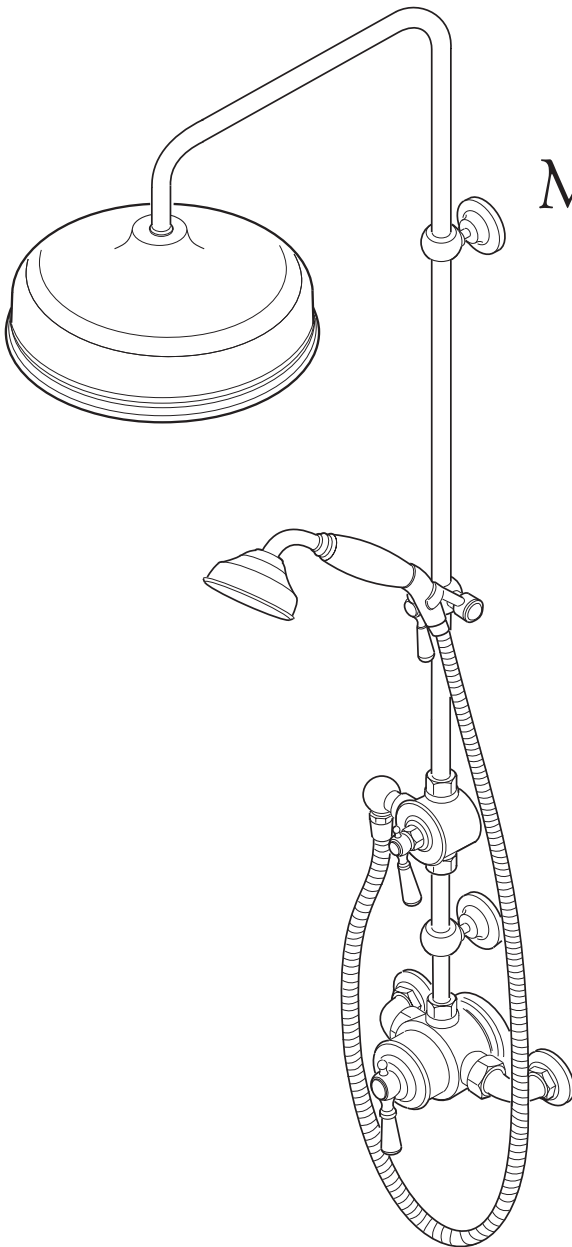


mira

Montpellier



SHOWER CONTROL

Installation

Operation &

Maintenance Guide

THESE INSTRUCTIONS ARE TO BE LEFT WITH THE USER

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

SAFETY : WARNINGS

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

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

ADVICE

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

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

Malfunction of thermostatic mixing valves is almost always progressive in nature and will be detected by the use of proper temperature checking and maintenance routines.

Certain types of system can result in the thermostatic mixing valve having excessive 'dead-legs' of pipework. Others allow an auxiliary cold water supply to be added to the mixed water from the mixing valve. Such systems can disguise the onset of thermostatic mixing valve malfunction.

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

INTRODUCTION

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.

Mira Montpellier Thermostatic showers are specified to meet the highest standards of safety, comfort and economy as demanded by today's users. All Mira Montpellier products are designed, manufactured and supported in accordance with accredited BS EN ISO 9001:1994 Quality Systems.

This Manual covers all Mira Montpellier Thermostatic showers manufactured from August 2000.

The Mira Montpellier thermostatic shower has been certified for use in UK Healthcare premises as a Type 3 mixing valve under the TMV3 scheme. Where this product is to be used in such an installation, particular Application, Installation, Commissioning and Maintenance requirements apply. These are given in the section 'Type 3 Valves'.

The Mira Montpellier thermostatic mixing valve is approved for the following TMV3 designations:

LP-S, HP-S

DESCRIPTION

The Mira Montpellier thermostatic shower provides accurate temperature control and flow rates to single installations only.

The Mira Montpellier has two showering options that can be selected via the flow diverter;

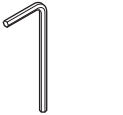
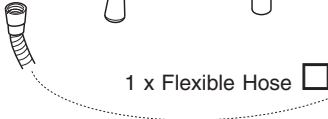
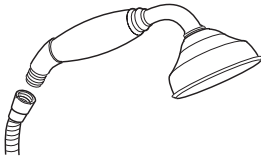
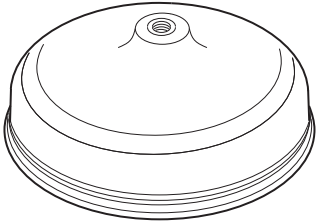
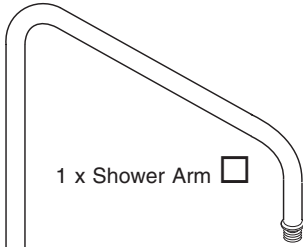
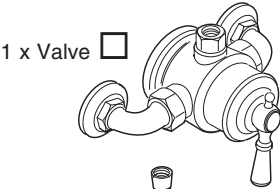
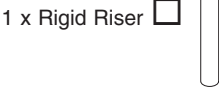
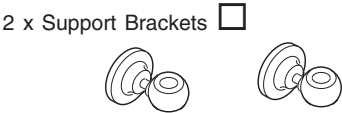
Option 1 - Water is diverted through the fixed head, which is available in a number of sizes to suit the particular application.

Option 2 - Water is diverted through the flexible shower fittings.

Note! The Mira Montpellier has not been designed to use both showering options at the same time.

PACK CONTENTS

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



Documentation

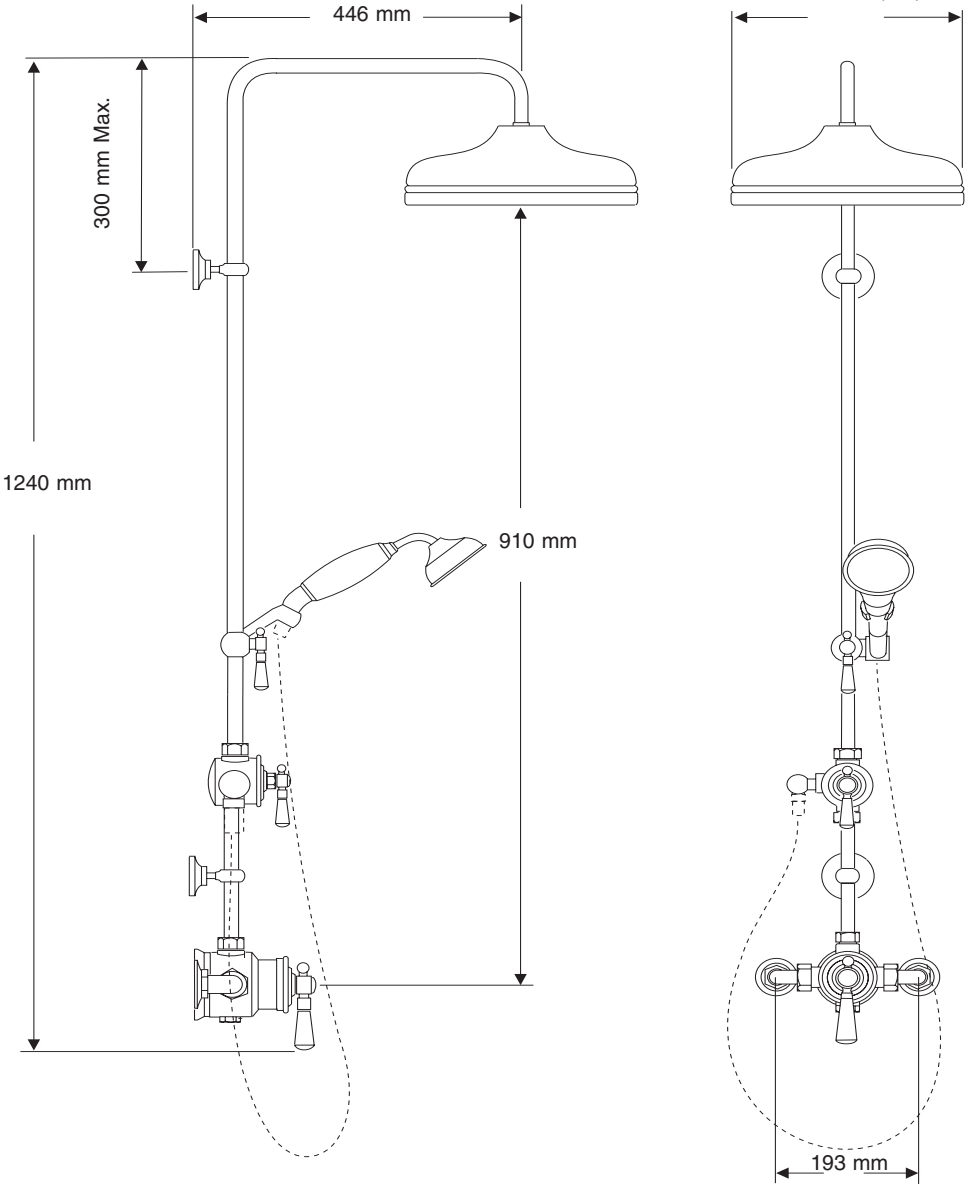
- 1 x Installation, Operation and Maintenance Guide
- 1 x Customer Support Brochure



DIMENSIONS

All dimensions are nominal and in mm

152 mm (6")
203 mm (8")
305 mm (12")



SPECIFICATION

Normal Operating Conditions are considered as:

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

Disinfectants

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

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

Operating Parameters

For type 3 valves the supply conditions specified in **Type 3 Valves-Applications** take precedence over the operating parameters which follow.

