Plug & Seat Valves (Flanged)

Features

- Suitable for water or glycolic water
- Cast iron construction
- PN16 rated

Specification

Media		Hot & cold water with up to 50% Glycol
Media temperature		2 to 130°C
Rangeability		100:1
Nominal pressure		PN16
Control characteristics		LOG: port A-AB Lin: port B-AB
Connections		Flanged ISO 75005-2 (PN16)
Materials:		
	DN100	
	Body	Gray cast iron, EN0GJL-250 (GG25)
	Spindle	Stainless steel
	Cone	Red bonze
	Gasket	EPDM
	DN125 & DN150	
	Body	Ductile iron, EN-GJS-400-18-LT (GGG 40.3)
	Spindle	Stainless steel
	Cone	GGG 40
	Gland seal	Replaceable PTFE rings
Leakage:		
	2-Port (A-AB)	Max. 0.05% of kvs
	3-Port (A-AB)	Max. 0.05% of kvs
	(B-AB)	Max. 1% of kvs
Stroke:		
	DN100	30mm
	DN125 & DN150	40mm
Country of origin		Slovenia

Product Codes

VE-VF2-100-145
2-Port Flanged valve PN16, k_{vs} 145
VE-VF2-125-220
2-Port Flanged valve PN16, k_{vs} 220
VE-VF2-150-230
2-Port Flanged valve PN16, k_{vs} 230

VE-VF3-100-145
3-Port Flanged valve PN16, k_{vs} 145
VE-VF3-125-220
3-Port Flanged valve PN16, k_{vs} 220
VE-VF3-150-230
3-Port Flanged valve PN16, k_{vs} 230

Accessories:

VE-SH-2
Stem heater for valves using VE-AMV55 and VE-AME55 actuators

VE-SH-3
Stem heater for valves using VE-AMV85 and VE-AME85 actuators

Replacement Items:

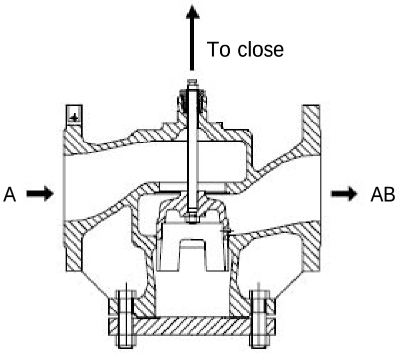
VE-SB-3
Stuffing box for DN100mm valve
VE-SB-4
Stuffing box for DN125 & 150mm valves

Actuator Selection

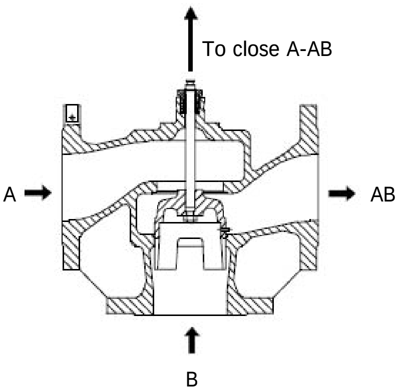
Actuator v Close off pressure (bar)		
Valve DN (mm)	VE-AMV55 VE-AME55	VE-AMV85 VE-AME85
100	1.5	-
125	1	3
150	0.2	1.5

Operation

2-Port



3-Port



Installation

Hydraulic Connections

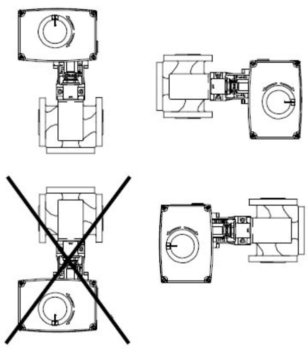
Mount according to flow direction as indicated on the valve body, AB is always the outlet port; inlets are A (two port) or A and B (three port).

Valve Mounting

Before mounting the valve be sure that all pipes are clean and free from swarf. It is essential that the pipes are lined up squarely with the valve at each connection and that they are free from vibrations. Install the motorized control valves with the actuator in a vertical or horizontal position but not upside
down.
Leave sufficient clearance to facilitate the dismantling of the actuator from the valve body for maintenance purposes.
The valve must not be installed in an explosive atmosphere or at an ambient temperature higher than 50°C or lower than 2°C. It must not be subject to steam jets, water jets or dripping liquid.

Note that the actuator may be rotated up to 360° with respect to the valve body by loosening the retaining fixture. After this operation retighten.

