ULTRAMIX® TX91 to TX96

High productivity thermostatic mixing valve

Technical data sheet

WATTS®

- CONTINUOUS PROTECTION AGAINST LEGIONELLA
- ANTI-SCALD PROTECTION
  The hot water shuts off automatically if there is not enough cold water (Δ Hot water/Mixed water > 10°C).
- MAXIMUM LIMITATION OF ADJUSTABLE AND LOCKABLE TEMPERATURE
- LIMITED MAINTENANCE
  No friction from moving metal parts, therefore excellent resistance to scaling and remarkable longevity.
- BIMETALLIC STRIP TECHNOLOGY
  Exceptional qualities of regulation and resistance to the scale (determining factor for safety).
- SIMPLE AND FAST MAINTENANCE
  Removal cartridge without dismantling the thermostatic mixing valve, filters and non-return valves accessible directly on the cartridge.
- ADJUSTMENT PRECISION and CONFORT
  Stability of temperature with low and high flow rates.
- GUARANTEE
  Thermostatic mixing valve and cartridge guaranteed 5 years.
- Calculation software access:
  Click here

Thermostatic mixing valves ULTRAMIX®

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.

The device 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.

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

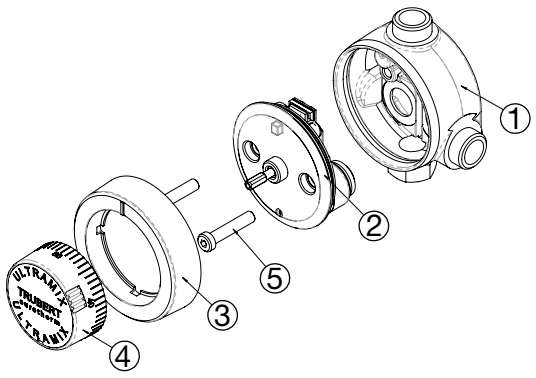
Technical features

Technical features	
Maximum static pressure	10 bar
Maximum dynamic pressure	6 bar
Operating pressure	2 - 4 bar
Minimum operating pressure	1 bar
Maxi. hot temperature supply	85°C
Flow mini.	5 l/min (8 l/min models 1"1/2 and 2")
Flow max.	56, 80, 120, 175, 260, 400 l/min, depending model
Minimum temperature variation between inlets	5°C
Maximum pressure variation	1,5 bar

* minimum differential hot/mix temperature must be > 10°C.

Nomenclature and materials

N°	Designation	Materials	EURO
1	Body	Brass	CB770S
2	Cartridge 10/50°C or 30/70°C	Brass + stainless steel + EPDM + covered steel	
3	Cover M2	Plastic	PP
4	Knob	Plastic	ABS
5	Screw	Stainless steel	1.4310 (AISI 301/302)



Bimetallic strip technology

The TRUBERT Eurotherm technique uses the principle of double control through indirect action of a bimetallic strip.

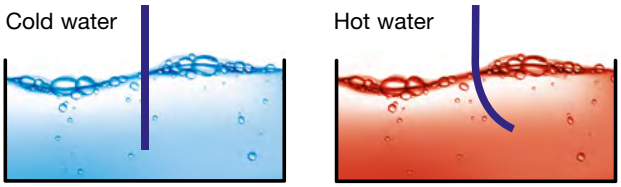
This receives temperature information corresponding to the set point and will react instantaneously (+/- 1 sec.).

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 combines substantial regulation and scale-resistance qualities (a decisive element for safety and the correct operation of the thermostatic mixing valve).

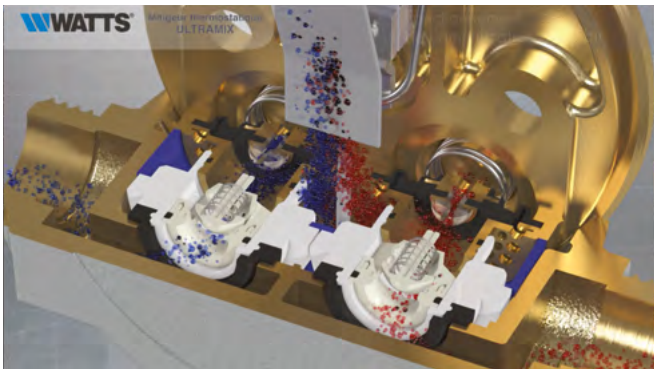
Bimetallic strip concept



Water mixing is obtained by two independent valves, which operate like two hydraulic relays:
- One for hot water
- One for cold water

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.

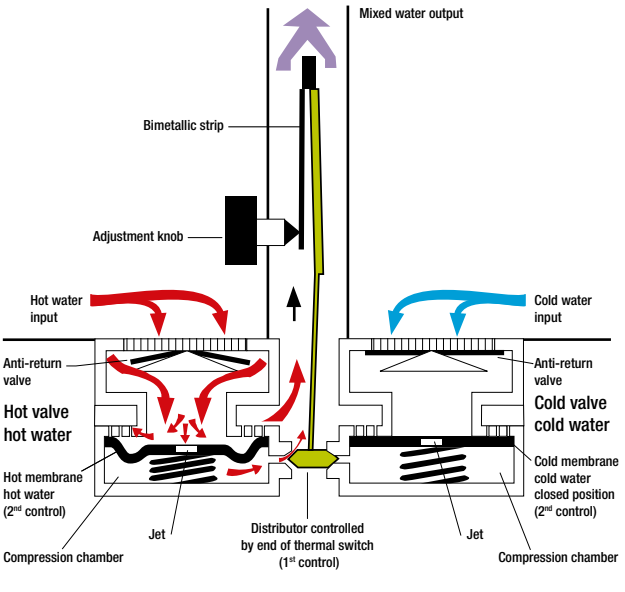


ULTRAMIX® Video

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.

