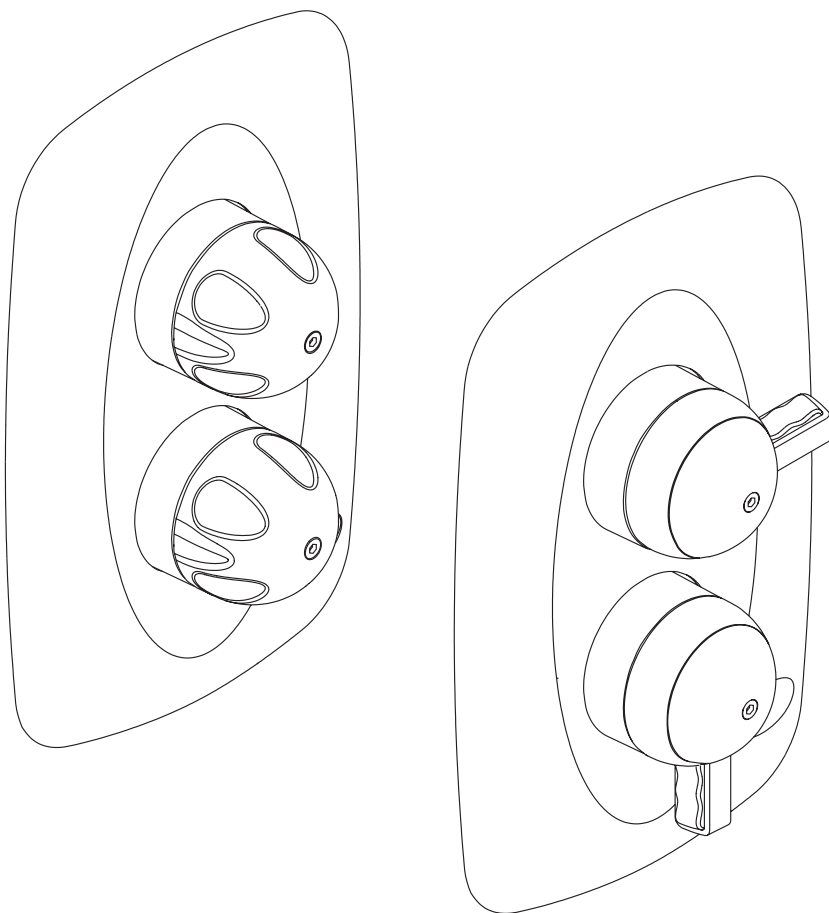


Exact-3 B



These instructions must be left with the user

Product Manual

rada
=====

SAFETY WARNINGS

The function of this thermostatic shower control is to deliver water consistently at a safe temperature. This requires that:

1. It is installed, commissioned, operated and maintained in accordance with the recommendations given in this Manual.
2. For Type 3 installations, valves are only to be used for applications covered by their approved designations, refer to the TMV3 Requirements Manual.
3. Periodic attention is given, as necessary, to maintain the product in good functional order. Recommended guidelines are given in the **MAINTENANCE** section.
4. Continued use of this product in conditions outside the specification limits given in this manual can present potential risk to users.

ADVICE

The use of the word 'failsafe' to describe the function of a thermostatic shower control is both incorrect and misleading. In keeping with every other mechanism, it cannot be considered as being functionally infallible.

Provided that the thermostatic shower control is installed, commissioned, operated within the specification limits and maintained according to this manual, the risk of malfunction, if not eliminated, is considerably reduced.

Malfunction of thermostatic shower controls are 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 thermostatic shower control having excessive 'dead-legs' of pipework. Others allow an auxiliary cold water supply to be added to the mixed water from the shower control. Such systems can disguise the onset of thermostatic shower control malfunction.

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

INTRODUCTION

The Rada Exact-3 B Thermostatic shower control is specified to meet the highest standards of safety, comfort and economy as demanded by today's users. All Rada Exact-3 B are designed, manufactured and supported in accordance with accredited BS EN ISO 9001:2008 Quality Systems.

This manual covers all Rada Exact-3 B Thermostatic shower controls manufactured from January 2014.

The suffix '3' indicates that 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 the TMV3 Requirements Manual.

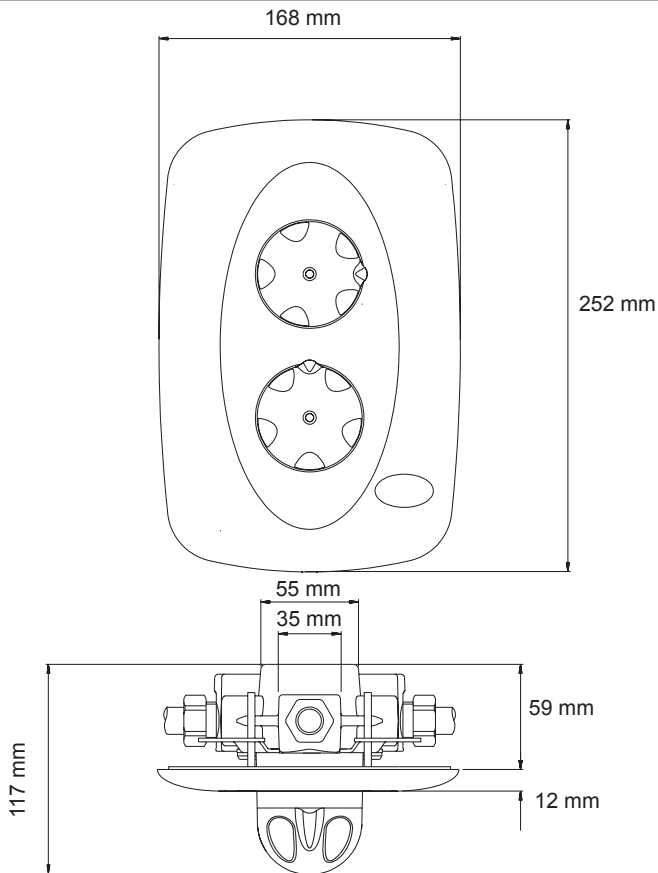
Model	Designation
Rada Exact-3 B	HP-S, LP-SE

DESCRIPTION

A 1/2" inlet/outlet thermostatic shower control employing a thermostatic temperature sensor to provide water at safe, accurate temperatures for ablutionary or process requirements.

Rada Exact-3 B - 1/2" built-in thermostatic shower control for concealed pipework, incorporating either chrome control knobs or white plastic lever controls.

