John Guest®

INSTALLATION & USER GUIDE

12mm Tempering Valve *(Pre-Set to 50°C)*

12TMV

John Guest Limited

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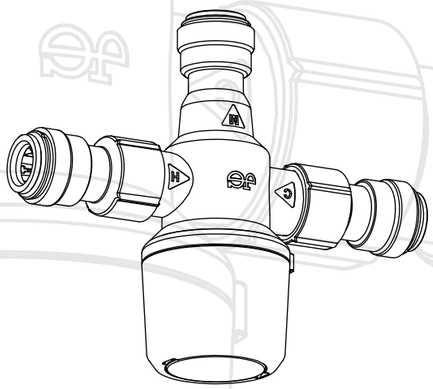

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More information https://www.caravansplus.com.au

Product Introduction

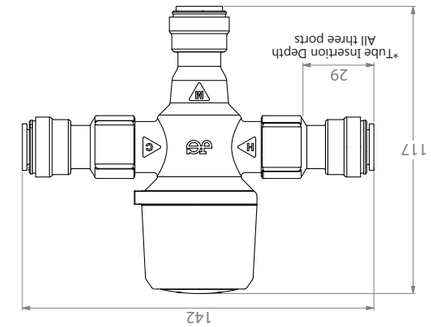
The John Guest Tempering Valve has been specifically designed and manufactured for Marine, Caravan and Recreational use only. It meets the requirements of AS/NZ4020. This valve uses 12mm Speedfit connections for its hot and cold water and mixed water outlets and is **pre-set to deliver a temperature of 50°C.**

Valve Function

The John Guest Tempering Valve is designed to accurately regulate the temperature of water for activities such as showering, bathing and hand washing. If installed and maintained correctly the valve can reduce the risk of scalding.

In the event of the cold water supply failing, the valve will automatically shut down the flow to prevent discharge of dangerously hot water. To ensure full closure of the mixed water flow the minimum temperature differential between the hot water inlet to the valve and the mixed water outlet **must be at least 15°C.**

Product Dimensions



Note: All dimensions are measured in mm.

Technical Checklist - Plumbing & Heating Fittings

The John Guest 12mm Tempering Valve works with all other products in the Speedfit range.

Cleaners, Inhibitors and Descalents

For advice on the replenishment of additives such as corrosion inhibitors, the following manufacturers should be contacted: Fernox Manufacturing Ltd on 01799550811 or Sentinel, BetzDearborn Limited on 0800 389 4670.

Pipe Clips

Pipe clips should not be fitted any closer than 60mm from the end of the fitting. Pipe should be adequately supported by pipe clips to prevent undue stress (side load) on fittings.

System Flushing

As is usual practice for any plumbing installation, flushing of the system prior to the use of Speedfit is recommended to remove any containments/ chemical residue from elsewhere in the system.

Side Loads

John Guest products are not designed to be used whilst under side load as this may adversely affect their liability to function long-term. Always ensure tubes have good alignment with the fitting. They must also not be subjected to any form of impact or other damage, such as being hit or dropped, even accidentally. If fittings have suffered damaged or an impact, they should be replaced immediately. John Guest warranty does not cover loss caused by any form of damage.

Paint & Chemicals

Use only water or oil based paint. **DO NOT ALLOW CONTACT WITH** cellulose based paints, paint thinners or strippers, solder flux, acid base descalents or aggressive cleaning products, including those below pH4, high in hypochlorite (e.g. Bleach) or containing hydrogen peroxide. (See the DISINFECTION OF HOT AND COLD WATER SYSTEMS section of the installation advice for specifically permitted disinfection procedures).

Vermin

Speedfit Products will need special protection in vermin infected areas.

Exposure to Sunlight

Speedfit products, when used indoors, are not affected by sunlight. When used outdoors, protect from ultra violet light by lagging or painting.

