBSP	¾" FBSP	HEAT 800 020
Masterguard 830 4 in 1	¾" FBSP	1" FBSP	HEAT 800 030
Masterguard 840 4 in 1	1" FBSP	1¼" FBSP	HEAT 800 040
Masterguard 850 4 in 1	1¼"FBSP	1½" FBSP	HEAT 800 050
Masterguard 860 4 in 1	1½" FBSP	2" FBSP	HEAT 800 060

Heatguard® UFH

Product Description	Size	Product Code
Heatguard® UFH	22mm	HEAT 219 058
Heatguard® UFH	28mm	HEAT 115 002

THERMOSTATIC MIXING VALVE ACCESSORIES

Fixing Brackets for Thermostatic Mixing Valves

Product Description	Size	Product Code
Bracket for Promix® 22-2	N/A	BRKT 300 010
Bracket for Heatguard® TMV3, and Heatguard® TMV2	N/A	BRKT 100 001

Thermometers and Probes

Product Description	Size	Product Code
Temperature readout with probe	N/A	READ 500 005
Temperature probe plug socket	N/A	PLUG 500 001

THERMOSTATIC MIXING VALVES

Flushing Hose

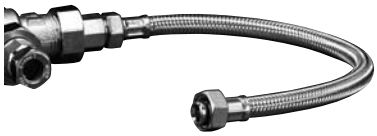
A 1m long flexible hose and fitting for direct connection to a standard 4in1 fitting. Used for flushing the pipework prior to commissioning all of Reliance® mixing valves with 4in1 connections.

Product Description	Size	Product Code
Flushing hose for use with 4in1 fittings	¼" BSP	FLSE 100 001

Hoses

Flexible stainless steel braided hoses to connect the TMV outlet to the terminal fitting.

Product Description	Size	Product Code
Loose nut/o-ring TMV Hose - 400mm stainless steel	15mm	HOSE 160 001



THERMOSTATIC SHOWER VALVES

Heatguard® DC150

Product Description	Size	Product Code
Heatguard® DC150, chrome body, chrome handles	15mm	THRM 150 010
Heatguard® DC150 Chrome body, fluted chrome handles	15mm	THRM 150 002
Heatguard® DC150, chrome body, lever chrome handles	15mm	THRM 150 021

Contemporary Heatguard® Shower Valves

Product Description	Inlet and Outlet Sizes	Product Code
Contemporary Heatguard® CS concealed shower, chrome finish	¾" FBSP	THRM 500 527

Product Description	Inlet Sizes	Outlet Sizes	Product Code
Contemporary Heatguard® BS bar shower, chrome finish	¾" union (z connectors, ¾" x ½")	½" MBSP bottom outlet	THRM 500 532
Wall plate elbow, pair, for exposed supply pipework chrome finish	15mm	¾" MBSP	PELB 100 801

Product Description	Inlet Sizes	Outlet Sizes	Product Code
Contemporary Heatguard® BSM bath shower mixer, wall mounting, chrome finish	¾" union (z connectors, ¾" x ½")	Shower ½" MBSP bottom outlet Bath M24 aerator	THRM 500 542
Contemporary Heatguard® BSM bath shower mixer, deck mounting, chrome finish	¾" union (¾" male BSP pillars)	Shower ½" MBSP bottom outlet Bath M24 aerator	THRM 500 546
Wall plate elbow, pair, for exposed supply pipework chrome finish	15mm	¾" MBSP	PELB 100 801

THERMOSTATIC SHOWER VALVES

Thermomix Concealed Showers

Product Description	Inlet and Outlet Sizes	Product Code
Thermomix Concealed Shower LP	¾" MBSP	THRM 169 001
Thermomix Concealed Shower HP only	½" MBSP	THRM 169 005

Thermomix Bar Shower

Product Description	Inlet and Outlet Sizes	Product Code
Thermomix Bar Shower High Pressure only - Rising spindle headwork	¾" Union nuts	THRM 600 200
Thermomix Bar Shower High Pressure only - Ceramic disc headwork	¾" Union nuts	THRM 600 100

TMV3 SHOWER VALVES

Heatguard® DC153

Product Description	Inlet and Outlet Sizes	Product Code
Heatguard® DC153, chrome body, chrome handles	15mm	THRM 153 011
Heatguard® DC153 chrome body, fluted chrome handles	15mm	THRM 153 002
Heatguard® DC153, chrome body, lever chrome handles	15mm	THRM 153 021

Contemporary Heatguard® CS3 Concealed Shower

Product Description	Inlet and Outlet Sizes	Product Code
Contemporary Heatguard CS3 Concealed Shower	¾" FBSP	THRM 503 001

Contemporary Heatguard® CS3 Concealed Shower - lever

Product Description	Inlet and Outlet Sizes	Product Code
Contemporary Heatguard CS3 Concealed Shower - lever type	¾" FBSP	THRM 503 010

Replacement Parts

Product Description	Inlet and Outlet Sizes	Product Code
Heatguard® Thermostatic Shower Cartridge	N/A	SKIT 200 001
Heatguard® Ceramic Disc Tap Headwork For Showers	N/A	SKIT 200 002
Heatguard® Ceramic Disc Tap Headwork For Bath/Shower Mixer	N/A	SKIT 200 006
Heatguard® TMV3 Thermostatic Shower Cartridge	N/A	SKIT 200 003

TMV3 SHOWER VALVES

Showerguard® RW153HC

Product Description	Inlet and Outlet Sizes	Product Code
Showerguard® RW153HC ES exposed shower, white knob, chrome finish body	15mm	SHOW 153 001
Showerguard® RW153HC CS concealed shower, white knob, chrome finish cover plate	15mm	SHOW 153 002
Showerguard® RW153HC ES exposed shower, chrome finish knob, chrome finish body	15mm	SHOW 153 003
Showerguard® RW153HC ES exposed shower, chrome lever, chrome finish body	15mm	SHOW 153 004
Showerguard® RW153HC CS concealed shower, white knob, white cover plate	15mm	SHOW 153 006
Showerguard® RW153HC CS concealed shower, chrome finish lever, white finish cover plate	15mm	SHOW 153 007

Replacement Parts for RW153HC

Product Description	Inlet and Outlet Sizes	Product Code
Thermostatic Element	N/A	ELEM 100 003
Knob and Sleeve Kit (White)	N/A	SKIT 153 001
Seal and Circlip Kit	N/A	SKIT 153 002
Thermostatic Cartridge	N/A	SKIT 153 003
Spindle for Flow Control	N/A	SKIT 153 008
Limiter Kit 5&7 litre inc Retaining Ring	N/A	SKIT 153 009

SHOWER FITTINGS

Contemporary Shower Kits

Product Description	Size	Product Code
Contemporary Shower Kit, exposed, high pressure, chrome finish	½" FBSP	SFIT 100 100
Contemporary Shower Kit, exposed high pressure, mixage finish	½" FBSP	SFIT 100 110
Contemporary Shower Kit, exposed, high pressure, white finish	½" FBSP	SFIT 100 120
Contemporary Shower Kit, exposed, low pressure, chrome finish	½" FBSP	SFIT 100 200
Contemporary Shower Kit, exposed, low pressure, mixage finish	½" FBSP	SFIT 100 210
Contemporary Shower Kit, exposed, low pressure, white finish	½" FBSP	SFIT 100 220
Contemporary Shower Kit, concealed, high pressure, chrome finish	½" FBSP	SFIT 200 100
Contemporary Shower Kit, concealed, high pressure, mixage finish	½" FBSP	SFIT 200 110
Contemporary Shower Kit, concealed, high pressure, white finish	½" FBSP	SFIT 200 120
Contemporary Shower Kit, concealed, low pressure, chrome finish	½" FBSP	SFIT 200 200
Contemporary Shower Kit, concealed, low pressure, mixage finish	½" FBSP	SFIT 200 210
Contemporary Shower Kit, concealed, low pressure, white finish	½" FBSP	SFIT 200 220

SHOWER FITTINGS CONTINUED

Rigid Riser

Product Description	Size	Product Code
Rigid Riser for standard showers and bath shower mixer	½" LOOSE NUT	RISE 500 546

Optional Contemporary Shower Kits

To complement the Heatguard® shower range, with a fixed wall bracket instead of the riser rail and soap dish.

Product Description	Size	Product Code
Contemporary Shower Kit, concealed, high pressure, chrome finish, with wall bracket	½" FBSP	SFIT 200 300
Contemporary Shower Kit, concealed, low pressure, chrome finish, with wall bracket	½" FBSP	SFIT 200 400

Contemporary Bath/Shower Kits

Product Description	Size	Product Code
Contemporary Bath/Shower Kit, high pressure, chrome finish, 2m hose	½" FBSP	SFIT 200 250
Contemporary Bath/Shower Kit, high pressure, mixage finish, 2m hose	½" FBSP	SFIT 200 255
Contemporary Bath/Shower Kit, high pressure, white finish, 2m hose	½" FBSP	SFIT 200 260

Contemporary Shower Heads, and Heads and Arms

Product Description	Size	Product Code
Contemporary Shower Head Only, low pressure, chrome finish	½" FBSP	HEAD 100 098
Contemporary Shower Head Only, high pressure, chrome finish	½" FBSP	HEAD 100 099
Contemporary Shower Head and Arm, low pressure, chrome finish	½" FBSP	HEAD 100 100
Contemporary Shower Head and Arm, high pressure, chrome finish	½" FBSP	HEAD 100 101

Optional Shower Fittings

Product Description	Size	Product Code
Traditional Spray Head, chrome finish	½" FBSP	HEAD 100 001
Single mode spray head	½" FBSP	HEAD 500 546

AUTEAU® TIMEFLOW CONTROLS

Auteau® Shower Controls

High quality, self-closing shower controls with a smooth action push button for either exposed or concealed installations.

Product Description	Size	Product Code
Auteau® Exposed Shower Control	15mm	SELF 100 001
Auteau® Concealed Shower Control	15mm	SELF 100 010
Spare Cartridge for shower controls - 25 seconds	N/A	SKIT 100 005

Solid brass cross-wall actuator for wall thickness of up to 150mm or 200mm, with anti-vandal locating pin to prevent rotation of fixing. Chrome plated.

Product Description	Size	Product Code
Auteau® cross wall shower control for walls up to 150mm thick	15mm	SELF 100 020
Auteau® cross wall shower control for walls up to 200mm thick	15mm	SELF 100 025

Push button shower mixers, time flow for 30 seconds.

Product Description	Size	Product Code
Auteau® exposed timeflow mixer shower	15mm	MIXS 100 001
Auteau® concealed timeflow mixer shower (shower head sold separately)	½" MBSP	MIXS 100 010

Auteau® Sport Shower Panel

Product Description	Size	Product Code
Auteau® Sport shower panel	½" MBSP	PANL 200 001

Auteau® Shower Fittings

Product Description	Size	Product Code
Auteau® Tonic-Jet™ Exposed Riser Set, vortex (head, riser, bracket, shower connections and fixings suitable for 1 bar+)	½" FBSP	RSET 100 040
Auteau® Tonic-Jet™ Exposed Riser Set, Grid-Type Spray (head, riser, bracket, shower connections and fixings suitable from 0.2 bar)	½" FBSP	RSET 100 045

AUTEAU® TIMEFLOW CONTROLS

Auteau® Shower Fittings continued...

Auteau® Tonic-Jet™ exposed top entry shower head. Chrome plated brass and supplied with an 8 l/m flow limiter.

Product Description	Size	Product Code
Auteau® Tonic-Jet™ Top Entry Shower Head, vortex	15mm	HEAD 100 050
Auteau® Tonic-Jet™ Top Entry Shower Head, grid-type spray	15mm	HEAD 100 055

Product Description	Size	Product Code
Auteau® Tonic-Jet™ Concealed Shower Head, vortex	½" MBSP	HEAD 100 010
Auteau® Tonic-Jet™ Concealed Shower Head, grid-type spray	½" MBSP	HEAD 100 015
Auteau® Tonic-Jet™ Concealed Shower Head, vortex, cross-wall fitting, wall thickness 1-150mm	½" MBSP	HEAD 100 020
Auteau® Tonic-Jet™ Concealed Shower Head, grid - type spray, cross-wall fitting, wall thickness 1-150mm	½" MBSP	HEAD 100 025

Product Description	Size	Product Code
Auteau® ceiling mounted shower head vortex	½" FBSP	HEAD 100 060
Auteau® ceiling mounted shower head grid type spray	½" FBSP	HEAD 100 065

Shower Spray Attachments

Product Description	Size	Product Code
Grid type spray 0.5 - 5.0 bar	N/A	GRID 100 030
Tonic-Jet™ nozzle 1.0 - 5.0 bar	N/A	SPRY 100 040

Product Description	Size	Product Code
Auteau® Traditional Spray Exposed, head, arm and riser	15mm	HEAD 100 003
Auteau® Traditional Spray Concealed, head and arm	½" MBSP	HEAD 100 002
Auteau® Traditional Spray Head only	½" FBSP	HEAD 100 001

AUTEAU® TIMEFLOW CONTROLS

Auteau® Basin Taps

High quality, self-closing Auteau® basin or bib taps with either a smooth action push button actuator or a lever actuator, which allows easy operation by the elderly, infirm or disabled. Chrome plated, solid brass body and button or lever for longer life. The self-cleaning cartridge has a 15 second timed flow rate, as per BSEN 816 which saves up to 60% of water usage when compared to conventional taps.

Product Description	Size	Product Code
Auteau® Basin Tap, push button	½" MBSP	PUSH 100 010
Auteau® Basin Tap lever	½" MBSP	PUSH 100 020
Spare cartridge for basin and bib tap, 15 seconds	N/A	SKIT 100 001

Auteau® Basin Mixer Taps

Product Description	Size	Product Code
Auteau® timeflow basin mixer tap - rotating handle	Flexible hoses	MIXT 100 050
Auteau® timeflow basin mixer tap - lever type	Flexible hoses	MIXT 100 001

Auteau® Bib Taps

Product Description	Size	Product Code
Auteau® Bib Tap, push button	½" MBSP	PUSH 100 001
Auteau® Bib Tap, lever	½" MBSP	PUSH 100 005
Spare cartridge for basin and bib tap, 15 seconds	N/A	SKIT 100 001

Auteau® Knee Operated Basin Control

Spout and Basin not supplied.

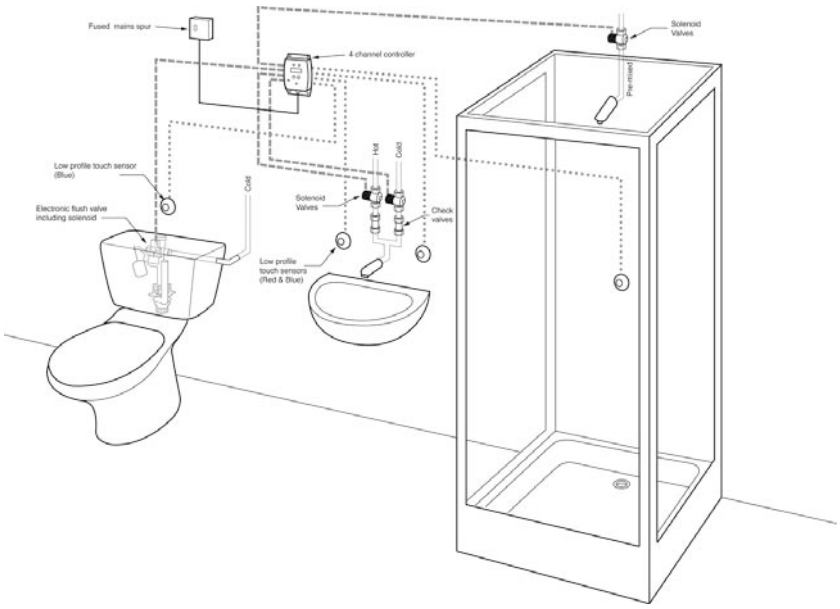
Product Description	Size	Product Code
Auteau® knee operated valve	15mm compression	PUSH 100 030

SENSELEC® ELECTRONIC CONTROLS

The Senselec® TS range of touch sensitive electronic controls has been developed in response to the growing demand for water and energy-saving devices for use in domestic, commercial and industrial water systems. The system uses a purpose-built controller which incorporates a transformer to convert mains power to 6 volts to operate the solenoid valves. Features included within the control system give the customer the ability to control and monitor many different functions, including **run times for each channel ∗ lock out times if vandalism is detected ∗ security lock out to disable all functions ∗ on board alarm if vandalism is detected ∗ ability to connect lock out functions remotely ∗ on board keypad to set all functions.**

The drawing (below) is a recreation of a typical installation using the Senselec® TS2 electronic water control system that could be found in any secure unit or detention centre where many special needs and unique problems need to be considered.

