M 824
26.03.03 LB

2 , 3 , 4 - PORT SEAT VALVES THREADED PN 16 (2...120 °C)

VVZ 2 - 3 - 4 Eng.

- **Brass body, seat & plug; stainless steel spindle**
- **Male threaded connections for flat unions**

1. APPLICATION

VVZ valves are designed for modulating control in zoned and fan coil plants and for small heating and air-conditioning plants.
Permitted fluids: - Hot or superheated water max. 120°C - Chilled water min. 2°C (max. 50% glycol).
Operated by linear actuators type: CLV… , CLQ 07 … , CEQ U07 … (with spring-return closure).

2. OPERATION

The control component of the valve is a shaped plug which, operated by the linear movement of the spindle, regulates the flow between the two ports or diverts it between always-open port and the two controlled ports (3 and 4 ports). The closure action (spindle up) is brought about by a spring keyed to the spindle and the opening action (spindle down) by the thrust of the actuator. Includes screwed cap for manual operation (without actuator) if required.

3. MODELS

Code	DN unions valve male	DN union pipe male	Kvs (1) through port m³/h	Kvs (1) by pass m³/h	Run mm.	Suitable actuators **CLV 15..** 27 s/mm		**CLV 07..** 13.5 s/mm		**CLQ 07.. CEQ U07..**(4) 14 s/mm	
						bar (2)	s (3)	bar (2)	s (3)	bar (2)	s (3)
2-port											
VVZ 209	1/2"	3/8"	0.25		5.5	3.5	150	3.5	75	3.5	77
VVZ 210	1/2"	3/8"	0.40		5.5	3.5	150	3.5	75	3.5	77
VVZ 211	1/2"	3/8"	0.63		5.5	3.5	150	3.5	75	3.5	77
VVZ 212	1/2"	3/8"	1.0		5.5	3.5	150	3.5	75	3.5	77
VVZ 213	1/2"	3/8"	1.6		5.5	3.5	150	3.5	75	3.5	77
VVZ 214	1/2"	3/8"	2.5		5.5	3.5	150	3.5	75	3.5	77
VVZ 218	3/4"	1/2"	2.5		5.5	2.5	150	2.5	75	3.5	77
VVZ 219	3/4"	1/2"	4.0		5.5	2.5	150	2.5	75	3.5	77
3-port											
VVZ 309	1/2"	3/8"	0.25	0.25	5.5	3.5	150	3.5	75	3.5	77
VVZ 310	1/2"	3/8"	0.40	0.25	5.5	3.5	150	3.5	75	3.5	77
VVZ 311	1/2"	3/8"	0.63	0.40	5.5	3.5	150	3.5	75	3.5	77
VVZ 312	1/2"	3/8"	1.0	0.63	5.5	3.5	150	3.5	75	3.5	77
VVZ 313	1/2"	3/8"	1.6	1.0	5.5	3.5	150	3.5	75	3.5	77
VVZ 314	1/2"	3/8"	2.5	1.6	5.5	3.5	150	3.5	75	3.5	77
VVZ 318	3/4"	1/2"	2.5	1.6	5.5	2.5	150	2.5	75	2.5	77
VVZ 319	3/4"	1/2"	4.0	2.5	5.5	2.5	150	2.5	75	2.5	77
4-port											
VVZ 409	1/2"	3/8"	0.25	0.25	5.5	3.5	150	3.5	75	3.5	77
VVZ 410	1/2"	3/8"	0.40	0.25	5.5	3.5	150	3.5	75	3.5	77
VVZ 411	1/2"	3/8"	0.63	0.40	5.5	3.5	150	3.5	75	3.5	77
VVZ 412	1/2"	3/8"	1.0	0.63	5.5	3.5	150	3.5	75	3.5	77
VVZ 413	1/2"	3/8"	1.6	1.0	5.5	3.5	150	3.5	75	3.5	77
VVZ 414	1/2"	3/8"	2.5	1.6	5.5	3.5	150	3.5	75	3.5	77
VVZ 418	3/4"	1/2"	2.5	1.6	5.5	2.5	150	2.5	75	2.5	77
VVZ 419	3/4"	1/2"	4.0	2.5	5.5	2.5	150	2.5	75	2.5	77

4. ACCESSORIES

Code	Description	Female cover (valve)	Male tang (pipe)	Valves VVZ
ABMZ 1510	Brass flat unions (12 items)	1/2"	3/8"	209…214 ; 309…314 ; 409…414.
ABMZ 2015	Brass flat unions (12 items)	3/4"	1/2"	218 - 219 ; 318-319 ; 418-419