Solder Flux

No fluxes of any types should come into contact with JG Speedfit Pipe and Fittings. If fluxes are to be used in an environment where Speedfit is installed, then (1) extreme care should be taken to ensure that no such contact takes place and (2) JG recommend installers only uses fluxes tested and approved in writing in advance by JG.

Chlorine

Speedfit is not suitable for use in systems where the water contains high levels of chlorine e.g. Swimming pools, fountains etc.

Connection to Copper Pipe

450mm is the minimum distance to make a solder connection on copper pipe inserted into a Speedfit fitting. Ensure that any individual flux solder doesn't not come into contact with the fitting.

Maximum Torque Figures

Plastic threads are not generally as strong as brass threads. Customers and end users should be aware of this when choosing products for their applications. Over-tightening of plastics threads will cause undue stress and eventual cracking and leakage. The maximum torque figures for BSP and BSPT threads used on Speedfit plumbing products in mating threads conforming to the relevant British or International thread standards.

Threads	*Size*	*Maximum Torque*
Plastic	1/2 BSP	3.0 Nm

It is recommended that all installations are checked prior to use to determine that seal has been made.

Troubleshooting

Fault **Fluctuating mixed water temperature**

Cause
- Insufficient water supply to inlet valves.
- Unstable supply temperatures to inlet valves.
- Commissioning carried out incorrectly.

Solution
- Install pressure regulating valves on both hot and cold supplies.

Fault **Unstable Flow**

Cause
- Pressure/ temperature supply fluctuations.
- Erratic water supply.
- Effects of other draw off points in the system.

Solution
- Install pressure regulating valves on both hot and cold supplies.
- Flush water through valve.

Fault **No or Reduced flow from valve**

Cause
- Supply pressure insufficient.
- Filters are blocked.
- Cartridge requires maintenance.

Solution
- Restore inlet supplies and check mix temperature.
- Flush water through valve.

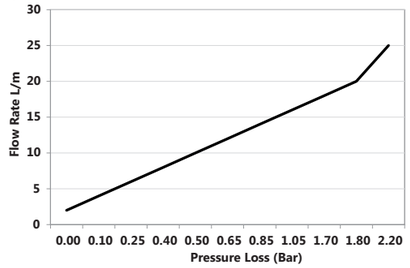
Fault **Valve does not shut off when tested**

Cause
- Mechanism unable to operate correctly due to debris.
- Tempering Valve not installed in accordance with recommendations.
- The minimum temperature differential is not reached.

Solution
- Removed cap and clean any debris within the valve.
- Check valve specifications and ensure the appropriate valve is used for required flow.

Pressure Loss Against Flow Rate

3 bar Dynamic Inlet Pressures, 50°C Outlet Temperature.



Technical Specifications

Specifications relating to the conditions of use for the John Guest 12TMV, have been tested with a maximum flow rate of 18 L/min at 3.5 bar inlet pressure whilst still delivering a pre set temperature of 50°C.

Note: Valves operating outside these parameters cannot be guaranteed to operate safely.

Characteristic	Specification
Inlet & Outlet Connection	12mm Push-Fit
Length	140mm
Height	106mm
Hot Water Supply Temperature	65°C - 80°C
Cold Water Supply Temperature	5°C - 25°C
Adjustable Outlet temperature range	35°C - 65°C
Outlet Temperature Accuracy	±3°C
Minimum Temperature Differential	15°C
Maximum supply pressure - Hot & Cold	Static 16 bar, Dynamic 5 bar
Recommended Supply Pressure Ratio	1:1
Maximum Supply Pressure Imbalance	3:2
Maximum Inlet Pressure Variation	+10%
Minimum Flow Rate	5 litres/minute

It is imperative that this document is read and fully understood before installing this valve.

Valve Installation | IMPORTANT

Step 1 - Preparation

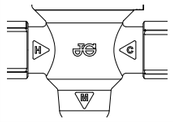
1. The Tempering Valve must be installed where it can be easily accessed for servicing and maintenance or replacement purposes.
2. The installer should check temperature and pressure characteristics of the site are within valve technical specifications prior to installation.

