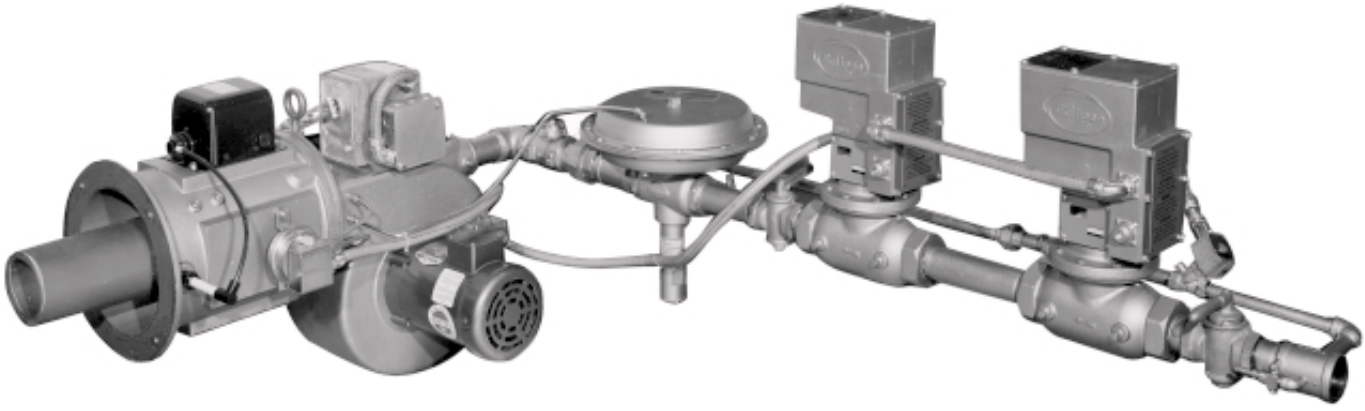
ECLIPSE
IMMERSO-PAK BURNERS
MODEL 100 "IP"



100 IP with
Standard Valve Train

Eclipse Immerso-Pak Burners (IP) are packaged burners that are easy to install, simple to operate, and offer long service life in industrial environments. They are ideal for heating immersion tubes on cleaning tanks, spray washers, salt baths, quenching tanks, tempering tanks, asphalt tanks and similar equipment.

IP burners are available with two different valve train packages, as detailed on page 2. With the standard valve train, simply mount the burner on the immersion tube and connect gas and electricity. To operate the burner, just turn the burner switch on or off as required.

- For 6" through 12" immersion tubes
- Easy to install and operate
- High inputs and transfer rates
- High turndown
- Built for long service life in industrial environments
- Non-loading impeller
- Low maintenance
- Low noise levels
- Electronic flame monitoring
- Choice of valve trains
- Air flow proving switch
- 100% factory tested and adjusted

Specifications

Performance Data

Note: Pressures listed below are for sizing purposes only and must NOT be used for set-up. Use separate metering orifices for burner adjustment.

	Burner Size	Tube I.D.	Max. Input	Flame Length	Gas Inlet Pressure Nat. Gas 0.6 s.g.	Gas Inlet Pressure Propane 1.5 s.g.
English Units	124	6"	1,000,000 Btu/hr.	22 ft.	7.0" w.c.	6.0" w.c.
	132	8"	1,750,000 Btu/hr.	23 ft.	7.0" w.c.	6.0" w.c.
	140	10"	2,750,000 Btu/hr.	29 ft.	10.0" w.c.	7.5" w.c.
	148	12"	4,000,000 Btu/hr.	35 ft.	12.0" w.c.	8.0" w.c.
Metric Units	124	152 mm	293 kW	6.7 m	17.4 mbar	15 mbar
	132	203 mm	513 kW	7.0 m	17.4 mbar	15 mbar
	140	254 mm	806 kW	8.9 m	24.9 mbar	18.7 mbar
	148	305 mm	1172 kW	10.7 m	29.9 mbar	19.9 mbar

Firing Chamber Limits

Operates best with neutral pressure at exhaust end of immersion tube.

