

# Eclipse RatioAir Burners

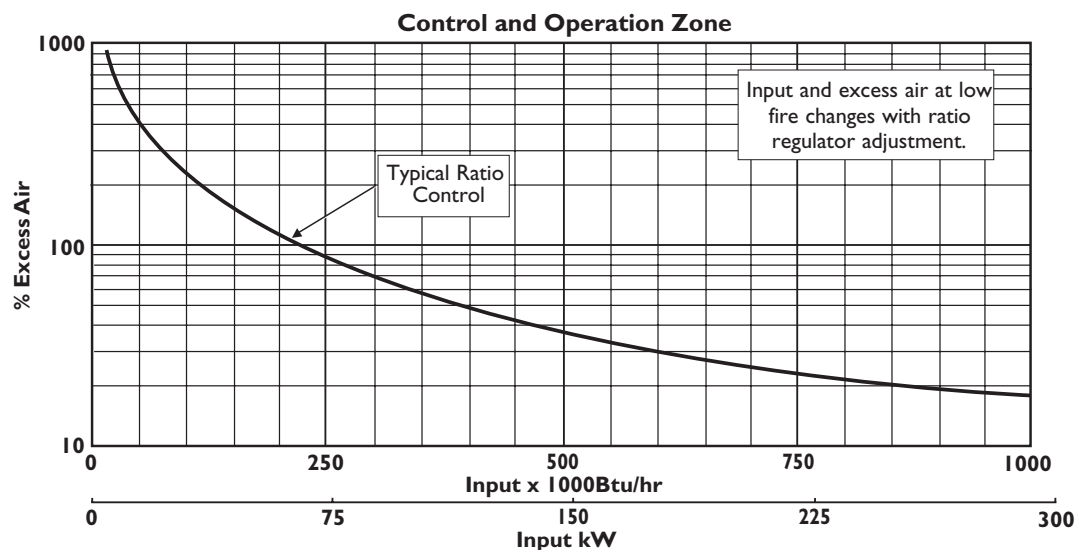
Model RA0100

Version 1

## Main Specifications - RA0100

PARAMETER		SPECIFICATIONS		
		Straight Tube	Medium Velocity Tube	High Velocity Tube
Maximum input, Btu/hr (kW) at neutral chamber conditions 60Hz Packaged Blower	Natural Gas	1,030,000 (302)	1,140,000 (334)	1,000,000 (293)
	Propane	1,040,000 (306)	1,120,000 (328)	940,000 (293)
	Butane	1,030,000 (302)	1,090,000 (319)	950,000 (293)
Maximum input, Btu/hr (kW) at neutral chamber conditions 50Hz Packaged Blower	Natural Gas	1,095,000 (321)	1,165,000 (341)	964,000 (282)
	Propane	1,108,000 (324)	1,145,000 (335)	906,000 (265)
	Butane	1,095,000 (321)	1,114,000 (326)	916,000 (265)
Minimum input, Btu/hr (kW) • Lower inputs may be achieved. Contact factory.		30,000 (8.8)	30,000 (8.8)	30,000 (8.8)
Main Gas Inlet Pressure, "w.c. (mbar) • Fuel pressure at ratio regulator inlet.		6 to 20 (15 to 50)	10 to 20 (25 to 50)	15 to 27 (37 to 67)
High Fire Flame Length, inches (mm) • Measured from the outlet end of the combustor.		45 (1140)	38 (965)	33 (835)
Maximum Flame Velocity, ft/s (m/s) • Approximately 15% excess air at maximum input.		-----	250 (75)	500 (150)
Maximum chamber temperature, °F (°C)	Alloy tube	1500 (816)	1750 (954)	1750 (954)
	SiC tube	1900 (1038)	2500 (1370)	2500 (1370)
	Block & Holder	-----	2800 (1538)	2800 (1538)
Flame detection		UV scanner available for all combustors. Flame rod available for alloy or SiC tubes		
Fuel		Natural Gas, Propane and Butane (For any other gas, contact Eclipse Combustion for orifice sizing.)		

