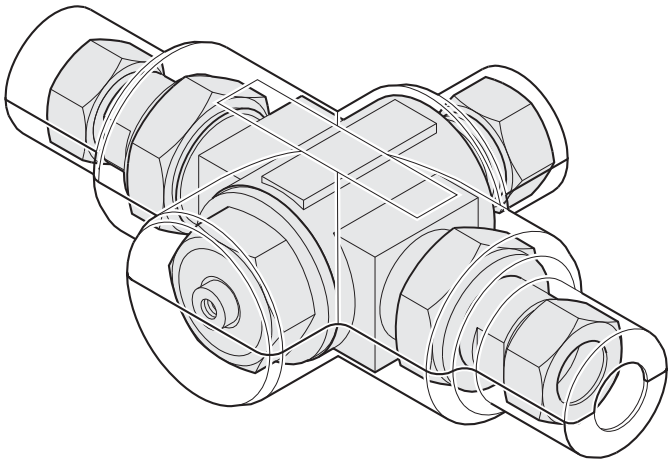
Meynell

15/3

THERMOSTATIC MIXING VALVE



PRODUCT MANUAL

IMPORTANT

Installer: This Manual is the property of the customer and must be retained with the product for maintenance and operational purposes.

CONTENTS

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

INTRODUCTION

The Meynell 15/3 Thermostatic Mixing Valve is specified to meet the highest standards of safety, comfort and economy as demanded by todays users. All Meynell products are designed, manufactured and supported in accordance with accredited BS EN ISO 9001: 2000 Quality Systems.

This Manual covers all Meynell 15/3 Thermostatic Mixing Valves manufactured from June 1997.

The suffix '3' indicates that the Thermostatic Mixer has been certified for use in UK Healthcare premises as a Type 3 valve under the BUILDCERT TMV3 scheme. For Healthcare installation refer to section: **'Type 3 Valves'**.

DESCRIPTION

Meynell 15/3: a 1/2" point of use thermostatic mixing valve designed to supply temperature controlled hot water to one or possibly two washbasin outlets.

SAFETY : WARNINGS

Meynell 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 given in this Manual.

2. Type 3 Valves are only used for applications covered by their approved designations (refer to section: **'Type 3 Valves'**).

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

4. 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.

5. 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.

6. 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.

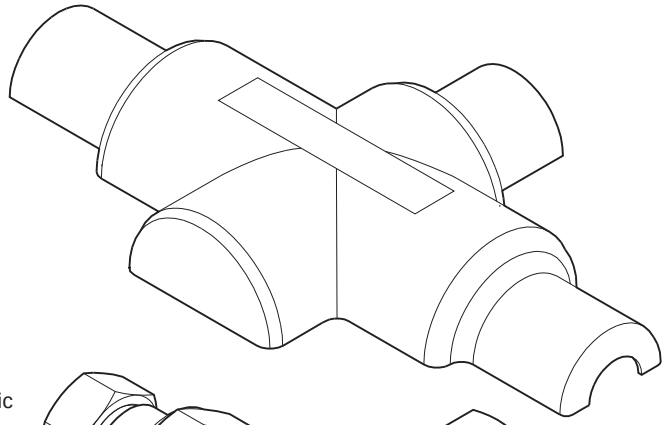
7. Certain types of system can result in the Thermostatic Mixing Valve having excessive 'dead-legs' of pipework. Others allow an auxiliary cold water supply to be added to the mixed water from the mixing valve. Such systems can disguise the onset of Thermostatic Mixing Valve malfunction.

8. Ultimately, the user or attendant must exercise due diligence to make sure 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.

