


Thermostatic mixing valves TX91 to TX96

ULTRAMIX®



- Continuous PROTECTION AGAINST LEGIONELLA.
- SCALD PROTECTION.
- MAXIMUM LIMITATION of adjustable and bolttable TEMPERATURE.
- LIMITED MAINTENANCE : no friction from moving metal parts means excellent resistance to scale and remarkable longevity.
- BIMETALLIC STRIP TECHNOLOGY : exceptional qualities of regulation and resistance to the scale (crucial factor for safety).

- SIMPLE AND FAST MAINTENANCE: removal cartridge without dismantling the thermostatic mixing valve, strainers and integrated check valves  accessible directly on the cartridge.
- ADJUSTMENT PRECISION and COMFORT of the temperature stability with low and high flow rates.
- GUARANTEE : thermostatic mixing valve and cartridge guaranteed 10 years.
- Direct access to the calculation software : [click here](#)

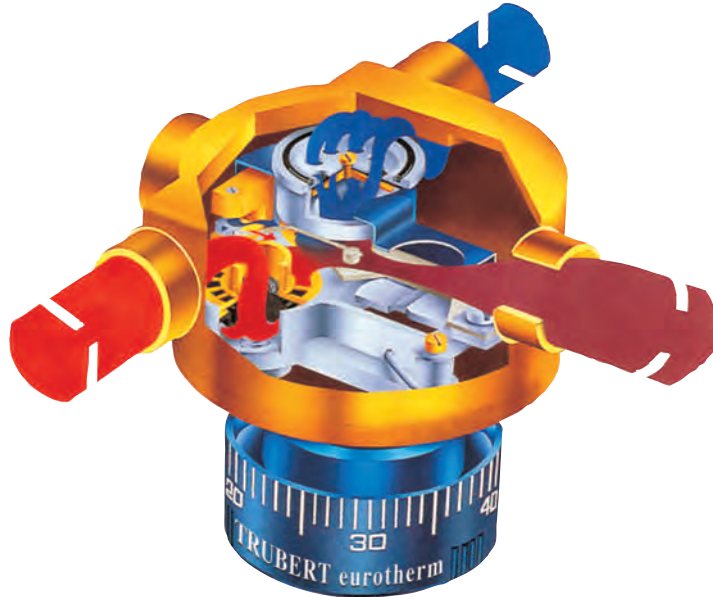
 **WATTS**[®]
INDUSTRIES

A Division of Watts Water Technologies Inc.

THE BIMETALLIC STRIP TECHNOLOGY

Trubert is the inventor of the Bimetallic strip concept.

Trubert is one of the most well-known names in thermostatic control and is our original brand name for thermostatic items.

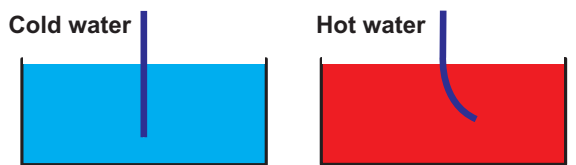


The TRUBERT Eurotherm technique uses the principle of double control through indirect action of a bimetallic strip. This receives temperature information corresponding to the set point and will react instantaneously (+/- 1 sec.). The double control will take place as follows : the bimetallic strip acts on a pre-mixing valve with a very small flowrate, also called the distributor, this will regulate the flow of water in two slave valves with membranes, causing an amplification of the signal, but ensuring the same mixture proportion and thus the same temperature.

The slightest variation in use conditions will be passed along to the same operating chain : first the distributor and then the large water passages.

This technology is the basis of the WATTS INDUSTRIES FRANCE success, since it combines substantial regulation and scale-resistance qualities (a decisive element for safety).

BIMETALLIC STRIP CONCEPT



Water mixing is obtained by two independent valves, one for hot water, one for cold water – which operate like two hydraulic relays.

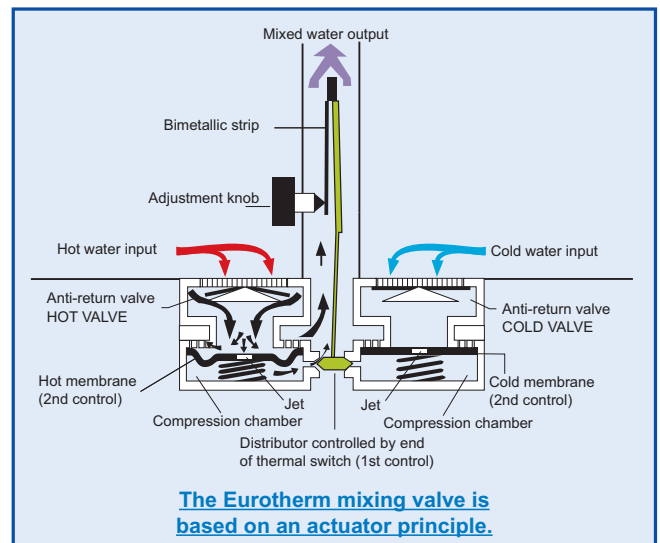
These two valves are controlled by a bimetallic strip that records output water temperature. Its position can also be adjusted by means of the thermostatic mixing valve's control knob.

The water runs at exactly the desired temperature.

If it goes off by just one degree, the bimetallic strip instantly adjusts water mixing.

This operational principle provides many advantages:

- No load from water pressure is exerted on the bimetallic strip.
- Due to the bimetallic strip's high sensitivity and nearly non-existent inertia, it is not subject to any load and the mixing valve reacts instantly.
- Nearly non-existent hysteresis and improved durability over time with the bimetallic strip.
- No friction from moving metal parts means excellent resistance to scale and remarkable longevity.
- Thanks to the relay operational principle, low and high flow rates receive the same adjustment quality (which is not true of all solutions available on the market).
- Anti-scalding feature: The hot water shuts off automatically if there is not enough cold water. (Δ Hot water/Mixed water > 10°C), avoiding the scalding.



Integrated check-valves and strainers



ULTRAMIX

ULTRAMIX thermostatic mixing valve - 56 to 400 L/min

Thermostatic mixing valves with a double regulation functioning according to a principle of servo-motor. Water mixing is obtained by two independent valves, one for hot water, one for cold water – which operate like two hydraulic relays. These two valves are controlled by a bimetallic strip that records output water temperature and can be adjustable also with the calibrated control knob.

This operational principle provides many advantages, and especially:

- No friction from moving metal parts means excellent resistance to scale and remarkable longevity.
- Thanks to the relay operational principle, low and high flow rates receive the same adjustment quality (which is not true of all solutions available on the market).

FLOW RATES MINIMUM lowest of the market:
The use of only one shower is sufficient for its perfect operation whatever the diameter of the thermostatic mixing valve.

Built-in blocking control knob - Cover in front (gray PVC). Standards temperature range: 10/50°C or 30/70°C, on request and for no extra charge: 5/40°C.

Blue control knob graduated.

Dynamic pressure flow rates under 3 bar.

TX91 to TX96: 1 mixed water outlet on the top.
 TX91 and TX92: 1 bottom mixed water outlet to be plugged.
 TX93, TX94, TX95 and TX96 with bottom drain plug.
 Inlet hot water on the left, cold water on the right, possibility of reversed inlets for no extra charge (add "IN" at the end of the ref. codes).

- Anti-scalding feature : The hot water shuts off automatically if there is not enough cold water. (Δ Hot water/Mixed water > 10°C).
- Thermostatic mixing valve mechanism: the mechanism is directly integral with the thermostatic mixing valve cover.
- Approved check-valves **NF** : superior level hydraulic features, due to the valve closure member's overall design.
- Filtering : Strainer anchored on watertight elastomer support. Perfect accessibility, disassembly without tools, easy cleaning requiring no special qualification.
- Total interchangeability: the ULTRAMIX range cartridges are interchangeable with the current range and the old range.
- ULTRAMIX is guaranteed 10 years. • Rinsing kit included.

Characteristics:
 The ULTRAMIX may be supply by any hot water production system, even by instantaneous production ; if the generator is able to produce very low hot water flows.

Operating pressure :

maxi.	mini.	recommended
10 bar	1 bar	2-4 bar

Max. hot water temperature: 85°C.

Minimum temperature variation between inlets : 5°C.

Maximum pressure variation: 1,5 bar.

Direct access to the calculation software: [click here](#)



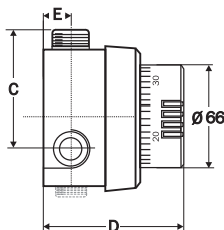
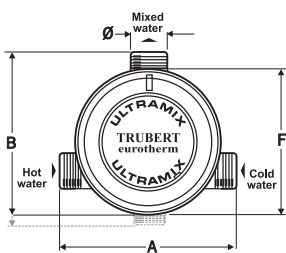
Against legionella answer:

→ You can with the thermostatic mixing valve such as it is (with 30/70°C cartridge):

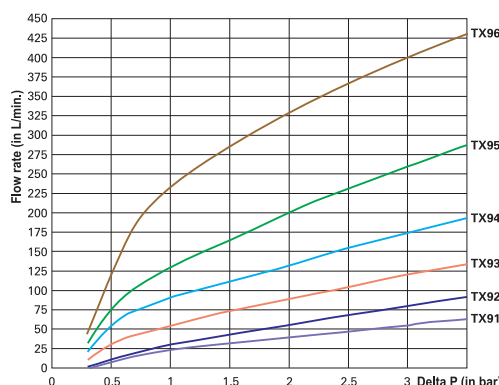
- adjust the temperature up to 55°C in the primary loop (recommended temperature).
- adjust the temperature to 39°C (until 50°C - according to uses) in the secondary loop.
- proceed to a thermal "shock": simply by freeing the control knob and position it a 70°C (without dismantling the thermostatic mixing valve, cartridge or control knob).

