

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

VRS 3.. Eng.



- Rg5 bronze body; brass plug; stainless steel spindle
- Connections including female screwed unions ISO 228/1

1. APPLICATION

VRS 3.. bronze valves are designed for controlling hot or chilled water flow in heating and air-conditioning plants. Permitted fluids: - Hot or superheated water max. 120°C; - Chilled water min. 2°C (glycol max. 50%). Operated by linear actuators type: CLV ..., CLQ 07..., CLQ U 07... (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, diverts the flow between the always-open port (AB: outflowing water) and the two controlled ports (A - B : incoming water). Closure (spindle up) is brought about by a spring keyed to the spindle and opening (spindle down) by the force of the actuator.

3. MODELS

Code	DN body mm.	DN connect. valve male	DN connect. pipes female	Kvs ⁽¹⁾ m ³ /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⁾
VRS 320	20	1"1/4	3/4"	6.3	5.5	1.7	150	1.7	75	1.7	77
VRS 325	25	1"1/2	1"	10	5.5	1.0	150	1.0	75	1.0	77
VRS 331	32	2"	1"1/4	13	5.5	0.7	150	0.7	75	0.7	77
VRS 339	40	2"1/4	1"1/2	16	5.5	0.5	150	0.5	75	0.5	77

4. ACCESSORIES

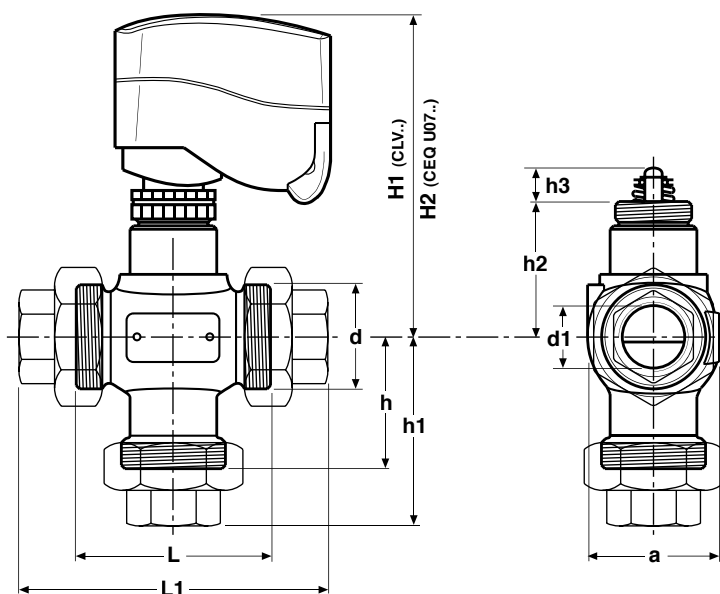
Code	Description	Valves
TVG G20	1"1/4 female plug with gasket for converting from 3 to 2 ports	320
TVG G25	1"1/2 female plug with gasket for converting from 3 to 2 ports	325
TVG G32	2" female plug with gasket for converting from 3 to 2 ports	331
TVG G40	2"1/4 female plug with gasket for converting from 3 to 2 ports	339

- (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 the whole valve run.
 (4) : Actuator with spring return closure.

5. TECHNICAL DATA

Valve body	brass	Control characteristic	linear
Spindle	stainless steel	Control ratio	50:1
Plug	brass	Let by:	
Spindle seals	O-Ring	throughport	≤ 0.05 % Kvs
Nominal pressure	16 bar (1,600 kPa)	by pass	≤ 2 % Kvs
Fluid temperature	2...120 °C	Connections	female screwed unions (ISO 228/1)
Run	5.5 mm		

