

# PL Series, Pressure Air Release Valves, Sizes 1"-6", AWWA C512, NSF 61 & 372

## PRESSURE AIR RELEASE VALVE SIZING

The sizing of a pressure air release valve is primarily a judgmental selection based upon experience and a knowledge of air discharge rates that can be expected under certain field parameters.

As a rule of thumb, the following percentages of flow volume may be considered the expected air accumulation rate for sizing a pressure air release valve:

0-999 gpm	÷	7.48 gallons/cubic feet X 6%=SCFM
1000-1999 gpm	÷	7.48 gallons/cubic feet X 5%=SCFM
2000-4999 gpm	÷	7.48 gallons/cubic feet X 2%=SCFM
5000-49999 gpm	÷	7.48 gallons/cubic feet X 1.5%=SCFM
50000 gpm and greater	÷	7.48 gallons/cubic feet X 1.2%=SCFM

Required orifice size is determined from the capacity chart at the operating pressure and anticipated air volume accumulation rate.

Once the orifice size has been determined, the appropriate valve should be selected from the table according to orifice size and operating pressure. For orifice sizes less than 1/8", use midget air valves selected according to operational pressures. Higher working pressures than listed may be obtained by further reduction of orifice size on special steel valves.

When greater air accumulations are expected or field conditions so dictate, larger valve body sizes should be used. Valves may be grouped in clusters to accommodate excessive air discharge requirement at high pressures.

Model Selection Chart						
(Maximum Operating Pressure in PSI)						
Valve Size	Max 50	Max 100	Max 150	Max 200	Max 250	Max 300
Midget	1/8"	1/16"	1/16"	3/64"	1/32"	1/32"
1"	5/16"	5/16"	1/4"	3/16"	5/32"	1/8"
2"	3/8"	3/8"	5/16"	1/4"	3/16"	5/32"
2 1/2"	5/8"	1/2"	7/16"	3/8"	9/32"	1/4"
3"	3/4"	5/8"	1/2"	7/16"	5/16"	9/32"
4"	1"	3/4"	5/8"	1/2"	7/16"	3/8"

Discharge Capacity in SCFM									
(Orifice Size in Inches)									
Operating Pressure (PSIG)	1/32	3/64	1/16	5/64	3/32	7/64	1/8	9/64	5/32
50	.6	1.3	2.4	3.7	5.3	7.3	9.6	12.1	14.9
100	1.1	2.4	4.2	6.6	9.5	12.9	16.9	21.3	26.3
150	1.5	3.4	6.1	9.6	13.8	18.6	24.4	30.8	37.9
200	2	4.5	8.1	12.4	17.9	24.4	31.9	40.3	49.5
250	2.5	5.5	9.9	15.3	22.1	30	39.2	49.5	61.1
300	3.2	7.1	11.8	18.4	26.4	35.8	46.7	58.9	73

Pressure Sewer Valve Orifice Data Chart	
Orifice Diameter	Maximum Working Pressure
1/2"	150lbs
7/16"	200 lbs
3/8"	250 lbs
1/4"	300 lbs

Discharge Capacity in SCFM									
(Orifice Size in Inches)									
Operating Pressure (PSIG)	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1
50	21.4	38.1	59	86	117	153	237	343	610
100	37.7	68	105	152	205	270	422	607	1080
150	54.6	98	152	220	298	390	592	855	1520
200	72	127	198	287	390	510	796	1147	2038
250	88	157	244	352	480	627	980	1410	2506
300	105	187	290	420	572	746	1167	1679	2985



<b>PRODUCT LINE</b> PL Series Pressure Air Release Valves, 1"-6"	<b>DATE</b> 9/25/2023	<b>REVISION</b> 0
<b>SHEET</b> PL Series Valve Sizing Instructions	<b>DOC. NO.</b> D-AV-PL-SIZING-r0	