

Ideal Standard

**Thermostatic, concealed, wall
mounted bath & shower mixer**

INSTALLATION INSTRUCTIONS

Ceratherm C100



A7664 AA/ XG/ A2/ A5/ GN

thermostatic, concealed, wall mounted,
bath & shower mixer with 3 way diverter

Trim kit available in 5 colour finishes:

Chrome Plated (AA)
Silk Black (XG)
Brushed Gold (A2)
Magnetic Grey (A5)
Silver storm (GN)

IMPORTANT
BEFORE CONNECTION, FLUSH WATER THROUGH PIPEWORK TO REMOVE
ALL DEBRIS ETC. WHICH COULD DAMAGE THE VALVE MECHANISMS

INSTALLER: After installation, please pass this instruction booklet to user

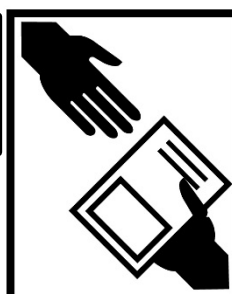
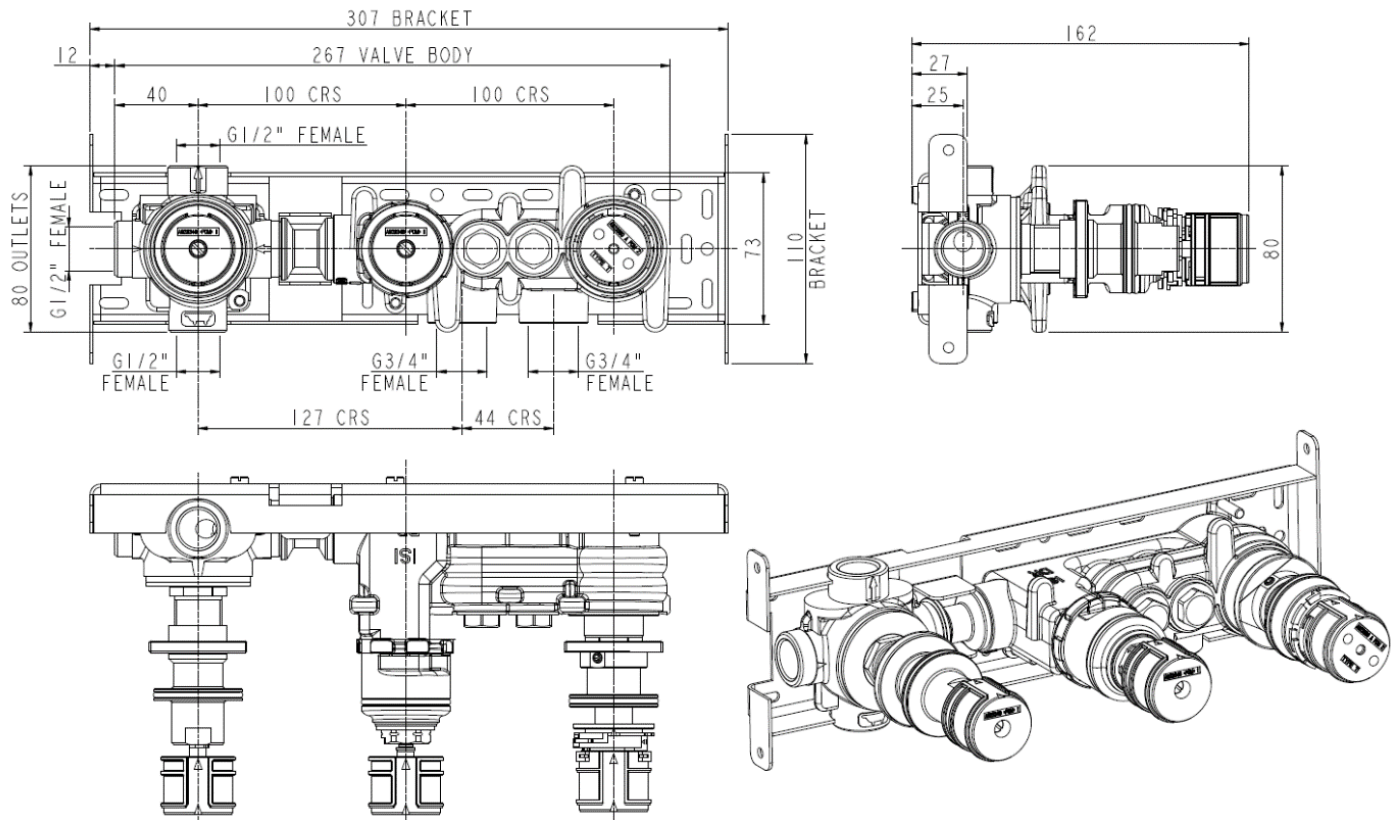


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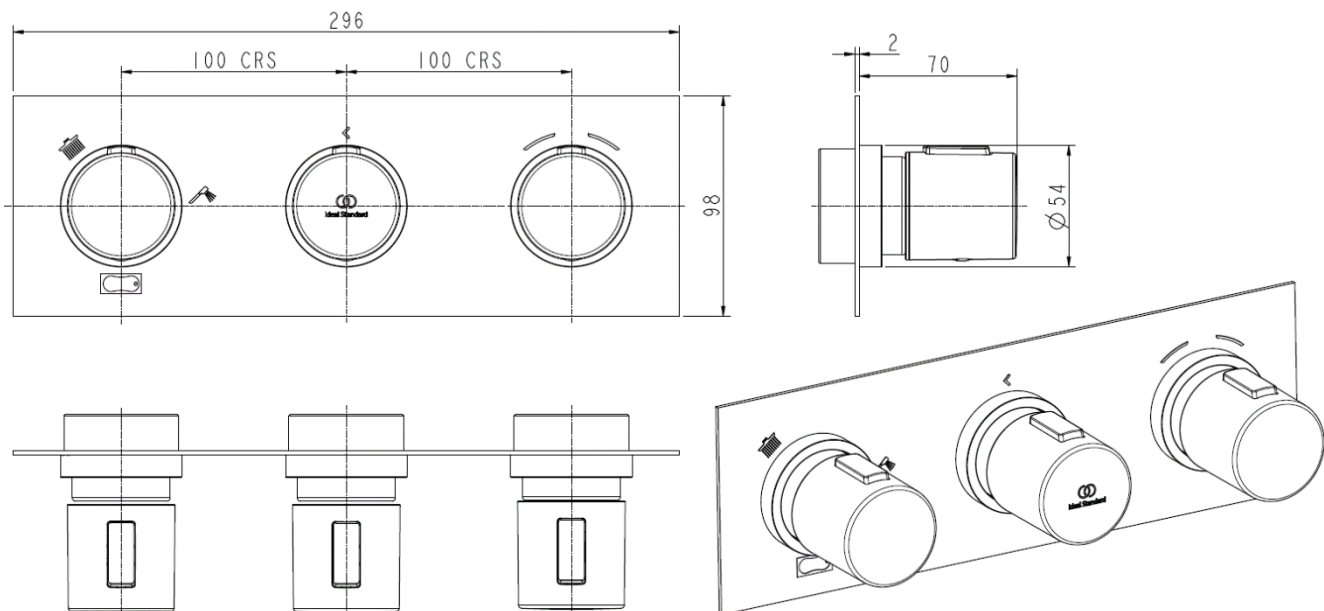
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1. PRODUCT DIMENSIONS

Dimensions are in millimetres & may vary within permitted tolerances



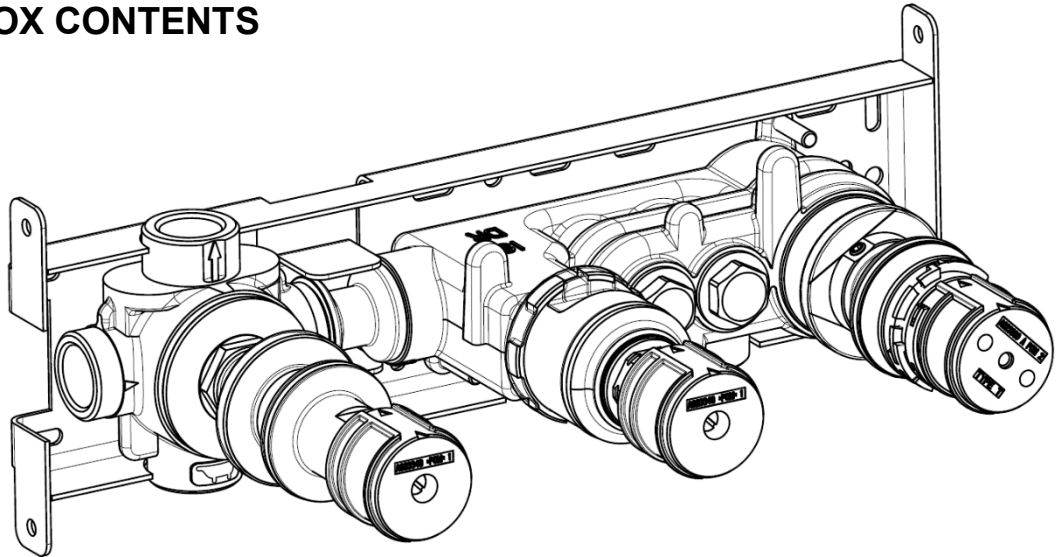
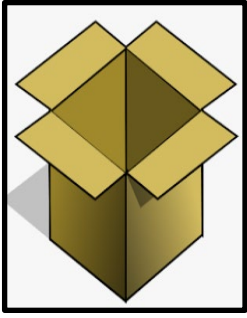
Thermostatic mixer valve body assembly, complete with mounting bracket.



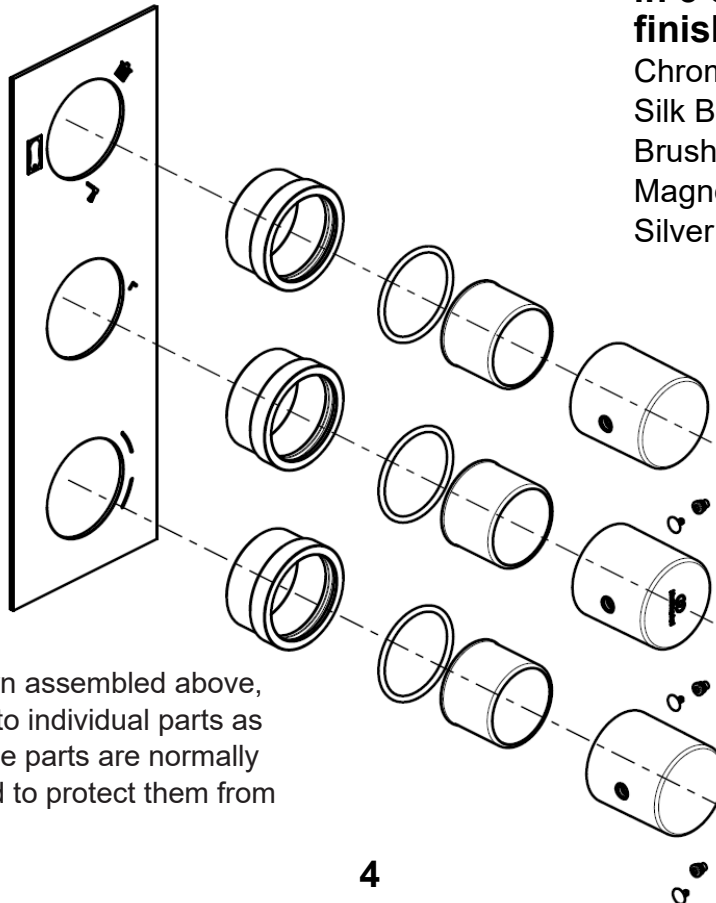
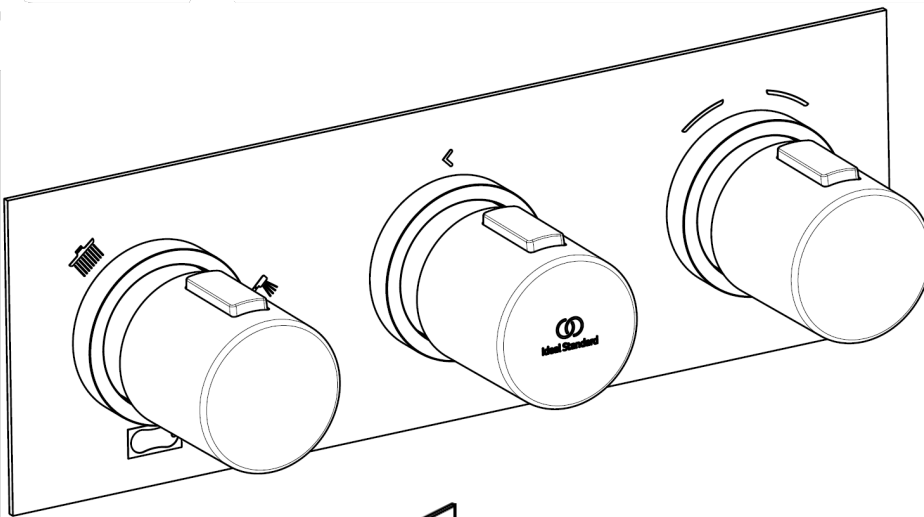
Trim kit for mixer valve, includes handles, shrouds & escutcheon.

NOTE: This shower mixer product is supplied without outlet fittings such as the hand shower kit, the overhead shower plate or bath filling outlet. The end user should select & purchase suitable fittings.

2. PRODUCT BOX CONTENTS



The mixer valve is supplied fully assembled, as shown above.



Trim kit available in 5 colour finishes:

Chrome Plated (AA)
Silk Black (XG)
Brushed Gold (A2)
Magnetic Grey (A5)
Silver storm (GN)

The trim kit is shown assembled above, but breaks down into individual parts as shown below. These parts are normally separately wrapped to protect them from transit damage.

3. INTRODUCTION

The fittings covered by these instructions should be installed in accordance with the Water Regulations published in 1999*.

Ideal Standard strongly recommends that these fittings are installed by a professional fitter.

*A guide to the Water Supply (Water Fittings) Regulations 1999 and the Water Byelaws 2000, Scotland is published by WRAS (Water Regulations Advisory Scheme) Unit 13, Willow Road, Pen-y-Fan Industrial Estate, Crumlin, Gwent, NP11 4EG. ISBN 0-9539708-0-9

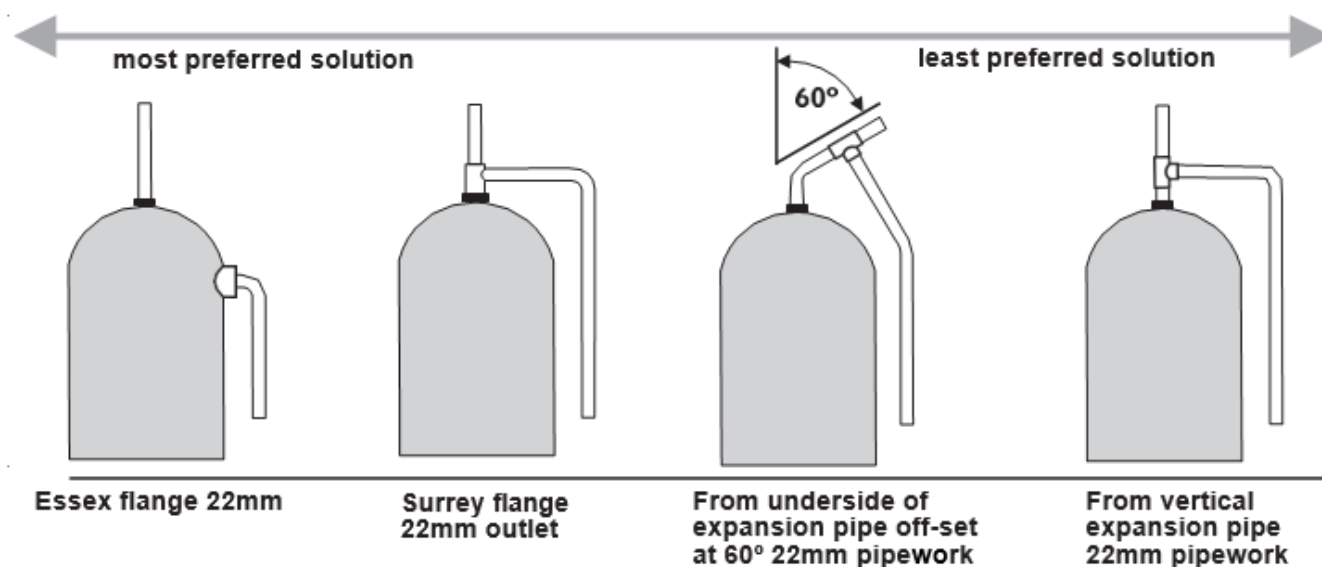
WATER REGULATIONS

Hot and cold water supply pressures must be reasonably balanced and from a common source - both from storage or both from a supply pipe. (IRN 101). The mixers will function within specification on unequal pressures up to a ratio of 5: 1, but it is not recommended that the cold supply be connected to the rising main and hot to the tank fed supply as the pressure differential is likely to exceed the 5:1 ratio. (**See table 1**) The minimum pressure for correct operation is **0.2 bar**. Pressure head is measured as the vertical distance between the bottom of the cold water storage tank which feeds the hot water system and the highest point on the shower spray plate. When installing with a shower pump the use of a secondary tapping from the cylinder is highly recommended.

