



**THERMOSTATIC CONTROL UNITS**










**OUR SERIES OF** thermostatic mixing valves has made heroes of installation engineers throughout Europe. The basic requirement for ensuring a tap water system is safe to use involves the prevention of two significant factors: legionella bacteria and scalding.

Hot water needs to be heated to 60°C to prevent the proliferation of legionella bacteria. But a temperature this high will scald people. With an ESBE thermostatic mixing valve fitted after the water heater, the temperature is restricted to a maximum 55°C throughout the system. In this way the water can be heated up to legionella-safe temperatures without the risk of anyone getting scalded.

ESBE thermostatic mixing valves also allow you to make better use of solar energy. And you can easily control underfloor heating if you choose the 20-43°C temperature range. It reduces the radiator circuit's temperature to safe and comfortable heating for feet and floor.

# THERMOSTATIC CONTROL UNITS

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# ESBE GUIDE

## SELECT THE SUITABLE THERMOSTATIC MIXING VALVE

ESBE thermostatic mixing valves are divided into three different groups, depending on application field or requirements.

### SERIES VTA330/360

Are primarily designed to provide a thorough regulation of the domestic hot water temperature at taps or showers where no further temperature-control fittings have been installed.

The quick reaction thermostat and the pressure balanced control valve regulator allow the VTA330/360 to provide minimal changes of temperature regardless of varying pressure conditions. Scald safe\*.

The difference between the VTA330 and the VTA360 design is the flow pattern. For further information see page 118.

### SERIES VTA320/VTA370/VTA200

The number one choice for domestic hot water systems requiring a scald safe\* function and where further temperature-control devices have been installed at the taps. This series of valves are also suitable for domestic hot water installations equipped with HWC (hot-water circulation).

The constant temperature control is another field of application for the series VTA320/VTA370/VTA200, making them suitable to be used for smaller underfloor heating purposes.

Series VTA320 is suitable for smaller installations (Kvs = 1.2–1.6) and series VTA370/VTA200 for bigger installations (Kvs = 3.0). For further information see pages 120 and 124.

### SERIES VTA310

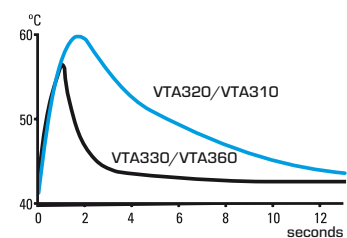
Is designed for temperature control in domestic hot water installations without any requirements for a scald safe function.

For further information see page 122.

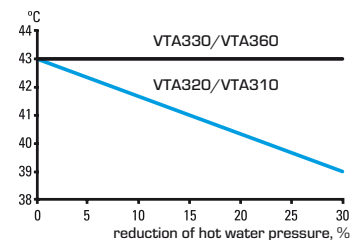
\*) Scald safe means that in the case of a cold water failure, the hot water supply shuts off automatically.

In the diagrams below, you can find the difference in technical performance between the different series of thermostatic mixing valves.

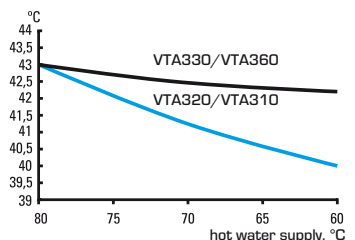
*The valve is cold and "suddenly" hot water is needed – how fast will the valve reach the desired temperature?  
(In the diagram 43°C)*



*Incoming hot water pressure reduces by 30%  
(In the diagram -2 bar).  
What temperature change will it be in the valve?*

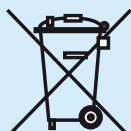


*If the hot water supply is being reduced by 20°C – what temperature change will it be in the valve?*



#### VALVES, RE. PED 97/23/EEC

Pressure Equipment in conformity with PED 97/23/EC, article 3.3 (sound engineering practice).  
According to the directive the equipment shall not carry any CE-mark.



#### DISPOSAL

The products must not be disposed of together with domestic waste, but should be treated as metal scrap.  
Local and currently valid legislation must be observed.

## ESBE GUIDE

### SELECT THE SUITABLE THERMOSTATIC MIXING VALVE

The ESBE thermostatic mixing valves offer a great number of optional connections for many temperature ranges.



Series VTA300 with top cover



Series VTA300 with knob



Compression fittings



External thread



Internal thread



Fittings as an option

#### TEMPERATURE ADJUSTMENT

ESBE series VTA300 are offered with knob or top cover. The round adjusting knob indicates that adjustment of the temperature is possible by turning the knob. The four-sided top cover indicates protected temperature adjustment (tamper proof for unintentional adjustment), and which lifts it off for temperature adjustment. Thereafter it can easily be sealed to meet the requirements which are made by some markets.

#### OPTIONAL TEMPERATURE RANGES

- 35 – 60°C \_\_\_ suitable range for central hot-water heating at the heater
- 32 – 49°C \_\_\_ suitable range for regulating the temperature at the shower or at the tap.
- 20 – 43°C \_\_\_ suitable range for underfloor heating and for domestic hot water regulation in preschools and daycare centers
- 10 – 30°C \_\_\_ suitable range for drinking water and water for dairy cows
- 30 – 70°C \_\_\_ suitable range for temporary need for hot water, (such as handling foods)

#### OPTIONAL CONNECTIONS:

- Compression fittings \_\_\_ allow a quick installation with copper tubing or with PEX-tubing.
- External thread \_\_\_\_\_ suitable for various connections and fittings such as nut/flat seal/solder.
- Internal thread \_\_\_\_\_ to install any other kind of connections.

# ESBE GUIDE

## DIMENSIONING DOMESTIC WATER

The ESBE thermostatic mixing valves are available with Kvs-values from 1.2 up to 3.6 and is to be dimensioned as below.

### DIMENSIONING OF DOMESTIC WATER APPLICATIONS

The thermostatic mixing valves for domestic hot water applications can be dimensioned according to the number of flats in the house or the number of showers in, for ex. sports centers.