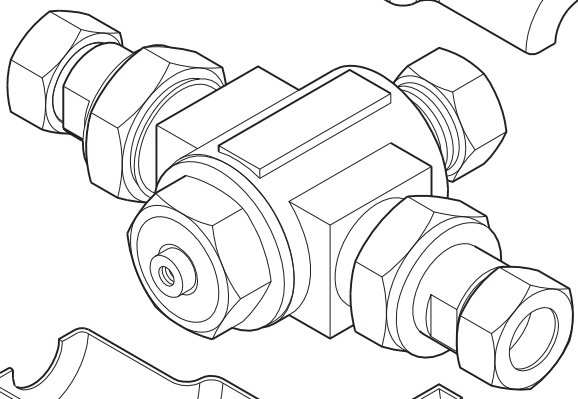
PACK CONTENTS

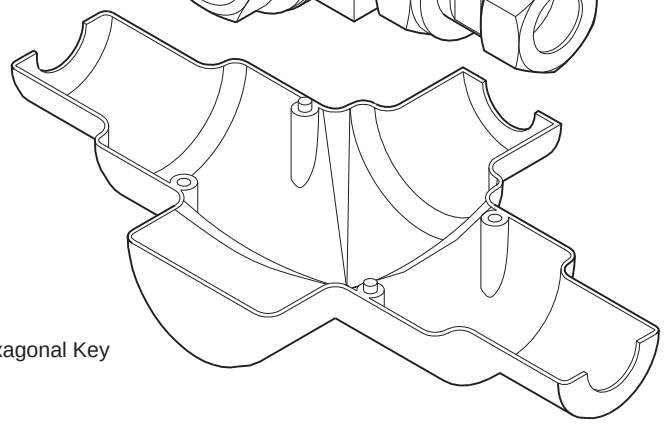
Tick the appropriate boxes to familiarise yourself with the part names and to confirm that the parts are included.

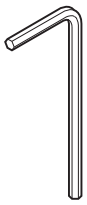
❑ 2 x Covers



❑ 1 x 15/3 Thermostatic Mixing Valve

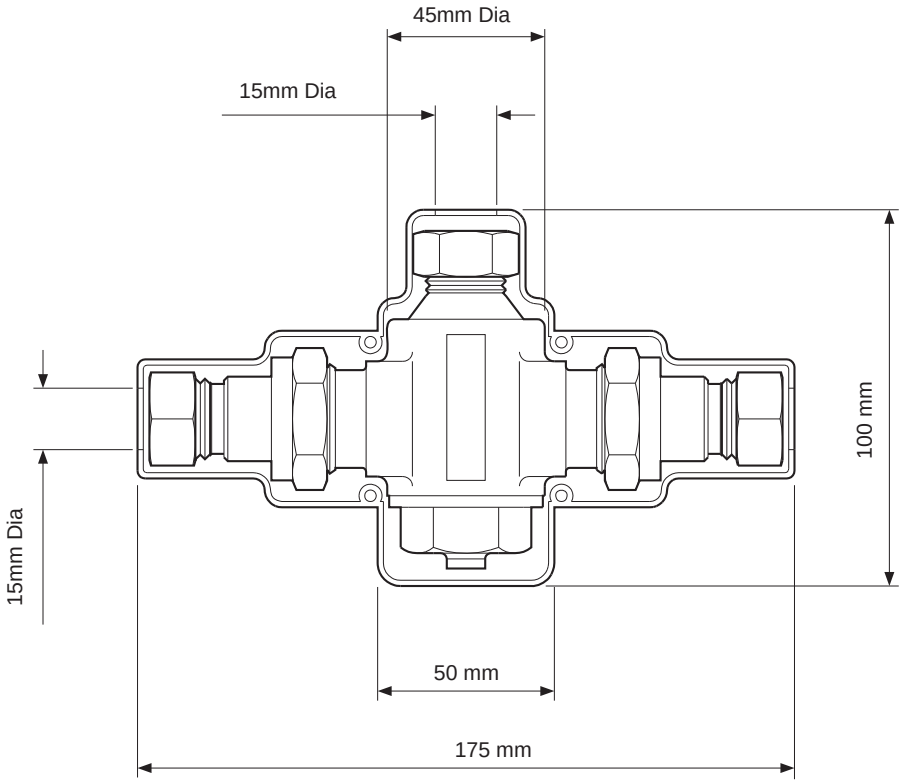






❑ 1 x Hexagonal Key

DIMENSIONS



SPECIFICATIONS

Normal Operating Conditions are considered as:

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

Other Applications

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

Disinfection

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

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

Operating Parameters

For Type 3 valves the supply conditions specified in section: **'Type 3 Valves, Application'** take precedence over the operating parameters which follow.