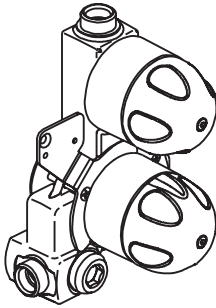
DIMENSIONS



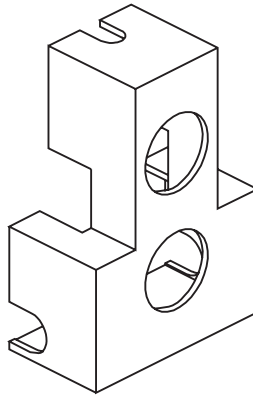
Temperature and flow knobs are also available with a short lever.

PACK CONTENTS

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



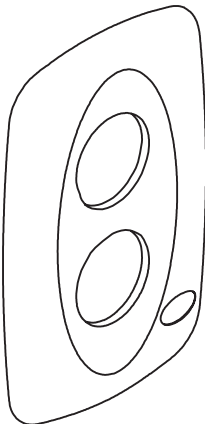
1 x Valve Body ☐



1 x Building-in Shroud ☐



1 x Foam Seal ☐



1 x Concealing Plate ☐
(Backplate + Seal Attached)

2 x Countersunk
Fixing Screws ☐



2 x Wall Plugs ☐



2 x Countersunk ☐
Long Bolts



2 x Countersunk ☐
Short Bolts

3 x Compression Nuts ☐



3 x Flat-Faced ☐
Inserts

3 x Olives ☐

Documentation

1 x Product Manual ☐

1 x TMV3 Requirements Manual ☐

SPECIFICATION

Normal Operating Conditions are considered as:

- inlet dynamic pressures nominally balanced to within 10% of each other during flow
- a differential of approximately 50°C between the hot and cold inlet temperatures, and with differentials of 15-35°C between the blend setting and either supply
- daily usage of 1-6 hours
- installation and usage environment not subject to extremes of temperature, unauthorised tampering or wilful abuse.

Other Applications

For information on other specific applications or suitability, refer to Kohler Mira Ltd, or Local Agent.

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.

Operating Parameters

For Type 3 installations, the supply conditions specified in the TMV3 Requirements Manual take precedence over the operating parameters which follow.

Pressures and Flow Rates

For optimum performance, dynamic supply pressures should be nominally equal.

Recommended Minimum Dynamic Supply Pressure: 0.15 bar (0.2 bar healthcare).

Recommended Maximum Dynamic Supply Pressure: 5 bar.

Recommended Minimum Flow Rate: 3 l/min at mid-blend with equal dynamic supply pressures.

Recommended Maximum Flow Rate: 35 l/min at mid-blend (which equates to maximum pressure loss of 3.0 bar).

Maximum Pressure Loss Ratio*: should not exceed **10:1**, in favour of either supply, during flow.

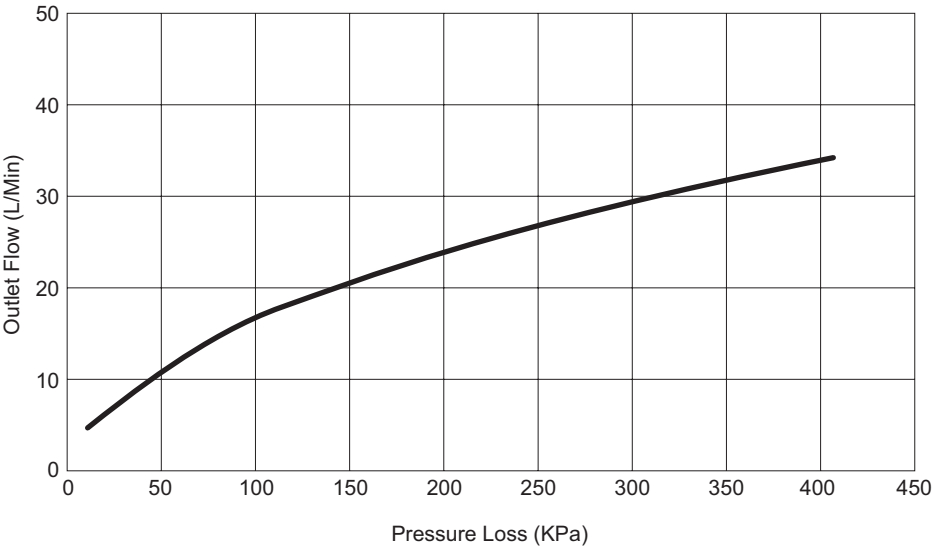
Maximum Static Pressure is 10 bar.

Recommended maximum flow velocity in pipelines is 2 metres/second.

*Pressure Loss Ratio is determined by subtracting the resistance to flow at the outlet (generally known as “back pressure”, and measured at the outlet of the mixing tap) from the dynamic pressures of the hot and cold water at each inlet of the mixing tap. This is at its extreme when the mixing tap is being used at its lowest flow rate and when the maximum inequality occurs in the pressure of the hot and cold water supplies.

Hydraulic restriction: Flow Rate/Pressure Loss Graph - all models

(Shower control only, equal dynamic supply pressures, unrestricted outlet and mid-blend temperature setting)



Temperatures

Optimum performance is obtained when **temperature differentials** of **20°C** or more exist between blend and either supply. Blend control accuracy will begin to diminish at temperature differentials below **12°C**.

Blend Temperature Range: Between ambient cold and approximately **60°C**, according to hot water supply temperature.

Thermostatic Control Range: Approximately **25-60°C**.

Optimum Thermostatic Control Range: **30-50°C**.

Recommended Minimum Cold Water Supply Temperature: **1°C**.

Recommended Maximum Hot Water Supply Temperature: **85°C**.

Note! The shower control can accept temporary temperature excursions above 85°C without damage, however operation at such elevated supply temperatures is not recommended. For reasons of general safety, hot water storage temperatures should ideally be maintained at between 60-65°C where serving ablutionary applications.

Flow Control:

Rada Exact-3 B shower controls have integral flow control; no other user-operated flow controller should be used with this shower control.

Outlet: The outlet connector is designed to accept:

- Flat-faced / flanged unions (maximum flange diameter 20 mm); use flat-faced insert (408 71, supplied)
- 15 mm pipework; use compression olive (542 10).