6. OVERALL DIMENSIONS



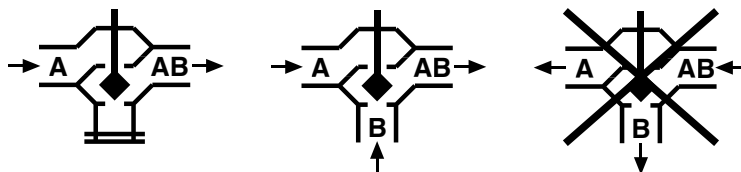
Model	d inches	d1 inches	L mm	L1 mm	h mm	h1 mm	h2 mm	h3 mm	a mm	H1 mm	H2 mm
VRS 320	1"1/4	3/4"	80	128	55	79	57	14.5	55	133	167
VRS 325	1"1/2	1"	95	151	60	88	57	14.5	60	133	167
VRS 331	2"	1"1/4	112	174	66	97	63	14.5	65	139	173
VRS 339	2"1/4	1"1/2	132	198	75	108	68	14.5	71	144	178

7. MOUNTING

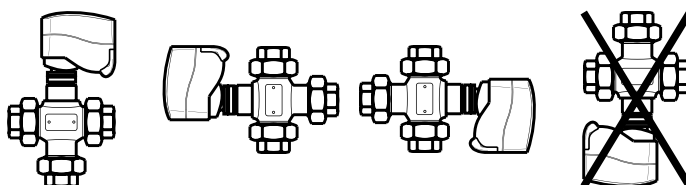
Before mounting the valve ensure that there is no extraneous material in the pipework such as residues from welding or threading.

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 flow 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).

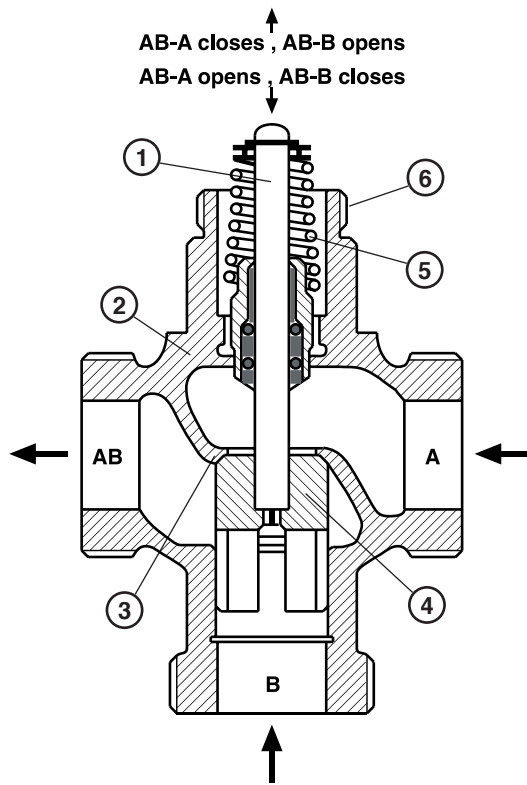


The valve can be installed in any position except that with the spindle pointing downwards. Leave sufficient space on the spindle side for mounting the actuator (6. OVERALL DIMENSIONS).



8. CONSTRUCTION

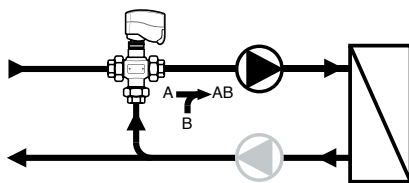
The valve body is made of RG 5 bronze, the spindle of stainless steel and the plug of brass. A return spring keyed to the spindle provides for the closure of the plug (spindle up). The spindle is sealed hydraulically by two O-Rings inserted between Teflon scraper rings. The top of the valve body is threaded for mounting the actuator (CLV... - CEQ U07..). The valves are supplied with female screwed unions with seals.