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

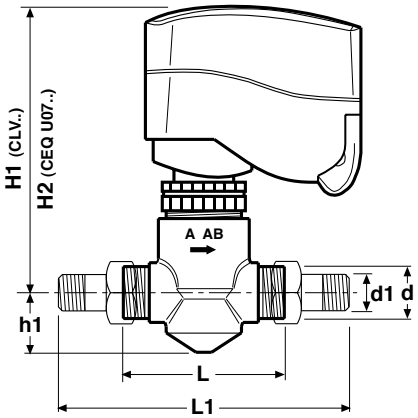
5. TECHNICAL DATA

Valve body	brass
Spindle	stainless steel
Plug	brass
Spindle seals	O-Ring
Nominal pressure	16 bar (1,600 kPa)
Fluid temperature	2...120 °C
Run	5.5 mm

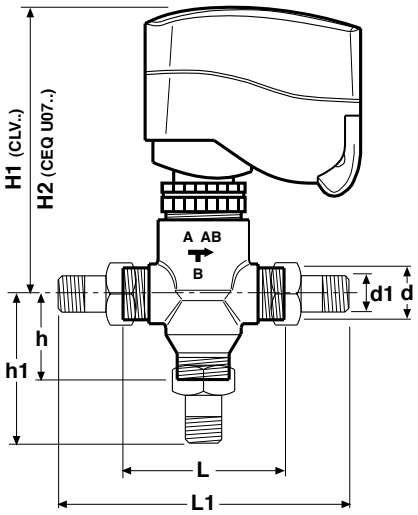
Control characteristics:	
Throughport	equal percentage
By pass	linear
Control ratio	50:1
Let by:	
Throughport	≤ 0.05 % Kvs
By pass	≤ 0.1 % Kvs
Unions	threaded male (ISO 228/1)

6. OVERALL DIMENSIONS

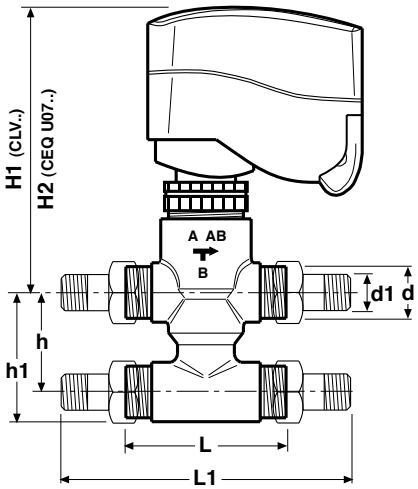
VVZ 2...



VVZ 3...



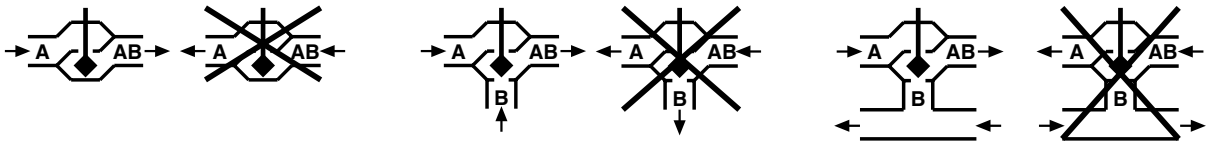
VVZ 4...



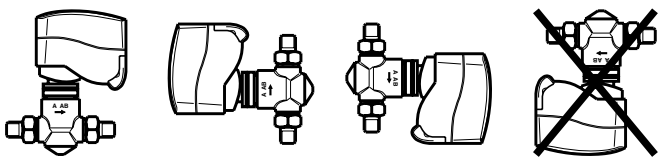
Model	d inches	d1 inches	L mm	L1 mm	h mm	h1 mm	H1 mm	H2 mm
VVZ 209...214	1/2	3/8	65	117		26.5	115	155
VVZ 218 - 219	3/4	1/2	77	132		26.5	115	155
VVZ 309...314	1/2	3/8	65	117	35	61.0	115	155
VVZ 318 - 319	3/4	1/2	77	132	35	62.0	115	155
VVZ 409...414	1/2	3/8	65	117	40	51.5	115	155
VVZ 418 - 419	3/4	1/2	77	132	50	65.0	115	155

7. MOUNTING

Before mounting the valve ensure that there is no extraneous material in the pipework 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 fluid direction embossed on the valve body according to the type of hydraulic circuit controlled. To avoid vibration problems it is preferable always to mount the valve so that water flows out of the AB port (9. EXAMPLES OF PLANTS).

