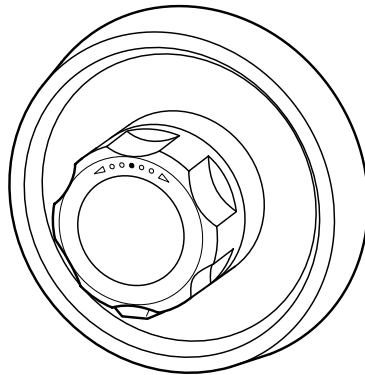
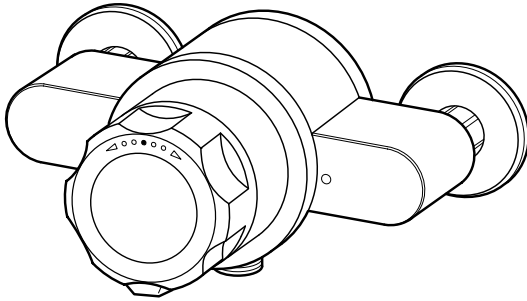


mira

415



PRESSURE BALANCED

SHOWER CONTROL

Installation and User Guide

These instructions are to be left with the user

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INTRODUCTION

Mira 415 Pressure Balanced Shower Control Range

Description

A range of Mira $\frac{1}{2}$ " pressure balanced shower controls which automatically adjusts for variations in **inlet pressures** to maintain a constant outlet temperature provided the **inlet water temperatures** remain stable.

The Mira 415 is not a thermostatic shower control and does not sense supply temperature variations. Therefore, inlet water temperatures especially the hot, should be relatively constant.

The Mira 415 is suitable for installation with the following packages:-

- Fully modulating multi-point gas water heaters.
- Fully modulating combination boilers.
- Unvented mains pressure systems.
- Mains pressurised, instantaneous hot water heated from thermal store, systems.
- Pumped systems.

Showering temperature is adjusted by the shower control. The flow rate is determined by the supply pressures available at the inlets, and the output rating of the heater appliance.

Product range

Mira 415: Surface mounted pressure balanced shower control for connection to **exposed pipework**, for **high pressure** applications (**1.0 – 5.0 bar**). White/chrome or white/light golden colour models are available.

Mira 415B: Built-in shower control for connection to **concealed pipework**, for **high pressure** applications (**1.0 – 5.0 bar**). White/chrome or white/light golden colour models are available.

WARNING!

Products manufactured by us are safe and without risk provided they are installed, used and maintained in good working order in accordance with our instructions and recommendations.

Safety

Anyone who may have difficulty understanding or operating the controls of any shower should be attended whilst showering. Particular consideration should be given to the young, the elderly, the infirm or anyone inexperienced in the correct operation of the controls.

IMPORTANT SAFETY INFORMATION

WARNING!

- 1.1. Products manufactured by us are safe and without risk provided they are installed, used and maintained in good working order in accordance with our instructions and recommendations.

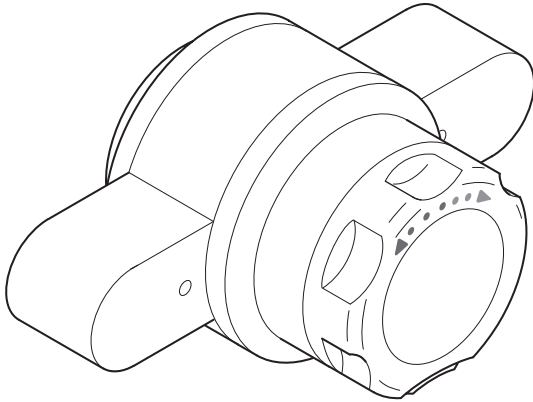
Caution!

- 2.1. Read all of these instructions.
- 2.2. Retain this guide for later use.
- 2.3. Pass on this guide in the event of change of ownership of the installation site.
- 2.4. Follow all warnings, cautions and instructions contained in this guide.
- 2.5. The plumbing installation must comply with Water Supply By-laws, BS 6700, Building Regulations or any particular regulations and practices, specified by the local water company or water undertakers. The installation should be carried out by a plumber or contractor who is registered, or is a member of, an association such as:
 - 2.5.1. Institute of Plumbing (IOP), throughout the UK, Tel: 01708 472791.
 - 2.5.2. National Association of Plumbing, Heating and Mechanical Services Contractors (NAPH & MSC), England and Wales, Tel: 01203 470626.
 - 2.5.3. Scottish and Northern Ireland Plumbing Employers' Federation (SNIPEF), Scotland and Northern Ireland, Tel: 0131 225 2255.
- 2.6. Anyone who may have difficulty understanding or operating the controls of any shower should be attended whilst showering. Particular consideration should be given to the young, the elderly, the infirm, or anyone inexperienced in the correct operation of the controls.

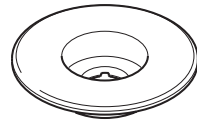
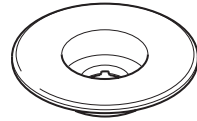
PACK CONTENTS CHECKLIST

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

Mira 415 Surface Mounted Shower Control



1 x 415 Shower Control



2 x Pipe Concealing Plates



2 x 1/2" BSP Inlet Connector Nipples



2 x Fibre Gaskets



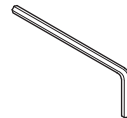
2 x Olives



2 x Compression Nuts



1 x Outlet Nipple

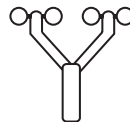


1 x 2.5mm A/F Hexagon Wrench



2 x 1 3/4" Fixing Screws

2 x Wallplugs



2 x Concealing Caps



1 x 'O' Seal

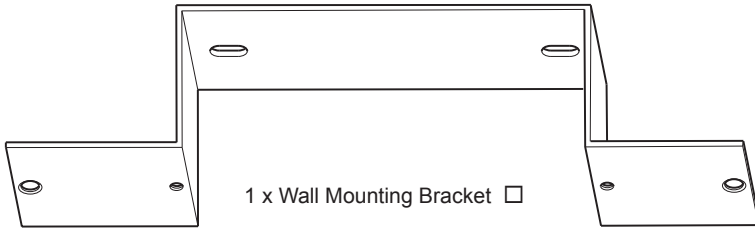
Documentation

1 x Installation, Operation and Maintenance Guide

1 x Customer Support Brochure

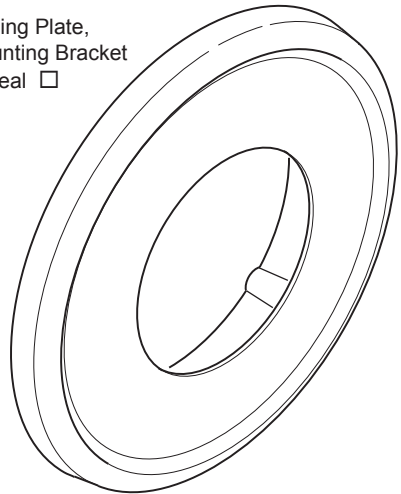
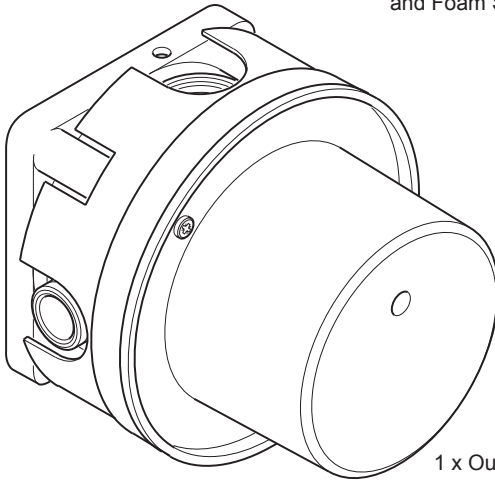
Tick the appropriate boxes to familiarise yourself with the part names and to confirm that the parts are included.

Mira 415B Built-in Shower Control



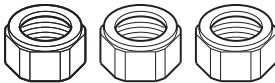
1 x 415 Shower Control with Building-in Shroud

1 x Concealing Plate, Circular Mounting Bracket and Foam Seal



1 x 2.5mm A/F Hexagon Wrench

3 x Compression Nuts



3 x Olives



1 x Outlet Nipple



1 x 'O' Seal



2 x M4 x 16mm Screws



2 x No. 8 x 1 1/4" Fixing Screws



2 x Wallplugs



2 x M4 x 30mm Screws

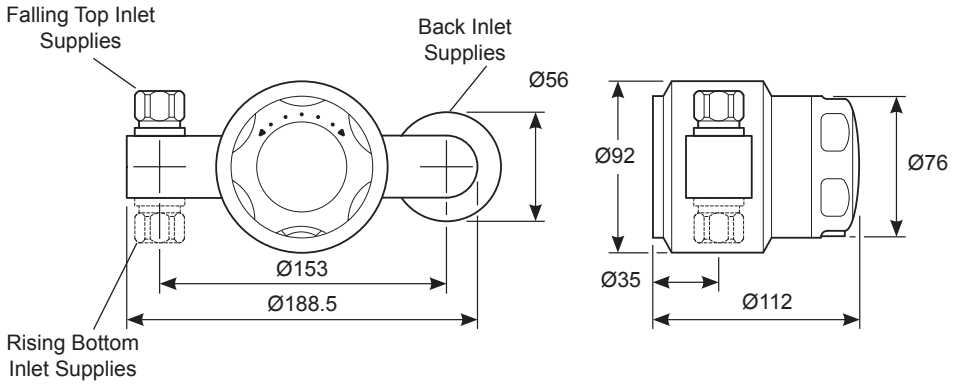


Documentation

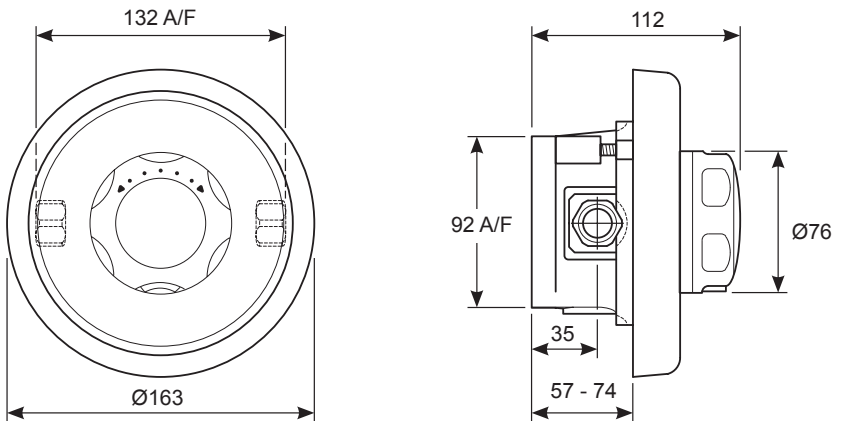
1 x Installation, Operation and Maintenance Guide

1 x Customer Support Brochure

DIMENSIONS



415



415B

All dimensions are nominal and in millimetres

SPECIFICATIONS

415 and 415B

Pressure Range

Minimum maintained pressure 1 bar

Maximum maintained pressure 5 bar

Maximum static pressure 10 bar

Note! For optimum performance, the initial supply pressures should be nominally equal.

Temperatures

Maximum hot water temperature 85°C

However, BS6700 recommends that the stored temperature of water should never exceed 65°C. A stored water temperature of 60°C is considered sufficient to meet all normal requirements and will minimize the deposition of scale in hard water areas.

Connections

Inlet

15mm Compression or 1/2" BSP male (415)

15mm Compression (415B)

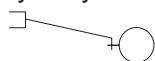
Outlet

1/2" BSP male (415)

15mm Compression or 1/2" BSP male (415B)

INSTALLATION REQUIREMENTS

Key to symbols appearing throughout this guide.



