OXY-THERM® LE
Gas or oil burners

- Extremely low NOx levels with patented oxygen staging design.
- Burns any gaseous fuel, including fuels that may be unstable using air for combustion.
- Fuel oil capability ranges from light to heavy fuel oils.
- Quickly convert between gas and oil service by changing the burner nozzle.
- Patented design eliminates flame lofting providing cooler furnace crowns.
- Designed for easy installation and service. OXY-THERM® LE Burner nozzles can be removed during furnace operation, eliminating costly downtimes.
- Dramatically increase available heat by producing higher flame temperatures from burning fuels with oxygen.
Product description

With OXY-THERM® LE Burners firing gas, oxygen for combustion enters the burner housing and exits the burner block where it mixes with the fuel.

For oil firing, the oil enters through the nozzle and is atomized with either oxygen, air, steam, or fuel gas and combines with the combustion oxygen as it exits the burner block.

The oxygen-fuel flame discharges through the refractory block tunnel and develops a luminous, non-lofting, tightly-wrapped flame pattern.

Typical applications in industry include converted regenerative-type furnaces and melters, unit melters, non-ferrous melting, waste incinerators, smelters, and special applications requiring high temperatures.

Flow control and shut-off valves (available from MAXON) need to conform with the appropriate standards for oxygen service.

Two refractory block materials are available for OXY-THERM® LE Burners. Alumina/zirconia/silica (AZS) burner blocks and zirconia burner blocks may be used with gas firing and oil firing. Extended block versions are only available in AZS material.

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1) Burner block
2) Block frame
3) Pilot/observation port
4) Burner housing
5) Fuel inlet
6) Gas insert nozzle
7) Oxygen inlet
8) Oil insert nozzle
9) Oil inlet
Available OXY-THERM® LE sizes

OXY-THERM® LE - gas firing

Typical burner data

Fuel: natural gas at 60°F with 1000 Btu/ft³ (st) HHV - sg = 0.6 [1]
propane at 60°F with 2500 Btu/ft³ HHV - sg 1.57 [1]

Stated pressures are indicative. Actual pressures are a function of air humidity, altitude, type of fuel and gas quality.

<table>
<thead>
<tr>
<th>Maximum capacity range</th>
<th>Gas OXY-THERM® LE Burners</th>
<th>OXY-THERM® LE Burners</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Series 600</td>
</tr>
<tr>
<td>MBtu/h</td>
<td>0.2 to 2.7</td>
<td>1.5 to 11</td>
</tr>
<tr>
<td>Turndown</td>
<td></td>
<td>5:1</td>
</tr>
<tr>
<td>Pressures required to burner inlet for maximum capacities [3]</td>
<td>Oxygen</td>
<td>Refer to “Specifications of OXY-THERM® LE burners” for pressure curves</td>
</tr>
<tr>
<td>Natural gas psig</td>
<td></td>
<td>0.5-8</td>
</tr>
<tr>
<td>Propane psig</td>
<td></td>
<td>1-20</td>
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</tbody>
</table>

[1] sg (specific gravity) = relative density to air (density air = 0.0763 lb/ft³ (st))
[2] Capacities greater than 15 MBtu are possible. Contact MAXON for specific details.
[3] Gas OXY-THERM® Burners are custom sized to meet your application and utility requirements. Please contact MAXON for specific details.

OXY-THERM® LE - oil firing

Typical burner data

Fuel: light oil (#2): 19.4 Btu/lb

Stated pressures are indicative. Actual pressures are a function of air humidity, altitude, type of fuel and gas quality.

<table>
<thead>
<tr>
<th>Oil OXY-THERM® LE Burners</th>
<th>Series 600 or 900</th>
<th>Series 900</th>
<th>Series 1200</th>
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<tbody>
<tr>
<td>Size</td>
<td>70</td>
<td>100</td>
<td>150</td>
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<tr>
<td>Maximum output MBtu/h</td>
<td>3.1</td>
<td>4.4</td>
<td>7.5</td>
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<tr>
<td>Maximum fuel flow gallons/h</td>
<td>21</td>
<td>30</td>
<td>52</td>
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<tr>
<td>Minimum fuel flow gallons/h</td>
<td>4.2</td>
<td>6</td>
<td>10</td>
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</table>
Applications

OXY-THERM® LE burners produce dramatic savings in high temperature applications by reducing the total flue gas volume in a furnace. In addition, the higher flame temperature of oxy-fuel firing increases the radiant heat transfer to most applications.

OXY-THERM® LE burners have been successfully applied to glass furnaces, day tanks, incinerators, metal melting furnaces, reheat furnaces, kilns, and many other types of higher temperature applications.

OXY-THERM® LE mounted on a glass furnace

OXY-THERM® LE staged flame pattern
Dimensions and weights

1) Gas inlet
2) Oxygen inlet
3) 1/4" NPT oxygen test connection
4) 3/8" NPT oil inlet
5) 3/4" NPT atomizing oxygen inlet
6) 1/2" NPT pilot and/or flame detection
7) Furnace wall exterior

![Diagram of OXY-THERM® LE burner](image)

FIG. 1 = OXY-THERM® LE gas burner
FIG. 2 = OXY-THERM® LE oil burner

### Dimensions in inches unless stated otherwise

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<td></td>
<td></td>
<td>AZS</td>
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<tr>
<td>600</td>
<td>16.4</td>
<td>7.78</td>
<td>8.63</td>
<td>6.06</td>
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<td>8.91</td>
<td>15.15</td>
<td>9.0</td>
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<tr>
<td>900</td>
<td>22.9</td>
<td>11.52</td>
<td>11.38</td>
<td>9.0</td>
<td>5.92</td>
<td>13.52</td>
<td>18.34</td>
<td>12.06</td>
<td>3&quot;</td>
<td>1-1/2&quot;</td>
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<tr>
<td>1200</td>
<td>22.9</td>
<td>11.52</td>
<td>11.38</td>
<td>12.0</td>
<td>5.92</td>
<td>13.52</td>
<td>18.34</td>
<td>12.06</td>
<td>3&quot;</td>
<td>1-1/2&quot;</td>
<td>225</td>
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Typical emissions

OXY-THERM® LE burners utilize a patented oxygen staging technology to reduce the formation of NOx in high temperature furnaces. Through deep staging of the oxidant flow, NOx is controlled to levels typically lower than conventional oxy-fuel burners. By reduction in total flue gas volume, the total mass of NOx created is often lower than air-fuel firing.

Exact emissions performance may vary in your application. Contact MAXON for information on installation specific estimates or guarantees. No guarantee of emissions is intended or implied without specific written guarantee from MAXON.

Read “Specifications of OXY-THERM® LE burners” for more detailed information on OXY-THERM® LE burners.