→ You also can by putting the cartridge in position "rinsing" i.e. turned over cartridge, fixed at back, (rinsing kit and simple procedure delivered with each ULTRAMIX):

- rinse the thermostatic mixing valve and the drains (important before activation).
- inject a disinfectant (chlorine) into the water supply system without danger of damaging the thermostatic mechanism, because is not any more in contact with water.
- proceed to a thermal "shock" with more 70°C, without risk to damage the thermostatic mechanism prematurely, because is not any more in contact with water.



Model	TX91	TX92	TX93	TX94	TX95	TX96
A (mm)	117	117	144	182	218	242
B (mm)	120	120	142	160	200	217
C (mm)	81	81	96	108	129	144
D (mm)	93	93	108	116	128	140
E (mm)	19	19	23	24	36	36
F (mm)	98	98	116	145	175	198
diameter	M3/4"	M3/4"	M1"	M1"1/4	M1"1/2	M2"
weight (kg)	1,8	1,8	2,8	4,6	7,8	10





Grouped installation, great number of points of use (1 to 50), flow rate until 400 L/min:

- **ULTRAMIX** : TX91, TX92, TX93, TX94, TX95, TX96 TX9137, TX9237, TX9337, TX9437, TX9537, TX9637



Water mixing is obtained by two independent valves, one for hot water, one for cold water – which operate like two hydraulic relays.

These two valves are controlled by a bimetallic strip that records output water temperature. Its position can also be adjusted by means of the thermostatic mixing valve's control knob.

This operational principle provides many advantages:

- No friction from moving metal parts means excellent resistance to scale and remarkable longevity.
- Thanks to the relay operational principle, low and high flow rates receive the same adjustment quality (which is not true of all solutions available on the market).
- Anti-scalding feature: The hot water shuts off automatically if there is not enough cold water.
- Comfort: not hot and cold shower, if the hot water supply is stopped, the cold water is turned off immediately.

FEATURES AND BENEFITS:

Recommended device for all applications where the mixed water temperature must be kept exact and constant, and adjusted at any time.

Standards temperature range : 10/50°C or 30/70°C (on request and for no extra charge: 5/40°C).

Thermostatic mechanism: A guarantee of safety and proven reliability for over forty years, the ULTRAMIX thermostatic mixing valve mechanism is the same as that used in the former range. It is directly integral with the thermostatic mixing valve cover.

Approved check-valves NF: Superior level hydraulic features, due to the valve closure member's overall design.

Filtering: Strainer anchored on watertight elastomer support.

Perfect accessibility, disassembly without tools, easy cleaning requiring no special qualification.

PROTECTION AGAINST LEGIONELLA:

There are only 2 methods recommended to fight the Legionella bacteria:

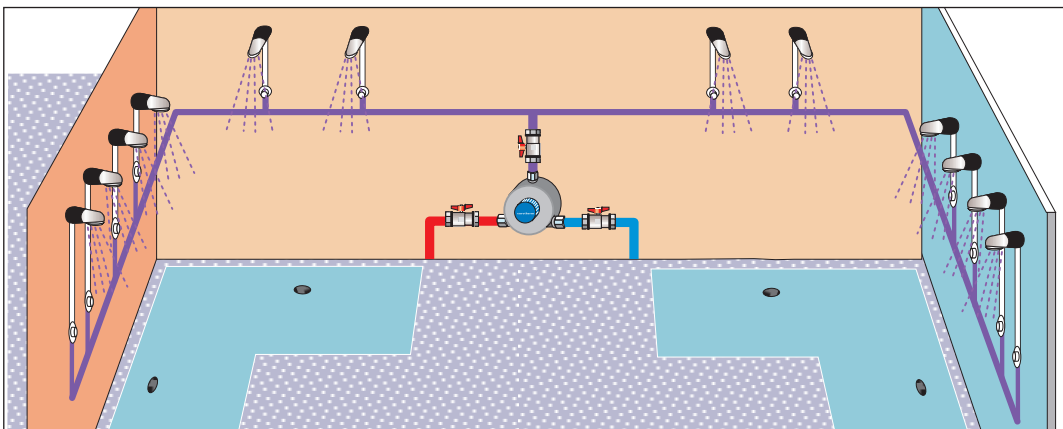
DGS* regulation

- 1 ✓ raise the temperature up to 70°C (thermal shock)
- 2 ✓ disinfect (chemical shock)

The ULTRAMIX Answer

- Yes at 100%
- Yes at 100%

* DGS : General health service - France



RIGHT OR LEFT CONNECTIONS ?:

All our mixing valves for public installations (T9107, T9715, ULTRAMIX and flange models) are designed for being supplied with HOT water at the LEFT and the COLD water supply at the RIGHT.

On special request, when this arrangement is impossible, some mixing valves can be fitted the other way round with a special cartridge of "IN" (inverse) type.

SANITARY CONFORMITY (ACS)

These certificate assure the conformity approval according to local requirements - A.C.S. (F) of our device.

THE « MULTI-LEVELS » APPROACH

THE RIGHT TEMPERATURE

FOR EACH APPLICATION

Key points of the regulation:

- A** - Increased hot temperature from the heater (use water heaters with minimal or no storage)
- B** - Use of recirculation systems: circulating loop and balancing valves
- C** - Ensure that the target temperature is achieved throughout all levels of the loop.
- D** - Circulating loop should be designed to return the mixed water to the storage not less than 55°C*.
- E** - Thermostatic mixing valves must be as close as possible to the point of use.
- F** - Thermostatic mixing valves must have integrated check-valves.
- G** - Thermostatic mixing valves must allow easy cleaning and disinfection operation.
 - Dismantle and clean hoses, taps, showerheads and thermostatic mixing valves minimum once a year.
 - Hot and cold water distribution pipes must be insulated sufficiently (never together).
 - To maintain cool water in lower part of 20°C.

* according to National Regulation

Flow diagram for a « multi-levels » complete mixed water circuit

VM : micrometer valves to stabilize circuit temperature.

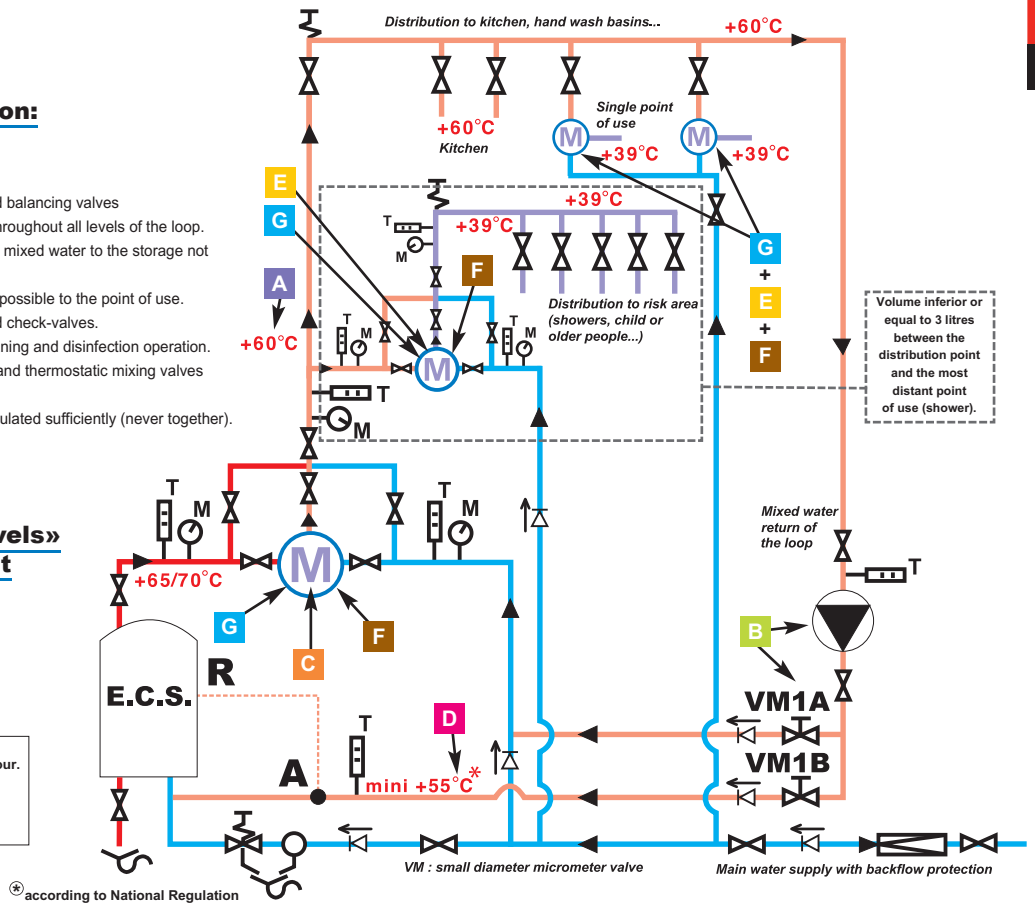
VM1 A : Open between 70 and 90%.

