THERMOSTATIC MIXING VALVES FOR CONDENSATION PREVENTION

Description

Barberi® thermostatic mixing valves "*woody*" are devices with side mixed water and are used to set the fluid's temperature. Their standard application is in heating systems for solid fuel installations, powerhouse, heat generators (wood boilers, pellet boilers, wood chips boilers).
Their function is to maintain the fluid's temperature from boiler over a fixed value. This function allows to reduce condensation from steam deriving from fumes which causes dirty on thermal exchange surfaces and chimney.
Thanks to this function the valve allows boiler's high efficiency and reduces encrustations and dust from un-burnt material which damages draught and can be subject to fire.
Valves of this range can be supplied with fittings and nuts and if need to be connected directly to a pump the same valves but with running nuts can be more suitable.

Product range

art. ref. **V13**	Thermostatic mixing valve for solid fuel heating systems - KV3,2
art. ref. **V14**	Thermostatic mixing valve for solid fuel heating systems - KV9

Features

Max. and minimum working temperature: **5 °C – 100 °C**
Max working pressure: **10 bar**
Setting range: **45°C – 55°C – 60°C – 70°C**
Accuracy: **±2 °C**
Flow coefficient: **art. V13 = Kv 3,2**
art. V14 = Kv 9
Suitable fluids : **water for heating plants, glycole water(max 50%), sanitary water**
Connections to circuits: **threaded male connections ISO 228/1**
threaded female connections UNI EN 10226-1

Materials

1 - Valve's body: **Brass UNI EN 12165 CW617N(V13)**
Brass UNI EN 1982 CB753S(V14)
2 - Obturator: **Brass UNI EN 12164 CW614N**
3 - Washers: **EPDM**
4 - Spring: **Stainless steel AISI 302**

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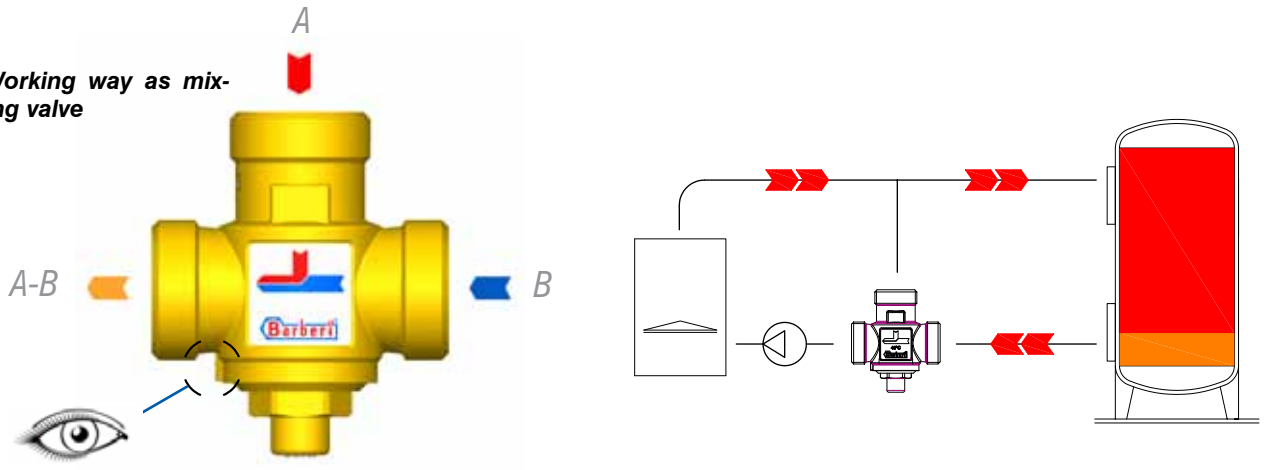
Working way

Thermostatic mixing valves from V13 and V14 range are normally used to maintain at a high level the inlet boiler's temperature where risk of condensation needs to be avoided. Temperature setting is done through a built-in thermostatic element which extends or shortens according to fluid temperature thus regulating the opening of both inlets. These valves have a fixed pre-set temperature which cannot be modified. The same valve can be used as mixing valve or as diverting valve simply replacing the supplied labels.
If the valve is correctly chosen and used as mixing valve it guarantees the condensation's prevention. (fig.1)

