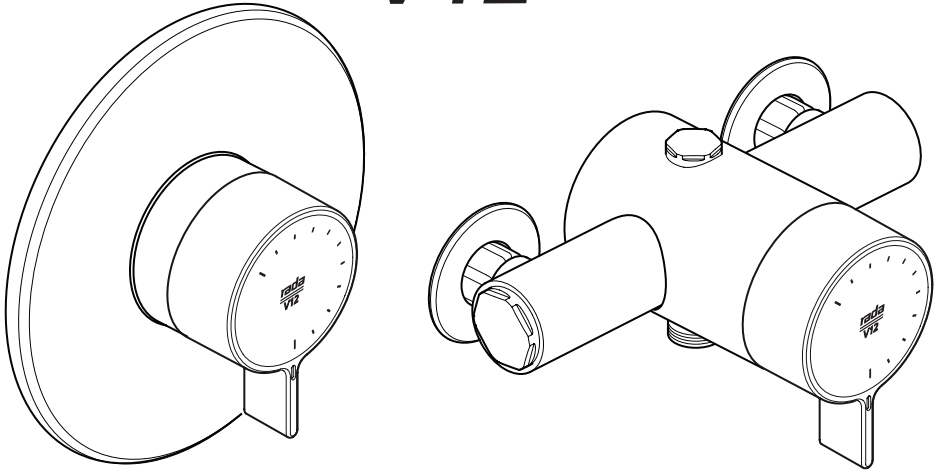


rada

V12



V12 THERMOSTATIC SHOWER VALVE

PRODUCT MANUAL

IMPORTANT

Installer: This Manual is the property of the customer and must be retained with the product for maintenance and operational purposes.

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INTRODUCTION

The Rada V12 Shower Valve is a Thermostatic Shower Control with a single control lever for on/off and temperature control. There is no adjustable flow control. A 9 l/min flow regulator is supplied for high pressure systems to reduce excessive shower force. For additional water saving a 6 l/min flow regulator is also included.

The Thermostatic Mixer incorporates a wax capsule temperature sensing unit, which provides an almost immediate response to changes in pressures or temperature of the incoming water supplies to maintain the selected temperature. An adjustable maximum temperature limit is provided which limits the temperature to a safe level. Inlet Filters are fitted to protect the thermostatic cartridge.

This mixer has been certified for use in UK Healthcare premises as a Type 3 valve under the BUILDCERT TMV3 scheme.

For Healthcare installation refer to section: '**Type 3 Valves**'.

Products included in this manual:

Rada V12 Exposed Shower Valve - 1.1651.001

Rada V12 Concealed Shower Valve - 1.1651.002

Rada V12 - 130 Centres Shower Valve - 1.1651.003

SAFETY : WARNINGS

Rada thermostatic mixing valves are precision engineered and should give continued safe and controlled performance, provided:

1. They are installed, commissioned, operated and maintained in accordance with the recommendations in this guide.
2. For Type 3 installations, valves are only to be used for applications covered by their approved designations, refer to section: '**Type 3 Valves**'.
3. Periodic attention is given, when necessary, to maintain the product in good functional order.

Caution!

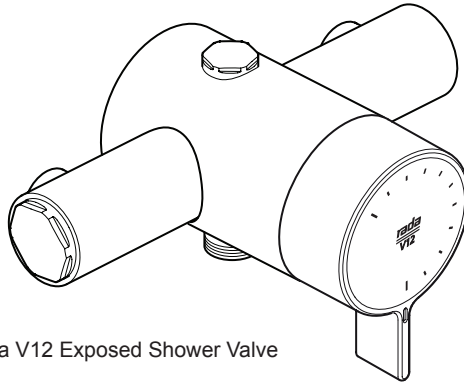
1. Read all of these instructions and retain this guide for later use.
2. Pass on this guide in the event of change of ownership of the installation site.
3. Follow all warnings, cautions and instructions contained in this guide.
4. Anyone who may have difficulty understanding or operating the controls of any shower should be attended whilst showering. Particular consideration should be given to the young, the elderly, the infirm or anyone inexperienced in the correct operation of the controls. This is particularly important in healthcare procedures, such as supervised bathing where patients are unable to respond immediately to unsafe temperatures.
5. Rapid/Excessive movement of the flow and/or temperature controls may result in momentary unstable blend temperatures.
6. Care is required when adjusting flow or temperature, make sure that the temperature has stabilised.
7. When this product has reached the end of its serviceable life, it should be disposed of in a safe manner, in accordance with current local authority recycling, or waste disposal policy.

PACK CONTENTS

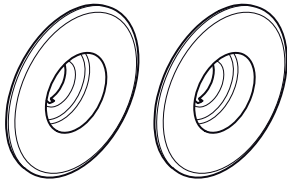


Tick the appropriate boxes to familiarize yourself with the part names and to confirm that the parts are included.

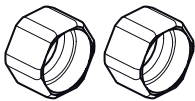
Rada V12 Exposed Shower Valve



1 x Rada V12 Exposed Shower Valve



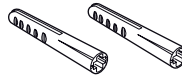
2 x Concealing Plates



2 x 'InsuTech' Compression Nuts



2 x Olives



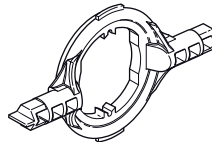
2 x Wall Plugs



2 x No 8 x 1 1/4" Securing Screws



1 x 2.5 mm Hexagon Key



1 x 'O' Key



1 x 6 L/Min Flow Regulator (Black)



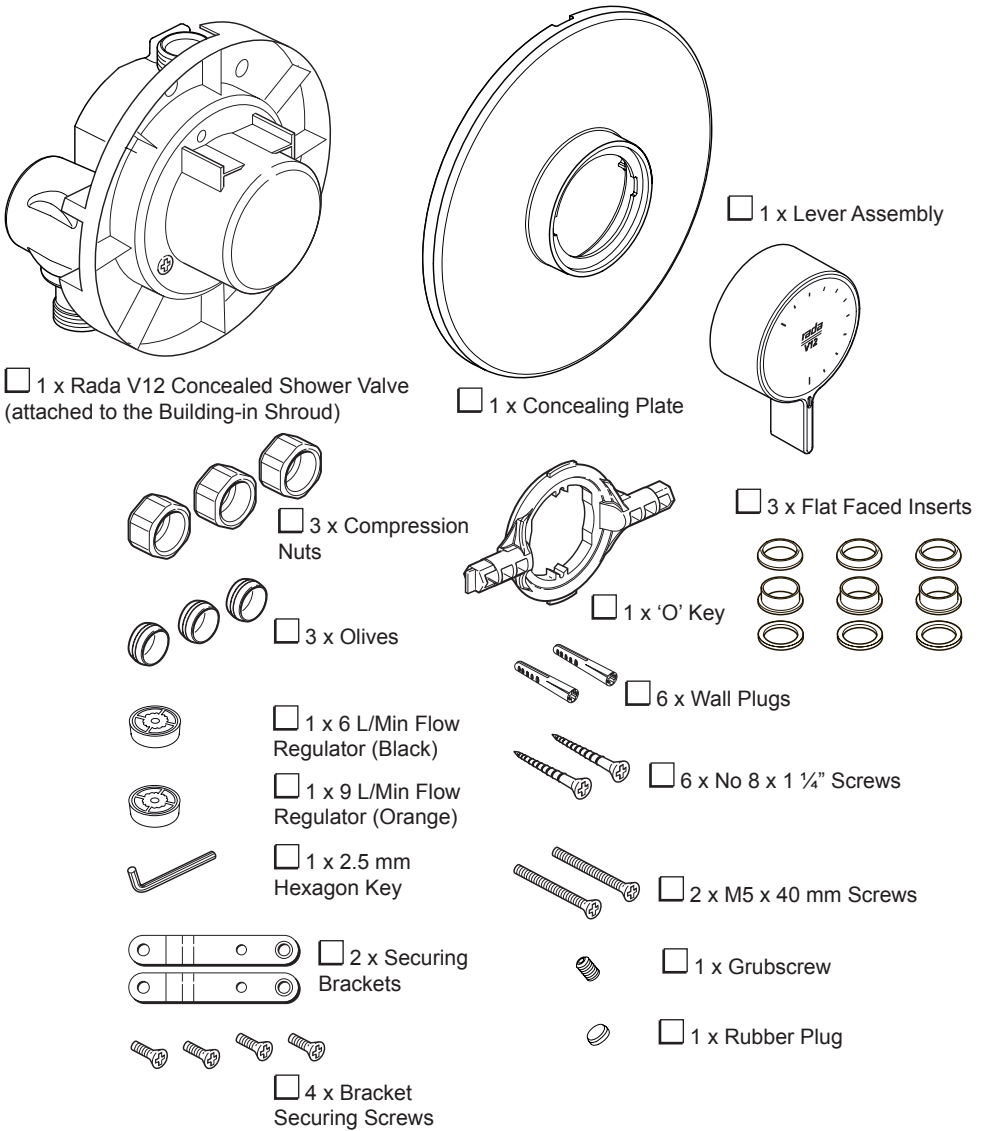
1 x 9 L/Min Flow Regulator (Orange)

Documentation

1 x Product Manual

1 x Installation Template

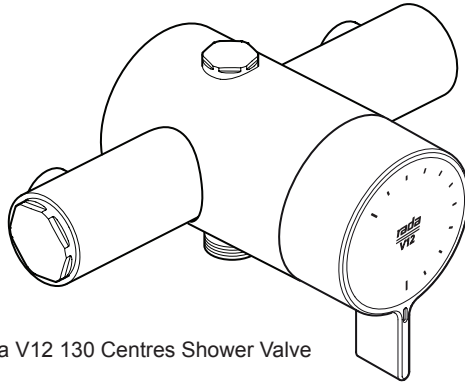
Rada V12 Concealed Shower Valve



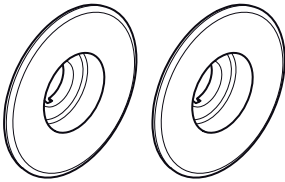
Documentation

- 1 x Product Manual

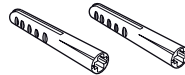
Rada V12 130 Centres Shower Valve



1 x Rada V12 130 Centres Shower Valve



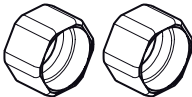
2 x Concealing Plates



2 x Wall Plugs



2 x No 8 x 1 1/4" Securing Screws



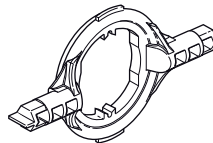
2 x Compression Nuts



1 x 2.5 mm Hexagon Key



2 x Olives



1 x 'O' Key



1 x 6 L/Min Flow Regulator (Black)



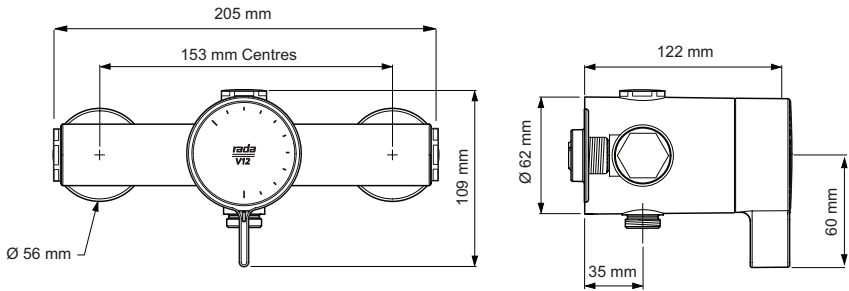
1 x 9 L/Min Flow Regulator (Orange)