Pressures And Flow Rates

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

Maximum Pressure Loss Ratio: **10:1**

Maximum Static Pressure: **10 bar.**

Montpellier Product with 6" Rose

Minimum Maintained Pressure: **0.2 bar** (= 2 metre head)

Maximum Maintained Pressure: **5.0 bar**

Montpellier Product with 8" Rose

Minimum Maintained Pressure: **0.2 bar** (= 2 metre head)

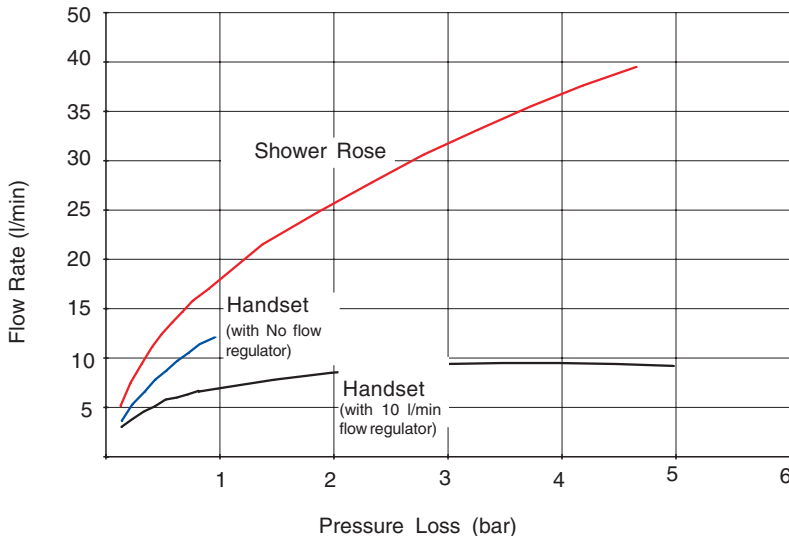
Maximum Maintained Pressure: **5.0 bar**

Montpellier Product with 12" Rose (not suitable for use with instantaneous water heaters)

Minimum Maintained Pressure: **0.5 bar** (= 5 metre head)

Maximum Maintained Pressure: **5.0 bar**

Flow Rates



Temperature Control

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

Optimum temperature control range: **35 - 45°C**

Maximum hot water temperature: **85°C** (for safety, a recommended hot water storage temperature maintained below 85°C and for ablutionary installations at between 60 to 65°C).

The performance specification outlined below is achieved with outlet blend temperature set between 35 - 45°C and supplies of 15°C cold and 65°C hot with nominally equal pressures.

- Outlet blend temperature is maintained within 2°C with a 10°C change in hot or cold supply.
- Thermostatic shut down to seepage within 2 seconds if cold supply fails. This is achieved only if the hot supply temperature is 10°C above the set outlet blend temperature.









Connections

Montpellier: Inlet connectors are 22 mm compression. Outlet connector is 3/4" BSP Male or 19 mm compression.

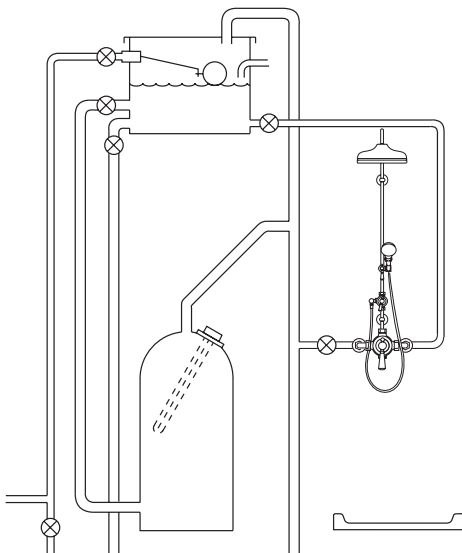
Standard connections are: Hot (H) and Cold (C) inlets are clearly marked on the base of the mixer and must be connected this way.

INSTALLATION REQUIREMENTS

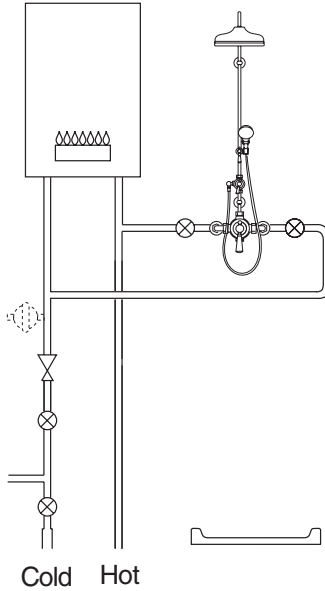
Key to Symbols

-  Isolating Valve
-  Mixing Valve
-  Overflow
-  Pressure Reducing Valve
-  Twin Impeller Pump
-  Single Impeller Pump
-  Tempering Valve
-  Mini Expansion Vessel

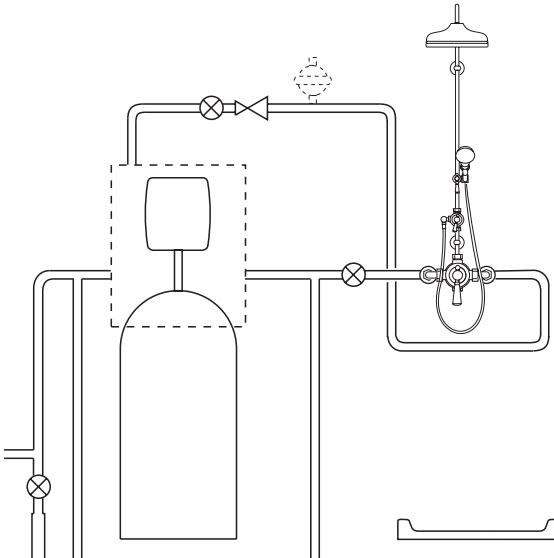
Gravity Fed Shower - The shower **MUST** be fed from a cold water cistern and hot water cylinder providing nominally equal pressure.



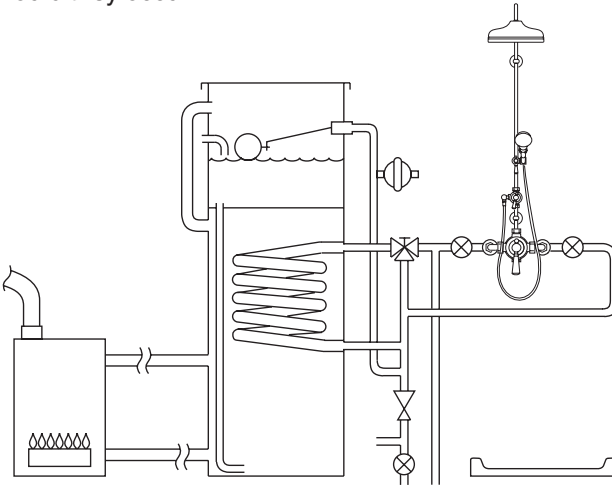
Gas Heated Shower - The shower **MUST** be installed with a gas water heater or combination boiler of a **fully modulating** design. A modulating boiler is one that the draw off rate is indirectly controlling the gas flow to the boiler, producing a relatively constant hot water temperature (only suitable for products with 6” and 8” roses).