Fig. 1

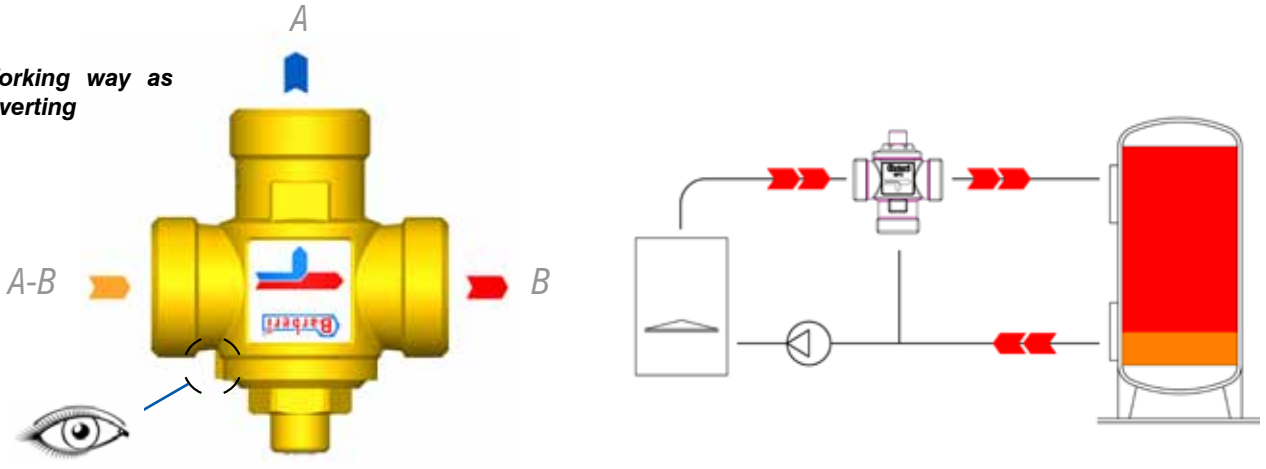
Working way as mixing valve



Used as diverting valve or zone valve (fig.2) the valve connects or disconnects the consumption according to the inlet temperature (high or low). This function does not guarantee to prevent condensation into the boiler but guarantees a supply temperature higher than the valve' setting value.

Fig. 2

Working way as diverting



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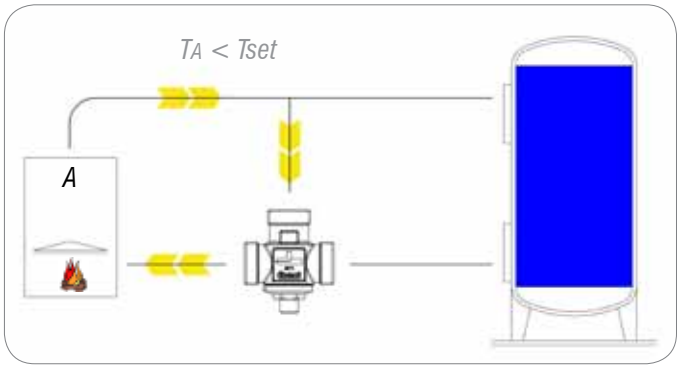
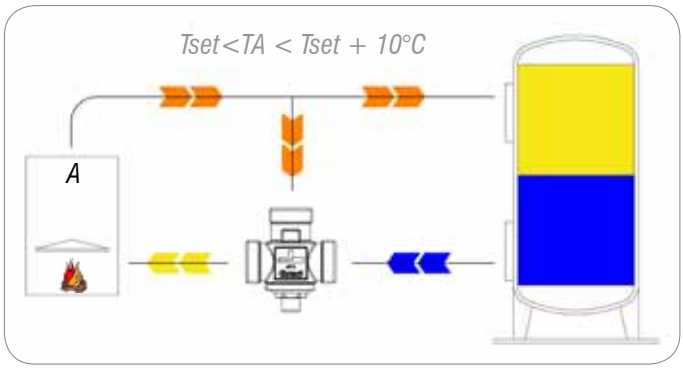
Working way to prevent condensation



