ENGINEERING
TOMORROW

Datasheet

ESBE VTC 511
3-Way Thermic Valve

Applications:

The ESBE VTC thermic valve is a thermostatic by-pass valve which regulates the temperature of either the supply out or the return of water in a hydronic heating system. In a conventional application, the VTC valve safeguards non-condensing boilers against corrosion from condensation that would result if a minimum flue gas temperature is not maintained. With the VTC the boiler is able to recover and keep up with the drop in water temperature. The VTC valve can also be used on a solid fuel boiler or a solar application where a minimum or maximum water temperature is trying to be maintained.

Typical Applications:

- High mass non-condensing boiler coupled with low return water situations, i.e. snow melt systems or high mass concrete radiant floor heating
- Gravity hot water conversion systems
- Solid fuel boilers feeding storage tanks or a heating system
- Solar heating and stratification control for storage tank

Features:

- Thermostatically maintains a high and steady return temperature increasing the life and efficiency of the heat source
- Protection from thermal shock within non-condensing boilers
- Self contained thermostatic element with no adjustment required
- Interchangeable thermostat elements, to meet temperature requirements
- Low leakage rate through the ports of the valve

Ordering Information:

VTC Valve Body, Without Thermostat*

* Valve body and thermostat sold separately. Order one valve body and one temperature element to assemble a complete valve

Code No.	Series	Cv	Valve Size	Connection
193B1701	VTC511	16.2	1-1¼"	FNPT

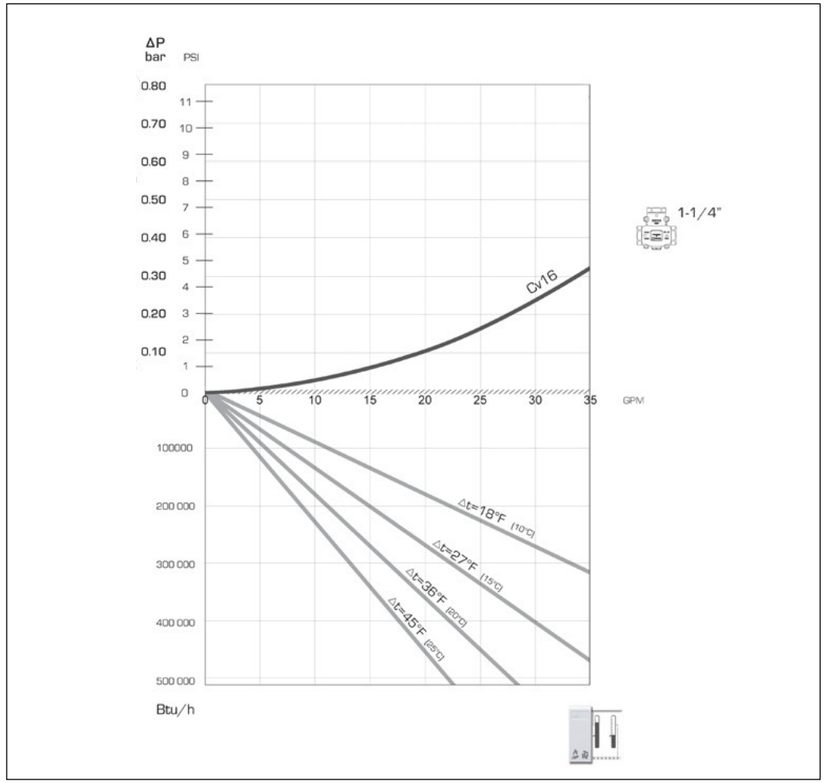
Internal VTC Temperature Element

Code No.	Series	Typical Application
193B1702	122°F (50°C)	Return line boiler protection
193B1703	131°F (55°C)	
193B1704	140°F (60°C)	
193B1709	149°F (65°C)	Boiler outlet, storage tank feed
193B1705	158°F (70°C)	
193B1706	176°F (80°C)	

Spare Parts

Code No.	Description
98060150	O-ring for brass plug

Valve Selection:

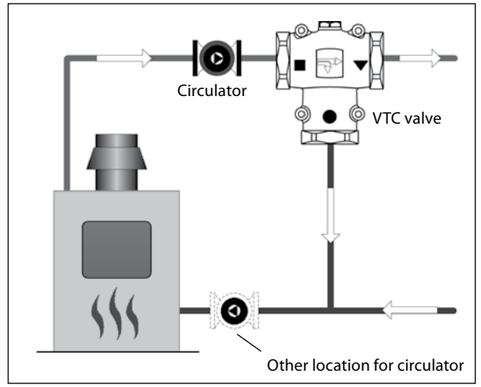


Technical Specifications:

Max. system pressure	145psi (10 bar)	
Max. medium temperature	230°F (110°C)	
Min. medium temperature	32°F (0°C)	
Fully open temperature differential	18°F (10°C) higher than temperature element	
Max. differential pressure across: B (O) AB(□) A(Δ)	B - AB & A - AB	14.5psi (1 bar)
	B - A	4.35psi (0.35 bar)
Max. leakage rate	A - AB	1% of Cv
	B - AB	3% of Cv
Allowable medium	Closed loop system, Glycol mixture up to 50%	

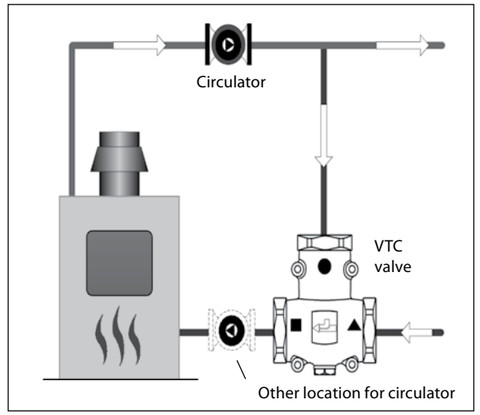
Piping Orientation:

Supply Mounted
(149°F (65°C), 158°F (70°C), 167°F (75°C) elements)



When the VTC is piped on the supply side out from the heat source, the valve will begin to allow water out to the system when the temperature of the fluid meets the temperature of the inserted thermostat element.

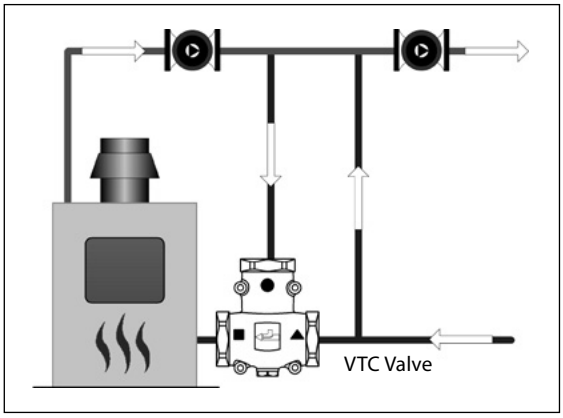
Return Mounted
(122°F (50°C), 131°F (55°C), 140°F (60°C) elements)



The VTC valve, when placed on the return side will open when the minimum return temperature of the element is reached. When the fluid temperature reaches 18°F (10°C) higher than the element's temperature, the return port from the system will be fully open.

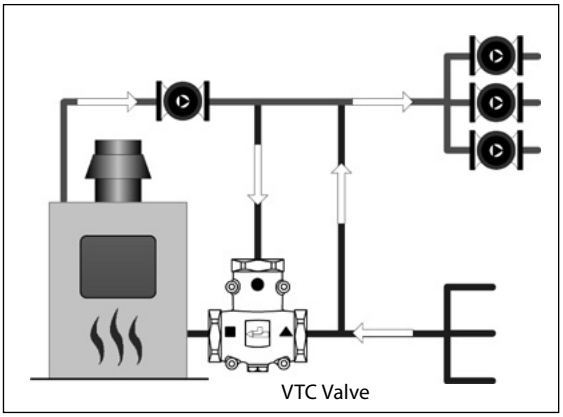
Systems Applications:

VTC Thermic Valve on Gravity Conversion System



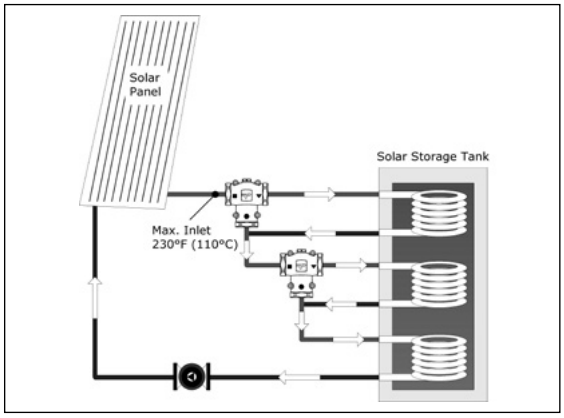
Because gravity conversion systems contain an enormous volume of water, the water returning to the heat source could be significantly cooler, leading to condensation and a shorter life for the heat source. Adding a thermic valve to the system will prevent the boiler from sustained operation at temperatures below the dew point of their flue gases.