Documentation

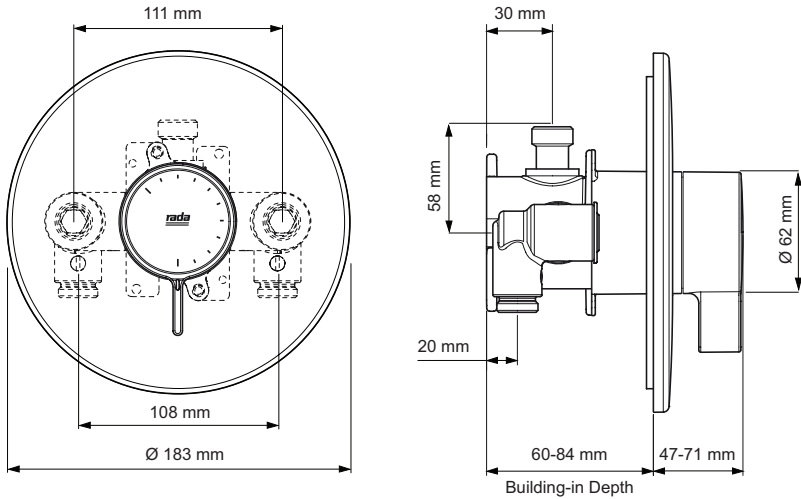
1 x Product Manual

DIMENSIONS

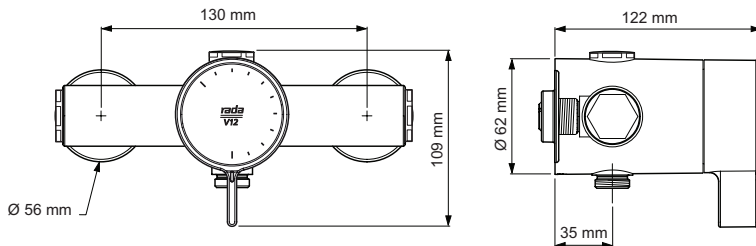
Rada V12 Exposed Shower Valve



Rada V12 Concealed Shower Valve



Rada V12 130 Centres Shower Valve



SPECIFICATIONS

Operating Parameters

For Type 3 installations, the supply conditions specified in section: '**Type 3 Valves, Application**' take precedence over the operating parameters which follow.

Pressures

Maximum Static Pressure: **10 Bar**.

Maximum Maintained Pressure: **5 Bar**.

Minimum Maintained Pressure (Gas Water Heater): **1.0 Bar**.

(for optimum performance supplies should be nominally equal).

Minimum Maintained Pressure (Gravity System): **0.1 Bar**.

(0.1 bar = 1 Metre head from base of cold tank to the outlet of the shower handset).

Temperatures

Factory Pre-set (Blend) Shower: **41°C**.

Optimum Thermostatic Control Range: **35°C - 45°C**.

(Achieved with supplies of 15°C cold, 65°C hot and nominally equal pressures).

Recommended Hot Supply: **60°C - 65°C**.

Note! The Mixing Valve can operate at temperatures up to 85°C for short periods without damage. However for safety reasons it is recommended that the maximum hot water temperature is limited to 65°C.

Minimum Differential between Hot Supply and Outlet Temperature: **10°C**.

Cold Water Range: **5°C - 25°C**.

Thermostatic Shut-down

For safety the Thermostat will shut off the Hot Supply **Within 2 Seconds** if the Cold Supply Fails.

(Achieved only if the hot supply temperature is greater than 10°C above the set blend temperature).

Connections

Exposed Mixer:

Supplied: Rear Inlets, Bottom Outlet

Inlets: 15 mm Compression, **Hot - Left, Cold - Right**.

Outlet: ½" BSP Flat Face/15 mm Compression.

Note! If top outlet is required, then reverse the outlet fitting.

Built-in Mixer:

Supplied: Rising Inlets, Top Outlet.

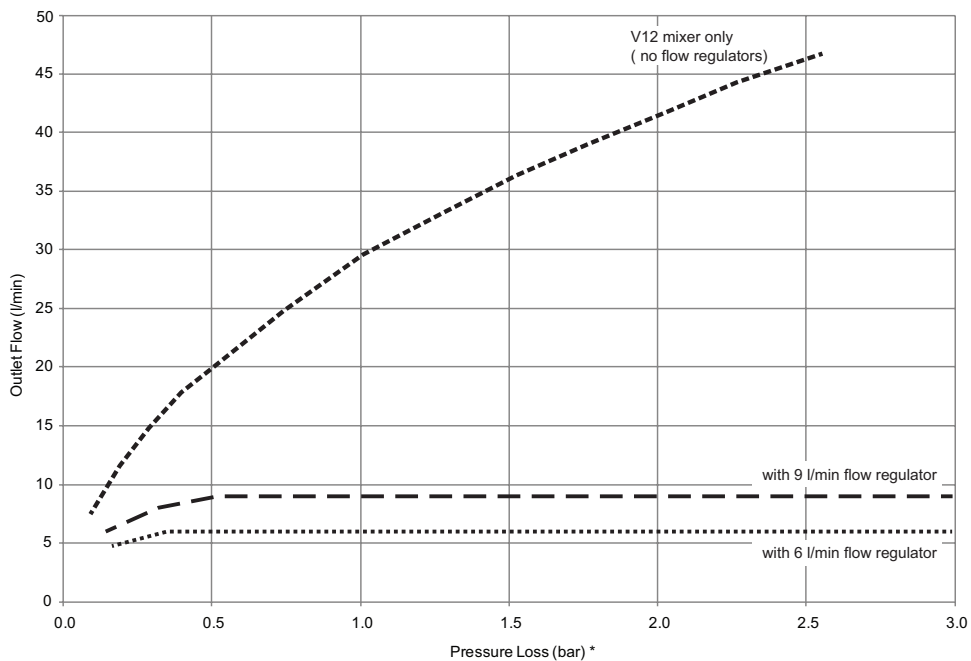
Inlets: 15 mm Compression, **Hot - Left, Cold - Right**.

Outlet: 15 mm Compression.

If reversed inlets are required refer to section: '**Reversed Inlet Supplies**'.

Flow Rates

Typical Flow Rates on Low Pressure Systems (0.1 Bar to 1 Bar) - Rada V12 Shower Valve only:



***Note!** Pressure Loss = Inlet pressure - outlet pressure (measured at valve outlet)

INSTALLATION

General

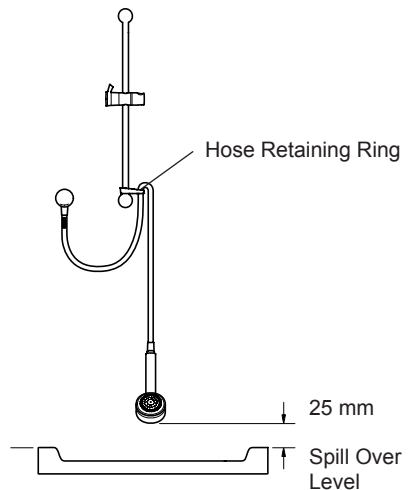
Installation must be carried out in accordance with these instructions, and must be conducted by designated, qualified and competent personnel.

Before commencing, make sure that the installation conditions comply with the information given in section: '**Specifications**'. For Type 3 valves, see also installation conditions in section: '**Type 3 Valves**'.

The installation must comply with any particular regulations and practices, specified by the local water supply regulations.

1. The Mixer must not be installed in an area where it may freeze.
2. For stud partitions alternative fixings may be required.
3. Isolating valves must be installed close to the Mixer for ease of maintenance (Included with the Rada V12 Concealed Model).
4. Pipework must be rigidly supported and avoid any strain on the connections.
5. Pipework dead-legs should be kept to a minimum.
6. Supply pipework layout should be arranged to minimise the effect of other outlet usage upon the dynamic pressures at the Mixer inlets.
7. Inlet and outlet threaded joint connections should be made with PTFE tape or liquid sealant. Do not use oil-based, non-setting joint compounds.
8. To eliminate pipe debris it is essential that supply pipes are thoroughly flushed through before final connection.
9. Decide on a suitable position for the Mixer. The position of the Mixer and the Shower Fittings must provide a minimum gap of 25 mm between the spill-over level of the shower tray/bath and the handset. This is to prevent back-siphonage. For further information on the installation of your **Shower Fittings**, refer to the Fittings Installation and User Guide.

Note! Only use Shower Fittings recommended by the manufacturer or supplier.



Installation Methods

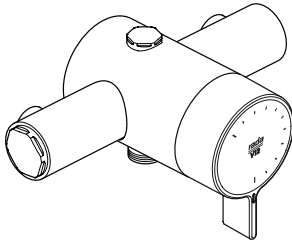
The **Rada V12 Exposed Shower Valve** can be installed with **rear, rising** or **falling** supply inlets, top or bottom outlet.

The hot water supply must always be connected to the hot inlet (marked with a red sticker) to ensure the correct operation of the 'Insutech Technology'.

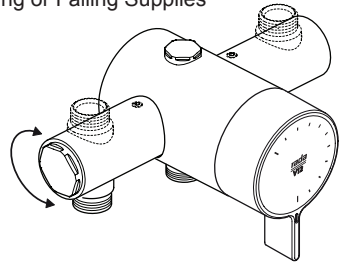
Note! This technology ensures that all outer surfaces are safe to touch.

The **Rada V12 130 Centres Shower Valve** can be installed with **rear, rising** or **falling** supply inlets, top or bottom outlet. The shower valve is designed to fit onto existing installations where the pipe centres are 130 mm. The installation method is exactly the same as the Rada V12 Exposed Shower Valve.

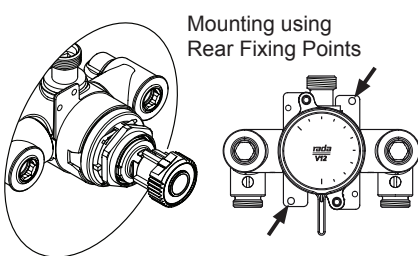
Rear Entry Supplies



Rising or Falling Supplies



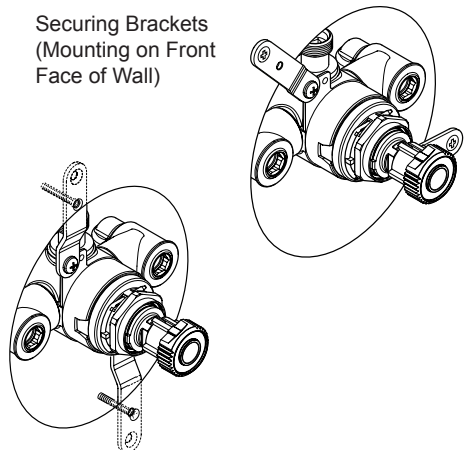
The **Concealed V12 Mixer** can be installed with rising or falling supply inlets (rising inlets are illustrated) and top or bottom outlet. The Mixer can be installed using **Rear Fixing Points on the Body**, or by using the Securing Brackets (supplied) on the **Front Face of a Solid Wall or Stud Partition**, or on the **Rear Face of a Laminated Panel**.



