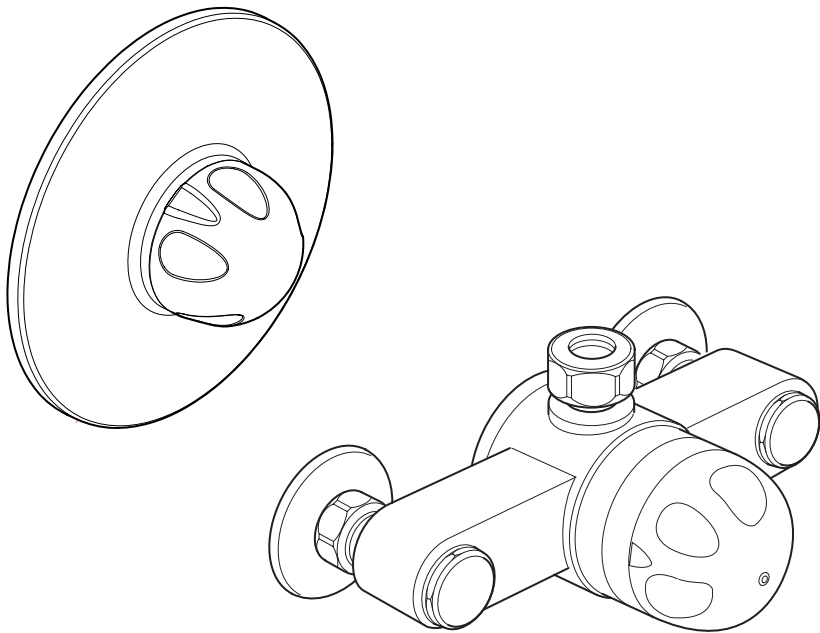




215 and 222 Series



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

Thank you for purchasing a quality Rada product. To enjoy the full potential of your new product, please take time to read this guide thoroughly, having done so, keep it handy for future reference.

This manual covers all Rada 215 and 222 thermostatic mixing valves manufactured from May 2008. A range of ½" and ¾" mixing valves suitable for a wide diversity of applications and installations providing water at safe, accurate temperatures for ablutionary or process requirements.

Model Range References:

- c** all chrome finish
- b** built-into wall recess or panel, temperature control protrudes through concealing plate.
- d** duct or fully concealed mounting, no user access required.
- k** locked temperature control, requires hexagonal key to adjust.
- oem** concealed model, duct/box installation

The suffix '3' indicates that the thermostatic mixer has been certified for use in UK Healthcare premises as a Type 3 valve under the BUILDCERT TMV3 scheme. In the case of the Rada 222-t3 dk this product has also been certified as a Type 2 valve under the BUILDCERT TMV2 scheme. For Healthcare installations refer to section: 'Type 2 and Type 3 Valves'. These products also comply with the Water Supply (water fittings) Regulations 1999.

Patents and Design Registration

Patents

- GB: 2 291 693, 2 340 210, 2 392 225,
2 421 297
- France: 0 694 721(E)
- Germany: 695 13 455.8
- USA: 7 240 850
- Euro: 1 672 257 DE, FR, GB, IT, NL, SE

Patent Applications

- Euro: 03254070.0
- USA: US-2006-0124758-A1,
US-2007-0221740-A1

Design Registration

000578463-003,006

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 2 and Type 3 installations, valves are only to be used for applications covered by their approved designations, refer to section: '**Type 2 and 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.
2. Retain this guide for later use.
3. Pass on this guide in the event of change of ownership of the installation site.
4. Follow all warnings, cautions and instructions contained in this guide.
5. 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.
6. Rapid/Excessive movement of the flow and/or temperature controls may result in momentary unstable blend temperatures.
7. Care is required when adjusting flow or temperature, make sure that the temperature has stabilised.
8. 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.

If you experience any difficulty with the installation or operation of your new thermostatic mixer, please refer to '**Fault Diagnosis**', before contacting Kohler Mira Ltd. Our contact details can be found on the back cover of this guide.

SPECIFICATIONS

For applications which may be outside the operating parameters which follow, refer to Kohler Mira Ltd, or Local Agent.

For Type 2 and Type 3 installations, the supply conditions specified in section: '**Type 2 and Type 3 Valves, Application**' take precedence over the operating parameters which follow.

Pressures

- Max Static Pressure: **10 Bar**.
- Max Maintained Pressure: **5 Bar**.
- Min Maintained Pressure (Gravity System): **0.15 Bar** (0.15 bar = 1.5 Metre head from cold tank base to outlet).
- For optimum performance supplies should be nominally equal.

Temperatures

- Factory Pre-set (Blend): 215 models: **41°C**, 222 models: **44°C** (bath fill applications).
- Blend Temperature Range: full cold to approximately 60°C, depending on hot water supply temperature.
- Optimum Thermostatic Control Range: **35°C to 50°C** (achieved with supplies of 15°C cold, 65°C hot and nominally equal pressures).
- Recommended Hot Supply: **60°C to 65°C** **Note!** The mixing valve can operate at higher temperatures for short periods without damage, however this could detrimentally affect thermostatic performance. For safety and performance reasons it is recommended that the maximum hot water temperature is limited to 65°C.
- Cold Water: up to **25°C**.
- Minimum Recommended Differential between Hot Supply and Outlet Temperature: **12°C**.

Thermostatic Shut-down

- For safety and comfort the thermostat will shut off the mixing valve **within 2 Seconds** if either supply fails (achieved only if the blend temperature has a minimum differential of 12°C from either supply temperature).

Flow Rates

- Minimum Flow Rate: 3 L/Min at mid-blend with equal dynamic supply pressures.
- Maximum Flow Rate: 215 models: 40 L/Min at mid-blend (which equates to maximum pressure loss of 3.5 bar), 222 models: 60 L/Min at mid-blend (which equates to maximum pressure loss of 3.0 bar).
- Maximum Recommended Flow Velocity in pipelines: 2 metres/second.
- Maximum Pressure Loss Ratio* should not exceed 10:1, in favour of either supply, during flow.

* Pressure Loss Ratio (PLR) is the ratio between the hot and cold supply pressures after the back pressure from outlet pipes, flow controls and fittings have been deducted from each inlet supply pressure.

For example, if the back pressure (measured immediately at the outlet of the mixing valve, and before any flow controls or fittings) is 1 bar, the cold water pressure is 3 bar and the hot water pressure is 2 bar then the pressure loss ratio will be:

$(3-1):(2-1) = 2:1$ in favour of the cold supply.

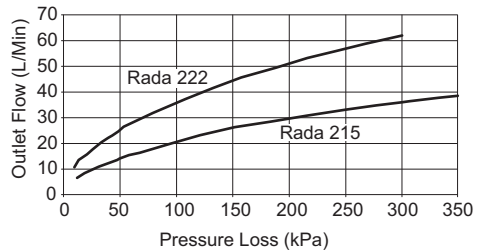
The pressure loss ratio for Rada 215 and 222 thermostatic mixing valves should ideally be 1:1 (i.e. nominally equal inlet pressures). To achieve this a suitable pressure regulating device should be fitted to either inlet as necessary.

Pressure loss ratio should not be confused with pressure ratio, which is the ratio of the inlet pressures only and takes no account of the back pressure.

Note! High back pressures make it more difficult for a valve to control correctly.

Flow Rate vs Pressure Loss Graph

(Mixing Valve only, equal dynamic supply pressures and mid-blend temperature setting). There will be additional pressure losses through the outlet fittings.



Flow Control

Rada 215 and 222 mixing valves do not have integral flow control; appropriate provision must be made for this in the outlet pipework.

This can be in the form of basin/bath tap, stopcock, mechanical timed-flow controller or solenoid.

The device chosen must be non-concussive in operation.

Connections

Rada 215-t3 c: Inlets and Outlet: 1/2" BSP external union or 15 mm compression.

Rada 215-t3 bc: Inlets and Outlet: 1/2" BSP external union or 15 mm compression.

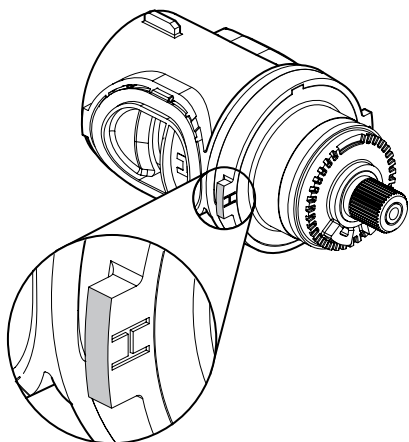
Rada 215-t3 dk and 215 dk: Inlets and Outlet: 1/2" BSP flat-faced external union (additionally, on t3 models, 2 elbows and 1 straight union connector are supplied, terminating in 15 mm compression connections).

Rada 222-t3 dk and 222 dk: Inlets and Outlet: 3/4" BSP flat-faced external union (additionally, on t3 models, 2 elbows and 1 straight union connector are supplied, terminating in 22 mm compression connections).

Rada 215-t3 oem: Inlets: 1/2" BSP flat-faced external union. Outlet: 1/2" BSP external union or 15 mm compression (nut and olive **not** supplied).

It is important that the mixing valve is connected to the hot and cold supplies correctly, standard connections are: **Hot - Left, Cold - Right, Outlet - Top**.

The mixing valve body is identified with a red and/or blue sticker (hot - red, cold - blue). The thermostatic cartridge is also identified with a 'H' stamped on the cartridge lug which is also marked red.



Note! Should the supplies be reversed then the mixing valve will not be able to control temperature. This can be corrected by rotating the thermostatic cartridge within the valve body, refer to section: **'Installation, Outlet Position/ Reversed Inlet Supplies'**.

All models can operate in any plane, and may be inverted if necessary for pipework layout convenience, provided hot and cold pipework is connected to the appropriate inlets (hot - red, cold - blue).

Inlet/Outlet Options:

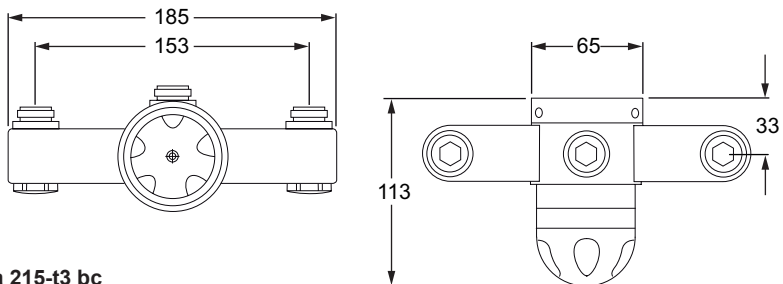
	inlets*	outlet*
215-t3 c	top, bottom, rear-fed	top, bottom
215-t3 bc	side	top, bottom
215-t3 dk 222-t3 dk, 215-t3 oem	any configuration	any configuration
215-t3 zc	rear-fed	top, bottom

*Products are supplied in the configuration shown in bold.