VM1 B : Open between 30 and 10%.

Remark: If there is a connection point on the boiler (**R**) the return circuit should be connected here (**A**).

Recycling of the loop: with a minimum of six times the mixed water's volume per hour.

Delivery of the pump : total manometric height, minimum 4 meters + head loss of the loop.



* according to National Regulation

SYMBOLS

Hot water	Water hammer arrester	Safety valve	Drain	Thermometer
Cold water	Stop valve	Pump	Pressure reducing valve	Manometer
Mixed water	Non-return valve	Thermostatic mixing valve	Isolating valve	
Flow direction	Water drain cock	Adjustment valve		

Table 1 Development of legionella according to water temperature

<20°C / 69°F	lethargic state
20-46°C / 68-115°F	growth (no multiplication from 47°C on)
50°C / 122°F	90% of bacteria will die in a period of 2 hours
60°C / 140°F	90% of bacteria will die in 2 minutes
80°C / 178°F	90% of bacteria will die in less of 1 minute

Table 2 Relation between the canalization's capacity and its length *

Material	Dimensions of the pipe	Length in meters leading to a capacity of 3 litres
Copper	15 x 1	22 m
	18 x 1	15 m
	22 x 1	9 m
Galvanized steel	DN 15	15 m
	DN 20	8 m
Plastic pipe PEX/PER	15 x 2,5	39 m
	18 x 2,5	23 m
Plastic PP	20 x 1,9	14 m
	25 x 1,9	9 m

*Source: CSTC Belgium Nov. 2002. The canalization's capacity is the inner section multiplied by the length.

Statutory calculation

Calculation of the loop's pump flow capacity =

$$Q \text{ (m}^3\text{/h)} = \frac{P \text{ (kW)}}{1,163 \text{ (td - tr)}}$$

The flow is calculated according to calorific losses on the surface of the whole piping, it depends on the thickness of the isolation.

Loss "P" :

$$P = L.k. (te - ta) \text{ P in w, L in m,}$$

K : coef k (insulating) (this coefficient varies according to the diameter and the nature of the pipe),

te : temperature of sanitary hot water,

ta : room temperature

(for example : +10°C in the basement, +20°C upstairs).

This discharge is usually determined according to a ΔT° near 5°C.

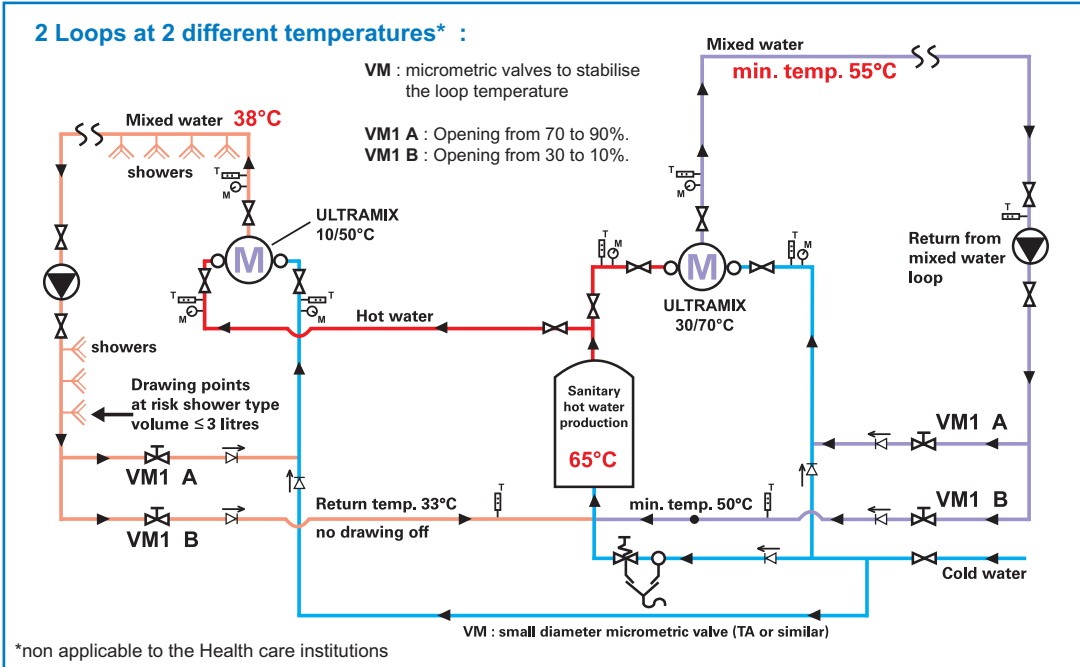
tr : temperature of the return, will never be less than 50°C.

td : starting temperature.

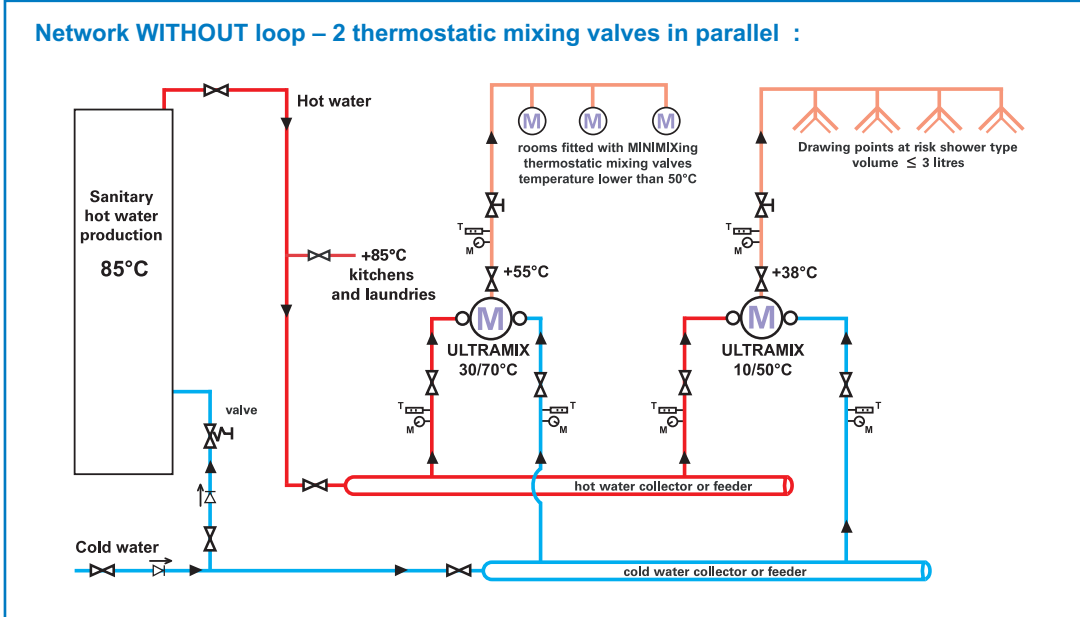
FURTHER DIAGRAMS OF CONFORMITY IN COLLECTIVITY:

The regulation therefore imposes the recommendation of thermostatic mixing valves :

- at the outlet of hot water production to lower the distributed hot water temperature (for example from 65 to 55°C),
- Upstream from and as near as possible to the points of use to limit any risk of scalding (50°C maximum).



SYMBOLS	
	Hot water
	Cold water
	Mixed water
	Flow direction
	Water hammer arrestor
	Stop valve
	Non-return valve
	Water drain cock
	Safety valve
	Pump
	Thermostatic mixing valve
	Drain
	Pressure reducing valve
	Isolating valve
	Adjustment valve
	Thermometer
	Manometer



How is a capacity of 3 litres ensured?

To respect the volume of 3 litres between the distribution point and the furthest drawing point, you must calculate the length of the pipe that contains a capacity of 3 litres.

This length varies considerably depending on the inside diameter of the tube used.

As a practical rule, you can use the formula opposite to calculate the length of the pipe L in millimetres (mm) according to the inside diameter of the tube.

$$\frac{12.000.000}{3,14 \times D_{int}^2} = L \text{ in mm}$$

inside diameter of the tube in square

Example for a 14x16 copper tube :

$$\frac{12.000.000}{3,14 \times 196} = \frac{12.000.000}{615,44} = 19\,498,25 \text{ mm}$$

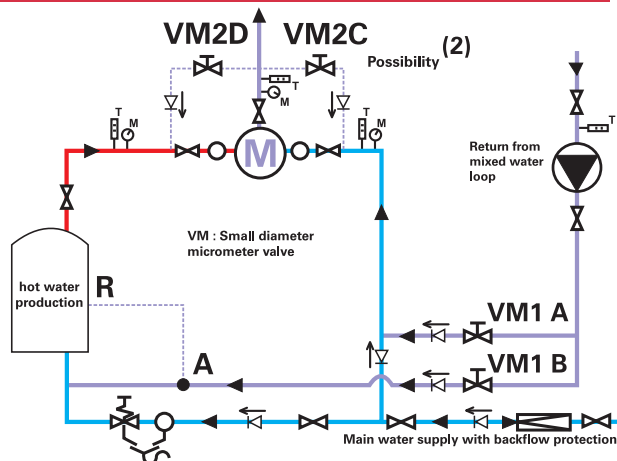
14 x 14 = 196 = 19,49 m

Example for a 13x16 PEX tube:

$$\frac{12.000.000}{3,14 \times 169} = \frac{12.000.000}{530,66} = 22\,613,35 \text{ mm}$$

13 x 13 = 169 = 22,61 m

Flow diagram for a complete mixed water circuit:



N.B : Other alternatives are realizable.
For example, when one wants to carry out several loops at equal or different temperatures. Consult our technical assistance service which will send to you the corresponding diagrams.

