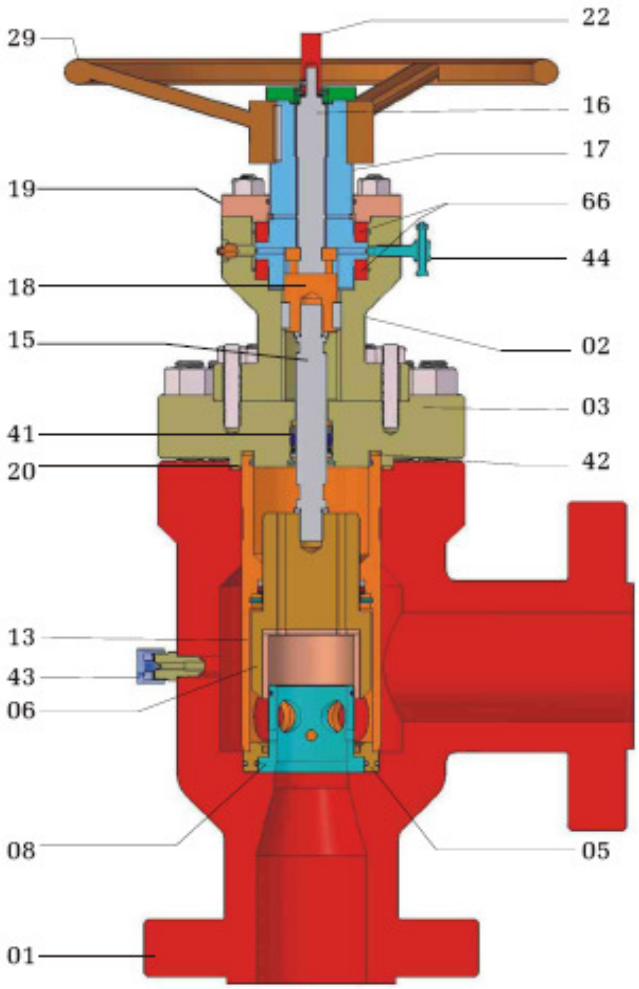
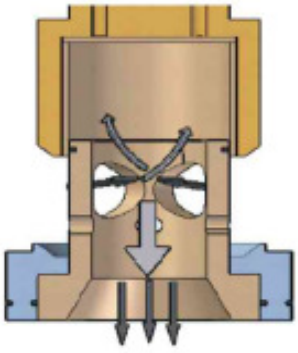


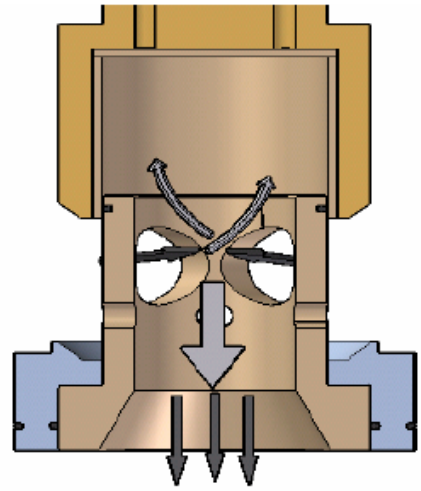
01. Body
02. Upper Bonnet
03. Lower Bonnet
05. Seat Assembly
06. External Sleeve Assembly
08. Flow Cage Assembly
13. Pressure Balance Sleeve
15. Valve Stem
16. Driving Stem
17. Stem Driving Bush
18. Stem Coupling
19. Bearing Cover
20. Body Bonnet Gasket
22. Micrometer Indicator
29. Handwheel
41. Stem Packing Assembly
42. Crush Ring
43. Body Bleed Nipple
44. Stem Lock Assembly
66. Cylindrical Roller Thrust Bearings



The external sleeve type trim uses a flow sleeve moving over the outside of a ported cage to control flow. A metal to metal (optionally tungsten carbide) seat design on the outside of the flow sleeve and out of the high velocity flow assures positive shut off and an extended seat life. The controlling element (flow sleeve) moves in a lower velocity regime and leads to the high erosion resistance of this trim design. Applications of these chokes include high-pressure drops and fluids with entrained solids such as formation sands. This trim is normally supplied in tungsten carbide. 4x4 trim gives a modified equal percentage characteristic.

Note: This is for understanding only. Please refer to JVS for detailed design & technical information.

4x4 CONTROL CHOKE TRIM



Flow is directed through ports into the centre of the trim where it impinges on flow from the opposite port.

4 diametrically opposed ports can provide the highest wear resistance in a 'cage' type flow trim.

4 small ports in the lower section provide fine control at low openings while 4 larger ports provide capacity for higher flows.