The drawing depicts 1 washbasin being supplied with hot and cold water the flow of which is controlled by 2 solenoid valves and 2 touch sensitive switches (hot and cold). The WC is fitted with an electronic flush valve, designed to be fitted in any standard cistern, that incorporates its own solenoid valve and one touch sensitive switch . The shower outlet is shown as premixed and is controlled by one solenoid valve and one touch sensitive switch. When the touch sensitive switch is activated it will send a pulse to the control box, the controller will then activate the solenoid that the switch is connected to for a programmed period of time, once the time has elapsed the controller will then shut the solenoid valve.



The Senselec® TS system is designed to give the designer as much flexibility as possible to create an electronic water control system that most closely meets the needs of his clients.

There are 4 separate components that must be selected to "build" a control system. First is the controller itself (image 1) in either a 4 or 6 channel version. Second is the touch sensitive switch (image 2) as either a separate switch or a keypad, taking care to order the correct product for different wall thicknesses. The third component is the solenoid valve (image 3) for connection directly onto the pipework or in the case of a WC for installation into a cistern. The fourth and final component is the outlet fitting (image 4), which can be selected from our range taking care to order the correct product for different wall thicknesses.

SENSELEC® ELECTRONIC CONTROLS

Senselec® TS2 Controller Options

Product Description	Size	Product Code
Senselec® TS2 4 Channel Controller	N/A	SENS 500 015
Senselec® TS2 6 Channel Controller	N/A	SENS 500 016

Senselec® TS2 Switch Options (c/w 3 metres of cable)

Chrome finish

Product	Colour	Size	Product Code
Senselec® TS through wall 1-150 mm touch sensor	Blue	½" MBSP	SENS 520 020
Senselec® TS panel mount 1-50 mm touch sensor	Blue	½" MBSP	SENS 520 021
Senselec® TS through wall 1-150 mm touch sensor	Red	½" MBSP	SENS 520 015
Senselec® TS panel mount 1-50 mm touch sensor	Red	½" MBSP	SENS 520 022

Product	Colour	Size	Product Code
Senselec® TS solid wall touch sensor	Blue	½" MBSP	SENS 520 005
Senselec® TS solid wall touch sensor	Red	½" MBSP	SENS 520 001

Anti-vandal Keypad in brushed stainless steel

Product	Colour	Size	Product Code
Senselec® TS 3 switch keypad through wall 1-150mm	N/A	½" MBSP	SENS 600 001
Senselec® TS 3 switch keypad panel mount 1-50mm	N/A	½" MBSP	SENS 600 003

SENSELEC® ELECTRONIC CONTROLS

Solenoid Valves (c/w 3 metres of cable)

Product Description	Size	Product Code
Push fit solenoid valve, 0.5 - 5 bar inlet pressure	15mm	ZSOL 500 101
Brass bodied compression type solenoid valve 0.1-0.7 bar inlet pressure	15mm	ZSOL 500 050

Product Description	Size	Product Code
Electronic WC flush valve for cistern mounting. Incorporates the float valve and overflow	N/A	ZFSH 250 170

Outlet Fittings

Basic Spout Options

Product Description	Size	Product Code
Through wall basin spout 1-150mm	½" MBSP	BSPT 100 015
Panel mount basin spout 1-50mm	½" MBSP	BSPT 100 011
Solid wall mounting basin spout	½" MBSP	BSPT 100 010

Product Description	Size	Product Code
Through wall anti ligature basin spout 1-150mm	½" MBSP	SENS 510 100
Panel mount anti ligature basin spout 1-50mm	½" MBSP	SENS 510 110

SENSELEC® ELECTRONIC CONTROLS

Shower Head Options

Product Description	Size	Product Code
Tonic-Jet™ through wall shower head 1-150mm - vortex spray	½" MBSP	HEAD 100 020
Tonic-Jet™ through wall shower head 1-150mm - grid type spray	½" MBSP	HEAD 100 025
Tonic-Jet™ solid wall mounting shower head - vortex spray	½" MBSP	HEAD 100 010
Tonic-Jet™ solid wall mounting shower head - grid type spray	½" MBSP	HEAD 100 015

Product Description	Size	Product Code
Tonic-Jet™ top entry shower head - vortex spray	15 mm	HEAD 100 050
Tonic-Jet™ top entry shower head - grid type spray	15 mm	HEAD 100 055

Product Description	Size	Product Code
Through wall anti ligature showerhead 1-150mm	½" MBSP	SENS 510 115
Panel mount anti ligature showerhead 1-50mm	½" MBSP	SENS 510 120

Accessories

Product Description	Size	Product Code
3 metre extension cable-switch to controller	N/A	ZCAB 500 020
3 metre extension cable-solenoid to controller	N/A	ZCAB 500 025

SENSELEC® IR, INFRA RED RANGE

Reliance now offers a high quality range of infra red operated taps, shower controls, WC controls , and urinal controls. The system uses active infra red sensors which have an adjustable detection beam that can be altered to between 40 mm and 200 mm depending on site conditions or customer requirements.

The sensor itself is programmed to open a solenoid valve for a specific length of time when it detects movement in the infra red beam, after this time has elapsed the sensor will automatically shut off the water flow.

All the infra taps and controls are supplied as complete packages including the outlet fitting, power supply which can be either mains (with transformer) or battery operated, solenoid valve, and infra red sensor.

Packages are available in a wide selection of formats including:

- Deck mounted taps
- Wall mounted taps
- Showers controls
- WC controls
- Urinal controls

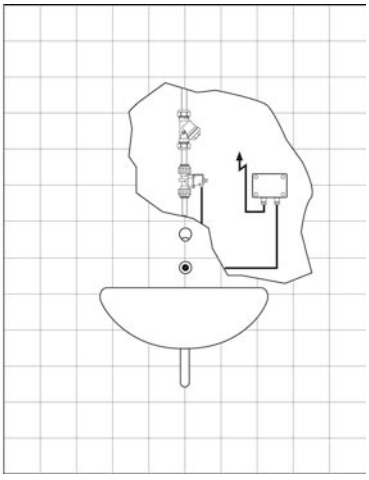
Senselec® IR Basin Controls

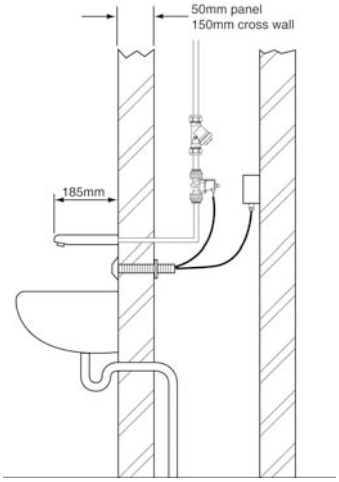
Battery Operated

Product Description	Size	Product Code
Senselec® IR cross wall spout 1-150 mm with infra red sensor	½" MBSP	SENS 250 125
Senselec® IR panel mounted spout 1-50 mm with infra red sensor	½" MBSP	SENS 250 130

Stabilised Mains Power Supply

Product Description	Size	Product Code
Senselec® IR cross wall spout 1-150 mm with infra red sensor	½" MBSP	SENS 251 125
Senselec® IR panel mounted spout 1-50 mm with infra red sensor	½" MBSP	SENS 251 130





SENSELEC® IR, INFRA RED RANGE

Senselec® IR Basin Controls continued...

Swan Neck

Battery Operated

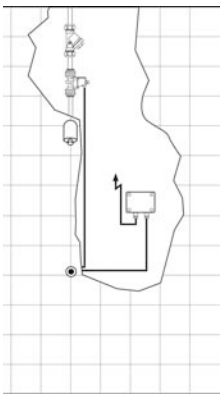
Product Description	Size	Product Code
Senselec® IR swan neck basin tap with infra red sensor	½" MBSP	SENS 250 100

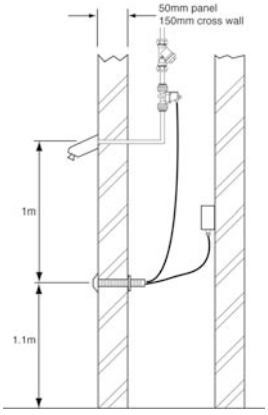
Stabilised Mains Power Supply

Product Description	Size	Product Code
Senselec® IR swan neck basin tap with infra red sensor	½" MBSP	SENS 251 100
Spare Senselec® IR sensor		ZENS 252 015
Spare Solenoid valve	15mm	ZSOL 500 001

Combotap - Battery Operated

Product Description	Size	Product Code
Senselec® IR combotap	15mm	SENS 250 200
Senselec® IR combotap - wall mounting	½" MBSP	SENS 250 250





Senselec® IR Shower Packages

Battery Operated

Product Description	Size	Product Code
Senselec® IR shower head, cross wall 1-150 mm fitting c/w infra red sensor module	½" MBSP	SENS 250 150
Senselec® IR shower head with spray, cross wall 1-150mm fitting c/w infra red sensor module	½" MBSP	SENS 250 155
Senselec® IR panel mounted shower 1-50 mm with infra-red sensor	½" MBSP	SENS 250 160
Senselec® IR panel mounted shower, with spray 1-50 mm with infra-red sensor	½" MBSP	SENS 250 165

Stabilised Mains Power Supply

Product Description	Size	Product Code
Senselec® IR shower head cross wall 1-150 mm fitting c/w infra red sensor module	½" MBSP	SENS 251 150
Senselec® IR shower head with spray, cross wall 1-150mm fitting c/w infra red sensor module	½" MBSP	SENS 251 155
Senselec® IR panel mounted shower 1-50 mm with infra-red sensor	½" MBSP	SENS 251 160
Senselec® IR panel mounted shower, with spray 1-50 mm with infra-red sensor	½" MBSP	SENS 251 165

SENSELEC® IR, INFRA RED RANGE

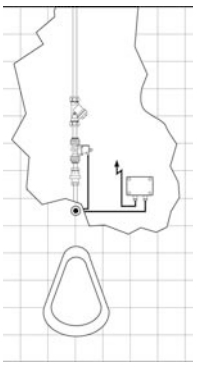
Senselec® IR Wall Mounted Urinal Controls

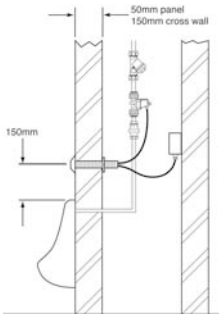
Battery Operated

Product Description	Size	Product Code
Senselec® IR cross wall urinal control 1-150 mm with infra-red sensor	½" MBSP	SENS 200 060
Senselec® IR panel mounted urinal control, 1-50 mm with infra-red sensor	½" MBSP	SENS 200 065

Stabilised Mains Power Supply

Product Description	Size	Product Code
Senselec® IR cross wall urinal control 1-150 mm with infra-red sensor	½" MBSP	SENS 201 060
Senselec® IR panel mounted urinal control, 1-50 mm with infra-red sensor	½" MBSP	SENS 201 065





Senselec® IR Ceiling Mounted Urinal Controller

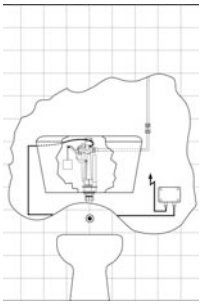
An infra red system for controlling urinal flushing via a solenoid valve. Features include a 20 minute delay time between sensing and flushing and a 12 hourly hygiene flush. Comes complete with solenoid valve, connection cable and 4 AA batteries.

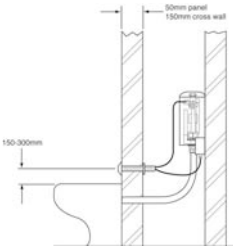
Product Description	Solenoid Valve Size	Product Code
Senselec® IR infra red urinal control pack	15mm	SENS 200 050

Senselec® IR W.C. Control

Stabilised Mains Power Supply

Product Description	Size	Product Code
Senselec® IR infra red W.C. Cross wall 1-150mm	N/A	SENS 251 170
Senselec® IR infra red W.C. Panel mount 1-50mm	N/A	SENS 251 175





RWC-SYR® PRESSURE REDUCING VALVES

RWC-SYR Easiset™ 320 Series Domestic Pressure Reducing Valves

A high flow range of domestic pressure reducing valves with a unique lift and turn system for adjusting the down stream pressure.
For use up to 16 bar pressure and temperatures up to 45° C.
Adjustable between 1.5 – 6.0 Bar.

Product Description	Size	Product Code
Adjustable PRV 320F	½" FBSP	PRED 320 001
Adjustable PRV 320F	¾" FBSP	PRED 320 005
Adjustable PRV 320C	15mm	PRED 320 010
Adjustable PRV 320C	22mm	PRED 320 015

For use up to 16 bar pressure and temperatures up to 80° C.

Product Description	Size	Product Code
Adjustable PRV 320F	½" FBSP	PRED 320 050
Adjustable PRV 320F	¾" FBSP	PRED 320 055
Adjustable PRV 320C	15mm	PRED 320 060
Adjustable PRV 320C	22mm	PRED 320 065

RWC-SYR® 312 Series Domestic Pressure Reducing Valves

For use up to 16 bar pressure and temperatures up to 45°C.
Adjustable between 0.5 – 5.0 Bar (except where indicated).

Product Description	Size	Product Code
Adjustable PRV 312C	15mm	PRED 310 200
Adjustable PRV 312C	22mm	PRED 310 500
Adjustable PRV 312F	⅜" FBSP	PRED 310 001
Adjustable PRV 312F	½" FBSP	PRED 310 100
Adjustable PRV 312F nickel	½" FBSP	PRED 310 150
Adjustable PRV 312F	¾" FBSP	PRED 310 400
Adjustable PRV 312F (Outlet Pressure 1.5 - 6.0 bar)	1" FBSP	PRED 300 003
3.0 bar pre set PRV 312F	¾" FBSP	PRED 310 404
3.5 bar pre set PRV 312F	¾" FBSP	PRED 310 401
3.0 bar pre set PRV 312C	22mm	PRED 310 505
3.5 bar pre set PRV 312C	22mm	PRED 310 502

RWC-SYR® 312H Series Pressure Reducing Valves

Adjustable between 0.5 – 5.0 Bar.

Product Description	Size	Product Code
Adjustable PRV 312H	½" FBSP	PRED 310 615
Adjustable PRV 312H	¾" FBSP	PRED 310 620
3.0 bar pre set PRV 312H	½" FBSP	PRED 310 610
3.0 bar pre set PRV 312H	¾" FBSP	PRED 310 623
3.5 bar pre set PRV 312H	½" FBSP	PRED 310 616
3.5 bar pre set PRV 312H	¾" FBSP	PRED 310 621

RWC-SYR® PRESSURE REDUCING VALVES

RWC-SYR® 570 Series Pressure Reducing Valve

Product Description	Size	Product Code
Adjustable PRV 570 with isolator and Check Valve	15mm	PRED 310 350
Adjustable PRV 570 with isolator	15mm	PRED 310 300
1.5 bar pre set PRV 570 with isolator	15mm	PRED 310 310
2.1 bar pre set PRV 570 with isolator	15mm	PRED 310 320
3.0 bar pre set PRV 570 with isolator	15mm	PRED 310 330
3.5 bar pre set PRV 570 with isolator	15mm	PRED 310 340

RWC-SYR® Commercial 315 HC Dial-Up Series Pressure Reducing Valves

One valve covers up to 16 bar pressure and temperatures up to 80°C

Adjustable between 1.5 – 6.0 Bar.

