


# Eclipse Minnox Burner

Version 1

Parameter	Specifications	
<b>Heat Input</b> <i>(based on gross calorific values)</i>	Straight 150 mm Section T-Section Cross Section	135 kW (460,000 Btu/h) 540 kW (1,844,000 Btu/h) 675 kW (2,305,000 Btu/h)
<b>Turndown</b>	10 : 1	
<b>Fuels</b> <i>For any other mixed gas, contact Eclipse, Inc.</i>	Natural Gas (H) Propane (<10% unsaturated) Butane (<10% unsaturated)	
<b>Combustion Air</b> Volume: Approximate Pressure: Temperature:	205 m <sup>3</sup> n/h per 135 kW (120 scfm per 460,000 Btu/h) 48 mbar at mixer inlet, Neutral chamber pressure (19.3" w.c.) 40°C maximum (104°F)	
<b>Gas Pressure at Proportionator Inlet</b>	Minimum 100 mbar (40" w.c.) Maximum 300 mbar (120" w.c.)	
<b>Burner Start Input</b>	20% of Nominal Input	
<b>Pilot, Integral, Nozzle Mixing, Spark Ignited</b>	15 kW (51,000 Btu/h Interrupted Pilot)	
<b>Pilot Gas Pressure</b>	Minimum 16 mbar (6.5" w.c.) Maximum 28 mbar (11" w.c.)	
<b>Flame Monitoring</b>	UV Scanner	
<b>High Fire Visible Flame Length</b>	Approximately 300 mm (12") measured from the whirl plate, firing parallel to the process air flow with neutral chamber pressure. The flame is completely protected by a heat-resistant steel combustion chamber with a length of 400 mm (16").	
<b>Emissions (estimated) at 3% O2 (1)</b>	NOx less than 5 ppm at nominal input CO less than 30 ppm HCHO aldehydes: (no smell in undiluted flue gases) < 0.17 ppm	
<b>Ambient Temperature Limits</b>	This is determined by the monitoring and control equipment such as UV scanners, automatic fuel shut-off valves and electrical wiring	
<b>Process Conditions</b> Inlet Temperature: Outlet Temperature: Negative Pressure: Positive Pressure:	300°C maximum (570°F) 500°C maximum (930°F) 6mbar maximum (2.4" w.c.) 10mbar maximum (4" w.c.)	
<b>Process Air Velocity Past the Burner</b>	20 m/s (3900 ft/m) maximum, 2 m/s (390 ft/m) minimum Recommended velocity 12 m/s (2400 ft/m) WARNING: Velocity perpendicular to the flame direction is not allowed	
<b>Process Air ΔP (estimated)</b>	At 10 m/s velocity: 0.5 mbar (1950 ft/m: 0.2" w.c.) At 20 m/s velocity: 2.0 mbar (3900 ft/m: 0.8" w.c.)	
Approvals		

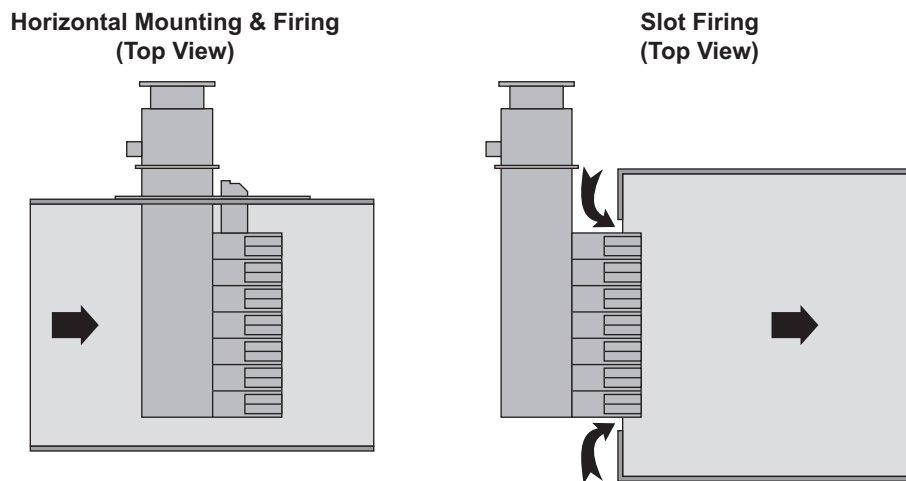
## Parameter Notes

1. The estimated emissions are not to be used as guaranteed values. These values can be influenced by process conditions.
  - All inputs based upon gross calorific values and standard conditions; 1 atmosphere, 70°F.
  - All information is based on laboratory testing. Different chamber conditions will affect the data.
  - CO emission is largely influenced by chamber conditions. Contact your local Eclipse representative for an estimate of CO emission on your application.
  - 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.