Mounting using
Rear Fixing Points

Securing Brackets
(Mounting on Rear
Face of Wall)

Securing Brackets
(Mounting on Front
Face of Wall)

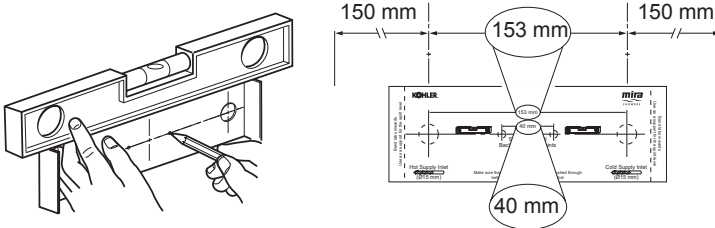


Rada V12 Exposed Shower Valve

Rear Entry Supplies (rising or falling concealed pipework)

1. Use the Installation Template to mark the positions of the holes for the backplate and the pipe centres (Not applicable for the V12 130 Centres Model).

Note! Allow a minimum of 150 mm either side of the mixer, to allow access to the hot and cold Inlet filters for servicing.

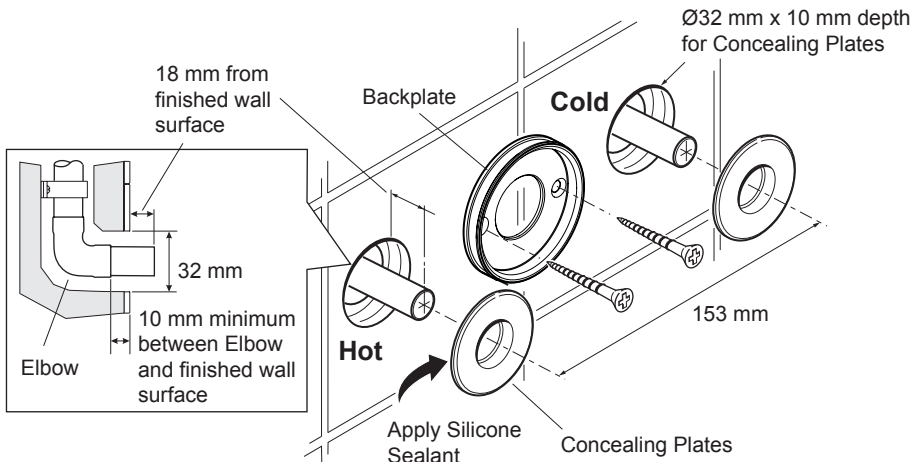


2. For solid walls drill the holes for the backplate with a 6 mm drill and insert the wall plugs (supplied). For other types of wall structure alternative fixings may be required (not supplied).
3. Drill the holes for the supply pipes at 153 mm centres.
4. Recess the wall to allow for the pipe concealing plates, \varnothing 32 mm x 10 mm deep.

Note! Depth must be sufficient to prevent the concealing plates fouling on the plumbing elbows.

5. Fit the supply pipework (**Hot - Left, Cold - Right**). The pipework must project 18 mm from the finished wall surface at 153 mm centres (use the Installation Template as a guide).

Note! If the connections are reversed, then turn the valve through 180° to ensure that the hot supply is connected to the hot inlet and reverse the outlet fittings as necessary, refer to section: **'Reversed Inlet Supplies'**



6. Loosen the grubscrews with the 2.5 mm hexagon key (supplied) and remove the backplate from the mixer.
7. Secure the backplate to the wall using the screws (supplied).
8. Fit the concealing plates.

Note! Apply silicone sealant to the back face of the flange.

Caution! It is essential at this point that the supply pipework is thoroughly flushed through before connection to the mixer. Failure to do so may result in product malfunction.

9. Fit the compression nuts and olives onto the pipework.

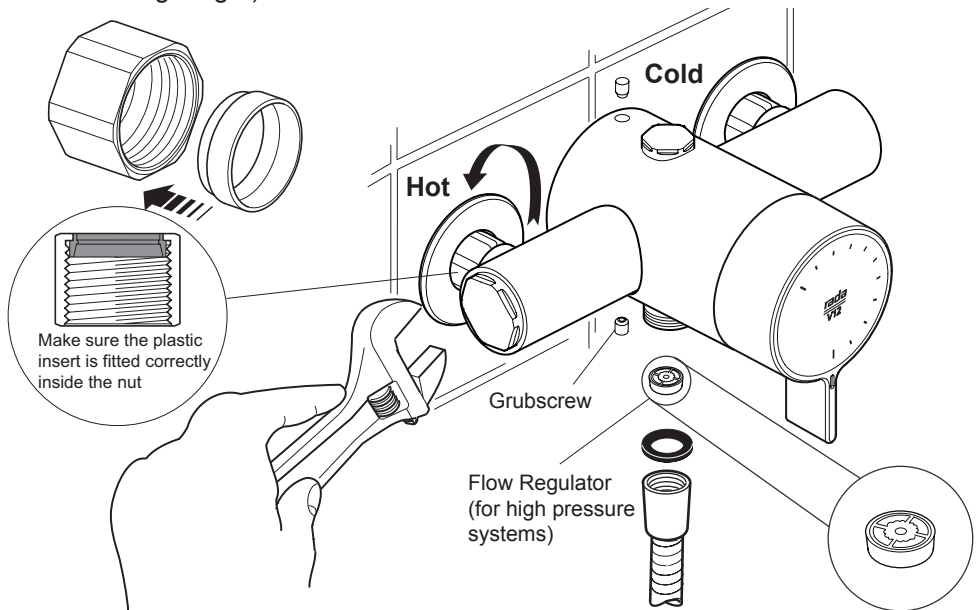
Note! Make sure that the nuts and olives supplied are used to ensure correct function of the 'Insutech Technology'.

10. Align the mixer with the pipework and fit onto the backplate.

11. Tighten the compression nuts onto the mixer with a suitable spanner.

Caution! Take care not to damage the chrome surfaces.

Note! Make sure the compression nuts are fully tightened (approx 1 1/2 turns from finger tight).



12. Tighten the grubscrews to secure the mixer to the backplate.

13. Fit the **Shower Fittings**, refer to your Shower Fittings Product Manual for Instructions.

Note! For high pressure systems, a 6 (Black) or 9 (Orange) litre/minute flow regulator (supplied) can be fitted in the outlet connector (refer to illustration).

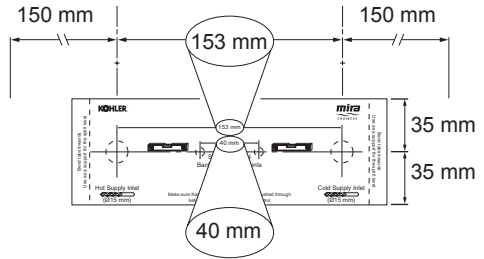
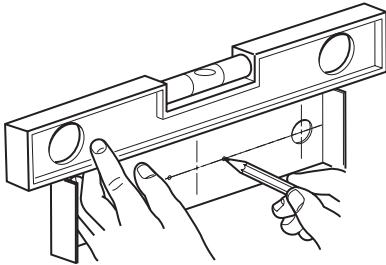
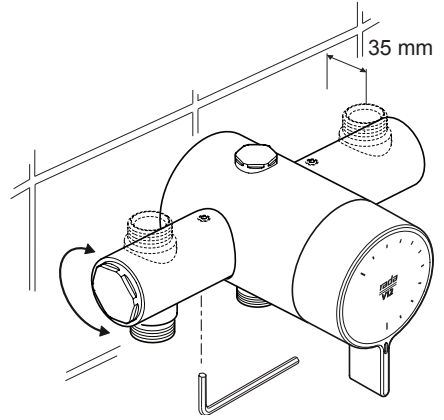
14. Turn on the hot and cold water supplies and check for leaks.

15. Before using the shower, refer to section: '**Commissioning**'.

Rising or Falling Supplies

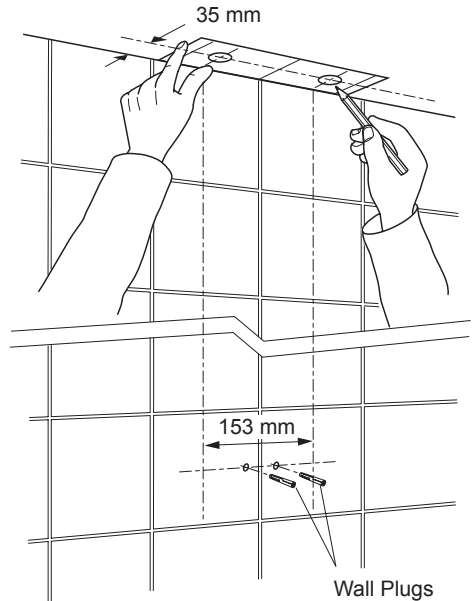
1. Loosen the grub screws on each elbow using the 2.5 mm hexagon key (supplied) and rotate the elbow 90° as required. Retighten the grub screws.
2. Use the Installation Template to mark the positions of the fixing holes for the backplate.

Note! Allow a minimum of 150 mm either side of the mixer, to allow access to the hot and cold Inlet filters for servicing.

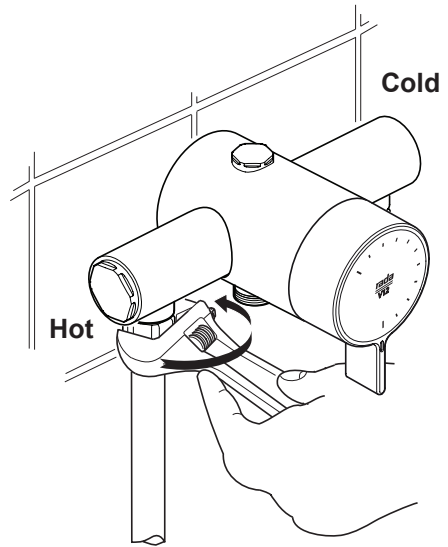


3. For solid walls drill the holes for the backplate with a 6 mm drill and insert the wall plugs (supplied). For other types of wall structure alternative fixings may be required (not supplied).
4. **For Falling Supplies:** Using the Installation Template as a guide, mark the pipe positions on the ceiling and set the centres 35 mm from the finished wall (refer to illustration).

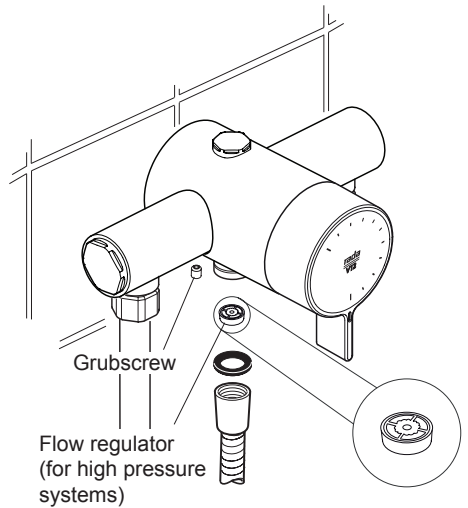
For Rising Supplies: Using the Installation Template as a guide, mark the pipe positions and set the centres 35 mm from the finished wall.



5. Fit the supply pipework (**Hot - Left, Cold - Right**).
6. Loosen the grub screw with the 2.5 mm hexagon key (supplied) and remove the backplate from the mixer.
7. Secure the backplate to the wall using the screws (supplied).
Caution! It is essential at this point that the supply pipework is thoroughly flushed through before connection to the mixer. Failure to do so may result in product malfunction.
8. Fit the compression nuts and olives onto the pipework.
9. Align the mixer with the pipework and fit onto the backplate.
10. Tighten the compression nuts onto the mixer with a suitable spanner.
Caution! Take care not to damage the chrome surfaces.



