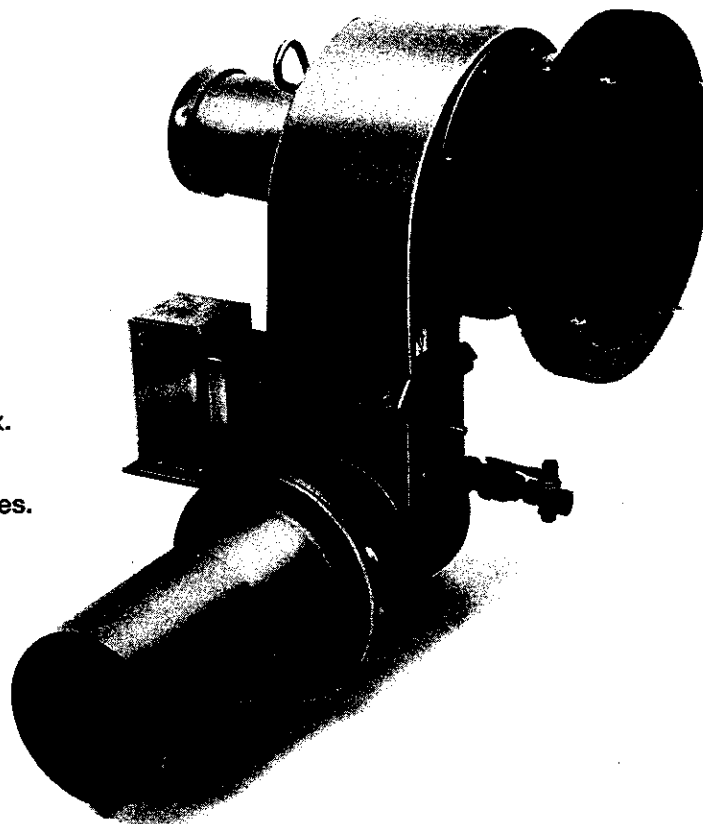


# ECLIPSE RATIOMATIC BURNERS

## With Blower

### Series RM

- High turndown with low excess air.
- Exceptional flame stability.
- Superior NO<sub>x</sub> and CO performance.
- Cross-connected proportioning control.
- Direct drive air valve.
- Burns natural gas, propane, propane/air mix.
- Easy adjustment & maintenance.
- Wide range of configurations and accessories.



*Ratiomatic with  
Optional Filter &  
Control Motor*

### Superior Performance

The Ratiomatic is a nozzle-mixing gas burner specially designed for outstanding performance in process air heating applications such as ovens and dryers. Advantages of the Ratiomatic design include:

- Up to 100:1 turndown with limited excess air at low fire for maximum fuel efficiency.
- Cross-connected proportioning control compensates for changes in operating conditions such as backpressure, draft, or dirty air filters which can upset air/gas ratio in linked-valve systems.
- Stable flame with up to 3000 fpm crossflow, no special firing tube required.
- Nozzle placement releases heat into the chamber, not the oven wall.
- Superior NO<sub>x</sub> and CO performance; ideal for food processing, pharmaceuticals, and other emission-sensitive processes.

### Unmatched Convenience

In addition to great performance, the Ratiomatic design provides simple maintenance and ease-of-use through a combination of features found in no other nozzle-type air heat burner on the market:

- Standard nozzle burns natural gas, propane, propane/air mixes without changing internals.
- Direct drive air valve eliminates troublesome linkage, simplifying set-up and adjustment.
- Burner completely dismantles from the rear for easy maintenance.
- Quick-change spark and flame rods need no trimming or measuring for proper positioning.
- Optional quick change air filters use inexpensive replacement elements.



