

Data sheet

Seated valves (PN 16)

VS 2 – 2-way valve, external thread

Description



VS 2 is two-way valve designed to work with Danfoss electric actuators AMV 150, AMV(E) 10, AMV(E) 20, AMV(E) 30 or Danfoss electric actuators with spring return function AMV(E) 13, AMV(E) 23 and AMV(E) 33.

VS 2 valve is generally recommended for use in most demanding conditions in systems such as:

- district heating,
- heating,
- hot water service with heat exchanger or storage tank, where they ensure long and unproblematic performance.

Features:

- SPLIT characteristic developed for most demanding applications (DN 20 and DN 25)
- Several k_{vs} values
- Push connection for easy mechanical connection with actuator
- Control range min. 50:1

Benefits:

- Fast and stable regulation
- More comfort due to stable DHW temp.
- Energy saving due to stable control
- Longer lifetime of components due to less temperature oscillation

Main Data:

- DN 15-25
- k_{vs} 0.25-4.0 m^3/h
- PN 16
- Temperature:
 - Circulation water/glycolic water up to 30 %: 2 ... 130 °C
- Connections:
 - External thread

Type	AMV 150	AMV 10/13	AME 10/13	AMV(E) 20/23	AMV(E) 30/33
VS 2 DN 15 *	•	•	-	-	-
VS 2 DN 20	-	-	•	•	•
VS 2 DN 25	-	-	•	•	•

* VS2 DN 15 valve has linear characteristic and cannot be recommended to be used with modulating controlled actuators (AME actuators) for DHW production.

Ordering

Example:

2-way valve, DN 15, k_{vs} 1.6, PN 16, t_{max} 130 °C, external thread

- 1x VS 2 DN 15 valve
Code No.: **065F2115**

Option:

- 1x Tailpieces
Code No.: **003H6908**

DN	k_{vs} (m^3/h)	PN	Ext. thread ISO 228/1	Code No.
15	0.25	16	G 3/4 A	065F2111
	0.40			065F2112
	0.63			065F2113
	1.0			065F2114
	1.6			065F2115
	2.5		G 1 A	065F2120
25	4.0		G 1 1/4 A	065F2125

Accessories-Tailpieces

DN	Weld-on tailpieces* Code No.	Tailpieces* with ext. threads Code No.
15	003H6908	003H6902
20	003H6909	003H6903
25	003H6910	003H6904

* set of 2 tailpieces

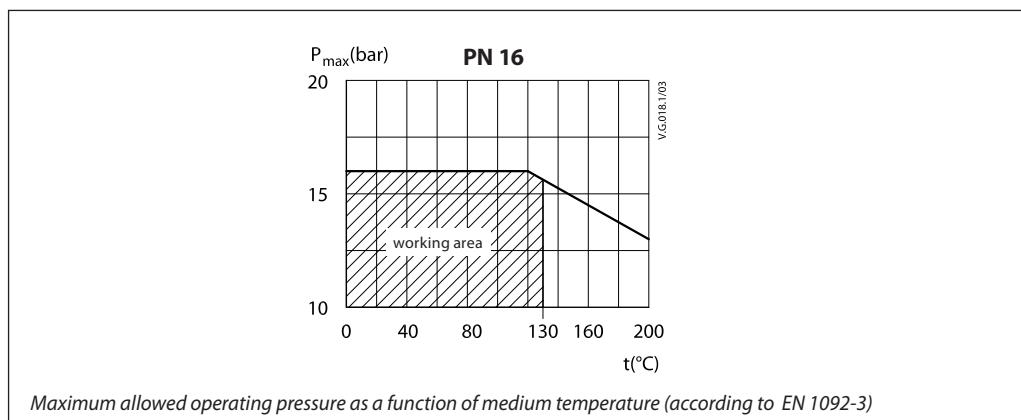
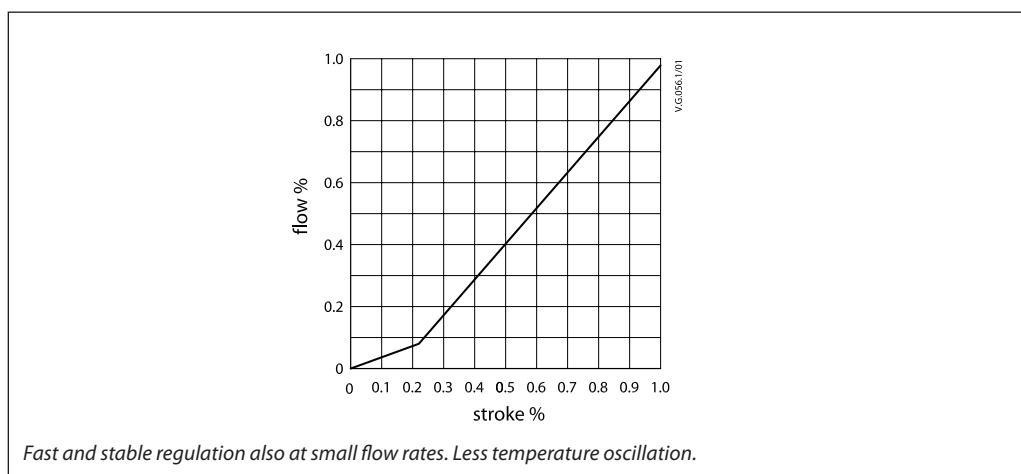
Service kits