### RECOMMENDED KVS-VALUES

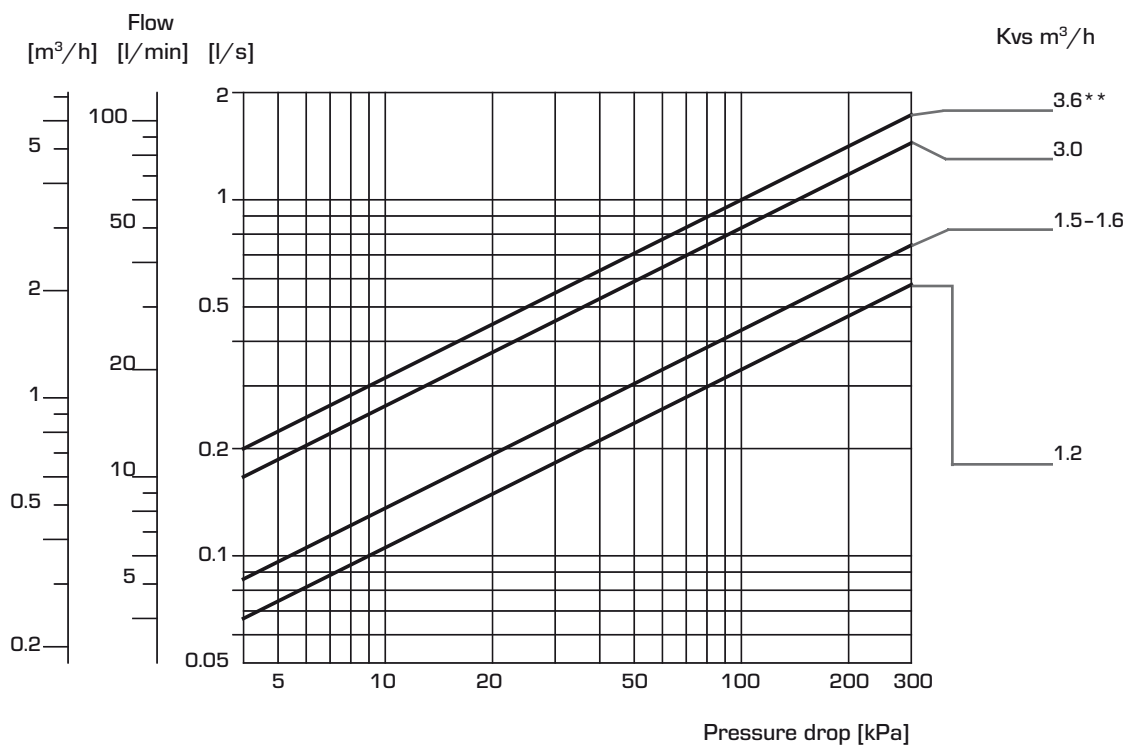
One-family-houses or 2 showers\* \_\_\_\_\_ Kvs = 1.2

Max. 5 flats or 3 showers\* \_\_\_\_\_ Kvs = 1.5 - 1.6

Max. 10 flats or 6 showers\* \_\_\_\_\_ Kvs = 3.0

\* Number of showers in, for ex. sport centers.

### CAPACITY DIAGRAM



The Kvs-value is measured at a mixture of equal shares of hot and cold water

\*\* Only underfloor heating applications

**ESBE GUIDE****ADVICE & DIRECTIONS FOR DOMESTIC WATER SYSTEMS****ADVICE & DIRECTIONS FOR DIMENSIONING OF VALVES FOR DOMESTIC HOT WATER APPLICATIONS**

HWC (hot-water circulation) should be installed whenever you must wait more than 20 seconds for hot water at a flow of 0.2 l/s in a block of flats. In one- and two-family houses a waiting time of 30 seconds can be accepted.

ESBE recommends that the hot-water temperature at taps shall not be below min. +50°C and not exceed max. +65°C. Considering a certain temperature reduction in the water system, the heater should give min. +60° C (owing the risk of Legionella).

We recommend you to choose thermostatic mixing valves from series VTA320/VTA310 for maximum 5 flats and the series VTA200 for max. 10 flats.

For shower installations the series VTA200 is suitable for max. 6 showers and series VTA320/VTA310 for max. 3 showers.

In cases where no further temperature-control fitting have been installed between the tap and the mixing valve, we recommend series VTA330/VTA360 which manage 2 showers.

**FACTS ABOUT THE RISK OF SCALD BURNS AND LEGIONELLA**

The time it takes to suffer third-degree burns by 60-degrees hot-water \_\_\_\_\_ 2–3 s

The time it takes for a scald safe ESBE mixing valve to close the hot-water in case of cold water failure\_\_ 1–2 s

Suitable temperature for shower and bath tub \_\_\_\_\_ 40°C

Recommended min. temperature at taps and in HWC pipes \_\_\_\_\_ 50°C

Recommended min. temperature in flowing water-heaters \_\_\_\_\_ 55°C

Recommended min. temperature in water-heaters (storage type) \_\_\_\_\_ 60°C

The Legionnaires' Disease is a pneumonia-like bacterial infection, caused by the Legionella germ. This germ has an optimal growth in water temperatures of 20–45°C. It spreads disease by inhalation of small water drops containing Legionella and can be transferred to the lungs when you take a shower. At a temperature exceeding 50°C, the germ is destroyed; the higher the temperature the sooner the germs are destroyed. By keeping the temperature in the water-heater above 60°C and the temperature in the pipes at 55°C, the risk of Legionnaires' disease will be eliminated.

## ESBE GUIDE

# HOW TO CHOOSE THE CORRECT INSTALLATION/POSITION

To achieve a good and safe function it is important to follow the installation instructions. This applies to all products, including the ESBE thermostatic mixing valves!

### PERIODIC FUNCTION CONTROL – CAUSE OF FAILURE

The function of the mixing valve is especially important at scald safe installations. We recommend performing a periodic check of the function at least once a year. Adjust the mixing temperature if required. If the required temperature cannot be achieved, a valve insert exchange may be required.

