

GUARANTEE

This product is guaranteed against faulty materials and workmanship for 12 months from date of purchase. For the guarantee to be valid, the unit must be installed by a competent person, in accordance with the instruction booklet.

Any part found to be defective during the guarantee period, will (at our option) be repaired or replaced, free of charge, provided the unit has been installed, and properly used in accordance with the instruction booklet.

This guarantee does not affect your statutory rights.

Service Policy (Available in UK and ROI only)

In the event of a product or component fault, firstly follow the general fault diagnosis procedure to ensure the difficulty can be resolved. If the fault can not be identified using the procedure, call the installer to check installation is correct.

Failing this, please contact the Customer Service Department on the telephone number below.

Have following information prepared, to help identify the product: Model type, Date of purchase, unit serial number (if available). The Customer Service Department will attempt to diagnose the cause of the fault and advise the necessary action to resolve the problem over the phone.

If the fault can not be resolved and a service call is required, a Site Visit Request form will be sent to you to complete and return. Where applicable a fixed fee payment for parts and/or labour will be levied. The cost incurred and payment methods will be advised over the phone and on the Site Visit Request form.

A completed form, along with payment (if applicable) must be received before the Service callout can be arranged.

If the problem is not product related or is a component not of our manufacture, a fixed fee will be made to cover Site Visit costs. Additional costs for parts used to rectify the non-product related problem may be imposed.

During the visit, yourself or a responsible person should be present at all times. Charges will be made if the Service Engineer or Agent can not gain site access at the prearranged time.

Ensure water and/or electricity supplies have adequate isolation to the unit. If the unit is concealed, serviceable access should be available. If servicing difficulties arise from not making the provisions detailed, additional time related costs or a recall charge will be imposed.

Customer Care  **0844 7016273**

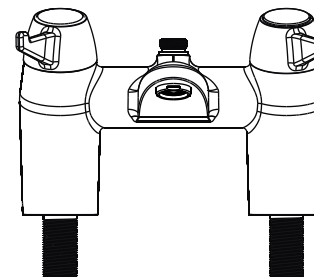
CUSTOMER REFERENCE DATA

Model Type:
Date of purchase:
Installer: **Tel No:**
Serial No:

BRISTAN

SOLO-T3-BSM

Thermostatic Bath Mixer with Independent Thermostatic Shower Mixer



OPERATING AND INSTALLATION INSTRUCTIONS

Before installing and operating the unit, please read this manual thoroughly, and retain it for future reference

QUALITY CONTROL ASSURANCE

Our quality control procedures endeavour to ensure this pack is complete. However, if you find any parts missing or require Technical Information, please contact the manufacturer.

TMV2 APPROVAL CERTIFICATE No.BC291/0508
HP- S High Pressure Shower
HP- High Pressure Bath

TMV3 APPROVAL CERTIFICATE No.BC292/0308
HP-S High Pressure Shower
HP-T44 High Pressure Bath
LP-S Low Pressure Shower
LP-T44 Low Pressure Bath

WRAS Approval Number - 0710018

Bristan Group Ltd
Birch Coppice Business Park
Dordon
Tamworth
Staffordshire
B78 1SG
T: 0844 7016274
E: customer care@bristan.com

800304H

INTRODUCTION

It has been recognised that users of hot water in care establishments are at risk from scalding. This risk has been reduced by the use of thermostatic mixing valves. In order to assure the performance of thermostatic mixing valves for use with people at risk N.H.S. Estates Model Engineering Specification DO8 was written. This product has been independently tested by the Buildcert. Scheme to ensure it complies with Engineering Specification Do8 (TMV3 Approval) and BSEN1111 (TMV2 Approval). The following abbreviated designation codes are used throughout this booklet. Detailed descriptions are given below:-
 HP-High Pressure LP- Low Pressure S- Shower

This product is approved for:-

Code	Operating Pressure	Application
HP-S	High Pressure	Shower
LP-S	Low Pressure	Shower
HP-T44	High Pressure	Bath
LP-T44	Low Pressure	Bath

CONDITIONS FOR NORMAL USE

In order to give compliance with N.H.S. specification Do8 and the TMV2 scheme. The table below lists the conditions for normal use, the valves may perform adequately outside these parameters but the TMV2 and TMV3 scheme approval does not apply. If they are required to work with other supply conditions an engineer must carry out a risk assessment and satisfy themselves that the units are still suitable for use.

