

9/16/2011		Gas Performance Data																						
PT2-75-G-2011		1	2	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
% Burner output		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%		
1	Heat input	MMBtu/hr	7.50	10.88	14.25	17.63	21.00	24.38	27.75	31.13	34.50	37.88	41.25	44.63	48.00	51.38	54.75	58.13	61.50	64.88	68.25	71.63	75.00	
2		KW	2,198	3,187	4,176	5,165	6,154	7,144	8,133	9,122	10,111	11,100	12,089	13,078	14,067	15,057	16,046	17,035	18,024	19,013	20,002	20,991	21,980	
3	Gas Flow	SCFH	7,500	10,875	14,250	17,625	21,000	24,375	27,750	31,125	34,500	37,875	41,250	44,625	48,000	51,375	54,750	58,125	61,500	64,875	68,250	71,625	75,000	
4		M ³	212	308	404	499	595	690	786	881	977	1,073	1,168	1,264	1,359	1,455	1,550	1,646	1,741	1,837	1,933	2,028	2,124	
5	Gas Pressure at Train Inlet	PSI	3.77	3.79	3.80	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.60	3.70	3.68	3.69	3.63
6		kPa	26.0	26.1	26.2	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	24.8	25.5	25.5	25.5	24.8	25.4	25.4	25.4	25.0
7	Gas Manifold Pressure	"w.c."	1.4	2.2	2.4	3.2	4.7	5.3	6.8	8.6	10.4	13.3	14.8	16.4	20.7	22.7	25.0	28.8	32.0	35.0	40.3	44.0	48.0	
8		Pa	349	548	598	797	1171	1320	1694	2142	2590	3313	3686	4085	5156	5654	6227	7174	7971	8718	10038	10960	11956	
9	Gas Valve Position		11.1	14.6	15.1	17.5	20.9	22.1	25.0	28.1	31.1	36.0	38.0	39.6	44.1	46.1	47.6	51.1	54.0	57.1	64.1	71.1	100.0	
10	Blower Output	%	0.0	10.0	16.0	18.9	21.0	23.0	28.0	34.9	36.0	42.0	44.0	51.5	57.7	62.0	69.0	73.0	79.0	83.0	89.0	95.0	100.0	
11	Blower Speed	Hz	8.3	12.3	14.7	15.8	16.7	17.4	19.4	22.1	22.5	24.8	25.6	28.5	30.8	32.6	35.3	36.9	39.2	40.7	43.1	45.4	47.4	
12	Blower Body Pressure	"w.c."	0.50	0.90	1.20	1.30	1.50	1.60	2.10	2.50	2.60	3.10	3.40	4.20	4.80	5.40	6.30	6.90	7.80	8.40	9.50	10.40	11.30	
13		Pa	125	224	299	324	374	399	523	623	648	772	847	1046	1196	1345	1569	1719	1943	2092	2366	2590	2815	
14	Combustion Air Motor Power	HP	0.5	0.6	1.4	1.5	1.6	2.0	3.0	4.1	4.2	5.7	6.3	8.5	11.4	12.9	16.3	18.4	21.5	25.2	31.0	36.7	39.1	
15		KW	0.4	0.5	1.0	1.1	1.2	1.5	2.2	3.1	3.1	4.3	4.7	6.3	8.5	9.6	12.2	13.7	16.0	18.8	23.1	27.4	29.2	
16	Combustion Air Motor Current	Amp.	24.6	12.5	13.7	15.3	16.0	17.1	19.3	21.0	22.0	23.5	25.0	27.4	30.9	32.2	36.3	38.9	41.9	44.4	46.9	50.9	52.9	
17	Gas Orifice Differential Pressure	"w.c."	0.17	0.20	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.20	1.40	1.50	1.90	2.10	2.30	2.70	2.90	3.20	3.70	3.90	4.50	
18		Pa	42.34	49.82	49.82	74.72	99.63	124.54	149.45	199.27	249.08	298.90	348.71	373.62	473.26	523.07	572.89	672.52	722.34	797.06	921.60	971.42	1120.87	
19	Main Air Flow	SCFH	240,000	265,797	291,594	317,391	343,188	368,985	394,782	420,579	446,376	472,173	497,970	538,713	579,456	620,199	660,942	701,685	742,428	783,171	823,914	864,657	905,400	
20		M ³	6,796	7,527	8,257	8,988	9,718	10,448	11,179	11,909	12,640	13,370	14,101	15,255	16,408	17,562	18,716	19,870	21,023	22,177	23,331	24,484	25,638	
21	Excess air	%	218%	143%	103%	79%	62%	50%	41%	34%	29%	24%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	
22	Flame Length	Feet	2	2	2.5	2.5	2	2	2.5	2.5	2.5	3	3	3.5	3.5	4	4	4	4	4	4	4	4	
23	Flame Diameter	Feet	2	3	3	3	3	3	3.5	3.5	3.5	4	4	4	4	4	4	4.5	4.5	4.5	4.5	4.5	4.5	

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Combustion Air VFD Setup			Limit Switch Setup		
Min Ref	Hz	8.3	Blower Proof of Running	-20	in H ₂ O
Max Ref	Hz	47.4	Blower Proof of High Fire	6.9	in H ₂ O
Ramp Up Time	Sec	40	Blower Proof of Low Fire	0.5	in H ₂ O
Ramp Down Time	Sec	40	Low Gas Pressure	1.5	psi
Nominal Motor Speed	rpm	1780	High Gas Pressure	10	psi
Motor Current	A	47.5	Pilot Low Gas Pressure	n/a	PSI
Motor Frequency	Hz	60			
Motor Voltage	V	480			
Motor Power	kW	22.8			

Use Chart 1 below to match the natural gas flow to the blower body pressure. Chart 1 shows the relationship between the gas manifold pressure and the appropriate blower body pressure. Chart 2 shows the relationship between the differential pressure as measured across the gas orifice plate with gas flow. Increase or decrease the fan speed or the gas control valve setting in the burner profile as needed to match the values. Please note that in premix burners gas and air compete for space inside the burner. That means that a change in the pressure or flow of either gas or air will effect the other. You will usually have to adjust both fuel and air to get the the desired pressures.

