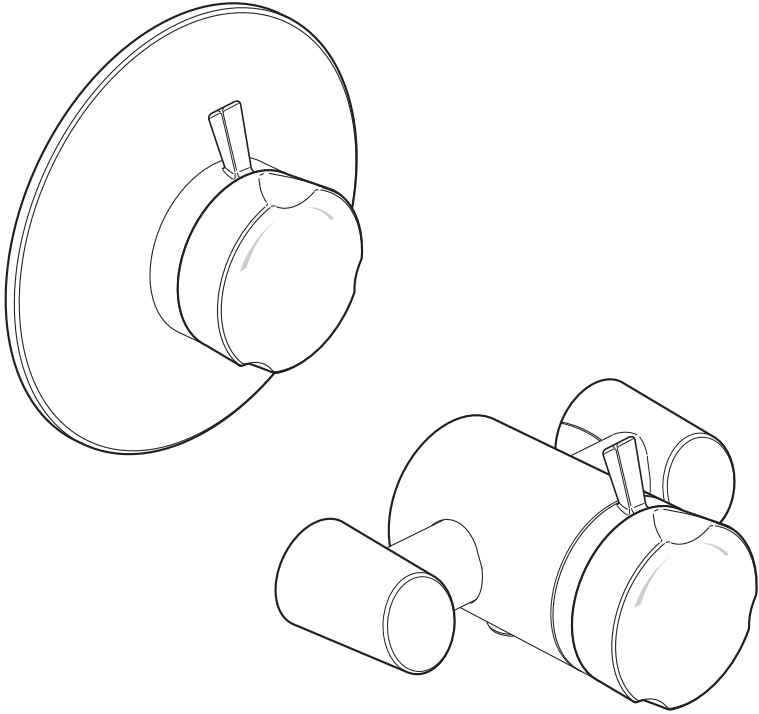


***mira***  
*Discovery*



**MIRA DISCOVERY**

**THERMOSTATIC MIXER**

**Installation and User Guide**

**These instructions are to be left with the user**

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# INTRODUCTION

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

The Mira Discovery Thermostatic Mixer is a Thermostatic Shower Control with separate flow and temperature controls.

A 12 L/Min flow regulator is supplied for high pressure systems to reduce excessive shower force.

**Note!** The fitting of any flow regulator will invalidate TMV2 compliance due to the minimum flow rate requirements. Do not fit flow regulators in TMV2 applications.

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

**Mira Discovery Exposed:** Thermostatic Mixer for connection to rising, falling or rear entry pipework, supplied complete with Mira Discovery Shower Fittings.

**Mira Discovery Built-in:** Thermostatic Mixer for connection to concealed pipework, supplied complete with Mira Discovery Shower Fittings.

This product has been certified as a Type 2 valve under the BUILDCERT TMV2 scheme. This product also complies with the Water Supply (water fittings) Regulations 1999.

## Patents and Design Registration

Patents:	GB:	2 291 693, 2 392 225, 2 421 297
	Euro:	1 672 257 DE FR GB IT NL SE
	Germany:	695 13 455.8
	France:	0 694 721
	USA:	7 240 850
Patent Applications:	Euro:	03254070.0
	USA:	2006-0124758-A1, 11/804 631
Design Registration		000351887-0001-0006

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

## Guarantee

For **domestic installations**, Mira Showers guarantee the Mira Discovery against any defect in materials or workmanship for a period of three years from the date of purchase (shower fittings for one year).

For **non-domestic installations**, Mira Showers guarantee the Mira Discovery against any defect in materials or workmanship for a period of one year from the date of purchase.

For terms and conditions refer to the back cover of this guide.

## Recommended Usage

Application	Valve Only	Valve with Fittings
Domestic	✓	✓
Light Commercial	x	x
Heavy Commercial	x	x
Healthcare	x	x

# SAFETY : WARNINGS

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.

Mira thermostatic mixers are precision engineered and should give continued safe and controlled performance, provided:

1. They are 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.

## Caution!

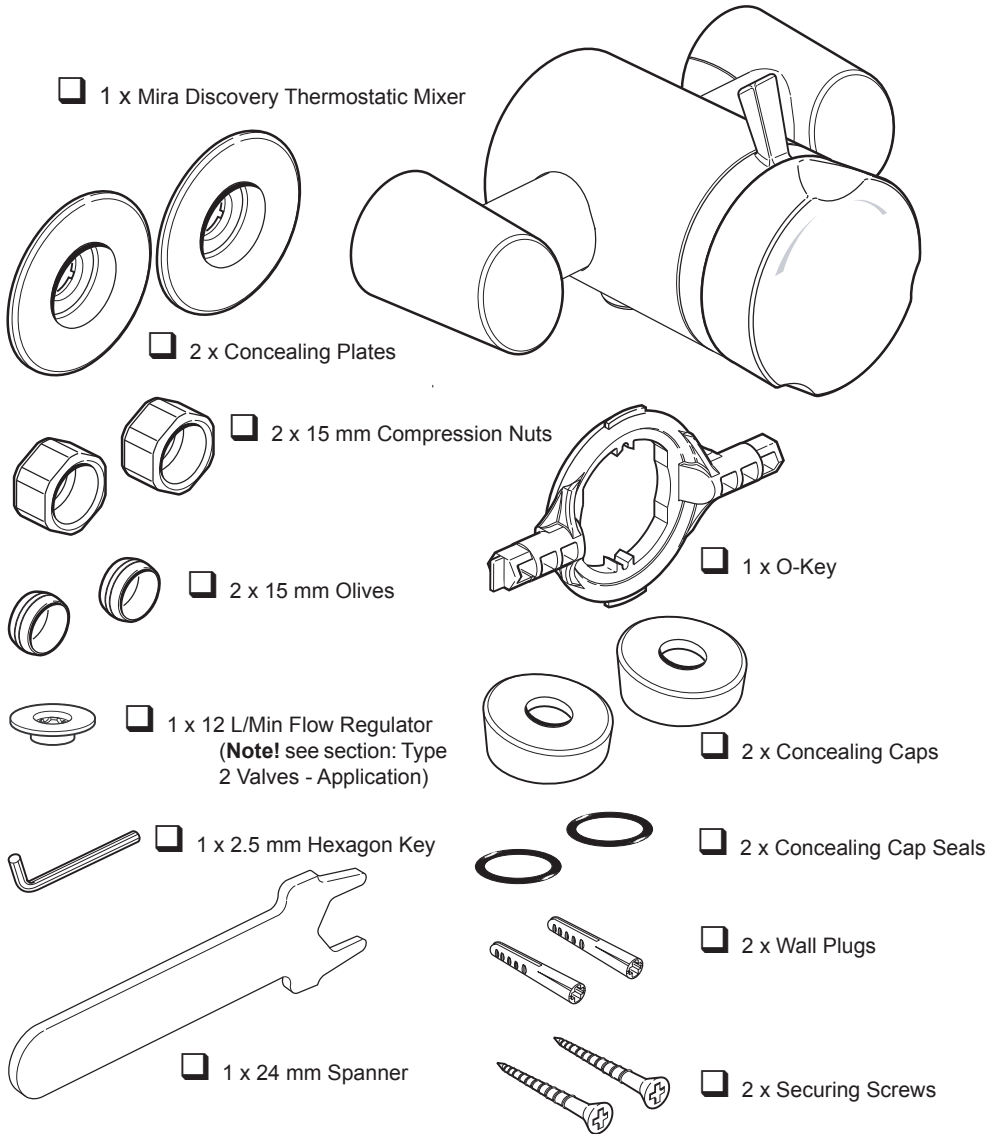
1. Read all of these instructions.
2. Retain this guide for later use.
3. Pass on this guide in the event of change of ownership of the installation site.
4. Make sure that you fully understand how to operate this shower and make sure that it is properly maintained in accordance with the instructions given in this manual.
5. Follow all warnings, cautions and instructions contained in this guide.
6. Do not install the product in a position in which service access is restricted.
7. Anyone who may have difficulty understanding or operating the controls of any shower should be attended whilst showering. Particular consideration should be given to:
  - 7.1. The young.
  - 7.2. The elderly.
  - 7.3. The infirm.
  - 7.4. The disabled.
  - 7.5. Anyone who suffers from a medical condition that can result in temporary incapacity (e.g. epilepsy or blackouts).
  - 7.6. anyone inexperienced in the correct operation of the controls.
8. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.
9. Children should be supervised to make sure that they do not play with the appliance.

10. Care is required when adjusting flow or temperature, make sure that the temperature has stabilised. Rapid/excessive movement of the flow and/or temperature control levers may result in momentary changes in blend temperature.
11. When this product has reached the end of its serviceable life, it should be disposed of in a safe manner, in accordance with current local authority recycling, or waste disposal policy.
12. Type 2 Valves are only used for applications covered by their approved designations, refer to section: '**Type 2 Valves**'.

# PACK CONTENTS

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

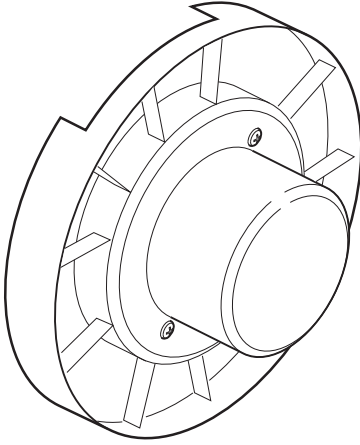
## Exposed Discovery Thermostatic Mixer



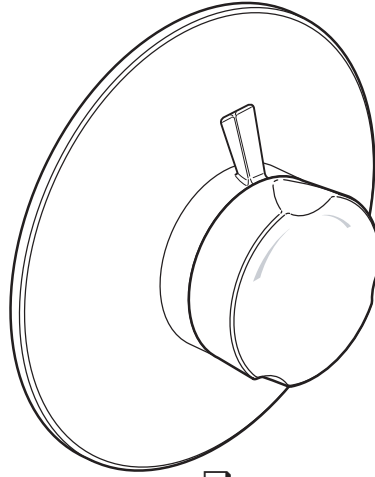
1 x Guarantee Registration Document

1 x Installation Template

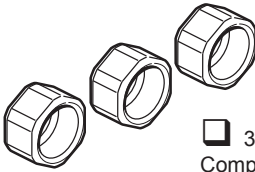
# Built-in Discovery Thermostatic Mixer



1 x Mira Discovery Thermostatic Mixer  
(attached to the Building-in Shroud)



1 x Control Assembly



3 x 15 mm  
Compression Nuts



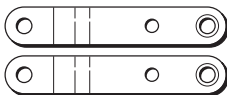
3 x 15 mm Olives



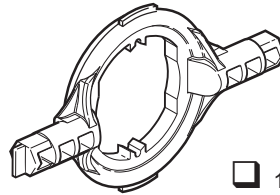
1 x 12 L/Min Flow Regulator  
**(Note!** see section: Type  
2 Valves - Application)



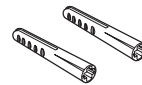
1 x 2.5 mm Hexagon Key



2 x Securing Brackets



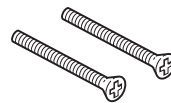
1 x O-Key



2 x Wall Plugs



2 x Securing Screws



2 x M5 x 40 Screws

1 x Guarantee Registration Document



# SPECIFICATIONS

## Operating Parameters

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

### Pressures

- Max Static Pressure: **10 Bar**.
- Max Maintained Pressure: **5 Bar**.
- Min Maintained Pressure (Gravity System): **0.1 Bar**. (0.1 bar = 1 Metre head from cold tank base to shower handset outlet).