Type	DN	Code No.
Stuffing box	15-25	065F0006

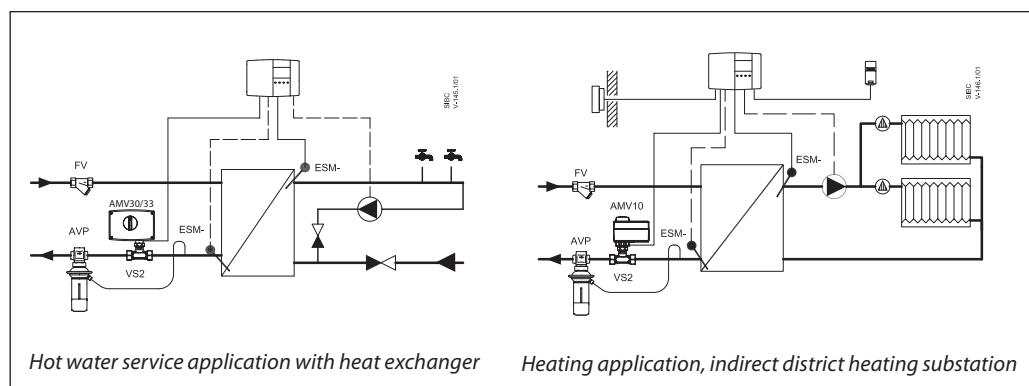
Technical data

Nominal diameter	DN	15					20	25	
k_{vs} value	m^3/h	0.25	0.40	0.63	1.0	1.6	2.5	4.0	
Stroke	mm			4				5	
Control range								$> 50:1$	
Control characteristic				lin				split	
Cavitation factor z								≥ 0.5	
Leakage acc. to standard IEC 534								Max. 0.05% of k_{vs}	
Nominal pressure	PN						16		
Max. operating pressure	bar						6 bar *		
Max. closing pressure							10		
Medium								Circulation water/glycolic water up to 30 %	
Medium pH								Min. 7, Max. 10	
Medium temperature	$^{\circ}C$							2 ... 130	
Connections								Ext. thread	
Materials									
Valve body								Dezincling free brass	
Cone, seat and spindle								Stainless steel	

