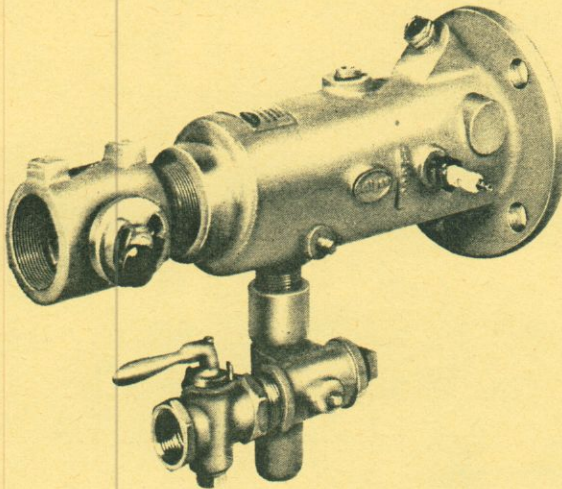


ECLIPSE INFORMATION GUIDE
THERMAL BLAST AIR HEATERS
SERIES "TBH"

Info 125

10/83

formerly HI-44-3



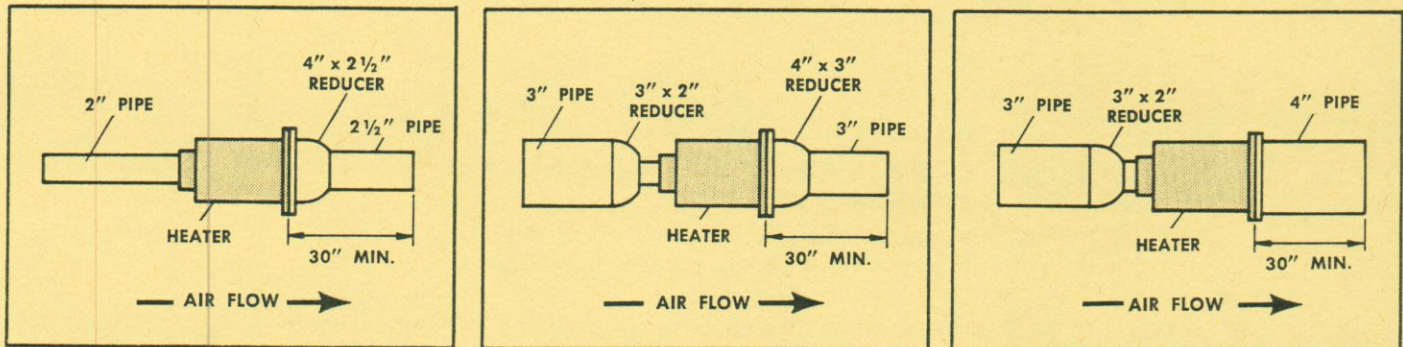
COMPLETE HEATER

Eclipse Thermal Blast Air Heaters are high temperature, high pressure, air heaters designed to produce 50 to 400 scfm of heated air with a temperature rise of 300° to 1600°F. at pressures up to 50 psi. They are suitable for a wide range of industrial heating and drying applications. These include: mold and core box heating, water dry-off, paper and fabric drying, plastic treating, food processing, air curtains, and aggregate drying.

CAUTION: It is dangerous to use any fuel burning equipment unless it is equipped with suitable flame sensing device(s) and automatic fuel shut-off valve(s). Eclipse can supply such equipment or information on alternate sources.

1.0 MOUNTING THE BURNER

- 1.1 Bolt burner mounting flange to proper sized transition fitting for required scfm heated air.
(See Figure 1.)



50 - 130 SCFM HEATED AIR

131 - 300 SCFM HEATED AIR

301 - 400 SCFM HEATED AIR

FIGURE 1

2.0 GAS AND AIR PIPING

- 2.1 Support the gas and air lines by means of suitable brackets or hangers. DO NOT use the burner to support piping.
- 2.2 Connect the gas and air lines to the burner using a manual valve and union in each line to facilitate easy removal of burner when required.
- 2.3 Make sure gas and air lines are of adequate size. Keep piping runs as short and straight as possible to avoid excessive pressure losses.
- 2.4 Gas control valve should be as close to the burner as possible. A long run of line between the control valve and the burner provides a column of gas that can be compressed and decompressed with slight changes in discharge manifold pressure. Under some conditions, this can make the burner pulsate.



3.0 IGNITION METHODS

3.1 TBH burners should be directly ignited by means of the ignition plug provided. Ignition voltage should be 6000VAC at 120VA minimum.