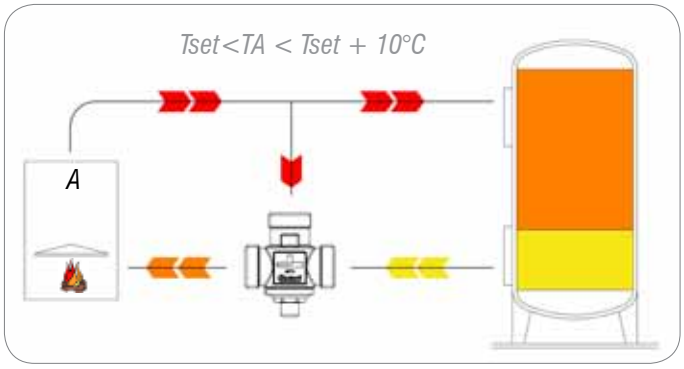
Phase 1

When the system is started fluid coming from boiler is cold and has a temperature Ta lower than the valve' setting Tset. In this situation the by-pass circuit is totally open and fluid coming from boiler will go completely back to it allowing to temperature to rapidly increase. By this way the initial gap of condensation risk is reduced.



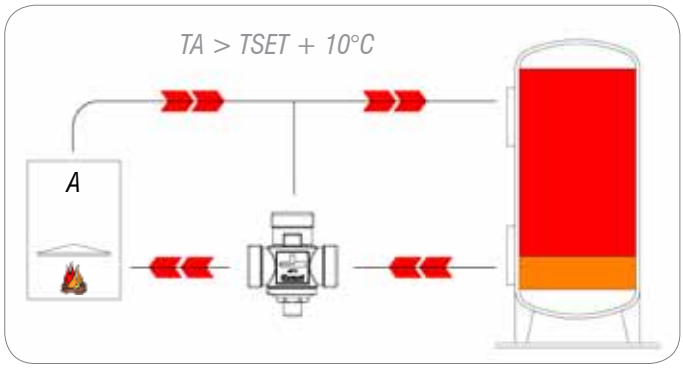
Phase 2

Whilst the temperature Ta increases and once the set temperature Tset is exceeded, the valve begins to reduce the by-pass and opens the way back from cylinder. The inlet temperature from boiler is the same of the pre-set temperature of the valve. By this way condensation is avoided.



Phase 3

Whilst boiler's temperature Ta and fluid's temperature coming from cylinder increases, the valve mixes the water and closes the by-pass, allowing more flow towards the cylinder.



Phase 4

When the boiler's temperature Ta is higher of about 10°C the pre-set Tset temperature of the valve, the valve totally diverts the flow, completely closes the by-pass allowing to consumption to use the whole flow coming from boiler.

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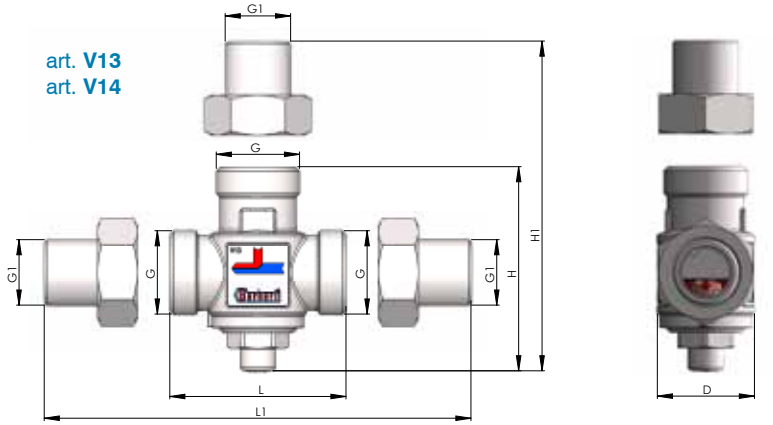
Dimensions