Temperature

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).

Flow Control

The Meynell 15/3 does not have an integral flow control. Separate outlet flow control such as a tap, mechanical timed flow control device or solenoid is required. The device chosen should be non-concussive in operation.

Connections

Inlet and outlet connectors are 15mm compression

Hot (H) and Cold (C) inlets are clearly marked and must be connected this way.

The inlet connections have integral strainer and checkvalve units.

Pressures and Flow Rates

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

Maximum Static Pressure:

10 bar.

Recommended Flow Rate for Basin Application:

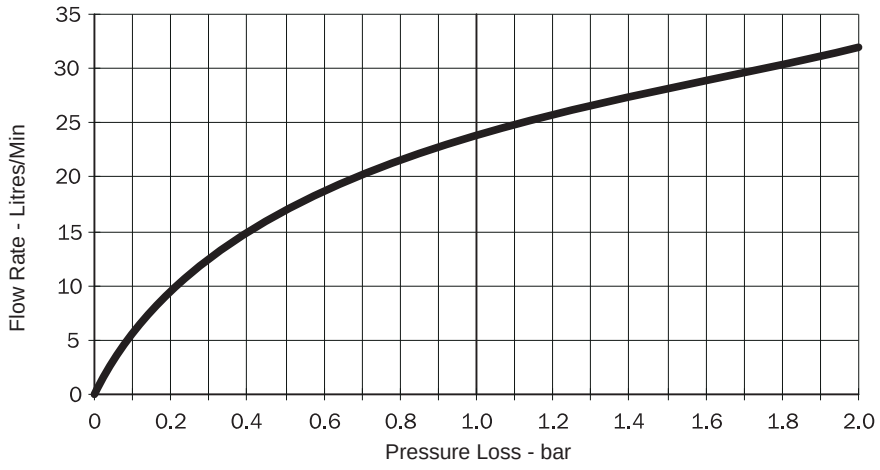
4 to 6 l/min at mid-blend with equal dynamic supply pressures.

Maximum Pressure Loss Ratio*:

Should not exceed 10:1, in favour of either supply, during flow.

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

Meynell 15/3 Flow Rate



INSTALLATION

General

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

1. Before commencing, make sure that the installation conditions comply with the information given in section: **'Specifications'**. For Type 3 valves see also installation conditions in section: **'Type 3 Valves'**.
2. Care must be taken during installation to prevent risk of injury or damage.
3. The mixing valve should be positioned for easy access during use and maintenance. All routine maintenance procedures can be conducted with the mixing valve body in place (except for strainer and checkvalve access). For all models, allow a minimum of 80 mm clearance in front of the temperature control to enable removal of the serviceable parts during maintenance.
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. Pipework must be rigidly supported.
7. Pipework dead-legs should be kept to a minimum.
8. Supply pipework layout should be arranged to minimise the effect of other outlet usage upon the dynamic pressures at the mixing valve inlets.
9. Inlet and outlet threaded joint connections should be made with PTFE tape or liquid sealant. Do not use oil-based, non-setting jointing compounds.
10. To eliminate pipe debris it is essential that supply pipes are thoroughly flushed through before connection to the mixing valve.