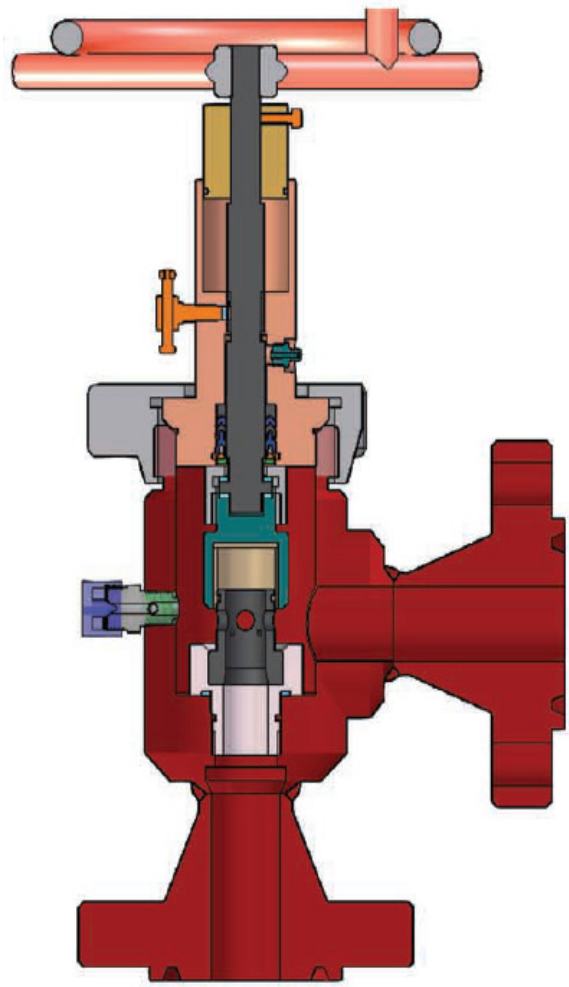
4 Port flow geometry provides a balanced flow pattern, which starts as an equal percent type characteristic and moves towards linear. Flow rate is adjusted by the use of a sleeve moving outside the flow cage for External Sleeve' type of valve.

Accurate 'micrometer' style position indicator
(Manual valves 3" and above)

Spring energized lip seals with scrapers and bearings used for dynamic seals enhance reliability of stem packing and pressure balance sealing.

Stem lock allows valve to be 'locked' in any position.

Note: This is for understanding only. Please refer to JVS for detailed design & technical information.

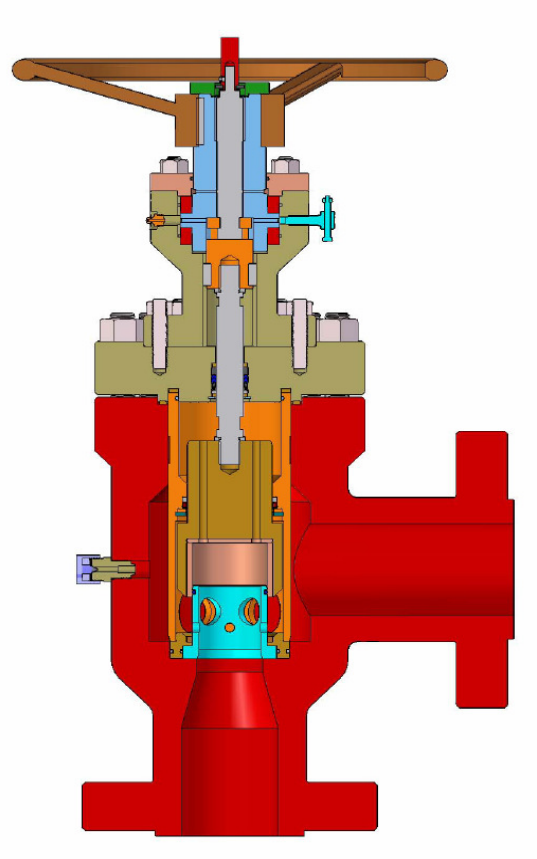


Model VES20 2" nominal with External Sleeve Trim

Features

- Forged or cast body construction.
- Body materials from carbon steel, stainless steel, duplex stainless steel and corrosion resistant alloy.
- Pressure rating: 2K, 3K, 5K, 10K and ANSI classes up to 4500.
- Metal to metal shut off in accordance with ANSI class VI & V.
- Bonnet may be hammer union or bolted type.
- Barrel Indicator calibrated in 1/64" 'Bean Size'.
- Standard trim, 64/64" with MEP flow profile.
- Optional in-line body.
- Various Inlet & Outlet distances can be kept as per client requirement.

Note: This is for understanding only. Please refer to JVS for detailed design & technical information.