VM1 - VM2 - Micrometric valves to stabilise the loop temperature

VM1 A - Open between 70 and 90%.
VM1 B - Open between 30 and 10%.

Remarks :

1. If there is a connection point on the boiler (R) the return circuit should be connected here (A).
2. Possibly, it can be interesting to envisage two micrometric valves **VM2**, in particular in the case of a restoration of installation: the pump will not have to take account of the additional headloss due to the thermostatic mixing valve. In this case **VM1A** and **VM1B** are useless, the adjustment being done then on valves **VM2**.

VM2 C - Open between 70 and 90%.
VM2 D - Open between 30 and 10%

How to adjust a thermostatic mixing valve onto a mixed water loop: WATTS INDUSTRIES recommends to minima, the installation of a thermometer of control of the temperature on the mixed water piping and one on the return of loop, and that this temperature is checked at least once a month under the normal conditions of operation. This thermometer must be installed at a distance from at least 1 meter of the thermostatic mixing valve.

Step 1 : Mixed water temperature adjustment: this adjustment is done autonomously without the loop circulation pump.

1. Stop the loop circulation pump.
2. Close the pump isolation valves.
3. Open sufficient points of use on the mixed water circuit to obtain the minimum flow of the thermostatic mixing valve.
4. Turn the thermostatic mixing valve axis control shaft to reduce or increase the mixed water temperature.
5. Once the required temperature is obtained, replace the control knob (according to the model).

Step 2 : Mixed water loop temperature adjustment:

1. Open the pump isolation valves.
2. Start the circulation pump.
3. Now proceed with the balancing: the ΔT° difference between the mixed water outlet and the return should be 5°C .
To achieve this, manually adjust the **VM1A** balance valve (between 70 and 90 % of its total opening) and the **VM1B** valve (between 30 and 10 % of its total opening).
NOTE: Leave the circuit sufficient time to stabilise before making another adjustment. Check the stability of the mixed water temperature on the monitoring thermometer. If necessary, re-index the temperature knob so that its graduation is in phase with the mixed water temperature (operation referred to as "calibration" in the installation instructions).

AGAINST LEGIONELLA ANSWER:

- You can with the thermostatic mixing valve such as it is (with 30/70°C cartridge):
 - ✓ adjust the temperature up to 55°C in the primary loop (recommended temperature).
 - ✓ adjust the temperature to 39°C (until 50°C - according to uses) in the secondary loop.
 - ✓ proceed to a thermal "shock": simply by freeing the control knob and position it a 70°C (without dismantling the thermostatic mixing valve, cartridge or control knob).
- You also can by putting the cartridge in position "rinsing" i.e. turned over cartridge, fixed at back, (see simple procedure and the rinsing kit delivered with the thermostatic mixing valve):
 - ✓ rinse the thermostatic mixing valve and the drains (important before activation).
 - ✓ inject a disinfectant (chlorine) into the water supply system without danger of damaging the thermostatic mechanism, because is not any more in contact with water.
 - ✓ proceed to a thermal "shock" with more 70°C , without risk to damage the thermostatic mechanism prematurely, because is not any more in contact with water.

RINSING KIT = Exclusive advantage for preventive or curative treatment (delivered with all ULTRAMIX)



Take off the knob, cover, and screw.
Remove the cover/cartridge from its casing.



Place the flat washer (included in package) on the device's neck.



Place the cover/cartridge unit upside down on the device and flat washers.



Tighten the temporary screws (included the package). The valves act now as a "by-pass".

Adjustment range 10/50°C: to supply from 1 to 50 sanitary points of use.

flow rate (L/min)	diameter	points of use*	finish	art. number	weight
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	grey epoxy	22TX91E	1,8 kg
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	chrome plated	22TX91C	1,8 kg
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	grey epoxy	22TX92E	1,8 kg
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	chrome plated	22TX92C	1,8 kg
mini 3 - maxi 120	M 1" 26x34	1 to 15	grey epoxy	22TX93E	2,8 kg
mini 3 - maxi 120	M 1" 26x34	1 to 15	chrome plated	22TX93C	2,8 kg
mini 5 - maxi 175	M 1"1/4 33x42	1 to 21	grey epoxy	22TX94E	4,6 kg
mini 5 - maxi 175	M 1"1/4 33x42	1 to 21	chrome plated	22TX94C	4,6 kg
mini 5 - maxi 260	M 1"1/2 40x49	1 to 32	grey epoxy	22TX95E	7,8 kg
mini 5 - maxi 260	M 1"1/2 40x49	1 to 32	chrome plated	22TX95C	7,8 kg
mini 6 - maxi 400	M 2" 50x60	1 to 50	grey epoxy	22TX96E	10,0 kg
mini 6 - maxi 400	M 2" 50x60	1 to 50	chrome plated	22TX96C	10,0 kg

* For information only. Take the coefficient of combined flow into consideration.

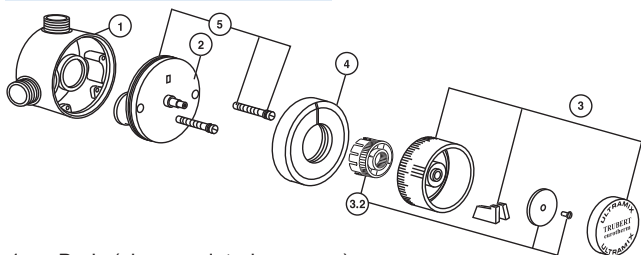
Adjustment range 30/70°C : to supply sanitary hot water loop at 55°C or more.

flow rate (L/min)	diameter	points of use*	finish	art. number	weight
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	grey epoxy	22TX91E37	1,8 kg
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	chrome plated	22TX91C37	1,8 kg
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	grey epoxy	22TX92E37	1,8 kg
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	chrome plated	22TX92C37	1,8 kg
mini 3 - maxi 120	M 1" 26x34	1 to 15	grey epoxy	22TX93E37	2,8 kg
mini 3 - maxi 120	M 1" 26x34	1 to 15	chrome plated	22TX93C37	2,8 kg
mini 5 - maxi 175	M 1"1/4 33x42	1 to 21	grey epoxy	22TX94E37	4,6 kg
mini 5 - maxi 175	M 1"1/4 33x42	1 to 21	chrome plated	22TX94C37	4,6 kg
mini 5 - maxi 260	M 1"1/2 40x49	1 to 32	grey epoxy	22TX95E37	7,8 kg
mini 5 - maxi 260	M 1"1/2 40x49	1 to 32	chrome plated	22TX95C37	7,8 kg
mini 6 - maxi 400	M 2" 50x60	1 to 50	grey epoxy	22TX96E37	10,0 kg
mini 6 - maxi 400	M 2" 50x60	1 to 50	chrome plated	22TX96C37	10,0 kg

* For information only. Take the coefficient of combined flow into consideration.



TX91E - TX91C - TX91E37 - TX91C37
Collective thermostatic mixing valve
eurotherm ULTRAMIX - 3 to 56 L/min

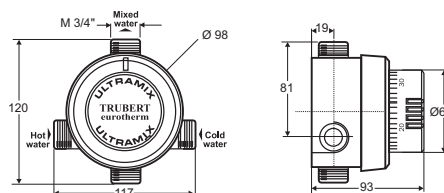


- 1 - Body (chrome plated or epoxy)
- 2 - Cartridge TX1 (10/50°C) art. no. 22TX1
- 2 - Cartridge TX137 (30/70°C) art. no. 22TX137
- 3 - Blue control knob (10/50°C) art. no. 22T120705
- 3 - Blue control knob (30/70°C) art. no. 22T120706
- 3.2 - Fixing kit for control knob art. no. 22T120700
- 4 - Cover art. no. 22TB108250
- 5 - Complete maintenance kit art. no. 22TB120002
- 5 - Simplified maintenance kit (without screws) art. no. 22TB120022

Dynamic flows pressure at inlets			
Under	1 bar	2 bar	3 bar
Flow rate in l/min.	24	41	56
Flow rate in l/sec.	0,40	0,68	0,93

Advised maximum flows	
Acceptable minimum flow	3 l/min
Acceptable maximum flow	56 l/min
Maximum pressure variation between inlets	1,5 bar

Rinsing kit included.