Connections:

Rada Exact-3 B - Inlets and Outlet: 1/2" BSP external union or 15 mm compression (nut and olive provided).

Inlet/ Outlet Options:

	INLETS:	OUTLET:*
Exact-3 B	Any Configuration	bottom, top

* Products are supplied in the format shown in bold.

Standard Connections are:	hot	- left (marked red)
	cold	- right (marked blue)
	Outlet	- top (can be altered to bottom outlet if required, refer to INSTALLATION)

Note! Should the supplies be reversed then the shower control will not be able to control temperature. This can be corrected by reversing the position of the Thermostatic cartridge within the control body, as described in **INSTALLATION**.

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

INSTALLATION

General

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

1. The installation must comply with the “Water Supply (Water Fittings) Regulations or Scottish Byelaws” or any particular regulations and practices, specified by the local water company or water undertakers.
2. 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 the TMV3 Requirements Manual.
3. Care must be taken during installation to prevent any risk of injury or damage.
4. The shower control should be positioned for easy access during use and maintenance. All routine maintenance procedures can be conducted with the shower control body in place (except for strainer and checkvalve access). For all models, allow a minimum of 80 mm clearance in front of the temperature control to enable removal of the serviceable parts during maintenance.
5. The fitting of isolation valves is required as close as is practicable to the water supply inlets of the thermostatic mixing valve.
6. The use of supply-line or zone strainers will reduce the need to remove debris at each shower control point. The recommended minimum mesh aperture dimension for such strainers is 0.5 mm.
7. Inlet pressure tapplings which allow measurement of the inlet pressures to the mixing valve under running conditions are particularly recommended for healthcare applications with Type 3 valves.
8. Pipework must be rigidly supported.
9. Pipework dead-legs should be kept to a minimum. The mixing water outlet piping should not exceed 2 meters and the overall length from the hot water circuit to the discharge point should not exceed 5 metres.
10. Supply pipework layout should be arranged to minimise the effect of other outlet usage upon the dynamic pressures at the shower control inlets.
11. Do not use oil-based, non-setting jointing compounds on inlet or outlet connections.
12. To eliminate pipe debris it is essential that supply pipes are thoroughly flushed through before connection to the shower control.

Outlet Position/Reversed Inlets

All Rada Exact-3 B shower controls are supplied with inlet connections configured **hot - left, cold - right, and top outlet** as standard. It is essential that inlet supplies correspond with the red and blue markings on the Thermostatic cartridge.

Should the existing hot and cold pipework make this configuration inconvenient, or a **bottom outlet** position be required, the inlets can be reversed.

If both the outlet and inlet positions require reversing, it is easier to simply rotate the complete mixing valve through 180°.

Outlet Reversal must be done **prior** to installation of the mixing valve body. Rotate the valve body through 180° so that the outlet is in the opposite position.

Reversed connections can be altered before or after the mixing valve has been installed. Rotate the Thermostatic cartridge through 180°, which reverses the position of the cartridge hot and cold inlets.

1. If the mixing valve body has already been installed, isolate the supplies to the mixing valve, and turn on the flow control to release pressure and to assist the draining of residual water.
2. Remove the temperature knob and the flow knob.
3. Installations must comply with all Local/National Water Supply Authority Regulations/Bye-Laws, and building and Plumbing Regulations.
4. Carefully remove the concealing plate by inserting a suitable tool under the slot provided at the bottom of the plate and levering round all four sides. Unscrew and remove the metal and plastic backplates.
5. With the removal clip still in place, unscrew the head nut using 35 mm A/F wrench; this will release the body shroud and also begin to draw the Thermostatic cartridge out of the body. **Note!** Some residual water may be released. Pull the Thermostatic cartridge free of the valve body.
6. Rotate the Thermostatic Cartridge through 180° and carefully push the cartridge back into the valve body, checking that the 2 cartridge inlet port seals remain in place, and locate cartridge lugs into body slots.

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. Inlet pressure tapplings which allow measurement of the inlet pressures to the mixing valve under running conditions are particularly recommended for healthcare applications with Type 3 valves.

The mixed water outlet piping should not exceed 2 m and the overall length from the hot water circuit to the discharge point should not exceed 5 m.

8. Carefully align and then tighten the head nut; do not overtighten.
9. Complete the INSTALLATION, if appropriate.
10. If the mixing valve body has already been installed, restore hot and cold supplies and check for any leaks.

11. Refit the body shrouds and backplates, making sure that the foam seal is tight around both body shrouds. Refit the concealing plate and knob assemblies so that the markings will be visible to the user.
12. The maximum temperature may now need resetting; check, and if necessary refer to **COMMISSIONING**.

Installation - solid wall recess

The Rada Exact-3 B is suitable for building-in to solid, dry-lined, stud partition or dry partition wall structures.

To allow for connection of pipework, the recess in the wall (unfinished) should be approximately the same shape as the building-in shroud. Place the building-in shroud in the correct position on the wall and draw around it with a pencil.

The depth of concealment is critical, the minimum depth to accept the valve is 50 mm, with another 15 mm maximum on top of this for finishing coat thickness of plaster and tiles or other material. This last dimension determines how much of the temperature or flow knobs will be visible through the concealing plate.

Important! Predetermine the finishing thickness (e.g. tiles, plaster etc.) on top of the wall surface. If this is to be less than 10 mm then the pre-assembled mounting bracket must be reversed (refer to Figure 2).