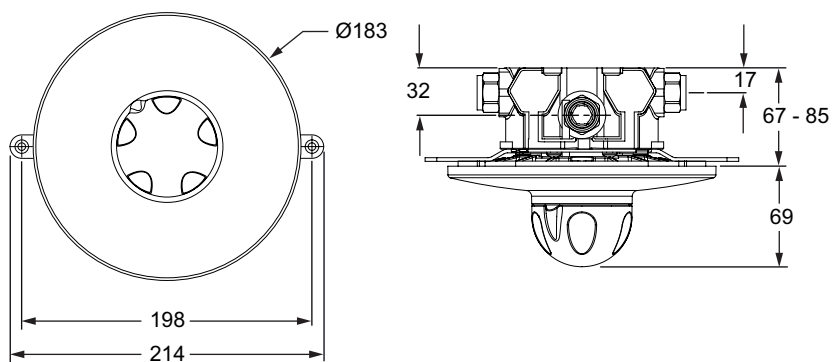
Dimensions

All dimensions are nominal and in mm

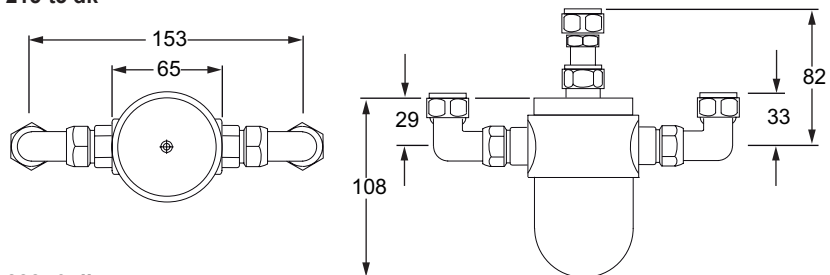
Rada 215-t3 c



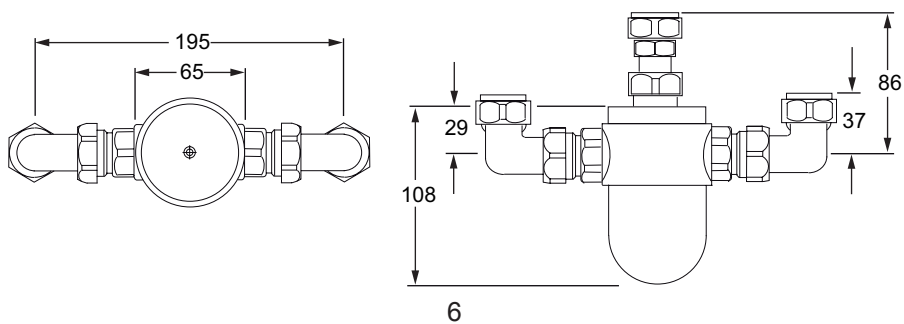
Rada 215-t3 bc



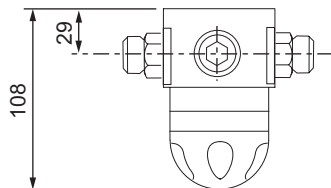
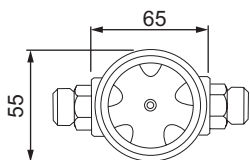
Rada 215-t3 dk



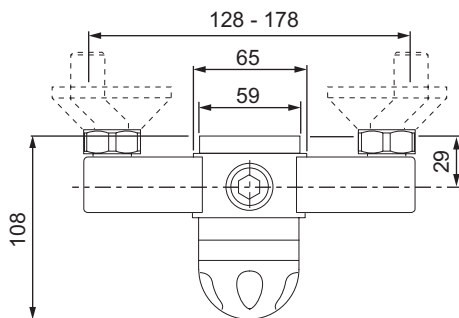
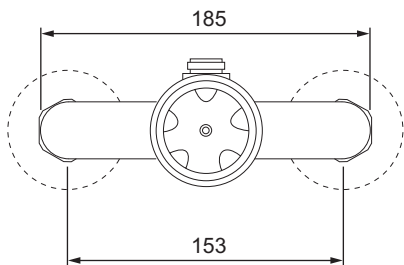
Rada 222-t3 dk



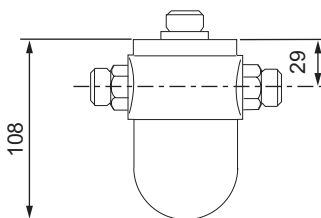
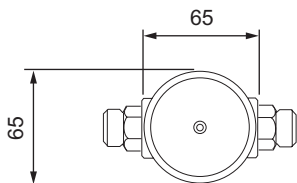
Rada 215-t3 oem



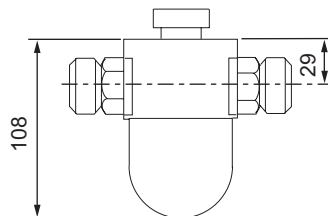
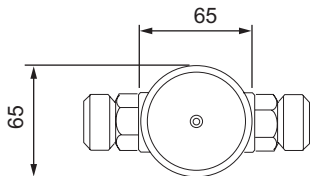
Rada 215-t3 zc



Rada 215 dk



Rada 222 dk



INSTALLATION

General

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

1. Before commencing, make sure that the installation conditions comply with the information given in section: '**Specifications**'. For Type 2 and Type 3 valves. See also installation conditions in section: '**Type 2 and Type 3 Valves**'.
2. The mixing valve should be positioned for easy access during use and maintenance. All routine maintenance procedures can be conducted with the mixing valve body in place (except for strainer and non return valve access on dk and oem models). For all models, allow a minimum of 80 mm clearance in front of the temperature control to enable removal of the Thermostatic Cartridge during maintenance.
3. Conveniently situated 'full bore' isolating valves must be provided for maintenance purposes.
4. The use of supply-line or zone strainers will reduce the need to remove debris at each mixing valve point. The recommended maximum mesh aperture dimension for such strainers is 0.3 mm.
5. Inlet pressure tappings which allow measurement of the inlet pressures to the mixing valve under operating conditions are particularly recommended for healthcare applications with Type 3 valves.
6. Pipework must be rigidly supported.
7. Certain types of system can result in the thermostatic mixing valve having excessive 'dead-legs' of pipework, or auxiliary cold water supply added to the mixed water from the thermostatic mixing valve. Such systems can disguise the onset of thermostatic mixing valve malfunction and should not be used.
8. Supply pipework layout should be arranged to minimise the effect of other outlet usage upon the pressures at the mixing valve inlets.
9. Inlet and outlet threaded joint connections should be made with PTFE tape or liquid sealant. Do not use oil-based, non-setting jointing compounds.
10. To eliminate pipe debris it is essential that supply pipes are thoroughly flushed through before connection to the mixing valve.

Outlet Position / Reversed Inlet Supplies

Rada 215-t3 oem, 215 dk, 215-t3 dk, 222 dk and 222-t3 dk models only:

These models are readily adaptable for rising or falling pipework; flat-faced union connectors (not supplied on all models) allow the valve body to accept a variety of pipework configurations, and to be reversed or inverted as appropriate.

215-t3 c and 215-t3 zc models only:

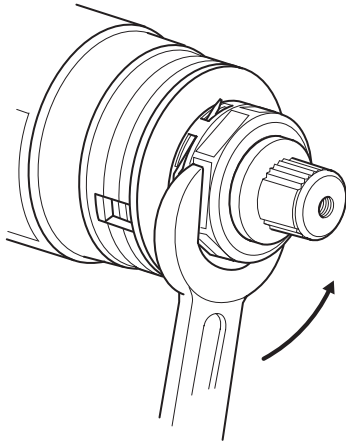
These models are supplied with inlet connections configured hot - left, cold - right, and top outlet as standard. It is essential that the inlet supplies correspond with the markings on the thermostatic cartridge. Should the existing hot and cold pipework make this configuration inconvenient, or a bottom outlet position be required, the valve inlets or outlet can be reversed, as detailed below. If both the outlet and inlet positions require reversing, it is easier to simply rotate the complete mixing valve 180°, and then reposition the temperature knob or cap.

Outlet Reversal should be done **prior** to installation of the mixing valve body. Rotate the body 180° so that the outlet is in the opposite direction, then follow the procedure for reversing the cartridge .

Reversed connections can be altered before or after mixing valve installation.

Reversing the Cartridge

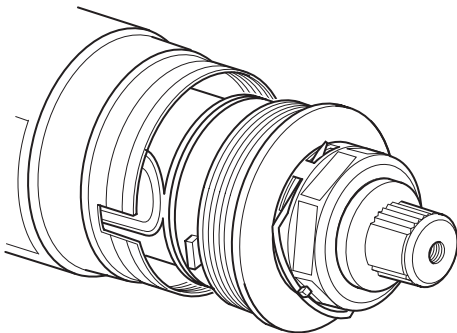
1. If the mixing valve has already been installed, isolate the supplies and open an outlet fitting to release pressure and to assist the draining of residual water.
2. Remove the temperature knob or locking cap, using a 3 mm hexagonal key.
Note! Do not remove the temperature hub.
3. With the removal clip in place, unscrew the head nut using a 35 mm wrench, this will begin to draw the thermostatic cartridge out of the body and release the indicator trim (adjustable models).



4. Remove the indicator trim (adjustable models) and pull the thermostatic cartridge free of the valve body.
5. Rotate the thermostatic cartridge 180°, which reverses the position of the cartridge hot and cold inlets.
6. Carefully push the thermostatic cartridge back into the valve body, checking that the two cartridge inlet port seals remain in place, and locate the cartridge lugs into the body slots.

Important! Make sure that the markings on the cartridge correspond with the hot and cold inlet pipework.

Note! The red and blue markings on the cartridge will now not correspond with the body markings, so to avoid future confusion remove the red and blue stickers from the valve body.



7. Carefully align and then tighten the head nut, do not over-tighten (max torque 2.5 N/m - 1.85 lbf ft).
8. Complete the installation, or, if the mixing valve body has already been installed, restore the hot and cold supplies and check for any leaks.
9. If the temperature hub has been removed or if the maximum temperature needs resetting, check, and if necessary refer to section: '**Commissioning**'.
10. Align and refit the indicator trim (adjustable models) and refit and secure the temperature knob or locking cap so that the markings will be visible to the user.

Rada 215-t3 bc models only:

This model is supplied with inlet connections configured hot - left, cold - right, and top outlet as standard. It is essential that the inlet supplies correspond with the markings on the thermostatic cartridge. Should the existing hot and cold pipework make this configuration inconvenient, or a bottom outlet position be required, the valve inlets or outlet can be reversed, as detailed below.

Outlet Reversal should be done **prior** to installation of the mixing valve body.

Reversed connections can be altered before or after mixing valve installation.

Reversing the Outlet Position

1. Remove the outlet nipple using a 12 mm hexagonal wrench.
2. Remove the outlet blanking plug using a 12 mm hexagonal wrench.
3. Screw the outlet nipple, complete with 'O' seal into the bottom hole previously blanked and tighten.
4. Screw the outlet blanking plug, complete with 'O' seal, into the top hole and tighten.

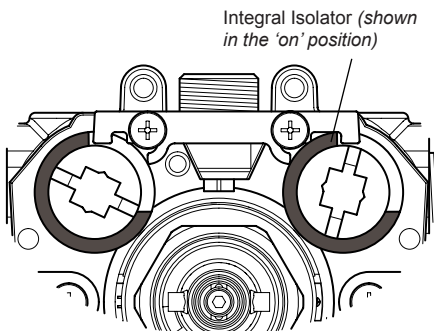
Reversing the Cartridge

If the mixing valve has **not** yet been installed follow instructions 5 to 10, otherwise follow instructions 1 to 15.

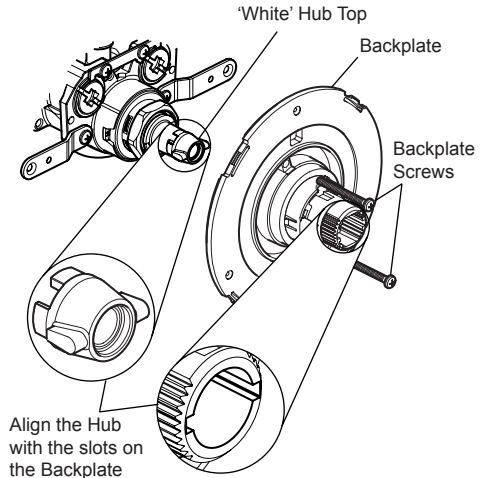
1. Unscrew the grubscrew using a 2.5 mm hexagonal key and pull off the temperature knob.
2. Carefully unclip the concealing plate from the backplate.