The picture below shows the various methods of connecting the hot water pipe to the cylinder - the most preferred on the left and the least preferred on the right.

The fitting should be so installed as to be readily accessible for examination, repair, replacement or operation. (IRN 111).

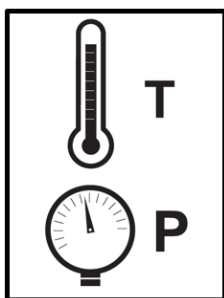
The temperature of the hot water must not exceed 85°C but the installer's attention is drawn to code of practice BS 6700 which recommends that stored hot water should normally never exceed 65°C. For correct operation of the valve, a minimum of 55°C is required.



Preferred arrangements for cylinder tapping

Note: If water supply is fed by gravity then supply pressures should be verified to ensure the conditions of use are appropriate for the valve.

4. WATER SUPPLY CONDITIONS



INTRODUCTION

These thermostatic shower mixers are manufactured to the highest standards. The mixer can be installed on high or low pressure systems (**0.2 bar or greater**). The mixer has an additional safety feature: a temperature limit stop fitted inside the temperature control handle.

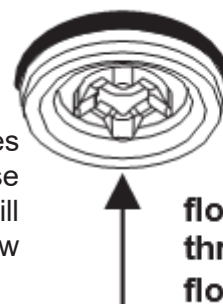
	BSEN1111	BSEN1287
Operating pressure range:	High Pressure	Low Pressure
Maximum static pressure	10 bar	10 bar
Flow pressure hot and cold	1.0 to 5.0 bar	0.2 to 1.0 bar
Hot supply temperature	55 to 65 °C	55 to 65 °C
Cold supply temperature	5 to 20 °C	5 to 20 °C
Temperature differential characteristic (TDC)	10 °C	10°C

Table.1 Conditions of use

MODULATING COMBI BOILER

These thermostatic mixers are designed for use with modulating combination boilers.

When installing on a modulating combination boiler it is sometimes possible for the interaction of a thermostatic valve with the combi to cause the boiler to cut out and cut in again, with the result that the water will become alternatively cold and hot. To overcome this, a 4 L/min flow regulator should be fitted upstream of the thermostatic valve.



**flow direction
through
flow regulator**

It should be fitted in any 15mm compression fitting in the dedicated cold supply pipe.

It is important to choose a compression fitting located in a position which is accessible after installation and it must be fitted the correct way round for the direction of flow. The regulator can be fitted in either the inlet or outlet side of the compression fitting. If fitting in an outlet side, ensure the O-ring is seated fully in the visible rebate around the edge of the regulator. Use the tip of a small screwdriver or similar to achieve this. Ensure the tail of the pipe is not fouling the regulator (shorten if required) and do up the compression fitting as normal. In a minority of cases, where the boiler is of a type which stores a small quantity of very hot water, it may also be necessary to fit a 4 l/min flow regulator in the hot supply.

**These regulators, spares code A962570NU, can be obtained by contacting
Ideal Standard Customer Care or www.idealstandard.co.uk**

EXCESSIVE FLOWRATE

To remedy an excessive flowrate issue, where the above inlet regulators have not been fitted, we recommend the use of a “shower outlet flow regulator”. This is suitable for installations which exceed 2 bar dynamic pressure.

A 9 litres per minute outlet regulator is available, quote spares code **L6749AA**.

This regulator can be easily fitted between the shower valve outlet and the shower hose.

A pair of service valves (for isolating both water supplies) MUST be fitted to permit future maintenance of this product. They also facilitate the cold water isolation test (CWIT). See section 16.

5. WATER REGULATIONS

CATEGORIES OF RISK

The water regulations published in 1999* take a new approach to backflow in that they look at different categories of risk. The installer must assess the risk from the various categories of fluid in adjacent appliances before determining the level of backflow protection required for a particular installation. **Figures 3 & 4** describe the protection required in various installations.

CATEGORY 3 RISK

Water in a shower tray, basin or bathtub is considered to be a fluid category 3 risk which is a fluid which represents a slight health hazard if it were to find its way back into the supply pipe. For this reason it must not be possible for any flexible shower head to be able to enter any adjacent washbasin, bath or shower tray unless appropriate protection is employed. (See **Figure 3**). If it is desired to allow the hand spray to be used inside say a bathtub or a basin it is essential that double check valves be fitted to the inlet on both hot and cold supplies to the thermostatic valve. Alternatively single check valves can be fitted at the inlets and an additional check valve should be fitted in the valve outlet.

No check valves need be fitted if the hand spray is prevented from reaching closer than 25mm of the spill over level of any such fixture.

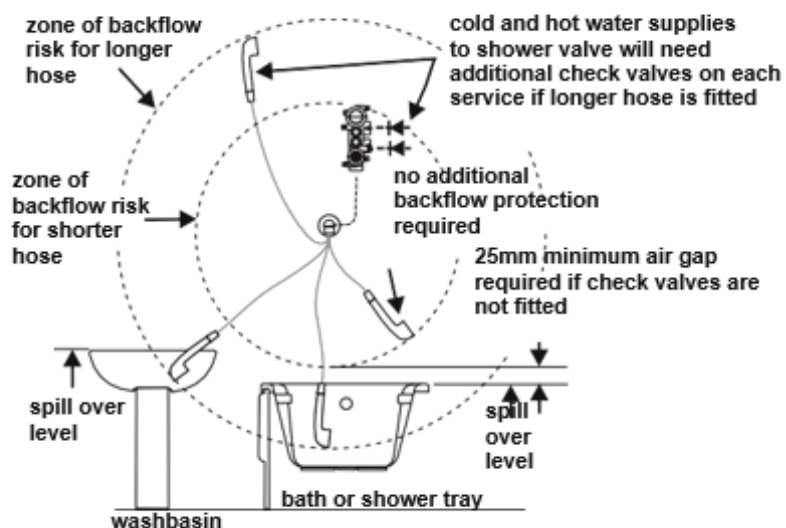


Fig. 3 Backflow risk from a fluid category 3

CATEGORY 5 RISK

Water in a Sink, WC or Bidet is considered to be a fluid category 5 risk which is a fluid which represents a serious health hazard if it were to find its way back into the supply pipe. For this reason it must not be possible for any flexible shower head to be able to enter any adjacent Sink, WC or Bidet. If the flexible hose to be fitted could reach into any such vessel, the requirements to the system design are so onerous it is better not to fit a flexible. Rather, a fixed overhead showerhead should be considered. (See **Figure 4**).

It will also be seen that this risk could change should the hose be taken out of the restraining device or should a longer replacement hose be fitted at a later date. Installers and householders are advised to take account of these factors when fitting replacement hoses.

For pumped applications the pipe supplying the pump must not in addition supply an ascending spray bidet.

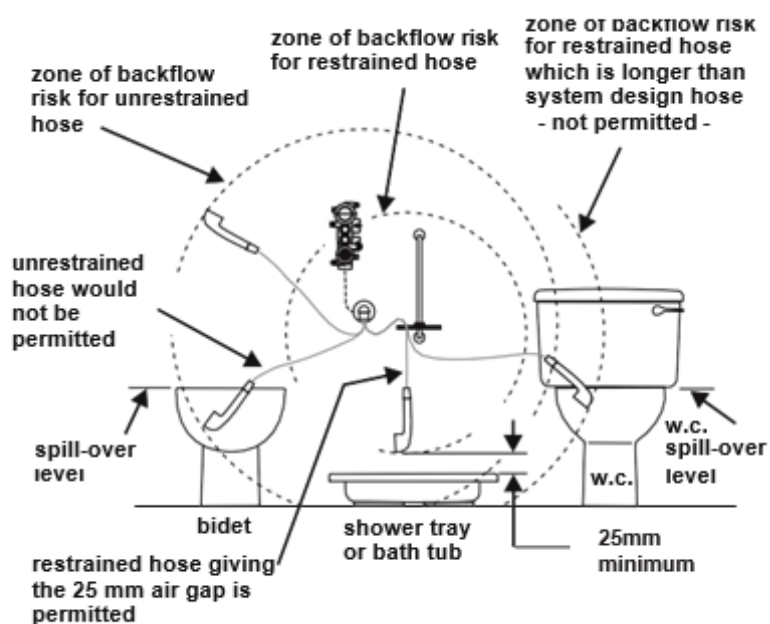


Fig. 4 Backflow risk from a fluid category 5

6. PRE-INSTALLATION NOTES



This thermostatic mixing valve must be installed in such a position that maintenance of the TMV, its valves and the commissioning and testing of the TMV can be undertaken.

Ceratherm C100 is a built-in thermostatically controlled shower mixer & bath filler. The product is designed to provide water from ambient cold up to a safe maximum temperature for showering & bathing.

Mixer Controls. This mixer has three controls which allow the user to adjust temperature, flow and divert the mixed water to the selected outlet device. The integral three-way diverter allows the user to divert between overhead shower, shower handset and bath fill. For more details **see section 10.**

Product dimensions. Check the dimensions shown in **section 1**, ensuring the mixer will fit on the intended wall. Plan position of proposed shower kits, bath fill outlet & pipework plumbing route.

Product box contents. Ensure you have all the parts shown in **section 2.**

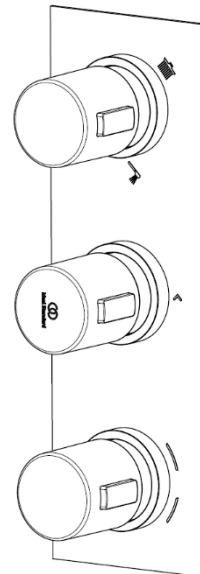
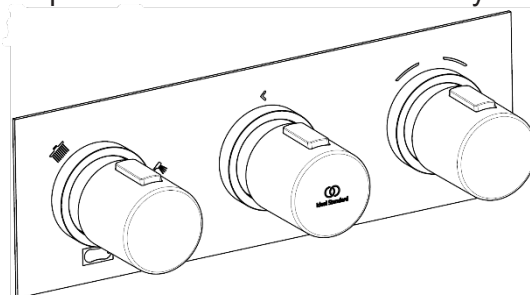
Installation sequence. IMPORTANT: The valve body installation must be completed before fitting the trim kit. The trim kit is intended to be fitted to the finished surface, such as tiles.

Mounting bracket. This product is supplied with a very versatile mounting bracket, permitting multiple fixation options. Mixer is intended to be installed within a wall cavity, or panel arrangement. The mounting bracket can be fitted between a pair of vertical metal or timber studs, or onto a horizontal noggin. The bracket can be secured from in-front of the wall or from behind.

Wall types: This mixer can be installed into a variety of wall types. These include:

- Pre-fabricated “pod” style bathroom. The valve can easily be mounted from the rear of the pod wall during pod construction. This simplifies plumbing. The trim kit can then be fitted from the front (inside the pod) after tiling. Method is discussed in **section 7.1.**
- Timber stud construction walls, method is discussed in **section 7.2.**
- Modern metal frame partitions, method similar to **section 7.1.**

Mounting orientation. The valve can be mounted either horizontally or vertically. For horizontal mounting keep the diverter end to the left, for vertical mounting keep the diverter end to the top. Otherwise the symbols on the escutcheon plate will be orientated incorrectly.



Wall preparation/ Service access. It is important to cut the correct size of slot into the plaster board/ finished surface/ tiles to allow future maintenance & servicing of the valve cartridges. See **section 7** for more details.

Flow regulation. Flow regulators are not fitted inside the shower mixer valve. If flow regulation is required, these should be fitted to the outlet devices, such as the hand held shower or the overhead shower plate.

Strainers (mesh filters) are fitted to the inlets of the thermostatic cartridge to protect it from water borne debris, **see section 11.2.** Installing additional inline strainers will protect the mixer valve, ideally use inline service valves which have integral strainers, see **section 16.**

Service Valves. A pair of service valves (for isolating both water supplies) **MUST** be fitted to permit future maintenance of this product. These should be fitted as close as practicable to the water supply inlets of the mixer & in an easily accessible location. They also facilitate the cold water isolation test (CWIT). **NOTE:** service valves are not supplied with this product, **see section 16.** Use service valves with integral strainers.

Check valves. The shower mixer body is fitted with single check valves on both inlets. See **sections 8.2 & 11.6.** To prevent back syphonage of water via the shower hand set an additional single check valve may be required in the upstream pipework to be compliant with the water regulations (unless shower hose is properly retained).

Hand shower Kit. The flexible shower hose from the hand shower kit can be screwed onto a G1/2" shower outlet wall elbow. Ensure adequate steps are taken to secure the shower hand set and the arrangements comply with water regulations.

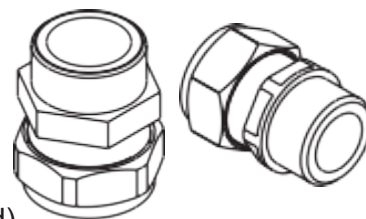
Water Supply Pipes. Both hot & cold water supply pipes should be secured within the wall cavity using suitable fixing clips. Supply pipes of Ø22 are recommended. Note: Hot water supply should be connected to the left inlet of the mixer (viewed from the front). The mixer body is marked accordingly.

Valve pipe connectors. The following connectors will be required to fit pipework to the valve.

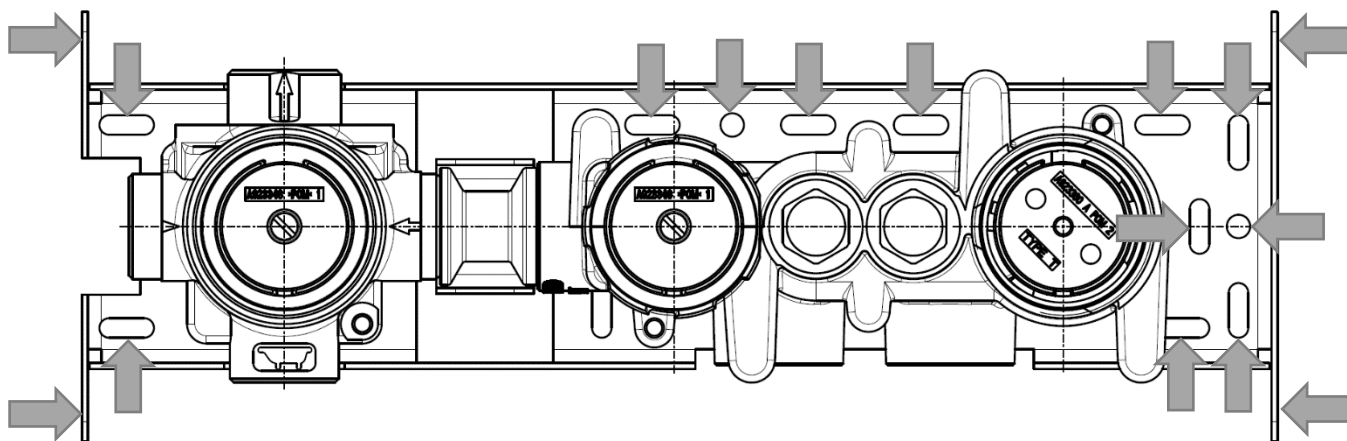
G1/2" compression connectors for outlets, x3 required (for Ø15 pipe).

G3/4" compression connectors for inlets, x2 required (for Ø22 pipe).

Connectors are available from all good plumbers merchants (not supplied). Alternatively, push-fit type connectors can be used.



Mounting holes in bracket. 16 holes/ slots are available/ accessible for fixing screws to secure the valve into the wall's framework. Screws can be fitted from front or rear of bracket.