**Note!** For gravity fed / other low pressure systems (0.5 bar or below) do not fit the flow regulator.

For optimum performance supplies should be nominally equal.

### Flow Regulator Installation

Flow regulators are supplied with this product and should be fitted in high pressure systems to either;

- Reduce excessive force and flow rate.
- Reduce noise through the mixer due to high or unequal pressures.
- Stabilise incoming supply temperatures.

Important! The fitting of flow regulators will invalidate any TMV2 compliance due to minimum flow rate requirements. Do not fit the flow regulator in TMV2 applications.

### Temperatures

- Factory Pre-set (Blend) Shower: **43°C**.
- Optimum Thermostatic Control Range: **35°C to 43°C** (achieved with supplies of 15°C cold, 65°C hot and nominally equal pressures).
- Recommended Hot Supply: **60°C to 65°C Note!** The mixing valve can operate at higher temperatures for short periods without damage, however this could detrimentally affect thermostatic performance. For safety and performance reasons it is recommended that the maximum hot water temperature is limited to 65°C.
- Cold Water Range: up to **25°C**.
- Minimum Recommended Differential between Hot Supply and Outlet Temperature: **12°C**.

## Thermostatic Shut-down

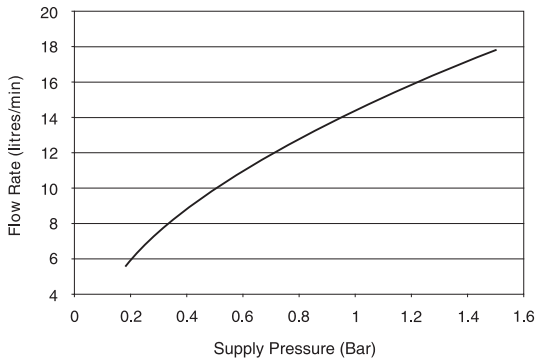
- For safety and comfort the thermostat will shut off the mixing valve **within 2 Seconds** if either supply fails (achieved only if the blend temperature has a minimum differential of 12°C from either supply temperature).

## Connections

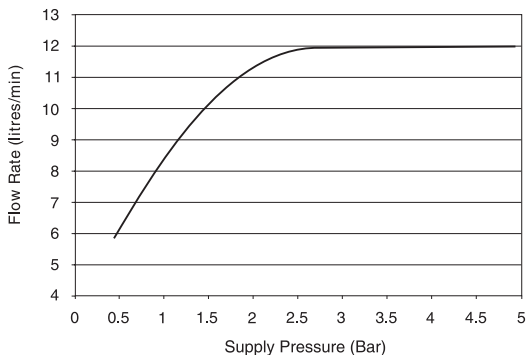
- Inlets: 15 mm Compression.
- Outlet: ½" BSP Flat Face / 15 mm Compression
- Standard connections are: **hot - left, cold - right, outlet - bottom (EV models), top (BIV models).**

## Flow Rates

Typical Flow Rates on Low Pressure Systems - Mira Discovery with Adjustable Fittings or Rigid Head:

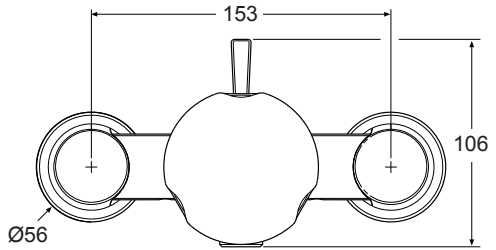
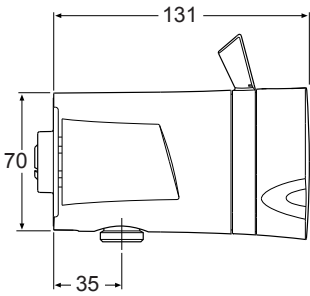


Typical Flow Rates on High Pressure Systems (with 12 Litres/Min Flow Regulator fitted in shower control outlet) - Mira Discovery with Adjustable Fittings or Rigid Head:

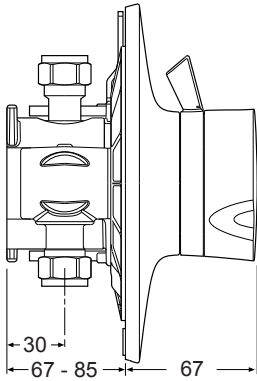


## Dimensions

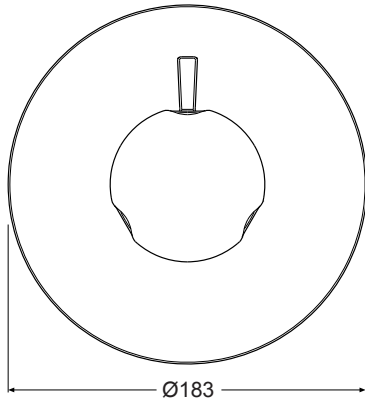
### Exposed Discovery Shower Control



### Built-in Discovery Shower Control



Building-in Depth



Dimensions in mm

# INSTALLATION

## Suitable Plumbing Systems

### Gravity Fed:

The thermostatic mixer must be fed from a cold water cistern (usually fitted in the loft space) and a hot water cylinder (usually fitted in the airing cupboard) providing nominally equal pressures.

### Mains Pressurised Instantaneous Hot Water System (Combination Boiler):

The thermostatic mixer can be installed with systems of this type with balanced pressures. (Recommended Minimum Maintained Pressure: **1.0 Bar**).

### Unvented Mains Pressure System:

The thermostatic mixer can be installed with an unvented, stored hot water system.

### Pumped System:

The thermostatic mixer can be installed with an inlet pump (twin impeller). The pump must be installed in a suitable location and in accordance with its instructions.

## General

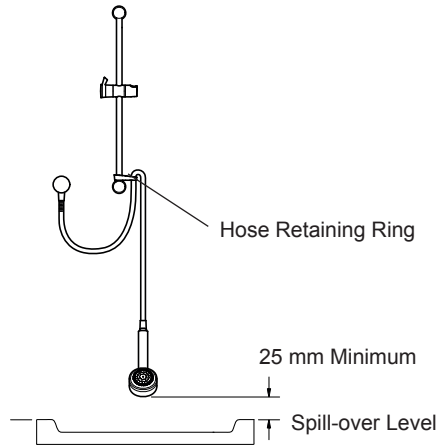
Installation must be carried out in accordance with these instructions, and must be conducted by designated, qualified and competent personnel.

The installation must comply with the requirements of UK Water Regulations/Bye-laws (Scotland), Building or any particular regulations and practices, specified by the local water company or water undertakers.

**Note!** Make sure that all site requirements correspond to the information given in the section: '**Specifications**'. For Type 2 valves see also supply conditions in section: '**Type 2 Valves**'.

1. The mixer must not be installed in an area where it may freeze.
2. The mixer must be fitted to a tiled or sealed finished surface
3. For stud partitions alternative fixings may be required.
4. Isolating valves **must** be installed close to the mixer for ease of maintenance.
5. Pipework must be rigidly supported and avoid any strain on the connections.
6. Pipework dead-legs should be kept to a minimum.
7. If pipework enters the shower from the rear through a hole in the wall . Provision must be made to prevent water ingress back into the wall structure.

8. The water supplies to this product must be isolated if the product is not to be used for a long period of time. If the product or pipework is at risk of freezing during this period they should also be drained of water.
9. All pipework must be checked for leaks before the product installation is completed. The mixer should be pressurised and the inlet & outlet connections inspected. If the mixer is dismantled during installation or servicing then upon completion the product must be inspected to ensure there are no leaks
10. Decide on a suitable position for the mixer. The position of the mixer and the Shower Fittings must provide a minimum gap of 25 mm between the spill-over level of the shower tray/bath and the handset (refer to illustration). This is to prevent back-siphonage. For further information on the installation of your **Shower Fittings**, refer to the Fittings Installation and User Guide.



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

11. **Do Not** overtighten grubscrews as product damage may occur. Use hexagonal key provided and hand tighten only, do not use power tools.
12. Having completed the installation, make sure that the user is familiar with the operation of the mixer and that this guide is left with the user.

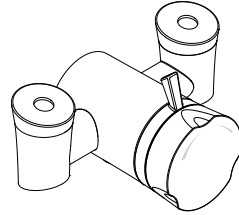
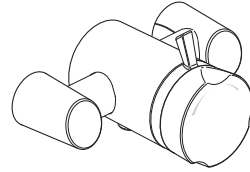
# Installation Methods

## Exposed Discovery Shower Control

The **Exposed** Discovery Shower Control can be installed with Rear, Rising or Falling Supply Inlets.

For Rear Entry Supplies, go to section: **'Exposed Shower Control, 1. Rear Supplies'**.

For Rising or Falling Supplies, go to section: **'Exposed Shower Control, 2. Rising or Falling Supplies'**.



## Built-in Discovery Shower Control

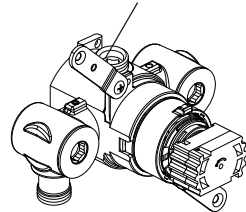
The **Built-in** Discovery Shower Control can be installed using Rear Fixing Points on the Body, or by using the Securing Brackets (supplied) on the Front Face of a Solid Wall or Stud Partition, or on the Rear Face of a Laminated Panel.