* Increased noise level when pressure is higher than 4 bar

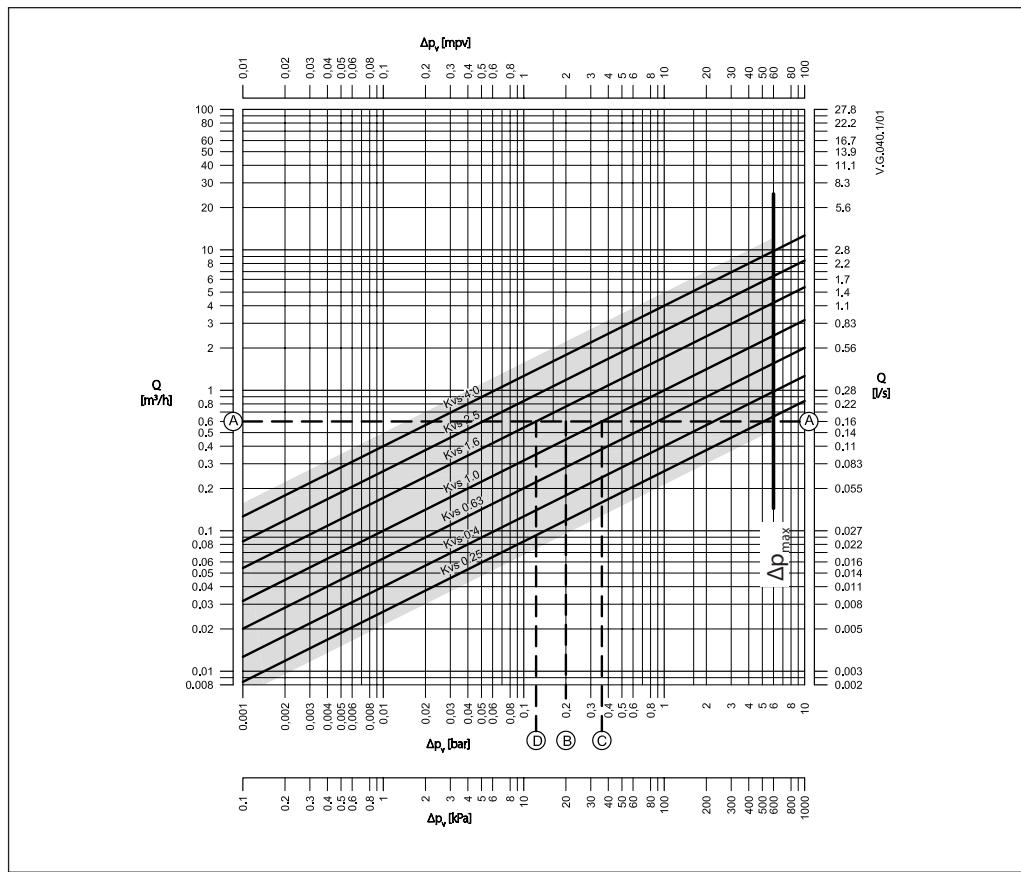
Pressure temperature diagram

Split characteristic


Application principles



Disposal

The valve must be dismantled and the elements sorted into various material groups before disposal.

Sizing

Example
Design data:

 Flow rate: 0.6 m³/h

System pressure drop: 20 kPa

Locate the horizontal line representing a flow rate of 0.6 m³/h (line A-A). The valve authority is given by the equation:

$$\text{Valve authority, } a = \frac{\Delta p_1}{\Delta p_1 + \Delta p_2}$$

Where:

Δp_1 = pressure drop across the fully open valve

Δp_2 = pressure drop across the rest of the circuit with a full open valve

The ideal valve would give a pressure drop equal to the system pressure drop (i.e. an authority of 0.5):

$$\text{if: } \Delta p_1 = \Delta p_2$$

$$a = \frac{\Delta p_1}{2 \times \Delta p_1} = 0.5$$

In this example an authority of 0.5 would be given by a valve having a pressure drop of 20 kPa at that flow rate (point B). The intersection of line A-A with a vertical line drawn from B lies between two diagonal lines; this means that no ideally-sized valve is available.

The intersection of line A-A with the diagonal lines gives the pressure drops stated by real, rather than ideal, valves. In this case, a valve with k_{vs} 1.0 would give a pressure drop of 36.0 kPa (point C):

$$\text{hence valve authority} = \frac{36}{36 + 20} = 0.64$$

The second largest valve, with k_{vs} 1.6, would give a pressure drop of 14 kPa (point D):

$$\text{hence valve authority} = \frac{14}{14 + 20} = 0.41$$

Generally, the smaller valve would be selected (resulting in a valve authority higher than 0.5 and therefore improved control). However, this will increase the total pressure and should be checked by the system designer for compatibility with available pump heads, etc. The ideal authority is 0.5 with a preferred range of between 0.4 and 0.7.

Dimensions