- All information is based on laboratory testing in neutral (0.0" w.c.) chamber with standard combustor design. Different chamber conditions will affect the data.
- Maximum inputs are given for the standard combustion air blower without an air filter.
- All inputs based upon gross calorific values and standard conditions: 1 atmosphere, 70° F ( 21°C).
- Blower motor service factors greater than 1.0 may be required when firing into negative chamber pressure applications. For specific application questions, contact your Eclipse Combustion representative.
- Eclipse reserves the right to change the construction and/or configuration of our products at any time without being obliged to adjust earlier supplies accordingly.



# Straight Tube Specifications

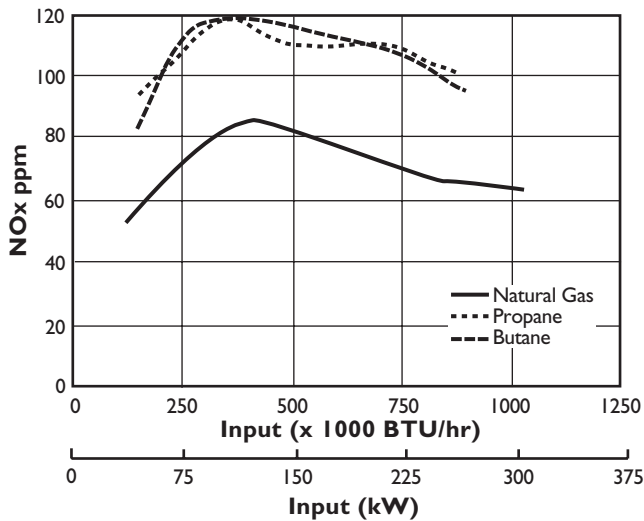
## Blower Model

**60Hz, 4H (3" w.c. @ 11,500 scfh, 1/3 hp)**

**50Hz, 4E (4.2" w.c. @ 13,700 scfh, .37 kW)**

Specifications						
Parameter	"w.c. (mbar)		60Hz Packaged Blower		50Hz Packaged Blower	
			Btu/hr	kW	Btu/hr	kW
Maximum Input vs. Chamber Pressure (Natural Gas)	-2.0	-5.0	1,300,000	381	1,330,000	389
	-1.0	-2.5	1,175,000	344	1,218,000	357
	0.0	0.0	1,030,000	302	1,095,000	321
	1.0	2.5	875,000	256	956,000	280
	2.0	5.0	680,000	199	793,000	232

### NOx Emission Data



NOx emission data is given for:

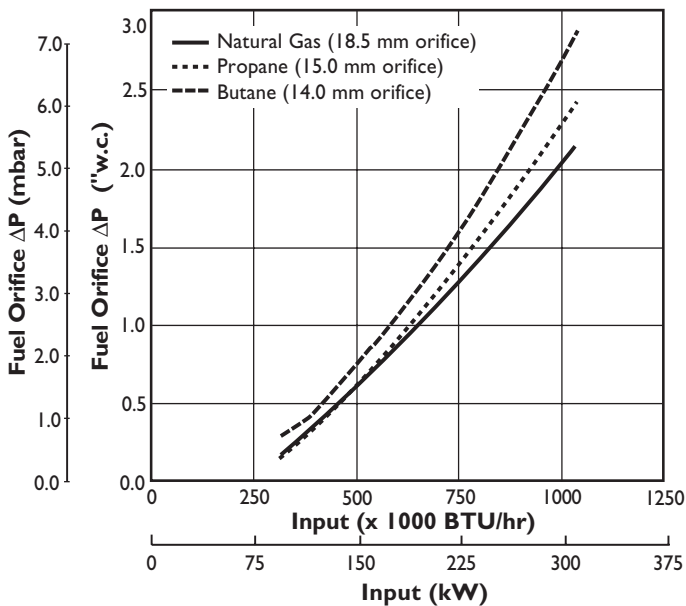
- Ambient combustion air ~70 °F (20 °C)
- Minimal process air velocity
- ppm volume dry at 3% O<sub>2</sub>
- Neutral chamber pressure

CO emission is largely influenced by chamber conditions. Contact your local Eclipse Combustion representative for an estimate of CO emission on your application.