### ECLIPSE COMBUSTION

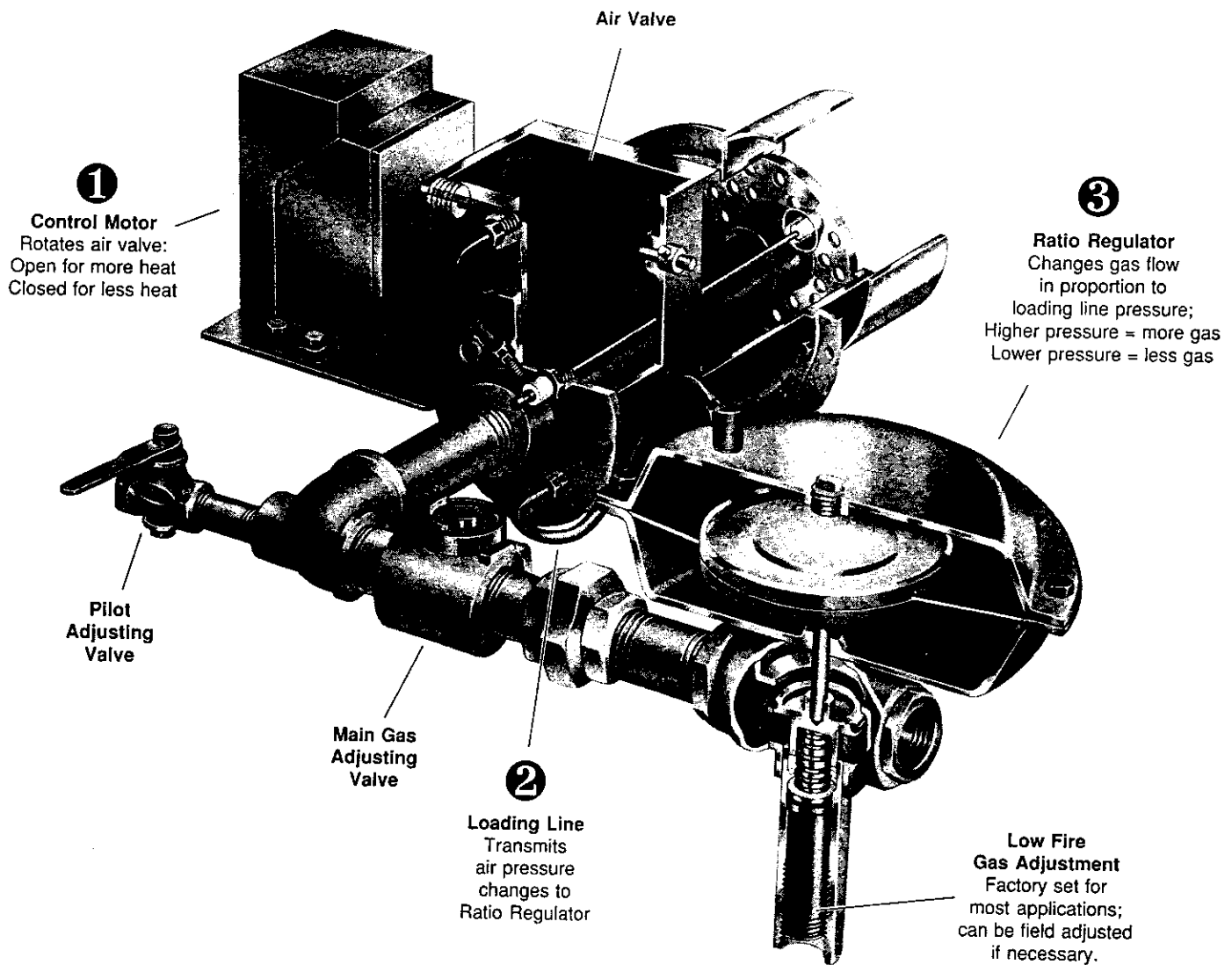
ROCKFORD, ILLINOIS 61103 (815) 877-3031

CANADA: ECLIPSE FUEL ENGINEERING CO.

HOLLAND: FLAMECO-ECLIPSE

ENGLAND: ECLIPSE THERMAL SYSTEMS

# Ratiomatic Control System



## Control Motor Requirements

For most applications, any control motor with 90° travel and a full stroke timing of fifteen seconds or longer may be used. Ovens with high chamber drafts or backpressures may require less than a full 90° stroke. For these situations, Eclipse recommends adjustable stroke motors or motors equipped with travel-limiting auxiliary switches.

## Design Assistance

Eclipse offers one of the most comprehensive lines of combustion equipment available, as well as the knowledge to apply it. We can design a control system to your specifications, pipe and wire it to the burner, and mount the package on any desired support structure—customer supplied or fabricated in our plant.

For expert assistance in designing your combustion system, simply call your nearest Eclipse representative.

## CAUTION

It is dangerous to use any fuel burning equipment unless it is equipped with suitable flame sensing devices and automatic fuel shut-off valves. Eclipse can supply such equipment or information on alternate sources.

# Operating Parameters, Ratiomatics with Standard Blower & Motor

For natural gas, .65 s.g. Contact your Eclipse representative for propane data.

Capacities may be increased by 20% if sufficient secondary air is available to complete combustion.

## English Units

Burner Size		50	100	150	200	300	400	500	750	1000	1250	1500	2000	
Maximum Input, Btu/hr. In Millions	Chamber Pressure Inches w.c.	-5.0	0.70	1.40	2.10	2.90	3.67	4.67	5.50	9.30	12.50	14.60	17.70	23.20
		-3.0	0.65	1.25	1.90	2.50	3.42	4.59	5.50	8.60	11.60	13.80	16.70	22.00
		-1.0	0.55	1.10	1.65	2.20	3.15	4.20	5.19	7.90	10.50	12.90	15.60	20.70
		0.0	0.50	1.00	1.5	2.00	3.00	4.00	5.00	7.50	10.00	12.50	15.00	20.00
		+1.0	0.45	0.90	1.35	1.80	2.85	3.80	4.80	7.10	9.40	12.00	14.40	19.30
		+2.0	0.40	0.80	1.20	1.60	2.68	3.58	4.60	6.70	8.80	11.50	13.70	18.60
Minimum Input, Btu/hr. In 1000's <sup>1</sup>		35	25	30	30	65	65	65	75	100	125	150	200	
Turndown		14:1	40:1	50:1	67:1	46:1	73:1	77:1	100:1	100:1	100:1	100:1	100:1	
Gas Inlet Press. <sup>2</sup>	Minimum " w.c.	7	8	11	16	12	17	14	12	14	20	22	30	
	Maximum psig	1	1	1	1	2	2	2	2	2	2	2	2	
Minimum Pilot Gas Press., " w.c. <sup>3</sup>		6	6	6	6	6	6	6	6	6	6	6	6	
High Fire Flame Length, Inches <sup>4</sup>		24	30	32	36	54	54	60	96	124	144	144	150	
Blower Motor HP		1/3	1/2	3/4	3/4	1-1/2	2	3	5	7-1/2	10	15	20	