### SERVICE AND MAINTENANCE

Under normal conditions maintenance will not be required for ESBE thermostatic mixing valves. If, however, it should prove necessary, the seals (O-rings), the sensing element and the valve plug are easily replaced.

NOTE! Before dismantling the valve the water supply should be shut off. Where the valve is fitted below the storage tank this should be drained first.

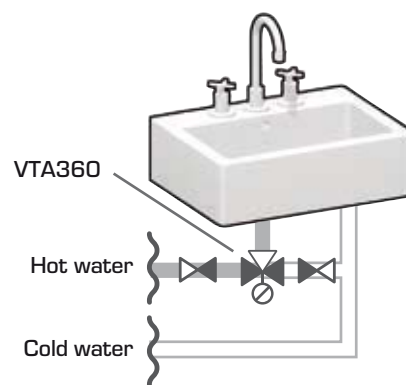
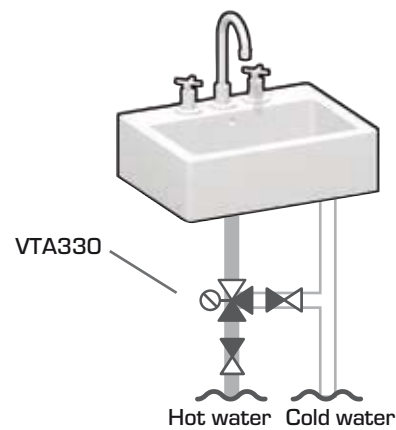
### INSTALLATION

The mixing valve function works regardless of mounting position.

### CONNECTION OF THE SERIES VTA330/VTA360 AT A WASHBASIN

Applications with high requirements for scald safety (hospitals, child care centers, etc.) and, in addition, for quick and exact regulation accuracy require the series VTA330/VTA360.

Below please find two illustrations of connections at a washbasin. The two mixing valve inlets shall be equipped with check valves.



# ESBE GUIDE

## HOW TO CHOOSE THE CORRECT INSTALLATION/POSITION

The ESBE thermostatic mixing valves can be used in a great number of various applications.

Below please find some illustrations of how to install the thermostatic mixing valves to a domestic hot water system.

### DOMESTIC HOT WATER WITHOUT HWC\*, FIG. 1

If no hot-water circulation exists, the valve should be equipped with hot-water blocking devices (heat traps) in the hot-water and the cold-water feed line.

### HOT-WATER OUTLET BEFORE THE VALVE, FIG. 2

Whenever a hot-water outlet is installed before the valve, a check valve must be installed before the hot-water connection to the mixing valve.

### POSITIONED BEFORE A TAP, FIG. 3

Whenever the valve is installed before a tap, both inlets should be equipped with check valves.

### TAP WATER WITH HWC\*, FIG. 4

To get access to hot-water at a tap without waiting, an HWC-pipe with circulation pump should be installed. Connect each tap to the HWC-pipe. N.B! series VTA310 is not suitable for HWC.

\* HWC = Hot-water circulation

Fig. 1

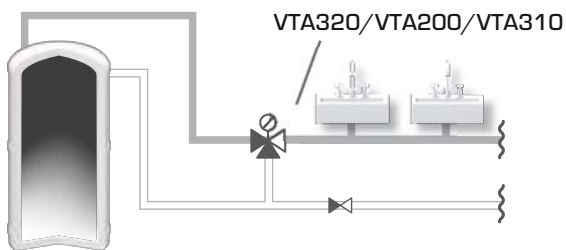


Fig. 3

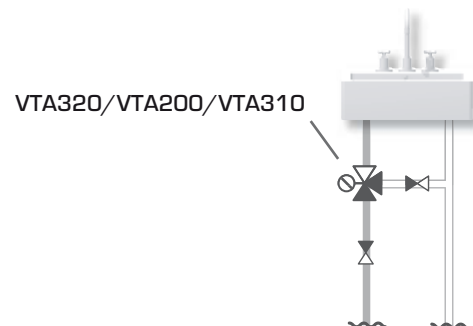


Fig. 2

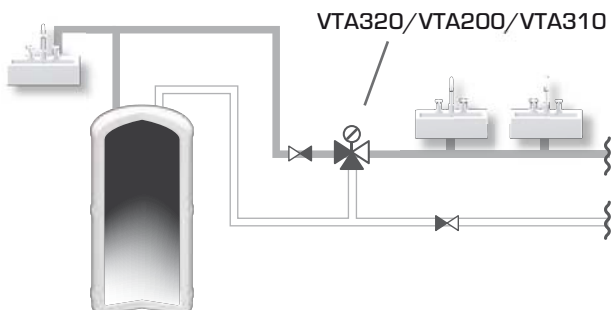
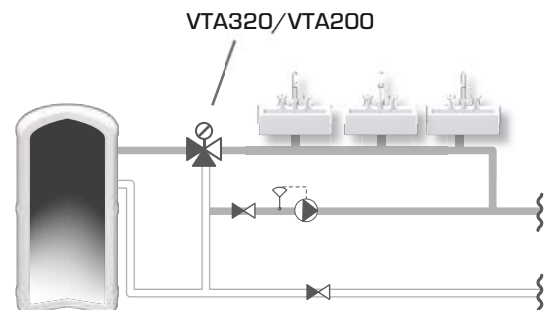


Fig. 4



## ESBE GUIDE

# HOW TO CHOOSE THE CORRECT INSTALLATION/POSITION

When refurbishing your home you may wish to install an underfloor heating in the bathroom, in the entrance or in any other room. ESBE thermostatic mixing valves Series VTA320 alt. Series VTA200 offer a simple and economical solution for underfloor heating regulation.

### UNDERFLOOR HEATING REGULATION BY USE OF A THERMOSTATIC MIXING VALVE

There are some differences in regulating the underfloor heating compared with radiator systems, such as;

- 1) The supply line temperature should not exceed 55°C. For concrete beams normally 40°C is enough, timber joist floor, however, can require up to 55°C.
- 2) The difference between the supply line temperature and the return temperature  $\Delta t$  is lower, normally 5°C.