Model V ES40 4" nominal with External Sleeve Trim

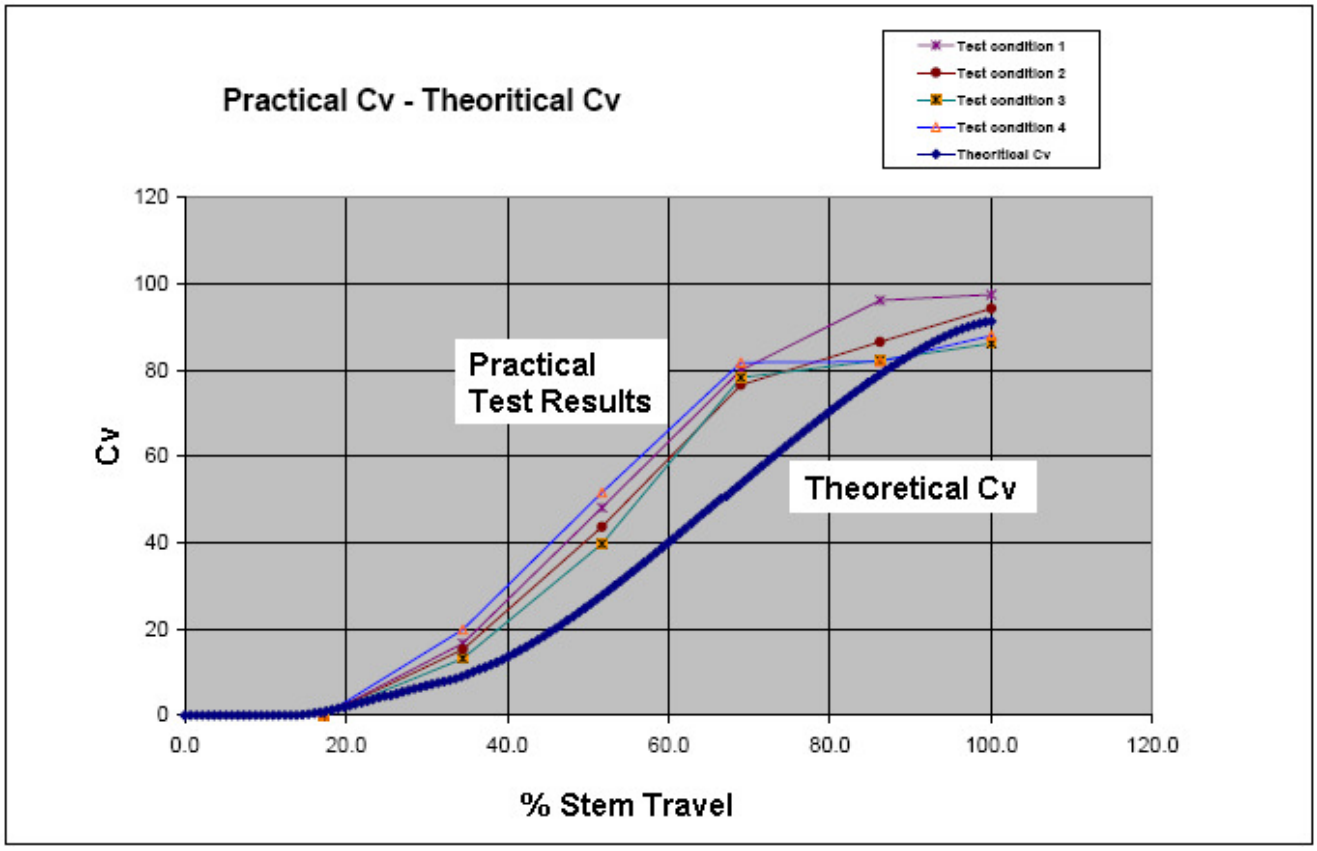
Features

- Forged or cast body construction.
- Body materials from carbon steel, stainless steels, duplex stainless steels and corrosion resistant alloys.
- Pressure rating: 2K, 3K, 5K, 10K and ANSI pressure classes up to 4500.
- Enlarged body gallery maximizes flow capacity and minimizes body & outlet erosion.
- Bolted bonnet enhances safety.
- Accurate 'micrometer' style position indicator.
- Linear non-rotating stem movement optimizes stem packing life.
- Shut off to ANSI Class IV, V (and Class VI).
- Cartridge style trim installation uses no internal threads or special tools – ease of field maintenance.
- Pressure balancing plug design reduces operating torque.
- Range of actuators and mounting kits for ease of automation.
- Spring energized lip seals with scrapers and bearings used for dynamic seals enhance reliability of stem packing and pressure balance sealing.
- Various Inlet & Outlet distances can be kept as per client requirement.

Note: This is for understanding only. Please refer to JVS for detailed design & technical information.

Standard end connection/Trim sizing

Nominal body size	Standard connection sizes	External Sleeve trim	
		Bean size	Cv
2"	API 2.1/16", 2.9/16" & ANSI 2", 3"	32/64"	5
2"	API 2.1/16", 2.9/16" & ANSI 2", 3"	64/64"	20
2.5"	API 2.1/16", 2.9/16" , 3.1/8", 4.1/16" & ANSI 2", 3", 4"	96/64"	45
3"	API 3.1/8", 4.1/16" , 5.1/8" , 7.1/16" & ANSI 3", 4", 6"	128/64"	45
4"	API 4.1/16" , 5.1/8" , 7.1/16" & ANSI 4", 6"	164/64"	160
5"	API 5.1/8" , 7.1/16" & ANSI 6", 8"	220/64"	210



Note: This is for understanding only. Please refer to JVS for detailed design & technical information.