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

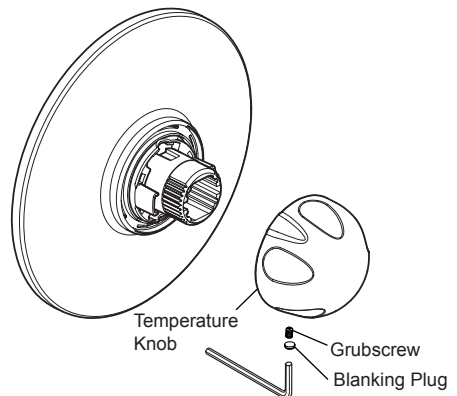
3. Unscrew the two backplate screws and remove the backplate from the mixer.
4. Using a 10 mm hexagonal key turn the integral isolators 90° anti-clockwise to shut off the hot and cold water supplies, and open an outlet fitting to release pressure and to assist the draining of residual water.
5. With the removal clip in place, unscrew the head nut using a 35 mm wrench, this will begin to draw the thermostatic cartridge out of the body.
6. Pull the thermostatic cartridge free of the valve body.
Caution! Some residual water may be released.
7. Rotate the thermostatic cartridge 180°, which reverses the position of the cartridge hot and cold inlets.
8. Carefully push the thermostatic cartridge back into the valve body, checking that the two cartridge inlet port seals remain in place, and locate the cartridge lugs into the body slots.
Important! Make sure that the red and blue markings on the cartridge correspond with the hot and cold inlet pipework.
Note! The red and blue markings on the cartridge will now not correspond with the body markings, so to avoid future confusion remove the red and blue stickers from the valve body.
9. Carefully align and then tighten the head nut, do not over-tighten (max torque 2.5 N/m - 1.85 lbf ft).
10. Complete the installation, or, if the mixing valve body has already been installed, continue with instructions 11 to 15.
11. Turn the integral isolators 90° clockwise to turn on the hot and cold water supplies.



12. Align the slots in the 'black' knob retainer with the lugs on the 'white' hub top and secure the backplate to the mixing valve with the two backplate screws.



13. The maximum temperature may need to be reset, check, and if necessary refer to section: **'Commissioning'**.
14. Clip the concealing plate onto the backplate with the cutout at the bottom.
15. Refit and secure the temperature knob so that the markings will be visible to the user.

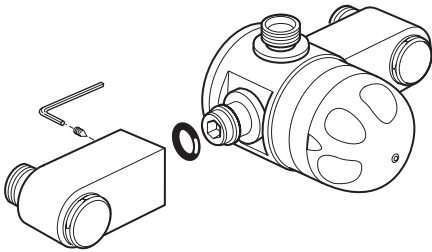


Rada 215-t3 c

- The inlet elbows are positioned to accept falling supplies. Should the installation require rising or rear entry supplies then the elbows will need rotating:

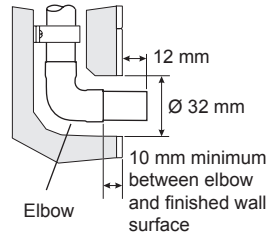
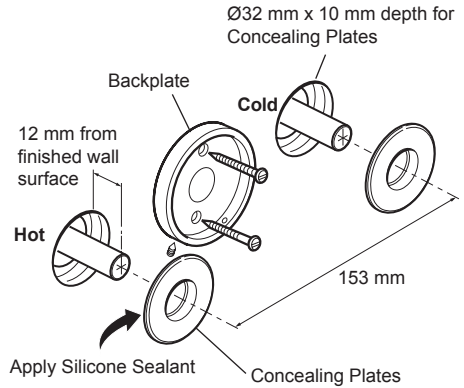
- Loosen the elbow grub screws using a 2.5 mm hexagonal key.
- Pull the elbow away from the valve body and refit in the desired position, re-tighten the grub screw.

Note! Make sure that the 'O' seal is correctly fitted.



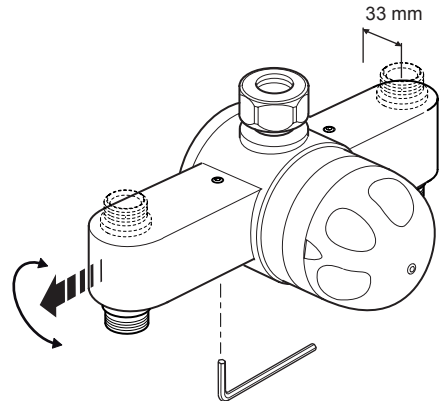
- Loosen the backplate grub screws using a 2.5 mm hexagonal key and pull off the backplate.
- For solid walls drill the holes for the backplate with a 6 mm drill and insert the wall plugs. For other types of wall structure alternative fixings may be required (not supplied).
- For rear entry supplies:** drill the holes for the supply pipes at 153 mm centres and recess the wall to allow for the concealing plates, $\text{Ø}32$ mm x 10 mm deep.

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



- For falling supplies:** Mark the pipe positions on the ceiling and set the 33 mm centres from the finished wall.

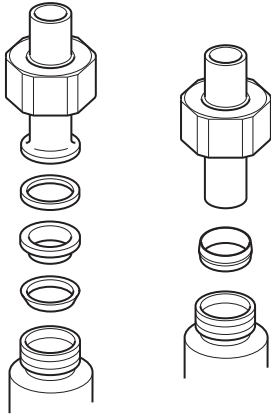
For rising supplies: Mark the pipe positions and set the 33 mm centres from the finished wall.



- Fit the supply pipework (Hot - Left, Cold - Right).

- For 15 mm compression inlet or outlet connections: fit the compression nuts and olives to the pipework.

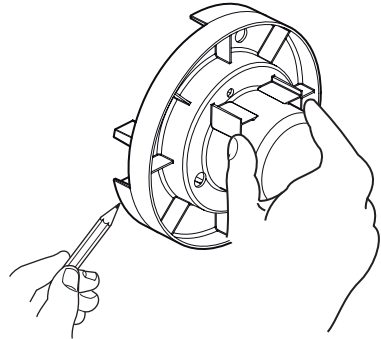
For ½" BSP union inlet or outlet connections: fit the flat-faced inserts, press in firmly.



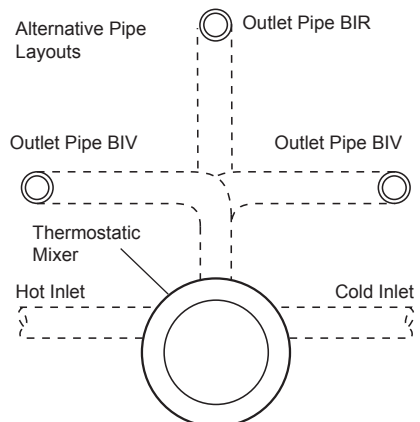
- Mount the backplate securely to the wall surface, with the grub screws positioned at the bottom, using the screws provided if appropriate.
- Caution! It is essential at this point that the supply pipework is thoroughly flushed through before connection to the mixer.** Failure to do so may result in product malfunction and will not be covered under the guarantee.
- Refit the valve onto the backplate and tighten the grubscrews.
- Connect the hot and cold supply pipes and tighten the compression nuts.
- Connect the outlet pipework, leaving enough pipe through the wall to temporarily cap off.
- Refer to section: '**Commissioning**'.

Rada 215-t3 bc (Rear Fixing into Solid Walls or Stud Partitions)

- Determine the route for the hot and cold supply pipework and for the outlet pipework. When connecting to 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.
- Remove the two shroud screws (retain for later use) and remove the building-in shroud from the mixer.
- Determine the position of the mixer and draw around the building-in Shroud.



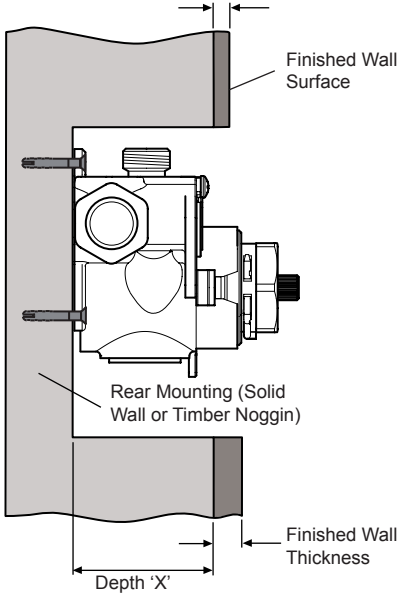
- Mark the routes for the hot and cold supply pipework (**Hot - Left, Cold - Right**) and for the outlet pipework.
Note! (if applicable) The outlet elbow should be sited above the mixer and on the right or left, as site dictates.



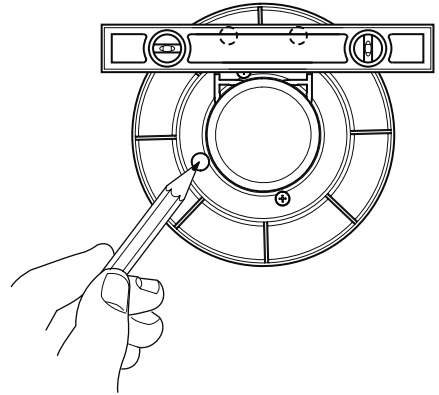
- Cut away the plasterboard and/or brick work to the required depth.

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).



- Refit the building-in shroud to the mixer.
- 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 three fixing screw holes on the wall.

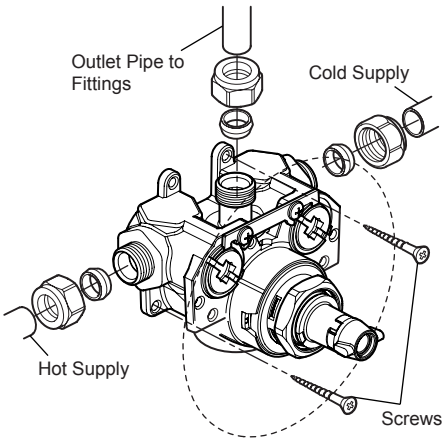


- For solid walls drill three 6 mm holes for the wall plugs.
- Fit the hot and cold supply pipework (**Hot - Left, Cold - Right**).
- Caution!** It is essential at this point that the supply pipework is thoroughly flushed through before connection to the mixer. Failure to do so may result in product malfunction and will not be covered under the guarantee.

Finished Wall Thickness (e.g. tile and adhesive)	Wall Cutout Depth 'X'
4 mm	81 - 63 mm
6 mm	79 - 61 mm
8 mm	77 - 59 mm
10 mm	75 - 57 mm
12 mm	73 - 55 mm
14 mm	71 - 55 mm
16 mm	69 - 55 mm
18 mm	67 - 55 mm
20 mm	65 - 55 mm
22 mm	63 - 55 mm
24 mm	61 - 55 mm

11. Insert the wall plugs 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.



12. Remove the two shroud screws (retain for later use) and remove the building-in shroud from the mixer.

13. Make sure that the olives are fitted, connect the hot and cold supply pipes and tighten the compression nuts.

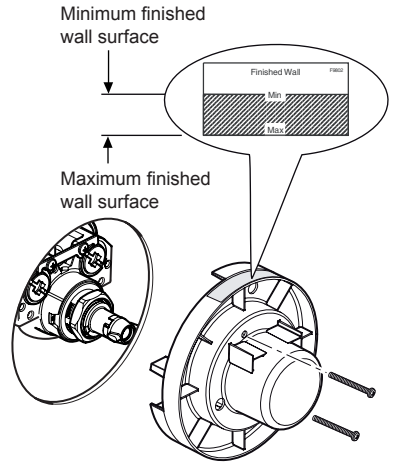
14. Connect the outlet pipework, leaving enough pipe through the wall to temporarily cap off.

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

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

17. 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.



18. Remove the two shroud screws (retain for later use) and remove the building-in shroud.

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

Rada 215-t3 bc (Panel Fixing using Securing Brackets)

Note! For laminated panels the mixer must be positioned from the rear of the panel.

Panel thickness must be between 4 and 12 mm (if a thicker panel is used, it will be necessary to recess the securing brackets into the rear of the panel).

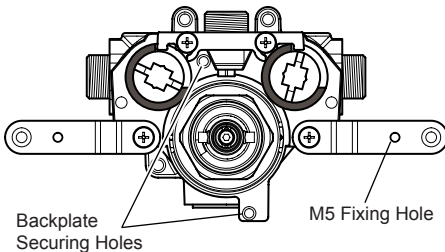
Important! Make sure that there is a minimum clearance of 64 mm behind the laminated panel to house the mixer.

1. Refer to section: '**Rada 215-t3 bc (Rear Fixing into Solid Walls or Stud Partitions)**' and follow instructions 1 to 4.
2. Carefully cut out the laminated panel.
3. Fit the securing brackets to the mixer.