Suitable ESBE mixing valves for underfloor heating systems are series VTA320, 20–43°C (DN 20, Kvs-value 1.6) or series VTA200, 20–40°C (DN 25, Kvs-value 3.0 and 3.6).

The advantage of choosing a thermostatic mixing valve for underfloor heating applications is that it limits the supply line temperature without any automatic control device/bypass.

### DIMENSIONING OF UNDERFLOOR HEATING

Normal power requirement = 50 W/m<sup>2</sup>.  $\Delta t = 5^\circ\text{C}$  requires a flow of approx. 0.25 l/s per 100 m<sup>2</sup>.

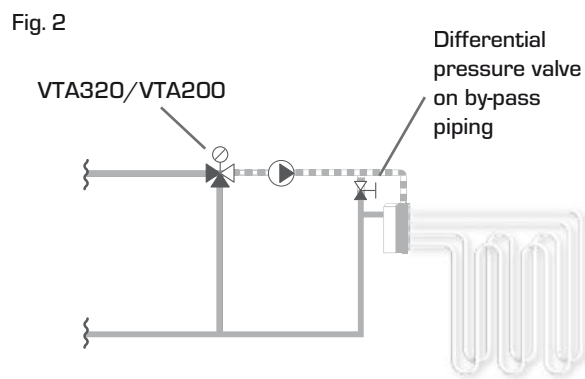
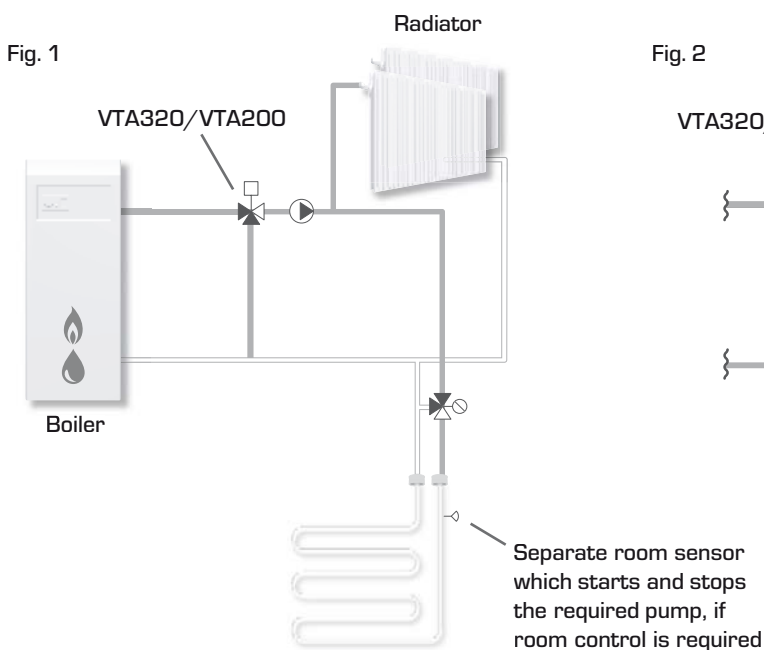
Ex.: A valve of type VTA320 DN20 manages approx. 50 m<sup>2</sup> with a pressure drop of 8 kPa and VTA200 DN25 approx. 100 m<sup>2</sup> with a pressure drop of 10 kPa.

### ONE UNDERFLOOR HEATING LOOP, FIG. 1

The mixing valve has a constant temperature regulation at the set value. Please note that the underfloor heating circuit requires a separate circulation pump and that it can be equipped with a sensor.

### SEVERAL UNDERFLOOR HEATING LOOPS, FIG. 2

The mixing valve has a constant temperature regulation at the set value. This type of application requires valves to balance the flow between the different underfloor heating circuits. For room control facilities, valves with separate sensors can be installed.



# ESBE GUIDE

## HOW TO CHOOSE THE CORRECT INSTALLATION/POSITION

To connect two thermostatic mixing valves in series can be beneficial whenever you have an storage tank with a two level domestic hot water outlet or when the hot water is processed in two different heaters. Preference can then be given to the most effective option.

ESBE thermostatic mixing valves can also be suitable for obtaining the highest possible level of energy from the most beneficial heat source of the system.

### IN SERIES WITH DOUBLE LOOPS, FIG. 1

Series connection in hot-water heaters with double loops. Should the temperature in the bottom loop be insufficient, the top one will provide the peak heat.

### TWO HEATERS IN SERIES, FIG. 2

Series connection of two heaters. Should the temperature in the first heater be insufficient, the second heater will provide the peak heat. N.B.! Heater No. 2 must constantly be kept warm to avoid cold water addition.

### AS A DIVERTING VALVE, FIG. 3

A mixing valve, series VTA320/VTA200 can be connected as a diverting valve in applications such as solar heat. The connection showed below provide opportunities for the best possible stratification in the storage tank.

### HOT WATER TO A WASHING MACHINE, FIG. 4

A mixing valve can be used to temper the hot water for a washing machine. This can be cost-effective if you have access to hot water from a solar collector, hot-water pump or a solid fuel system. In this case, the mixing valve is equipped with an adjusting knob to easily adjust to the desired washing temperature.