## Metric Units

Burner Size		50	100	150	200	300	400	500	750	1000	1250	1500	2000	
Maximum Input, kW	Chamber Pressure mbar	-12.5	205	410	616	850	1076	1369	1612	2726	3664	4279	5188	6800
		-7.5	191	366	557	733	1002	1345	1612	2521	3400	4045	4895	6448
		-2.5	161	322	484	645	924	1231	1521	2315	3107	3781	4572	6067
		0.0	147	293	440	586	879	1172	1466	2198	2931	3664	4397	5862
		+2.5	132	264	396	528	835	1112	1407	2081	2755	3517	4221	5657
		+5.0	117	234	352	469	786	1049	1348	1964	2579	3371	4015	5452
Minimum Input, kW <sup>1</sup>		10.3	7.3	8.8	8.8	19.1	16.1	19.1	22.0	29.3	36.6	44.0	58.6	
Turndown		14:1	40:1	50:1	67:1	46:1	73:1	77:1	100:1	100:1	100:1	100:1	100:1	
Gas Inlet Press. <sup>2</sup>	Minimum mbar	17	20	27	40	30	42	35	30	35	50	55	75	
	Maximum mbar	69	69	69	69	138	138	138	138	138	138	138	138	
Min. Pilot Gas Press., mbar <sup>3</sup>		15	15	15	15	15	15	15	15	15	15	15	15	
High Fire Flame Length, m <sup>4</sup>		0.61	0.76	0.81	0.91	1.37	1.37	1.52	2.44	3.15	3.66	3.66	3.81	
Blower Motor HP		1/3	1/2	3/4	3/4	1-1/2	2	3	5	7-1/2	10	15	20	

<sup>1</sup> With neutral chamber. Will be slightly higher with negative chamber pressure.

<sup>2</sup> At the inlet to the ratio regulator.

<sup>3</sup> At the inlet to the pilot cock.

<sup>4</sup> High fire flame length measured from the end of the firing tube, firing parallel to air flow with neutral chamber pressure. When firing perpendicular to air flow, flame length will be shorter. Contact your local Eclipse representative for details.

## Standard Ratiomatic Equipment & Options

Component	Standard Equipment	Optional Equipment <sup>1</sup>
<b>Blower</b>	<ul style="list-style-type: none"> <li>• Blower w/230/460/3/60 TEFC motor; see page 3 for horsepowers</li> <li>• Inlet grill meets OSHA requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Blower motor with other electrical specs</li> <li>• Air filter with inexpensive, quick-change elements</li> </ul>
<b>Head &amp; Firing Nozzle<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• Cast iron head, alloy combustion tube; up to 800° F.</li> </ul>	<ul style="list-style-type: none"> <li>• Alloy head, alloy combustion tube; 1500° F.</li> <li>• Alloy head, refractory block &amp; holder; 1800° F.</li> </ul>
<b>Control Valves</b>	<ul style="list-style-type: none"> <li>• Cross-connected ratio regulator</li> <li>• Gas adjusting valve</li> <li>• Integral direct-drive air butterfly</li> <li>• Pilot adjusting cock</li> </ul>	<ul style="list-style-type: none"> <li>• FM or IRI type valve trains, with or without regulators</li> <li>• Air valve control motors w/mounting kits</li> <li>• Pilot regulator &amp; solenoid</li> </ul>
<b>Flame Detector</b>	<ul style="list-style-type: none"> <li>• 50–500: Flame rod included</li> <li>• 750–2000: UV Scanner Port; scanner not included</li> </ul>	<ul style="list-style-type: none"> <li>• UV scanners &amp; mounting kits</li> </ul>
<b>Miscellaneous Components</b>	<ul style="list-style-type: none"> <li>• Integral pilot</li> <li>• Ignition plug</li> <li>• Peepsight</li> </ul>	<ul style="list-style-type: none"> <li>• Low &amp; high fire limit switches</li> <li>• Airflow switches</li> <li>• Ignition transformers</li> <li>• Flex hoses</li> </ul>

<sup>1</sup> Most options are factory mounted when ordered with the burner. See "H-95 Options" for detailed descriptions.

<sup>2</sup> Maximum temperatures shown are for average installations. Depending on conditions, higher operating temperatures can be obtained. Contact Eclipse for specific information on your application.