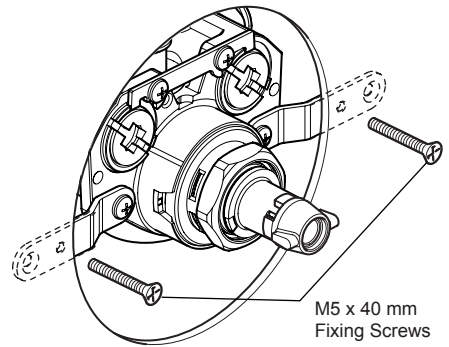
Important! Make sure that the correct holes are used, otherwise the backplate cannot be fitted.

4. 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.

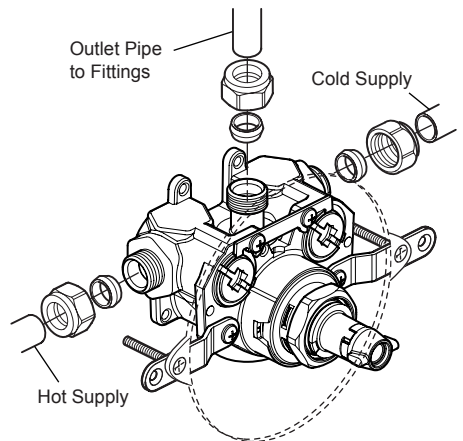
Important! Make sure that the correct holes are used (refer to illustration).



5. Drill the two 5.5 mm holes for the fixing positions (countersink the holes at the front).
6. Fit the hot and cold supply pipework (**Hot - Left, Cold - Right**).
7. **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 and will not be covered under the guarantee.
8. Secure the mixer with the M5 x 40 screws as shown.



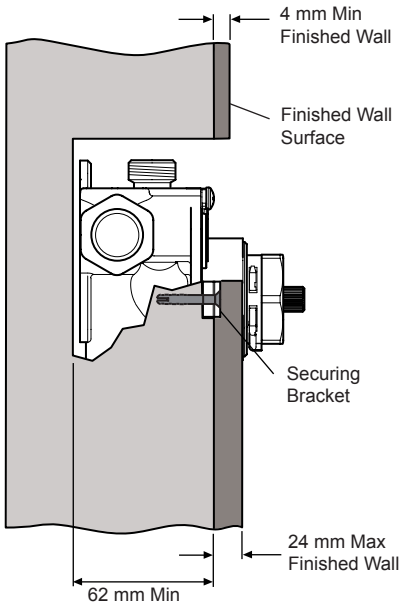
9. Make sure that the olives are fitted, connect the hot and cold supply pipes and tighten the compression nuts.
10. Connect the outlet pipework, leaving enough pipe through the wall to temporarily cap off.



11. Turn on the water supplies and check for leaks.
12. Fit the concealing plate and control assembly, refer to section: '**Control Assembly**'.

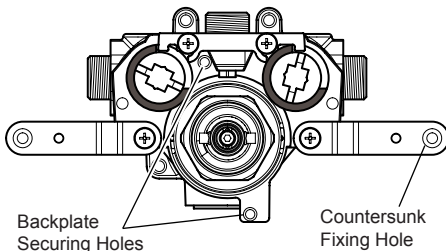
Rada 215-t3 bc (Solid Wall or Stud Partitions using Securing Brackets)

1. Refer to section: 'Rada 215-t3 bc (Rear Fixing into Solid Walls or Stud Partitions)' and follow instructions 1 to 4.
2. Remove the plasterboard and/or brick work to a minimum depth of 62 mm.



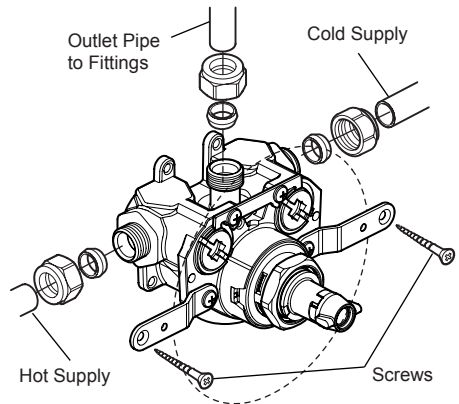
3. Fit the securing brackets to the mixer with the bracket securing screws.

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



4. Make sure that the mixer is level and mark the positions for the countersunk fixing holes on the wall.
5. For solid walls drill two 6 mm holes for the wall plugs.

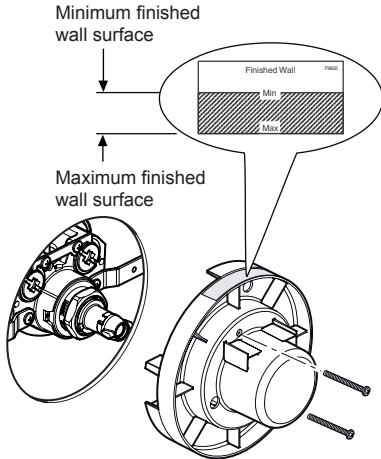
6. Fit the hot and cold supply pipework (Hot - Left, Cold - Right).
 7. **Caution! It is essential at this point that the supply pipework is thoroughly flushed through before connection to the mixer.** Failure to do so may result in product malfunction and will not be covered under the guarantee.
 8. Remove the wall brackets from the mixer.
 9. Make sure that the olives are fitted, connect the hot and cold supply pipes and tighten the compression nuts.
 10. Refit the wall brackets to the mixer, fit the wall plugs 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 outlet pipework, leaving enough pipe through the wall to temporarily cap off.



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

13. Attach the building-in shroud to the mixer using the two shroud screws removed earlier.
14. Using the 'Finished Wall Indicator' on the building-in shroud as a guide, finish the wall, e.g. tiles.

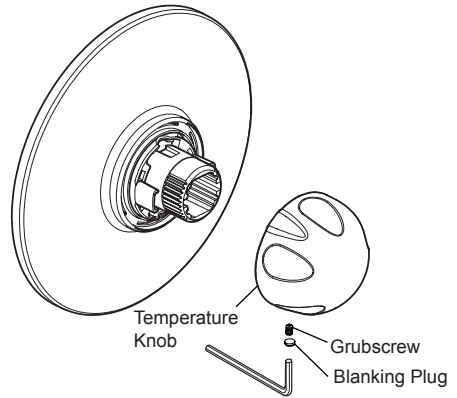
Caution! Make sure that the finished wall is within the maximum and minimum limits and to an even depth (no greater than 2 mm variation) or the control components will not fit correctly.



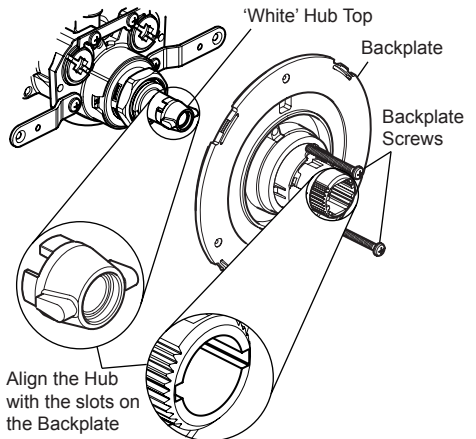
15. Remove the two shroud screws (retain for later use) and remove the building-in shroud.
16. Fit the concealing plate and control assembly, refer to section: '**Control Assembly**'.

215-t3 bc Control Assembly

1. Remove the blanking plug, unscrew the grubscrew using a 2.5 mm hexagonal key and pull off the temperature knob.



2. Carefully unclip the concealing plate from the backplate.
Note! Use a screwdriver in the bottom cutout to assist separation.
3. Align the slots in the 'black' knob retainer with the lugs on the 'white' hub top and secure the backplate to the mixing valve with the two backplate screws.



4. Clip the concealing plate onto the backplate with the cutout at the bottom.
5. Refit the temperature knob with the grubscrew at the bottom and secure, refit the blanking plug.
6. Before using the shower, refer to section: '**Commissioning**'.

Rada 215 dk, 215-t3 dk, 222 dk, 222-t3 dk and 215-t3 oem

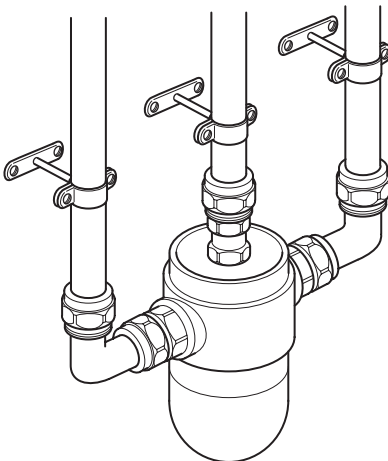
The mixing valve is supported by the inlet and outlet pipework only, which must be suitably and securely fastened.

Inlets and outlet are external BSP union, intended to accept flat-faced connectors (see note). It is recommended that such union connections are used, so that the mixing valve body can be readily removed from its pipework for maintenance purposes.

Note! Flat faced connectors are **not** supplied with 215-t3 oem, 215 dk or 222 dk models.

1. Three additional connectors (see note above) are supplied (2 elbows, 1 straight, terminating in compression connections), which are interchangeable to the inlets and outlet. Select the most appropriate configuration for the intended installation, and, with the nylon washers in place, secure to the mixing valve body.
2. Fit and secure the supply pipework.
3. **Important!** Flush through the hot and cold supplies thoroughly before connection to mixing valve.
4. Connect the inlet and outlet pipework to the valve.

Note! Make sure that the hot and cold supplies have been connected to the correct inlets, and that all connections are watertight.



5. Refer to section: **'Commissioning'**.

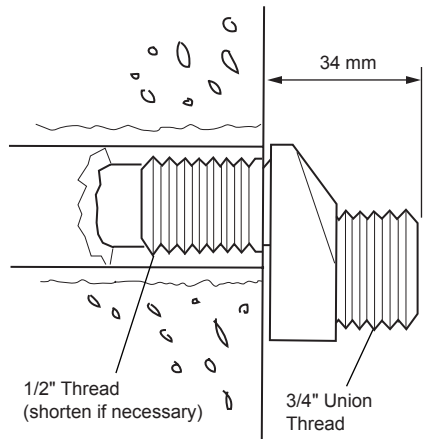
Rada 215-t3 zc

Note! Rada offset connectors and offset pipe concealing plates are not supplied with this mixing valve, but are available separately as optional accessories.

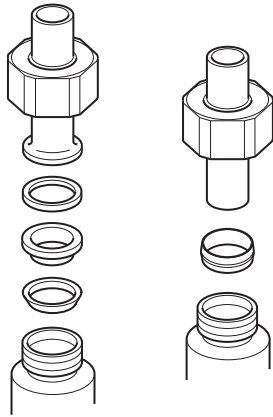
1. Check that the hot and cold supplies are piped to the correct inlet positions. Supplies (pipe centres between 128-178 mm) must terminate in 1/2" BSP internal sockets to within 3 mm, above or below, the final wall surface.

Note! It is essential that inlet supply sockets are parallel, and square with wall surface.

2. Join offset connectors and screw into sockets so that faced edge is 34 mm proud of **final** wall surface (refer to illustration). Shorten 1/2" BSP external thread, if necessary.



3. Screw pipe concealing plates onto offset connectors.
4. **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 and will not be covered under the guarantee.
5. With the nylon washers in position, offer up the mixing valve and tighten the union nuts onto the offset connectors.
6. Connect the outlet pipework:
 - 6.1 for 15 mm compression pipework outlet connection: fit the compression nut and olive (refer to illustration).
 - 6.2 for 1/2" BSP union outlet connection: fit flat-faced insert, press in firmly (refer to illustration).



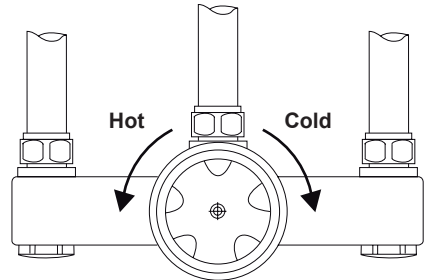
7. Make sure that the hot and cold supplies have been connected to the correct inlets, and that all connections are watertight.
8. Refer to section: '**Commissioning**'.

OPERATION

For adjustable temperature models adjustment of the blend temperature from the preset maximum to cold is achieved by clockwise rotation of the temperature knob.