11. Tighten the grub screw to secure the mixer to the backplate.
12. Fit the **Shower Fittings**, refer to your Shower Fittings Product Manual for Instructions.
Note! For high pressure systems, a 6 or 9 litre/minute flow regulator (supplied) can be fitted under the hose washer (refer to illustration).
13. Turn on the hot and cold water supplies and check for leaks.
14. Before using the shower, refer to section: '**Commissioning**'.

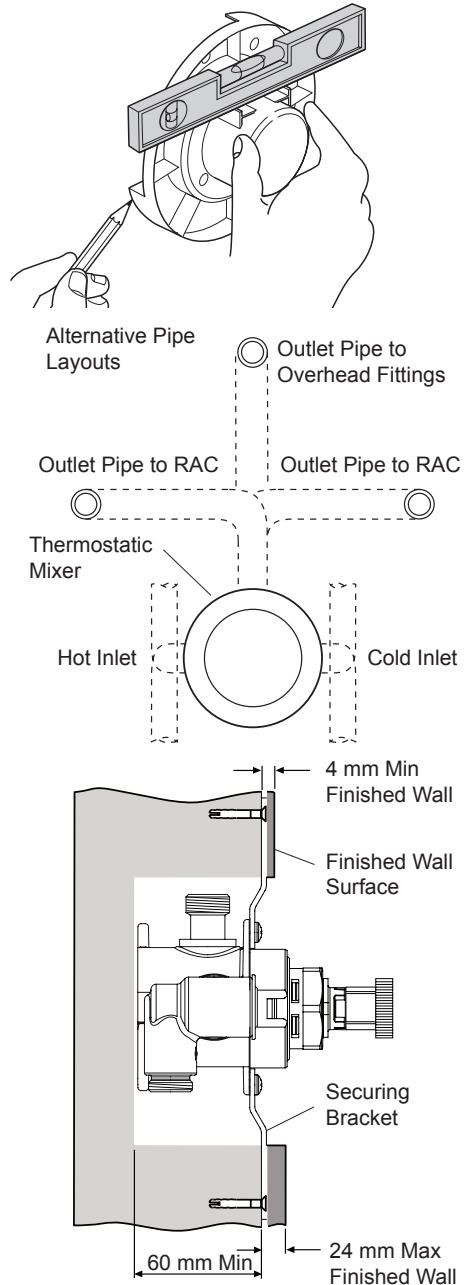


Rada V12 Concealed Shower Valve

Solid Wall or Stud Partition

(Using Securing Brackets - Mounting off Front Face of Wall)

1. Determine the route for the hot and cold supply pipework and for the outlet pipework. When connecting to the BIV Shower Fittings it is recommended that the outlet be positioned above and to one side of the mixer. This is to prevent the flexible hose from obstructing the shower controls.
2. Unscrew and remove the two shroud screws and remove the building-in shroud and chrome trim. Retain the screws.
3. Determine the position of the mixer and draw around the building-in shroud.
4. Mark the routes for the hot and cold supply pipework at 108 mm centres (**Hot - Left, Cold - Right**).
Falling Supplies: For falling supplies loosen the grubscrew on each elbow using the 2.5 mm hexagon key (supplied). Remove the elbows and install on opposite sides. Retighten the grubscrews.
Caution! Do not overtighten.
Note! Make sure that the 'O' seals are correctly fitted and that the filter plugs are positioned to the front (i.e. Hexagonal key facing forward).
5. Mark the route for the outlet pipework.
Note! The outlet elbow should be sited above the mixer and on the right or left, as site dictates.
6. Remove the plasterboard and/or brick work to a minimum depth of 60 mm.



7. Fit the securing brackets to the mixer with the bracket securing screws.

Important! Make sure that the correct holes are used, otherwise the chrome trim cannot be fitted.

Note! The securing brackets can be rotated for suitable fixing points.

8. Make sure that the mixer is level and mark the positions for the countersunk fixing holes on the wall.

9. For solid walls drill two 6 mm holes for the wall plugs.

Caution! Do not drill into pipes in the wall.

10. Fit the wall plugs (supplied) and fix the mixer to the wall with the screws provided.

Note! For stud partition installations alternative fixings may be required (not supplied).

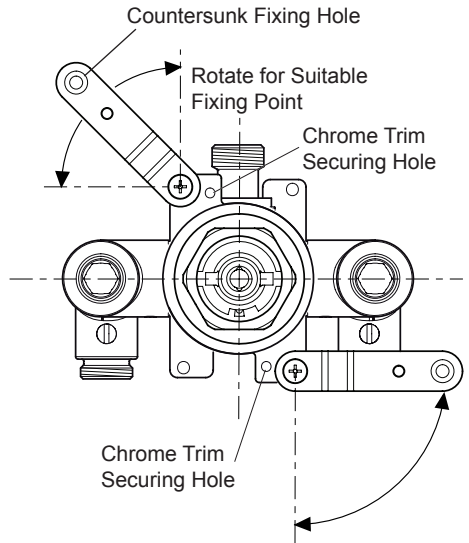
11. Connect the hot and cold supply pipes and tighten the compression nuts.

Caution! Make sure that the olives are fitted and all pipework is flushed through before connecting to the mixer.

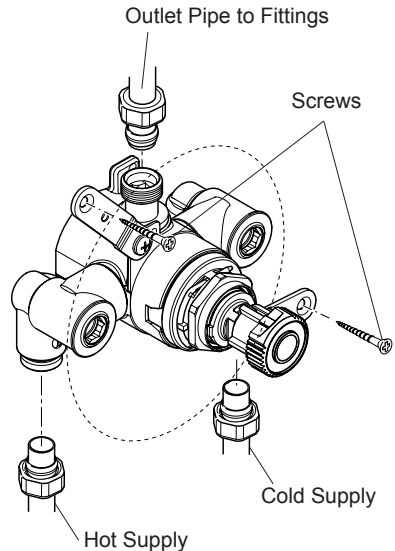
12. Connect the outlet pipework, leaving enough pipe through the wall to temporarily cap off.

13. Turn on the water supplies and check for leaks.

Note! Fully open the integral isolating valves on the inlet elbows.



Note! Securing Brackets shown in preferred position to allow the Compression Nuts to be tightened.

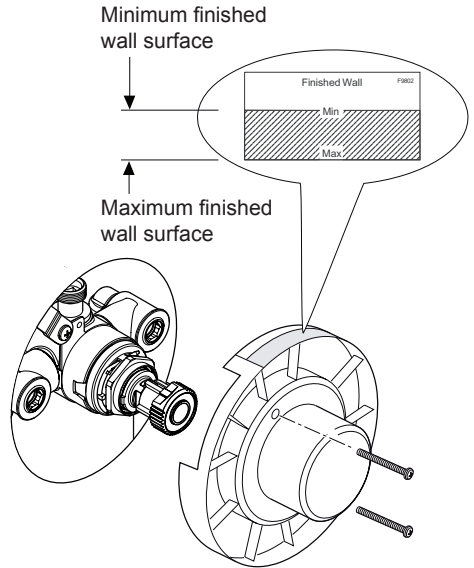


14. Attach the building-in shroud to the mixer using the two shroud screws removed earlier.

15. Using the 'Finished Wall Indicator' on the building-in shroud as a guide, finish the wall, e.g. tiles.

Caution! Make sure that the finished wall is within the maximum and minimum limits and to an even depth (no greater than 2 mm variation) or the control components will not fit correctly.

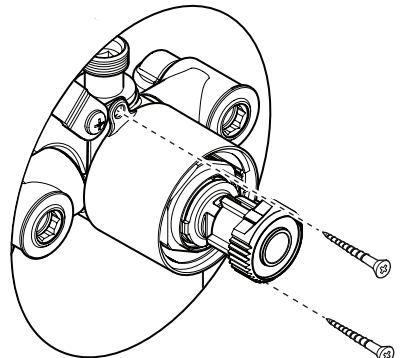
16. Remove the two shroud screws and discard the building-in shroud.



17. Refit the chrome trim and secure in position with the two screws (supplied).

18. Fit the **Shower Fittings**, refer to your Shower Fittings Product Manual for Instructions.

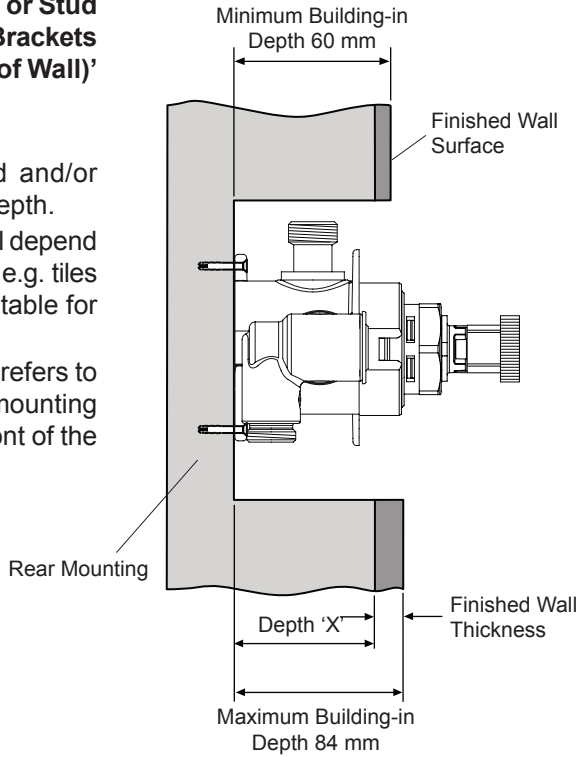
19. Fit the concealing plate and control assembly, refer to section: '**Control Assembly**'.



Solid Wall or Stud Partition

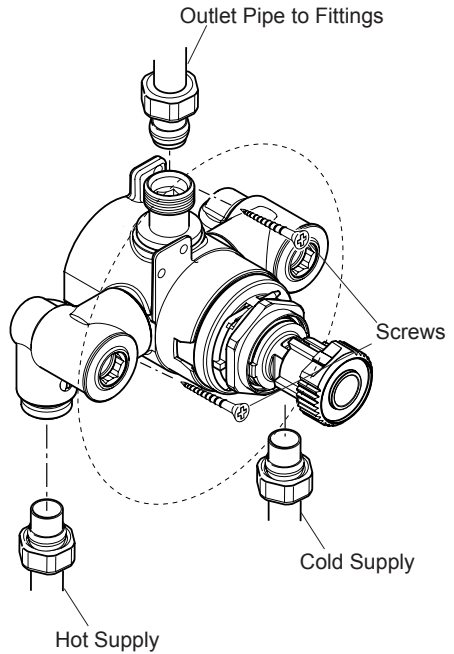
(Using Rear Fixing Points on the Thermostatic Mixer)

1. Refer to section: **‘Solid Wall or Stud Partition (Using Securing Brackets - Mounting off Front Face of Wall)’** and follow steps 1. to 4.
2. Cut away the plasterboard and/or brick work to the required depth.
Important! This depth ‘X’ will depend on the finished wall thickness e.g. tiles or facia board. Refer to the table for this measurement.
 For stud partitions depth ‘X’ refers to the distance from the rear mounting e.g. timber noggin, to the front of the wall (before tiling).