Float operated valve



Isolating valve



Shower control



Warning or overflow pipe



Pressure reducing valve

1. Layout and sizing of pipework must be such that when other services are used, pressures at the shower control inlets do not fall below the recommended minimum (1 bar). The pressure balancing performance is impaired below 1 bar. When fitted with some heater appliances the minimum maintained pressure may be above 1 bar, refer to the section entitled “**Commissioning**” - “**Multi-point gas water heaters**” or “**Combination boilers**”.
2. The Mira 415 is **not suitable** for installation as part of a gravity-fed plumbing system. i.e. in conjunction with a hot water cylinder and cold water storage cistern.
3. When used with a **modulating** multi-point or combination boiler **above 5 bar maintained pressure**, a pressure reducing valve will be necessary.
4. Supply pipes **MUST** be flushed to clear debris before connecting the shower control (Byelaw 55).
5. The installation of in-line strainers are recommended to protect the shower control from the ingress of water borne debris.
6. Conveniently situated isolating valves must be fitted for servicing purposes.
7. No form of outlet flow control should be fitted, only Kohler Mira recommended fittings should be used in the outlet pipework.
8. Installations **MUST** comply with the Local Water Company or Water Undertakers Byelaws and BS6700

Byelaw 17 – “Shower Hose Connections” requires the handset to be “constrained by a fixed or sliding attachment so that it can only discharge water at a point not less than 25mm above the spill-over level of the relevant bath, shower tray or other fixed appliance”, refer to Figure 1.

Byelaw 91 - If a product is to be used with a mains fed secondary water heating device (eg jacketed heater) the system must have a means of accommodating the expansion of water.

For further information please see “The Mira Shower Guide to the new Model Water Byelaws”.

If in doubt we recommend that a plumber or contractor who is registered with one of the following be contacted:-

Institute of Plumbing (I.O.P.) throughout the U.K. Tel: 01708 472791

National Association of Plumbing, Heating and Mechanical Services Contractors (N.A.P.H. & M.S.C.) England and Wales. Tel: 01203 470626

Scottish and Northern Ireland Plumbing Employers’ Federation (S.N.I.P.E.F)

Scotland and Northern Ireland. Tel: 0131 225 2255

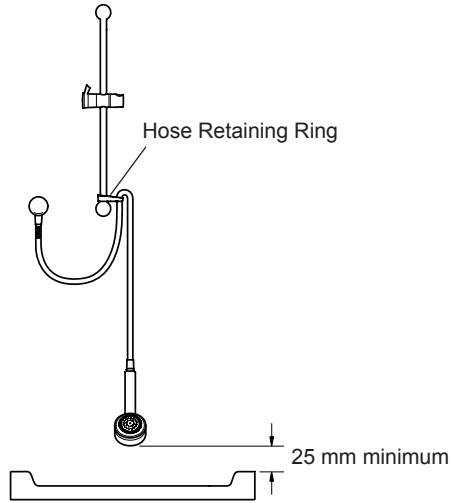


Figure 1

The following diagrams and text illustrate typical examples of suitable plumbing systems for the 415 shower control range:-

9. Gas heated showers

The shower control **MUST** be installed with a multi-point gas water heater or combination boiler of a **fully modulating design**. A fully modulating multi-point gas water heater or combination boiler is one in which the water draw-off rate controls indirectly the gas flow rate to the burner. The concept is to produce relatively constant hot water output temperatures within the operating limits of the heating appliance. A pressure reducing valve will be required to ensure that cold water pressures do not exceed 5 bar maintained, refer to Figure 2.

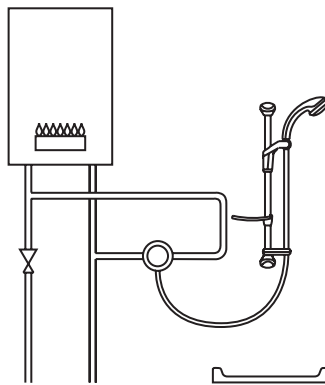


Figure 2

10. Unvented mains pressure showers

The shower control can be installed with an unvented, stored hot water cylinder. Only a “competent person” as defined by “Part G” of “Schedule 1” of the “Building Regulations”, may fit this type of system. For packages with no cold water take off after the appliance pressure reducing valve, it will be necessary to fit an additional pressure reducing valve, set at the same value as the unvented package in the position shown dotted, when the mains pressure is over 5 bar, refer to Figure 3. This does not apply to packages with a cold take off after the pressure reducing valve.

The supply pressures should be between 1 bar and 5 bar to the Mira 415.

Safety devices have not been shown within dotted line area for clarity of illustration

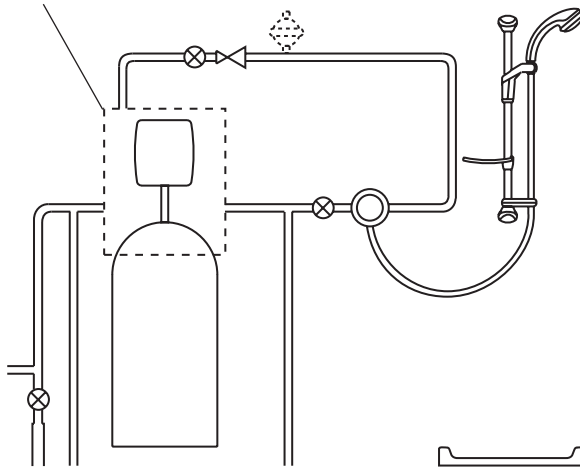


Figure 3

11. Mains pressurised instantaneous hot water, heated from thermal store, showers

Packages of this type, fitted with a tempering valve can be used with the Mira 415. The tempering valve provides a relatively constant hot water temperature and the 415 pressure balancing valve compensates for system pressure variations. The Mira 415 supply pressure range is 1 bar to 5 bar. For pressures above 5 bar a pressure reducing valve will be required, refer to Figure 4.

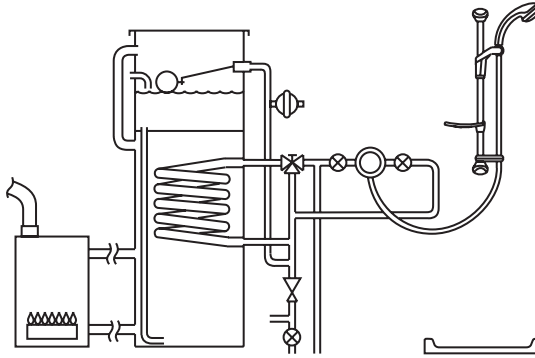


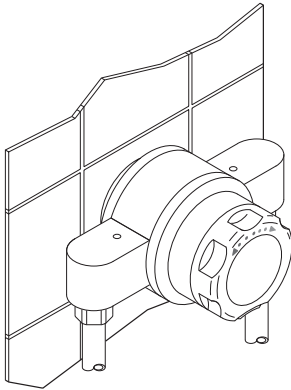
Figure 4

INSTALLATION

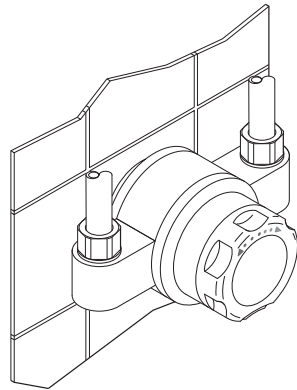
Mira 415 Surface Mounted Shower Control

Rising or Falling Inlet Supplies

- 1.1 Determine whether the hot or cold water services will be connected to the shower control from the top (falling) or from the bottom (rising). Before deciding the final positioning of the shower control, please bear in mind the following:-
- 1.2 Consideration should be given to the requirements of Byelaw 17 with regard to positioning of the shower control and selected shower fittings. (Not applicable to rigid shower fittings).
- 1.3 Determine the position of the outlet in relation to the type of shower fitting used.
 - e.g. **Mira er-s:** Select top outlet.
 - Mira ev-s:** Select bottom outlet.

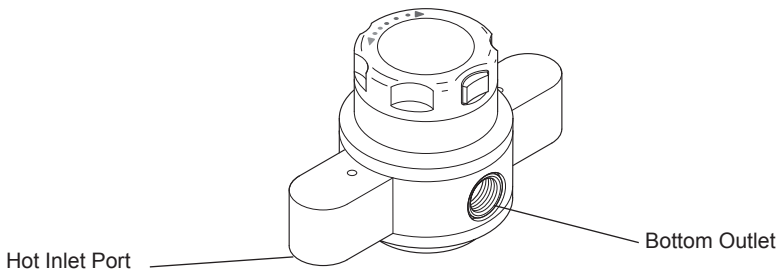


Rising Supplies

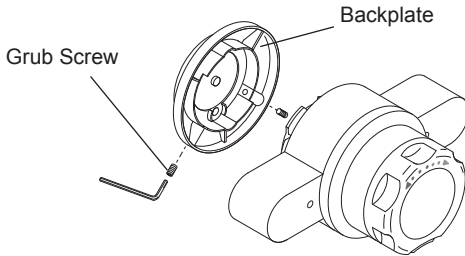


Falling Supplies

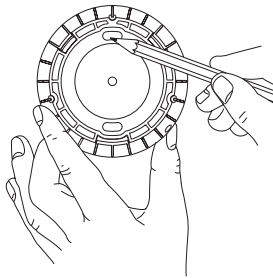
The Mira 415 is supplied with inlet connections **hot left, cold right** and **bottom outlet** as standard. To change the position of the outlet refer to the section, **“Reversed Outlet Connection”**: **instructions 1 to 8** inclusive.



- 1.4 Remove the backplate by releasing, anti-clockwise, the two recessed grub screws which retain the backplate against the brass shower control body, using the 2.5mm A/F hexagon wrench (supplied).

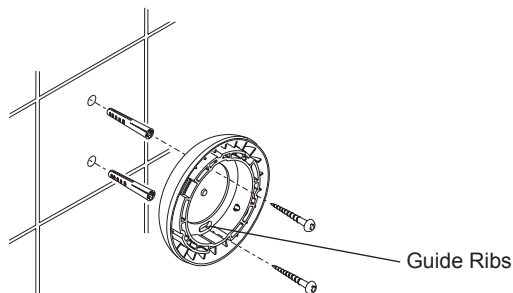


- 1.5 Mark the final position on the finished wall surface using the backplate as a template. Mark through the backplate the position of the two holes ensuring that they are vertically aligned.



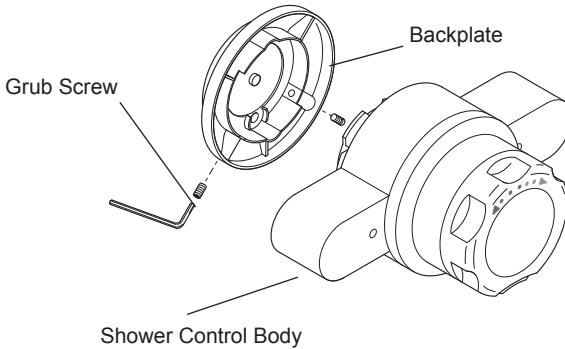
- 1.6 Drill and suitably plug the two marked fixing holes. Secure the backplate to the wall with the two No. 8 x 1³/₄" fixing screws and wallplugs provided, if suitable, ensuring that screw head seats into guide ribs.

Note! Screws with larger heads will foul the shower control body.

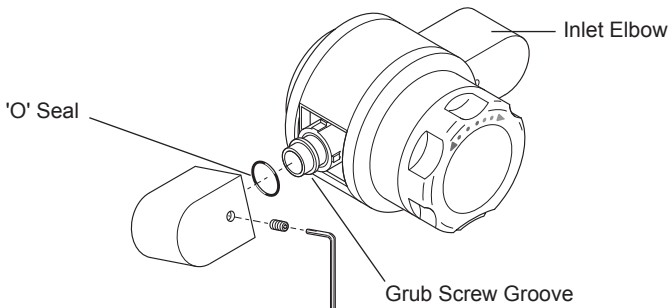


- 1.7 Thoroughly flush the incoming hot and cold water supplies before final connection of the shower control (Byelaw 55).