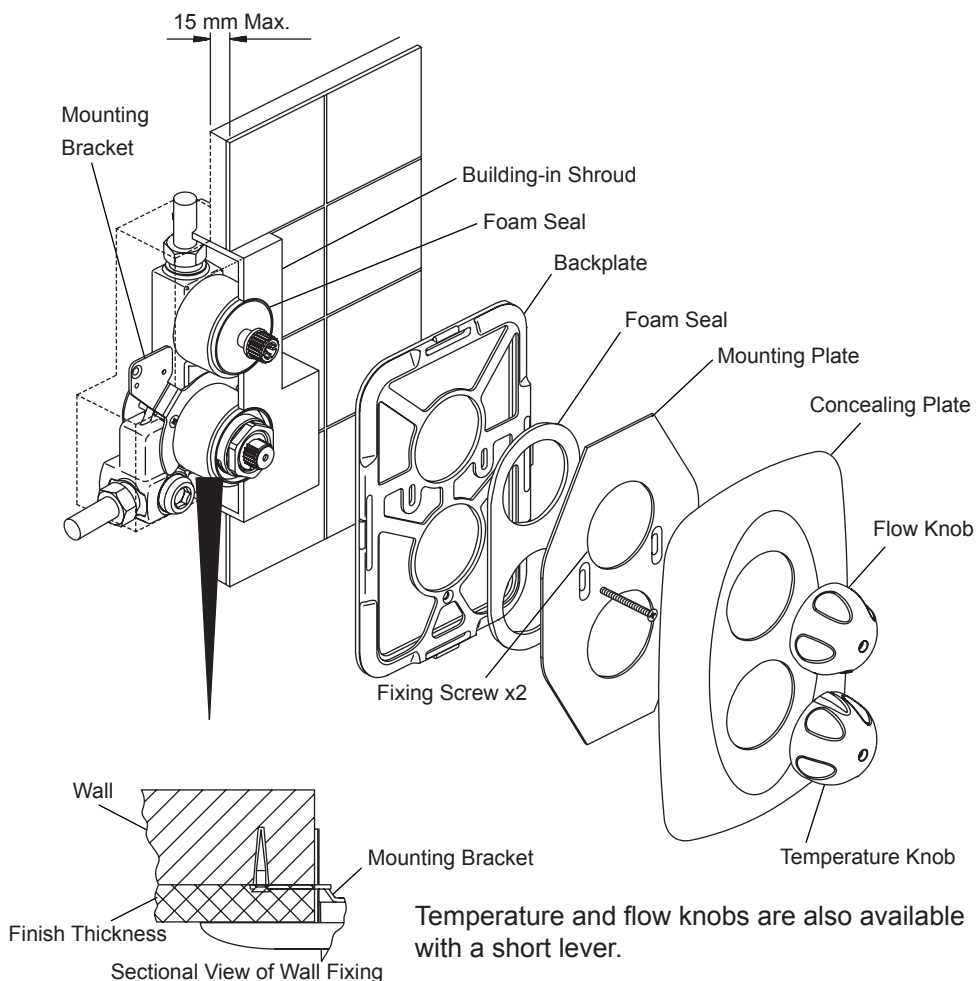
The building-in shroud protects the mixing valve during plastering/finishing and provides a reference for the building-in depth.

1. Cut out the wall to the required dimensions.
2. This mixing valve is supplied with outlet to top, should the installation require outlet to bottom, then refer to Outlet Position/Reversed Inlets.
3. Put the valve in the recess and connect inlet and outlet pipework, checking that the hot and cold supplies have been piped to the correct inlets. Check all connections are watertight.
4. **Important!** Flush through the hot and cold supplies thoroughly before connection to mixing valve.
5. Mount the valve in the recess using appropriate wall screws/plugs.

Note! If the wall screws are unable to be fixed into the wall, fit the building-in shroud and fill the cavity behind the mounting bracket with an appropriate material (e.g. expandable foam).

6. Fit the building-in shroud over mixing valve in recess. Plaster and tile, or finish as appropriate, up to edge of shroud. Final wall surface must fall between 2 lines on building-in shroud.
7. When wall surface is finished, remove the building-in shroud.

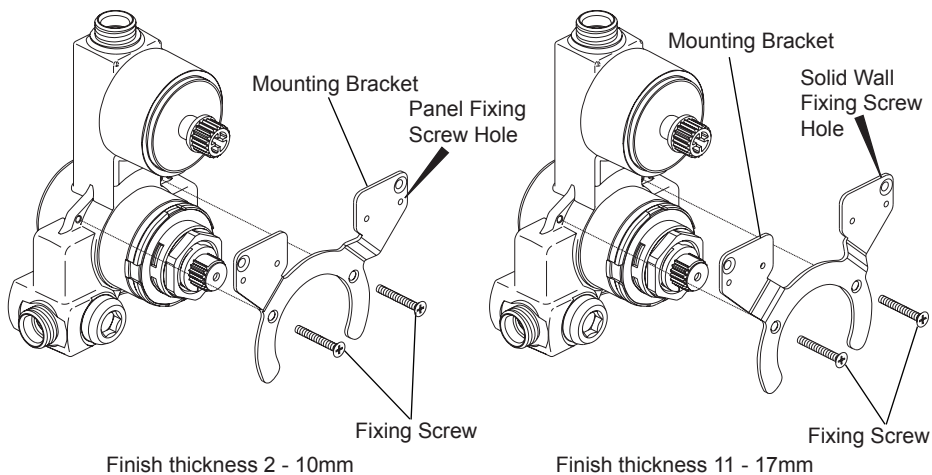
8. The backplate assembly is provided with a foam seal on its rear face, which mates with the wall surface and reduces the possibility of water penetration into the recess. Should the wall surface or tiling be uneven, this seal will not be fully effective and should be assisted / substituted by silicone sealant. Correctly position the backplate.
9. Place the foam seal and the mounting plate in position. Secure the mounting plate, foam seal and the backplate to the mounting bracket with the two fixing screws (supplied).
10. Align the concealing plate into position over the backplate and press firmly at each corner to secure. Refit the temperature and flow knobs. Refer to **COMMISSIONING**.



Temperature and flow knobs are also available with a short lever.

Installation - Wall Recess

Figure 1



Installation - Reversal Of Mounting Bracket

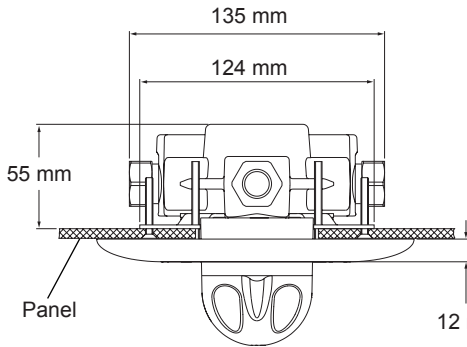
Figure 2

Installation - Panel (less than 16 mm)

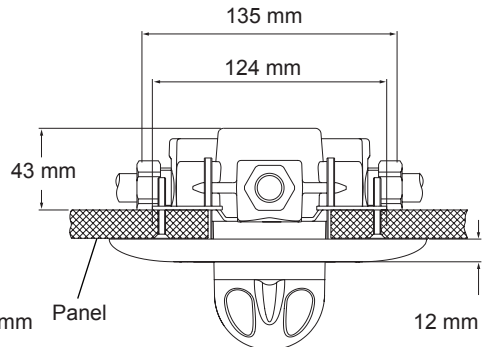
The Exact-3 B incorporates a mounting bracket, enabling the valve to be installed through a laminated panel or shower cubicle.