Finished Wall Thickness (e.g. tile and adhesive)	Wall Cutout Depth ‘X’
4 mm	80 - 56 mm
6 mm	78 - 56 mm
8 mm	76 - 56 mm
10 mm	74 - 56 mm
12 mm	72 - 56 mm
14 mm	70 - 56 mm
16 mm	68 - 56 mm
18 mm	66 - 56 mm
20 mm	64 - 56 mm
22 mm	62 - 56 mm
24 mm	60 - 56 mm

3. Make sure that the mixer is level and central in the hole, and square to the finished wall surface (or the control components will not fit correctly), then mark the positions of the fixing screw holes on the wall.
4. For solid walls drill two 6 mm holes for the wall plugs.
5. Insert the wall plugs (supplied) and attach the mixer to the wall with the screws provided.
Note! For stud partition installations alternative fixings may be required (not supplied) to fix the mixer to the rear face of the wall cavity or to a timber noggin.
6. Refer to section: '**Solid Wall or Stud Partition** (Using Securing Brackets - Mounting off Front Face of Wall)' and follow steps 11 to 18.



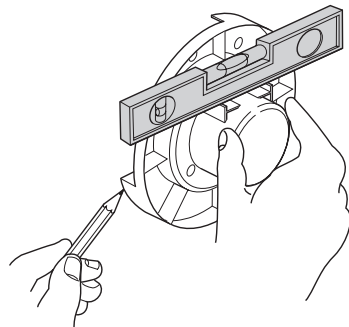
Laminated Panel

(Using Securing Brackets - Mounting on Rear Face of Panel)

Note! For laminated panels the mixer must be positioned from the rear of the panel. Panel thickness must be between 3 and 23 mm (if a thicker panel is used, it will be necessary to recess the securing brackets into the rear of the panel).

Important! Make sure that there is a minimum clearance of 62 mm behind the laminated panel to house the mixer.

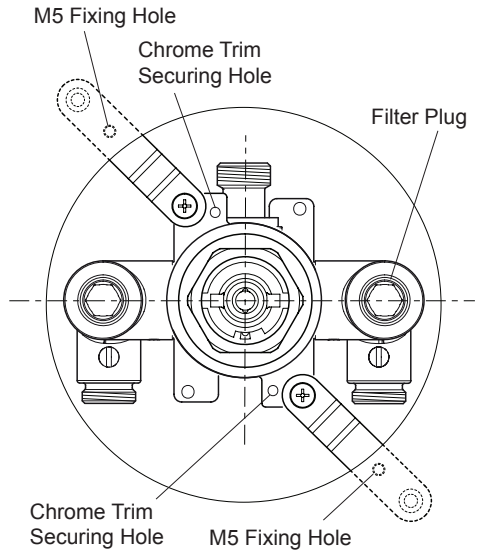
1. Remove the two shroud screws (retain for later use) and remove the mixer from the building-in shroud.
2. Mark the position of the mixer using the building-in shroud as a guide.



3. Carefully cut a hole in the laminated panel to a diameter of 150 mm.

4. Fit the securing brackets to the mixer.
Important! The securing brackets must be fixed, as illustrated i.e. 45°. **Important!** Make sure that the correct holes are used, otherwise the chrome trim cannot be fitted.

5. Position the mixer on the front of the panel, make sure that it is level and central in the hole, then mark the position of the M5 fixing holes.
Important! Make sure that the correct holes are used (refer to illustration).



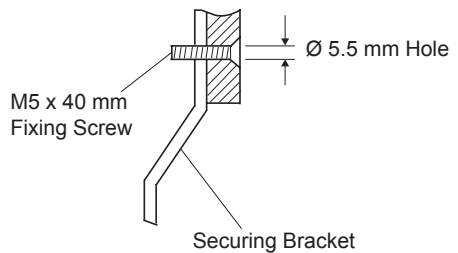
6. Drill the two 5.5 mm holes for the fixing positions (countersink the holes at the front).

7. Secure the mixer with the M5 x 40 screws as shown.

8. Fit the hot and cold supply pipes (**hot - left, cold - right**) and tighten the compression nuts.

Falling Supplies: For falling supplies loosen the grubscrew on each elbow using the 2.5 mm hexagon key (supplied). Remove the elbows and install on opposite sides. Retighten the grubscrews.

Caution! Make sure that the olives are fitted and all pipework is flushed through before connecting to the mixer.



9. Fit the outlet pipework, leaving enough pipe through the wall to temporarily cap off.

10. Turn on the water supplies and check for leaks.

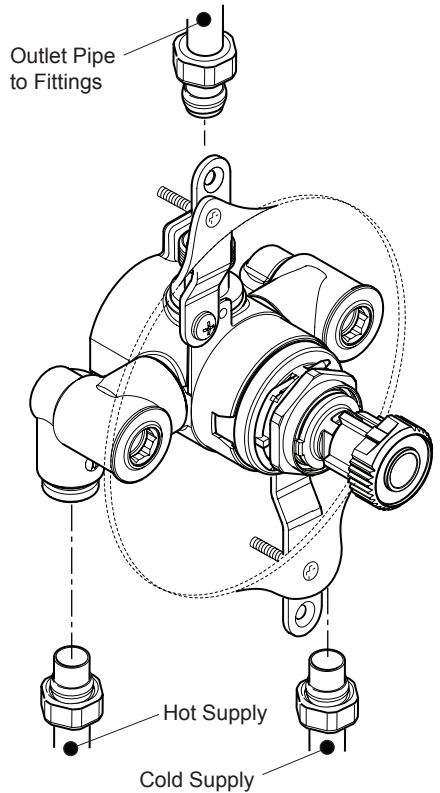
Note! Fully open the integral isolating valves on the inlet elbows.

11. Refit the chrome trim and secure in position with the two screws (supplied).

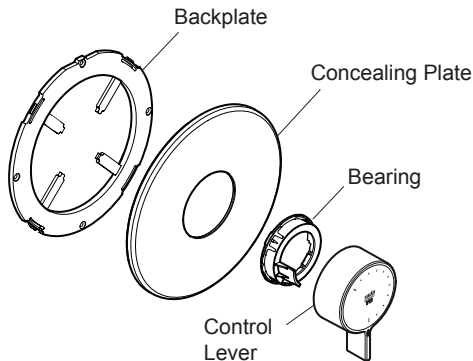
12. Fit the **Shower Fittings**, refer to your Shower Fittings Product Manual for Instructions.

Note! For high pressure systems, a 6 or 9 litre/minute flow regulator (supplied) can be fitted in the RAC (Right Angled Connector - See shower fittings kits).

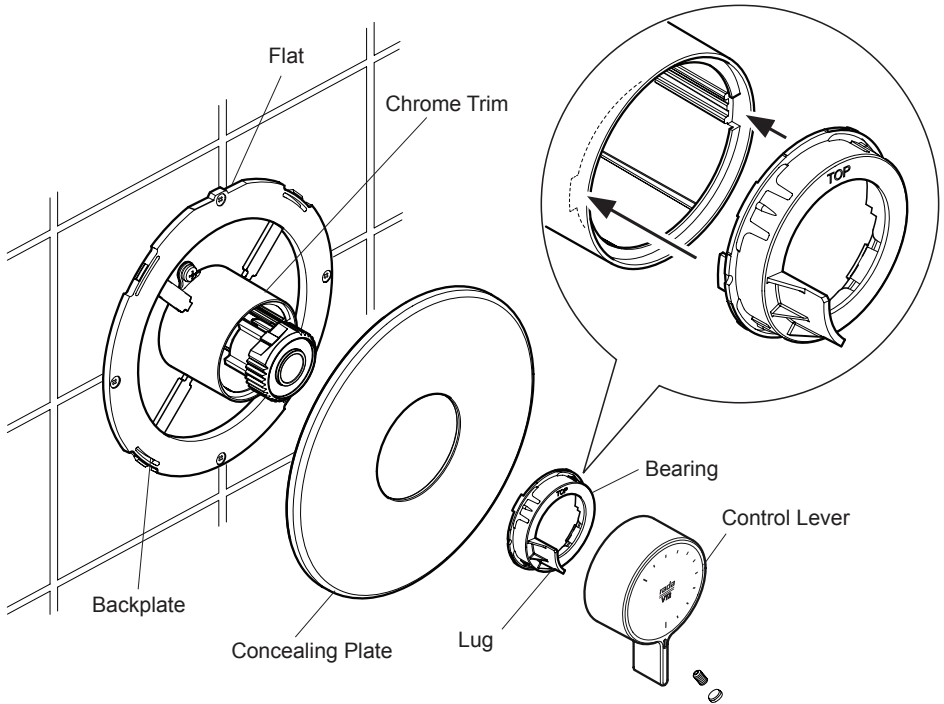
13. Fit the concealing plate and control assembly, refer to section: '**Control Assembly**'.



Control Assembly (Built-in Models)

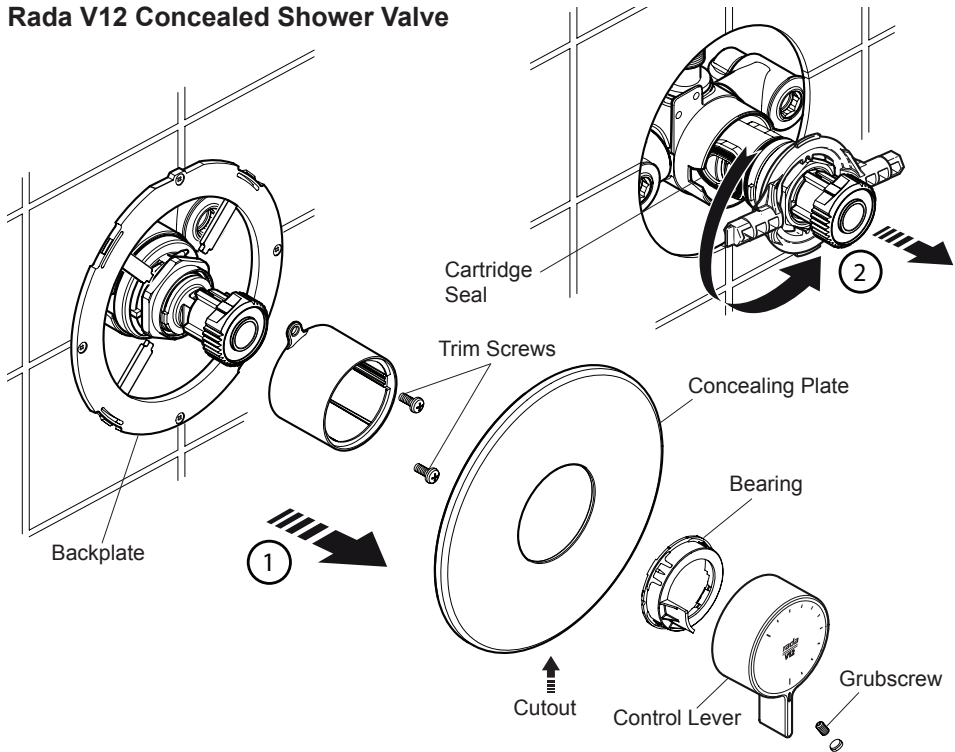


1. Use the 2.5 mm hexagon key (supplied) to loosen the grub screw, then remove the control lever.
2. Carefully unclip the concealing plate from the backplate.



3. Fit the backplate over the mixer and mark the positions of the four fixing holes in the orientation shown. The upper screw hole should be located vertically above the valve.
4. For solid walls drill four 6 mm holes for the wall plugs. for other types of wall structure alternative fixings may be required (not supplied).
Caution! Make sure that you do not drill into pipework in the wall.
5. Insert the wall plugs and attach the backplate to the wall with the screws provided.
6. Fit the concealing plate with the cut-out at the bottom over the backplate until it clicks into position.
7. Locate the bearing in the chrome trim with the lug in the 8 o'clock position,
8. Align the control lever as shown. Make sure that the green hub is turned fully clockwise and then fit the control lever in the 6 o'clock position.
9. Tighten the grubscrew with the 2.5 mm hexagon wrench (supplied).
10. Before using the Shower, refer to section: '**Commissioning**'.
11. Install the blanking plug to conceal the grubscrew.