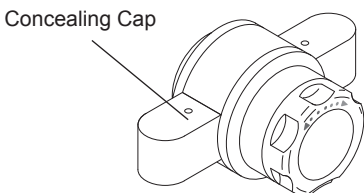
- 1.8** Locate the shower control body onto the backplate and secure by tightening, clockwise, the two recessed grub screws, using the 2.5mm A/F hexagon wrench (supplied).



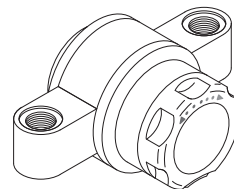
- 1.9** Release, anti-clockwise, the two grub screws that retain the inlet elbows, using the 2.5mm A/F hexagon wrench (supplied). Ensure that the 'O' seal is correctly located on the smaller diameter shoulder of the brass inlet connector, and **not** in the 'V' groove.



- 1.10** Refit the elbows in the required position, i.e. rising or falling supplies, ensuring that the grub screws locate into the grub screw socket. Tighten, clockwise, the grub screws and fit the two concealing caps into the hexagon recesses.



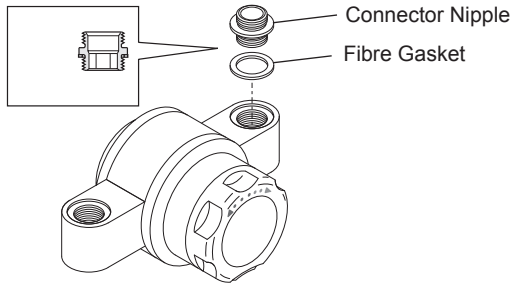
Rising supplies



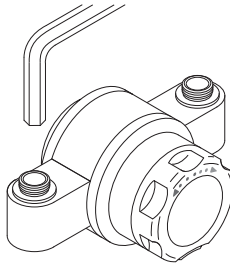
Falling supplies

1.11 Assemble the components of the inlet connector compression fittings in the following sequence for each inlet:-

1.11.1 Place the fibre gasket against the shoulder of the $\frac{1}{2}$ " BSP inlet connector nipple.

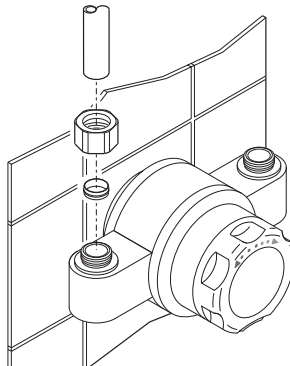


1.11.2 Screw in, clockwise, the $\frac{1}{2}$ " BSP connector nipple ensuring that the compression taper faces uppermost, using a 12mm A/F hexagon wrench (not supplied).



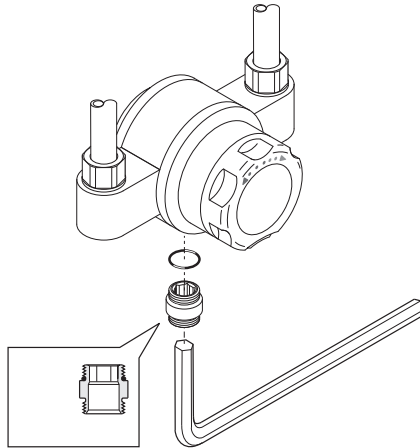
1.11.3 Slide, in turn, the compression nut, then the olive, over the hot and cold inlet pipework. If necessary, sparingly, smear 'liquid jointing' on the pipe end and the outside of the olive.

1.11.4 Insert the hot and cold inlet pipework into the opening of the $\frac{1}{2}$ " BSP inlet connector nipple then slide the olive and compression nut into place.



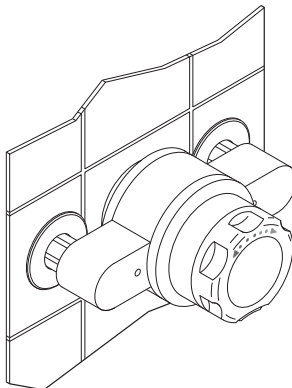
1.11.6 Finally, carefully tighten, clockwise, the compression nut using, if necessary, a cloth to protect the plated surfaces.

1.12 Fit the 'O' Seal to the tapered end of the outlet nipple and screw it into the shower control outlet using a 12mm A/F hexagon wrench (not supplied). This will leave the flat face for connection of the shower hose.

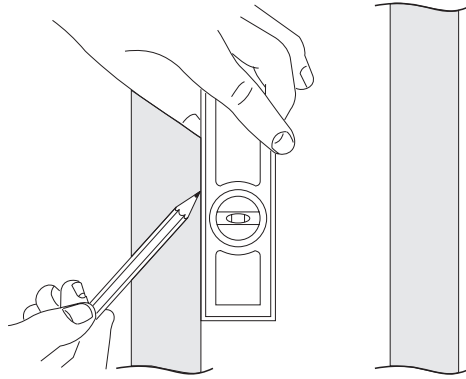


This completes the installation of the **Mira 415** for connection to “**Rising and falling inlet supplies**”.

Back Inlet Supplies



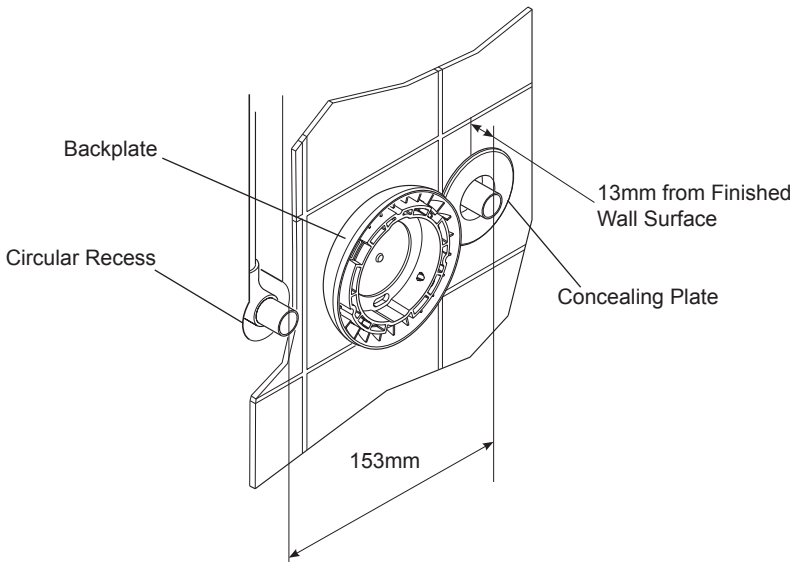
- 1.** Follow the shower control installation procedure as for “**Rising and falling inlet supplies**”: instructions **1** to **4** inclusive.
- 2.** Using a spirit level, mark the route of incoming hot and cold water supply pipes at a distance of **153 mm** centres.



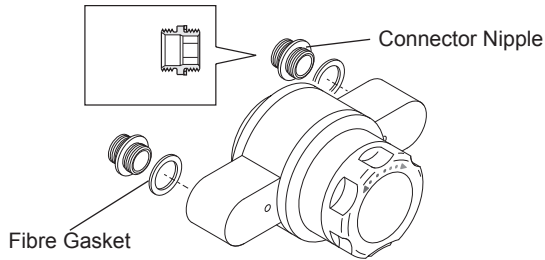
3. Remove the plaster and brickwork to the required depth to conceal the supply pipework. Your attention is drawn to the requirements of Byelaw 58 with regard to “Accessibility of Pipes and Pipe Fittings.

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

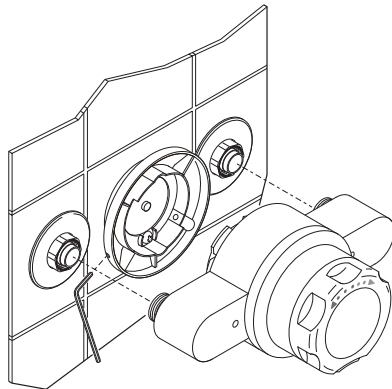
4. Install the hot and cold water supply pipework ensuring that the pipe ends emerge from the wall surface at **153mm** centres, and project from the finished wall surface by **13mm**. Allow for two circular recesses measuring **32mm** diameter x **10mm** depth, to accept the two pipework concealing plates.



5. Make good the wall surface. Fit the pipework concealing plates over the hot and cold water supply pipework.
6. Fit the gaskets to the $\frac{1}{2}$ " BSP connector nipples and screw in the nipples with the tapered ends outermost to accept the compression fittings. Tighten the $\frac{1}{2}$ " BSP connector nipples fully with a 12mm A/F hexagon wrench (not supplied).

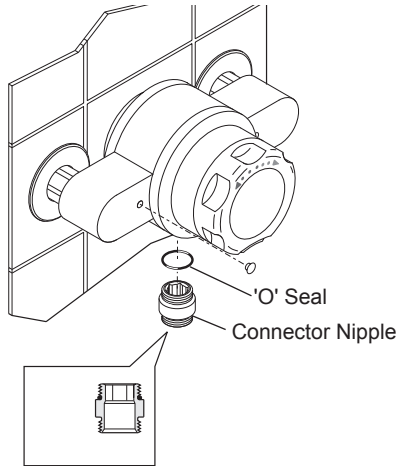


7. **Thoroughly flush the incoming hot and cold water supply pipes before connecting the shower control** (Byelaw 55). Failure to do so may result in a product malfunction.
8. Slip the compression nuts and olives over the supply pipes.
9. Locate the shower control body onto the backplate and inlet supply pipework, then secure by tightening, clockwise, the two recessed grub screws, using the 2.5 mm A/F hexagon wrench (supplied).



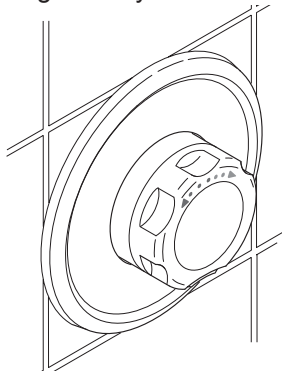
10. Tighten the compression nuts, using if necessary, a cloth to protect the plated surfaces.
11. Turn on the water supplies and check for any leaks!

12. Fit the 'O' Seal to the tapered end of the outlet nipple and screw it into the shower control outlet using a 12mm A/F hexagon wrench (not supplied). This will leave the flat face for connection of the shower hose.
13. This completes the installation of the Mira 415 for "Rising and falling back inlet supplies".

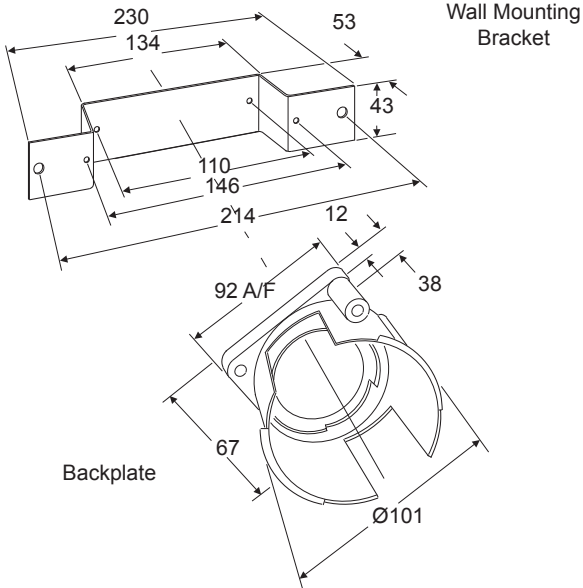


415B Built-in Shower Control

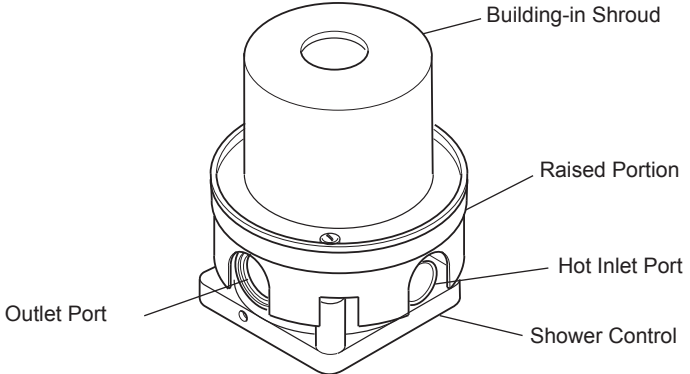
The built-in shower control incorporates an integral wall mounting bracket assembly which can be used to install the shower into a solid, dry-lined, stud partition or dry partition wall structure, shower cubicle or laminated panel. Installers may wish to consider other options such as fabricating rear supports using wooden noggins, however, these methods of fixing are beyond the scope of this guide.



