


Ideal Standard

Thermostatic, exposed, two hole, rim & wall mounted bath /shower mixers **INSTALLATION INSTRUCTIONS**

Ceratherm T50



A7216AA bar shower mixer without shower kit



A7224AA bath shower mixer without shower kit



A7697AA bath shower mixer without shower kit



A7215AA & A861383AA
wrap over shower shelves



A7221AA bar shower mixer pack with 600 rail & Hand spray



A7225AA & A7227AA
bar shower mixer dual pack with overhead Rain shower & Hand spray



IMPORTANT

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

INSTALLER: After installation please pass this instruction booklet to user

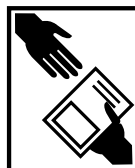
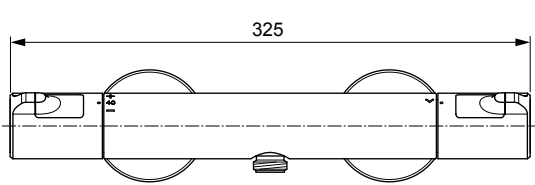


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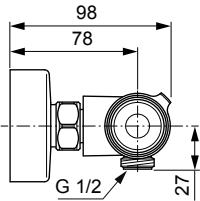
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1 DIMENSIONS

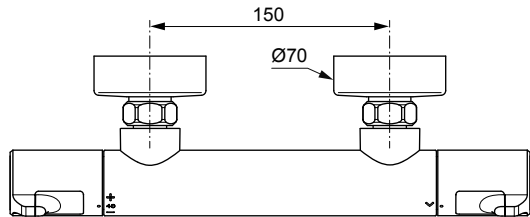
1.1 A7216AA, A7221AA, A7225AA & A7227AA - Wall mount mixers



Shown **A7216AA** bar shower mixer supplied without shower kit.

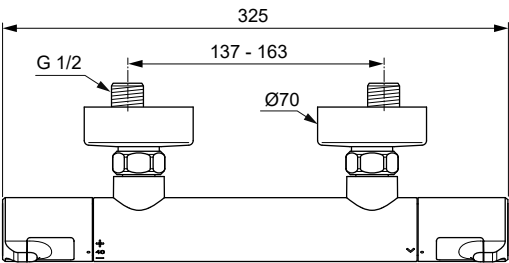


Basic bar shower mixer dimensions shown with wall mounting brackets assembled



Dimensions same for **A7221AA** bar shower mixer pack with 600 rain shower & Hand spray (shower kit shown at the end of this section).

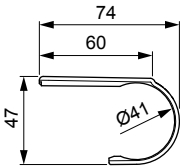
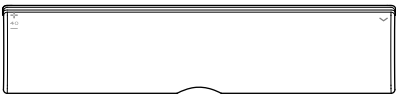
Dimensions same for **A7225AA & A7227AA** bar shower mixer dual pack with overhead Rain shower & Hand spray (shower kit shown at the end of this section). Nipple for overhead shower not shown here.



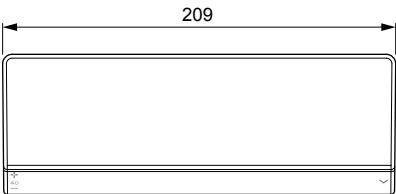
Dimensions are in millimetres & may vary within permitted tolerances

Note: product **A7225AA** is supplied with S-connector inlets suitable for pre-plumbed solid walls.

1.2 Wrap over shower shelves



NOTE: Shower shelves are sold separately.

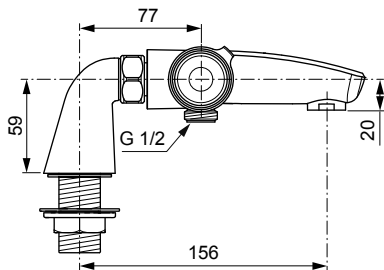
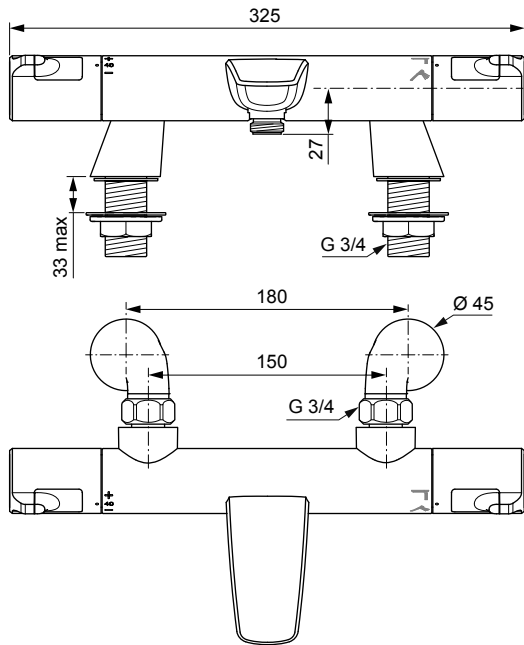


Wrap over shower shelf shown here is **A7215AA** without hole for overhead outlet, suitable for: **A7216AA & A7221AA**

Wrap over shower shelf **A861383AA** with hole for overhead outlet, suitable for: **A7227AA & A7225AA**

1.3 A7224AA - Deck mount mixer

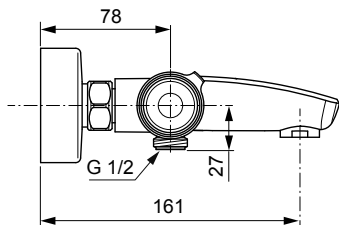
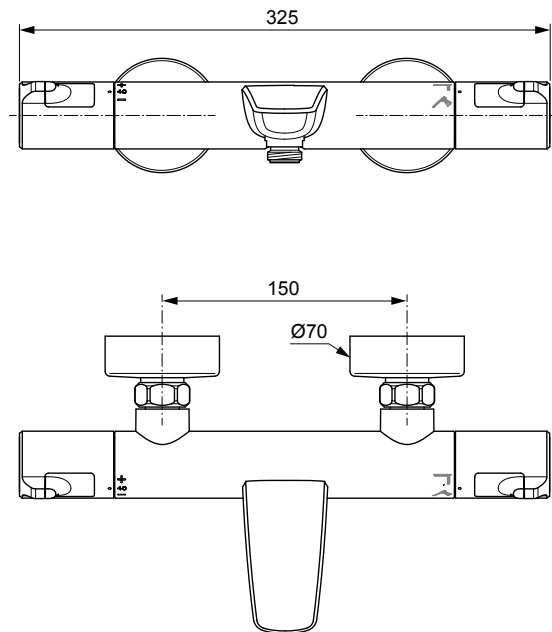
Dimensions are in millimetres & may vary within permitted tolerances



Basic bath /shower mixer
dimensions shown with deck
mounting legs assembled.

Shown above, **A7224AA** bath / shower mixer supplied without shower kit.

1.4 A7697AA - Wall mount mixer

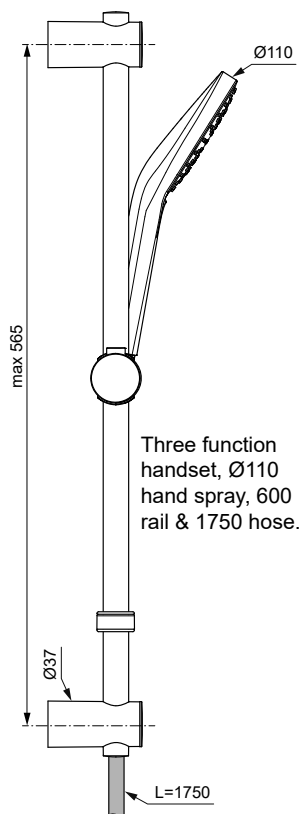


Basic bath / shower mixer
dimensions shown with wall
mounting brackets assembled.

Shown above, **A7697AA** bath / shower mixer supplied without shower kit.

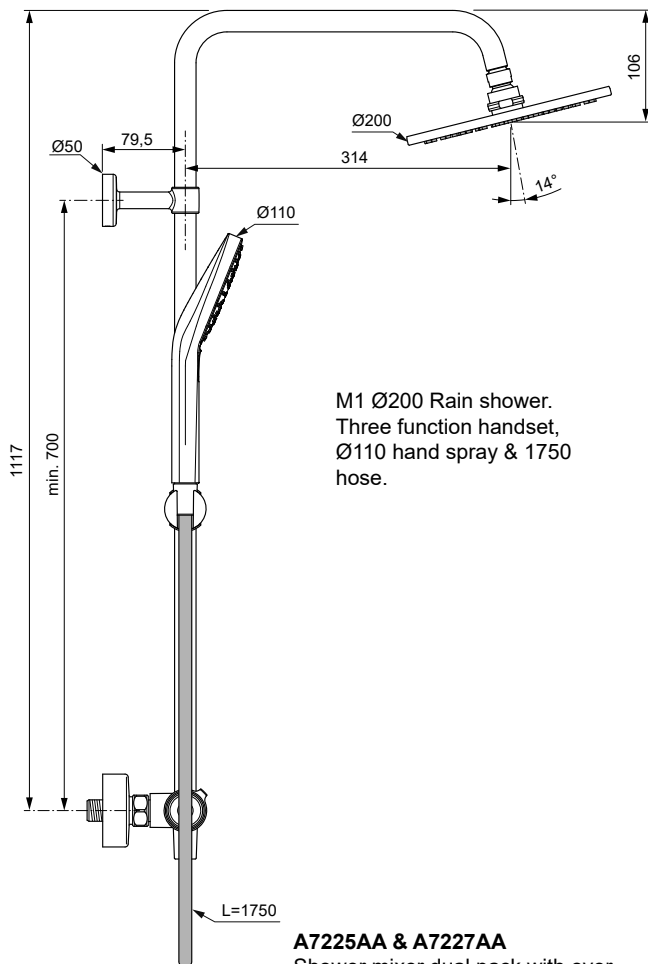
1.5 SHOWER PACKS

Dimensions are in millimetres & may vary within permitted tolerances



A7221AA

600 Shower rail & Handset pack supplied only with this product.



A7225AA & A7227AA

Shower mixer dual pack with over-head Rain shower & Hand spray, supplied only with these two product.

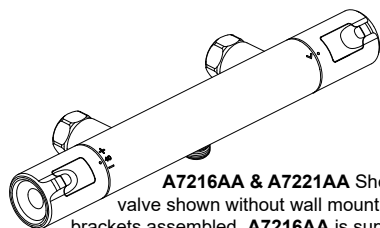
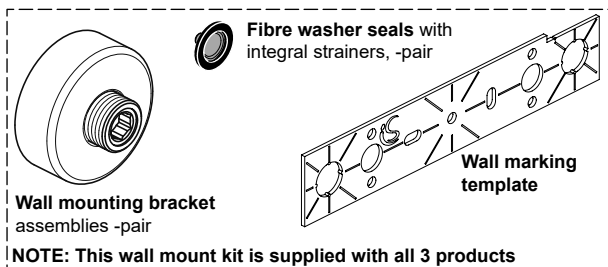
Note: The following three products **do not** include a shower pack (kit):
A7216AA , A7224AA & A7697AA

NOTES:

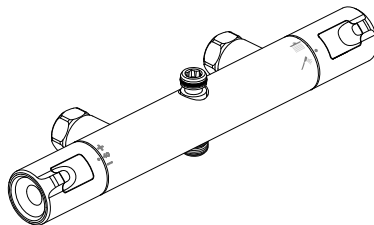
- Where shower mixer products are supplied without a shower kit, the end user should select & purchase a suitable kit.
- The shower packs shown above are supplied with their own fitting instructions. For a quick overview of A7225AA & A7227AA shower kit, see end of section 7.

2 PRODUCT BOX CONTENTS

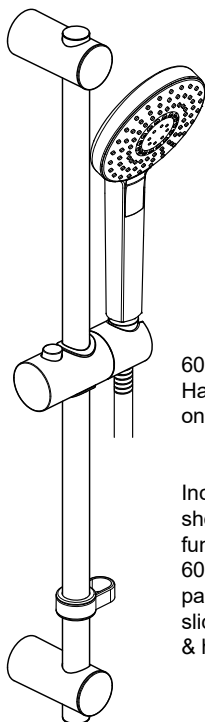
2.1 Wall mixers A7216AA; A7221AA; A7227AA



A7216AA & A7221AA Shower valve shown without wall mounting brackets assembled. **A7216AA** is supplied without shower kit & **A7221AA** is supplied with 600 shower rail pack shown below. Right side handle controls flow to a single shower outlet.