Install the Thermostatic Mixing Valve

1. A 50 mm minimum clearance around the valve to allow cover fitting and tool access is recommended.

2. Install isolator valves on supply pipework. This will assist removal of the valve if required.

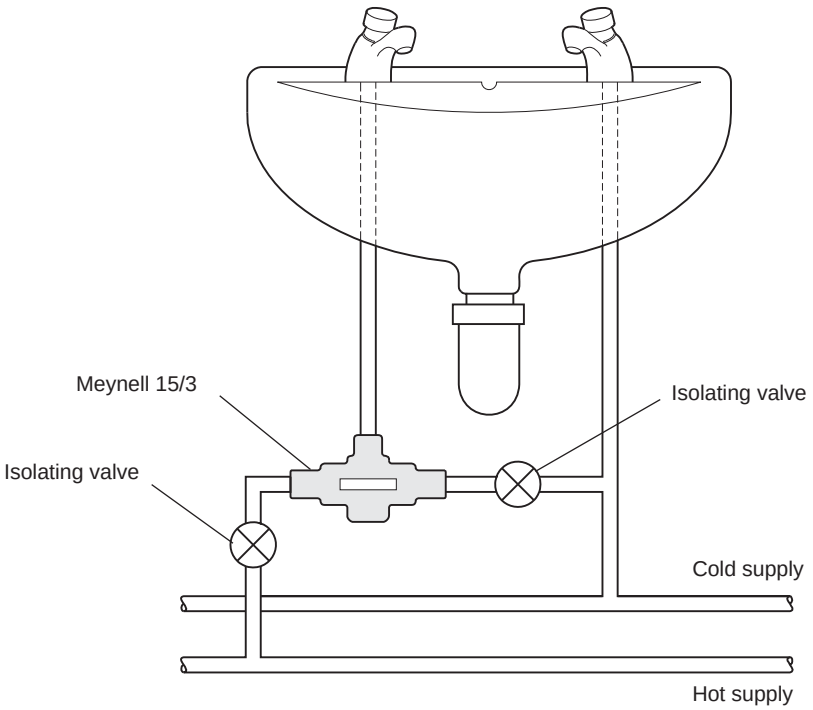
3. Determine the layout of the pipework that suits the incoming and outlet connections.

4. Connect the pipework to the valve, making sure that the hot and cold supplies and the outlet are correctly matched. Tighten all compression nuts and inlet connector nuts.

5. Turn on the water supplies and check connections are watertight.

6. Refer to section: **'Commissioning'** to ensure correct outlet setting.

7. Fit the cover pairing around mixer.



COMMISSIONING

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

Exercising the Thermostat

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

A simple way to provide this exercise is:

(a) Make sure that the hot and cold water are available at the valve inlets, and the outlet is open.

(b) Move the temperature control rapidly from cold to hot and hot back to cold several times, pausing at each extreme.

Maximum Temperature

Note! For Type 3 valves in healthcare installations the maximum blend temperature is determined by the application, refer to section: **'Type 3 Valves, Application'**.

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

All Meynell thermostatic mixing valves are fully performance tested and the maximum temperature is preset to approximately 42°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.

Maximum Temperature Setting

Note! For Type 3 Valves in healthcare installations the maximum blend temperature is determined by the application, refer to section: **'Type 3 Valves, Application'**.

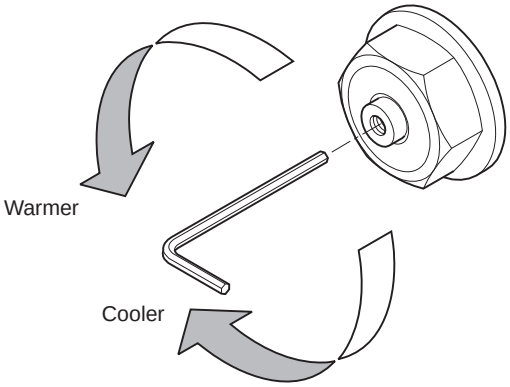
Check that an adequate supply of hot water is available at the hot inlet of the mixing valve.

The minimum temperature of the hot water must be at least 10°C above the desired blend, however during resetting this should be close to the typical storage maximum to offset the possibility of any blend shift due to fluctuating supply temperatures.

Check that both inlet isolating valves are fully open.

Temperatures should always be recorded using a thermometer with proven accuracy.

1. Ensure outlet fitting is turned off.
2. Turn on the water supplies to the mixing valve and check for leaks.
3. Turn the outlet fitting on and allow water to run until the temperature stabilizes. Measure the blend temperature from the outlet fitting.
4. If the temperature needs to be adjusted, insert the 2.5mm hexagon key into the centre of valve head.



