



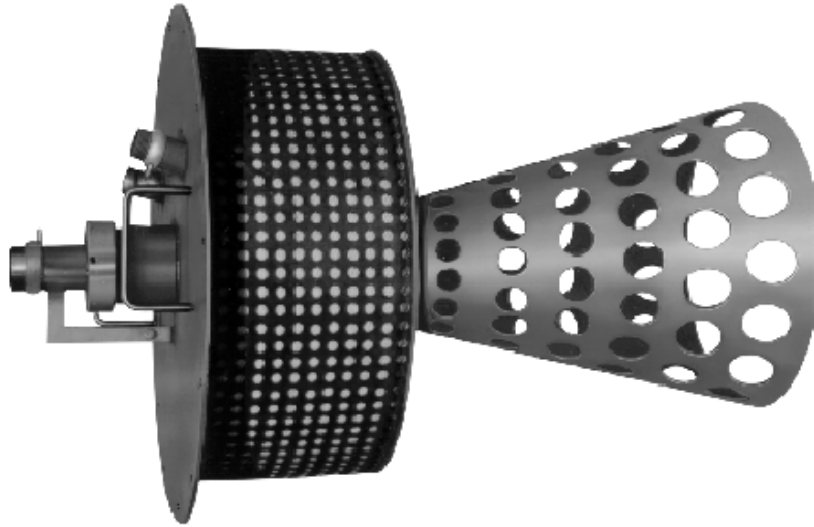
ECLIPSE INFORMATION GUIDE

Info 420

2/10/05

INCINI-CONE BURNER

SERIES "IC"



WARNING

The burners covered in this Guide are designed to mix fuel with air and burn the resulting mixture. All fuel burning devices can produce explosions and fires when improperly applied, installed, adjusted, controlled, or maintained. This Guide provides information for using these burners for their limited design purpose.

Do not deviate from any instructions or application limits in this Guide without written advice from the Eclipse Combustion Division in Rockford, Illinois. Read this entire Guide before attempting to light burners. If you do not understand any part of the information in this Guide, con-

tact your local Eclipse representative or Eclipse Combustion before proceeding further.

Protection from the elements must be provided from the time the Incini-Cone burner leaves the Eclipse factory. Do not store outside. Rain, snow or temperature extremes may damage the burner.

All maintenance and trouble shooting on Incini-Cone burners should be performed by people with good mechanical aptitude and experience with combustion equipment.

Important Notices About Safe Burner Operation

1. Store the burner inside. Exposure to the elements can damage the burner.
2. Adjustment, maintenance, and troubleshooting of the mechanical parts of this unit should be done by people with good mechanical aptitude and experience with combustion equipment.
3. Order replacement parts from Eclipse Combustion only. Customer-supplied valves or switches must have UL, FM, CSA, and/or CGA approval where applicable.
4. The best safety precaution is an alert and competent operator. Thoroughly instruct new operators so they demonstrate an adequate understanding of the equipment and its operation. Regular retraining must be scheduled to maintain a high degree of proficiency. The operator must have easy access to this Information Guide at all times.

1.0 Applications

Eclipse Incini-Cone Burners are gas burners designed primarily for mounting in exhaust ducts where all of the combustion air flows through and by the burner.

These burners provide clean combustion throughout a fuel turndown range of 26:1. They are well suited to

applications requiring a clean, high rate of destruction of volatile organic compounds, smoke and odors.

Do not use choke rings or other turbulence-inducing devices in downstream combustion chambers—they may cause erratic burner performance.

2.0 Flame Monitoring

Flame monitoring must be provided by an ultraviolet scanner. Flame rod monitoring is not acceptable.

Flame sensing equipment should be UL, FM and/or CSA approved.

Refer to Eclipse Information Guide P-30 for specific details on the installation and use of flame monitoring equipment.

WARNING

Failure to use suitable flame sensing devices and automatic fuel shutoff valves can cause violent explosions and fires.

3.0 Fuel and Pilot Air Supply

The information in this guide is based on use of valve trains and/or components shown in Figure 1. It is the customer's responsibility to supply approximately 2 PSIG gas to the inlet when using these valve trains or similar components.

