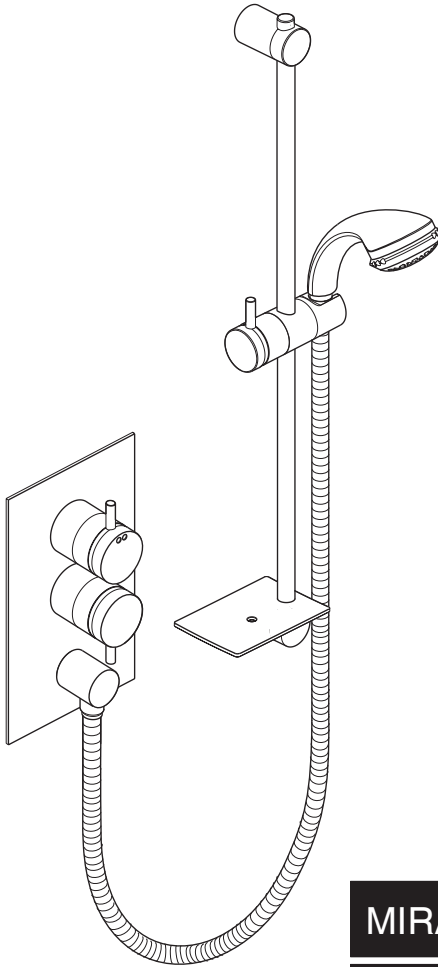


mira

FORM



MIRA FORM

SHOWER CONTROL

Installation & User Guide

These instructions are to be left with the user

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INTRODUCTION

The Mira Form Thermostatic mixing valve is specified to meet the highest standards of safety, comfort and economy as demanded by today's users. The Mira Form is designed, manufactured and supported in accordance with accredited BS EN ISO 9001:1994 Quality Systems.

This Manual covers all Mira Form Thermostatic mixing valves manufactured from March 2001.

The Mira Form Shower Valve is a thermostatic shower control with independent selection for temperature and spray force and is suitable for connection to concealed pipework.

Mira Form Built-in, with 15 mm compression inlet/outlet connections. Supplied hot-left, cold-right but can be reversed.

SAFETY: WARNINGS

This Form Thermostatic Shower Control 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 function of a thermostatic mixing valve is to deliver water consistently at a safe temperature. In keeping with every other mechanism, it cannot be considered as functionally infallible and as such, cannot totally replace a supervisor's vigilance where that is necessary. Provided it is installed, commissioned, operated and maintained within manufacturers recommendations, the risk of failure, if not eliminated, is reduced to the minimum achievable.

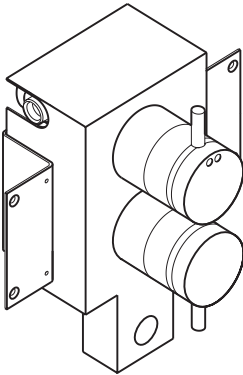
If you experience any difficulty with the installation or operation of your new shower control, then please refer to '**Fault Diagnosis**', before contacting Kohler Mira Limited. Our telephone and fax numbers can be found on the back cover of this guide.

PACK CONTENTS

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

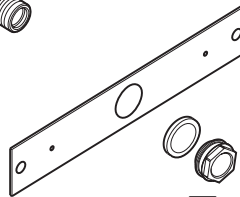
Form Mixing Valve

1 x Valve Assembly
(with building-in shroud fitted)



1 x RAC Elbow

1 x 3mm Hexagonal Key



1 x Outlet Support Plate
1 x Wall Clamp Nut (with foam seal)

1 x 2.5mm Hexagonal Key

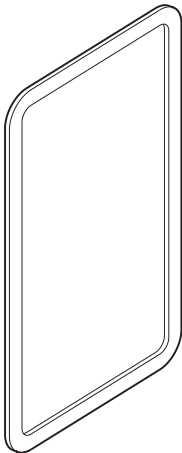


1 x Right Angled Connector (RAC)

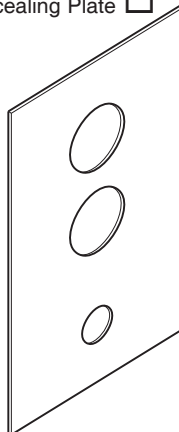
1 x Flow Regulator (with 'O' seal)



1 x Outer Seal



1 x Concealing Plate



3 x Compression Nuts
3 x Olives



6 x Countersunk Fixing Screws



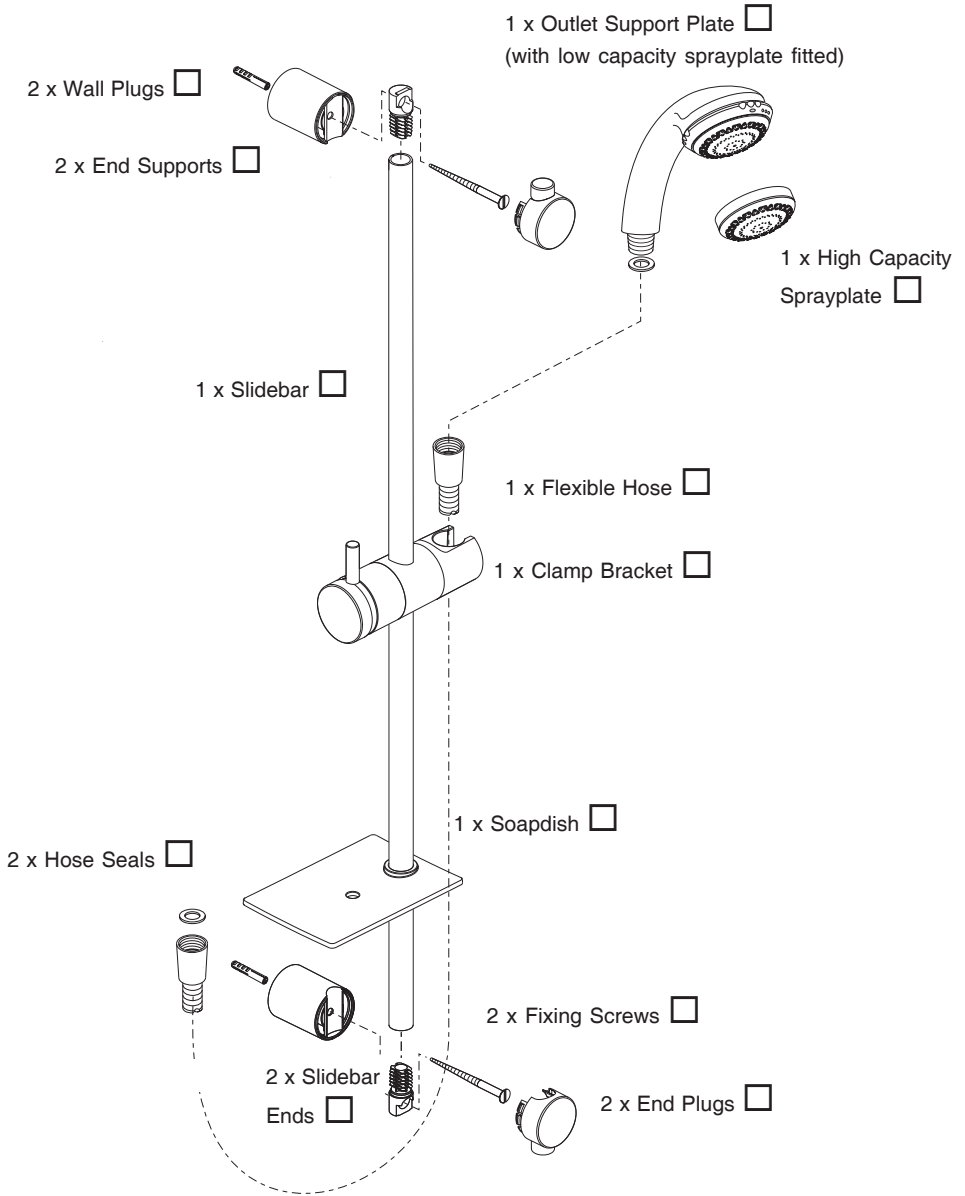
6 x Countersunk Short Bolts



6 x Wall Plugs



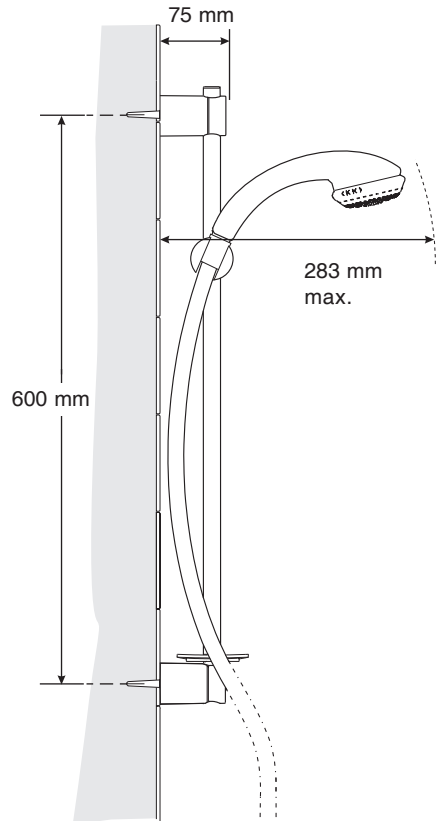
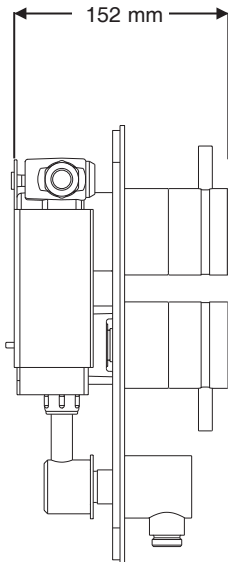
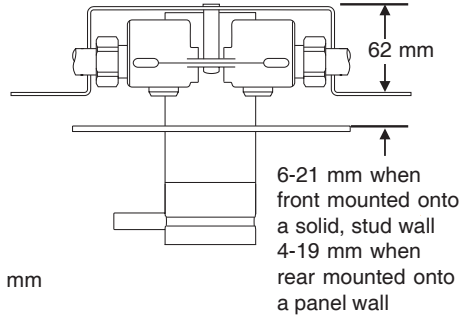
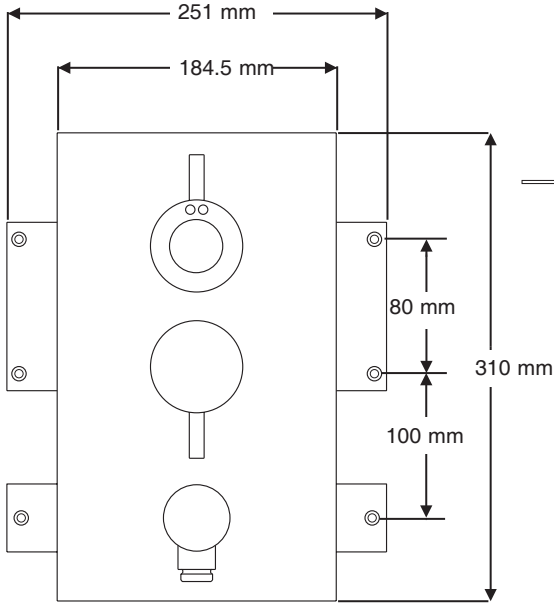
Form Fittings



Documentation

- 1 x Installation, Operation and Maintenance Guide
- 1 x Customer Support Brochure

DIMENSIONS



SPECIFICATIONS

Normal Operating Conditions:

- 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, for 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.