art. **V13**
art. **V14**



art. **V13**

Code	P [bar]	G	G1	L	L1	H	H1	D	Side valves	Temperature	Weight	N. P/B	N. P/C
V13 M25 00A L1	10	1" M	3/4" M	70	130	81	111	39	adapters	45°C	765	1	20
V13 M25 00A	10	1" M	-	70	-	81	-	39	-	45°C	465	1	20
V13 M25 00A L2	10	1" M	1" M	70	138	81	115	39	adapters	45°C	867	1	20
V13 M25 00B L1	10	1" M	3/4" M	70	130	81	111	39	adapters	55°C	765	1	20
V13 M25 00B	10	1" M	-	70	-	81	-	39	-	55°C	465	1	20
V13 M25 00B L2	10	1" M	1" M	70	138	81	115	39	adapters	55°C	867	1	20
V13 M25 00C L1	10	1" M	3/4" M	70	130	81	111	39	adapters	60°C	765	1	20
V13 M25 00C	10	1" M	-	70	-	81	-	39	-	60°C	465	1	20
V13 M25 00C L2	10	1" M	1" M	70	138	81	115	39	adapters	60°C	867	1	20
V13 M25 00D L1	10	1" M	3/4" M	70	130	81	111	39	adapters	70°C	765	1	20
V13 M25 00D	10	1" M	-	70	-	81	-	39	-	70°C	465	1	20
V13 M25 00D L2	10	1" M	1" M	70	138	81	115	39	adapters	70°C	867	1	20

Weight (grams) - N. P/B: number of pieces in box, plastic bag - N. P/C: number of pieces in carton

art. **V14**

Code	P [bar]	G	G1	L	L1	H	H1	D	Side valves	Temperature	Weight	N. P/B	N. P/C
V14 025 00A	10	Rp1"F	-	93	-	103	-	55	-	45°C	908	1	12
V14 M32 00A L1	10	G1"1/4M	G1"M	93	163	103	138	55	adapters	45°C	1409	1	12
V14 M32 00A	10	G1"1/4M	-	93	-	103	-	55	-	45°C	905	1	12
V14 025 00B	10	Rp1"F	-	93	-	103	-	55	-	55°C	908	1	12
V14 M32 00B L1	10	G1"1/4M	G1"M	93	163	103	138	55	adapters	55°C	1409	1	12
V14 M32 00B	10	G1"1/4M	-	93	-	103	-	55	-	55°C	905	1	12
V14 025 00C	10	Rp1"F	-	93	-	103	-	55	-	60°C	908	1	12
V14 M32 00C L1	10	G1"1/4M	G1"M	93	163	103	138	55	adapters	60°C	1409	1	12
V14 M32 00C	10	G1"1/4M	-	93	-	103	-	55	-	60°C	905	1	12
V14 025 00D	10	Rp1"F	-	93	-	103	-	55	-	70°C	908	1	12
V14 M32 00D L1	10	G1"1/4M	G1"M	93	163	103	138	55	adapters	70°C	1409	1	12
V14 M32 00D	10	G1"1/4M	-	93	-	103	-	55	-	70°C	905	1	12

Weight (grams) - N. P/B: number of pieces in box, plastic bag - N. P/C: number of pieces in carton

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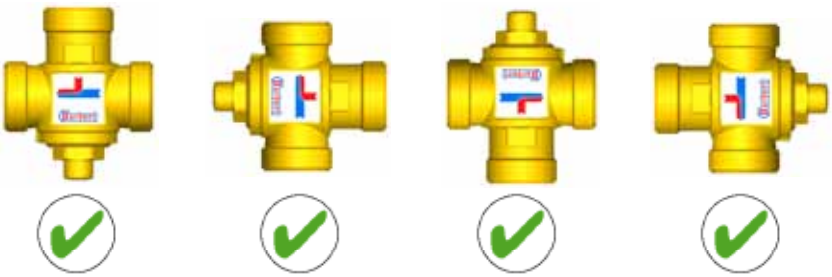
Installation