Valve Mounting (continued)



Hydraulic diagrams for applications of 3-way mixing valves

Note the valve **must** only be used as a mixing valve, and is not suitable for diverting (with one inlet and two outlet ports). Where this function is required, the valve should be mounted in the return line, as Fig. 2.

Note that if the pump is installed before the A port of the below valve arrangement, then excessive valve hammering will occur thus causing an overload of the actuator.

Installation (continued)

Fig.1 Mixing valve used in mixing application.

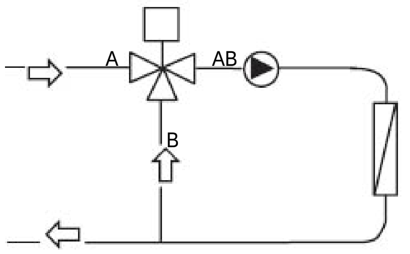
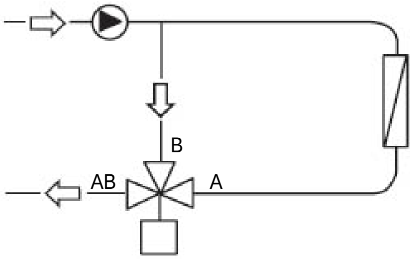


Fig.2 Mixing valve used in diverting application.



Control valve sizing diagram for fluids

1 For fluids with specific gravity of 1 (e.g. water)

Design data:
Flow rate: 6 m³/h
System pressure drop: 55 kPa

Locate the horizontal line representing a flow rate of 6 m³/h (line A-A). The valve authority is given by the equation:

Valve authority, a = $\frac{\Delta p1}{\Delta p1 + \Delta p2}$

Where:

$\Delta p1$ = pressure drop across the fully open valve
$\Delta p2$ = 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):

If $\Delta p1 = \Delta p2$,
$a = \Delta p1/2*\Delta p1 = 0.5$

In this example an authority of 0.5 would be given by a valve having a pressure drop of 55 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} 6.3 would give a pressure drop of 90.7 kPa (point C):

Control valve sizing diagram for fluids (con.)

hence valve authority = $\frac{90.7}{90.7+55}$ =0.39

The second largest valve, with k_{vs}10, would give a pressure drop of 36 kPa (point D):

hence valve authority = $\frac{36}{36+55}$ =0.62

Generally, for a 3 port application, the smaller valve would be selected (resulting in a valve authority higher than 0.5 and therefore improved controllability). 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.

2 For fluids with specific gravity different from 1

Design data:
Flow rate: 6 m³/h of fluid, S.G. 0.9
System pressure drop: 10 kPa

For this example, the left hand axis of the diagram must be ignored. Starting from the right hand axis, the flow rate of 6 m³/h is located (point E). The intersection of the diagonal line from point E with a vertical line from S.G. = 0.9 gives the starting point for the effective flow rate line F-F. The process then
continues as for Example 1, so 10 kPa intersects F-F nearest to the k_{vs}16 diagonal. The intersection of F-F with k_{vs}16 gives a valve pressure drop of 12.7 kPa (point G).