Rada V12 Concealed Shower Valve



The Rada V12 Concealed Shower Valve is supplied with inlet connections **Hot - Left, Cold - Right** as standard. If the hot and cold water supply pipes have been reversed during installation the thermostatic cartridge must be removed and rotated 180°.

1. Isolate the hot and cold water supplies and operate the control lever to relieve pressure and drain any residual water.
2. Use the 2.5 mm hexagon key (supplied) to remove the grubscrew, then remove the control lever.
3. Carefully unclip the concealing plate from the backplate.

Note! Use a screwdriver in the cutout to assist separation.

Unscrew the two shroud screws and remove the backplate from the mixer.

4. Fit the 'O' Key (supplied) onto the cartridge nut and turn anticlockwise. Unscrew fully and pull the cartridge from the mixer body.
5. Rotate the cartridge 180°.
6. Make sure that the two cartridge inlet seals are fitted and carefully push into the body, aligning the cartridge lugs into the body slots.

Note! Check that the cartridge lug stamped 'H' is aligned with the hot inlet supply.

Important! Take care when fitting the cartridge as damage to the cartridge inlet seals may result in dripping from the shower head.

7. Tighten the nut by turning the 'O' Key clockwise.
8. Refit the components in reverse order.
9. Before using the shower, refer to section: '**Commissioning**'.

COMMISSIONING

Maximum Temperature Setting

Before using the Shower the maximum temperature must be checked to make sure that it is at a safe level. It has been preset to approximately 43°C at the factory but due to variations in site conditions the maximum temperature may need adjustment.

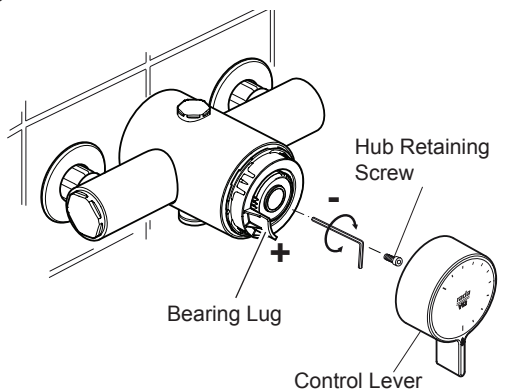
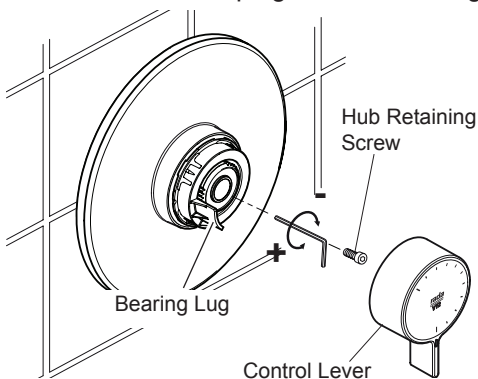
Note! Make sure that the hot water temperature is at least 55°C and that there is sufficient supply.

Note! For Type 3 valves in healthcare installations the maximum blend temperature is determined by the application, refer to section: '**Type 3 Valves, Application**'.

1. Turn on the mixer to the maximum temperature (i.e. fully anticlockwise) and allow the temperature to stabilise.

If the temperature is too hot or too cold adjust as follows:

2. Use the 2.5 mm hexagon key to slacken the grub screw retaining the control lever. Remove the control lever.
3. Unscrew the hub retaining screw.
4. Rotate the hexagon key until the required maximum temperature is obtained at the shower. Anti-clockwise to increase the temperature, or clockwise to decrease the temperature ($\frac{1}{4}$ turn = approximately 1°C).
5. Once the desired maximum blend temperature has been achieved turn off the Mixer.
6. Refit the hub retaining screw.
7. Locate the bearing with the lug in the 8 o'clock position.
8. Align the control lever at the 6 o'clock position and refit, securing with the securing screw.
9. Check that the shower temperature is correct.
10. Fit the rubber plug to conceal the grub screw.



REVERSED INLET SUPPLIES

Rada V12 Exposed Shower Valve

The Rada V12 Exposed Shower Valve is supplied with inlet connections **Hot - Left, Cold - Right** as standard. If the hot and cold water supply pipes have been reversed during installation the mixer must be removed and rotated 180°.

Note! The Outlet Plug and Outlet Connector must also be removed and refitted into their correct positions.

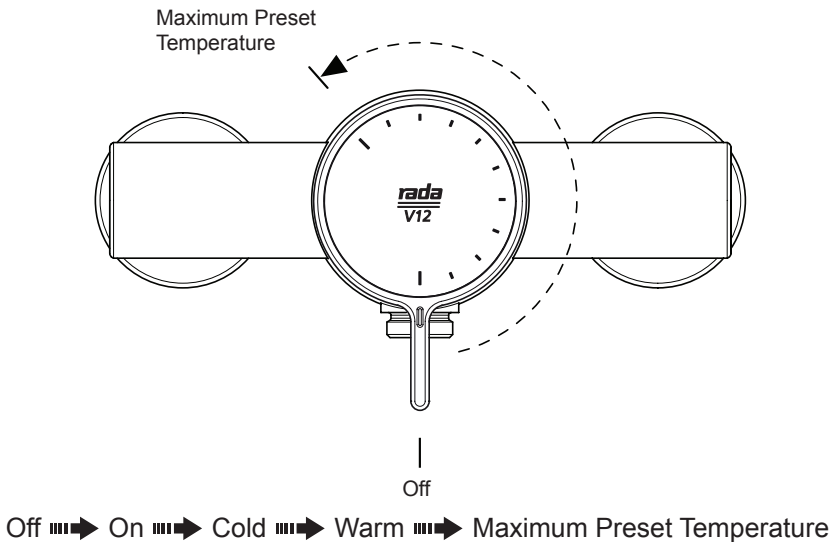
Upon completion the Control Knob Assembly must be removed, rotated 180° then refitted, refer to section: '**INSTALLATION - Control Assembly (Built-in Models)**'.

Note! it is important that the hot supply is connected to the inlet marked with a red label.

OPERATION

The Rada V12 Shower Valve is a Thermostatic Shower Control with a Single Sequential Control Lever for on/off and temperature control.

The Control Lever operates anti-clockwise in the following sequence:



FAULT DIAGNOSIS

Symptom	Cause / Rectification
1. Only hot or cold water from the Mixer outlet.	<ul style="list-style-type: none"> a. Inlets reversed (hot supply to cold supply). Refer to section: 'Reversed Supplies'. b. No hot water reaching the Mixer. c. Check the Filters for any blockage. d. Installation conditions outside operating parameters: refer to sections: 'Specifications' and 'Commissioning'.
2. Fluctuating or reduced flow rate.	<ul style="list-style-type: none"> a. Check the Showerhead, Hose and Filters for any blockage. b. Make sure the maintained inlet pressures are nominally balanced and sufficient, refer to section: 'Specifications'. c. Make sure the inlet temperature differentials are sufficient, refer to section: 'Specifications'. d. Flow Regulator fitted incorrectly. e. Airlock or partial blockage in pipework.
3. No flow from the Mixer outlet.	<ul style="list-style-type: none"> a. Check the Showerhead, Hose and Filters for any blockage. b. Hot or cold supply failure.
4. Blend temperature drift.	<ul style="list-style-type: none"> a. Refer to symptom 2. above. b. Significant supply temperature fluctuation. c. Significant supply pressure fluctuation. d. Faulty Thermostatic Cartridge, renew.
5. Maximum blend temperature setting too hot or too cold.	<ul style="list-style-type: none"> a. Indicates incorrect maximum temperature setting; refer to section: 'Commissioning'. b. Refer to symptom 4. above.
6. Water leaking from the Showerhead.	<ul style="list-style-type: none"> a. Normal for a short period after shut off. b. Check that the pressures are not in excess of the specifications for product. c. Cartridge Inlet Seals damaged, renew. d. Renew the Thermostatic Cartridge.
7. Flow rate too low or too high.	<ul style="list-style-type: none"> a. (low) Insufficient supply pressures. b. (high) Supply pressure too high. Install Flow Reg. c. Refer to symptom 2. above.

MAINTENANCE

General

This Product is precision engineered and should give continued safe and controlled performance, provided:

1. It is installed, commissioned, operated and maintained in accordance with manufacturers recommendations.
2. Periodic attention is given, when necessary, to maintain the product in good functional order.

The Rada V12 Shower Valve is designed for the minimum of maintenance in normal use. The only serviceable parts are the inlet filters which should be checked and cleaned every 12 months. If a malfunction occurs with the Thermostatic Cartridge then this will necessitate a complete cartridge replacement.

Note! The cartridge contains no internally serviceable parts.

If you require a Rada trained engineer or agent, refer to section: '**Customer Service**'.

Lubricants

Silicone based lubricants must only be used on the rubber seals.

Caution! Oil based or other lubricant types may cause rapid deterioration of seals.

Cleaning

The chrome plated parts should be cleaned using a mild washing up detergent or soap solution, rinsed and then wiped dry with a soft cloth.

Warning! Many household cleaners contain abrasive and chemical substances, and should not be used for cleaning plated or plastic fittings.

Do not use descalents on this product.

Planned Maintenance

Malfunction of Thermostatic Mixing Valves is almost always progressive in nature and will be detected by the use of proper temperature checking and maintenance routines.

Certain types of system can result in the valve having excessive 'dead-legs' of pipework, or auxiliary cold water supply added to the mixed water from the valve. Such systems can disguise the onset of thermostatic mixing valve malfunction and should not be used.

We recommend a preventative maintenance procedure based on site conditions and the risk to the user. All results must be recorded in a log book.

Healthcare

Healthcare applications are hospitals, aged person facilities, residential care homes, etc. and any other applications where the user is similarly at risk.

Ultimately, the user or attendant must exercise diligence to make sure that the delivery of warm water is at a stable, safe temperature. This is particularly important in such procedures as supervised bathing where patients are unable to respond immediately to unsafe temperatures.

Commercial

Check for correct blend setting every 6 months. Follow the In-Service Test Procedure every 12 months.

Inlet Filters

The Inlet Filters should be checked and cleaned as necessary every 12 months.

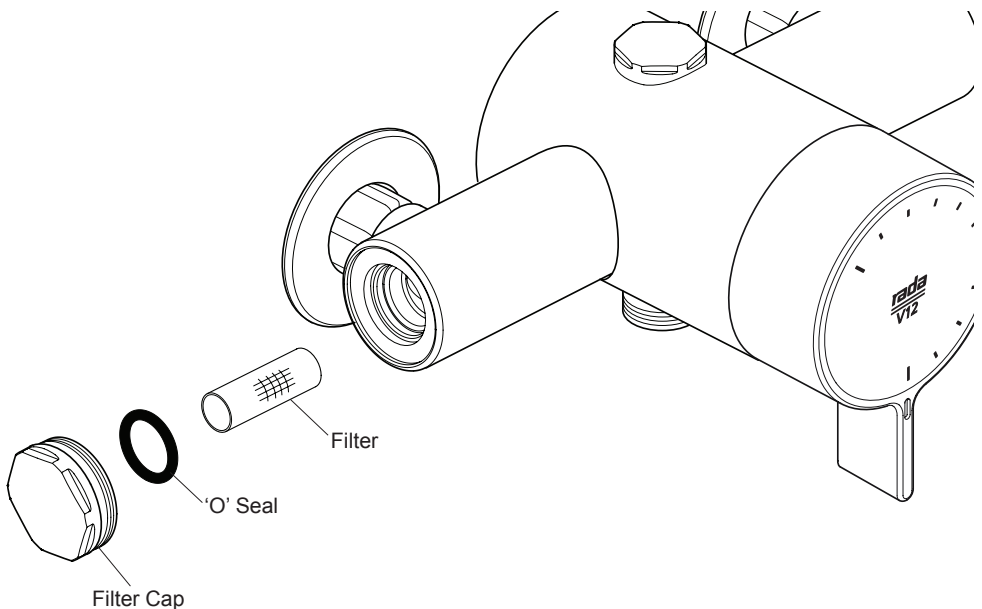
Note! The Inlet Filters must not be removed except for cleaning. If the Thermostatic Mixer is operated without the Inlet Filters fitted the Warranty on the product will be void.