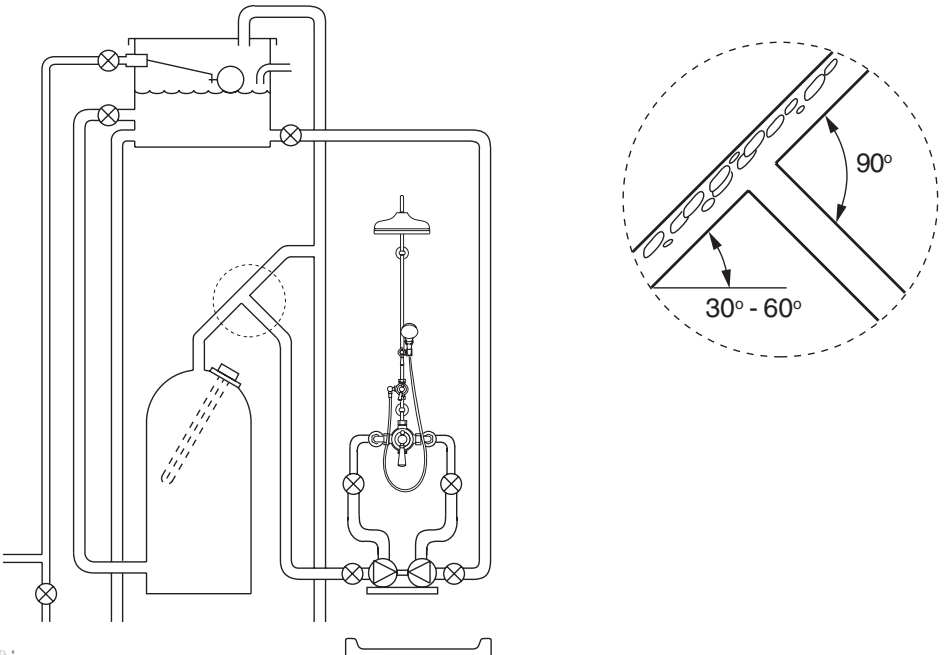
Unvented Mains Pressure Shower - The shower can be installed with a unvented, stored hot water cylinder. Only “a competent person” as defined by the Building Regulations may fit this type of system.



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



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



INSTALLATION

General

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

1. Before commencing, ensure that the installation conditions comply with the information given in **SPECIFICATION**. For Type 3 valves see also Installation conditions in TYPE 3 VALVES.
2. Care must be taken during installation to prevent any risk of injury or damage.
3. The mixing valve should be positioned for easy access during use and maintenance. All routine maintenance procedures can be conducted with the mixing valve body in place.
4. Conveniently situated isolating valves must be provided for maintenance.
5. The use of supply-line or zone strainers will reduce the need to remove debris at each mixing valve point. The recommended maximum mesh aperture dimension for such strainers is 0.5 mm.
6. Inlet pressure tappings which allow measurement of the inlet pressures to the mixing valve under operating conditions are particularly recommended for healthcare applications with Type 3 valves.
7. Pipework must be rigidly supported.
8. Pipework dead-legs should be kept to a minimum.
9. Supply pipework layout should be arranged to minimise the effect of other outlet usage upon the dynamic pressures at the mixing valve inlets.
10. Inlet and outlet threaded joint connections should be made with PTFE tape or liquid sealant. Do not use oil-based, non-setting jointing compounds.
11. To eliminate pipe debris it is essential that supply pipes are thoroughly flushed through before connection to the mixing valve.

Note! Adequate protection against backflow in a domestic installation is provided by the integral inlet check valves and the check valve on the diverter outlet for the variable shower head.

Installation

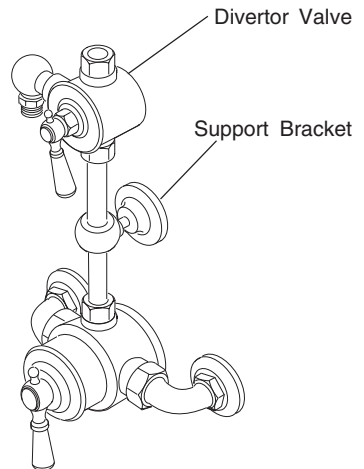
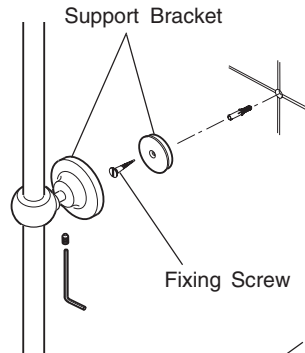
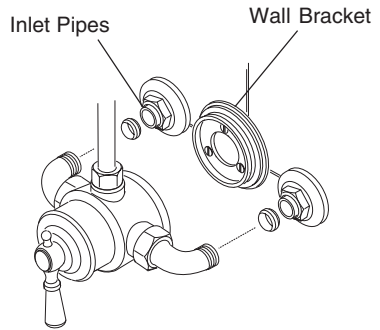
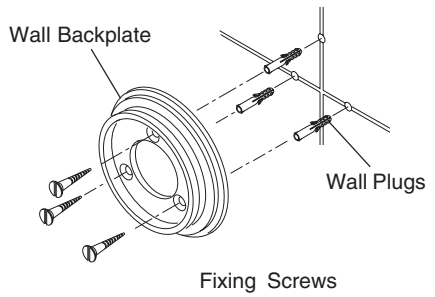
1. Decide on a suitable position for the mixer and the shower rose where all users can operate it.

Note! longer riser pipe is not available.

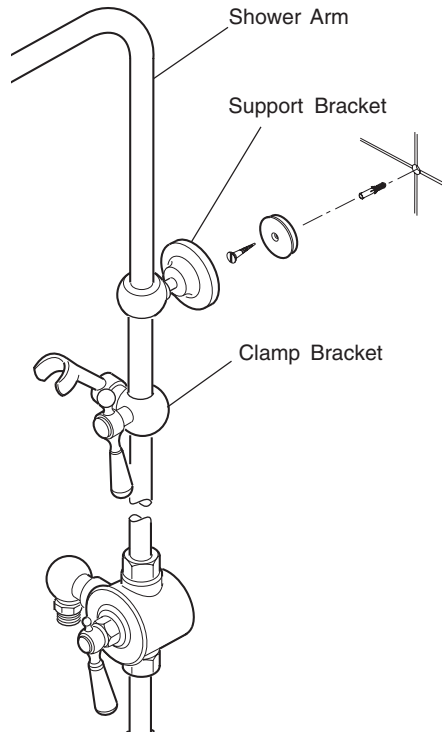
2. Remove wall backplate from rear of mixer by loosening grub screw with hexagon key (supplied) on the underside of mixer.
3. Use backplate to mark 3 hole positions. Drill wall and insert wall plugs (supplied).
4. Locate inlet nuts, plates and olives flush against the wall. Locate valve on inlet pipes (the inlet pipes must protrude a maximum of 18.5 mm from the finished wall surface) and wall backplate. Inlet nuts must be tightened whilst doing this to pull the valve onto the backplate. Use the hexagon key (supplied) to tighten grub screw on the underside of the mixer.

5. Loosely assemble the shorter piece of riser pipe to the valve body with the support bracket fitted. Make sure that the riser pipe is vertical and mark the position of the fixing hole.
6. Drill and insert wall plug (supplied).
7. Assemble the riser pipe and fix support bracket to the shower valve.
8. Install the diverter valve onto the riser pipe.

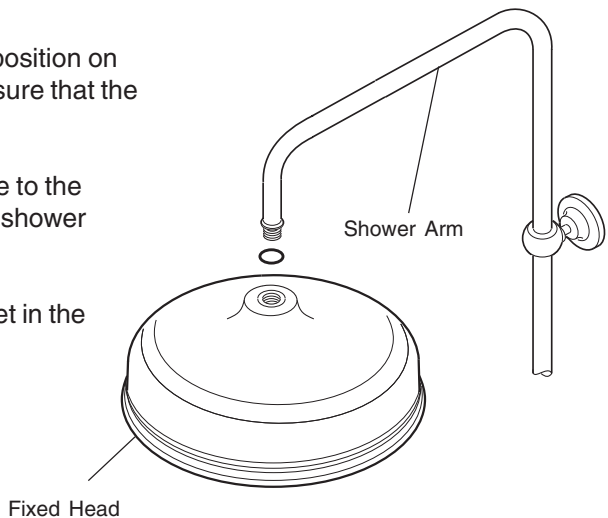
Note! The diverter valve must be fitted with its outlet connection on the left, otherwise restricted flow will occur.



9. Install the shower arm with the clamp bracket and support bracket fitted into the diverter valve. Make sure that the riser arm is vertical and mark the position of the support bracket.
10. Drill and insert suitable wall plug.
11. Assemble the shower arm to the diverter valve.
12. Tighten all the connections, taking care not to damage the plated surfaces.



13. Install the fixed head in position on the shower arm making sure that the 'O' seal is fitted.
14. Connect the flexible hose to the diverter valve and to the shower handset.
15. Place the shower handset in the clamp bracket.



COMMISSIONING

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

Exercising the Thermostat

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

A simple way to provide this exercise is:

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

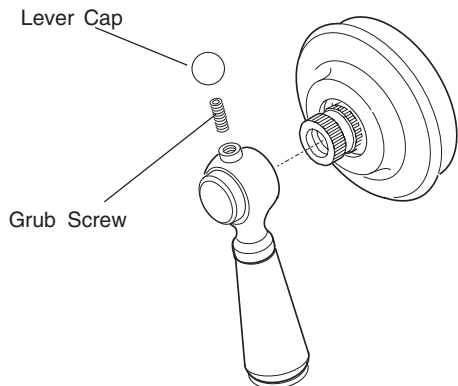
Maximum Temperature

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

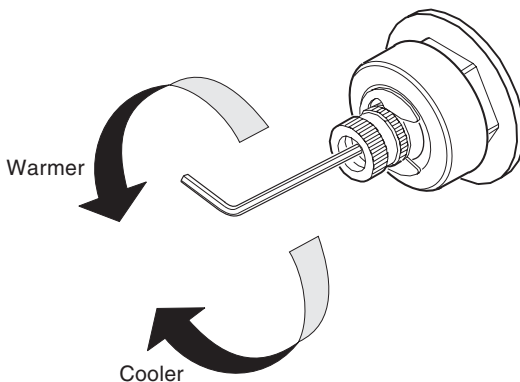
All Mira Thermostatic mixing valves are fully performance tested and the maximum temperature is preset to approximately 43°C under ideal installation conditions at the factory.