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 Minimum Flow Rate: 8 l/min at mid-blend with equal dynamic supply pressures.

Recommended Maximum Flow Rate: 200 l/min at mid-blend (which equates to maximum pressure loss of 3.5 bar).

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

Maximum Static Pressure is **10 bar**.

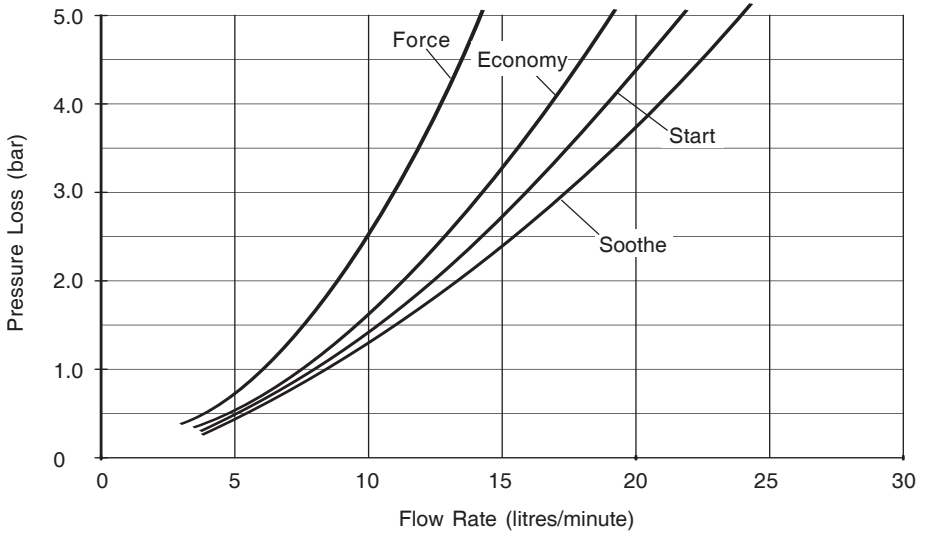
Recommended maximum flow velocity in pipelines is 2 metres/second.

** Pressure Loss Ratio is determined by subtracting the resistance of the outlet pipework and outlet fittings from the dynamic pressures of the hot and cold water at the inlets of the mixing valve. This is at its extreme when the mixing valve is used at its lowest flow-rate and when the maximum inequality occurs in the pressure of the hot and cold water supplies.*

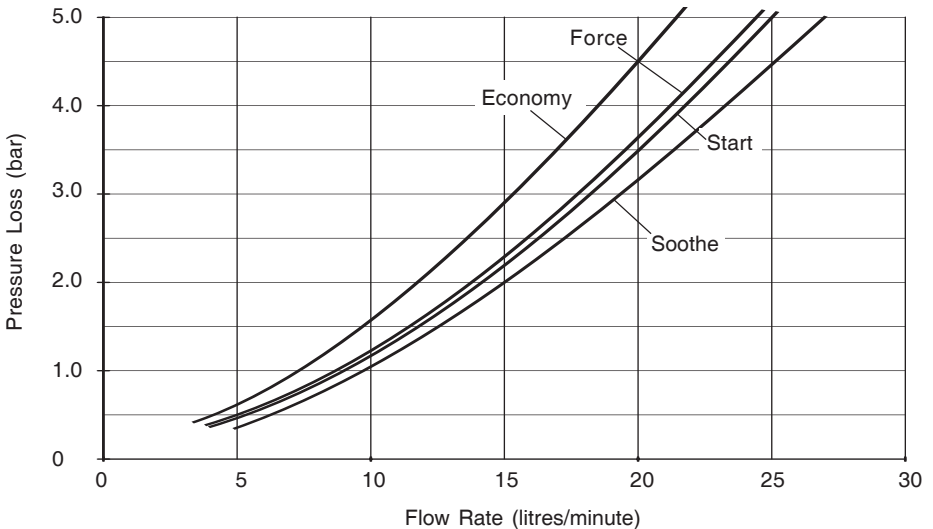
Mira Form Thermostatic Shower with Fittings

Flow Rate / Pressure Loss Graphs

Mira Form with the low capacity sprayplate fitted to the handset
(Maintained supply pressures are equal and outlet temperature set to mid-blend)



Mira Form with the high capacity sprayplate fitted to the handset
(Maintained supply pressures are equal and outlet temperature set to mid-blend)



The high capacity spray plate should be fitted to the handset when maintained inlet pressures are above 1 bar .

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. Minimum temperature differential between hot and outlet temperature: **10°C**.

Flow Control

The Mira Form shower control has integral flow control; no other user-operated flow control should be used with this shower control.

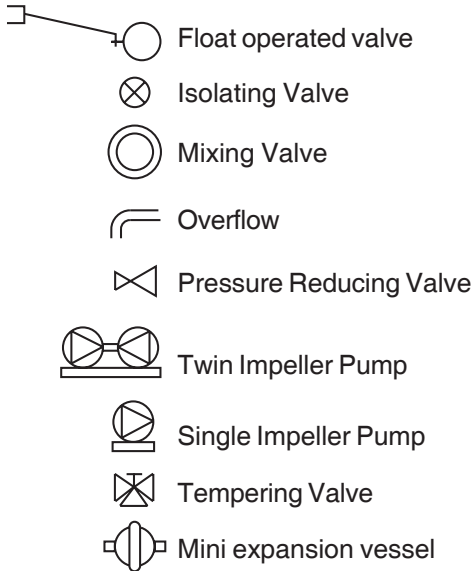
Connections

The shower control inlet connections are 15 mm compression (nuts and olives are provided).

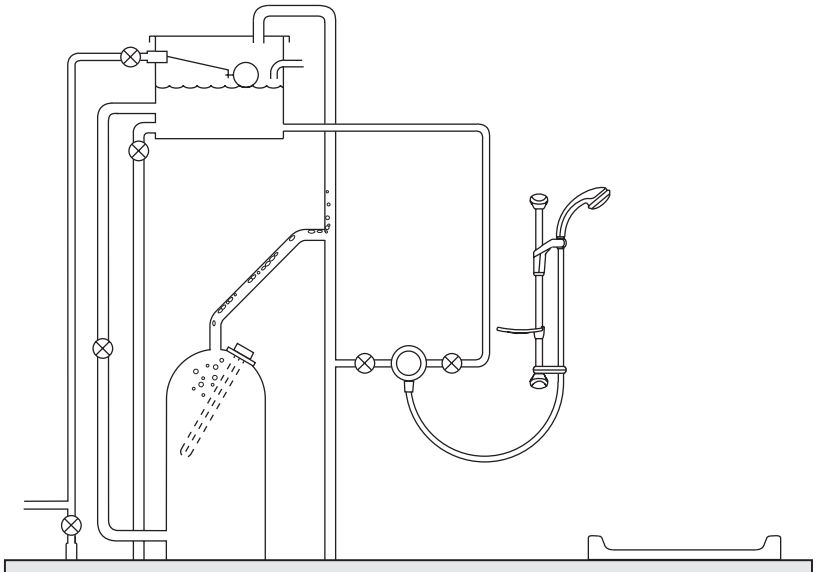
Hot (H) and Cold (C) inlets are clearly marked for the shower control and **must** be connected as described in the **INSTALLATION** section.

INSTALLATION REQUIREMENTS

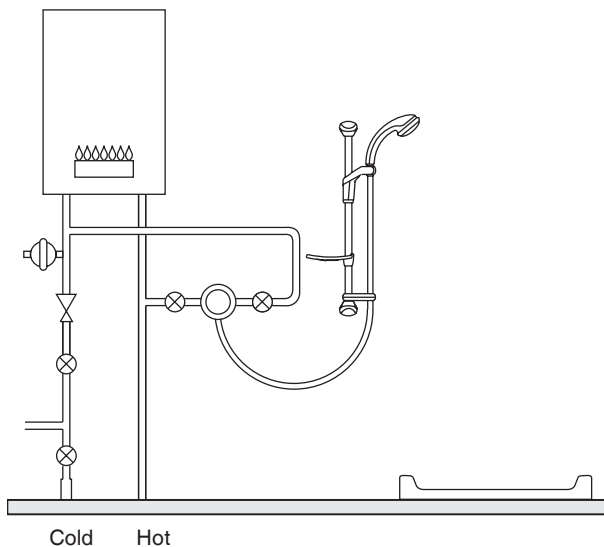
Key to Symbols



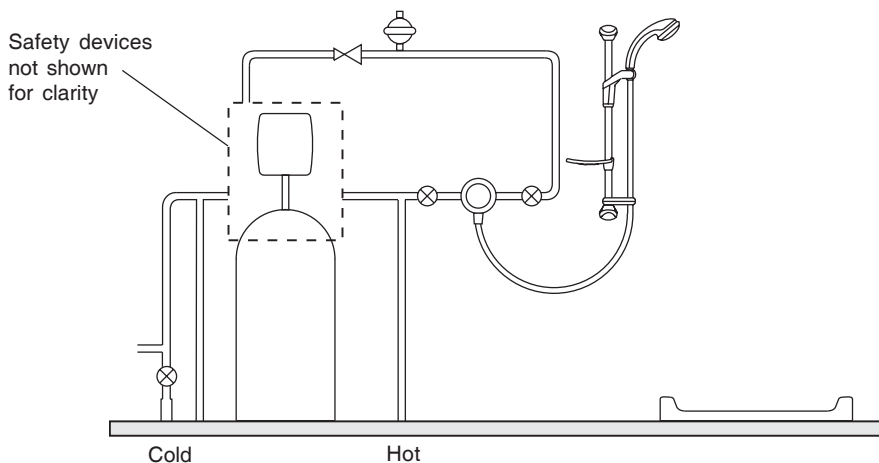
Gravity Fed Shower - The shower **MUST** be fed from a cold water cistern and hot water cylinder providing nominally equal pressure.



