

## Hydrostatic & Pneumatic Test Pressures

### ANIS or ASME Valves:-

ASME Class	Hydrostatic Test Pressure in kg/cm <sup>2</sup> ( psig)			Pneumatic ( Air) Test Pressure in kg/cm <sup>2</sup> ( psig)
	Shell	Seat Test	Backseat Test	
150	32 ( 450 )	22 ( 315 )	22 ( 315 )	7 ( 100 )
300	79 ( 1125 )	57 ( 815 )	57 ( 815 )	7 ( 100 )
600	156 ( 2225 )	115 ( 1630 )	115 ( 1630 )	7 ( 100 )
800	210 ( 2987 )	155 ( 2205 )	155 ( 2205 )	7 ( 100 )
900	236 ( 3350 )	172 ( 2445 )	172 ( 2445 )	7 ( 100 )
1500	392 ( 5575 )	287 ( 4080 )	287 ( 4080 )	7 ( 100 )
2500	652 ( 9275 )	477 ( 6790 )	477 ( 6790 )	7 ( 100 )

### DIN or PN Rating Valves:-

DIN Rating (PN)	Hydrostatic Test Pressure in bar (psig)			Pneumatic ( Air) Test Pressure in kg/cm <sup>2</sup> ( psig)
	Shell	Seat Test	Backseat Test	
PN 2.5	4 ( 58 )	3 ( 44 )	3 ( 44 )	7 ( 100 )
PN 6	10 ( 145 )	7 ( 101 )	7 ( 101 )	7 ( 100 )
PN 10	15 ( 218 )	11 ( 160 )	11 ( 160 )	7 ( 100 )
PN 16	24 ( 348 )	18 ( 261 )	18 ( 261 )	7 ( 100 )
PN 25	39 ( 567 )	28 ( 406 )	28 ( 406 )	7 ( 100 )
PN 40	60 ( 780 )	44 ( 638 )	44 ( 638 )	7 ( 100 )
PN 63	96 ( 1392 )	71 ( 1030 )	71 ( 1030 )	7 ( 100 )
PN 100	150 ( 2176 )	110 ( 1595 )	110 ( 1595 )	7 ( 100 )
PN 160	240 ( 3481 )	176 ( 2553 )	176 ( 2553 )	7 ( 100 )
PN 250	375 ( 5439 )	275 ( 3989 )	275 ( 3989 )	7 ( 100 )
PN 320	480 ( 6962 )	352 ( 5105 )	352 ( 5105 )	7 ( 100 )
PN 400	600 ( 8702 )	440 ( 6382 )	440 ( 6382 )	7 ( 100 )

## Seat & Closure Test in common Test Standards

Testing Stds.	Test Medium	Duration	Test Pressure	Leakage Rate
API 6D	Water <sup>1</sup>	2-10 minutes base on valve size	1.1x ASME B16.34 Pressure Rating <sup>2</sup>	Soft Seated – ISO 5208 Rate A <sup>3</sup> Metal Seated- ISO 5208 Rate D <sup>4</sup>
API 589	Water/ Air / Gas <sup>5</sup>	15 to 120 sec. based on valve size	Low & high pressure closure based on the valve size & rating <sup>5</sup>	Soft Seated – Zero Leakage Metal Seated – 0- 96 drops/min. for liquid & 0 – 192 bubbles/min. for gas, test based on valve size <sup>4</sup>
ISO 5208	Water/ Air / Gas <sup>6</sup>	1 to 2 min. based on valve size.	Low & high pressure closure based on the valve size & rating <sup>6</sup>	No Defined Criterion <sup>7</sup>

### Note:-

- 1- High pressure gas seat testing as per Annex-H/ Supplementary test requirements. Gas tastings should be considered for high pressure pipeline valves or valves carrying flammable service like LNG. Leakage rates for gas testing shall be discussed with vendor.
- 2- Reduced test pressure = 1.1 X design pressure can be used for valve testing after agreement with customer or purchaser.
- 3- There are disagreements among the high performance butterfly valve supplier to classified laminated seat ring as soft or metal seat with customer or purchaser.
- 4- Some metal seated valves like torque seated expanding gate valve, fine machined or lapped ball valves or lubricated pressure balanced plug valves can meet the requirements of leakage rates for soft seated valves.
- 5- API 589 – Table 1 & 2, a low pressure closure test means that seats will be tested with air or inert gas at 4- 7 barg of pressure where as high pressure closure means that seats will be tested with air or inert gas or liquid at 1.1 x pressure rating of the valve.
- 6- ISO 5208, Table -1, low pressure closure test means that seats will be tested with air or gas with 4-7 barg of pressure where as high pressure closures means that seats will be tested with liquid at 1.1 x pressure rating of the valve.
- 7- The valve specification engineer has the responsibility to define the required leakage rates. Generally valve supplier can achieve leakage rates A/AA for soft seated valves and leakage rated D for metal seated valves. ISO 5208, Table – 4 should be referred to for available leakage rates.