Site conditions and personal preference may dictate that the maximum temperature has to be reset following installation. For Type 3 valves in healthcare installations the maximum blend temperature is determined by the application - see Table under **SPECIFICATION, Application and Designation Information for Type 3 Valves.**

1. Remove the lever cap and remove the grub screw in the top of the shower control lever with the with a 2.5mm hexagon key (supplied).
2. Turn shower lever anticlockwise to maximum setting. Let the temperature stabilise.
3. If the temperature measured needs to be adjusted



4. Remove the shower control lever, insert the 2.5mm hexagon key into the centre of valve head.
5. Turn the hexagon key **anticlockwise** to **increase** the temperature, or **clockwise** to **decrease** temperature.
6. Refit shower control lever and turn off the shower valve.



Commissioning Checks

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

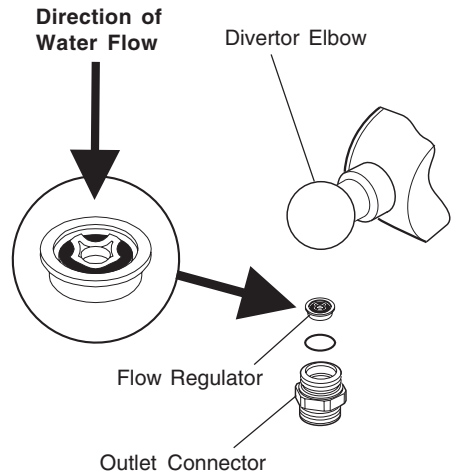
1. Check inlet pipework temperatures for correct function of checkvalves i.e. that hot water does not cross flow into the cold water supply and vice versa.
2. Check that the supply pressures are within the range of operating pressures for the valve.
3. All connections and the mixer body are water tight.
4. Exercise the thermostat.
 - a) ensure that the hot and cold water are available at the valve inlets, and the outlet is open.
 - b) Move the temperature control rapidly from cold to hot and hot back to cold several times, pausing at each extreme.
5. Adjust the temperature of the mixed water in accordance with the instructions (refer to **Maximum Temperature Setting**). For type 3 valves refer to the table under Application in TYPE 3 VALVES.
6. Operate the outlet flow control and check:
 - (a) Flow rate is sufficient for purpose.
 - (b) Temperature(s) obtainable are acceptable.

It is advisable to establish a performance check at this time, which should be noted for future reference as part of a Planned Maintenance Programme. The procedure should be chosen to imitate both typical and difficult operating conditions, such as any supply pressure fluctuations that may be likely. An ideal method is to locate another outlet on the common cold water supply close to the mixing valve (operating this outlet should cause a drop in supply pressure), and note the subsequent effect on blend temperature (should be no more than 2°C change).

Divertor Elbow Outlet Connector

For installations where the force of the spray from the handset is excessive or where water conservancy is an issue, the 10 litre/minute flow regulator supplied should be fitted to the outlet connector (divertor elbow).

1. Unscrew the outlet connector.
2. Fit the flow regulator to the outlet connector. Ensure the regulator is fitted as illustrated.
3. Ensure the 'O' seal is fitted in place on the outlet connector.
4. Refit the outlet connector.



OPERATION

Temperature Selection

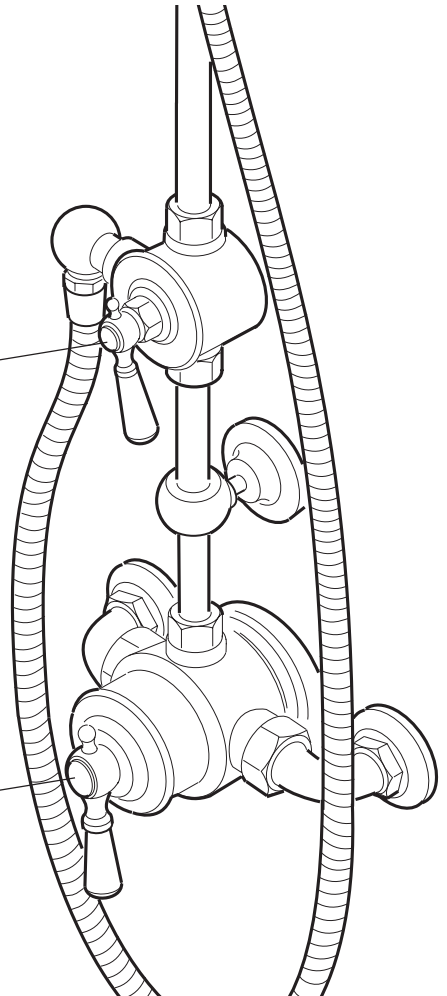
The shower valve has one control to set temperature and works in a sequence:

Off → Cold → Tepid → Pre-set Maximum

The Mira Montpellier is fitted with a flow diverter which controls the flow of water to either the fixed shower head or the flexible shower fitting. It is not designed for both shower options to be used at the same time.

Flow Divertor
(Moving the lever controls
the flow to the fixed head or
flexible shower fitting)

Shower Valve
(Moving the lever controls
the temperature)



FAULT DIAGNOSIS

Symptom	Cause/Rectification
<p>1. Only hot or cold water from mixer outlet.</p>	<ul style="list-style-type: none"> a. Inlet supplies reversed (hot supply to cold supply). b. No hot or cold water reaching mixer. c. Check strainers and inlet/outlet fittings for blockage. d. Installation conditions continuously outside operating parameters: refer to SPECIFICATION, and 2.e. below.
<p>2. Fluctuating or reduced flow rate.</p>	<p>Normal function of the thermostatic control when operating conditions are unsatisfactory;</p> <ul style="list-style-type: none"> a. Check strainers and inlet/outlet fittings for blockage. b. Make sure minimum flow rate is sufficient for supply conditions. c. Make sure the maintained inlet pressures are nominally balanced and sufficient. d. Make sure the inlet temperatures differentials are sufficient. e. (Subsequent to rectification of supply conditions) Check thermostatic performance; renew Piston Assembly if necessary.
<p>3. No flow rate from mixer outlet.</p>	<ul style="list-style-type: none"> a. Check strainers and inlet/outlet fittings for blockage. b. Hot or cold supply failure.
<p>4. Blend temperature drift.</p>	<p>Indicates operating conditions changed.</p> <ul style="list-style-type: none"> a. Refer to symptom 2. above. b. Hot supply temperature fluctuation. c. Supply pressures fluctuating. d. Seal damage or wear. Renew seals.
<p>5. Maximum blend temperature setting too hot or too cold.</p>	<ul style="list-style-type: none"> a. Indicates incorrect maximum temperature setting; refer to COMMISSIONING section. b. As symptom 4. above.

Symptom	Cause/Rectification
<p>6. Water leaking from mixer body.</p>	<p>Seal wear or damage. a. Obtain Seal Kit, renew all seals.</p>
<p>7. Flow rate too high or too low.</p>	<p>a. (Too low) Refer to symptom 2.a-e. b. (Too low) Insufficient supply pressures. c. (Too high) Supply pressure too high. d. (Too high) Refer to symptom 2.e.</p>

MAINTENANCE

General

Mira products are precision-engineered and should give continued superior and safe performance, provided:

1. They are installed, commissioned, operated and maintained in accordance with the recommendations stated in this Product Manual.
2. Periodic attention is given as necessary to maintain the product and its associated installation components in good functional order. Guidelines for frequency are given below.

The principle functional parts affecting the ability of the valve to supply safe mixed water temperatures are contained in a cartridge. The designed minimum service life of this cartridge is five years under normal operating conditions. However, when supply conditions and/or usage patterns do not conform to 'normal operating conditions' the cartridge should be replaced more frequently (**refer to normal operating conditions**).

In all cases where users are deemed at risk, irrespective of supply or usage conditions or the evidence of any performance checks, the cartridge should be replaced at intervals of no more than three years.

It is recommended that the user maintains a log of all periodic performance checks, which, for Type 3 valves in healthcare installations, should consist of the in-service tests shown in **Figure 6** (page 31), together with a record of any service work carried out and cartridge exchange details.

The use of main supply-line or zone strainers (recommended maximum mesh aperture dimension is 0.5 mm) will reduce the need to remove debris at each mixing valve point.