## Ratiomatic Assemblies With Blower

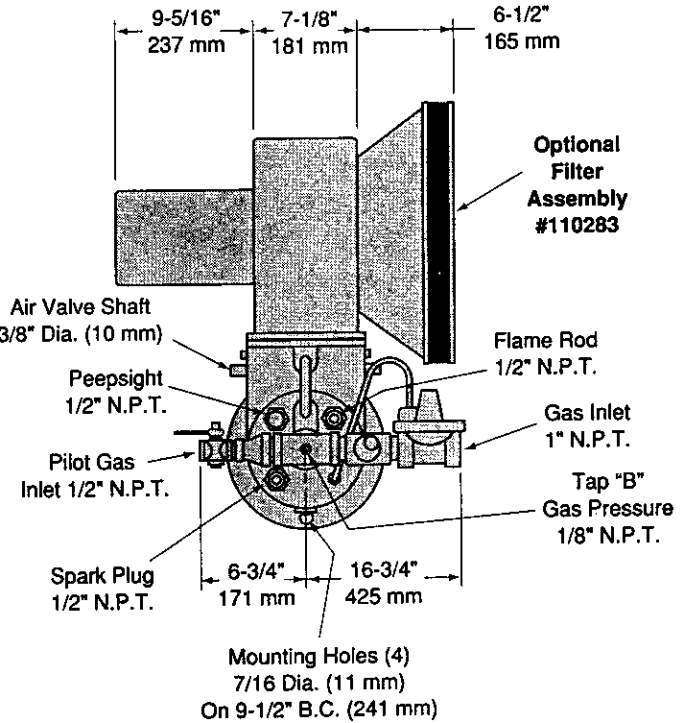
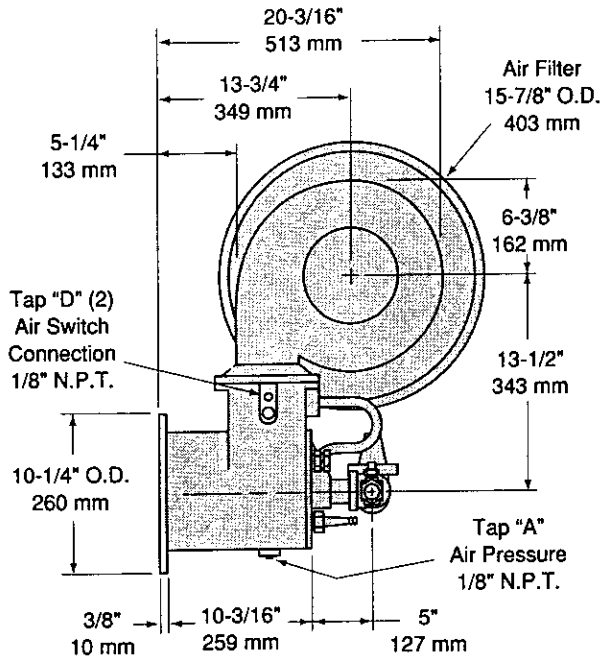
Maximum temperatures shown are for average installations. Depending on conditions, higher operating temperatures can be obtained. Contact Eclipse for specific information on your application.

Burner Size	Cast Head & Alloy Tube 1000° F. Max.		Alloy Head & Alloy Tube 1500° F. Max.		Alloy Head & Refractory Block 1800° F. Max.	
	Motor Left	Motor Right	Motor Left	Motor Right	Motor Left	Motor Right
50	110212	110208	110212-1	110208-1	110160-1	110185-1
100	110213	110209	110213-1	110209-1	110163-1	110186-1
150	110214	110210	110214-1	110210-1	110166-1	110187-1
200	110215	110211	110215-1	110211-1	110169-1	110188-1
300	110195	110189	110195-1	110189-1	110230-1	110229-1
400	110198	110292	110198-1	110192-1	110232-1	110131-1
500	110221	110217	110221-1	110217-1	110234-1	110233-1
750	Not available with cast head.		Contact Eclipse for ordering information.			
1000						
1250						
1500						
2000						

# Dimensions

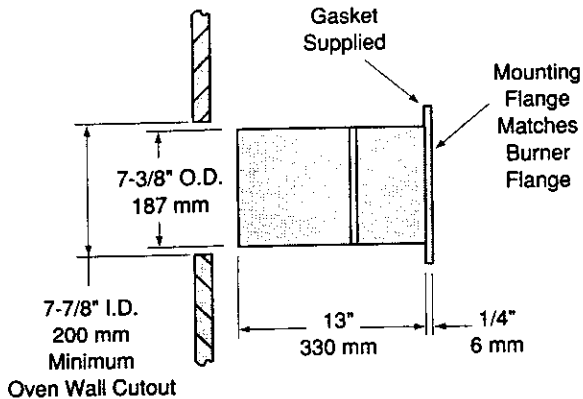
## 50 thru 200 Ratiomatic With Blower

Dimensions are subject to change without notice. Contact Eclipse for certified prints prior to fabrication or installation.

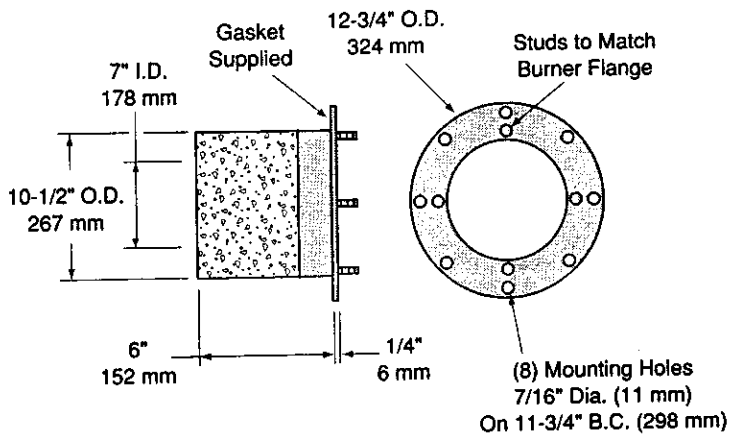


Burner	Motor 230/460/3/60 TEFC		FlameRod/ Spark Plug	
	HP	Part	Burner With Tube	Burner With Block
50 RM	1/3	12109	13581	13837
100 RM	1/2	13101	13581	13837
150 RM	3/4	13151	13581	13837
200 RM	3/4	13151	13581	13837

