

LINEAR MOTORIZED VALVES

# CONTROL VALVE PN16 SERIES VLE300

The ESBE control valves series VLE325 are provided with flanges and are especially designed for replacement of STL-valves in existing applications.



Flange PN16

### MEDIA

These valves can handle the following types of media:

- Hot and cold water.
- Water with antifreeze additives such as glycol.

If the valve is used for media at temperatures below 0°C (32°F), it should be equipped with a stem heater in order to prevent ice formation on the valve stem.

### CONTROL VALVE DESIGNED FOR

- Heating
- Comfort Cooling
- Ventilation
- District Heating
- District Cooling

### SUITABLE ACTUATORS

- Series ALB140
- Series ALFxx1
- Series ALFxx4
- Series ALHx00

### TECHNICAL DATA

Type: \_\_\_\_\_ 2-way plug valve  
 Pressure class: \_\_\_\_\_ PN16  
 Flow characteristic A-AB: \_\_\_\_\_ EQM  
 Stroke: \_\_\_\_\_ 20 mm  
 Rangeability: \_\_\_\_\_ see table  
 Leakrate A-AB, - DN 20-25: \_\_\_\_\_ max. 0.02% of Kv 4  
 - DN 32-40: \_\_\_\_\_ max. 0.02% of Kv 6.3  
 $\Delta P_{max}^*$ : \_\_\_\_\_ see graph below  
 Temperature of medium: \_\_\_\_\_ max. +130°C  
 \_\_\_\_\_ min. -20°C  
 Connection: \_\_\_\_\_ Flange, ISO 7005-2

\*  $\Delta P_{max}$  = Max. differential pressure for valve and actuator combinations.

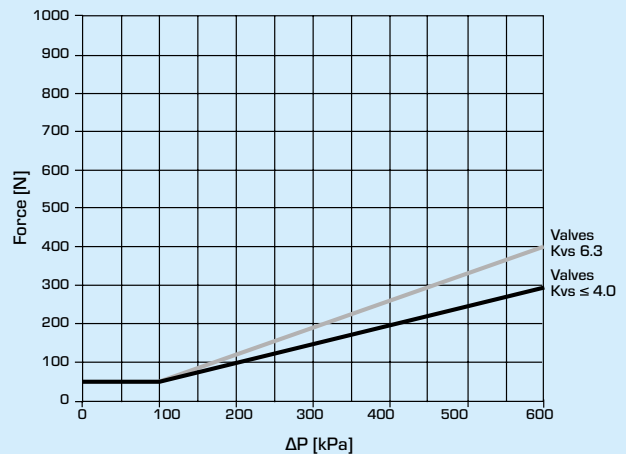
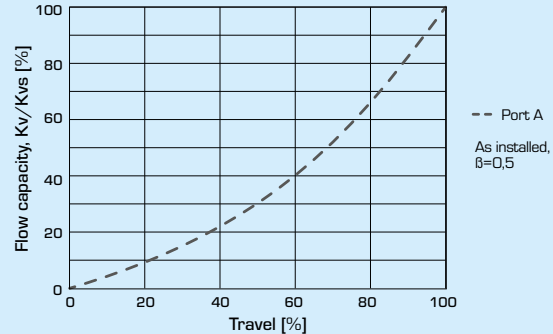
#### Material

Body: \_\_\_\_\_ Bronze Rg5  
 Flanges: \_\_\_\_\_ Steel SS 1914  
 Stem: \_\_\_\_\_ Stainless steel SS 2346  
 Plug: \_\_\_\_\_ Stainless steel SS 2346  
 Seat: \_\_\_\_\_ Stainless steel SS 2346  
 Blind plug: \_\_\_\_\_ Brass CW602N  
 Seat seal: \_\_\_\_\_ Metallic  
 Packing box seal: \_\_\_\_\_ PTFE/EPDM

PED 2014/68/EU, article 4.3

### VALVE CHARACTERISTICS

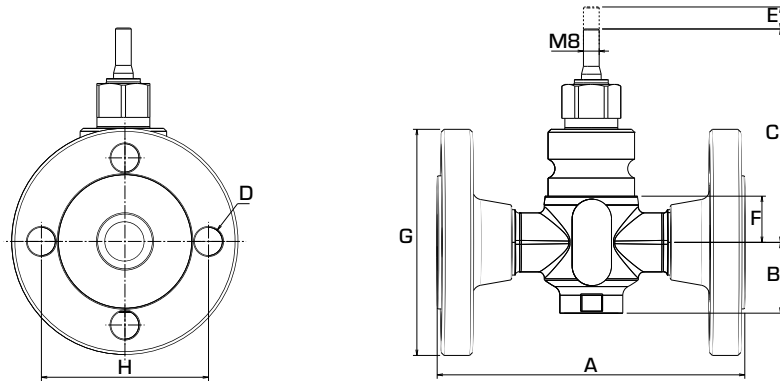
2-way valves, DN15-50



Required clamping force of the control unit for tightness 0.02% of Kvs.