Before installing a ***woody*** thermostatic mixing valve please verify system's working conditions, such as pressure and temperature, to be sure that they are within the working conditions of the valve.
The system, where Woody will be installed, shall be cleaned and flushed before installing the valve.
We suggest also to install suitable filters at the system. Without a suitable cleaning of the system the correct working of the valve can be damaged and the manufacturer guarantee upon the product could fail.
If the valve will be used with hard water, we suggest to install devices to soften water before the valve's inlet.
It is important that the valve is free from obstacles for its duly maintenance.

Positioning

Woody thermostatic mixing valve can be installed in any position (fig.3)

Fig. 3



Configuration

The valve is supplied with labels indicating its application as mixing valve to prevent condensation (fig.4). For different necessities, the valve can be used as diverting valve (fig.5) replacing the labels of the valve with the ones contained in the box (see labels' replacement operations).

*Fig. 4: **Working way as mixing valve(using for condensation prevention)***

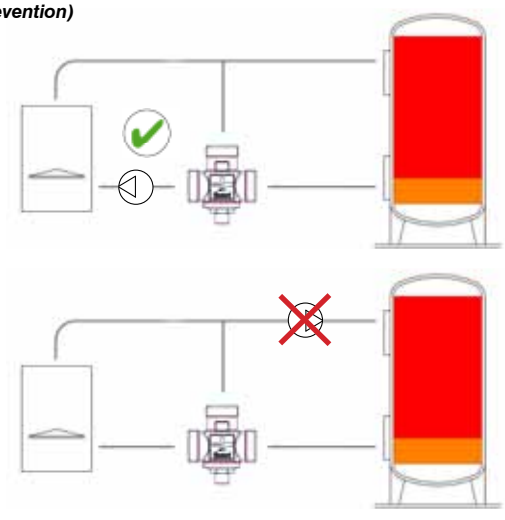
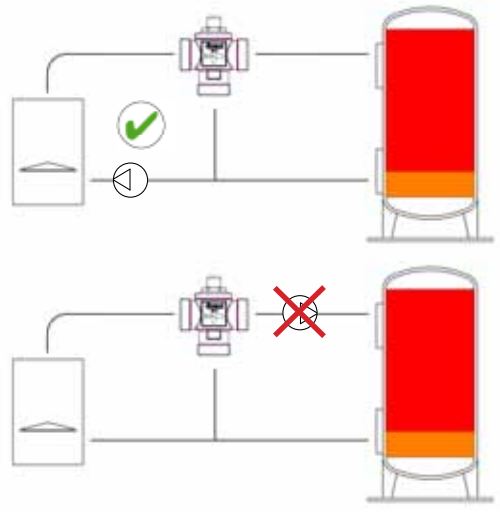


*Fig. 5: **Working way as diverting***



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Labels replacement

The valve is supplied as per fig.6 under standard conditions.
To move from mixing valve configuration (fig.7) to the diverting one(fig.8), follow these steps:

Fig. 6

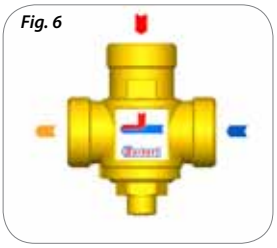


Fig.7

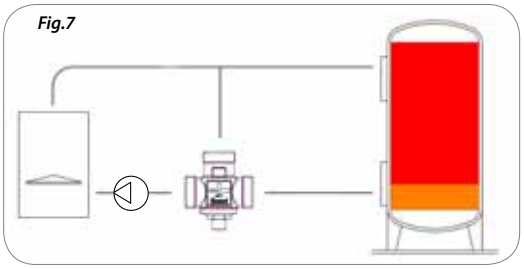
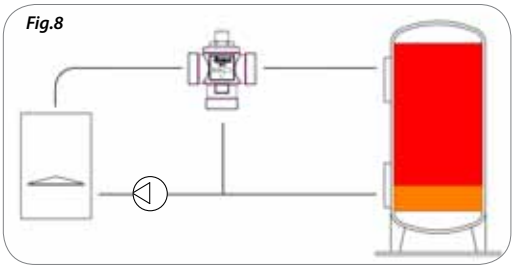
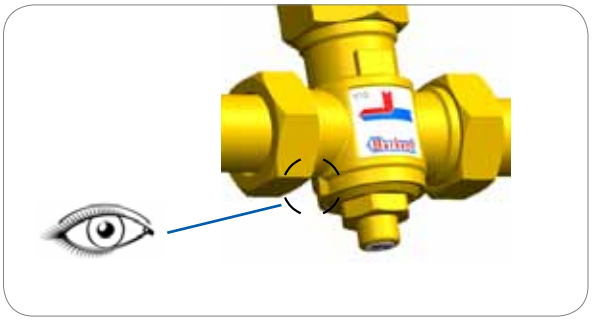


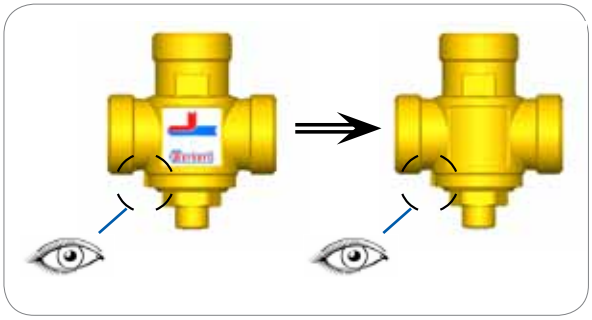
Fig.8



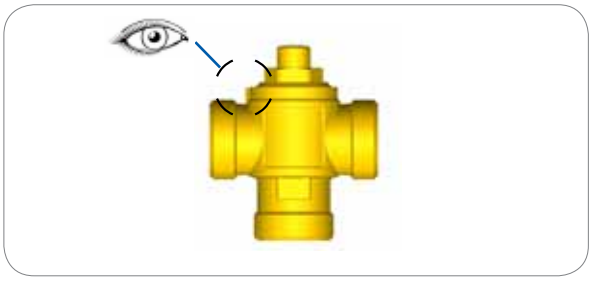
1. *1)Observe the nick on the valve's body; the nick indicates the mixing port whilst in configuration to prevent condensation (standard) or the inlet way whilst in diverting configuration*



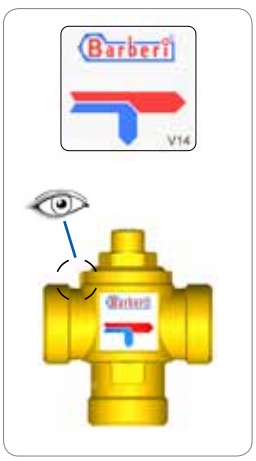
2. *Take off the labels from valve's body*

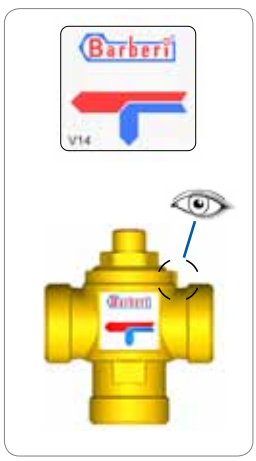


3. *Position the valve as in figure observing the nick on the valve's body*



4. *Place the labels supplied in the box on the valve's body and push with fingers to make them adhere completely to the surface. Check the positioning of the front and of the rear label as in figure*





