

GAS - Flow Table

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FLOW CUBIC FEET OF GAS PER HOUR SPECIFIC GRAVITY 0.6	PRESSURE DROP																										
	IN INCHES OF WATER (27.7 INCHES = 1 PSI) THRU { V - FULL PORT MAGNATROL OR GLOBE VALVE PIPE - PER LENGTH AS INDICATED																										
	3/8"			1/2"			3/4"			1"			1-1/4"		1-1/2"		2"		2-1/2"		3"						
	V	PIPE		V	PIPE		V	PIPE		V	PIPE		V	PIPE		V	PIPE		V	PIPE		V	PIPE				
25'		50'	25'		50'	25'		50'	25'		50'	50'		100'	50'		100'	50'		100'	100'		200'	100'	200'		
25	.06	.10	.20																								
35	.12	.20	.40	.06	.05	.09																					
50	.26	.40	.80	.10	.10	.21																					
75	.53	.85	1.8	.23	.23	.46	.06	.05	.09																		
100	.93	1.5	3.1	.40	.39	.80	.09	.09	.17																		
150	2.0	2.9	6.5	.90	.85	1.8	.20	.19	.37	.06	.05	.11															
200	3.5	4.6	11	1.6	1.5	3.2	.35	.33	.66	.11	.09	.19	.05	.05	.09												
300	7.3	8.2	20	3.4	2.9	6.8	.78	.71	1.5	.24	.21	.42	.10	.11	.22	.06	.05	.09									
400	12	12	31	5.7	4.6	12	1.3	1.2	2.6	.44	.35	.70	.18	.19	.38	.10	.08	.17									
600	22	20	52	12	8.2	23	3.0	2.5	5.7	.97	.79	1.7	.41	.42	.84	.22	.19	.38	.08	.05	.09						
800	33	28	75	18	12	37	5.1	3.9	9.7	1.7	1.1	2.9	.72	.70	1.4	.39	.32	.65	.14	.08	.17	.07	.07	.13			
1,000	46	37	128	25	16	51	7.4	5.5	14	2.7	2.0	4.6	1.1	1.1	2.3	.62	.51	1.0	.21	.13	.26	.11	.10	.21	.06	.05	.09
1,500	76	57	204	44	26	90	14	9.8	28	5.5	3.8	9.7	2.4	2.4	5.0	1.4	1.1	2.3	.47	.29	.59	.24	.24	.48	.11	.08	.16
2,000	-	-	-	63	37	128	23	14	43	9.1	6.0	16	4.1	4.0	8.6	2.4	1.9	4.0	.84	.51	1.0	.44	.41	.83	.26	.15	.29
3,000	-	-	-	103	57	208	40	23	78	17	10	31	8.6	7.6	18	5.1	4.0	8.6	1.7	1.1	2.3	.97	.92	1.8	.44	.33	.66
4,000	-	-	-	-	-	-	58	32	113	27	15	48	14	12	28	8.3	6.5	14	3.2	1.9	4.0	1.7	1.6	3.2	.77	.58	1.2
6,000	-	-	-	-	-	-	95	50	180	47	25	85	26	21	52	16	12	28	6.7	4.0	8.6	3.6	3.5	7.2	1.7	1.3	2.5
8,000	-	-	-	-	-	-	-	-	-	67	34	122	38	30	78	25	18	44	11	6.5	14	6.0	5.9	12	2.9	2.2	4.6
10,000	-	-	-	-	-	-	-	-	-	88	44	158	51	40	104	34	24	61	15	9.2	22	9.1	8.6	19	4.4	3.4	7.1
15,000	-	-	-	-	-	-	-	-	-	-	-	-	85	64	173	58	40	104	28	16	40	17	17	39	9.1	7.1	15
20,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	56	150	42	24	61	27	26	62	15	12	26
30,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	40	104	47	45	112	27	22	51
40,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	99	50	149	67	65	166	40	33	80
60,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	108	108	308	67	57	142
80,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	96	80	208

PROBLEM: Gas is required at the rate of 1,500 cubic feet per hour. Pressure at the gas mains is not less than 3-1/2 inches of water column. Pressure at the burner should be not less than 2 inches. Layout requires one Magnatrol On-and-Off control valve, one safety shut-off valve, 80 feet of piping, plus miscellaneous fittings such as elbows and tees.

SOLUTION: Glancing from left to right along 1,500 cu. ft. line, the first likely reading is that of the 2-inch size. Drop for the valves is 0.47 inches each. The miscellaneous fittings can be assumed to have a resistance equal to 20 feet of pipe, this together with the 80 feet of pipe is the equivalent of 100 feet of pipe, which in the table is shown as having a drop of 0.59 inches; a total of 1.53 inches for the entire layout. Pressure at the burner would be indicated as being just less than 2 inches. If a better safety margin is desired, the 2-1/2 inch pipe size should be selected.

PROBLEM: Same as layout above, except gas consumption is at the rate of 350 cubic feet per hour.

SOLUTION: 30 cu. ft. being half-way between 300 and 400, the 1-1/4 inch size shows an in-between reading of 0.14 inches drop per valve and 0.3 for the pipe and fittings; a total drop of 0.58 inches, giving an indicated pressure of 2.9 at the burner.