# CONTROL VALVE PN16

## SERIES VLE300



### 2-WAY CONTROL VALVE SERIES VLE325

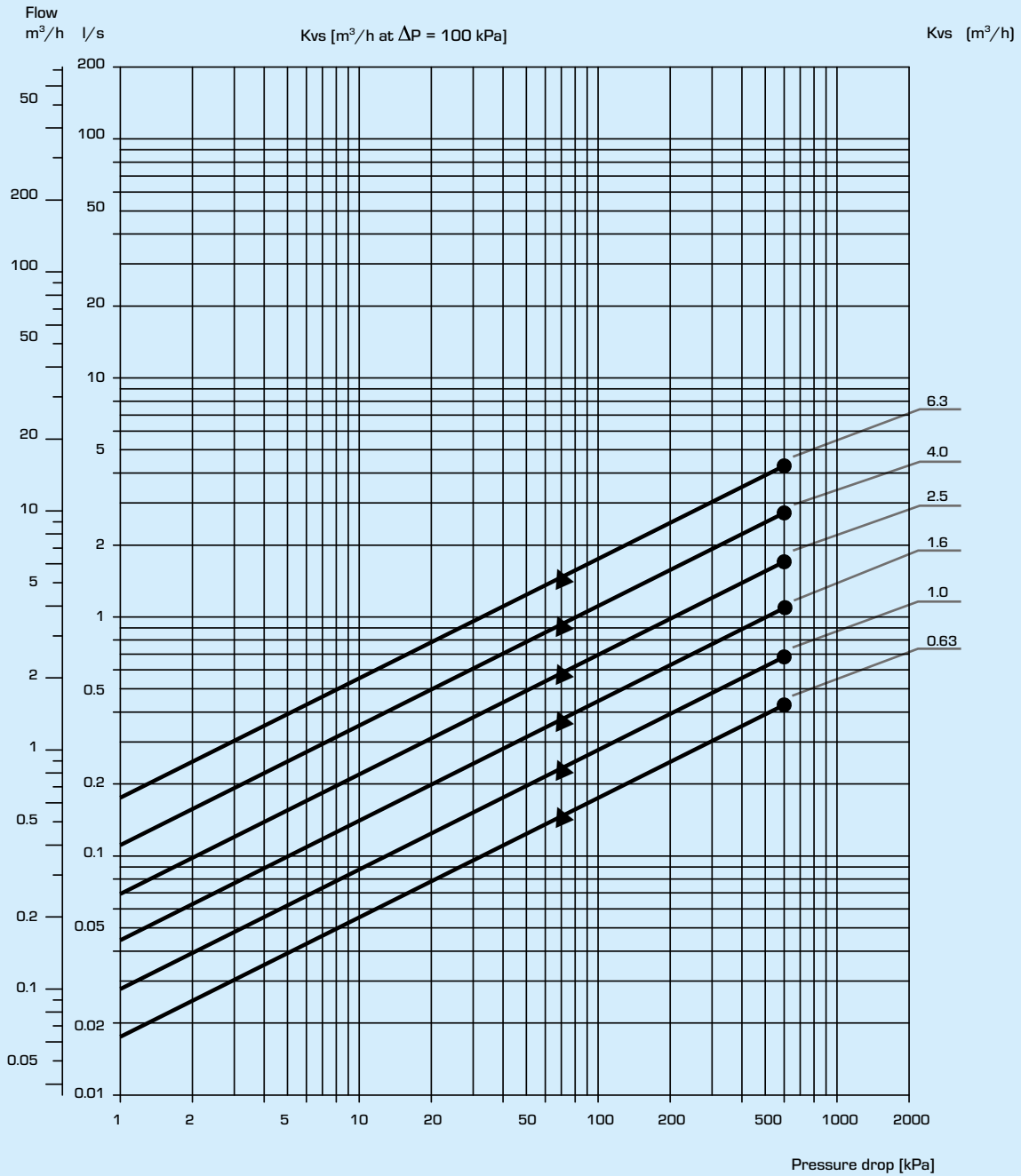
| Art. No. | Reference | DN | Kvs* | A   | B  | C   | D    | E  | F  | G   | H   | Rangeability<br>Kv/Kv <sup>min</sup> | Weight<br>[kg] |
|----------|-----------|----|------|-----|----|-----|------|----|----|-----|-----|--------------------------------------|----------------|
| 21400100 | VLE325    | 20 | 0.63 | 143 | 36 | 110 | 4x14 | 20 | 24 | 105 | 75  | >100                                 | 3.0            |
| 21400200 |           |    | 1    |     |    |     |      |    |    |     |     |                                      |                |
| 21400300 |           |    | 1.6  |     |    |     |      |    |    |     |     |                                      |                |
| 21400400 |           |    | 2.5  |     |    |     |      |    |    |     |     |                                      |                |
| 21400500 |           |    | 4    |     |    |     |      |    |    |     |     |                                      |                |
| 21400600 | VLE325    | 25 | 1    | 156 | 36 | 110 | 4x14 | 20 | 24 | 115 | 85  | >100                                 | 3.7            |
| 21400700 |           |    | 1.6  |     |    |     |      |    |    |     |     |                                      |                |
| 21400800 |           |    | 2.5  |     |    |     |      |    |    |     |     |                                      |                |
| 21400900 |           |    | 4    |     |    |     |      |    |    |     |     |                                      |                |
| 21401000 | VLE325    | 32 | 1.6  | 165 | 36 | 110 | 4x18 | 20 | 24 | 140 | 100 | >100                                 | 5.0            |
| 21401100 |           |    | 2.5  |     |    |     |      |    |    |     |     |                                      |                |
| 21401200 |           |    | 4    |     |    |     |      |    |    |     |     |                                      |                |
| 21401600 |           |    | 6.3  |     |    |     |      |    |    |     |     |                                      |                |
| 21401300 | VLE325    | 40 | 1.6  | 170 | 36 | 110 | 4x18 | 20 | 24 | 150 | 110 | >100                                 | 5.6            |
| 21401400 |           |    | 2.5  |     |    |     |      |    |    |     |     |                                      |                |
| 21401500 |           |    | 4    |     |    |     |      |    |    |     |     |                                      |                |
| 21401700 |           |    | 6.3  |     |    |     |      |    |    |     |     |                                      |                |