TMV2 Conditions for normal use

Operating pressure range	High pressure
Maximum static pressure - bar	10
Flow pressure, hot and cold - bar	0.5 to 5
Hot supply temperature - °C	55 - 65°C
Cold supply temperature - °C	≤25°C
Minimum Temperature Differential Between Mixed Temperature & Either Supply	10°C

NOTE:

Valves operating outside these conditions of use cannot be guaranteed to operate as Type 2 valves. Any deviation from the conditions will not comply.

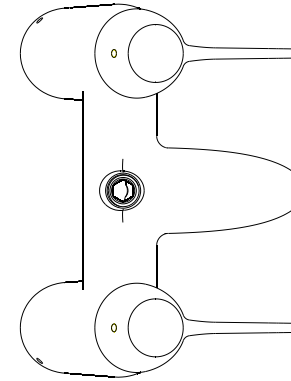
IMPORTANT NOTE:-

If water supply is gravity fed, then water supply pressures must be verified to ensure the conditions are appropriate to the valve.

TMV3 Conditions for normal use

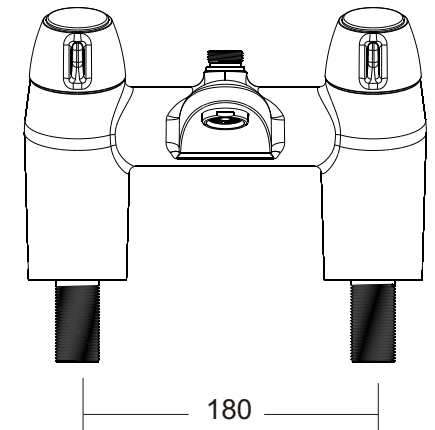
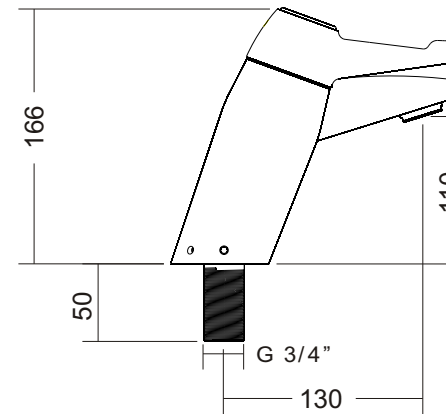
Operating pressure range	Low pressure	High pressure
Maximum static pressure - bar	10	10
Flow pressure, hot and cold - bar	0.2 to 1.0	1 to 5
Hot supply temperature - °C	52 - 65°C	52 - 65°C
Cold supply temperature - °C	5 - 20°C	5 - 20°C
Minimum Temperature Differential Between Mixed Temperature & Either Supply	10°C	10°C

DIMENSIONS



ALL DIMENSIONS IN MM

NOTE - All dimensions and angles are approximate



SPARE PARTS

A full set of spares are available via our service department for this product to order spares please contact our service department on **0844 7016273**

SOLO-T3-BSM O-RING SEALS KITSKSOLO3-1
SOLO-T3-BSM BATH CARTRIDGE..... SKSOLO3-2
SOLO-T3-BSM SHOWER CARTRIDGE....SKSOLO3-3
PAIR INLET TAIL ASSEMBLIES.....SKSOLO3-4

Please refer to centre pages for ordering codes on all other items.