For installation into a Solid Wall or Stud Partition using the Securing Brackets, go to section: **'Built-in Shower Control, 1. Solid Wall or Stud Partition (Using Securing Brackets - Mounting off Front Face)'**.

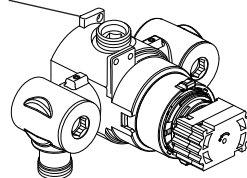
For installation into a Solid Wall or Stud Partition using the Rear Fixing Points, go to section: **'Built-in Shower Control, 2. Solid Wall or Stud Partition (Using Rear Fixing Points on Shower Control)'**.

For installation behind a Laminated Panel using the Securing Brackets, go to section: **'Built-in Shower Control, 3. Laminated Panel (Using Securing Brackets - Mounting off Rear Face)'**.

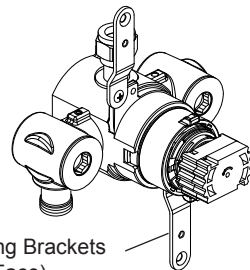
Securing Brackets (Front Face)



Rear Fixing Points



Securing Brackets (Rear Face)



# Exposed Shower Control

## 1. Rear Supplies

**1.1** Use the Installation Template to mark the positions of the holes for the Backplate and the pipe centres.

**Note!** Allow a minimum of 150 mm either side of the Shower Control, to allow the hot and cold inlet Compression Nuts to be tightened with the Spanner supplied.

**1.2** For solid walls drill the Backplate holes with a 6 mm drill and fit the Wall Plugs (supplied). For other types of wall structure alternative fixings (not supplied) may be required.

**1.3** Drill the supply pipe holes at 153 mm centres.

**1.4** Recess the wall to allow for the concealing plates, 32 mm diameter x 10 mm deep.

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

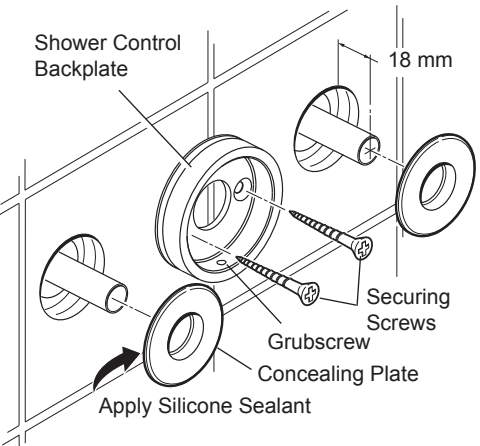
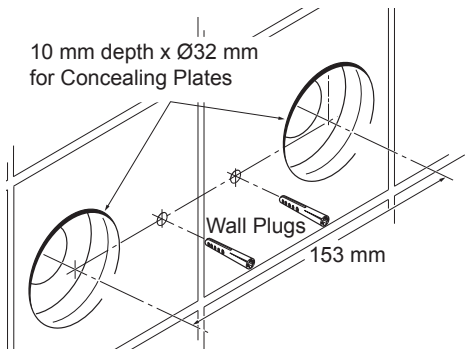
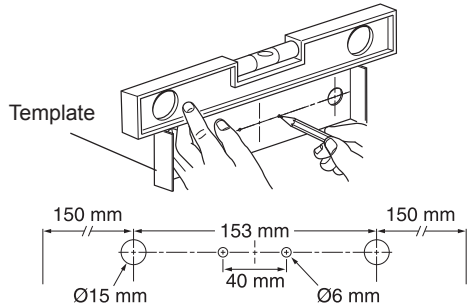
**Note!** If the connections are reversed, complete the installation then refer to section: **'Reversed Inlet Supplies'** before commissioning.

**1.6** Loosen the Grubscrew with the 2.5 mm hexagon key (supplied) and remove the Backplate from the Shower Control.

**1.7** Secure the Backplate to the wall using the Fixing Screws (supplied). **Note!** The Grubscrew should be at the bottom.

**1.8** Fit the Concealing Plates.

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

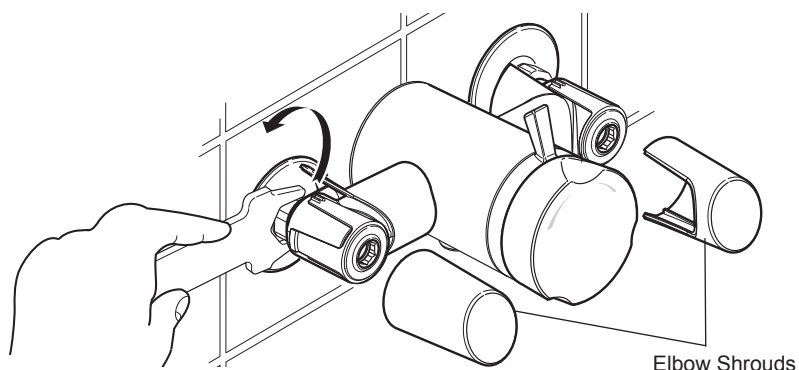
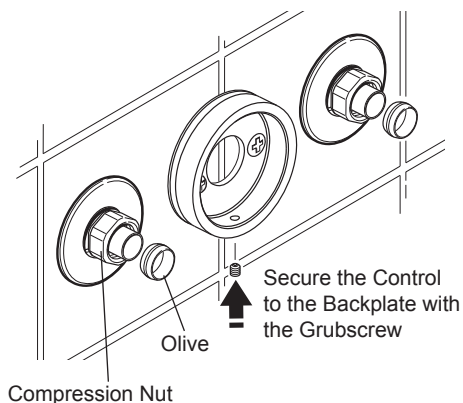


**Caution!** It is essential at this point that the supply pipework is thoroughly flushed through before connection to the Shower Control. Failure to do so may result in product malfunction.

- 1.9 Put the Compression Nuts and Olives onto the pipework.
- 1.10 Remove the Elbow Shrouds from the Shower Control.
- 1.11 Align the Shower Control with the pipework and fit onto the Backplate.
- 1.12 Tighten the Compression Nuts onto the Shower Control with the Spanner (supplied).

**Caution!** Take care not to damage the chrome surfaces.

- 1.13 Tighten the Grubscrew to secure the Shower Control to the Backplate.



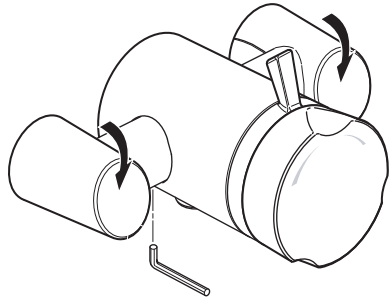
- 1.14 Fit the Shower Fittings, refer to your Fittings Installation and User Guide for instructions.
- 1.15 Turn on the hot and cold water supplies and check for leaks.
- 1.16 Refit the Elbow Shrouds.
- 1.17 The Shower Control is preset to approximately 43 °C at the factory. If adjustment is required, refer to section: '**Commissioning**'.



## 2. Rising or Falling Supplies

**2.1** Remove the Elbow Shrouds from the Shower Control.

**2.2 Rising Supplies:** Loosen the Grubscrew on each Elbow using the 2.5 mm hexagon key (supplied) and pull off the Elbows from the Shower Control. Refit each Elbow on the opposite side and rotate 90° as required. Retighten the Grubscrews.

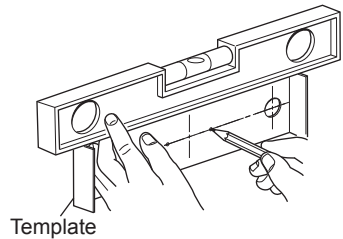


**Caution!** Do not overtighten.

**Falling Supplies:** Loosen the Grubscrew on each Elbow using the 2.5 mm hexagon key (supplied) and rotate the Elbows 90° as required. Retighten the Grubscrews.

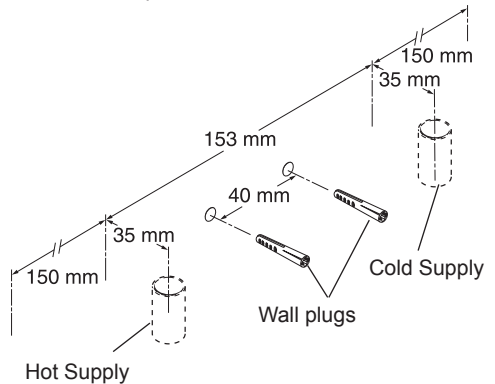
**Caution!** Do not overtighten.

**2.3** Use the Installation Template to mark the positions of the fixing holes for the Backplate.



**Note!** Allow a minimum of 150 mm either side of the Shower Control, to allow the hot and cold inlet Compression Nuts to be tightened with the Spanner supplied.

**2.4** For solid walls drill the Backplate holes with a 6 mm drill and fit the Wall Plugs (supplied). For other types of wall structure alternative fixings (not supplied) may be required.



**2.5** Fit the supply pipework, centres set 35 mm from the finished wall surface (Hot - Left, Cold - Right).

**Note!** If the connections are reversed, complete the installation then refer to section: '**Reversed Inlet Supplies**' before commissioning.

**2.6** Loosen the Grubscrew and remove the Backplate from the Shower Control.

- 2.7 Attach the Backplate to the wall using the Fixing Screws (supplied).

**Note!** The Grubscrew should be at the bottom.

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

- 2.8 Fit the Connector Covers and 'O' Seals onto the pipework.

- 2.9 Fit the Compression Nuts and Olives onto the pipework.

- 2.10 Align the Shower Control with the pipework and fit onto the Backplate.

- 2.11 Tighten the Compression Nuts onto the Shower Control with the Spanner (supplied).

**Caution!** Take care not to damage the chrome surfaces.

- 2.12 Tighten the Grubscrew to secure the Shower Control to the Backplate.