The bracket must be in the correct orientation and mounted to the rear face of panels of 2 - 15 mm finished thickness (refer to Figure 3).

1. Put the building-in shroud in the correct position on the wall and draw around it with a pencil. Cut out the hole in the panel.
2. Using the valve and the building-in shroud as a template, mark and drill 2 fixing holes to secure the mounting bracket in position.
3. Follow previous instructions for wall recess installation.
4. If access is available it may be preferable to make the initial valve/pipework connections prior to securing the mixing valve to the panel.
5. Mount the mixing valve securely onto rear of panel, with the panel fixing screws (supplied).
6. **Important!** Flush through the hot and cold supplies thoroughly before connection to mixing valve.
7. Connect inlet and outlet pipework, checking that the hot and cold supplies have been piped to the correct inlets, and check all connections are watertight.
8. Follow previous instructions for wall recess installation. Refer to COMMISSIONING.



Installation To Panels 2 - 10 mm Thick



Installation To Panels 11 - 15 mm Thick

Installation - Panel

Figure 3

Installation - Panel (16 mm +)

Note! The mounting bracket can also be mounted to the front face of thicker panels which will receive a further finishing layer of 2 - 17 mm thickness. If this further finishing layer is not to be provided, the ends of the mounting bracket must be recessed 2 mm depth) into the panel face until flush. The mounting bracket must be in the correct orientation for the building method.

1. Put the building-in shroud in the correct position on the wall and draw around it with a pencil. Cut out the hole in the panel.
2. Using the valve and the building-in shroud as a template, mark and drill 2 fixing holes to secure the mounting bracket in position. The fixing hole dimensions must be suitable for the selected securing method, appropriate for the particular panel material.
3. Follow previous instructions for wall recess installation.

Note! The inlets accept rising or falling supplies, on thicker panels this may require the inlet pipework to be configured with elbows or pipe bends immediately prior to the inlet connections.

4. Plaster and tile, or finish as appropriate, up to the panel hole perimeter only, and to a maximum thickness of 15 mm over the front face of the mounting bracket. Protect the mixing valve and pipe connections during this process.
5. Follow previous instructions for wall recess installation. Refer to COMMISSIONING.

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 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) ensure 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 hot back to cold several times, pausing at each extreme.

Maximum Temperature

The maximum blend temperature obtainable by the user should be limited, to prevent accidental selection of excessive hot temperatures.

All Rada thermostatic shower controls are fully performance tested, and the maximum temperature is preset to approximately 43°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. **Note!** For Type 3 valves in healthcare installations the maximum blend temperature is determined by the application, refer to the TMV3 Requirements Manual.

This shower control is provided with an adjustable temperature control knob, which allows the user to select the blend temperature between ambient cold up to a preset maximum.

Maximum Temperature Setting (Refer to Figure 4)

Check that an adequate supply of **hot** water is available at the hot inlet of the shower control.

During resetting, the hot supply to the shower must be as close to the typical maximum to offset the possibility of any blend shift due to fluctuating supply temperatures. However, the minimum temperature of the hot water **must** be at least 12°C above the desired blend for correct operation. Temperatures should always be recorded using a thermometer with proven accuracy.

Check that both inlet isolating valves are fully open. Turn the temperature knob to maximum and operate the flow control. Allow the temperature to stabilize and check the outlet temperature.

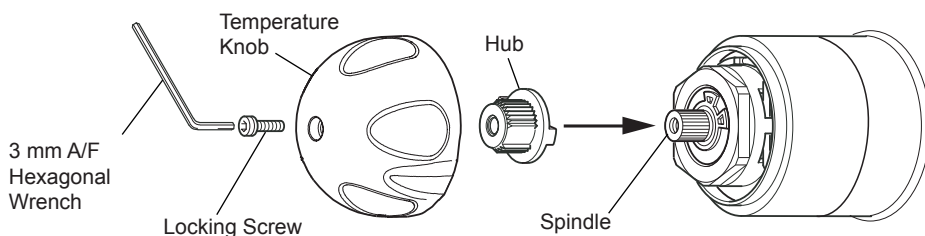
- If the outlet temperature is set correctly then refer to **Commissioning Checks**.
 - If adjustment of the temperature is required, carry out the procedure shown below;
1. Remove the temperature knob, using the 3 mm A/F hexagonal wrench (supplied).
 2. Pull off the temperature hub.
 3. Rotate the spindle until the required maximum blend temperature is obtained at the discharge point (clockwise = decrease temperature).
- When 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 is achieved, refit the hub without disturbing the spindle, positioning it so that the lug is against the stop on cartridge face, preventing further rotation towards hot. Check that blend temperature has not altered.
 5. Refit the temperature knob so that the lever is aligned with the maximum hot position shown on the body shroud.
 6. Refit the locking screw.

Commissioning Checks

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

1. Check inlet pipework temperatures for correct function of checkvalves.
2. Operate the flow control and check:
 - Flow-rate is sufficient for purpose.
 - Temperatures obtainable are acceptable.
 - All connections and control body are watertight.
 - Check that the supply pressures are within the range of operating pressures for the valve.

For Type 3 valves in healthcare installations the maximum blend temperature is determined by the application - see table under Application and Designation



Temperature and flow knobs are also available with a short lever.

Maximum Temperature Setting

Figure 4

3. It is advisable to establish a performance check at this time, which should be noted for future reference as part of a Planned Maintenance Programme (a Maintenance Record Card has been provided with this Manual).

The procedure should be chosen to imitate both typical and difficult operating conditions, such as any supply pressure fluctuations that may be likely. An ideal method is to locate another outlet on the common cold water supply close to the shower control (operating this outlet should cause a drop in supply pressure), and note the subsequent effect on blend temperature (should be no more than 2°C change).