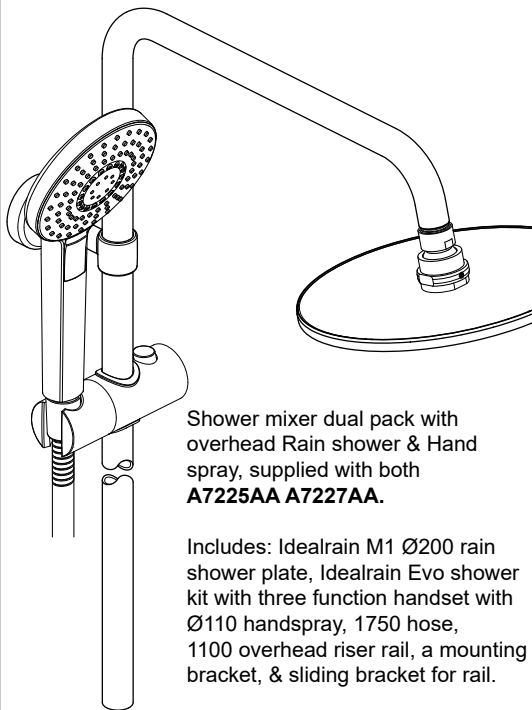


A7227AA Shower valve shown without wall mounting brackets assembled. Right handle controls flow & diverts between hand spray & overhead rain shower. Includes dual shower pack shown below.



600 Shower rail & Handset pack supplied only with: **A7221AA**.

Includes: Idealrain Evo shower kit with three function handspray, 600 rail, 1750 hose, pair of mounting brackets, sliding bracket for rail & hose retaining ring.



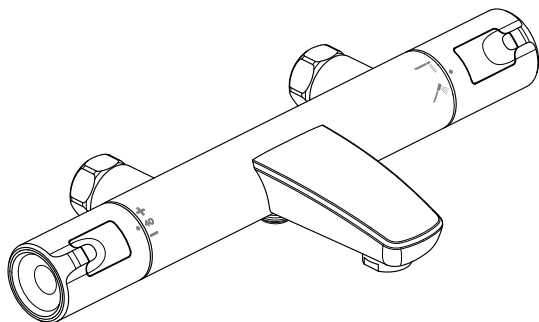
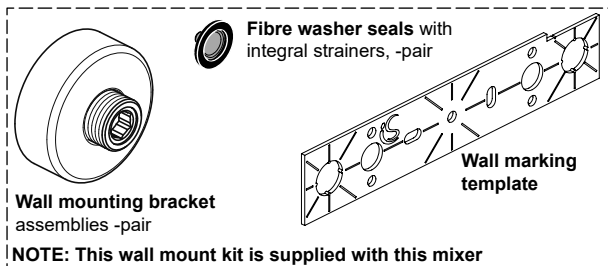
Shower mixer dual pack with overhead Rain shower & Hand spray, supplied with both **A7225AA A7227AA**.

Includes: Idealrain M1 Ø200 rain shower plate, Idealrain Evo shower kit with three function handset with Ø110 handspray, 1750 hose, 1100 overhead riser rail, a mounting bracket, & sliding bracket for rail.

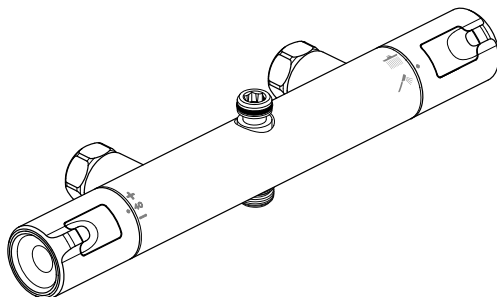
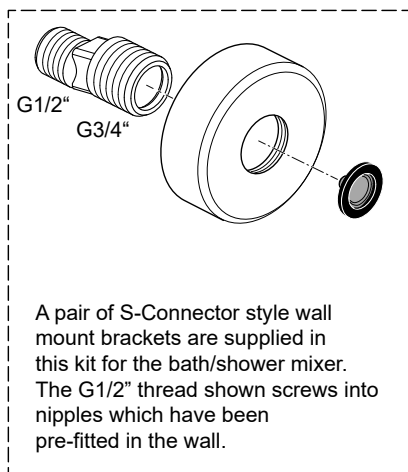
NOTE: Shower kits have to be carefully assembled during installation, chrome parts are packaged individually to prevent damage.

The shower kits shown are supplied with their own fitting instructions.

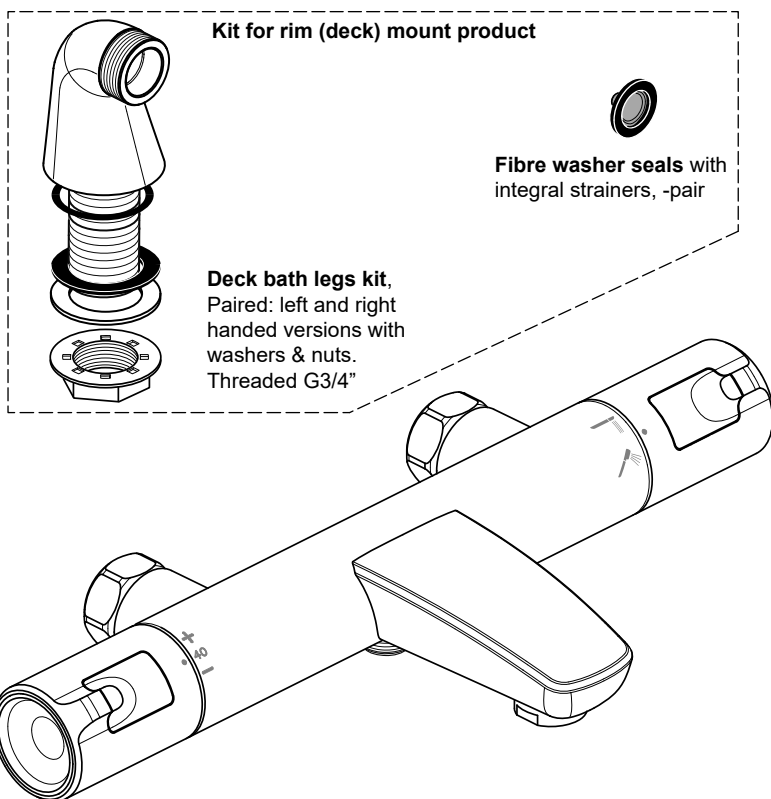
2.2 Wall mount mixers A7697AA & A7225AA



Wall bath/shower mixer shown without wall mounting brackets assembled. Mixer supplied with **A7697AA** product. Right side handle controls flow & diverts between bath fill & shower hand set. Note: **A7224AA** is supplied without a shower kit.



Shower valve shown without wall mounting brackets assembled. Mixer supplied with **A7225AA**. Right side handle controls flow & diverts between dual shower outlets. Product is supplied with the dual shower pack shown on the previous page.



Deck bath/shower mixer shown without deck mounting legs assembled. Supplied only with **A7224AA** product. Right side handle controls flow & diverts between bath fill & shower hand set. Product is supplied without a shower kit.

Precaution



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

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

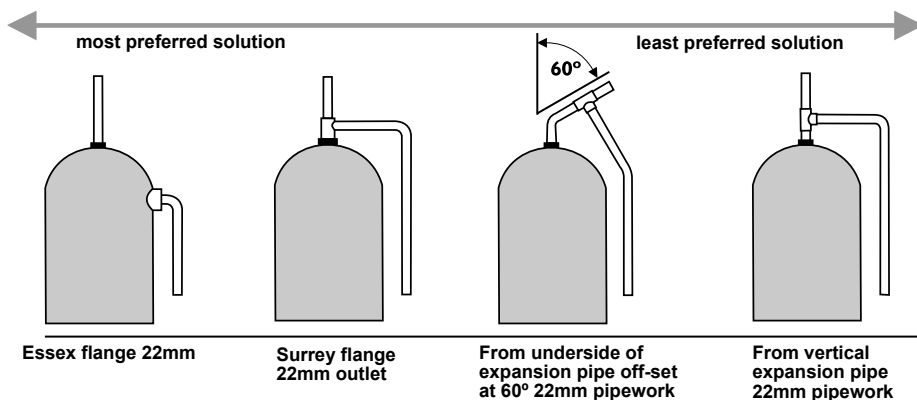
WATER REGULATIONS

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 1.0 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.

Valve designation Type 2

In accordance with BSEN1111 these products: A7216AA, A7221AA, A7225AA and A7227AA have Type 2 approval for the following applications: High-Pressure HP-S (showers)

4 WATER SUPPLY CONDITIONS

Introduction

These thermostatic shower mixers are manufactured to the highest standards. The mixer is intended to be installed on high pressure systems (1.0 bar or greater). The mixer has safety features such as cool body technology and temperature limit stop. To make installation easier, fast fix wall mounts are supplied. Ø15mm water supply pipes should be installed at 150mm horizontal centres in the wall, behind a shower panel or tiled duct wall.

Table 1 Conditions of use

	BSEN1111
Operating pressure range:	High Pressure
Maximum static pressure	10 bar
Flow pressure hot and cold	1.0 to 5.0 bar
Hot supply temperature	55 to 65 °C
Cold supply temperature	5 to 20 °C max

When installed in healthcare establishments the supply conditions detailed in Table 1 must be observed and the commissioning and servicing requirements detailed on section 10 & 11 must be followed. For other installations this is not a requirement.

Note:

Fittings operating outside these conditions cannot be guaranteed by the scheme to operate as **Type 2**.

MODULATING COMBI BOILER

This thermostatic bath shower mixer is 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.

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.



↑
**flow direction
through
flow regulator**

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 below the bath to permit future maintenance of this product, **see sect 23**. These should be fitted as close as practicable to the water supply inlets of the mixer & in an easily accessible location.
- The mixers include mesh filters (strainer-washers) and check valves are fitted inside the inlets of these products, **see section 20**.

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 it's 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.

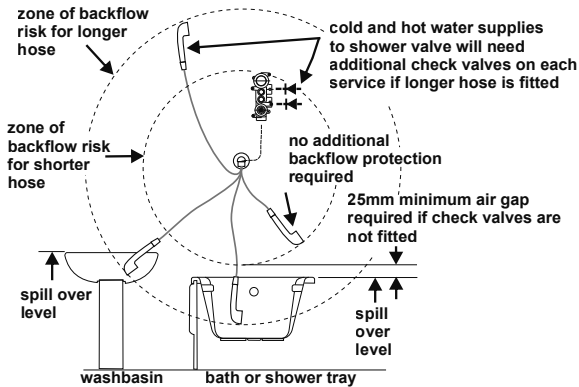


Fig. 3 Backflow risk from a fluid category 3

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 it's 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.

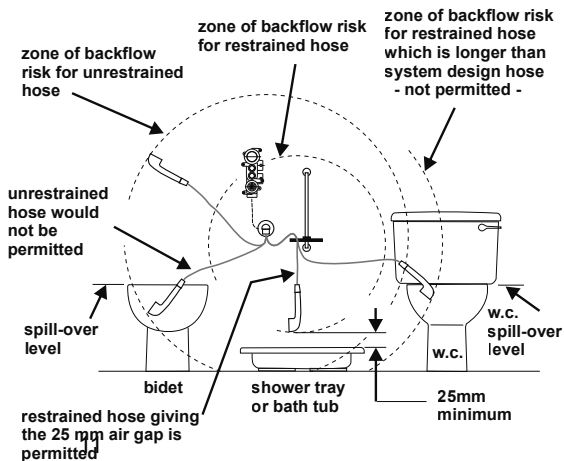


Fig. 4 Backflow risk from a fluid category 5

6 PRE-INSTALLATION NOTES



The 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 T25 is an exposed two hole thermostatically controlled shower mixer. This product is designed to provide water from ambient cold up to a safe maximum temperature for bathing.

Mounting options. Product are supplied with either a pair of wall mount escutcheons or a pair of bath legs. Mixer is intended to be installed on a wall (or panel arrangement), or on a bath rim.

Flow regulation. There are no flow regulators fitted inside these products.

Mesh filters (strainers) integral to the inlet seals are intended to protect the check valves from water borne debris. These are fitted inside the inlets of the product, **see section 20**.

Thermostatic cartridge. Additional mesh filters (strainers) are fitted to the thermostatic cartridge to protect it from water borne debris, **see section 17**.

Product dimensions. Check the dimensions shown in **section 1**, ensuring the mixer will fit on the intended bath. Plan position of proposed shower kit.

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

Bath holes for rim (deck) mount products. The two holes in the bath should be in a suitable location, drilled Ø30 (Ø35 max) at 180 centres. Allow sufficient space around the mixer to permit easy operation of the handles & facilitate easy cleaning

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. **NOTE:** service valves are not supplied with these products, **see section 24**.

Shower Kit. The flexible shower hose from the shower kit can be screwed onto the G1/2" shower outlet nipple located on the underside of the mixer body. Ensure adequate steps are taken to secure the shower hand set and the arrangements comply with water regulations.

Shower hose retainer. Both products are supplied with a bracket to restrain the flexible shower hose & prevent the hand shower head from falling into appliances such as the bath tub or shower tray. The hose can be restrained by a bracket on the shower riser rail or separate wall bracket.