FAULT FINDER

Fault	Cause	Rectification
No or reduced flow and/or fluctuating temperature	Flow Straightener or Shower Head Blocked.	- Clear debris from Flow Straightner/Showerhead
	- Isolating valve partially closed.	- Open valves.
	- Gravity head of water below minimum requirement.	- Raise tank or fit pump.
	- Blockage in supplies.	- Dismantle and check for debris. Flush supplies before refitting.
	- Other draw offs in use causing pressure or temperature changes.	- Do not use other draw offs whilst in use.
	- Supply pressure unequal.	- See maximum pressure differential in Specifications.
	- Flow limiters incorrectly fitted.	- Remove and refit to specification.
Maximum outlet temperature to hot or cold	- Tap cross circulating.	- Check non return valves and conditions of seals.
	- Maximum temperature incorrectly set.	- Reset maximum temperature [Refer to Temperature section].
Maximum temperature too cold or runs cold after a short time (maximum temperature set or fully adjusted).	- Hot water is less than 10°C above the outlet temperature required.	- Adjust tank temperature to 60-65°C Ensure hot water is up to temperature
		- Check tank or heater capacities.
		- Increase flow through system.
		Increase pressure in system.
		Check for blockages. Contact boiler manufacture.
Outlet flow too much.	- Flow limiters incorrectly fitted.	- Remove and refit to specification.
Only hot or cold water at outlet	- Inlet supplies reversed/backwards.	- Ensure supplies are connected correctly to hot or cold inlets.
	- Inlet supplies blocked.	- Clean out debris.
Tap will not shut off or leaking from body.	- Seal damage or wear.	- Renew all seals.
	- Scale build up inside mixer.	- Dismantle and check for debris.
	- Inlet pressure above maximum recommendations.	- Ensure supply pressure are within Specifications.
		Fit pressure regulating valve if necessary.
No thermostatic fail safe.	- Inlet temperatures not within specifications	- Check inlet temperature, hot supply should be 10°C higher than tap outlet temperature.
	- Piston assembly jammed.	- Dismantle and check for debris.
	- Thermostat failure.	- Replace thermostat.
	- Debris trapped in mechanism.	- Dismantle and check for debris.
	- Inlet supplies reversed.	- Ensure supplies are connected correctly to hot and cold inlets.

SPECIFICATION

INLETS:	3/4" BSP INLET TAILS
SHOWER OUTLETS:	1/2" BSP Male iron/15mm compression adapter
WEIGHT:	4.3kg
MINIMUM PRESSURE DROP THROUGH FITTING FOR CORRECT MIXING:	0.2 bar (2 metre head) to bath outlet 0.1 bar (1 metre head) to shower outlet
MAXIMUM PRESSURE DROP THROUGH FITTING FOR CORRECT MIXING:	5.0 bar (50 metre head)
MAXIMUM STATIC PRESSURE TO BE APPLIED TO FITTING:	10.0 bar (100 metre head)
TEMPERATURE STABILITY WITH NOMINAL VARIATION OF SUPPLY TEMPERATURE AND PRESSURES FOR SHOWER:	"±- 2" Degrees Celcius
TEMPERATURE STABILITY WITH NOMINAL VARIATION OF SUPPLY TEMPERATURE AND PRESSURES FOR BATH:	
FACTORY SET MAXIMUM BLEND TEMPERATURE FOR SHOWER:	43 Degrees Celcius (+0 -2°)
FACTORY SET MAXIMUM BLEND TEMPERATURE FOR BATH:	43 Degrees Celcius (+ 0-2°)
MAXIMUM HOT SUPPLY TEMPERATURE:	80 Degrees Celcius
MAXIMUM PRESSURE LOSS RATIO:	5:1 without flow limiters
	50:1 with flow limiters

PERFORMANCE

BATH FILL :  **Recommend fitting flow limiters**

PRESSURE (BAR)	0.2	0.3	0.4	0.6	0.8	1	1	2	3	4	5
FLOWRATE	15.5	20	23.5	29	34	36	16	17	17	17	17

SHOWER : (Open Outlet only, does not allow for loss through pipes or fittings)

PRESSURE (BAR)	0.1	0.2	0.3	0.4	0.6	0.8	1	1	2	3	4	5
FLOWRATE	6	9	11	14	17	20	22	16	19	19	19	19

NOTE: (flow rates in litres/min. On equal pressure drops)

SYSTEM COMPATIBILITY

To ensure the correct operation of your Bath/Shower mixer it is important to fully understand your site installation. This dual thermostatic valve will suit the following:-

**HIGH PRESSURE.
LOW PRESSURE.
MAINS PRESSURE.
PUMPED PRESSURE.
UNEQUAL PRESSURE.
GRAVITY PRESSURE.**

INSTALLATION

GENERAL

Installation must be carried out in accordance with the instructions supplied and be installed by a qualified and competent person.