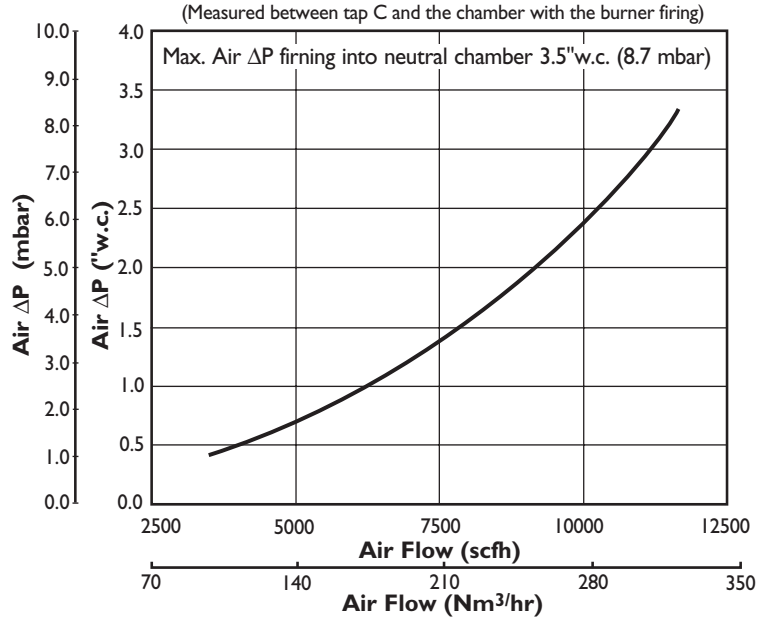
Emissions are influenced by:

- Chamber conditions
- Fuel type
- Firing rate
- Ratio regulator adjustment
- Combustion air temperature

### Fuel Orifice ΔP vs. Input ΔP measured between taps B and D



### Air ΔP vs. Air Flow



# Medium Velocity Tube Specifications

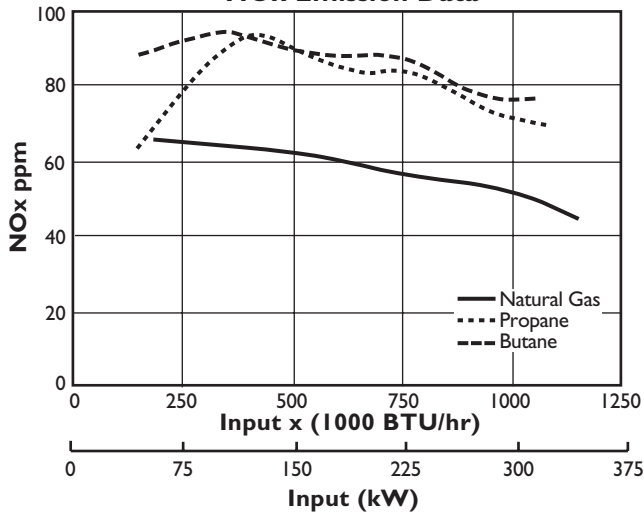
## Blower Model

60Hz, 4A (6" w.c. @ 16,500 scfh, 1/2 hp)

50Hz, 4A (6" w.c. @ 16,500 scfh, .37 kW)

Specifications						
Parameter	"w.c. (mbar)		60Hz Packaged Blower		50Hz Packaged Blower	
			Btu/hr	kW	Btu/hr	kW
Maximum Input vs. Chamber Pressure (Natural Gas)	-2.0	-5.0	1,310,000	384	1,320,000	387
	-1.0	-2.5	1,225,000	359	1,245,000	365
	0.0	0.0	1,140,000	334	1,165,000	341
	1.0	2.5	1,060,000	310	1,086,000	316
	2.0	5.0	960,000	281	985,000	288