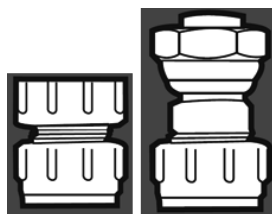
Mixer Controls. The mixers have dual control handles, the left handle allows temperature adjustment of the water. The right handle permits flow control of the mixed water. For A7209AA, the right handle also diverts water between the overhead shower & the shower hand set. The two bath fill & shower mixers have diverter control in the bath spout allowing user to direct mixed water between bath fill & shower outlet, **see section 8**.

Water Supply Pipes. Both hot & cold water supply pipes should be securely attached to a wall (or floor) using suitable fixing clips. Supply pipes must Ø15 or Ø22 for the rim (deck) mount products. The wall mount brackets accept only Ø15 pipes. **Note:** Hot water supply should be connected to the left inlet of the mixer (viewed from the front).

Pipe Connectors. For rim (deck) mount products, the installer will need a pair of suitable straight tap connectors threaded G3/4" female (fixed or swivel). These are available from all good plumbers' merchants (not supplied with these products).

Plastic Supply Pipes

The material of the water supply pipes can be either copper or plastic. For details about using plastic supply pipes see last section at the end of this booklet

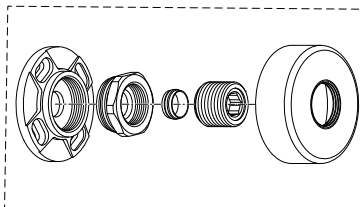


7 INSTALLATION

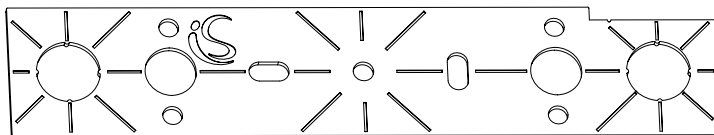


IMPORTANT
BEFORE CONNECTION, FLUSH WATER
THROUGH PIPEWORK TO REMOVE
ALL DEBRIS ETC. WHICH COULD DAM-
AGE THE VALVE MECHANISM

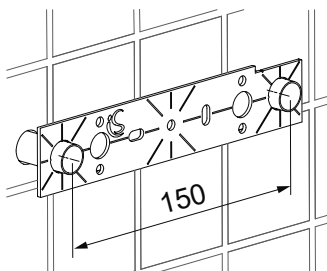
7.1 Wall mount mixers A7216AA A7221AA A7227AA A7697AA



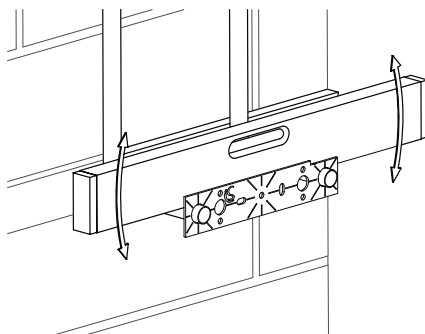
Pair of wall brackets
with connectors &
escutcheons



Template x1

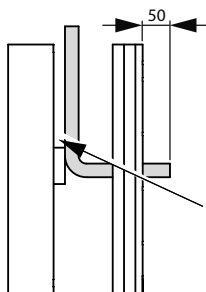


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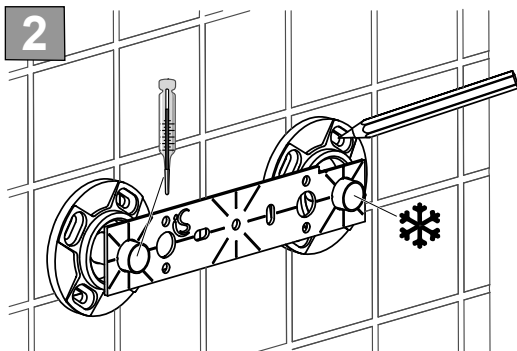
Ø15mm copper supply pipes should be run within the wall cavity.
Hot supply pipe should be on the left hand side and the cold on the right.

Ensure that the hot and cold pipes are positioned 150mm apart and are level.
Use the template provided to obtain the correct spacing.



We recommend leaving 50mm of pipe protruding at this stage.

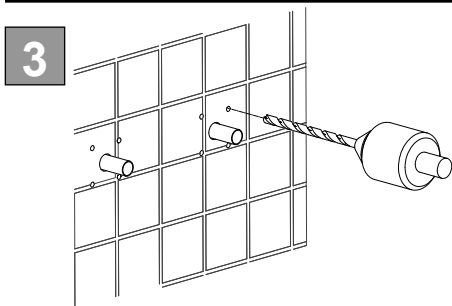
Pipework should be supported in the cavity



Place the brackets over the exposed pipes and use the template provided to position them 150mm apart.

Mark the hole positions for the fixings onto the mounting surface.

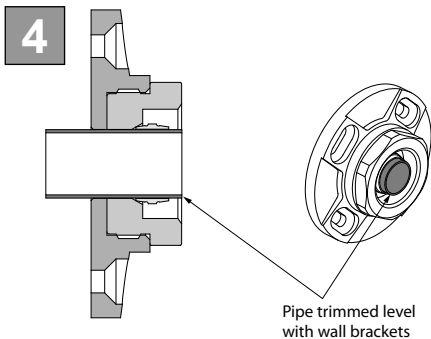
Ensure that the positions of the holes will not result in damage to the pipework inside the wall cavity during drilling.



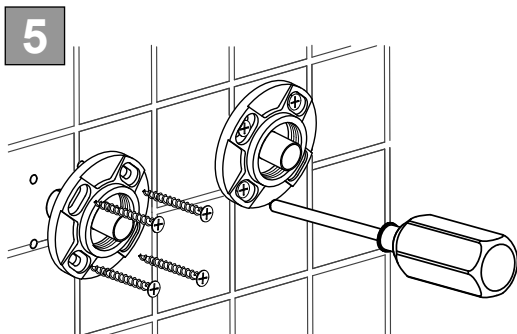
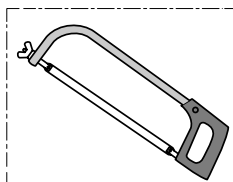
Drill holes appropriate for your choice of fixings into the wall.

We recommend a minimum of two fixings per bracket diametrically opposed.

Drill carefully to avoid damaging concealed pipework.



The pipes should be trimmed level to the wall bracket. If using a pipe cutter it will be necessary to mark the pipes and then remove the bracket before trimming to its correct length.



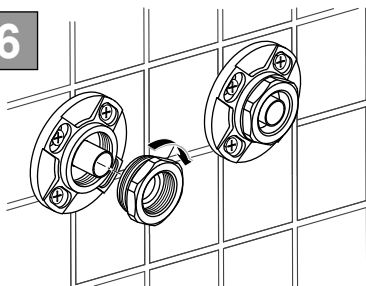
Apply a smear of silicone sealant to the rear of the assembled brackets and push them over the pipework.

Screw both brackets to the wall.

The template can be used to check that the correct pipe spacing of 150mm has been maintained.

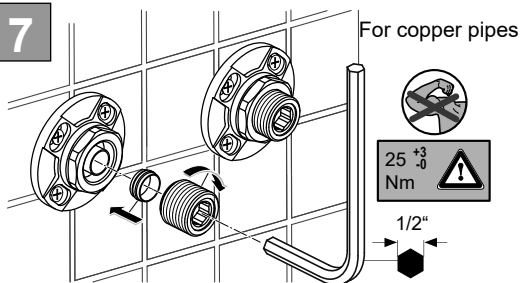
Clean off excess sealant and flush the pipes to remove any trapped debris.

6



Screw the brass adaptors over the pipes into the plastic brackets. 36mm A/F Spanner flats are provided, hand tightness is adequate.

7



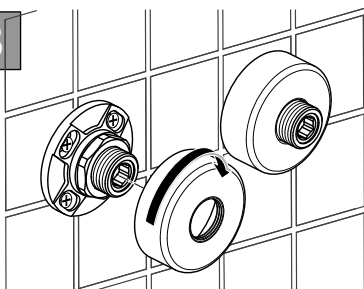
For copper pipes

Fit the olives to the pipes prior to screwing the two 3/4" connectors into the wall mount plate using a 1/2" allen key. The connectors will have to be securely screwed in to form the necessary compression joint between the olive, wall plate and connector.

Retain the brass adaptors with a spanner when making the compression joints.

NOTE FOR IRELAND: 15mm olives are supplied with this product. Use 1/2" olives if 1/2" supply pipes are fitted.

8

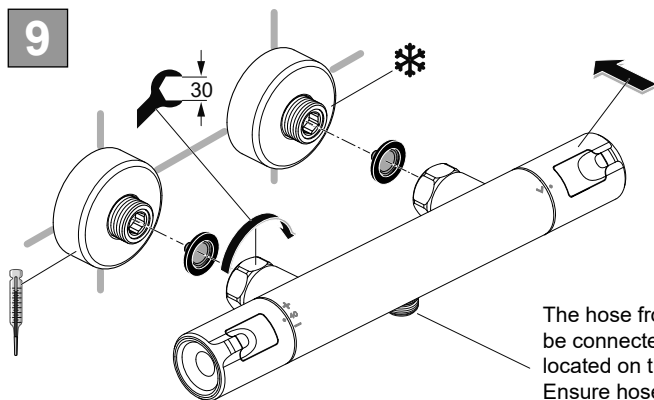


When the sealant has set, fit the covers by screwing them onto the adaptors until they are flush with the wall.

The covers only need to be hand tight.

9

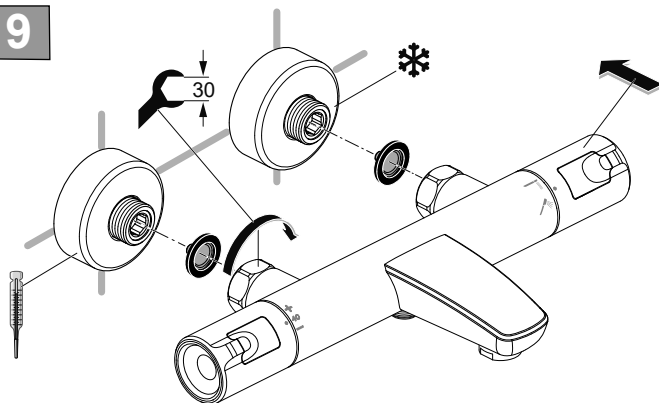
A7216AA A7221AA A7227AA



Assemble the shower valve to the adaptors remembering to ensure that the sealing washers or filters are inserted between the adaptors and the shower valve inlets.

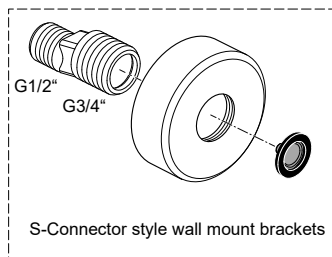
The hose from the shower kit should be connected to the shower outlet located on the underside mixer body. Ensure hose seal is in place.

Turn on the water supplies, ensure that there are no leaks. The mixer installation is complete. The shower kits are supplied with their own fitting instructions, next step is to position & install the appropriate shower kit.

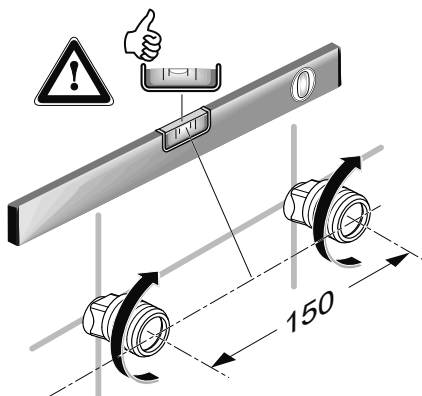


As with the bar shower mixer, the wall mounted bath/shower mixer is assembled to the wall brackets in the same way to complete the installation.

7.2 Wall mount mixer with S-connectors A7225AA



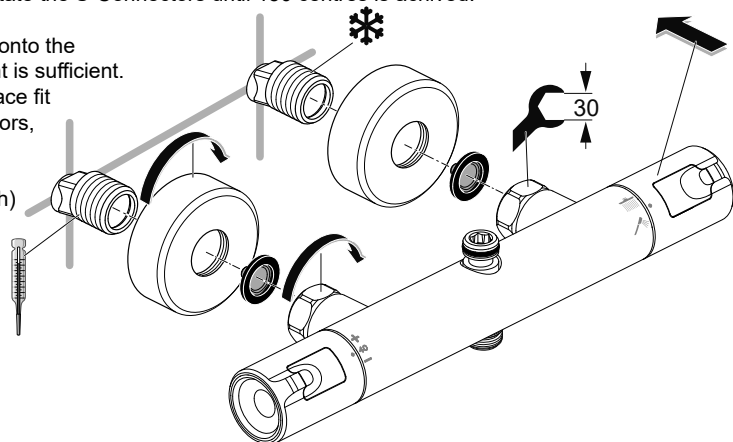
Pre-installation: Pipework should be run in or behind the solid wall, terminating with G1/2" female nipples securely fastened at 150 centres.