For locked temperature models no user adjustment is intended.

Control of flow is via a separate outlet valve(s), refer to section: '**Specifications**'.



Adjustable Temperature Models Only

COMMISSIONING

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

Exercising the Thermostat

Thermostatic mixing valves with wax thermostats are inclined to lose their responsiveness if not used. Valves which have been in storage, installed but not commissioned, or simply not used for some time should be exercised before setting the maximum temperature or carrying out any tests.

A simple way to provide this exercise is:

- (a) Make sure that the hot and cold water are available at the valve inlets, and the outlet is open.
- (b) Move the temperature control rapidly from cold to hot and back to cold several times, pausing at each extreme.

Maximum Temperature

Note! For Type 2 or Type 3 healthcare installations the maximum blend temperature is determined by the application, refer to section: '**Type 2 and Type 3 Valves, Application**'.

The maximum blend temperature obtainable by the user should be limited, to prevent accidental selection of a temperature that is too hot.

All Rada thermostatic mixing valves are fully performance tested and the maximum temperature is preset to approximately 41°C (222 models - 44°C) under ideal installation conditions at the factory.

Site conditions and personal preference may dictate that the maximum temperature has to be reset following installation.

This mixing valve is provided with two methods of temperature setting, an adjustable temperature control knob which allows the user to select the blend temperature between ambient cold up to a preset maximum, or if considered more appropriate, a locked cap can be fitted, allowing no user adjustment.

Maximum Temperature Setting

Check that an adequate supply of hot water is available at the hot inlet of the mixing valve.

The minimum temperature of the hot water must be at least 12°C above the desired blend, however during resetting this should be close to the typical storage maximum to offset the possibility of any blend shift due to fluctuating supply temperatures.

Check that both inlet isolating valves are fully open and the inlet filters are clean.

Temperatures should always be recorded using a thermometer with proven accuracy.

All models except Rada 215-t3 bc:

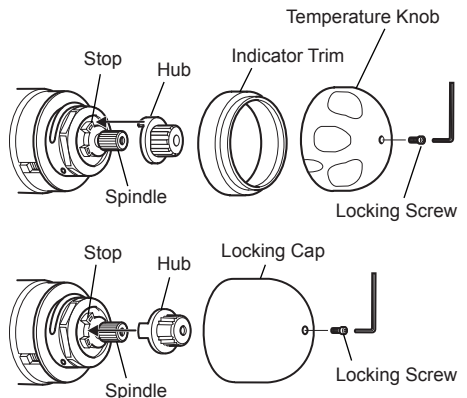
1. Remove the temperature knob and indicator trim or locking cap using a 3 mm hexagonal key.
2. Pull off the temperature hub.
3. Using the temperature hub, rotate the spindle until the required maximum blend temperature is obtained at the discharge point (**rotate clockwise to decrease temperature**).

If resistance is felt do not use force to turn any further, as this can damage the internal parts.

4. Once the desired maximum blend temperature has been achieved, refit the hub without disturbing the spindle.

For adjustable temperature position the hub such that the lug is against the side of the stop on the cartridge face, thus preventing anticlockwise rotation past the maximum temperature stop.

For locked temperature position the hub such that the lug is between the stops on cartridge face, thus preventing any rotation.

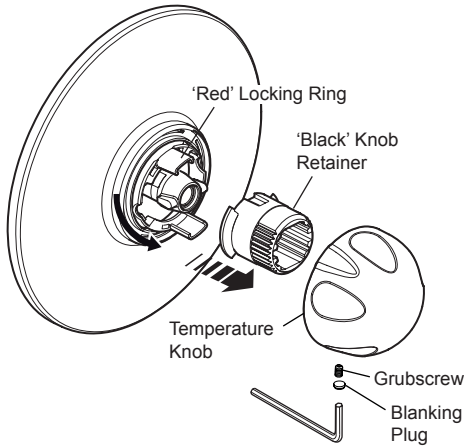


5. Check that blend temperature has not altered.
6. **For adjustable temperature** refit the indicator trim and temperature knob and secure with the locking screw.

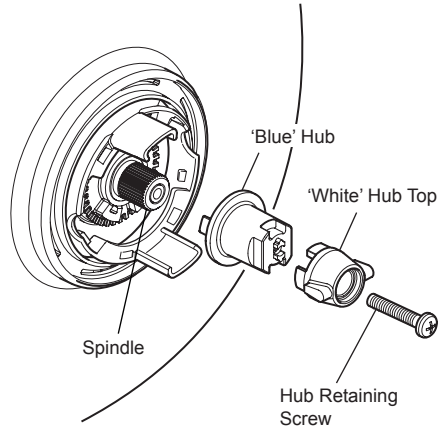
For locked temperature refit the locking cap, engaging the cap guides into the body slots and secure with the locking screw.

Rada 215-t3 bc models only:

1. Remove the blanking plug, unscrew the grub screw using a 2.5 mm hexagonal key and pull off the temperature knob.
2. Rotate the 'red' locking ring anti-clockwise until the 'black' knob retainer is released.
3. Remove the 'black' knob retainer.



4. Unscrew the hub retaining screw and remove the 'white' hub top and 'blue' hub.
5. Rotate the spindle until required maximum blend temperature is obtained at discharge point (**clockwise = decrease temperature**). **Note!** Use the 'blue' hub to assist. **If resistance is felt do not use force to turn any further, as this can damage the internal parts.**



6. Once the desired maximum blend temperature has been achieved, refit the 'blue' hub without disturbing the spindle. **For adjustable temperature** position the 'blue' hub such that the lug is against the side of the stop on the cartridge face, thus preventing anticlockwise rotation past the maximum temperature stop. **For locked temperature** position the 'blue' hub such that the lug is between the stops on cartridge face, thus preventing any rotation.
7. Check that blend temperature has not altered.
8. Refit the 'white' hub top and secure with the hub retaining screw.
9. Turn the 'red' locking ring so that the lugs are in the vertical position.
10. Align the slots in the 'black' knob retainer with the lugs on the 'white' hub top and refit into the 'red' locking ring.
11. Hold the 'black' knob retainer still and rotate the 'red' locking ring clockwise to lock in position.
12. Refit the temperature knob with the grub screw at the bottom and secure, refit the blanking plug.

TYPE 2 AND TYPE 3 VALVES

Application

The approved designations for **Type 2 Valves** are as follows:

Models	Designation
Rada 222-t3 dk	HP-S, HP-W, HP-T44, LP-S, LP-W, LP-T44

The approved designations for **Type 3 Valves** are as follows:

Models	Designation
Rada 215-t3 c	HP-S, HP-W, HP-T44, LP-S, LP-W
Rada 215-t3 bc	HP-S, HP-W, HP-T44, LP-S, LP-W
Rada 215-t3 dk	HP-S, HP-W, HP-T44, LP-S, LP-W
Rada 222-t3 dk	HP-T44, LP-T44

The permitted application details are:

Designation	Operating Pressure Range	Application	Mixed Water Temp [†]
HP-S	High Pressure	Shower	41°C Max
HP-W	High Pressure	W'basin	41°C Max
HP-T44	High Pressure	Bath (44°C fill)	44°C Max
LP-S	Low Pressure	Shower	41°C Max
LP-W	Low Pressure	W'basin	41°C Max
LP-T44	Low Pressure	Bath (44°C fill)	44°C Max

[†] Mixed water temperature at discharge point.

Important! For TMV2 installations the mixed water temperature at the discharge point should never exceed 46°C.

Note! For washbasins, it is assumed that you are washing under running water.

Note! Bath fill temperatures of more than 44°C should only be available when the bather is always under the supervision of a competent person (e.g. nurse or care assistant).

In order to achieve the safe water temperatures expected of Type 2 and Type 3 Valves it is essential that the valve is used only for the applications covered by its approved designations, with the appropriate water supply pressures and temperatures, and it is commissioned, maintained and serviced in accordance with the recommendations contained in this guide (refer to the section '**Maintenance, In-Service Tests**' for in service test frequency that must be used as a minimum guide in Type 2 and Type 3 installations).

Supply Conditions

For applications where a Type 2 or Type 3 Valve is required, the supply conditions must comply with the values extracted from the TMV2 and TMV3 standard (EN1287 & EN1111), shown in the table below. Note that both hot and cold supply pressures must lie within the same pressure range.

Operating Pressure Range	High Pressure	Low Pressure
Maximum Static Pressure (bar)	10	10
Maintained Pressure, Hot and Cold (bar)	1 to 5	0.2 to 1
Hot Supply Temperature (°C)	55 to 65	55 to 65
Cold Supply Temperature (°C)	≤25	≤25

Valves operating outside these conditions cannot be guaranteed to operate as Type 2 or Type 3 Valves.

Commissioning

(Temperatures should always be recorded with a thermometer with proven accuracy)

1. Check that the designation of the thermostatic mixing valve matches the intended application.
2. Check that the supply pressures are within the range of operating pressures for the designation of the thermostatic mixing valve.
3. Check that the supply temperatures are within the range permitted for the shower control and by guidance information on the prevention of legionella etc.
4. Check inlet pipework temperatures for correct function of the non return valves.
5. All connections and thermostatic mixing valve body are water tight.
6. Operate the outlet flow divertor lever and check:
 - (a) Flow rate is sufficient for purpose (low pressure supplies may require removal of flow regulators).
 - (b) Temperature(s) obtained are acceptable.
7. Exercise the thermostat (refer to section: '**Commissioning, Exercising the Thermostat**').

8. Adjust the temperature of the mixed water in accordance with the instructions in this manual and the requirement of the application and then carry out the following sequence:
 - (a) Record the temperature, and pressures if possible, of the hot and cold water supplies.
 - (b) Record the temperature and flow rate of the mixed water at the largest draw-off flow rate.
 - (c) Record the temperature and flow rate of the mixed water at a smaller draw-off flow rate.
 - (d) Isolate the cold water supply to the mixing valve and monitor the mixed water temperature.
 - (e) Record the maximum temperature achieved as a result of **d.** and the final temperature.

Note! The final mixed water temperature should not exceed the values shown in the table below. Any higher temperatures should only occur briefly.
 - (f) Record the date, equipment, thermometer etc. used for the measurements.

Application	Maximum Mixed Water Temperature
Bidet	40°C
Shower	43°C
Washbasin	43°C
Bath (44°C fill)	46°C
Bath (46°C fill)	48°C

Maintenance

Planned maintenance for Type 3 Valves must use the 'In-Service Test', at the frequency given in the guide to in-service test frequency, and should employ temperature testing, performance log books and training as detailed in section: '**Maintenance**'.

Type 2 valves must use the 'In-Service Test' at a frequency of not more than one year.

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 215 and 222 range of thermostatic mixing valves are 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 Care**.'

Disinfection

In applications where system chemical disinfection is practised, chlorine can be used (calculated chlorine concentration of 50 mg/l (ppm) maximum in water, per one hour dwell time, at service interval frequency). Such procedures must be conducted strictly in accordance with the information supplied with the disinfectant and with all relevant Guidelines/Approved Codes of Practice.

If in any doubt as to the suitability of chemical solutions, refer to Kohler Mira Ltd, or Local Agent.

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.

In-service Tests

The principal means for determining the continuing satisfactory performance of the mixing valve is the in-service test.

Follow the procedure detailed in the flow diagram "In-service Test Procedure".

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.

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 healthcare procedures, such as supervised bathing where patients are unable to respond immediately to unsafe temperatures.

Irrespective of supply and usage conditions or the evidence of in-service tests, the thermostatic cartridge should be replaced at intervals of no more than 5 years.

Note! During the replacement of the thermostatic cartridge, it may be necessary to replace other non-critical components.

Frequency of In-service Tests

Healthcare

Follow the procedure detailed in the flow diagram “In-service Test Procedure”. This procedure must be followed 6 to 8 weeks after commissioning and 12 to 15 weeks after commissioning. The recorded blend temperature ^(Tb) from these two tests will determine the maximum frequency for future service intervals.