4.0 FLAME SAFETY

4.1 Flame safety may be provided by using either a flame electrode or an ultra-violet scanner to monitor the flame. (See Figure 2.)

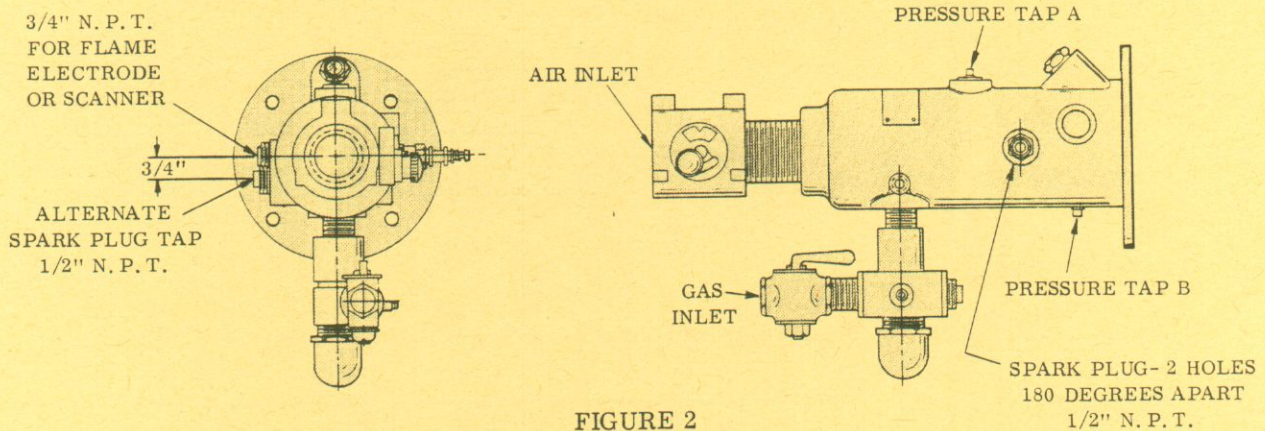


FIGURE 2

5.0 OPERATION

5.1 In order to apply the Thermal Blast Heater to a system requiring hot air under pressure, it is only necessary to select an air supply which will overcome the piping losses, pressure drops through the burner, and pressure in the discharge manifold. The gas pressure must also be capable of overcoming the same type of losses. (See Figure 4.)

5.2 Control of the discharge air temperature is accomplished by controlling the gas only, either by the use of a drive motor and gas valve arrangement or by the use of a high/low solenoid. (See Figure 3.)