The customer must supply an air source for the pilot in the form of compressed air or other air sources as described in section 4.0. Pilot air consumption is 300 SCFH.

4.0 Combustion Air Supply

- 4.1 Air passing through the burner for combustion must contain 13% or more oxygen.
- 4.2 Eclipse Incini-Cone burners operate at a pressure drop of between 0.5" and 3" w.c.—optimum operation is obtained at 2" to 2.5" w.c. drop.
- 4.3 Profiling of the process stream is required. Refer to the Selection 420 for the necessary diameter of the profile plate orifice.
- 4.4 The maximum upstream temperature to the Incinicone burner is 1100°F. Maximum downstream temperature is 1650°F.
- 4.5 Process stream flow turndown is 2:1, based on a 2" w.c. maximum pressure drop. Turndown can be extended to 2.45:1 with 3" w.c. pressure drop across the burner. Turndown should not be less than 0.5" w.c. pressure drop.

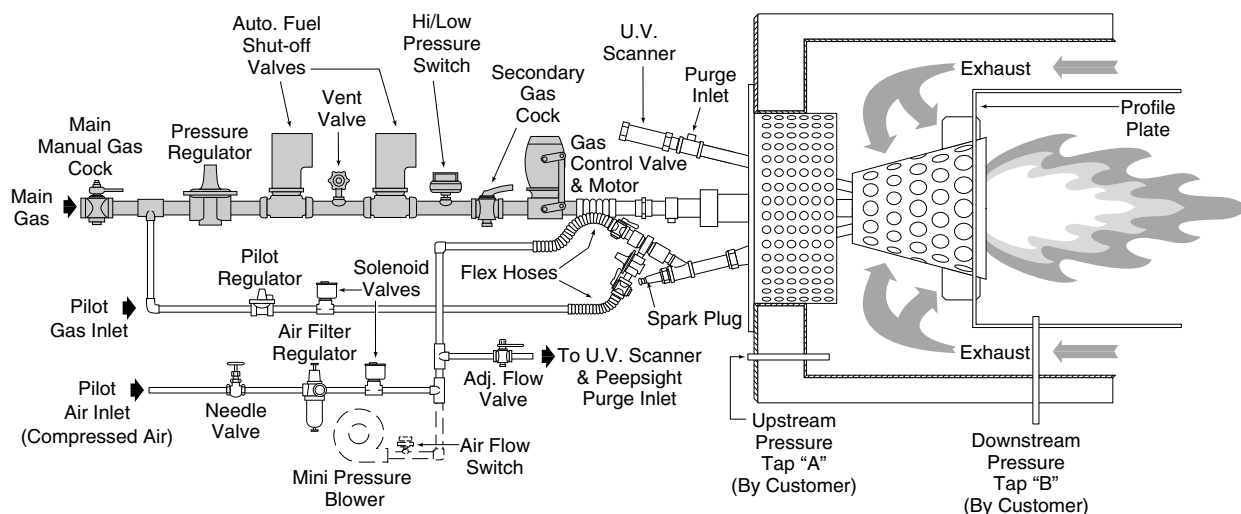
5.0 Installation


- 5.1 See Figure 2 for burner mounting. The bolt hole pattern for the mounting flange is given in Figure 3.
- 5.2 The customer must supply a gasket between the mounting flange and the chamber shell. Eclipse recommends 1/8" thick fiberglass rope or tape.
- 5.3 The burner can be mounted or rotated in any position, and operate in any plane.
- 5.4 Piping and electrical wiring must be done in accordance with all applicable local and/or insurance codes.
- 5.5 The position of the gas gun is adjustable. Suggested starting position is 3" inside the basket, see Figure 3. It will only be necessary to adjust the burner position to overcome low flame signals or burner noise.