Result of 6-8 week tests	Result of 12-15 week tests	Next service interval
< 1°C	< 1°C	9 - 12 weeks
> 1°C	< 1°C	9 - 12 weeks
< 1°C	> 1°C	9 - 12 weeks
> 1°C	> 1°C	6 - 9 weeks

The subsequent in-service test results should be used as a guide, in conjunction with a suitable risk assessment, to determine the schedule of future in-service tests.

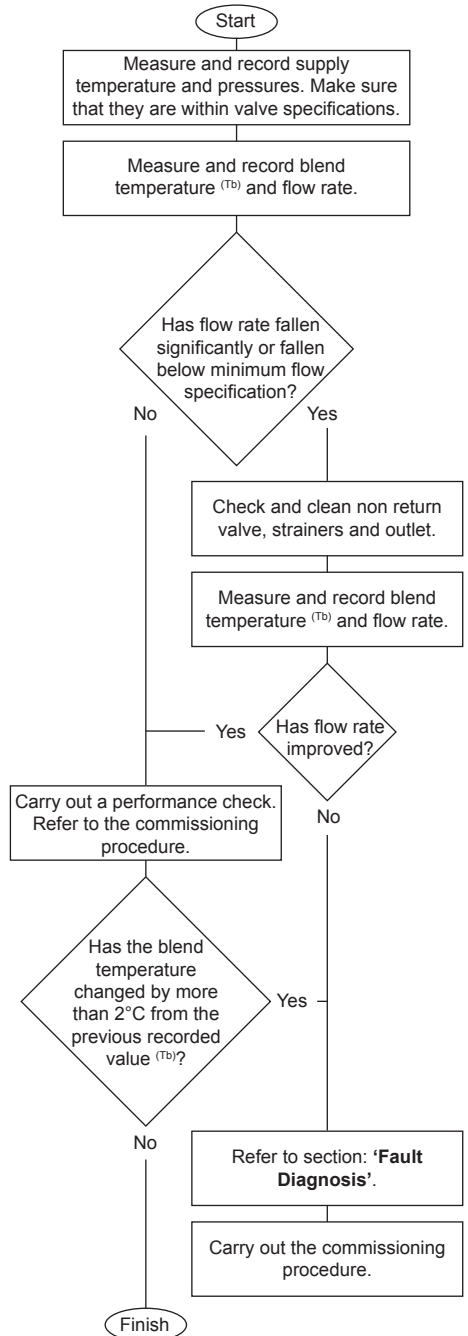
More regular temperature checks should be made where increased risks are perceived, i.e. patients are unable to immediately respond to an increase in water temperature, by either shutting the water off or removing themselves from contact with the water.

Maintenance personnel should also make sure that the staff are aware of the importance of reporting temperature variations and when detected, these should be recorded in the Log Book.

Commercial

Check for correct blend setting every 6 months. Follow the procedure detailed in the flow diagram “In-service Test Procedure”, every 12 months.

Flow Diagram, In-service Test Program



Note! All measurements and results should be recorded in the Log Book.

Fault Diagnosis

Read the section: **Important Safety Information** first.

Provided that the thermostatic mixing valve has been correctly installed and is operated in accordance with the instructions contained in this guide, difficulties should not arise. If any maintenance is required then it must be carried out by a competent tradesperson for whom the fault diagnosis chart and maintenance instructions are provided. Before replacing any parts make sure that the underlying cause of the malfunction has been identified.

Symptom 1:

- Only hot or cold water from the mixer outlet.
- Outlet temperature too hot / too cold.

Cause Rectification:

- Inlets reversed (hot supply to cold supply). Check.
 - No hot water reaching mixer. Check.
 - Check the strainers for any blockage.
 - Refer to symptom 5.
 - Installation conditions outside operating parameters, refer to symptom 2 and section: '**Specifications**'.
-

Symptom 2:

- Fluctuating or reduced flow rate.

Cause Rectification:

Normal function of mixing valve when operating conditions are unsatisfactory

- Check strainers and inlet/outlet fittings for flow restriction.
 - Make sure that the minimum flow rate is sufficient for the supply conditions.
 - Make sure that the dynamic inlet pressures are nominally balanced.
 - Make sure that the inlet temperature differentials are sufficient.
 - Check thermostatic performance; renew thermostatic cartridge if necessary.
-

Symptom 3:

- No flow from mixing valve outlet.

Cause Rectification:

- Check strainers and inlet/outlet fittings for blockage.
 - Hot or cold supply failure; thermostat holding correct shutdown function: rectify then check thermostatic performance; renew thermostatic cartridge if necessary.
-

Symptom 4:

- Blend temperature drift.

Cause Rectification:

Indicates operating conditions changed.

- Refer to symptom 2.
 - Hot supply temperature fluctuation.
 - Supply pressure fluctuation.
-

Symptom 5:

- Hot water in cold supply or vice versa.

Cause Rectification:

- Non return valves require maintenance, refer to section: '**Maintenance**'.
-

Symptom 6:

- Maximum blend temperature setting too hot or too cool.

Cause Rectification:

- Indicates incorrect maximum temperature setting; refer to section: '**Commissioning**'
 - As symptom 4.
 - As symptom 5.
-

Symptom 7:

- Water leaking from valve body.

Cause Rectification:

- Seal(s) worn or damaged, obtain service pack, and renew all seals. If leak persists from around the temperature spindle, renew the thermostatic cartridge

Non Return Valves / Inlet Strainers

General

Hot water entering the cold supply, or vice versa, indicates that immediate attention of the non return valve is necessary.

The non return valve cartridge may be cleaned by removal of the inlet strainers, and flushing through under a jet of water to remove lodged particles.

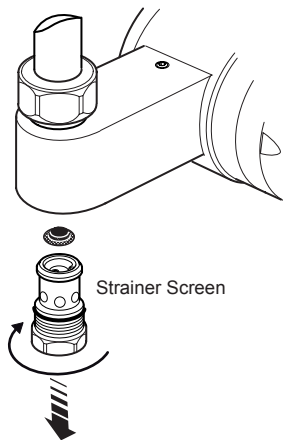
Non return valve cartridges are not serviceable items, so any apparent wear or damage will require renewal.

Blockage of the inlet strainer screens can lead to poor flow performance and reduced temperature control. It is essential that the inlet strainer screens are cleaned or, if necessary, renewed as part of the six-monthly maintenance operations. A strainer pack is available for all 215 and 222 models (except bc models), refer to section: 'Spare Parts'.

Rada 215-t3 c models only:

1. Isolate the supplies to mixing valve, and open an outlet fitting to release pressure and to assist the draining of residual water.
2. Using a 24 mm wrench unscrew the non return valve cartridge head hexagon and remove the non return valve cartridge assembly.

Caution! Some residual water may be released.



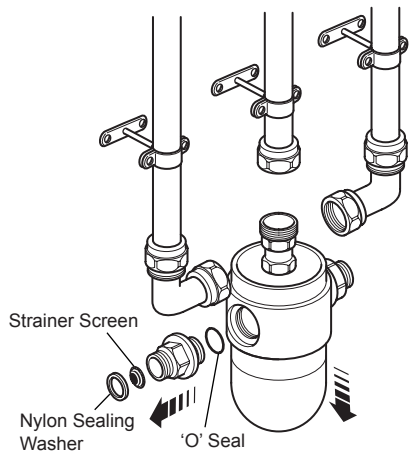
3. The non return valve cartridge and/or strainer screens can be cleaned or replaced as necessary.

Note! The strainer screens are dished outwards and are a push fit into the housing. If necessary, remove carefully, using a sharp pointed implement.

4. Re assembly is the reversal of the above procedure. Do not overtighten when re-inserting cartridges.
5. Restore the hot and cold water supplies and check for leaks.

Rada 215 dk, 215-t3 dk, 222 dk, 222-t3 dk and 215-t3 oem models only:

1. Isolate the supplies to mixing valve, and open an outlet fitting to release pressure and to assist the draining of residual water.
2. Unscrew the inlet and outlet flat faced connectors and remove the mixing valve.
Caution! Some residual water may be released.
3. Using a 22 mm wrench (30 mm for 222 models) unscrew the non return valve cartridge head hexagon and remove the non return valve cartridge assembly.



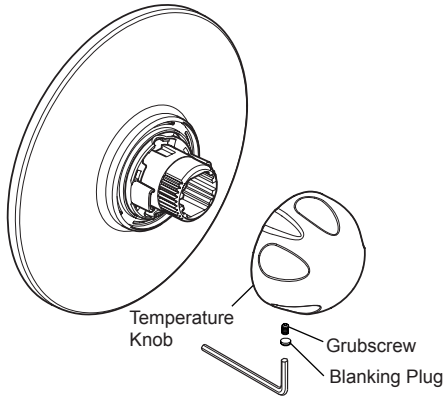
4. The non return valve cartridge and/or strainer screens can be cleaned or replaced as necessary.

Note! The strainer screens are dished outwards and are a push fit into the housing. If necessary, remove carefully, using a sharp pointed implement.

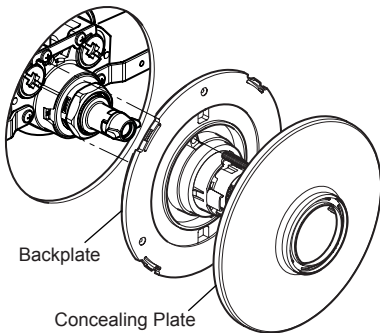
5. Re assembly is the reversal of the above procedure. Do not overtighten when re-inserting cartridges.
6. Restore the hot and cold water supplies and check for leaks.

Rada 215-t3 bc models only:

1. Remove the blanking plug, unscrew the grub screw using a 2.5 mm hexagonal key and pull off the temperature knob.

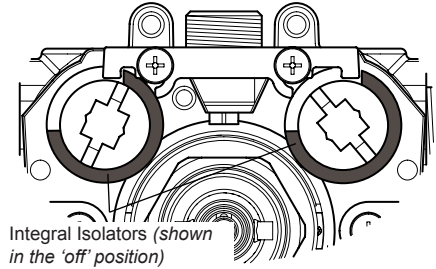


2. Carefully unclip the concealing plate from the backplate.
Note! Use a screwdriver in the bottom cutout to assist separation.
3. Unscrew the two backplate screws and remove the backplate from the mixer.

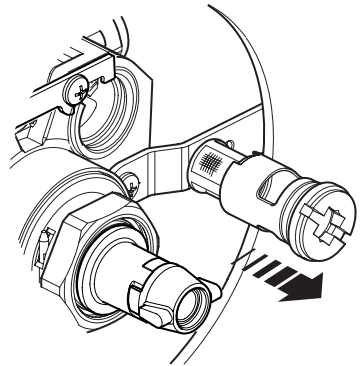


4. Using a 10 mm hexagonal key turn the integral isolators 90° anti-clockwise to shut off the hot and cold water supplies.

Important! You **MUST** isolate both the hot and cold isolators.



5. Open an outlet fitting to release pressure and to assist the draining of residual water.
6. Continue to unscrew and remove the non return valve assembly.
Caution! Some residual water may be released.

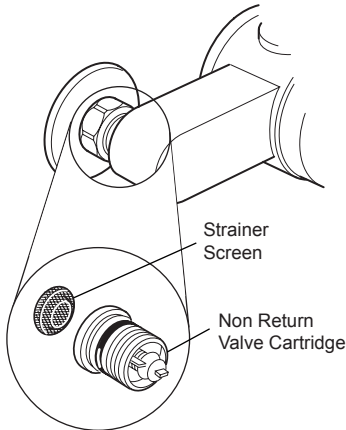


7. The non return valve assembly and/or strainer screens can be cleaned or replaced as necessary.
8. Re assemble the non return valve assembly and screw into the integral isolator. Continue to tighten until resistance is felt and the integral isolator tries to turn.
9. Turn the integral isolators 90° clockwise to turn on the hot and cold water supplies.
10. Refit the backplate and concealing plate assemblies and check for leaks.

Rada 215-t3 zc models only:

1. Isolate the supplies to mixing valve, and open an outlet fitting to release pressure and to assist the draining of residual water.
2. Remove the mixing valve from the wall and, using a 12 mm hexagonal key unscrew the non return valve cartridge head hexagon and remove the non return valve cartridge assembly.

Caution! Some residual water may be released.