Commissioning Checks

1. Check the inlet pipework temperature for correct function of the checkvalves.
2. Operate the outlet fitting and check:
   - **(a)** Flow rate is sufficient for purpose
   - **(b)** Temperature obtainable is acceptable
   - **(c)** All connections are watertight.
3. It is advisable to establish a performance check at this time, which should be noted for future reference as part of a Planned Maintenance Program (a Maintenance Record Card has been provided with this Manual).

   The procedure should be chosen to imitate both typical and difficult operating conditions, such as any supply pressure fluctuations that may be likely. An ideal method is to locate another outlet on the common cold water supply close to the Meynell 15/3 (operating this outlet should cause a drop in supply pressure), and note the subsequent effect on blend temperature. This should be no more than a 2°C change.

   Note! Causing thermal shutdown of the Meynell 15/3 by full closure of the cold supply may not adequately indicate the practical capability of the 15/3, nor its service condition. Consequently this is not a recommended performance check, and repeated such testing may ultimately affect service life.

FAULT DIAGNOSIS

Symptom	Cause / Rectification
1. Only hot or cold water from mixer outlet.	**a.** Inlet supplies reversed (hot supply to cold supply). **b.** No hot water reaching mixer. **c.** Check strainers and inlet/outlet fittings for blockage. **d.** Installation conditions continuously outside operating parameters, refer to **2.e.** and section: **'Specifications'**.
2. Fluctuating or reduced flow rate.	Normal function of the thermostatic control when operating conditions are unsatisfactory; **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 inlet temperature differentials are sufficient. **e.** (Subsequent to rectification of supply conditions) Check thermostatic performance; renew Piston Assembly if necessary.
3. No flow rate from mixer outlet.	**a.** Check strainers and inlet/outlet fittings for blockage. **b.** Hot or cold supply failure.
4. Blend temperature drift.	Indicates operating conditions changed. **a.** Refer to **2.** **b.** Hot supply temperature fluctuation. **c.** Supply pressures fluctuating. **d.** Seal damage or wear. Renew seals or replace Shuttle/Thermostat Assembly.
5. Maximum blend temperature setting too hot or too cold.	**a.** Indicates incorrect maximum temperature setting; refer to section: **'Commissioning'**. **b.** Refer to **4.**
6. Water leaking from mixer body.	Seal wear or damage. **a.** Obtain Seal Kit, renew all seals.

MAINTENANCE

General

1. The maintenance of this product must be carried out in accordance with instructions given in this manual, and must be conducted by designated, qualified and competent personnel.
2. Rada products are precision-engineered and should give continued superior and safe performance, provided:
   - They are installed, commissioned, operated and maintained in accordance with the recommendations stated in this product manual.
   - Periodic attention is given as necessary to maintain the product in good functional order, refer to section: **'Planned Maintenance'**.

The 15/3 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 component renewal. Components are precision-made, so care must be taken while servicing to avoid damage.

When ordering spare parts, please state product type, i.e. Meynell 15/3 and identify part name and number. A service pack is available, containing all the seals and strainer screens that may be necessary for renewal during maintenance or servicing. Refer to the section: **'Spare Parts'**.

Service Contracts

To ensure your Rada/Mira/Meynell 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/Meynell Service Engineers who carry a comprehensive range of genuine spare parts. For details on arranging a Service Contract please contact Aftersales/Service.

Lubricants

Important! If you need to lubricate the seals, use only a small amount of silicone-only based lubricants on this product. Do not use oil-based or other lubricant types as these may cause rapid deterioration of seals, (grease sachet is included in 'Service Pack').

In-service Tests

The principal means for determining the continuing satisfactory performance of the mixing valve is the in-service test.

Follow the procedure detailed in the flow diagram “In-service Test Procedure”.

PLANNED MAINTENANCE

Malfunction of the valve 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 valve having excessive 'dead-legs' of pipework, or auxiliary cold water supply added to the mixed water from the mixing valve. Such systems can disguise the onset of thermostatic mixing valve malfunction and should not be used.