### Alloy Tube #110184



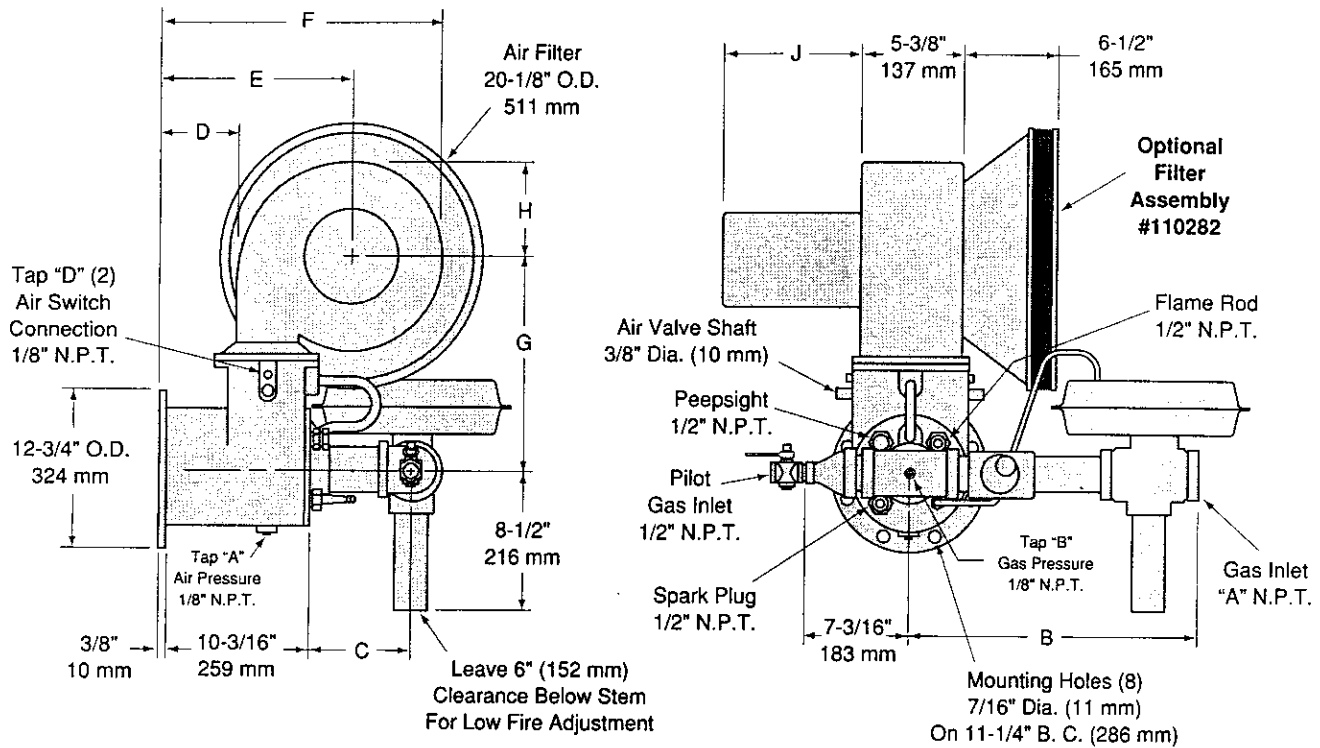
### Block & Holder #187327-61



# Dimensions

## 300 thru 500 Ratiomatic With Blower

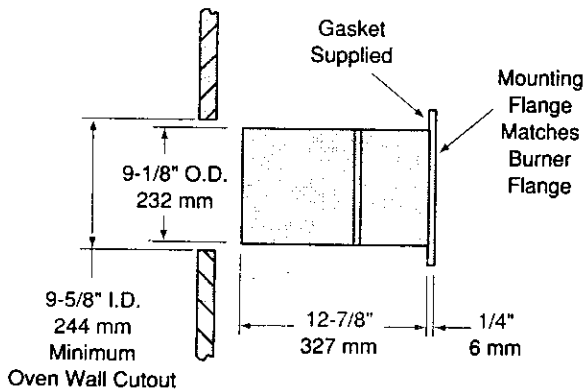
Dimensions are subject to change without notice. Contact Eclipse for certified prints prior to fabrication or installation.



Burner	Units	Dimensions										Motor 230/460/3/60 TEFC		Flame Rod/ Spark Plug	
		A	B	C	D	E	F	G	H	J	HP	Part	Burner With Tube	Burner With Block	
300 RM	Inches mm	1-1/2 38	18-1/4 464	10 254	5-3/8 137	14-7/8 378	23-1/4 591	17-1/4 438	10-1/4 260	9-7/16 240	1-1/2	17229	13581	13837	
400 RM	Inches mm	1-1/2 38	18-1/4 464	10 254	5-3/8 137	14-7/8 378	23-1/4 591	17-1/4 438	10-1/4 260	9-7/16 240	2	17032	13581	13837	
500 RM	Inches mm	2 51	20-7/8 530	8-3/16 208	5-5/16 135	14-13/16 376	24-13/16 630	19-1/4 489	12-1/4 311	12-9/16 319	3	16769	13581	13837	