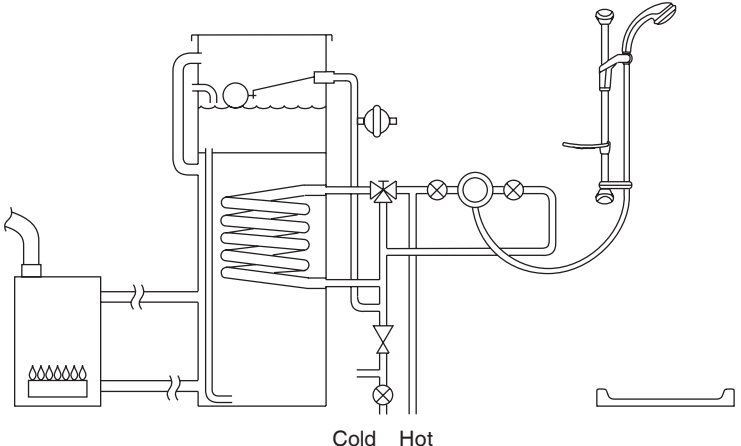
Gas Heated Shower - The shower **MUST** be installed with a gas water heater or combination boiler of a **fully modulating** design. A modulating boiler is one that the draw off rate is indirectly controlling the gas flow to the boiler, producing a relatively constant hot water temperature.



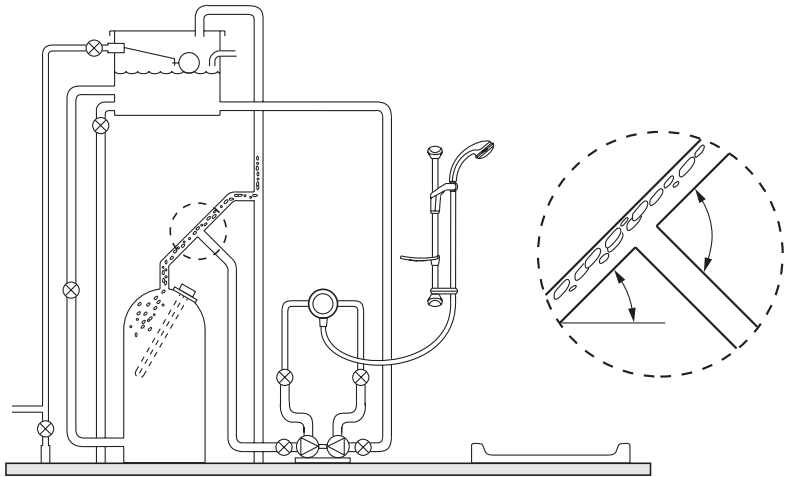
Unvented Mains Pressure Shower - The shower can be installed with a unvented, stored hot water cylinder. Only “a competent person” as defined by the Building Regulations may fit this type of system.



Mains Pressurised Instantaneous Hot Water Shower - The shower installed with systems of this type is supplied hot water via a tempering valve, this provides relatively constant hot water and the shower will compensate for temperature changes should they occur.



Pumped Shower - The shower can be installed with an inlet pump (twin impeller). The pump must be installed on the floor next to the hot water cylinder. Ensure hot cylinder vent pipe is arranged as shown to enable air separation.



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**'.
2. Care must be taken during installation to prevent any risk of injury or damage.
3. 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 checkvalve access). For all models, allow a minimum 80 mm clearance in front of the temperature control to enable removal of the serviceable parts during maintenance.
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 0.5 mm.
5. Pipework must be rigidly supported.
6. Pipework dead-legs should be kept to a minimum. The mixed outlet water piping should not exceed 2 m and the overall length from the hot water circuit to the discharge point should not exceed 5 m.
7. Supply pipework layout should be arranged to minimise the effect of other outlet usage upon the maintained pressures at the mixing valve inlets.
8. Inlet and outlet threaded joint connections should be made with PTFE tape or liquid sealant. Oil-based, non-setting jointing compounds should not be used.
9. To eliminate pipe debris it is essential that supply pipes are thoroughly flushed through before connection to the mixing valve.

Reversed Inlet Supplies

It is essential the inlet supplies correspond with the red and blue markings on the thermostatic cartridge for the Mira Form to operate correctly. The shower control is supplied with the inlet connections configured **hot-left, cold-right**. If the existing hot and cold pipework makes this configuration inconvenient the cartridge inlets can be reversed.

The connections can be altered by rotating the thermostatic cartridge through 180°, before or after installation is complete.

1. If the mixing valve body has already been installed, turn off the supplies to the mixing valve, and open the flow control. This will release the trapped water pressure and assist in draining residual water.
2. Remove the knob and cover assemblies. Refer to section: '**Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies**'.
3. With the removal clip still in place, unscrew the head nut using a 35 mm A/F wrench; this will 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.
4. 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 the cartridge lugs into the body slots.
Note! The red and blue markings on the cartridge will now **not** correspond with the body markings, to avoid future confusion remove the red and blue stickers from the valve body.
5. Carefully align and then tighten the head nut, **do not overtighten**.
6. Complete the **Installation**, if appropriate.
7. If the mixing valve body has already been installed, restore hot and cold supplies and check for any leaks.
8. Refit the knob and cover assemblies; refer to section: '**Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies**'.
9. The maximum temperature may now need resetting, check the outlet water temperature, and if necessary refer to section '**Commissioning**'.

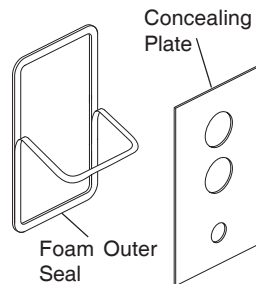
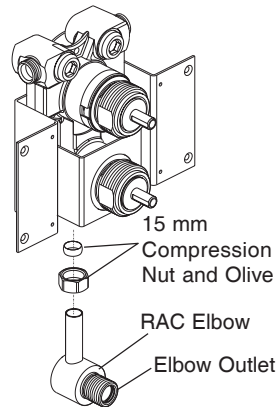
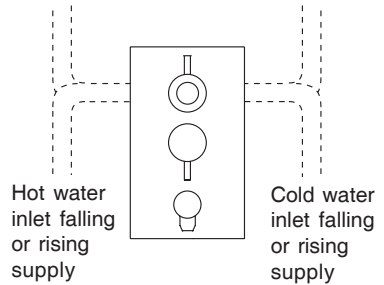
Installation: Solid and Dry-lined Walls

Shower Control - Installation

The Mira Form can be built into solid, dry-lined, stud partition or dry partition wall structures. All plumbing connections are 15 mm compression.

A building-in shroud is supplied, which can provide a depth reference when chiselling out the wall surface and protects the shower control during plastering.

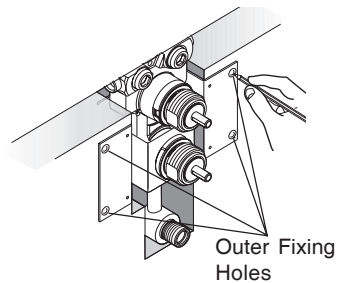
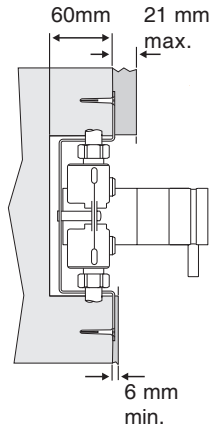
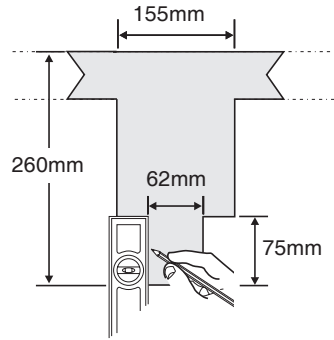
1. Decide on a suitable position for the shower control and fittings. Ideally the shower should be fitted at a convenient height for all the family, facing down the centre-line of the bath or across the shower cubicle opening.
2. Determine whether the hot or cold water supplies will connect to the shower control from the top (falling) or from the bottom (rising).
3. Remove the control knobs and the building-in shroud from the valve. Refer to **MAINTENANCE** for detailed instructions on **Removing/Fitting Knob and Concealing Plate Assemblies**. Familiarise yourself with the hot and cold inlets for the valve.
4. Fit the compression nut and the olive onto the RAC elbow and fit to the valve. **Before tightening the compression fitting ensure the pipe is pushed all the way into the valve outlet and the elbow outlet is in line with the control knobs**, otherwise the elbow will fail to line up with the hole in the concealing plate.
5. Peel off the backing on the adhesive side of the foam outer seal and fix the seal in the machined groove on the back of the concealing plate.



6. Mark the route of the inlet pipework and the approximate shape of the recess.
7. Remove the plaster and brickwork/dry-lining to the required depth using the building-in shroud as a reference. The wall mounting bracket requires a minimum building-in depth of 60 mm.

The total building-in depth for the shower control (to the finished wall surface) can be between 66 mm and 81 mm. This will accommodate a final thickness of plaster and tiles of between 6 mm and 21 mm.

8. Mark the position of the wall mounting bracket outer fixing holes. Drill a 6.0 mm diameter hole at each of the marked positions and insert the wall plugs (supplied).
9. Fit the supply pipes into the cut channels. **Flush the hot and cold water supply pipes thoroughly. The supplies must be clean and free from debris before connecting the shower control. Failure to do so may result in product malfunction.**



10. Fit the valve and connect the supply pipework. Check the hot and cold supplies have been connected to the correct inlets. If necessary the valve inlets can be reversed, refer to **Reversed Inlet Supplies** for further information.

Note! If the wall screws cannot be fixed into the wall, fit the building-in shroud and fill the cavity behind the mounting bracket with an appropriate material (e.g. expandible foam).

11. Fit the outlet support bracket over the RAC elbow and mark the position of the two fixing holes. Remove the bracket and drill the two 6.0 mm diameter fixing holes. Insert the wall plugs and fit the outlet support bracket with the fixing screws supplied.

