Pressure – Temperature Ratings

- Ratings apply to all products covered by ANSI B16.5 valves conforming to the requirements of this standard must, in other respects, merit these ratings.
- All ratings are maximum allowable non-shock pressures (PSIG) at the tabulated temperatures (degree Fahrenheit). Temperatures are those on the inside of the pressure retaining structure.
- The use of these ratings requires gaskets conforming to the requirements of ANSI B16.5. The user is responsible for selecting gaskets of dimensions and materials to withstand the required bolt loading without injurious crushing, and suitable for the service conditions in all other respects.

Pressure Class	150	300
Test Pressure	425	1100
Service Temperature °F	Working Pressure	
-20 to 100	275	720
150	255	710
200	240	700
250	225	690
300	210	680
350	195	675
400	180	665
450	165	650
500	150	625
550	140	590
600	130	555
650	120	515
700	110	470
750	100	425

Air Velocity in a Pipe

Using the equation and typical values of V, D, and L explained to the right approximate values of P are computed as follows:

Velocity Ft / Sec	Pipe Diameter in Inches, 10' long				
	1	2	4	6	10
1	.0004	.0002	.0001	.00007	.00004
2	.0016	.0008	.0004	.00030	.00016
5	.0100	.0050	.0025	.00170	.0010
10	.0400	.0200	.0100	.00670	.0040
15	.0900	.0450	.0225	.01500	.0090
20	.1600	0080	.0400	.02700	.0160
25	.2500	.1250	.0625	.04170	.0250
30	.3600	.1800	.0900	.06000	.0360

$$V = \sqrt{\frac{25{,}000\ DP}{L}}$$

V = air velocity in feet per second
D = pipe inside diameter in inches
L = length of pipe in feet
P = pressure loss due to air friction in ounces/square inch

Air Volume Discharged from Pipe

CFM = air volume in cubic feet per minute
V = air velocity in feet per second as determined in the equation at the top of this page
A = cross section area of pipe in square feet

$$CFM = 60VA$$

Boyle's Law

If temperature is kept constant, the volume of a given mass of gas is inversely proportional to the pressure which is exerted upon it.

$$\frac{\text{Initial Pressure}}{\text{Final Pressure}} = \frac{\text{Final Volume}}{\text{Initial Volume}}$$

V