We recommend a preventative maintenance procedure based on site conditions and the risk to the user. All results must be recorded in a log book.

Healthcare

Healthcare applications are hospitals, aged person facilities, residential care homes, etc. and any other applications where the user is similarly at risk.

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

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

Note! During the replacement of critical components, it may be necessary to replace other non-critical components.

Frequency of In-service Tests

Healthcare

Follow the procedure detailed in the flow diagram "In-service Test Procedure". This procedure must be followed 6 to 8 weeks after commissioning and 12 to 15 weeks after commissioning. The recorded blend temperature $^{(Tb)}$ from these two tests will determine the maximum frequency for future service intervals.

Result of 6-8 week tests	Result of 12-15 week tests	Next service interval
≤ 1 °C	≤ 1 °C	9 - 12 weeks
> 1 °C	≤ 1 °C	9 - 12 weeks
≤ 1 °C	> 1 °C	9 - 12 weeks
> 1 °C	> 1 °C	6 - 9 weeks

The subsequent in-service test results should be used as a guide, in conjunction with a suitable risk assessment, to determine the schedule of future in-service tests.

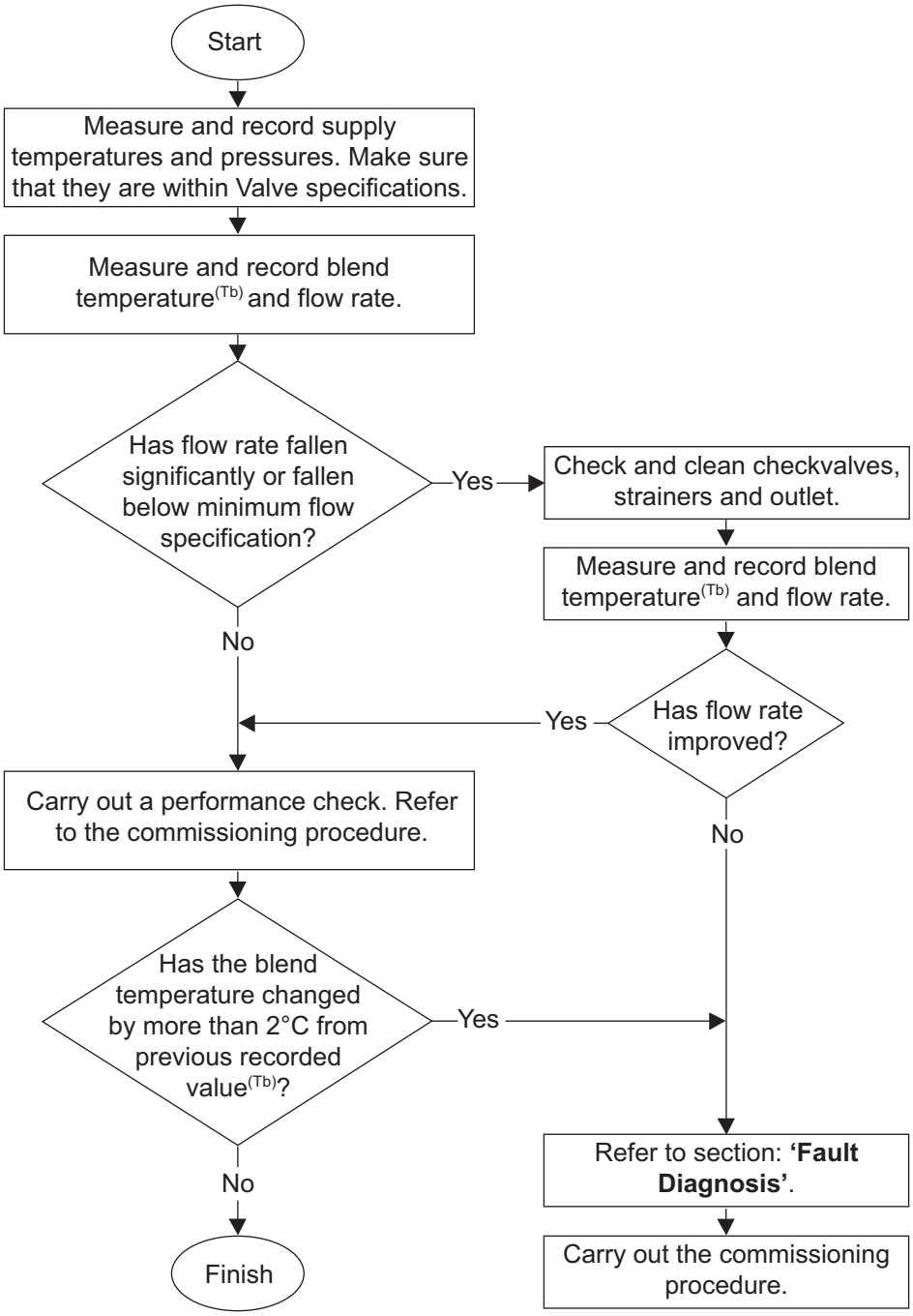
More regular temperature checks should be made where increased risks are perceived, i.e. patients are unable to immediately respond to an increase in water temperature, by either shutting the water off or removing themselves from contact with the water.