The building-in depth for the integral wall mounting bracket assembly is **58mm**. The building-in depth for the shower control (to the finished wall surface) is between **64** and **81mm**. The building-in depth calculation must include the final thickness of plaster and tiles. This dimension determines how much of the control knob will be visible through the concealing plate when the installation is completed.



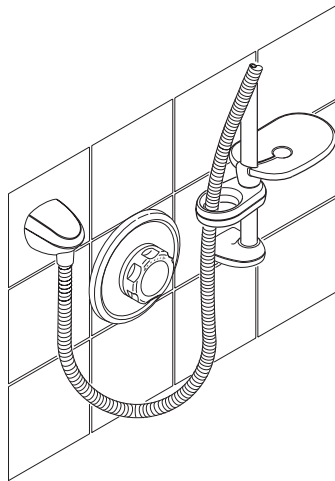
A building-in shroud is supplied, which protects the shower control during plastering and provides a reference for the building-in depth when chasing out the wall surface.



The built-in shower control has $\frac{1}{2}$ " BSP male inlets and is supplied with 15mm compression fittings. The outlet has a $\frac{1}{2}$ " BSP tapping and supplied with a nipple terminating in a $\frac{1}{2}$ " BSP male or 15mm compression fitting.

Solid, Dry-lined, Stud Partition or Dry Partition Wall Structures

1. Determine whether the hot or cold water services will be connected to the shower control from the top (falling) or from the bottom (rising).
2. Remove the plastic building-in shroud. The two M5 x 50mm building-in shroud retaining screws should be screwed temporarily into the base of the shower control for use later.
3. Familiarise yourself with the hot and cold water inlet ports and outlet port. They can be identified as follows:-
The 415B is supplied with inlet connections **Hot left, cold right** and **top outlet** as standard.
To change the position of the outlet refer to the section, "**Reversed Outlet Connection**": instructions **1** to **8** inclusive.
4. Determine the route for the incoming hot and cold water supply pipework. The outlet pipework to a flexible shower fitting is best positioned to emerge above and to one side of the shower control to allow the flexible hose to drape around the underside of the shower preventing the hose from interfering with the knob (refer to diagram).

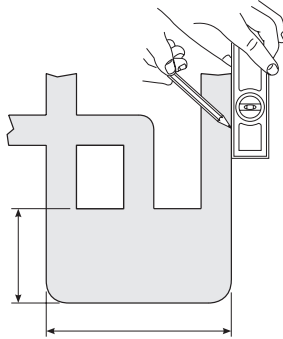


5. Mark the wall surface for an opening measuring approximately 245mm x 125mm.

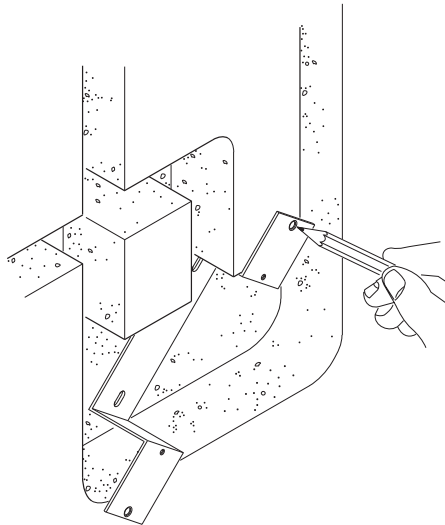
Mark the route of the incoming and outgoing pipework services.

Using the building-in shroud as a guide remove the plaster and brickwork/dry-lining to the required depth of concealment.

NOTE! The depth of concealment must be such that the final wall surface (e.g. plaster and tiles etc.) finishes on the raised portion of the plastic building-in shroud.

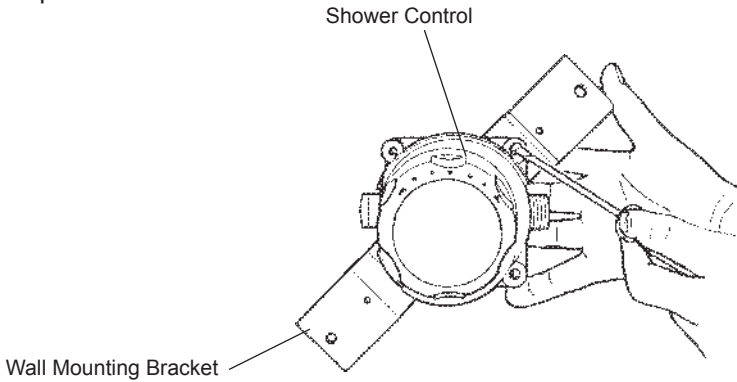


6. Mark the final position in the wall chase of the two larger outer diameter fixing holes in the flanges of the wall mounting bracket. This bracket must be fixed at 45°.
7. Drill and suitably plug the two marked fixing holes.

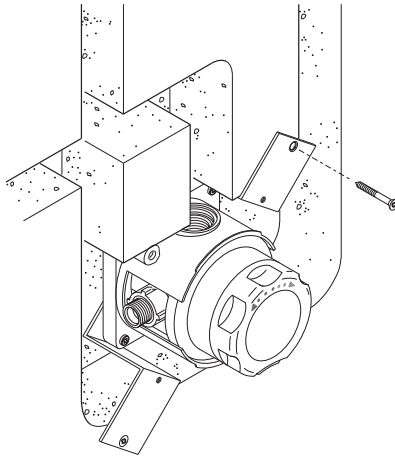


8. Thoroughly flush the incoming hot and cold water supply pipes before connecting the shower control (Byelow 55).

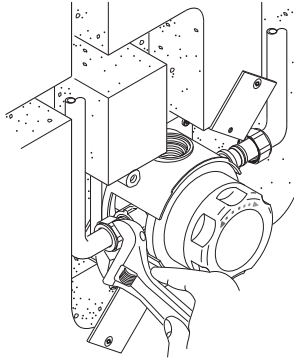
9. Fix the shower control to the wall mounting bracket using the two M4 x 16mm screws provided.



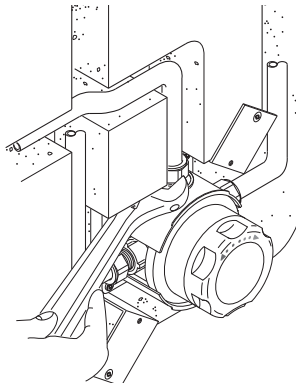
10. Install the shower control into the wall chase, aligning the two flange holes of the wall mounting bracket assembly with the pre-drilled fixing holes. Secure the shower control with the two No. 8 x 1¹/₄" fixing screws supplied, if suitable.



11. Make the connections to the incoming hot and cold water supply pipes in the following sequence for each port:-
 - 11.1 Slide the compression nut, then the olive, over the pipe end. If necessary, sparingly smear liquid jointing on the pipe end and the outside of the olive.
 - 11.2 Insert pipe end into the opening of the inlet connector then slide the olive and compression nut into place.
 - 11.3 Finally, carefully tighten, clockwise, the components.

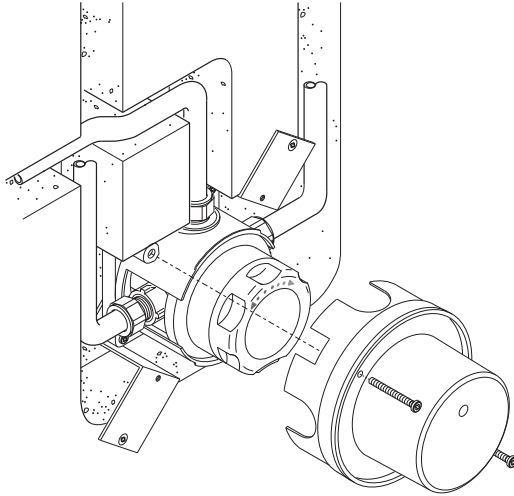


12. Make the connection to the outlet pipe in the following sequence:-
 - 12.1 Place the 'O' seal on to the nipple as shown. Locate the hexagon towards the shower control outlet port. Screw in clockwise the nipple using a 12mm A/F hexagon wrench (not supplied).
 - 12.2 Slide the compression nut, then the olive, over the pipe end. If necessary, sparingly, smear liquid jointing on the pipe end.
 - 12.3 Insert pipe end into the opening of the outlet nipple then slide the olive and compression nut into place.
 - 12.4 Finally, carefully tighten, clockwise, the components.

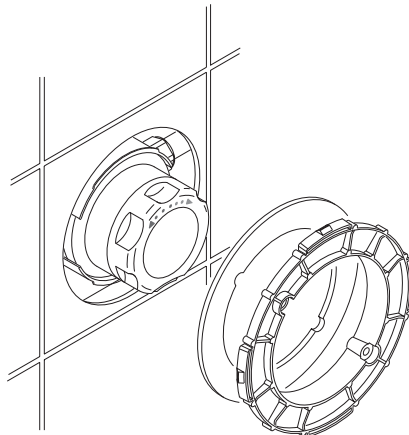


- 12.5 Turn on the water supplies and check the pipework for any leaks!

13. Refit the plastic building-in shroud over the shower control and secure with the two M5 x 50mm shroud retaining screws, removed in **instruction 2**.

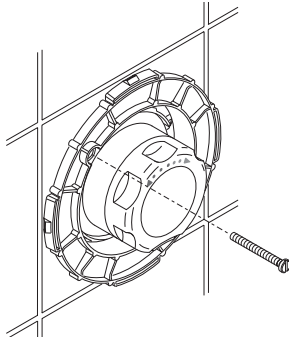


14. Plaster and tile up to the tapered sides of the plastic building-in shroud and, when set remove the shroud. The two M5 shroud retaining screws should be screwed temporarily into the base of the shower control for use later. Your attention is drawn to the requirements of Byelaw 58 with regard to “Accessibility of Pipes and Pipe Fittings”.
15. Fit the foam seal over the reverse side of the circular mounting bracket.

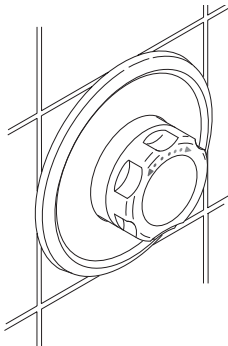


16. Fix the circular mounting bracket to the shower control body using the two M5 x 50mm screws used to retain the plastic building-in shroud.

NOTE! The bracket has been designed with semi-circular knock outs which may need to be relieved to accommodate the supply pipework under minimum building-in depth conditions.



