M 947
21.01.03 LB

FLANGED THREE-PORT SEAT VALVES PN 6 (– 10…120 °C)

VL 3.. Eng.

- **Body in GG25 cast iron; brass plug; stainless steel spindle**
- **Flanged connections PN 6 (ISO 7005/2)**

CE

1. APPLICATION

VL.. valves are designed for controlling the flow of hot or chilled water in heating or air-handling plants.
Permitted fluids: – Hot water max 120°C. – Chilled water min – 10°C (glycol max 30%).
Operated by linear actuators type: CLE…, CLF…, CLG… or CEF U16.. (with emergency closure).

2. OPERATION

The control component of the valve is an appropriately-machined plug which, operated by the linear movement of the spindle, diverts the flow between the always-open port (AB: output water) and the two controlled ports (A-B: input water).

3. MODELS

Code	DN body	Kvs [1] m³/h	Run mm.	Suitable actuators									
				CLE 16.. 500 N 11 s/mm		**CLE 10..** 300 N 7 s/mm		**CLF 16..** 1,000 N 11 s/mm		**CLF 04..** 600 N 3 s/mm		**CEF U16..**[4] 450 N 11 s/mm	
				bar[2]	s[3]	bar[2]	s[3]	bar[2]	s[3]	bar[2]	s[3]	bar[2]	s[3]
VL 314	15	2,5	15	6	165	6	105	6	165	6	45	6	165
VL 315	15	4,0	15	6	165	6	105	6	165	6	45	6	165
VL 320	20	6,3	15	6	165	4	105	6	165	6	45	6	165
VL 325	25	10	15	6	165	2	105	6	165	6	45	3	165
VL 332	32	16	15	3	165	1	105	6	165	5	45	2.5	165
VL 340	40	25	15	2	165	–	–	6	165	3	45	2	165
VL 350	50	40	15	1	165	–	–	3	165	2	45	0.5	165

				Suitable actuators			
				CLG 32.. 2,000 N 8 s/mm		**CLG 16..** 1,500 N 4 s/mm	
				bar[2]	s[3]	bar[2]	sec.[3]
VL 365	65	63	20	4.5	160	3	80
VL 380	80	100	30	3	240	2	120
VL 3100	100	145	30	1.5	240	1	120

4. ACCESSORIES

Code	Description
ARS 104	Spindle heater (24V~) for use with fluid temperatures - 10 … 0 °C

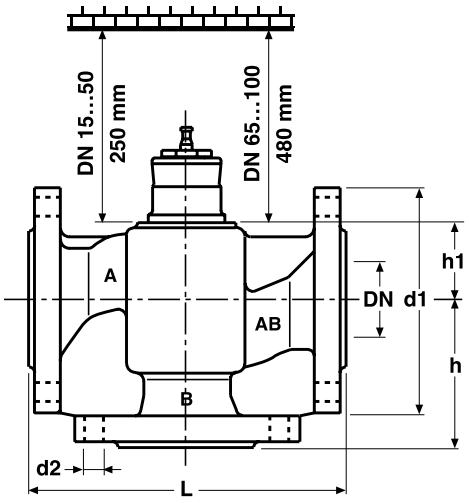
(1) : Kvs – Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa. 100 kPa = 10 mWG = 1 bar
(2) : bar – Maximum differential pressure Δp max permitted by actuator..
(3) : s – Time in seconds required by actuator to make the complete valve run.
(4) : actuator with emergency closure.

5. TECHNICAL DATA

Valve body	GG 25 cast iron
Spindle	stainless steel
Plug	brass
Spindle seals	O-Ring
Connections	flanged PN 6 (ISO 7005/2)
Nominal pressure	6 bar (600 kPa)
Fluid temperature	– 10...120 °C

Run:	
DN 15...50	15 mm
DN 65	20 mm
DN 80 - 100	30 mm
Control features:	
throughport	equal percentage
by pass	linear
Control ratio	50:1
Let by::	
throughport	0.05 % Kvs
by pass	1 % Kvs