3. The non return valve cartridge and/or strainer screens can be cleaned or replaced as necessary.

Note! The strainer screens are dished outwards and are a push fit into the housing. If necessary, remove carefully, using a sharp pointed implement.

4. Re assembly is the reversal of the above procedure. Do not overtighten when re-inserting cartridges.
5. Restore the hot and cold water supplies and check for leaks.

Thermostatic Cartridge

Removal

1. To remove the thermostatic cartridge refer to the appropriate instructions in section: '**Installation, Outlet Position / Reversed Inlet Supplies**'.

Cleaning / Renewal of Parts

2. The interior surface of the mixing valve body must be clean before refitting the cartridge. If scale or deposition is present clean (without thermostatic and non return valve cartridges fitted) using a mild proprietary inhibited scale solvent, e.g. domestic kettle descaler. After descaling, rinse the valve body interior thoroughly in clean water before refitting the cartridges.

Note! The body interior must be cleaned carefully and not damaged in any way. Do not use any abrasive material.

3. Cartridges may only be cleaned by flushing through under a jet of clean water to remove lodged particles.

Do not descale. Cartridges are not serviceable, and must not be dismantled.

Cartridges cannot be tested individually, service condition should be assessed as part of the performance check.

4. When renewing the thermostatic cartridge, retain the removal clip and head nut off the displaced unit and refit.
5. Examine all accessible seals for signs of deformation or damage, and renew as necessary, taking care not to damage the seal grooves (a Service Pack is available, containing all seals and strainer screens that may be necessary for renewal during maintenance or servicing, refer to section: '**Spare Parts**').
6. Lightly coat all seals with a silicone-only based lubricant to assist reassembling, refer to section: '**Maintenance, Lubricants**'.

Re-assembly

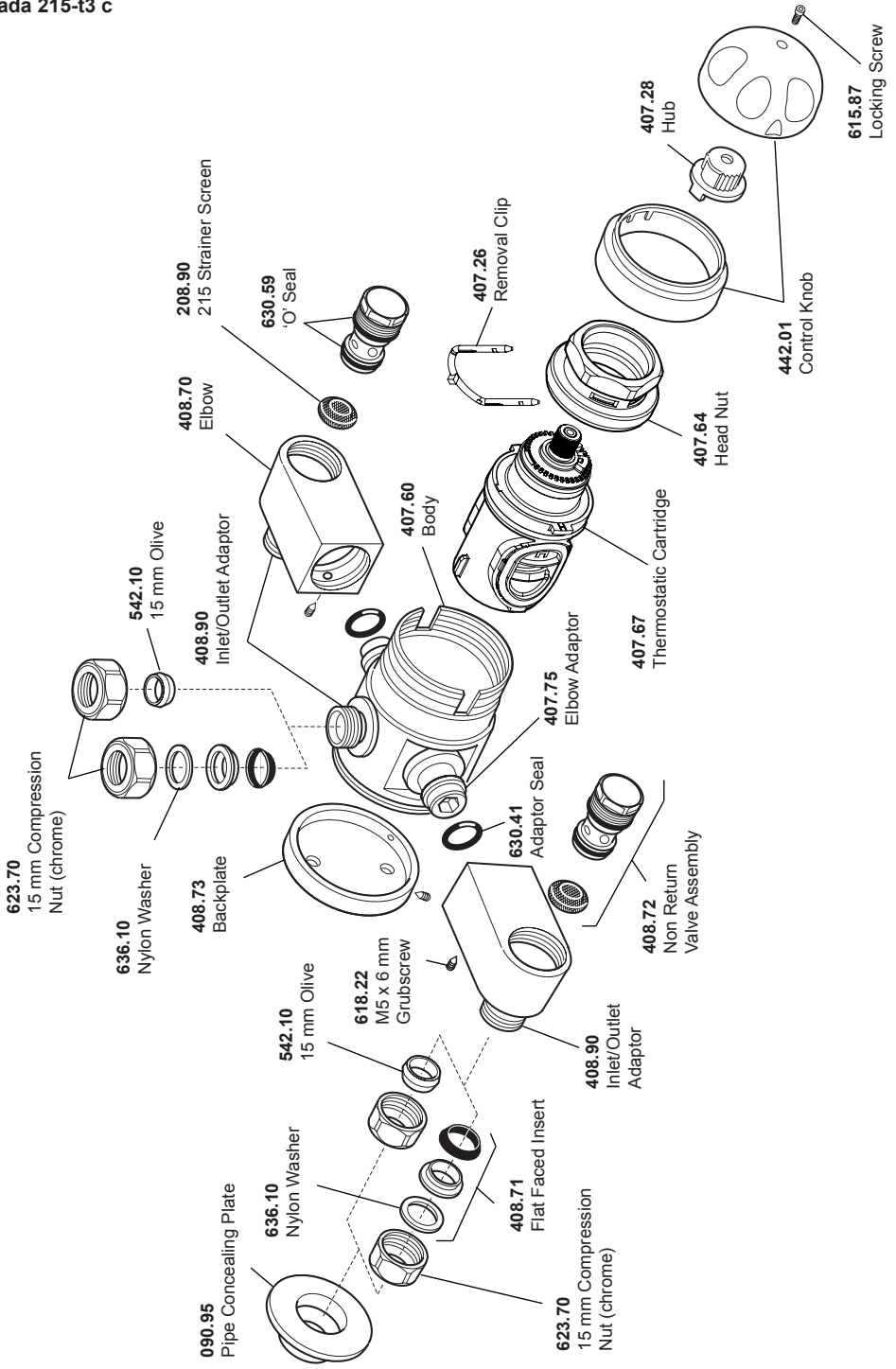
7. To replace the thermostatic cartridge refer to the appropriate instructions in section: '**Installation, Outlet Position / Reversed Inlet Supplies**'.
8. To commission the thermostatic cartridge refer to section: '**Commissioning**'.

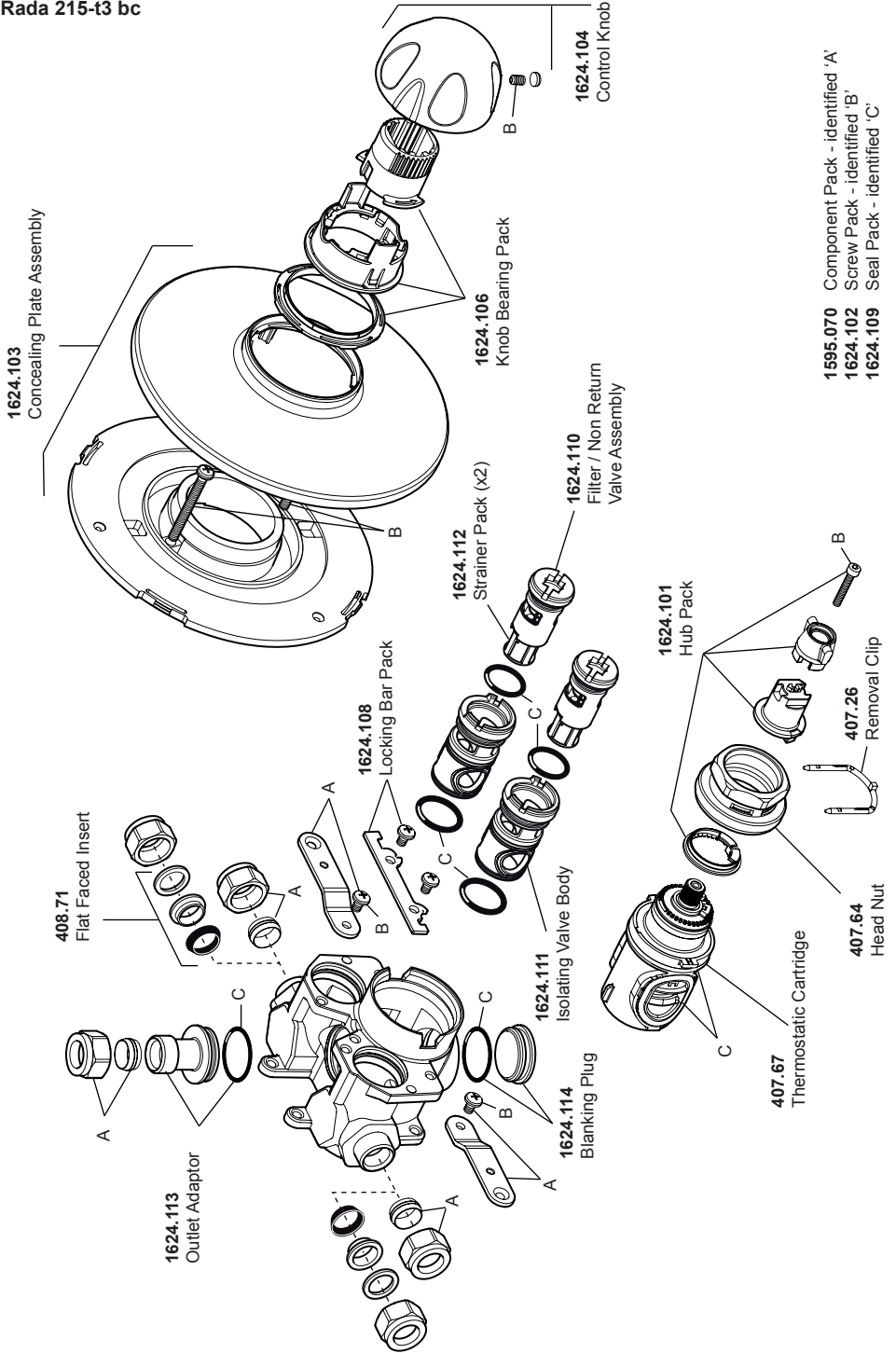
SPARE PARTS

All spare parts listed are supplied individually (unless stated). Kohler Mira has a policy of continual product development and parts illustrated may not be identical to those supplied.