Planned Maintenance Programmes

(Preventative/Precautionary Maintenance)

The frequency and extent of attention required will vary according to prevailing site and operational conditions. In applications (such as non-healthcare) where the risks to the user are too slight to justify the full in-service test procedure and maintenance logging process, the procedure under Performance check is suggested to cover average duty and site conditions.

1. In all other cases it is recommended that a routine of preventative maintenance be employed which is based upon assessment of the risks to the user. The following practices are intended to support such a routine:
 - In-service tests
 - Regular temperature checking in between In-service tests
 - Maintenance of a log of In-service tests and temperature checks together with details of critical parts replacements and any other service work.

2. Thermostatic mixing valves only operate correctly when all components have been serviced and have been tested for correct performance. If any component is faulty, including the thermostat the valve will not operate correctly and could allow full hot water to pass through the valve.
3. As with all other thermostatic mixing valves, the critical sensing element in the Mira Crescent together with other “critical components” are contained within the service free cartridge and will exhibit wear over a period of time and usage.

Thermostatic Mixing Valve Performance Records (Log Book)

It is recommended that the user maintains a log of the in-service tests described herein, together with a record of any service work carried out and the replacement of critical components. It is also recommended that any maintenance personnel sign the user log in respect of all thermostatic mixing valves examined on each attendance at the user's premises. **Refer to 'Recommended content of Maintenance Log' on page 30.**

The designed minimum service life of cartridges used in all Mira products is 5 years providing the Mira Montpellier is operated with the recommended operating conditions and within the recommended operating parameters. However, when supply conditions and/or usage patterns do not conform to the recommended operating parameters and/or the recommended operating conditions, the cartridge and other critical parts may need to be replaced more frequently ('recommended operating conditions' and 'recommended parameters' are defined on page 7 of this Product Manual under the headings of '**Normal Operating Conditions**' and '**Operating Parameters**').

Important! In healthcare applications such as hospitals, aged person facilities, residential care homes, etc. and in any other applications where the user is similarly at risk, irrespective of supply and usage conditions or the evidence of in-service tests, the critical components should be replaced at intervals of no more than 3 years.

Performance Check

Six Monthly

Exercising the Thermostat: If the valve has not been in regular or recent use the thermostat should be exercised before any other checking. When user adjustment of the blend temperature is available the exercising of the thermostat can be achieved as described in **COMMISSIONING**. For valves with locked temperature control it is necessary to isolate and restore each supply in turn a few times.

Blend Temperature: check for correct blend setting and/or maximum preset temperature. Reset as necessary.

Performance: check blend stability against known datum (e.g. commissioning check) for an induced pressure or flow change. Renew Cartridge when necessary.

Function: check inlet pipework temperature for correct function of checkvalves, and maintain/renew as necessary. Check and clean strainers as appropriate. Lubricate accessible seals when necessary using silicone-only based lubricant.

Lubricants

Important! Use silicone-only based lubricants for seals. Do not use oil based or other lubricant types as rapid deterioration of seals may occur.

Standard silicone-only based lubricants may be used on static seals and threads to assist refitting.

Service Contracts

To ensure your Rada/Mira products function correctly and give continued safe performance Service Contracts can be undertaken (subject to site survey).

All Service Contract work is carried out by fully trained Rada/Mira Service Engineers who carry a comprehensive range of genuine spare parts.

For details on arranging a Service Contract please contact Aftersales/Service.

In-service Tests

The principal means for determining the continuing satisfactory performance of Type 3 mixing valves is the In-service test.

The In-service test procedure is shown in **Figure 6**. This should be carried out at both 6 to 8 weeks and 12 to 15 weeks after commissioning the valve. The results of these tests are used to determine when, after initial commissioning, the in-service test is next repeated.

Frequency of In-service tests

The 'Guide to in-service test frequency' is shown in **Figure 7**. The in-service test results over the first 28 weeks after commissioning determine the ongoing frequency of testing shown in the right hand boxes of the Guide.

Whenever a Cartridge is replaced in a Type 3 mixing valve in a healthcare installation the in-service test frequency should be re-assessed as if it was a new valve.

Note! In-service tests should be carried out with a frequency which identifies a need for service work before an unsafe water temperature can result. The general principle to be observed after the first 2 or 3 in-service tests is that intervals of future tests should be set to those which previous tests have shown can be achieved with no more than a small change in mixed water temperature. But in no case longer than 12 months.

Temperature Testing

Check and record warm water temperature regularly to confirm correct operating performance of the valve. In health care applications such as hospitals, aged persons facility, nursing homes etc. such checks must be made at least every month. More regular temperature checks should be made where increased risks are perceived such as where patients are unable to immediately respond to an increase in water temperature by either shutting the water off or removing themselves from the contact with the water. Records of warm water temperature checks should be included in a log book.

Training

Maintenance personnel should also ensure that the user's staff are aware of the importance of reporting temperature variations and when detected, the variations should be recorded in the log.

Maintenance Procedures

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

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

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

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

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

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

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

Maintenance Procedure - Thermostatic Cartridge

Removal (refer to Figure 3)

1. Isolate the supplies to the shower control, and open the flow control to release pressure and to assist the draining of residual water.
2. Remove the the lever cap and remove the grub screw in the top of the shower control lever with the with a 2.5mm hexagon key (supplied).
3. Remove the shower control lever, valve shield and shield adaptor.
4. Using a suitable spanner, unscrew and remove the thermostatic cartridge.

Warning! Some residual water may be released.

Cleaning/Renewal of Parts

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

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

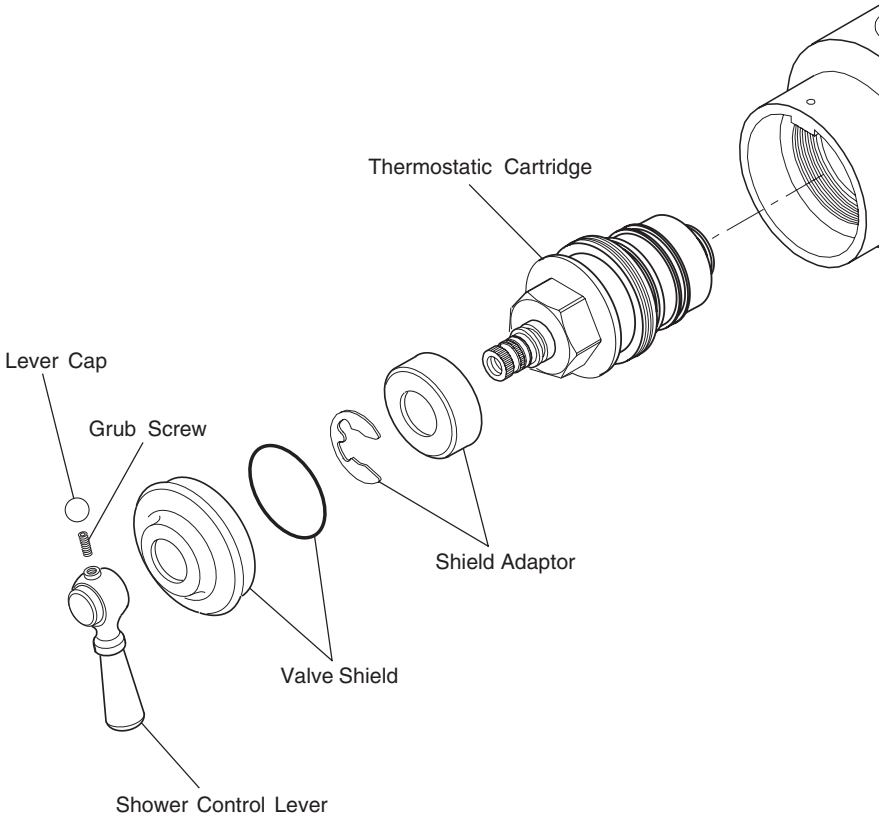
6. Cartridges may only be cleaned by flushing through under a jet of clean water to remove lodged particles. **Do not descale. Cartridges are not serviceable, and must not be dismantled.**

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

7. Examine all accessible seals for signs of deformation or damage, and if necessary renew, taking care not to damage seal grooves (a Service Pack is available, containing all seals).
8. Lightly coat all rubber seals with a **silicone-only based lubricant** to assist reassembly (see **lubricants**).

Reassembly

9. Refit the thermostatic cartridge and tighten using a suitable spanner.
10. Refit the shield adaptor, the valve shield and the shower control lever. Make sure that you install the seal correctly in the shield.
11. Refit the grub screw and tighten with the 2.5 mm hexagon key (supplied). Fit the lever cap.
12. Restore the supplies to the shower control and check for any leaks.
13. The maximum temperature will now need resetting; refer to **COMMISSIONING**.



Maintenance - Thermostatic Cartridge
Figure 3

Maintenance Procedure - Checkvalves

Removal (refer to Figure 4)

1. Isolate the supplies to the shower control, and open the flow control to release pressure and to assist the draining of residual water.
2. Loosen the nut on the inlet elbow to get access to the inlet connector.
3. Remove the inlet connector and the check valve.

