

1/24/2007		Gas Performance Data																						
PT-150-G		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
% 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	Btu/hr	10,900,000	16,500,000	24,315,789	32,131,579	39,947,368	47,763,158	55,578,947	63,394,737	71,210,526	79,026,316	86,842,105	94,657,895	102,473,684	110,289,474	118,105,263	125,921,053	133,736,842	141,552,632	149,368,421	157,184,211	165,000,000	1
2	Gas Flow	SCFH	10,900	16,500	24,316	32,132	39,947	47,763	55,579	63,395	71,211	79,026	86,842	94,658	102,474	110,289	118,105	125,921	133,737	141,553	149,368	157,184	165,000	2
3	Gas Mod. valve position	%	0.0	4.0	8.0	10.5	13.0	15.5	18.0	20.5	23.0	25.8	28.5	30.3	32.0	35.5	39.0	40.8	44.0	47.0	53.0	60.0	100.0	3
4	Gas Pressure at Train Inlet	PSI	6.8	6.9	6.8	6.9	6.9	6.8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	7.0	7.0	7.0	6.9	7.1	7.2	7.0	4	
5	Gas Manifold Pressure	"w.c"	0.6	1.0	1.8	2.7	4.1	5.8	7.6	10.1	12.6	16.3	20.0	22.6	25.2	30.5	35.7	39.5	43.3	46.6	53.6	59.2	65.0	5
6	Dp at gas orifice	"w.c"	0.1	0.2	0.5	0.9	1.5	2.0	2.8	3.7	4.5	5.9	7.2	8.4	9.7	11.6	13.6	15.5	17.4	18.6	21.6	23.7	26.2	6
7	Blower Output	%	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0	100.0	7
8	Blower Body Pressure	"w.c"	0.6	0.9	1.1	1.4	1.8	2.2	2.6	3.1	3.6	4.2	4.8	5.5	6.1	6.9	7.7	8.6	9.5	10.4	11.5	12.5	13.7	8
9	Blower Speed	Hz	10.0	12.2	14.4	16.7	18.9	21.1	23.3	25.5	27.7	29.9	32.1	34.3	36.5	38.7	40.9	43.1	45.3	47.5	49.7	51.8	54.0	9
10	Combustion Air Motor Power	HP	1.3	1.8	2.8	3.8	5.4	7.5	9.6	12.9	16.3	21.1	25.8	31.9	38.0	45.5	53.0	62.5	72.0	82.0	95.0	108.0	125.0	10
11	Combustion Air Motor Current	Amp.	31.0	31.0	31.0	32.1	34.8	37.8	41.0	46.5	52.0	58.5	65.0	72.5	80.0	88.5	97.0	105.5	114.0	123.0	132.0	141.0	150.0	11
12	Gas Manifold Pressure - Body Pressure	"w.c"	0.0	0.1	0.7	1.3	2.3	3.6	5.0	7.0	9.0	12.1	15.2	17.1	19.1	23.6	28.0	30.9	33.8	36.2	42.1	46.7	51.3	12
13	Main Air Flow	SCFH	369,000	450,550	532,100	613,650	695,200	776,750	858,300	939,850	1,021,400	1,102,950	1,184,500	1,266,050	1,347,600	1,429,150	1,510,700	1,592,250	1,673,800	1,755,350	1,836,900	1,918,450	2,000,000	13
14	Excess air	%	237%	171%	118%	90%	73%	62%	54%	47%	43%	39%	36%	33%	31%	29%	27%	26%	24%	23%	22%	21%	20%	14
15	Flame Length	Feet	6/0	6/0	6/0	6/0	6/0	6/4	6/8	6/9	6/10	6.5/11.5	7/13	7/12.5	7/12	7/13	7/14	7.5/14.5	8/15	7.75/15	7.5/15	7.75/16.5	8/18	15
16	Flame Diameter	Feet	3	3.5	4	4.0	4	4.3	4.5	4.8	5	5.0	5	5.0	5	5.0	5	5.3	5.5	5.5	5.5	6.0	6	16

Combustion Air VFD Setup			Limit Switch Setup		
Min Ref	Hz	10	Blower Proof of Running	-20	in H ₂ O
Max Ref	Hz	54	Blower Proof of High Fire	10	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		psi
Nominal Motor Speed	rpm	1780	High Gas Pressure	15	psi
Motor Current	A		Pilot Low Gas Pressure	n/a	PSI
Motor Frequency	Hz				
Motor Voltage	V				
Motor Power	kW				

Use either chart 1 or chart 2 below to match the natural gas flow to the blower body pressure. Chart 1 shows the relationship between the differential pressure as measured across the gas orifice plate with the appropriate blower body pressure. Chart 2 shows the relationship between the differential pressure as measured between the difference of the gas manifold on the burner body and the burner body pressure and the appropriate blower body pressure. 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. Chart 3 shows natural gas flow against the difference of the gas manifold pressure and the burner body pressure. The unique geometry of the Phoenix Talon allows the gas to be measured this way, eliminating the need for a traditional orifice plate.