Minnox burner systems are typically supplied as packaged units with heat inputs from 125 kW to 7000 kW (0.5 MMBtu/h to 24 MMBtu/h) including the burner, mixer and valve trains mounted to a duct section or side-plate arrangement for installation into the process ductwork.

For detailed (application specific) system design, contact Eclipse, Inc. or your local Eclipse representative.

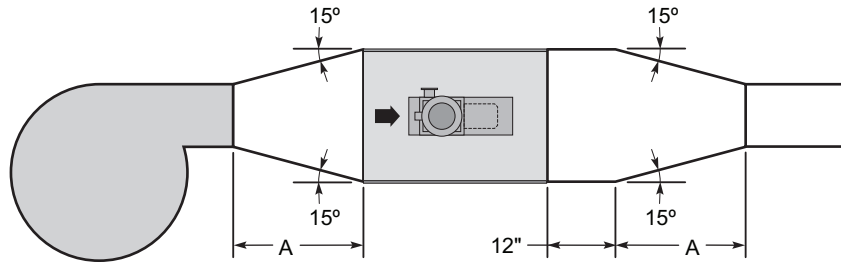
## Firing Arrangements



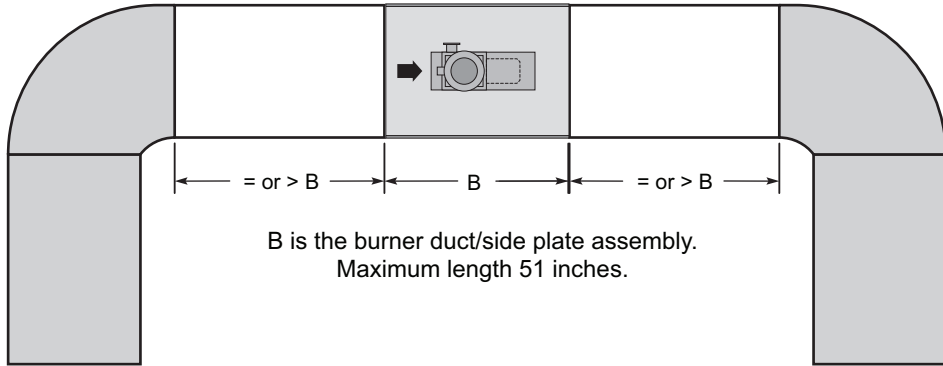
Burners can be configured to fire vertically (up or down) or horizontally (left or right). Systems include complete duct mounted burner sections, side-plate assemblies for insertion into an existing duct and designs for slot firing into an existing duct. "T" section and "Cross" section burner heads are also available to optimize heat distribution patterns within the duct.

## Good Duct Design

The Minnox duct/side-plate unit must be properly installed in the process air duct system so that the process air velocity past the burner remains uniform. The illustrations below represent good duct designs, which will best maintain the process air velocity. The black area presents the Minnox burner.