   Note: The Tempering Valve must not be subjected to any extreme temperature variations either during the installation or under normal operating conditions. This includes ensuring the valve is never exposed to freezing conditions or frost. All exposed pipework should also be insulated.
3. The supply system to which the Tempering Valve is to be installed must be **thoroughly flushed and cleaned** to remove any debris which may have accumulated during build / installation of the system. Failure to remove any debris will affect performance and the manufacturer's warranty of the product.
4. Ensure the installer does not use any thread sealant tapes, liquid sealant, hemp or any other joint sealing compound on the valve as this can potentially cause blockages.

Step 2 - Placement

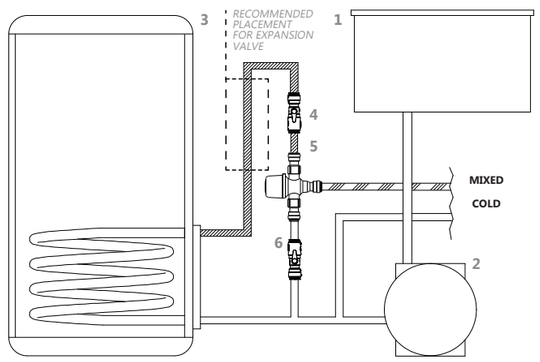
1. The Tempering Valve has been designed to be mounted in any orientation. It is essential that access to the valve is not obstructed for any future maintenance that may be required to the valve and associated fittings.
2. Independent isolation valves must be fitted in conjunction with the Tempering Valve, as close as practically possible to the water supply inlets of the Tempering Valve. To ensure safety the valve must not be installed directly to the water heater.
3. The maximum flow rate will only be achieved when supply conditions are met as quoted within the technical specification.
4. Ensure isolation valves, pressure limiting valve and expansion control valves are installed prior to the Tempering Valve to ensure suitable conditions for optimum performance of valve. As per AS/NZ 3500.

Step 3 - Finalising

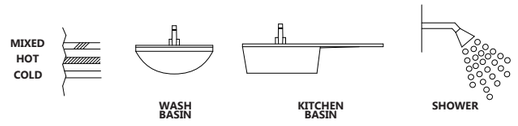


Ensure the **HOT (H)** and **COLD (C)** supply lines are connected to correct side of the Tempering Valve with the flow in the direction of the arrows as indicated on the body.

Recommended Installation Layout



1. Water Tank
2. Water Pump
3. Water Heater
4. Hot Shut-Off Valve
5. John Guest 12mm Tempering Valve
6. Cold Shut-Off Valve



Valve Commissioning | IMPORTANT

The instructions must be read and fully understood before the process of commissioning is carried out. If there are any aspects of the installation or system that do not comply with the specification detailed in this manual, the valve must not be operated until these specifications are fully satisfied. In the case of all aspects of the specification being met, the next part of the procedure can be carried out.

The complete system should be entirely cleaned and free from any dirt/grit before the Tempering Valve temperature is set. The temperature during commissioning should be taken using a **calibrated thermometer.**

Step 1

Ensure the water heater is turned on and is delivering a minimum temperature of 60°C as specified in AS/NZS 3500.4.2 Clause 1.6. It is recommended the water heater thermostat is set at 15°C differential temperature necessary for thermal shut off. Refer to 'Technical Specifications' for more information.

Step 2

Locate the nearest fixture outlet supplied by the Tempering Valve for point of measurement.

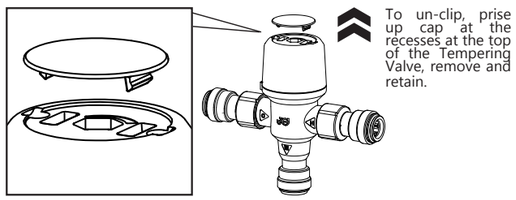
Step 3

Open the outlet to allow for a flow rate of at least 4 litres/min. Allow the water to flow for 1-2 mins to ensure the mixed water temperature has stabilised.

