

### Control Valve Seat Leakage Classification (ANSI/FCI 70-2-2006)

Leakage Class	Max. Seat Leakage	Test Medium	Test Pressures
I	#	#	None
II	0.5% of rated capacity	Air or water at 10-51 °C (50-125 °F)	3-4 bar (45-60 psig) or within +/- 5% of the maximum operating differential pressure, whichever is lower
III	0.1% of rated capacity	Air or water at 10-51 °C (50-125 °F)	3-4 bar (45-60 psig) or within ±5% of the maximum operating differential pressure, whichever is lower
IV	0.01% of rated capacity	Air or water at 10-51 °C (50-125 °F)	3-4 bar (45-60 psig) or within ±5% of the maximum operating differential pressure, whichever is lower
V	5x10 <sup>-4</sup> ml per minute of water per inch of seat diameter per psi differential	Clean Water at 10-52 °C (50-125 °F)	Within ± 5% maximum service pressure drop across the valve plug, not exceeding the maximum operating pressure at room temperature as determinate by ANSI B16.1, B16.5 or B16.34 or some lesser pressure by individual agreement.
	5x10 <sup>-12</sup> m <sup>3</sup> per second of water per mm of seat diameter per bar differential	Clean Water at 10-52 °C (50-125 °F)	Within ± 5% maximum service pressure drop across the valve plug, not exceeding the maximum operating pressure at room temperature as determinate by ANSI B16.1, B16.5 or B16.34 or some lesser pressure by individual agreement.
	4.7 standard ml per minute of air per inch of orifice diameter	Air or Nitrogen at 10-52 °C (50-125 °F)	Inlet pressure of test medium shall be 3.5 barg (50 psi). Leakage flow and pressure data shall be accurate to ± 10% of reading.
	11.1x10 <sup>-6</sup> standard m <sup>3</sup> per hour of air per mm of orifice diameter	Air or Nitrogen at 10-52 °C (50-125 °F)	Inlet pressure of test medium shall be 3.5 barg (50 psi). Leakage flow and pressure data shall be accurate to ± 10% of reading.
VI	The leak rate shall not exceed the values in Table 2	Air or Nitrogen at 10-52 °C (50-125 °F)	Pressure of the test medium shall be the maximum rated differential pressure across the valve plug or 3.5 bar (50 psig) whichever is the least.

### Class VI Maximum seat Leakage Allowable (ANSI/FCI 70-2-2006)

Nominal Port Diameter and Leak Rate		Bubbles per Minute*		
Millimeters	Inches	ml per minute	Bubbles per minute	
≤ 25	≤ 1	0.15	1**	<p>* Bubbles per minute as tabulated are a suggested alternative based on a suitably calibrated measuring device, in this case, a 6 mm (0.25 in) O.D. x 1 mm (0.032 in) wall tube submerged in water to a depth of 3 to 6 mm (0.125 to 0.25 in).</p> <p>The tube end shall be cut square and smooth with no chamfers of burrs and the tube axis shall be perpendicular to the surface of the water. Other apparatus may be constructed and the number of bubbles per minute may differ from those shown as long as they correctly indicate the flow in ml per minute.</p> <p>** If the valve seat diameter differs by more than 2 mm (0.08 in) from one of the value listed, the leakage rate may be obtained by interpolation assuming that the leakage rate varies as the square of the seat diameter.</p>
38	1.5	0.30	2	
51	2	0.45	3	
64	2.5	0.60	4	
76	3	0.90	6	
102	4	1.70	11	
152	6	4.00	27	
203	8	6.75	45	
250	10	11.1	-	
300	12	16.0	-	
350	14	21.6	-	
400	16	28.4	-	