Fig. 1 Solar heating

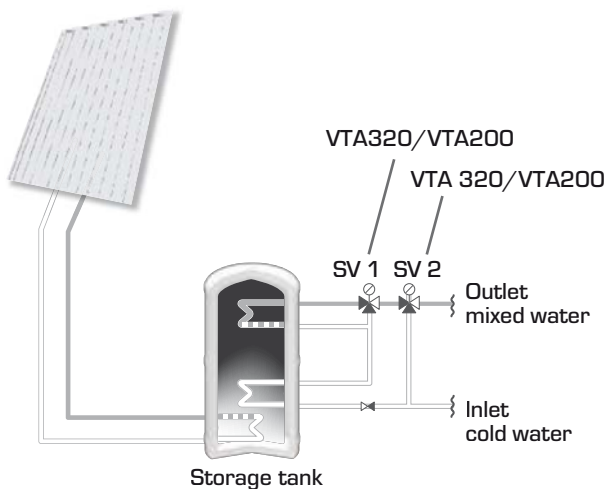


Fig. 2

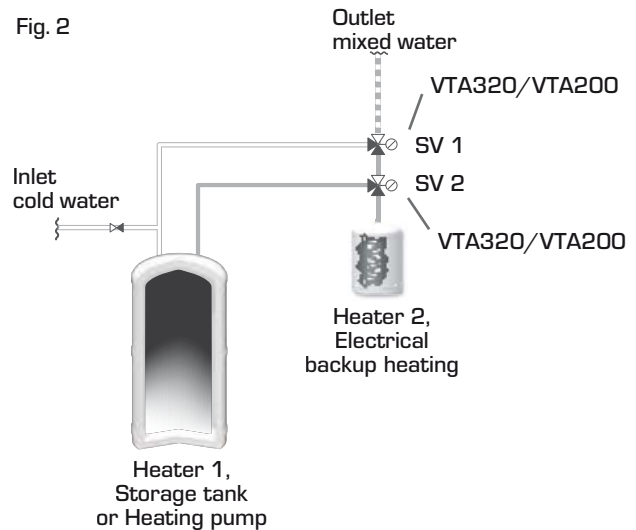


Fig. 3

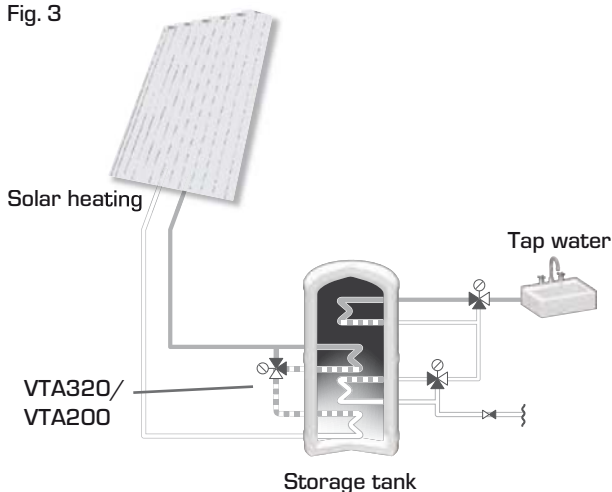
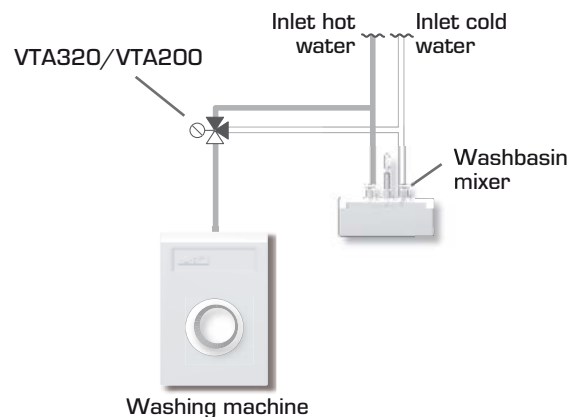


Fig. 4



# THERMOSTATIC MIXING VALVE

## SERIES VTA330 AND VTA360

The Series VTA330/VTA360 is designed to satisfy the highest possible market requirements when it comes to accuracy of regulation, quick reaction and safe function regardless of varying pressure conditions.



### OPERATION

Series VTA330/VTA360 is primarily designed to provide a thorough regulation of the domestic hot water temperature at taps or showers where no further temperature-control fittings have been installed. The quick reaction thermostat and the pressure balanced control valve regulator allow the VTA330/VTA360 to provide minimal changes of temperature regardless of varying pressure conditions. Scald safe\*.

The difference between the VTA330 and VTA360 is the flow pattern.

Supplied with a top cover, unless otherwise stated.

\*) Scald safe means that in the case of a cold water failure, the hot water supply shuts off automatically.

### VALVE VTA330/VTA360 DESIGNED FOR

- Heating
- Comfort Cooling
- Potable water
- Floor heating
- Solar heating
- Ventilation
- Zone
- District Hot Water
- District Heating
- District Cooling

### TECHNICAL DATA

Pressure class: \_\_\_\_\_ PN 10  
 Differential pressure: \_\_\_\_\_ max. 3 bar (0.3 MPa)  
 Pressure drop diagram: \_\_\_\_\_ see page 112  
 Media temperature: \_\_\_\_\_ max. 95°C  
 Regulation accuracy: \_\_\_\_\_ according to standards\*  
 Connection: \_\_\_\_\_ External thread, ISO 228/1

\* For those designs that are not comprised by any standard is accuracy  $\pm 2^\circ\text{C}$  at a minimum flow of 2 l/minutes.

### Material

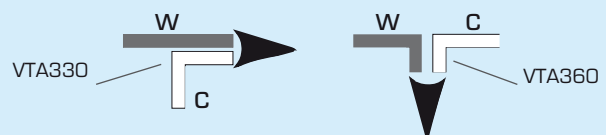
Valve housing and other metal parts with fluid contact:  
 \_\_\_\_\_ DZR brass CW602N, resistant to dezincification

PED 97/23/EC, article 3.3

Pressure Equipment in conformity with PED 97/23/EC, article 3.3 (sound engineering practice).

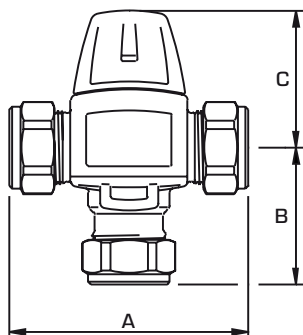
According to the directive the equipment shall not carry any CE-mark.