6. OVERALL DIMENSIONS



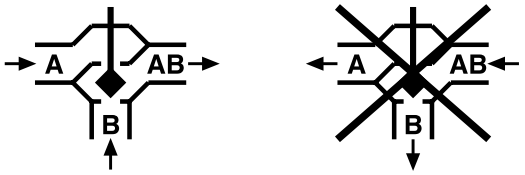
Type	DN mm	d1 mm	d2 mm	L mm	h mm	h1 mm
VL 314-315	15	80	4 x 11	130	65	40
VL 320	20	90	4 x 11	150	70	40
VL 325	25	100	4 x 11	160	75	40
VL 332	32	120	4 x 14	180	80	40
VL 340	40	130	4 x 14	200	90	51
VL 350	50	140	4 x 14	230	100	51
VL 365	65	160	4 x 14	290	120	100
VL 380	80	190	4 x 18	310	155	126
VL 3100	100	210	4 x 18	350	175	126

7. INSTALLATION

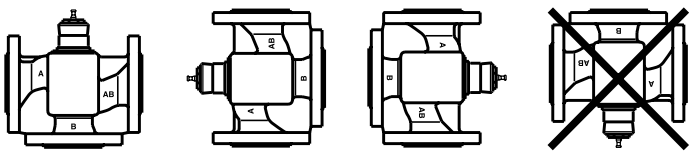
Before installing the valve ensure that in the pipework there is no extraneous material such as residues from welding or threading.
The pipework must not be subject to vibrations and must be perfectly aligned with the valve connections in order to avoid dangerous stresses.

Pay careful attention to the direction of the fluid, embossed on the valve body, in relation to the hydraulic circuit controlled.

To avoid vibration problems it is preferable always to mount the valve with the AB port as water outlet (see 9. Examples of Plants).

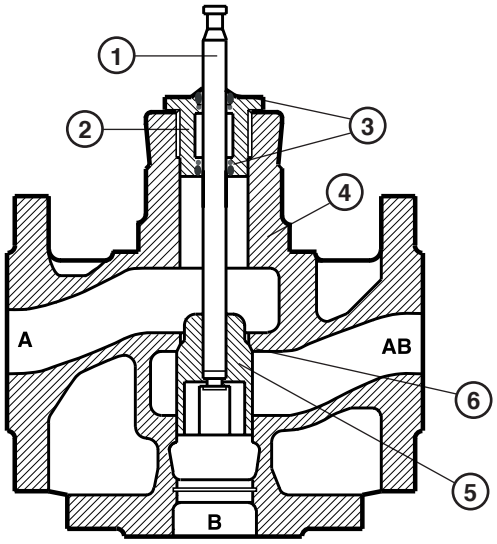


The valve can be installed in any position except that with the spindle pointing downwards.
Leave sufficient space on the spindle side for mounting the actuator (8. Overall Dimensions).



8. CONSTRUCTION

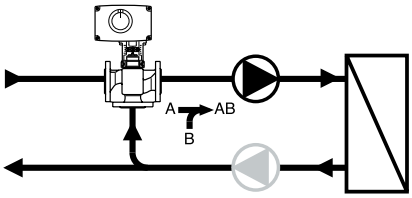
The body of the valve is made of GG 25 cast iron, the spindle is in stainless steel and the plug in brass.
The spindle is rendered watertight by two O-Rings inserted between Teflon self-cleaning rings, these in turn being enclosed in an easily-replaceable sealing block.
The top of the spindle is recessed for coupling with the actuator.



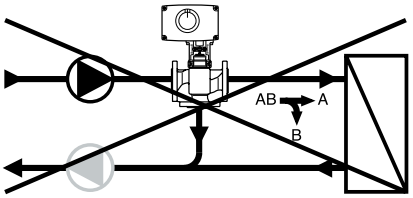
1 – Spindle
2 – Sealing block
3 – O-Ring seal
4 – Valve body
5 – Plug
6 – Seat
AB – Port always open
A – Throughport
B – By pass