Warning! Some residual water may be released.

Cleaning/Renewal of Parts

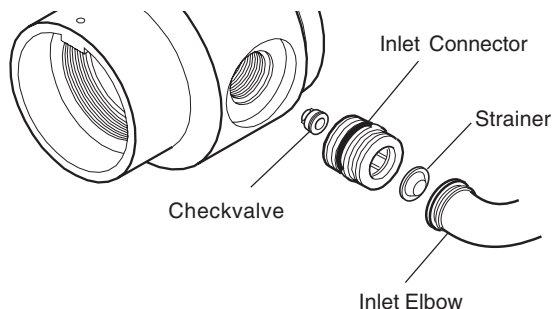
4. The interior surface of the shower control body must be clean before refitting the checkvalve. If scale or deposition is present, clean using a mild proprietary inhibited scale solvent, e.g. domestic kettle descaler. After descaling, rinse body thoroughly in clean water before refitting checkvalves.

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

5. Checkvalves may only be cleaned by flushing through under a jet of clean water to remove lodged particles. **Do not descale.**
6. Examine all accessible seals for signs of deformation or damage, and if necessary renew, taking care not to damage seal grooves (a Service Pack is available, containing all seals and strainer screens that may be necessary for renewal during maintenance or servicing).
7. Lightly coat all rubber seals with a **silicone-only based lubricant** to assist reassembly (see **lubricants**).

Reassembly

8. Refit the checkvalves.
9. Refit the inlet connector.
10. Tighten the nut on the inlet elbow.
11. Restore the supplies to the shower control and check for any leaks.



Maintenance - Checkvalves
Figure 4

Maintenance Procedure - Strainers

Removal (refer to Figure5)

1. Isolate the supplies to the shower control, and open the flow control to release pressure and to assist the draining of residual water.
2. Loosen the nut on the inlet elbow to get access to the inlet connector.
3. Remove the inlet connector and the flow regulator.

Warning! Some residual water may be released.

Cleaning/Renewal of Parts

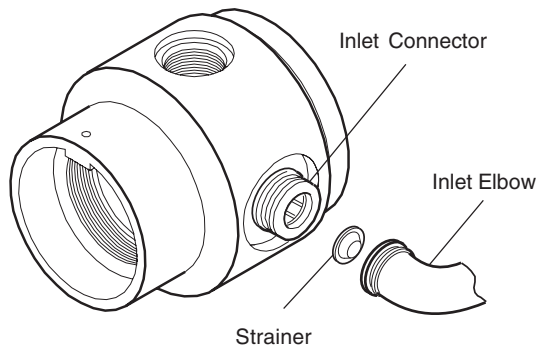
4. The interior surface of the shower control body must be clean before refitting the checkvalve. If scale or deposition is present, clean using a mild proprietary inhibited scale solvent, e.g. domestic kettle descaler. After descaling, rinse body thoroughly in clean water before refitting checkvalves.

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

5. Strainers may only be cleaned by flushing through under a jet of clean water to remove lodged particles. **Do not descale.**
6. Examine all accessible seals for signs of deformation or damage, and if necessary renew, taking care not to damage seal grooves (a Service Pack is available, containing all seals and strainer screens that may be necessary for renewal during maintenance or servicing).
7. Lightly coat all rubber seals with a **silicone-only based lubricant** to assist reassembly (see **lubricants**).

Reassembly

8. Refit the checkvalves.
9. Refit the inlet connector.
10. Tighten the nut on the inlet elbow.
11. Restore the supplies to the shower control and check for any leaks.



Maintenance - Strainers
Figure 5

Recommended Content of Maintenance Log

It is recommended that the Maintenance Log should record the following:

Details of valve, location and use, risk level and instructions

Valve make and model

Valve unique identification number

Valve location

Date installed

Application i.e. type of discharge: bath, shower etc.

Risk assessment report number

Risk level found (e.g. vulnerability of patient)

Frequency of critical component replacement

Frequency of temperature monitoring

Responsibility for temperature monitoring

Location of temperature monitoring records

Source of spares and advice

Issue number of Product Manual (Installation, operating and maintenance instructions).

Details of in-service testing and maintenance

Initial commissioning test data (Supply pressures and temperatures, mixed water temperature, flow rate, result of cold water isolation test, date carried out, signature of maintenance person).

First in-service test due date

First in-service test data (As for initial commissioning)

Details of any remedial work carried out to valve or supply system

Second in-service test due date

Second in-service test data (As for initial commissioning)

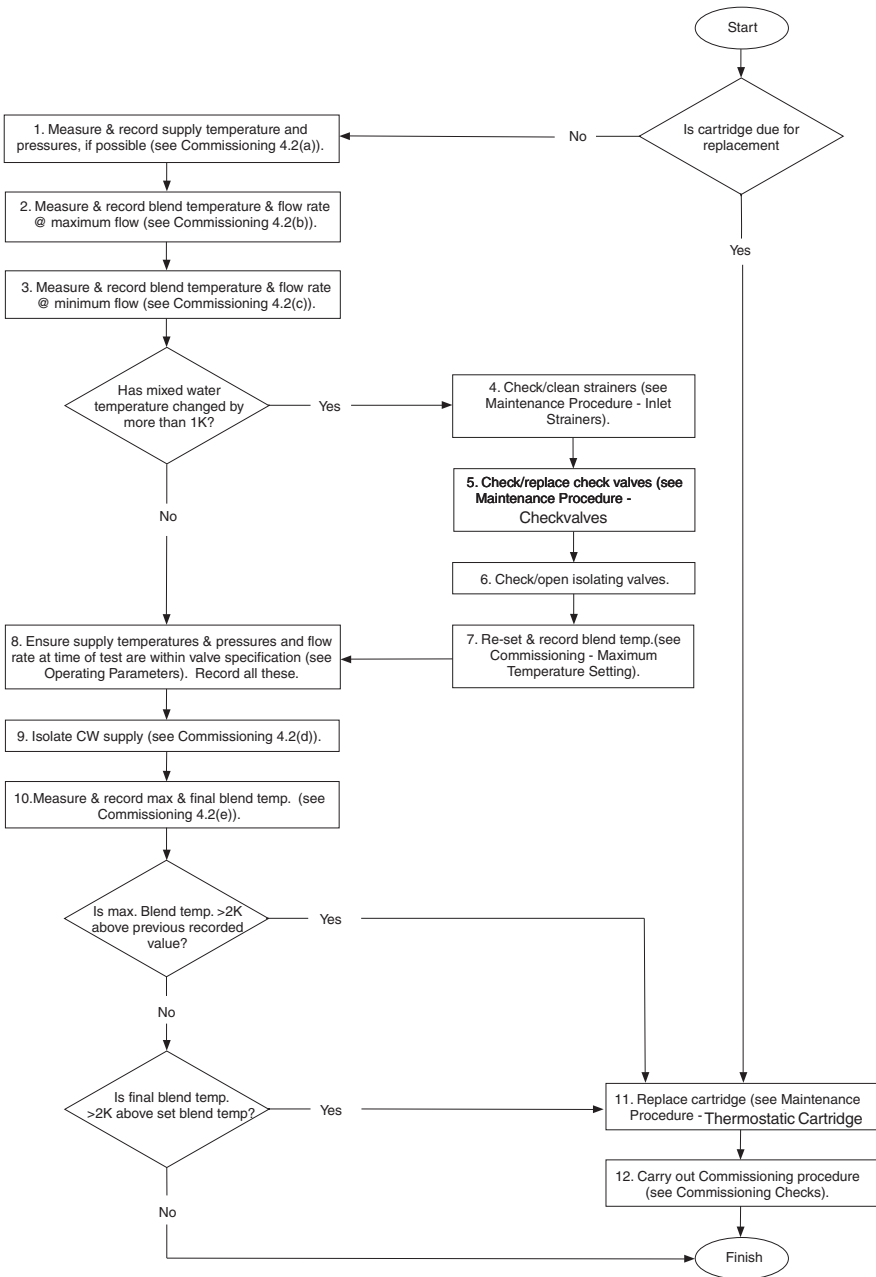
Details of any remedial work, including part replacement, carried out to valve or supply system

Next in-service test due date

Next in-service test data (As for initial commissioning)

Details of any remedial work, including part replacement, carried out to valve or supply system.