Product Description	Size	Product Code
Dial-up Adjustable PRV 315 HC	½" MBSP	PRED 350 001
Dial-up Adjustable PRV 315 HC	¾" MBSP	PRED 350 002
Dial-up Adjustable PRV 315 HC	1" MBSP	PRED 350 003
Dial-up Adjustable PRV 315 HC	1 ¼" MBSP	PRED 350 004
Dial-up Adjustable PRV 315 HC	1 ½" MBSP	PRED 350 005
Dial-up Adjustable PRV 315 HC	2" MBSP	PRED 350 006
Dial-up Adjustable PRV 315 HC capillary	15mm	PRED 350 007
Dial-up Adjustable PRV 315 HC capillary	22mm	PRED 350 008
Dial-up Adjustable PRV 315 HC capillary	28mm	PRED 350 009
Dial-up adjustable PRV 315 HC	½" FBSP	PRED 350 010
Dial-up adjustable PRV 315 HC	¾" FBSP	PRED 350 011
Dial-up adjustable PRV 315 HC	1" FBSP	PRED 350 012

RWC-SYR® PRESSURE REDUCING VALVES

Stainless Steel Dial-Up Pressure Reducing Valves

For use up to 16 bar pressure and temperatures up to 80°C.
Adjustable between 1.5 – 6.0 Bar.

Product	Size	Product Code
Stainless steel dial-up adjustable PRV	½" MBSP	PRED 300 110
Stainless steel dial-up adjustable PRV	¾" MBSP	PRED 300 111
Stainless steel dial-up adjustable PRV	1" MBSP	PRED 300 112
Stainless steel dial-up adjustable PRV	1 ¼" MBSP	PRED 300 113
Stainless steel dial-up adjustable PRV	1 ½" MBSP	PRED 300 114
Stainless steel dial-up adjustable PRV	2" MBSP	PRED 300 115

Blanking Caps

For use with 315 series valves to enable full flow flushing with the cartridge removed.

Product	Size	Product Code
Blanking cap for dial up PRV	½" to 1"	ZCAP 602 008
Blanking cap for dial up PRV	1 ¼" to 2"	ZCAP 602 002

RWC-SYR® Commercial/Industrial 6247 Series Pressure Reducing Valves

For use up to 16 bar pressure and temperatures up to 45°C

Product	Size	Product Code
6247 Adjustable PRV 1.5 - 6 bar	DN 65	PRED 624 001
6247 Adjustable PRV 1.5 - 6 bar	DN 80	PRED 624 002
6247 Adjustable PRV 1.5 - 6 bar	DN 100	PRED 624 003

Tenant® Valve Assembly

Adjustable between 1.5 – 6.0 Bar.

Product	Size	Product Code
Tenant valve assembly- 16 bar max, 80°C max	¾" FBSP	TVAP 200 005
Tenant valve assembly- 16 bar max, 80°C max	1" FBSP	TVAP 200 010

Optional Water Meter Cartridge for Tenant Valve Assembly

Product	Size	Product Code
Class 'A' cold water meter cartridge	N/A	WATM 100 050
Class 'A' hot water meter cartridge	N/A	WATM 100 055

Other classes of water meter are available on request

Optional Pulse Output Cap

Product	Size	Product Code
Retrofit clip on pulse output cap	N/A	PCAP 100 001

RWC-SYR® PRESSURE REDUCING VALVES

Replacement Pressure Reducing Valve Cartridges for use up to 80˚C

For 312C, F & H series valves with one-piece cartridges, with threaded connection and no dial up mechanism. Care must be taken in selecting the correct cartridge.

Product Description	Size of PRV	Product Code
One part cartridge for 312 C,F & H	⅜" & ½"	REDC 310 200
One part cartridge for 312 C,F & H	¾"	REDC 310 500
One part cartridge for 320	½" & ¾"	REDC 320 001

For 315 series valves with one piece cartridges and dial-up mechanism. Care must be taken in selecting the correct cartridge.

Product Description	Size of PRV	Product Code
One part dial up cartridge for 315	½" & ¾"	REDC 300 008
One part dial up cartridge for 315	1"	REDC 300 007
One part dial up cartridge for 315	1 ¼", 1 ½" & 2"	REDC 300 006

4

Replacement Pressure Reducing Valve Cartridges for use up to 90˚C

For 6243 series dial up pressure reducing valves with one piece cartridge and dial-up mechanism.

Product Description	Size of PRV	Product Code
One part cartridge for 6243 dial up series 1.5 to 5 bar	½" and ¾"	REDC 624 035
One part cartridge for 6243 dial up series 4 to 8 bar	½" and ¾"	REDC 624 036
One part cartridge for 6243 dial up series 1.5 to 5 bar	1"	REDC 624 037
One part cartridge for 6243 dial up series 4 to 8 bar	1"	REDC 624 038
One part cartridge for 6243 dial up series 1.5 to 5 bar	1 ¼" to 2 "	REDC 624 039
One part cartridge for 6243 dial up series 4 to 8 bar	1 ¼" to 2 "	REDC 624 040

Pressure Gauges

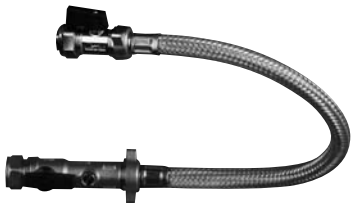
Product Description	Size	Product Code
50mm Dial 0-4 bar	¼" MBSP centre back inlet	GAGE 250 007
63mm Dial 0-4 bar	¼" MBSP centre back inlet	GAGE 250 003
50mm Dial 0-6 bar	¼" MBSP centre back inlet	GAGE 250 001
63mm Dial 0-6 bar	¼" MBSP centre back inlet	GAGE 250 002
50mm Dial 0-10 bar	¼" MBSP centre back inlet	GAGE 250 004
63mm Dial 0-10 bar	¼" MBSP centre back inlet	GAGE 250 005
50mm Dial 0-16 bar	¼" MBSP centre back inlet	GAGE 250 006
63mm Dial 0-6 bar	¼" MBSP bottom inlet	GAGE 250 008
63mm Dial 0-10 bar	¼" MBSP bottom inlet	GAGE 250 009

PRESSURE RELIEF VALVES

Easifit® Sealed System Kits

The Easifit® Controls Kit is a multibloc system, utilising proven technology in a modular easy to use form. It is designed to make initial installation of a sealed system, or conversion of a conventional vented heating system to a sealed system as easy as possible. The Easifit® Controls Kit contains all the basic control functions needed for a sealed system of up to 56kW: a filling loop (consisting of a double check valve, a flexible hose and a shut-off valve); a pressure gauge to show system pressure; and a 3 bar pressure relief valve, which is part of a connection manifold. This simplifies the connection of the other components to the heating system, including the expansion vessel, which is purchased as a separate item (also listed in the table below). To select the correct size vessel consult the expansion vessel sizing chart on page 31.

Product Description	Size	Product Code
Easifit® Controls Kit (select vessel from range below)	15mm comp x ¾" union	EASI 209 104
0.5 Bar Easifit® Heating Vessel & bracket	5 litre ¾" MBSP	VESK 209 001
0.5 Bar Easifit® Heating Vessel & bracket	8 litre ¾" MBSP	VESK 209 002
1.0 Bar Easifit® Heating Vessel & bracket	12 litre ¾" MBSP	VESK 209 003
1.0 Bar Easifit® Heating Vessel & bracket	18 litre ¾" MBSP	VESK 209 004
1.0 Bar Easifit® Heating Vessel & bracket	25 litre ¾" MBSP	VESK 209 005
1.5 Bar Easifit® Heating Vessel & bracket	40 litre ¾" MBSP	VESK 209 006



Filling Loops

Product Description	Size	Product Code
Filmaster® filling loop, dual isolator c/w check valve	15mm	FIBV 246 208
Filling loop sealing cap and tag	½"	BCAP 246 200

Automatic Filling Groups

Product Description	Size	Product Code
Automatic filling group c/w RPZ valve, PRV, isolator and gauge	¾" MBSP x 22mm	RPZV 300 001

PRESSURE RELIEF VALVES

Sealed Heating System Pressure Relief Valve With Gauge

Pressure relief valve fitted with an integral pressure gauge that shows system pressure. Relief set at 3.0 bar.

Product Description	Size	Product Code
Pressure Relief Valve with Gauge (3 bar)	½" FxFBSP	PREL 103 003

Reliance 101 Series Sealed Heating System Pressure Relief Valves

FBSP x FBSP, or MBSP x FBSP connections with inlet and outlet the same size.

Product Description	Size	Product Code
Pressure Relief Valve (2.0 bar)	½" FxFBSP	PREL 101 001
Pressure Relief Valve (2.5 bar)	½" FxFBSP	PREL 101 002
Pressure Relief Valve (3.0 bar)	½" FxFBSP	PREL 101 003
Pressure Relief Valve (2.0 bar)	½" MxFBSP	PREL 101 015
Pressure Relief Valve (2.5 bar)	½" MxFBSP	PREL 101 024
Pressure Relief Valve (3.0 bar)	½" MxFBSP	PREL 101 016
Pressure Relief Valve (2.0 bar)	¾" FxFBSP	PREL 101 011
Pressure Relief Valve (2.5 bar)	¾" FxFBSP	PREL 101 012
Pressure Relief Valve (3.0 bar)	¾" FxFBSP	PREL 101 013
Pressure Relief Valve (2.0 bar)	¾" MxFBSP	PREL 101 014
Pressure Relief Valve (2.5 bar)	¾" MxFBSP	PREL 101 027
Pressure Relief Valve (3.0 bar)	¾" MxFBSP	PREL 101 023

Replacement Cartridges for ½" and ¾" Sealed Heating System Pressure Relief Valves

Product Description	Size	Product Code
Pressure Relief Cartridge (2.0 bar)	N/A	ZRC209020
Pressure Relief Cartridge (2.5 bar)	N/A	ZRC209021
Pressure Relief Cartridge (3.0 bar)	N/A	ZRC214043

PRESSURE RELIEF VALVES

Reliance 100 Series Sealed Heating System High Capacity Pressure Relief Valves

FBSP connections with the outlet one size larger than the inlet for high capacity discharge. For higher set pressures please refer to the Reliance 104 series on page 108 - 109 (General Plumbing Section). For set pressures not listed but in the set pressure range 0.5 - 5.0 bar please contact the Reliance Sales Department.

Product Description	Size	Product Code
Pressure Relief Valve (2.5 bar)	½" x ¾" FxFBSP	PREL 100 008
Pressure Relief Valve (3.0 bar)	½" x ¾" FxFBSP	PREL 100 001
Pressure Relief Valve (4.0 bar)	½" x ¾" FxFBSP	PREL 100 003
Pressure Relief Valve (5.0 bar)	½" x ¾" FxFBSP	PREL 100 004
Pressure Relief Valve (2.5 bar)	¾" x 1" FxFBSP	PREL 100 013
Pressure Relief Valve (3.0 bar)	¾" x 1" FxFBSP	PREL 100 014
Pressure Relief Valve (4.0 bar)	¾" x 1" FxFBSP	PREL 100 016
Pressure Relief Valve (5.0 bar)	¾" x 1" FxFBSP	PREL 100 028
Pressure Relief Valve (2.5 bar)	1" x 1¼" FxFBSP	PREL 100 022
Pressure Relief Valve (3.0 bar)	1" x 1¼" FxFBSP	PREL 100 023
Pressure Relief Valve (4.0 bar)	1" x 1¼" FxFBSP	PREL 100 025
Pressure Relief Valve (5.0 bar)	1" x 1¼" FxFBSP	PREL 100 027
Pressure Relief Valve (2.5 bar)	1¼" x 1½" FxFBSP	PREL 100 032
Pressure Relief Valve (3.0 bar)	1¼" x 1½" FxFBSP	PREL 100 033
Pressure Relief Valve (4.0 bar)	1¼" x 1½" FxFBSP	PREL 100 034
Pressure Relief Valve (5.0 bar)	1¼" x 1½" FxFBSP	PREL 100 036
Pressure Relief Valve (2.5 bar)	1½" x 2" FxFBSP	PREL 100 044
Pressure Relief Valve (3.0 bar)	1½" x 2" FxFBSP	PREL 100 041
Pressure Relief Valve (4.0 bar)	1½" x 2" FxFBSP	PREL 100 042
Pressure Relief Valve (5.0 bar)	1½" x 2" FxFBSP	PREL 100 046
Pressure Relief Valve (2.5 bar)	2" x 2½" FxFBSP	PREL 100 052
Pressure Relief Valve (3.0 bar)	2" x 2½" FxFBSP	PREL 100 049
Pressure Relief Valve (4.0 bar)	2" x 2½" FxFBSP	PREL 100 050
Pressure Relief Valve (5.0 bar)	2" x 2½" FxFBSP	PREL 100 055

Dial-Up Automatic Differential By-Pass Valves

Product Description	Size	Product Code
Dial Up Differential By-Pass (straight)	22mm	DIFF 391 905
Dial Up Differential By-Pass (angled)	22mm	DIFF 390 905

PRESSURE RELIEF VALVES

Air Separators

Product Description	Size	Product Code
Air separator with cover cap	¾" FBSP	ASEP 192 102
Air separator with cover cap	1" FBSP	ASEP 192 103
Air separator with cover cap	1 ¼" FBSP	ASEP 192 104
Air separator with cover cap	1 ½" FBSP	ASEP 192 105
Air separator with cover cap	2" FBSP	ASEP 192 106

Automatic Air Vent

Product Description	Size	Product Code
Automatic air vent	⅜"	AVEN 100 001
Automatic air vent	½"	AVEN 100 005

Heatguard® UFH

Product Description	Size	Product Code
Heatguard® UFH	22mm	HEAT 219 058
Heatguard® UFH	28mm	HEAT 115 002

EXPANSION VESSELS

HEATING SYSTEM EXPANSION VESSELS

These expansion vessels are for use with heating systems and non-potable water only. They are available in a wide variety of sizes and connection formats, if the vessel you require is not shown please contact the Reliance Sales Dept on +44 (0)1386 47148.

Heating Vessel Sizing Guide

The following guide has been prepared as an aid to correctly size a sealed heating system expansion vessel, for further information please contact the Reliance Technical Dept. on +44 (0)1386 47148.

Vessel Size (litres)	Static Head (meters)	Boiler Rating	
		kW	BTU
5	5	8.90	30,366
	10	7.18	22,559
8	5	14.33	45,024
	10	11.50	36,133
12	5	21.58	67,804
	10	17.25	54,199
18	5	32.50	102,115
	10	25.83	81,157
	15	19.25	60,483
25	5	44.83	140,855
	10	35.92	112,860
	15	27.00	84,834
40	5	71.80	225,595
	10	57.50	180,665
	15	43.00	135,106
60	5	107.76	338,581
	10	86.20	270,840
	15	64.65	203,130
80	5	143.70	451,505
	10	115.00	361,330
	15	86.10	270,526
100	5	179.60	564,303
	10	143.70	541,505
	15	107.70	338,393

If the system volume is known, expansion vessels can be sized with the formula:

$$V = \frac{eC}{1 - \frac{p1}{p2}}$$

V The total volume or nominal size of the expansion vessel. It is not the acceptance volume. (See product description).

C The total volume of water in the system.

P1 The fill pressure of the system in Bars absolute (atmospheric or gauge pressure plus one Bar).

P2 The setting of the expansion/pressure relief valve in Bars absolute (atmospheric or gauge pressure plus one Bar).

e The expansion factor that relates to the maximum system requirements.

Expansion factor 'e'	Temperature °C
0.0324	85
0.0359	90
0.0396	95
0.0434	100

EXPANSION VESSELS

Expansion vessels with SBR membranes for use with sealed heating systems, to absorb the expansion created when water is heated within the system. Not for use with potable water.