Ambient Temperature Limits

-40° to +104°F (-40° to +40°C)

Materials

Burner Body: Aluminum
Blower Housing: Aluminum
Impeller: Aluminum

Packaging Options

Standard Burner: Includes burner, blower with motor, Eclipse 5605-33 flame monitoring relay, electric ignition, transformer, two motorized gas valves, EMP 418-1 control motor, proportionator valve, pilot solenoid valve, pilot gas regulator, peepsight, inlet gas cock, and air flow switch. The package is completely wired and ready to operate.

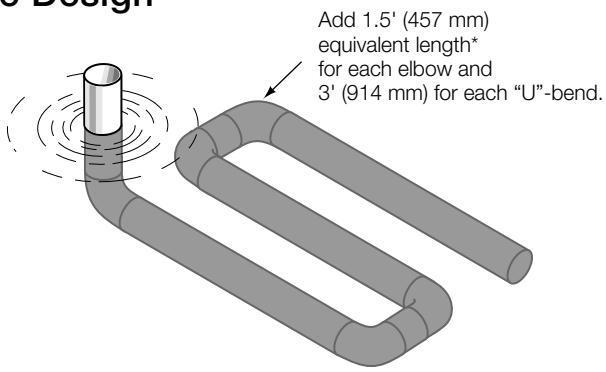
IRI Type Burner: Same as standard burner but with IRI type valve train instead of standard valve train and with all electrical components wired to a marked terminal strip. High and low gas pressure switches are included. Flame monitoring relay is not included with this burner but is normally included in a remote mounted control panel which is available as a separate item. An air flow switch to prove combustion air is mounted on the burner.

Stripped Burner: Has only the burner, blower with motor, spark plug, flame rod and peepsight elbow. The burner is test-fired, but component selection, installation, and wiring must be completed by the customer. Stripped burners are available with the blower housing hanging below the burner, or, if floor clearance won't permit this, with the blower housing above the tube centerline; see Bulletin 355-1.

Flame monitoring equipment supplied with these burners by Eclipse may or may not meet local safety and/or insurance requirements. The owner/user and/or his insurance underwriter must assume responsibility for the acceptance, use, and proper maintenance of flame supervision, limit controls, and other safety devices.

Immersion Tube Design

1. Tubes may be constructed with standard, sweep, or miter elbows.
2. Up to five miter elbows or eleven sweep elbows may be used. Contact Eclipse if more bends are required.
3. The first elbow must be at least ten tube diameters from the burner face.
4. The tube must be long enough to allow complete combustion before flue gases reach the exhaust stack. See the table below for recommended tube lengths.



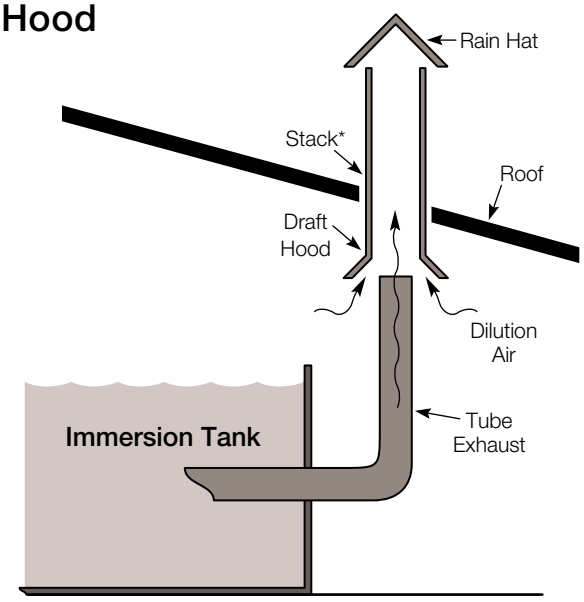
Recommended Tube Lengths for Various Efficiencies