Step 4

Use a digital thermometer to then test the temperature of the water supplied.
Note: If the desired temperature is not achieved, remove the cap (illustrated below) and set the temperature accordingly, as shown in 'Temperature Adjustment Control'.

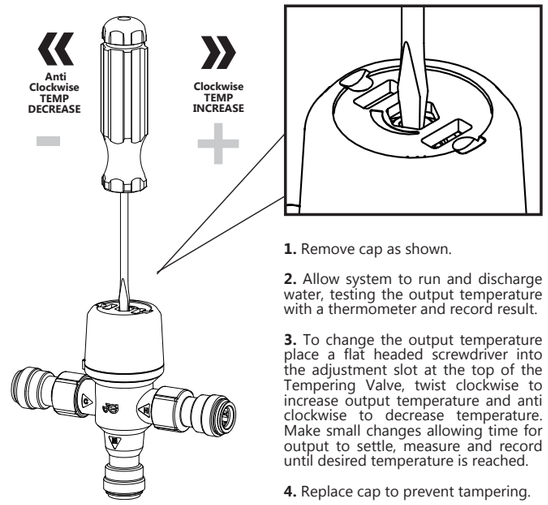
Cap Removal



To un-clip, prise up cap at the recesses at the top of the Tempering Valve, remove and retain.

Temperature Adjustment Control

This process should be carried out while testing the mixed temperature, to obtain desired setting. The valve will be pre-set to approximately 50°C.



1. Remove cap as shown.

2. Allow system to run and discharge water, testing the output temperature with a thermometer and record result.

3. To change the output temperature place a flat headed screwdriver into the adjustment slot at the top of the Tempering Valve, twist clockwise to increase output temperature and anti clockwise to decrease temperature. Make small changes allowing time for output to settle, measure and record until desired temperature is reached.

4. Replace cap to prevent tampering.

General Maintenance | Filter Cleaning

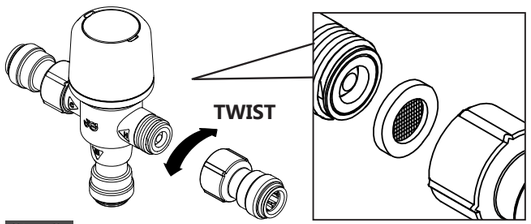
During operation of the Tempering Valve, the filters may need to be cleaned. Should this be necessary, access to the filters can be achieved by unscrewing the adaptors, removing the filters and cleaning by hand. Carry this out periodically to ensure the product has sufficient flow. If the valve filters become blocked on a regular basis due to poor or adverse water conditions, then additional strainers may need to be added upstream of the Tempering Valve.

Step 1

Isolate the hot and cold water feeds to the valve.

Step 2

Remove the valve from the system, to release each pipe, pull the pipe in one direction whilst holding the collet in the release position. Do this for all connections. (If still unclear please refer to 'How to make a standard connection').



Step 3

On the basis that the Tempering Valve is not moved from the system, the hot, cold and mixed pipe can be removed.

Step 4

Unscrew the adapters from the body as shown above.

Step 5

Remove the filters and place under running water until clean.

Step 6

Reassemble the Tempering Valve by reverse of the above process, ensuring the adapters are **HAND TIGHTENED ONLY**. Reinstall valve into the system.