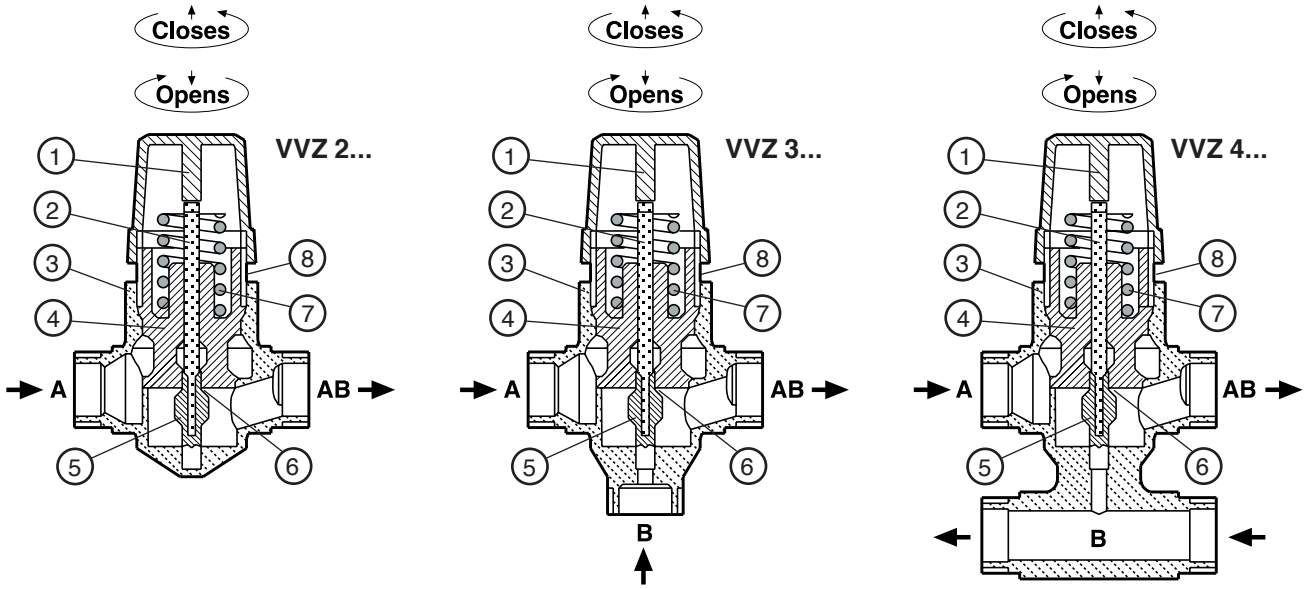


The valve can be installed in any position except that with the spindle pointing downwards.
Leave sufficient space on the spindle side for mounting the actuator (6. OVERALL DIMENSIONS).