Bottom outlet to be plugged

flow rate (L/min)	diameter	points of use*	adjustment range	finish	art. number	weight
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	10/50°C	grey epoxy	22TX91E	1,8 kg
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	10/50°C	chrome plated	22TX91C	1,8 kg
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	30/70°C	grey epoxy	22TX91E37	1,8 kg
mini 3 - maxi 56	M 3/4" 20x27	1 to 7	30/70°C	chrome plated	22TX91C37	1,8 kg



TX92E - TX92C - TX92E37 - TX92C37
Collective thermostatic mixing valve
eurotherm ULTRAMIX - 3 to 80 L/min



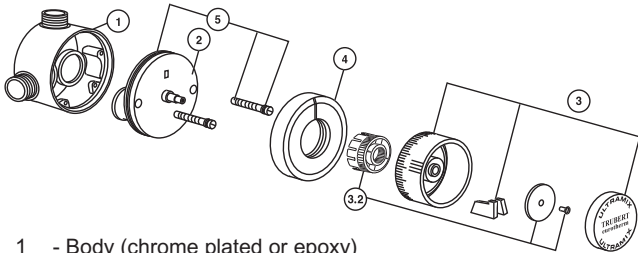
Dynamic flows pressure at inlets

Under	1 bar	2 bar	3 bar
Flow rate in l/min.	31	56	80
Flow rate in l/sec.	0,51	0,93	1,33

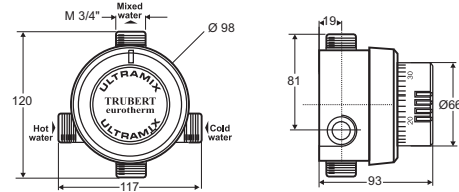
Advised maximum flows

Acceptable minimum flow	3 l/min
Acceptable maximum flow	80 l/min
Maximum pressure variation between inlets	1,5 bar

Rinsing kit included.



- 1 - Body (chrome plated or epoxy)
- 2 - Cartridge TX2 (10/50°C) art. no. 22TX2
- 2 - Cartridge TX237 (30/70°C) art. no. 22TX237
- 3 - Blue control knob (10/50°C) art. no. 22T120705
- 3 - Blue control knob (30/70°C) art. no. 22T120706
- 3.2 - Fixing kit for control knob art. no. 22T120700
- 4 - Cover art. no. 22TB108250
- 5 - Complete maintenance kit art. no. 22TB120002
- 5 - Simplified maintenance kit (without screws) art. no. 22TB120022



Bottom outlet to be plugged

flow rate (L/min)	diameter	points of use*	adjustment range	finish	art. number	weight
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	10/50°C	grey epoxy	22TX92E	1,8 kg
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	10/50°C	chrome plated	22TX92C	1,8 kg
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	30/70°C	grey epoxy	22TX92E37	1,8 kg
mini 3 - maxi 80	M 3/4" 20x27	1 to 10	30/70°C	chrome plated	22TX92C37	1,8 kg



TX93E - TX93C - TX93E37 - TX93C37
Collective thermostatic mixing valve
eurotherm ULTRAMIX - 3 to 120 L/min



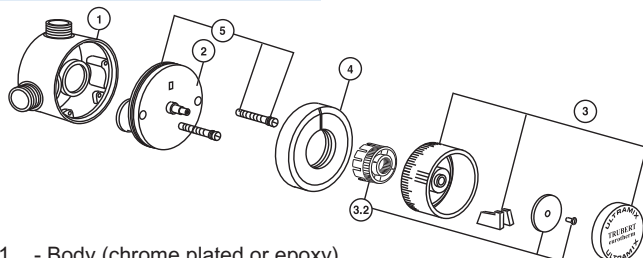
Dynamic flows pressure at inlets

Under	1 bar	2 bar	3 bar
Flow rate in l/min.	56	91	120
Flow rate in l/sec.	0,93	1,51	2,00

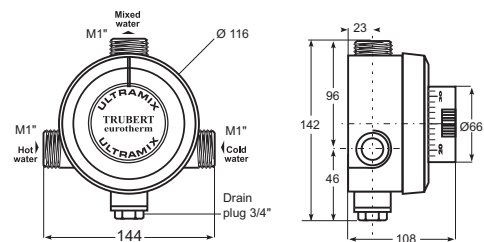
Advised maximum flows

Acceptable minimum flow	3 l/min
Acceptable maximum flow	120 l/min
Maximum pressure variation between inlets	1,5 bar

Rinsing kit included.



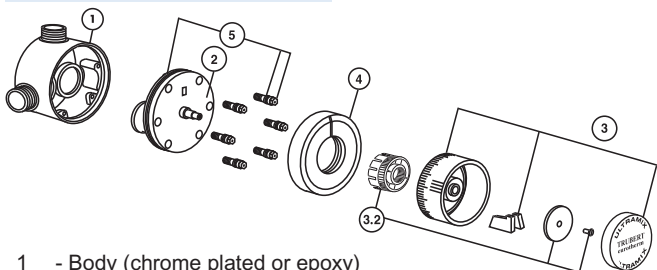
- 1 - Body (chrome plated or epoxy)
- 2 - Cartridge TX3 (10/50°C) art. no. 22TX3
- 2 - Cartridge TX337 (30/70°C) art. no. 22TX337
- 3 - Blue control knob (10/50°C) art. no. 22T120705
- 3 - Blue control knob (30/70°C) art. no. 22T120706
- 3.2 - Fixing kit for control knob art. no. 22T120700
- 4 - Cover art. no. 22TB108350
- 5 - Complete maintenance kit art. no. 22TB120003
- 5 - Simplified maintenance kit (without screws) art. no. 22TB120023



flow rate (L/min)	diameter	points of use*	adjustment range	finish	art. number	weight
mini 3 - maxi 120	M 1" 26x34	1 to 15	10/50°C	grey epoxy	22TX93E	2,8 kg
mini 3 - maxi 120	M 1" 26x34	1 to 15	10/50°C	chrome plated	22TX93C	2,8 kg
mini 3 - maxi 120	M 1" 26x34	1 to 15	30/70°C	grey epoxy	22TX93E37	2,8 kg
mini 3 - maxi 120	M 1" 26x34	1 to 15	30/70°C	chrome plated	22TX93C37	2,8 kg



TX94E - TX94C - TX94E37 - TX94C37
Collective thermostatic mixing valve
eurotherm ULTRAMIX - 5 to 175 L/min



- 1 - Body (chrome plated or epoxy)
- 2 - Cartridge TX4 (10/50°C) art. no. 22TX4
- 2 - Cartridge TX437 (30/70°C) art. no. 22TX437
- 3 - Blue control knob (10/50°C) art. no. 22T120705
- 3 - Blue control knob (30/70°C) art. no. 22T120706
- 3.2 - Fixing kit for control knob art. no. 22T120700
- 4 - Cover art. no. 22TB108450
- 5 - Complete maintenance kit art. no. 22TB120004
- 5 - Simplified maintenance kit (without screws) art. no. 22TB120024

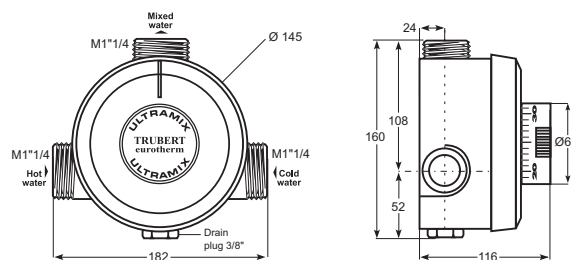
Dynamic flows pressure at inlets

Under	1 bar	2 bar	3 bar
Flow rate in l/min.	91	133	175
Flow rate in l/sec.	1,51	2,21	2,91

Advised maximum flows

Acceptable minimum flow	5 l/min
Acceptable maximum flow	175 l/min
Maximum pressure variation between inlets	1,5 bar

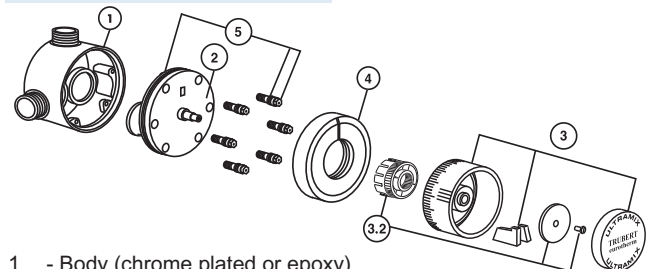
Rinsing kit included.



flow rate (L/min)	diameter	points of use*	adjustment range	finish	art. number	weight
mini 5 - maxi 175	M 1 1/4 33x42	1 to 21	10/50°C	grey epoxy	22TX94E	4,6 kg
mini 5 - maxi 175	M 1 1/4 33x42	1 to 21	10/50°C	chrome plated	22TX94C	4,6 kg
mini 5 - maxi 175	M 1 1/4 33x42	1 to 21	30/70°C	grey epoxy	22TX94E37	4,6 kg
mini 5 - maxi 175	M 1 1/4 33x42	1 to 21	30/70°C	chrome plated	22TX94C37	4,6 kg



TX95E - TX95C - TX95E37 - TX95C37
Collective thermostatic mixing valve
eurotherm ULTRAMIX - 5 to 260 L/min