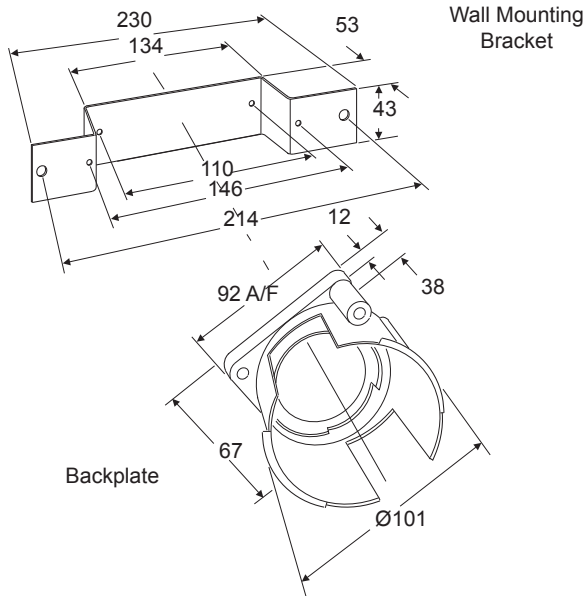
17. Push the concealing plate firmly over the circular mounting bracket until it locates on the four clips.



18. This completes the installation of the **Mira 415B** for installation into “**Solid, dry-lined, stud partition or dry partition wall structures**”.

Shower Cubicle or Laminated Panel

The built-in shower control incorporates an integral wall mounting bracket assembly which can be used to install the shower into the front or back face of a shower cubicle or laminated panel.

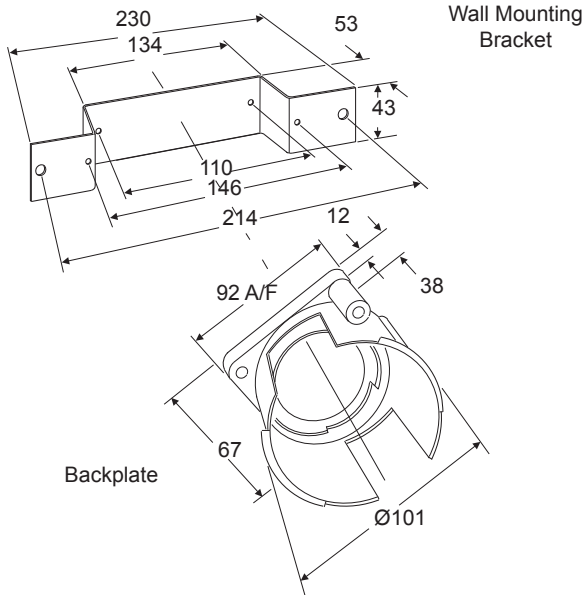


Installation on to the front face of a shower cubicle or laminated panel

Depending on the structure of the shower cubicle or laminated panel it may be possible to conceal the flanges of the integral wall mounting bracket assembly into the front face of the wall surface then cover over the fixings with plaster and tiles. The building-in depth for the integral wall mounting bracket assembly is **58mm**. The thickness of plaster and tiles which conceal the integral wall mounting bracket assembly flanges must be between **6** and **23mm**.

1. Follow the shower control installation procedure as for **“Solid, dry-lined, stud partition or dry partition wall structures”**: instructions **1** to **4** inclusive.
2. Cut a circular hole in the panel measuring 145mm in diameter.

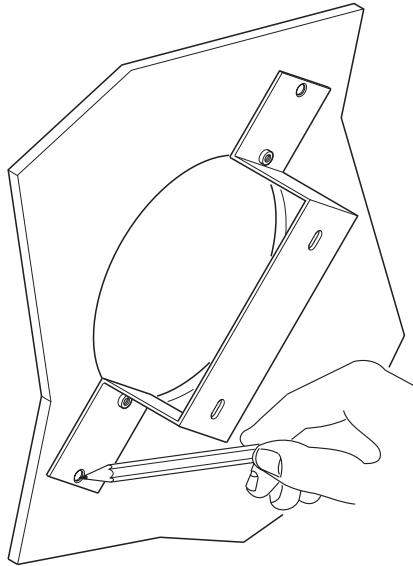
- Follow the shower control installation procedure as for **“Solid, dry-lined, stud partition or dry partition wall structures”**: instructions 6 to 17 inclusive to complete the installation.



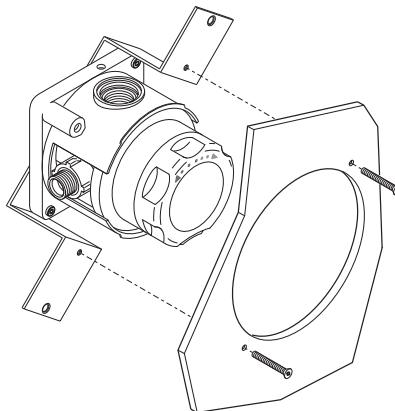
Installation on to the Back Face of a Shower Cubicle or Laminated Panel

The building-in depth for the integral wall mounting bracket assembly is **58mm**. The integral wall mounting bracket assembly can be used to install the shower control into a shower cubicle or laminated panel of between **4** and **21mm**. The building-in depth calculation must include for the final thickness of plaster and tiles.

- Follow the shower control installation procedure as for **“Solid, dry-lined, stud partition or dry partition wall structures”**: instructions 1 to 4 inclusive.
- Cut a circular hole in the panel measuring **124mm** in diameter.
- Using the wall mounting bracket as a template, mark the position of the two smaller diameter fixing holes on the flanges of the bracket. These should be at an angle of **45°**.



4. Drill the two fixing holes.
5. Fix the shower control to the wall mounting bracket using the two M4 x 16mm screws provided.
6. Feed the shower control through the opening in the panel and fix to the panel with the two M4 x 30mm fixing screws.



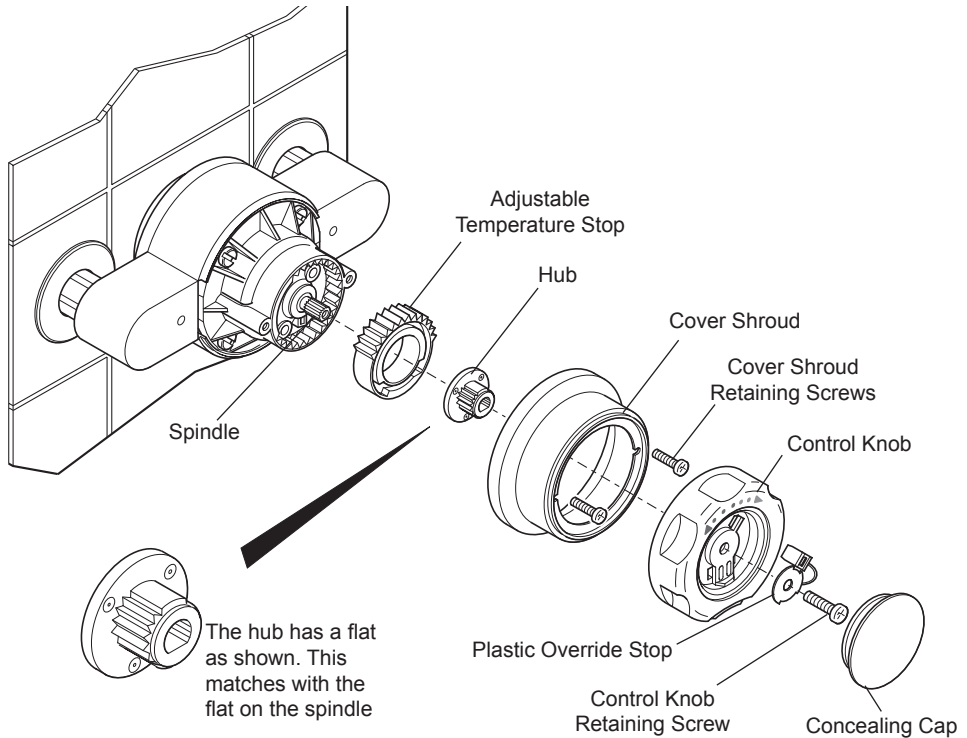
7. Follow the shower control installation procedure as for **“Solid, dry-lined, stud partition or dry partition wall structures”**: instructions 11 to 17 inclusive to complete the installation.

Reversed Outlet Connection

Mira 415 shower controls are supplied with inlet connections **hot left, cold right and bottom outlet**. The 415B is supplied with inlet connections **hot left, cold right and top outlet as standard**.

To reverse the outlet position proceed as follows:-

1. Rotate the shower control body through 180°. Install the shower control.
2. Prise off concealing cap, remove control knob retaining screw/plastic temperature override stop and control knob.
3. Remove the hub fitted to the spindle. Rotate the spindle one full turn (360°) and refit the hub.
4. Remove the adjustable temperature stop and turn over. Make sure that the **Max °C** with indentations side is uppermost. Adjust the maximum temperature stop (refer to **COMMISSIONING**).
5. Refit the control knob, (with the override button at the bottom), control knob retaining screw/plastic override stop and concealing cap.
Turn the knob fully clockwise to the shut off position.
6. This completes the procedure for “**Reversed Outlet Connection**”.



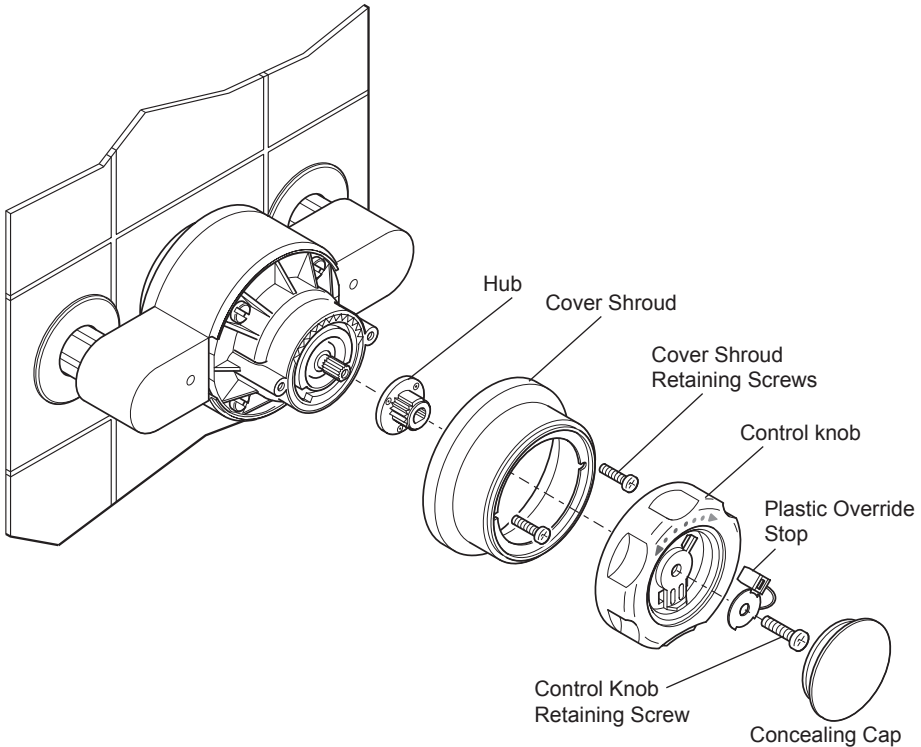
Reversed Inlet Supplies

Mira 415 shower controls are supplied with inlet connections **hot left, cold right and bottom outlet**. The 415B is supplied with inlet connections **hot left, cold right and top outlet as standard**.

Both shower controls are fitted with a single sequential control knob. The shower control is turned off by turning the control knob fully clockwise. The correct sequence of operation is anti-clockwise movement of the control knob followed by: Cold → Warm → Hot water. If the sequence is: Hot → Warm → Cold water, then the hot and cold water supplies have been reversed.