6.0 Fuel and Pilot Air Piping

- 6.1 Inspect all field piping during field assembly for foreign material and pipe scale. Clean piping will insure trouble free start-up and operation.
- 6.2 Do not use teflon tape on threaded pipe connections to the burner assembly. Eclipse recommends the use of Loctite® Teflon Pipe Sealant #9231 or equal. Sealant should be supplied according to manufacturer's instruction.
- 6.3 Use suitable brackets and/or hangers to support piping to the burner. Flexible connections on the main gas are mandatory and must allow the gas nozzle at least 6" movement into or out of the burner. Flexible connections are also recommended on the pilot air and gas lines.
- 6.4 Install piping disconnects close to the burner for servicing. Inlet pipe sizes at the burner are adequate for short piping runs. If longer piping runs are required, piping losses must be considered and pipe sizes increased accordingly.
- 6.5 On new installations, gas piping must be purged for air removal.
- 6.6 Purge air should be piped to the UV scanner and peepsight inlets. The burner is supplied with piping tees specifically for purge air. See Figure 2. Provide sufficient purge air to overcome the chamber pressure and keep heat and moisture from working up the sight tubes.

Figure 1–Packaged Valve Train



 = Components supplied in Eclipse packaged valve trains.
All additional components and piping must be customer supplied.

8.0 Pilot Adjustment and Ignition

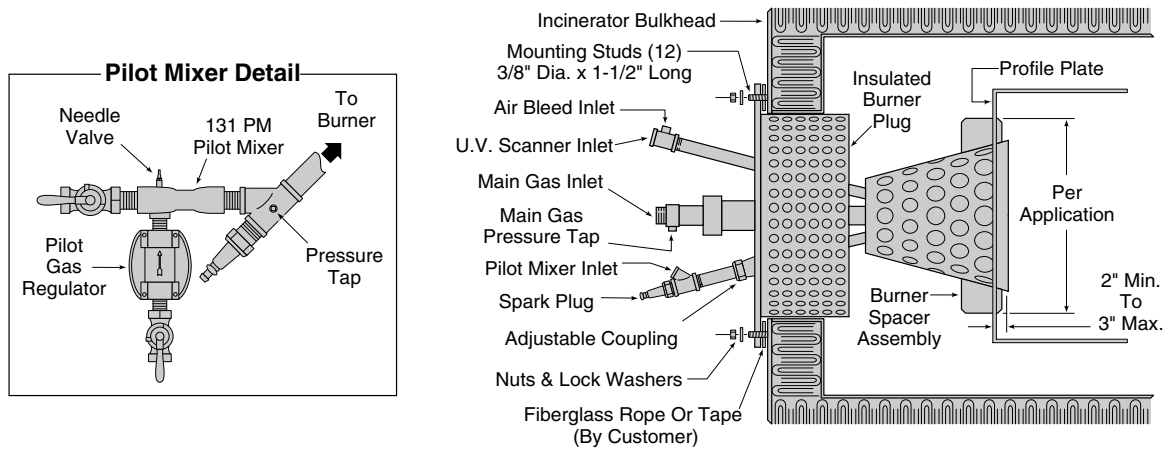
- 8.1 Referring to Figure 1, verify that the secondary gas cock is in the closed position. Open the main manual gas cock, the pilot gas cock and pilot air manual valve. Close the needle valve on pilot mixer (detailed in Figure 2).
- 8.2 The pilot assembly is mounted with an adjustable coupling for more reliable flame monitoring. The best position is when the “Y” fitting is snug against the coupling.
- 8.3 Attach a manometer between the pressure tap downstream of the 131PM pilot mixer and the pressure tap downstream of the burner profile plate (downstream pressure tap “B”, Figure 1). The pressure drop at this point should be 1.5" to 2.5" w.c. The pilot jet selection is determined from the pilot air pressure available. See Table 1.
- 8.4 The gas pressure to the pilot regulator on the pilot mixer assembly should not exceed 14" w.c. when using standard pilot mixer assembly #300558. When chamber pressures exceed 10" w.c., higher pressure pilot regulators and corresponding gas pressures are necessary to overcome the chamber backpressure.
- 8.5 Begin ignition sequence on control panel. Check for spark if possible and opening of pilot gas valve.
- 8.6 Begin opening the needle valve to supply gas to the pilot assembly. Flame can be determined by viewing through peepsight assembly on the burner or by flame signal from the flame relay in the control panel. The pilot flame should be a hard, blue, “torch like” flame. Adjust the flame for a signal sufficient to pull in the flame relay or a steady flame as seen through the peepsight. The flame should not leave the viewing port or flicker on and off.