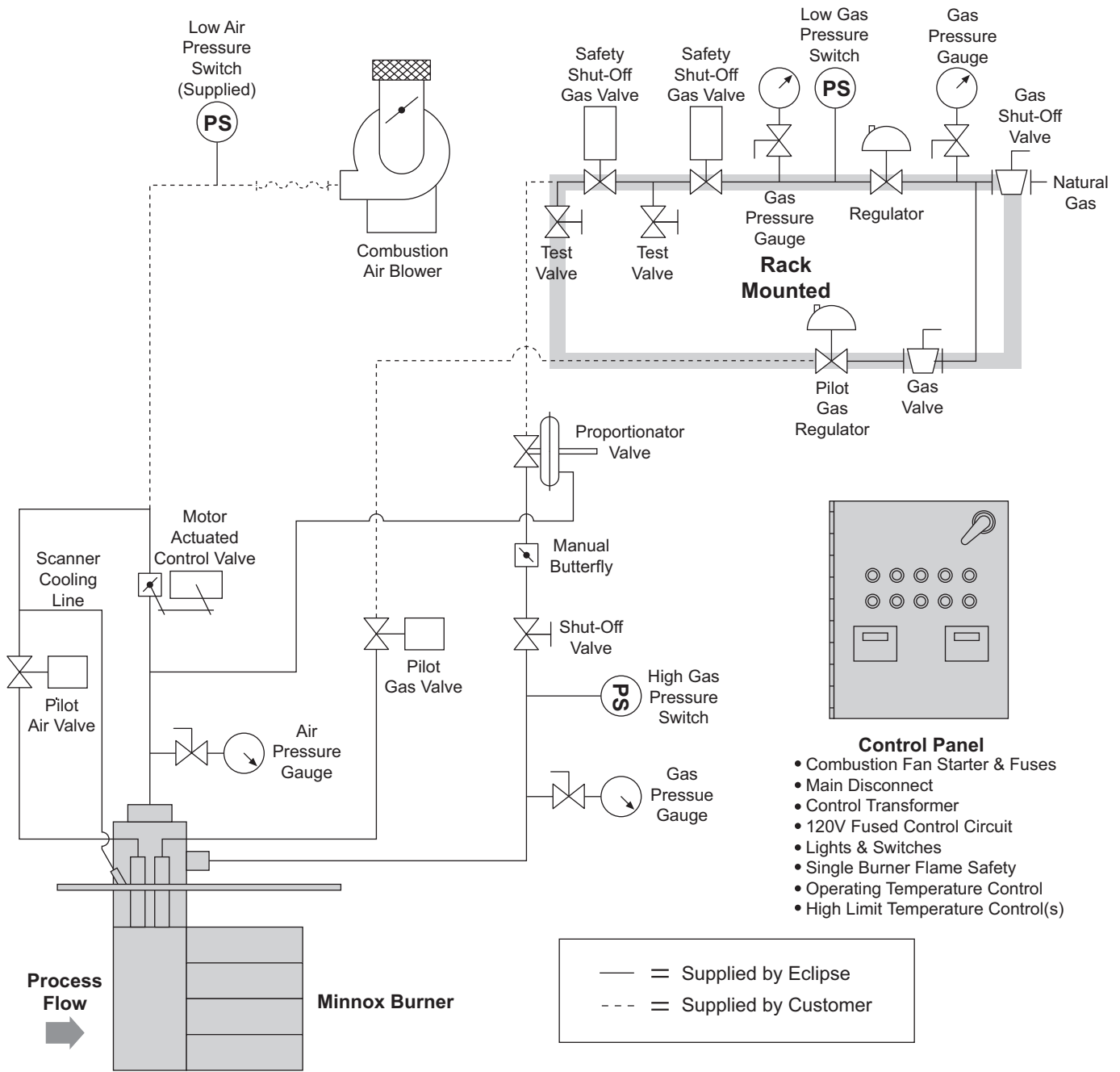


A is the length sufficient to provide a 15° taper



B is the burner duct/side plate assembly.  
Maximum length 51 inches.

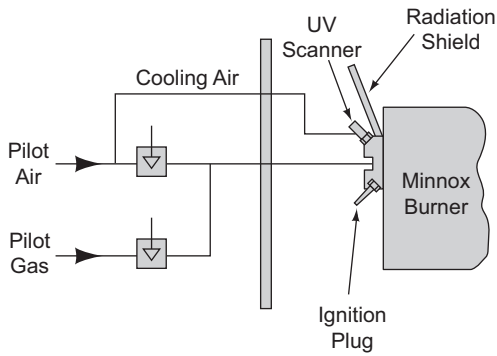
# Typical System



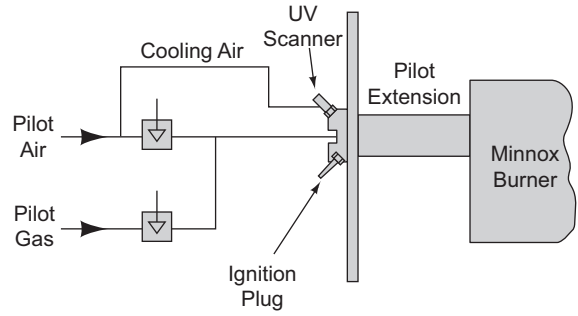
- Control Panel**
- Combustion Fan Starter & Fuses
  - Main Disconnect
  - Control Transformer
  - 120V Fused Control Circuit
  - Lights & Switches
  - Single Burner Flame Safety
  - Operating Temperature Control
  - High Limit Temperature Control(s)

# Pilot Options

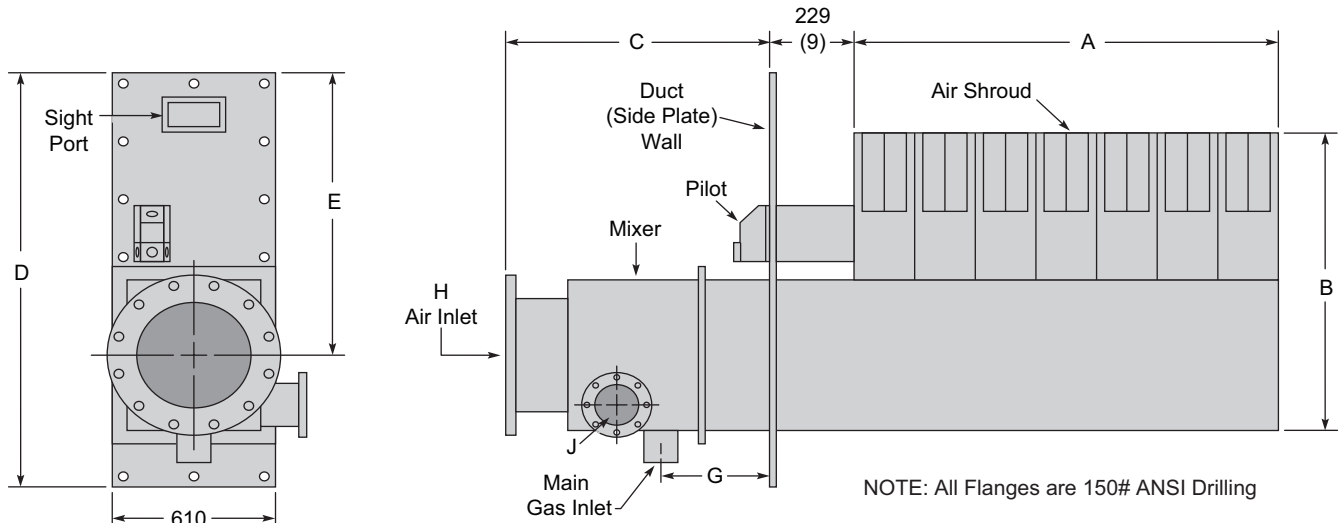
**Option A**  
Recommended for Fresh Air Systems



