

# LOAD VALVE SET SERIES UTC300

The thermic valve series ESBE UTC300 is used to protect boilers up to 20 kW from too low return temperatures. ESBE series UTC300 also efficiently loads accumulation tanks.



UTC317  
Pump flange/External thread

## OPERATION

The ESBE series UTC300 is a combination of two thermic 3-way valves 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 UTC300 is used in heating applications up to 20 kW where solid fuel boilers are used to feed storage tanks. The valves are installed in the return pipe to the boiler (in combination of two opening temperatures 45°C and 60°C, which increases the efficiency of loading buffer tank).

## FUNCTION

The unit 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 unit is independent of its assembly position.

The unit UTC317 contains two valves, one load valve and one pre-mixing valve. During the start-up phase of the boiler the load valve ensures that the boiler temperature rises quickly, only port B1 is open. When the temperature is above 60°C, the valve starts to regulate the return temperature, mixing between port B1 and A1. When the temperature port A1 is above 70°C the port B1 is closed. The pre-mixing valve ensures the efficiency of loading the buffer tank. If the temperature of water from buffer tank is below 45°C, port B2 is open. When the temperature is above 45°C, the valve starts to regulate, mixing between B2 and A2. When the temperature from the buffer tank is above 55°C, port B2 is closed.

## 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 shutdown devices to facilitate future service.

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

## LOAD VALVE SET UTC300 DESIGNED FOR

- Heating

### TECHNICAL DATA

Pressure class: \_\_\_\_\_ PN 10  
 Temperature of medium: \_\_\_\_\_ max. 100°C  
 \_\_\_\_\_ min. 0°C  
 Mixed temperature: \_\_\_\_\_ 60°C + 45°C  
 Max. differential pressure: \_\_\_\_\_ Mixing, 100 kPa (1.0 bar)  
 Max. differential pressure: \_\_\_\_\_ Diverting, 30 kPa (0.3 bar)  
 Leakrate A - AB: \_\_\_\_\_ Tight sealing  
 Leakrate B - AB: \_\_\_\_\_ max 3% of Kvs  
 Rangeability Kv/Kv<sup>min</sup>: \_\_\_\_\_ 100  
 Connections: \_\_\_\_\_ External thread, ISO 228/1

### Material

Valve housing and other metal parts with fluid contact:  
 \_\_\_\_\_ Brass DZR, CW 625N, resistant to dezincification

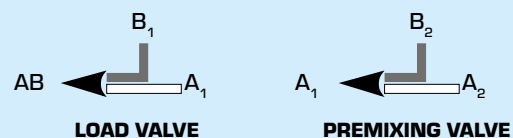
### Consists of:

Load valve VTC317, with opening temperatur: \_\_\_\_\_ 60 °C  
 and  
 Premixing valve VTC318, with opening temperatur: \_\_\_\_\_ 45 °C

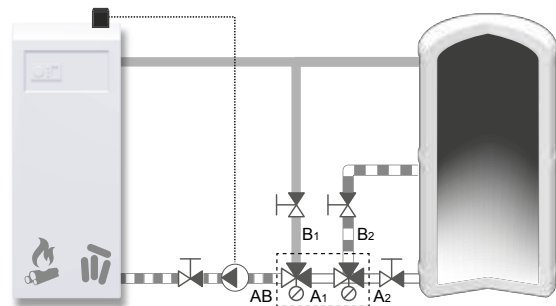
PED 2014/68/EU, article 4.3

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.

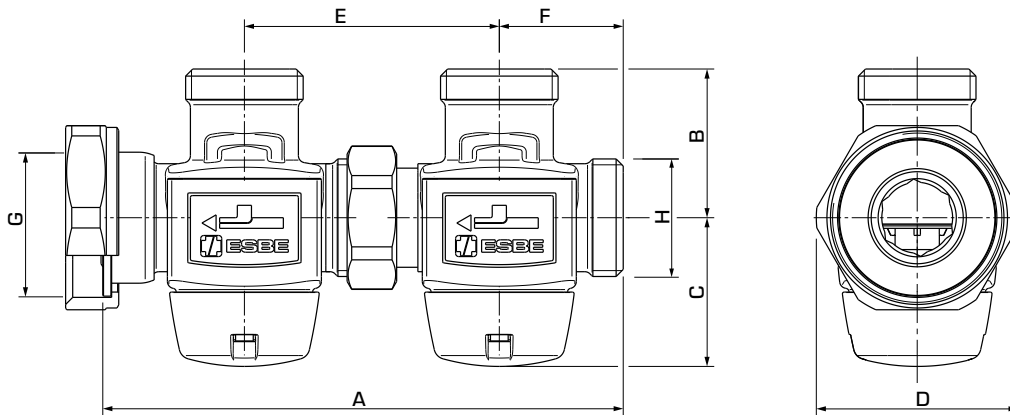
### FLOW PATTERN



## INSTALLATION EXAMPLES



# LOAD VALVE SET SERIES UTC300



## SERIES UTC317, PUMP FLANGE AND EXTERNAL THREAD

Art. No.	Reference	DN	Kvs	Connection		Dimension						Weight [kg]	Note
				G	H	A	B	C	D	E	F		
51500100	UTC317	20	2.3	PF 1½"	G 1"	147	42	42	57	72	35	1.06	

PF = Pump Flange

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## DIMENSIONING OF VALVE AND PUMP

**Example:** Start with the heat output of the boiler (e.g. 20 kW) and move horizontally to the right in the diagram to the chosen  $\Delta t$ , which is the temperature difference between the riser from the boiler and the return to the boiler (e.g.  $90^{\circ}\text{C} - 75^{\circ}\text{C} = 15^{\circ}\text{C}$ ).

Move vertically up to the curves representing the different valve sizes (e.g. Kvs 2.3) and then move horizontally to the left to find the pressure drop over the valve (e.g. 25kPa) which the pump will have to overcome. In addition to the pressure drop over

the valve, remember that the pump will also have to be dimensioned to handle the pressure drop in the rest of the system (e.g. pipes, boiler and accumulation tank).

If the pressure drop and flow do not match the pump you have intended for the system, please try a different Kvs-value to receive a suitable pressure drop.

## UTC300 – pressure losses