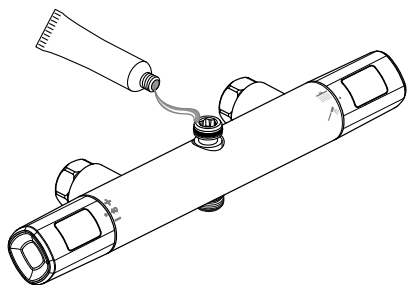


To achieve a seal, apply PTFE tape (suitable for water) to the G1/2" threads of the S-connectors. Screw the S-Connectors into the nipples as shown, Use a spanner on the square flats if necessary.

As shown in the section 1, the S-connectors are offset, allowing connection to nipples fitted at centres between 137 to 163. Rotate the S-Connectors until 150 centres is achieved.

Screw the escutcheons onto the S-Connectors, hand tight is sufficient. Ensuring seals are in place fit the mixer to the connectors, hand tighten the captive nuts. Then use a 30 spanner (or strap wrench) to make a good seal.

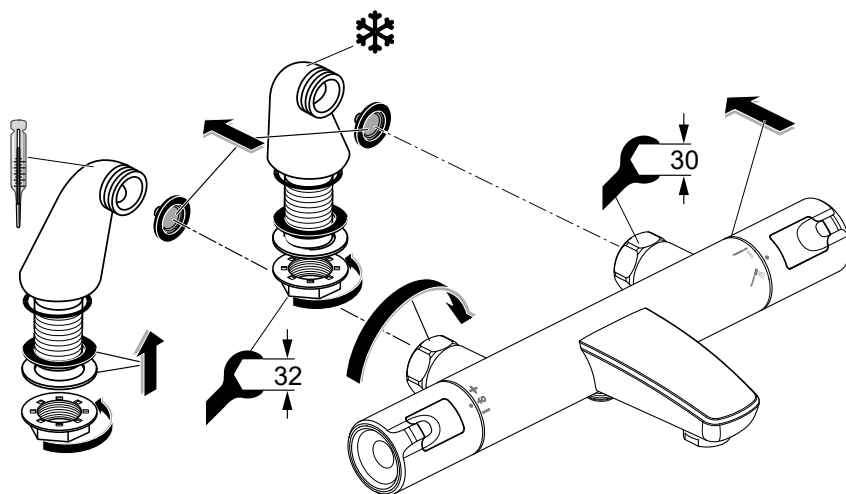




Note: the mixers supplied with A7225AA & A7227AA are fitted with an additional outlet nipple on the top surface to connect the over head shower plate.

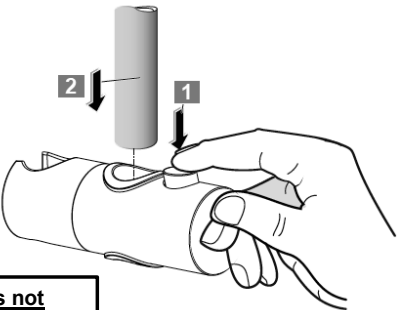
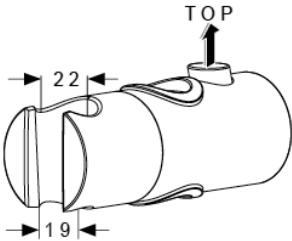
Smear a small amount of approved sili-cone grease onto the O-ring fitted on the nipple. This will help to prevent damage to the O-ring during assembly.

7.3 Deck mount mixer A7224AA

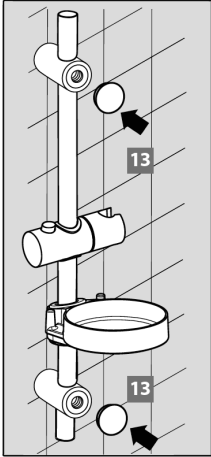
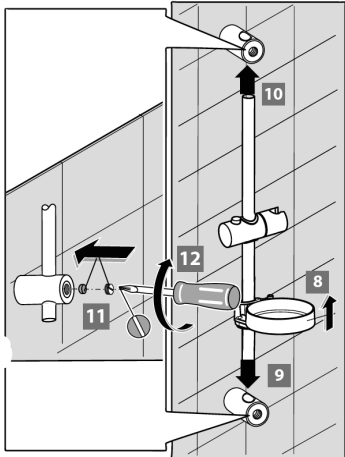
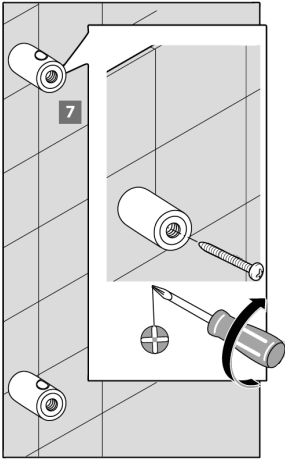
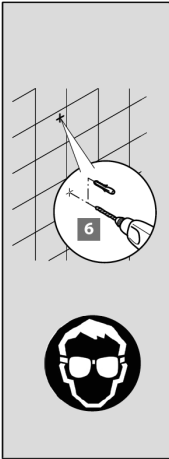
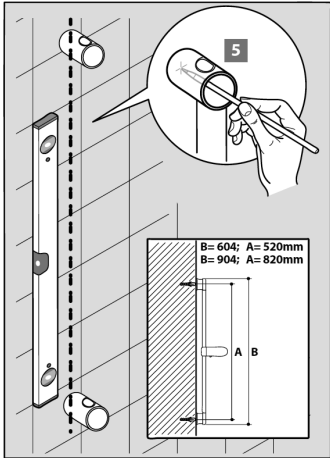
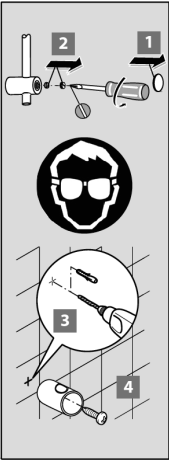


- Loosely assemble both of the bath legs to the main body of the mixer, ensuring the fibre-mesh seals shown are located within the captive nuts. Hand tighten both captive nuts sufficiently to hold the assembly securely together. NOTE, the bath legs are handed left & right.
- Make sure that deck seals are located in the recesses in the bottom face of both bath legs. The back- nuts & washers will be fitted from the underside of the bath. If they are already assembled to the legs, they should be removed.
- Offer the tails of the legs into the two holes in the bath. Align the legs and gently lower the mixer onto the rim of the bath. IMPORTANT: make sure the deck seals are still correctly located in the recesses of the bath legs, otherwise splashed water may seep pass the legs and onto the floor under the bath.
- The back-nuts & washers can be fitted to the tails from under the bath. Keeping the tails central in the bath holes, check that the mixer is still positioned correctly on the bath rim, and then tighten the back- nuts. Use 32mm A/F spanner.
- The captive nuts connecting the mixer to the legs can also be tightened, use a strap wrench or 30mm A/F spanner, taking care not to damage the chromed surfaces.
- Connect the water supply pipes to the inlet tails of the mixer using straight tap connectors. Connect HOT supply pipe to the left inlet leg and COLD supply pipe to the right inlet leg.
- Check all joints are tight, turn on the water supplies and check for any water leaks.
- The hose from the shower kit should be connected to the shower outlet located on the underside of the mixer body. Ensure hose seal is in place.

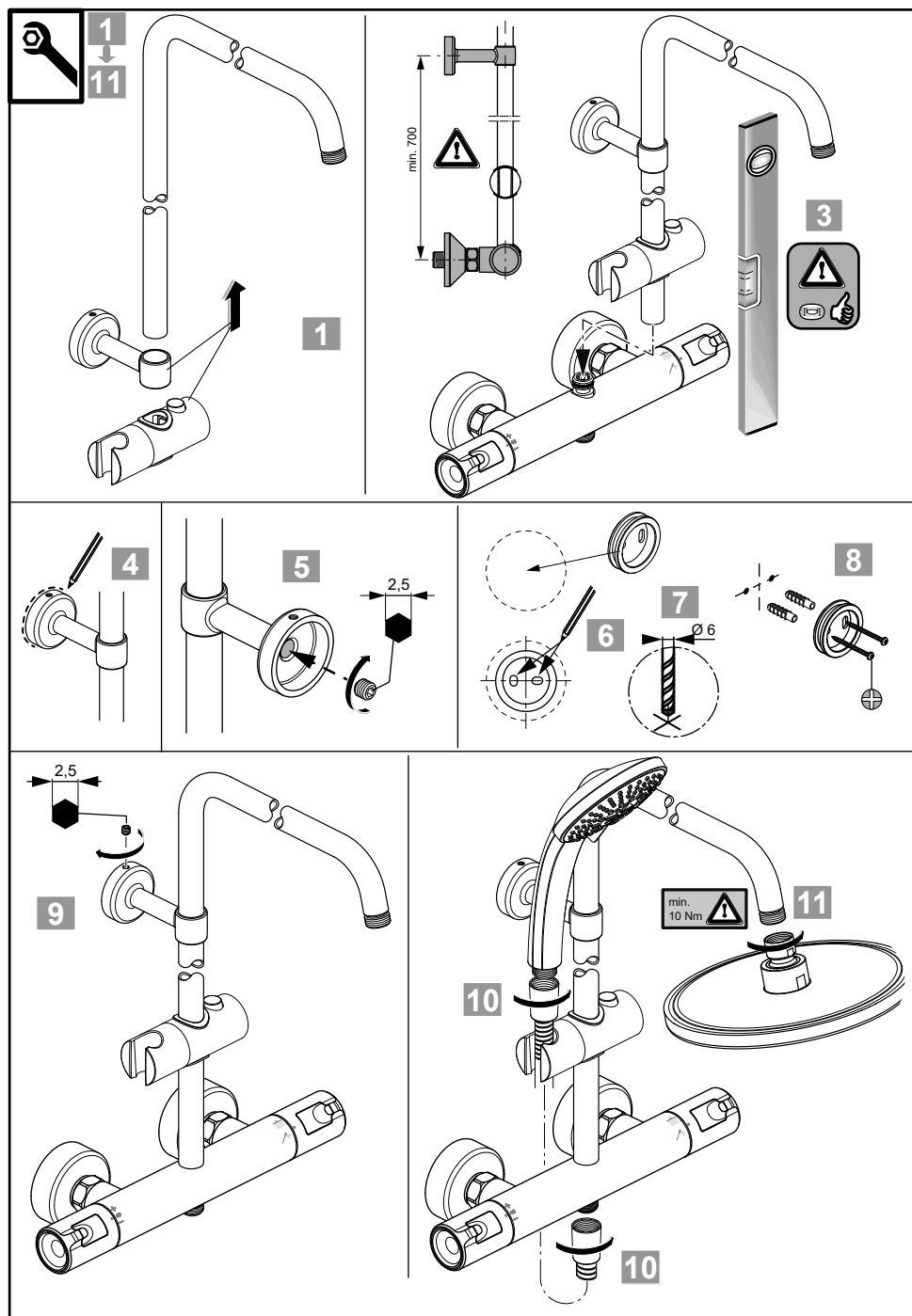
7.4 Quick overview of shower rail& slider installation A7221AA



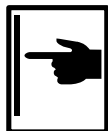
Soap tray/shelf shown below **is not** supplied with the Ceratherm T50 range



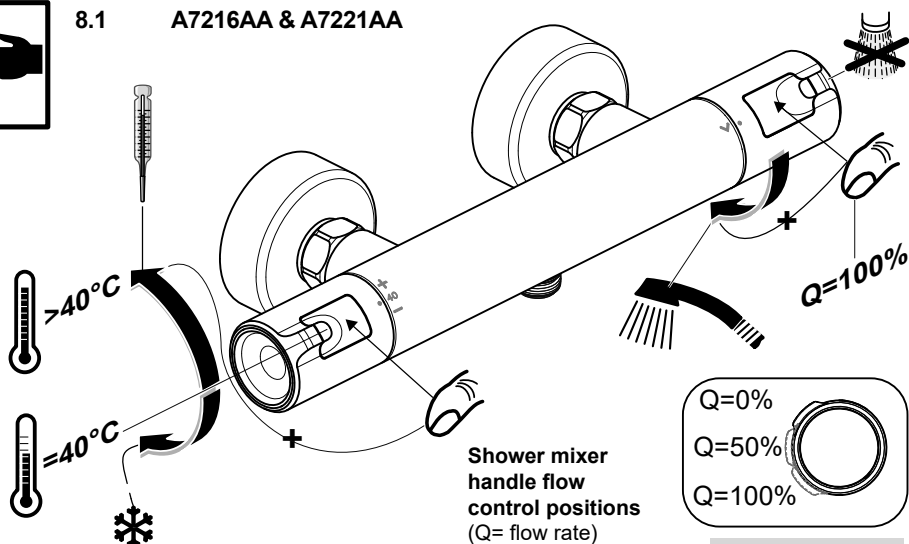
7.5 Quick guide of shower pack installation A7225AA & A7227AA



8 OPERATING PRODUCT

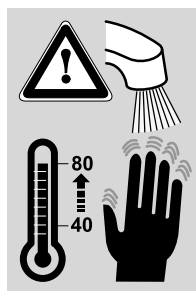


8.1 A7216AA & A7221AA



NOTE: the functionality of the temperature control handle is the same for all the products in the T50 range. The functionality of the flow control handle is the same for all products except A7225AA & A7227AA, which have integral flow control & diverter for dual shower outlets.