Fixed Membrane Heating Expansion Vessels

Heating Expansion Vessels with an epoxy coated steel container, clenched carbon steel flange and non-replaceable SBR membrane. Vessel air precharge noted in brackets.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
5 Litre (0.5 bar)	5	160	320	¾" MBSP	XVES 400 001
8 Lt (0.5 bar)	5	200	330	¾" MBSP	XVES 400 011
8 Lt (1.5 bar)	5	200	330	¾" MBSP	XVES 400 012
12 Lt (0.5 bar)	5	270	315	¾" MBSP	XVES 400 022
12 Lt (1.5 bar)	5	270	315	¾" MBSP	XVES 400 021
18 Lt (1.0 bar)	5	270	420	¾" MBSP	XVES 400 030
25 Lt (1.0 bar)	5	290	450	¾" MBSP	XVES 400 050
40 Lt (1.5 bar)	5	320	582	¾" MBSP	XVES 400 061

Compact heating Expansion Vessels with side connection. 1.5 bar pre-charge pressure.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
35 Lt	5	380	407	¾" MBSP	XVES 410 010
50 Lt	5	380	545	¾" MBSP	XVES 410 020
80 Lt	5	450	670	¾" MBSP	XVES 410 030
100 Lt	5	450	740	¾" MBSP	XVES 410 040

EXPANSION VESSELS

Replaceable Membrane Heating Expansion Vessels

Heating Expansion Vessels with an epoxy coated steel container, carbon steel bolted flange and SBR replaceable membrane. 1.5 bar pre-charge pressure unless stated otherwise. All vessels have feet.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
60 Lt	6	380	730	¾" MBSP	XVES 420 050
80 Lt	6	450	735	¾" MBSP	XVES 420 100
100 Lt	6	450	790	1" MBSP	XVES 420 150
150 Lt	6	550	800	1" MBSP	XVES 420 200
200 Lt	6	550	1080	1 ½" MBSP	XVES 420 250
250 Lt	6	630	984	1 ½" MBSP	XVES 420 300
300 Lt	6	630	1177	1 ½" MBSP	XVES 420 350
500 Lt	6	780	1283	1 ½" MBSP	XVES 420 400
700 Lt	6	780	1685	1 ½" MBSP	XVES 420 450
1000 Lt	10	930	1950	2" MBSP	XVES 420 500

High Pressure Vessels

Expansion Vessels for high pressure, with an epoxy coated steel container, carbon steel bolted flange and replaceable butyl rubber membrane. Pre-charge pressure of 2 bar.

Product Description	Max Pressure	Dimensions Dia	Height	Water Connection	Product Code
20 Lt	16	250	480	1" MBSP	XVES 800 005
100 Lt	16	450	956	1" MBSP	XVES 800 010
200 Lt	16	550	1235	1 ½" MBSP	XVES 800 020
300 Lt	16	630	1400	1 ½" MBSP	XVES 800 030
500 Lt	16	780	1550	1 ½" MBSP	XVES 800 040
750 Lt	16	780	2005	1 ½" MBSP	XVES 800 050
1000 Lt	16	930	1950	2" MBSP	XVES 800 060

SPECIAL APPLICATION VESSELS

Salt Resistant Vessels

Vertical Expansion Vessels with hot galvanised finish, carbon steel bolted flange and replacement butyl rubber membrane. Suitable where there are high levels of atmospheric salt. Pre charged to 2.0 bar.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
100 Lt	10	450	965	1" MBSP	XVES 002 010
200 Lt	10	550	1235	1 ½" MBSP	XVES 002 020
300 Lt	10	630	1400	1 ½" MBSP	XVES 002 030
500 Lt	10	780	1550	1 ½" MBSP	XVES 002 040

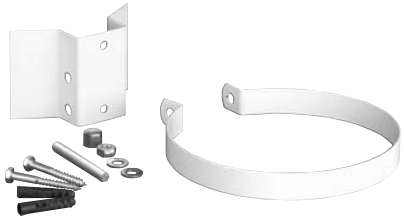
Vessels for Solar Systems

Mild steel epoxy coated shell with a stainless steel clenched flange and a non-replaceable nitrile rubber membrane. Pre charge pressure of 2.5 bar.

Product Description	Max Pressure	Dimensions Dia	Height	Water Connection	Product Code
5 Lt	8	160	315	¾" MBSP	XVES 120 010
8 Lt	8	200	330	¾" MBSP	XVES 120 020
12 Lt	8	270	300	¾" MBSP	XVES 120 030
19 Lt	8	270	405	¾" MBSP	XVES 120 040
25 Lt	8	290	500	¾" MBSP	XVES 120 050
40 Lt	8	320	560	¾" MBSP	XVES 120 060
60 Lt	6	380	730	¾" MBSP	XVES 120 070
80 Lt	6	450	735	¾" MBSP	XVES 120 080
100 Lt	6	450	790	1" MBSP	XVES 120 090
200 Lt	6	550	1080	1 ½" MBSP	XVES 120 100
300 Lt	6	630	1177	1 ½" MBSP	XVES 120 110

Expansion Vessel Mounting Brackets

Wall mounting brackets for Expansion Vessels, from 5 to 40 litres. For use with the XVES 600 series of potable water Expansion Vessels and the XVES 400 series of heating systems Expansion Vessels. The brackets are made from epoxy coated steel and come complete with fixing screws and wall plugs. Not for use with the flat or oval ranges of vessels.



Product Description	Size	Product Code	Dia
5 litre Expansion Vessel wall mounting bracket	N/A	BRKT 240 021	160mm
8 litre Expansion Vessel wall mounting bracket	N/A	BRKT 240 022	200mm
12/18 litre Expansion Vessel wall mounting bracket	N/A	BRKT 240 023	270mm
22/25 litre Expansion Vessel wall mounting bracket	N/A	BRKT 240 024	290mm
40 litre Expansion Vessel wall mounting bracket (2 brackets)	N/A	BRKT 240 025	320mm

POTABLE WATER EXPANSION VESSELS

Potable Water Shock Arrestors

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
0.16 Lt (1.5 bar)	15 Bar	65	105	½" MBSP	XVES 600 005

Fixed Membrane Potable Expansion Vessels

Clenched stainless steel flange with an epoxy coated steel container, non replaceable butyl rubber membrane. Standard pre-charge of 3.5 bar.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
2 Lt	10 Bar	125	240	½" MBSP	XVES 600 011
2.5 Lt	10 Bar	125	225	½" MBSP	XVES 600 045
3 Lt	10 Bar	125	333	½" MBSP	XVES 600 046
4 Lt	10 Bar	125	412	½" MBSP	XVES 600 047
5 Lt	8 Bar	160	320	¾" MBSP	XVES 600 048
6 Lt	10 Bar	125	577	½" MBSP	XVES 600 049
8 Lt	8 Bar	200	330	¾" MBSP	XVES 600 023
12 Lt	6 Bar	270	315	¾" MBSP	XVES 600 027
18 Lt	6 Bar	270	420	¾" MBSP	XVES 600 031
24 Lt	6 Bar	360	335	¾" MBSP	XVES 600 050
25 Lt	6 Bar	290	450	¾" MBSP	XVES 600 041

Clenched Oval Expansion Vessels

Product Description	Max Pressure	Dimensions (mm) Depth	Width	Length	Water Connection	Product Code
2 Lt	8 Bar	82	120	290	½" MBSP	FLAT 602 010
3 Lt	8 Bar	82	120	438	½" MBSP	FLAT 602 020
4 Lt	8 Bar	82	120	610	½" MBSP	FLAT 602 030

Stainless Steel Vessels (shell and flange)

Stainless steel vertical Expansion Vessels, with a stainless steel bolted flange and shell, and a replaceable butyl rubber membrane. Standard pre-charge of 2 bar.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
20 Lt	8 Bar	260	480	1" MBSP	XVES 700 015
50 Lt	8 Bar	380	780	1" MBSP	XVES 700 040
100 Lt	8 Bar	450	965	1" MBSP	XVES 700 045
200 Lt	8 Bar	540	1150	1½" MBSP	XVES 700 050
300 Lt	8 Bar	640	1360	1½" MBSP	XVES 700 055
500 Lt	8 Bar	800	1450	1½" MBSP	XVES 700 060

Stainless steel horizontal Expansion Vessels, with a stainless steel bolted flange and shell, and a replaceable butyl rubber membrane. Standard pre-charge of 2 bar.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
20 Lt with pump base	8 Bar	275	490	1" MBSP	XVES 700 215
50 Lt	8 Bar	415	600	1" MBSP	XVES 700 240
100 Lt	8 Bar	475	780	1" MBSP	XVES 700 245
200 Lt	8 Bar	540	1020	1½" MBSP	XVES 700 250
300 Lt	8 Bar	640	1210	1½" MBSP	XVES 700 255

POTABLE WATER EXPANSION VESSELS

Replaceable Membrane Potable Water Expansion Vessels

Vertical Expansion Vessels with an epoxy coated steel container, stainless steel bolted flange and replaceable butyl rubber membrane. Standard pre-charge of 3.5 bar.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
12 Lt	8 Bar	270	300	¾" MBSP	XVES 602 034
19 Lt	8 Bar	270	405	¾" MBSP	XVES 603 023
20 Lt	10 Bar	250	500	¾" MBSP	XVES 602 071
24 Lt	8 Bar	360	335	¾" MBSP	XVES 602 103
25 Lt	8 Bar	290	500	¾" MBSP	XVES 603 041
40 Lt with feet	8 Bar	320	610	¾" MBSP	XVES 603 046

Vertical Expansion Vessels with an epoxy coated steel container, stainless steel bolted flange and replaceable butyl rubber membrane. Supplied complete with pump mounting bracket. Standard pre-charge of 2 bar.

Product Description	Max Pressure	Dimensions (mm) Dia	Height	Water Connection	Product Code
60 Lt	8 Bar	380	850	1" MBSP	XVES 500 320
80 Lt	8 Bar	450	870	1" MBSP	XVES 500 313
100 Lt	10 Bar	450	965	1" MBSP	XVES 500 302
200 Lt	10 Bar	550	1235	1 ½" MBSP	XVES 500 345
300 Lt	10 Bar	630	1400	1 ½" MBSP	XVES 500 310
500 Lt	10 Bar	780	1550	1 ½" MBSP	XVES 500 065
750 Lt	10 Bar	780	2005	1 ½" MBSP	XVES 500 316

Horizontal Expansion Vessels with an epoxy coated steel container, stainless steel bolted flange and replaceable butyl rubber membrane. Supplied complete with pump mounting bracket. Standard pre-charge of 3.5 bar to 20 Lt and 2 bar for 40 to 300 Lt.

Product Description	Max Pressure	Dimensions (mm) Diameter	Height	Water Connection	Product Code
19 Lt	8 Bar	290	405	¾" MBSP	XVES 602 023
20 Lt	10 Bar	275	490	¾" MBSP	XVES 602 081
40 Lt	8 Bar	345	580	1" MBSP	XVES 502 002
60 Lt	8 Bar	415	680	1" MBSP	XVES 502 050
80 Lt	8 Bar	475	680	1" MBSP	XVES 502 100
100 Lt	10 Bar	475	780	1" MBSP	XVES 502 150
200 Lt	10 Bar	590	1030	1 ½" MBSP	XVES 502 200
300 Lt	10 Bar	655	1185	1 ½" MBSP	XVES 502 250

SECONDARY WATER METERS

Reliance offers a comprehensive range of secondary* water meters for domestic, commercial and industrial applications. Reliance can provide the ideal metering solution for every installation. Please contact the Reliance Sales Department for advice on the most suitable meter for your installation.

*Water authorities supply primary charging meters in the UK. Secondary meters are used when the water from one primary meter is split between a number of users (e.g. a landlord's meter) or when water (or energy) usage is to be monitored as part of an energy efficiency scheme.

CLASS APPROVALS

All meters are factory tested to ensure that they comply with the relevant class, which is marked along with the approval number on each meter.

Definitions

Nominal Flow Rate	Qn	The designation flow rate of the meter.
Maximum Flow Rate	Qmax	The highest flow rate at which the meter accuracy will be within the maximum permitted error.
Minimum Flow Rate	Qmin	The lowest flow rate at which the meter accuracy will be within the maximum permitted error.
Transitional Flow Rate	Qt	The flow rate at which the maximum permitted error of the meter changes.
Maximum Permitted Error from Qmin to Qt		± 5%
Maximum Permitted Error from Qt to Qmax		± 2%

WATER METER SELECTION

The following is some basic advice on how to select the correct water meter for a given application:

The size of the water meter

Water meters are sized on their nominal flow rate. This is called the Qn and is given in cubic meters per hour (one cubic meter is 1,000 litres of water). The water meters maximum flow rate is twice the Qn. If the required flow rate is known then a water meter can be selected so that the required flow rate falls between the nominal and maximum flow rates. If the flow rate is not known then it is generally safe to select a meter of the same nominal size (DN) as the pipework it is to be connected to.

What class of meter is required

The class does **not** indicate the accuracy of the water meter but at what flow rate the meter meets the common accuracy figures. These are ± 5% at the meters minimum flow rate and ± 2% in the meters normal range (between Qt and Qmax) for cold water meters. The figures for hot water meters are ± 6% and ± 3% respectively. The higher the class of water meter the higher the accuracy at very low flow rates.

When deciding if a low flow reading is required it should be remembered that even a class A Qn 2.5 (a ¾" meter) will start to read, within its tolerance band, at a flow rate of 1.66 l/m (a basin tap will flow at between 6 and 10 l/m)

If all that is required is an overall indication of the amount of water used then a class A or B meter is sufficient (most mainland European Water Authorities use single and multi jet water meters as they maintain their accuracy for a long time).

If the total of a number of secondary meters has to relate very closely to a master meter then a class C meter should be selected.

If the effects of dripping taps and low flows caused by float operated valves are to be taken into consideration then a class D meter should be selected.

Wet or Dry Dial

Wet dial meters are used for cold water applications where the meter is subject to climactic changes (e.g. a meter mounted outside a building but still protected from frost) which could cause condensation to form on the face of the dry dial meter making it difficult to read. This should be balanced against the possibility of water borne contamination getting into the meter. The type of meter must be selected based on site conditions, but in all cases dry dial meters should be used in applications where the water quality is suspect, ie. contaminated or cloudy.