To correct reversed hot and cold inlet supplies proceed as follows:-

1. Prise off concealing cap, remove control knob retaining screw/plastic temperature override stop and control knob.
2. Remove the hub. Turn the spindle one full turn (360°). Refit the hub.
3. Refit the control knob, (with the override button at the bottom), control knob retaining screw/plastic override stop and concealing cap.
4. Check the maximum temperature. Adjust if necessary (refer to COMMISSIONING).
5. Turn the knob fully clockwise to the shut off position.
6. This completes the procedure for "Reversed Inlet Supplies".



COMMISSIONING

All heater appliances **must have a fully modulating heat output for the domestic hot water**, to provide a constant temperature of hot water to the Mira 415 shower control.

Multi-point Gas Water Heaters

These notes are based on a heater with an effective output power of 23.5kW. Heaters with higher or lower effective output powers will proportionally affect the following information.

The Mira 415 range does not compensate for water temperature changes.

- 1 Use the heater appliance on a “high” or “winter” setting only.
- 2 A minimum maintained water **supply** pressure of 1.5 bar is required. This allows for a 0.5 bar pressure loss in the heater
- 3 The maintained water supply pressure should not exceed 5 bar. A pressure reducing valve will be needed for pressures over 5 bar to improve the system operation. It should be installed to reduce both the cold feed pressure to the heater and the cold feed pressure to the Mira 415 to approximately 3.5 bar. Additional benefits may be obtained by fitting the pressure reducing valve after the premises internal stop valve, drain valve and if fitted, outside tap. The valve should be correctly sized for the duty.
- 4 If the minimum modulating output of the heater appliance exceeds 14kW with a reducing hot flow rate, then the maintained minimum supply pressure will need to be increased. This is to keep the flow rate through the heater sufficiently high in order to ensure that the gas flame stays ignited. An extinguished flame will produce a cold shower after a short period of time.

Combination Boilers

- 1 This information is based on a heater appliance fitted with an internal flow regulator rated at 10 l/min hot water.
- 2 Use the heater appliance on a “high” or “winter” setting only.
- 3 Should it not be possible to get a hot enough shower it may be necessary to fit a 9 l/min flow regulator (available from Mira Customer Services) between the shower control and hose to further reduce the flow. The “top hat” regulator should fit into the hose recess such that the black ‘O’ seal is visible before attaching the hose to the shower control.
- 4 A minimum maintained water **supply** pressure of 1.5 bar is required. This allows for a 0.5 bar pressure loss in the heater.

- 5 The maintained water supply pressure should not exceed 5 bar. A pressure reducing valve will be needed for pressures over 5 bar to improve the system operation. It should be installed to reduce both the cold feed pressure to the heater appliance and the cold feed pressure to the Mira 415 to approximately 3.5 bar.
Additional benefits may be obtained by fitting the water pressure reducing valve after the premises internal stop valve, drain valve and if fitted, outside tap. The valve should be correctly sized for the duty.
- 6 The minimum maintained water supply pressure will need to be raised if the minimum heater output power is greater than 7.5 kW on a reducing flow with a hot temperature of 62.5 °C.

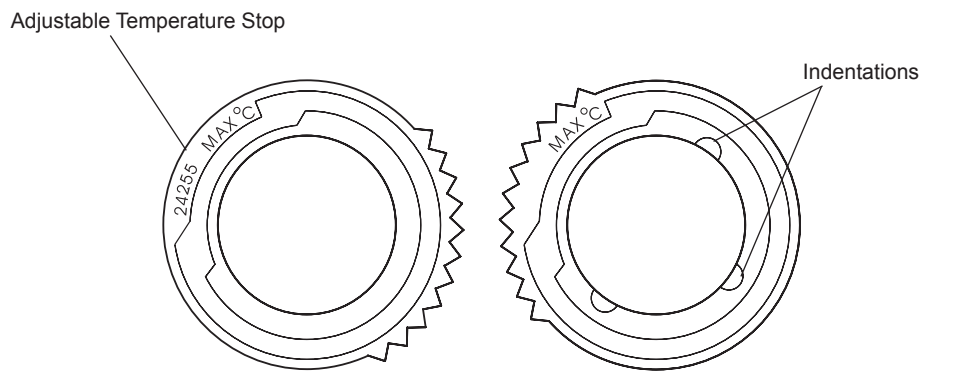
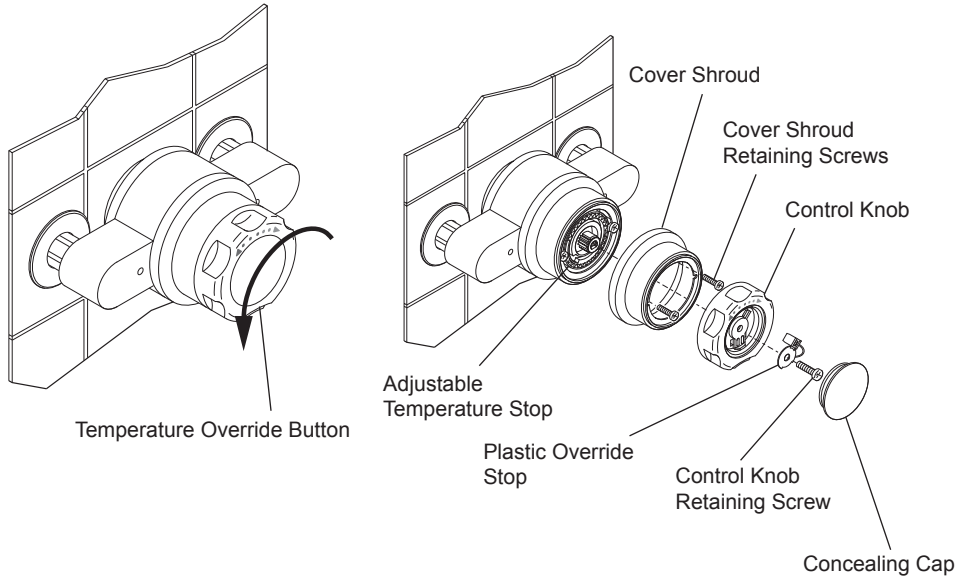
Adjustable Maximum Temperature Stop

Mira 415 shower controls are fully performance tested. The adjustable maximum temperature (maximum angular movement prior to override) has been preset under ideal installation conditions at the factory. Site conditions and personal preference may dictate that the maximum temperature needs to be reset.

To reset the adjustable maximum temperature stop ensure that an adequate supply of hot water is available in excess of that required from the shower control. Turn the control knob fully anti-clockwise. Check the temperature at the discharge point (allow hot water to reach the shower). If incorrect, adjust the temperature as follows:

1. Turn the control knob anti-clockwise until the desired maximum temperature is achieved. It may be necessary to press the override button and continue to rotate anti-clockwise, past the preset maximum temperature setting. Note the final position of the button, e.g. 11 O' clock.
2. Turn the control knob fully off.
3. Remove the concealing cap.
4. Remove the control knob retaining screw/plastic temperature override stop and pull off the control knob.
5. Locate the adjustable temperature stop (identified by a part number and a "MAX °C" symbol or a "MAX °C" symbol and component indentations).
Note! Ensure that the original face identified, is uppermost after adjustment.
6. With reference to the diagrams, carefully remove the adjustable temperature stop. Reposition the stop so that the "MAX °C" symbol is aligned with the noted button position, e.g. 11 O' clock.

7. To check the desired maximum temperature setting has been correctly set, refit the hub and control knob, turn fully anticlockwise and check the temperature of the water at the outlet. If still incorrect:
 To **increase** the temperature, reposition the stop one serration **anticlockwise**.
 To **decrease** the temperature, reposition the stop one serration **clockwise**.
 Repeat the check as necessary.



8. Refit the control knob (with the override button at the bottom), control knob retaining screw/plastic override stop and concealing cap. Please make sure the plastic override stop is correctly seated.

This completes the procedure for “**Commissioning: Maximum temperature setting**”.

Temperature Override Button Disable

The Mira 415 incorporates a safety feature which prevents the temperature override button from being depressed, enabling the user to access a higher shower temperature. The shower control is despatched from the factory with the button in the “enabled” position. The following sequence will allow the installer to “disable” the temperature override button if required.

1. Ensure the shower control is turned off.
Remove the concealing cap.
2. Locate the plastic temperature override stop.
3. Pull out the temperature override stop and reposition it in the slot adjacent to the red temperature override button.
4. Reversing the above procedure will “enable” the temperature override button movement.

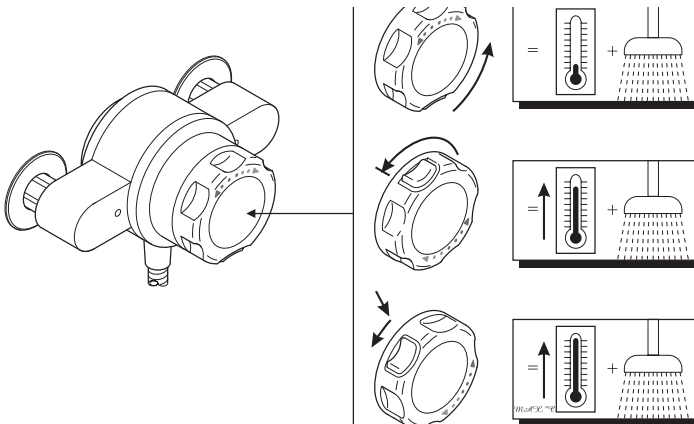
OPERATION

Mira 415 shower controls have a single sequential control knob. The shower control is turned on by turning the control knob **anti-clockwise**. The shower control is turned **OFF** by turning the control knob **clockwise**. When the control knob is turned **ON** (anti-clockwise) the sequence is;

Cold water → Warm water → Preset maximum temperature.

A fuller description is as follows:-

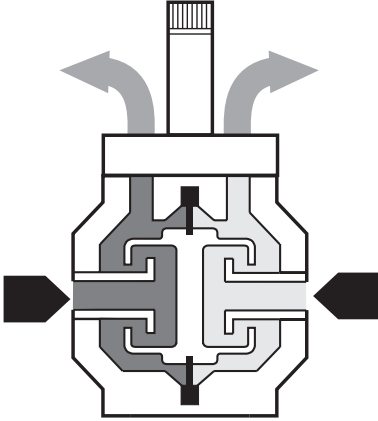
1. Initial anti-clockwise movement turns the water on at full flow of cold water, further anti-clockwise movement increases the temperature. The flow rate is determined by the supply pressures at the inlets of the shower control, or by the effective output power of the heater appliance. Flow rates for gas heater appliances can vary typically between 8 l/min (winter) and 15 l/min (summer).
2. The control knob incorporates a red override button, which allows movement beyond the adjustable maximum adjustable temperature stop. When the adjustable maximum temperature stop is reached, the override button can be pressed allowing the control knob to rotate further. This facility is used when the initial hot water supply temperature has fallen due to increased demand or when a hotter shower is required. The override mechanism is self cancelling when the knob is returned to the off position.
3. For safety reasons this product is fitted with a adjustable maximum temperature stop. This setting must be checked and adjusted as necessary to suit both site conditions and user's comfort. Refer to the section "**Adjustable maximum temperature setting**" for further details.



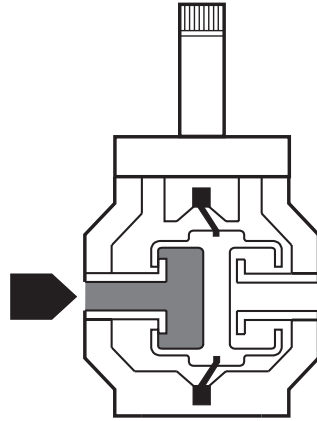
How the pressure balancing principle operates

Mira 415 pressure balanced shower controls automatically adjust for variations in **inlet pressures** to maintain a constant outlet temperature provided the **inlet water temperatures** remain stable.