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



Right handle controls water flow rate (for diverter, see next page):

- This handle is shown above parked in the off position (giving no flow at this position).
- Rotating this handle downwards from the parked position commences water flow. By rotating the handle 90° from the off position the user will encounter economy flow “stop” delivering about 50% of the maximum flow rate achievable through this product.
- To obtain greater flow rate, press (& hold) the right button & rotate this handle further downwards. The handle will rotate a further 45° from the economy stop to the maximum flow.
- In this case, water will be discharged to the shower handset.

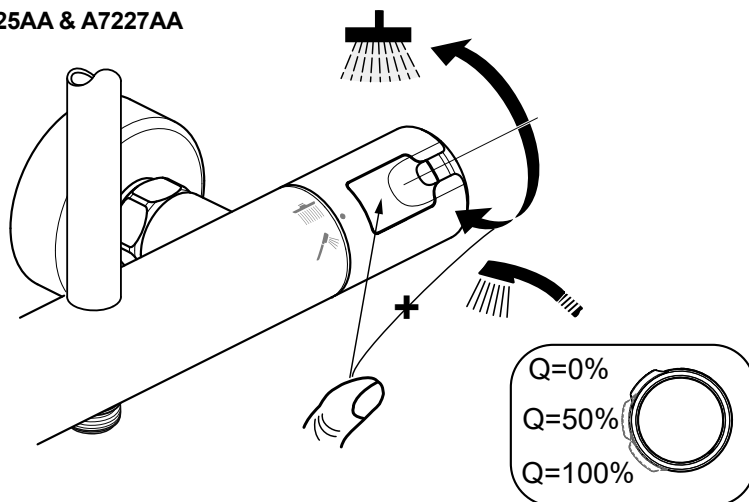
Left handle controls water temperature

- This handle is shown above parked in the 40°C temperature “stop” position.
- At this temperature “stop” position mixed water is delivered up-to about 40°C.
- To obtain cooler water rotate handle downwards from the parked position.
- To obtain higher water temperature, press the left handle pin (& hold) & then rotate this handle upwards from the parked position.

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.

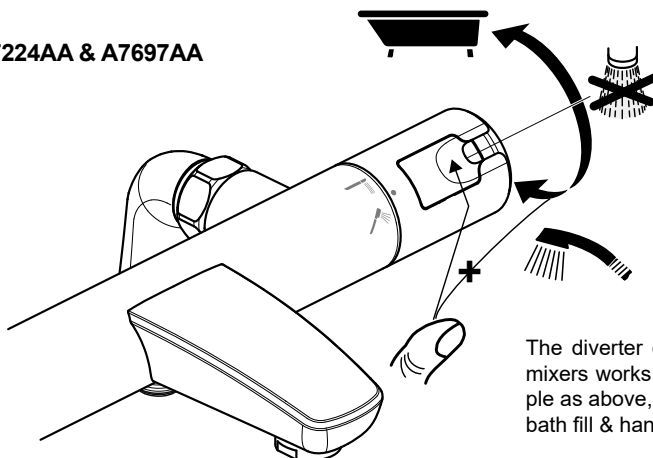
8.2 A7225AA & A7227AA



Right handle controls the 3 function diverter

- This handle is shown above parked in the off position (giving no flow at this position).
- Rotating this handle downwards from the parked position, commences water flow & will direct water to the bottom outlet of the mixer. Thus activating the shower hand set only.
- By rotating the handle 45° from the off position the user will encounter economy flow “stop” delivering about 50% of the maximum flow rate achievable through this product.
- To obtain greater flow rate, press (& hold) the right button & rotate this handle further downwards. The handle will rotate further to the maximum flow stop.
- Rotating this handle upwards from the parked position, commences water flow & will direct water to the top outlet. This will activate the large overhead shower plate.
- At each position the user can feel a soft click to indicate position. Total handle rotation is about 180°.
- The diverter permits one outlet to be opened at any one time, simultaneously closing the second outlet.

8.3 A7224AA & A7697AA

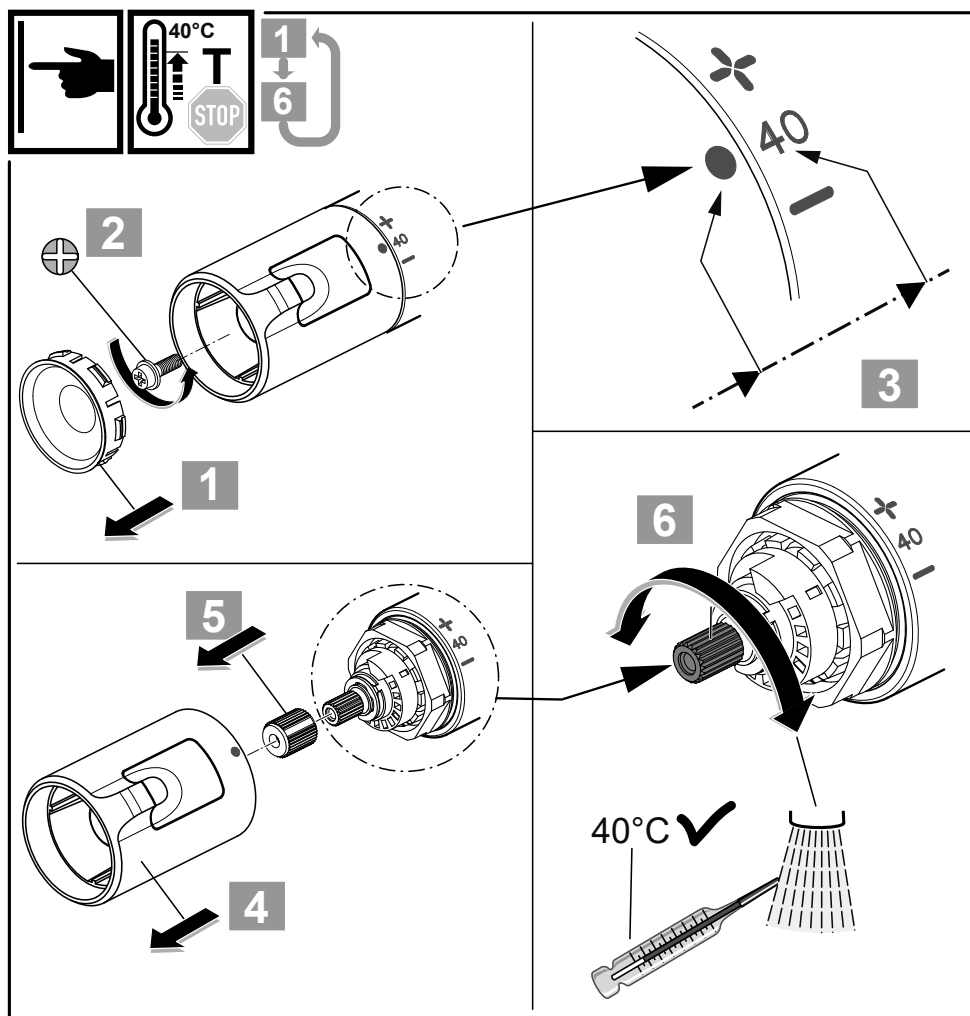


The diverter on the bath shower mixers works on the same principle as above, but diverts between bath fill & hand shower outlets.

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

9 TEMPERATURE ADJUSTMENT

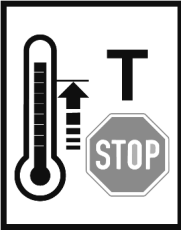
If the mixer is not discharging 40°C water when the temperature handle is parked & aligned with the body, then (if desired) this can be adjusted as follows:



- 1-2. First remove the temperature control handle (left side) as detailed in section 16, **steps 1 to 3**.
3. Before sliding the handle off, ensure the dot on the handle is inline with the 40 marker on the mixer.
4. Slide the handle off the spindle.
5. Slide off the plastic bush from the drive spindle.
6. Turn on the mixer, position a thermometer in the running water. When the temperature settles, rotate the drive spindle of the thermostat until 40°C is achieved.

Without disturbing the drive spindle position, refit the bush & handle. Ensure dot is aligned to the 40 marker.

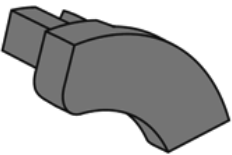
9.1 **Adjustment of maximum temperature-stop**



The thermostatic cartridge is fitted with a maximum temperature-stop insert shown here.

The function of this “stop” is to prevent the mixer from delivering excessively hot water when the temperature handle is rotated to the maximum.

This safety feature promotes safe bathing for the user & could preventing scalding.



P 0,3 MPa 3 bar	63°C	13°C

The following illustrations show the various positions into which the temperature-stop can be fitted.

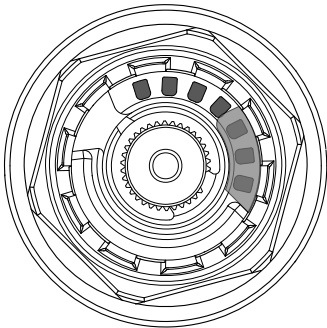
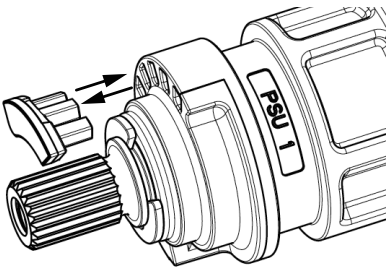
The temperatures stated below are based on measurements taken from a mixer which was supplied with both water supplies at 3 bar pressure. The hot supply was 63°C & the cold supply was 13°C.

IMPORTANT: The temperatures stated will vary depending on local water pressures and temperatures. Once a suitable position for the “stop” has been selected, it should be checked & verified.

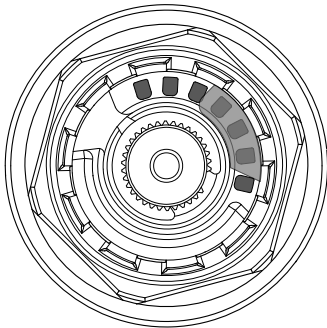
As described in the previous section, remove the temperature handle to expose the thermostatic valve.

The temperature-stop can be prised out of the face of the thermostatic cartridge, then indexed (or rotated) into the desired position & refitted back into the front face of the cartridge, by aligning the three lugs into slots & pressing firmly.

After completing the temperature-stop adjustment, refit the handle.



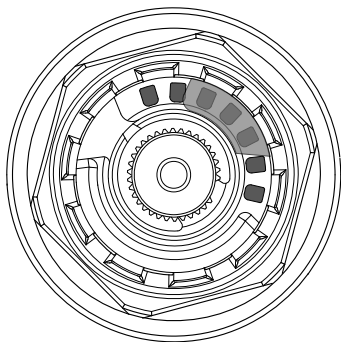
Position-1 approx. 40°C



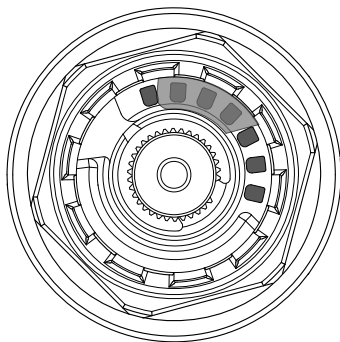
Position-2 approx. 41°C

The above “end views” of the cartridge show positions 1 & 2, which are recommended positions for safe bathing. Rotating the temperature-stop anticlockwise increases the outlet temperature from the mixer. The mixer is supplied from the factory with the temperature stop in position-5.

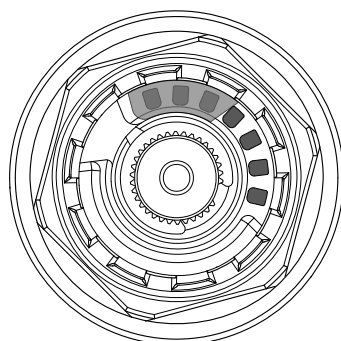
REMEMBER: The achievable temperature depends on local water supply conditions.



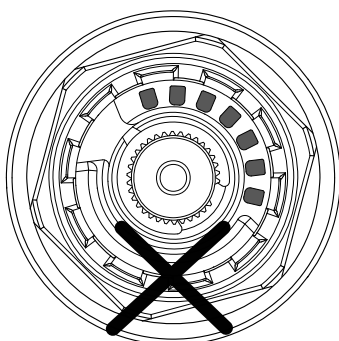
Position-3 approx. 43°C



Position-4 approx. 45°C



Position-5 approx. 48°C.
Factory set position.