PRECAUTIONS

DO NOT apply heat near this product. Heat generated by soldering could damage plastic parts and seals



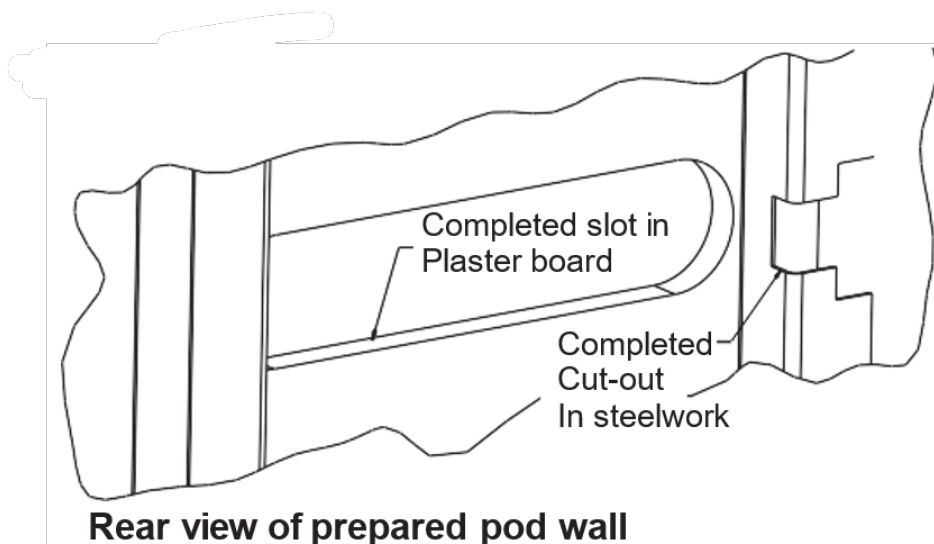
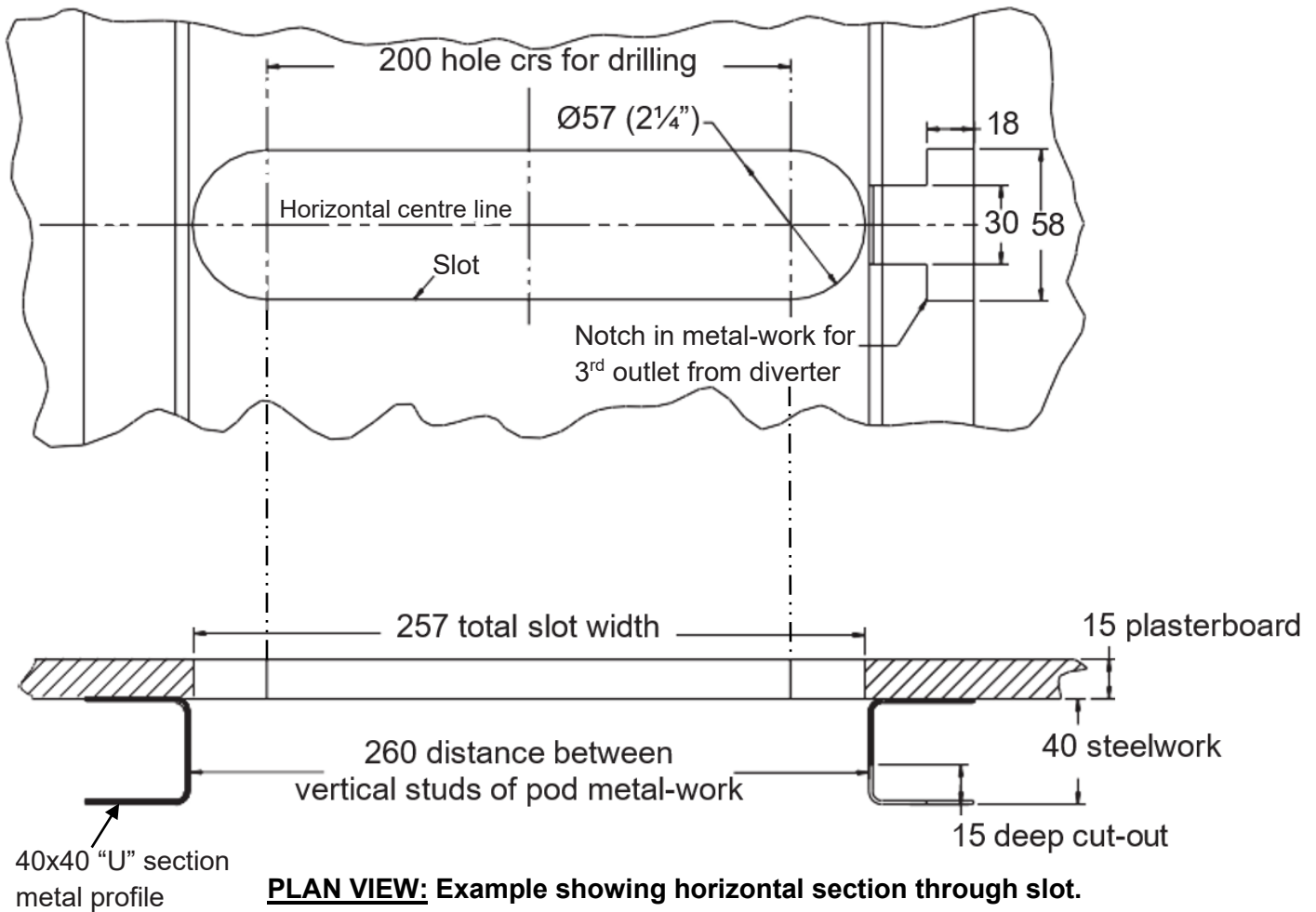
IMPORTANT: Ensure that any old / existing thermostatic mixing valves (TMVs) that may be fitted in the supply pipes are removed.

7. VALVE INSTALLATION

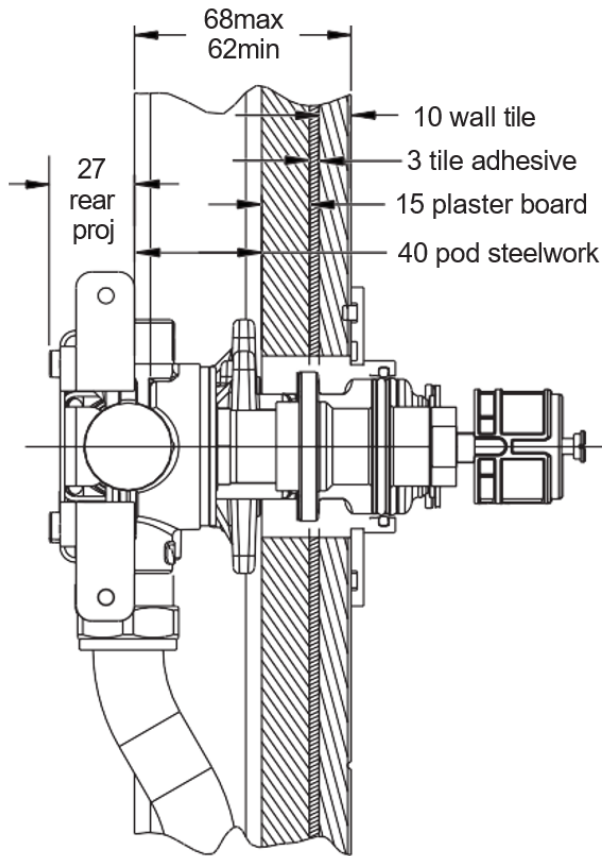
WALL PREPARATION: SLOT CUT-OUT IN FINISHED SURFACE

Two Ø57 holes can be cut into the plaster board & finished surface at 200 horizontal (or vertical) centres, and then slotted- out as shown. A correctly sized slot in the plaster board & finished surface will permit access to the valve cartridges for future maintenance & servicing. For the third outlet from the 3-way diverter, it will be necessary to make a cut-out (notch) in the metal (or timber) framework for connecting pipe work.

VIEW FROM REAR: Dimensions for slot in plasterboard & finished surface:



7.1 MOUNTING VALVE INTO A TYPICAL POD WALL



Section through typical pod wall construction

Example of installation into a prefabricated pod style bathroom

In this example, the product is shown installed horizontally into a typical pod wall construction. The vertical metal studs of the framework are 40x40 “U” section profiles. The distance between these vertical studs is 260mm.

In this case, the mixer bracket is “bridged” across the back of two vertical metal studs. The pod wall thickness would be in the range 62 to 68mm.

Note: In this case, once mounted onto this slim 40mm steel frame work, the valve will project 27mm out from the rear of the pod wall frame.

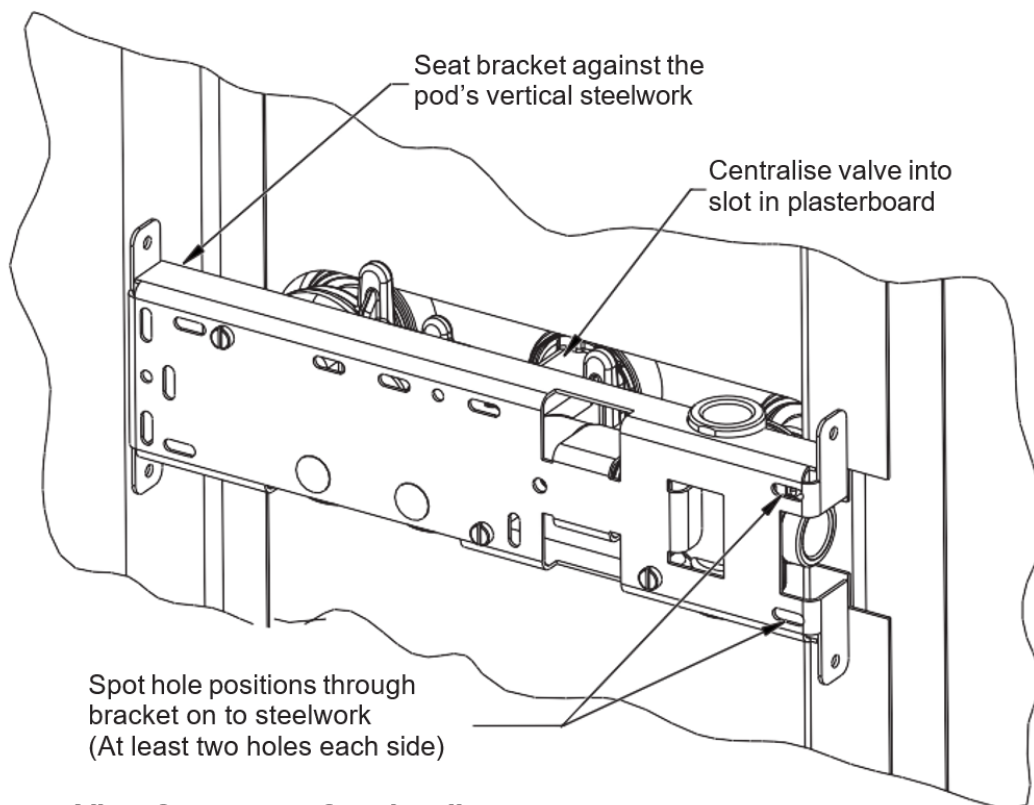
Upon completion of the pod wall preparation (slot cut-out), the valve can be mounted. Firmly hold the valve bracket against the back of the pod framework and spot through suitable hole positions. The valve should be kept central in the plaster board slot & horizontal. The slots in the mounting bracket are elongated and will allow for some adjustment.

The mounting bracket should be securely fixed to the pod framework, using at least 4 suitable bolts or screws.

A spirit level can be used on the top surface of the bracket to achieve an accurate horizontal level.

NOTE: The valve can be mounted either horizontally or vertically.

Continue to **section 8** for plumbing.



View from rear of pod wall

7.2 MOUNTING VALVE INTO TYPICAL TIMBER STUD WALL

These mixing valves can be installed into a timber stud construction wall. Two methods of installation are detailed in this section. The first method **(A)** shows how the mounting bracket can be secured to the timber studs (verticals) and the second method **(B)** shows the bracket being fixed to a timber noggin (horizontal).

The mounting bracket is very versatile permitting the multiple fixation options. The bracket can be secured from in-front of the wall or from behind.

Installation will be easier if the valve can be fitted before the plaster board is fastened to the timber framework. Pipe runs to and from the valve will also be easier to plumb. However, for retrofit fit applications, an area of plaster board approximately 400x400 should be cut away and then replaced after installation. This is necessary to facilitate pipe connections.

These mixing valves can be mounted vertically or horizontally, see note in **section 6**.

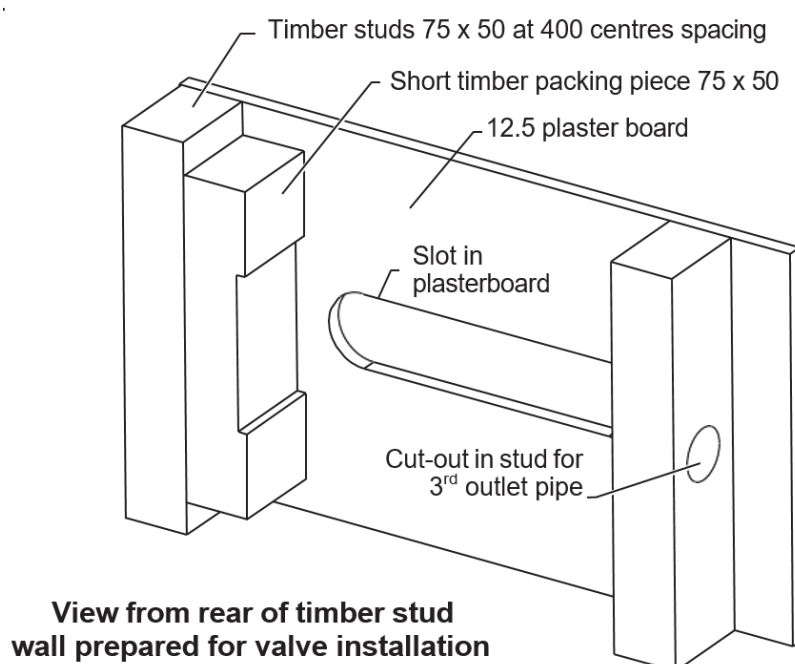
As with most appliances installed into a stud wall, the timber framework will need to be adjusted to provide a means of fastening and supporting this product.

TIMBER STUD WALL CONSTRUCTION

Framework is normally constructed using 75x50 (3"x2") rough sawn timbers, for larger walls 100x50 (4"x2") can be used. Stud centres spacing of 400 is used here in discussion. Note that 450 and 600 centres are also commonly used -this usually depends on the plaster board size being used.

Plaster board thickness of 12.5 (1/2") is generally recommended.

METHOD A: FIXATION TO VERTICAL TIMBER STUDS



This method is suitable for frameworks constructed with either 75x50 studs or 100x50 studs.

Consider and decide on the desired mounting position of the valve. If this position does not fall between two studs, the framework will need to be adjusted. The bracket requires a gap between the studs of 307.

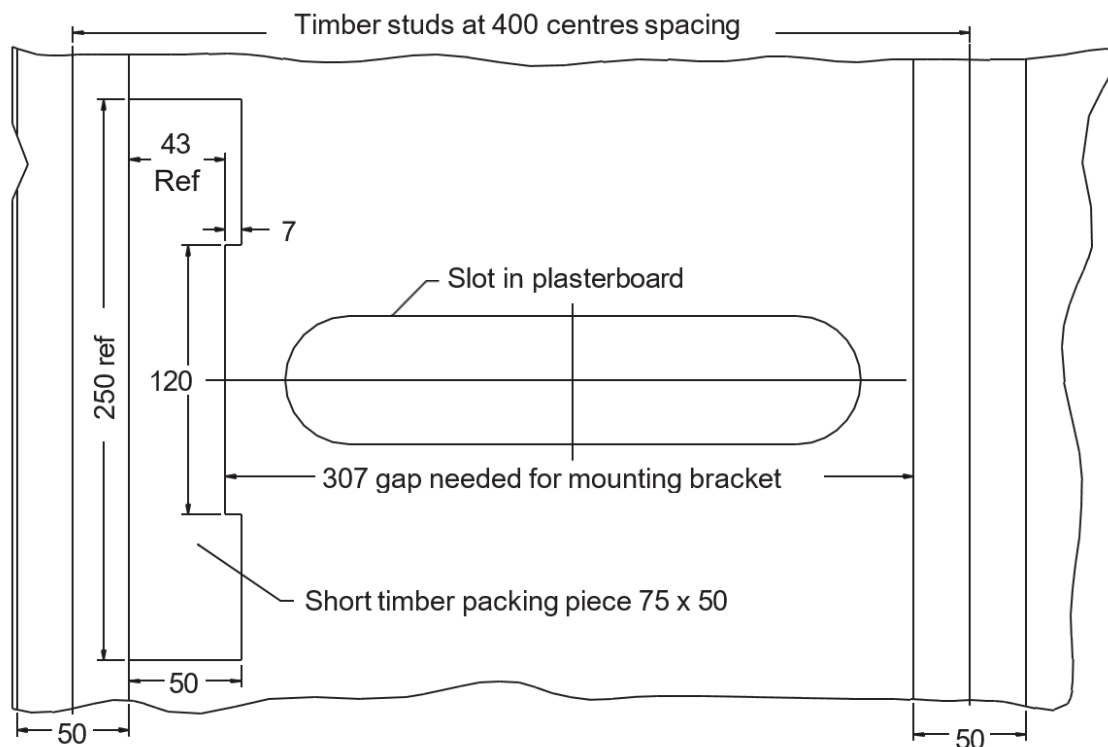
Assuming the mounting position falls between two studs at 400 centres, then a timber packing block should be fastened to one stud, as shown above. The packing block should be trimmed to provide a mounting gap of 307.