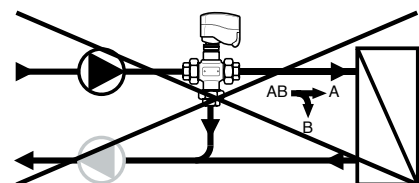
- 1 – Spindle
- 2 – Valve body
- 3 – Seat
- 4 – Plug
- 5 – Spring return closure
- 6 – Threading for coupling to actuator
- AB – Port always open
- A – Throughport
- B – By pass

9. EXAMPLES OF PLANTS

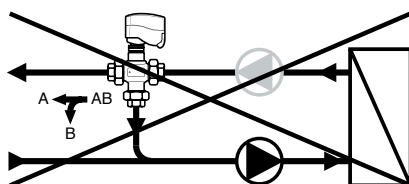
Mixing on flow



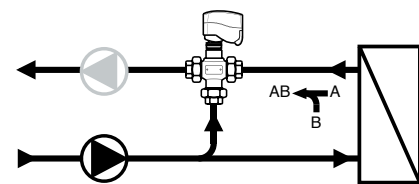
Diverting on flow



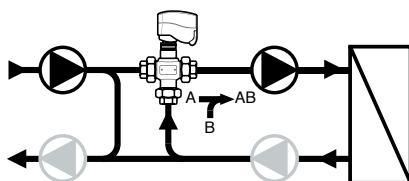
Mixing on return



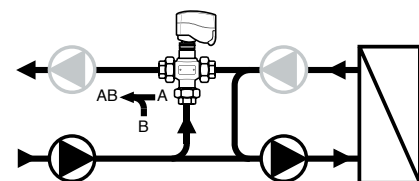
Diverting on return



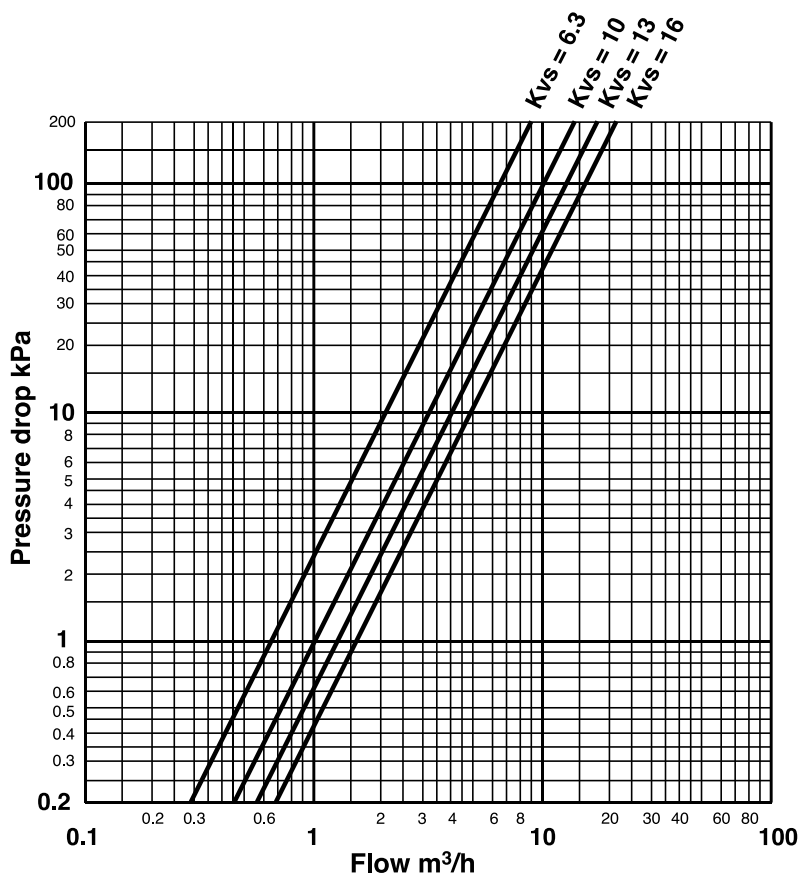
Mixing with primary pump



Injection with primary pump



10. PRESSURE DROP



Kvs = Flow coefficient : Flow in m³/h with valve open and pressure drop of 100 kPa.
 100 kPa = 10 mWG = 1 bar

LB 21.01.03 Rev. : LB 25.03.03; LB 04.05.04



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