No temperature-stop fitted gives full hot supply temperature, upwards of 65°C. NOT RECOMMENDED!

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

Use the temperatures shown above as a guide to select a suitable position for the temperature-stop.

WARNING: Do not discard or remove the temperature-stop completely.



10 COMMISSIONING & PERIODIC CHECKS

“Wear in” process at commissioning and installation.

During commissioning of the product, to promote best performance of the CWI test it is recommended to exercise the thermostatic cartridge operation as follows:

- 1) Ensure hot and cold-water supplies are correct in terms of temperature and pressure.
- 2) Fully rotate the temperature handle from cold to max temperature - repeat this operation 20 to 30 times.

This will allow the cartridge to be fully lubricated after long periods of storage”.

•A7216AA •A7221AA •A7227AA •A7697AA. 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 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

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

11 FREQUENCY OF REGULAR SERVICING

•A7216AA •A7221AA •A7227AA •A7697AA. 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 one of the outlets (bath fill or shower).

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 45°C. 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.

12 COLD WATER ISOLATION (CWI) TEST

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

Prior to CWI test:

- Make sure that the temperature handle is aligned in the 40°C position.
- Make sure the supply temperatures are within the ranges 55 to 65°C for hot, & 5 to 20°C for cold.
- Unscrew the shower hand set from the flexible hose, & direct the water to be discharged into a suitable vessel.

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 button should be positioned at the 40°C nominal stop (parked).
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 isolating valves are fully open. Refit the shower handset to the flexible hose upon completion of the test.

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.

13 MAINTENANCE NOTES

The fitting of isolation valves and strainers is required as close as is practicable to the water supply inlets of the thermostatic 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 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.

14 DISASSEMBLY SEQUENCE OF MAINTENANCE



Disassembling sequence to access cartridges & demount the mixer:

1. Isolate both HOT & COLD water supplies first. Use inline service valves if fitted.
2. Fully open the flow or diverter handle, to confirm water is switched off. Unscrew the shower hose from the underside of the mixer. 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 handles first.
See section 16.
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.

General advice:

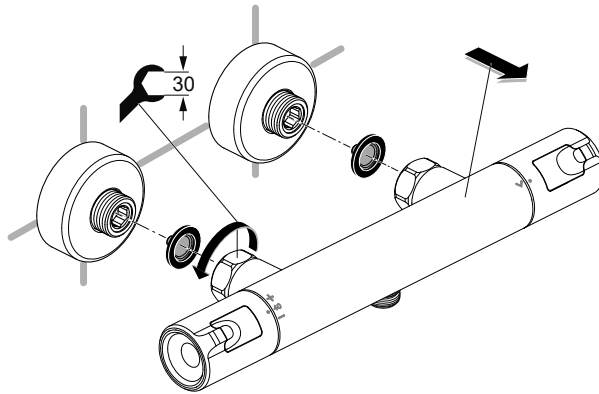
1. Use correct size tools. Avoid damaging chromed surfaces, use a strap wrench if possible.
2. When unscrewing cartridges or demounting the mixer, expect some trapped water to escape from within the mixer body.
3. Wash all parts (strainer meshes etc....) in clean water before re-assembly.
4. Observe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

15 DEMOUNTING THE MIXER FOR DISINFECTION



In response to the new requirements of HTM 04-01 Addendum, the design of this product permits easy demounting of the mixer from the inlets.

This design permits quick & easy removal of the mixer for cleaning, disinfection and maintenance purposes.



Method for demounting mixer:

1. Observe disassembling sequence, as detailed in **section 14, steps 1 & 2**.
 2. Remove the overhead shower assembly, if fitted (A7225AA & A7227AA).
 3. Undo the two coupling nuts located at the rear of the mixer (see fig above). Take care not to lose the two sealing /strainer washers.
 4. Lift the mixer body off from the wall mount brackets, by gently pulling away as shown.
 5. The mixer body can be further dismantled for cleaning protocols. Do not leave the wall mount brackets or deck legs uncovered for long periods, protect from environmental contamination.
 6. To refit the mixer body; reverse this procedure. Tighten the nuts at the rear of the mixer securely.
- NOTE: Procedure is the same for the deck mount mixer.**

Avoid damaging the inlet seals. See sections 22 for replacement strainer washers.

Disinfection method

Disinfection by full immersion in an appropriate bactericidal solution is recommended for this assembly. Prior to immersion, the mixer body should be clean and dismantled to a level that prevents air locking.

The level of dismantling should be established as a result of practice and will be largely dependent upon the water quality and service life. As a minimum we recommend removal both handles, thermostatic cartridge & flow-control (or diverter) cartridge. Cleaning the cartridge strainer screens is important. All components can be immersed together unassembled.

Disinfected mixers should be promptly replaced or stored using an appropriate method until required.

Disinfection frequency

The frequency of such disinfection actions will be derived from regular sampling carried out under the regime of the Responsible Person (Water). We would not expect to need greater than 6 monthly frequencies, hopefully considerably less.

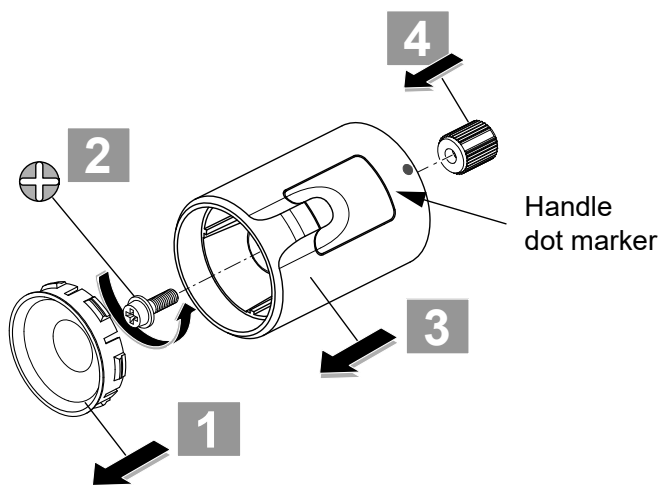
The need for excessive use of this procedure would be indicative of the need for some root cause analysis as there could be some system or behavioural problems that need addressing.

Recommended Disinfection Solutions

For immersion we recommend the use of a 70% Ethanol solution for 10 minutes.

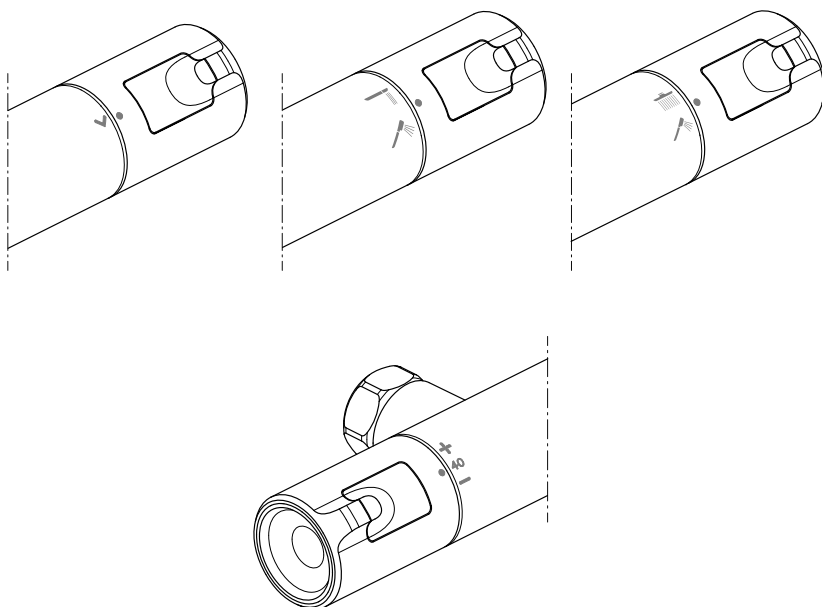
NB: counter intuitively, **greater than recommended concentrations are less effective** not more effective; take care to get the recommended concentration in line with the manufactures recommendation. **DO NOT USE SOLUTIONS CONTAINING AMMONIA.**

16 HANDLE REMOVAL FOR CARTRIDGE ACCESS

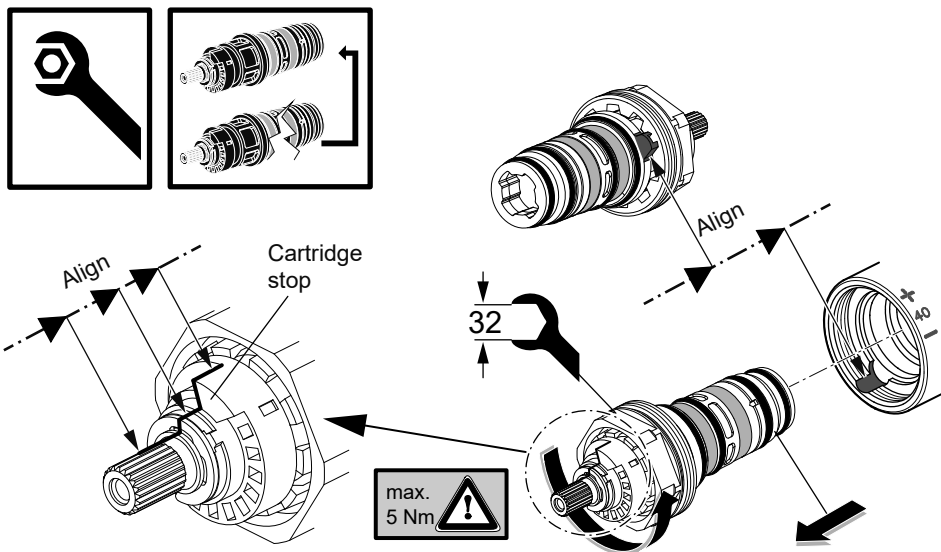


To gain access to either the thermostatic, flow or diverter cartridges, it will be necessary to remove the appropriate handle.

1. Carefully prise out the chrome end cap fitted to the handle. Look for a small notch in the handle, then use a sharp blade to lever the cap out, taking care not to damage the chromed surfaces.
2. Undo the handle retaining screw using a Phillips screw driver.
3. Carefully slide the handle off from the cartridge drive spindle.
4. Slide off the plastic bush from the drive spindle.
5. Undertake the necessary maintenance work, the reverse this sequence & refit the handles.
6. Align the handle marker dot(s) to the marking(s) on the mixer body, as shown below.



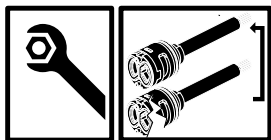
17 THERMOSTATIC CARTRIDGE REPLACEMENT



Use the following method to inspect or replace the thermostatic cartridge:

1. Observe the disassembling sequence, **see section 14, steps 1 to 3.**
2. Remove the temperature control handle (left side) as detailed in **section 16, steps 1 to 4.**
3. Using a 32mm spanner or socket, undo the large nut retaining the thermostatic cartridge.
The cartridge should now slide out of the mixer's bore. Note: the nut is captivated onto the cartridge & will rotate freely.
4. If necessary, replace the cartridge with a new one. Alternatively, if the cartridge is functioning correctly, clean it thoroughly & reuse it.
5. When fitting the cartridge into the bore, ensure the lug on the cartridge is orientated into the cut out in the mixer's bore, as illustration above.
6. Make sure the marking on the spline of the cartridge spindle is aligned with the edge of the „stop“ as illustration above. Correct the alignment if necessary.
7. With the cartridge located back in the mixer bore, screw the cartridge nut into the mixer body by hand & then tighten with a spanner or socket. Do not exceed 5 Nm torque.
8. Reverse the sequence to refit the drive bush & handle. Check & adjust the 40°C position as shown in **section 8.** Ensure correct alignment of the handle as detailed in **section 16.**

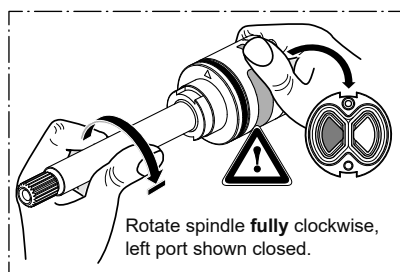
18 DIVERTER REPLACEMENT



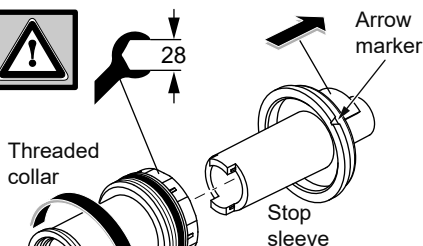
A7224AA, A7225AA, A7227AA & A7697AA

1. Observe disassembling sequence, as detailed in **section 14, steps 1 to 3.**
2. Remove the flow diverter handle (right side) as detailed in **section 16 steps 1 to 4.**
3. Slide off the stop sleeve.