9. EXAMPLE OF PLANTS

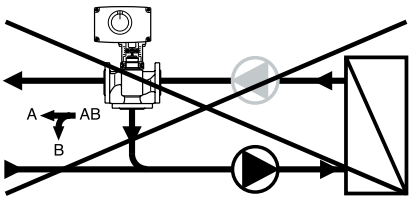
Mixing on flow



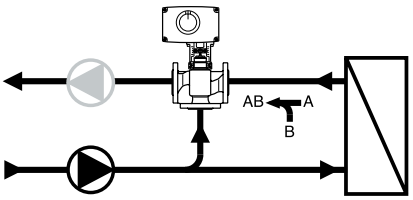
Diverting on flow



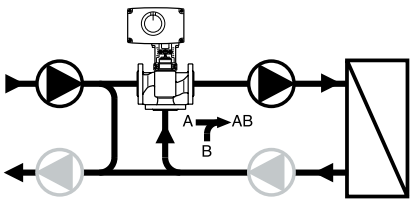
Mixing on return



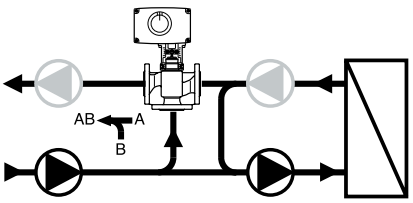
Diverting on return



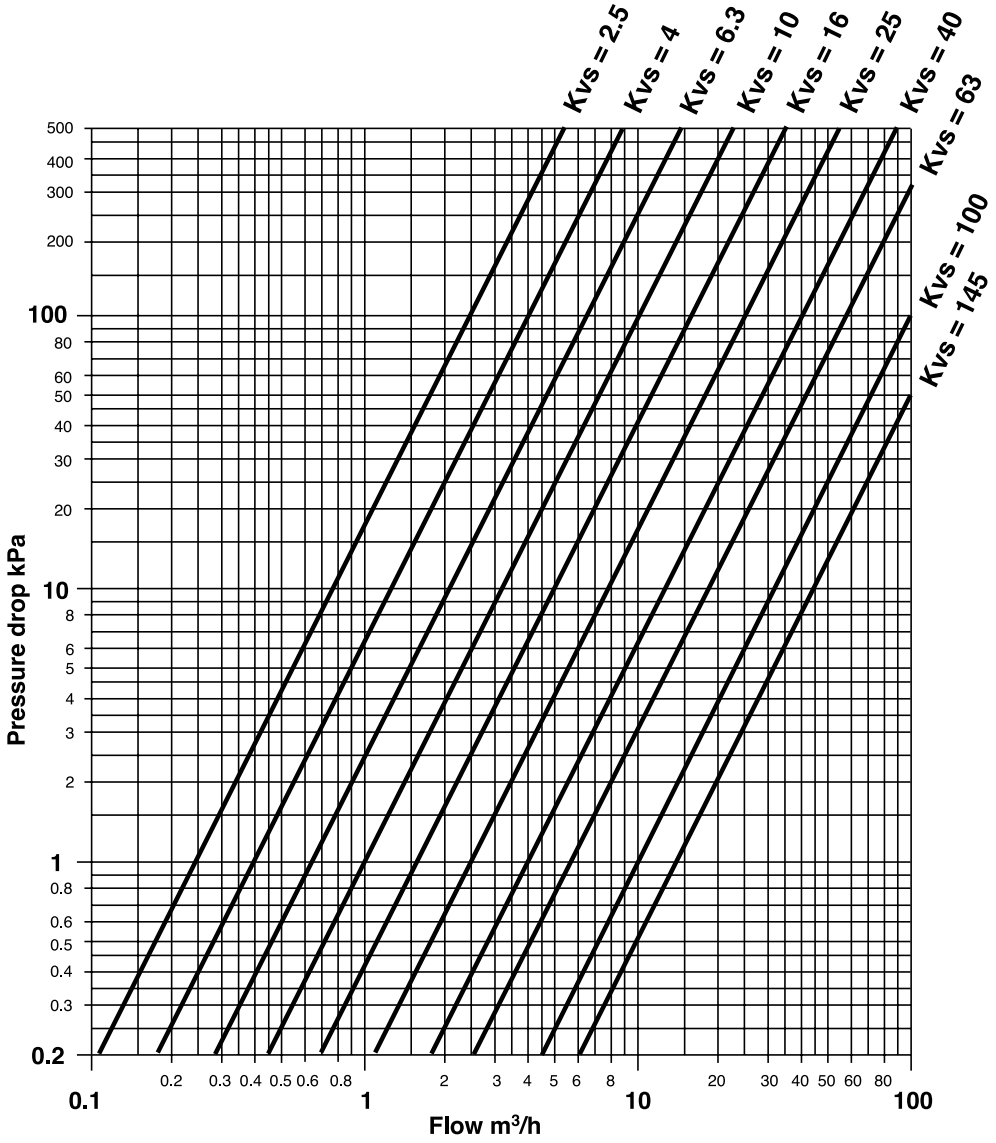
Mixing with primary pump



Injection with primary pump



10. PRESSURE DROP CHART



Kvs = Flow coefficient: Flow in m^3/h with valve open and pressure drop of 100 kPa.
100 kPa = 10 mWG = 1 bar

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