### FLOW PATTERN



# THERMOSTATIC MIXING VALVE

## SERIES VTA330 AND VTA360



### THERMOSTATIC MIXING VALVE SERIES VTA332, EXTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3115 02 00	VTA332	32 - 49°C	15	1.2	G 3/4"	70	54	52		0.52
3115 07 00	VTA332	35 - 60°C	15	1.2	G 3/4"	70	54	52		0.52
3115 09 00	VTA332	35 - 60°C	20	1.3	G 1"	70	54	52		0.55

### THERMOSTATIC MIXING VALVE SERIES VTA333, COMPRESSION FITTING

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3115 21 00	VTA333	35 - 60°C	15	1.2	CPF 15 mm	86	62	52	1)	0.69
3115 03 00	VTA333	35 - 60°C	20	1.2	CPF 22 mm	86	62	52	1)	0.64

### THERMOSTATIC MIXING VALVE SERIES VTA362, EXTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3115 14 00	VTA362	32 - 49°C	15	1.2	G 3/4"	70	42	52		0.45
3115 11 00	VTA362	35 - 60°C	15	1.2	G 3/4"	70	42	52		0.45
3115 12 00	VTA362	35 - 60°C	20	1.3	G 1"	70	42	52		0.48

### THERMOSTATIC MIXING VALVE SERIES VTA363, COMPRESSION FITTING

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3115 10 00	VTA363	35 - 60°C	20	1.2	CPF 22 mm	86	50	52	1)	0.57

\* Kvs-value in m<sup>3</sup>/h at a pressure drop of 1 bar. CPF = compression fitting

Note 1) A non-return valve for the cold water is included.

THERMOSTATIC CONTROL UNITS

# THERMOSTATIC MIXING VALVE

## SERIES VTA320 AND VTA370

The ESBE thermostatic mixing valves Series VTA320 offer a good function for universal applications, such as domestic hot water regulation with or without HWC (hot-water circulation) and smaller underfloor heating circuits. Series VTA370 offer a good function for larger underfloor heating circuits.

### OPERATION

The series VTA320 is the number one choice for domestic hot water systems requiring a scald safe\* function and where further temperature-control devices have been installed at the taps. This series of valves is also suitable for domestic hot water installations equipped with HWC (hot-water circulation).

Constant temperature level control is another field of application for the series VTA320, making it suitable for smaller underfloor heating applications (up to 50m<sup>2</sup>).

The series VTA370 is adopted exclusively for use in under-floor heating systems. Increased flow capacity makes it suitable for larger underfloor heating applications (40 up to 100m<sup>2</sup>).

Supplied with a top cover, unless otherwise stated.

\*) Scald safe means that in the case of a cold water failure, the hot water supply shuts off automatically.



### VALVE VTA320/VTA370 DESIGNED FOR

- Heating\*
  - Comfort Cooling\*
  - Potable water\*
  - Floor heating
  - Solar heating\*
  - Ventilation\*
  - Zone\*
  - District Hot Water
  - District Heating
  - District Cooling
- \* Not series VTA372

### TECHNICAL DATA

Pressure class: \_\_\_\_\_ PN 10  
 Differential pressure: \_\_\_\_\_ max. 3 bar (0.3 MPa)  
 Pressure drop diagram: \_\_\_\_\_ see page 112  
 Media temperature: \_\_\_\_\_ max. 95°C  
 Regulation accuracy: \_\_\_\_\_ according to standards\*  
 Connection: \_\_\_\_\_ Internal thread, ISO 7/1  
 \_\_\_\_\_ External thread, ISO 228/1

\* For those designs that are not comprised by any standard, the accuracy is ±2°C at a minimum flow of 4 l/minutes.  
 For the series VTA320 this is valid at an unchanged pressure of the incoming cold and hot-water.

### Material

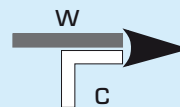
Valve housing and other metal parts with fluid contact:  
 \_\_\_\_\_ DZR brass CW602N, resistant to dezincification

PED 97/23/EC, article 3.3

Pressure Equipment in conformity with PED 97/23/EC, article 3.3 (sound engineering practice).

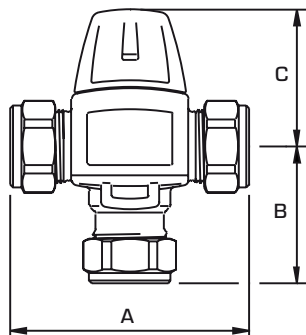
According to the directive the equipment shall not carry any CE-mark.

### FLOW PATTERN



# THERMOSTATIC MIXING VALVE

## SERIES VTA320 AND VTA370



### THERMOSTATIC MIXING VALVE SERIES VTA321, INTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3110 03 00	VTA321	20 - 43°C	15	1.5	Rp 1/2"	70	42	52		0.45
3110 04 00	VTA321	35 - 60°C	15	1.5	Rp 1/2"	70	42	52		0.45
3110 07 00	VTA321	20 - 43°C	20	1.6	Rp 3/4"	70	42	52		0.48
3110 08 00	VTA321	35 - 60°C	20	1.6	Rp 3/4"	70	42	52		0.48

### THERMOSTATIC MIXING VALVE SERIES VTA322, EXTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3110 28 00	VTA322	20 - 43°C	15	1.2	G 1/2"	70	42	52		0.41
3110 29 00	VTA322	35 - 60°C	15	1.2	G 1/2"	70	42	52		0.41
3110 05 00	VTA322	20 - 43°C	15	1.5	G 3/4"	70	42	52		0.45
3110 06 00	VTA322	35 - 60°C	15	1.5	G 3/4"	70	42	52		0.45
3110 09 00	VTA322	20 - 43°C	20	1.6	G 1"	70	42	52		0.48
3110 10 00	VTA322	35 - 60°C	20	1.6	G 1"	70	42	52		0.48