### NOx Emission Data



NOx emission data is given for:

- Ambient combustion air ~70 °F (20 °C)
- Minimal process air velocity
- ppm volume dry at 3% O<sub>2</sub>
- Neutral chamber pressure

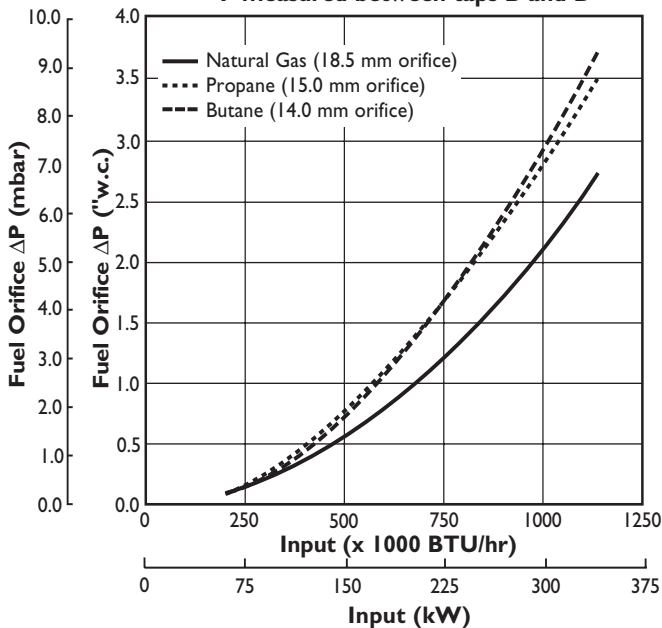
CO emission is largely influenced by chamber conditions. Contact your local Eclipse Combustion representative for an estimate of CO emission on your application.

Emissions are influenced by:

- Chamber conditions
- Fuel type
- Firing rate
- Ratio regulator adjustment
- Combustion air temperature

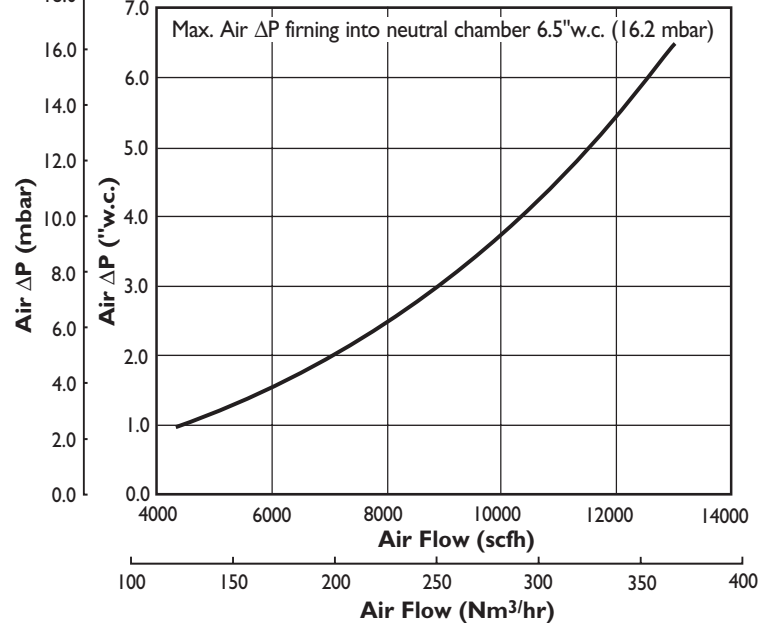
### Fuel Orifice ΔP vs. Input

ΔP measured between taps B and D



### Air ΔP vs. Air Flow

(Measured between tap C and the chamber with the burner firing)



