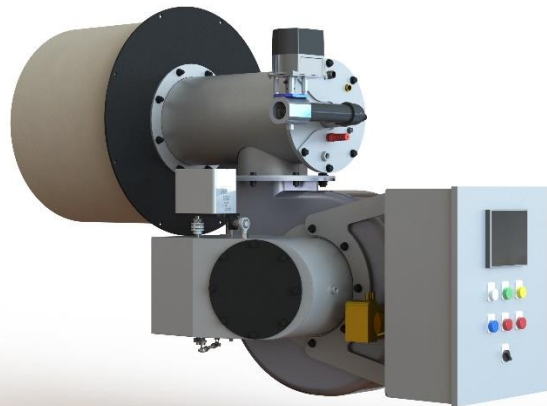


# Environmental Burner Solutions



## MODEL B BURNER

INDUSTRIAL BURNER DESIGN / ENVIRONMENTAL BURNER SOLUTIONS / AFTERMARKET PARTS / SERVICE

[www.alpha-combustion.com](http://www.alpha-combustion.com)

**Alpha**  
COMBUSTION LLC

**ENERGY EFFICIENCY**  
**LOW EMISSION**  
**High Quality**  
**Reliable**

# ALPHA COMBUSTION

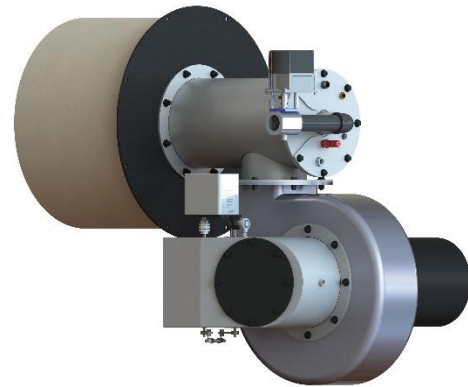
[www.alpha-combustion.com](http://www.alpha-combustion.com)



## MODEL B

Alpha Combustion **Model B** Package Burner utilizes multiple low NOx combustion technologies including flu gas recirculation to achieve low emissions and high efficiency performance. NOx  $\leq$  9 ppm @ 3% O<sub>2</sub> and near zero CO emissions are achieved.

**Model B** burner is ideal for thermal fluid heater, as well as, fire-tube, water-tube, fire-box and condensing boiler applications. Its small footprint and modular design make it ideal for retrofit locations, where space or speed of installation is of concern.



### HEAT RELEASE RANGE

1.5 to 63 mmbtu/hr (HHV)  
0.4 to 16.4 MW (LHV)

Ideal for boiler size:

36 HP to 1500 HP  
0.5 ton/hr to 21.5 ton/hr

### FUEL

Natural Gas (NG)  
Propane (LP)  
Town Gas (TG)  
Digester Gas (DG)

### BURNER TURNDOWN

Up to 8 to 1

### Emission Levels

Typical FGR Applications:

$\leq$ 30 ppm NOx at 3% O<sub>2</sub>  
Or  
 $\leq$ 9 ppm NOx at 3% O<sub>2</sub>

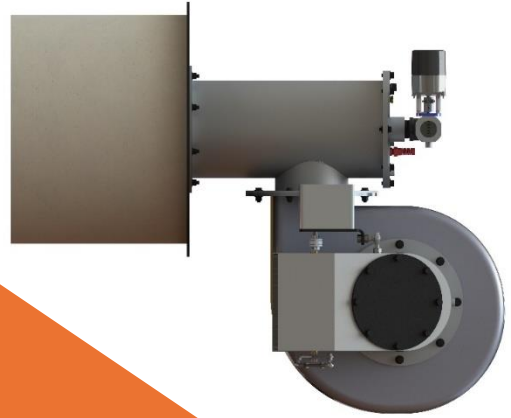
Exact emission performance may vary based on the application and combustion chamber size. No guarantee of emission is intended or implied without specific written guarantee from Alpha Combustion.

### BURNER MOUNTING OPTIONS

Horizontal  
Vertical  
Up or down firing.