What Meter Type

This is also related to class, as certain classes are only available for certain types of water meter. Noise is also a factor here as single and multi jet meters are quieter in operation than positive displacement meters and so are better suited for use in a flat for instance. Sizes available (Sizes are given in terms of the meters Qn, or nominal flow rate, in m^3/h)

SINGLE JET WATER METERS

Reliance 100 Series Cold Water Single Jet Meters - ETK

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Meter Up To 30°C	1.5 m^3/h	A	WATM 100 001
15mm Compression	Cold Water Meter Up To 30°C	1.5 m^3/h	A	WATM 100 002
15mm Capillary	Cold Water Meter Up To 30°C	1.5 m^3/h	A	WATM 100 003
¾" MBSP Union	Cold Water Meter Up To 30°C	2.5 m^3/h	A	WATM 100 004
22mm Compression	Cold Water Meter Up To 30°C	2.5 m^3/h	A	WATM 100 005
22mm Capillary	Cold Water Meter Up To 30°C	2.5 m^3/h	A	WATM 100 006

Reliance 100 Series Hot Water Single Jet Meters - ETW

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Hot Water Meter Up To 90°C	1.5 m^3/h	A	WATM 110 001
15mm Compression	Hot Water Meter Up To 90°C	1.5 m^3/h	A	WATM 110 002
15mm Capillary	Hot Water Meter Up To 90°C	1.5 m^3/h	A	WATM 110 003
¾" MBSP Union	Hot Water Meter Up To 90°C	2.5 m^3/h	A	WATM 110 004
22mm Compression	Hot Water Meter Up To 90°C	2.5 m^3/h	A	WATM 110 005
22mm Capillary	Hot Water Meter Up To 90°C	2.5 m^3/h	A	WATM 110 006

SINGLE JET PULSE OUTPUT METERS

Reliance 120 Series Cold Water Single Jet Pulse Output Meters - ETK - I

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Meter Up To 30°C Pulse Output	1.5 m^3/h	A	WATM 120 001
15mm Compression	Cold Water Meter Up To 30°C Pulse Output	1.5 m^3/h	A	WATM 120 002
15mm Capillary	Cold Water Meter Up To 30°C Pulse Output	1.5 m^3/h	A	WATM 120 003
¾" MBSP Union	Cold Water Meter Up To 30°C Pulse Output	2.5 m^3/h	A	WATM 120 004
22mm Compression	Cold Water Meter Up To 30°C Pulse Output	2.5 m^3/h	A	WATM 120 005
22mm Capillary	Cold Water Meter Up To 30°C Pulse Output	2.5 m^3/h	A	WATM 120 006

SINGLE JET PULSE OUTPUT METERS

Reliance 125 Series Hot Water Single Jet Pulse Output Meters - ETW - I

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Hot Water Meter Up To 90°C Pulse Output	1.5 m^3/h	A	WATM 125 001
15mm Compression	Hot Water Meter Up To 90°C Pulse Output	1.5 m^3/h	A	WATM 125 002
15mm Capillary	Hot Water Meter Up To 90°C Pulse Output	1.5 m^3/h	A	WATM 125 003
¾" MBSP Union	Hot Water Meter Up To 90°C Pulse Output	2.5 m^3/h	A	WATM 125 004
22mm Compression	Hot Water Meter Up To 90°C Pulse Output	2.5 m^3/h	A	WATM 125 005
22mm Capillary	Hot Water Meter Up To 90°C Pulse Output	2.5 m^3/h	A	WATM 125 006

MULTI JET TURBINE WATER METERS

Reliance 200 Series Multi Jet Wet Dial, Cold Water, Horizontal Installation - MNK

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	C	WATM 200 010
15mm Compression	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	C	WATM 200 011
15mm Capillary	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	C	WATM 200 012
¾" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	C	WATM 200 013
22mm Compression	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	C	WATM 200 014
22mm Capillary	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	C	WATM 200 015
1" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	3.5 m^3/h	B	WATM 200 016

MULTI JET TURBINE WATER METERS

Reliance 200 Series Multi Jet Wet Dial, Pulse Output, Cold Water, Horizontal Installation - MNK

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Pulse Output Wet Dial Meter Up To 30°C	1.5 m^3/h	C	WATM 200 050
15mm Compression	Cold Water Pulse Output Wet Dial Meter Up To 30°C	1.5 m^3/h	C	WATM 200 051
15mm Capillary	Cold Water Pulse Output Wet Dial Meter Up To 30°C	1.5 m^3/h	C	WATM 200 052
¾" MBSP Union	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	C	WATM 200 053
22mm Compression	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	C	WATM 200 054
22mm Capillary	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	C	WATM 200 055
1" MBSP Union	Cold Water Pulse Output Wet Dial Meter Up To 30°C	3.5 m^3/h	B	WATM 200 056

Reliance 200 100 Series Multi Jet Wet Dial, Cold Water, Vertical Rising Supply - MNK - ST

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 200 100
15mm Compression	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 200 101
15mm Capillary	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 200 102
¾" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 103
22mm Compression	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 104
22mm Capillary	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 105
1" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	3.5 m^3/h	B	WATM 200 106

MULTI JET TURBINE WATER METERS

Reliance 200 Series Multi Jet Wet Dial, Cold Water, Vertical Falling Supply - MNK - F

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 200 200
15mm Compression	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 200 201
15mm Capillary	Cold Water Wet Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 200 202
¾" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 203
22mm Compression	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 204
22mm Capillary	Cold Water Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 205
1" MBSP Union	Cold Water Wet Dial Meter Up To 30°C	3.5 m^3/h	B	WATM 200 206

Reliance 200 Series Multi Jet Wet Dial, Pulse Output, Cold Water, Vertical Rising Supply - MNKI - ST

Size and Connection	Product Description	Nominal Flow	Class	Product Code
¾" MBSP Union	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 150
22mm Compression	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 151
22mm Capillary	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 152

Reliance 200 250 Series Multi Jet Wet Dial, Pulse Output, Cold Water, Vertical Falling Supply - MNKI - F

Size and Connection	Product Description	Nominal Flow	Class	Product Code
¾" MBSP Union	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 250
22mm Compression	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 251
22mm Capillary	Cold Water Pulse Output Wet Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 200 252

MULTI JET TURBINE WATER METERS

Reliance 210 Series Multi Jet Dry Dial, Cold Water, Horizontal Installation - MTK

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 001
15mm Compression	Cold Water Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 002
15mm Capillary	Cold Water Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 003
¾" MBSP Union	Cold Water Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 004
22mm Compression	Cold Water Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 005
22mm Capillary	Cold Water Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 006
1" MBSP Union	Cold Water Dry Dial Meter Up To 30°C	3.5 m^3/h	B	WATM 210 007

Reliance 220 Series Multi Jet Dry Dial, Hot Water, Horizontal Installation - MTW

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Hot Water Dry Dial Meter Up To 90°C	1.5 m^3/h	B	WATM 220 001
15mm Compression	Hot Water Dry Dial Meter Up To 90°C	1.5 m^3/h	B	WATM 220 002
15mm Capillary	Hot Water Dry Dial Meter Up To 90°C	1.5 m^3/h	B	WATM 220 003
¾" MBSP Union	Hot Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 004
22mm Compression	Hot Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 005
22mm Capillary	Hot Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 006
1" MBSP Union	Hot Water Dry Dial Meter Up To 90°C	3.5 m^3/h	B	WATM 220 007

MULTI JET TURBINE WATER METERS

Reliance 210 Series Multi Jet Dry Dial, Pulse Output, Cold Water, Horizontal Installation - MTK - I

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Pulse Output Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 050
15mm Compression	Cold Water Pulse Output Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 051
15mm Capillary	Cold Water Pulse Output Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 052
¾" MBSP Union	Cold Water Pulse Output Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 053
22mm Compression	Cold Water Pulse Output Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 054
22mm Capillary	Cold Water Pulse Output Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 055
1" MBSP Union	Cold Water Pulse Output Dry Dial Meter Up To 30°C	3.5 m^3/h	B	WATM 210 056

Reliance 220 Series Multi Jet Dry Dial, Pulse Output, Hot Water, Horizontal Installation - MTW - I

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Hot Water Pulse Output Dry Dial Meter Up To 90°C	1.5 m^3/h	B	WATM 220 050
15mm Compression	Hot Water Pulse Output Dry Dial Meter Up To 90°C	1.5 m^3/h	B	WATM 220 051
15mm Capillary	Hot Water Pulse Output Dry Dial Meter Up To 90°C	1.5 m^3/h	B	WATM 220 052
¾" MBSP Union	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 053
22mm Compression	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 054
22mm Capillary	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 055

MULTI JET TURBINE WATER METERS

Reliance 210 100 Series Multi Jet Dry Dial, Cold Water, Vertical Rising Supply - MTK - ST

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Cold Water Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 100
15mm Compression	Cold Water Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 101
15mm Capillary	Cold Water Dry Dial Meter Up To 30°C	1.5 m^3/h	B	WATM 210 102
¾" MBSP Union	Cold Water Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 103
22mm Compression	Cold Water Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 104
22mm Capillary	Cold Water Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 105
1" MBSP Union	Cold Water Dry Dial Meter Up To 30°C	3.5 m^3/h	B	WATM 210 106

Reliance 220 Series Multi Jet Dry Dial, Hot Water, Vertical Rising Supply - MTW - ST

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Hot Water Dry Dial Meter Up To 90°C	1.5 m^3/h	A	WATM 220 100
15mm Compression	Hot Water Dry Dial Meter Up To 90°C	1.5 m^3/h	A	WATM 220 101
15mm Capillary	Hot Water Dry Dial Meter Up To 90°C	1.5 m^3/h	A	WATM 220 102
¾" MBSP Union	Hot Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 103
22mm Compression	Hot Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 104
22mm Capillary	Hot Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 105
1" MBSP Union	Hot Water Dry Dial Meter Up To 90°C	3.5 m^3/h	B	WATM 220 106

MULTI JET TURBINE WATER METERS

Reliance 210 Series Multi Jet Dry Dial, Pulse Output, Cold Water, Vertical Rising Supply - MTKI - ST

Size and Connection	Product Description	Nominal Flow	Class	Product Code
¾" MBSP Union	Cold Water Pulse Output Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 150
22mm Compression	Cold Water Pulse Output Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 151
22mm Capillary	Cold Water Pulse Output Dry Dial Meter Up To 30°C	2.5 m^3/h	B	WATM 210 152

Reliance 220 Series Multi Jet Dry Dial, Pulse Output, Hot Water, Vertical Rising Supply - MTWI - ST

Size and Connection	Product Description	Nominal Flow	Class	Product Code
½" MBSP Union	Hot Water Pulse Output Dry Dial Meter Up To 90°C	1.5 m^3/h	A	WATM 220 150
15mm Compression	Hot Water Pulse Output Dry Dial Meter Up To 90°C	1.5 m^3/h	A	WATM 220 151
15mm	Hot Water Pulse Output Dry Dial Meter Up To 90°C	1.5 m^3/h	A	WATM 220 152
¾" MBSP Union Capillary	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 153
22mm Compression	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 154
22mm Capillary	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 155
1" MBSP Union	Hot Water Pulse Output Dry Dial Meter Up To 90°C	3.5 m^3/h	B	WATM 220 156

Reliance 220 200 Series Multi Jet Dry Dial, Cold Water, Vertical Falling Supply - MTK - F

Size and Connection	Product Description	Nominal Flow	Class	Product Code
¾" MBSP Union	Cold Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 200
22mm Compression	Cold Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 201
22mm Capillary	Cold Water Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 202
1" MBSP Union	Cold Water Dry Dial Meter Up To 90°C	3.5 m^3/h	B	WATM 220 203

MULTI JET TURBINE WATER METERS

Reliance 220 250 Series Multi Jet Dry Dial, Pulse Output, Hot Water, Vertical Falling Supply - MTWI - F

Size and Connection	Product Description	Nominal Flow	Class	Product Code
¾" MBSP Union	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 250
22mm Compression	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 251
22mm Capillary	Hot Water Pulse Output Dry Dial Meter Up To 90°C	2.5 m^3/h	B	WATM 220 252
1" MBSP Union	Hot Water Pulse Output Dry Dial Meter Up To 90°C	3.5 m^3/h	B	WATM 220 253

WOLTMAN INDUSTRIAL AND IRRIGATION WATER METERS

Reliance 400 Series Woltman Industrial Meters

Size and Connection	Product Description	Nominal Flow	Class	Product Code
DN 50 Flanged	Cold Water Dry Dial Meter Up To 30°C	15 m^3/h	A	WATM 400 010
DN 65 Flanged	Cold Water Dry Dial Meter Up To 30°C	25 m^3/h	B	WATM 400 011
DN 80 Flanged	Cold Water Dry Dial Meter Up To 30°C	40 m^3/h	B	WATM 400 012
DN 100 Flanged	Cold Water Dry Dial Meter Up To 30°C	60 m^3/h	B	WATM 400 013
DN 150 Flanged	Cold Water Dry Dial Meter Up To 30°C	150 m^3/h	B	WATM 400 014
DN 200 Flanged	Cold Water Dry Dial Meter Up To 30°C	250 m^3/h	B	WATM 400 015
DN 50 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	15 m^3/h	A	WATM 400 016
DN 65 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	25 m^3/h	B	WATM 400 017
DN 80 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	40 m^3/h	B	WATM 400 018
DN 100 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	60 m^3/h	B	WATM 400 019
DN 150 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	150 m^3/h	B	WATM 400 020
DN 200 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	250 m^3/h	B	WATM 400 021

WOLTMAN INDUSTRIAL AND IRRIGATION WATER METERS

Reliance 405 Series Woltman Industrial Combination Meters

Size and Connection	Product Description	Nominal Flow	Class	Product Code
DN 50 Flanged	Cold Water Combination Meter Up To 30°C	15 m^3/h	A and C	WATM 405 001
DN 80 Flanged	Cold Water Combination Meter Up To 30°C	40 m^3/h	B and C	WATM 405 002
DN 100 Flanged	Cold Water Combination Meter Up To 30°C	60 m^3/h	B and C	WATM 405 003
DN 150 Flanged	Cold Water Combination Meter Up To 30°C	150 m^3/h	B and C	WATM 405 004

Reliance 410 Series Woltman Irrigation Meters

Size and Connection	Product Description	Nominal Flow	Class	Product Code
DN 65 Flanged	Cold Water Dry Dial Meter Up To 30°C	50 m^3/h	A	WATM 410 011
DN 80 Flanged	Cold Water Dry Dial Meter Up To 30°C	90 m^3/h	A	WATM 410 012
DN 100 Flanged	Cold Water Dry Dial Meter Up To 30°C	125 m^3/h	A	WATM 410 013
DN 125 Flanged	Cold Water Dry Dial Meter Up To 30°C	175 m^3/h	A	WATM 410 014
DN 150 Flanged	Cold Water Dry Dial Meter Up To 30°C	250 m^3/h	A	WATM 410 015
DN 200 Flanged	Cold Water Dry Dial Meter Up To 30°C	450 m^3/h	A	WATM 410 016
DN 65 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	50 m^3/h	A	WATM 410 018
DN 80 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	90 m^3/h	A	WATM 410 019
DN 100 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	125 m^3/h	A	WATM 410 020
DN 125 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	175 m^3/h	A	WATM 410 021
DN 150 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	250 m^3/h	A	WATM 410 022
DN 200 Flanged	Cold Water Pulse Output Dry Dial Meter Up To 30°C	450 m^3/h	A	WATM 410 023

WOLTMAN INDUSTRIAL AND IRRIGATION WATER METERS

Pulse Counter Modules

A selection of counter modules for use with pulse output water meters and heat meters

Product Description	Product Code
Wall mounted Counter Module	CNTR 100 010

DEFINITIONS

Back siphonage is a system condition that can occur if there is a sudden interruption of a supply to a property, thus creating a vacuum in the pipework system, which can cause backflow.

Backpressure is a system condition created when the incoming pressure in a supply is less than the pressure within the plumbing system, which can also cause backflow.

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

Fluid Categories and Risks, as Scheduled in the Water Supply (Water Fittings) Regulations 1999

Fluid Category 1: Wholesome water supplied by the water undertaker and complying with the requirements of regulations made under section 67 of the Water Industry Act 1991 (a), i.e. water supplied directly from the water undertaker's main.

Fluid Category 2: Water in fluid category 1 whose aesthetic quality is impaired as a result of:

(a) a change in its temperature, or
(b) the presence of substances or organisms causing a change in its taste, odour or appearance, including water in a hot water distribution system.

Examples of causes of such impairment are:
Mixing of hot and cold water supplies.
Domestic softening plant (common salt regeneration).
Drink vending machines in which no ingredients or carbon dioxide are injected into the supply or distributing inlet pipe.
Fire sprinkler systems (without anti-freeze).
Ice making machines.
Water cooled air conditioning units (without additives).

Fluid Category 3: Fluid which represents a slight health hazard because of the concentration of substances of low toxicity, including any fluid which contains:

(a) ethylene glycol, copper sulphate solution, or similar chemical additives; or
(b) sodium hypochlorite (chloros and common disinfectants).

Examples of such fluids are those contained in:
Primary circuits and heating systems
(with or without additives) in a house.
Domestic washbasins, baths and showers.
Domestic clothes and dishwashing machines.
Home dialysing machines.
Drink vending machines in which ingredients or carbon dioxide are injected.
Commercial softening plant (common salt regeneration only)
Domestic hand-held hoses with flow-controlled spray or shut-off control,
Hand held fertiliser sprays for use in domestic gardens.
Domestic or commercial irrigation systems, without insecticide or fertiliser additives, and with fixed sprinkler heads less than 150mm above ground level.