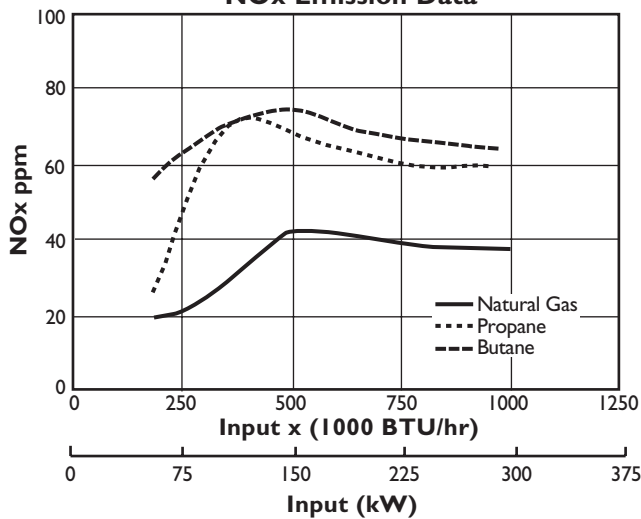
# High VelocityTube Specifications

## Blower Model

60Hz, 4D (10" w.c. @ 22,00 scfh, 1 hp)  
 50Hz, 4D (10" w.c. @ 22,00 scfh, .75 kW)

Specifications						
Parameter	"w.c.	(mbar)	60Hz Packaged Blower		50Hz Packaged Blower	
			Btu/hr	kW	Btu/hr	kW
Maximum Input vs. Chamber Pressure (Natural Gas)	-2.0	-5.0	1,080,000	316	1,052,000	308
	-1.0	-2.5	1,040,000	305	1,010,000	296
	0.0	0.0	1,000,000	293	964,000	282
	1.0	2.5	950,000	278	917,000	269
	2.0	5.0	900,000	264	867,000	254

### NOx Emission Data



NOx emission data is given for:

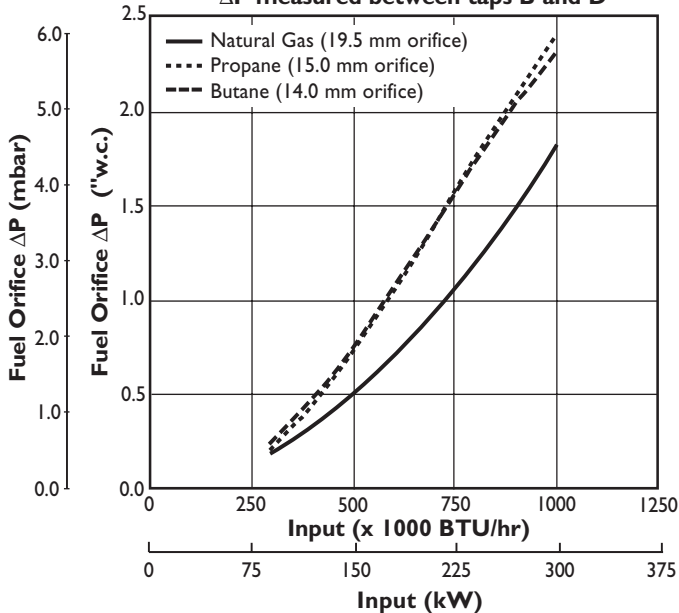
- Ambient combustion air ~70 °F (20 °C)
- Minimal process air velocity
- ppm volume dry at 3% O<sub>2</sub>
- Neutral chamber pressure

CO emission is largely influenced by chamber conditions. Contact your local Eclipse Combustion representative for an estimate of CO emission on your application.