Burner Size	% Efficiency	English Units				Metric Units			
		Capacity, 1000's Btu/hr.		Tube I.D., Inches	Tube Length, Feet*	Capacity, Kw		Tube I.D., mm	Tube Length, m*
		Input	Output			Input	Output		
124	60	1000	600	6	18	293	176	152	5.5
	70	1000	700	6	37	293	205	152	11.3
	75	1000	750	6	48	293	220	152	14.6
132	60	1750	1050	8	23	513	308	203	7.0
	70	1750	1225	8	45	513	359	203	13.7
	75	1750	1315	8	55	513	385	203	16.8
140	60	2750	1650	10	30	806	484	254	9.0
	70	2750	1925	10	59	806	564	254	17.7
	75	2750	2060	10	73	806	604	254	22.2
148	60	4000	2400	12	40	1172	703	305	12.2
	70	4000	2800	12	69	1172	820	305	21.0
	75	4000	3000	12	80	1172	879	305	24.4

* Equivalent length based on straight length plus extra for elbows or "U"-bends as shown in the illustration above. Tube lengths are for the listed efficiencies with the corresponding maximum input. If desired, burner input, tube length, and net heat output may be reduced proportionally while maintaining the same efficiency.

Draft Breaking Hood

1. Use a draft breaking hood as shown. This makes burner operation less susceptible to atmospheric conditions and lowers the temperature of flue gases as they pass through the roof. Provide access between the hood and the tube in case a damper plate must be installed to prevent rumbling.
2. When multiple exhausts are manifolded together into a common stack, alway use draft hoods and size the stack to handle the total exhaust flow from all the burners, plus dilution air. This prevents cross-feeding of pressure between tubes which can cause pilot difficulties, burner instability, rumbling and popping.



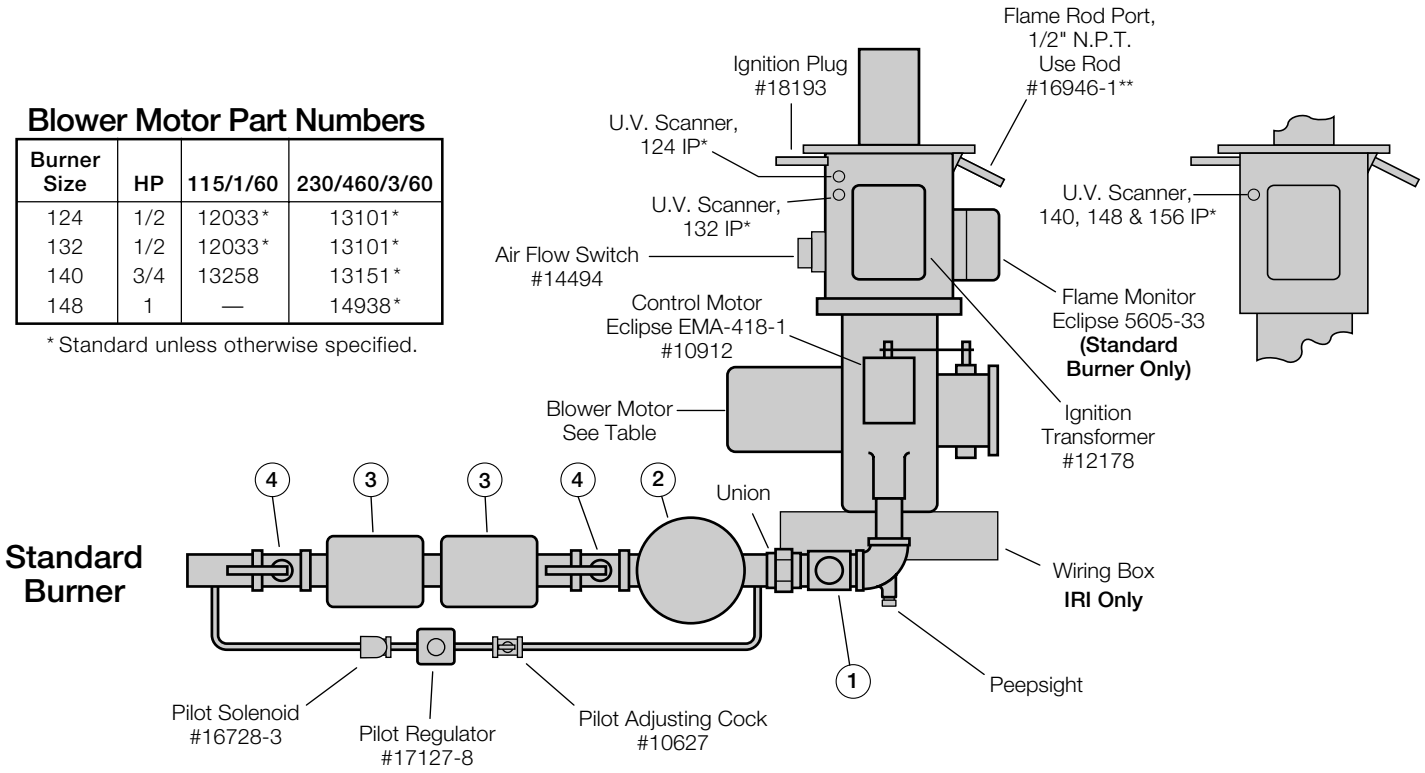
* At least one pipe size larger than the tube exhaust. See applicable codes for required size and height.