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

Care must be taken during installation to prevent any risk of injury or damage. The bath to which the unit is to be fitted must have 2 holes with a minimum diameter of 26.5mm and a maximum diameter of 38.0mm set at 180.0mm centres.

- The mixer needs to be positioned to allow access to the Grub Screw (45) on the side of the tap.
- To eliminate pipe debris entering the Mixer, Inline filters(41) have been fitted into the Check Valve Cassettes. **Fitting product without these filters may invalidate any Guarantee claim put in against this unit.** It is essential that no debris enters the valve. If installation is on a new build or extensive pipework modification has taken place, it is **essential** to flush the system prior to installing this Unit.

FINAL INSTALLATION

1. The fitting of isolation valves is required as close as practicable to the water supply inlets of the thermostatic mixing valve. This is a requirement of the TMV3 approval, thus, **the unit is factory set for High Pressure systems.** If it is to be fitted to a low pressure system ie. 1 Bar or below these flow limiters must be removed to ensure satisfactory performance from the unit.
2. The fitting of strainers is recommended as close as is practicable to the water supply inlets of the thermostatic mixing valve.
3. The thermostatic mixing valve will be installed in such a position that maintenance of the TMV and its valves and the commissioning and testing of the TMV can be undertaken.
4. Connect 22mm hot and cold water supplies to mixer using 22mm x 3/4" tap connector (Not supplied).
5. Re-establish water supply.
6. Check for leaks.
7. Calibrate valve to site conditions (see page 5).

Method of Commissioning Thermostatic Mixing Valves:

Check that:

- a) the designation of the thermostatic mixing valve matches the intended application
- b) the supply pressures are within the range of operating pressures for the designation of the valve.
- c) the supply temperatures are within the range permitted for the valve and by guidance information on the prevention of legionella etc..

Adjust the temperature of the mixed water in accordance with the manufacturer's instructions and the requirement of the application and then carry out the following sequence:

- a) record the temperature of the hot and cold water supplies.
- b) record the temperature of the mixed water at the largest draw-off flow rate.
- c) record the temperature of the mixed water at a smaller draw-off flow rate, which shall be measured.
- 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 stabilised temperature.

IMPORTANT!

Installations using Combination Gas Boiler systems

When installing this product on above system, fit the 10 litre flow limiter into the Shower outlet . Ensure flow limiter is installed the correct way around. (see above diagram). Failure to fit them on this system will result in unsatisfactory performance from this unit.

Note! Boiler must have a minimum temperature rise of 30°C at a flow of 11 litres Per minute for satisfactory operation.

IN-SERVICE TESTING - TMV3

The purpose of commissioning and in-service testing is to monitor any deterioration in the performance of the thermostatic controls that may indicate the need for service be carried out on the system. Deterioration in performance can indicate the need for service work to be carried out on the system.

If the authority concerned does not have a planned test and maintenance schedule then the following suggestions below could form the basis of a new system. At the time of commissioning the system the following tests should be carried out:-

- A) Record the temperature of both supplies.
- B) Record the temperature of both mixed water outlets.
- C) Isolate the cold water supply and monitor both the mixed water temperatures recording the maximum temperatures.
- D) Monitor and record the stabilised mixed water temperature after above test (c)
- E) Record the thermometer etc. Used so that the calibration can be verified.

At intervals of approximately 7 weeks and 14 weeks after the above procedure the following tests should be carried out :-

1. Check supply parameters are still within the expected values if not check system for faults.
 2. Record the temperature of both mixed water outlets using the same equipment. If either of the temperatures has changed significantly(more than 1K). Check the inline filters and check valves are clean and the isolators are fully open. Any faults should be rectified, the mixed water temperature Should be reset as temperature setting on page 5
 3. Complete the rest of the tests (c) to (e) if either of the maximum mixed water temperatures exceed the values originally recorded by more than 2K the need for servicing is indicated.
- If an insignificant change occurs (ie. 2K maximum) in these tests then the next in service test should be carried out at approximately 26 weeks after commissioning. If a larger change occurs in all the tests then the next in service tests should be carried out in approximately 19 weeks after commissioning.