Fluid Category 4: Fluid which represents a significant health hazard due to the concentration of toxic substances, including any fluid which contains:

(a) chemical, carcinogenic substances or pesticides (including insecticides and herbicides); or
(b) environmental organisms of potential health significance.

Examples of such fluids are those contained in:

General
Primary circuits and central heating systems in non-domestic environments. Fire sprinkler systems using anti-freeze solutions.

House Gardens
Mini irrigation systems without fertilizer or insecticide application: such as pop-up sprinklers or permeable hoses.

Food Processing
Food preparation, dairies and bottle washing apparatus.

Catering
Commercial dishwashing machines, bottle washing apparatus and refrigerating equipment.

Industrial and Commercial Applications
Dyeing equipment
Industrial disinfection equipment.
Printing and photographic equipment.
Car washing and degreasing plants.
Commercial clothes washing plants.
Brewery and distillation plant.
Water treatment plant or softeners using other than salt.
Pressurised fire-fighting systems.

Fluid Category 5: Fluid which represents a serious health hazard because of the concentration of pathogenic organisms, radioactive or very toxic substances, including any fluid which contains:

(a) Faecal material or other human waste; or
(b) Butchery or other animal waste; or
(c) Pathogens from any source.

Examples of such fluids are those contained in:

General
Industrial cisterns, non-domestic hose union taps, sinks, urinals, WC pans and bidets, Permeable pipes in other than domestic gardens, laid below or at ground level, with or without permeable additives, and grey water re-cycling schemes.

Medical
Any medical or dental equipment with submerged inlets, laboratory equipment, bedpan washers, mortuary and embalming equipment, hospital dialysing machines. Commercial clothes washing plant in healthcare premises. Non-domestic sinks, baths, washbasins and other applications.

Food Processing
Butchery and meat trades, slaughterhouse equipment, vegetable washing.

DEFINITIONS

Catering
Dishwashing machines in healthcare premises. Vegetable washing.

Industrial and Commercial Applications
Industrial and chemical plant etc., mobile plant, tankers and gully emptiers. Laboratories. Sewage treatment and sewer cleansing. Drain cleaning plant. Water storage for agricultural purposes. Water storage for fire-fighting purposes.

Commercial Agricultural
Commercial irrigation outlets below or at ground level and/or permeable pipes, with or without chemical additives. Insecticide or fertilizer applications. Commercial hydroponic systems. The foregoing are examples of various fluid categories but are not exhaustive.

BACKFLOW PREVENTION DEVICES

Schedule of mechanical backflow prevention arrangements and the maximum permissible fluid category for which they are acceptable.

Type	Description of backflow prevention arrangements and devices	Suitable for protection against fluid category	
		Back-pressure	Back-siphonage
AA	Unrestricted air gap	5	5
BA	Verifiable backflow preventer with reduced pressure zone	4	4
CA	Non-verifiable disconnector with difference between pressure zones not greater than 10%	3	3
DA	Anti-vacuum valve (or vacuum breaker)	X	3
DB	Pipe interrupter with atmospheric vent and moving element	X	4
DC	Pipe interrupter with permanent atmospheric vent	X	5
DUK1	Anti-vacuum valve combined with a single check valve	2	3
EA	Verifiable single check valve	2	2
EB	Non-verifiable single check valve.	2	2
EC	Verifiable double check valve	3	3
ED	Non-verifiable double check valve	3	3
HA	Hose union backflow preventer. Only permitted for use on existing hose union taps in house installations	2	3
HC	Diverter with automatic return (Normally integral with some domestic appliance applications only)	X	3
HUK1	Hose union tap which incorporates a double check valve. Only permitted for replacement of existing hose union taps in house installations	3	3
LA	Pressurised air inlet valve	X	2
LB	Pressurised air inlet valve combined with a check valve downstream	2	3

Notes:

1. X Indicates that the backflow prevention device is not acceptable for protection against backflow for any fluid category within water installations in the UK.
2. Arrangements incorporating a Type DB device shall have no control valves on the outlet of the device. The device shall be fitted not less than 300mm above the spillover level of an appliance and discharge vertically downwards.
3. Types DA and DUK1 shall have no control valves on the outlet of the device and be fitted on a 300 mm minimum Type A upstand.
4. Relief outlet ports from Types BA and CA backflow prevention devices shall terminate with an air gap, the dimension of which should satisfy a Type AA air gap.

FLOGUARD® RPZ

Floguard® RPZ Valve

Product Description	Size	Product Code
Reduced pressure zone valve	½" MBSP	RPZV 200 001
Reduced pressure zone valve	¾" MBSP	RPZV 200 002
Reduced pressure zone valve	1" MBSP	RPZV 200 003
Reduced pressure zone valve c/w isolating valves	½" MBSP	RPZV 200 050
Reduced pressure zone valve c/w isolating valves	¾" MBSP	RPZV 200 051
Reduced pressure zone valve c/w isolating valves	1" MBSP	RPZV 200 052

Floguard® RPZ Accessories

Product Description	Size	Product Code
RPZ valve spare cartridge	N/A	SRPZ 200 001
RPZ valve spare access cap	N/A	SRPZ 200 002
RPZ valve spare strainer	N/A	SRPZ 200 003
RPZ valve spare test cock	N/A	SRPZ 200 004
RPZ valve spare tundish	N/A	SRPZ 200 005
RPZ valve spare cartridge tool	N/A	SRPZ 200 006
RPZ valve spare isolating valve	½"	SRPZ 200 007
RPZ valve spare isolating valve	¾"	SRPZ 200 008
RPZ valve spare isolating valve	1"	SRPZ 200 009

Automatic Filling Groups

Product Description	Size	Product Code
Automatic filling group c/w RPZ valve, PRV, isolator and gauge	¾" MBSP x 22mm	RPZV 300 001

Floguard® CA Valve

Product Description	Size	Product Code
Floguard® CA Device	½"	RCAV 100 001
Floguard® CA Device	¾"	RCAV 100 002

SINGLE AND DOUBLE CHECK VALVES

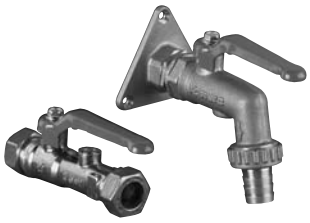
Floguard® Verifiable Double Check Valves

Product Description	Size	Product Code	Type
Floguard® Minislim Double Check Valve - DZR Brass	15mm	FLOW 203 003	EC
Floguard® Minislim Double Check Valve - Nickel	15mm	FLOW 203 004	EC
Floguard® Compact Double Check Valve - DZR Brass	22mm	FLOW 225 006	EC
Floguard® Double Check Valve - DZR Brass	28mm	FLOW 225 003	EC
Floguard® Double Check Valve - DZR Brass	½" FBSP	FLOW 221 002	EC
Floguard® Double Check Valve - DZR Brass	¾" FBSP	FLOW 225 004	EC
Floguard® Double Check Valve - DZR Brass	1" FBSP	FLOW 225 005	EC
Floguard® Double Check Valve - DZR Brass	1 ¼" FBSP	FLOW 201 001	EC
Floguard® Double Check Valve - DZR Brass	1 ½" FBSP	FLOW 201 002	EC
Floguard® Double Check Valve - DZR Brass	2" FBSP	FLOW 201 003	EC

Floguard® Single Check Valves

Product Description	Size	Product Code	Type
Floguard® Single Check Valve - DZR Brass	15mm	FLOW 222 001	EB
Floguard® Single Check Valve - DZR Brass	22mm	FLOW 222 002	EB
Floguard® Single Check Valve - DZR Brass	28mm	FLOW 222 003	EB
Floguard® Single Check Valve - DZR Brass	½" FBSP	FLOW 222 507	EB
Floguard single check valve - DZR brass	¾" FBSP	FLOW 222 004	EB
Floguard® Single Check Valve - DZR Brass	1" FBSP	FLOW 222 005	EB
Floguard® Single Check Valve - DZR Brass	1 ¼" FBSP	FLOW 222 006	EB
Floguard® Single Check Valve - DZR Brass	1 ½" FBSP	FLOW 222 007	EB
Floguard® Single Check Valve - DZR Brass	2" FBSP	FLOW 222 008	EB

SINGLE AND DOUBLE CHECK VALVES



Hoseguard® WRAS '99 Bib Tap

Product Description	Size	Product Code	Type
Hoseguard® Bib Tap Kit compliant with 1999 Water Regulations	Hose Union Bib Tap - ½" MBSP Combination Valve	HTAP 218 001	EC

Hoseguard® Bib Taps

Product Description	Size	Product Code	Type
Hoseguard® 1010 Bib Tap with Checkvalves	½" MBSP	HTAP 217 008	HUK 1
Hoseguard® ¼ Turn Lever Tap with Checkvalves	½" MBSP	HTAP 217 009	HUK 1

Washing Machine Valve

Product Description	Size	Product Code	Type
Washing machine valve	15mm x ¾" FBSP	BVAL 420 001	EB

Tundishes

Product Description	Size	Product Code	Type
Straight plastic tundish	22mm x 1" FBSP	TUND 218 023	AA
Straight plastic tundish	22mm x 28mm	TUND 219 001	AA
90° plastic tundish	15mm x ¾" FBSP	TUND 218 024	AA
Straight plastic tundish	15mm x 22mm	TUND 219 002	AA

THERMAL BALANCING VALVES

Thermal Balancing Valve (TBV)

A thermostatic regulating valve for automatically balancing and maintaining optimum temperatures in potable hot water systems.

Product Description	Size	Product Code
Thermal balancing valve 35°-60°C	½" FBSP	TREG 100 050
Thermal balancing valve 35°-60°C	¾" FBSP	TREG 100 055

Thermal Balancing Valve Accessories

Product Description	Size	Product Code
Thermal disinfection module	N/A	AREG 100 001
Thermometer with adaptor	N/A	AREG 100 005
Threaded nipples c/w isolating valve	½" MBSP	AREG 100 010
Threaded nipples c/w isolating valve	¾" MBSP	AREG 100 015

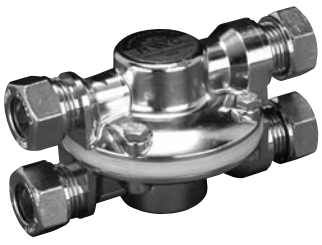
STRAINERS / ISOLATORS

Floreg Valve

Product Description	Size	Product Code
Floreg isolating valve/strainers 4 lpm	15mm	SERV 950 000
Floreg isolating valve/strainers 6 lpm	15mm	SERV 950 001
Floreg isolating valve/strainers 8 lpm	15mm	SERV 950 002
Floreg isolating valve/strainers 10 lpm	15mm	SERV 950 003
Floreg isolating valve/strainers 12 lpm	15mm	SERV 950 004
Floreg isolating valve/strainers 15 lpm	15mm	SERV 950 005

Pressure Equalising Valve

Product Description	Size	Product Code
Pressure Equalising Valve, nickel	15mm	EQVL 552 001



POTABLE PRESSURE RELIEF VALVES

Reliance 102 Series Potable Water Pressure Relief Valves (inlet and outlet same size)

Product Description	Size	Product Code
Pressure Relief Valve 3.5 bar	½" FBSP x FBSP	PREL 102 014
Pressure Relief Valve 5.0 bar	½" FBSP x FBSP	PREL 102 008
Pressure Relief Valve 6.0 bar	½" FBSP x FBSP	PREL 102 001
Pressure Relief Valve 8.0 bar	½" FBSP x FBSP	PREL 102 004
Pressure Relief Valve 3.5 bar	½" MBSP x FBSP	PREL 102 040
Pressure Relief Valve 5.0 bar	½" MBSP x FBSP	PREL 102 041
Pressure Relief Valve 6.0 bar	½" MBSP x FBSP	PREL 102 042
Pressure Relief Valve 8.0 bar	½" MBSP x FBSP	PREL 102 043
Pressure Relief Valve 3.5 bar	½" MBSP x 15mm	PREL 102 009
Pressure Relief Valve 5.0 bar	½" MBSP x 15mm	PREL 102 003
Pressure Relief Valve 6.0 bar	½" MBSP x 15mm	PREL 102 005
Pressure Relief Valve 8.0 bar	½" MBSP x 15mm	PREL 102 044
Pressure Relief Valve 3.5 bar	¾" FBSP x FBSP	PREL 102 045
Pressure Relief Valve 5.0 bar	¾" FBSP x FBSP	PREL 102 046
Pressure Relief Valve 6.0 bar	¾" FBSP x FBSP	PREL 102 031
Pressure Relief Valve 8.0 bar	¾" FBSP x FBSP	PREL 102 047
Pressure Relief Valve 3.5 bar	¾" MBSP x FBSP	PREL 102 048
Pressure Relief Valve 5.0 bar	¾" MBSP x FBSP	PREL 102 049
Pressure Relief Valve 6.0 bar	¾" MBSP x FBSP	PREL 102 018
Pressure Relief Valve 8.0 bar	¾" MBSP x FBSP	PREL 102 024
Pressure Relief Valve 3.5 bar	¾" MBSP x 22mm	PREL 102 020
Pressure Relief Valve 5.0 bar	¾" MBSP x 22mm	PREL 102 118
Pressure Relief Valve 6.0 bar	¾" MBSP x 22mm	PREL 102 027
Pressure Relief Valve 8.0 bar	¾" MBSP x 22mm	PREL 102 050

Reliance 104 Series High Capacity Potable Water Pressure Relief Valves (outlet one size bigger than inlet)

Product Description	Size	Product Code
Pressure Relief Valve 3.5 bar	½" x ¾" FBSP x FBSP	PREL 104 040
Pressure Relief Valve 5.0 bar	½" x ¾" FBSP x FBSP	PREL 104 041
Pressure Relief Valve 6.0 bar	½" x ¾" FBSP x FBSP	PREL 104 008
Pressure Relief Valve 8.0 bar	½" x ¾" FBSP x FBSP	PREL 104 006
Pressure Relief Valve 3.5 bar	¾" x 1" FBSP x FBSP	PREL 104 042
Pressure Relief Valve 5.0 bar	¾" x 1" FBSP x FBSP	PREL 104 014
Pressure Relief Valve 6.0 bar	¾" x 1" FBSP x FBSP	PREL 104 010
Pressure Relief Valve 8.0 bar	¾" x 1" FBSP x FBSP	PREL 104 016

POTABLE PRESSURE RELIEF VALVES

Reliance 104 Series High Capacity Potable Water Pressure Relief Valves (outlet one size bigger than inlet) continued...

Product Description	Size	Product Code
Pressure Relief Valve 3.5 bar	1" x 1 ¼" FBSP x FBSP	PREL 104 043
Pressure Relief Valve 5.0 bar	1" x 1 ¼" FBSP x FBSP	PREL 104 001
Pressure Relief Valve 6.0 bar	1" x 1 ¼" FBSP x FBSP	PREL 104 002
Pressure Relief Valve 8.0 bar	1" x 1 ¼" FBSP x FBSP	PREL 104 017
Pressure Relief Valve 3.5 bar	1 ¼" x 1 ½" FBSP x FBSP	PREL 104 044
Pressure Relief Valve 5.0 bar	1 ¼" x 1 ½" FBSP x FBSP	PREL 104 045
Pressure Relief Valve 6.0 bar	1 ¼" x 1 ½" FBSP x FBSP	PREL 104 005
Pressure Relief Valve 8.0 bar	1 ¼" x 1 ½" FBSP x FBSP	PREL 104 013
Pressure Relief Valve 3.5 bar	1 ½" x 2" FBSP x FBSP	PREL 104 046
Pressure Relief Valve 5.0 bar	1 ½" x 2" FBSP x FBSP	PREL 104 047
Pressure Relief Valve 6.0 bar	1 ½" x 2" FBSP x FBSP	PREL 104 012
Pressure Relief Valve 8.0 bar	1 ½" x 2" FBSP x FBSP	PREL 104 020
Pressure Relief Valve 3.5 bar	2 x 2 ½" FBSP x FBSP	PREL 104 048
Pressure Relief Valve 5.0 bar	2 x 2 ½" FBSP x FBSP	PREL 104 049
Pressure Relief Valve 6.0 bar	2 x 2 ½" FBSP x FBSP	PREL 104 015
Pressure Relief Valve 8.0 bar	2 x 2 ½" FBSP x FBSP	PREL 104 023

Reliance 102 and 104 Series Replacement Relief Cartridges

For ½" and ¾" potable water pressure relief valves. For larger replacement cartridges please contact Reliance Sales Department.