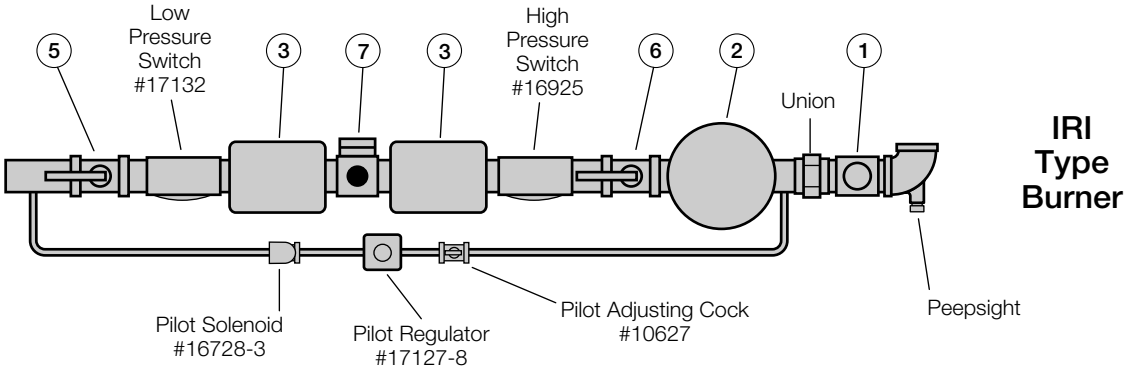
Parts List

Blower Motor Part Numbers

Burner Size	HP	115/1/60	230/460/3/60
124	1/2	12033*	13101*
132	1/2	12033*	13101*
140	3/4	13258	13151*
148	1	—	14938*

* Standard unless otherwise specified.





* All U.V. scanner ports are 1/2" N.P.T. Install the scanner in these ports when it is substituted. for a flame rod.

** Cut the electrode length to 4-1/2" (114 mm) for the 124 & 132 IP, and 5" (127 mm) for the 140, 148 & 156 IP

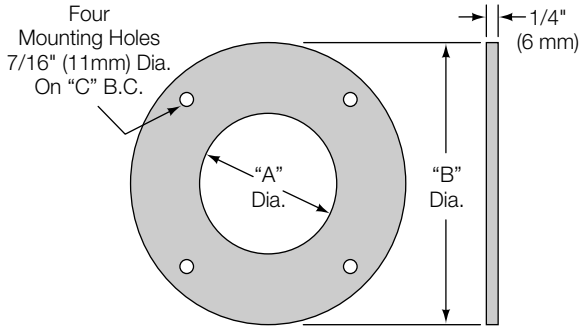
Item	Function	Description	124 IP	132 IP	140 IP	148 IP
1	Gas Adjusting Valve	Butterfly Valve	500982	500990	500991	500991
2	Proportionator	Eclipse ABP	500626	500626	500627	500627
3	Automatic Gas Shut-Off	Eclipse MV Valve	501374	501374	501376	501376
4	Manual Shut-Off	Gas Cock101357	101357	10372	10372	10372
5	Manual Shut-Off	Lubricated Gas Cock	19794	19794	19795	19795
6	Manual Shut-Off	Gas Cock w/Taps	14918	14918	14926	14926
7	Vent Valve	ASCO Solenoid	16702-1	16702-1	16702-2	16702-2