4. Using a 28mm spanner or socket, undo the threaded collar & slide out. The diverter cartridge should now slide out of the mixer's bore complete with O-ring.
5. If necessary, replace the cartridge with a new one. Alternatively, if the cartridge is functioning correctly, clean it thoroughly & reuse it.
6. To refit, rotate the diverter cartridge spindle fully clockwise until it stops (overhead shower outlet fully open position). Looking at the cartridge from the underside, the left port should be closed as illustrated. Maintain this orientation of the diverter & slide it into the mixer body. Note: the two locator pins on the front face of the diverter cartridge are different sizes to prevent incorrect installation.

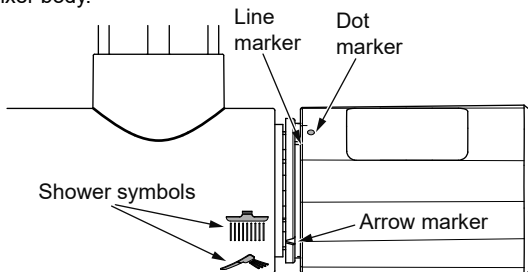
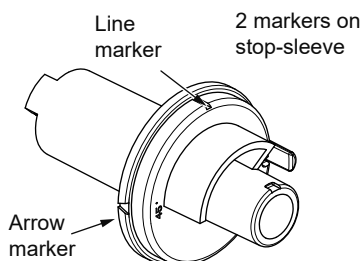


min. 4 Nm
max. 5 Nm



Ensure these locator pins are correctly located into the plastic moulding inside the mixer body. The diverter will then drop down to the correct depth.

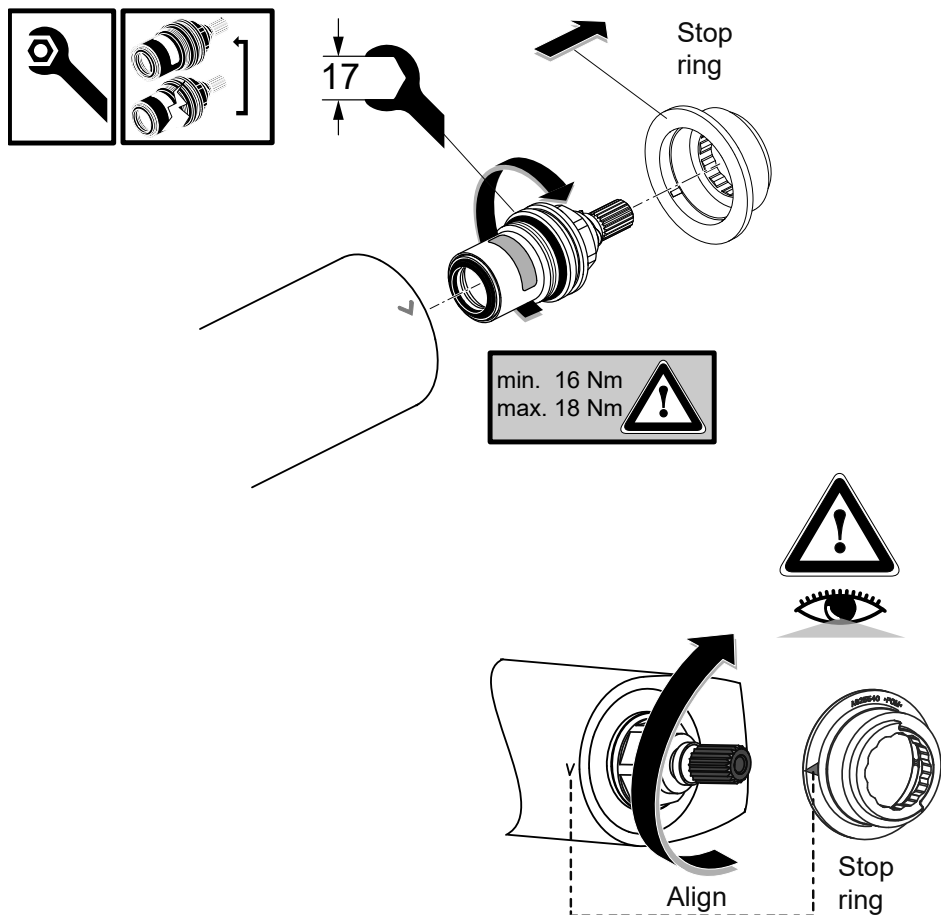
7. With the cartridge located back in the mixer bore, screw the threaded collar into the mixer body by hand first & then tighten with a spanner or socket. Ideally torque to 4Nm min to 5Nm max.
8. Refit the stop-sleeve. The front face is shaped to prevent incorrect installation. When correctly positioned, the arrow on the stop-sleeve will point between the two shower symbols on the mixer body.



IMPORTANT: Before engaging the handle onto the diverter drive spindle, refit the plastic drive insert then: Align the dot marker on the handle with the line marker on the stop-sleeve. Reverse the sequence to refit the handle

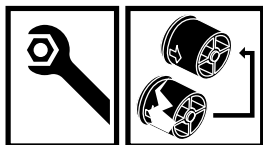
19 FLOW CARTRIDGE REPLACEMENT

A7216AA & A7221AA

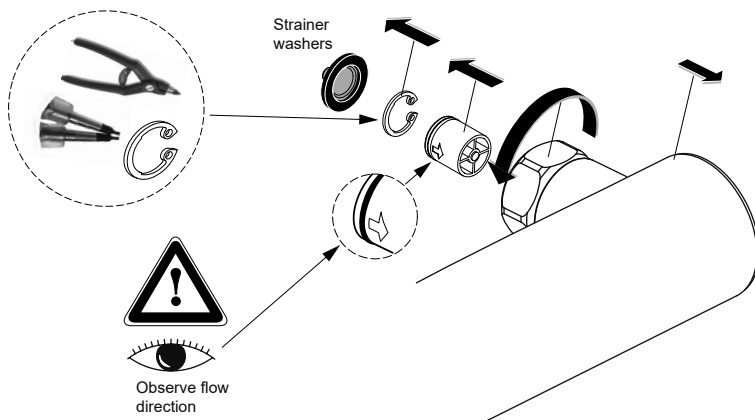


1. Observe disassembling sequence, as detailed in **section 14, steps 1 to 3.**
2. Remove the flow control handle (right side) as detailed in **section 16 steps 1 to 4.**
3. Slide off the stop ring.
4. Using a 17mm spanner or socket, undo the flow cartridge. The cartridge should now slide out of the mixer's bore.
4. If necessary, replace the cartridge with a new one. Alternatively, if the cartridge is functioning correctly, clean it thoroughly & reuse it.
5. With the cartridge located back in the mixer bore, screw the cartridge into the mixer body by hand & then tighten with a spanner or socket. Ideally torque to 16Nm min to 18Nm max.
6. Refit the stop ring as illustrated above. Align the marked arrow on the stop ring to the front top corner of the mixer body or use the marker on the square end cap as guidance.
7. Rotate the cartridge spindle fully clockwise until it stops.
8. Reverse the sequence to refit the handle, ensuring to refit the plastic drive insert onto the cartridge spindle. Check & adjust the off position as shown in **section 16.** Ensure correct alignment of the handle.

20 CHECK-VALVE REPLACEMENT



1. Demount the mixer body from the wall, as detailed in **section 15**, follow **steps 1 to 4**.
2. Locate the sealing washers (with integral strainers) from inside the mixer's inlet bores & keep them in a safe location.



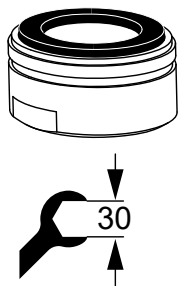
3. The check valves are housed inside the retaining inserts within the inlet bores. Look closely at the rear of the mixer body.
4. Note: circlips hold the check valves in position. Using circlip pliers, squeeze the circlip & lift it away from the bore.
5. Gently pull out the check valves: inspect & clean or replace if necessary. Observe the flow direction arrow on the body of the check valve as shown above. Refit the circlips.
6. To refit the mixer to the wall reverse this procedure (remember to fit the sealing washers).

NOTE: Procedure is the same for the deck mount products.

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.

21 CLEANING ANTISPLASH NOZZLE

A7224AA & A7697AA



On a regular basis the anti-splash nozzle on the bath mixer should be inspected and cleaned if necessary

In areas where lime scale build-up is prevalent this will have to be removed. An inhibited proprietary scale solvent can be used such a kettle descaling solvent but it is important to follow the manufacturer's guidelines. After descaling it is important to rinse the parts thoroughly in clean water. Clean carefully and do not use abrasive materials or scrapers.

To remove the outlet, use a 22mm spanner to unscrew it. Locate the spanner onto the two flats on the outlet diameter and unscrew (anti-clockwise). Remove the outlet complete with flat seal.