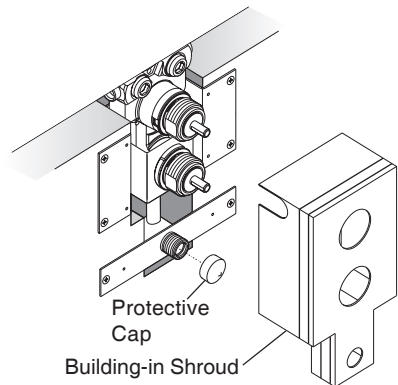
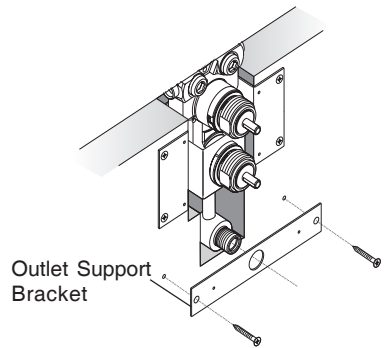
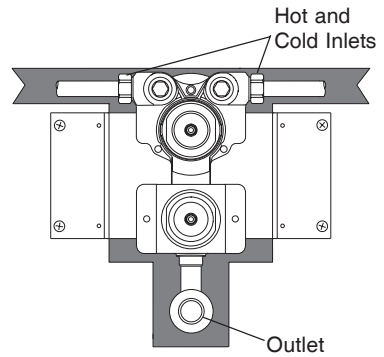
12. Make sure that the protective cap is fitted to the outlet on the RAC elbow, and place the building-in shroud over the valve.

13. Plaster and tile up to the edge of the building-in shroud. **Make sure that the finished wall surface falls somewhere between the two lines marked on the shroud.**

14. When the wall surface has been completed, remove the building-in shroud and outlet cap. If necessary, cut the shroud to help removal.

15. Turn on the hot and cold supplies and check for leaks.

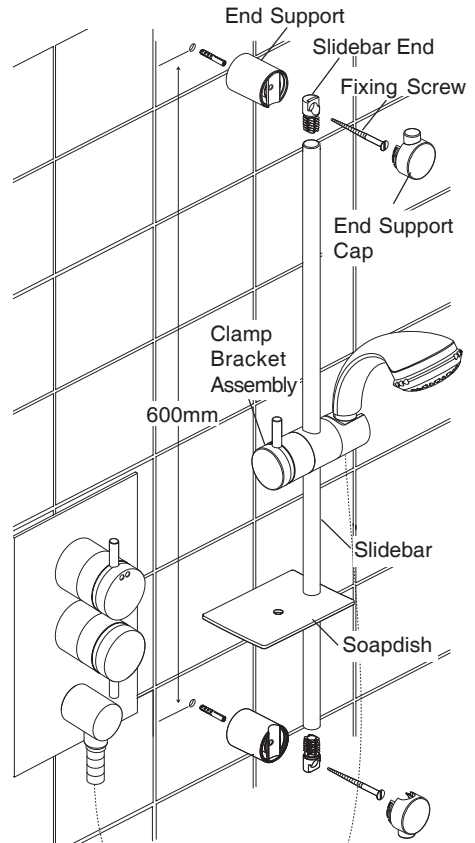
16. Fit the concealing plate and secure with the control knob and outlet assemblies. Refer to section: **'Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies.**



Shower Fittings - Installation

1. Drill the two 7.0 mm fixing holes for the slidebar at 600 mm centres, avoiding any buried cables or pipes, and insert the wall plugs.
2. Assemble the clamp bracket components. Push the plastic slidebar ends into the slidebar.
3. Push the slidebar through the clamp bracket assembly and soapdish.
4. Fit the bottom end support loosely to the wall. Insert the fixing screw into the countersunk hole of the slide bar end and through the slidebar support.
5. Place the screw through the top end support and fully tighten. Fully tighten the bottom end support.
6. Fit the end support caps over the ends of the slidebar end supports.
7. Screw the hose onto the handset and the outlet of the shower control (Make sure the hose seals are fitted). **Do not overtighten.**
8. Place the handset into the slidebar clamp bracket.

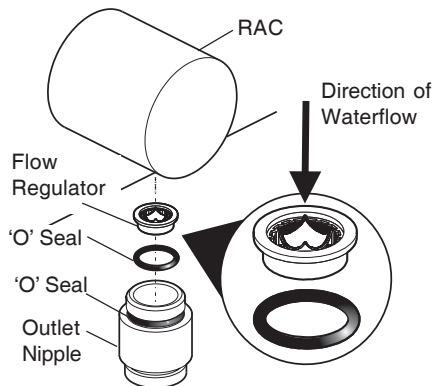
Note! The clamp bracket is tapered. The handset will only fit properly from one direction. If necessary turn the end of the clamp bracket until the handset will fit. If the clamp bracket pivots downwards under the weight of the handset the central securing screw in the bracket will require tightening to hold the handset in position.



Flow Regulator - Installation

For high pressure installations an optional flow regulator is supplied. Fitting the regulator will limit the flow to 10 l/min, and reduce the spray force to a more comfortable level. The regulator may also be fitted if water conservation is a concern.

1. Unscrew the outlet nipple from the RAC with a 12 mm A/F wrench (not supplied).
2. Fit the flow regulator as illustrated. Make sure the 'O' seals are fitted and the regulator is the correct way up.
3. Refit the outlet nipple to the RAC.



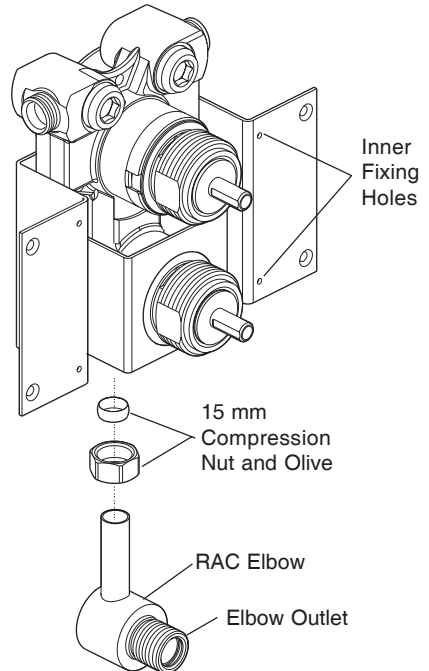
Installation: Panel walls

The Mira Form can be installed through a laminated panel or shower cubicle from either the front or the rear of the panel. If fitted from the front the panel **must have a further finishing layer** (e.g. plaster and tiles) applied to cover over the wall mounting plate and fixing screws.

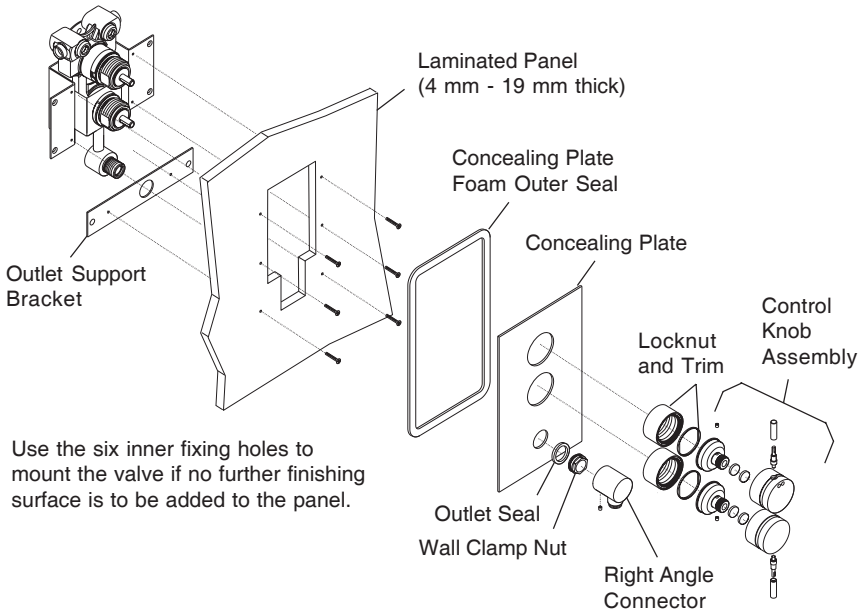
Rear Mounted (4 mm to 19 mm thickness)

To fit the Form shower control to the rear face of the panel, the panel thickness (including plaster and tiles) must be between 4 mm and 19 mm.

1. Remove the control knobs and building-in shroud from the valve. Refer to section: **‘Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies**. 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. Peel off the backing on the adhesive side of the foam outer seal and fix the seal in the machined groove on the back of the concealing plate.
3. Fit the compression nut and olive onto the RAC elbow and fit to the valve. **Before tightening the compression fitting make sure that the pipe is pushed all the way into the valve outlet and the elbow outlet is inline with the control knobs**, otherwise the elbow will fail to line up with the hole in the concealing plate. Fit the outlet support bracket to the elbow and secure with the wall clamp nut.
4. Using the valve as a template, mark and drill the 6 fixing holes to secure the mounting bracket and the outlet support bracket in position. If no further finishing surface is to be added to the panel use the six inner fixing holes to mount the valve. The concealing plate will cover the fixing screws when fitted.



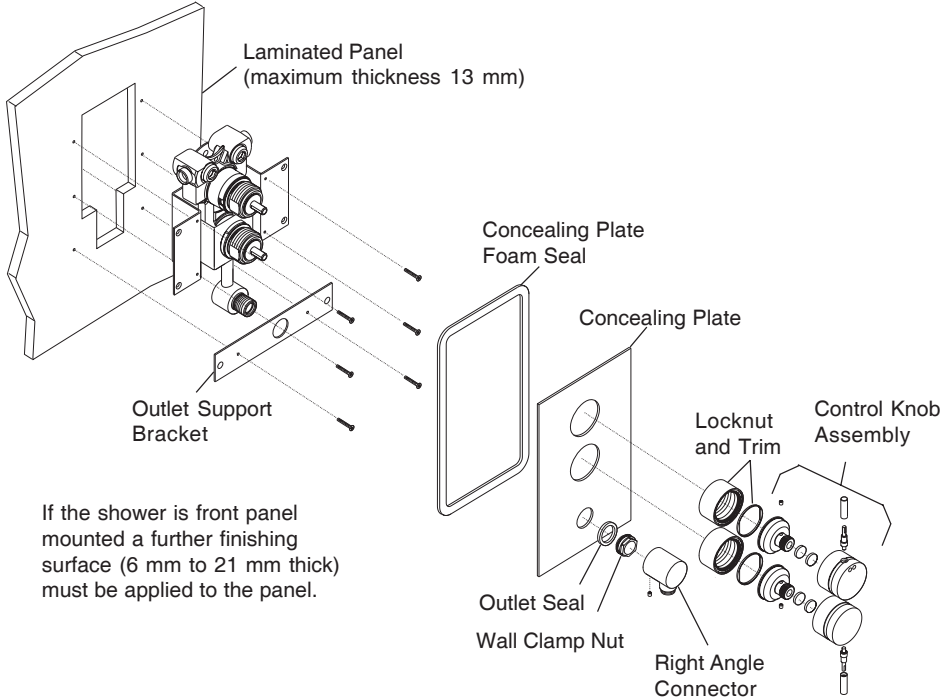
5. Mount the mixing valve securely onto the rear of the panel, with the fixing screws supplied.
Note! If access is available it may be preferable to make the initial valve/pipework connections prior to securing the mixing valve to the panel.
6. **Important! Always flush through the hot and cold supplies thoroughly before connection to the mixing valve.**
7. Connect the inlet pipework, checking that the hot and cold supplies have been piped to the correct inlets. Check that all connections are watertight.
8. To complete installation follow the instructions in section: **'Installation: solid and dry lined walls'**. Refer to section: **'Commissioning'** before operating the shower control.