Dual piloting principle



Against legionella answer

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

- Raise the temperature up to 70°C to cause a thermal shock

- Disinfect to cause a chemical shock

The thermostatic mixing valve (with cartridge 30/70°C) allows:

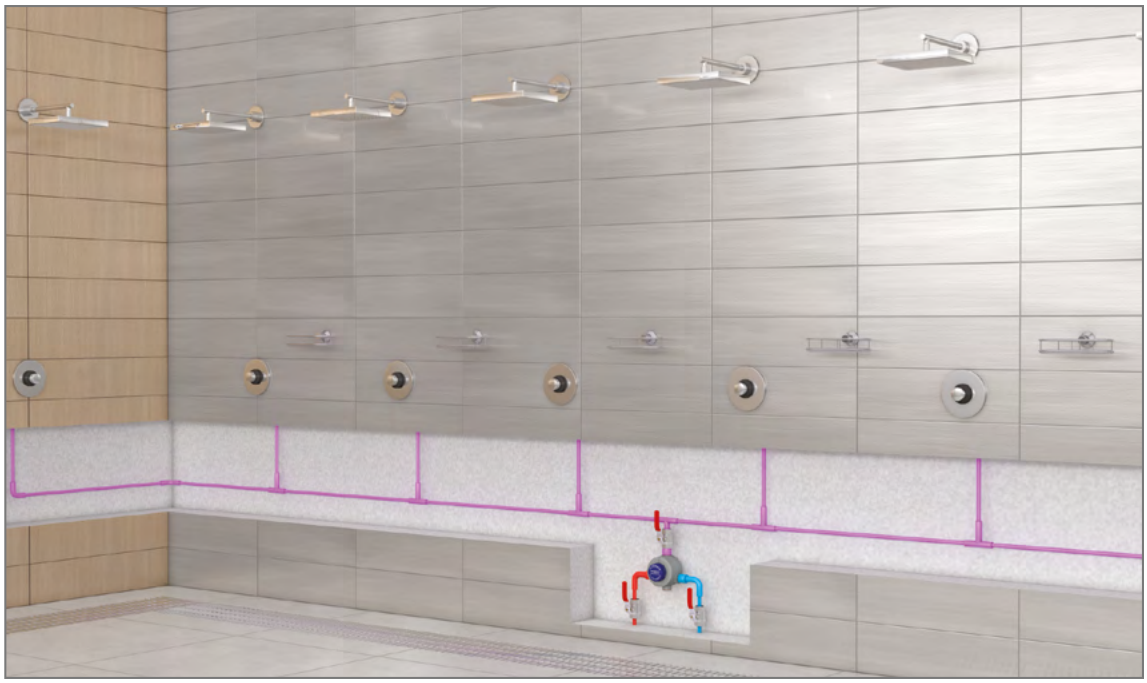
- Adjust the temperature up to 55/60°C in the primary loop (recommended temperature).
- Adjust the temperature to 39°C (until 50°C – according to uses) in the secondary loop.
- Proceed to a thermal shock: simply by freeing the control knob and position it a 70°C (without dismantling the thermostatic mixing valve, cartridge or control knob).

You may also put the cartridge in position “RINSING” i.e. turn over cartridge, fix it 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 into the water supply system without danger of damaging the thermostatic mechanism, because it is not anymore in contact with water.
- Proceed to a thermal “shock” with more than 70°C, without risk to damage the thermostatic mechanism prematurely, because it is not anymore in contact with water.

Development of legionella according to temperature:

< 20°C	:	lethargic state
20-46°C	:	growth (no multiplication from 47°C on)
50°C	:	90 % of bacteria will die in a period of 2 hours
60°C	:	90 % of bacteria will die in 2 minutes
80°C	:	90 % of bacteria will die in less than 1 minute



Right or left connections ?

All our thermostatic mixing valves for public installations (ULTRAMIX®, T9107, T9715, and flanged 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.

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 - Avoid stagnation and ensure good water circulation.
- C - Use of recirculation systems: circulating loop and balancing valves.
- D - Circulating loop should be designed to return the mixed water to the storage at a minimum temperature of 55°C.
- E - Thermostatic mixing valves must be as close as possible to the point of use.
- F - Thermostatic mixing valve must have integrated check-valves.
- G - Thermostatic mixing valve 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 ditribution pipes must be insulated sufficiently (never together).
- To maintain cool water under 20°C.