- 1 - Body (chrome plated or epoxy)
- 2 - Cartridge TX5 (10/50°C) art. no. 22TX5
- 2 - Cartridge TX537 (30/70°C) art. no. 22TX537
- 3 - Blue control knob (10/50°C) art. no. 22T120705
- 3 - Blue control knob (30/70°C) art. no. 22T120706
- 3.2 - Fixing kit for control knob art. no. 22T120700
- 4 - Cover art. no. 22TB108550
- 5 - Complete maintenance kit art. no. 22TB120005
- 5 - Simplified maintenance kit (without screws) art. no. 22TB120025

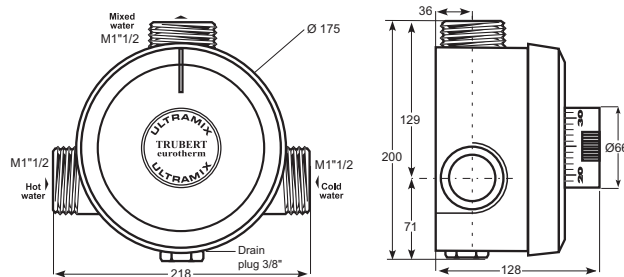
Dynamic flows pressure at inlets

Under	1 bar	2 bar	3 bar
Flow rate in l/min.	130	201	260
Flow rate in l/sec.	2,16	3,35	4,33

Advised maximum flows

Acceptable minimum flow	5 l/min
Acceptable maximum flow	260 l/min
Maximum pressure variation between inlets	1,5 bar

Rinsing kit included.



flow rate (L/min)	diameter	points of use*	adjustment range	finish	art. number	weight
mini 5 - maxi 260	M 1 1/2 40x49	1 to 32	10/50°C	grey epoxy	22TX95E	7,8 kg
mini 5 - maxi 260	M 1 1/2 40x49	1 to 32	10/50°C	chrome plated	22TX95C	7,8 kg
mini 5 - maxi 260	M 1 1/2 40x49	1 to 32	30/70°C	grey epoxy	22TX95E37	7,8 kg
mini 5 - maxi 260	M 1 1/2 40x49	1 to 32	30/70°C	chrome plated	22TX95C37	7,8 kg



TX96E - TX96C - TX96E37 - TX96C37 Collective thermostatic mixing valve eurotherm ULTRAMIX - 6 to 400 L/min

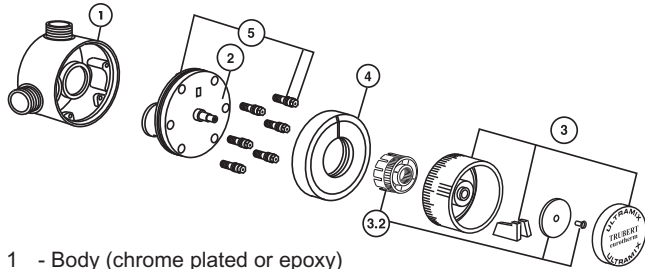


Dynamic flows pressure at inlets

Under	1 bar	2 bar	3 bar
Flow rate in l/min.	231	328	400
Flow rate in l/sec.	3,85	5,46	6,66

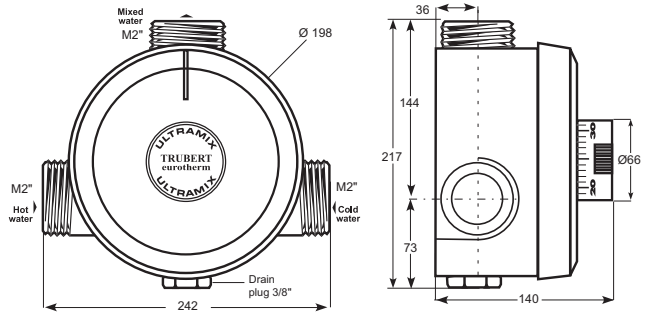
Advised maximum flows

Acceptable minimum flow	6 l/min
Acceptable maximum flow	400 l/min
Maximum pressure variation between inlets	1,5 bar

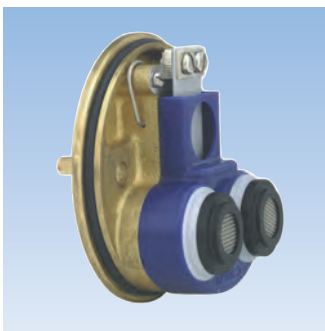


- 1 - Body (chrome plated or epoxy)
- 2 - Cartridge TX6 (10/50°C) art. no. 22TX6
- 2 - Cartridge TX637 (30/70°C) art. no. 22TX637
- 3 - Blue control knob (10/50°C) art. no. 22T120705
- 3 - Blue control knob (30/70°C) art. no. 22T120706
- 3.2 - Fixing kit for control knob art. no. 22T120700
- 4 - Cover art. no. 22TB108650
- 5 - Complete maintenance kit art. no. 22TB120006
- 5 - Simplified maintenance kit (without screws) art. no. 22TB120026

Rinsing kit included.



flow rate (L/min)	diameter	points of use*	adjustment range	finish	art. number	weight
mini 6 - maxi 400	M 2" 50x60	1 to 50	10/50°C	grey epoxy	22TX96E	10,0 kg
mini 6 - maxi 400	M 2" 50x60	1 to 50	10/50°C	chrome plated	22TX96C	10,0 kg
mini 6 - maxi 400	M 2" 50x60	1 to 50	30/70°C	grey epoxy	22TX96E37	10,0 kg
mini 6 - maxi 400	M 2" 50x60	1 to 50	30/70°C	chrome plated	22TX96C37	10,0 kg

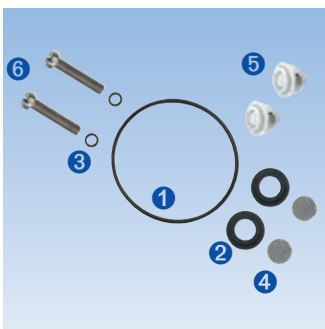


Replacement cartridges ULTRAMIX

for mixing valve type	flow rate (L/min)	art. number	adjustment range
TX91E, TX91C, T/X91CHP	mini 3 - maxi 56	22TX1*	10/50°C
TX92E, TX92C, T/X92CHP	mini 3 - maxi 80	22TX2*	10/50°C
TX93E, TX93C, T/X93CHP	mini 3 - maxi 120	22TX3	10/50°C
TX94E, TX94C, T/X94CHP	mini 5 - maxi 175	22TX4	10/50°C
TX95E, TX95C, T/X95CHP	mini 5 - maxi 260	22TX5	10/50°C
TX96E, TX96C, T/X96CHP	mini 6 - maxi 400	22TX6	10/50°C
TX91E37, TX91C37	mini 3 - maxi 56	22TX137*	30/70°C
TX92E37, TX92C37	mini 3 - maxi 80	22TX237*	30/70°C
TX93E37, TX93C37	mini 3 - maxi 120	22TX337	30/70°C
TX94E37, TX94C37	mini 5 - maxi 175	22TX437	30/70°C
TX95E37, TX95C37	mini 5 - maxi 260	22TX537	30/70°C
TX96E37, TX96C37	mini 6 - maxi 400	22TX637	30/70°C

For reversed cartridges add "IN" with the article number, available on request.

* For installation requiring a stronger flow, cartridges TX1 and TX2 like TX137 and TX237 are compatible and interchangeable (TX1, TX137, maxi 56 L/min) - TX2, TX237, maxi 80 L/min).



Maintenance kit for ULTRAMIX cartridge

This kit includes all the usual wearing parts :
the cover-cartridge gasket ①, 2 filter-support (elastomer) ②,
gaskets for cover screws ③, + 2 stainless steel stainers ④,
the check valve units and assembled check valve carriers ⑤
and the cover screws ⑥ (the number of screws varies according to
the size of the ULTRAMIX).

For any other information,
please contact EXPORT
and O.E.M. department
at Hautvillers Ouveille
+33 (0)3.22.24.70.11

for cartridge type	art. no. complete kit	art. no. simplified kit
TX1, TX2, TX137, TX237	22TB120002	22TB120022 (without stainless steel screws)
TX3, TX337	22TB120003	22TB120023 (without stainless steel screws)
TX4, TX437	22TB120004	22TB120024 (without stainless steel screws)
TX5, TX537	22TB120005	22TB120025 (without stainless steel screws)
TX6, TX637	22TB120006	22TB120026 (without stainless steel screws)



ULTRAMIX High Protection thermostatic mixing valve anti-vandalism and inviolability

The thermostatic mixing valve **ULTRAMIX "HP"** has the same characteristics than the ULTRAMIX, but it is equipped with anti-vandalism safety device.

Mixing valve specifically conceived for the collective applications where the risks of deterioration are high.

The mechanism and its adjustment are protected by a metal frontage made inviolable by a specific high protection lock , chrome plated finish.

Anti-scalding feature and comfort : if there is not enough cold or hot water the mixing valve shuts off automatically and instantaneously.

Dismountable thermostatic mechanism equipped with filters and check valves NF.

Adjustment range : 10/50°C, for thermal disinfection : 30/70°C (on request).