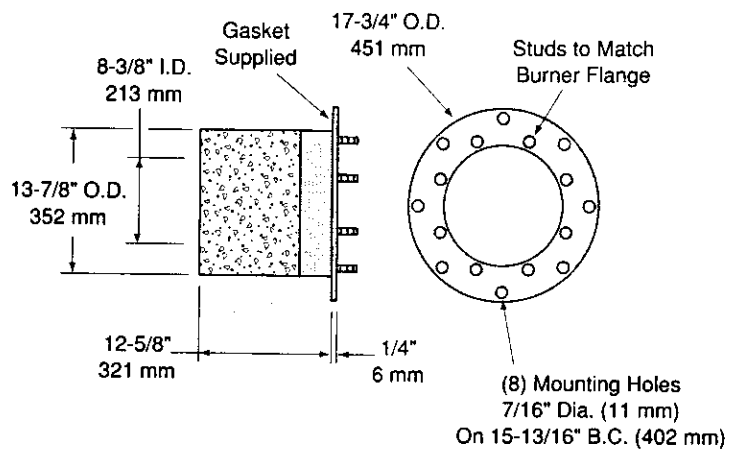
### Alloy Tube

300 RM: 110246  
400 RM: 110247  
500 RM: 110248



### Block & Holder

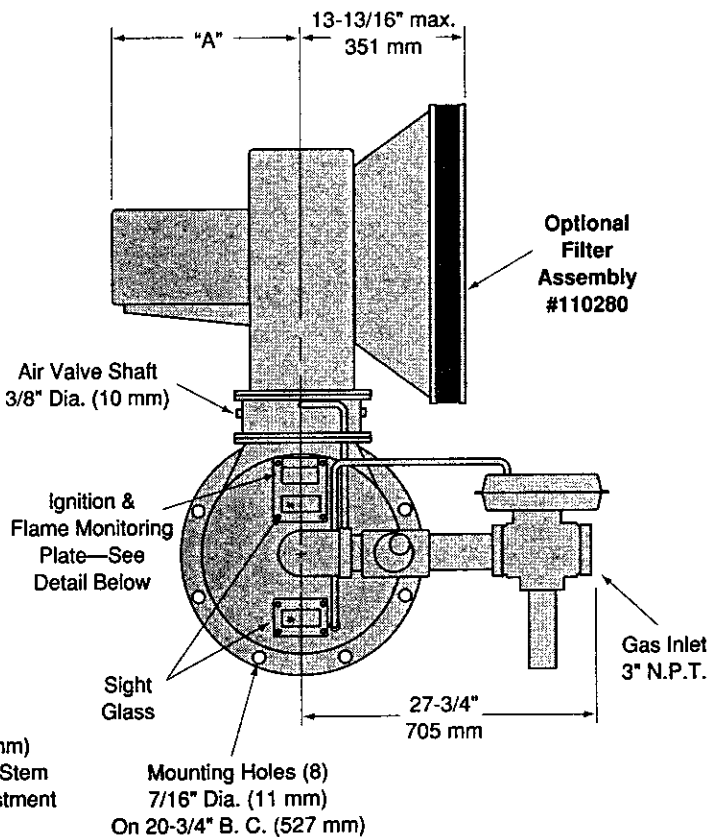
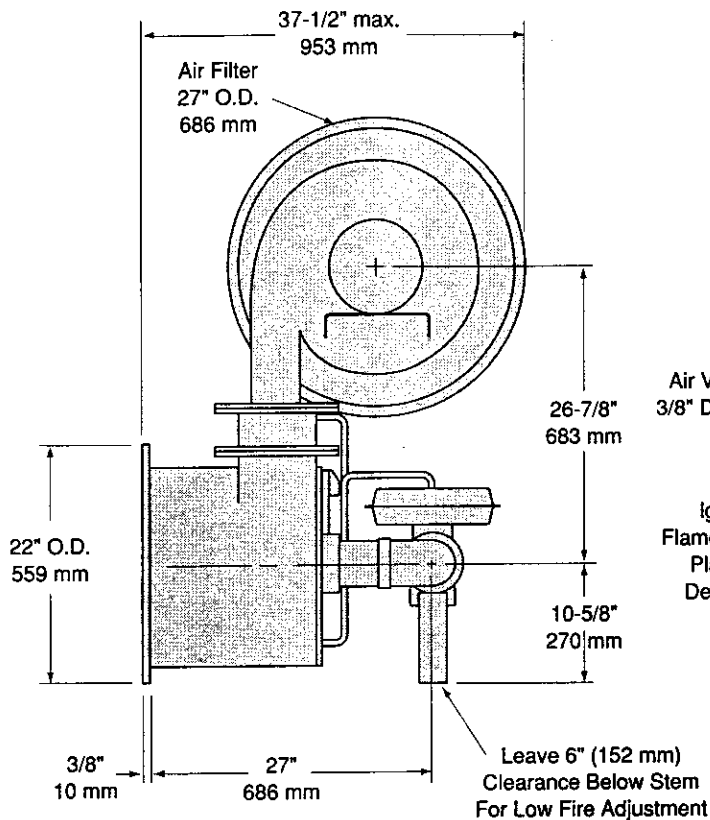
#187150-61



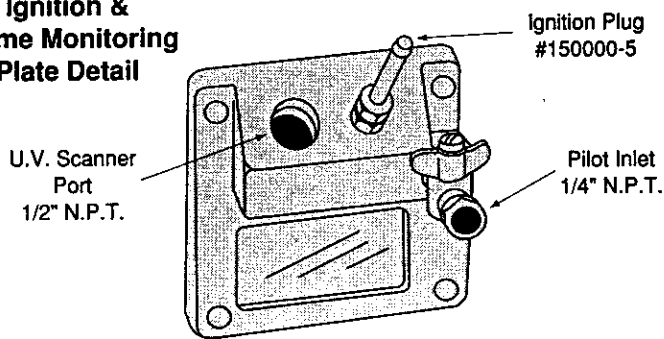
# Dimensions

## 750 thru 1250 Ratiomatic With Blower

Dimensions are subject to change without notice. Contact Eclipse for certified prints prior to fabrication or installation.