Product Description	Size	Product Code
Pressure Relief Cartridge 3.5 bar	½" and ¾"	ZRC 214 031
Pressure Relief Cartridge 5.0 bar	½" and ¾"	ZRC 214 048
Pressure Relief Cartridge 6.0 bar	½" and ¾"	ZRC 214 004
Pressure Relief Cartridge 8.0 bar	½" and ¾"	ZRC 214 009

POTABLE PRESSURE RELIEF VALVES

Automatic Anti-Vacuum Valves

Product Description	Size	Product Code
Hot Water Automatic Anti Vacuum Valve	½" MBSP	ADMT 503 001
Hot Water Automatic Anti Vacuum Valve	¾" MBSP	ADMT 503 002

Tundishes

Product Description	Size	Product Code
Straight plastic tundish	22mm x 1" FBSP	TUND 218 023
Straight plastic tundish	22mm x 28mm	TUND 219 001
90° plastic tundish	15mm x ¾" FBSP	TUND 218 024
Straight plastic tundish	15mm x 22mm	TUND 219 002

POTABLE WATER MANIFOLDS

Potable Water Manifolds

Product Description	Size	Product Code
2 port cold water manifold	15mm pushfit	ZMAN 500 350
3 port cold water manifold	15mm pushfit	ZMAN 500 351
4 port cold water manifold	15mm pushfit	ZMAN 500 352
2 port hot water manifold	15mm pushfit	ZMAN 500 300
3 port hot water manifold	15mm pushfit	ZMAN 500 301
4 port hot water manifold	15mm pushfit	ZMAN 500 302
2 port cold water manifold	½" MBSP	ZMAN 500 450
3 port cold water manifold	½" MBSP	ZMAN 500 451
4 port cold water manifold	½" MBSP	ZMAN 500 452
2 port hot water manifold	½" MBSP	ZMAN 500 400
3 port hot water manifold	½" MBSP	ZMAN 500 401
4 port hot water manifold	½" MBSP	ZMAN 500 402
2 port cold water manifold	½" FBSP	ZMAN 500 550
3 port cold water manifold	½" FBSP	ZMAN 500 551
4 port cold water manifold	½" FBSP	ZMAN 500 552
2 port hot water manifold	½" FBSP	ZMAN 500 500
3 port hot water manifold	½" FBSP	ZMAN 500 501
4 port hot water manifold	½" FBSP	ZMAN 500 502
2 port cold water manifold	¾" MBSP	ZMAN 500 750
3 port cold water manifold	¾" MBSP	ZMAN 500 751
4 port cold water manifold	¾" MBSP	ZMAN 500 752
2 port hot water manifold	¾" MBSP	ZMAN 500 700
3 port hot water manifold	¾" MBSP	ZMAN 500 701
4 port hot water manifold	¾" MBSP	ZMAN 500 702
2 port cold water manifold	¾" FBSP	ZMAN 500 650
3 port cold water manifold	¾" FBSP	ZMAN 500 651
4 port cold water manifold	¾" FBSP	ZMAN 500 652
2 port hot water manifold	¾" FBSP	ZMAN 500 600
3 port hot water manifold	¾" FBSP	ZMAN 500 601
4 port hot water manifold	¾" FBSP	ZMAN 500 602

POTABLE WATER MANIFOLDS

Potable Water Manifolds continued...

Product Description	Size	Product Code
2 port cold water manifold	¾" Euroconus	ZMAN 500 850
3 port cold water manifold	¾" Euroconus	ZMAN 500 851
4 port cold water manifold	¾" Euroconus	ZMAN 500 852
2 port hot water manifold	¾" Euroconus	ZMAN 500 800
3 port hot water manifold	¾" Euroconus	ZMAN 500 801
4 port hot water manifold	¾" Euroconus	ZMAN 500 802

STRAINERS / ISOLATORS

Protecto YC

A range of compact, class 3, in-line strainers, with compression connections, compact DZR brass bodies, access port for servicing the filter and dual thickness, 60 mesh, stainless steel strainer for improved resistance to damage. WRAS approved.

Product Description	Size	Product Code
Protecto YC	15mm	LINS 400 001
Protecto YC, nickel plated	15mm	LINS 400 101
Protecto YC	22mm	LINS 400 002
Protecto YC	28mm	LINS 400 006

Protecto YF

A range of compact, class 3, in-line strainers, with female connections, compact DZR bodies, access port for servicing the filter and a 45 mesh, stainless steel strainer.

Product Description	Size	Product Code
Protecto YF	½" FBSP	LINS 900 001
Protecto YF	¾" FBSP	LINS 900 002
Protecto YF	1" FBSP	LINS 900 003
Protecto YF	1 ¼" FBSP	LINS 900 004
Protecto YF	1 ½" FBSP	LINS 900 005
Protecto YF	2" FBSP	LINS 900 006
Protecto YF	2 ½" FBSP	LINS 900 007
Protecto YF	3" FBSP	LINS 900 008
Protecto YF	4" FBSP	LINS 900 009

Protecto BV

A class 3, ¼ turn ball valve incorporating check valve, strainer and test points in various combinations. Large 10mm bore ball valve provides good flow rates. 15 mm compression fittings.

Product Description	Size	Product Code
Protecto BV 4in1, with isolating ball valve, strainer, check valve and test points	15mm	BVAL 350 001

STRAINERS / ISOLATORS

Testable Isolating Ball Valve

Product Description	Size	Product Code
Testable Ball Valve - Nickel (Green)	22mm	BVAL 256 001
Testable Ball Valve - Nickel (Blue)	22mm	BVAL 256 004
Testable Ball Valve - Nickel (Red)	22mm	BVAL 256 003
Testable Ball Valve with Check Valve	22mm	TEST 256 001

Isolator / Strainer

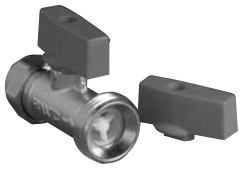
Product Description	Size	Product Code
Isolator/strainer, blue lever handle	15mm	SERV 100 050
Isolator/strainer, blue tee handle	15mm	SERV 100 055
Isolator/strainer, red lever handle	15mm	SERV 100 051
Isolator/strainer, red tee handle	15mm	SERV 100 056
Isolator/strainer, blue lever handle	22mm	SERV 100 060
Isolator/strainer, blue tee handle	22mm	SERV 100 065
Isolator/strainer, red lever handle	22mm	SERV 100 061
Isolator/strainer, red tee handle	22mm	SERV 100 066

General Isolating Lever Ball Valve

Product Description	Size	Product Code
Isolating Ball Valve - Black Handle	15mm	BVAL 246 904

Mini Isolating Ball Valves

Product Description	Size	Product Code
Isolating Ball Valve - Brass	15mm	BVAL 200 001
Isolating Ball Valve - Nickel Finish	15mm	BVAL 200 002
Isolating Ball Valve - Brass	22mm	BVAL 200 003
Isolating Ball Valve - Chrome Finish	22mm	BVAL 200 004



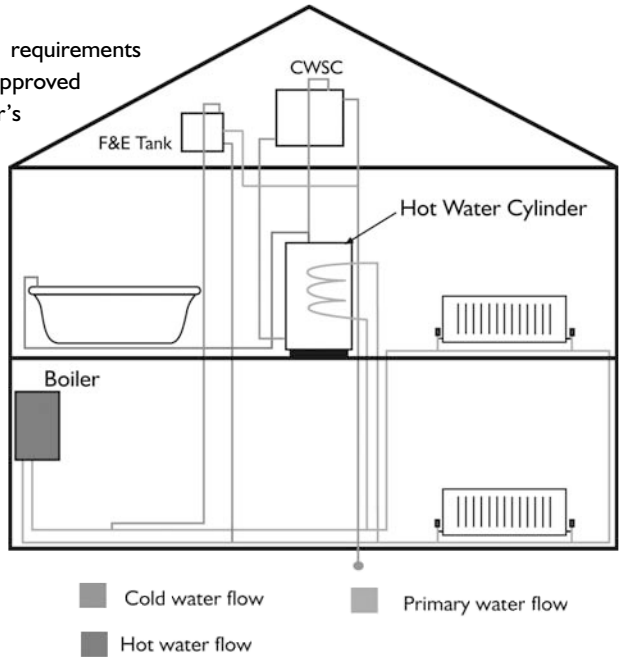
Washing Machine Valve

Product Description	Size	Product Code
Washing machine valve	15mm x ¾" FBSP	BVAL 420 001

The purpose of this guide is to provide useful information on Unvented Hot Water Storage Systems and their benefits, the features and functions of the typical controls used.

Unvented Hot Water Storage Systems are subject to the legal requirements of Building Regulation G3 and can only be installed by an "approved installer" in strict accordance with the relevant manufacturer's Instruction Manual, Building Regulation G3 and the current Water Byelaws.

Reputedly devised by an Englishman as far back as 1861, Unvented Systems are commonplace throughout Europe, South Africa, North America and Australia, although the UK remains one of the last bastions of the traditional low pressure vented system. However, times are changing. The demands from discerning householders for increased performance, sophisticated continental-style taps and showers and pleasing aesthetic looks, has seen a growing trend towards the installation of Unvented Systems in the UK, which will continue to rise at an increasing rate.



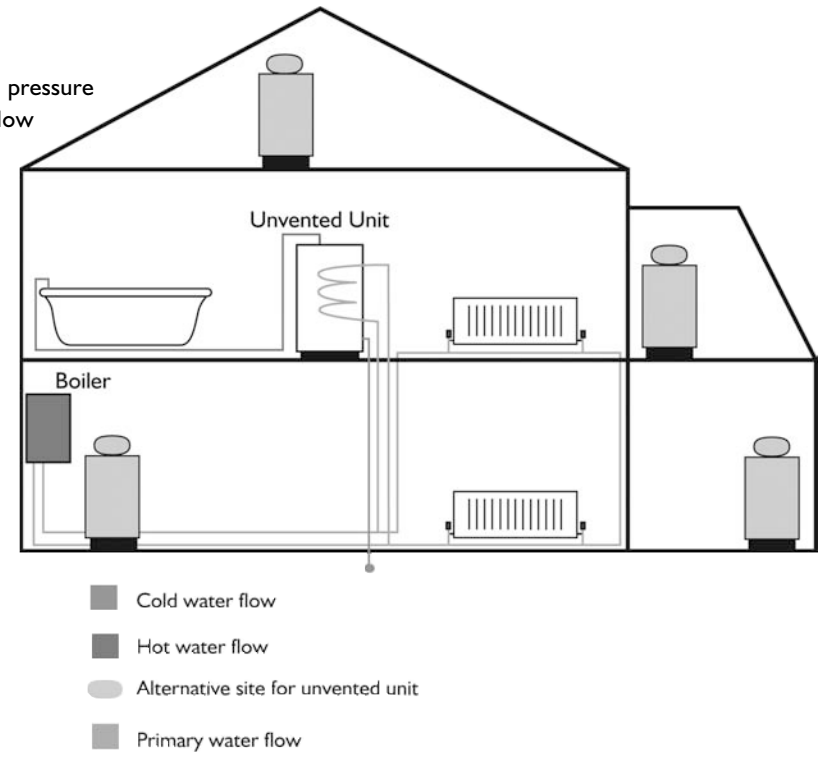
How the Unvented System Works

The basic difference between the high pressure Unvented Systems and a traditional low pressure vented system is that we no longer require the cold water storage cistern, open vent pipe or cold feed pipe.

Instead, the unvented unit is fed direct from the mains cold water supply via an inlet control group preset to the relevant manufacturers specified pressures. Hot water drawn from the unit is then replenished from the mains supply.

As water expands when heated and, as the name implies, there is no vent pipe (or cold feed pipe), the expanded water within the system is accommodated by either an external expansion vessel or, in the case of bubble-top units, an internal air bubble within the unit which is generated when the system is commissioned.

To maximise the benefits of the Unvented System, a sealed heating system, if applicable, can also be installed providing the boiler used is compatible.



The significant benefits to be gained from the installation of an Unvented Hot Water Storage System can be divided into two categories; benefits to the Specifier/Installer and benefits to the householder.

Specifier / Installer Benefits

- Choice of location - unit can be installed virtually anywhere within the building structure allowing greater flexibility of house and system design Reduces costs.
- Superior performance - ensures constant high flow rates at all outlets and allows rapid filling of baths.
- No Cold Water Storage Cistern - Reduces pipework. No requirement for tank stand or pipework/tank insulation - reduces costs. Roof space can be utilised for additional living accommodation.
- Balanced pressures - far wider choice of sophisticated continental style taps and showers can be used.
- Quicker to install - reduces pipework and installation costs.
- Reduces noise in system - no filling of Cold Water Storage Cistern.
- Smaller diameter pipework can be used - reduces costs.
- Eliminates risk of freezing and burst pipes in roof space.
- No shower pump required - reduces costs.
- Eliminates risk of contamination - no Cold Water Storage Cistern in roof space.
- Superior performance and flow rates - ideal for multi-bathroom dwellings.
- Energy efficient - reduces fuel costs.
- Ease of maintenance - no access to roof space required.
- Frees roof space - can be utilised for loft conversions.
- Aesthetic looks - 'white goods' casing.

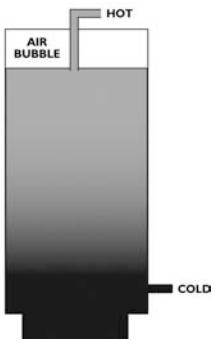
Householder Benefits

- Superior performance - ensures constant high flow rates at all outlets and allows rapid filling of baths.
- Balanced pressures - far wider choice of continental style taps and showers can be used.
- Reduces noise in system - no filling of cold water storage cistern.
- Eliminates risk of freezing and burst pipes in roof space.
- Eliminates risk of contamination - no cold water storage cistern in roof space.
- Frees roof space - can be utilised for loft conversions.
- Energy efficient - reduces fuel costs.
- Aesthetic looks - 'white goods' casing.

Choosing an Unvented System

From the early Unvented Systems of the seventies, the continued growth of installations in the UK has now produced the sophisticated, high performance units demanded by today's householder and, the availability of Unvented Systems from manufacturers in the UK, Europe, South Africa and North America, now offers the specifier/installer an unparalleled choice to suit virtually any application.

Manufactured from either copper, glass-lined steel or stainless steel, almost all of the Unvented Systems available in the UK are supplied with a white goods easy clean finish. Using inlet pressures ranging from 1.5 Bar to 3.5 Bar, depending on the relevant manufacturer's specification, and available in both direct and indirect form, today's Unvented Systems can be divided into three main categories; Bubble-Top unit, External Expansion units and Direct Gas or Oil Fired units.



Bubble-Top Units

Bubble-Top Units

Bubble-Top units, manufactured from either copper or stainless steel, accommodate the expansion of the heated water by using an internal air-bubble which is generated and trapped at the top of the unit during commissioning.

External Expansion Unit

As the name implies, External Expansion units utilise an expansion vessel to contain the expanded heated water. The expansion vessel can be installed directly onto the unit, or, if required remotely sited with the Inlet Control Group. These units are manufactured from copper, glass-lined steel or stainless steel.

The Direct-Fired Unit, normally manufactured from glass-lined steel or stainless steel, again uses an expansion vessel to accommodate the increased volume of the heated water. Predominantly installed in larger domestic or commercial premises, these units can be either gas or oil fired.