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

VM : micrometer valves to stabilize circuit temperature

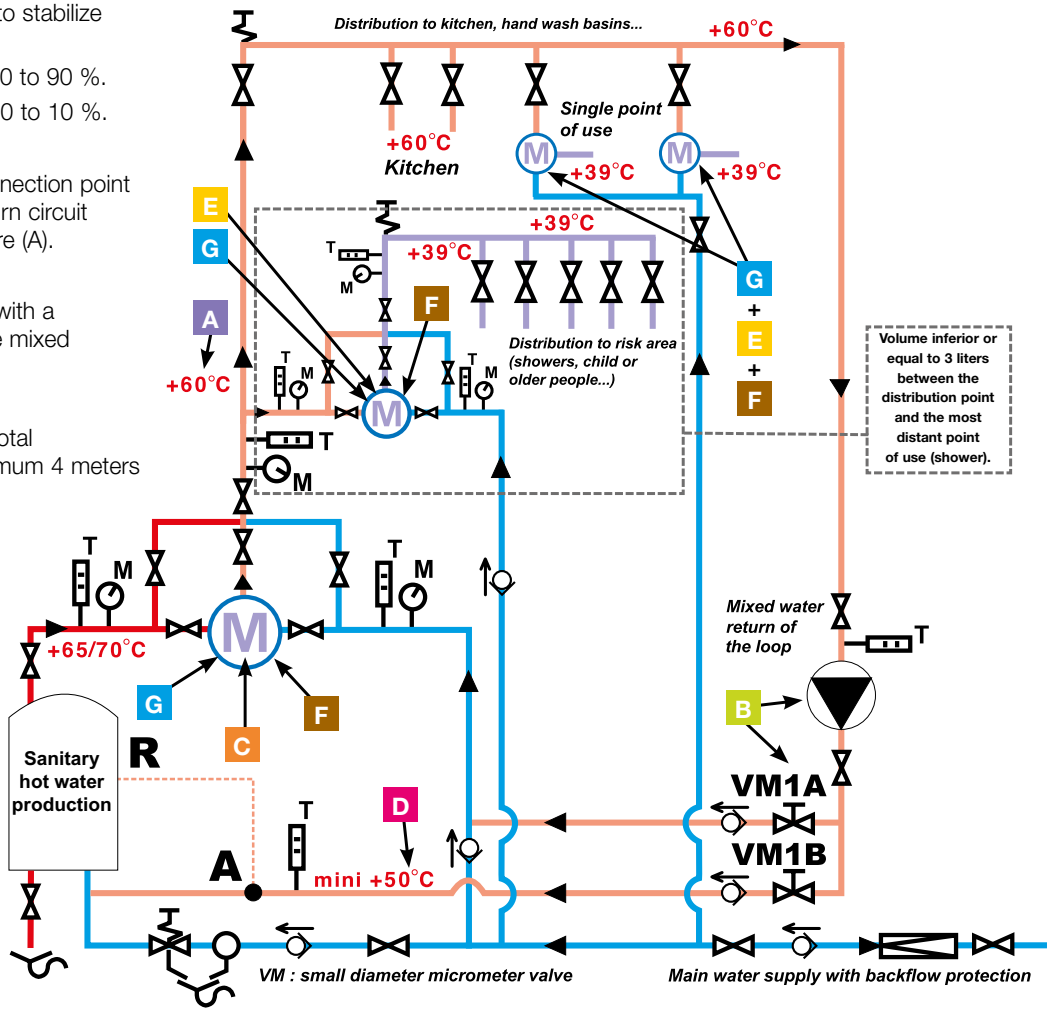
VM1 A : Opening from 70 to 90 %.

VM1 B : Opening from 30 to 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.



SYMBOLS

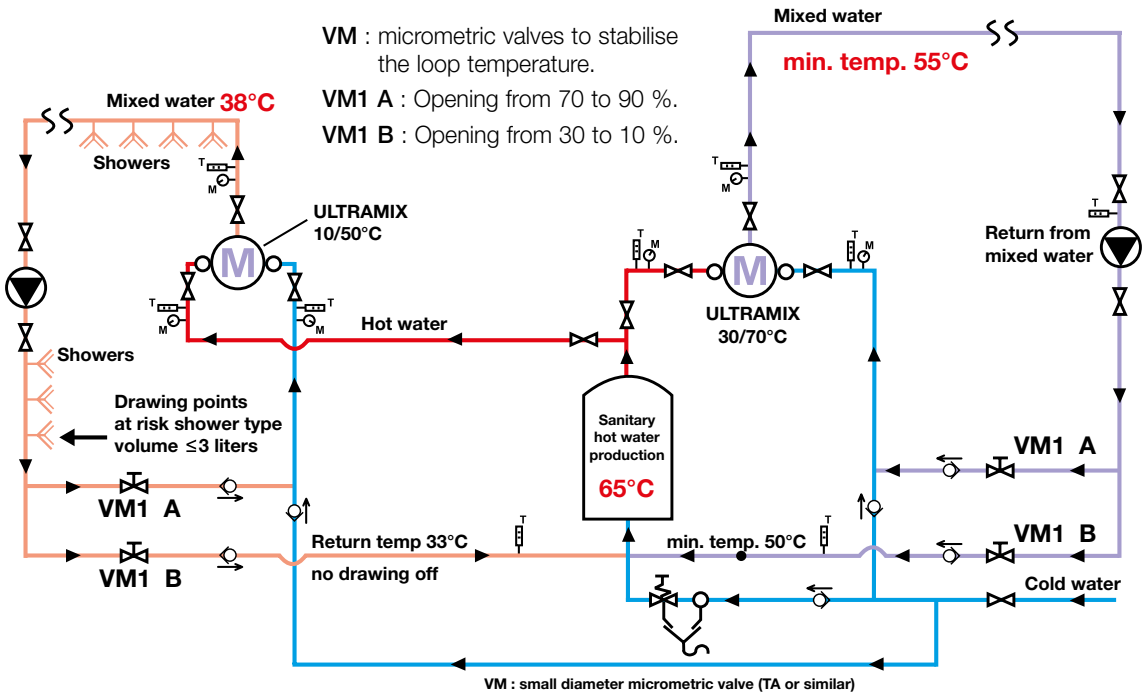
Hot water	Water hammer arrestor	Safety valve	Drain	T Thermometer
Cold water	Stop valve	Pump	Pressure reducing valve	
Mixed water	Non return valve		Isolating valve	M Manometer
Flow direction	Water drain cock	Thermostatic mixing valve	Adjustment valve	

Further diagrams of conformity in collectivity

The regulation therefore imposes the recommendation of thermostatic mixing valve:

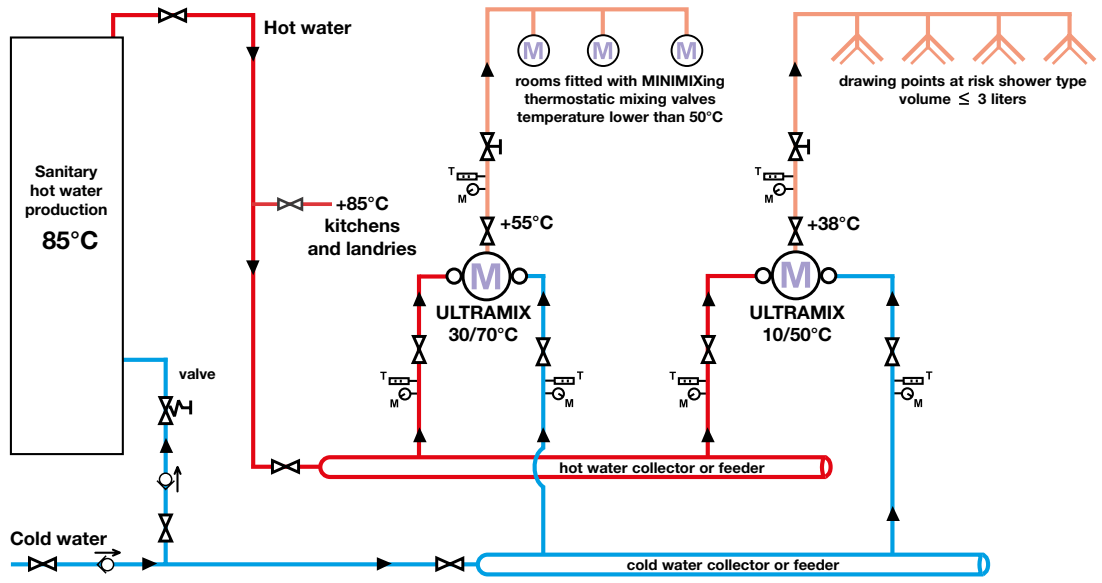
- At the outlet of hot water production to lower distributed hot water temperature (for example from 65 to 55°C),
- Upstream from and as near as possible to the points of use to limit any risk of scalding (50°C maximum).

2 loops at 2 different temperatures*:



*non applicable to the Health care institutions

Network WITHOUT loop – 2 thermostatic mixing valves in parallel:



SYMBOLS

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

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 liters
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

Calculation of the loop's pump flow capacity: $$Q\ (m^3/h) = \frac{P\ (kW)}{1{,}163\ (td - tr)}$$

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) 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.

How is a capacity of 3 liters ensured?

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

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.

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

Dint² → inside diameter of the tube in square

Example for a 14x16 copper tube:

$$\frac{12.000.000}{3{,}14 \times 196} = \frac{12.000.000}{615{,}44} = 19\,498{,}25 \text{ mm} = 19{,}49 \text{ m}$$

14 x 14 = 196

Example for a 13x16 PEX tube:

$$\frac{12.000.000}{3{,}14 \times 169} = \frac{12.000.000}{530{,}66} = 22\,613{,}35 \text{ mm} = 22{,}61 \text{ m}$$

13 x 13 = 169

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

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)*

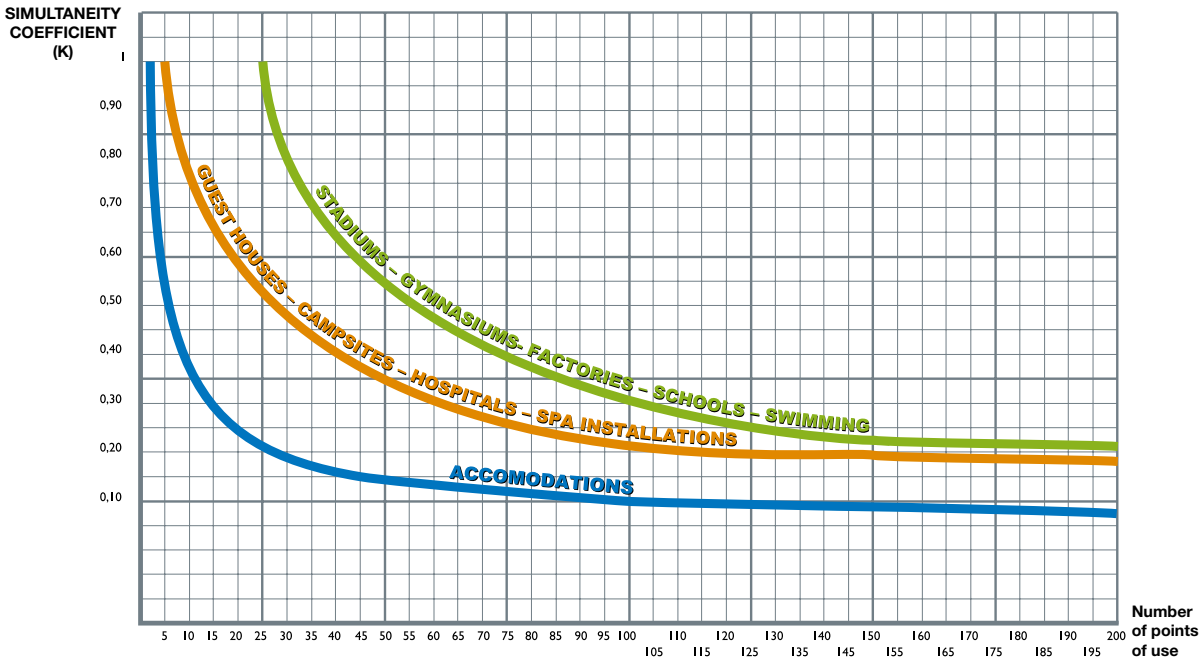
Quantity of appliances	1 or 2	3	4	5	10	15	20	25	30	35	40	50	60	70
Residences	1	0,70	0,60	0,50	0,33	0,27	0,23	0,21	0,19	0,17	0,16	0,14	0,13	0,12
Guest houses, campsites, hospitals, spa installations	1	1	1	1	0,82	0,67	0,57	0,52	0,47	0,42	0,40	0,35	0,32	0,30
Stadiums and gymns, factories, schools, swimming pools, 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, factories, schools, swimming pools, 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