VTC Valve on Multi-zone Systems with Circulators



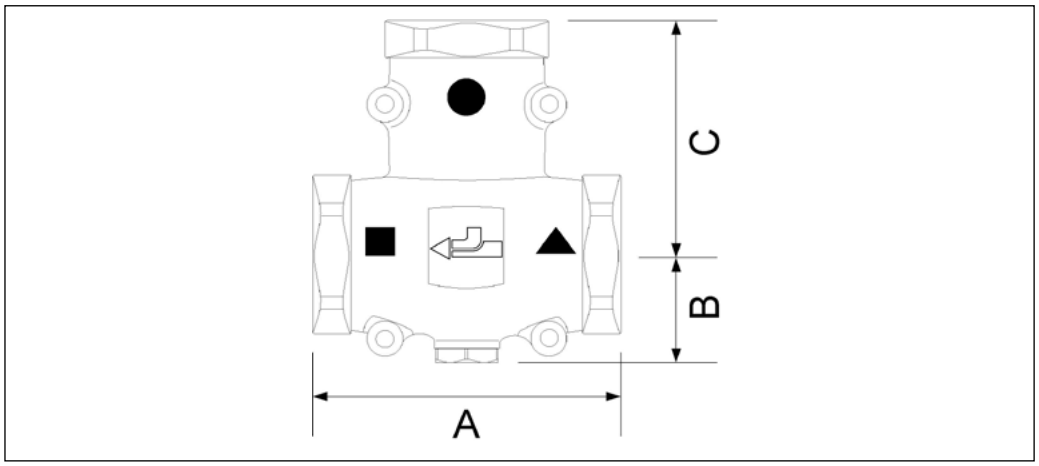
Where a high mass non condensing heat source is matched with a large low temperature system, a situation could occur where the heat source is unable to keep up with the rate of demand from the system. The use of the thermic valve provides the opportunity for the heat source to catch-up.

Charging of Storage Tank through Solar Heating



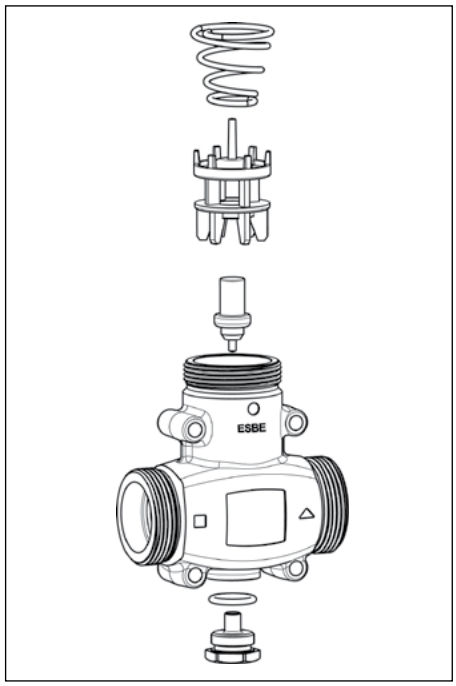
With the thermic VTC valve, an efficient method of charging a tank can be done. To achieve efficiency through the solar panel, cool water should enter allowing for a higher differential temperature across the panel. Additionally heated fluid from the panel should be properly distributed within the tank to reduce stratification i.e. even temperature distribution, within the tank.

Dimensions:



	A	B	C	Depth	Weight
Size	in (mm)	in (mm)	in (mm)	in (mm)	lbs (kg)
1-¼"	4.13 (105)	1.50 (38)	2.95 (75)	2.17 (55)	3.04 (1.38)

Construction:



Valve body	Nodular iron
O-ring	EPDM
Thermostat cover	Brass
Thermostat	Copper