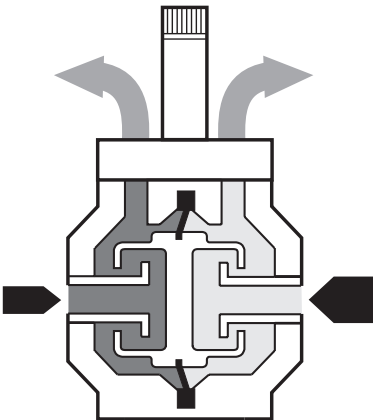
The Mira 415 is **not** a thermostatic shower control and does not sense supply temperature variations. Therefore, inlet water temperatures especially the hot, should be relatively constant.



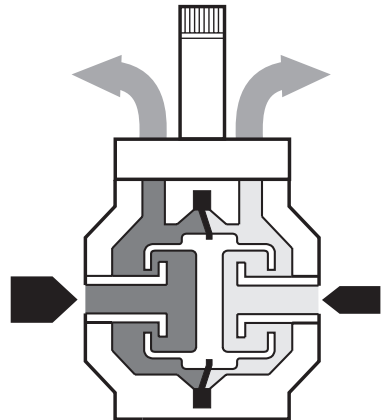
Equal Hot and Cold Pressure
The diaphragm is in the centre.



Cold Water Pressure Loss
Diaphragm moves to close hot inlet.



Low Hot and High Cold Pressure
Diaphragm deflects towards hot inlet
and restricts cold entry.



High Hot and Low Cold Pressure
Diaphragm deflects towards cold inlet
and restricts hot entry.

FAULT DIAGNOSIS

Mira 415 shower controls are fully performance tested after assembly. In the unlikely event that you experience problems with your shower, the following procedure will enable you to undertake basic fault finding before contacting the person responsible for installing your shower.

Key for applicability column

A - Gas heated showers.

B - Unvented mains pressure showers.

C - Mains pressurised, instantaneous hot water, heated from thermal store showers.

Malfunction	Cause	Remedy	A	B	C
Shower insufficiently hot.	(a) Maximum temperature incorrectly set	Reset adjustable maximum temperature.	✓	✓	✓
	(b) Heater not set on maximum hot	Consult heater manufacturers water output instructions.	✓		
	(c) Flow rate still too high.	Fit 9 l/min flow regulator between shower control and hose.		✓	✓
Wide temperature fluctuations from shower when no other draw-off is being made.	Supply temperature variations to shower, especially hot water, caused by the heater appliance cycling on and off, due to insufficient flow rate, insufficient water pressure or heater not fully modulating.	(a) Increase supply pipe sizes to premises.	✓		
		(b) Adjust heater throttle valve to increase flow and prevent heater cycling.	✓		
		(c) Contact your installer.	✓		
		(d) See also "Shower insufficiently hot".	✓		

Malfunction	Cause	Remedy	A	B	C
Shower pattern collapses when another hot tap is turned on.	The heater is not capable of supplying several outlets at the same time.	Reduce the simultaneous demand.	✓		✓
Shower pattern collapses when another cold tap is turned on.	(a) Property water supply pipe partially blocked or undersized.	Contact the Water Undertakers or your installer.	✓	✓	✓
	(b) Property stop or servicing valve not fully open.	Open valve.	✓	✓	✓
	(c) Insufficient mains cold water pressure	Contact the Water Undertakers or your installer.	✓	✓	✓
Shower control operating sequence is "off, hot, cool".	Hot and cold water supplies have been connected in reverse.	Refer to the section "Reversed Connections" appearing earlier in this guide.	✓	✓	✓
Shower insufficiently hot without pressing red button and rotating further.	Adjustable maximum temperature incorrectly set.	Refer to the section "Adjustable maximum temperature setting" appearing earlier in this guide.	✓	✓	✓
Shower control "drums" whilst in use.	Supply pressure in excess of 5 bar maintained.	Fit pressure reducing valve. Refer to the section "Installation Notes".	✓	✓	✓
Shower control "thumps" when another tap is suddenly turned off.	Inlet check valve faulty.	(a) Remove cartridge and if possible clear obstruction in check valve	✓	✓	✓
		(b) Renew cartridge.	✓	✓	✓

Malfunction	Cause	Remedy	A	B	C
Shower force too strong.	High pressure supplies.	Fit 9 l/m flow regulator.		✓	✓
No hot water available	(a) Heater appliance not igniting.	Insufficient mains pressure.	✓		
	(b) Property stop hot or cold isolating valve not fully open.	Open valve.	✓	✓	✓
	(c) Hot water run out.	Wait until reheated.		✓	✓
Shower starts warm and then runs cool.	(a) Insufficient flow rate.	Refer to “Wide temperature fluctuations”.	✓		
	(b) Hot water supply temperature dropped.	Wait for hot water to reheat.		✓	✓
Shower control cannot be shut off.	(a) Pipework not flushed before connecting shower control. (Internal ‘O’ seals damaged).	Renew cartridge	✓	✓	✓
	(b) Hub incorrectly fitted when renewing cartridge.	Refit hub. Refer to the section “Cartridge renewal”.	✓	✓	✓
	(c) External ‘O’ seals damaged.	Renew ‘O’ seals with Service Pack.	✓	✓	✓
No flow or low flow from shower head.	(a) Supply stop valve turned down or off.	Turn on.	✓	✓	✓
	(b) Hose or handset blocked.	Clear blockage renew hose or handset.	✓	✓	✓
	(c) Spray plate blocked.	Remove and clean.	✓	✓	✓

MAINTENANCE

Mira products are precision engineered to provide satisfactory performance provided they are installed and operated in accordance with our recommendations contained in this guide.

The shower control is designed for the minimum of maintenance in normal domestic use. If a malfunction occurs then this will probably necessitate a complete cartridge replacement.

The cartridge contains no internally serviceable parts.

When installed in very hard water areas (above 200 p.p.m. temporary hardness) your installer may advise the installation of a water treatment device to reduce the effects of limescale formation in the heating appliance and spray plates.

You may, if you wish, choose to engage the services of a Mira Service Engineer or Agent the terms of which are outlined on the back page of this guide.

WARNING! – Cleaning

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

Light golden colour finish is softer than chromium finish and its abrasive resistance much less. When cleaning or using tools during maintenance extra care must be taken.

Component Interchangeability

Some parts of the latest Mira 415 are not interchangeable with earlier models of the Mira range.

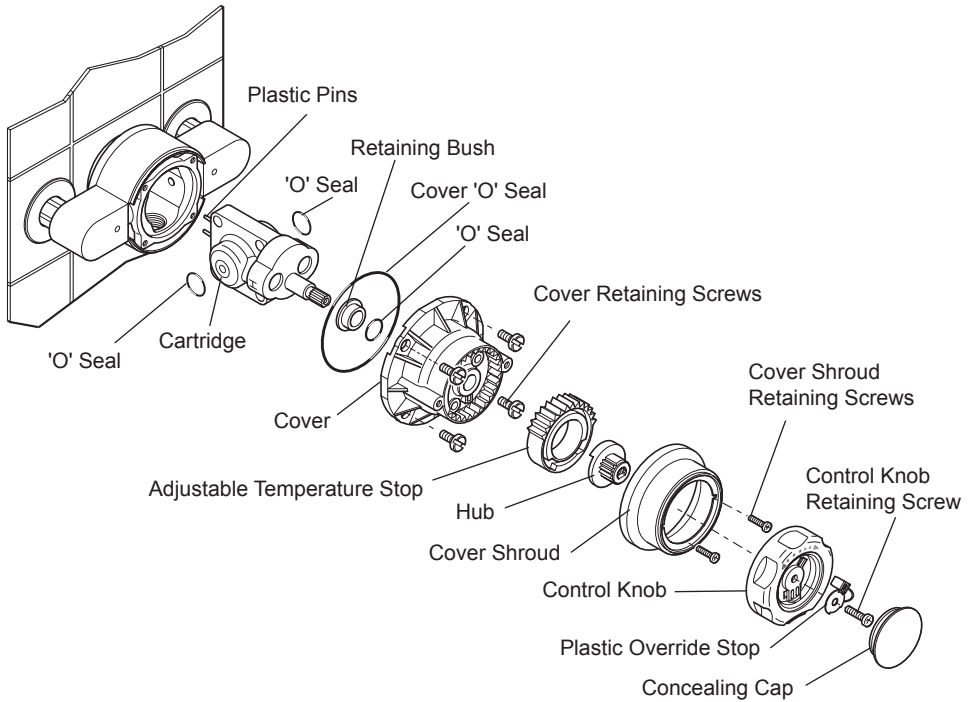
Cartridge Renewal

Should the cartridge require renewal then the following procedure should be followed:-

Important - use only silicone based lubricants when re-assembling.

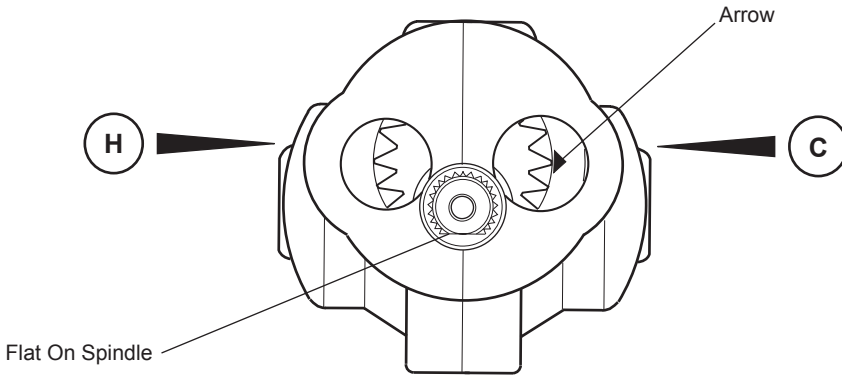
- 1.** Isolate water supplies and turn on shower hose to relieve pressure.
Prise off concealing cap, remove control knob retaining screw/plastic override stop and control knob.
- 2.** Remove the two shroud retaining screws, cover shroud and adjustable temperature stop.
Please ensure that the original face of the adjustable temperature stop is visible after adjustment.
Remove the hub.

3. Undo the four cover retaining screws and remove cover. (A quantity of water will be discharged).
4. Pull the pressure balancing cartridge from the shower control body.



5. The new cartridge is marked "H" for Hot, "C" for Cold.
6. Identify which is the hot inlet of the shower control and fit the cartridge accordingly.
Ensure that the two cartridge inlet seals are correctly located.
7. Fit the cartridge into the cover. Make sure that the arrow on the end face of the cartridge points to the letter "C" (refer to diagram).
Note the one-way cartridge location feature in the cover.
8. Push the cartridge back fully into shower control body. Ensure the two plastic pins locate in the brass body recess before securing cover with cover retaining screws.
9. Ensure that the cover "O" seal is correctly located into the cover.
10. Refit the cover and secure with the four cover retaining screws. Make sure that the flat on the spindle is lowermost (refer to diagram).
11. Apply adequate pressure to engage the hub onto the spindle.

12. Turn on water supplies, check for any leaks.
13. Temporarily fit the control knob (with the override button at the bottom). Rotate the control knob anti-clockwise until the desired temperature is achieved. Note the final position of the override button. e.g. 11 O' clock. Rotate the control knob to the "off" position.
14. The maximum temperature will now require to be reset following the procedure "**Adjustable Maximum Temperature Setting**".