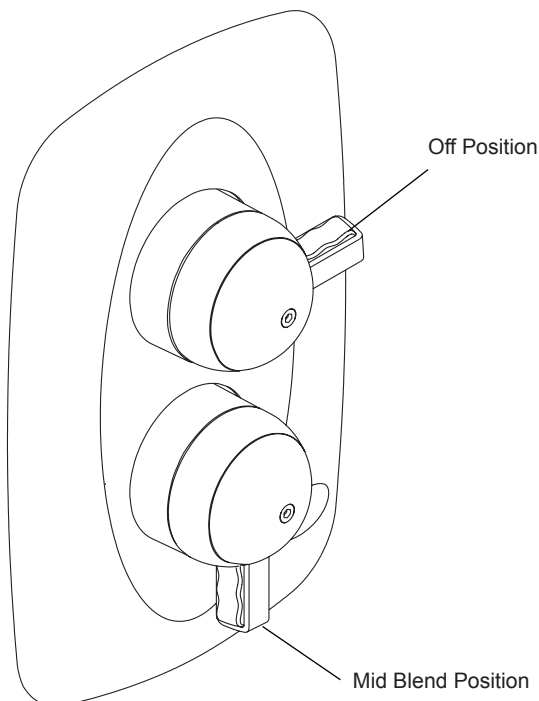
Exercise the thermostat as described on the previous page.

OPERATION

Adjustment of blend temperature from preset maximum to cold is achieved by clockwise rotation of the temperature knob.

The flow control knob operates through 180° rotation, with full flow when the lever/knob is fully to the left and flow closure when fully to the right for **top outlet applications**. The rate of flow can be readily controlled within this rotation.

Note! For lever controls the levers must be fitted as shown in the diagram below. Fitting the levers in any other position may result in them fouling against each other.



FAULT DIAGNOSIS

Symptom	Cause/Rectification
1. Only hot or cold water from outlet.	<p>a. Inlet supplies reversed (see reversed inlets section). Check.</p> <p>b. No hot water reaching shower control. Check.</p> <p>c. Check strainers and inlet/outlet fittings for blockage.</p> <p>d. Refer symptom 5 below.</p> <p>e. Installation conditions continuously outside operating parameters: refer to SPECIFICATION, and 2e below.</p>
2. Fluctuating or reduced flow rate.	<p>Normal function of thermostatic control when operating conditions are unsatisfactory;</p> <p>a. Check strainers and inlet/outlet fittings for flow restriction.</p> <p>b. Make sure that minimum flow rate is sufficient for supply conditions.</p> <p>c. Make sure that dynamic inlet pressures are nominally balanced and sufficient.</p> <p>d. Make sure that inlet temperature differentials are sufficient.</p> <p>e. (Subsequent to rectification of supply conditions) Check thermostatic performance; renew Thermostatic cartridge, if necessary.</p>
3. No flow from shower control outlet.	<p>a. Check strainers and inlet/outlet fittings for blockage.</p> <p>b. Hot or cold supply failure; thermostat holding correct shutdown function: rectify, and refer to symptom 2.e. above.</p> <p>c. Flow control cartridge faulty. Check and renew if necessary.</p>
4. Blend temperature drift.	<p>Indicates operating conditions changed.</p> <p>a. Refer to symptom 2. above.</p> <p>b. Hot supply temperature fluctuation.</p> <p>c. Supply pressure fluctuation.</p>
5. Hot water in cold supply or vice versa.	<p>Indicates checkvalves require maintenance, refer to MAINTENANCE.</p>
6. Maximum blend temperature setting too hot or too cool.	<p>a. Indicates incorrect maximum temperature setting; refer to COMMISSIONING.</p> <p>b. As symptom 4. above.</p> <p>c. As symptom 5. above.</p>

Symptom	Cause/Rectification
7. Water leaking from shower control body.	Seal(s) worn or damaged. a. Obtain service pack and renew all seals. b. (If leak persists from around temperature spindle) Renew Thermostatic cartridge.
8. Flow knob or temperature knob stiff to operate.	a. Impaired free movement of internal components. Renew the appropriate cartridge. b. Supply pressures too high. Fit pressure reducing valve.

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 Exact 3B 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'.

Planned Maintenance

Important! For Type 3 Valves use the In-Service Tests given in the TMV3 Requirements Manual. In the absence of any other instruction or guidance on the means of determining the appropriate frequency of in-service testing, the procedure contained within this guide (taken from Annex F of D08) should be used.

For other commercial installations it is recommended that the correct blend setting is checked every 6 months and that the In-Service Test procedure is followed every 12 months.

Critical Components

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

Part Number	Description
1578.046	Thermostatic Cartridge

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.

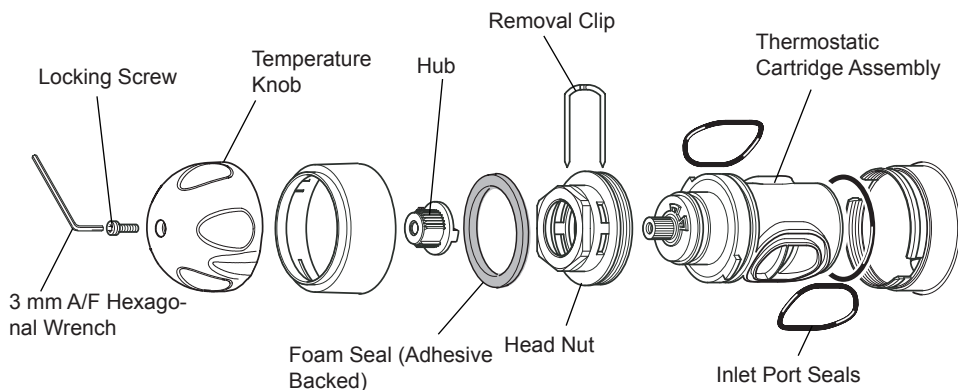
Maintenance Procedure - Thermostatic Cartridge

Removal (Refer to Figure 1)

1. Isolate the supplies to the shower control, and open the flow control to release pressure and to assist the draining of residual water.
2. Remove the temperature knob assembly, using the 3 mm A/F hexagonal wrench (supplied). Do not remove the temperature hub.
3. With removal clip still in place, unscrew the head nut using a 35 mm A/F wrench. This will release the body shroud and also begin to draw the Thermostatic cartridge out of the shower control body.

Warning: some residual water may be released.

4. Note which inlet aligns with the hot (marked H and coloured red) lug on cartridge.
5. Pull the Thermostatic cartridge free of the shower control body.



Temperature and flow knobs are also available with a short lever.

Thermostatic Cartridge Removal

Figure 1

Cleaning/Renewal of Parts

6. The interior surface of the shower control body must be clean before refitting cartridge. If scale or deposition is present, clean (without Thermostatic, flow and checkvalve cartridges fitted) using a mild proprietary inhibited scale solvent, e.g. domestic kettle descaler. After descaling, rinse body thoroughly in clean water before refitting cartridges.