To accommodate the third outlet from the 3-way diverter, one stud should be drilled out (as shown) to allow pipe connection.

If plaster board is fastened to the front of the wall, then it can be slotted out as detailed in **section 7**.

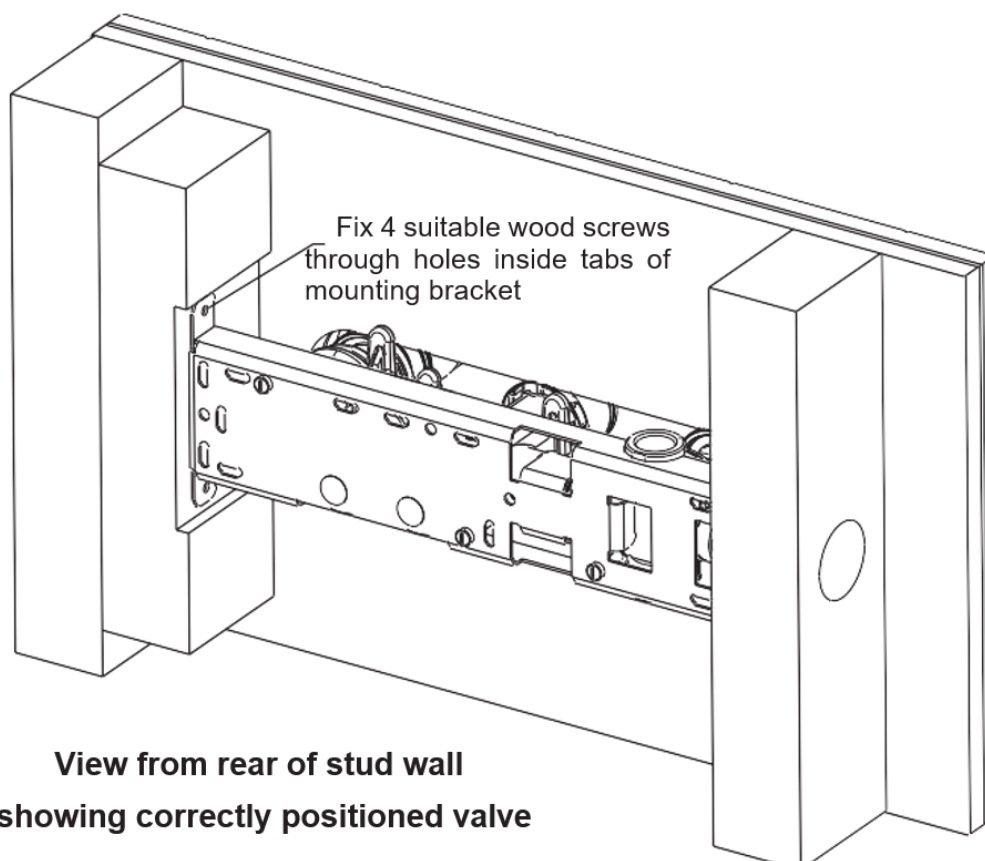
Ensure slot is correctly aligned either horizontally (as shown) or vertically.

Alternatively, the plaster board can be slotted when it is being fastened to the framework (after the valve has been mounted).

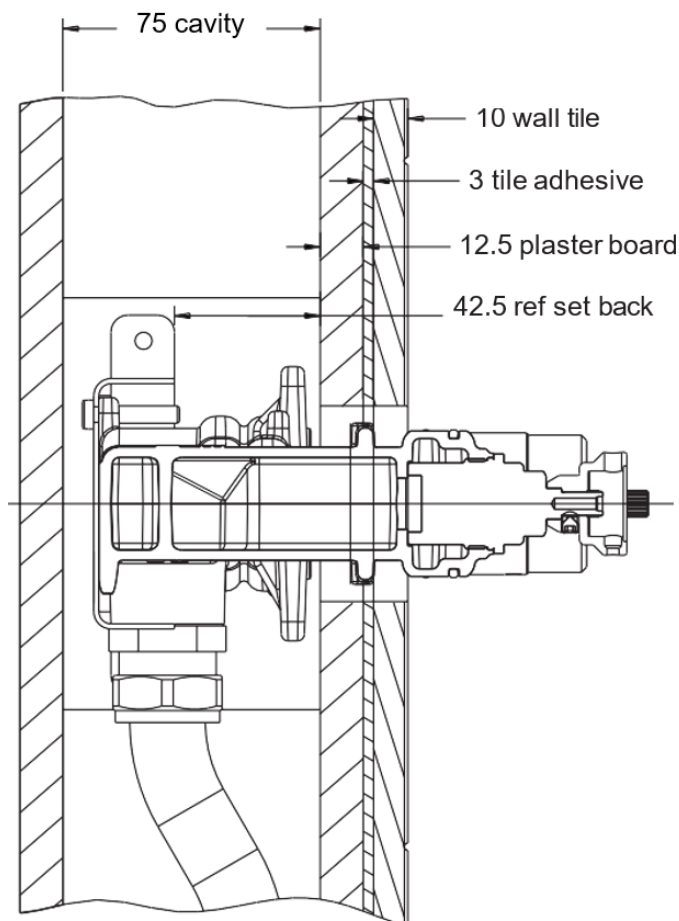


View from rear of timber stud wall showing dimensions

The valve can now be fastened to the framework using 4 suitable wood screws. Use a spirit level along the top edge of the valve to ensure it is correctly aligned.



**View from rear of stud wall
showing correctly positioned valve**



The exact mounting depth is dependent on the thickness of plaster board and tiles being used. The 42.5 dimension is given here as a guideline only.

Continue with the installation using **section 8** (plumbing).

Section through timber stud wall

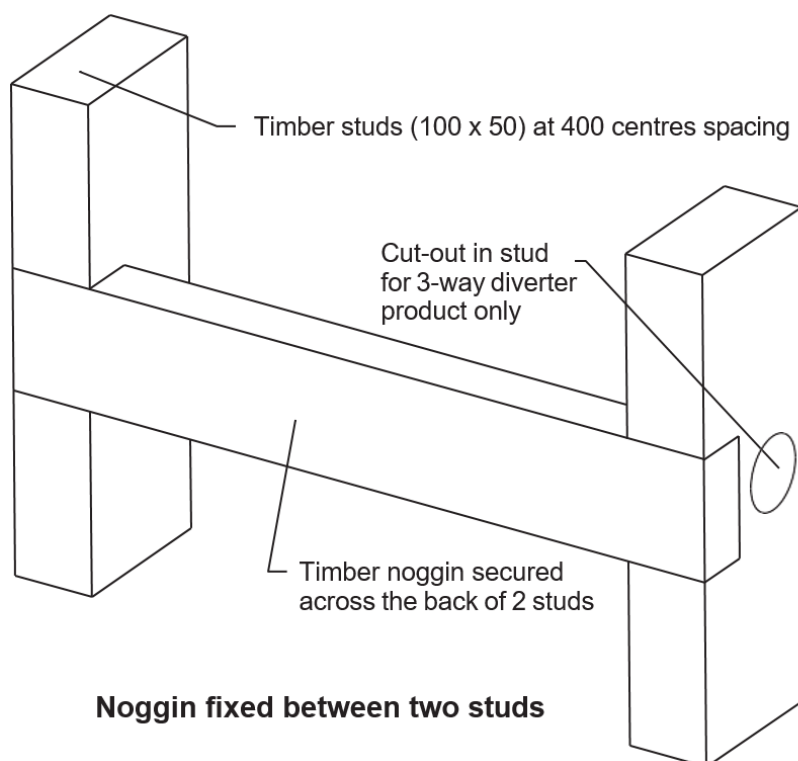
METHOD B: FIXATION TO HORIZONTAL TIMBER NOGGIN

This method is more suited to a timber stud wall constructed using 100x50 studs.

Consider and decide on the desired mounting position of the valve.

Assuming the mounting position falls between two studs at 400 centres, then a noggin should be fastened across the back of two studs, as shown here.

To accommodate the third outlet from the 3-way diverter, one stud should be drilled out (as shown) to allow pipe connection.

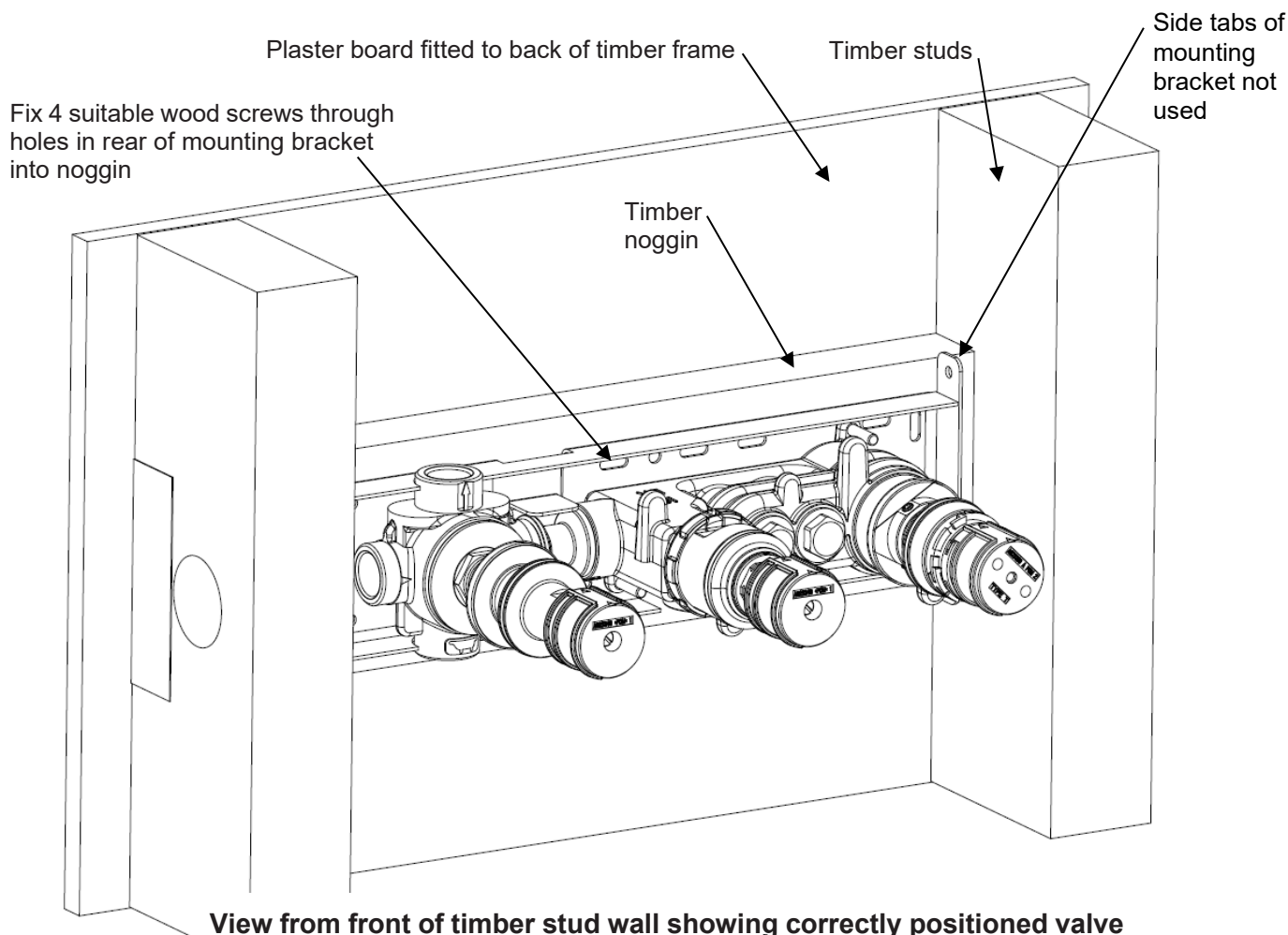


Noggin fixed between two studs

The valve can now be fastened to the noggin using 4 suitable wood screws.

Use the slotted holes in the back face of the bracket; these are elongated to provide adjustment for aligning. See **section 6** for available fixing holes positions.

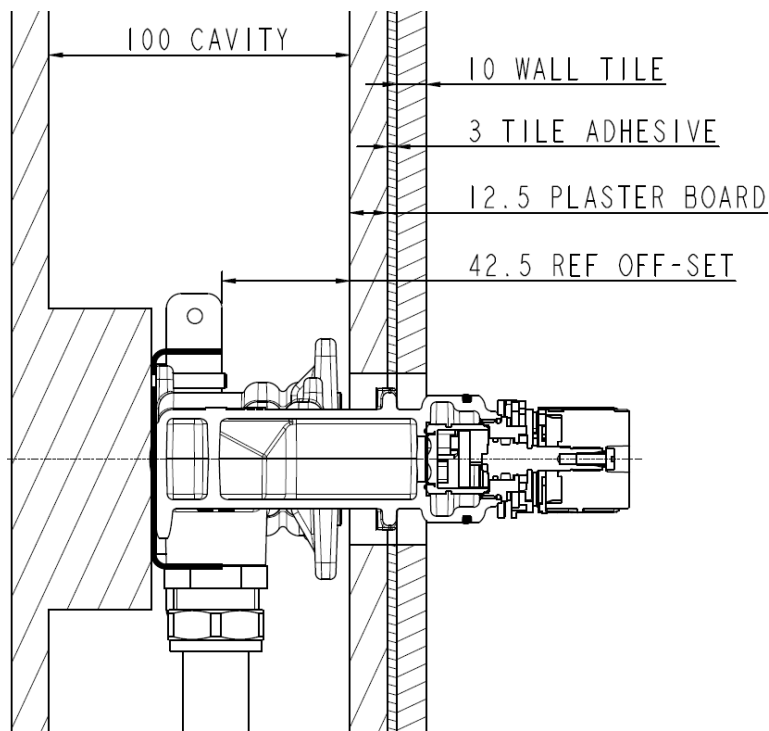
Use a spirit level along the top edge of the valve to ensure it is correctly aligned.



The front plaster board can be slotted when it is being fastened to the framework (after the valve has been mounted). See slot details in **section 7**.

The exact mounting depth is dependent on the thickness of plaster board and tiles being used. The 42.5 dimension is given here as a guideline only.

Continue with the installation using **section 8**, plumbing.