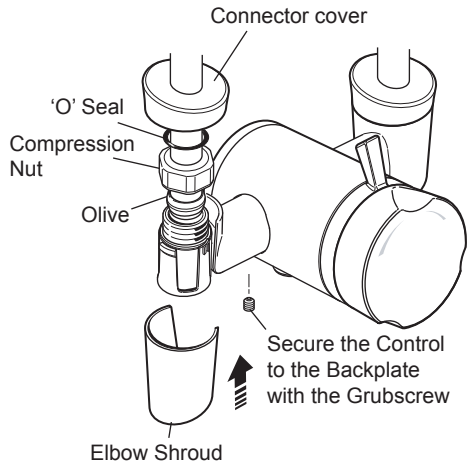
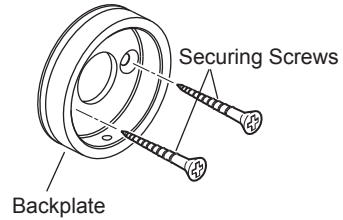
- 2.13 Fit the Shower Fittings, refer to your Fittings Installation and User Guide for Instructions.

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

- 2.15 Refit the Elbow Shrouds.

- 2.16 Position the Connector Covers so that they slope away from the wall and slide them down the pipework, until they are flush with the Elbow Shrouds.

- 2.17 The shower control is preset to approximately 43 °C at the factory. If adjustment is required, refer to the section '**Commissioning**'.



# Built-in Shower Control

## 1. Solid Wall or Stud Partition

### (Using Securing Brackets - Mounting off Front Face)

**1.1** Determine the route for the hot and cold supply pipework and for the outlet pipework. When connecting to the BIV Shower Fittings it is recommended that the outlet be positioned above and to one side of the Shower Control. This is to prevent the Flexible Hose from obstructing the Shower Controls.

**1.2** Remove the two Securing Screws (retain for later use) and remove the Shower Control from the Building-in Shroud.

**1.3** Mark the position of the Shower Control using the Building-in Shroud as a guide.

**1.4** Mark the routes for the hot and cold supply pipework at 135 mm centres.

**Falling Supplies:** For falling supplies loosen the grubscrew on each Elbow using the 2.5 mm Hexagon Key (supplied). Remove the Elbows and install on opposite sides. Secure the Elbows with the Grubscrews.

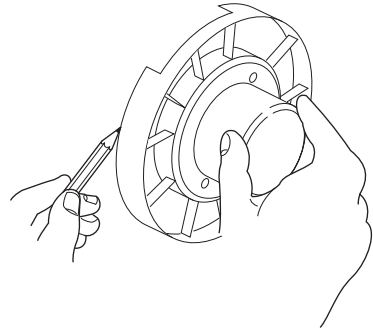
**Caution!** Do not overtighten.

**Note!** Make sure that the Filter Plugs are positioned to the front (i.e. Hexagonal Key facing forward).

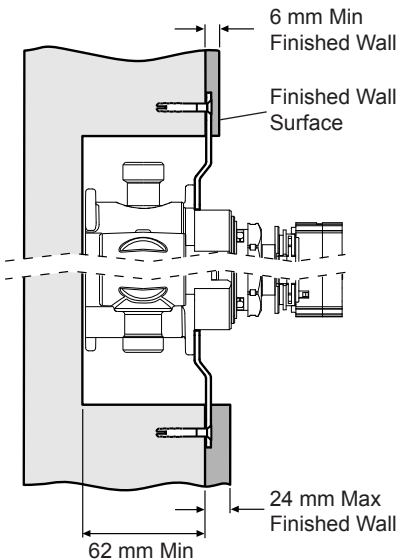
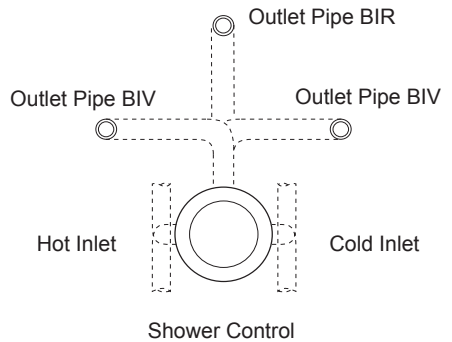
**1.5** Mark the route for the outlet pipework.

**Note!** The Outlet Elbow should be sited above the Shower Control and on the right or left, as site dictates.

**1.6** Remove the plasterboard and brick work to a minimum depth of 62 mm.



Alternative Pipe Layouts



**1.7** Fit the Securing Brackets to the Shower Control.

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

**Note!** The Securing Brackets can be rotated for suitable fixing points.

**1.8** Mark the positions for the Countersunk Fixing Holes on the wall.

**1.9** For solid walls drill two 6 mm holes for the Wall Plugs.

**Caution!** Do not drill into pipes in the wall.

**1.10** Fit the Wall Plugs (supplied) and fix the Shower Control to the wall with the Securing Screws provided.

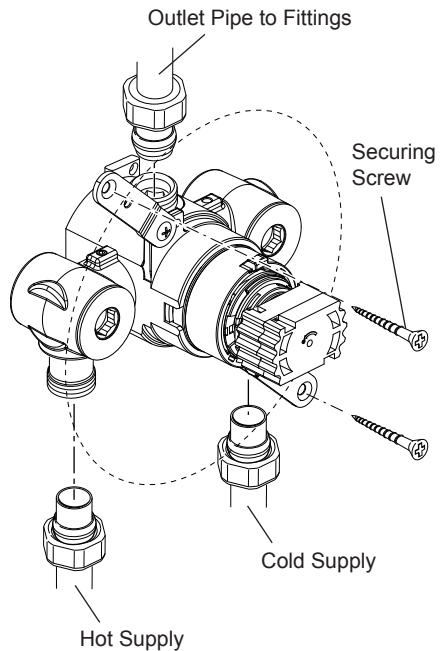
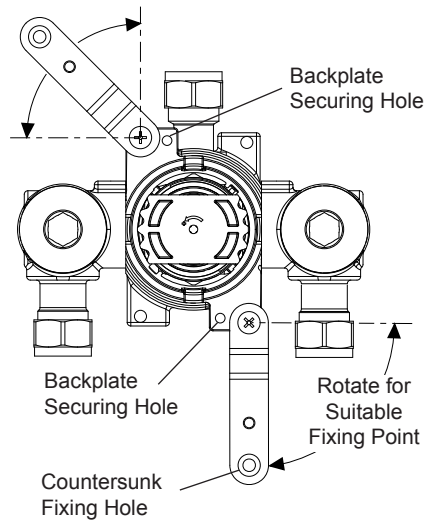
**Note!** For stud partition installations alternative fixings may be required (not supplied).

**1.11** Connect the hot and cold supply pipes and tighten the Compression Nuts.

**Caution!** Make sure that the Olives are fitted and all pipework is flushed through before connecting to the Shower Control.

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

**1.13** Turn on the water supplies and check for leaks.



**1.14** Attach the Building-in Shroud to the Shower Control using the two Securing Screws.

**1.15** Using the 'Finished Wall Indicator' on the Building-in Shroud as a guide, finish the wall.

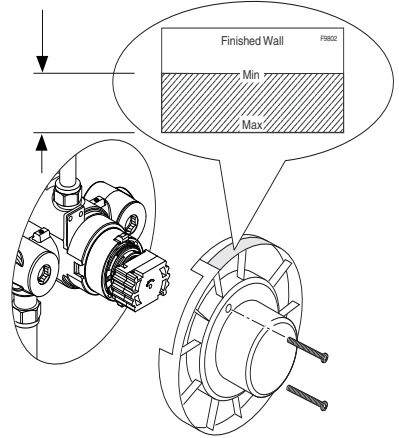
**Caution!** Make sure that the finished wall is within the maximum and minimum limits or the control components will not fit correctly.

**1.16** Remove the Building-in Shroud. Retain the two Securing Screws for fitting the Backplate.

**1.17** Fit the Shower Fittings, refer to your Fittings Installation and User Guide for instructions.

**1.18** Fit the Concealing Plate and Control Assembly, refer to section: '**Control Assembly**'.

Maximum /  
Minimum Limits



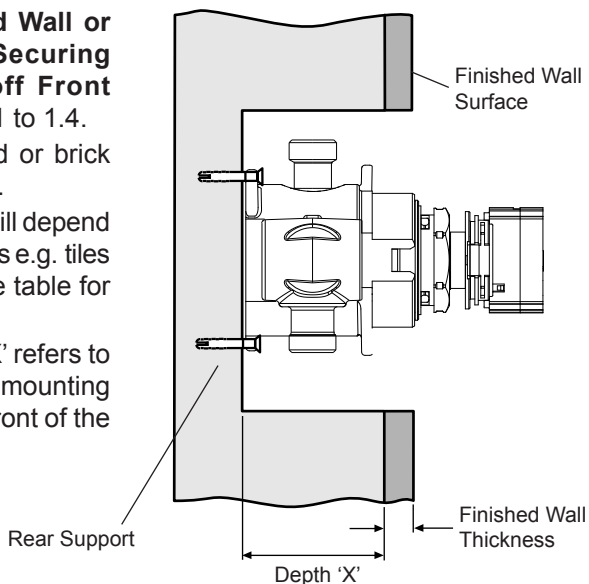
## 2. Solid Wall or Stud Partition (Using Rear Fixing Points on Shower Control)

2.1 Refer to section: '1. Solid Wall or Stud Partition (Using Securing Brackets - Mounting off Front Face)' and follow steps 1.1 to 1.4.

2.2 Cut away the plasterboard or brick work to the required depth.

**Important!** This depth 'X' will depend on the finished wall thickness e.g. tiles or facia board. Refer to the table for this measurement.

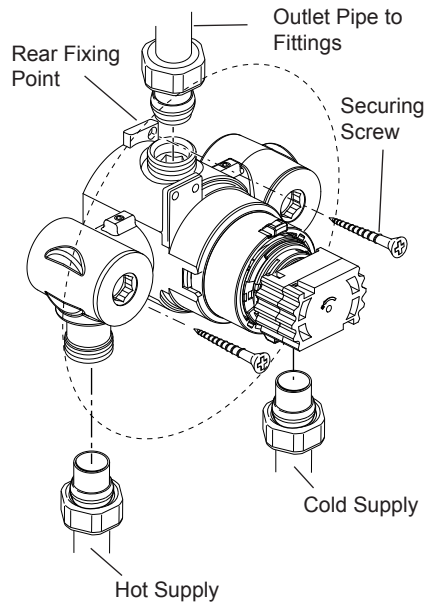
For stud partitions depth 'X' refers to the distance from the rear mounting e.g. timber noggin, to the front of the wall (before tiling).



