

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

OPTIONS

| | | |
|----------|-------|--------------------|
| Art. No. | | |
| 57020100 | _____ | Thermostat 50°C |
| 57020200 | _____ | Thermostat 55°C |
| 57020300 | _____ | Thermostat 60°C |
| 57020800 | _____ | Thermostat 65°C |
| 57020400 | _____ | Thermostat 70°C |
| 57020500 | _____ | Thermostat 75°C |
| 57020600 | _____ | Thermometer, 3pcs |
| 57020700 | _____ | Insulation, ≥ DN32 |

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^{min}: _____ 100
 Connections: _____ Internal thread (G), ISO 228/1
 _____ Internal thread (Rp), EN 10226-1
 _____ External thread (G), ISO 228/1

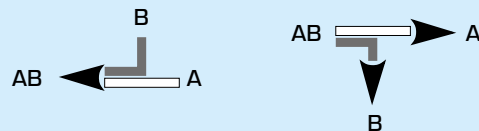
Material
 Valve body and cover: _____ Nodular iron EN-JS 1050

PED 2014/68/EU, article 4.3

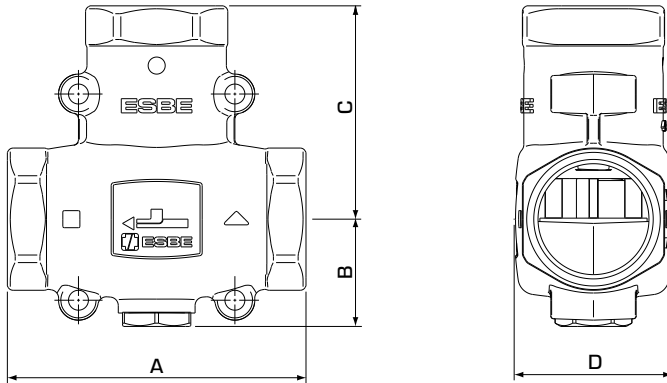
Pressure Equipment in conformity with PED 2014/68/EU, article 4.3 (sound engineering practice).

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

FLOW PATTERN



LOAD VALVE SERIES VTC500



SERIES VTC511, INTERNAL THREAD

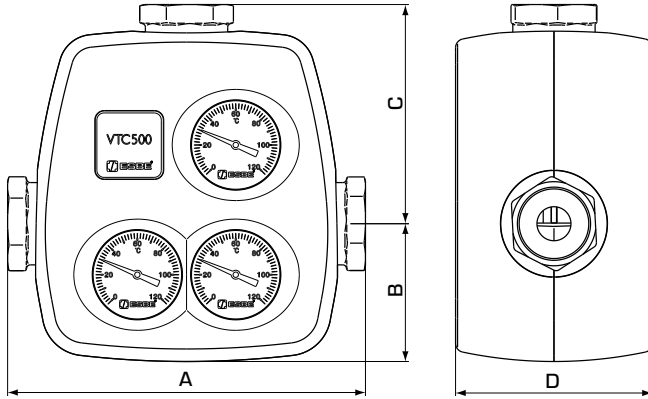
| Art. No. | Reference | DN | Kvs* | Connection | Temperature | | A | B | C | D | Weight [kg] |
|----------|-----------|----|------|------------|-------------|------------|-----|----|----|----|-------------|
| | | | | | Opening | Mixed (AB) | | | | | |
| 51020100 | VTC511 | 25 | 9 | Rp 1" | 50°C | 53°C ± 5°C | 93 | 34 | 69 | 47 | 0.84 |
| 51020200 | | | | | 55°C | 58°C ± 5°C | | | | | |
| 51020300 | | | | | 60°C | 63°C ± 5°C | | | | | |
| 51021100 | | | | | 65°C | 68°C ± 5°C | | | | | |
| 51020400 | | | | | 70°C | 73°C ± 5°C | | | | | |
| 51020500 | | | | | 75°C | 78°C ± 5°C | | | | | |
| 51020600 | VTC511 | 32 | 14 | Rp 1 1/4" | 50°C | 53°C ± 4°C | 105 | 38 | 75 | 55 | 1.38 |
| 51020700 | | | | | 55°C | 58°C ± 4°C | | | | | |
| 51020800 | | | | | 60°C | 63°C ± 4°C | | | | | |
| 51021200 | | | | | 65°C | 68°C ± 4°C | | | | | |
| 51020900 | | | | | 70°C | 73°C ± 4°C | | | | | |
| 51021000 | | | | | 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) | | | | | |
| 51021500 | VTC512 | 25 | 9 | G 1 1/4" | 50°C | 53°C ± 5°C | 93 | 34 | 69 | 47 | 0.80 |
| 51021600 | | | | | 55°C | 58°C ± 5°C | | | | | |
| 51021700 | | | | | 60°C | 63°C ± 5°C | | | | | |
| 51022500 | | | | | 65°C | 68°C ± 5°C | | | | | |
| 51021800 | | | | | 70°C | 73°C ± 5°C | | | | | |
| 51021900 | | | | | 75°C | 78°C ± 5°C | | | | | |
| 51022000 | VTC512 | 32 | 14 | G 1 1/2" | 50°C | 53°C ± 4°C | 105 | 38 | 75 | 55 | 1.31 |
| 51022100 | | | | | 55°C | 58°C ± 4°C | | | | | |
| 51022200 | | | | | 60°C | 63°C ± 4°C | | | | | |
| 51022600 | | | | | 65°C | 68°C ± 4°C | | | | | |
| 51022300 | | | | | 70°C | 73°C ± 4°C | | | | | |
| 51022400 | | | | | 75°C | 78°C ± 4°C | | | | | |