8. PLUMBING



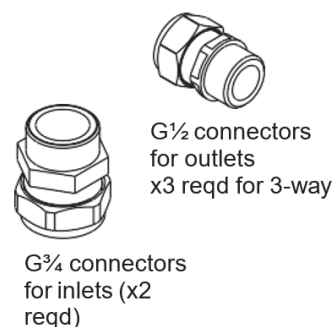
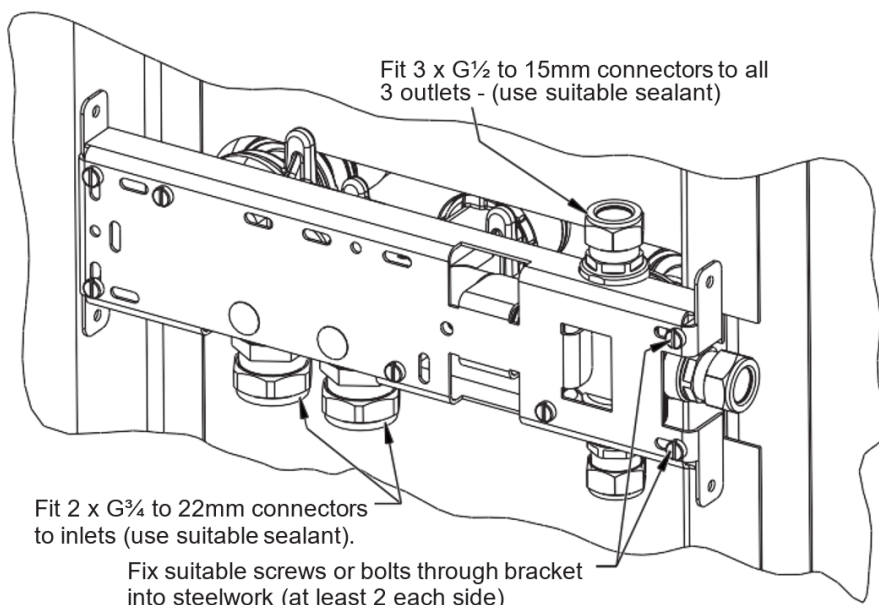
IMPORTANT
BEFORE CONNECTION, FLUSH WATER
THROUGH PIPEWORK TO REMOVE ALL
DEBRIS ETC. WHICH COULD DAMAGE
THE VALVE MECHANISM

Screw suitable connectors into the valve inlets as shown below. Use a WRAS approved thread sealant. Compression connectors shown below are typically used for connecting 15mm and 22mm copper pipes.

For maximum flow performance, run Ø22mm supply pipes to the valve.

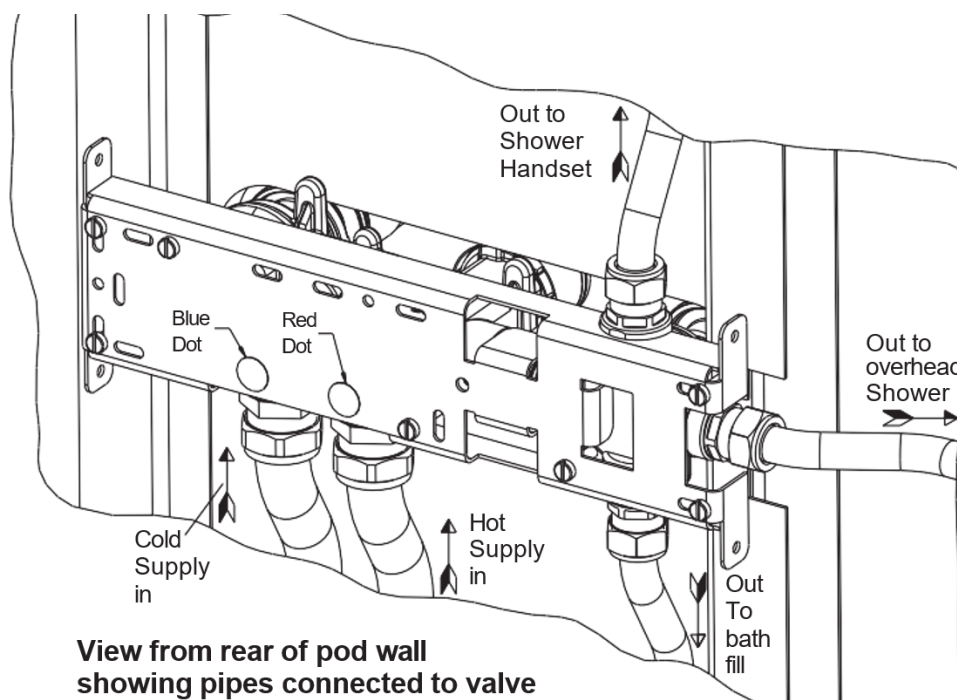
DO NOT solder joints near the valve as this will cause damage.

Easily accessible isolation valves should be fitted to the supply pipes to facilitate future maintenance. Alternatively, if the installer desires, push-fit connectors can be used with plastic pipes.



Example of view from rear of pod wall with connectors fitted

Available from all good plumbers' merchants (not supplied)



View from rear of pod wall showing pipes connected to valve

Pipe work connections should be made as shown. Red and blue dots on the bracket indicate hot and cold supply connections respectively. The outlets can be plumbed as shown.

This completes the installation from the rear of the pod wall.

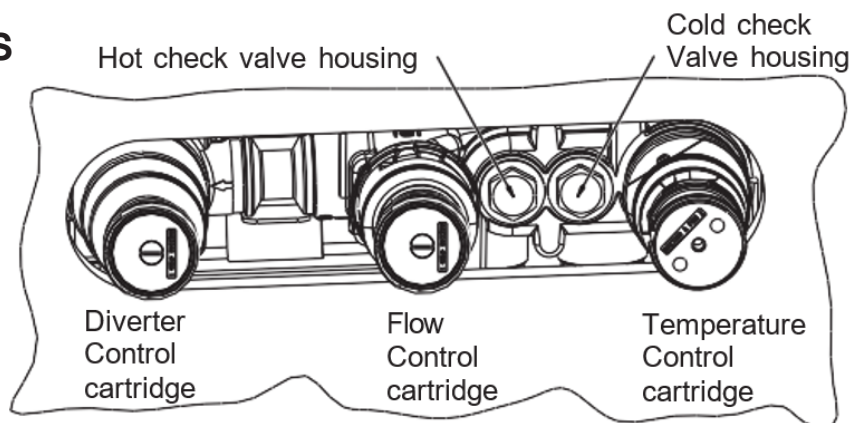
Test all connections for leaks at this stage

8.1 FLUSHING

The pipe work and valve body must now be flushed out otherwise the thermostatic cartridge filters could become blocked resulting in reduced or erratic performance.

To do this, remove the check valve housing from the hot side using a 17mm a/f socket. Place a suitable empty vessel under the product to collect discharging water. Gently turn on the hot supply until all debris has been purged from the system then replace the check valve. Repeat the procedure for the cold side check valve. After flushing, if in-line strainers have been fitted, check and clean the strainer elements.

8.2 CHECK VALVES



Completed built-in valve installation - viewed from inside pod - ready for fitting trim kit (after tiling wall)

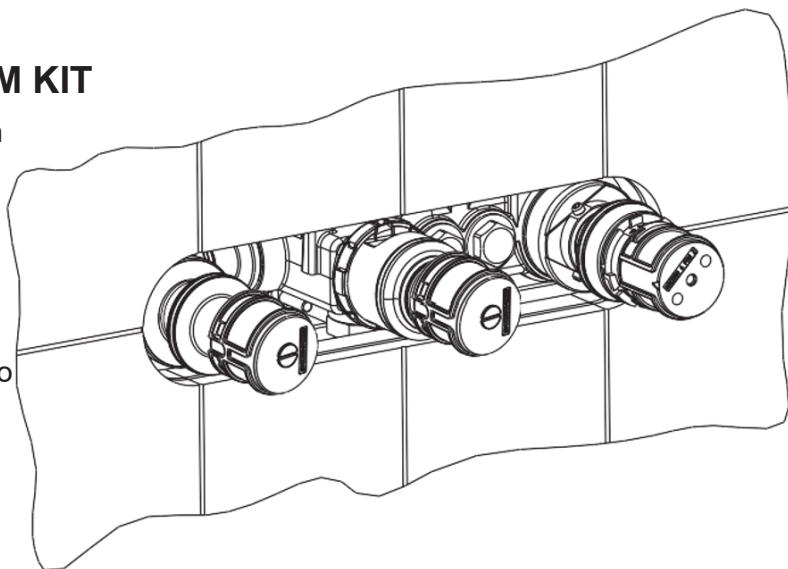
This mixer is fitted with integral check valves which are essential to compliance with water regulations. To protect these from water borne debris it is strongly advised that the inlet supply pipes be fitted with in-line strainers. Should it become necessary to clean debris out of the check valve, care must be taken to ensure the delicate mechanism is not damaged during the process. The check valve housings are not interchangeable and must be re-installed in the same position from which they were removed. For maintenance see **section 11.6**.

It is important to connect the hot and cold supplies the right way round otherwise the valve will not function correctly. However, if the water supply connections have been made the wrong way round the situation may be remedied by transposing the check valve housings.

9. INSTALLATION OF TRIM KIT

Once the valve installation has been completed and flushed, the trim kit can be installed from the front. The wall should be in a finished state (lined with ceramic tiles or similar) before fitting the trim kit. The same method is applicable to valves installed into timber stud walls or into a pod wall.

The wall tiles should be carefully trimmed to match the slot cut into the plaster board. A correctly sized slot will permit access to the valve cartridges for future maintenance.

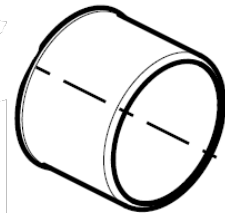
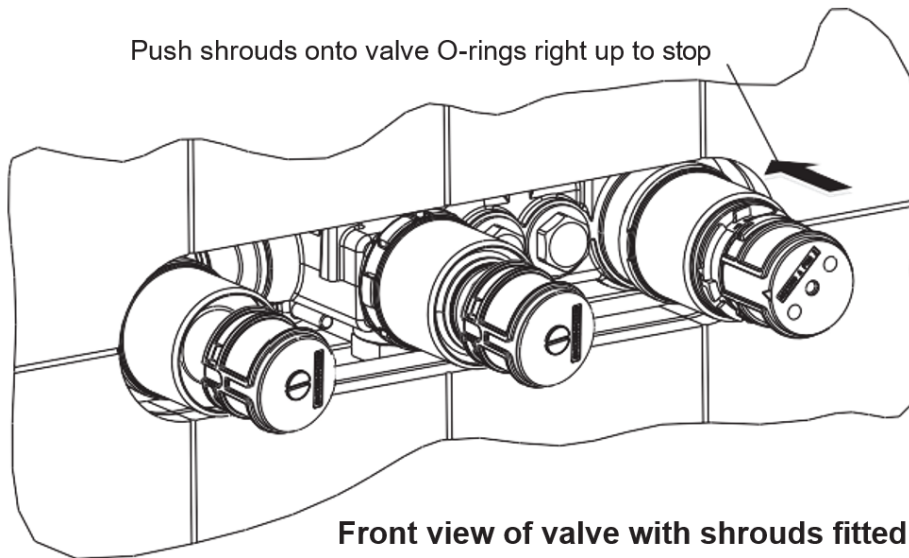


View of valve from front with wall tiled

9.1 FITTING THE SHROUDS

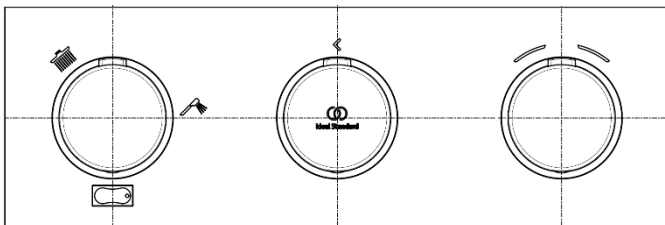
To install the trim kit, start by sliding the 3 shrouds onto the 3 projecting diameters of the valve body. The O-rings fitted onto the valve will offer some resistance, so push shrouds firmly until they stop. The shrouds are flared at one end to provide a leading chamfer to assist assembly onto the O-rings.

Orientate the flared ends of the shrouds towards the valve body. If necessary the O-rings may be lubricated with water containing a little washing up liquid.



Note: Once the handles have been fitted, the shrouds can be slid forwards to meet the handles and close any visible gaps.

9.2 FITTING THE ESCUTCHEON (FACE) PLATE



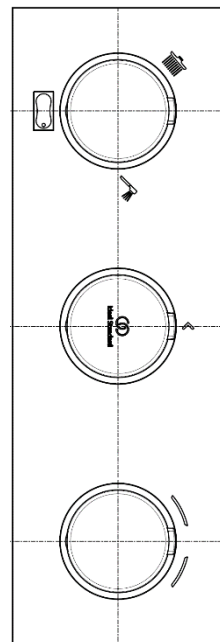
Escutcheon Plate (horizontal mounting)

Ensure symbols on front face of escutcheon plate are correctly orientated (diverter to the left)

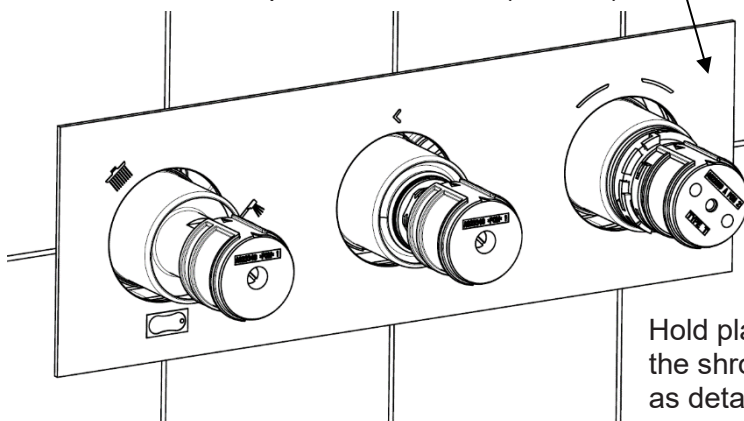
Escutcheon Plate

(vertical mounting)

Ensure symbols on front face of escutcheon plate are correctly orientated (diverter at top)



Slide escutcheon plate back to tiled (finished) wall



Slide the escutcheon plate over the 3 shrouds, back to the tiled (finished) wall. Taking care not to damage the finished surfaces, and ensure the plate is orientated correctly.

Hold plate in position, and slide the 3 grip rings over the shrouds. Screw the grip rings onto the valve body as detailed in the next section.

9.3 FITTING THE GRIP RINGS

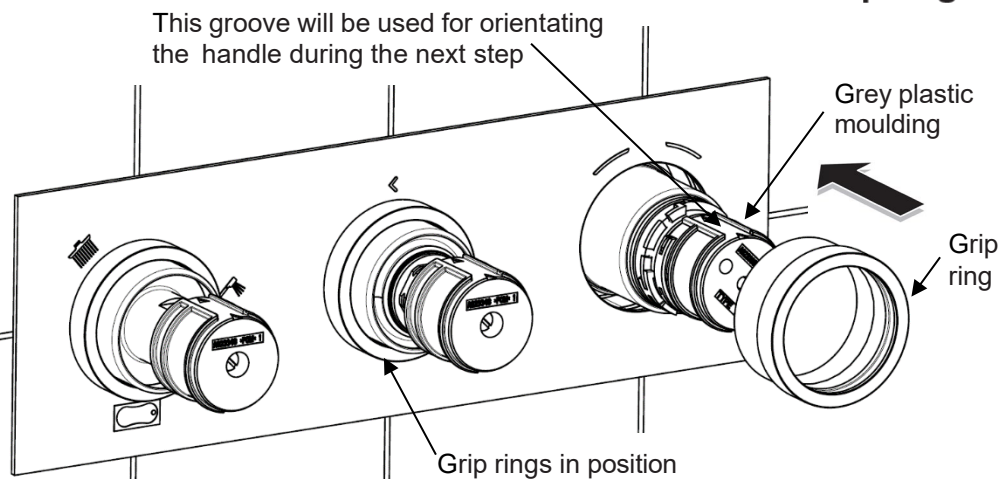
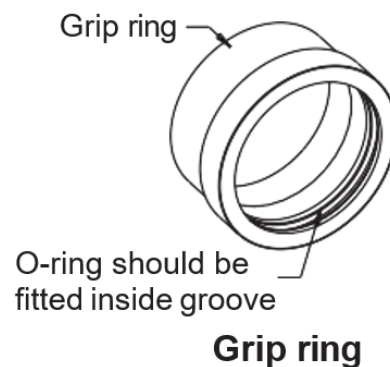
Each grip ring should be fitted with an internal O-ring. The O-ring inside the grip ring will rub on the shroud during assembly (if necessary the O-rings may be lubricated with water containing a little washing up liquid). Once in position, they will prevent water ingress.

The smaller diameter of the grip ring will pass through the escutcheon plate and the larger diameter will shoulder against it.

Screw the grip rings clockwise onto the valve body. Each grip ring should be firmly hand tightened down to the escutcheon plate.