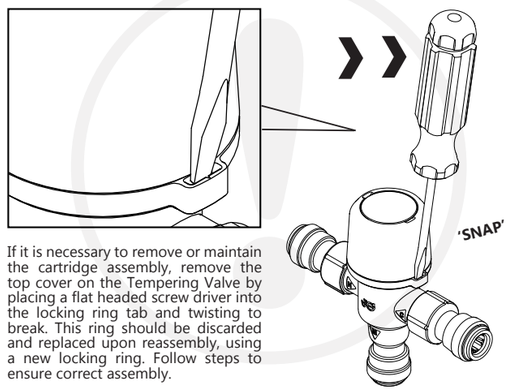
Maintenance

Before proceeding with maintenance be aware that replacement parts are only available in selected markets.

John Guest's Tempering Valve will provide mixed water as per specification, on the basis that the valve is maintained and subjected to relevant 'in service' tests.

Similar to installation, any servicing and maintenance should be carried out by a licensed plumber. John Guest recommends that the Tempering Valve is checked annually to ensure accurate operation. When performing temperature checks, ensure it is the same outlet used in installation.

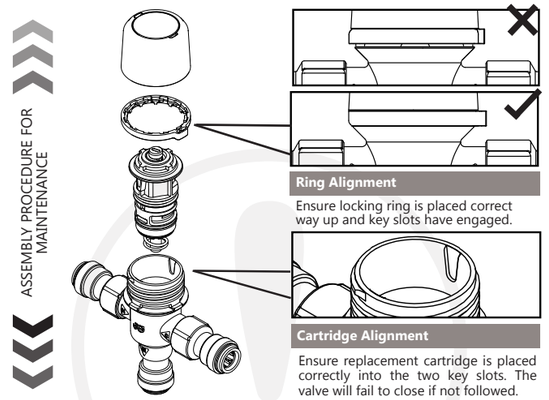
Cartridge Maintenance



If it is necessary to remove or maintain the cartridge assembly, remove the top cover on the Tempering Valve by placing a flat headed screw driver into the locking ring tab and twisting to break. This ring should be discarded and replaced upon reassembly, using a new locking ring. Follow steps to ensure correct assembly.

Cartridge Maintenance

ASSEMBLY PROCEDURE FOR MAINTENANCE



Ring Alignment

Ensure locking ring is placed correct way up and key slots have engaged.

Cartridge Alignment

Ensure replacement cartridge is placed correctly into the two key slots. The valve will fail to close if not followed.

Step 1
Isolate the hot and cold supply.

Step 2
Remove locking ring and cap, unscrew top cover.

Step 3
Carefully lift out the cartridge assembly and put to one side.

Step 4
Inspect the components for any contamination or damage, in most cases hard water will cause lime scale build up in some valves, this will need to be cleaned.

Step 5
Clean and replace as necessary. Re-fit the cartridge assembly, by placing in valve body.

Step 6
Remember to include the spare locking ring when re-assembling the tempering valve (Discard broken ring). Be sure to follow the illustration, showing the order of assembly. The new locking ring must be placed onto the bottom of the thread.

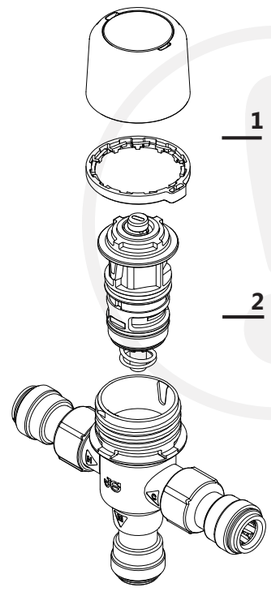
Step 7
Screw the top cover back on firmly, a click should be heard. The valve is now completely reassembled and ready to be used.

Replacements

Before proceeding with maintenance be aware that replacement parts are only available in selected markets.

In order to ensure that the Tempering Valve continues to provide satisfactory service, only genuine John Guest spare parts must be used.

Note: To locate the nearest distributor of genuine replacements, please refer to the company catalogue and quote the corresponding part numbers (Shown below).



	Description	Part Number
1	Locking Ring Replacement	C-1346501
2	Cartridge Replacement Kit	TMV12-CRK