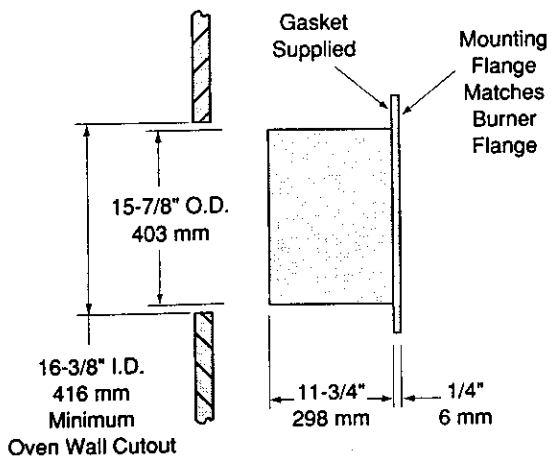
### Ignition & Flame Monitoring Plate Detail



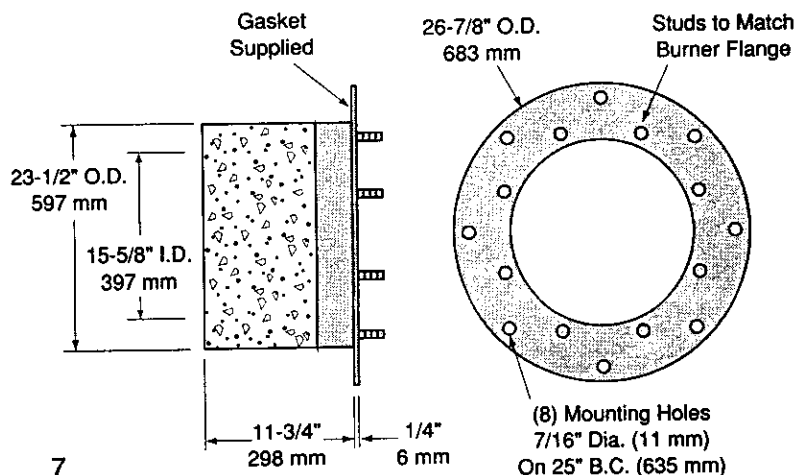
Burner	Motor 230/460/3/60*		Dimension "A"	
	HP	Part	Inches	mm
750 RM	5	11210	21-7/8	556
1000 RM	7-1/2	11215	23-1/4	591
1250 RM	10	11217	23-1/4	591

\*TEFC

### Alloy Tube #110265



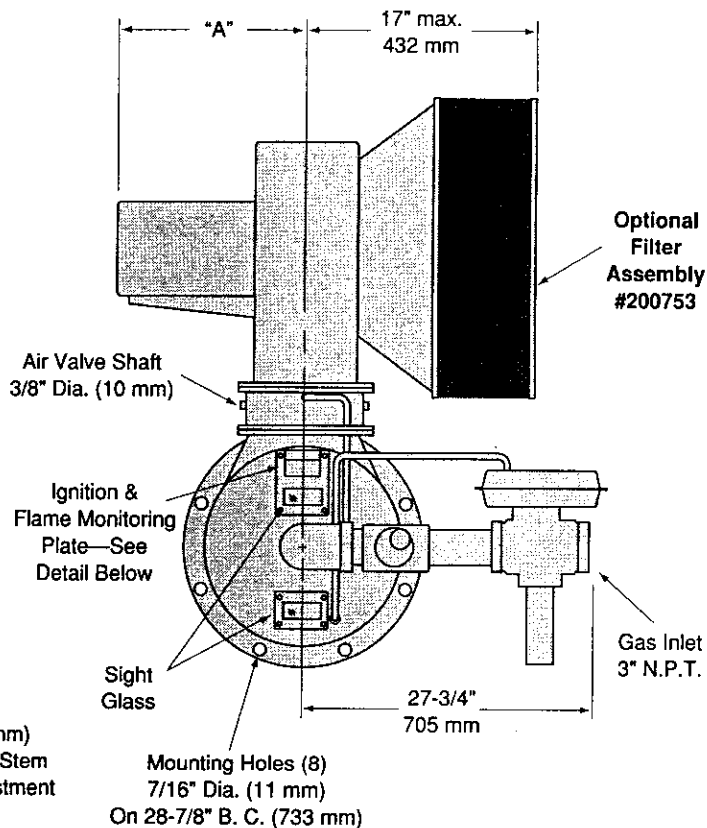
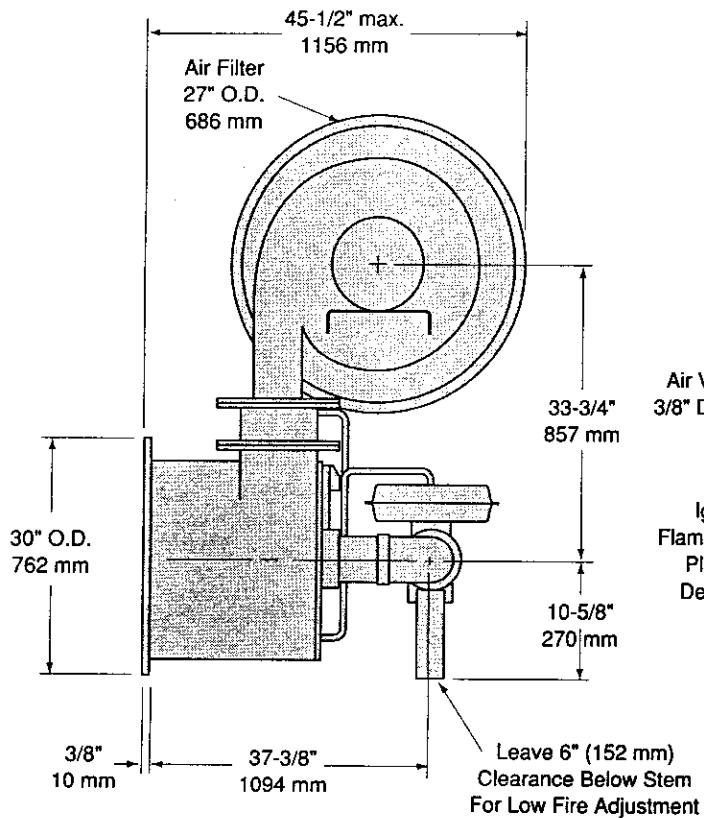
### Block & Holder #187296-61