### CONTROL PANEL MOUNTING OPTIONS

On the back of the blower motor (standard)  
Remote panel (option)



Low Emission

Energy Efficiency

Reliable and High Quality

# ALPHA COMBUSTION

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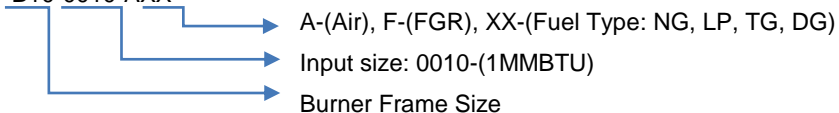
| Burner Model | Frame Size | Burner size<br>mmbtu/hr<br>HHV | Boiler<br>HP<br>80% Eff. | Blower<br>Motor<br>HP | Furnace<br>Pressure<br>[inch<br>W.C.] | Manifold<br>Gas<br>Pressure<br>[inch W.C.] | Recommended<br>Gas Train<br>Size (INCH) | Required<br>Inlet<br>Pres (PSI) |
|--------------|------------|--------------------------------|--------------------------|-----------------------|---------------------------------------|--|---|---------------------------------|
| B08-0015-FXX | 8          | 1.5                            | 36                       | 1.25                  | 4.0                                   | 5.4  | 1.0                                     | 0.5                             |
| B08-0030-FXX | 8          | 3.0                            | 71                       | 2                     | 3.4                                   | 5.4  | 1.5                                     | 0.5                             |
| B10-0042-FXX | 10         | 4.2                            | 100                      | 3                     | 2.6                                   | 10.5                                       | 1.5                                     | 1.0                             |
| B10-0063-FXX | 10         | 6.3                            | 150                      | 5                     | 3.3                                   | 23.7                                       | 1.5                                     | 1.5                             |
| B12-0084-FXX | 12         | 8.4                            | 200                      | 10                    | 3.6                                   | 18.7                                       | 2.0                                     | 1.5                             |
| B14-0105-FXX | 14         | 10.5                           | 250                      | 7.5                   | 3.2                                   | 16.4                                       | 2.0                                     | 2.0                             |
| B14-0126-FXX | 14         | 12.6                           | 300                      | 10                    | 5.2                                   | 23.7                                       | 2.0                                     | 2.5                             |
| B14-0147-FXX | 14         | 14.7                           | 350                      | 10                    | 5.1                                   | 20.6                                       | 2.0                                     | 3.0                             |
| B16-0168-FXX | 16         | 16.8                           | 400                      | 15                    | 7.4                                   | 18.7                                       | 2.5                                     | 2.0                             |
| B16-0210-FXX | 16         | 21.0                           | 500                      | 15                    | 6.3                                   | 29.2                                       | 2.5                                     | 2.5                             |
| B22-0252-FXX | 22         | 25.2                           | 600                      | 20                    | 7.1                                   | 20.8                                       | 3.0                                     | 2.5                             |
| B22-0294-FXX | 22         | 29.4                           | 700                      | 25                    | 5.4                                   | 28.3                                       | 3.0                                     | 2.5                             |
| B22-0336-FXX | 22         | 33.6                           | 800                      | 25                    | 6.6                                   | 23.7                                       | 3.0                                     | 3.0                             |
| B22-0378-FXX | 22         | 37.8                           | 900                      | 30                    | 7.1                                   | 20.8                                       | 4.0                                     | 2.0                             |
| B22-0420-FXX | 22         | 42.0                           | 1000                     | 40                    | 5.9                                   | 25.7                                       | 4.0                                     | 2.0                             |
| B24-0525-FXX | 24         | 52.5                           | 1250                     | 60                    | 8.4                                   | 26.9                                       | 4.0                                     | 3.0                             |
| B24-0630-FXX | 24         | 63.0                           | 1500                     | 75                    | 7.5                                   | 38.7                                       | 4.0                                     | 4.0                             |

Gas input is based on natural gas with 1,000 Btu/cu.ft. and 0.60 gravity.

Motor HP is based on altitude of 2,000 feet or less. If altitude > 2,000 feet and < 8,000 feet, derate capacity 4% per 1,000 feet over 2,000. Consult Alpha Combustion for higher altitudes.