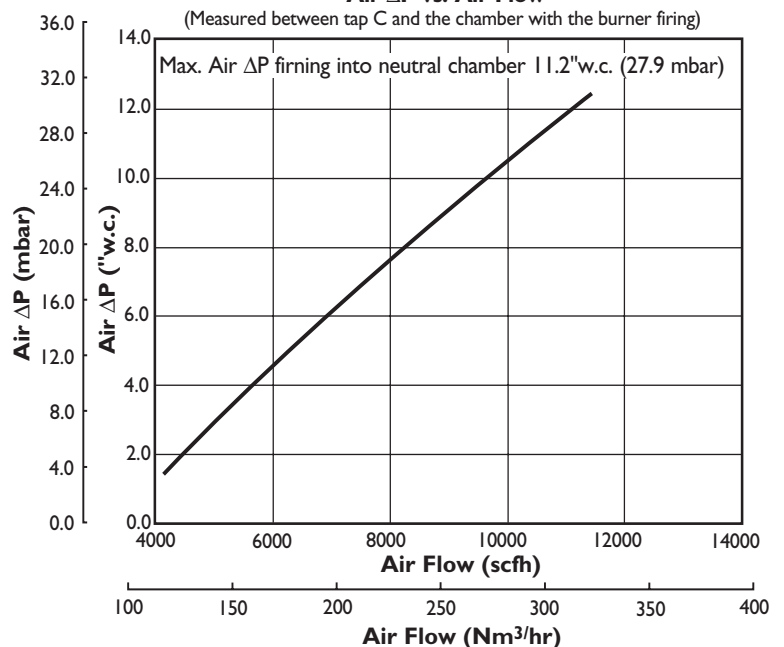
Emissions are influenced by:

- Chamber conditions
- Fuel type
- Firing rate
- Ratio regulator adjustment
- Combustion air temperature

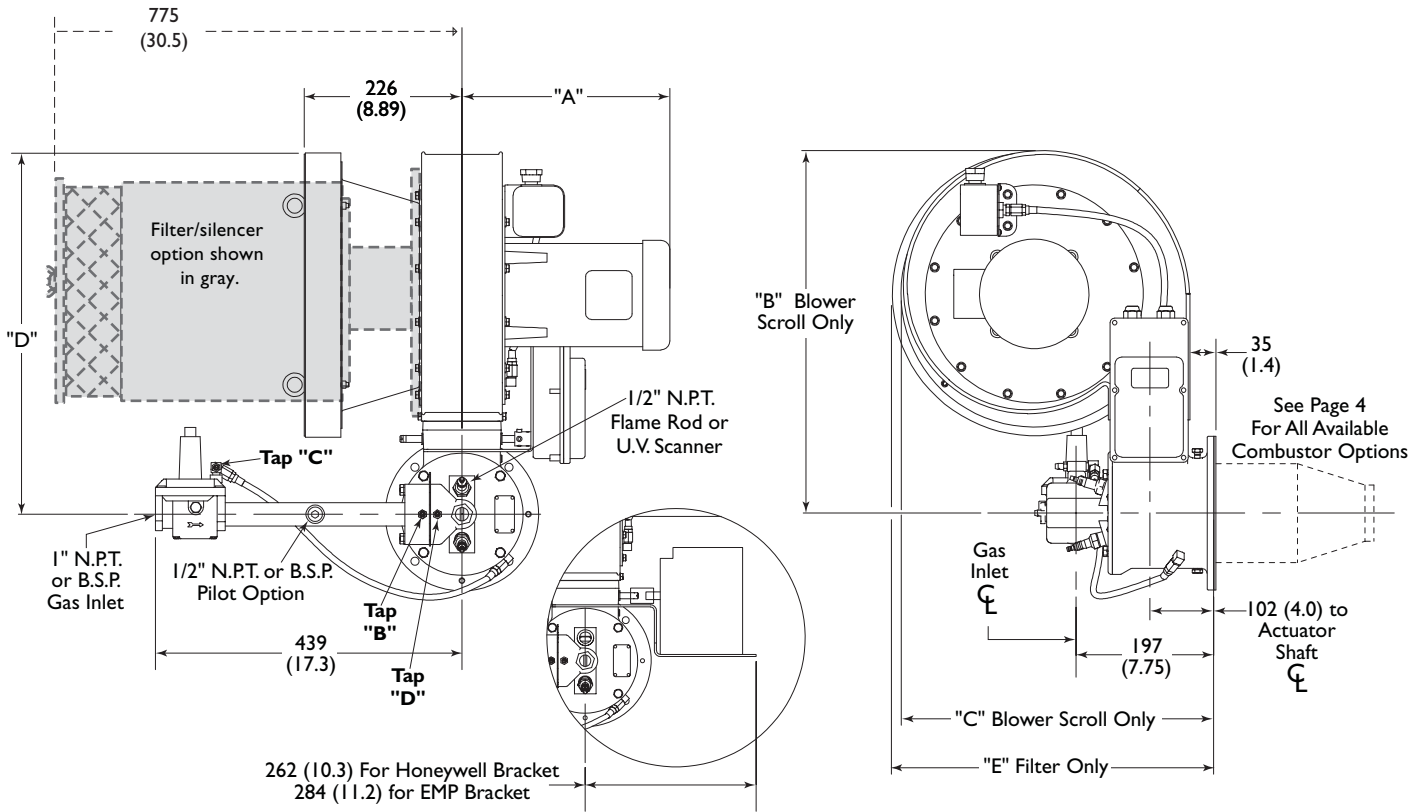
### Fuel Orifice ΔP vs. Input ΔP measured between taps B and D