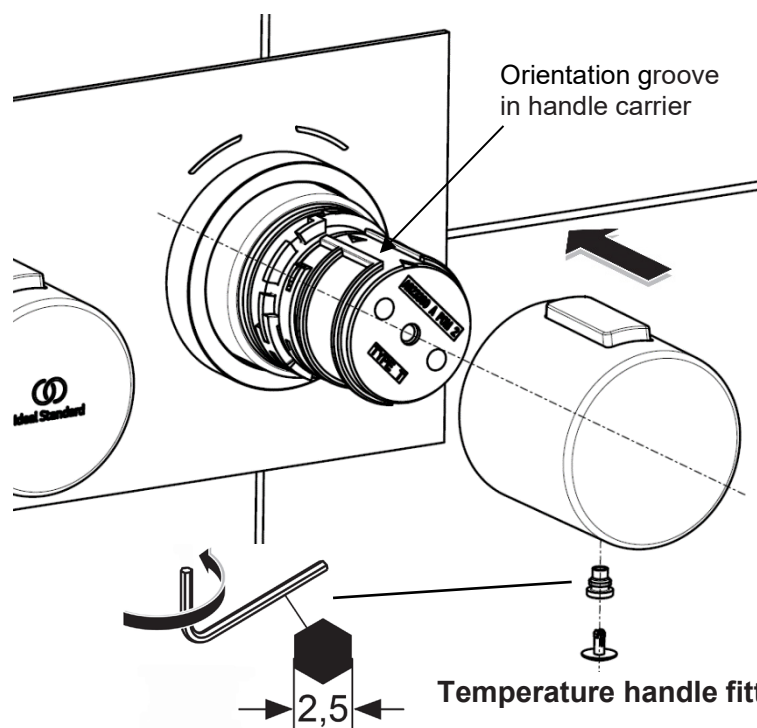
The grip rings will push the escutcheon plate against the wall.

All three grip rings should be kept level to apply even pressure against the wall.



Front view of valve with grip rings being fitted

9.4 FITTING THE CONTROL HANDLES

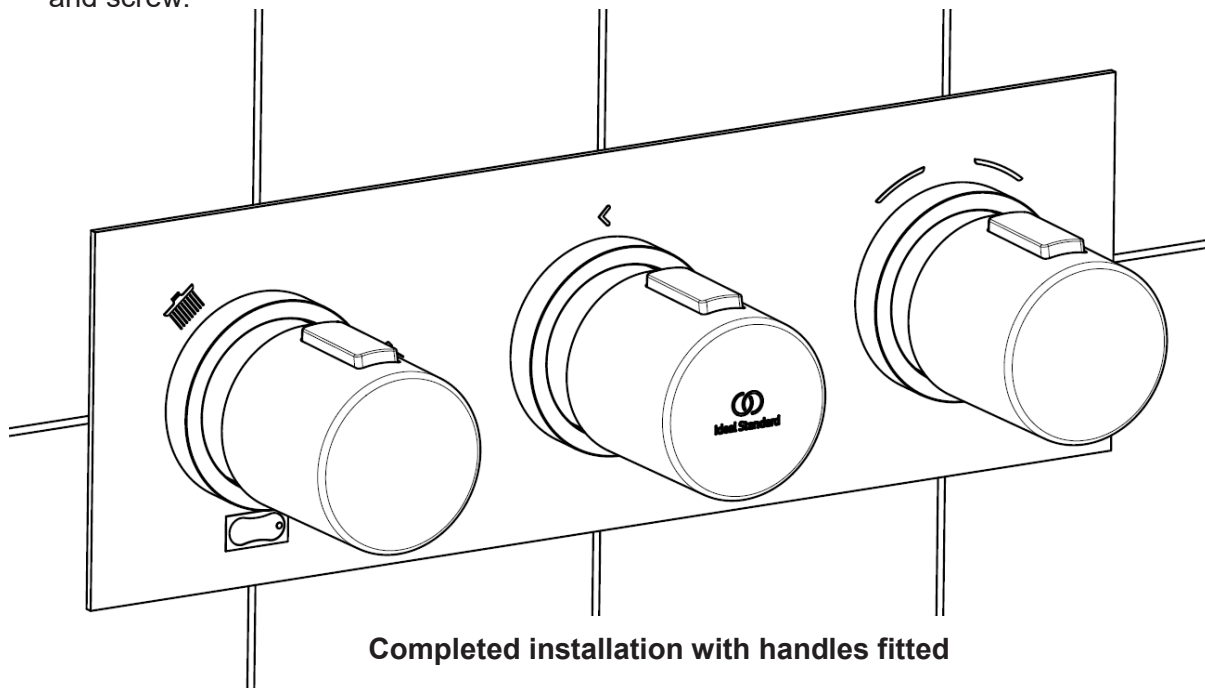


NOTE: All 3 handles are the same, except one handle is marked with the IS logo, this can be fitted in the flow handle (central control) position.

The next step is to fit the temperature control handle. Position the temperature handle such that the drive-locator slides along the groove in grey plastic moulding attached to the right hand side control on the valve. It should slide along until it stops.

The handle can be secured from the underside using the screw provided. Load the screw onto a 2.5mm hexagonal key & tighten. Finally push the small button into the screw head to conceal the screw. Use this same method to fit the other two handles to the valve.

If the handles are misaligned to the markings on the escutcheon plate, the handle carriers can be rotated to achieve better alignment. This is done by unscrewing the centre screw in the carriers. The carrier can then be pulled off. Reposition the carrier on the drive spindle then re-fit the handle and screw.



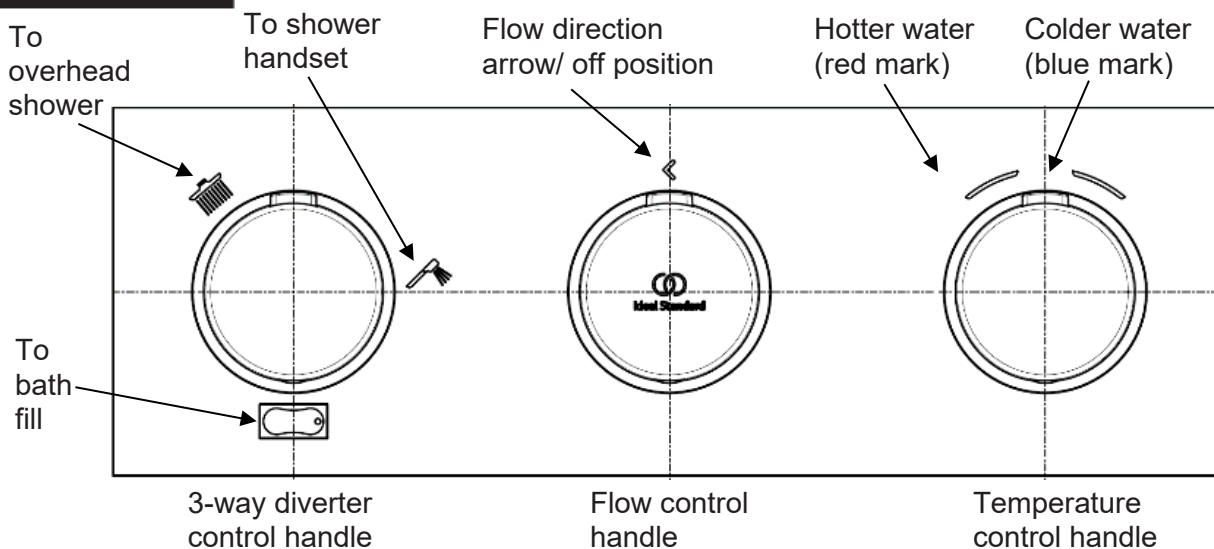
Handle movement remains the same, regardless of whether the product is mounted horizontally or vertically. Logo handle position can be adjusted if vertical mounting is preferred.

NOTE: If gaps are visible between the handles and the shrouds, the shrouds can be pulled towards the handles to close these gaps. The shrouds should be gripped by hand (perhaps rotated to start movement) and slid towards the handles.

10. OPERATING THE MIXER: CONTROLS & FUNCTIONS



The button on each handle serves as positional indicator to establish the current setting of each control. Only the centre handle is marked with the IS



Quick reference to control handles & functions

1. Temperature control handle: is situated on the right hand side (valve mounted horizontally) and references the red & blue curves marked on the escutcheon plate. This handle controls the temperature of the water flowing from the built-in valve. Rotating the handle clockwise will reduce the temperature of the water. The water is mixed by a thermostatic blending valve. The handle movement will stop just after the hot /cold physical stops and should not be forced beyond these points. Additionally, as a safety feature, the temperature override button will prevent the handle rotating at about 40°C, to obtain hotter water, press this button to override & continue to rotate the handle anti-clockwise up to the hot stop.



ATTENTION: TEMPERATURES HIGHER THAN 40°C CAN BE HARMFUL TO YOUR HEALTH.

2. Flow control handle: is the central control. This handle controls the volume of water flowing from the built-in valve. When the button on the handle is vertical the flow is switched off, indicated by the arrow symbol on the escutcheon plate. Moving the handle 90° anti-clockwise, will give maximum flow. This handle will only rotate a quarter of a turn and should not be forced beyond this range.

If the product is mounted vertically, the IS logo handle can be adjusted so that the logo orientation remains horizontal (see **section 11.3** & reposition adaptor on drive spindle).

3. Diverter control handle: is situated on the left hand side, the escutcheon plate is marked with appropriate symbols. These symbols represent the different types of outlets devices to which the water flowing from the built-in valve can be directed. The handle button serves as positional indicator showing which outlet device is currently selected. This handle rotates about 240° and should not be forced beyond this range.

REMEMBER, BE CAREFUL: TEMPERATURES HIGHER THAN 40°C CAN BE HARMFUL.

DO NOT FORCE HANDLES BEYOND THE DESCRIBED MOVEMENT RANGE OTHERWISE THIS MAY RESULT IN DAMAGE TO BOTH VALVES AND HANDLES.

11. MAINTENANCE GENERAL



Both water supplies must be isolated before commencing any servicing work on this product.

Key working parts within the valve are in the form of replaceable cartridges. **To access these remove all trim kit parts.** (Reverse trim kit installation see **section 9**). Handle finished (plated) parts carefully to prevent damage. With the trim kit removed, the 3 cartridges and check valves will become exposed.

MAINTENANCE NOTES

The fitting of isolation valves and strainers is required as close as is practicable to the water supply inlets of the thermostatic mixing valve. The thermostatic cartridge seldom fails and the possibility of blocked filters should be investigated before contemplating replacing it. Small particles of debris may still find their way past the strainers and onto the filter screens on the thermostatic cartridge. These should be cleaned and re-fitted. See section on cartridge replacement.

THERMOSTATIC CARTRIDGE AGEING

Following many years of normal service you may notice the following:

1. The need to carry out more frequent adjustment of mixed temperature.
2. The thermostatic element may not pass the CWI test.

These issues could be due to the ageing of the thermostat which loses some expansion capability over time.

These are the principle objectives of testing, as they serve to indicate to maintenance staff the declining performance capability of the thermostatic cartridge.

For this reason the audit testing flow chart highlights that 2nd Instance CWI test failure or 2nd instance mixed deviation even with stable 'as commissioned' supply conditions and correct inlet supply Δt 's, is potentially the first indication of the need to replace the cartridge.

11.1 DISASSEMBLY SEQUENCE FOR MAINTENANCE



Overview of disassembling sequence to access cartridges:

1. Isolate both HOT & COLD water supplies first. Use inline service valves if fitted.
2. Set the diverter handle to the bath fill position. Fully open the flow handle, to confirm water is switched off. Unscrew the shower hose from the outlet. This will permit some of the trapped water to drain down & release water pressure from the outlet.
3. To access cartridges, it will be necessary to remove the trim kit first. **See notes below.**
4. Ensure parts are re-assembled in the correct 'reverse' sequence.
5. Restore both water supplies. Refit the shower hose.
6. Check all joints for leaks upon completion.
7. Run water through the mixer for a few seconds to purge-out any trapped air.

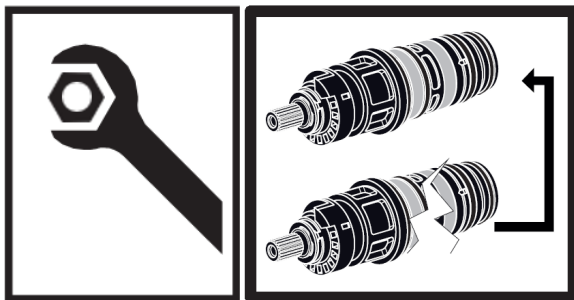
To remove the trim kit:

1. Reverse the trim installation procedure.
2. Remove all the handles, the grip rings & the main escutcheon plate.
3. The shrouds can be pulled-off, if necessary.
4. Keep all the trim parts in a safe location.

General advice:

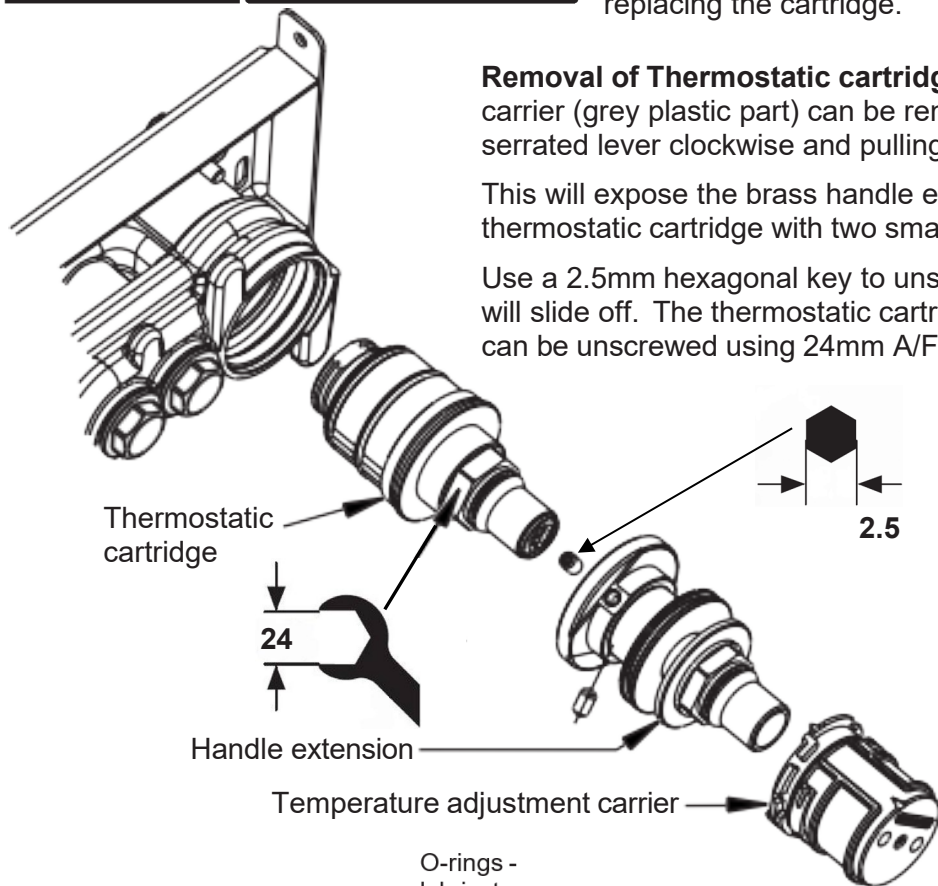
1. Use correct size tools. Avoid damaging surfaces, use a strap wrench if possible.
2. When unscrewing cartridges expect some trapped water to escape from within the mixer body.
3. Wash all parts (strainer meshes etc...) in clean water before re-assembly.
4. Observe torque settings, where specified.

11.2 REPLACING THE THERMOSTATIC CARTRIDGE



First refer to **section 11.1**, disassembly sequence. Isolate & drain down the valve. Then remove the all trim kit.

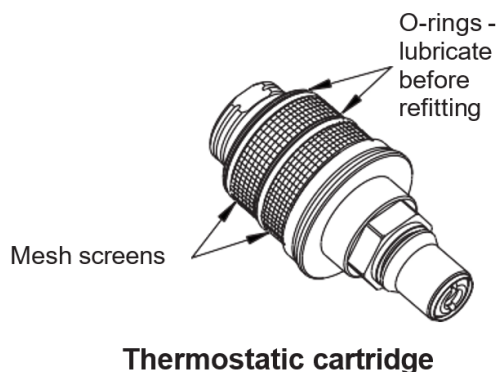
The temperature control (thermostatic) cartridge which is situated on the right, controls the outlet water temperature. This thermostatic cartridge is protected from water borne debris by mesh filter screens, these should be checked and cleaned before contemplating replacing the cartridge.