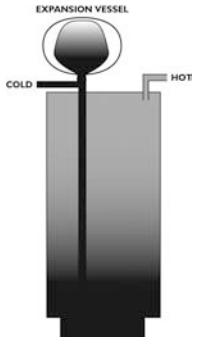
A recent development now available in the UK is the Combi Storage unit. This type of unit incorporates the benefits, features and controls associated with Unvented Systems but has a limited storage capacity of hot water.

Ideally, the mains supply pressure to the premises should be a minimum of 2 Bar to ensure the superior performance associated with the Unvented System and, although all Unvented Systems will operate at supply pressures as low as 1 Bar, the benefits will be reduced.

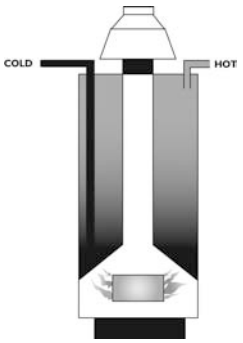
Unvented Systems can also be used in conjunction with tank fed supplies and booster pump sets, although these installations are usually confined to commercial premises.

Unvented Systems are suitable for use in conjunction with electric, gas, LPG or oil heating appliances but MUST NOT be used with solid fuel appliances.

The majority of Unvented units available today are certified to comply with the requirements of Building Regulation G3, either by the BBA (British Board of Agrément) or the WRc (Water Research Evaluation and Testing Centre) and are supplied with a complete package of controls - either factory fitted or supplied as an Unvented Kit - which must be installed in strict accordance with the relevant manufacturer's instructions.



External Expansion Unit



Direct-Fired Unit

Installation, Commissioning and Maintenance of Unvented Systems

Although the basic principles are similar, the installation, commissioning and maintenance of an Unvented System must be in strict accordance with the relevant manufacturer's instructions and, all installations must be carried out by a "competent person" approved to install Unvented Systems.

As the dominant supplier and, pioneers in the development of controls for Unvented Systems, the Reliance range of controls incorporate unique features to ensure superior performance; ease of installation; long, trouble-free service and ease of maintenance and replacement.

In this part of the Guide, we look at the different controls used on the majority of Unvented Systems in the UK. These controls fall into two specific groups - Functional Controls and Safety Controls.

Functional Controls

Required to protect the mains water supply from contamination and the unvented unit from over pressure, these controls consist of the following components:-

- Line Strainer - filters debris from the water supply to reduce the risk of damage to downstream controls.
- Pressure Reducing Valve - reduces the mains water pressure to the specified cold working pressure of the unit.
- Single Check Valve - prevents contamination of the mains water supply from backflow and, crossflow between hot and cold distribution pipes.
- Expansion Valve - protects unit from over pressure caused by failure of pressure reducing valve, failure of expansion vessel or loss of internal air bubble.

Originally supplied as separate components, Reliance have developed and engineered these controls to form a one piece or two piece Inlet Control Group for units requiring DN20 Nominal size controls and, a three piece Inlet Control Group for units requiring DN25 size controls.Inlet Control Group - One Piece (Multibloc)

Originally developed for use on Bubble-To units - there is no provision for an integral expansion vessel connection - this control is now found on all types of Unvented Systems and offers the following features.

Inlet Control Group - One Piece (Multibloc)

Originally developed for use on "Bubble-Top" units - there is no provision for an integral expansion vessel connection - this control is now found on many types of Unvented Systems and offers the following features.

- Integral coaxial stainless steel strainer
- Drop tight balanced seat Pressure Reducing Valve - very stable under fluctuating inlet pressure conditions.
- Unique one piece Pressure Reducing Cartridge with noise reduction comb - facilitates ease of maintenance, reduces system noise further and prevents cavitation.
- Balanced cold water connection - equal pressures to mixer taps/showers.
- Unique stainless steel seat Expansion Valve - dramatically reduces premature failure from seat erosion - Particularly in hard water areas.
- Superior flow rates - up to 55 l/m.
- Multi-orientational - installation flexibility.

Inlet Control Group - Two Piece (Core Unit)

Forerunner of the Multibloc one piece control, this Inlet Control Group is again used on all types of Unvented Systems and comprises of a separate Pressure Reducing Valve/Strainer and combined Check/Expansion Valve core unit offering the following features.

- Separate Pressure Reducing Valve with integral coaxial stainless steel strainer - enables remote siting of the Pressure Reducing Valve if required.
- Droptight balanced seat Pressure Reducing valve - very stable under fluctuating inlet pressure conditions.
- Unique one piece Pressure Reducing Cartridge with noise reduction comb - facilitates ease of maintenance, reduces system noise further and prevents cavitation.
- Balanced cold water connection - equal pressures to mixer taps/showers.
- Separate Check/Expansion Valve core unit with integral Expansion Vessel connection.
- Unique replacement Expansion Valve cartridge and seat - enables refurbishment of existing valve without removal.
- Superior flow rates - up to 55 l/m.
- Multi-orientational - installation flexibility.

In addition to the standard specification DZR brass Expansion Valve seat of the core unit, Reliance have developed a stainless steel seat version for the exclusive use of one Unvented Systems manufacturer, proving Reliances' commitment to continual development to offer the best available control package.

Inlet Control Group - Three Piece (Check Valve Manifold)

Used on all types of Unvented System, this Inlet Control Group is for larger domestic and commercial installations where a high flow rate is required to satisfy peak demand.

- Separate Pressure Reducing Valve with integral coaxial stainless steel strainer, droptight balanced seat design and one piece cartridge with unique noise reduction comb.
- Check valve manifold with Integral connections for Expansion Valve, Expansion Vessel and Balanced cold water supply.
- High discharge capacity Expansion Valve with replaceable cartridge and seat feature.
- High Flow rates - up to 77 l/m.
- Multi-orientational - installation flexibility.

Although the various Inlet Control Groups are the most common "functional controls" supplied with today's units, some Unvented Systems still use individual, separate controls. All controls supplied by Reliance in this format offer similar technical features to the Inlet Control Groups but do not allow provision for a balanced cold water connection or integral expansion vessel connection - these must be supplied by the "approved" installer, using additional fittings in the pipework.

All Reliance Inlet Control Groups are supplied with comprehensive Installation and Maintenance instructions to supplement the relevant Unvented System manufacturer's Instructions.

The final "functional control" - a means to accommodate the expanded water to prevent waste of water - is also supplied with the Unvented System. This is achieved in two ways - either by using an external Expansion Vessel or an internal air bubble generated within the unit.

External Expansion Vessel

Supplied in various sizes, dependent on the water capacity of the Unvented System, the Expansion Vessel has an inner butyl rubber membrane which is surrounded by a cushion of air, the pressure of this air cushion corresponding to the set pressure of the relevant manufacturer's Pressure Reducing Valve. When the water is heated, the additional volume flows into the bag-type membrane, compressing the air cushion and accommodating the expanded water. On cooling down, the volume of water decreases, thereby "deflating" the inner membrane.

The Expansion Vessel must be sited either directly on the Unvented unit or, as in most Unvented Systems utilising this method to accommodate the expanded water, the Inlet Control Group.

The RWC range of Expansion Vessels used on domestic Unvented Systems are supplied in a white finish to compliment the "white goods" image of the Unvented unit.

All potable Expansion Vessels with a nominal capacity of 16 litres or greater incorporate a replaceable membrane to facilitate replacement in the unlikely event of failure.

Internal Air Bubble

In this type of Unvented System, the expanded water is accommodated by compressing the internal air bubble generated when the unit is commissioned. Again, on cooling down, the volume of water contained within the unit decreases and the internal air bubble returns to it's nominal capacity.

This type of Unvented System is commonly known as a Bubble-Top unit.

Safety Controls

Required to protect the householder and prevent the temperature of the water in the Unvented System exceeding 99°C, these controls provide a three tier level of protection.

- Control thermostat - usually set between 60-65°C.
- Energy cut out device with manual reset - usually set between 85-89°C.
- Temperature & Pressure Relief Valve - set to 90°C + 5°C.

Both the Control Thermostat and Energy cut out device are supplied by the manufacturer, the Control Thermostat offering the first level of protection against over temperature of the water. The Energy cut out device will offer the second level of protection in the event of Control Thermostat failure. The Energy cut out device must incorporate a manual reset feature and must not be self-resetting.

The Temperature & Pressure Relief Valve is the third and final level of protection. Although this valve does incorporate a pressure relief function, the sole purpose of this control is to prevent the system water temperature exceeding 99°C - the pressure relief function is not used.

The Reliance Temperature & Pressure Relief Valves are supplied in two designs, Lever Type or "Twist Top" (Lever Type valves are being phased out) and, are available in DN15, DN20 and DN25 nominal sizes. These can be supplied with an extended temperature sensor probe, depending on the relevant manufacturer's design and specification.

All Temperature & Pressure Relief Valves should be factory fitted to the Unvented unit by the relevant manufacturer.

Lever Type Temperature & Pressure Relief Valve

Originally specified for use with the first generation systems installed in the UK, these valves incorporate lever type easing gear. With over 20 Million valves manufactured and, although still used in Australia and the Far East, the demands of both the UK and European manufacturers has seen this valve being replaced by the "twist-top" version as the standard fitment on today's units.

"Twist-Top" Temperature & Pressure Relief Valve

Developed following the demands of manufacturers for a more aesthetic, modern design to compliment the "white goods" image of today's unvented units, the "twist-top" valve is now becoming the standard fitment, superseding the "old fashioned" lever type valve, and has the added benefit of direct compression connections for the discharge pipework. The twist-top Temperature & Pressure Relief Valve has also been designed to conform to the requirements of the latest European Standard.

Under fault conditions, the Temperature & Pressure Relief Valve will discharge water to prevent over temperature of the system. The drain pipework from the valve must discharge through a Tundish, positioned within 500mm of the Temperature & Pressure Relief Valve, to a safe and visible position to alert the householder of a fault condition with the Unvented System and to prevent damage to the property.

The drain discharge pipework must comply with the relevant manufacturer's instructions and the requirement of Building Regulation G3.

The Expansion Valve will also discharge water under fault conditions and it is acceptable practice to allow the drain pipework from the Expansion Valve to discharge into the same Tundish used for the Temperature & Pressure Relief Valve provided the requirements of both the relevant manufacturer's instructions and Building Regulation G3 are maintained.

Spare Components

The Inlet Control Groups supplied by Reliance for use with Unvented Systems have proven to be extremely reliable in field service but, in the unlikely event of failure, the following spare components are available from the relevant manufacturer of the Unvented System in question.

Products Illustrated

Pressure Reducing Valve cartridge - supplied at the manufacturer's required setting. One piece design facilities replacement. Supplied complete with integral strainer.

Replacement Expansion Valve cartridge and seat - the unique design enables damaged valves to be refurbished in situ without need for their removal.

Problems and Remedial Action

All manufacturers of Unvented Systems which are available in the UK today, supply a comprehensive Instruction Manual with each unit, giving full details of fault diagnosis and remedial action required.

Summary

There are no mysteries to Unvented Hot Water Storage Systems and their installation. The continual development of both Unvented units and their associated controls together with the superiority of these units in comparison to their traditional vented "cousins", will undoubtedly see the Unvented Hot Water Storage System as the preferred solution to Hot Water Storage requirements in the UK.

1. GENERAL

In these Conditions "the Company" means Reliance Water Controls Limited.

Payment terms are strictly 30 days Nett Monthly for approved credit customers.

2. APPLICATION

These Conditions of Sale will apply except where varied by specific agreement in writing and if these Conditions conflict with any Conditions of the Purchaser, these Conditions will prevail.

3. DESCRIPTION OF GOODS

Data included in catalogues, advertisements and price lists of the Company shall be deemed to be approximate only, unless specifically confirmed in writing by the Company. The Company reserves the right to alter the specification of any goods without prior reference to the Purchaser provided that the goods comply in all known respects with the Purchaser's requirements.

4. DELIVERY AND PASSING OF RISK

The Company accepts no responsibility for consequential loss suffered by the Purchaser for delayed or non-delivery of goods. Delivery of goods shall be deemed to take place when they are actually delivered to the Purchaser or his representative or to the Purchaser's premises, at which time the risk as to loss and damage in respect of the goods shall pass to the Purchaser.

5. PAYMENT

Prices are exclusive of V.A.T. and, notwithstanding any price list, prices ruling at time of despatch shall apply.

If payment is overdue, payment for all goods delivered to the Purchaser shall become payable immediately, and interest at the rate of 2% per month shall be charged from the date of the invoice.

6. TITLE TO THE GOODS

The ownership in the goods shall, notwithstanding delivery to the Purchaser, remain in the Company until the Purchaser has paid the full price due to the Company.

If at any time payment of the price is overdue, the Company may by its servants or agents enter upon the Purchaser's premises and recover and dispose of the goods and the Purchaser shall make no claim against the Company in respect of such entry or disposal. The Purchaser may in the ordinary course of business mix the goods with other objects or convert the goods into other objects whether by the process of manufacture or otherwise and whether or not such mixture or conversion renders the goods unidentifiable. In that event, the ownership in the mixture or the converted goods, as the case may be, shall forthwith pass to the Company and remain with the Company from the moment of mixture or conversion until the Purchaser has paid all sums whatsoever due to the Company and the provisions of this Clause shall apply to any such mixture or converted goods as if it or they were the goods themselves.

7. GUARANTEE AND WARRANTY

The guarantee period shall be 12 months from the date of delivery.

During such period, the Company shall remedy any defects in the goods arising out of defective materials or workmanship provided that the Purchaser shall immediately give notice of such defects to the Company both verbally and in writing.

After giving such notice, the Purchaser shall within 7 days return the defective goods (or any part thereof) to the Company at the Purchaser's risk and expense.

The Purchaser will, on contact with the Company's Customer Service department, be given an RMA (Returned Materials Advice) number which must be used to identify any and all returned goods. Failure to identify goods with this reference will result in the goods being returned to the Purchaser. The RMA number is used to isolate and identify the goods against the claimed defect or credit claim.

8. FORCE MAJEURE

The Company shall do all in its power to perform the terms of any Contract of which these Conditions form part and in particular to meet all delivery dates but shall not be liable for any failure to observe or breach of any of the terms hereof by reason of acts of God, war, riots, civil commotion's, strikes, lock-outs, trade disputes, fires, breakdowns, interruptions of transport, governmental action, delay in delivery by the Company's suppliers or any other cause whatsoever beyond its control.

In such circumstances, except where goods are in transit, either the Company or the Purchaser may terminate the unperformed part of any Contract of which these Conditions form part by notice in writing delivered to the other party hereto within 14 days of the Company giving written notice to the Purchaser of the occurrence of such action or circumstances as makes the Company fail to observe or break the terms hereof.

9. RECOMMENDATIONS

Whilst all written recommendations made by the Company relating to the goods are made in good faith and in the belief that they are correct, the Company shall have no responsibility whatsoever for any damage, liability, cost, claim or expense suffered by the Purchaser or any third party through following such recommendations.

10. QUANTITY VARIATIONS

Short delivery in the invoice weight of or quantity of any goods supplied by the Company shall only entitle the Purchaser to claim a proportionate adjustment in the purchase price.

11. ASSIGNMENT

The Purchaser shall not, without the Company's prior written consent, assign or transfer the Contract to which these Conditions relate or the benefit thereof to any other person.

12. INDULGENCE

No indulgence or forbearance extended to the Purchaser shall limit or prejudice any right or claim available to the Company.

13. CANCELLATION

If the Purchaser shall fail to make any payment when it becomes due or shall enter into any composition or arrangement with its creditors or if being an Incorporated Company it shall have a Receiver appointed or shall pass a resolution for winding up or a Court shall make an Order to that effect or if not being an Incorporated Company shall have a Receiving Order made against it or if there shall be any breach by the Purchaser of any of the terms or conditions hereof, the Company may defer or cancel any further deliveries and treat the Contract of which these Conditions form part as determined but without prejudice to its rights to any unpaid purchase price for goods delivered and to damages for any loss suffered in consequence thereof.

14. OPERATION OF LAW

These Conditions shall be construed and the rights of the parties hereto shall be regulated by the Laws of England and Wales.

Reliance Water Controls Ltd

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