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

**Important!** Total building-in depth ( X + Finished Wall Thickness) **must not** exceed an absolute maximum of 85mm.

- 2.3** Mark the positions of the Fixing Screw holes on the wall.
- 2.4** For solid walls drill two 6 mm holes for the Wall Plugs.
- 2.5** Insert the Wall Plugs (supplied) and attach the Shower Control to the wall with the Securing Screws provided.
- Note!** For stud partition installations alternative fixings may be required (not supplied) to fix the shower control to the rear face of the wall cavity or to a timber noggin.
- 2.6** Refer to section: '**1. Solid Wall or Stud Partition (Using Securing Brackets - Mounting off Front Face)**' and follow steps 1.10 to 1.18.



### 3. Laminated Panels

#### (Using Securing Brackets - Mounting off Rear Face)

**Note!** For laminated panels the shower control must be positioned from the rear of the panel.

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

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

**3.1** Remove the two Securing Screws (retain for later use) and remove the Shower control from the Building-in Shroud.

**3.2** Mark the position of the Shower Control using the Building-in Shroud as a guide.

**3.3** **Carefully** cut out the laminated panel.

**3.4** Fit the Securing Brackets to the Shower Control.

**Important!** The brackets **must** be fixed vertically, as illustrated.

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

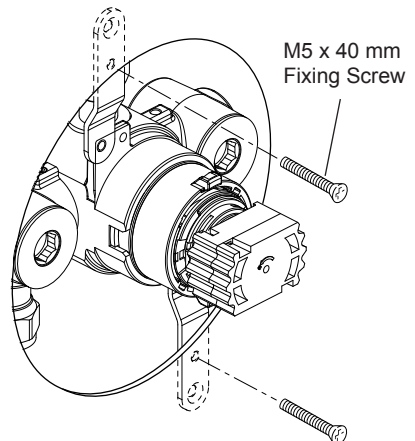
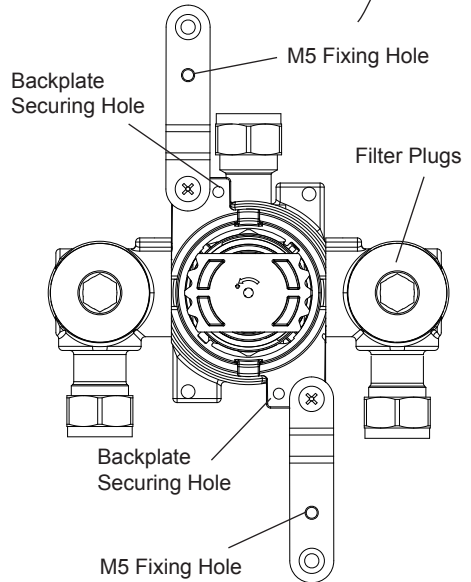
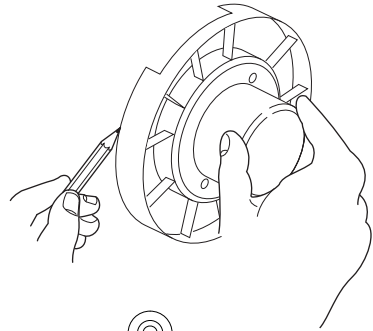
**3.5** Position the Shower Control on the front of the panel and mark the position of the M5 fixing holes.

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

**Note!** Make sure that the Filter Plugs are positioned so that they can be removed for servicing.

**3.6** Drill the two 5 mm holes for the fixing positions (countersink the holes at the front).

**3.7** Secure the Shower Control with the M5 x 40 screws as shown.





- 3.8** Fit the hot and cold supply pipes and tighten the compression nuts.

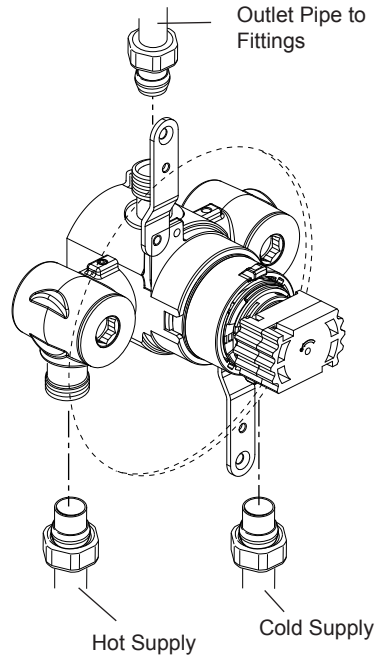
**Falling Supplies:** For falling supplies loosen the grub screw on each Elbow using the 2.5 mm Hexagon Key (supplied). Remove the Elbows and install on opposite sides. Secure the Elbows with the Grubscrews.

**Caution!** Do not overtighten.

**Note!** Make sure that the Filter Plugs are positioned to the front (i.e. Hexagonal Key facing forward).

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

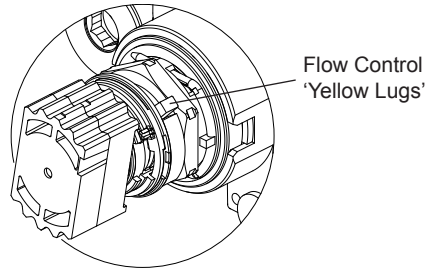
- 3.9** Fit the outlet pipework, leaving enough pipe through the wall to temporarily cap off.
- 3.10** Turn on the water supplies and check for leaks.
- 3.11** Fit the Shower Fittings, refer to your Fittings Installation and User Guide for instructions.
- 3.12** Fit the Concealing Plate and Control Assembly, refer to section: '**Control Assembly**'.



## Control Assembly

**Important!** The Yellow Lugs on the Flow Control must be in the fully clockwise (off) position in order to fit the Control Assembly.

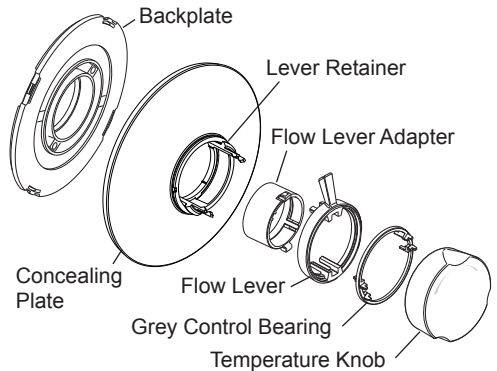
**Note!** The Flow Control Lugs on pre 2006 models are Black.



1. Rotate the Temperature Knob fully clockwise and carefully pull it off.
2. Remove the Grey Control Bearing.
3. Pull off the Flow Lever.
4. Remove the Flow Lever Adapter.

**Important! The Lever Retainer must not be removed.**

5. Carefully unclip the Concealing Plate from the Backplate.  
**Note!** Use a screwdriver in the cutout to assist separation.

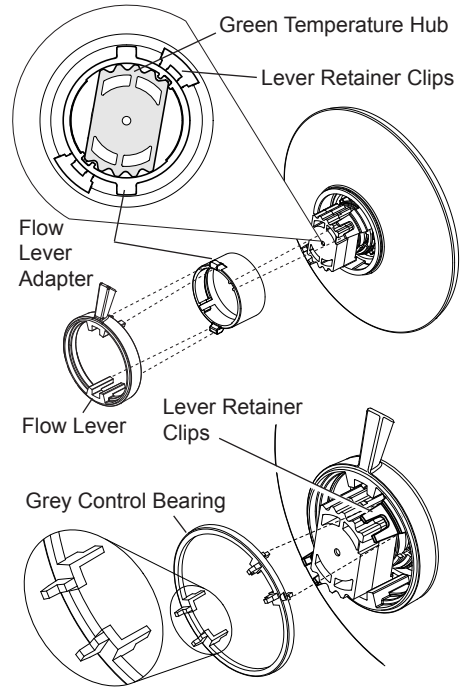


6. Fit the Backplate to the Shower Control and secure with the two Securing Screws (removed from the Building-in Shroud). Make sure that the Foam Seal is fully compressed. Do not overtighten.

**Note!** If the knob does not come off, rotate it fully anticlockwise, pull on the Temperature Knob while slowly rotating it clockwise until it disengages.

7. With the cutout at the bottom, locate the Concealing Plate over the Shower Control, engage the crosses in the Concealing Plate with the square recesses in the Backplate, and push firmly until the Concealing Plate clicks into position.

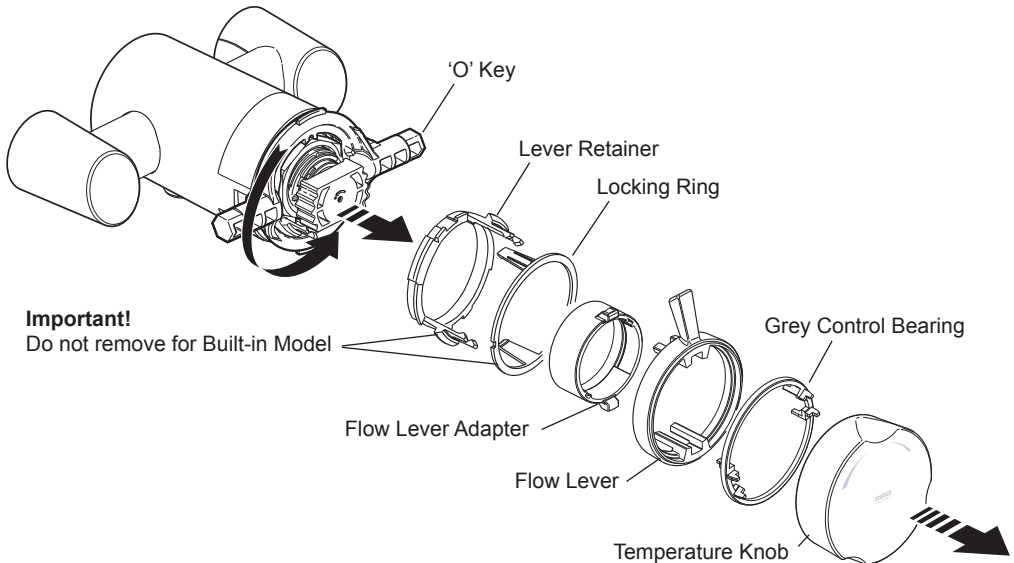
8. Align the Green Temperature Hub with the Lever Retainer Clips as illustrated.
9. Slide the Flow Lever Adapter over the Cartridge and onto the yellow lugs on the Flow Control, exactly as illustrated.
10. Push the Flow Lever onto the Flow Lever Adapter (align lugs as illustrated).
11. Push the Grey Control Bearing over the Lever Retainer.  
**Note!** Align the Grey Control Bearing with the Lever Retainer Clips and **not** the Flow Control Lever.
12. Refer to section '**Commissioning**', for maximum temperature setting and temperature knob assembly.



