

| 11/16/2009 | | Oil Performance Data | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-----------------------------|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| PT-100-O 2009 | | 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 | 8.5 | 13.6 | 18.7 | 23.7 | 28.8 | 33.9 | 38.9 | 44.0 | 49.1 | 54.1 | 59.2 | 64.3 | 69.4 | 74.4 | 79.5 | 84.6 | 89.6 | 94.7 | 99.8 | 104.8 | 109.9 |
| 2 | Oil Flow | GPM | 1 | 1.6 | 2.2 | 2.8 | 3.4 | 4.0 | 4.6 | 5.2 | 5.8 | 6.4 | 7.0 | 7.5 | 8.1 | 8.7 | 9.3 | 9.9 | 10.5 | 11.1 | 11.7 | 12.3 | 12.9 |
| 3 | Oil Control Valve Position | | 0.0 | 2.5 | 3.0 | 3.5 | 3.8 | 4.0 | 4.5 | 4.8 | 5.0 | 5.1 | 5.3 | 5.5 | 5.6 | 5.8 | 6.0 | 6.3 | 6.8 | 7.1 | 8.0 | 9.2 | 10.7 |
| 4 | Oil Pressure at Train Inlet | PSI | 122 | 122 | 121 | 120 | 120 | 118 | 117 | 115 | 114 | 112 | 112 | 111 | 109 | 108 | 106 | 104 | 102 | 100 | 97 | 94 | 96 |
| 5 | Oil Pressure at Nozzle | PSI | 24 | 26 | 28 | 30 | 33 | 34 | 38 | 40 | 43 | 44 | 46 | 47 | 50 | 51 | 52 | 54 | 56 | 58 | 60 | 62 | 62 |
| 6 | Compressed air Pressure | PSI | 71 | 71 | 71 | 71 | 71 | 72 | 71 | 71 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 68 | 73 | 74 | 75 | 75 |
| 7 | Blower Output | % | 0.0 | 5.0 | 10.5 | 14.5 | 18.0 | 23.0 | 27.0 | 31.0 | 35.0 | 39.0 | 43.0 | 47.0 | 51.0 | 55.0 | 59.0 | 64.0 | 67.0 | 72.0 | 77.0 | 81.0 | 87.0 |
| 8 | Blower Speed | Hz | 8.3 | 10.5 | 13.0 | 14.7 | 16.3 | 18.6 | 20.4 | 22.1 | 23.9 | 25.7 | 27.5 | 29.3 | 31.1 | 32.9 | 34.7 | 36.9 | 38.2 | 40.5 | 42.7 | 44.5 | 47.2 |
| 9 | Blower Power | HP | 0.7 | 1.0 | 1.5 | 2.0 | 2.5 | 3.5 | 4.5 | 5.6 | 7.3 | 8.6 | 10.7 | 12.8 | 15.0 | 18.0 | 21.0 | 26.0 | 28.0 | 34.0 | 40.0 | 46.0 | 54.0 |
| 10 | Blower Current | A | 22.2 | 21.5 | 21.5 | 21.8 | 22.4 | 23.8 | 25.4 | 27.0 | 29.2 | 32.2 | 35.1 | 38.1 | 41.3 | 45.5 | 49.5 | 54.0 | 57.65 | 63.5 | 69.5 | 74.5 | 81.5 |
| 11 | Blower Body Pressure | i.w.c. | 0.24 | 0.37 | 0.63 | 0.80 | 1.00 | 1.35 | 1.60 | 1.90 | 2.23 | 2.50 | 2.95 | 3.40 | 3.70 | 4.20 | 4.60 | 5.35 | 5.65 | 6.50 | 7.22 | 7.80 | 8.80 |
| 12 | Main Air Flow | SCFH | 242,000 | 297,485 | 352,970 | 408,455 | 463,940 | 519,425 | 574,910 | 630,395 | 685,880 | 741,365 | 796,850 | 852,335 | 907,820 | 963,305 | 1,018,790 | 1,074,275 | 1,129,760 | 1,185,245 | 1,240,730 | 1,296,215 | 1,351,700 |
| 13 | Flame Diameter | Feet | 2.5 | 2.5 | 3 | 3 | 4 | 4.5 | 5 | 5 | 6 | 6 | 6 | 6 | 6.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 |
| 14 | Flame Length | Feet | 5.0 | 5.0 | 6.0 | 6.0 | 6.0 | 6.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 |
| 15 | Excess air (Calculated) | % | 198% | 130% | 98% | 81% | 69% | 61% | 55% | 50% | 47% | 44% | 41% | 39% | 37% | 36% | 34% | 33% | 32% | 31% | 30% | 30% | 29% |

| 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 | 53 | Blower Proof of High Fire | 6.92 | 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 | 60 | PSI | H2SO4 | 0 | PPM | Max | |
| Nominal Motor Speed | rpm | 1780 | High Oil Pressure | 150 | PSI | H2O | 5 | % (Mass) | Max | |
| Motor Current | A | 83.4 | Pilot Low Fuel Pressure | N/A | PSI | All data collected as the burner firing rate was decreasing. | | | | |
| Motor Frequency | Hz | 60 | Oil Valve Hauck GL-1-29 | | | | | | | |
| Motor Voltage | V | 460 | | | | | | | | |
| Motor Power | kW | 55 | | | | | | | | |