Exposed Models

1. Isolate the hot and cold water supplies and operate the control lever to drain any residual water.
2. Carefully unscrew the filter caps and remove the filters.
3. Clean the filters under a jet of water to remove any lodged particles.
4. Refit the filters and tighten the filter caps.

Note! Make sure that the 'O' seal is fitted correctly and not damaged.

5. Turn on the hot and cold water supplies and check for leaks.



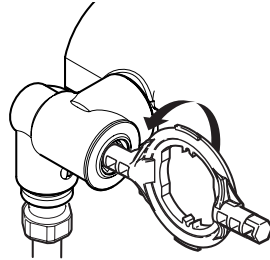
Built-in Models

Note! Refer to illustrations in section: '**Control Assembly (Built-in Models)**'.

1. Loosen the Grubscrew and pull off the Control Lever and Bearing.
2. Carefully unclip the Concealing Plate from the Backplate.
Note! Use a screwdriver in the cutout to assist separation.
3. Isolate the hot and cold water supplies with the integral ball valves and operate the control lever to drain any residual water.

4. Unscrew the Filter Caps with the 'O Key' (supplied) or a 12 mm hexagonal wrench and remove the Filters.

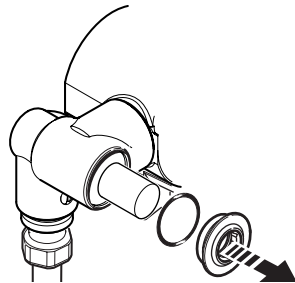
Note! Use pliers to carefully remove the filters.



5. Clean each of the filters under a jet of water to remove any lodged particles.

6. Refit the Filters and tighten the Filter Caps.

Note! Make sure that the seal is fitted correctly and not damaged.



7. Turn on the hot and cold water supplies and check for leaks.
8. Refer to section: '**Control Assembly (Built-in Models)**' and follow instructions 4 to 9.

TYPE 3 VALVES

Application

Key: High Pressure (HP), Low Pressure (LP)

The approved designations for Type 3 Valves are as follows:

Model	Designation
Rada V12	LP-S, HP-S, HP-SE*

* Economy flow rate designation achieved when 6 l/min flow regulator (supplied) is fitted.

The permitted application details are:

Normal Conditions of use for Type 3 valves - Table 1

	High Pressure	Low Pressure
Maximum Static Pressure - Bar	10	10
Flow Pressure, Hot and Cold - Bar	1 to 5	0.2 to 1
Hot Supply Temperature - °C	52 to 65	52 to 65
Cold Supply Temperature - °C	5 to 20	5 to 20
Minimum Temperature Differential - °C (Between Hot Supply and Outlet Temp)	1	10

Valves operating outside these conditions cannot be guaranteed to operate as Type 3 Valves.

Mixed Water Temperature - Table 2

Application	Mixed Water Temperature (at point of discharge) °C
Shower	41

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

Method for Commissioning Thermostatic Mixing Valves

Purpose

Since the installed supply conditions are likely to be different from those applied in the laboratory tests it is appropriate, at commissioning, to carry out some simple checks and tests on each mixing valve to provide a performance reference point for future in-service tests.

Procedure

Check that:

- a) the designation of the thermostatic mixing valve matches the intended application.
- b) the supply pressures are within the range of operating pressures for the designation of the valve.
- c) the supply temperatures are within the range permitted for the valve and by guidance information on the prevention of legionella etc.

Adjust the temperature of the mixed water in accordance with the instructions in section: '**Operation**' and the requirement of the application and then carry out the following sequence:

- a) record the temperature of the hot and cold water supplies.
- b) record the temperature of the mixed water at the largest draw-off flow rate.
- c) record the temperature of the mixed water at a smaller draw-off flow rate, which shall be measured.
- d) isolate the cold supply to the mixing valve and monitor the mixed water temperature.
- e) record the maximum temperature as a result of (d) and the final stabilised temperature.

Note! The final stabilised temperature should not exceed the values in Table 3.

- f) record the equipment, thermometer etc. used for the measurements.

Guide to Maximum Stabilised Temperatures Recorded During Site Tests

Table 3

Application	Mixed Water Temperature °C
Shower	43

In Service Testing

Purpose

The purpose of in-service tests is to regularly monitor and record the performance of the thermostatic mixing valve. Deterioration in performance can indicate the need for service work on the valve and/or water supplies.

Procedure

Using the same measuring equipment or equipment to the same specification as used in the commissioning of the valve, adjust the temperature of the mixed water in accordance with the instructions in section: 'Operation' and the requirement of the application. Carry out the following sequence:

- a) record the temperature of the hot and cold water supplies.
- b) record the temperature of the mixed water at the largest draw-off flow rate.
- c) record the temperature of the mixed water at a smaller draw-off flow rate, which shall be measured.

If the mixed water temperature has changed significantly from the previous test results (e.g. $>1^{\circ}\text{C}$) record the change and before re-adjusting the mixed water temperature check:

- a) that any in-line or integral filters are clean.
- b) that any in-line or integral non return valves or other anti-back siphonage devices are in good working order.
- c) that any isolating valves are fully open.

With an acceptable mixed water temperature, complete the following procedure:

- a) record the temperature of the hot and cold water supplies.
- b) record the temperature of the mixed water at the largest draw-off flow rate.
- c) record the temperature of the mixed water at a smaller draw-off flow rate, which shall be measured.
- d) isolate the cold supply to the mixing valve and monitor the mixed water temperature.
- e) record the maximum temperature as a result of (d) and the final stabilised temperature.
- f) record the equipment, thermometer etc. used for the measurements.

If at step (e) the final mixed water temperature is greater than the values in Table 3 and/or the maximum temperature exceeds the corresponding value from the previous results by more than about 2°C , the need for service work is indicated.

Note! In-service tests should be carried out with a frequency, which identifies a need for service work before an unsafe water temperature can result. In the absence of any other instruction or guidance, the procedure described in Annex F of D 08 may be used.

Frequency of In-service Tests

General

In the absence of any other instruction or guidance on the means of determining the appropriate frequency of in-service testing, the following procedure may be used:

- a) 6 to 8 weeks after commissioning carry out the tests detailed in “In-service Tests”
- b) 12 to 15 weeks after commissioning carry out the tests detailed in “In-service Tests”

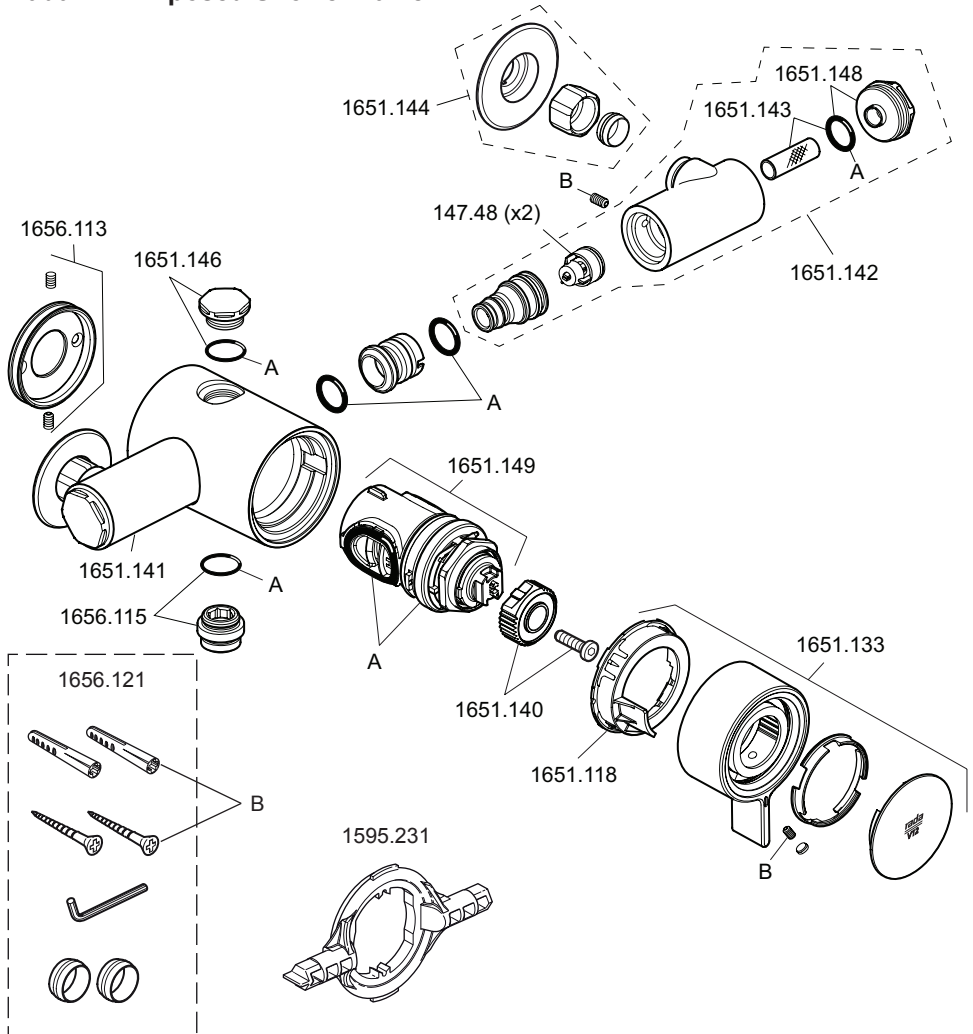
Depending on the results of the above tests, several possibilities exist:

- a) If no significant changes (e.g. $\leq 1^{\circ}\text{C}$) in mixed water temperatures are recorded between commissioning and 6 to 8 week testing, or between commissioning and 12 to 15 week testing, the next in-service test can be deferred to 24 to 28 weeks after commissioning.
- b) If small changes (e.g. 1 to 2°C) in mixed water temperatures are recorded in only one of these periods, necessitating adjustment of the mixed water temperature, the next in-service test can be deferred to 24 to 28 weeks after commissioning.
- c) If small changes (e.g. 1 to 2°C) in mixed water temperatures are recorded in both of these periods, necessitating adjustment of the mixed water temperature, then the next in-service test should be carried out at 18 to 21 weeks after commissioning.
- d) If significant changes (e.g. $>2^{\circ}\text{C}$) in mixed water temperatures are recorded in either of these periods, necessitating service work, then the next in-service test should be carried out at 18 to 21 weeks after commissioning.

The general principle to be observed after the first 2 or 3 in-service tests is that the intervals of future tests should be set to those which previous tests have shown can be achieved with no more than a small change in mixed water temperature.