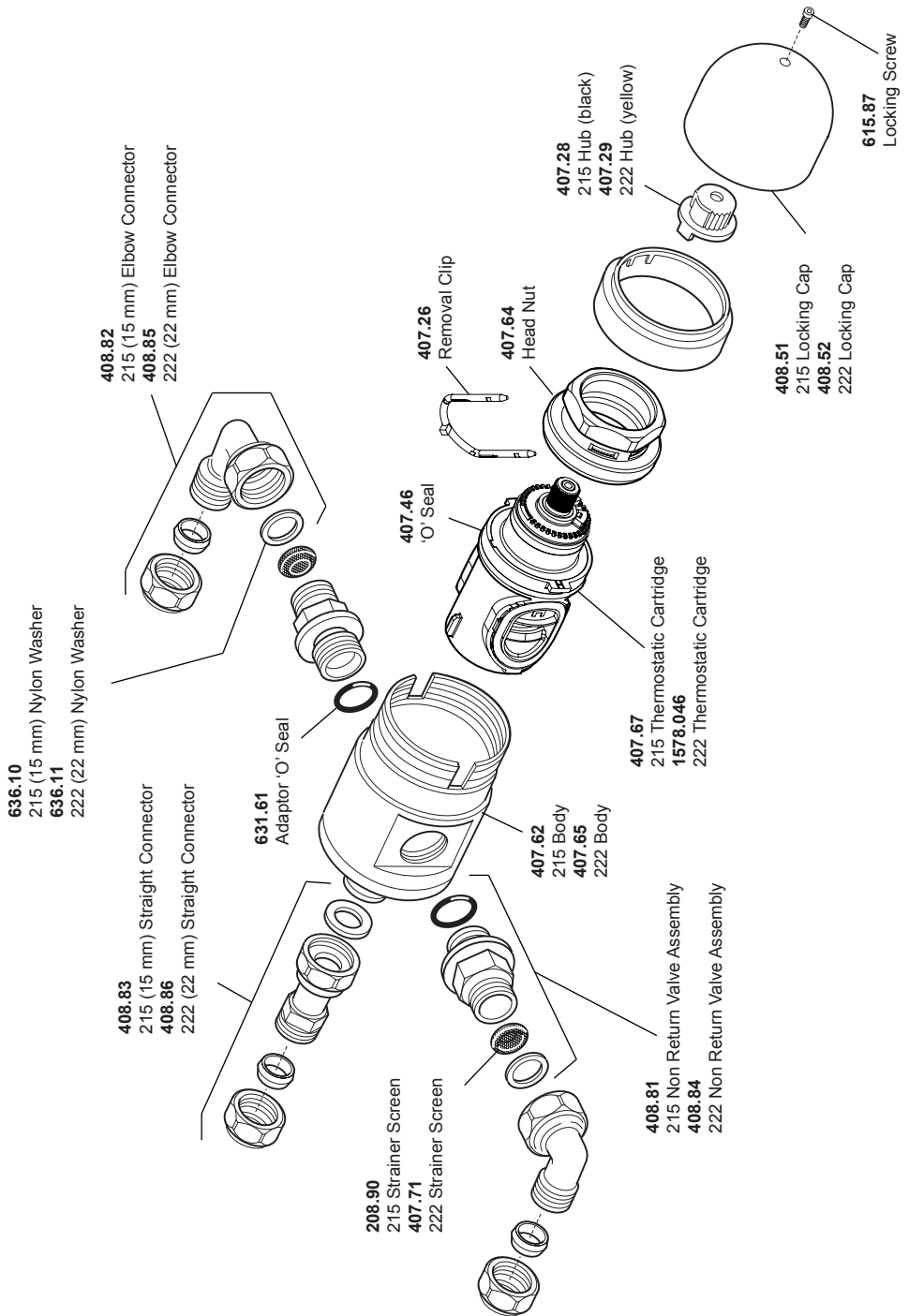
Strainer and Service Pack Spares

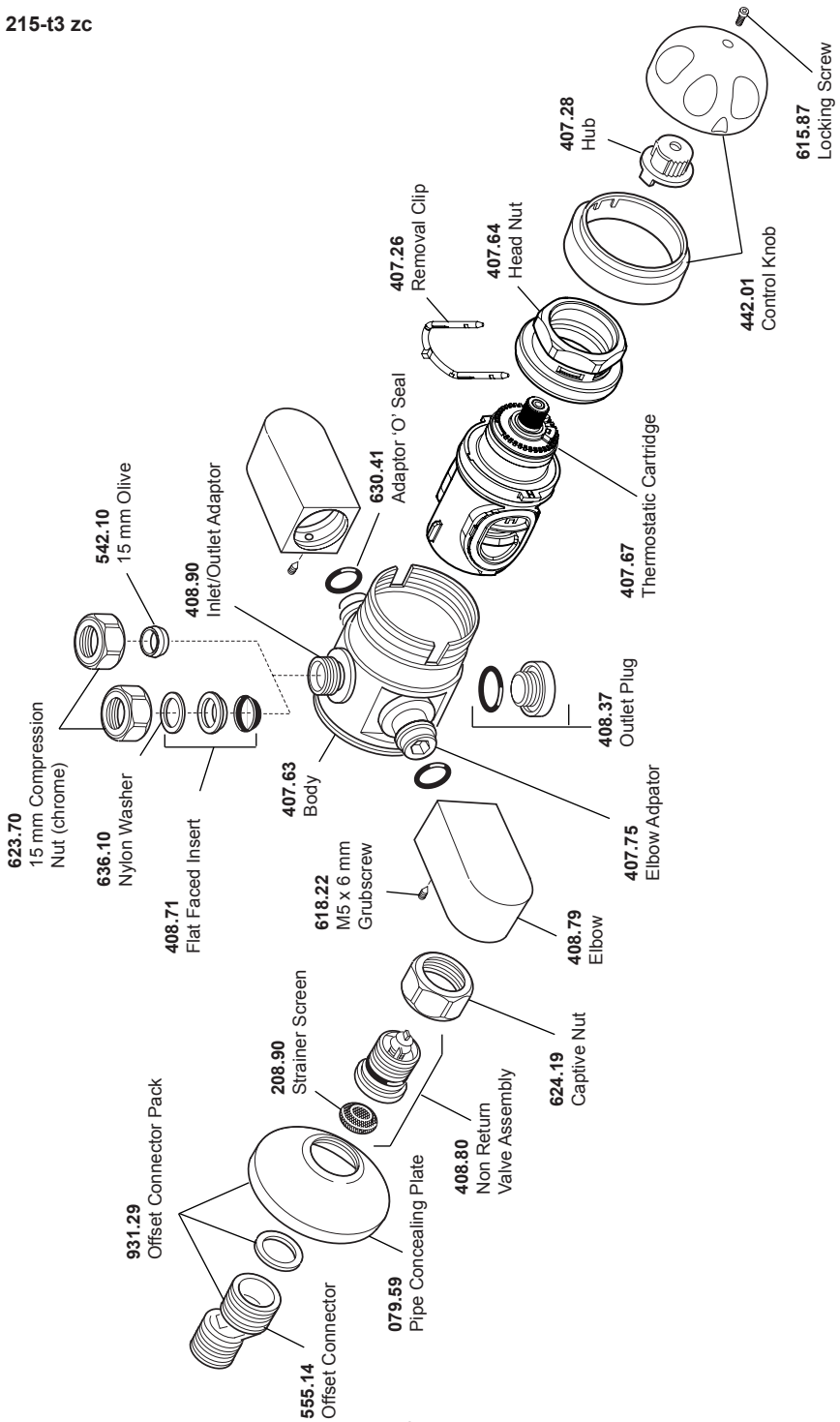
408.91	215 Strainer Pack (not bc models)
208.90	Strainer Screen (x 2)
630.59	'O' Seal (x 4)
636.10	15 mm Nylon Washer (x 3)
636.11	22 mm Nylon Washer (x 2)
983.07	Lubricant (x 1)
408.92	215 Service Pack (not bc models)
208.90	Strainer Screen (x 2)
407.11	Cartridge Inlet Seal (x 2)
407.46	Cartridge Seal (x 1)
618.22	M5 x 6 mm Grubscrew (x 2)
630.41	Adaptor 'O' Seal (x 2)
630.59	'O' Seal (x 4)
631.61	Adaptor 'O' Seal (x 5)
636.10	15 mm Nylon Washer (x 3)
636.11	22 mm Nylon Washer (x 2)
983.07	Lubricant (x 1)
408.87	222 Service and Strainer Pack
407.11	Cartridge Inlet Seal (x 2)
407.46	Cartridge Seal (x 1)
407.71	Strainer Screen (x 2)
631.61	Adaptor 'O' Seal (x 2)
636.11	22 mm Nylon Washer (x 3)
983.07	Lubricant (x 1)

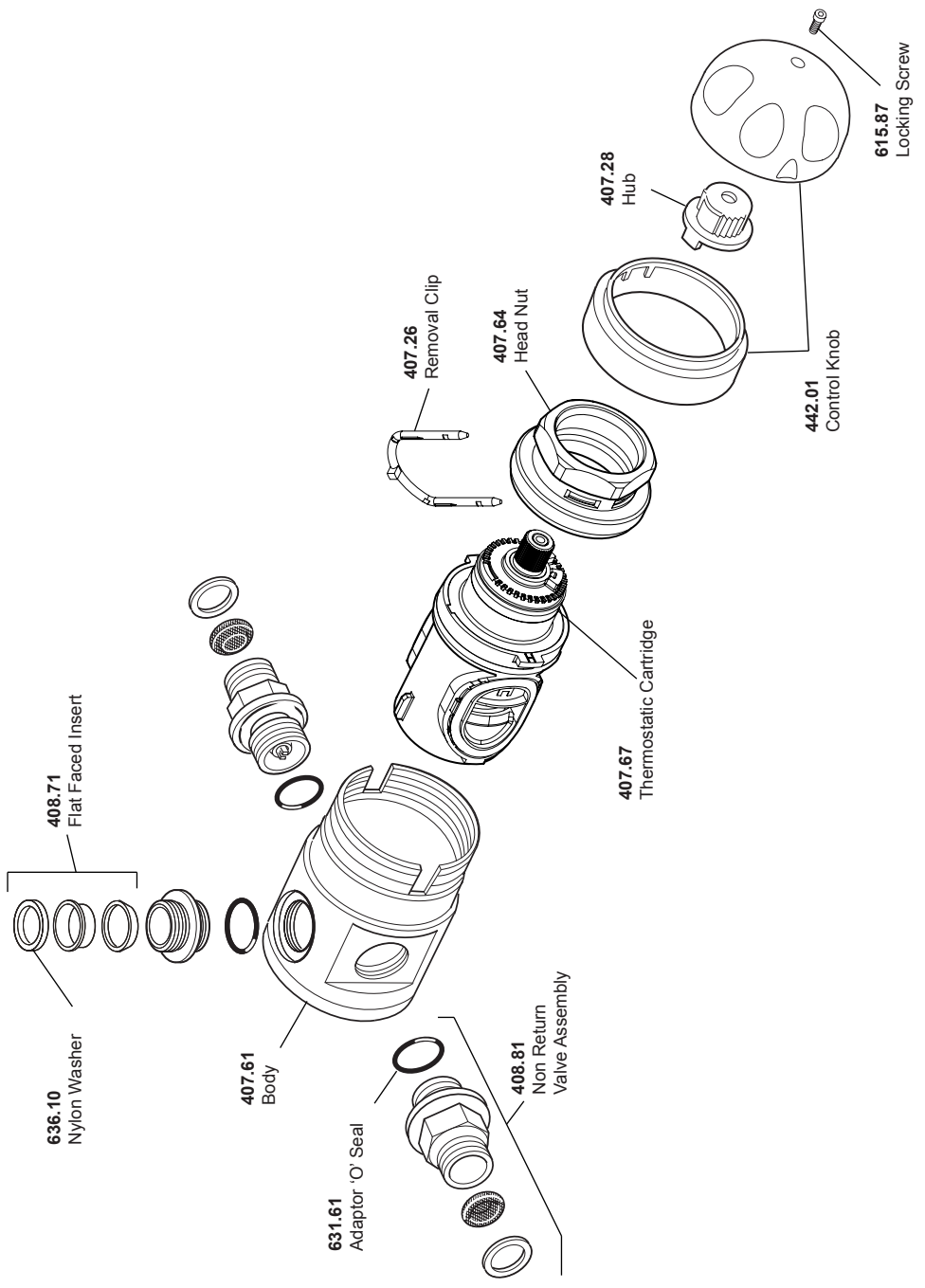




Rada 215 dk, 215-t3 dk, 222 dk and 222-t3 dk







CUSTOMER CARE

Guarantee of Quality

Kohler Mira Ltd. guarantee this product against any defect in materials or workmanship for the period of one year from the date of purchase.

To be covered by this guarantee, service work must only be undertaken by Kohler Mira Ltd. or by their approved agents.

Not covered by this guarantee

Damage or defects arising from incorrect installation, improper use or failure to maintain in accordance with the instructions in this product manual, including the build-up of limescale. Defects or damage if the product is taken apart, repaired or modified by a person not authorised by Kohler Mira Ltd. or by their approved agents.

After Sales Service - how we can help you

We have a network of fully trained staff ready to provide assistance, should you experience any difficulty operating your Rada equipment.

Spare Parts

All functional parts of Rada products are kept for up to ten years from the date of final manufacture. If during that period, our stock of a particular part is exhausted we will, as an alternative, provide an equivalent new product or part at a price equating to the cost of repair to the old, bearing in mind the age of the product.

All spares are guaranteed for 12 months from date of purchase. Spares that have been supplied directly from us can be returned within one month from date of purchase, providing that they are in good order and the packaging is unopened.

Note! Returned spares will be subject to a 15% restocking charge and authorisation must be obtained before return.

Customer Care Policy

If within a short space of time of installation the product does not function correctly, first check with the operation and maintenance advice provided in this Product Manual to see if the difficulty can be overcome. Failing this, contact your installer to make sure that the product has been installed and commissioned in full accord with our detailed installation instructions. If this does not resolve the difficulty, please ring your nearest Rada contact, who will give you every assistance and if appropriate, arrange for your local service engineer or agent to call on a mutually agreeable date.

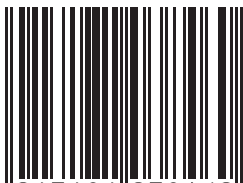
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