Table 1

131 PM Pilot Mixer Jet Size	Pilot Air Pressure Required (" w.c.)*
7/32"	47
1/4"	22
9/32"	12

* Pressure required at mixer air inlet when firing into a neutral backpressure. Backpressure must be added to the pilot air pressure.

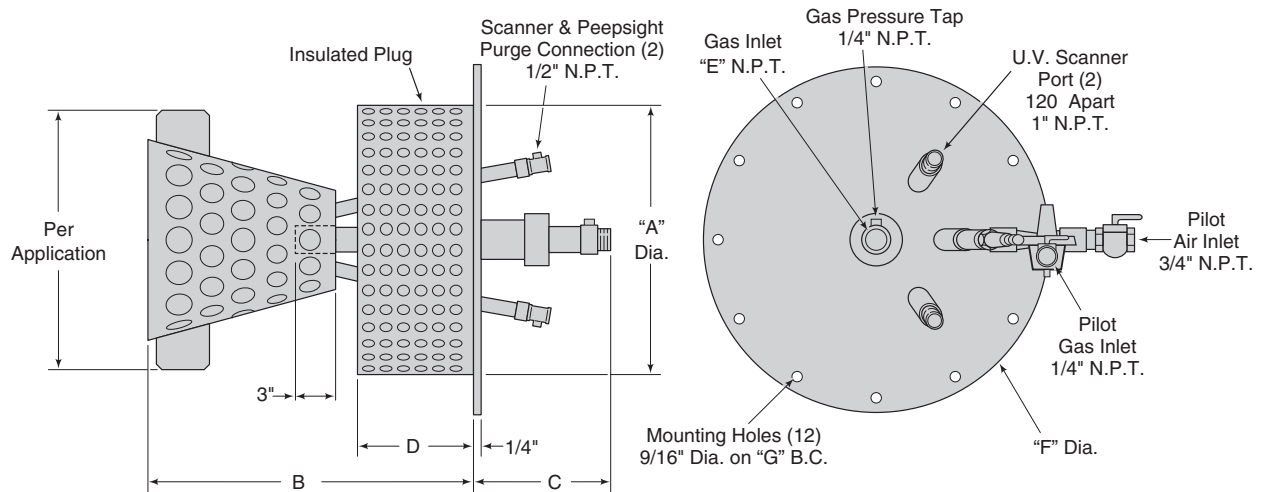
Figure 2—Burner Mounting



9.0 Main Flame Ignition and Adjustment

- 9.1 Once the pilot is established, the main gas flow can be adjusted. Drive the control motor to low fire.
- 9.2 Open the secondary manual gas cock and automatic fuel shutoff valves. Adjust the gas control valve linkage to obtain a stable low fire flame.
- 9.3 Drive the gas control butterfly valve to high fire. With a manometer attached to the main gas nozzle inlet tap and to the downstream pressure tap, set linkage to the butterfly valve to obtain a 30-35" w.c. pressure drop.
- 9.4 Drive the control butterfly valve to low fire and check for a stable low fire flame.
- 9.5 Cycle the temperature control valve to high fire and verify that the pressure drop is consistent with the previous setting. Readjust if necessary.
- 9.6 As the incinerator comes up to temperature, backpressures and combustion air temperatures will change. Make final burner adjustments after the incinerator has reached its normal operating temperature.

Figure 3—Dimensions



Catalog Number	Dimensions In Inches							Weight Pounds
	A	B	C	D	E	F	G	
136 IC	15-1/2	23	6-1/2	10	1	20	18	88
224 IC	19-1/2	25	8-3/4	10	1-1/4	24	22	121
360 IC	23-1/2	28-1/4	6-1/2	10	1-1/2	28	26	132
500 IC	23-1/2	30-1/4	8-3/8	10	2	28	26	150
680 IC	23-1/2	35-3/4	6-3/8	10	2	28	26	176
900 IC	27-3/8	43-1/2	8	12	2-1/2	32	30	214
1480 IC	31-3/8	48-1/4	8	14	3	36-1/2	34-1/4	309



Eclipse Combustion

Offered By:

Power Equipment Company
2011 Williamsburg Road
Richmond, VA 23231
Phone: 804-236-3800 Fax: 804-236-3882

www.peconet.com