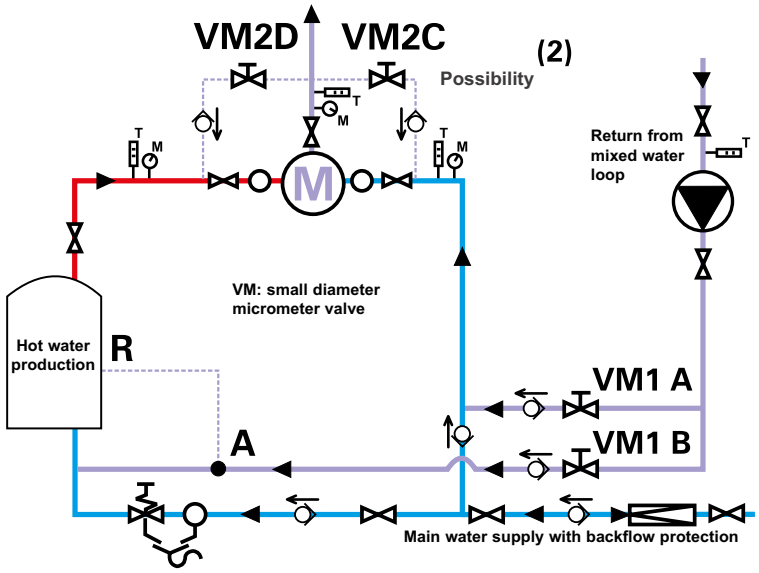
3 - Choose the thermostatic mixing valve that will ensure regulation at this instant flow rate, under the available dynamic pressure (b. = bar) for its operation (table below).

3 - Table of maximum working flow rates

Model	TX91	TX92	TX93	TX94	TX95	TX96
Max. working flow rate:						
in l/min. under 3 bar	56	80	120	175	260	400
in l/sec. under 3 bar	0,93	1,33	2,00	2,91	4,33	6,66
Pipe diameter corresponding with the size of the mixing valve:						
in mm	20	20	26	33	40	50
in inches	3/4”	3/4”	1”	1”1/4	1”1/2	2”
Number of points of use for example (see simultaneity coefficient):						
from	1	1	1	1	1	1
to	7	10	15	21	32	50
Minimum flow rate:						
in l/min.	5	5	5	5	8	8
in l/sec.	0,08	0,08	0,08	0,08	0,13	0,13

Flow diagram for a complete mixed water circuit

Principle diagram of a mixed water loop return



N.B : Other variations are possible.
Consult our Technical Assistance Department who can send you the corresponding diagrams.

VM : Micrometric valves to stabilise the loop temperature.

VM1 A : Opening from 70 to 90 %.
VM1 B : Opening from 30 to 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 into account 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 - Opening from 70 to 90 %.
VM2 D - Opening from 30 to 10 %.

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

Setting

WATTS recommends the installation of a thermometer of control of the temperature on the mixed water piping and one on the return of the loop. Moreover, this temperature must be checked at least once a month under the normal conditions of operation.

This thermometer must be installed at a distance of at least 1 meter from 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).

Maintenance

Rinsing kit is an exclusive advantage for preventive or curative treatment and is delivered with the device.

Take off knob, cover, and screws. 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”.

Range

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

Diameter		Flow (l/min)	Finish	Points of use*	Part number	Weight (kg)
M 3/4”	20x27	Min. 5 – Max. 56	Grey epoxy	1 to 7	22TX91E	1,8
M 3/4”	20x27	Min. 5 – Max. 56	Chrome plated	1 to 7	22TX91C	1,8
M 3/4”	20x27	Min. 5 – Max. 80	Grey epoxy	1 to 7	22TX92E	1,8
M 3/4”	20x27	Min. 5 – Max. 80	Chrome plated	1 to 7	22TX92C	1,8
M 1”	26x34	Min. 5 – Max. 120	Grey epoxy	1 to 15	22TX93E	2,8
M 1”	26x34	Min. 5 – Max. 120	Chrome plated	1 to 15	22TX93C	2,8
M 1”1/4	33x42	Min. 5 – Max. 175	Grey epoxy	1 to 21	22TX94E	4,6
M 1”1/4	33x42	Min. 5 – Max. 175	Chrome plated	1 to 21	22TX94C	4,6
M 1”1/2	40x49	Min. 8 – Max. 260	Grey epoxy	1 to 32	22TX95E	7,8
M 1”1/2	40x49	Min. 8 – Max. 260	Chrome plated	1 to 32	22TX95C	7,8
M 2”	50x60	Min. 8 – Max. 400	Grey epoxy	1 to 50	22TX96E	10
M 2”	50x60	Min. 8 – Max. 400	Chrome plated	1 to 50	22TX96C	10

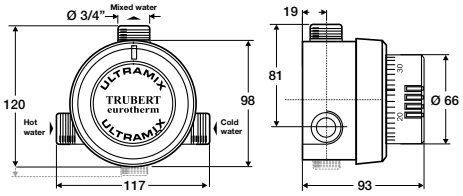
Adjustment range 30/70°C : to supply sanitary hot water loop at 55°C or more

