

# LOAD VALVE SERIES VTC500

The thermic valve series ESBE VTC500 is used to efficiently load accumulation tanks and protect solid fuel boilers up to 150 kW from too low return temperatures, which otherwise could cause tarring, reduced output and shorter life span of the boiler. Patent pending.

## OPERATION

The ESBE series VTC500 is a thermic 3-way valve designed to protect the boiler from return temperatures that are too low. Maintaining a high and stable return temperature means a higher level of boiler efficiency, reduced tarring and increased life span of the boiler.

The VTC500 valve is used in heating applications up to 150 kW where solid fuel boilers are used to feed storage tanks. The valve is installed either in the return pipe to the boiler (50°C, 55°C, 60°C, 65°C, 70°C or 75°C) or in the accumulation tank feeding pipe (70°C or 75°C). The first alternative is recommended as it offers a simpler pipe layout for expansion (see installation examples).

## FUNCTION

The valve regulates on two ports, which makes it easy to install and does not require any adjustment valve in the bypass pipe.

The function of the valve is independent of its assembly position.

The valve contains a thermostat which begins to open connection A at an outgoing mixed water temperature in connection AB of 50°C, 55°C, 60°C, 65°C, 70°C or 75°C. Connection B is fully closed when the temperature in connection A exceeds the nominal opening temperature with 10°C.

## VERSIONS

Series VTC511 and VTC512 are supplied with internal respective external threads. Series VTC531 is supplied with three shut down ball valves with internal thread (1"-2"), a pump adapter with internal thread (1½"), an insulation kit and three thermometers.

## MEDIA

Maximum 50% glycol for freezing protection and oxygen absorbing compounds are allowed as additives. As both the viscosity and the thermal conduction are affected when glycol is added to the system water, this fact has to be considered when dimensioning the valve. When 30 - 50 % glycol is added, the maximum output effect of the valve is decreased by 30 - 40 %. A lower concentration of glycol may be disregarded.

## SERVICE AND MAINTENANCE

We recommend equipping the valve connections with shut-down devices (included in Series VTC531). This to facilitate future service.

The load valve does not need any maintenance under normal conditions. However thermostats are available and are easy to replace if necessary.



VTC531  
Internal thread



VTC511  
Internal thread



VTC512  
External thread

## LOAD VALVE VTC500 DESIGNED FOR

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

## OPTIONS

Thermostat 50°C	_____	Art. No. 5702 01 00
Thermostat 55°C	_____	Art. No. 5702 02 00
Thermostat 60°C	_____	Art. No. 5702 03 00
Thermostat 65°C	_____	Art. No. 5702 08 00
Thermostat 70°C	_____	Art. No. 5702 04 00
Thermostat 75°C	_____	Art. No. 5702 05 00
Thermometer, 3pcs	_____	Art. No. 5702 06 00
Insulation, ≥ DN32	_____	Art. No. 5702 07 00

## TECHNICAL DATA

Pressure class: \_\_\_\_\_ Series VTC510, PN 10  
 \_\_\_\_\_ Series VTC530, PN 6  
 Temperature of medium: \_\_\_\_\_ max 110°C  
 \_\_\_\_\_ min 0°C  
 Max. differential pressure: \_\_\_\_\_ 100 kPa (1.0 bar)  
 Max. differential pressure A - B: \_\_\_\_\_ 30 kPa (0.3 bar)  
 Leakrate A - AB: \_\_\_\_\_ max 1% of Kvs  
 Leakrate B - AB: \_\_\_\_\_ max 3% of Kvs  
 Rangeability Kv/Kv<sup>min</sup>: \_\_\_\_\_ 100  
 Connections: \_\_\_\_\_ Internal thread, EN 10226-1  
 \_\_\_\_\_ External thread, ISO 228/1

## Material

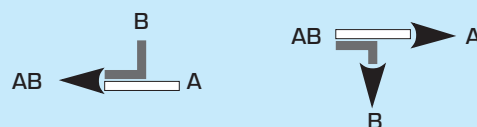
Valve body and cover: \_\_\_\_\_ Nodular iron EN-JS 1050

## PED 97/23/EC, article 3.3

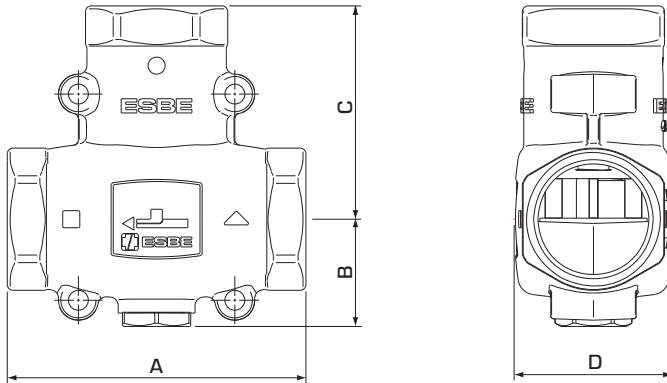
Pressure Equipment in conformity with PED 97/23/EC, article 3.3 (sound engineering practice).