Front Mounted (maximum thickness 13 mm)

To fit the Form shower control to the front face of a panel, a further finishing layer (e.g. plaster and tiles) must be applied to the panel to cover over the wall mounting plate and fixing screws. This finishing layer can be between 6 mm and 21 mm thick. The laminated panel can be a maximum of 13 mm thick.

Follow the instructions in section: **'Installation: solid and dry lined walls'** to install the shower control and fittings. Refer to section: **'Commissioning'** before operating the shower control.



If the shower is front panel mounted a further finishing surface (6 mm to 21 mm thick) must be applied to the panel.

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 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 a temperature that is too hot.

All Mira Thermostatic mixing valves 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.

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

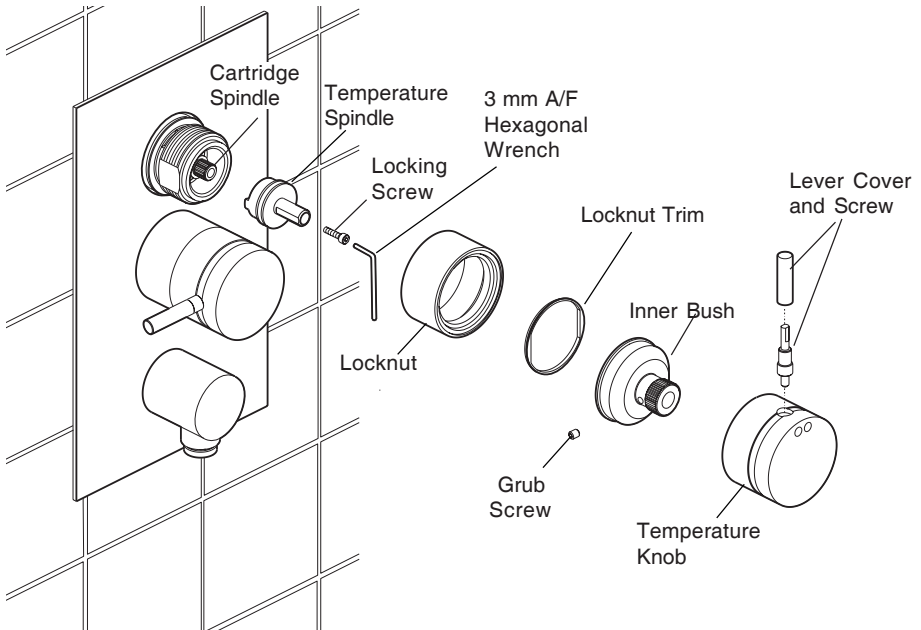
Check that an adequate supply of **hot** water is available at the hot inlet of the shower control.

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 thermostatic 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 following procedure:

1. Remove the temperature knob and locknut assemblies. Refer to section: **'Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies'**.
2. Unlock and remove the temperature spindle. Use the 3 mm hexagonal key supplied to undo the locking screw.
3. Rotate the cartridge 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.



Maximum Temperature Setting

4. Refit the temperature spindle at the maximum temperature position and secure with the locking screw.
5. Refit the locknut and temperature knob assemblies.
6. Rotate the temperature knob through its full range of movement to make sure that the full range of water temperatures can be selected.

Commissioning Checks

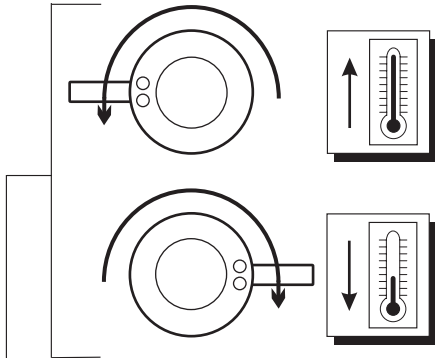
(Temperatures should always be recorded with a thermometer with proven accuracy).

1. Check inlet pipework temperatures for correct function of checkvalves i.e. that hot water does not cross flow into the cold supply and vice versa.
2. Check that the supply pressures are within the operating pressures for the valve.
3. Make sure that all connections and mixer body are water tight.
4. Exercise the thermostat.
 - (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 hot back to cold several times, pausing at each extreme.
5. Adjust the temperature of the mixed water in accordance with the instructions (refer to **Maximum Temperature Settings**).
6. Operate the outlet flow control and check:
 - (a) Flow rate is sufficient for the purpose.
 - (b) Temperature(s) obtainable are acceptable.

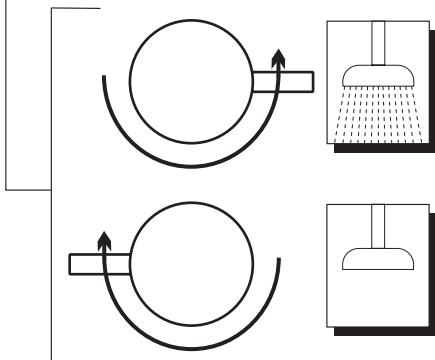
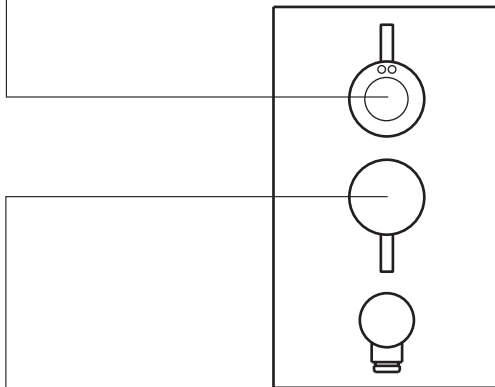
OPERATION

Mira Form Shower Control

The Mira Form shower control has separate controls for temperature and flow.



Turn the temperature lever anticlockwise for warmer water or clockwise for cooler water. The preset maximum temperature can be adjusted as required to suit both site conditions and the user's comfort. Refer to section: '**Commissioning**' for further information on **Maximum Temperature Setting**.



Turn the flow lever anticlockwise until the desired force of water is obtained.

Note! When the Form shower control is installed with a fully modulating multipoint or combination type gas water heater, the maintained mains water pressure, and hence the flow, must be sufficient to keep the heater ignited. Therefore, it is important to ensure that the flow knob is fully open to prevent variation in the hot water supply temperature.

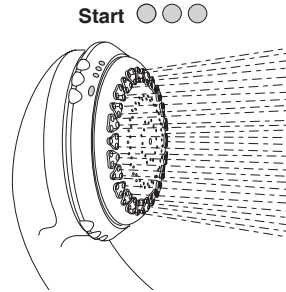
Mira Form Fittings

Handset Spray Adjustment

The Mira Form adjustable handset has three different spray actions (start, soothe and force) and an economy setting.

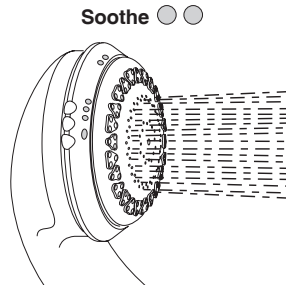
1. Start Spray

Turn the adjuster ring until the three dots align with top centre of the handset. Water will flow from the outer set of holes.



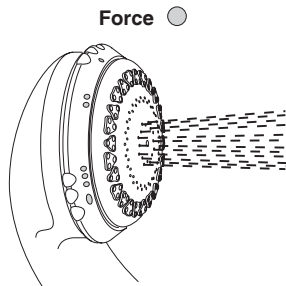
2. Soothe Spray

Turn the adjuster ring until the two dots align with top centre of the handset. Water will flow from the middle set of holes.



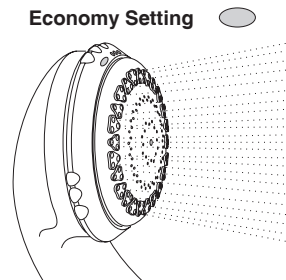
3. Force Spray

Turn the adjuster ring fully anticlockwise. The single dot will align with top centre of the handset. Water will flow from the inner set of holes.



4. Economy Spray Setting

Turn the adjuster ring fully clockwise. The oval symbol will align with top centre of the handset. Water will flow from the outer set of holes and the flow rate will be reduced.



FAULT DIAGNOSIS

Symptom	Cause/Rectification
1. Only hot or cold water from outlet.	<p>a. Inlet supplies are reversed (refer to section: ‘Installation, Reversed Inlet Supplies’. 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 to symptom 5 below.</p> <p>e. Installation conditions continuously outside operating parameters: refer to section: ‘Specifications’, 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 section: ‘Maintenance’.</p>
6. Maximum blend temperature setting too hot or too cool.	<p>a. Indicates incorrect maximum temperature setting; refer to section: ‘Commissioning’.</p> <p>b. As symptom 4. above.</p> <p>c. As symptom 5. above.</p>

Symptom	Cause/Rectification
<p>7. Water leaking from shower control body.</p>	<p>Seal(s) worn or damaged.</p> <p>a. Obtain service pack and renew all seals.</p> <p>b. (If leak persists from around temperature spindle) Renew thermostatic cartridge.</p>
<p>8. Flow knob or temperature knob stiff to operate.</p>	<p>a. Impaired free movement of internal components. Renew the appropriate cartridge.</p> <p>b. Supply pressures too high. Fit pressure reducing valve. Refer to section: 'Specifications' for acceptable operating pressures.</p>
<p>9. Drip from spray plate assembly in the handset.</p>	<p>a. A small amount of water may be retained in the shower fitting after the shower control has been turned off. This may drain over a few minutes. Change the angle of the handset to vary the draining time.</p> <p>b. Flow control cartridge faulty. Check and renew if necessary.</p>
<p>10. Shower temperature changes when spray action is adjusted.</p>	<p>a. Spray plate assembly blocked. To clear the blockage, refer to section: 'Maintenance, Spray Plate Cleaning'.</p> <p>b. Adjusting the spray action significantly changes the flow of water. Install the high capacity spray plate assembly, refer to section: 'Maintenance, Spray Plate - Removal and Installation'.</p>

MAINTENANCE

General

1. The maintenance of this product must be carried out in accordance with instructions given in this Manual, and must be conducted by designated, qualified and competent personnel.
2. Mira products are precision-engineered and should give continued superior and safe performance, provided:
 - They are installed, commissioned, operated and maintained in accordance with the recommendations stated in this Product Manual.
 - Periodic attention is given as necessary to maintain the product and its associated installation components in good functional order. Guidelines are given below.
3. The use of main supply-line or zone strainers (recommended maximum mesh aperture dimension is 0.5 mm) will reduce the need to remove debris at each mixing valve point.