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

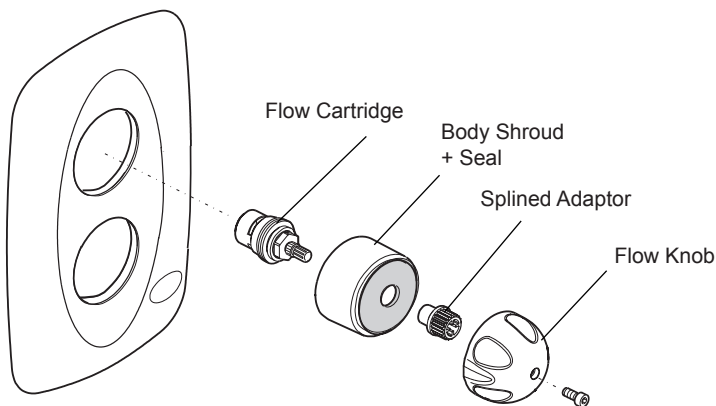
7. Cartridges may only be cleaned by flushing through under a jet of clean water to remove lodged particles. **Do not descale.** Cartridges are not serviceable, and must not be dismantled.

Cartridges cannot be tested individually, service condition should be assessed as part of the performance check; refer to **Commissioning Checks**.

8. When renewing the Thermostatic cartridge, retain the removal clip and head nut off the displaced unit and refit.
9. Examine all accessible seals for signs of deformation or damage, and renew as necessary, taking care not to damage seal grooves (a Service Pack is available, containing all seals and strainer screens that may be necessary for renewal during maintenance or servicing).
10. Lightly coat all rubber seals with a **silicone-only based lubricant** to assist reassembling (see lubricants).

Re-assembly

11. Identify which is the hot inlet to the shower control body, and align the Thermostatic cartridge accordingly. Carefully push the Thermostatic cartridge back into the body, checking that the 2 cartridge inlet port seals remain in place, and locate cartridge lugs into body slots.
12. Carefully align and then tighten the head nut; **do not overtighten** (max. torque 2.5 Nm (1.85 lbf ft)).
13. Align and refit the body shroud and temperature knob assembly, so that the markings will be visible to the user.
14. Turn off the flow control and restore hot and cold supplies and check for any leaks.
15. The maximum temperature will now need resetting; refer to **COMMISSIONING**.



Flow Cartridge Removal

Figure 2

Cleaning/Renewal of Parts

1. The inner surface of the shower control body must be clean before refitting cartridge. If scale or deposition is present, clean (without Thermostatic, flow and checkvalve cartridges fitted) using a mild proprietary inhibited scale solvent, e.g. domestic kettle descaler. After descaling, rinse body thoroughly in clean water before refitting cartridges.

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

2. 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; refer to **Commissioning Checks**.

3. Examine accessible 'O' seals for signs of deformation or damage, and renew cartridge if necessary.
4. Lightly coat all seals with a **silicone-only based lubricant** to assist reassembling.

Re-assembly

5. Check that flow cartridge seals are in place. Align the cartridge and screw into place.
6. Fit the splined adaptor.
7. Align and refit the body shroud and flow knob assembly, so that the markings will be visible to the user.
8. Restore hot and cold supplies and check for any leaks.

Maintenance Procedure - Checkvalve Cartridges

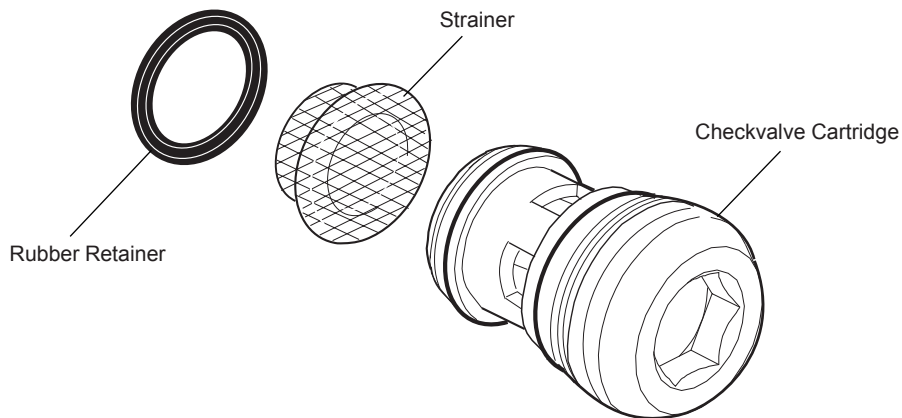
Removal and Re-assembly (Refer to Figure 3)

Hot water entering the cold supply, or vice versa, indicates that immediate attention is necessary. This is carried out by removing and cleaning, or renewing as necessary, the two Checkvalve cartridges.

1. Isolate the supplies to the shower control, and open the flow control to release pressure and to assist the draining of residual water.
2. The Checkvalve cartridges are located behind the backplate, to remove undo the Checkvalve cartridge head hexagon using a 24 mm A/F wrench and pull free.

Caution! Some water may be released at this point.

3. The Checkvalve cartridge assembly may be cleaned by removal of the rubber retainers and inlet strainers, and flushing through under a jet of water to remove lodged particles. Do not descale.
4. Lightly wipe external seals and thread with a **silicone-only based lubricant** to assist refitting.
5. Re-assembly into the shower control is a reversal of the above procedures. **Do not overtighten** when re-inserting cartridges.
6. Restore the water supplies and check for leaks.



Checkvalve Cartridges
Figure 3

Maintenance Procedure - Inlet Strainers

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 the Exact-3 B, containing 2 strainer screens and 2 retainers.

1. Isolate the supplies to the shower control, and open the flow control to release pressure and to assist the draining of residual water.
2. The strainer screens are located at the inlet of each Checkvalve cartridge.
To access the inlet strainer screens remove the checkvalve cartridges.
3. The strainer screens are dished outwards and are held in position by the rubber retainers. Remove carefully.
4. The strainer screens may be cleaned under a jet of water, or renewed.
5. Re-assembly into the shower control is a reversal of the previous procedures.
Do not overtighten when re-inserting cartridges.
6. Restore the water supplies, and check for leaks.