# REVERSED INLET SUPPLIES

The Discovery Shower Control is supplied with inlet connections **Hot-Left, Cold-Right** and **Bottom-Outlet** as standard. If the hot and cold water supply pipes have been reversed during installation the following procedure must be performed.

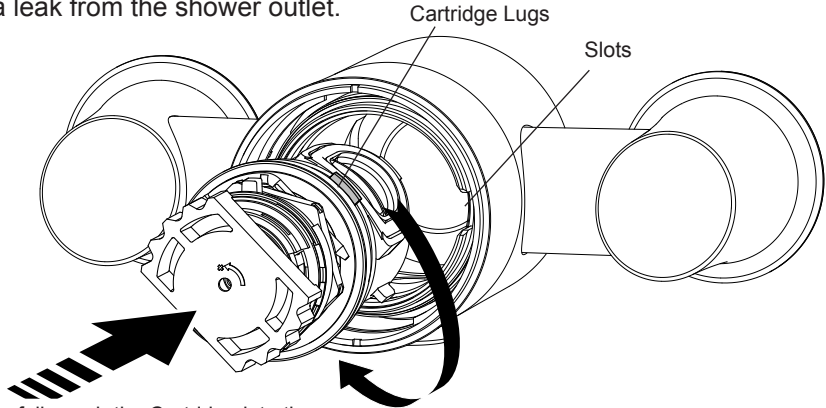
1. Isolate the hot and cold water supplies.
2. Operate the Flow Lever and Temperature Knob to drain any residual water.
3. Rotate the Temperature Knob fully clockwise and carefully pull it off.  
**Note!** If the knob does not come off, rotate it fully anticlockwise, pull on the Temperature Knob while slowly rotating it clockwise until it disengages.
4. Remove the Grey Control Bearing.
5. Pull off the Flow Lever.
6. Remove the Flow Lever Adapter.
7. **Exposed Models only (illustrated):**
  - a) Carefully remove the Locking Ring.
  - b) Rotate the Lever Retainer clockwise to disengage and remove.
8. **Built-in Models only:**
  - a) Carefully unclip the Concealing Plate from the Backplate.  
**Important! The Lever Retainer must not be removed.**  
**Note!** Use a screwdriver in the cutout to assist separation.
  - b) Unscrew the two Securing Screws and carefully remove the Backplate from the Shower Control.
9. Fit the 'O' Key over the Green Temperature Hub and onto the Brass Nut.
10. Turn the 'O' Key anticlockwise to unscrew the Cartridge from the Body and pull the Cartridge clear.



11. Rotate the Cartridge 180° to reverse the inlets to the Cartridge.  
**Caution!** Make sure the two Cartridge Side Seals are not damaged.
12. Refit the Cartridge into the Shower Control Body, make sure that the lugs engage in the slots in the Body.

**Note!** To assist in refitting the Cartridge, rotate 45° (i.e. with the inlet seals at 2 and 8 o'clock) and push into the Shower Control, then rotate to align the lugs with the slots in the body and push fully home (refer to illustration).

**Important!** Make sure that the side seals do not extrude from the Shower Control Body when pushing the cartridge in. Damage to these seals will result in a leak from the shower outlet.



Carefully push the Cartridge into the Shower Control Body and rotate.

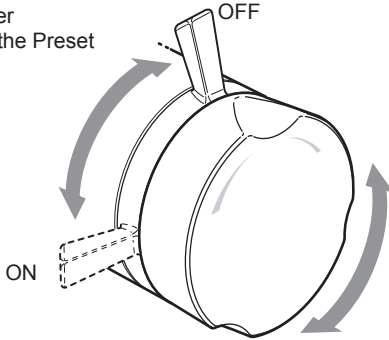
13. Tighten the Brass Nut using the 'O' Key (supplied).
14. Remove the 'O' Key.  
**Note!** If the 'O' Key has become trapped under the Yellow lugs on the Flow Control, rotate them until the 'O' Key can be removed.  
**Note!** The Flow Control Lugs on pre 2006 models are Black.  
**Caution!** Make sure that the Yellow Lugs are returned to the fully clockwise position before restoring the water supplies.
15. Restore the hot and cold water supplies and check for leaks.
16. Exposed Models Only:
  - a) Fit the Lever Retainer with the clips horizontal, make sure both sides locate under the lip and rotate anticlockwise.
  - b) Fit the Locking Ring.
17. Built-in Models only:
  - a) Fit the Backplate to the Shower Control and secure with the two Securing Screws. Make sure that the Foam Seal is fully compressed.
  - b) With the cutout at the bottom, slide the Concealing Plate over the Shower Control, engage the crosses in the Concealing Plate with the square recesses in the Backplate, and push firmly until the Concealing Plate clicks into position.
18. Refer to the section '**Installation, Control Assembly**' and follow steps 8 to 12.

# OPERATION

## Shower Control (Exposed and Built-in Controls)

**Note!** The shower performance may be effected if other water appliances are operated whilst the shower is in use.

Turn the Flow Lever  
**Anticlockwise** to the Preset  
Maximum Flow



Turn the Temperature Control  
Knob **Clockwise** to decrease the  
Temperature, or **Anticlockwise** to the  
Preset Maximum Temperature

Sunburn or skin conditions can increase your sensitivity to hot water. Make sure that you set the shower to a cooler temperature.

**Caution!** Do not force the Temperature Control Knob. If the desired temperature cannot be achieved refer to the section '**Commissioning**'.

# COMMISSIONING

The Thermostatic Shower Control is preset to approximately 43 °C at the factory. If adjustment is required, set the maximum temperature as follows:

For Type 2 installations the maximum blend temperature is determined by the application, refer to the section '**Type 2 Valves - Application**'.

## Flow Rate

**Note!** Make sure that any inlet isolating valves are fully open.

If excessive flow rate is experienced from the Shower Control, install the supplied Flow Regulator, refer to the Discovery Fittings Installation and User Guide.

**Important! The fitting of any flow regulator will invalidate TMV2 compliance due to the minimum flow rate requirements. Do not fit flow regulators in TMV2 applications.**

## Setting the Maximum Temperature

1. Rotate the Temperature Control Knob fully clockwise (full cold position) and carefully pull it off.

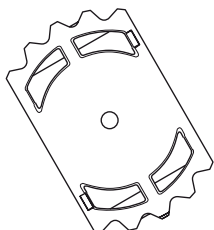
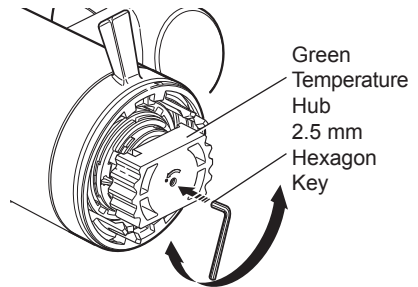
**Note!** If the knob does not come off, rotate it fully anticlockwise, pull on the Temperature Knob while slowly rotating it clockwise until it disengages.

2. Turn the Green Temperature Hub fully anticlockwise (full hot position).

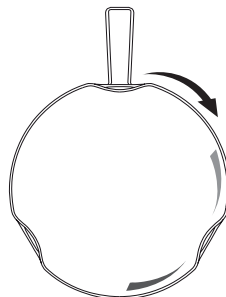
**Note!** Operate the Shower Control until the hot and cold water temperatures have stabilised.

3. Insert the 2.5 mm Hexagon Key into the centre of the Green Temperature Hub.
4. Turn the 2.5 mm Hexagon Key **anticlockwise** to **increase** the temperature, or **clockwise** to **decrease** temperature.
5. Rotate the Green Temperature Hub fully clockwise (refer to the following illustration).
6. Position the Temperature Control Knob (refer to the following illustration) over the Green Temperature Hub and gently push it on.

**Note!** Make sure the Temperature Control Knob moves freely to full hot and to full cold.



Rotate the Green Temperature Hub, fully clockwise to this position



The Temperature Control Knob must be in this position (the full cold position) over the Green Temperature Hub

# TYPE 2 VALVES

## Application

The approved designations for Type 2 Valves are as follows:

Models	Designation
Mira Discovery	LP-S, HP-S

**Important! The fitting of any flow regulator will invalidate TMV2 compliance due to the minimum flow rate requirements. Do not fit flow regulators in TMV2 applications.**

## Conditions of use for Type 2 Valves

Operating Pressure Range	High Pressure	Low Pressure
Maximum Static Pressure (bar)	10	10
Maintained Pressure, Hot and Cold (bar)	0.5 to 5	0.1 to 1
Hot Supply Temperature (°C)	55 to 65	55 to 65
Cold Supply Temperature (°C)	≤25	≤25

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

## Recommended Outlet Temperatures

The BuildCert TMV scheme recommends the following set maximum mixed water outlet temperatures for use in all premises:

44°C for bath fill, but see notes below;

41°C for showers;

41°C for washbasins;

38°C for bidets.

The mixed water temperatures must never exceed 46°C.

The maximum mixed water temperature can be 2°C above the recommended maximum set outlet temperatures.

**Note!** 46°C is the maximum mixed water temperature from the bath tap. The maximum temperature takes account of the allowable temperature tolerances inherent in thermostatic mixing valves and temperature losses in metal baths.

**It is not a safe bathing temperature for adults or children.**



The British Burns Association recommends 37 to 37.5°C as a comfortable bathing temperature for children. In premises covered by the Care Standards Act 2000, the maximum mixed water outlet temperature is 43°C.

The thermostatic mixing valve will be installed in such a position that maintenance of the TMV and its valves and the commissioning and testing of the TMV can be undertaken.

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

### **Commissioning notes for Thermostatic Mixing Valves**

The first step in commissioning a thermostatic mixing valve is to check the following:

The designation of the thermostatic mixing valve matches the application.

The supply pressures are within the valves operating range.

The supply temperatures are within the valves operating valve.

Isolating valves (and strainers preferred) are provided.

If all of these conditions are met, proceed to set the temperature as specified in section: '**Commissioning**'.

**Important!** The mixed water temperature at the discharge point must never exceed 46°C

It is a requirement that all TMV2 approved valves shall be verified against the original set temperature results once a year. When commissioning/testing is due the following performance checks shall be carried out.