Maintenance personnel should also make sure that the staff are aware of the importance of reporting temperature variations and when detected, these should be recorded in the Log Book.

Commercial

Check for correct blend setting every 6 months.

Follow the procedure detailed in the flow diagram “In-service Test Procedure”, every 12 months.



Note! All measurements and results should be recorded in the Log Book.

Flow Diagram, In-service Test Procedure

TYPE 3 VALVES

Application

The approved designations for **Type 3 Valves** are as follows:

Model	Designation Code
Meynell 15/3	HP-S, HP-W, LP-S, LP-W

The permitted application details are:

Designation	Operating Pressure Range	Application	Mixed Water Temperature† °C
HP-S	High Pressure	Shower	41°C Maximum
HP-W	High Pressure	Washbasin	41°C Maximum
LP-S	Low Pressure	Shower	41°C Maximum
LP-W	Low Pressure	Washbasin	41°C Maximum

† Mixed water temperature at discharge point.

Note! For washbasins, it is assumed that you are washing under running water.

Note! Bath fill temperatures of more than 44°C should only be available when the bather is always under the supervision of a competent person (e.g. nurse or care assistant).

In order to achieve the safe water temperatures expected of a Type 3 Valve it is essential that the Shower Control 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 (refer to section: **'Planned Maintenance'** for the in service test frequency that must be used as a minimum guide in Type 3 installations).

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 & 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 of 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 flow control and check:
(a) Flow rate is sufficient for purpose.
(b) Temperature(s) obtained are acceptable.

7. Exercise the thermostat, refer to section: **'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 the table below. Any higher temperatures should only occur briefly.