End View Of Cartridge

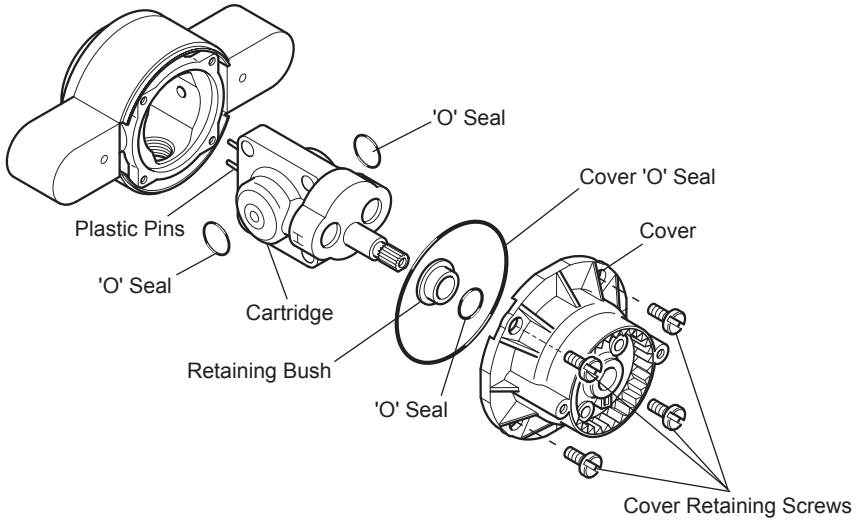
'O' Seal Renewal

Should the 'O' seals require renewing then the following procedure should be followed:-

Important - use only silicone based lubricants when re-assembling.

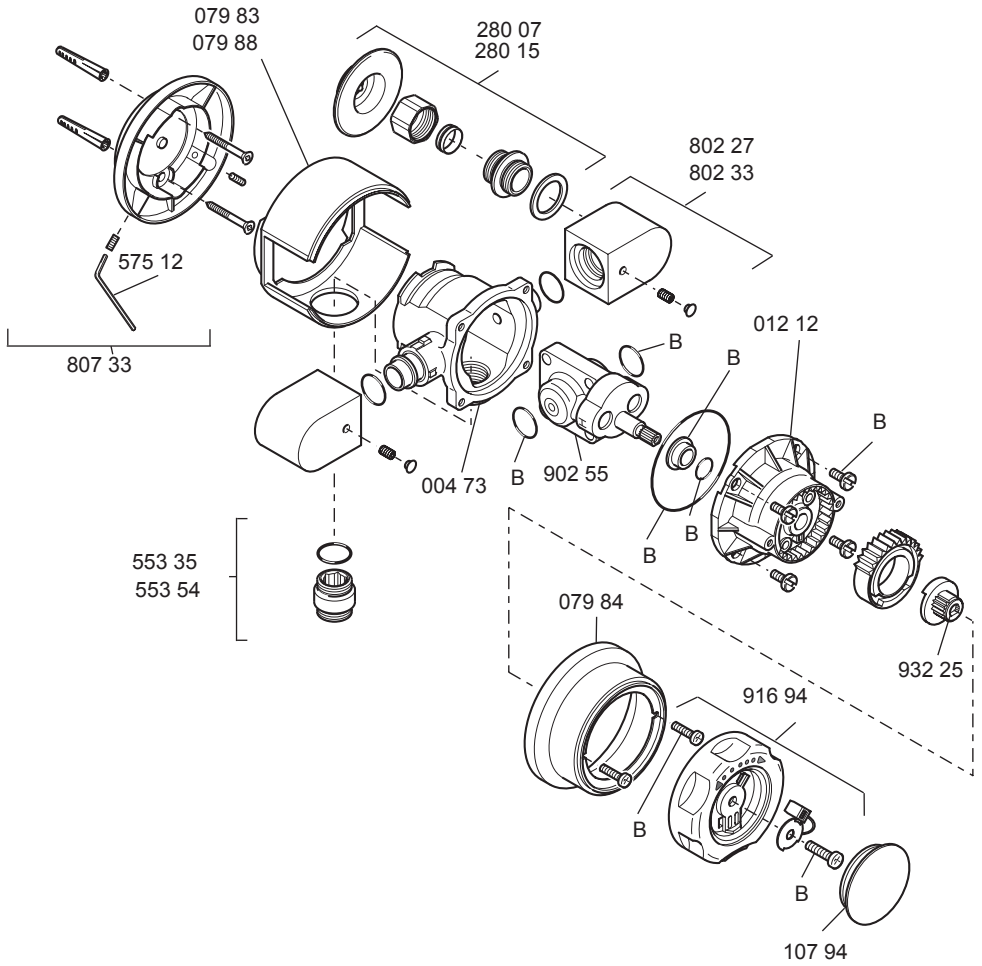
1. Follow the procedure detailed in the section "**Cartridge renewal**": **instructions 1 to 4** to dismantle the shower control.
2. Check the 'O' seals on the cartridge hot and cold inlets for any signs of damage and renew if necessary.
3. Push the cartridge fully into the shower control body. Ensure the two plastic pins locate in the brass body recess.

4. Check the cartridge spindle 'O' seal (fitted in the cover) for signs of damage and renew if necessary. Fit the spindle 'O' seal and retaining bush into the cover.
5. Check the cover 'O' seal for signs of damage and renew if necessary.
6. Follow the procedure detailed in the section "**Cartridge renewal**": instructions 9 to 15 to re-assemble the shower control.

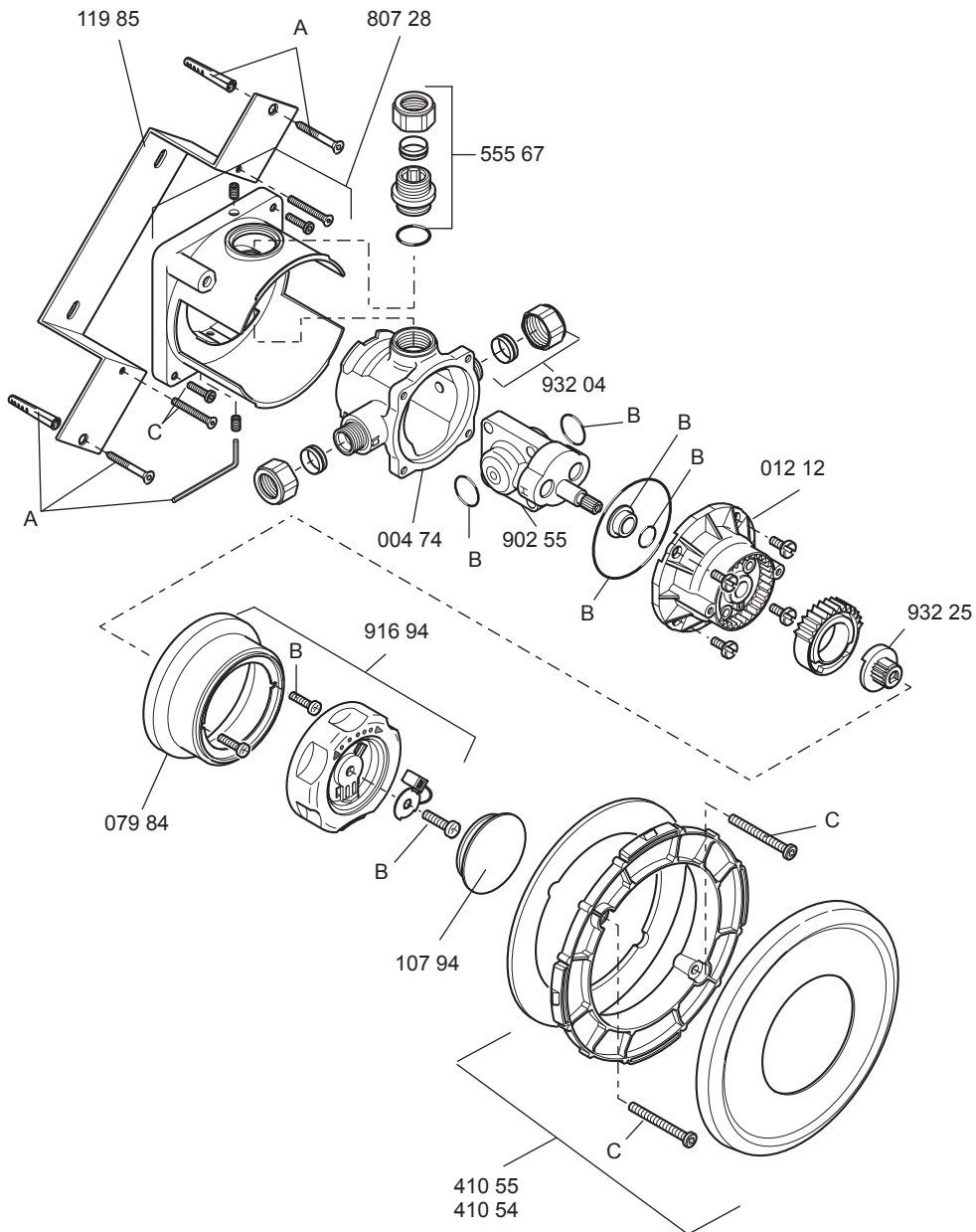


SPARE PARTS

004 73	Body
004 74	Body – (415B)
012 12	Cover
410 55	Concealing Plate – light golden
410 54	Concealing Plate – chrome
079 83	Body Shroud – chrome
079 88	Body Shroud – light golden
079 84	Cover Shroud
107 94	Name Plate
119 85	Wall Mounting Bracket (415B)
280 07	Inlet Compression Fitting - chrome
280 15	Inlet Compression Fitting - light golden
553 35	Outlet Nipple Assy – chrome
553 54	Outlet Nipple Assy – light golden
555 67	Outlet Nipple – (415B)
575 12	2.5mm Hexagon Wrench
802 27	Inlet Elbow Assembly – chrome
802 33	Inlet Elbow Assembly – light golden
807 28	Backplate Assembly – (415B) - components identified 'A'
807 33	Backplate Assembly
902 55	Cartridge Assembly
916 94	Control Knob Assembly
932 04	Inlet CompressionFitting (415B)
932 25	Hub Pack
936 22	Seal Pack - components identified 'B'
937 59	Screw Pack (415B) - components identified 'C'

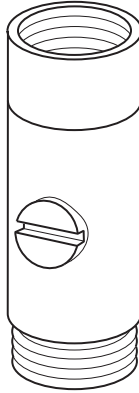


415B



ACCESSORIES

DCV-H: An outlet double check valve, requiring a minimum inlet supply pressure of 0.5 bar, which has been designed to prevent the backflow or backsiphonage of potentially contaminated water, through shower controls which are fitted with a flexible hose as part of the outlet shower fitting. Its correct fitting will ensure compliance with Byelaw 17. Available as an optional accessory from your Mira stockists.



DCV-H Outlet double check valve

NOTES

NOTES

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.

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 persons not authorised by Mira Showers or our approved agents.

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

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 Team who will give every assistance and, if necessary, arrange for our service engineer to visit. If the performance of your shower declines, consult this manual to see whether simple home maintenance is required. Please call our Customer Services Team to talk the difficulty through, request a 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 provide support throughout the product's expected life.

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.

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

Note! Returned spares will be subject to a 15% restocking charge and authorisation must be obtained before return. Please contact our Customer Services Team.

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 spare parts and a 12 month guarantee on the repair.

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

To Contact Us

England, Scotland, Wales and Northern Ireland

Mira Showers Customer Services

Telephone: 0870 241 0888, Mon to Fri 8:00 am - 5:30 pm
Sat 8:30 am - 3:30 pm

E-mail: technical@mirashowers.com

Fax: 01242 282595

By Post: Cromwell Road, Cheltenham,
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Eire

Modern Plant Ltd (Dublin)

Telephone: 01 459 1344, Mon to Fri 9:00 am - 5:00 pm

E-mail: sales@modernplant.ie

Fax: Dublin 01 459 2329

Post: Otter House, Naas Road,
Clondalkin, Dublin 22

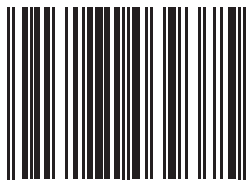
Modern Plant (Cork)

Telephone: 021 496 8755, Mon to Fri 9:00 am - 5:00 pm

E-mail: cork@modernplant.ie

Fax: 021 496 8607

Post: Tramore Road, Cork



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