Measure the mixed water temperature at the outlet.

Carry out the cold water supply isolation test by isolating the cold water to the TMV, wait for five seconds if water is still flowing check that the temperature is below 46°C.

If there is no significant change to the set outlet temperature ( $\pm 2^\circ\text{C}$  or less change from the original settings) and the fail-safe shut off is functioning, then the valve is working correctly and no further service work is required.

**Notes!** If there is a residual flow during the commissioning of the valve or the annual verification (cold water supply isolation test), then this is acceptable providing the temperature of the water seeping from the valve is no more than 2°C above the

designated maximum mixed water outlet temperature setting of the valve.

Temperature readings should be taken at the normal flow rate after allowing for the system to stabilise.

The sensing part of the thermometer probe must be fully submerged in the water that is to be tested.

Any TMV that has been adjusted or serviced must be re-commissioned and re-tested in accordance with the instructions given in this guide.

The installation of thermostatic mixing valves must comply with the requirements of the Water Supply (Water Fittings) Regulations 1999.

# FAULT DIAGNOSIS

Symptom	Cause / Rectification
1. Only hot or cold water from the mixer outlet.	<ul style="list-style-type: none"> <li>a. Inlets reversed (hot supply to cold supply). Refer to section: <b>'Reversed Inlet Supplies'</b>.</li> <li>b. No hot water reaching the mixer.</li> <li>c. Check the filters for any blockage.</li> <li>d. Installation conditions outside operating parameters: refer to sections: <b>'Specifications'</b> and <b>'Commissioning'</b>.</li> <li>e. If you have a combination type boiler it may not be producing sufficiently hot water at desired flow rate (refer to 'Specifications'). Fit flow regulator (supplied) to shower valve outlet. For more information contact Mira Showers or visit the website.</li> </ul>
2. Fluctuating or reduced flow rate.	<ul style="list-style-type: none"> <li>a. Check the showerhead, hose and filters for any blockage.</li> <li>b. Make sure the maintained inlet pressures are nominally balanced and sufficient, refer to section: <b>'Specifications'</b>.</li> <li>c. Make sure the inlet temperature differentials are sufficient, refer to section: <b>'Specifications'</b>.</li> <li>d. Flow regulator fitted incorrectly.</li> <li>e. Airlock or partial blockage in pipework.</li> </ul>
3. No flow from the mixer outlet.	<ul style="list-style-type: none"> <li>a. Check the showerhead, hose and filters for any blockage.</li> <li>b. Hot or cold supply failure.</li> </ul>
4. Blend temperature drift.	<ul style="list-style-type: none"> <li>a. Refer to symptom 2. above.</li> <li>b. Significant supply temperature fluctuation.</li> <li>c. Significant supply pressure fluctuation.</li> <li>d. Faulty thermostatic cartridge, renew.</li> </ul>
5. Maximum blend temperature setting too hot or too cold.	<ul style="list-style-type: none"> <li>a. Indicates incorrect maximum temperature setting; refer to section: <b>'Commissioning'</b>.</li> <li>b. Refer to symptom 4. above.</li> </ul>
6. Water leaking from the Showerhead.	<ul style="list-style-type: none"> <li>a. Normal for a short period after shut off.</li> <li>b. Check that the pressures are not in excess of the specifications for product.</li> <li>c. Cartridge inlet seals damaged, renew.</li> <li>d. Renew the thermostatic Cartridge.</li> </ul>
7. Flow rate too low or too high.	<ul style="list-style-type: none"> <li>a. (low) Insufficient supply pressures.</li> <li>b. (high) Supply pressure too high. Install flow reg.</li> <li>c. Refer to symptom 2. above.</li> </ul>

# MAINTENANCE

## General

The Mira Discovery Shower Control is designed to be maintenance free, as such there are no serviceable parts in the cartridge. However regular cleaning will keep the shower in pristine condition, refer to section: '**Maintenance, Cleaning**'.

Filters are fitted to the inlets of the mixer to protect the cartridge and will give many years of trouble free showering. Filters should be checked at yearly intervals and cleaned or replaced to maintain optimum shower performance. Refer to the section '**Maintenance, Filters**'.

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

## Lubricants

Silicone-only based lubricants can be used to assist in refitting.

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

## Cleaning

**Warning!** Many household cleaners contain abrasives and chemical substances, and should not be used for cleaning plated or plastic fittings. These finishes should be cleaned with a mild washing up detergent or soap solution, and then wiped dry using a soft cloth.

**Do not** use descalents on this product.

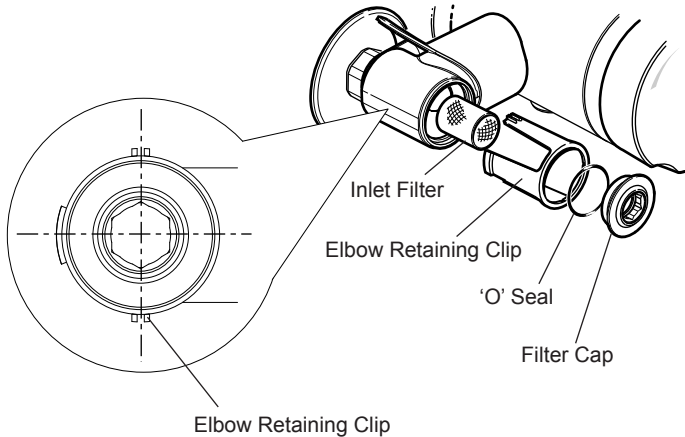
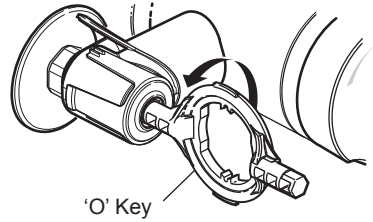
## Filters - Exposed Models

To clean or replace the inlet filters:

1. Isolate the hot and cold water supplies.
2. Operate the Flow Lever to drain any residual water.
3. Remove the Elbow Shrouds.
4. Unscrew the Filter Caps with the 'O' key (supplied) or a 12 mm hexagonal key.
5. Remove the Elbow Retaining Clips.
6. Carefully pull out the Inlet Filters.
7. Clean each filter in turn under a jet of water to remove any lodged particles.
8. Refit the Inlet Filters.
9. Refit the Elbow Retaining Clips and tighten the Filter Caps.

**Caution!** Make sure that the Elbow Retaining Clips are fitted vertically as illustrated, otherwise the Elbow Shrouds will not fit correctly.

10. Restore the hot and cold water supplies and check for leaks.
11. Refit the Elbow Shrouds.



## Filters - Built-in Models

To clean or replace the inlet filters:

**Note!** Refer to the section ‘**Installation, Control Assembly**’ for illustrations.

1. Isolate the hot and cold water supplies.
2. Operate the Flow Lever and Temperature Knob to drain any residual water.
3. Rotate the Temperature Control Knob fully clockwise and carefully pull it off.

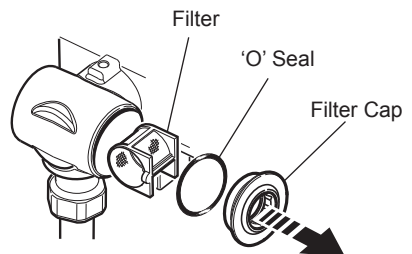
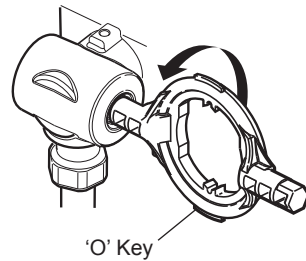
**Note!** If the knob does not come off, rotate it fully anticlockwise, pull on the Temperature Knob while slowly rotating it clockwise until it disengages.

4. Remove the Grey Control Bearing.
5. Pull off the Flow Lever.
6. Remove the Flow Lever Adapter.
7. Carefully remove the Concealing Plate Assembly.

**Important! The Lever Retainer must not be removed.**

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

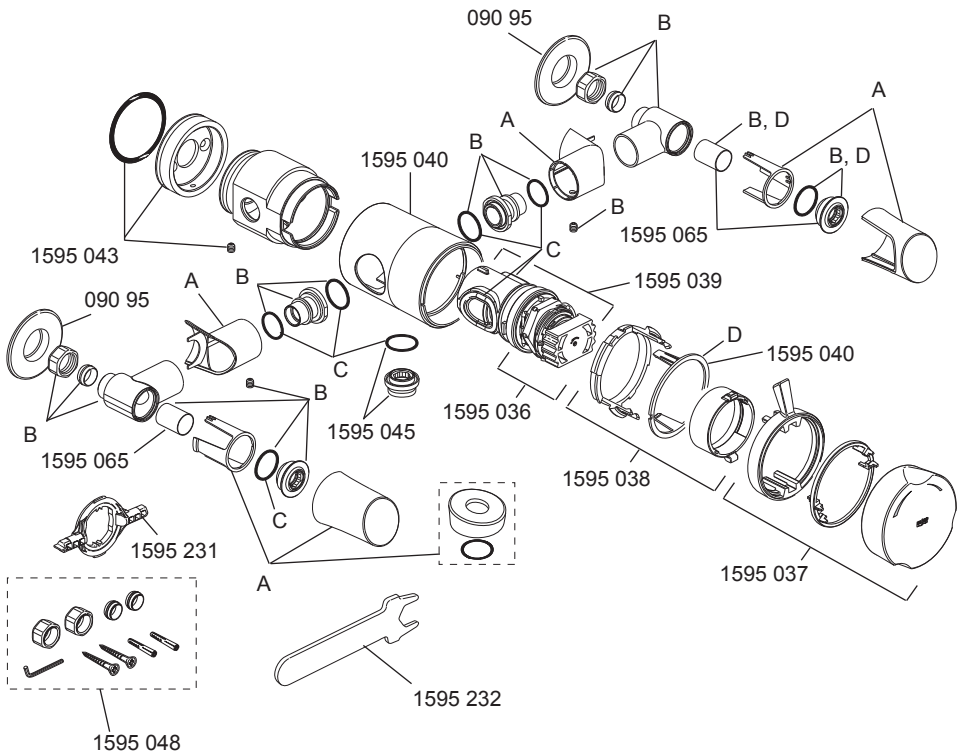
8. Unscrew the two Securing Screws and carefully remove the Backplate from the Shower Control.
9. Unscrew the Filter Caps with the ‘O’ Key (supplied) or a 12 mm hexagonal key.
10. Using pliers, carefully pull out the Inlet Filters.
11. Clean each Filter in turn under a jet of water to remove any lodged particles.
12. Refit the Filters.
13. Refit and tighten the Filter Caps.
14. Restore the hot and cold water supplies and check for leaks.
15. Fit the Backplate to the Shower Control and secure with the two Securing Screws. Make sure that the Foam Seal is fully compressed. Do not overtighten.
16. With the cutout at the bottom, slide the Concealing Plate over the Shower Control, engage the crosses in the Concealing Plate with the square recesses in the Backplate, and push firmly until the Concealing Plate clicks into position.
17. Refer to the section ‘**Installation, Control Assembly**’ and follow steps 8 to 12.