### THERMOSTATIC MIXING VALVE SERIES VTA323, COMPRESSION FITTING

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3110 26 00	VTA323	20 - 43°C	15	1.2	CPF 15 mm	86	50	52	1)	0.49
3110 27 00	VTA323	35 - 60°C	15	1.2	CPF 15 mm	86	50	52	1)	0.49
3110 39 00	VTA323	35 - 60°C	15	1.5	CPF 18 mm	86	50	52		0.66
3110 01 00	VTA323	20 - 43°C	20	1.5	CPF 22 mm	86	50	52	1)	0.57
3110 02 00	VTA323	35 - 60°C	20	1.5	CPF 22 mm	86	50	52	1)	0.57

### THERMOSTATIC MIXING VALVE SERIES VTA372, EXTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3110 44 00	VTA372	20 - 43°C	20	3.4	G 1"	70	42	52	2)	0.51
3110 45 00	VTA372	35 - 60°C	20	3.4	G 1"	70	42	52	2)	0.51

\* Kvs-value in m<sup>3</sup>/h at a pressure drop of 1 bar. CPF = compression fitting

Note 1) A non-return valve for the cold water is included. 2) Only for underfloor heating

THERMOSTATIC CONTROL UNITS

# THERMOSTATIC MIXING VALVE

## SERIES VTA310

The ESBE thermostatic mixing valves Series VTA310 is primarily designed for domestic hot water regulation at heaters without any requirement for a scald safe function.



### OPERATION

The series VTA310 is designed for temperature control in domestic hot water installations without any requirements for a scald safe function. This series of valves is not suitable for domestic hot water installations equipped with HWC.

Supplied with a knob unless otherwise stated.

### VALVE VTA310 DESIGNED FOR

- Heating
- Comfort Cooling
- Potable water
- Floor heating
- Solar heating
- Ventilation
- Zone
- District Hot Water
- District Heating
- District Cooling

### TECHNICAL DATA

Pressure class: \_\_\_\_\_ PN 10  
Differential pressure: \_\_\_\_\_ max. 3 bar (0.3 MPa)  
Pressure drop diagram: \_\_\_\_\_ see page 112  
Media temperature: \_\_\_\_\_ max. 95°C  
Regulation accuracy: \_\_\_\_\_ according to standards\*  
Connection: \_\_\_\_\_ External thread, ISO 228/1

\* For those designs that are not comprised by any standard, the accuracy is  $\pm 2^\circ\text{C}$  at a minimum flow of 4 l/minutes. For the series VTA310 this is valid at an unchanged pressure of the incoming cold and hot-water.

#### Material

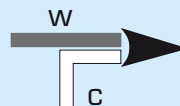
Valve housing and other metal parts with fluid contact:  
\_\_\_\_\_ DZR brass CW602N, resistant to dezincification

PED 97/23/EC, article 3.3

Pressure Equipment in conformity with PED 97/23/EC, article 3.3 (sound engineering practice).

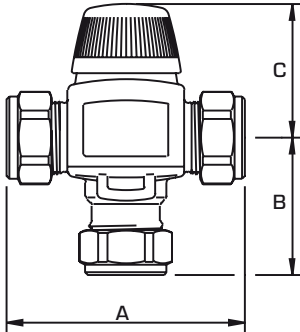
According to the directive the equipment shall not carry any CE-mark.

### FLOW PATTERN



# THERMOSTATIC MIXING VALVE

## SERIES VTA310



### THERMOSTATIC MIXING VALVE SERIES VTA312, EXTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3105 02 00	VTA312	35 - 60°C	15	1.2	G 1/2"	70	42	52		0.41

### THERMOSTATIC MIXING VALVE SERIES VTA313, COMPRESSION FITTING

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3105 01 00	VTA313	35 - 60°C	15	1.2	CPF 15 mm	86	50	52	1)	0.49
3105 03 00	VTA313	35 - 60°C	15	1.5	CPF 18 mm	86	50	52		0.62
3105 04 00	VTA313	35 - 60°C	20	1.5	CPF 22 mm	86	50	52	1)	0.57
3105 05 00	VTA313	30 - 70°C	20	1,5	CPF 22 mm	86	50	52	1)	0.62

\* Kvs-value in m<sup>3</sup>/h at a pressure drop of 1 bar. CPF = compression fitting  
 Note 1) A non-return valve for the cold water is included.

# THERMOSTATIC MIXING VALVE

## SERIES VTA200

The ESBE thermostatic mixing valve Series VTA200 offer a good function for universal applications, such as domestic hot water regulation with HWC (hot-water circulation) and smaller under-floor heating circuits. Series VTA270 offer a good function for larger underfloor heating circuits.

### OPERATION

Whenever the domestic hot water system requires a scald safe\* function, the ESBE series VTA200 is a good choice.

Other fields of application are; domestic hot water temperature limiter, with or without HWC and constant temperature regulation, in applications such as underfloor heating systems (up to 100m<sup>2</sup>).

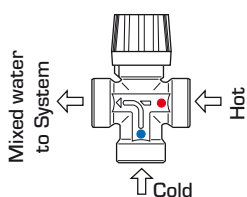
The series VTA270 is adopted exclusively for use in under-floor heating systems. Increased flow capacity makes it suitable for larger underfloor heating applications (40 up to 100m<sup>2</sup>).

The valve is equipped with a self-regulating thermostat, which senses the temperature of the mixed water and directly actuates the valve cone. Within 3 to 10 seconds the temperature is stabilized at the set value.

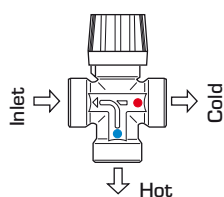
*\*) Scald safe means that in the case of a cold water failure, the hot water supply shuts off automatically.*

### HOW TO USE THE VALVES

1. Mixing of domestic hot and cold water.
2. Maintaining a constant supply temperature in a closed heating system.
3. Diverting flow to "hot" or to "cold" depending upon inlet temperature.