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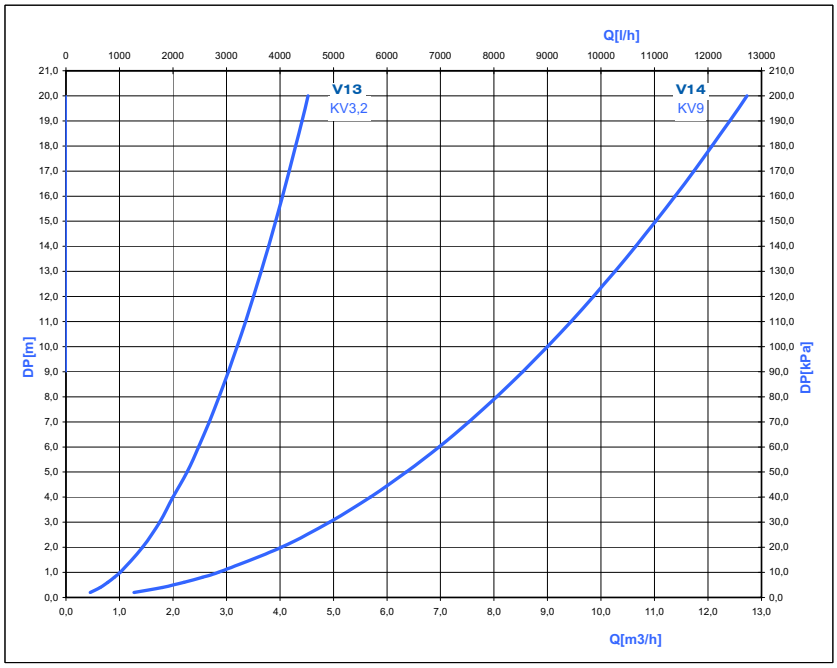
Diagrams



Specifications

The specification's text refers to a specific article reference. Each version of the product obliges the engineer to modify the specification's text

Art.Ref. V13 M25 00A L1
Thermostatic mixing valve with pre-set fixed temperature *to prevent condensation's usage*. Connections through *¾" nut and fitting*. Materials: brass' body, brass' plug, brass obturator, stainless steel spring, EPDM washers. Max. working pressure 10bar, working temperature range 5-100°C. Setting temperature *45°C±2°C*. Flow value *Kv3,2*

Art.Ref. V13 M25 00B
Thermostatic mixing valve with pre-set fixed temperature to prevent condensation's usage. *1"M* threaded connections. Materials: brass' body, brass' plug, brass obturator, stainless steel spring, EPDM washers. Max. working pressure 10bar, working temperature range 5-100°C. Setting temperature *55°C+/-2°C*. Flow value *Kv3,2*

Art.Ref. V14 M32 00C L1
Thermostatic mixing valve with pre-set fixed temperature to prevent condensation's usage. *1" fitting and nut connections*. Materials: brass' body, brass' plug, brass obturator, stainless steel spring, EPDM washers. Max .working pressure 10bar, working temperature range 5-100°C. Setting temperature *60°C+/-2°C*. Flow value *Kv9*

Art.Ref. V14 025 00D
Thermostatic mixing valve with pre-set fixed temperature to avoid condensation's usage. *Rp1"F threaded connections*. Materials: brass' body, brass' plug, brass obturator, stainless steel spring, EPDM washers. Max. working pressure 10bar, working temperature range 5-100°C. Setting temperature *70°C+/-2°C*. Flow value *Kv9*

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Accessories

Art.ref. P93

Running nut fitting with flat washer

Max. working temperature: **100 °C**

code	size
P93 020 000	*G 3/4" M - G 1" F*
P93 025 000	*G 1" M - G 1"1/4" F*

Art.ref. Y77-2

Running nut fitting with flat washer

Max. working temperature: **100 °C**

code	size
Y77 A250002	*1" M x 1"*

Related articles

Art.ref. 14G

Distribution group for solid fuel boiler. Ensures a high return temperature which prevents condensation.

Art.ref. V13/R

Thermostatic mixing valve for solid fuel boilers - pump connection

Art.ref. 450

4-way mixing valve - F.

Art.ref. P27T

Mixing valve actuator, running angle 90°, with built-in probe and temperature control. Comes complete with blocking screw, mixing valve adaptor, anti-rotation pin, NTC (1m wire) probe, probe housing, European plug electrical wire (2m wire)

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