# SPARE PARTS

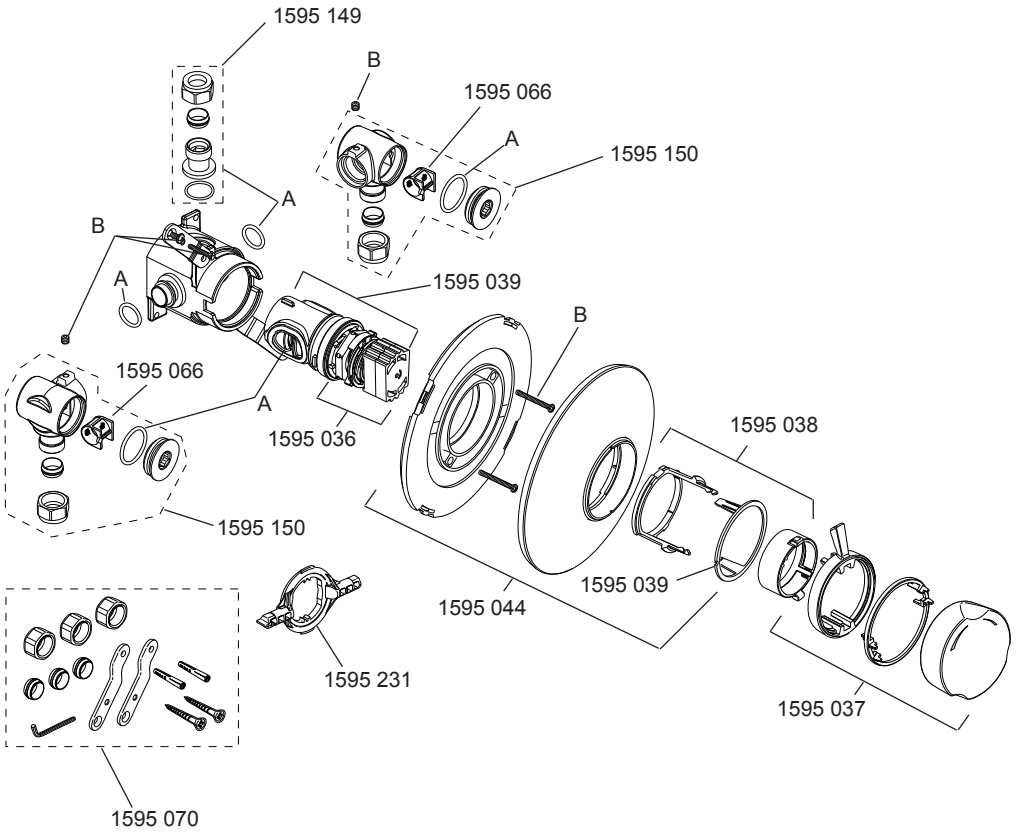
## Exposed Thermostatic Shower Control

- 090 95 Pipe Concealing Plates
- 1595 036 Temperature Hub Assembly
- 1595 037 Handle Pack
- 1595 038 Handle Adapter Pack
- 1595 039 Cartridge Assembly Pack (also includes components identified 'D')
- 1595 040 Body Trim
- 1595 041 Elbow Shroud Pack (Identified 'A')
- 1595 042 Elbow Pack Assembly (Identified 'B')
- 1595 043 Mounting Assembly Pack
- 1595 045 Outlet Nipple Pack
- 1595 047 Seal Pack (Identified 'C')
- 1595 048 Component Pack
- 1595 065 Filter (2 off)
- 1595 231 'O' Key
- 1595 232 24 mm Spanner



## Built-in Thermostatic Shower Control

- 1595 036 Temperature Hub Assembly
- 1595 037 Handle Pack
- 1595 038 Handle Adapter Pack
- 1595 039 Cartridge Assembly Pack
- 1595 044 Concealing Plate Assembly
- 1595 046 Seal Pack (Identified 'A')
- 1595 066 Filter Pack
- 1595 067 Screw Pack (Identified 'B')
- 1595 070 Component Pack
- 1595 149 Outlet Nipple Pack
- 1595 150 Elbow Pack
- 1595 231 'O' Key





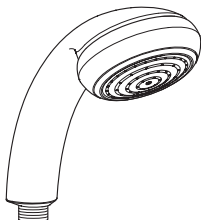
# ACCESSORIES

Genuine Mira accessories can be purchased direct from Customers Services (our contact details can be found on the back cover of this guide) or from approved stockists or merchants.



**Eco Showerhead**  
**White - 2.1668.001**  
**Chrome - 2.1668.002**

The Eco shower head gives you an invigorating shower, but reduces water consumption and heating costs.



**Everclear Showerhead**  
**White - 2.1616.030**  
**Chrome - 2.1616.031**

Mira's new Everclear range has been specially designed for hard water areas and reduces the risk of lime scale build up.



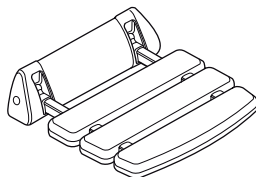
**Logic Showerhead Holder**  
**White - 2.1605.149**  
**White/Chrome - 2.1605.150**

An alternative to the traditional slide bar. Often a useful addition when positioned for the smaller members of the family.



**Wall Mounted Soap Dish**  
**White - 1.1540.278**  
**Chrome - 1.1540.279**

Wall mounted for use anywhere in, or outside the showering area.



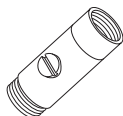
**Shower Seat**  
**White - 2.1536.128**  
**White/Chrome - 2.1536.129**

For use in or out of the showering area. Folds up when not in use. Maximum User Weight - 127 kg (20 stone) **Note!** Must be installed onto a solid wall.



**Premium Shower Seat**  
**White/Chrome - 2.1731.001**  
**Grey/Chrome - 2.1731.002**

Stylish, slim-line and robust shower seat for use in or outside of the shower area. Folds up when not in use. Maximum User Weight - 150 kg (23.5 stone) **Note!** Must be installed onto a solid wall.



**Double Outlet Check Valve (DCV-H)**  
**Chrome - 1.0.110.55.1**

An outlet double check valve, designed to prevent the back flow or back-siphonage of potentially contaminated water, through shower controls which are fitted with a flexible shower hose as part of the outlet shower fitting.

# NOTES

# NOTES

# CUSTOMER SERVICE

## Guarantee

Your product has the benefit of our manufacturer's guarantee which starts from the date of purchase.

To activate this guarantee, please return your completed registration card, visit our website or free phone 0800 0731248 within 30 days of purchase (UK only).

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.

If you have not previously activated the guarantee, you will be required to do so prior to the provision of assistance. If you do not activate your guarantee our Engineer will be entitled to charge full payment for the visit (Call out fee plus parts).

**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, lack of maintenance, build up of limescale, frost damage, corrosion, system debris or blocked filters) or where no fault has been found with the product.
- Water or electrical supply, waste and isolation issues.
- Compensation for loss of use of the product or consequential loss of any kind.
- Damage or defects caused if the product is repaired or modified by persons not authorised by us or our appointed representative.
- Routine maintenance or replacement parts to comply with the requirements of the TMV 2 or TMV 3 healthcare schemes.

## What to do if something goes wrong

If your product does not function correctly when you first use it, contact your installer to check that it is installed and commissioned in accordance with the instructions in this manual. Should this not resolve the issue, contact our Customer Services Team who will offer you or your installer advice and if applicable arrange for a Service Technician to call. If the performance of your product declines, check in this manual to see if simple home maintenance is required. If you require further assistance call our Customer Services Team.

## Extended Guarantees

A selection of protection plans are available that enable you to cover repair bills for the life of your policy (excludes Eire). Ring 01922 471763 for more details.

## Helpdesk Service

Our dedicated Customer Services Team is comprehensively trained and can offer help and advice, spare parts, accessories or a service visit. We will need you to have your model name or number, power rating (if applicable) and date of purchase. As part of our quality and training programme calls may be recorded or monitored.

## Mira Showers Website ([www.mirashowers.co.uk](http://www.mirashowers.co.uk))

From our website you can register your guarantee, download additional user guides, diagnose faults, purchase our full range of accessories and popular spares, refer to our FAQ's and request a service visit.

## Spares and Accessories

We maintain extensive stocks of genuine spares and accessories and aim to provide support throughout the product's expected life. Payment can be made by phone at time of order using most major Credit or Debit cards and we aim to despatch orders within two working days. Items purchased from us are guaranteed for 12 months from date of purchase. For safety reasons spares exposed to mains voltages should only be fitted by competent persons.

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

## Service / Repairs

We have a nationwide team of Service Technicians who can carry out all service or repair work to your product within the guarantee period and beyond. You have the assurance of a fully trained Mira Technician, genuine Mira spare parts and a 12 month guarantee on any chargeable work done.

Payment should be made directly to the Service Technician who will accept most major Credit or Debit cards.

## To Contact Us

### UK

Telephone: 0844 571 5000

[www.mirashowers.co.uk](http://www.mirashowers.co.uk)

E-mail: [technical@mirashowers.com](mailto:technical@mirashowers.com)

Fax: 01242 282595

By Post: Mira Customer Services Dept, Cromwell Road, Cheltenham, Gloucestershire, GL52 5EP

### Eire

Telephone: 01 459 1344

E-mail: [sales@modernplant.ie](mailto:sales@modernplant.ie)

Fax: Dublin 01 459 2329

By Post: Modern Plant Ltd (Dublin), Otter House, Naas Road, Clondalkin, Dublin 22

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SHOWERS