

4/13/2015		Oil Performance Data																						
PT2-125-O-2015		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	MMBtu/hr	12.8	18.6	24.4	30.2	36.0	41.7	47.5	53.3	59.1	64.9	70.7	76.5	82.3	88.1	93.9	99.7	105.5	111.3	117.1	122.9	128.7	1
2	Oil Flow	GPM	1.5	2.2	2.9	3.5	4.2	4.9	5.6	6.3	6.9	7.6	8.3	9.0	9.7	10.3	11.0	11.7	12.4	13.1	13.7	14.4	15.1	2
3		LPM	5.7	8.3	10.8	13.4	16.0	18.5	21.1	23.7	26.3	28.8	31.4	34.0	36.6	39.1	41.7	44.3	46.9	49.4	52.0	54.6	57.2	3
4	Oil Control Valve Percentage		0.7	9.3	10.9	11.4	11.5	14.7	15.3	16.9	19.5	23.9	25.3	27.2	29.4	33.4	39.9	44.1	50.0	55.5	61.3	76.6	100.0	4
5	Oil Control Valve Position		0.00	0.50	0.75	1.00	1.45	1.50	1.55	1.75	2.00	2.50	2.75	3.00	3.25	3.50	4.25	4.75	5.25	5.75	6.25	7.90	10.75	5
6	Oil Pressure at Train Inlet	PSI	116	116	114	114	112.5	112	112	112	110	108	106	104.5	104	104	102	101	100	98	96	92	90	6
7		kPa	800	800	786	786	776	772	772	772	758	745	731	721	717	717	703	696	689	676	662	634	621	7
8	Oil Pressure at Nozzle	PSI	26	28	30.5	32	34	36.5	38.5	40	42	46	48	50	50.5	52	54.5	56	58	60	62	64	68	8
9		kPa	179	193	210	221	234	252	265	276	290	317	331	345	348	359	376	386	400	414	427	441	469	9
10	Compressed air Pressure	PSI	70.5	70.5	70.5	70.5	70.5	70.5	70.5	72	72	72	72	72	72	72	72	72	72	72	72	72	72	10
11		kPa	486	486	486	486	486	486	486	496	496	496	496	496	496	496	496	496	496	496	496	496	496	11
12	Blower Output	%	25.0	27.0	28.5	29.6	31.7	32.7	34.8	36.9	38.5	40.0	42.0	47.5	53.0	58.0	64.0	69.0	75.0	80.0	88.0	91.0	100.0	12
13	Blower Speed	Hz	17.7	18.5	19.1	19.5	20.2	20.6	21.4	22.2	22.8	23.4	24.1	26.2	28.3	30.2	32.4	34.3	36.6	38.5	41.5	42.6	46.0	13
14	Blower Power	HP	3.86	4.27	4.68	4.89	5.46	5.79	6.36	7.08	7.62	8.24	9.05	11.4	14.3	17.3	21.2	25.1	30.4	35.2	44.1	47.7	60.7	14
15		KW	2.9	3.2	3.5	3.6	4.1	4.3	4.7	5.3	5.7	6.1	6.7	8.5	10.7	12.9	15.8	18.7	22.7	26.2	32.9	35.6	45.3	15
16	Blower Current	A	31	31.9	32.5	32.8	34.1	34.9	36	37.4	38.5	39.5	41	45.5	50.1	54.5	60.2	65.1	71.4	76.2	84.9	88.2	97.3	16
17	Blower Body Pressure	i.w.c.	1.32	1.43	1.52	1.57	1.60	1.70	1.90	2.00	2.10	2.20	2.40	2.90	3.40	3.80	4.50	5.00	5.70	6.40	7.50	7.90	9.30	17
18		Pa	328.79	356.19	378.60	391.06	398.53	423.44	473.26	498.16	523.07	547.98	597.80	722.34	846.88	946.51	1120.87	1245.41	1419.77	1594.12	1868.12	1967.75	2316.46	18
19	Main Air Flow	SCFH	625,000	647,100	669,200	691,300	713,400	735,500	757,600	779,700	801,800	823,900	846,000	910,000	978,000	1,046,000	1,121,000	1,184,000	1,255,000	1,325,000	1,400,000	1,460,000	1,530,000	19
20		M ³	17,698	18,324	18,950	19,575	20,201	20,827	21,453	22,079	22,704	23,330	23,956	25,768	27,694	29,619	31,743	33,527	35,538	37,520	39,644	41,343	43,325	20
21	Flame Diameter	Feet	1.3	1.3	1.3	1.3	1.5	1.5	1.8	2	2	2	2.3	2.5	2.8	2.9	2.9	2.9	3.5	3.5	3.5	4	4.5	21
22	Flame Length	Feet	1.5	1.5	1.8	2.0	2.0	2.2	2.2	2.4	2.5	2.8	3.0	3.3	3.5	3.5	4.0	4.5	5.0	6.0	6.0	8.0	8.0	22
23	Excess air (Calculated)	%	413%	265%	188%	140%	108%	85%	67%	53%	42%	33%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	23

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Combustion Air VFD Setup			Limit Switch Setup			Required Oil Properties			Burner Fuel / Air Profile Setup			
Min Ref	Hz	8.3	Blower Proof of Running	-0.2	in H ₂ O	Viscosity	90 SSU @220 F	SSU	Max	Match oil flow rate (GPM) with blower body pressure. The chart below shows this graphically. To use it, find the fuel flow on the horizontal axis, then move vertically to the curve and then horizontally to the left to find the required blower body pressure. Increase or decrease the fan speed or the fuel flow as needed to match the values. The low fire position for oil should be 0 and the high fire position should be 100. Every other oil position will have to be determined by reading the fuel flow meter. All "light off" positions must be 0. Fine tuning must be done using a flue gas analyzer.		
Max Ref	Hz	46.0	Blower Proof of High Fire	6.25	in H ₂ O	Particulate	0.04	in	Max			
Ramp Up Time	Sec	40	Blower Proof of Low Fire	0.55	in H ₂ O	Sulfur Content	0.5	% (Mass)	Max			
Ramp Down Time	Sec	40	Low Oil Pressure	30	PSI	H ₂ SO ₄	0	PPM	Max			
Nominal Motor Speed	rpm	1780	High Oil Pressure	150	PSI	H ₂ O	5	% (Mass)	Max			
Motor Current	A	115	Pilot Low Fuel Pressure	N/A	PSI	Assumed						
Motor Frequency	Hz	60	Oil Valve Hauck			BTU CONTENT	142000	BTU/gal				
Motor Voltage	V	480				All data collected as the burner firing rate was decreasing.						
Motor Power	kW	74.6										