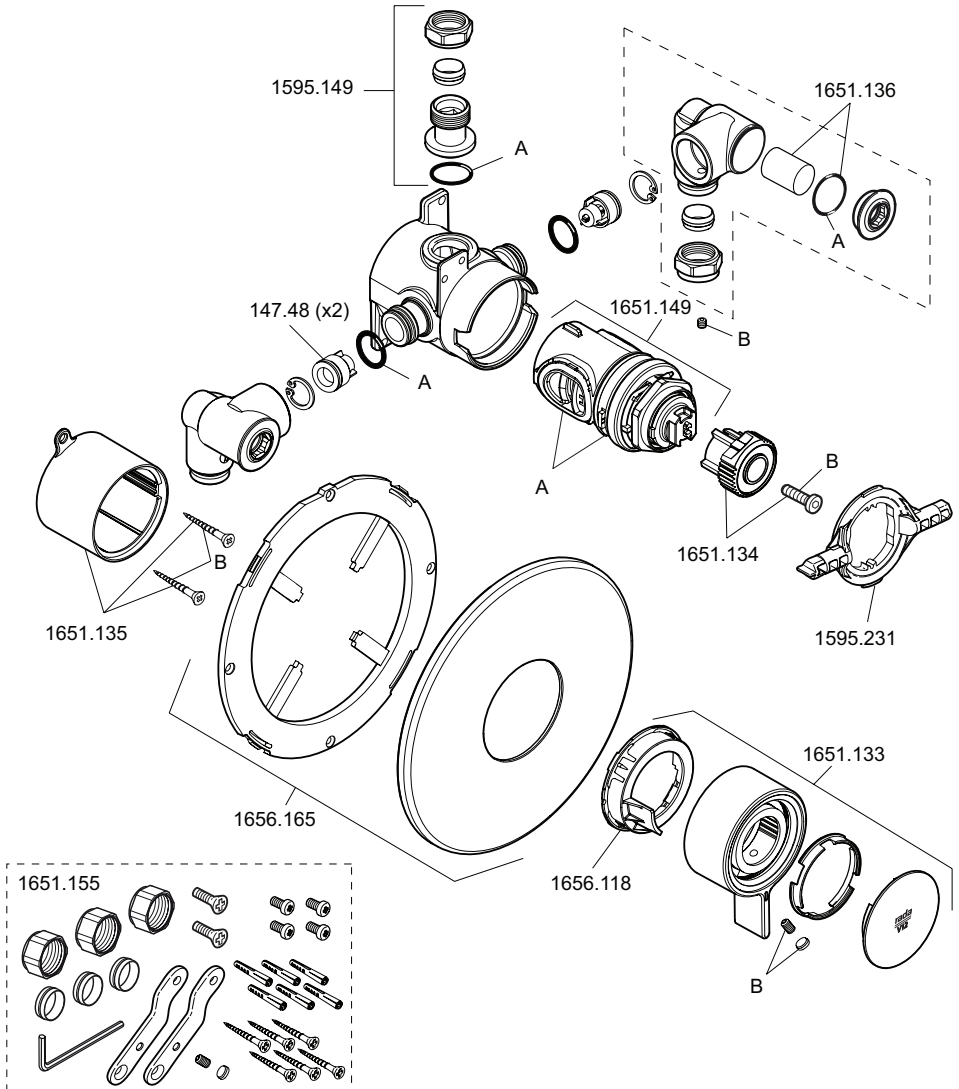
SPARE PARTS

Rada V12 Exposed Shower Valve



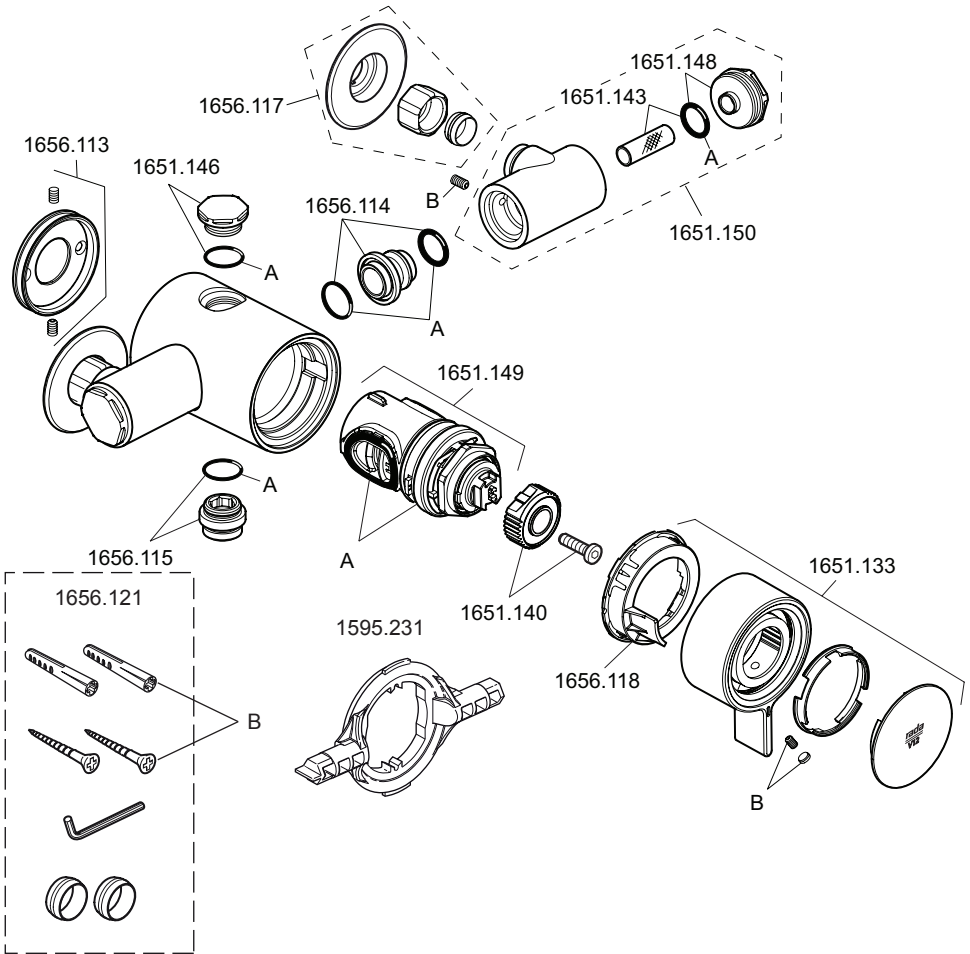
147.48	Check Valve (x 2)	1651.142	Insutech Cold Inlet Assy
1595.231	'O' Key	1651.144	Inlet Connector Pack
1651.113	Backplate	1651.145	Screw Pack (identified 'B')
1651.121	Component Pack	1651.146	Outlet Plug
1651.133	Control Lever Assy	1651.147	Seal Pack (identified 'A')
1651.137	Flow Regulator	1651.148	Elbow Cap
	(6 and 9 l/min)	1651.149	Cartridge Assembly
1651.140	Hub	1656.115	Outlet Connector Pack
1651.141	Insutech Hot Inlet Assy	1656.118	Bearing
		1651.143	Filter Pack (x 2)

Rada V12 Concealed Shower Valve



- | | | | |
|----------|-----------------------------------|----------|-----------------------------|
| 147.48 | Checkvalve (x 2) | 1651.138 | Seal Pack (identified 'A') |
| 1595.231 | 'O' Key | 1651.139 | Screw Pack (identified 'B') |
| 1595.149 | Outlet Connector Pack | 1651.149 | Cartridge Assembly |
| 1651.133 | Control Lever Assy | 1651.155 | Component Pack |
| 1651.134 | Hub | 1656.118 | Bearing |
| 1651.135 | Body Trim | 1656.165 | Concealing Plate Assembly |
| 1651.136 | Filter Pack (x 2) | | |
| 1651.137 | Flow Regulator
(6 and 9 l/min) | | |

Rada V12 - 130 Centres Shower Valve



- | | | | |
|----------|------------------------------------|----------|-----------------------------|
| 1595.231 | 'O' Key | 1651.149 | Cartridge Assembly |
| 1651.121 | Component Pack | 1651.150 | Elbow Assembly |
| 1651.133 | Control Lever Pack Assy | 1656.113 | Backplate |
| 1651.137 | Flow Regulators
(6 and 9 l/min) | 1656.114 | Elbow Connector |
| 1651.140 | Hub | 1656.115 | Outlet Connector Pack |
| 1651.143 | Filter Pack (x 2) | 1656.117 | Inlet Connector Pack |
| 1651.146 | Outlet Plug | 1656.118 | Bearing |
| 1651.147 | Seal Pack (identified 'A') | 1656.145 | Screw Pack (identified 'B') |
| 1651.148 | Elbow Cap | | |

NOTES

NOTES

CUSTOMER SERVICE

Guarantee of Quality

Rada products have the benefit of our one year manufacturer's guarantee which starts from the date of purchase.

Within the guarantee period we will resolve defects in materials or workmanship, free of charge, by repairing or replacing parts or product as we may choose.

This guarantee is subject to the following conditions:

- The product must be installed and maintained in accordance with the instructions given in this guide.
- Repair work must only be undertaken by us or our approved agent. **Note!** If a service visit is required the product must be fully installed and connected to services.
- Repair under this guarantee does not extend the original expiry date. The guarantee on any replacement parts or product ends at the original expiry date.
- For shower fittings or consumable items we reserve the right to supply replacement parts only.

The guarantee does not cover:

- Call out charges for non product faults (such as damage or performance issues arising from incorrect installation, improper use, lack of maintenance, build up of limescale, frost damage, corrosion, system debris or blocked filters) or where no fault has been found with the product.
- Water or electrical supply, waste and isolation issues.
- Compensation for loss of use of the product or consequential loss of any kind.
- Damage or defects caused if the product is repaired or modified by persons not authorised by us or our appointed representative.
- Routine maintenance or replacement parts to comply with regulatory requirements.

What to do if something goes wrong

If your product does not function correctly when you first use it, contact your installer to check that it is installed and commissioned in accordance with the instructions in this manual.

Should this not resolve the issue, contact us and we will offer you or your installer advice.

If the performance of your product declines, check within this manual to see if maintenance is required. Contact us if you require further assistance.

Rada Customer Service

Technical Helpdesk Service

Our dedicated Customer Services Team is comprehensively trained and can offer help and advice, spare parts, accessories or a service visit.

We will need you to have your model name or number and date of purchase.

As part of our quality and training programme calls may be recorded or monitored.

Spares and Accessories

We maintain extensive stocks of genuine spares and accessories and aim to provide support throughout the products life.

Payment can be made by phone at time of order using most major Credit or Debit cards and we aim to despatch orders within two working days. Items purchased from us are guaranteed for 12 months from date of purchase.

For safety reasons spares exposed to mains voltages should only be fitted by competent persons.

Returns – items can be returned within one month of date of purchase, providing that they are in good condition and the packaging is unopened. Please obtain authorisation from our Customer Services Team before return. We reserve the right to apply a 15% restocking charge.

Service / Repairs

We have a nationwide team of fully trained and approved Service Technicians who can carry out all service or repair work both within the guarantee period and beyond.

You have the assurance of a fully trained Technician, genuine Rada spare parts and a 12 month guarantee on any chargeable work done.

Service Contracts

A regular service ensures your product continues to perform at the peak of performance. We offer yearly or bi-annual servicing carried out by our full trained technicians subject to site survey.

Contact us for more details.

Rada Controls,
Cromwell Road,
Cheltenham,
Gloucestershire,
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