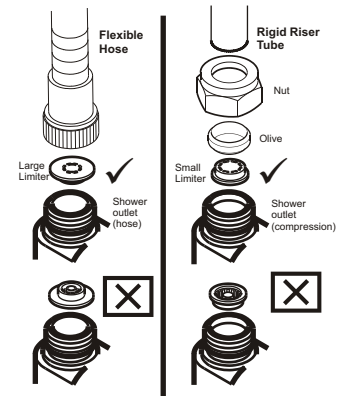
These results can be used to set a service interval that tests have shown will cause no more than small change in mixed water temperature. This method of determining service intervals will take into account various in service conditions that may affect the thermostatic controls.

FLOW LIMITERS

Your Bath/Shower mixer comes with two flow limiters; a light green 15 litre limiter (hot side) and an orange 9 litre limiter (cold side) factory fitted into the inlet tails. With these in place the unit can be used on any system that supplies a pressure of 1 Bar dynamic or above. If the system that the mixer is to be connected is below this figure, the 2 flow limiters will have to be removed from the inlet tails, if the product is to be used for TMV2 applications, the flow limiters should be reversed, the light green limiter should be put in on the cold side and the orange flow limiter should be put in on the hot side, if this is not done, the flow will be reduced.

FLOW LIMITERS AT SHOWER OUTLET

The Bath/Shower mixer packing kit has 2 types of 10 litre flow limiters included. These have been included with the product that, in the event that the mixer is delivering too much volume at the shower outlet. It can be limited at this point to allow no more than 10 litres/minute. Which type of flow limiter is used will depend on whether a rigid kit or a flexi kit is used.



(See diagram)

MAINTENANCE

This product has been designed with ease of servicing as its major objective. Isolation has been included within the unit and is accessible from above the bath by simply removing the large indices (47) inserting a 5mm allen key into the hole and turn the isolation ball valve, contained within each inlet tail (44) through 90°. With the unit now isolated the two small Trim buttons located at the base of chromed body can be removed from the unit to reveal grub screws (45). Loosen these using 2.5mm allen key (supplied). The complete body assembly can now be gently raised off the inlet tail assemblies to reveal the check valve cassette(40) that is screwed into the top of the inlet tail assembly.

CLEANING OF INLINE FILTERS

The unit comes with inline mesh filters (42 & 50) fitted to stop debris entering the valve. These must be in place during all operation of the unit. If the unit is operated without these filters in place it may invalidate your guarantee. To get access to these filters use a 22mm open ended spanner to loosen the Check Valve Cassette you will find that the filters are captivated between the face of the cassette and the isolating tail body. Wash away any accumulated debris from that filter. Re-assemble using reverse of the instructions above. Care must be taken not to over tighten the Check valve Cassette back into isolating tail as this will cause damage to the black seal that surrounds each filter(42 & 50).

FLOW LIMITER REMOVAL

The Flow Limiters (42 & 50) are located in a counterbore on the bottom of the Check Valve Cassette they are light green and orange in colour to remove them insert a small flat bladed screwdriver into the slots of the limiter and gently prise out. If the white outer casing is left in the counterbore remove this by using the screwdriver to ease this out.

CHECK VALVES

The unit comes complete with check valves (39) these must also be periodically checked for debris to ensure their correct operation.

IN-SERVICE TESTING - TMV2

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

Measure the mixed water temperature at the outlet. Carry out the cold water supply isolation test by isolating the cold water supply to the TMV, wait for five seconds if water is still flowing check that the temperature is below 46°C. If there is no significant change to the set outlet temperature ($\pm 2^\circ\text{C}$ or less change from the original settings) and the fail-safe shut off is functioning, then the valve is working correctly and no further service work is required.

NOTES

If there is a residual flow during the commissioning or the annual verification (cold water supply isolation test), then this is acceptable providing the temperature of the water seeping from the valve is no more than 2°C above the designated maximum mixed water outlet temperature setting of the valve. Temperature readings should be taken at the normal flow rate after allowing for the system to stabilise. The sensing part of the thermometer probe must be fully submerged in the water that is to be tested. Any TMV that has been adjusted or serviced must be re-commissioned and re-tested in accordance with the manufactures instructions.