#### Burner Model Selection

B10-0010-AXX



## GENERAL BURNER LAYOUT

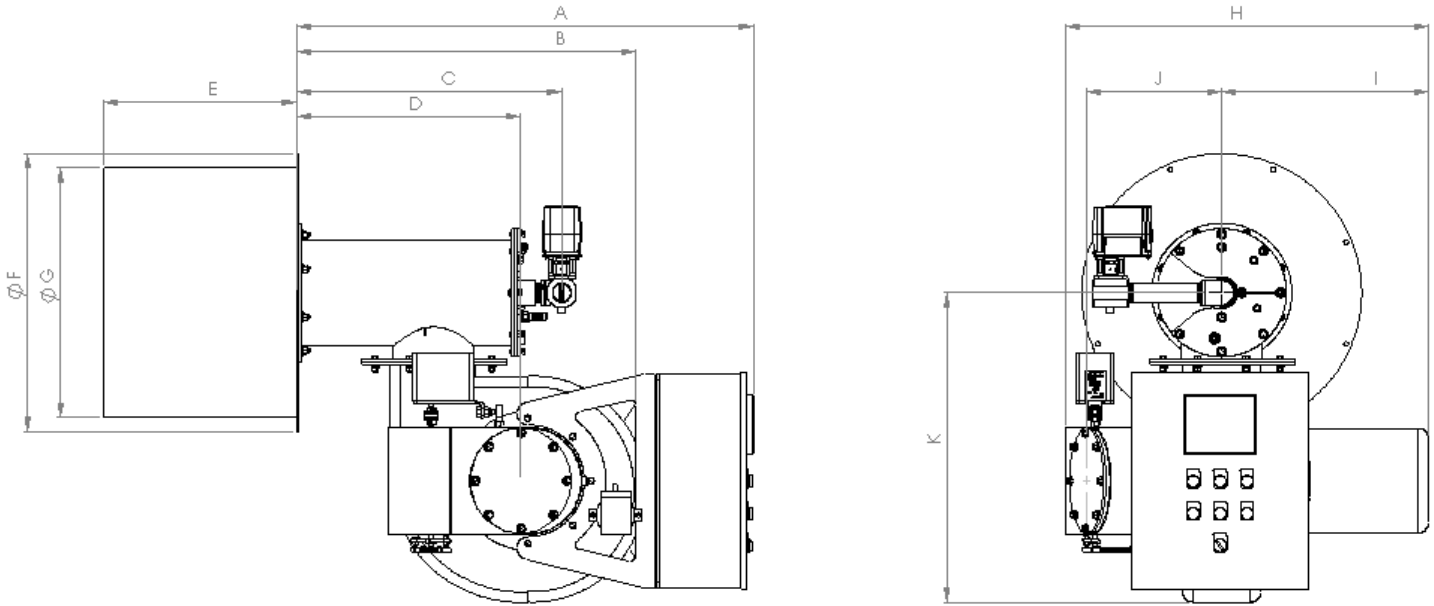


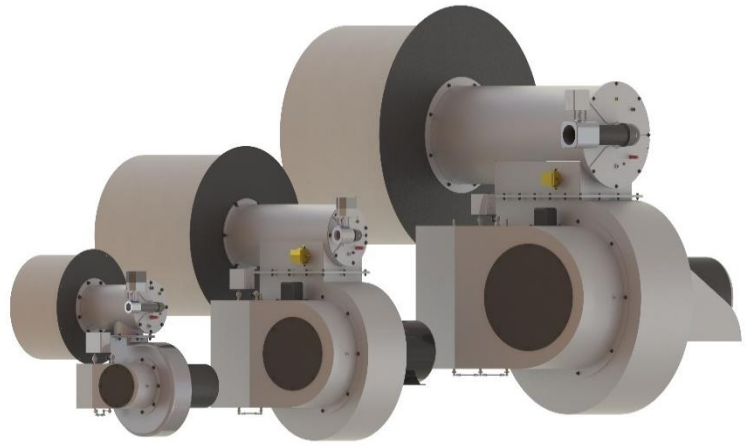
FIGURE 1

### BURNER GENERAL DIMENSIONS

| Burner     | A                | B                | C               | D             | E            | F            | G            | H              | I               | J             | K            | FGR         |
|------------|------------------|------------------|-----------------|---------------|--------------|--------------|--------------|----------------|-----------------|---------------|--------------|-------------|
| Frame Size | Inch (mm)        | Inch (mm)        | Inch (mm)       | Inch (mm)     | Inch (mm)    | Inch (mm)    | Inch (mm)    | Inch (mm)      | Inch (mm)       | Inch (mm)     | Inch (mm)    | Inch (mm)   |
| 8          | 40<br>(1016)     | 30<br>(762)      | 22.5<br>(571.5) | 20<br>(508)   | 15<br>(381)  | 20<br>(508)  | 18<br>(457)  | 32<br>(813)    | 17.5<br>(445.5) | 12<br>(305)   | 27<br>(686)  | 4<br>(102)  |
| 10         | 42.5<br>(1080)   | 32.5<br>(825.5)  | 25<br>(635)     | 21<br>(533)   | 18<br>(457)  | 26<br>(660)  | 24<br>(610)  | 33.75<br>(856) | 19.5<br>(495)   | 12.7<br>(324) | 29<br>(737)  | 6<br>(152)  |
| 12         | 46.5<br>(1181)   | 36.5<br>(927)    | 26<br>(660)     | 24<br>(610)   | 22<br>(559)  | 30<br>(762)  | 28<br>(711)  | 34<br>(864)    | 19.5<br>(495)   | 13<br>(330)   | 32<br>(813)  | 8<br>(203)  |
| 14         | 61<br>(1549)     | 51<br>(1295)     | 40.5<br>(1029)  | 36.2<br>(921) | 25<br>(635)  | 34<br>(864)  | 32<br>(813)  | 50.5<br>(1283) | 27<br>(686)     | 19.5<br>(495) | 46<br>(1168) | 10<br>(254) |
| 16         | 72.5<br>(1841.5) | 62.5<br>(1857.5) | 51<br>(1595)    | 45<br>(1143)  | 30<br>(762)  | 38<br>(965)  | 34<br>(864)  | 63<br>(1600)   | 32<br>(813)     | 25<br>(635)   | 55<br>(1397) | 12<br>(305) |