Burner Assembly Numbers

Standard		IRI Type	
Catalog No.	Assy. No.	Catalog No.	Assy. No.
124 IP	112250	124 IP-IRI	112272
132 IP	112251	132 IP-IRI	112273
140 IP	112252	140 IP-IRI	112274
148 IP	112253	148 IP-IRI	112275

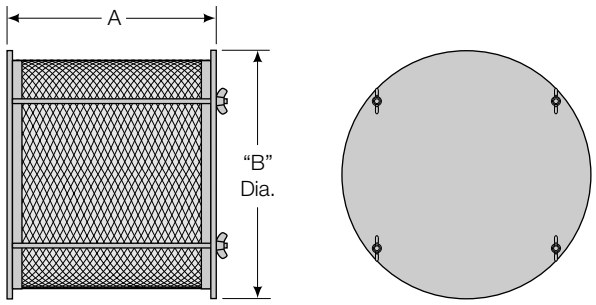
Options

Immersion Tube Companion Flanges



Burner	Dimensions					
	A		B		C	
	Inches	mm	Inches	mm	Inches	mm
124	6-11/16	170	11-7/8	302	10-11/16	271
132	8-11/16	221	11-7/8	302	10-11/16	271
140	10-13/16	275	14-7/8	378	14	356
148	12-13/16	325	14-7/8	378	14	356

Air Filters



Used On Burner	Cat. No.	Assy. No.	Dimension "A"		Dimension "B"		Replace. Element No.
			Inches	mm	Inches	mm	
124 IP	1-IPF	112261	7-11/16	195	10-3/16	259	12936
132 IP	1-IPF	112261	7-11/16	195	10-3/16	259	12936
140 IP	2-IPF	112262	10-1/2	267	13-1/4	337	14639
148 IP	3-IPF	112263	14-1/2	368	14-3/4	375	14640

Control Panels

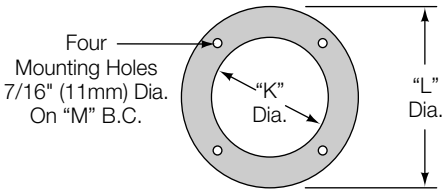
Panel Type	Description
CC1	NEMA 12 enclosure with flame safety relay, three lights (power on, pilot on and burner on), on-off switch, fuse block with fuse motor starter*, non-return of ignition and terminal strip
CC2	Same as CC1, plus 0-5 minutes prepurge timer
CC3	Same as CC2. plus low fire start
CC4	Same as CC3, plus alarm silencing relay and unmounted alarm horn

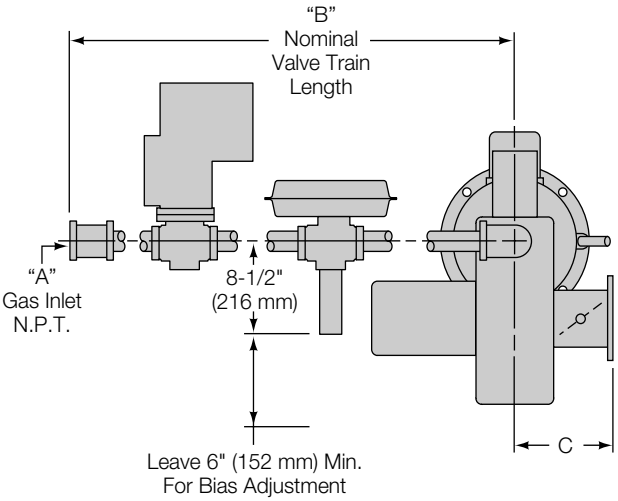
* Panels include thermal element with relay for use with 115 volt single phase motor. If a three phase motor is required, specify and contact factory for price. A step-down transformer will be required for a three phase starter.