### Air ΔP vs. Air Flow



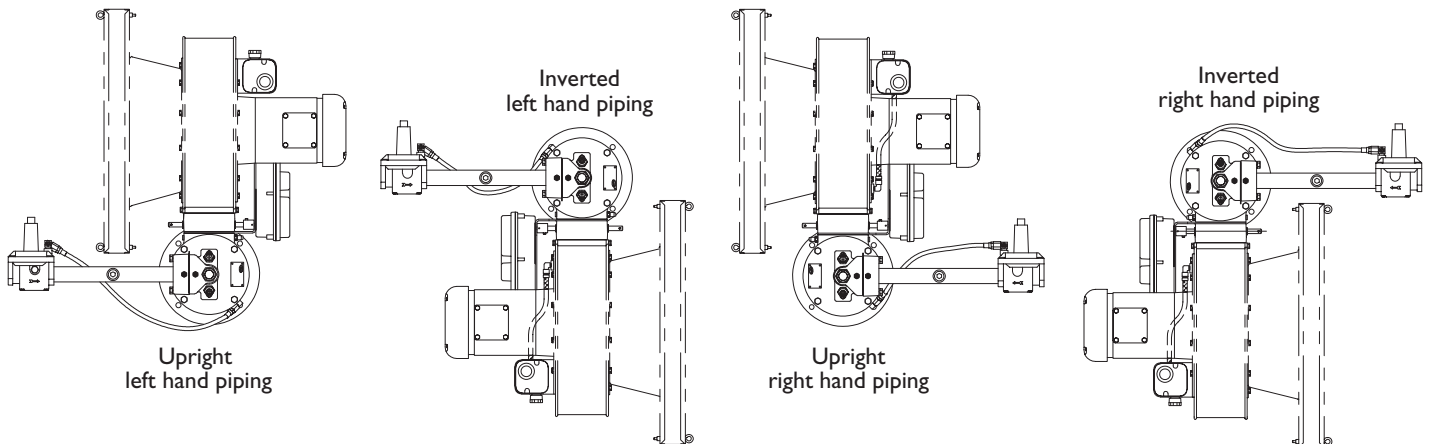
## Dimensions mm (Inches)



	Com ustor Type	Blower Model	Filter Type	Dimensions mm (inches)				
				A	B	C	D	E
<b>60Hz Blower</b>	Straight	4H	Rectangular	301 (11.8)	430 (16.9)	359 (14.1)	N/A	N/A
	Medium Velocity	4A	Round	298 (11.7)	519 (20.4)	448 (17.6)	518 (20.4)	461 (18.1)
	High Velocity	4D	Round	298 (11.7)	579 (22.8)	507 (20.0)	548 (21.6)	489 (19.2)
	Medium Velocity	4A	Automotive	298 (11.7)	519 (20.4)	448 (17.6)	579 (22.8)	543 (21.4)
	High Velocity	4D	Automotive	298 (11.7)	579 (22.8)	507 (20.0)	609 (24.0)	571 (22.5)
<b>50Hz Blower</b>	Straight	4E	Round	298 (11.7)	519 (20.4)	448 (17.6)	518 (20.4)	461 (18.1)
	Medium Velocity	4A	Round	298 (11.7)	579 (22.8)	507 (20.0)	548 (21.6)	489 (19.2)
	High Velocity	4D	Round	346 (13.6)	670 (26.4)	587 (23.1)	597 (23.5)	530 (20.9)