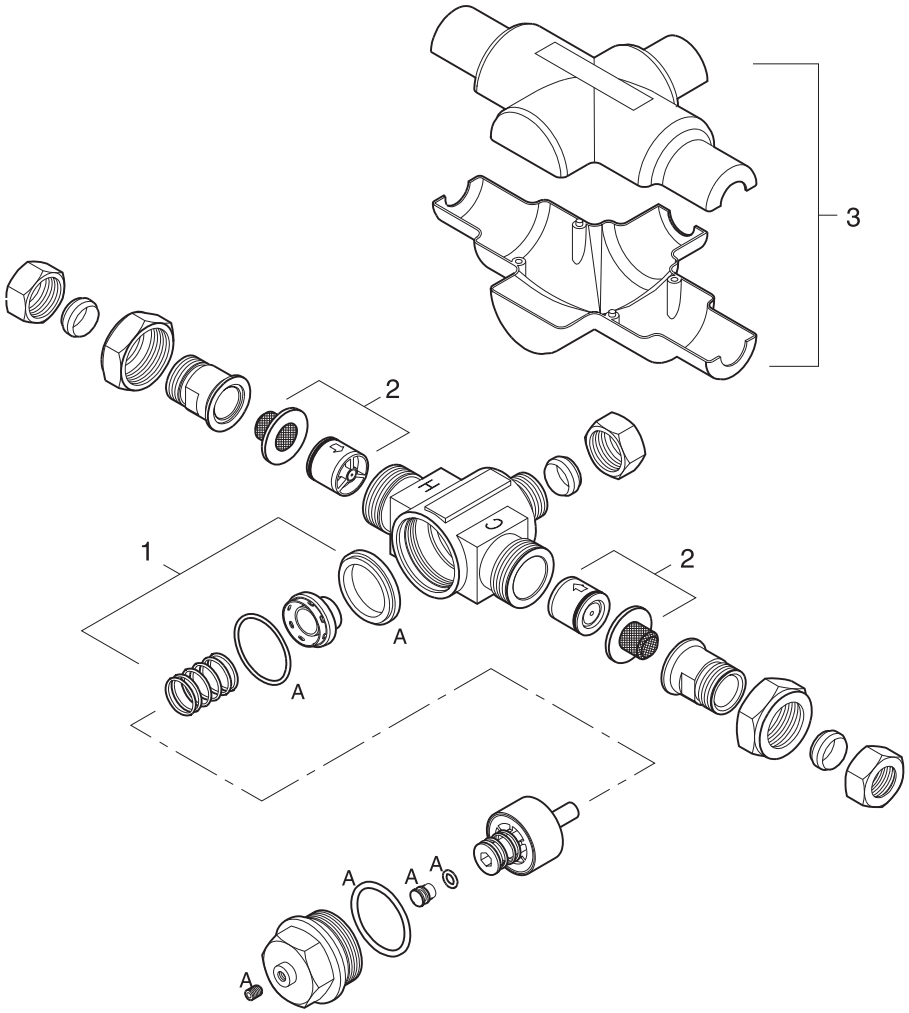
(f) record the date, equipment, thermometer etc. used for the measurements.

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

SPARE PARTS

1	SPPN0001J	Piston Assembly
2	SPCV0022J	Strainer & Checkvalve Kit
3	SPCA0018U	Cover Kit
A	SPSK0048J	Seal Kit



NOTES

NOTES

KLANTENINFORMATIE

Garantie

Op dit product zit een garantie van één jaar na aankoopdatum op materiaalgebreken, mits het op de juiste wijze geïnstalleerd is en gebruikt wordt overeenkomstig de meegeleverde instructies. Een onderdeel dat tijdens de garantieperiode defect blijkt, zal (naar ons inzicht) gerepareerd of vervangen worden. Uiteraard zonder kosten mits het product op de juiste wijze gebruikt en onderhouden is.
Regelmatig onderhoud dient uitgevoerd te worden overeenkomstig de bijgesloten instructies.
Het product mag alleen gewijzigd of gerepareerd worden door mensen die door Rada zijn geautoriseerd.
Deze garantie heeft geen invloed op uw wettelijke rechten.

Servicdienst, hoe wij u helpen

Wij beschikken over een netwerk van goed opgeleid personeel dat u met raad en daad terzijde staat bij problemen met de apparatuur van Rada.

Reserveonderdelen

Alle reserveonderdelen van Rada producten zijn tot minimaal 10 jaar na de laatste productiedatum leverbaar.
Indien tijdens deze periode een reserveonderdeel niet voorradig is dan zullen wij een gelijkwaardig product of onderdeel leveren tegen een prijs die gelijk is aan de kosten van de reparatie het oude, rekening houdend met de leeftijd van het product.

Klantenzorg

Als binnen korte tijd na ingebruikname blijkt dat het product niet goed werkt, raadpleeg dan deze handleiding om te bekijken of het probleem opgelost kan worden.
Is dit niet het geval, neem dan contact op met uw installateur om u ervan te verzekeren dat het product geïnstalleerd en in werking gesteld is overeenkomstig onze installatie instructies.
Indien dit het probleem niet oplost neem dan contact op met Rada Sanitairtechniek B.V.

Neem contact op met:

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