Diameter		Flow (l/min)	Finish	Points of use*	Part number	Weight (kg)
M 3/4”	20x27	Min. 5 – Max. 56	Grey epoxy	1 to 7	22TX91E37	1,8
M 3/4”	20x27	Min. 5 – Max. 56	Chrome plated	1 to 7	22TX91C37	1,8
M 3/4”	20x27	Min. 5 – Max. 80	Grey epoxy	1 to 7	22TX92E37	1,8
M 3/4”	20x27	Min. 5 – Max. 80	Chrome plated	1 to 7	22TX92C37	1,8
M 1”	26x34	Min. 5 – Max. 120	Grey epoxy	1 to 15	22TX93E37	2,8
M 1”	26x34	Min. 5 – Max. 120	Chrome plated	1 to 15	22TX93C37	2,8
M 1”1/4	33x42	Min. 5 – Max. 175	Grey epoxy	1 to 21	22TX94E37	4,6
M 1”1/4	33x42	Min. 5 – Max. 175	Chrome plated	1 to 21	22TX94C37	4,6
M 1”1/2	40x49	Min. 8 – Max. 260	Grey epoxy	1 to 32	22TX95E37	7,8
M 1”1/2	40x49	Min. 8 – Max. 260	Chrome plated	1 to 32	22TX95C37	7,8
M 2”	50x60	Min. 8 – Max. 400	Grey epoxy	1 to 50	22TX96E37	10
M 2”	50x60	Min. 8 – Max. 400	Chrome plated	1 to 50	22TX96C37	10

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

ULTRAMIX® TX91 from 5 to 56 l/min

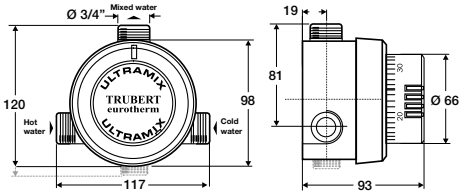
Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 3/4”	Min. 5 – Max. 56	10/50°C	Grey epoxy	1 to 7	22TX91E	1,8
M 3/4”	Min. 5 – Max. 56	10/50°C	Chrome plated	1 to 7	22TX91C	1,8
M 3/4”	Min. 5 – Max. 56	30/70°C	Grey epoxy	1 to 7	22TX91E37	1,8
M 3/4”	Min. 5 – Max. 56	30/70°C	Chrome plated	1 to 7	22TX91C37	1,8



Flow rates dynamic pressure at inlets			
	1 bar	2 bar	3 bar
Flow rate in l/min	24	41	56
Flow rate in l/s	0,40	0,68	0,93

ULTRAMIX® TX92 from 5 to 80 l/min

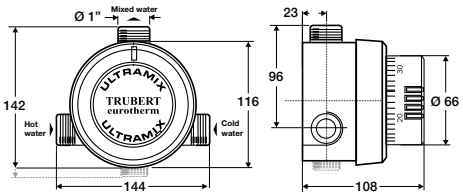
Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 3/4”	Min. 5 – Max. 80	10/50°C	Grey epoxy	1 to 10	22TX92E	1,8
M 3/4”	Min. 5 – Max. 80	10/50°C	Chrome plated	1 to 10	22TX92C	1,8
M 3/4”	Min. 5 – Max. 80	30/70°C	Grey epoxy	1 to 10	22TX92E37	1,8
M 3/4”	Min. 5 – Max. 80	30/70°C	Chrome plated	1 to 10	22TX92C37	1,8



Flow rates dynamic pressure at inlets			
	1 bar	2 bar	3 bar
Flow rate in l/min	31	56	80
Flow rate in l/s	0,51	0,93	1,33

ULTRAMIX® TX93 from 5 to 120 l/min

Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 1”	Min. 5 – Max. 120	10/50°C	Grey epoxy	1 to 15	22TX93E	2,8
M 1”	Min. 5 – Max. 120	10/50°C	Chrome plated	1 to 15	22TX93C	2,8
M 1”	Min. 5 – Max. 120	30/70°C	Grey epoxy	1 to 15	22TX93E37	2,8
M 1”	Min. 5 – Max. 120	30/70°C	Chrome plated	1 to 15	22TX93C37	2,8

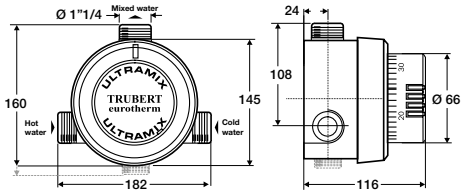


Flow rates dynamic pressure at inlets			
	1 bar	2 bar	3 bar
Flow rate in l/min	56	91	120
Flow rate in l/s	0,93	1,51	2,00

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

ULTRAMIX® TX94 from 5 to 175 l/min

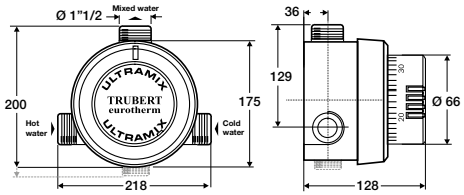
Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 1”1/4	Min. 5 – Max. 175	10/50°C	Grey epoxy	1 to 21	22TX94E	4,6
M 1”1/4	Min. 5 – Max. 175	10/50°C	Chrome plated	1 to 21	22TX94C	4,6
M 1”1/4	Min. 5 – Max. 175	30/70°C	Grey epoxy	1 to 21	22TX94E37	4,6
M 1”1/4	Min. 5 – Max. 175	30/70°C	Chrome plated	1 to 21	22TX94C37	4,6



Flow rates dynamic pressure at inlets			
	1 bar	2 bar	3 bar
Flow rate in l/min	91	133	175
Flow rate in l/s	1,51	2,21	2,91