Note: Please see table on page 4

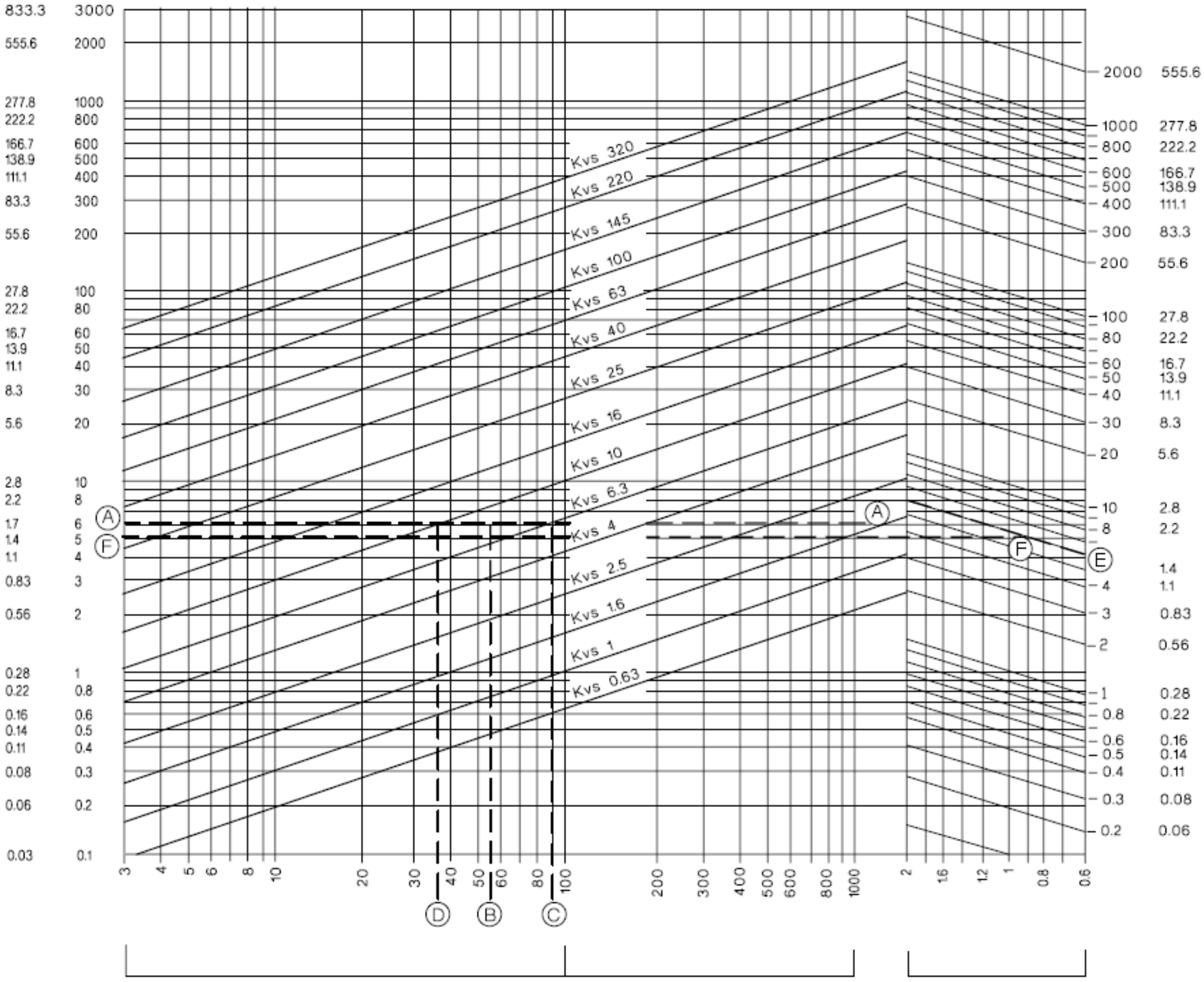
Control valve sizing diagram for fluids

Flow liquid with specific Gravity of 1

Flow liquid with specific Gravity different to 1

l/sec m³/h

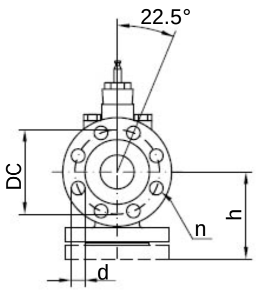
m³/h l/sec



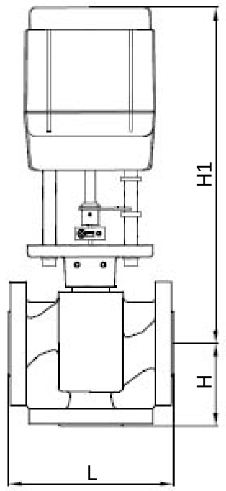
FLOW Pressure drop kPa (100 kPa = 1 bar = ~ 10m H_2O)

Specific gravity

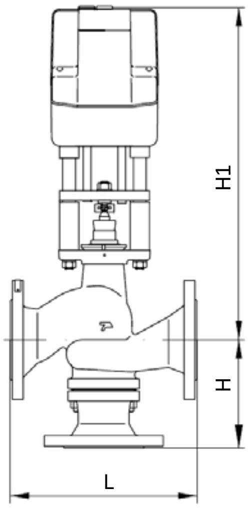
Dimensions



VE-AMx55:



VE-AMx85:



DN	L (mm)	H* (mm)	h** (mm)	H1*** (mm)	DC (mm)	d (mm)	n (number)	Weight (kg) 2-Port	Weight (kg) 3-port
100	350	175	196	317	180	18	8	42.8	36.4
125	400	250	160	555	210	18	8	65.3	54
150	480	300	200	560	240	22	8	92	79

***VE-AMx85. 125mm = 629, 150mm = 682.

H* 3-Port valve
h** 2-Port valve