Gas-only Burner
Short and wide flame pattern
18 to 75 million Btu/hr
For furnaces, boilers, air heaters, incinerators, gypsum kettles, etc.
Broad Stability Range
Chambers up to 2200F

4796 Magna-Flame™ Gas Burners are designed to fire combustion chambers that have a limited length but with sufficient width to allow the flame envelope to develop. The burner is particularly well suited to cubic combustion chambers typical of coal-fired water tube boilers.

Operation is quiet and the flame is tile-stable. Although the burner was not specifically designed to operate with excess air, it is stable from rich air/fuel ratios up to 150% excess air. It can be used in cold, sealed-in combustion chambers.

Available sizes from 12" through 24" permit use of a single burner in place of multiple burners otherwise often required to obtain a desired input in a chamber of limited length.

The 4796 Magna-Flame burner produces about 10% lower NOx emissions than conventional gas burners. The same high swirl that creates a short bushy flame also pulls furnace gases into the flame's primary reaction zone to reduce NOx formation.

CONSTRUCTION. The body is fabricated of heavy duty welded steel with a refractory ring and alloy air spin vane in the front. Connections for pilot and flame detector can be factory-installed in any of several locations per customer specification. See Dimensions page 2.

PILOT and FLAME SUPERVISION. Magna-Flame burners should be pilot ignited. The 4014 gas-boosted pilot (sold separately) listed in the dimension table is required, and provision must be made for low fire start with 1.0"wc or less main air. The pilot must be of the interrupted type to prevent overheating of the mounting. The UV detector location should be 90° clockwise of the pilot when viewing rear of burner (in the direction of air swirl). Self-checking UV scanners (sold separately) are recommended for flame supervision. See Bulletin 8832 for selection of UV adapters. It is possible for a UV scanner mounted on this burner to sight flame(s) of other burners in the same firing chamber. Consult Fives North American for configuration guidance on multiple burner applications.

CONTROL. Mass flow control systems are normally used with 4796 Burners, at least in the larger sizes. Cross-connected regulator systems can also be used because the required gas pressure is approximately 0.6 times the air pressure.

INSTALLATION. The burner does not include a refractory tile. The shape shown on the dimension drawing (page 2) must be built into the combustion chamber wall. See Supplement DF-M1 for installation recommendations.

<table>
<thead>
<tr>
<th>Burner Designation</th>
<th>Combustion Air Capacities (scfh)</th>
<th>Maximum % Excess Air</th>
<th>Flame Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multiply by 100 to get Btu per hour</td>
<td>Air pressure drop across the burner, osi</td>
<td>Air pressure in osi</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>5.0</td>
<td>6.0</td>
</tr>
<tr>
<td>4796-12</td>
<td>67 000</td>
<td>150 000</td>
<td>164 000</td>
</tr>
<tr>
<td>4796-14</td>
<td>86 000</td>
<td>193 000</td>
<td>211 000</td>
</tr>
<tr>
<td>4796-16</td>
<td>120 000</td>
<td>269 000</td>
<td>295 000</td>
</tr>
<tr>
<td>4796-18</td>
<td>155 000</td>
<td>346 000</td>
<td>380 000</td>
</tr>
<tr>
<td>4796-20</td>
<td>200 000</td>
<td>447 000</td>
<td>490 000</td>
</tr>
<tr>
<td>4796-22</td>
<td>237 000</td>
<td>530 000</td>
<td>580 000</td>
</tr>
<tr>
<td>4796-24</td>
<td>282 000</td>
<td>630 000</td>
<td>690 000</td>
</tr>
</tbody>
</table>

① Because of a positive pressure in the burner, it is difficult to light with a torch unless the air is turned very low and a strong pressure torch is used.
② Maximum recommended pressure.

WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160°F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and Insurance Underwriters recommendations, and care in operation.
DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC.

IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

Furnace opening should be ½" larger than dimension I for sizes -12 through -16 and ¾" larger than dimension I for sizes -18 through -24.

Flat face ANSI flange available upon request.

For tiles longer than 15" consult Fives North American Combustion.

Arrangement Designators are specified relative to the main air connection at 12 o'clock and should be listed for pilot, gas connection, and flame detector in that order.

‡ Good practice dictates that neither pilot nor flame detector be below the centerline of a horizontally-mounted burner.

ORDER MUST SPECIFY: (1) Burner designation (such as 4796-16): (2) Arrangement designation for pilot, gas connection and flame safety positions in that order such as: 4796-16, arrangement 1½ a 2½ (for the arrangement shown above).

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