* Kvs-value in m³/h at a pressure drop of 1 bar.

LOAD VALVE SERIES VTC500

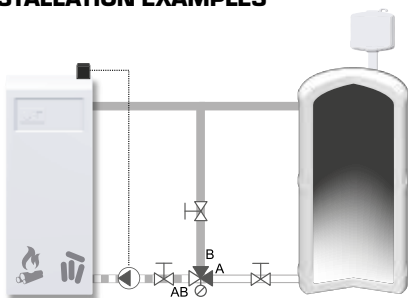


SERIES VTC531, INTERNAL THREAD

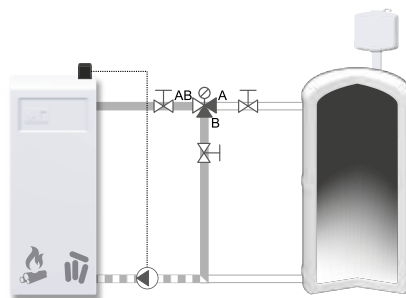
| Art. No. | Reference | DN | Kvs* | Connection | Temperature | | A | B | C | D | Weight [kg] |
|----------|-----------|----|------|------------|-------------|------------|-----|----|-----|-----|-------------|
| | | | | | Opening | Mixed (AB) | | | | | |
| 51025500 | VTC531 | 25 | 8 | G 1" | 50°C | 53°C ± 4°C | 197 | 77 | 121 | 110 | 2.0 |
| 51025600 | | | | | 55°C | 58°C ± 4°C | | | | | |
| 51025700 | | | | | 60°C | 63°C ± 4°C | | | | | |
| 51027500 | | | | | 65°C | 68°C ± 4°C | | | | | |
| 51025800 | | | | | 70°C | 73°C ± 4°C | | | | | |
| 51025900 | | | | | 75°C | 78°C ± 4°C | | | | | |
| 51026000 | VTC531 | 32 | 8 | G 1 1/4" | 50°C | 53°C ± 4°C | 230 | 77 | 138 | 110 | 2.2 |
| 51026100 | | | | | 55°C | 58°C ± 4°C | | | | | |
| 51026200 | | | | | 60°C | 63°C ± 4°C | | | | | |
| 51027600 | | | | | 65°C | 68°C ± 4°C | | | | | |
| 51026300 | | | | | 70°C | 73°C ± 4°C | | | | | |
| 51026400 | | | | | 75°C | 78°C ± 4°C | | | | | |
| 51026500 | VTC531 | 40 | 8 | G 1 1/2" | 50°C | 53°C ± 4°C | 242 | 77 | 143 | 110 | 2.3 |
| 51026600 | | | | | 55°C | 58°C ± 4°C | | | | | |
| 51026700 | | | | | 60°C | 63°C ± 4°C | | | | | |
| 51027700 | | | | | 65°C | 68°C ± 4°C | | | | | |
| 51026800 | | | | | 70°C | 73°C ± 4°C | | | | | |
| 51026900 | | | | | 75°C | 78°C ± 4°C | | | | | |
| 51027000 | VTC531 | 50 | 12 | G 2" | 50°C | 53°C ± 4°C | 260 | 77 | 152 | 110 | 2.6 |
| 51027100 | | | | | 55°C | 58°C ± 4°C | | | | | |
| 51027200 | | | | | 60°C | 63°C ± 4°C | | | | | |
| 51027800 | | | | | 65°C | 68°C ± 4°C | | | | | |
| 51027300 | | | | | 70°C | 73°C ± 4°C | | | | | |
| 51027400 | | | | | 75°C | 78°C ± 4°C | | | | | |

* Kvs-value in m³/h at a pressure drop of 1 bar.

INSTALLATION EXAMPLES



Mixing



Diverting