ULTRAMIX® TX95 from 8 to 260 l/min

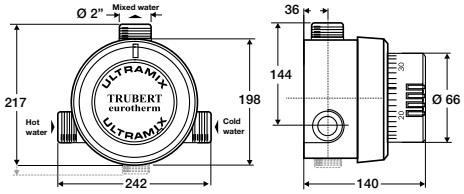
Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 1”1/2	Min. 8 – Max. 260	10/50°C	Grey epoxy	1 to 32	22TX95E	7,8
M 1”1/2	Min. 8 – Max. 260	10/50°C	Chrome plated	1 to 32	22TX95C	7,8
M 1”1/2	Min. 8 – Max. 260	30/70°C	Grey epoxy	1 to 32	22TX95E37	7,8
M 1”1/2	Min. 8 – Max. 260	30/70°C	Chrome plated	1 to 32	22TX95C37	7,8



Flow rates dynamic pressure at inlets			
	1 bar	2 bar	3 bar
Flow rate in l/min	130	201	260
Flow rate in l/s	2,16	3,35	4,33

ULTRAMIX® TX96 from 8 to 400 l/min

Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 2”	Min. 8 – Max. 400	10/50°C	Grey epoxy	1 to 50	22TX96E	10
M 2”	Min. 8 – Max. 400	10/50°C	Chrome plated	1 to 50	22TX96C	10
M 2”	Min. 8 – Max. 400	30/70°C	Grey epoxy	1 to 50	22TX96E37	10
M 2”	Min. 8 – Max. 400	30/70°C	Chrome plated	1 to 50	22TX96C37	10



Flow rates dynamic pressure at inlets			
	1 bar	2 bar	3 bar
Flow rate in l/min	231	328	400
Flow rate in l/s	3,85	5,46	6,66

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

ULTRAMIX® OMDA

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

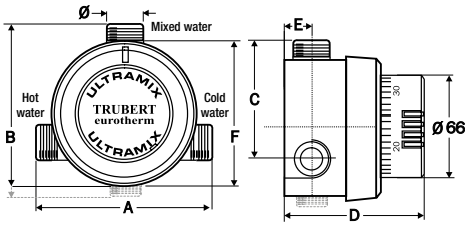
Special model specifically conceived to withstand seawater, softened water and distilled water.

Scald protection: the thermostatic mixing valve cuts off instantly if there is a shutdown of the cold or hot water supply.

Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 3/4”	Min. 5 – Max. 56	10/50°C	Grey epoxy	1 to 7	22TX91OMDA	2,3
M 3/4”	Min. 5 – Max. 80	10/50°C	Grey epoxy	1 to 10	22TX92OMDA	2,3
M 1”	Min. 5 – Max. 120	10/50°C	Grey epoxy	1 to 15	22TX93OMDA	3,5

* For information - please take into account the number of taps connected to the same network and used simultaneously.

Model	TX91	TX92	TX93
A (mm)	117	117	144
B (mm)	120	120	142
C (mm)	81	81	96
D (mm)	93	93	108
E (mm)	19	19	23
F (mm)	98	98	116
diameter	3/4”	3/4”	1”
Weight (kg)	2,3	2,3	3,5



ULTRAMIX® FNC

The thermostatic mixing valve ULTRAMIX® "FNC" has the same characteristics than the ULTRAMIX®, but it integrates a safety device and allows the tap to be used even if hot water supply is cut off.

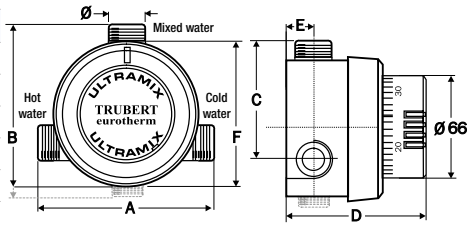
Special model for the installations with safety showers or emergency eye-washer.

Scald protection: the hot water shuts off automatically if there is not enough cold water ; if the hot water cut off, the cold water continues to be supplied.

Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 3/4”	Min. 5 – Max. 56	10/50°C	Grey epoxy	1 to 7	22TX91FNC	2,3
M 3/4”	Min. 5 – Max. 80	10/50°C	Grey epoxy	1 to 10	22TX92FNC	2,3
M 1”	Min. 5 – Max. 120	10/50°C	Grey epoxy	1 to 15	22TX93FNC	3,5
M 1”1/4	Min. 5 – Max. 175	10/50°C	Grey epoxy	1 to 21	22TX94FNC	5,0
M 1”1/2	Min. 8 – Max. 260	10/50°C	Grey epoxy	1 to 32	22TX95FNC	8,6
M 2”	Min. 8 – Max. 400	10/50°C	Grey epoxy	1 to 50	22TX96FNC	11,1

* For information - please take into account the number of taps connected to the same network and used simultaneously.

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	3/4”	3/4”	1”	1”1/4	1”1/2	2”
Weight (kg)	1,8	1,8	2,8	4,6	7,8	10



ULTRAMIX® HP haute protection

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

Thermostatic 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.

Scald protection: the thermostatic mixing valve cuts off instantly if there is a shutdown of the cold or hot water supply.

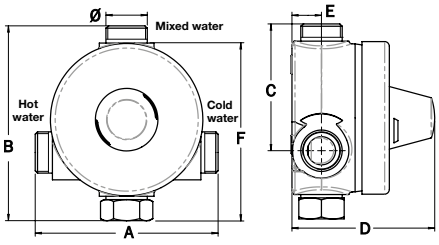
Finish chrome plated.

Diameter	Flow (l/min)	Setting range	Finish	Points of use*	Part number	Weight (kg)
M 3/4”	Min. 5 – Max. 56	10/50°C	Chrome plated	1 to 7	22T/X91CHP	2,6
M 3/4”	Min. 5 – Max. 80	10/50°C	Chrome plated	1 to 10	22T/X92CHP	2,6
M 1”	Min. 5 – Max. 120	10/50°C	Chrome plated	1 to 15	22T/X93CHP	3,7
M 1”1/4	Min. 5 – Max. 175	10/50°C	Chrome plated	1 to 21	22T/X94CHP	5,3
M 1”1/2	Min. 8 – Max. 260	10/50°C	Chrome plated	1 to 32	22T/X95CHP	8,7
M 2”	Min. 8 – Max. 400	10/50°C	Chrome plated	1 to 50	22T/X96CHP	10,8

Standard gradations: 10/50°C, on request 30/70°C.