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

## FLOW PATTERN



# LOAD VALVE SERIES VTC500



## SERIES VTC511, INTERNAL THREAD

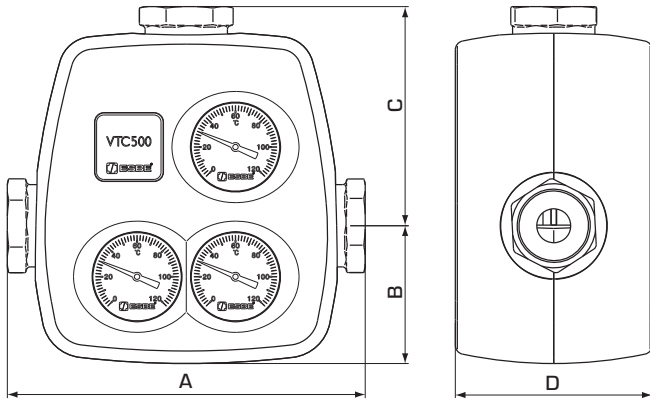
Art. No.	Reference	DN	Kvs*	Connection	Temperature		A	B	C	D	Weight [kg]
					Opening	Mixed (AB)					
5102 01 00	VTC511	25	9	Rp 1"	50°C	53°C ± 5°C	93	34	69	47	0.84
5102 02 00					55°C	58°C ± 5°C					
5102 03 00					60°C	63°C ± 5°C					
5102 11 00					65°C	68°C ± 5°C					
5102 04 00					70°C	73°C ± 5°C					
5102 05 00					75°C	78°C ± 5°C					
5102 06 00	VTC511	32	14	Rp 1 1/4"	50°C	53°C ± 4°C	105	38	75	55	1.38
5102 07 00					55°C	58°C ± 4°C					
5102 08 00					60°C	63°C ± 4°C					
5102 12 00					65°C	68°C ± 4°C					
5102 09 00					70°C	73°C ± 4°C					
5102 10 00					75°C	78°C ± 4°C					

## SERIES VTC512, EXTERNAL THREAD

Art. No.	Reference	DN	Kvs*	Connection	Temperature		A	B	C	D	Weight [kg]
					Opening	Mixed (AB)					
5102 15 00	VTC512	25	9	G 1 1/4"	50°C	53°C ± 5°C	93	34	69	47	0.80
5102 16 00					55°C	58°C ± 5°C					
5102 17 00					60°C	63°C ± 5°C					
5102 25 00					65°C	68°C ± 5°C					
5102 18 00					70°C	73°C ± 5°C					
5102 19 00					75°C	78°C ± 5°C					
5102 20 00	VTC512	32	14	G 1 1/2"	50°C	53°C ± 4°C	105	38	75	55	1.31
5102 21 00					55°C	58°C ± 4°C					
5102 22 00					60°C	63°C ± 4°C					
5102 26 00					65°C	68°C ± 4°C					
5102 23 00					70°C	73°C ± 4°C					
5102 24 00					75°C	78°C ± 4°C					

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

# LOAD VALVE SERIES VTC500

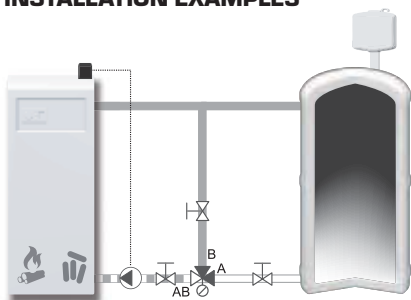


## SERIES VTC531, INTERNAL THREAD

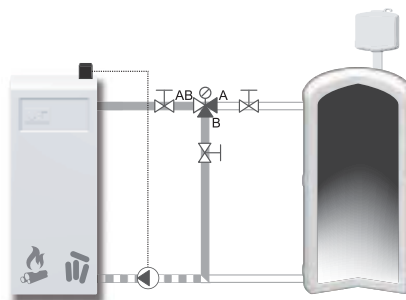
Art. No.	Reference	DN	Kvs*	Connection	Temperature		A	B	C	D	Weight [kg]
					Opening	Mixed (AB)					
5102 55 00	VTC531	25	8	Rp 1"	50°C	53°C ± 4°C	197	77	121	110	2.0
5102 56 00					55°C	58°C ± 4°C					
5102 57 00					60°C	63°C ± 4°C					
5102 75 00					65°C	68°C ± 4°C					
5102 58 00					70°C	73°C ± 4°C					
5102 59 00					75°C	78°C ± 4°C					
5102 60 00	VTC531	32	8	Rp 1 1/4"	50°C	53°C ± 4°C	230	77	138	110	2.2
5102 61 00					55°C	58°C ± 4°C					
5102 62 00					60°C	63°C ± 4°C					
5102 76 00					65°C	68°C ± 4°C					
5102 63 00					70°C	73°C ± 4°C					
5102 64 00					75°C	78°C ± 4°C					
5102 65 00	VTC531	40	8	Rp 1 1/2"	50°C	53°C ± 4°C	242	77	143	110	2.3
5102 66 00					55°C	58°C ± 4°C					
5102 67 00					60°C	63°C ± 4°C					
5102 77 00					65°C	68°C ± 4°C					
5102 68 00					70°C	73°C ± 4°C					
5102 69 00					75°C	78°C ± 4°C					
5102 70 00	VTC531	50	12	Rp 2"	50°C	53°C ± 4°C	260	77	152	110	2.6
5102 71 00					55°C	58°C ± 4°C					
5102 72 00					60°C	63°C ± 4°C					
5102 78 00					65°C	68°C ± 4°C					
5102 73 00					70°C	73°C ± 4°C					
5102 74 00					75°C	78°C ± 4°C					

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

## INSTALLATION EXAMPLES



Mixing



Diverting