Rinsing kit included. Replacement cartridges below.

flow rate (L/min)	diameter	points of use*	range 10/50°C	art. number	weight	art. no. replacement cartridge
mini 3 - maxi 56	M 3/4"	20x27	1 to 7	high protection	22T/X91CHP	2,6 kg 22TX1 or 22TX137 (30/70°C)
mini 3 - maxi 80	M 3/4"	20x27	1 to 10	high protection	22T/X92CHP	2,6 kg 22TX2 or 22TX237 (30/70°C)
mini 3 - maxi 120	M 1"	26x34	1 to 15	high protection	22T/X93CHP	3,7 kg 22TX3 or 22TX337 (30/70°C)
mini 5 - maxi 175	M 1 1/4"	33x42	1 to 21	high protection	22T/X94CHP	5,3 kg 22TX4 or 22TX437 (30/70°C)
mini 5 - maxi 260	M 1 1/2"	40x49	1 to 32	high protection	22T/X95CHP	8,7 kg 22TX5 or 22TX537 (30/70°C)
mini 6 - maxi 400	M 2"	50x60	1 to 50	high protection	22T/X96CHP	10,8 kg 22TX6 or 22TX637 (30/70°C)

* For information only. Take the coefficient of combined flow into consideration. For installation requiring a stronger flow, cartridges TX1 and TX2 like TX137 and TX237 are compatible and interchangeable (TX1, TX137, maxi 56 L/min) - TX2, TX237, maxi 80 L/min).



ULTRAMIX FNC special security mixing valve

The thermostatic mixing valve **ULTRAMIX "FNC"** has the same characteristics than the ULTRAMIX, but it integrates a safety device and allows drawing even in the case of a hot water cut.

Special model for the installations with safety showers or emergency eye-washer.

Anti-scalding feature : if there is not enough cold water the mixing valve shuts off automatically and instantaneously.

Dismountable thermostatic mechanism equipped with filters and check valves NF.

Adjustment range : 10/50°C, Its setpoint temperature is not sensitive to flow rate variations in the installation, whether at minimum or maximum.

Rinsing kit included. Replacement cartridges below.

flow rate (L/min)	diameter	points of use*	range 10/50°C	art. number	weight	art. no. replacement cartridge
mini 3 -maxi 56	M 3/4"	20x27	1 to 7	special security	22TX91FNC	2,3 kg 22TX1FNC
mini 3 -maxi 80	M 3/4"	20x27	1 to 10	special security	22TX92FNC	2,3 kg 22TX2FNC
mini 3 -maxi 120	M 1"	26x34	1 to 15	special security	22TX93FNC	3,5 kg 22TX3FNC
mini 5 -maxi 175	M 1 1/4"	33x42	1 to 21	special security	22TX94FNC	5,0 kg 22TX4FNC
mini 5 -maxi 260	M 1 1/2"	40x49	1 to 32	special security	22TX95FNC	8,6 kg 22TX5FNC
mini 6 -maxi 400	M 2"	50x60	1 to 50	special security	22TX96FNC	11,1 kg 22TX6FNC

* For information only. Take the coefficient of combined flow into consideration.



ULTRAMIX OMDA thermostatic mixing valve for hydrotherapy, balneo, or medical applications

The thermostatic mixing valve **ULTRAMIX "OMDA"** has the same characteristics than the ULTRAMIX, but it is equipped a RILSAN protection kilned at 250°C protects the the mixing valve body at the place of the seats and hot and cold water supply pipes.

Special model specifically conceived to withstand seawater, softened water and distilled water.

Mixing valve cartridge: screws, jets of diaphragm and hoppers made in stainless steel.

Anti-scalding feature and comfort : if there is not enough cold or hot water the mixing valve shuts off automatically and instantaneously.

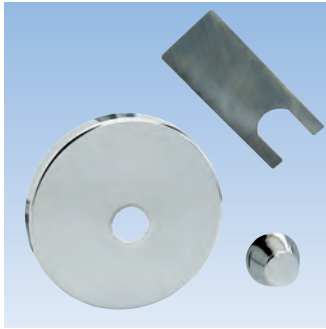
Dismountable thermostatic mechanism equipped with filters and check valves NF.

Adjustment range : 10/50°C, Its setpoint temperature is not sensitive to flow rate variations in the installation, whether at minimum or maximum.

Apparent mixing valves or inset mixing valves: (22T/X8256OMDA -22T/X8280OMDA - 22T/X83OMDA). Rinsing kit included. Replacement cartridges below.

flow rate (L/min)	diameter	points of use*	range 10/50°C	art. number	weight	art. no. replacement cartridge
mini 3 -maxi 56	M 3/4"	20x27	1 à 7	special seawater	22TX91OMDA	2,3 kg 22TX1OMDA
mini 3 -maxi 80	M 3/4"	20x27	1 à 10	special seawater	22TX92OMDA	2,3 kg 22TX2OMDA
mini 3 -maxi 120	M 1"	26x34	1 à 15	special seawater	22TX93OMDA	3,5 kg 22TX3OMDA

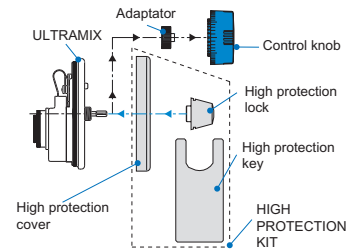
* For information only. Take the coefficient of combined flow into consideration.



High Protection Kit

Allows to transform the Ultramix thermostatic mixing valves (all temperature setting, chrome plated, epoxy) and old range series 9000 into a high protection thermostatic mixing valve.

The kit includes: chrome plated metal frontage, high protection lock and key for dito.



High protection kit for thermostatic mixing valve type	art. number
TX91, TX92, old range 9200	22TB120007
TX93, old range 9300	22TB120008
TX94, old range 9400	22TB120009
TX95, old range 9500	22TB120010
TX96, old range 9600	22TB120011

DIMENSIONING OF MIXING VALVES IN GROUP MIXING

The precision, sensitivity, flow rate and durability of the mixing valve can be ensured only insofar as it is looked after, and before all else, correctly chosen.

To define the size of the most suitable mixing valve for a determined use, the following elements must be known: the total instant flow rate (see paragraph below) and dynamic pressure available at the outflow for the hot water, and for the cold water, the mixing valve's supply pipes. It can be measured or calculated, by using the DARIES abacus. This abacus can also be used to make sure the water speed is not excessive. Never admit a static pressure of more than 10 bar.

CASE OF ULTRAMIX THERMOSTATIC MIXING VALVES

Direct access to the calculation software: [click here](#)

Calculation method:

1 - Define the Cumulated Flow rate of mixed water by multiplying the quantity of appliances to be supplied by the usual unit flow rates (table below). (Consult us for any other application as necessary).

1 - Usual bathroom appliance unit flow rates (needs of mixed water)						
CASE	A	B	C	D	E	F
Temperature displayed on the mixing valve	38°C	38°C	45°C	45°C	50°C	50°C
Type of tap on the sanitary appliances	outlet	flow control	mixing valve tap	flow control	mixing valve tap	flow control
Wash basin	12 L	6 L	10 L	6 L	8,4 L	6 L
Shower	12 L	8,4 L	10 L	7 L	8,4 L	6 L
Kitchen sink	12 L	8,4 L	10 L	7 L	8,4 L	6 L
Bathtub	20 L	-	16 L	-	14 L	-
Bidet	12 L	8,4 L	10 L	7 L	8,4 L	6 L
Sink for washing up/pot and other applications	20 L	14 L	16 L	11 L	14 L	10 L

2 - Calculating the total instant flow rate to be supplied by the mixing valve. Depending in the nature of the work, choose the decrease ratio of the flow rates corresponding with the quantity of appliances to be supplied (table below).

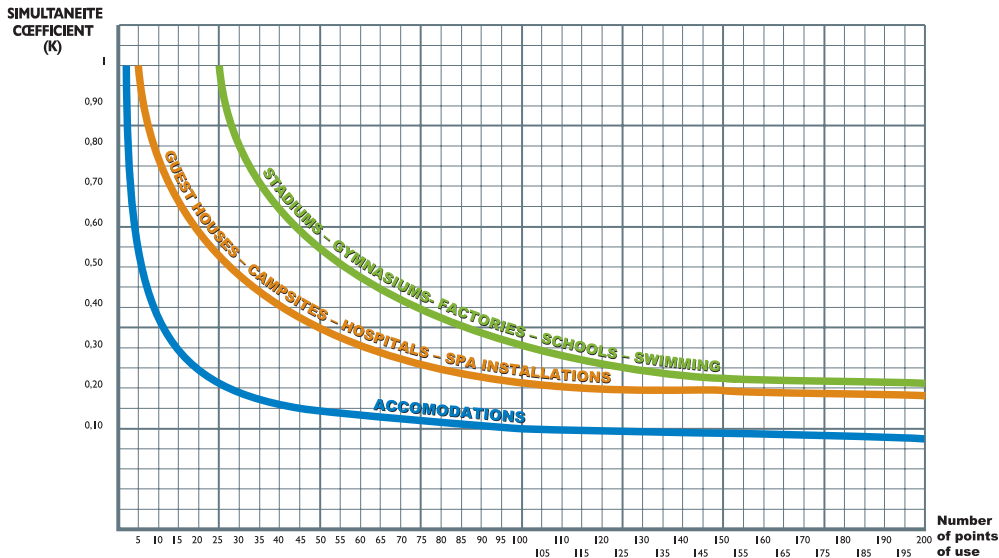
Multiply this ratio by the cumulated flow rate to obtain the instant flow rate.