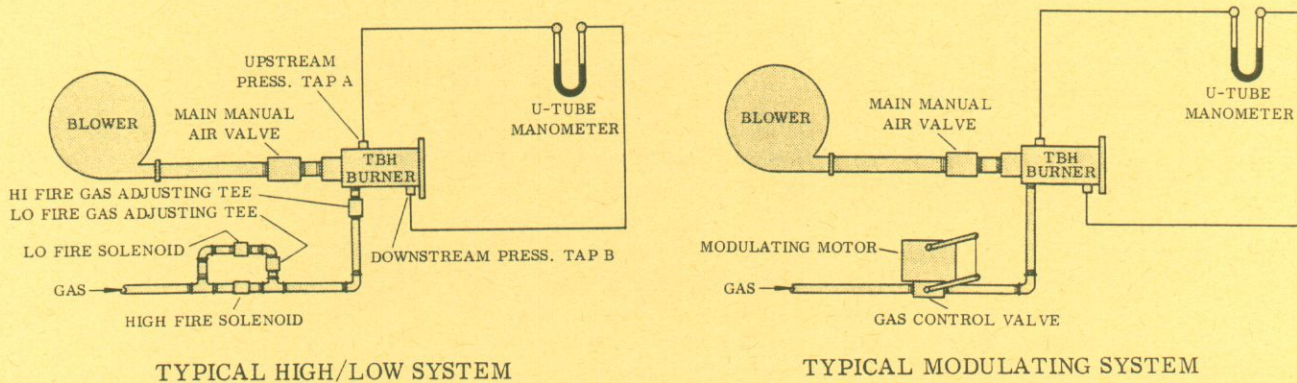


FIGURE 3

CAPACITIES

| BURNER CATALOG NUMBER | SCFM HEATED AIR | MIN. GAS PRESS. IN "W. C. ABOVE DISCHARGE PRESS. | BTU/HR. 1600° F. TEMP. RISE* | BTU/HR. 800° F. TEMP. RISE* | BTU/HR. AT MIN. TEMP. RISE** | MINIMUM TEMP. RISE | MAXIMUM DISCHARGE PRESSURE*** IN "W. C. FOR VARIOUS BLOWER PRESSURES | | | | | | |
|-----------------------|-----------------|--|------------------------------|-----------------------------|------------------------------|--------------------|--|--------|--------|--------|--------|--------|--------|
| | | | | | | | 8 oz. | 12 oz. | 16 oz. | 20 oz. | 24 oz. | 32 oz. | 48 oz. |
| 84-10TBH | 50 | 4.5 | 86,500 | 43,250 | 16,000 | 300° F | 10 | 17 | 24 | 31 | 38 | 52 | 79 |
| | 100 | 5.5 | 173,000 | 86,500 | 32,000 | 300° F | 8 | 15 | 22 | 29 | 36 | 50 | 77 |
| | 150 | 7.0 | 259,000 | 129,000 | 48,000 | 300° F | 5 | 12 | 19 | 26 | 33 | 47 | 74 |
| | 200 | 9.5 | 345,000 | 172,500 | 64,000 | 300° F | -- | 8 | 15 | 22 | 29 | 43 | 70 |
| 84-14TBH | 250 | 7.5 | 432,000 | 216,000 | 80,000 | 300° F | -- | 7 | 14 | 21 | 28 | 42 | 69 |
| | 300 | 9.0 | 518,000 | 259,000 | 110,000 | 340° F | -- | 3 | 10 | 16 | 23 | 38 | 65 |
| | 350 | 7.0 | 605,000 | 302,500 | 137,000 | 362° F | -- | -- | 8 | 15 | 22 | 36 | 63 |
| | 400 | 8.5 | 692,000 | 396,000 | 166,000 | 384° F | -- | -- | 3 | 10 | 17 | 31 | 58 |

*Inputs do not take into consideration manifold heat loss. Actual inputs will be higher by amount of heat loss.
 **Temperature rise does not take into consideration manifold heat loss. Actual rise will be somewhat less.
 *** Delivery pressure based on 10' of pipe between blower and burner. Loss in extra pipe length must be subtracted from delivery pressure. Loss through bell reducer has been considered in above table.

6.0 BURNER START-UP

FIGURE 4

- 6.1 Connect a U-tube manometer across the upstream and downstream pressure taps provided in the burner body. (See Figure 3.)
- 6.2 The differential pressure measured by the U-tube manometer will actually be a pressure drop across the burner nozzle. By using the graph in Figure 5, it will be possible to set the exact scfm air flow through the burner and into the system.

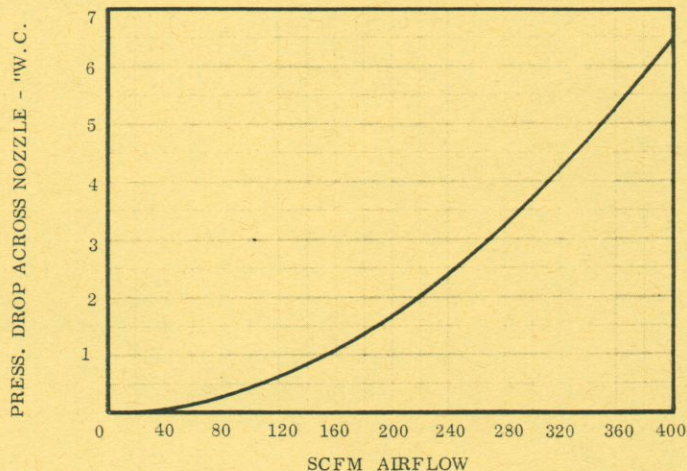


FIGURE 5

- 6.3 Adjust the main manual air valve to give the pressure drop on the U-tube manometer corresponding to the required scfm flow through the burner for your particular application.
- 6.4 The high fire gas adjusting tee or similar device on a high/low system, or the gas control valve on a modulating system should be in the fully closed position.
- 6.5 After establishing spark at the burner ignitor, open the manual gas valve to the system. Slowly open either the high fire gas adjusting tee on the high/low system, or the gas control valve on the modulating system until the burner lights.
- 6.6 Adjust the high fire rate to provide the desired air temperature for the application.
- 6.7 Re-check the reading on the U-tube manometer and in most cases, this reading has decreased due to the back pressure created by the combustion. It will be necessary to open the air control butterfly slightly to bring the differential on the U-tube manometer back to the original cold setting. The butterfly can now be locked in position and requires no further adjustment.
- 6.8 On some very restricted and close coupled systems, it is possible that the burner exhaust may produce a fluttering sound. This, in no way, affects the combustion of the burner.



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