The designed minimum service life of all cartridges used in Mira products is 5 years providing the Mira Form is operated with the recommended operating conditions and within the recommended operating parameters. However, when supply conditions and/or usage patterns do not conform to the recommended operating parameters and/or the recommended operating conditions, the cartridge and other critical parts may need to be replaced more frequently ('recommended operating conditions' and 'recommended parameters' are defined in section: '**Specifications**' under the headings of '**Normal Operating Conditions**' and '**Operating Parameters**').

Maintenance Procedures

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

This mixing valve is designed for minimal maintenance under conditions of normal use.

External surfaces may be wiped clean with a soft cloth, and if necessary, a mild washing-up type detergent or soap solution can be used.

Warning! Many household and industrial cleaning products contain mild abrasives and chemical concentrates, and should not be used on polished, chromed or plastic surfaces.

Should an internal malfunction occur then this will probably require replacement of parts.

Components are precision-made, so care must be taken while servicing to avoid damage.

When ordering spare parts, please state product type, i.e. Mira Form, and identify part name and number (refer to section: '**Spare Parts**'). A Seal pack is available, containing all the seals that may be necessary for renewal during maintenance or servicing.

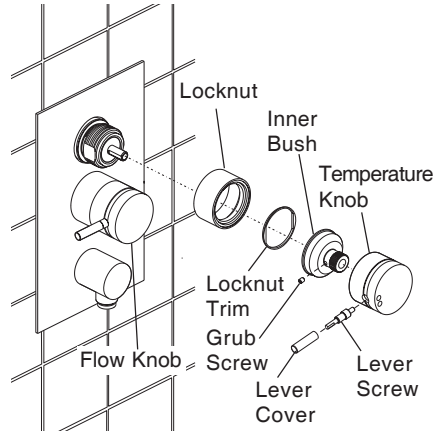
Lubricant

Important! All seals are pre-lubricated. If you need to lubricate the seals, use only a small amount of silicone-only based lubricants on this product. Do not use oil-based or other lubricant types as these may cause rapid deterioration of seals.

Removing/Fitting Knob and Concealing Plate Assemblies

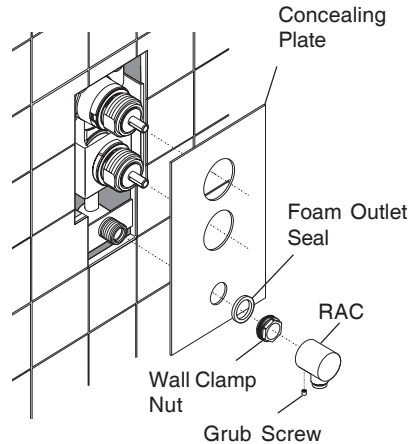
Removing the Knob Assembly

1. Rotate the flow knob fully clockwise and the temperature knob fully anticlockwise.
2. Unscrew the lever cover anticlockwise.
3. Unscrew the lever screw, anticlockwise, and remove the temperature/flow knob.
4. Unscrew the grub screw using the 2.5 mm hexagonal key and remove the inner bush.
5. Lift off the locknut trim and unscrew the locknut in an anticlockwise direction.



Removing the Concealing Plate Assembly

1. Remove both flow and temperature knob assemblies. Refer to **Removing the Knob Assembly** for instructions.
2. Unscrew the grub screw, securing the RAC, using the 2.5 mm hexagonal key provided. Remove the RAC.
3. Unscrew and remove the wall clamp nut, then remove the outer seal and concealing plate.



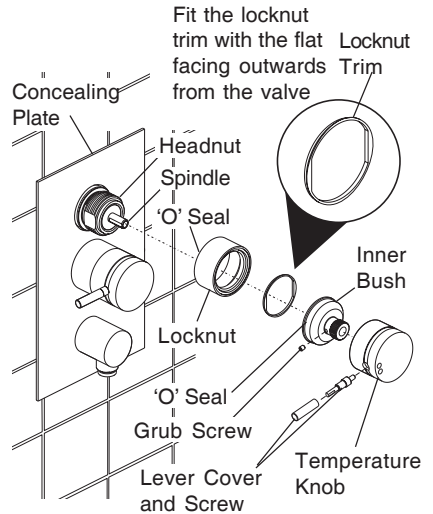
Fitting the Knob Assembly

1. Screw the locknut onto the headnut until it firmly locks the concealing plate in place. Make sure that the 'O' seal is fitted to the locknut for a watertight seal between the locknut and concealing plate.

Note! Do not overtighten the locknuts or the concealing plate will deform.

2. Refit the locknut trim. Make sure that the trim is fitted the correct way round (see illustration).

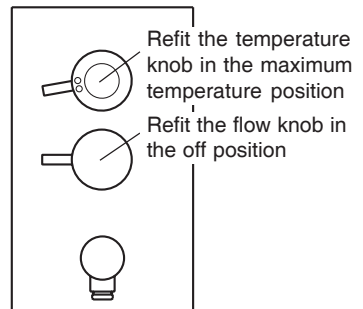
3. Fit the control knob inner bush so the securing grub screw aligns with the spindle flat. Tighten the grub screw with the 2.5 mm hexagonal key provided. Make sure that the inner bush 'O' seal is fitted for a watertight seal between the inner bush and the locknut.



4. Rotate the inner bush fully clockwise for the flow control or fully anticlockwise for the temperature control. Refit the control knobs (see illustration) and secure with the lever screw and the lever cover.

Note! The lever screw needs to be secured with a spanner. Do not overtighten the lever screw as product damage may occur.

Note! If the control knobs are incorrectly fitted the levers may foul against each other when in use.



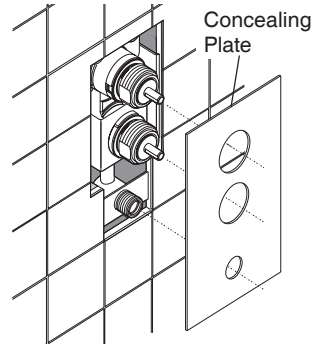
Refitting Control Knobs

5. Check the control knobs can be rotated fully and the full flow and temperature range can be selected.

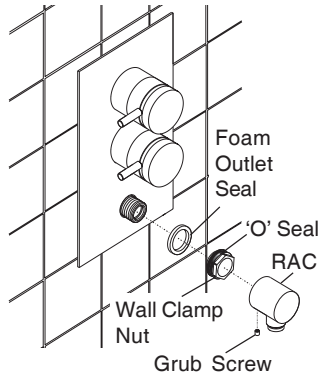
Fitting the Concealing Plate Assembly

1. Fit the concealing plate to the valve and secure with the temperature and control knobs. Refer to section: **'Maintenance, Fitting the Knob Assembly'** for detailed instructions.

Note! If the wall surface or tiling is uneven, the foam outer seal on the concealing plate may need supplementing with silicone sealant to ensure a watertight seal.

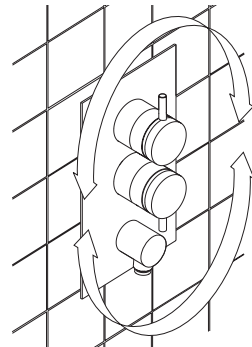


2. Fit the wall clamp nut. Make sure that the foam outlet seal is fitted between the wall clamp nut to create a watertight seal between the nut and the concealing plate.



3. Fit the RAC to the wall clamp nut and secure with the grub screw. Make sure that the 'O' seal is fitted to the wall clamp nut.

4. Check that the control knobs rotate fully and that the temperature and flow controls operate correctly.



Maintenance Procedure - Thermostatic Cartridge

Removal

1. Turn off the supplies to the shower control. Open the flow control to release the trapped water pressure and assist the draining of residual water.
2. Remove the temperature and flow knob assemblies, using the 2.5 mm A/F hexagonal wrench (supplied). Remove the concealing plate, seals and support bracket. Do not remove the temperature spindle.
3. With the 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.

Caution! 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.

Cleaning/Renewal of Parts

6. The interior surface of the shower control body must be clean before refitting the 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 the 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.

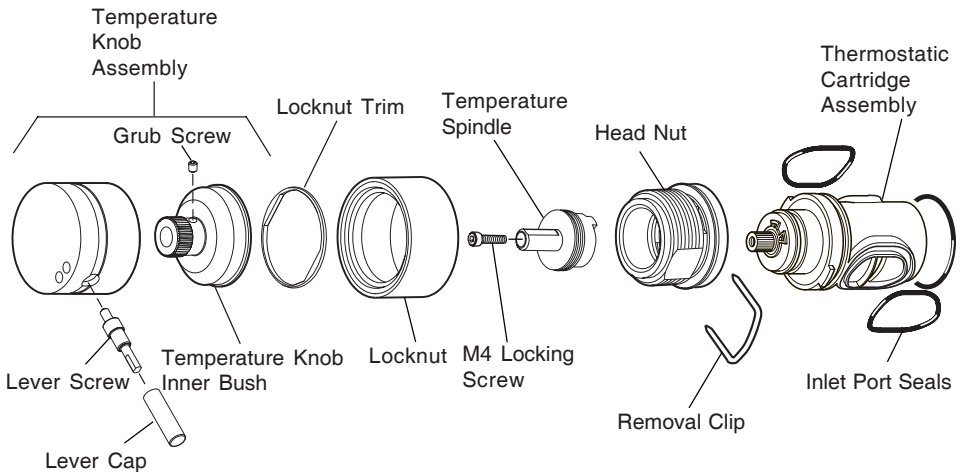
7. Cartridges may only be cleaned by flushing through under a jet of clean water to remove lodged particles. **Do not descale. Cartridges are not serviceable, and must not be dismantled.**

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 temperature spindle, 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**).

Reassembly

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 the 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)). Fit the removal clip to the head nut.
13. Turn the flow control to the off position and restore hot and cold supplies. Check for any leaks.
14. Refit the plate and lever assemblies; refer to section: '**Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies**'.
15. The maximum temperature will now need resetting; refer to section: '**Commissioning**'.



Thermostatic Cartridge Removal

Maintenance Procedure- Flow Cartridge

Removal

1. Turn off the water supplies to the shower control. Open the flow control to release the trapped water pressure and assist the draining of residual water.
2. Remove the lever knob and concealing plate assemblies; Refer to section: '**Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies**'.
3. Remove the flow spindle, the headnut and the splined adaptor.
4. Unscrew the flow cartridge anticlockwise and remove.