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

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### FLOW CHART



To be considered: 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. A good rule is to choose one size higher Kv-value when 30 – 50% glycol is added. A lower concentration of glycol may be disregarded. N.B.! Maximum 50% glycol for freezing protection and oxygen absorbing compounds are allowed as additives.

# CONTROL VALVE PN16 SERIES VLE300

## INSTALLATION

The valve should be mounted with flow direction in accordance with the valve marking.

If possible, the valve should be installed in the return pipe, in order to avoid exposing the actuator to high temperatures.

The valve must not be installed with the actuator mounted below the valve.

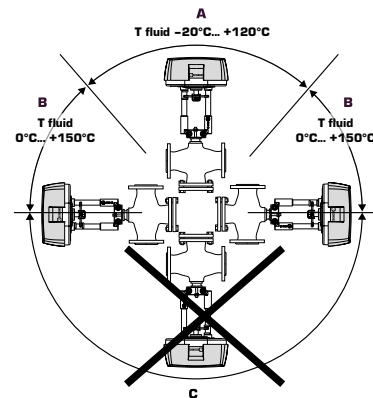
### Mounting positions:

A = Allowed mounting position with fluid temperature between -20°C to +120°C.

B = Allowed mounting position with fluid temperature between 0°C to +150°C.

C = Not allowed mounting position.

To ensure that suspended solids will not become jammed between the valve plug and seat, a filter should be installed upstream of the valve, and the pipe system should be flushed before the valve is installed.



## VALVE AUTHORITY [ $\beta$ ]

$\Delta p_v$  - pressure losses over the valve [bar]

$\Delta p_{sys}$  - pressure losses over the system with variable flow [bar]

$\Delta p_{inst}$  - pressure losses over the installation [bar]

Recommendation : Valve authority [ $\beta$ ] shall be between 0.3 to 0.7

### a) 2-way valve

$$\beta = \frac{\Delta p_v}{\Delta p_v + \Delta p_{inst}}$$

### b) 3-way valve

$$\beta = \frac{\Delta p_v}{\Delta p_v + \Delta p_{sys}}$$

## INSTALLATION EXAMPLES

### 2-WAY CONTROL VALVES

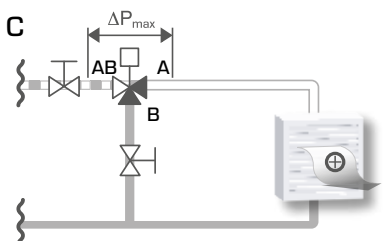


Installation without local circulating pump

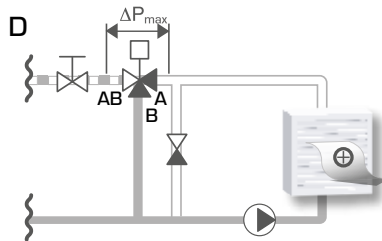


Installation with local circulating pump

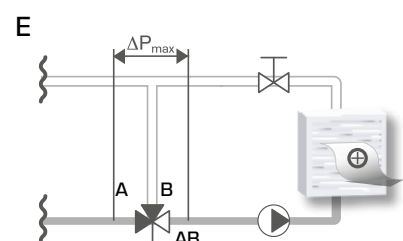
### 3-WAY CONTROL VALVES



Circuit without local circulation pump



Circuit with local circulation pump



Circuit with local circulating pump