**Option B**  
Recommended for all Recirculation Systems



## General Dimensions - Straight Sections (For Estimating Purposes Only)



NOTE: All Flanges are 150# ANSI Drilling

Burner Weight: Approx. 44 lbs (20 kg) per 460,000 Btu/hr. (135 kW) input.  
Weight includes mixer and mounting plate but not the combustion air blower.

Model	A, inches (mm)	B, inches (mm)	C, inches (mm)	D, inches (mm)	E, inches (mm)	G, inches (mm)	H, inches	J, inches
125	6 (152)	21 (533)	17 (432)	40 (1016)	24 (610)	9 (229)	4	1
250	12 (305)	21 (533)	17 (432)	40 (1016)	24 (610)	9 (229)	6	1
375	18 (457)	21 (533)	17 (432)	40 (1016)	24 (610)	9 (229)	6	1.5
500	24 (610)	21 (533)	17 (432)	40 (1016)	24 (610)	9 (229)	6	1.5
625	30 (762)	27 (686)	19 (483)	40 (1016)	27 (686)	10 (254)	10	1.5
750	36 (914)	27 (686)	19 (483)	40 (1016)	27 (686)	10 (254)	10	1.5
875	42 (1067)	27 (686)	19 (483)	40 (1016)	27 (686)	10 (254)	10	2
1000	48 (1219)	27 (686)	19 (483)	40 (1016)	27 (686)	10 (254)	10	2
1125	54 (1372)	27 (686)	19 (483)	40 (1016)	27 (686)	10 (254)	10	2
1250	60 (1524)	27 (686)	19 (483)	40 (1016)	27 (686)	10 (254)	10	2
1375	66 (1676)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	12	2
1500	72 (1829)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	12	2.5
1625	78 (1981)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	12	2.5
1750	84 (2134)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	12	2.5
1875	90 (2286)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	12	2.5
2000	96 (2438)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	14	2.5
2125	102 (2591)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	14	3
2250	108 (2743)	33 (838)	19 (483)	50 (1270)	30 (762)	10 (254)	14	3
2375	114 (2896)	38 (965)	21 (533)	50 (1270)	33 (838)	10 (254)	16	3
2500	120 (3048)	38 (965)	21 (533)	50 (1270)	33 (838)	10 (254)	16	3
2625	126 (3200)	38 (965)	21 (533)	50 (1270)	33 (838)	10 (254)	16	3
2750	132 (3353)	38 (965)	21 (533)	50 (1270)	33 (838)	10 (254)	16	3
2875	138 (3505)	38 (965)	21 (533)	50 (1270)	33 (838)	10 (254)	16	4
3000	144 (3658)	38 (965)	21 (533)	50 (1270)	33 (838)	10 (254)	16	4
3125	150 (3810)	45 (1143)	21 (533)	59 (1499)	33 (838)	10 (254)	16	4
3250	156 (3962)	45 (1143)	21 (533)	59 (1499)	36 (914)	10 (254)	16	4
3375	162 (4115)	45 (1143)	21 (533)	59 (1499)	36 (914)	10 (254)	16	4
3500	168 (4267)	45 (1143)	21 (533)	59 (1499)	36 (914)	10 (254)	16	4
3625	172 (4369)	45 (1143)	21 (533)	59 (1499)	36 (914)	10 (254)	16	4
3750	178 (4521)	50 (1270)	29 (737)	59 (1499)	39 (991)	10 (254)	18	4
3875	184 (4674)	50 (1270)	23 (584)	59 (1499)	39 (991)	10 (254)	18	4
4000	190 (4826)	50 (1270)	23 (584)	59 (1499)	39 (991)	10 (254)	18	4