TEMPERATURE SETTING/CALIBRATION

TEMPERATURE SETTING

The requirements of the TMV3 scheme dictates that the unit is factory set for maximum temperature. In the case of the shower side that setting is 41°C +0 -2°C and in the case of the bath the setting is 44°C +0 -2°C.

APPLICATION	MIXED WATER TEMPERATURE (at point or discharge) °C
Bidet	38
Shower	41
Wash Basin	41
Bath (44°C fill)	44
Bath (46°C fill)	46

NOTE 1: For wash basins, washing under running water is assumed.

NOTE 2: Bath fill temperatures of more than 44°C should only be available when the bather is always under the supervision of a competent person (eg. nurse or carer assistant). **NOTE 3:** A thermostatic mixing valve having multiple designations (ie. it is capable of satisfying the requirements of this specifications for more than one application should be re-set on site to suit its other designations.

TMV2 - NOTE: Mixed water temperature at the terminal fitting should never exceed 46°C.

The temperature takes account of the allowable of the temperature tolerance inherent in the thermostatic mixing valves and temperature losses in metal baths.

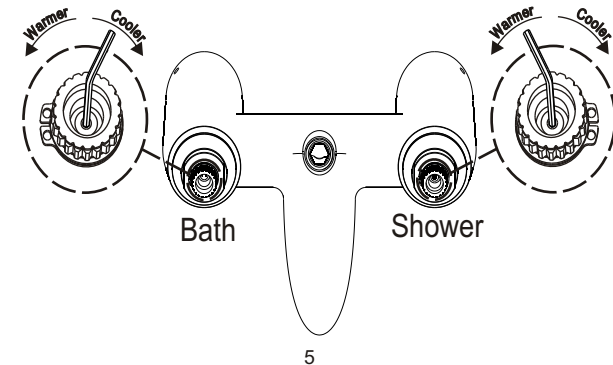
Its is not a safe bathing temperature for adults or children.