Warning! Some residual water may be released.

Cleaning/Renewal of Parts

5. The inner surface of the shower control body must be clean before refitting the 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 the body thoroughly in clean water before refitting the cartridge.

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

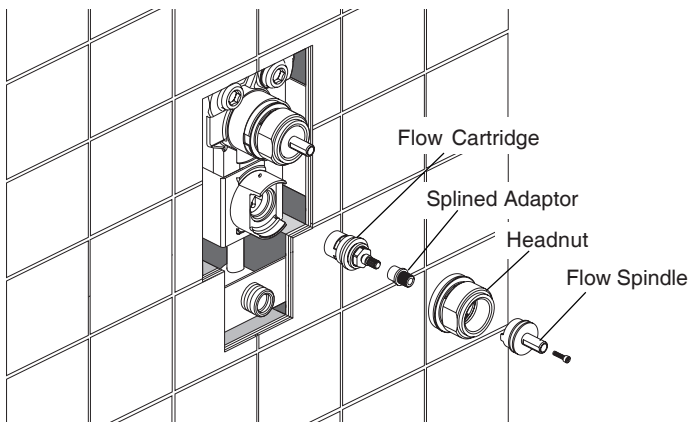
6. Clean the cartridge by flushing through under a jet of clean water to remove lodged particles. **Do not descale. Cartridges are not serviceable, and must not be dismantled.**

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

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

Reassembly

9. Check that the flow cartridge seals are in place. Align and screw the cartridge into place.
10. Fit the splined adaptor, the headnut and the flow spindle.
11. Turn the flow control to the off position (Rotate the flow control fully clockwise). Restore hot and cold supplies and check for leaks.
12. Refit the lever knob and concealing plate assemblies; Refer to section: '**Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies**'.



Flow Cartridge Removal

Checkvalve Cartridges - Cleaning/Renewal of Parts

Hot water entering the cold supply, or vice versa, indicates the checkvalve cartridge needs immediate attention.

1. Turn off the supplies to the shower control. Open the flow control to release the trapped water pressure and assist draining the residual water.
2. Remove the control knob and concealing plate assemblies, Refer to section: **'Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies'**.
3. Undo the cartridge head using a 12 mm A/F wrench and pull the whole cartridge free from the valve body.

Caution! Some water may be released at this point.

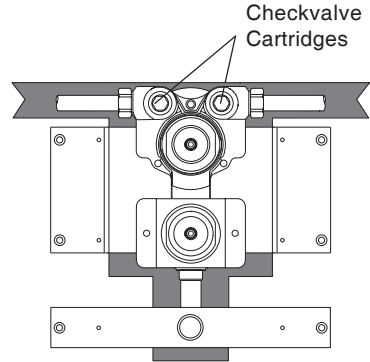
4. The checkvalve cartridge assemblies may be cleaned by removing the rubber retainers and inlet strainers, and flushing through under a jet of water to remove lodged particles. **Do not descale.** Check if the checkvalve cartridge operates correctly. If the cartridge is damaged or fails to operate correctly renew.

5. Lightly wipe external seals and threads with a **silicone-only based lubricant** to aid refitting.

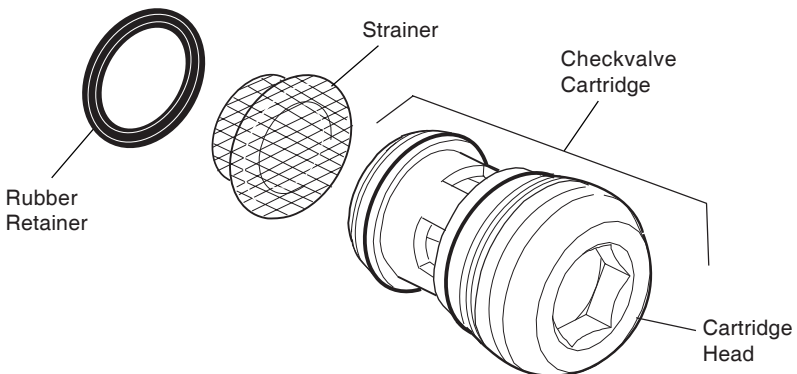
6. Refit cartridges, strainers and retainers. **Do not overtighten** the cartridge heads when refitting.

7. Turn the flow control fully clockwise to the off position. Restore the water supplies, and check for leaks.

8. Follow the steps outlined in section: **'Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies'** to reassemble the shower control.



Cartridge Location

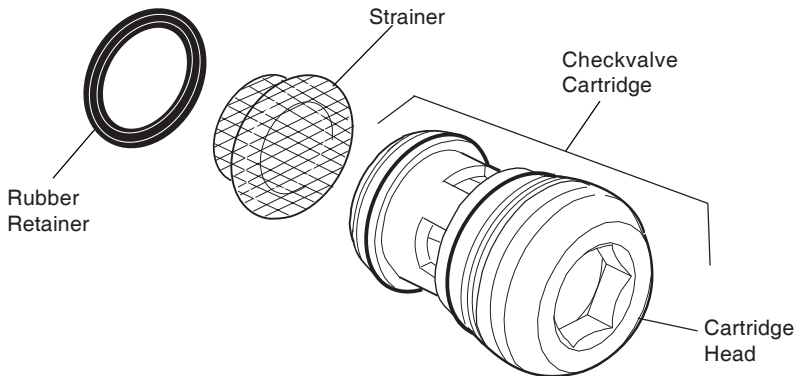


Checkvalve Cartridges

Inlet Strainers - Cleaning/Renewal of Parts

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 periodically cleaned or, if necessary, renewed as part of a preventative maintenance programme. A Strainer pack is available for the Mira Form, containing 2 strainer screens and 2 retainers.

1. Turn off the supplies to the shower control. Open the flow control to release the trapped water pressure and assist draining the residual water.
2. The strainers are located at the inlet of each checkvalve cartridge. Remove the cartridges to allow access.
3. Carefully remove the strainers.
4. Clean under a jet of water, or renew if damaged.
5. Refit cartridges, strainers and retainers. **Do not overtighten** the cartridge heads when refitting.
6. Turn the flow control fully clockwise to the off position. Restore the water supplies, and check for leaks.
7. Follow the steps outlined in section: **'Maintenance, Removing/Fitting Knob and Concealing Plate Assemblies'** to reassemble the shower control.



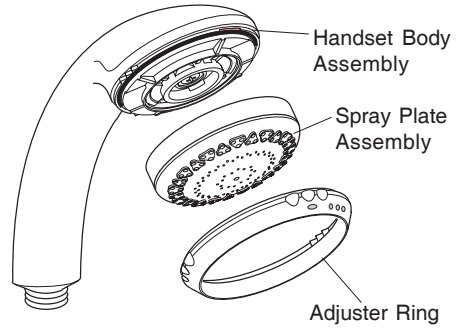
Inlet Strainers

Shower Fittings

Spray Plate Assembly - Removal and Installation

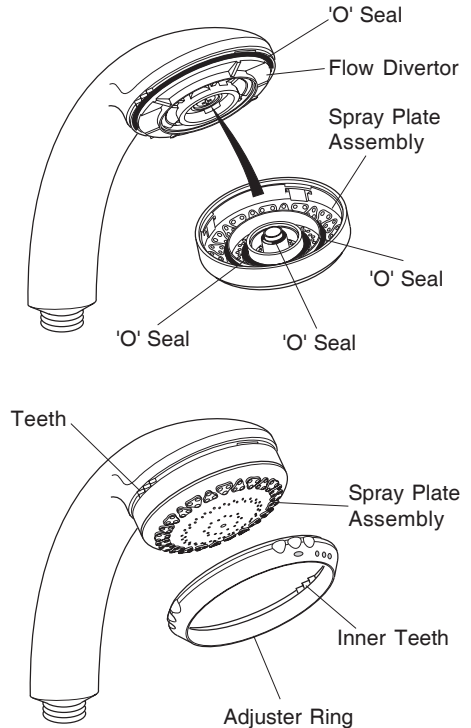
Removal

1. Turn the adjuster ring fully anticlockwise.
2. Unclip and remove the adjuster ring.
3. Unscrew the spray plate in an anti-clockwise direction. The 'O' seals will provide some resistance.



Installation

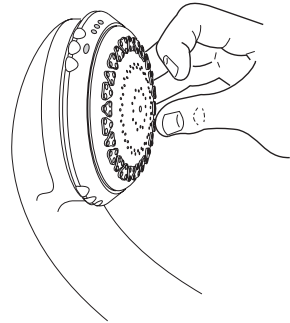
4. Make sure that the four 'O' seals are located correctly.
5. Turn the flow diverter fully clockwise.
Caution! Do not over tighten the spray plate.
6. Carefully screw the spray plate assembly on to the flow diverter. The 'O' seals will resist the rotation of the spray plate. There should be a gap between the edge of the spray plate assembly and the flow diverter.
7. Make sure that the green bar on the adjuster ring is uppermost and align the inner teeth on the adjuster ring with the teeth on the handset flow diverter. Clip the adjuster ring into position.



Sprayplate Cleaning

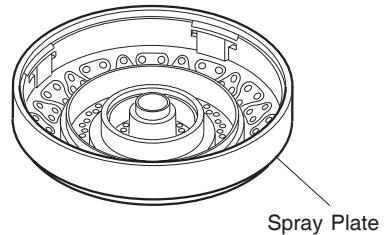
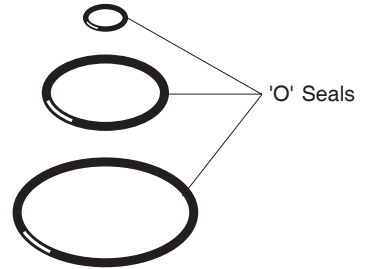
Sprayplate External Assembly

1. Use your thumb or a soft cloth to wipe any limescale from the soft triangular nozzles and the front face of the spray plate assembly.