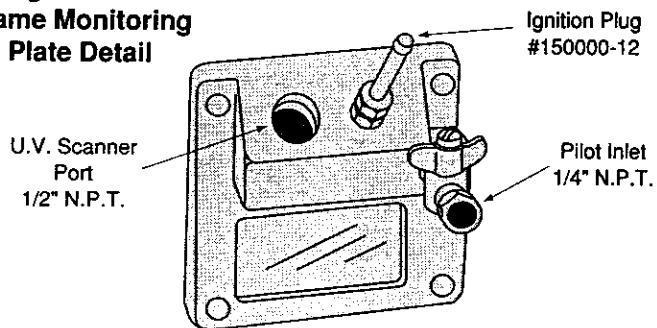
# Dimensions

## 1500 thru 2000 Ratiomatic With Blower

Dimensions are subject to change without notice. Contact Eclipse for certified prints prior to fabrication or installation.



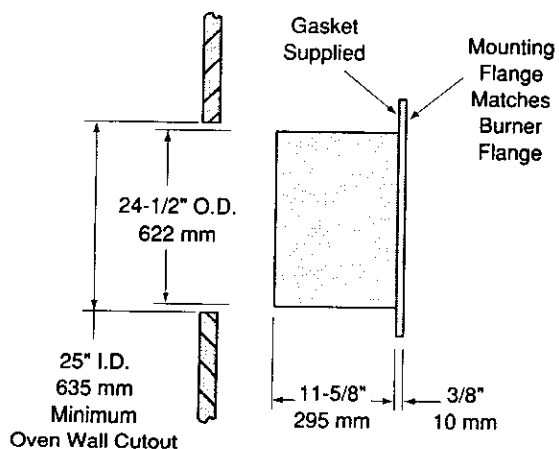
### Ignition & Flame Monitoring Plate Detail



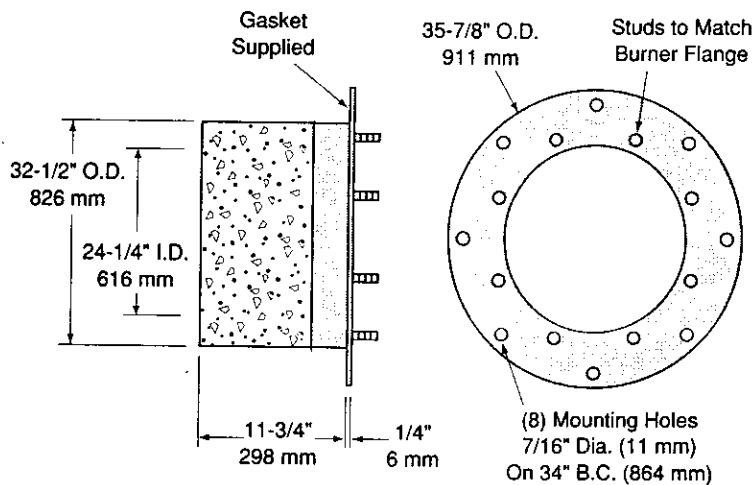
Burner	Motor 230/460/3/60*		Dimension "A"	
	HP	Part	Inches	mm
1500 RM	15	15545	24-3/8	619
2000 RM	20	15559	26-3/4	679

\*TEFC

### Alloy Firing Tube #110281



### Block & Holder #187297-61







**Offered By:**

Power Equipment Company  
2011 Williamsburg Road  
Richmond, Virginia 23231  
Phone (804) 236-3800  
Fax (804) 236-3882

---

[www.peconet.com](http://www.peconet.com)