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

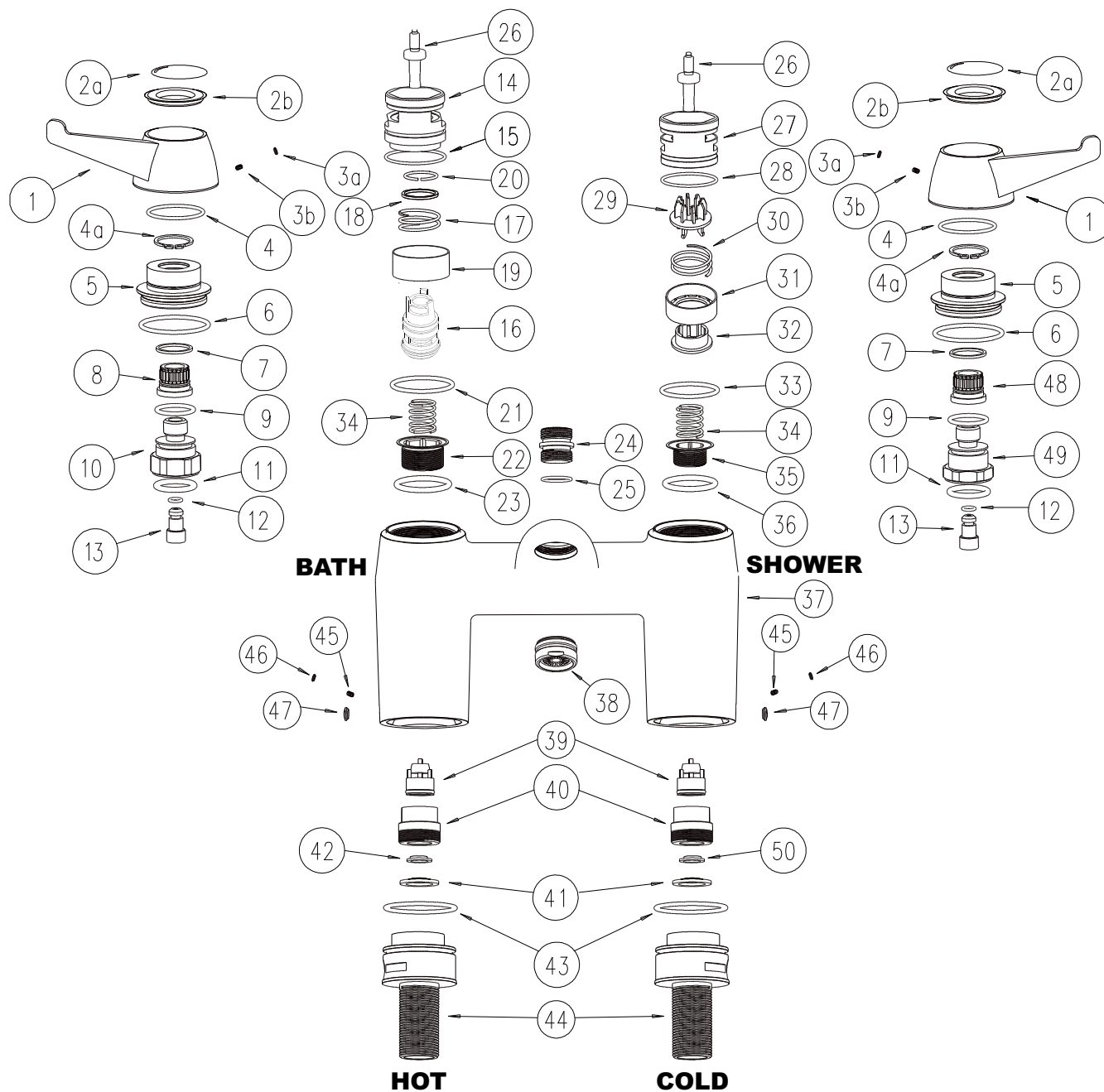
CALIBRATION PROCEDURE

TOOLS REQUIRED:- 2.5MM ALLEN KEY, THERMOMETER

- * Turn the tap to the fully open position.
- * Remove the grub screw from the back of the lever. (Using the 2mm provided).
- * The lever can be pulled off.
- * When looking down onto the top of the cartridge you will be able to see the adjusting screw with a hexagon centre, turning this with the 2.5mm allen key (provided) this will increase or decrease the temperature.
- > **Turn the adjusting screw clockwise for cooler temperature.**
- < **Turn the adjusting screw anti-clockwise for warmer temperature.**



ASSEMBLY DWGS. & PARTS LIST



No.	Description	Qty
1	HANDLE	2
2a	BATH INDICE	2
2b	INDICE HOLDER	2
3a	TARGA BUTTON	2
3B	M5 GRUBSCREW CONE POINT	2
4	O - RING	1
4a	CIRCLIP	2
5	HEAD	2
6	O - RING	2
7	LARGE PTFE WASHER	2
8	BATH FLOW NUT	1
9	O - RING	2
10	BATH SHUT OFF HEAD	1
11	O - RING	2
12	O - RING	2
13	ADJUSTING SCREW	2
14	BATH HALF CARTRIDGE	1
15	O - RING	1
16	BATH DISTRIBUTOR	1
17	SPRING (LARGE)	1
18	SPACER	1
19	PISTON	1
20	PLAIN RING	1
21	O - RING	1
22	BATH SEAT RETAINER	1
23	O - RING	1
24	OUTLET ADAPTOR	1
25	O - RING	1
26	THERMOSTAT	2
27	SOLO T3 HALF CARTRIDGE	1
28	O - RING	1
29	PLASTIC DISTRIBUTOR	1
30	SPRING (LARGE)	1
31	PLASTIC PISTON	1
32	PLASTIC RETAINING COLLAR	1
33	O - RING	1
34	RETURN SPRING	2
35	SHOWER SEAT RETAINER	1
36	O - RING	1
37	BODY	1
38	M28 FLOW STRAIGHTENER	1
39	CHECK VALVE	2
40	CHECK VALVE CASSETTE	2
41	M28 FILTER WASHER	2
42	15 LTR FLOW LIMITER - LIGHT GREEN	1
43	O - RING	2
44	INLET TAIL	2
45	M5 GRUBSCREW	2
46	TARGA BUTTON	2
47	CHROME INDICE	2
48	SHOWER FLOW NUT	1
49	SHOWER SHUT OFF HEAD	1
50	9 LTR FLOW LIMITER - ORANGE	1