Sprayplate Internal Assembly

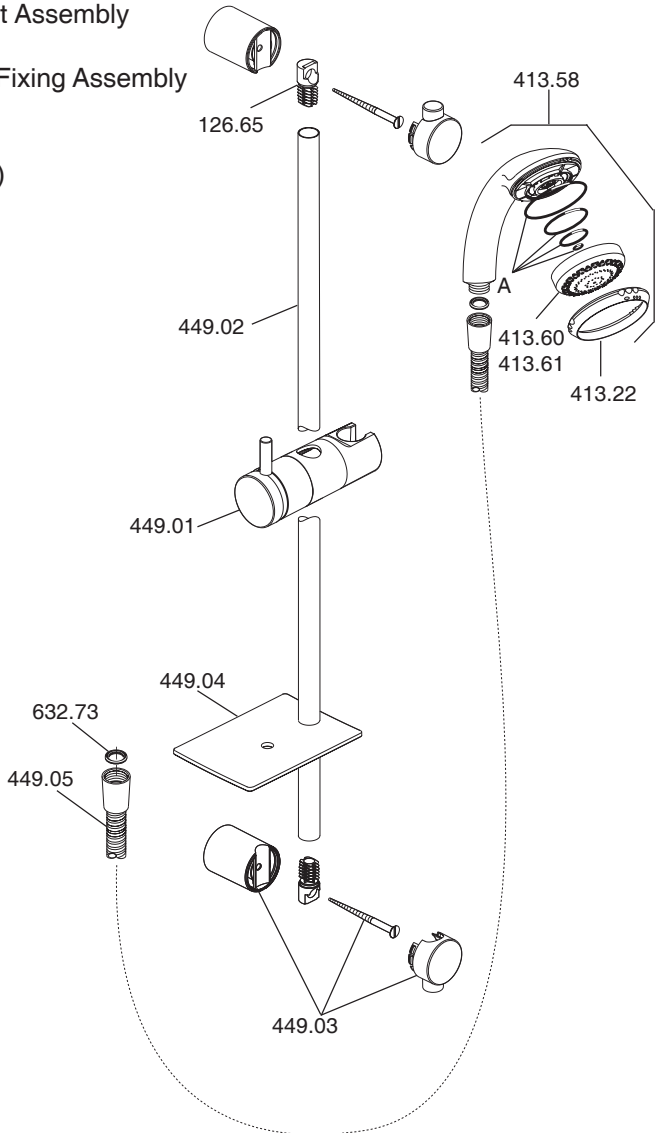
2. Remove the spray plate assembly. Refer to section: '**Maintenance, Spray plate assembly - removal and installation**'.
3. Remove the 'O' seals.
4. Clean all the components with a stiff brush. If necessary use a plastic kettle descaler in accordance with the manufacturer's instructions.
5. Refit the components in reverse order.
6. Install the spray plate assembly. Refer to section: '**Maintenance, Spray plate assembly - removal and installation**'.



SPARE PARTS

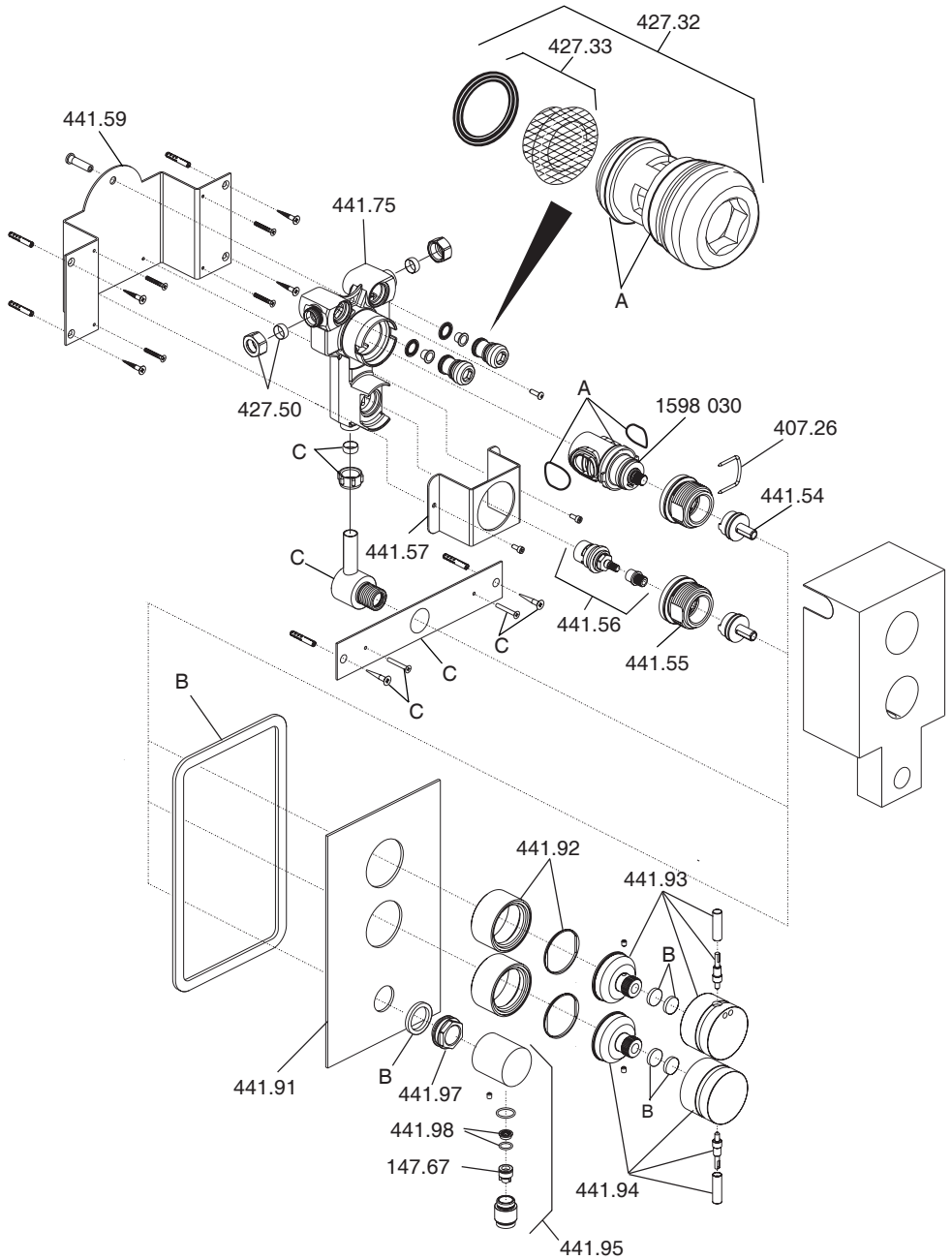
Shower Fittings Spare Parts List

- 126.65 Sidebar Ends
- 411.37 Service Pack 'O' Seals - components identified 'A'
- 413.22 Adjuster Ring - satin chrome
- 413.58 Handset Body Assembly - chrome
- 413.60 Spray Plate Assembly - High capacity - dark grey
- 413.61 Spray Plate Assembly - Low capacity - dark grey
- 449.01 Clamp Bracket Assembly
- 449.02 Slidebar
- 449.03 Slidebar Wall Fixing Assembly
- 449.04 Soapdish
- 449.05 Hose
- 632.73 Hose Seal (x2)



Shower Control Spare Parts List

147.67	Outlet Checkvalve Assembly
407.26	Cartridge Removal Clip
427.32	Inlet Checkvalve Assembly
427.33	Filter
427.48	Seal Pack - components identified 'A'
427.50	Compression Nut and Olive Pack
441.54	Spindle Extension
441.55	Headnut
441.56	Flow Cartridge Assembly
441.57	Valve Mounting Bracket
441.58	Screw Pack (not illustrated)
441.59	Wall Mounting Bracket
441.75	Valve Body
441.90	Concealing Plate Seal Pack - components identified 'B'
441.91	Concealing Plate
441.92	Locknut Assembly
441.93	Temperature Lever Assembly
441.94	Flow Lever Assembly
441.95	RAC Shroud
441.96	RAC Elbow Assembly - components identified 'C'
441.97	RAC Wall Clamp
441.98	10 L/Min Flow Regulator
1598 030	Thermostatic Cartridge



CUSTOMER SERVICE

Guarantee of Quality

Mira Showers guarantee your product against any defect in materials or workmanship for the period shown in the Guarantee Registration Document included with your shower.

Alternatively, to confirm the applicable guarantee period please contact Customer Services.

To validate the guarantee, please return your completed registration card.

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

To be free of charge, service work must only be undertaken by Mira Showers or our approved agents in Northern Ireland and Republic of Ireland.

Service under this guarantee does not affect the expiry date. The guarantee on any exchanged parts or product ends when the normal product guarantee period expires.

Not covered by this guarantee:

Damage or defects arising from incorrect installation, improper use or lack of maintenance, including build-up of limescale.

Damage or defects if the product is taken apart, repaired or modified by any person not authorised by Mira Showers or our approved agents.

This guarantee is in addition to your statutory and other legal rights.

Before using your shower

Please take the time to read and understand the operating and safety instructions detailed in this manual.

What to do if something goes wrong

If when you first use your shower it doesn't function correctly, first contact your installer to check that installation and commissioning are satisfactory and in accordance with the instructions in this manual. We are on hand to offer you or your installer any advice you may need.

Should this not resolve the difficulty, simply contact our Customer Services who will give every assistance, and if necessary arrange for our service engineer to visit.

If later the performance of your shower declines, consult this manual to see whether simple home maintenance is required. Please call our Customer Services to talk the difficulty through, request service under guarantee if applicable, or take advantage of our comprehensive After-Sales service.

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

Our Customer Services Team is comprehensively trained to provide every assistance you may need: help and advice, spare parts or a service visit.

Spare Parts

We maintain an extensive stock of spares, and aim to have functional parts available for ten years from the date of final manufacture of the product.

Spares can be purchased from approved stockists or merchants (locations on request) or direct from Customer Services.

Spares direct will normally be despatched within two working days. Payment can be made by Visa or MasterCard at the time of ordering. Should payment by cheque be preferred a pro-forma invoice will be sent.

Note! In the interests of safety, spares requiring exposure to mains voltages can only be sent to competent persons.

Service

Our Service Force is available to provide a quality service at a reasonable cost. You will have the assurance of a Mira trained engineer/agent, genuine Mira spares, and a 12 month guarantee on the repair.

Payment should be made directly to the Service Engineer/Agent, using Visa, MasterCard or a cheque supported by a banker's card.

To contact us

England, Scotland & Wales

Mira Showers Customer Services

Telephone: 0870 241 0888

8:30 am to 5:00 pm Working days (4:30 pm Friday)

8:30 am to 12.30 pm Saturday

E-mail: technical@mirashowers.com

Fax: 01242 282595

By Post: Cromwell Road
Cheltenham
Gloucestershire
GL52 5EP

Northern Ireland

Wm H Leech & Son Ltd

Telephone: 028 9044 9257 – Mon to Fri 9 am-5pm

Fax: 028 9044 9234

Post: Maryland Industrial Estate

Ballygowan Road

Moneyreagh, Co Down

BT23 6BL

Republic of Ireland

Modern Plant Ltd

Telephone: 01 4591344 – Mon to Fri 9am to 5pm

Fax: Dublin 01 4592329

Post: Otter House

Naas Road

Clondalkin

Dublin 22

Mira Showers

Kohler Mira Ltd
Cromwell Road,
Cheltenham GL52 5EP.

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product specifications without notice.

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