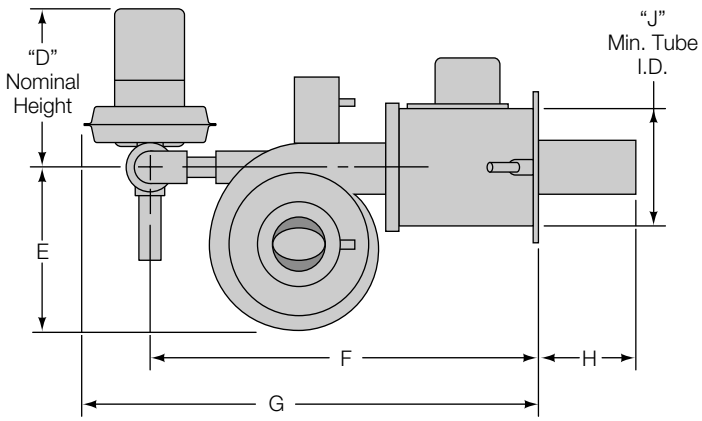
Control panels are for remote mounting because they are too large for burner mounting. The flame safety relay has been removed from the burner, mounted in the panel and replaced by an enclosed terminal strip on the burner. Wiring from the panel terminal strip to the burner terminal strip must be customer supplied. Terminal strips will always have at least two—but no more than four—additional terminals. **Panels are not guaranteed to meet local insurance code requirements**. Wiring diagrams are available for approval after the order is received. Consult the factory for flame safety relays other than the standard supplied on the package burner.

Dimensions

Mounting Flange Details







Valve Train Type	Burner Size	Dimensions In Inches											
		A	B	C	D	E	F	G	H	J	K	L	M
Standard	124	1-1/2	60-5/16	7-3/4	15-1/16	12-15/16	31-7/8	38-15/16	6	6	8-3/4	11-13/16	10-11/16
	132	1-1/2	60-5/16	7-3/4	15-1/16	12-15/16	31-7/8	38-15/16	8	8	8-3/4	11-13/16	10-11/16
	140	2	56	9-15/16	17-1/4	15-1/4	34-3/8	41-9/16	5-1/8	10	12	14-7/8	14
	148	2	56	9-15/16	17-1/4	15-1/4	34-3/8	41-9/16	5-1/8	12	12	14-7/8	14
IRI	124	1-1/2	72	7-3/4	13-7/8	12-15/16	31-7/8	38-15/16	6	6	8-3/4	11-13/16	10-11/16
	132	1-1/2	72	7-3/4	13-7/8	12-15/16	31-7/8	38-15/16	8	8	8-3/4	11-13/16	10-11/16
	140	2	79-3/16	9-15/16	13-3/16	15-1/4	34-3/8	41-9/16	5-1/8	10	12	14-7/8	14
	148	2	79-3/16	9-15/16	13-3/16	15-1/4	34-3/8	41-9/16	5-1/8	12	12	14-7/8	14

Valve Train Type	Burner Size	"A" N.P.T. (Inches)	Dimensions In Millimeters										
			B	C	D	E	F	G	H	J	K	L	M
Standard	124	1-1/2	1532	197	383	329	810	989	152	152	222	300	271
	132	1-1/2	1532	197	383	329	810	989	203	203	222	300	271
	140	2	1422	252	438	387	873	1057	130	254	305	378	356
	148	2	1422	252	438	387	873	1057	130	305	305	378	356
IRI	124	1-1/2	1829	197	352	329	810	989	152	152	222	300	271
	132	1-1/2	1829	197	352	329	810	989	203	203	222	300	271
	140	2	2011	252	335	387	873	1057	130	254	305	378	356
	148	2	2011	252	335	387	873	1057	130	305	305	378	356

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