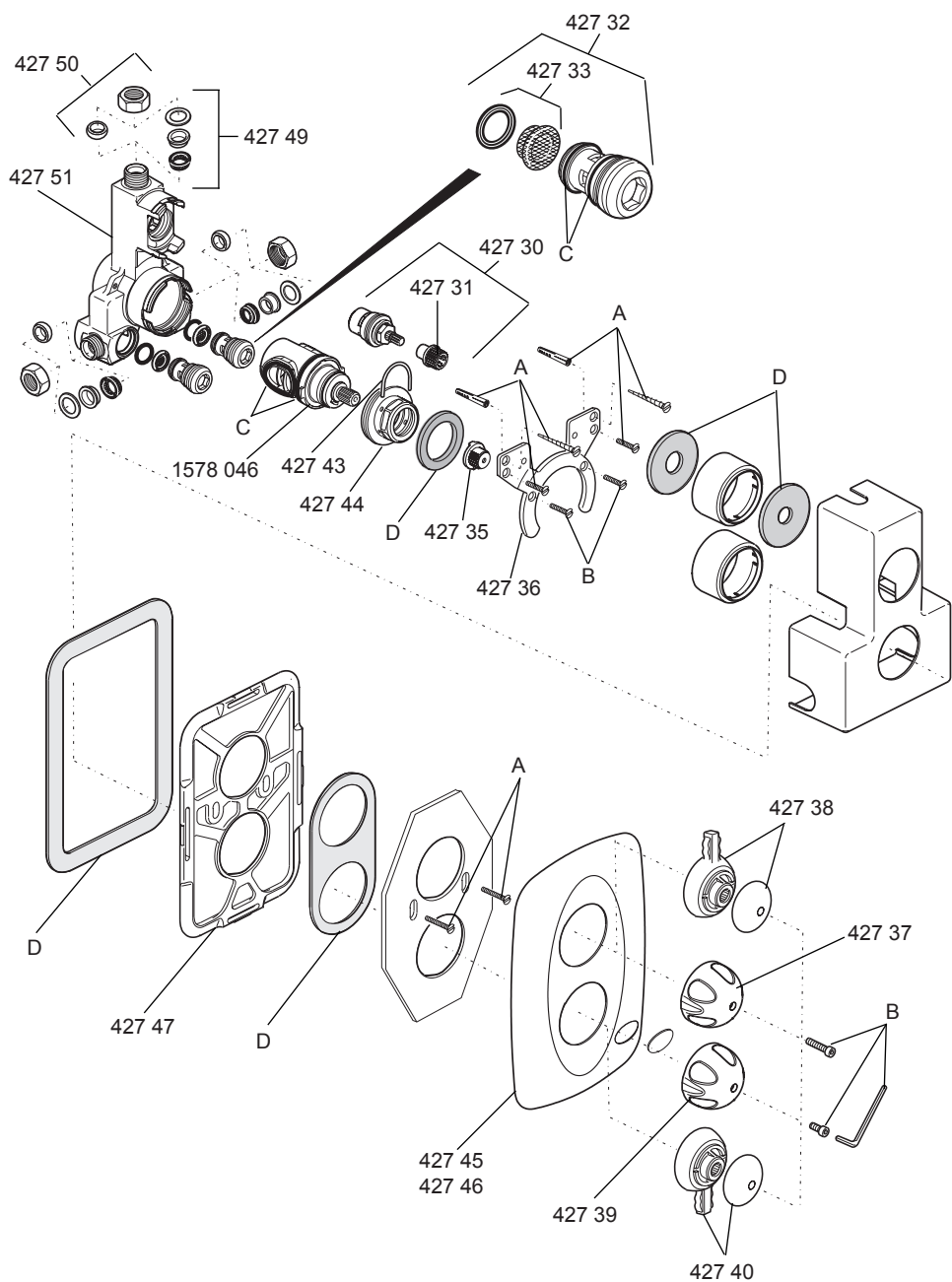
SPARE PARTS

1. Rada Exact-3 B Spare Parts List

Part No. Description

427 30	Flow Cartridge Assembly
427 31	Spline Adaptor - Flow
427 32	Checkvalve Assembly
427 33	Filter
427 35	Temperature Hub
427 36	Mounting Bracket
427 37	Knob Assembly - Flow
427 38	Lever Assembly - Flow
427 39	Knob Assembly - Temperature
427 40	Lever Assembly - Temperature
427 41	Screw Pack - Wall and Panel Fixings - components identified 'A'
427 42	Screw Pack - Valve - components identified 'B'
427 43	Cartridge Removal Clip
427 44	Headnut
427 45	Concealing Plate Assembly - chrome
427 46	Concealing Plate Assembly - white
427 47	Backplate Assembly
427 48	Seal Pack - components identified 'C'
427 49	Flat Faced Insert - 15 mm
427 50	Compression Nut and Olive Pack
427 51	Valve Body
427 52	Foam Seal Pack - components identified 'D'
1578 046	Thermostatic Cartridge

2. Rada Exact-3 B Spare Parts Diagram



NOTES

CUSTOMER CARE

Guarantee

Your product has the benefit of our manufacture's guarantee which starts from 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 in addition to your statutory rights and is subject to the following conditions:

- The product must be installed and maintained in accordance with the instructions given in this user guide.
- Servicing must only be undertaken by us or our appointed representative. **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, inappropriate cleaning, lack of maintenance, build up of limescale, frost damage, chemical attack, 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 or indirect 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 the requirements of the TMV2 or TMV3 healthcare schemes
- Accidental or wilful damage.
- Products purchased ex-showroom display.

What to do if something goes wrong

If your product does not work correctly refer to this manual for fault diagnosis and check that it is installed and commissioned in accordance with our instructions. If this does not resolve the issue, contact us for help and advice.



Technical Helpdesk Service

Contact our Customer Services Team for product advice, to purchase spare parts or accessories or to set up service visit. You can contact us via phone or e-mail - contact details below. Please provide your model name, power rating (if applicable) and date of purchase.



Rada Website (www.radacontrols.com)

From our website you can view our full product catalogue or download a brochure.



Spares and Accessories

We hold the largest stocks of genuine Rada spares and accessories.



Service/Repairs

No one knows our products better than our nationwide team of Service Technicians. We can carry out service or repair work to your product both during and after the guarantee period. 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

Regular servicing ensures your product continues to operate at the peak of performance. We offer annual or bi-annual servicing carried out by our fully trained technicians subject to site survey

To Contact Us - UK Customer Service & Specification Enquiries



0844 571 1777

Calls cost 7p per minute plus your phone company's access charge



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