Removal of Thermostatic cartridge: The temperature adjustment carrier (grey plastic part) can be removed by sliding the black serrated lever clockwise and pulling off.

This will expose the brass handle extension which is locked to the thermostatic cartridge with two small grub screws.

Use a 2.5mm hexagonal key to unscrew these and the extension will slide off. The thermostatic cartridge, which will then be exposed, can be unscrewed using 24mm A/F deep socket.

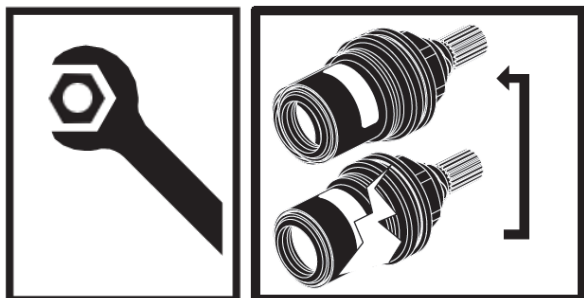


To clean the mesh screens, first remove the O-rings shown here. The screens will then slide off.

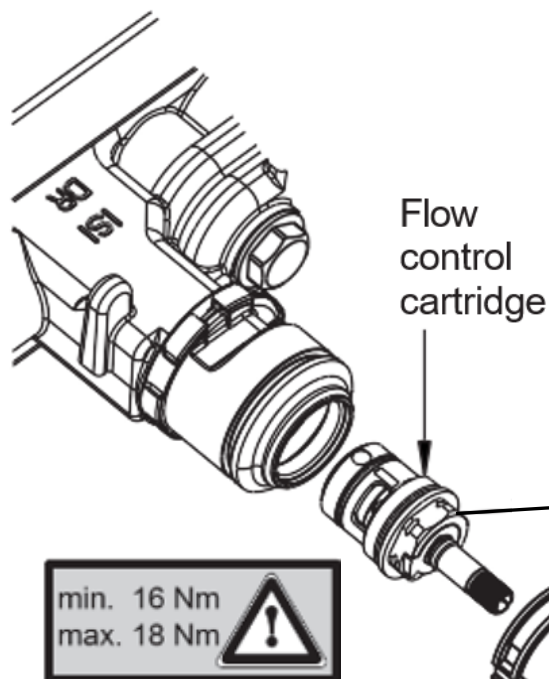
Once cleaned, replace the screens & then the O-rings. The O-rings should be lightly greased with a currently WRAS approved silicone grease.

To refit the cartridge, reverse this sequence.

11.3 REPLACING THE FLOW CONTROL CARTRIDGE



The flow control cartridge is the central control. This controls the volume of water flowing from the built-in valve.



First refer to **section 11.1**, disassembly sequence. Isolate & drain down the valve. Then remove the all trim kit.

Remove the handle carrier from the drive spindle. Use a slotted head screw drive on the retaining screw, as shown. If the cartridge is replaced, this carrier should be re-fitted to the new cartridge.

Removal of cartridge: unscrew using a 22mm A/F spanner (or 22mm deep socket). Remember to turn off water supplies before removing the flow control cartridge.

When refitting the grey plastic handle carrier, first rotate the spindle of the flow cartridge clockwise to the stop (off) position. Orientate the carrier such that the groove is uppermost then slide the carrier onto the spline of the spindle.

To refit the cartridge, reverse this sequence.

This screw retains the handle carrier

Flow control cartridge removal

11.4 REPLACING THE DIVERTER CONTROL PARTS

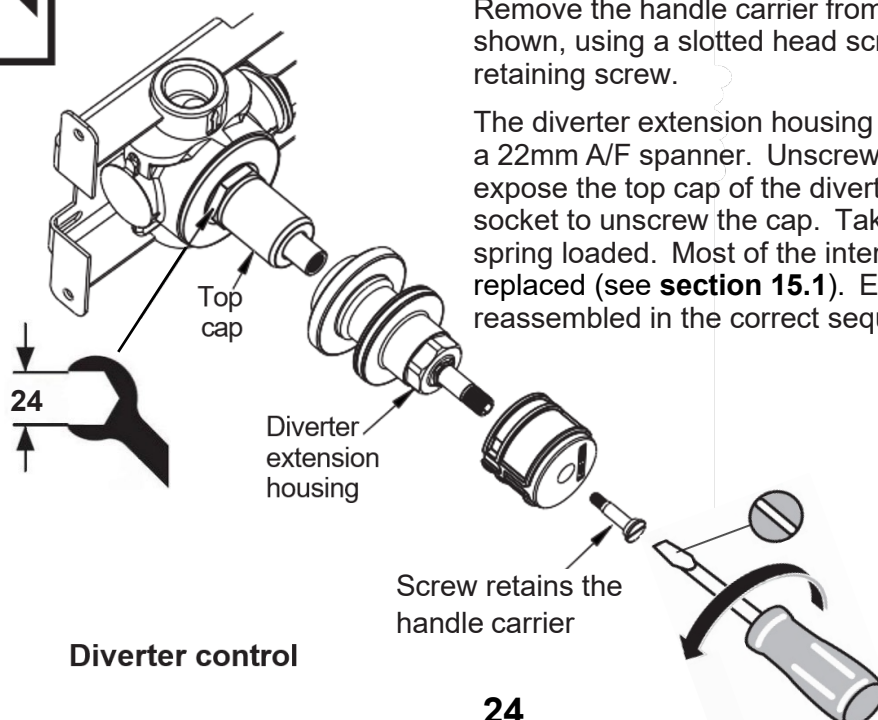


The diverter control is situated on the left hand side. This control diverts the water flowing from the built-in valve to one of the three outlets devices connected to the valve.

First refer to **section 11.1**, disassembly sequence. Isolate & drain down the valve. Then remove the all trim kit.

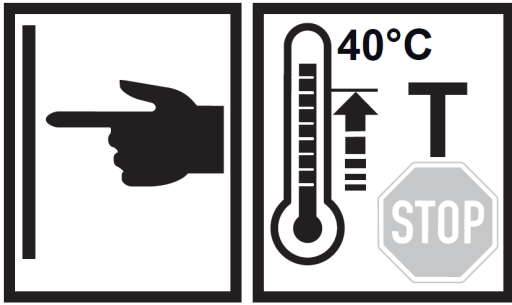
Remove the handle carrier from the drive spindle as shown, using a slotted head screw driver on the retaining screw.

The diverter extension housing can be removed using a 22mm A/F spanner. Unscrew and remove. This will expose the top cap of the diverter. Use a 24mm deep socket to unscrew the cap. Take care as the cap is spring loaded. Most of the internal parts can be replaced (see **section 15.1**). Ensure parts are reassembled in the correct sequence.

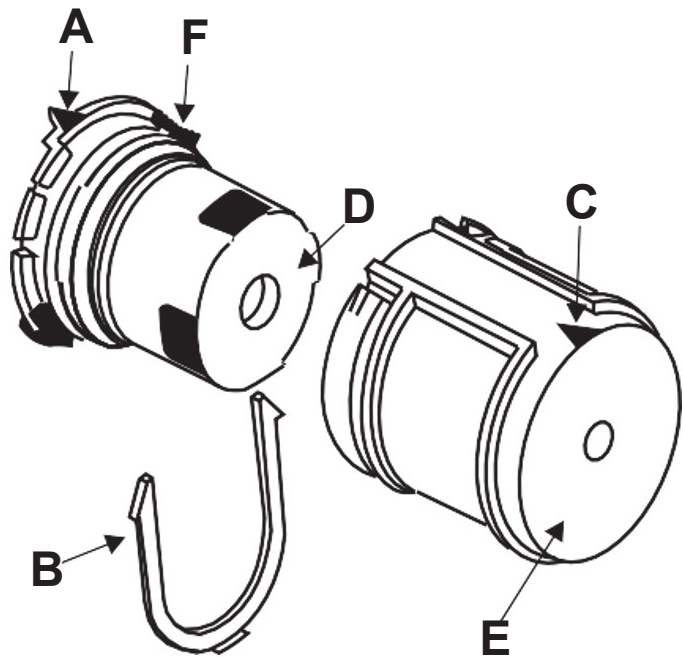


Diverter control

11.5 MIXED WATER TEMPERATURE CALIBRATION



Remove the temperature handle. Slide out the red "U" clip (B) and separate the handle carrier to expose the temperature control mechanism. Turn on the mixer & divert to bath fill, position a thermometer in the running water and when the temperature settles, rotate the temperature control mechanism (D) until 45 °C is achieved. Replace the handle carrier (E) ensuring the arrow (C) is at 12 o'clock. Without rotating it, refit the red "U" clip (B). Replace the temperature handle.

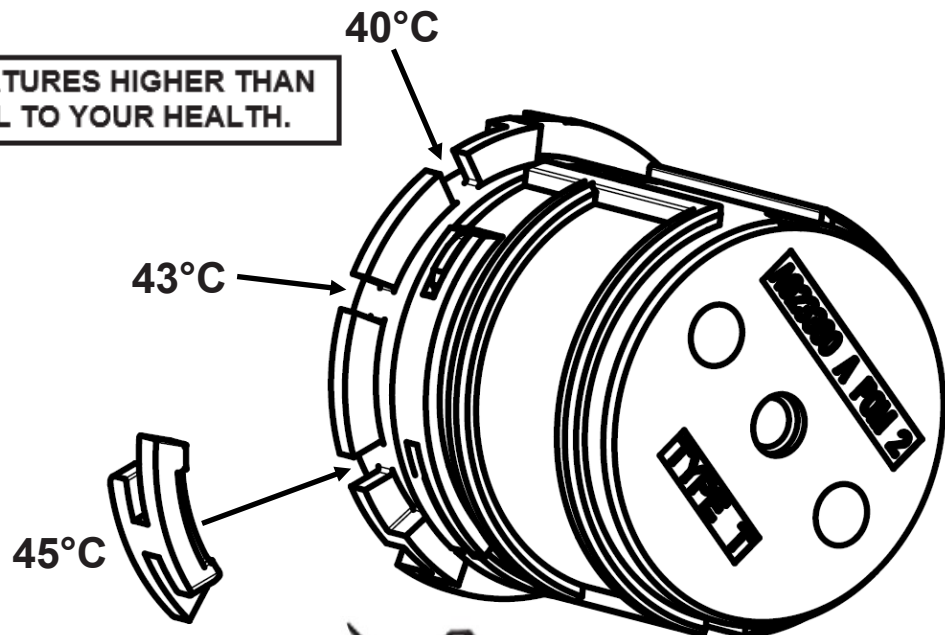
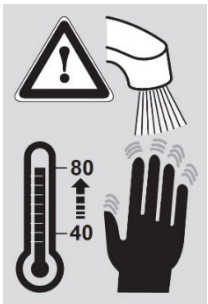


Temperature adjustment carrier exploded

The maximum mixed water temperature is factory set at 45°C. To change this temperature remove the temperature control handle. Remove the hot temperature limit stop (black "H"-shaped plastic part located in the temperature handle carrier) and reinsert it in the appropriate recess on the handle carrier. Four different settings are possible, 40°C, 43°C, 45°C & 50 °C as shown below. Note: 50°C setting is not recommended for safe bathing.

Refit temperature handle. When installing in care homes it must not be possible to deliver water hotter than 41°C so the limit stop must only be inserted into the 40°C recess.

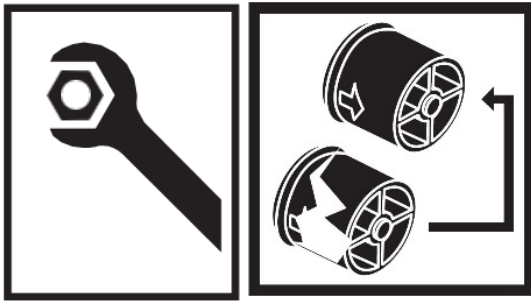
ATTENTION: TEMPERATURES HIGHER THAN 40°C CAN BE HARMFUL TO YOUR HEALTH.



To achieve the maximum water temperature, remove the "H" clip (not recommended). Keep the clip in a safe place for future use.

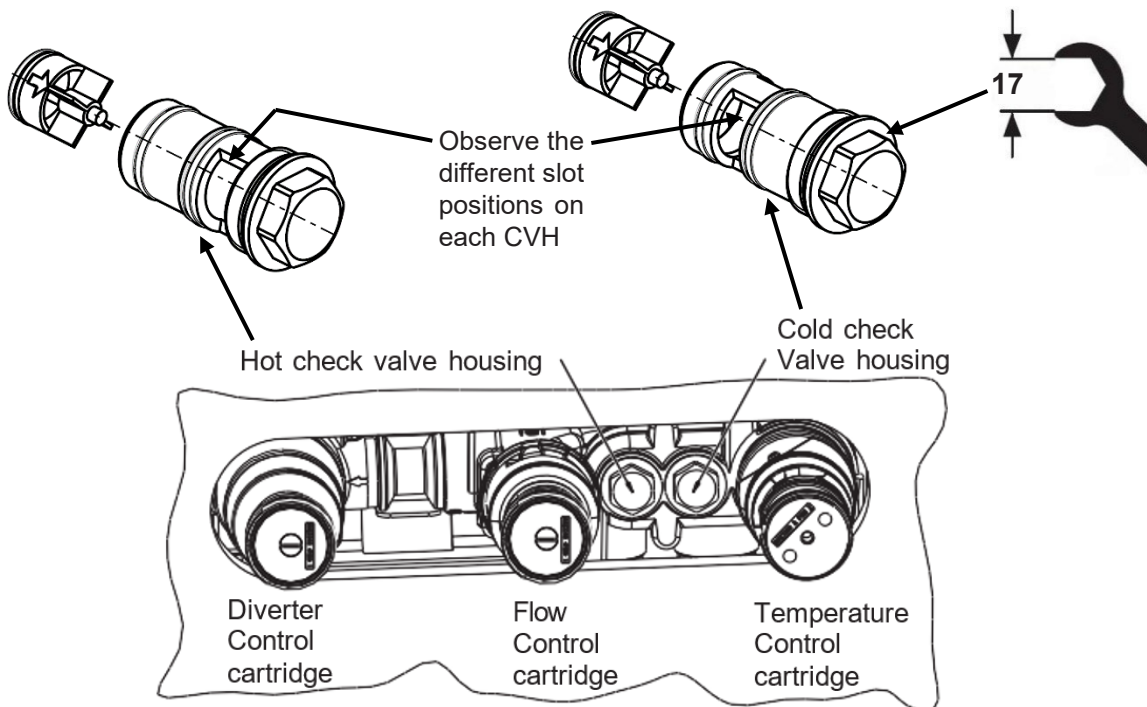
Adjusting the temperature limit stop

11.6. CHECK VALVES REPLACEMENT



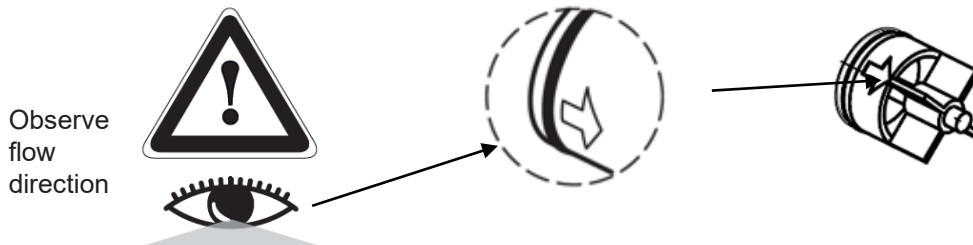
First refer to **section 11.1**, disassembly sequence. Isolate & drain down the valve. Then remove the all trim kit.

With the trim kit removed, the Check Valve Housings (CVH) become accessible. With the valve mounted horizontally, the hot CVH is on the left & the cold is on the right. The head of the hot CVH is marked with a red dot & similarly a blue dot on the cold CVH.



Should it become necessary to replace or clean debris out of the check valve, care must be taken to ensure the delicate mechanism is not damaged during the process. The CVHs are not interchangeable and must be re-installed in the same position from which they were removed, otherwise the valve will not function correctly. Observe slot positions in the CVHs as shown above.

Using 17mm socket, unscrew the CVHs. Gently pull out the check valves from the CVHs: inspect & clean or replace if necessary. Observe the flow direction arrow on the body of the check valve as shown below.



To reassemble the CVHs reverse this sequence.

Note: Often check valves are referred to a Non-Return Valves (NRVs).