2 - Decrease coefficients of flow rates K (simultaneity coefficients)														
Quantity of appliances	1 or 2	3	4	5	10	15	20	25	30	35	40	50	60	70
Residences	1	0,70	0,60	0,50	0,33	0,27	0,23	0,21	0,19	0,17	0,16	0,14	0,13	0,12
Guest houses campsites-hospitals spa installations	1	1	1	1	0,82	0,67	0,57	0,52	0,47	0,42	0,40	0,35	0,32	0,30
Stadiums and gymns factory-school swimming pool-barracks	1	1	1	1	1	1	1	1	0,86	0,76	0,68	0,57	0,49	0,42
Quantity of appliances	80	90	100	110	120	130	140	150	160	170	180	190	200	> 200
Residences	0,11	0,105	0,10	0,097	0,093	0,087	0,083	0,08	0,078	0,076	0,074	0,072	0,07	0,07
Guest houses campsites-hospitals spa installations	0,27	0,26	0,25	0,242	0,232	0,217	0,207	0,20	0,195	0,19	0,185	0,18	0,175	0,175
Stadiums and gymns factory-school swimming pool-barracks	0,38	0,35	0,32	0,30	0,28	0,26	0,24	0,22	—	—	—	—	—	—

SIMULTANEITY COEFFICIENT (K) depends on the type of work and the number of taps to be supplied.

We consider 3 types of work:

- stadiums – gymnasiums – factories – schools – swimming pools – army barracks
- guest houses – campsites – hospitals – spa installations
- accomodations



3 - Choose the thermostatic mixing valve that will ensure regulation at this instant flow rate, under the available dynamic pressure (b. = bar) for its operation (table below).

3 - Table of maximum working flow rates

Model	T9715	T9107	TX91	TX92	TX93	TX94	TX95	TX96	T70 size G	T70 size H	T70 size J
Max. working flow rate in l/min. under 3 bar	42	42	56	80	120	175	260	400	360	700	1200
in l/sec. under 3 bar	0,70	0,70	0,93	1,33	2,00	2,92	4,33	6,67	6,00	11,67	20,00
Pipe diameter corresponding with the size of the mixing valve:											
in mm	15	20	20	20	26	33	40	50	66	80	102
in inches	1/2"	3/4"	3/4"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
Number of points of use for example (see simultaneity coefficient):											
from	1	1	1	1	1	1	1	1	1	1	2
to	5	5	7	10	15	21	32	50	36	70	120
Minimum flow rate :											
in l/min.	3	3	3	3	3	5	5	6	10	12	14
in l/sec.	0,05	0,05	0,05	0,05	0,05	0,08	0,08	0,10	0,17	0,20	0,23

Cartridge

With WATTS INDUSTRIES the thermostatic mechanisms are independent of the other parts of the mixing valves.

This modular system, extremely simple and practical, facilitates the first actuation and later maintenance (possibility of exchange of cartridge).

Any defect of installation is immediately detected and a rapid put in conformity allows. All the «cartridges» Eurotherm of collective thermostatic mixing valves ULTRAMIX have STAINLESS STEEL filters and approved check valves NF.

Maintenance

With WATTS Eurotherm, one meets a very low number of installations with problem, the mixing valves being seldom blamed. The principle of compact mechanism in the form of interchangeable cartridge allows a handing-over under operation of the mixing valves in record time.

This great simplicity of maintenance makes it possible to utilize a person without particular qualification and not to immobilize an installation more few minutes, so much the exchange of the mechanism is fast. Moreover, the body of the mixing valve is never dismantled of the installation.

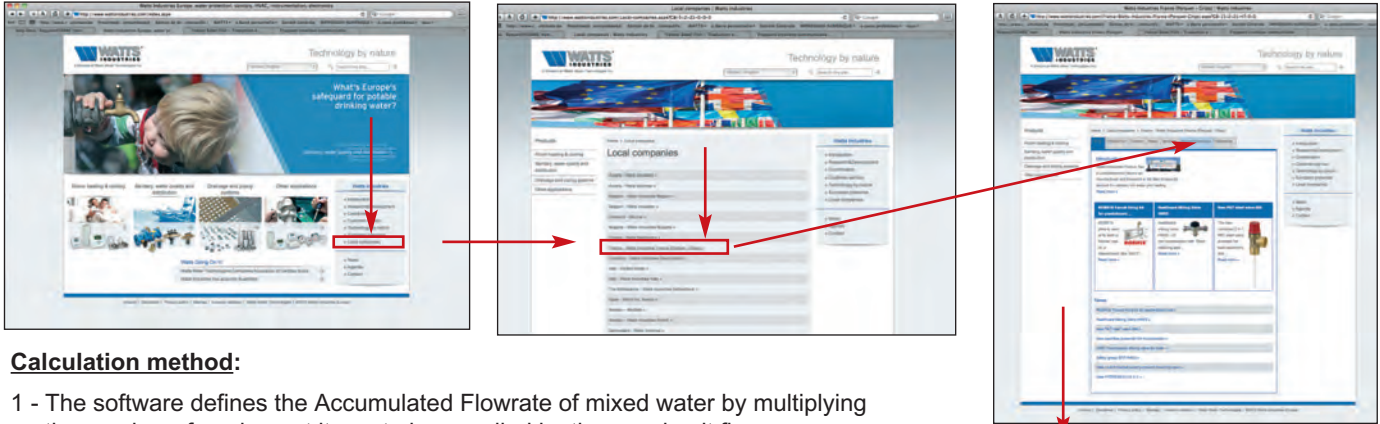
CALCULATION SOFTWARE

Direct access to the software: [click here](#)

The WATTS INDUSTRIES software is designed to validate the calculation carried out manually in order to choose the right thermostatic mixing valve (according to pressures, pipe diameters, desired flowrate and number of points of use).

To access to the calculation software on our web site, enter this URL : <http://www.wattsindustries.com>

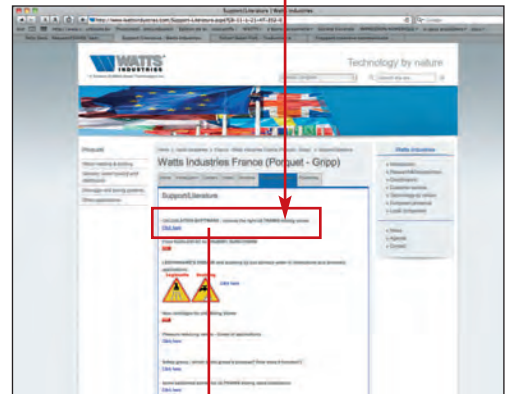
On the first page, click on **Local companies** and on **France - Watts Industries France (Porquet - Gripp)**



Calculation method:

- 1 - The software defines the Accumulated Flowrate of mixed water by multiplying the number of equipment items to be supplied by the usual unit flows.
- 2 - It calculates the Total Instantaneous Flowrate to be provided by the thermostatic mixing valve. Depending on the type of worksite (3 types), it chooses the reduction coefficient of flows corresponding to the quantity of equipment items to be supplied. It multiplies this coefficient by the accumulated flowrate in order to obtain the instantaneous flowrate.
- 3 - Then the software chooses the thermostatic mixing valve which will ensure the regulation at this instantaneous flowrate under the dynamic pressure (b.= bar) available for its operation.

Click on **"Support/Literature"**, and click on **CALCULATION SOFTWARE:** determine and choose the right thermostatic mixing valves.



Why choose a WATTS thermostatic mixing valve ?

Easy to install, simple to maintain, attractively designed, WATTS INDUSTRIES thermostatic mixing valves are the basic element for genuine comfort in all plumbing facilities.

An installation fitted with a WATTS INDUSTRIES appliance has the guarantee of a brand that has been specialised in this technology for more than 50 years. Its manufacturer is one of the world's oldest specialists.

Eurotherm, a real reference for pros!

The working simplicity of Eurotherm mixing valves results from their ease of operation and the incomparable quality of results.

- ☺ **Outstanding customer Service: product widely distributed across Europe.**
- ☺ **Guarantee: mixing valve and cartridge guaranteed for 10 years.**
- ☺ **Manufacturer: WATTS INDUSTRIES FRANCE has ISO 9001 certification through the BVQI.**
- ☺ **Market background and know-how: present since 1947.**

Mixing cold and hot water in order to obtain water which is mixed at a stabilized temperature within one degree: this is the important part.

A thermostatic mixing valve means substantially reduced water consumption, absolute safety – no water which is suddenly uncomfortably hot or cold – guaranteed regulation of flowrates, from the very lowest to the highest, piping and valves protected from limestone deposits, a larger reserve of mixed water at the desired temperature.

WATTS INDUSTRIES:
the most complete range in thermostatic mixing valves



PRODUCT INFORMATIONS & TECHNICAL ASSISTANCE :
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Product range Watts Industries

- System disconnectors
- Backflow protection devices
- Check valves
- Safety units
- Safety relief valves
- Pressure reducing valves
- Automatic control valves
- Butterfly valves
- Shut off valves
- Measuring gauges
- Temperature control
- Expansion vessels
- Process switches
- Fuel products
- Gas products
- Electronic controls
- Installation protection products
- Radiator valves
- System products
- Manifolds and fittings



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