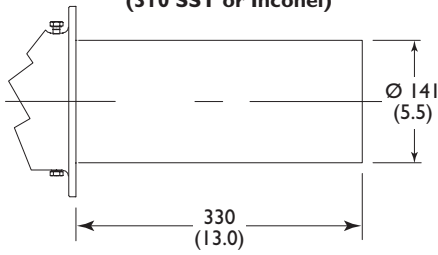
Note: Standard round filters are illustrated above. Automotive filters are 508x508 (20x20). Rectangular filter is 256x256 (10x10).

## Burner Configuration & Piping Arrangement

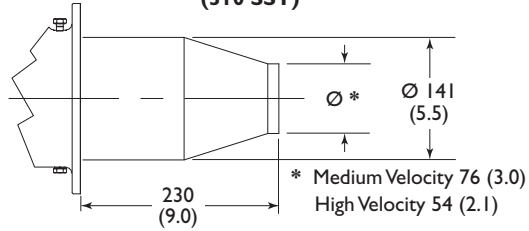


## Combustor Options

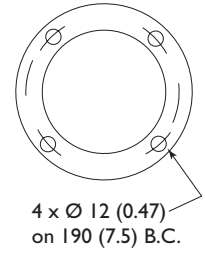
**Straight Alloy Tube  
(310 SST or Inconel)**



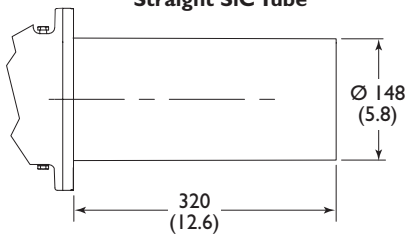
**Medium & High  
Velocity Alloy Tube  
(310 SST)**



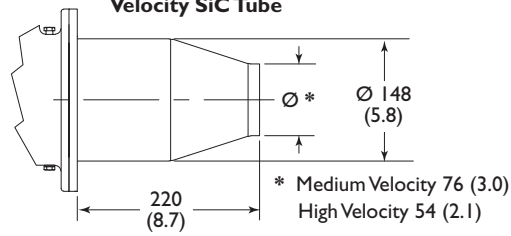
**Mounting Pattern**



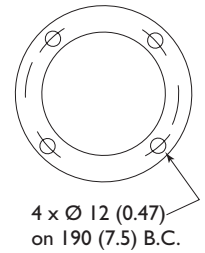
**Straight SiC Tube**



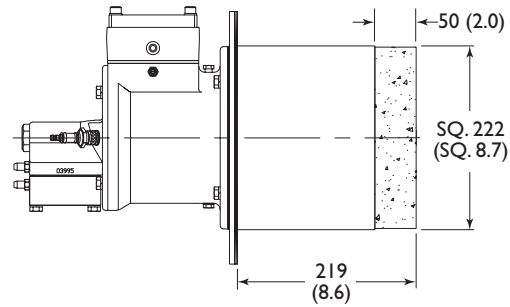
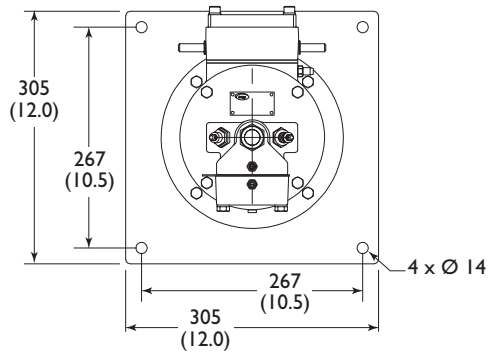
**Medium & High  
Velocity SiC Tube**



**Mounting Pattern**



**Block & Holder**





**Offered By:**

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