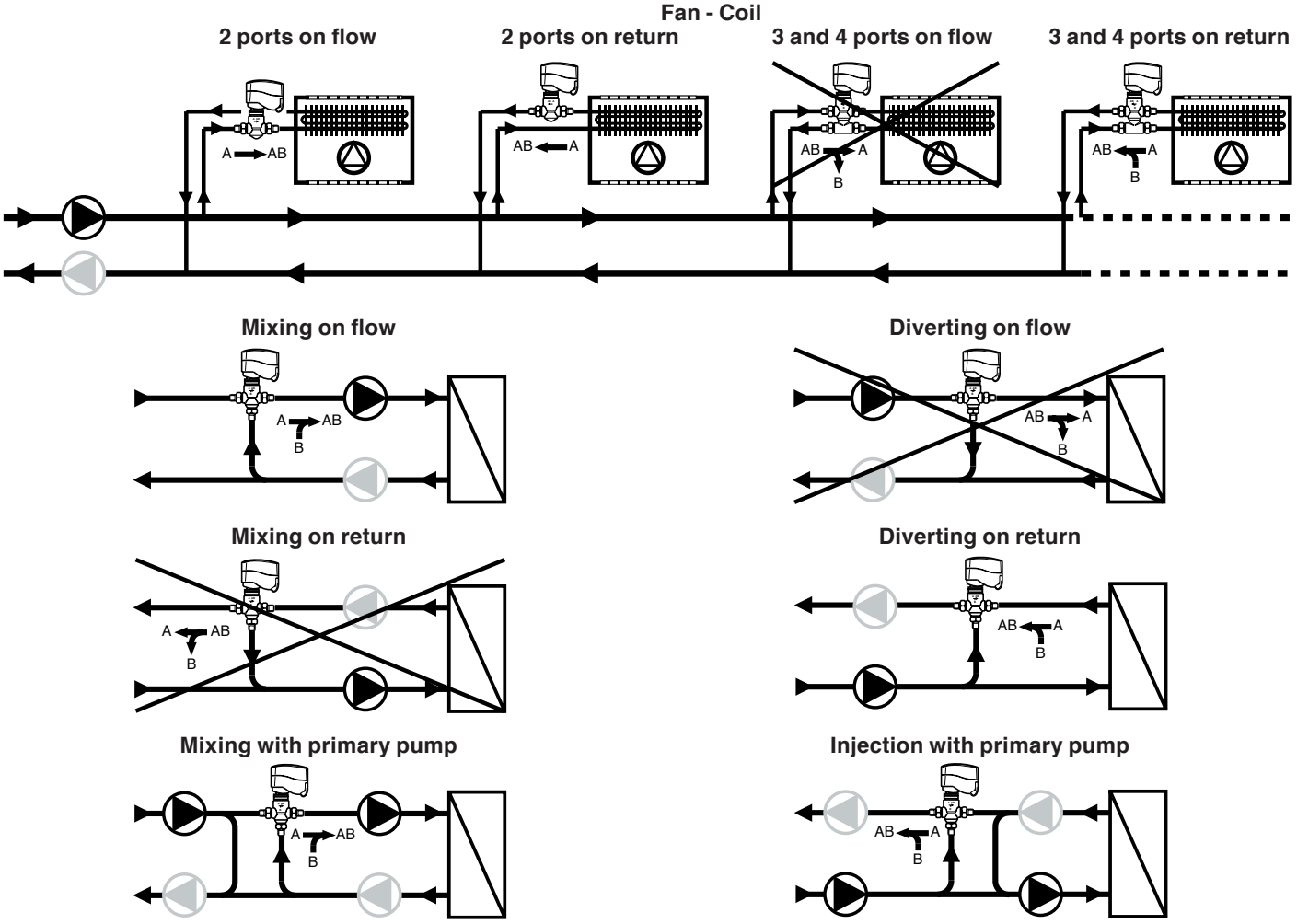
8. CONSTRUCTION

The valve body and the plug are made ofbrass and the spindle of stainless steel. A return spring keyed to the spindle provides for the closure of the plug (spindle up).
Spindle, plug and spring are enclosed in a central body screwed to the external body of the valve.
At the top of the central body is the threading for mounting the hood for the manual operation, or the actuator (CLV…-CEQ U07..). The valves have male threaded unions for use with flat unions.

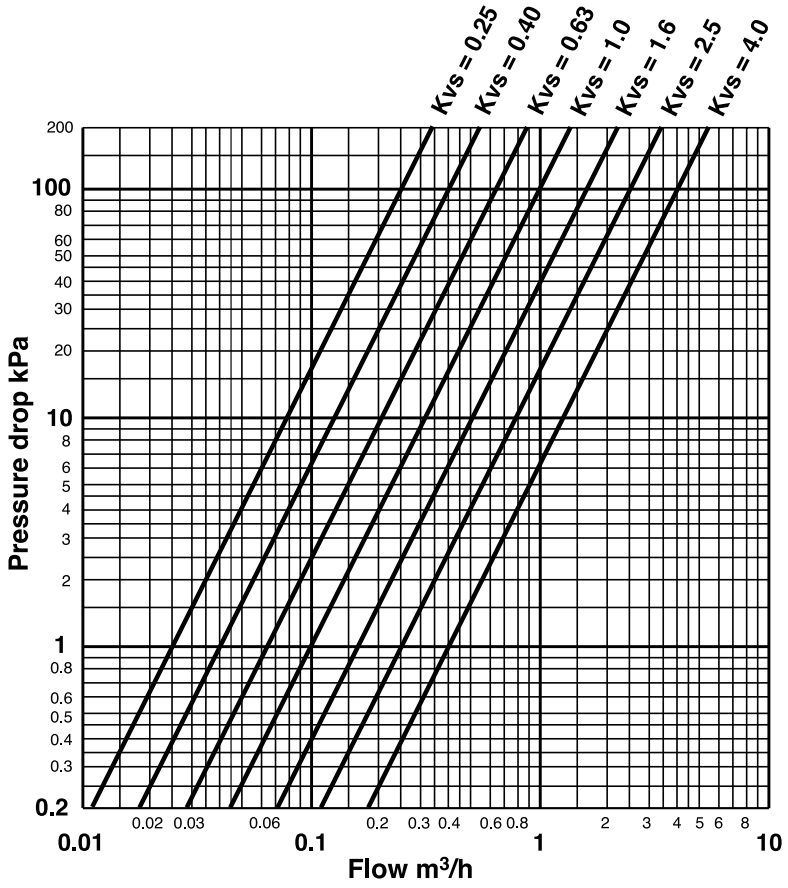


1 – Screwed hood for manual operation
2 – Spindle
3 – External body of valve
4 – Central body
5 – Seat
6 – Spring return closure
7 – Spring return closure
8 – Threading for attaching actuator

9. EXAMPLES OF PLANTS



10. PRESSURE DROP



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