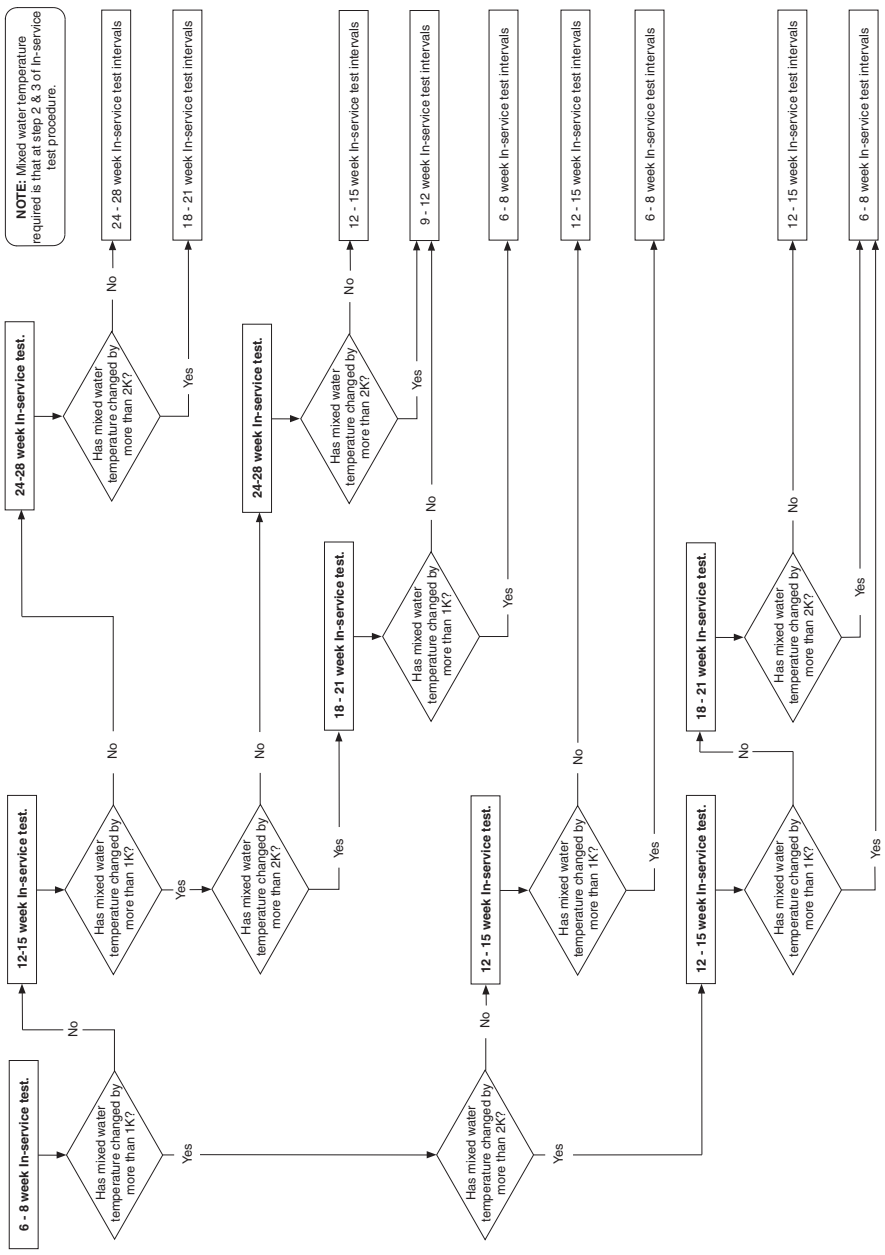
Note! Local requirements may demand that additional information be recorded.



Note! K = Kelvin, the unit of thermodynamic temperature. The unit "Kelvin" is equal to the unit of "Degree Celsius". Kelvin is used for a difference of Celsius temperature.

**In-service Test Procedure
Figure 6**





NOTE: Mixed water temperature required is that at step 2 & 3 of In-service test procedure.

Note! K = Kelvin, the unit of thermodynamic temperature. The unit "Kelvin" is equal to the unit of "Degree Celsius". Kelvin is used for a difference of Celsius temperature.

Guide to In-service Test Frequency
Figure 7



Type 3 Valves

Application

The approved designations are as follows:

Model	Designation Code
Montpellier	HP-S, LP-S

The permitted application details are:

Designation	Operating Pressure Range	Application	Mixed Water Temperature† °C
-HP-B	High Pressure	Bidet	38°C maximum
^M -HP-S	High Pressure	Shower	41°C maximum
-HP-W	High Pressure	Washbasin	41°C maximum
-HP-T44	High Pressure	Bath (44°C fill)	44°C maximum
-HP-T46	High Pressure	Bath (46°C fill)	46°C maximum
-HP-D44	High Pressure	Bath (44°C fill) with diverter to shower 41°C	44°C maximum (shower 41°C max)
-HP-D46	High Pressure	Bath (46°C fill) with diverter to shower 41°C	46°C maximum (shower 41°C max)
-LP-B	Low Pressure	Bidet	38°C maximum
^M -LP-S	Low Pressure	Shower	41°C maximum
-LP-W	Low Pressure	Washbasin	41°C maximum
-LP-T44	Low Pressure	Bath (44°C fill)	44°C maximum
-LP-T46	Low Pressure	Bath (44°C fill)	46°C maximum
-LP-D44	Low Pressure	Bath (44°C fill) with diverter to shower 41°C	44°C maximum (shower 41°C max)
-LP-D46	Low Pressure	Bath (46°C fill) with diverter to shower 41°C	46°C maximum (shower 41°C max)

†Mixed water temperature at discharge point.

^M = Montpellier approved designations.

In order to achieve the safe water temperatures expected of a Type 3 valve it is essential that the valve is used only for the applications covered by its approved designations, with the appropriate water supply pressures and temperatures, and it is commissioned, maintained and serviced in accordance with the recommendations contained in this guide.

Installation Conditions

For healthcare applications where a Type 3 valve is required, the supply conditions must comply with the values in the following table. Note that both supply pressures must lie within the same pressure range.

Operating Pressure Range	High Pressure	Low Pressure
Maximum Static Pressure - bar	10	10
Maintained Pressure, Hot and Cold - bar	1 to 5	0.2 to 1
Hot Supply Temperature - °C	52 to 65	52 to 65
Cold Supply Temperature - °C	5 to 20	5 to 20

Commissioning

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

1. Check that the designation of the thermostatic mixing valve matches the intended application.
2. Check that the supply pressures are within the range of operating pressures for the designation of the valve.
3. Check that the supply temperatures are within the range permitted for the valve and by guidance information on the prevention of legionella etc.
4. Check inlet pipework temperatures for correct function of checkvalve.
5. All connections and mixer body are water tight.
6. Operate the outlet flow control and check:
 - (a) Flow rate is sufficient for purpose.
 - (b) Temperature(s) obtained are acceptable.
7. Exercise the thermostat (refer to COMMISSIONING).

8. Adjust the temperature of the mixed water in accordance with the instructions in this manual and the requirement of the application and then carry out the following sequence:
- (a) record the temperature, and pressures if possible, of the hot and cold water supplies.
 - (b) record the temperature and flow rate of the mixed water at the largest draw-off flow rate.
 - (c) record the temperature and flow rate of the mixed water at a smaller draw-off flow rate.
 - (d) isolate the cold water supply to the mixing valve and monitor the mixed water temperature.
 - (e) record the maximum temperature achieved as a result of (d) and the final temperature.
- Note!** The final mixed water temperature should not exceed the values shown in Table 1 below. Any higher temperatures should only occur briefly.
- (f) record the date, equipment, thermometer etc. used for the measurements.