| 22         | 84<br>(2134)     | 74<br>(1880)     | 62<br>(1575)    | 54<br>(1372)  | 40<br>(1016) | 40<br>(1016) | 36<br>(914)  | 75.5<br>(1918) | 38<br>(965)     | 30<br>(762)   | 63<br>(1600) | 14<br>(305) |
| 24         | 92<br>(2337)     | 82<br>(2083)     | 70<br>(1778)    | 62<br>(1575)  | 44<br>(1176) | 44<br>(1176) | 40<br>(1016) | 84<br>(2134)   | 46<br>(1168)    | 34<br>(864)   | 72<br>(1828) | 16<br>(381) |

**Note:**

- Dimension E, F, G and J can be changed to fit application requirements.
- FGR indicates recommended FGR pipe size to the burner.
- Burner can be rotated with blower above the center-line.
- All dimensions are for layout purposes only, all dimensions must be confirmed for construction.



Low Emission

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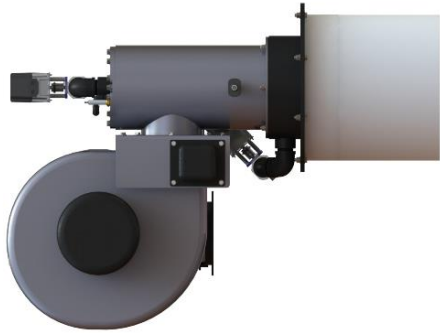
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## STANDARD EQUIPMENT

- Flame Safeguard with full parallel position system including gas, FGR and air independent actuators and valves.
- Control panel with ON/OFF switch and LED Indicator lights showing:
  - Power, Demand, Pilot, Main Fuel, and Alarm indication.
- Pilot gas train and ignition transformer.
- Combustion Air proving safety switch.
- Flame Scanner.
- Combustion Blower
  - Aluminum cast blower housing on burner frame up to size 12.
  - Fabricated blower housings on burners frame size 14 and up.
  - with backward inclined blower wheel.

## OPTINAL EQUIPMENT

- Main gas train.
  - Sized based on available pressure and safety codes requirements.
  - Gas inlet filters.
  - Gas inlet strainer.
- Oil capability.
  - Oil firing gun.
  - Oil fuel train.
  - Dual or single fuel control panel.
- Combustion Blower inlet silencer.
- Remote panel mounting options.
- Custom refractory "dry oven" sized based on application requirements.
- Left or right gas inlet options.
- Left or right air/FGR inlet options.
- O2 Trim.



## Contact Information:

**918-851-1751**

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