Mixing



Diverting



### VALVE VTA200 DESIGNED FOR

- |                                                 |                                          |
|-------------------------------------------------|------------------------------------------|
| <input type="radio"/> Heating                   | <input type="radio"/> Ventilation        |
| <input type="radio"/> Comfort Cooling           | <input type="radio"/> Zone               |
| <input checked="" type="radio"/> Potable water* | <input type="radio"/> District Hot Water |
| <input checked="" type="radio"/> Floor heating  | <input type="radio"/> District Heating   |
| <input checked="" type="radio"/> Solar heating* | <input type="radio"/> District Cooling   |
- \* Not series VTA270

### TECHNICAL DATA

Pressure class: \_\_\_\_\_ PN 10  
 Differential pressure: \_\_\_\_\_ max. 3 bar (0.3 MPa)  
 Pressure drop diagram: \_\_\_\_\_ see page 112  
 Media temperature: \_\_\_\_\_ max. 95°C  
 Regulation accuracy: \_\_\_\_\_ ±3°C at a minimum flow of 4 l/min  
 Connection: \_\_\_\_\_ External thread, ISO 228/1

#### Material

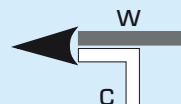
Valve housing and other metal parts with fluid contact:  
 \_\_\_\_\_ DZR brass CW602N, resistant to dezincification

PED 97/23/EC, article 3.3

Pressure Equipment in conformity with PED 97/23/EC, article 3.3 (sound engineering practice).

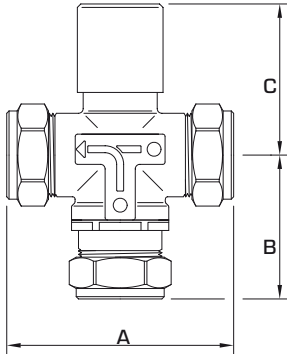
According to the directive the equipment shall not carry any CE-mark.

### FLOW PATTERN



# THERMOSTATIC MIXING VALVE

## SERIES VTA200



### THERMOSTATIC MIXING VALVE SERIES VTA222, EXTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3130 12 00	VTA222	38 - 65°C	20	3.0	G 1"	70	52	65		0.66
3130 14 00	VTA222	30 - 70°C	20	3.0	G 1"	70	52	65		0.66
3130 16 00	VTA222	20 - 40°C	20	3.0	G 1"	70	52	65		0.66

### THERMOSTATIC MIXING VALVE SERIES VTA223, COMPRESSION FITTING

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3130 01 00	VTA223	38 - 65°C	25	3.0	CPF 28 mm	95	65	65	1)	0.85
3130 07 00	VTA223	20 - 40°C	25	3.0	CPF 28 mm	95	65	65	1)	0.85
3130 08 00	VTA223	10 - 30°C	25	3.0	CPF 28 mm	95	65	65	1)	0.85

### THERMOSTATIC MIXING VALVE SERIES VTA272, EXTERNAL THREAD

Art. No.	Reference	Temp. range	DN	Kvs *	Connection	A	B	C	Note	Weight [kg]
3130 13 00	VTA272	20 - 40°C	20	3.6	G 1"	70	52	65	2)	0.66

\* Kvs-value in m<sup>3</sup>/h at a pressure drop of 1 bar. CPF = compression fitting

Note 1) A non-return valve for the cold water is included, 2) Only for floor heating.

THERMOSTATIC CONTROL UNITS

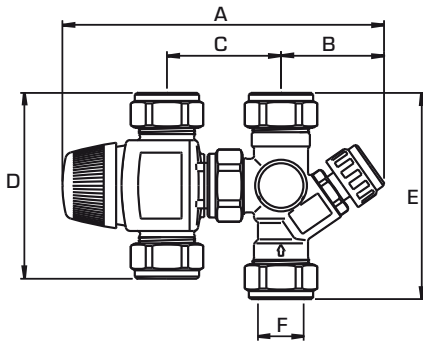
# VALVE MANIFOLD SERIES VMB

The ESBE Series VMB is a compact valve combination for hot water storage. Incoming cold water has the following incorporated components; non return and shut-down device and connections for safety valve, vacuum valve etc. The incoming hot-water is regulated within a temperature range of 35 to 60°C by thermostatic mixing valves Series VTA320.



### HOW TO USE THE VALVES

The manifold has 2 connections with internal threads DN 15 to connect safety valve, vacuum valve, HWC-pipe etc. The manifold also has backflow protection type EB complying with EN1717.



### VALVE MANIFOLD VMB DESIGNED FOR

- Heating
- Comfort Cooling
- Potable water
- Floor heating
- Solar heating
- Ventilation
- Zone
- District Hot Water
- District Heating
- District Cooling

### TECHNICAL DATA

Pressure class: \_\_\_\_\_ PN 10  
 Media temperature: \_\_\_\_\_ max. 95°C  
 Temperature range: \_\_\_\_\_ 35-60°C  
 Connection: \_\_\_\_\_ External thread, ISO 228/1

#### Material

Valve housing and other metal parts with fluid contact:  
 \_\_\_\_\_ DZR brass CW602N, resistant to dezincification

PED 97/23/EC, article 3.3

Pressure Equipment in conformity with PED 97/23/EC, article 3.3 (sound engineering practice).

According to the directive the equipment shall not carry any CE-mark.

### VALVE MANIFOLD SERIES VMB

Art. No.	Reference	DN	Connection	Safety valve [MPa]	Vacuum valve	A	B	C	D	E	F
3150 06 00	VMB123	15	CPF 15 mm	—	—	165	55	ca 55	86	91	15
3150 01 00	VMB123	20	CPF 22 mm	—	—	165	55	54-60	86	96	22
3150 02 00	VMB223	20	CPF 22 mm	0.9	—	165	55	54-60	86	96	22
3150 03 00	VMB223	20	CPF 22 mm	0.7	—	165	55	54-60	86	96	22
3150 09 00	VMB223	20	CPF 22 mm	0.6	—	165	55	54-60	86	96	22
3150 04 00	VMB323	20	CPF 22 mm	0.9	●	165	55	54-60	86	96	22

CPF = compression fitting



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