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

Guide to Maximum Continuous Temperatures During Site Tests
Table 2

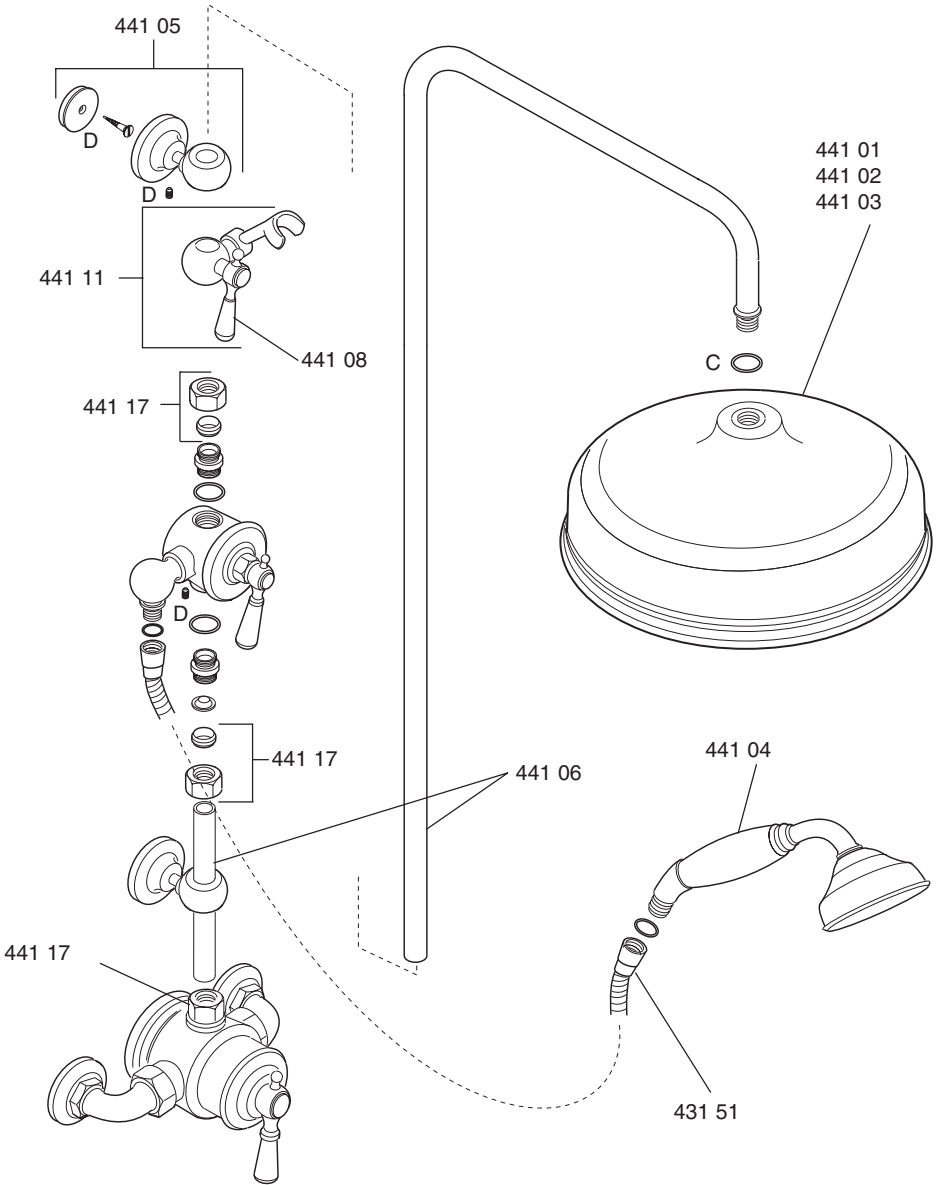
Maintenance

Planned maintenance for Type 3 valves must use the In-service test, at the frequency given in the Guide to In-service test frequency and should employ Temperature Testing, Performance Log books and Training as detailed on pages 31 -34.

SPARE PARTS

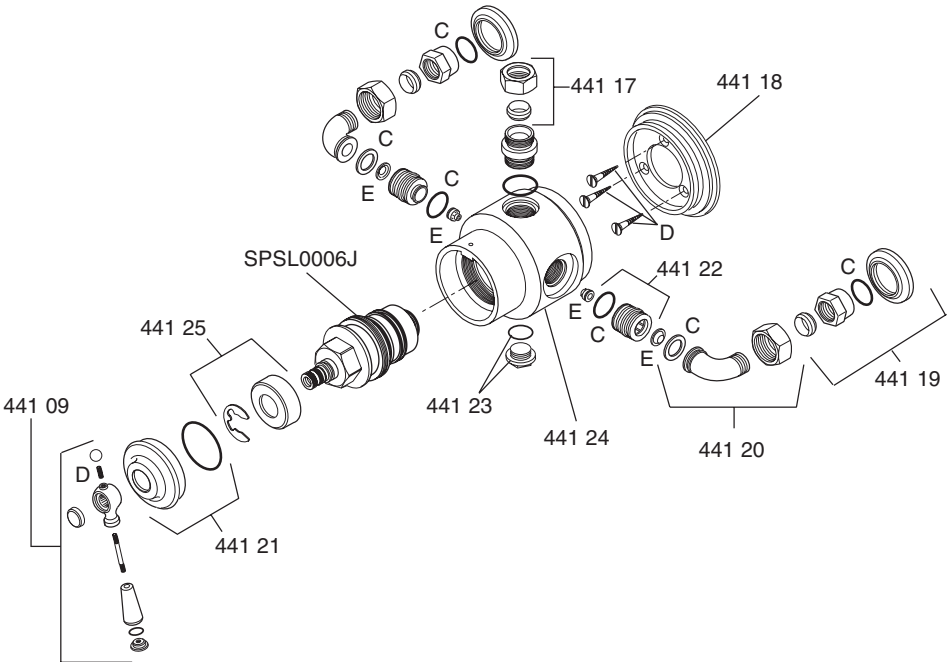
Mira Montpellier Spare Parts List

431 51	Hose
441 01	12" Rose
441 02	8" Rose
441 03	6" Rose
441 04	Ceramic Handset
441 05	Riser Bracket Assembly
441 06	Riser Assembly
441 08	Handset Holder - Lever
441 11	Handset Holder Assembly
441 17	Compression Nut
441 27	Seal Pack Fittings - components identified 'C'
441 28	Screw Pack - components identified 'D'



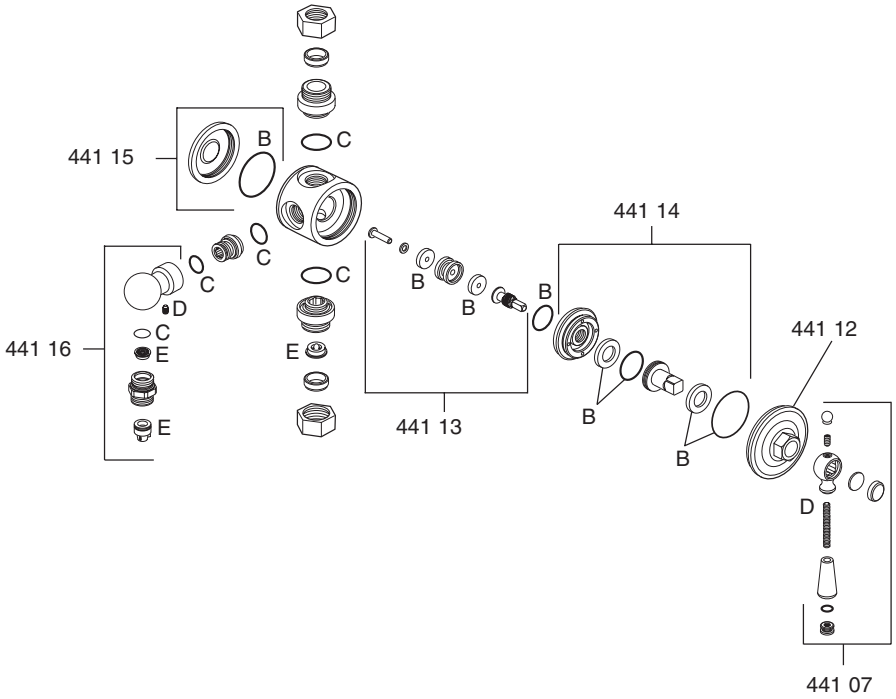
Mira Montpellier Shower Valve Spare Parts List

SPSL0006J	Cartridge Assembly
441 09	Valve Lever
441 17	Compression Nut
441 18	Backplate
441 19	Inlet Nut Assembly
441 20	Inlet Elbow
441 21	Valve Shield
441 22	Inlet Connector
441 23	Outlet Plug
441 24	Valve Body
441 25	Shield Adaptor
441 27	Seal Pack Fittings - components identified 'C'
441 28	ScrewPack - components identified 'D'
441 29	Check Valve/Flow Reg Pack - components identified 'E'



Mira Montpellier Divertor Valve Spare Parts List

- 441 07 Divertor Lever
- 441 12 Divertor Shield
- 441 13 Divertor Shuttle Assembly
- 441 14 Divertor Spindle Assembly
- 441 15 Divertor Base Cap Assembly
- 441 16 Divertor Elbow Assembly
- 441 26 Seal Pack Divertor - components identified 'B'
- 441 27 Seal Pack Fittings - components identified 'C'
- 441 28 ScrewPack - components identified 'D'
- 441 76 Check Valve/Flow Reg Pack - components identified 'E'



CUSTOMER SERVICE

Mira Showers guarantee products against any defect of materials or workmanship for one year from the date of purchase (2 years for Mira Select and 3 years for Mira Excel ranges).

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

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

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

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

Not covered by this guarantee:

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

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

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

Before using your shower

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

What to do if something goes wrong

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

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

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

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

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

Spare Parts

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

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

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

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

Service

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

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

To contact us:

England, Scotland & Wales

Mira Showers Customer Services

Telephone: 01242 262888
8.30am to 5pm Working days (4.30pm Fri)
8.30 am to 12.30pm Saturday
E-mail: Mira_technical@mirashowers.com
Fax: 01242 282595
By Post: Cromwell Road
Cheltenham
Gloucester GL52 5EP

For Customers in Northern Ireland

Wm H Leech & Son Ltd

Telephone: 028 9044 9257 – Mon to Fri 9 am-5pm
Fax: 028 9044 9234 – 24 hours
Post: Maryland Industrial Estate
Ballygowan Road
Moneyreagh, Co Down
BT23 6BL

For Customers in Republic of Ireland

Modern Plant Ltd

Telephone: Dublin 01 4591344 - Mon to Fri 9am to 5pm
Fax: Dublin 01 4592329 – 24 hours
Post: Otter House
Naas Road
Clondalkin
Dublin 22

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