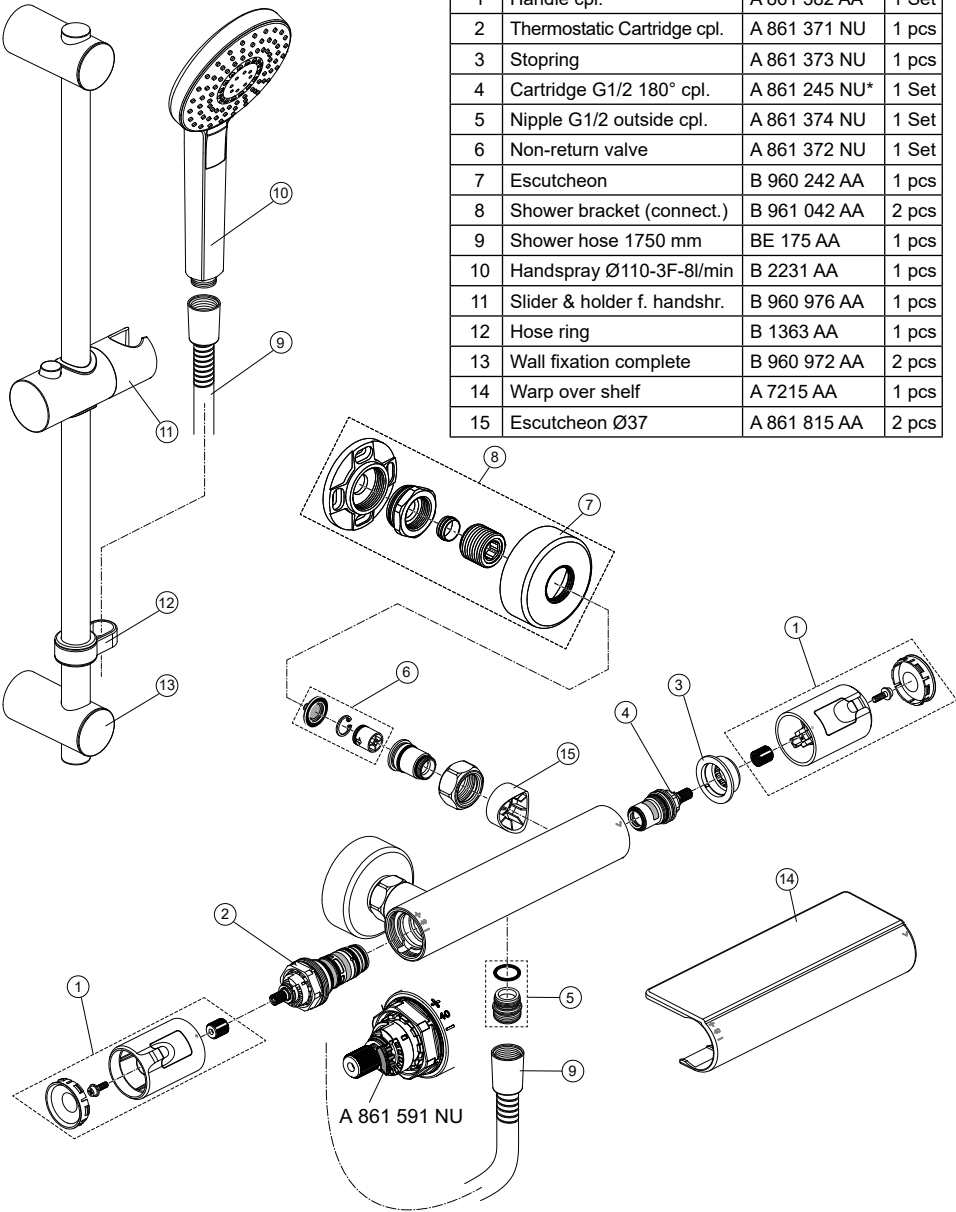
22 SPARE PARTS



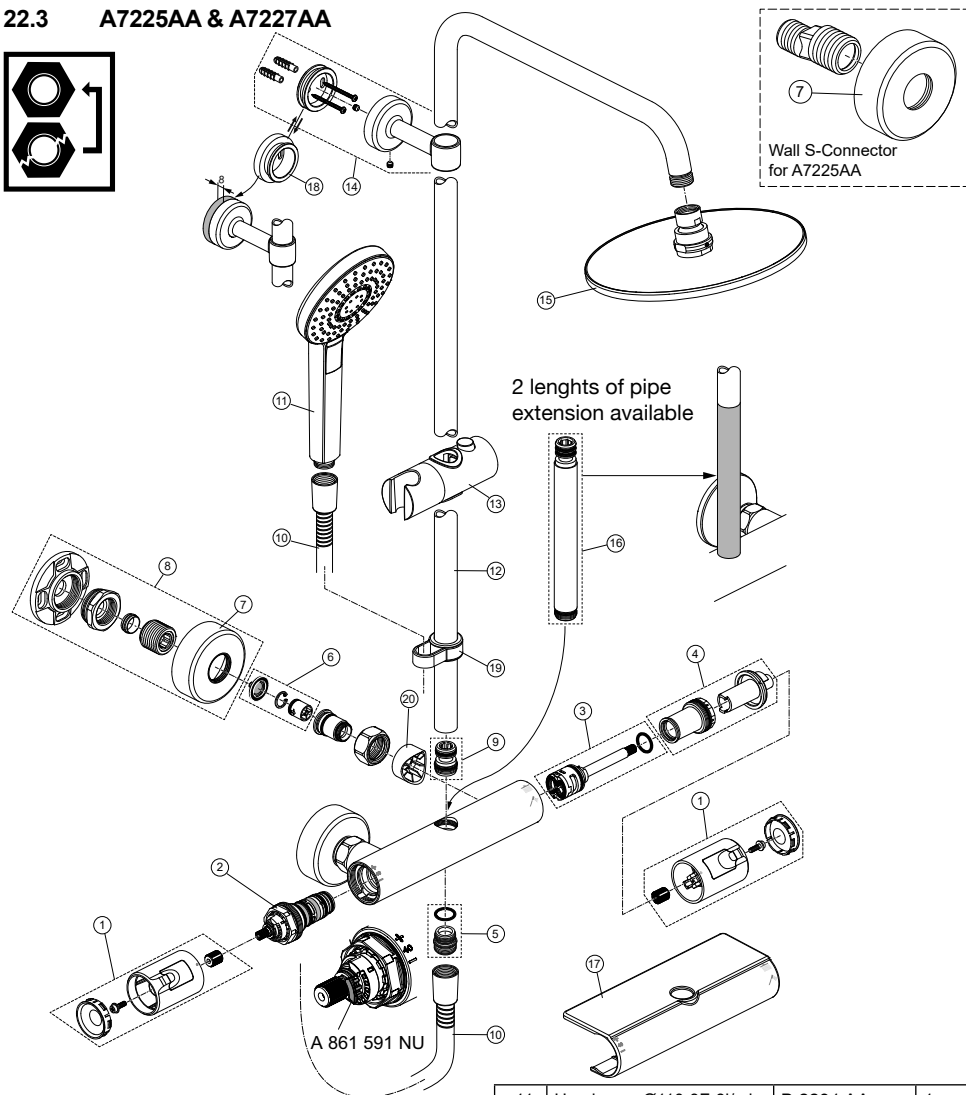
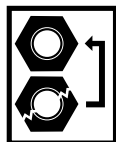
22.1 A7216AA & A7221AA

NOTE: shower kit spares relevant only to A7221AA, as A7216AA is not supplied with a shower kit

Pos.	Description	Part No.	Qty.
1	Handle cpl.	A 861 382 AA	1 Set
2	Thermostatic Cartridge cpl.	A 861 371 NU	1 pcs
3	Stopring	A 861 373 NU	1 pcs
4	Cartridge G1/2 180° cpl.	A 861 245 NU*	1 Set
5	Nipple G1/2 outside cpl.	A 861 374 NU	1 Set
6	Non-return valve	A 861 372 NU	1 Set
7	Escutcheon	B 960 242 AA	1 pcs
8	Shower bracket (connect.)	B 961 042 AA	2 pcs
9	Shower hose 1750 mm	BE 175 AA	1 pcs
10	Handspray Ø110-3F-8l/min	B 2231 AA	1 pcs
11	Slider & holder f. handshr.	B 960 976 AA	1 pcs
12	Hose ring	B 1363 AA	1 pcs
13	Wall fixation complete	B 960 972 AA	2 pcs
14	Warp over shelf	A 7215 AA	1 pcs
15	Escutcheon Ø37	A 861 815 AA	2 pcs



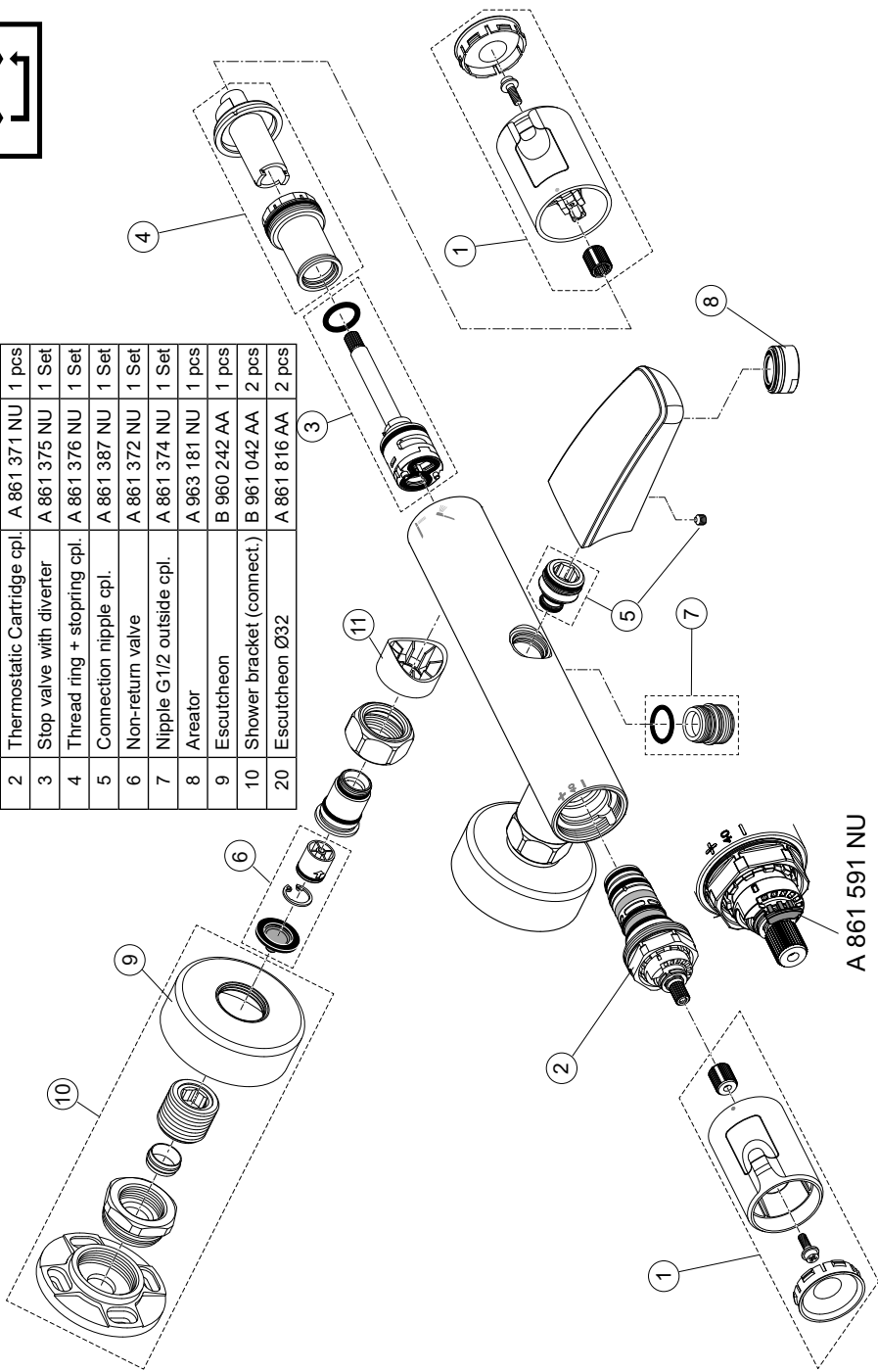
22.3 A7225AA & A7227AA



Pos.	Description	Part No.	Qty.
1	Handle cpl.	A 861 382 AA	1 Set
2	Thermostatic Cartridge cpl.	A 861 371 NU	1 pcs
3	Stop valve with diverter	A 861 375 NU	1 Set
4	Thread ring + stopring cpl.	A 861 376 NU	1 Set
5	Nipple G1/2 outside cpl.	A 861 374 NU	1 Set
6	Non-return valve	A 861 372 NU	1 Set
7	Escutcheon	B 960 242 AA	1 pcs
8	Shower bracket (connect.)	B 961 042 AA	1 Set
9	Connection nipple cpl.	A 861 385 NU	1 Set
10	Shower hose 1750 mm	BE 175 AA	1 pcs
11	Handspray Ø110-3F-8l/min	B 2231 AA	1 pcs
12	Shower bar 1100 mm	A 861 377 AA	1 pcs
12	Shower bar 1000 mm	A 861 330 AA	1 pcs
13	Slider & holder f. handshr.	B 960 976 AA	1 Set
14	Wall fixation complete	A 861 331 AA	1 pcs
15	Headshower Ø200 mm	B 9442 AA	1 pcs
16	Extension kit 150mm long	A 861 379 AA	1 Set
16	Extension kit 300mm long	A 861 380 AA	1 Set
17	Warp over shelf	A 861 383 AA	1 pcs
18	Fixing plate extension 8mm	A 861 508 AA	1 pcs
19	Hose ring	B 1363 AA	1 pcs
20	Escutcheon Ø32	A 861 816 AA	2 pcs



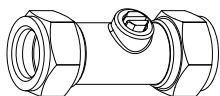
Pos.	Description	Part No.	Qty.
1	Handle cpl.	A 861 382 AA	1 Set
2	Thermostatic Cartridge cpl.	A 861 371 NU	1 pcs
3	Stop valve with diverter	A 861 375 NU	1 Set
4	Thread ring + stopring cpl.	A 861 376 NU	1 Set
5	Connection nipple cpl.	A 861 387 NU	1 Set
6	Non-return valve	A 861 372 NU	1 Set
7	Nipple G1/2 outside cpl.	A 861 374 NU	1 Set
8	Aerator	A 963 181 NU	1 pcs
9	Escutcheon	B 960 242 AA	1 pcs
10	Shower bracket (connect.)	B 961 042 AA	2 pcs
20	Escutcheon Ø32	A 861 816 AA	2 pcs



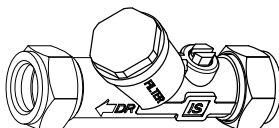
23 INLINE SERVICE VALVES

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.

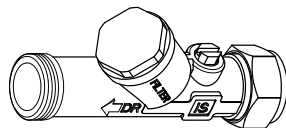
These should be fitted as close as is practicable to the water supply inlets of the thermostatic shower valve. Service valves should be installed in an easily accessible location.



Basic valve with isolating only feature is available under spares code **S9005AA**. 15mm compression fittings at both ends and plated finish.

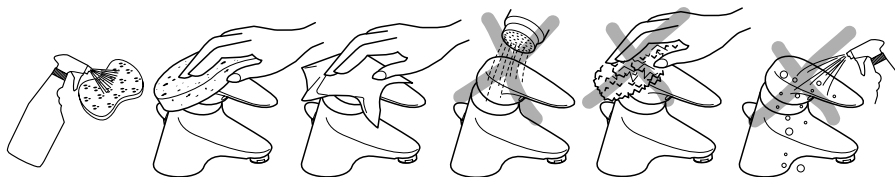


E960086NU. Brass valve with isolating & filter only features. 15mm compression fittings at both ends. Supplied in pairs.



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.

24 CLEANING CHROME SURFACES



When cleaning chromed products 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.

PLASTIC SUPPLY PIPES

The material of the Ø15/22mm water supply pipes can be either copper or plastic.

Plastic fittings manufacturers recommend using copper olives (compression rings) when making compression joints with plastic pipes.

To prevent the plastic pipe from collapsing during installation, it is necessary to fit a suitable support sleeve in the bore of the plastic pipe.

For assembly torque values necessary to tighten the compression nuts onto plastic pipes, refer to the plastic pipe manufacturers recommendations.

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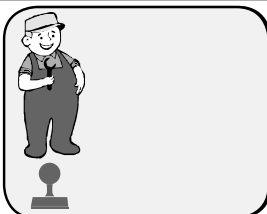
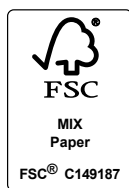
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