IMPORTANT: Although the check valves can be replaced, they **must not be removed** completely. Do not operate the mixer without BOTH the check valves correctly fitted.

12. COMMISSIONING & PERIODIC CHECKS

The following procedures should be carried out after installation and every 12 months after to ensure that the valve is functioning correctly.

Check that:

1. The application of the thermostatic valve matches the approved designation.
2. The supply pressures are within the recommended range for the application.
3. The supply temperatures are within the permitted range for the application and comply with the guidance for prevention of Legionella.
4. The mixed temperature is as required for the application.

Record:

5. Each hot and cold supply. (Make a note of the measuring device used).
6. The mixed water temperature at the outlet device.

Isolate:

7. The cold supply to the mixing valve and record the mixed water temperature after about 5 seconds.

The temperature should not exceed the value given in the table (2) below.

Table.2. A guide to maximum temperature sets.

Application	Mixed water temperature	Permitted maximum temperature rise during site testing
Shower	41°C	43°C
Bath (tub fill)	43°C	45°C

*Note: 46°C is the maximum mixed water temperature from a bath tap. The maximum temperature takes account of the allowable temperature tolerances inherent thermostatic mixing valves and temperature loss in metal baths. **It is not a safe bathing temperature for adults and children.***

The British Burns Association recommends 37°C-37.5°C as a comfortable bathing temperature for Children. In premises covered by the Care Standards Act 2000, the maximum mixed water temperature is 43°C

13. FREQUENCY OF REGULAR SERVICING

The purpose of servicing regularly is to monitor the performance of changes in system and valve set up. This may require the need to adjust either the supply system or the valve. The product should be checked and tested 12 months after commissioning.

Firstly measure the water temperature at the shower outlet.

Carry out the cold water supply isolation test by isolating the cold water supply to the TMV, wait for 5 seconds if water is still flowing check that the temperature is below 46C. If there is no significant change to the set outlet temperature (+/-2°C or less change from the original settings) and the fail-safe shut off is functioning, then the valve is working correctly and no further service work is required.

Notes:

A residual flow is permitted during the commissioning or the annual verification (cold water supply isolation test), then this is acceptable providing the water temperature is no more than 2°C above the designated outlet temperature.

Temperature readings should be taken at the normal flow rate after allowing for the system to stabilize.

The sensing part of the thermometer probe must be fully submerged in the water that is to be tested.

Any TMV that has been adjusted or serviced must be re-commissioned and retested in accordance with the instructions detailed above.

14. COLD WATER ISOLATION TEST (CWIT)

CWI test is a guide to showing the performance of the thermostat.

Prior to CWI test:

- Make sure that the temperature handle position is adjusted to deliver water at 40°C. Check using a thermometer in the mixer water outlet (bath fill).
- Make sure the supply temperatures are within the ranges 55 to 65°C for hot, & 5 to 20°C for cold.
- Set the diverter to the bath fill outlet, direct the water to be discharged into a suitable vessel.
- Ensure there is easy access to the cold service (isolating) valve & it operates freely.

To perform a CWI test:

- Turn the product on using the flow handle, override the 50% economy flow stop on the handle & rotate handle to max, giving 100% flow.
- The temperature handle should remain at the 40°C position.

1. Record the steady state temperature of both hot and cold water supplies. Note the Δt .
2. Record the temperature of the mixed water at the outlet, should be within range $40 \pm 1^\circ\text{C}$.
3. Isolate the cold water supply. If the flow ceases, CWI test passed. An ongoing reduced fine flow of water (pencil stream) from the mixed water outlet is also acceptable as a pass.

Restore the cold supply & recheck the temperature at the mixed water outlet once stabilised.

If the flow has not reduced, the product has failed the CWI test. Product requires maintenance, cartridge should be removed, cleaned & retested. See guidance below.

Additionally, clean all filters, ensure check valves are working, and make sure all service (isolating) valves are fully open.

NOTE: In order to isolate the cold water & to perform the CWI test, service valves must be fitted (as close as practicable to the mixer's inlets).



Volumetric guidance in the case of “ongoing reduced discharge of water” during CWI test

Acceptance criteria is as follows, isolate the cold water supply then:

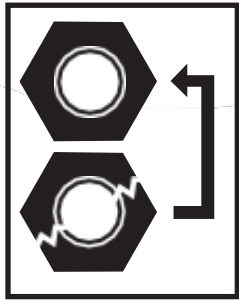
- 1) Collect the water discharged from the shower outlet for 5 seconds.
- 2) Continue to collect the water discharged from the shower outlet in a second vessel for a further period of 30 seconds.

The volume collected in the first period of 5 s shall not exceed 200 ml.

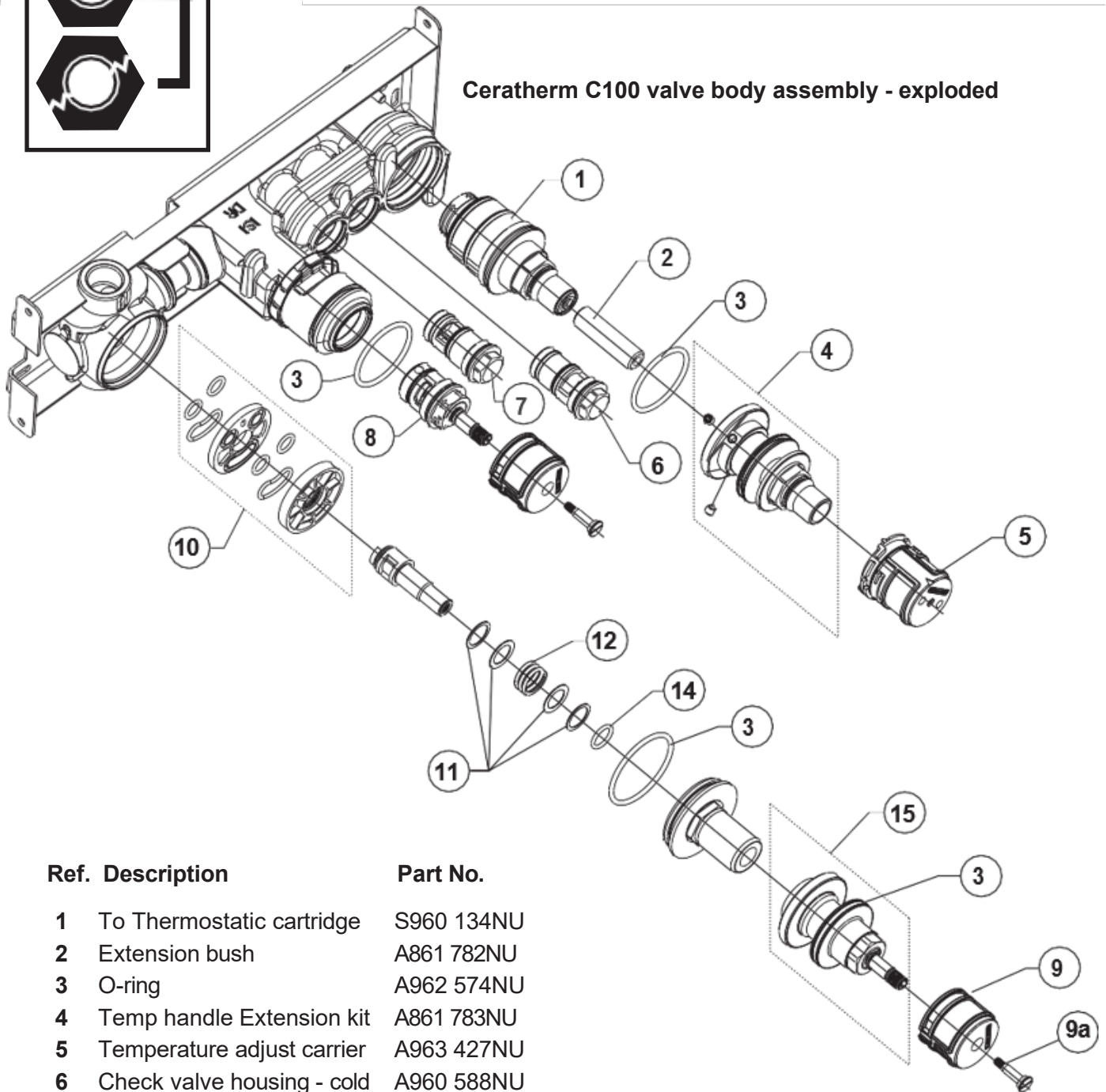
The volume collected in the second period of 30 s shall not exceed an additional 300 ml.

After restoration of the cold water supply (30 s) the mixed water outlet temperature shall not differ by more than 2°C from the initial set mixed water temperature.

15.1 SPARE PARTS FOR MIXER VALVE



Ceratherm C100 valve body assembly - exploded



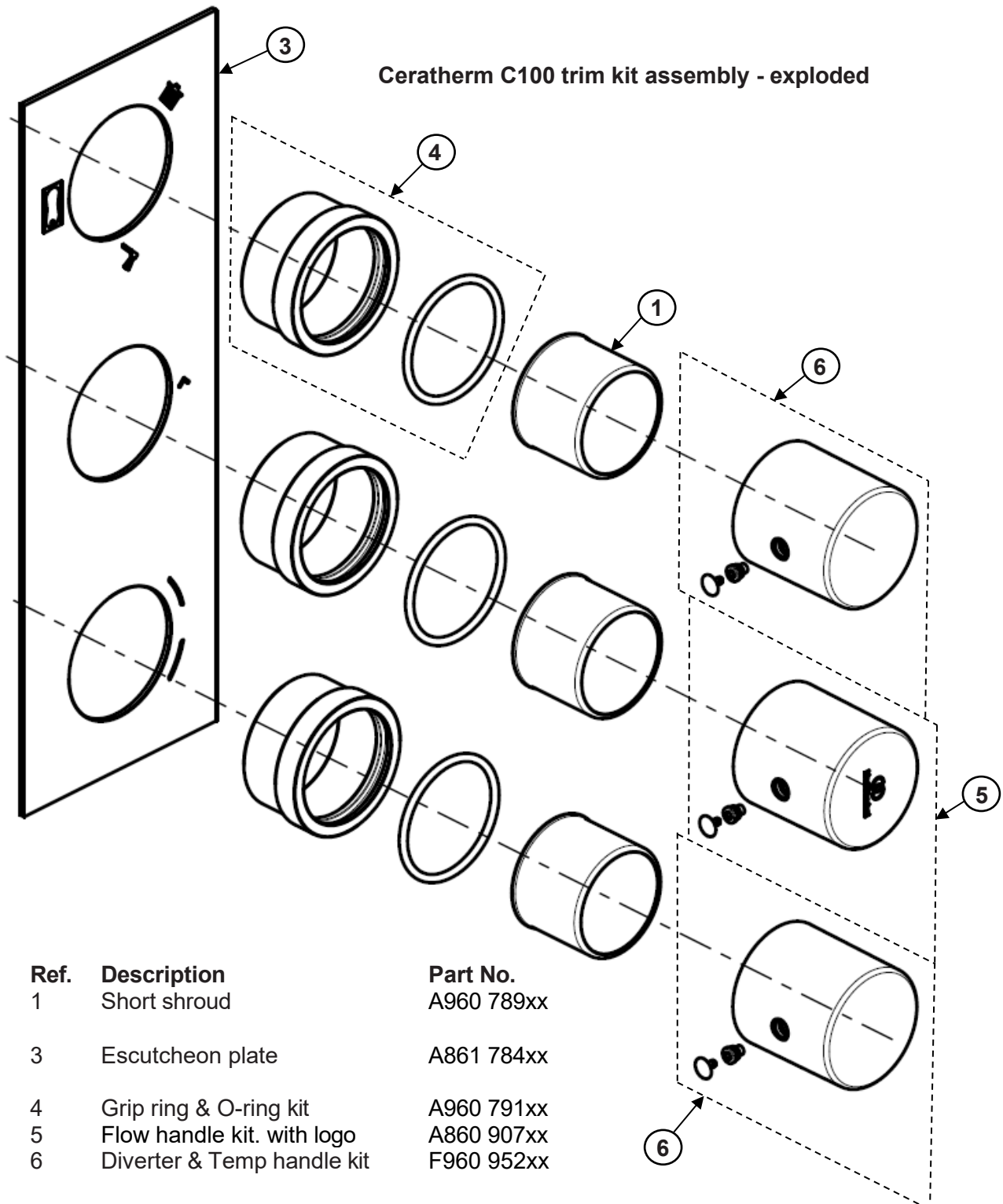
Ref.	Description	Part No.
1	To Thermostatic cartridge	S960 134NU
2	Extension bush	A861 782NU
3	O-ring	A962 574NU
4	Temp handle Extension kit	A861 783NU
5	Temperature adjust carrier	A963 427NU
6	Check valve housing - cold	A960 588NU
7	Check valve housing - hot	A960 589NU
8	Flow control cartridge	A960 462NU
9	Handle carrier kit	A962 165NU
9A	Fixing Screw -pair	A960 474NU
10	Diverter parts kit	A963 470NU
11	Washers Kit Diverter	A963 471NU
12	Spring Diverter	A963 472NU
14	O-ring - small	A963 469NU
15	Diverter extension assy	A962 320NU

15.2 SPARE PARTS FOR TRIM KIT



Where **xx** below refers to the colour finish of the product: Chrome Plated (AA), Silk Black (XG), Brushed Gold (A2), Magnetic Grey (A5), or Silver storm (GN).

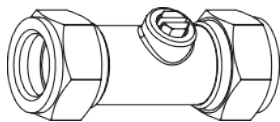
IMPORTANT: When ordering spare trim parts, please specify correct surface finish suffix letters.



16. INLINE SERVICE VALVES

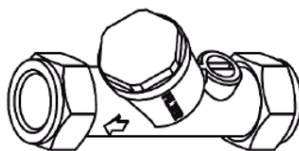


Inline service valves (**not supplied with this product**) **MUST** be fitted to permit future maintenance of the cartridges. They also facilitate the cold water isolation test (CWIT). These should be fitted as close as is practicable to the water supply inlets of the thermostatic shower valve. Service valves should be installed in an easily accessible location.

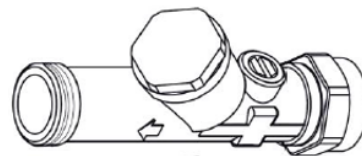


Basic valve with isolating only feature is available under spares code **S9005AA**.

15mm compression fittings at both ends & plated finish.



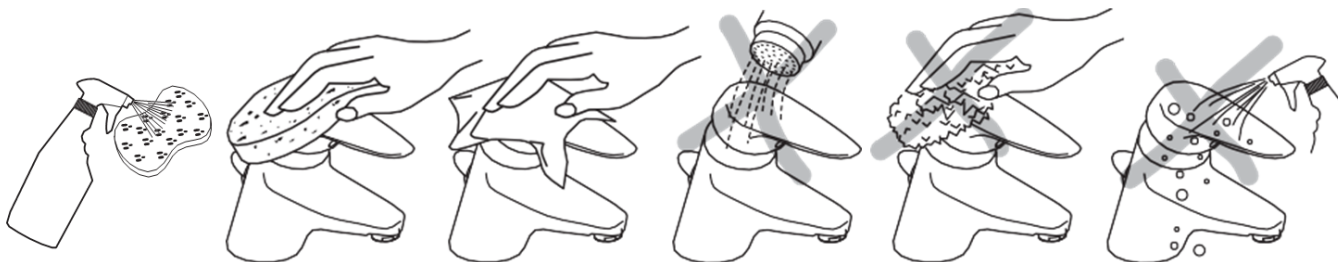
E960086NU. Brass valve with isolating & filter only features. 15mm compression fittings at both ends. Supplied in pairs.



Spares code **E960613NU** contains a pair of combined service valves. Include a flow regulator, check valve, strainer mesh (filter) & isolating valve. The flow regulator and check valve can be removed if not required.

The above three service valves are available. Contact ISI customer care team for more details.

17. CLEANING THE PRODUCT'S SURFACES



When cleaning this product's surfaces, use only a mild detergent, rinse & wipe dry with a soft cloth. Ideally clean after each use to maintain appearance.

Never use abrasive, scouring powders or scrapers. Never use cleaning agents containing alcohol, ammonia, hydrochloric acid, sulphuric acid, nitric acid, phosphoric acid or organic solvents. Use of incorrect cleaning products / methods may result in chrome damage which is not covered by the manufacturer's guarantee.

**For more information about our products &
spares visit our website: www.idealstandard.co.uk**



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