* For information - please take into account the number of taps connected to the same network and used simultaneously.

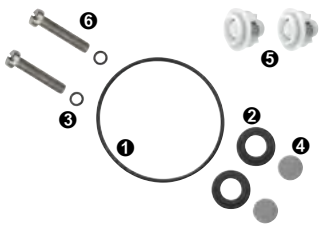
Model	TX91	TX92	TX93	TX94	TX95	TX96
A (mm)	117	117	144	176	218	242
B (mm)	124,5	124,5	147,5	170	196,5	220
C (mm)	81	81	94.5	111,5	129	144
D (mm)	91,2	91,2	97	114	129	138,5
E (mm)	19	19	23,2	24	32	35,5
F (mm)	97,5	97,5	115	145	175	196
diameter	3/4”	3/4”	1”	1”1/4	1”1/2	2”
Weight (kg)	2,6	2,6	3,7	5,3	8,7	10,8



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 platted metal frontage, high protection lock and key for dito.

For thermostatic mixing valve type	Part 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



Maintenance kit for ULTRAMIX® cartridges

This kit includes all the usual wearing parts:
the cover-cartridge gasket ❶, 2 filter-support (elastomer) ❷, gaskets for cover screws ❸, 2 stainless steel strainers ❹, the check valve units and assembled check valve carriers ❺ and the cover screws ❻.

For cartridge type	Part number complete kit	Part number simplified kit
TX1, TX2, TX137, TX237	22TB120002	22TB120022 (without cover screws)
TX3, TX337	22TB120003	22TB120023 (without cover screws)
TX4, TX437	22TB120004	22TB120024 (without cover screws)
TX5, TX537	22TB120005	22TB120025 (without cover screws)
TX6, TX637	22TB120006	22TB120026 (without cover screws)

Replacement cartridges ULTRAMIX®

The thermostatic mechanisms are independent from the other parts of the thermostatic mixing valves.

This modular system, facilitates the first start-up and the maintenance (possibility of cartridge exchange).

Any installation defect is immediately detected and allows a quick compliance.

All Eurotherm "cartridges" of ULTRAMIX®, high productivity thermostatic mixing valve, have stainless steel filters and check valves NF approved.

For mixing valve type	Flow (l/min)	Setting range	Part number
TX91E, TX91C, T/X91CHP	5 to 56	10/50°C	22TX1*
TX92E, TX92C, T/X92CHP	5 to 80	10/50°C	22TX2*
TX93E, TX93C, T/X93CHP	5 to 120	10/50°C	22TX3
TX94E, TX94C, T/X94CHP	5 to 175	10/50°C	22TX4
TX95E, TX95C, T/X95CHP	8 to 260	10/50°C	22TX5
TX96E, TX96C, T/X96CHP	8 to 400	10/50°C	22TX6
TX91E37, TX91C37, T/X91CHP	5 to 56	30/70°C	22TX137*
TX92E37, TX92C37, T/X92CHP	5 to 80	30/70°C	22TX237*
TX93E37, TX93C37, T/X93CHP	5 to 120	30/70°C	22TX337
TX94E37, TX94C37, T/X94CHP	5 to 175	30/70°C	22TX437
TX95E37, TX95C37, T/X95CHP	8 to 260	30/70°C	22TX537
TX96E37, TX96C37, T/X96CHP	8 to 400	30/70°C	22TX637
TX91FNC	5 to 56	10/50°C	22TX1FNC
TX92FNC	5 to 80	10/50°C	22TX2FNC
TX93FNC	5 to 120	10/50°C	22TX3FNC
TX94FNC	5 to 175	10/50°C	22TX4FNC
TX95FNC	8 to 260	10/50°C	22TX5FNC
TX96FNC	8 to 400	10/50°C	22TX6FNC
TX91OMDA	5 to 56	10/50°C	22TX1OMDA
TX92OMDA	5 to 80	10/50°C	22TX2OMDA
TX93OMDA	5 to 120	10/50°C	22TX3OMDA

For reversed cartridges add "IN" to the article code.
* For reversed cartridges add "IN" to the article code, for installations requiring a higher flow rate, the 22TX1 and 22TX2 cartridges as well as 22TX137 and 22TX237 are compatible and interchangeable.

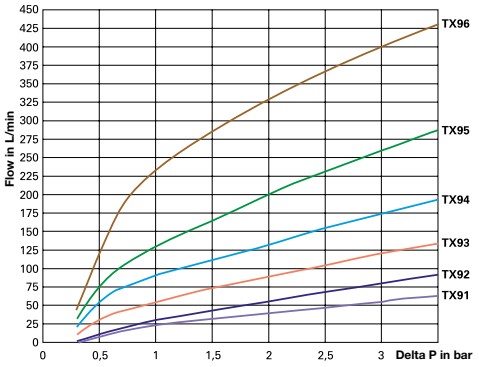
Online selection tool Ultramix®

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).

Access to the calculation software: click here

www.ultramix.en/watts_fr/index.html

Operating



WATTS®

Follow us
Watts Water Technologies

WATTS INDUSTRIES France
1590 avenue d'Orange • CS 10101 Sorgues 84275 VEDENE CEDEX • FRANCE
Tél. +33 (0)4 90 33 28 28 • Fax +33 (0)4 90 33 28 29/39
contact@wattswater.com • www.wattswater.fr